

PHYSICS

2021



COMPANY PROFILE

We are thankful to our esteemed customers for their continuous support and are proud to present our Physics 2021 catalog. The catalogue has many new products including Experimental setup for Higher Science, These has been developed with the active cooperation of renowned Physicists and subject matter experts from around the world.

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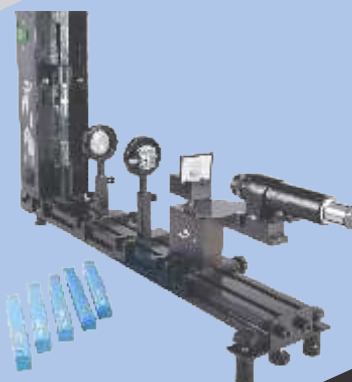


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2021



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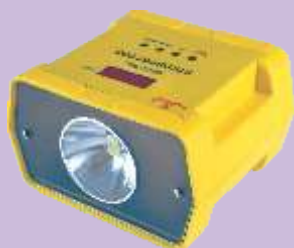
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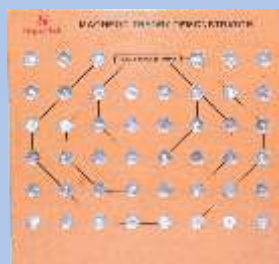
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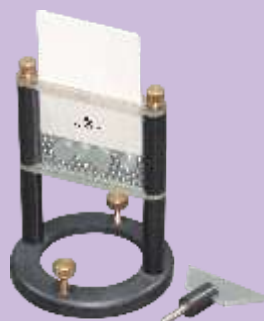
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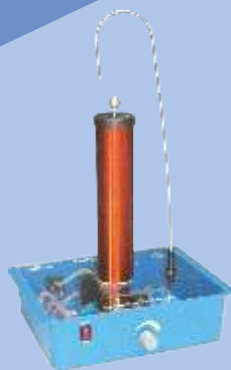
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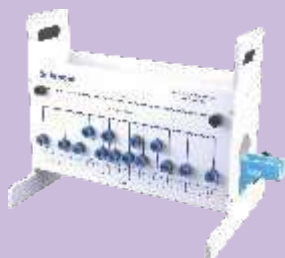
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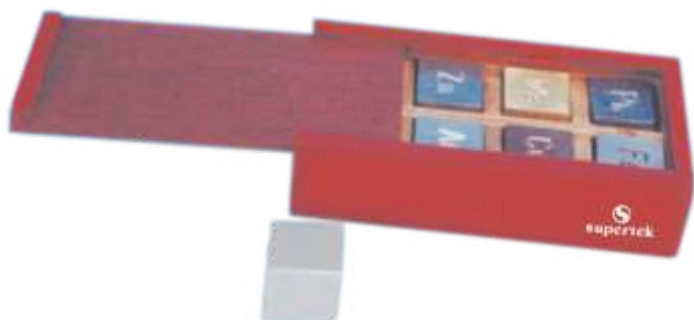
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CUBES, METAL, ASSORTED

Set of seven, comprising Brass, Copper, Aluminium, Iron, Lead, Zinc and Tin cubes.

PH10035/1 10 mm

PH10035/3 20 mm



DENSITY SET

A set of 10, one inch density cubes in a storage box. Materials included are: Acrylic, Aluminium, Brass, Copper, Maple, Nylon, Pine, Poplar, PVC and Steel.

PH10040



DENSITY CUBES

Set of four one inch density cubes containing one each of Nylon, Acrylic, Aluminium and Pine wood.

PH10036



DENSITY IDENTIFICATION SET, SET OF 12

Set of different half-inch diameter specimens of varying lengths, supplied in a wood storage block. The set includes cylinders of Aluminium, Brass, Copper, Glass, Hard Rubber, Delrin, PVC, Acrylic, Teflon, Nylon, Maple and Pinewood.

PH10043



MOLE SET

The four specimens in this set helps the students to explain concept of mole. The Mole set contains four element specimens: Copper, Iron, Zinc and Aluminium. Each sample contains one mole, 6.02×10^{23} atoms of the element.

PH10037



DENSITY IDENTIFICATION SET, SET OF 15

The set consists of specimens of 15 different types of materials. Students measure the mass, length and volume to determine the density of each of the materials. Set contains a sturdy storage base with one sample each of Walnut, Pine, Maple, Polypropylene, Polyethylene, Polyamide, Acrylic, Polyurethane, Phenolic, Polyvinylchloride, Delrin, Aluminium, Brass and Copper. Samples are stamped with a letter code for easy identification. Instructions included.

PH10044



DENSITY SAMPLES

Set of half-inch diameter density cylinders, consists of 12 specimens of the same material but varying lengths, stored in a wood base. Includes a set each of Aluminium, Brass, PVC and Polypropylene. Set of 48.

PH10048



EQUAL MASS SET

To demonstrate the inverse relationship between density and length. The specimens, Aluminium, Copper, Nylon, Polyvinylchloride and Polyethylene, are all 12 mm in diameter with 15 gm mass. Length range from 15 to 100 mm. Instructions are included.

PH10045



MATERIAL KIT, SOLIDS

Consists of two each of the seventeen blocks as follows:

- Blocks, 50 x 40 x 30 mm: Softwood, Hardwood, Paraffin wax, Aluminium, Iron and Polystyrene.
- Blocks, 20 x 20 x 100 mm: Perspex, Glass, Slate, Aluminium, Softwood, Marble.
- Block, 50 x 50 x 20 mm: Lead.
- Block, 50 x 50 x 80 mm: Aluminium.
- Block, 50 x 50 x 200 mm: Hardwood.
- Block, 20 x 20 x 50 mm: Brass.
- Block, 40 x 40 x 20 mm: Iron.

PH10051



SPECIFIC GRAVITY METAL SPECIMEN SET

Four cylinders of Copper, Brass, Steel and Aluminum, each 13 mm diameter x 50 mm long.

PH10046



DENSITY BLOCK SET

Consists of four 1-1/4" metal blocks of equal volume, with brass hook. Includes one each of Copper, Steel, Brass and Aluminum. Used for specific gravity, density and measurement education.

PH10052

Best Seller



DENSITY BLOCKS CONSTANT VOLUME

To understand relationship between mass and volume, Set consists of nine blocks of size one cubic inch. Each block is made of a different material, including Maple, Pine and three different types of Plastic, Aluminum, Copper, Steel and Brass. With instruction manual.

PH10056



EQUAL MASS DENSITY CUBES

To demonstrate inverse relation between density and volume. Set of 5 metal cubes, Copper, Aluminum, Zinc, Iron and Brass of equal mass 20 gm.

PH10054



DENSITY BLOCKS CONSTANT MASS

To understand relationship between mass and density, each block has approximately the same mass 20g, the size of each block is different because the density of each is different. The set includes one each of Pine, Maple, PVC, Nylon, Acrylic, Aluminum, Copper, Brass and Steel. Includes Instruction manual.

PH10057



SPECIFIC GRAVITY SET, SQUARE

For Students to determine volume easily. A set of four specimens machined to have equal volume. Each piece is 12 mm x 12 mm x 50 mm L. Set includes Aluminum, Copper, Brass and Steel.

PH10058



EQUAL MASS METAL CYLINDER SET

The Equal Mass Metal Cylinder Set includes Aluminum, Copper, Brass, Tin and Zinc. Each Cylinder measures $\frac{1}{2}$ " in diameter and has the same mass 20g. PH10059



THE DENSITY-SLOPE SET

The colorful set consists of 48 specimens of twelve different types of material. The specimens are packaged in an acrylic tube as 12 sets of four. Set includes samples of Maple wood, Polypropylene, Nylon, Acrylic, Polyurethane, Phenolic, PVC, Copper, Brass, Teflon, Polyethylene and Aluminum. Students measure the mass and volume of different specimens and graph their masses as a function of volume. The graph produces a line for each substance, whose slope equals the density of the substance. Students learn that the density of a substance is constant even as its mass and volume change. With instructions. PH10061

BUCKET & CYLINDER

To demonstrate Archimedes principle, all brass, bucket with suspension loop at top and a hook at bottom, with the cylinder having a suspension hook at top. Cylinder is 50 x 16 mm diam., overall length including hook and suspension loop is 110 mm approx. PH10070



ARCHIMEDES'S KIT

To demonstrate Archimedes's principal. The set consists of a spring balance 250gm, one aluminium block with hook, one brass block with hook, one glass displacement vessel 250ml capacity, one wooden polished block and one plastic beaker 100ml capacity. Complete with instructions. Supplied without stand. PH10072

STAND FOR ARCHIMEDES'S KIT

This stand is specially designed for Archimedes's kit. It consist a big rod of 600 mm length, one small rod of 200 mm, one right angle clamp and one metal base 8" x 5". PH10072S



DISPLACEMENT VESSEL GRADUATED

For use in experiments with density, specific gravity and Archimedes' principle where volumetric displacement of a liquid is involved. Flared top edge with angled spout for convenient overflow collection. Borosilicate glass, Graduated.

	size, ml
PH10075/1	250ml
PH10075/3	500ml

DISPLACEMENT VESSEL

Metal, painted, with spout.

	size, mm
PH10079/1	225 x 125
PH10079/3	115 x 50





DISPLACEMENT VESSEL COPPER

	size, mm
PH10084/1	100 x 50
PH10084/3	115 x 90

FLOATING DENSITY BALL

To demonstrate effect of temperature on the density of a liquid. The Floating Density Ball is a hollow metal sphere which floats when placed in cool water and sink in warm water. Diam. of ball is 4", with instructions. PH10086



SPRING BALANCE

Rectangular plastic body, metal scale, with zero adjuster, suspension ring and load hook. Scale both in gram and Newton.

PH10115/1	0 to 100 gm / 1 N
PH10115/2	0 to 200 gm / 2 N
PH10115/3	0 to 500 gm / 5 N
PH10115/4	0 to 1000 gm / 10 N



SPRING BALANCE, TRANSPARENT

Transparent plastic body. Each scale has been individually calibrated and equipped with a high grade spring with adjustable zero. High contrast marking make readings easy. Plated steel suspension ring at top and hook at bottom.

PH10120/2	2.5 N x 0.1 N / 250gm x 10g
PH10120/3	5.0 N x 0.2 N / 500gm x 20g
PH10120/4	10 N x 0.25 N / 1000gm x 25g
PH10120/5	20 N x 0.5 N / 2000gm x 50g
PH10120/6	50 N x 1 N / 5000gm x 100g



SPRING BALANCE

All metal, with thumb operated knurled zero adjuster, suspension ring and load hook.

PH10121/1	0 to 100 gm x 1 gm
PH10121/2	0 to 200 gm x 2 gm
PH10121/3	0 to 500 gm x 5 gm
PH10121/4	0 to 1 kg x 0.01 kg
PH10121/5	0 to 2 kg x 0.02 kg
PH10121/6	0 to 5 kg x 0.05 kg
PH10121/7	0 to 10 kg x 0.1 kg
PH10124/1	0 to 1 N x 0.01 N
PH10124/3	0 to 5 N x 0.05 N
PH10124/4	0 to 10 N x 0.1 N
PH10124/6	0 to 20 N x 0.2 N
PH10124/8	0 to 50 N x 0.5 N



ROTARY SPRING BALANCE

With effective scale lengths of nearly 9", Rotary scales offer greater accuracy than linear scales. All balances are graduated in gram/Newtons. Dial: 3" diam. metal suspension ring at top and hook at bottom.

PH10127/2	250gm / 2.5 N
PH10127/3	500gm / 5 N
PH10127/4	1000gm / 10 N
PH10127/5	2000gm / 20 N



SPRING BALANCE, TUBULAR

Brass barrel, with adjustable zero, suspension ring and hook.

PH10129/1	100 gm x 1 gm
PH10129/2	200 gm x 2 gm
PH10129/3	500 gm x 5 gm
PH10129/4	1000 gm x 10 gm
PH10129/5	2000 gm x 20 gm





SPRING SCALE

In robust plastic transparent body, overall length 285 mm approx. with upper and lower suspension hooks, with zero adjustment, scales are both in grams and Newton.

PH10132/1	100gm / 1N
PH10132/2	250gm / 2.5N
PH10132/3	500gm / 5N
PH10132/4	1000gm / 10N
PH10132/5	2000gm / 20N
PH10132/6	3000gm / 30N
PH10132/7	5000gm / 50N



SPRING BALANCE

Aluminium tubular balance, with zero adjustment. Scales are both in grams and Newton. With upper and lower suspension hooks, graduation on inner tube.

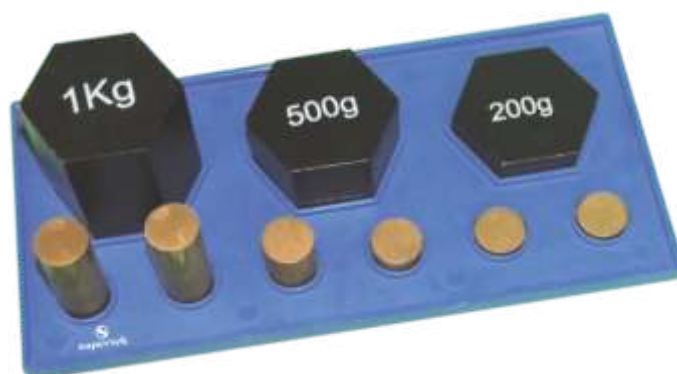
PH10133/1	100 gm / 1 N
PH10133/4	250 gm / 2.5 N
PH10133/6	500 gm / 5 N
PH10133/8	1000 gm / 10 N
PH10133/10	2000 gm / 20 N
PH10133/12	3000 gm / 30 N
PH10133/14	5000 gm / 50 N



PUSH PULL BALANCE

Balance designed to work for mass and force activity. Dual calibrated in grams and Newton.

PH10137/1	250 gm / 2.5 N
PH10137/4	500 gm / 5 N
PH10137/6	1000 gm / 10 N
PH10137/8	2000 gm / 20 N
PH10137/10	3000 gm / 30 N
PH10137/12	5000 gm / 50 N



WEIGHT SET ON TRAY

Set of Mild steel and brass weights providing weighing range from 10 gm to 1990 gm. Contains six brass weights of two each of 100 gm, one each of 50 gm, one each of 20 gm and two each of 10 gm, three steel weights of one each of 1 kg, one each of 500 gm and one each of 200 gm. Housed in a molded tray.

PH10139

supertek weights are manufactured on CNC/Automated Machines and are calibrated on highly accurate weighing scales as per International Standards.



SET OF MASSES, SLOTTED

Brass, plated, 10 gm hanger with nine slotted masses, each of 10 gm, total 100 gm.

PH10150

SET OF MASSES, SLOTTED

Brass, plated, 20 gm hanger with nine slotted masses, each of 20 gm, total 200 gm.

PH10152

SET OF MASSES, SLOTTED

Brass, plated, 50 gm hanger, 4 masses each of 50 gm, total 250 gm.

PH10155

SET OF MASSES, SLOTTED

Brass, plated, 100 gm hanger with four slotted masses, each of 100 gm, total 500 gm.

PH10157

SET OF MASSES, SLOTTED

Brass, plated, hanger with nine slotted masses, each of 100 gm, total 1000 gm.

PH10160

SET OF MASSES, SLOTTED

Brass, plated, 50 gm hanger, 9 masses each of 20 gm, one of 10 gm and two of 5 gm each, total 250 gm.

PH10162

SLOTTED MASSES, SEPARATE

Brass, plated

PH10164/2	5 gm
PH10164/3	10 gm
PH10164/4	20 gm
PH10164/5	50 gm



MASSES, ZINC CASTED, SLOTTED

Die casted, Black powder coated. These are excellent alternate of brass weights.

PH10165/1	20 gm
PH10165/2	50 gm
PH10165/3	100 gm
PH10165/4	200 gm
PH10165/5	50 gm hanger
PH10165/7	100 gm hanger

These masses can be supplied in sets also.

HANGERS, FOR SLOTTED MASSES

PH10166/2	20 gm
PH10166/5	50 gm
PH10166/8	100 gm

MASSES, IRON, SLOTTED

Stove enameled, 1 kg hanger, 4 slotted masses of 1 kg each, total 5 kg.

PH10168

MASSES, IRON, SLOTTED

Stove enameled, 1 kg hanger, one each slotted mass of 10, 5, 2, 1 kg and three of 0.5 kg each, total 20.5 kg.

PH10170



MASSES, WITH HOOK, CYLINDRICAL

Brass plated, with loop on one side and hook on the other side.

PH10172/1	10 gm
PH10172/2	20 gm
PH10172/3	50 gm
PH10172/4	100 gm



BRASS MASSES

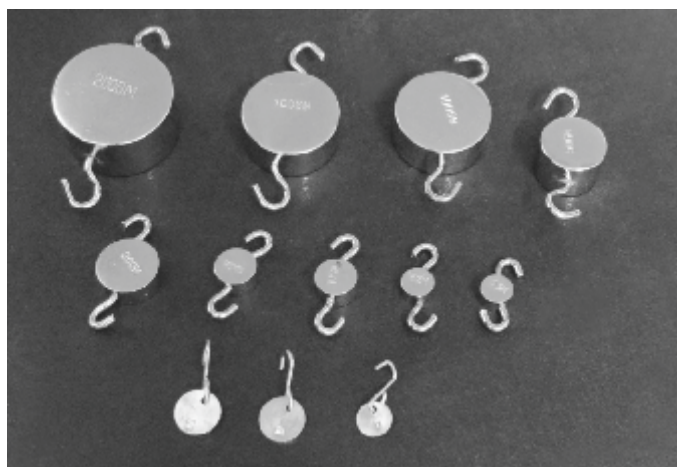
Brass weights in a carrying rack.

Eight weights including 1x10 gm; 2x20 gm; 1x50 gm; 1x100 gm; 2x200 gm; and 1x500 gm. Total 1,100 gm.

PH10180/1

Twelve weights including 1x1 gm; 2x2 gm; 1x5 gm; 1x10 gm; 2x20 gm; 1x50 gm; 1x100 gm; 2x200 gm; and 1x500 gm. Total 1,110 gm.

PH10180/3



SET OF MASSES

Total 505 gm, Comprising 1 mass of 200 gm, 2 masses of 100 gm, 1 mass of 50 gm, 1 mass of 20 gm, 2 masses of 10 gm, 2 masses of 5 gm, 2 masses of 2 gm, 1 mass of 1 gm. In box.

PH10174



MASSES, WITH RING

Brass, with ring on top

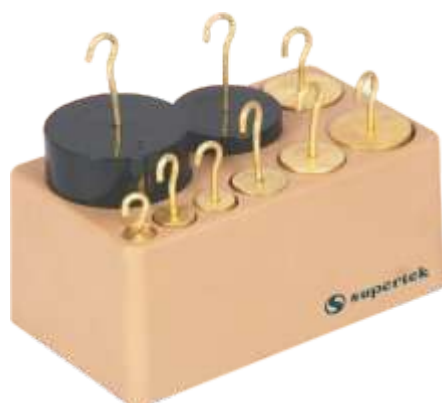
PH10176/1	20 gm
PH10176/2	50 gm
PH10176/3	100 gm
PH10176/4	200 gm



HOOK WEIGHT SET, ECONOMY

Black Painted weights have a non-movable hook on the top. Bottoms of the weights are recessed and contain a weight below bar allowing weights to be hung from each other. Weight set includes one each of 10 gm, 50 gm, 100 gm, 500 gm and 1Kg. Two each of 20 gm & 200 gm. In plastic molded box.

PH10185



HOOK WEIGHT SET

Set consists of seven polished brass weights and two black enameled weights with flat countersunk bottoms. Each weight is accurately adjusted and the value clearly indicated. Individual masses are as follows: 1 X 10 gm, 2 X 20 gm, 1 X 50 gm, 1 X 100 gm, 2 X 200 gm, 1 X 500 gm, 1 X 1000 gm.

PH10190



New

PARALLELOGRAM OF FORCE APPARATUS

This product is similar to the wall type but is intended for use in laboratories where wall space is limited. A thick plywood pieces of thickness 12 mm having dimension 45×30 cm on a substantial wooden stand supplied with 2 sets of z-pulleys, 3 sets of slotted weights (50 gms x 5), 5 sets of drawing sheets, one packet of drawing pin, two mirror strips and cords.

PH10227S



FORCE TABLE, INTRODUCTORY 1

Wooden Table of 40 cm diam. having angular resolution to the nearest 0.5 Degree, supported on three adjustable legs. Each line is passed through a quarter bend of glass tubing, Equipped with four glass quarter bends, four weight hangers, 20 washers, one string set and instruction manual.

PH10215

FORCE TABLE 2

For verifying laws of composition and resolution of forces, comprising a machined aluminium table 40 cm diam., scale graduated 360° , on heavy vertical support rod and tripod base. Complete with one ring, 4 sliding clamp pulleys. Supplied with four cords with rings at one end, without masses.

PH10220

FORCE TABLE, WALL TYPE

For parallelogram and polygon of forces. A strong drawing board 750×600 mm, fitted with brackets for fixing to a wall. Clear space is left all-round the edges for attachment of pulleys etc., supplied with pulleys, A3 paper, cords & pan but without masses.

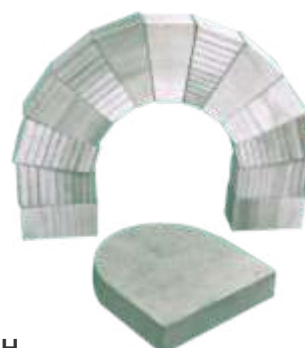
PH10227



ROMAN ARCH

Demonstrates the typical concept behind the architecture of roman arch structures, which are famous for their strength in compressive loading. Comprises a pre assembled 3-part buttress and a set of 23 wooden blocks. Fully assembled arch can easily support the weight of a child.

PH10229



CATENARY ARCH

A fantastic model of catenary arch made of fine quality wood. It consist 13 wooden blocks and a wooden arch. All pieces can be assembled to make a Catenary Arch. All blocks are identical and can place only at its position. After assembly it can support the weight of the wooden arch.

PH10232



PULLEY, METAL

Aluminium, diam. 50 mm, in metal frame, with two hooks.

PH10301/2	Single
PH10301/4	Double
PH10301/6	Triple

PULLEY, DOUBLE IN LINE, METAL

Aluminium, diam. 50 and 40 mm, in metal frame with two hooks.

PH10302



PULLEY, TRIPLE IN LINE, METAL

Aluminium, diam. 50, 40, 28 mm, in metal frame with two hooks.

PH10304



PULLEY, BLOCKS

Economical 50 mm plastic pulleys mounted in plastic frames. Frames have hooks at both ends for suspension and loading. Axle pin can be easily unlocked and removed for disassembly. Available in single, double and triple sheave.

PH10305/1	Single
PH10305/3	Double
PH10305/5	Triple



PULLEY ASSEMBLY SET

Comprises a set of components to form different configurations of pulley blocks. Set contains 15 plastic pulley frames, 5 each of single, double and triple sheave, each provided with movable bearing pin and a pair of hooks. 30 plastic plain bearing, 10 each of diameters 25, 38 and 50 mm.

PH10310

PULLEY, PLASTICS

Diam. 50 mm, in metal frame, with two hooks.

PH10312/1	Single
PH10312/3	Double
PH10312/5	Triple



TANDEM PULLEYS, DOUBLE

Plastic pulleys of diam. 38 and 50 mm mounted on brass bearings and set in steel frames with hooks at the top and the bottom.

PH10314/1

TANDEM PULLEYS, TRIPLE

Plastic pulleys of diam. 25, 38 and 50 mounted on brass bearings and set in steel frames with hooks at the top and the bottom .

PH10314/3



PULLEY, ROD MOUNTED

Consists of a 10cm-long rod fastened to a durable plastic fork. Low friction cone bearings ensure accurate results. Pulley is 4.5 cm in diameter.

PH10315



PULLEY, ROD TYPE

Aluminium pulley, 38 mm diameter, mounted on a light alloy rod 150 x 10 mm.

PH10317



PULLEY ROD

MOUNTING

50mm plastic pulley with ball bearing fitted on an aluminium boss with tapped holes and a clamping screw to accommodate rods up to 13 mm diameter. Tapped holes are provided so that the pulley may be fitted on to the boss with its axis of rotation in any one of the three planes. It is of great use on an inclined plane and suitable for use in an ordinary lab apparatus.

PH10317R



TABLE CLAMP WITH PULLEY

5 cm diam. plastic pulley mounted on a 23.5cm long metal shaft with a table clamp. Pulley shaft is held in table clamp with a clamping screw.

PH10318



PULLEY, DIFFERENTIAL

Aluminium, one piece triple pulley, with diameters of 38, 50 and 62mm, in metal frame with rod.

PH10319

PULLEY ON CLAMP, MULTIPURPOSE

Aluminium pulley, 70 mm diam. in metal bracket with two clamping screws for bench and rod support respectively. The bracket may be clamped to a board or bench edge up to 38 mm thick, screwed to a flat surface or held in a 13 mm diameter support rod.

PH10320

PULLEY, SINGLE, BENCH MOUNTING

Aluminium pulley, diam. 50 mm, in metal frame, for clamping to board or bench up to 25 mm thick.

PH10322



PULLEY, TABLE CLAMP

A low cost pulley for simple machines experiments, rigid plastic sheave with a deep V - groove, 50 mm in diameter. Can be attached to surfaces up to 25 mm thick.

PH10325



LARGE PULLEY WITH UNIVERSAL CLAMP

70 mm plastic pulley mounted on metal clamp. It can be clamped upto 38 mm thick bench or upto 13 mm support rod.

PH10326

PULLEY, TABLECLAMP

Smooth running, ball bearing clamp pulley, can be clamped to surfaces up to 50 mm thick and the 45 mm diameter sheave is made of nylon.

PH10327

PULLEY, ADJUSTABLE TABLE CLAMP

Sturdy nylon constructed clamp pulley. The ball bearing sheave is 4.5 cm in diameter and can be adjusted from flush with the tabletop to 13 cm above it. In addition, the pulley can be rotated 360° to suit any experimental setup. Attached to tables up to 4.5 cm thick.

PH10328



PULLEY, CLAMP STYLE

Low-friction pulley mounted in a clamp. Designed to fit tables up to 2" thick.

PH10332

SCALE PAN

Plated metal, 75 mm diam. With suspension cords and hook.
PH10335



S-HOOKS

For attaching to cords for lifting of slotted masses. Pack of 10.
PH10337



WHEEL AND AXLE

13 cm diameter molded wheel contains 4 grooves of different diameters in the ratios 1, 3, 5 and 7. The grooves are wide and flat bottomed ensuring an exact diameter for each groove, each comes with a small hole to retain the cord. The back of the wheel is hollow to minimize the mass and inertia. Wheel is attached to a 14 cm long rod.
PH10400



PULLEY DEMONSTRATION SET

The Pulley Demonstration Set is designed to illustrate the working principle of simple machines. From the wheels on a bicycle to the gears in a car, the Pulley Demonstration System helps explain how things work. It helps student to understand the concepts of the mechanical advantage, the efficiency of fixed and moveable pulleys etc. Students perform quantitative experiments on fixed and moveable pulleys, trains of fixed and moveable pulleys, the wheel and axle and the capstan etc.

The set includes:

Wooden base includes : Size - 81 x 20 cm. capstans, sockets (2) and an eye hook.

Rods : 3 (Diam - 12.5 mm X L - 81 cm)

Collars with hook : 8

Right angled clamps : 3

Wheel and axle : 1

Bar for tightening : 1

vertical rods

Masses : Slotted brass weights. 2x10 gm, 2x20 gm 2x50 gm, 4x100 gm, 4x200 gm, 1x500 gm Total 15 weights.

Weight hangers : Brass hangers .5x50 gm, 1x20 gm, 1x 10 gm

PH10402



STUDENT PULLEY SET

Used to demonstrate the concepts of force and mechanical equilibrium. Contains a polished wooden base with a capstan mounted at one end and screw eye for hanging pulleys at the other, 24" vertical support rod, 8" crossbar with clamp, 8 single pulleys, 2 double pulleys, wheel and axle, 6 pulley clamps, 90° clamp, 9 hooked masses ranging from 10 to 1,000 g, pulley cord, and instructions.

PH10401



PROJECTILE APPARATUS

(Falling Body Apparatus) Showing that horizontal and vertical motions are independent of each other. Consists of a wooden block 190 x 58 x 30 mm approx. with a pivoted L-section spring loaded metal launching bar with a trigger catch. On releasing the catch, one steel ball drops vertically while the other is projected horizontally, both hitting the floor at the same time. Supplied with 2 steel balls with storage recess in the block.

PH10405



ACCELEROMETER

To study Newton's 2nd law and other motion related experiments. The unit comprises a rectangular-shaped container, marked with a centimeter grid, supported on a steady base. The base can also be attached to a turntable. Supplied without turntable.

PH10407

TURN TABLE FOR ACCELEROMETER

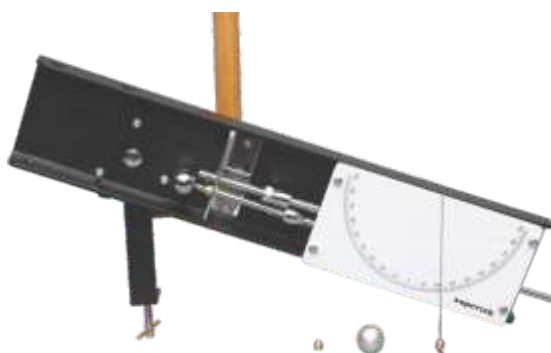
PH10407T



NEWTON'S 2ND LAW OF MOTION

To demonstrate that 2 bodies will strike the floor at the same time even when their paths of flight and horizontal velocity components are different. Consists of a base, spring plunger, 2 steel balls (1 solid, 1 pre-drilled), with instruction sheet.

PH10410



PROJECTILE LAUNCHER

For exploring the projectile motion and trajectories. With a release latch that can be adjusted and locked in any desired setting, Supplied with two drilled balls, attached protractor and plumb bob for determination of angle of inclination. Includes a clamp to fasten the apparatus to a table top. With Instructions.

PH10412



SECOND LAW OF MOTION APPARATUS

To demonstrate the Second Law of Motion in simple and accurate way, two identical balls — one drilled, the other solid — are used. When the release lever is triggered, the internal spring accelerates one ball and releases the other, showing that two balls dropped from the same height hit the ground at the same time even though one is traveling forward when the balls are released. Support stand and clamp required, but not included. With instructions.

PH10415



ENERGY TRANSFORMATION BALLS

Demonstrates conversion of kinetic energy into heat and sound energy during a collision. Consists of a pair of heavy steel balls. When the balls strike against each other with a piece of paper between the balls, the heat causes a hole to appear in the paper. The kinetic energy of the balls upon collision is converted to heat which is sufficient to burn a hole in the paper. With instructions.

PH10416



ECONOMY COLLISION BALLS

Small size economy apparatus to demonstrate elastic collision features a steel frame supporting five steel balls on tough nylon monofilament.

PH10417



NEWTONIAN DEMONSTRATION

Large size to clearly explain the theory. Wooden frame consists of five nickel plated steel balls of uniform mass suspended from the frame. Includes instructions. Size: approx. 9"L x 7"W x 8"H.

PH10419



BALLISTIC PENDULUM APPARATUS

To demonstrate the laws of conservation of momentum and trajectory. Features a nylon block pendulum with tapered rubber insert, leveling and adjusting screws on both pendulum and base, and a rubber bumper to prevent damage on impact. Unit contains a scale marked in degrees for recording the height and is registered by a counter-weighted needle that remains in place at the height of the pendulum arc. With instructions.

PH10422

New



PENDULUM WAVES

In this apparatus, you will use the laws of simple pendulum motion to create a pendulum wave apparatus: a device where many pendulums of different lengths, and therefore different periods, start swinging at the same time. As they move in and out of sync, the pendulums create a sequence of cycling visual wave patterns.

PH10420



New

SUPERTEK, MONKEY & HUNTER, DEMONSTRATION

This apparatus illustrates the effect of gravity on the projectile motion. An elastic powered gun is supported from a battery operated small electromagnet. It fires ping pong bullet balls at a model monkey. When the projectile is fired, the electromagnetic circuit breaks. The trajectory is easily visible. Both monkey and bullet fall at the same rate and the bullet always hits the monkey regardless of how far away the monkey is. This proves that the horizontal and vertical motions are independent of each other. This unit includes a table clamp mounting plate and it may also be used as a trajectory apparatus. Requires support stand and low voltage battery, which is not provided with the apparatus.

PH10424



PENDULUM DEMONSTRATION

This setup clearly demonstrates simple harmonic motion and the conservation of energy. In simple harmonic motion, pendulum swings evenly from side to side. Use photogate timer to accurately measure the period of the pendulum or the speed of the pendulum bob at the bottom of the swing. The length of the string can be adjusted to measure the change in period. Also see the effect of change in mass on the period. Two pendulum bobs are provided. Photogate Timer is not included.

PH10426



ROTATIONAL MOTION APPARATUS

Explore the relationship between linear (tangential) and angular velocity with this setup. A DC-driven motor produces various rotational velocity at various distances from the motor. Different radii are drawn on the disk and pegs can be positioned at specific radii. A photogate may be attached as well, so the time of one rotation is easily measured. Students will then make measurements to calculate the angular velocity, which will be constant for a given motor speed independent of position. However, the tangential velocity will vary based on the radius of the circular path. Kit includes a rotational table, ruler and calipers. Required but not included are a 6 V power supply and a photogate system.

PH10428



INERTIA APPARATUS

Demonstrate the principle of inertia. Comprises an aluminum rod mounted on a plastic base. Rod has a recessed top to take the spherical ball. When striker is pulled back and released the card square is propelled, but the ball unaffected and falls into the recess. Supplied complete with spherical ball and card square.

PH10512

LOOP-THE-LOOP

To demonstrate conservation of energy, conservation of momentum and projectile motion. Consists of a metal track to drop a steel ball, circular scale for measuring the angle at which the ball drops. Includes two steel balls and instructions. Size: approx. 110 cm L.

PH10515



BALLOON PUCK SET

Apparatus may be used to explore the laws of motion without an air table and to study the inertia, constant velocity and acceleration, and collisions in two dimensions. On flat smooth surface, the balloon puck can glide through without much resistance. Pucks ride on a film of air produced by air escaping from balloons, which are inflated and attached to the pucks. Kit includes two large pucks, two small pucks, four rubber stoppers, four tubes, four balloons and four rubber bands.

PH10516

COLLISION IN TWO DIMENSIONAL

Curved ramp to deliver a ball for collision with constant energy. The apparatus includes:
Two ½ inch steel balls, One 16mm glass ball,
One 1 inch wooden plumb bob. With Instructions.
PH10517

Best
Seller



New



TRAJECTORY APPARATUS

This unique low cost trajectory apparatus allows the students to study the trajectory of a projectile. A steel ball launches from a ramp and collides with the target plate that is equipped with marking paper to record the point of contact manually. Move the target plate to different positions and the exercise is to plot the full trajectory of the ball. The kit consists of a wooden plotting board, two wooden supports, one steel ball, one cello tape role, four graph papers and four marking papers. The apparatus is provided with full instructions.

PH10517A



COLLISION IN ONE DIMENSION

To demonstrate Newton's third law of motion. Different number of balls is made to collide on a low friction grooved track. Due to conservation of energy and momentum we are able to predict a great deal about these collisions, and to calculate relevant quantities after the collision occurs. With Five steel balls. 27" track and instructions.

PH10518

HALL'S CARRIAGE

Molded body with a central well for additional masses. A hole in one end of the body enables a cord to be attached. Dimensions: approx. 13 X 5 X 3.5 cm.

PH10520



INCLINED PLANE BOARD

Made of MDF board, with aluminum guide rails, which act as guide for Hall's carriage and friction blocks. With 38 mm pulley on one end of the board. Overall dimensions 13.3 x 1.6 x 122 cm approx.

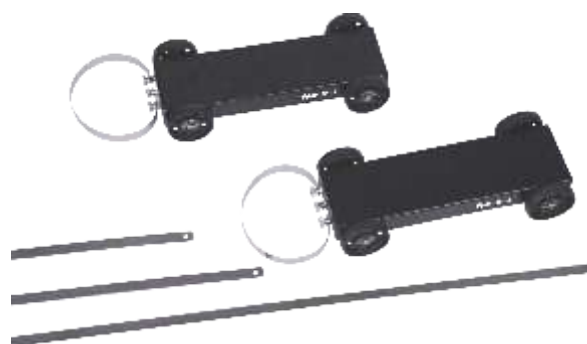
PH10522



DYNAMIC CART SET

For experiments in velocity, acceleration, momentum, elastic collisions etc. The plastic carts has deep wells for additional masses, includes two rubber bumpers for inelastic collisions, two spring loops for elastic collisions and instructions. Each measures 13 x 5 x 3.5 cm and has a mass of 70 gm.

PH10523



FOUR WHEEL DYNAMIC CART

Dynamic carts with low friction ball bearing wheels and space to carry five ordinary brick. Each cart is supplied with one heavy and one light bumper spring, which can be easily changed. Complete with a loop spring and instructions. Each cart measures 7.5 x 25 cm, exclusive of wheels and bumper spring.

PH10525



DYNAMIC TROLLEY

Hardwood, 300 mm long, metal reinforced ends, three low friction ball bearing wheels, quick release triple impulse spring, 4 removable metal legs to enable stacking of trolleys, mass 0.9 kg approx.

PH10527

ELASTIC CORDS

For accelerating trolleys, length 180 mm, eyelets at both ends, pack of 12.

PH10528



CONSTANT MOTION MACHINE

The constant motion machine moves with a uniform speed in a straight line. The machine has a hook attached to its rear end and can pull dynamics carts to demonstrate the concept of vectors and velocity. Requires two AA batteries, not supplied with apparatus.

PH10536



DYNAMIC CARTS

Sturdy steel body to withstand rough handling, with three low friction ball bearing wheels and aligned axles to ensure their rolling along a true line without deviation to provide accurate data. Each cart weighs about 1.5 kg. The cart bed is covered with a rubber pad and the ends of the cart rise above the bed to carry a brick or any other mass. A clip is provided at one end of the cart to attach a tape. The pins of each cart fit with holes on the other so that they can be stacked to double the mass.

PH10530



BALLISTICS CAR

Demonstrate that the forward motion of a ball ejected vertically is the same as that of the vehicle from which it was ejected. A car with ball bearing wheels and vertically mounted spring loaded barrel. The barrel permits two spring tensions. Complete with a 25 mm steel ball and release pin.

PH10537



ACCELERATION TROLLEY APPARATUS

To demonstrate that gravitational acceleration down an incline is independent of the falling mass. The two wheeled trolley runs across the room on an inclined overhead cable. Mounting hardware, 10.8 m of cable, and full operating instructions are supplied with the unit. Size is 15 x 10 cm. Mass set and hanger are not supplied with apparatus.

PH10535

New products can be developed as per buyer's specifications and requirements



LINEAR AIR TRACK

Square section aluminium alloy track, length 1.5 m, with staggered holes, supported on two light alloy castings. One support has a two point contact and other one point contact for lateral and horizontal adjustments by means of a knurled screw. Identical end caps enable air to be introduced from either end of the track keeping the other end closed.

LINEAR AIR TRACK ACCESSORIES Consisting of

- 2 Large vehicles (length 180 mm)
- 1 Small vehicle (length 140 mm)
- 2 Magnetic buffers (25 mm diam.)
- 2 Plasticine Holders (20 mm diam.) with central hole
- 4 Catapults (45 mm wide) with slots for elastic band
- 1 Reel of nylon thread
- 2 White rods (4 mm diam. 150 mm long)
- 24 Needles
- 20 Plain cards
- 1 Reel rubber strand
- 1 Pack of plasticine
- 20 Elastic bands
- 2 Needles with holder
- 1 Instruction manual

PH10538



PHOTO GATES

Two photo gates with photo transistor to use in various activities with digital timer. These are used to measure the time intervals.

PH10538G



TIMER

A digital timer with multi functions. It can be used with photo gates to observe the frequency, time interval and as counter during the various experiments. It is a compact handy device operates on power adaptor.

PH10538T



TICKER TAPE TIMER

For measuring velocity and acceleration. A vibrating striker prints dots on the tape using carbon disc. The unit is housed in a sturdy plastic case, works on 6-9 V DC, producing 25 or 40 dots per second. with 38mm carbon discs (12) and tape roll small 15mmx30 mtr.

PH10540



TICKER TAPE TIMER

To provide dots on tape at 1/50 or 1/60 second intervals, equal to the frequency of the mains supply. Operates on 12 V a.c. It has an electromagnet and a spring loaded armature which vibrates above a support table. Paper tape, drawn through guides on the table is struck by a dotting screw, carried on the armature. A peg on the table is provided to allow full use of carbon paper disc. Fitted on base. with 66mm carbon discs (12) and tape roll small 15mmx30 mtr.

PH10545



TIMER, ACCELERATION

Designed to clamp to an upright support rod or crossbar. Tape, carbon discs and instructions are included. Size: 7"L x 2"W x 1 1/4 "H. With 38mm Carbon Disc (12)

PH10547



BATTERY POWERED ACCELERATION TIMER

This battery powered timer produces 30 to 50 marks per second for dynamic experiments. 1.5V motor operates on two D-cell batteries (not included). Wooden base improves stability, reduces vibration, and permits attachment to a ring stand post. Striker mechanism acts against an aluminum plate to produce improved-dot definition on the ticker tape. 43mm disc carbon (12) and small tape roll 15mm width x 30mtr.

PH10548

TICKER TAPE

9 mm width, 300 meter rolls.

PH10550

CARBON PAPER DISC

Pack of 100 disc 43mm dia.

PH10552



DOUBLE CONE AND INCLINE

A fascinating demonstration of center-of-gravity principles. When placed on the diverging bars of the inclined plane, the cone appears to roll up the plane. Upon careful examination, students determine that the axis of the cone is actually moving down the slope of the bars.

PH10554

"G" BY FREE FALL

The apparatus consists of an electromagnet housed in a plastic case with connections provided for an external timer. It also contains a platform unit containing a switch and terminals for the external timer. The unit is supplied with a heavy steel sphere. With the upper and lower unit connected to the external timer, the sphere is released by moving the switch on the electromagnet to the upward position. This action simultaneously starts the timer. As the sphere hits the cork mat on the platform unit it activates a switch to turn off the timer.

PH10556



TIMER FOR G BY FREE FALL

For use with the G by Free Fall apparatus (PH10556).

The IC based Timer supports functionality like Start, Reset and memory for last 3 readings.

Specifications :
Input Voltage : 220V, 50 Hz
Time Resolution : Auto 0.001 to 999.9 sec
Display : 4 FND (LED)

PH10556/1

"g" BY FREE FALL

The apparatus consists of an electromagnet housed in a plastic case with connections provided for an external timer. It also contains a platform unit containing a switch and terminals for the external timer. The unit is supplied with a heavy steel sphere. With the upper and lower unit connected to the external timer, the sphere is released by moving the switch on the electromagnet to the upward position. This action simultaneously starts the timer. As the sphere hits the cork mat on the platform unit it activates a switch to turn off the timer.

PH10556B





EVENT TIMER

A compact and versatile timer featuring a 5-digit, 7-segment LED display. Ideal for use with apparatus such as 'g by free fall' and other apparatus where manual timing is required. Maximum time measurement up to 9999.9 seconds, maximum resolution 0.0001s.

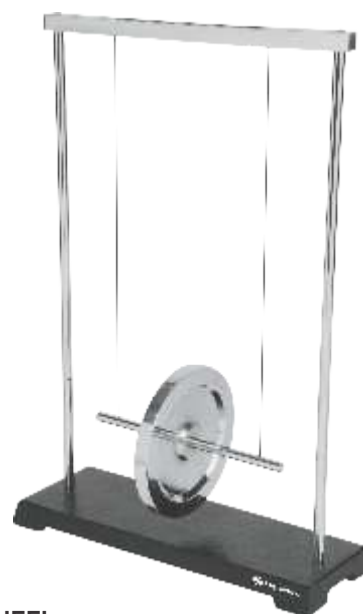
PH10557



APPARATUS TO STUDY THE ECCENTRICITY OF CENTER OF GRAVITY

In architectural design, it is recommended that spaces for unusually heavy weights be in basements or in buildings isolated from the main structure. Ductile parallel piped with a central plumb line, which enables to demonstrate that the center of gravity of solid passes through its support polygon. It is made by positioning the stiff elements asymmetrically with respect to the center of gravity of the story.

PH10559



MAXWELL'S WHEEL

Useful for demonstrating momentum, conservation of energy and torque, a large flywheel suspended by two strong cords. The cords are wound around the shaft of the wheel and then released. The wheel will unwind as it falls, but will wind itself back up as the momentum carries the wheel upward in the opposite direction. This oscillation process will continue for several moments gradually coming to a stop as the wheel slowly loses momentum and travels less each time. Include instructions.

PH10562



VARIABLE INERTIA KIT

Consists of two disks which can be loaded with up to 8 ball bearings in internal compartments. Load one disk symmetrically and the other non-symmetrically to show the difference. Instructions and eight solid balls included.

PH10565



VARIABLE INERTIA BAR

This apparatus helps to demonstrate that the torque required to accelerate a flywheel depends upon its moment of inertia rather than its mass. A steel bar 790 x 12mm is mounted at its centre on a sleeved spindle. The spindle is extended through a sleeve so that the bar may be rotated by a weight and string. Heavy adjustable masses are mounted on each end of the bar and may be clamped at any desired position enabling inertia to be varied.

PH10565B



PENDULUM CLAMP

Approximately 28 cm long clamp designed to hold 3 pendulums, all pendulums can be individually adjusted without disturbing the others. With knurled thumb screws to keep suspension cords secure.

PH10566

ADJUSTABLE PENDULUM

This is a double pendulum apparatus to investigate the fundamental properties of pendulum. The length of the pendulum can be varied using the steel balls to observe the effects. It can be mounted to any retort stand upto 13mm rod diameter. Two steel balls are provided with the apparatus. With this apparatus, the qualitative studies of periods of steel balls with individual string lengths, frequency and beats can be done. A stop watch is required to examine these ideas quantitatively. User instructions are provided

PH10566D



INCLINED PLANE

Inclined wood plane 600 x 75 mm with pulley at one end, the other being hinged to wood base. A linear scale is fixed to edge of inclined plane and an angular 0-45° scale is fixed to base, with a clamp which also serves as an index. With a metal roller 60 x 25 mm length x diam., 2 wooden blocks and a scale pan with cord.

PH10567A



FRICTION BOARD

To Study the effects of friction using 4 different surface materials on a board Includes surface board, hooks and wooden blocks, With instruction manual.

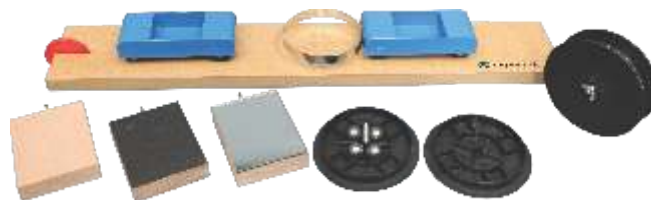
PH10568



INCLINED PLANE AND FRICTION BOARD

A 600 x 75 mm plane hinged to base at one end carries a pulley at the other. A movable block enables variation of inclination of plane, a friction slide 100 x 65 mm which is reversible and has one side cut away for half of its area. Complete with metal roller 60 x 25 mm diam., with pan but without masses.

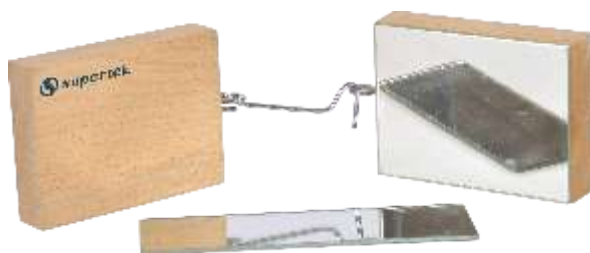
PH10570A



INVESTIGATING FORCE AND MOTION(LAB INVESTIGATION)

To Investigate friction of a variety of surfaces, find out relation between weight and friction and Investigate ways to reduce friction using wheels and rollers. The set up can also be used to study Newton's laws of motion, demonstrate the laws of motion using a Hall's carriage and explore variable inertia. With Instruction manual.

PH10571



FRICION BLOCKS AND SURFACES

To illustrate the concept that friction depends on the nature and smoothness of materials. The kit consists of a glass mirror with sandpaper affixed to one side and two wooden blocks, one with a hook and the other with an eye. The latter block has a mirror cemented to one face. Both static and sliding frictional forces between different surfaces can be compared and contrasted using this kit. With instructions.

PH10572F



FRICION BLOCK AND SURFACE SET

To understand the relation between friction and smoothness of materials consists of three wooden blocks measuring approximately 3-15/16" L x 2-3/4" W with hooks. The first block has a polished side, the second has a sandpaper side, and the third has an aluminum side. Complete with polished wooden base measuring 14" L x 2-3/4" W.

PH10573



INCLINED PLANE

With built in length and angle scales. Metal construction, the plane is 60cm long, adjusts from 0° to 45°. With adjustable pulley, roller, cord and weight pan.

PH10574



INCLINED PLANE KIT

To investigate acceleration, friction, gravity and free-fall experiments. The inclined plane folds easily for storage with a special hinge, clamps to 45° and includes a protractor and pulley. All-aluminum construction supplied with Hall's carriage, pulley, weight pan, solid aluminum plane and accessories, With detail & illustrated instructions.

PH10578



HIGH/LOW ROAD

To demonstrate that shortest distance between two points is not necessarily the fastest while providing an excellent dramatization of potential and kinetic energy and friction. Two balls are released simultaneously - one on a straight metal track, the other on a bent metal track.

PH10579



INCLINED PLANE WITH FORCE MECHANISM

The apparatus has been specially designed to perform experiments on force and acceleration. 1.2 m long aluminum track has a spring based force mechanism mounted permanently at one end. The spring mechanism produces force using a multi position trigger. Determine acceleration speed and distance attained by applying a variable force. The track is mounted on three plastic feet. The apparatus comes with five steel balls, two irregular shaped wooden blocks and operating instructions.

PH10580



LEVER KIT

To illustrate principles of lever and moment, five plywood beams 600 x 44 x 3 mm with ruled graduations at every 38 mm and a shallow groove across its centre for fulcrum point, with 4 wood fulcrums and forty 25 mm square metal blanks.

PH10581



MOMENT OF FORCE APPARATUS

To understand the relationship between moments of force, the amount of force and the length of the lever arm. Includes a meter stick, three knife-edge clamps, an aluminum support, two mass hangers, slotted masses from 1 gm to 500 gm and a storage rack.

PH10582



KNIFE EDGE LEVER CLAMP

To be used with Moment of Force apparatus PH10582

PH10583



LEVER, SIMPLE FORM

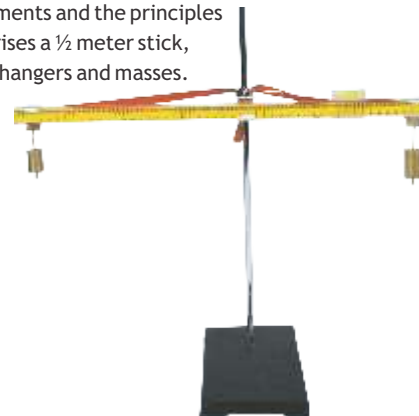
A one meter long rule, graduated in mms, numbered in cms and drilled every 2 cm. With a set of three riders and pins, one acts as fulcrum and the other two as mass hangers.

PH10584

NEW YORK BALANCE

To demonstrate levers, movements and the principles of mass measurement. Comprises a ½ meter stick, a clamp, a stand, two weight hangers and masses.

PH10585



New

MOMENT OF FORCE APPARATUS, WITH WEIGHTS

Investigate the fundamentals of the equilibrium with this simple moments of force apparatus. A centrally mounted beam represents a two-arm lever. Movable riders are placed on the lever and weights are applied. Equilibrium is attained by moving the weights. Distances from the pivot point can be read from an integrated scale. The calculation of the lever arms is verified in the experiment. Includes instructions.

PH10586

INERTIA BALANCE

For investigating the nature of mass and the distinction between mass and weight. Two metal trays 130 x 55 x 23 mm are joined together with two spring steel strips of 23 mm width, the distance between the trays being 215 mm. One tray is drilled to accept 3 equal cylindrical masses. The other tray can be clamped to a bench horizontally or vertically. Complete with 3 masses and a 'G' clamp.

PH10587



ROTATIONAL PLATFORM

The heavy duty rotating platform illustrates the concept of rotational inertia. The platform can easily withstand weight of 80 kg. Solid, heavy metal legs and grooved platform ensures maximum stability

PH10588



GYROSCOPE, BICYCLE WHEEL

This apparatus is designed to help students understand about the world of rotational physics and demonstration of the angular momentum, torque and gyroscopic precession. Spin the wheel to move the wheel's axis of rotation and hang it from the end of the rope and wheel axel keeping the rope in the vertical orientation and the axel in the horizontal orientation, the wheel will precess with the rope remaining vertical. A hooked rope is also provided with apparatus.

PH10589



GYROSCOPE

Gyroscope with Gimbal Cradle is an excellent, inexpensive apparatus, which is used to explore the mysteries of the precession, inertial guidance, gyroscopic compasses and stabilization. It is precision machined and balanced and runs smoothly with little vibration. Provided with pull string with handle, weight set and support hook. A pendulum mounting is also supplied that can be used for investigating the rolling moment. It demonstrates the principle of angular momentum. Supplied with user manual.

PH10589H



CENTRIPETAL FORCE APPARATUS

The apparatus is designed to study the circular motion and to find the relationship between centripetal force velocity, radius and mass a cylindrical bob is provided which is suspended on cross arm, cross arm is supported on the axle a pulley is fitted on the end of the metal base.

PH10589A

SIMPLE PENDULUM

Solid sphere with a small metal hook

PH10590/1	Diam 13 mm, Lead
PH10590/3	Diam 19 mm, Lead
PH10590/5	Diam 25 mm, Lead
PH10592/1	Diam 13 mm, Brass
PH10592/3	Diam 19 mm, Brass
PH10592/5	Diam 25 mm, Brass
PH10594/1	Diam 13 mm, Steel
PH10594/3	Diam 19 mm, Steel
PH10594/5	Diam 25 mm, Steel



GUINEA AND FEATHER APPARATUS

A glass tube 600 x 38 mm fitted with two rubber bungs, one of which is bored and fitted with an 8 mm diam. tube for connection to a vacuum pump.

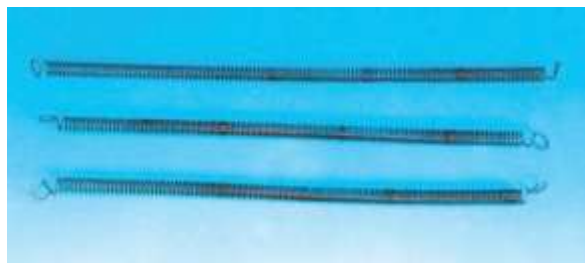
PH10605



CENTRE OF GRAVITY APPARATUS

A simple and economical apparatus for demonstration of geometrical center of gravity of two-dimensional objects, PVC rod mounted on a base with a suspension screw at the top, 4 clear acrylic laminas - circular, triangular, square and trapezoidal. Each lamina has suspension holes along its periphery. The point of intersection of lines drawn from the point of suspension of 2 or more holes of a lamina gives the center of gravity of that lamina.

PH10610



SPRING, LARGE, COMPRESSION

Approx. 300 mm long, diam. 10 mm, wire of 19 swg.

PH10611A



SPRING, STEEL, EXTENSION

Closely wound with loops at both sides, diam. 6 mm approx., wire of 19 swg

	Length, mm	Extension, mm Average for 200gm load
PH10611B/1	100	120
PH10611B/2	150	230
PH10611B/3	225	430



SPRING, STEEL, EXTENSION

Diam. 15 mm. length including hooks 55 mm, to extend 20 mm by 100 gm load, maximum load 700 gm.

PH10611C



HOOK'S LAW APPARATUS 1

Consists of a 12 cm long mirror scale, a spring with provision to hang masses. Supplied without masses.

PH10612



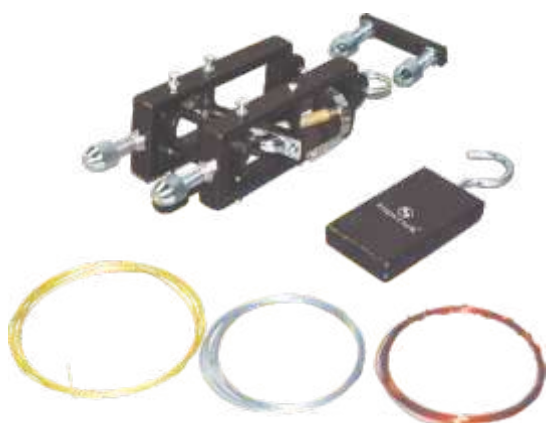
HOOK'S LAW APPARATUS 2

For investigating potential energy and vibrating masses as well as Hooke's law. Includes a 15-cm adjustable scale mounted on a sturdy support, a spring with a weight hanger and pointer attached. Supplied without weights.

PH10612H

Weight set for use with hook's law apparatus 4x20 gm slotted weights and 1x20 gm hanger

PH10612W



YOUNG'S MODULUS OF WIRES APPARATUS, SEARLE'S PATTERN

Two metal frames are connected by a pivoted link which also carries a spirit level. A micrometer head reading to 0.01 mm is provided to re-adjust the spirit level. With two self-centering wire pin chucks, a ceiling bracket also with two pin chucks, a counterpoise weight and supply of suitable wires but without slotted masses.

PH10613S

PH10613S/1 Set of six wires, one each of 20 and 22 swg, of Brass, Copper and Steel. 6 mtr. each

STRIP TESTING CLAMPS

A pair of strong aluminium clamps, which allows strip material to be investigated for breaking strain, stretch etc. The clamps have wing-nut fixings and an attachment system which ensures freedom from slip. These clamps are used to study the comparison of the strengths of bag materials, stretching of fabrics, stretching of plastics and news paper strength. This is done by attaching one of the clamps to the clamp provided in the laboratory and loading the lower clamp with slotted weights. A maximum of 15kg of weight can be hung. Supplied without weights.

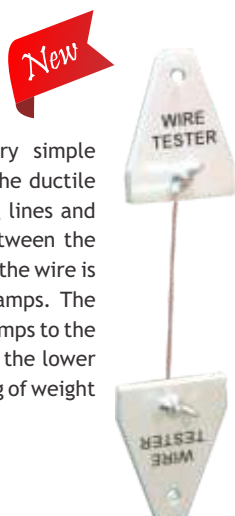
PH10613S/2



WIRE TESTING CLAMPS

This device provides an effective and very simple clamping system for testing the strength of the ductile wires such as copper, sewing threads, fishing lines and human hair etc. The material is clamped between the washers with the help of a wing nut clamp and the wire is routed through the holes provided in the clamps. The strength is checked by attaching one of the clamps to the clamp provided in the laboratory and loading the lower clamp with slotted weights. A maximum of 15kg of weight can be hung. Supplied without weights.

PH10613W



TORSION OF METAL RODS APPARATUS, SEARLE'S

Horizontal pattern, two heavy metal brackets are held together with connected rods. A heavy metal pulley, moving in ball bearings, is mounted on one bracket and is fitted with a three jaw chuck to hold one end of the test rod, the other end being held in another chuck fixed to the other bracket. Two graduated scales are mounted on the connecting rod & two pointers can be clamped in any desired position on the test rod, with one brass & one steel test rod but without masses.

PH10613T



BOYLE'S LAW APPARATUS 1

Two glass tubes 220 mm long, one with closed top and the other open end, connected by 1 meter pressure rubber tubing are mounted on two brackets sliding on two vertical metal rods fixed rigidly on a stand. With heavy cast iron base. The stand has a graduated scale 0 to 100 cm. Supplied without mercury.

PH10614

BOYLE'S LAW APPARATUS 2

This precise apparatus is designed for demonstrating the Boyle's Law (elasticity of gases). The apparatus illustrates accurate readings over a wide range of pressure. Two glass tubes, one with closed top and other open one connected together by a piece of flexible tubing, running parallel to one another on metal rods. This allows one of the tubes to be raised higher or lower than the other and then locked in place. This unit stands vertical on a metal H shaped base. Supplied without mercury.

PH10615



BOYLE'S LAW DEMONSTRATION

For demonstration of Boyle's law to group of students. With Glass tube protected by a plastic safety screen, Volume of air is read from a scale on the tube and pressure is measured by a bourdon gauge. Mounted on a plastic base.

PH10615N



BOYLE'S LAW MARRIOT ECONOMY

Economical apparatus to demonstrate the relationship between the pressure and volume at constant temperature. A 50 ml plastic syringe is connected to a pressure gauge with a connecting tube to measure the pressure. Mounted on a plastic base.

PH10616E



BOYLE'S LAW MARRIOT

Superior version for accurate results. A transparent graduated cylinder with a piston is connected to pressure gauge. The pressure inside the cylinder can be adjusted by rotating the knob connected to the piston and can be read directly on pressure gauge.

PH10616S

BOYLE'S LAW

Consists an air tight plastic syringe supported between two wood blocks. Placing various weights on the upper block compresses the gas, allowing pressure and volume measurements to be made to verify Boyles Law.

PH10616



Best Seller



Best Seller

GAS LAW APPARATUS

Gas Law Apparatus is ideal for studying the relationship between the pressure, temperature and volume of a gas. By turning the piston, volume of the air can be easily changed and the pressure, temperature can be noted from the gauges. The gas law ($PV=nRT$) can be confirmed by repeating the process. Includes instruction manual.

PH10616T

HARE'S APPARATUS

A three limbed glass tube is mounted on a wooden stand with a scale for each of the two 600 mm tubes. A rubber tube with Hoffman clip is provided for the short limb. Two metal sliding distance rods may be so adjusted that their lower ends just touch the surface of the liquid under experiment to facilitate column height readings. Overall dimensions 680 x 300 x 150 mm approx.

PH10617





LIQUID LEVEL APPARATUS

Four glass tubes of different shapes and cross sectional areas are connected to a common horizontal tube, on wooden base.

PH10618

PH10618P Mounted on plastic base



FLUID PRESSURE APPARATUS

Comprises two brass cylinders of different diameters fitted with pistons and connected by a brass tube. Mounted on polished wooden base.

PH10623

HYDRAULIC JACK MODEL

The set includes a basic jack stand with plunger and a main cylinder, four smaller cylinders, a set of connecting hoses and valves. Smaller cylinders can be easily connected to a basic jack stand with a large main cylinder. Students can lift a heavy object, such as a stack of books, by applying a small amount of force to one of the four smaller cylinders. Students can adjust the mechanical advantage by using different input cylinders. Device may also be used to demonstrate Boyle's Law using air or other gases. With Instructions

PH10619



HYDRAULIC PRESS

To show transmissibility of pressure. Two graduated syringes 10 ml and 50 ml are joined at bottom through a 3-way stopcock, the upper ends having metal platforms. On metal stand.

PH10623H

LIFT PUMP ON STAND 1

Glass working model with visible valves, fitted on wooden stand, complete with water reservoir.

PH10620

FORCE PUMP ON STAND 2

Glass working Model with visible valves, fitted on wooden stand, complete with water reservoir.

PH10622





LIQUID LEVEL IN ALL DIRECTIONS APPARATUS

A glass tube with plunger having a spherical bulb at the end. The bulb has small holes around its circumference, length approx. 200 mm.

PH10624



PASCAL DEMONSTRATION

To teach Pascal's Law and application of hydraulic press. By alternately applying force on a large and small piston, students will experience the mechanical advantage of one over the other. This device can be used to discuss the many uses of hydraulics such as power steering, hydraulic jacks, shock absorbers and auto braking systems.

PH10625



PASCAL'S VASES APPARATUS

To show that the pressure of a liquid varies with depth and not with shape of vessel. Consisting of 4 vessels of different shapes with collars, and a stand to mount vessels.

PH10625P



PASCAL'S LAW APPARATUS

This apparatus is used to demonstrate Pascal's law. It demonstrates that pressure of liquids varies with depth and is independent of the shape of the vessel. It is mounted on a moulded plastic base, into top of which one of the four vases of differing shape may be screwed. All the four glass vessels have identical bottom opening. A movable index is provided on the vertical rod to enable the height of water in vases at same level.

PH10625Q



PASCAL BALL

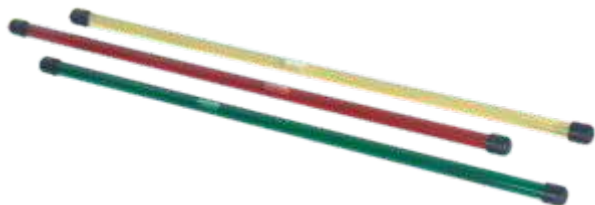
Complete demonstration of Pascal's Law. The apparatus shows that a change in pressure in fluids is transmitted equally in all directions to all parts of a fluid. The device contains a hollow sphere connected to a hand pump with plunger that applies pressure to fluid in the ball. The fluid exits all 10 equidistant nozzles in the ball with equal force in all directions. With instructions.

PH10626

FLUID PRESSURE APPARATUS (SPOUTING CYLINDER)

To show liquid pressure increases with depth. A sheet metal cylinder with three orifices of same size but at different heights.

PH10627



SPEED OF A BUBBLE SET

The set consists of three rugged, sealed, transparent plastic tubes containing colored fluids of three different viscosities. The bubble in each tube rises at a constant speed which depends on the type of fluid, the angle at which the tube is inclined and to some extent the temperature. Students track the time it takes for an air bubble to move from the bottom to the top of 3 different colored tubes. From this they can link the mathematical concept of slope to the physical science concept of velocity. Includes instructions.

PH10629

MANOMETER

Limbs 280 x 5 mm bore with ends riffled and bent at 90° for rear connections, mounted on graduated plastics base.

PH10630



MANOMETER

With stopcock, calibrated, limbs are 300 x 5 mm bore, on back plate, graduated 80-0-80 mm.

PH10631



HYDROMETER, UNIVERSAL 1

Glass, direct reading, range 0.700 to 2.000

PH10632U

HYDROMETER, FOR LIGHT LIQUIDS 2

Glass, range 0.700 to 1.000

PH10632L

HYDROMETER, FOR HEAVY LIQUIDS 3

PH10632H/1 Glass, range 1.0 to 1.5

PH10632H/2 Glass, range 1.5 to 2.0

NICHOLSON HYDROMETER

For density experiments on solids and liquids, hollow body, upper loading pan, and weighted lower loading pan brass plated.

PH10632N





PRESSURE UNDER WATER

Students can quantitatively see how pressure on an object changes as it moves deeper under a fluid with this interactive density pressure manometer activity. A hollow drum covered with a rubber membrane is connected to an open end manometer. When the drum is pushed under water the pressure on the rubber membrane increases the pressure inside the tubing, causing the manometer fluid level to change. The kit includes a tall vertical container, rubber drum, tubing open end manometer and demonstration guide.

PH10633

CARTESIAN DIVER SET

Demonstrates the transmission of pressure by a liquid, the compressibility of gases, and archimedes principle. The set consists of a cartesian diver, glass cylinder, two rubber diaphragms, two elastic bands and instructions.

PH10634

CARTESIAN DIVER

To demonstrate transmission of pressure by liquids.

PH10634/D



VENTURI METER

To demonstrate Venturi effect. Made of glass with three side tubes for attaching an included three-leg manometer. The manometer is filled with colored water to show the relative pressures at significant points of the tube when gas is flowing through it. With Instructions. Without Clamp.

PH10636



BERNOULLI TUBE

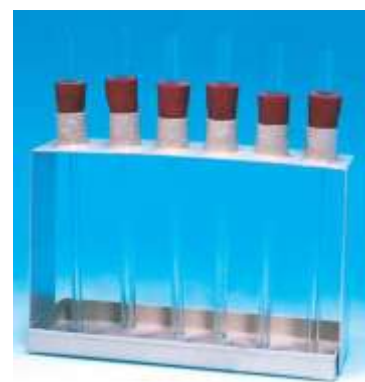
To Investigate the relationship between the speed of a fluid and its pressure. Consists of a glass Venturi tube with two different diameters. One pair holds a U-shaped tube in which a color liquid can be placed to demonstrate the different pressures exerted when air is blown through the tube. It includes two rubber tubes and glass Venturi tube fitted on stand.

PH10636N

CAPILLARY TUBE APPARATUS

Metal frame with six glass tubes of different bores, each of 150 mm length, fitted with corks, to show different heights of water column in different bore tubes.

PH10637



BOURDON GAUGE

Comprises a circular gauge on a pillar fitted on a heavy base, with a tubule to provide connection to the pressure system.

PH10639

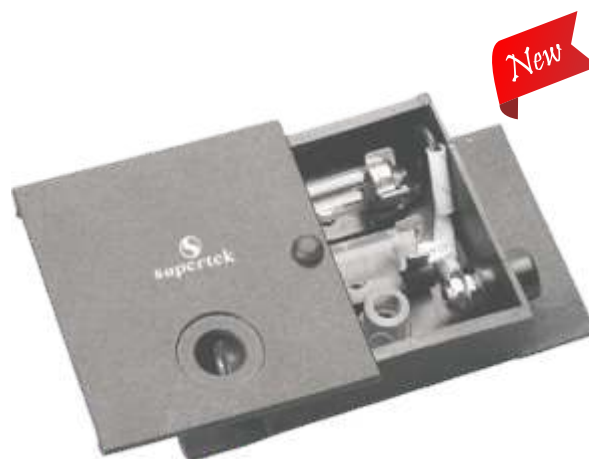




KINETIC THEORY MODEL

To study the motion and behavior of gas molecule, works on 9 to 12 V DC, vibrates a small platform inside a transparent tube, which further vibrates steel balls inside the tube. Includes steel balls and two floats.

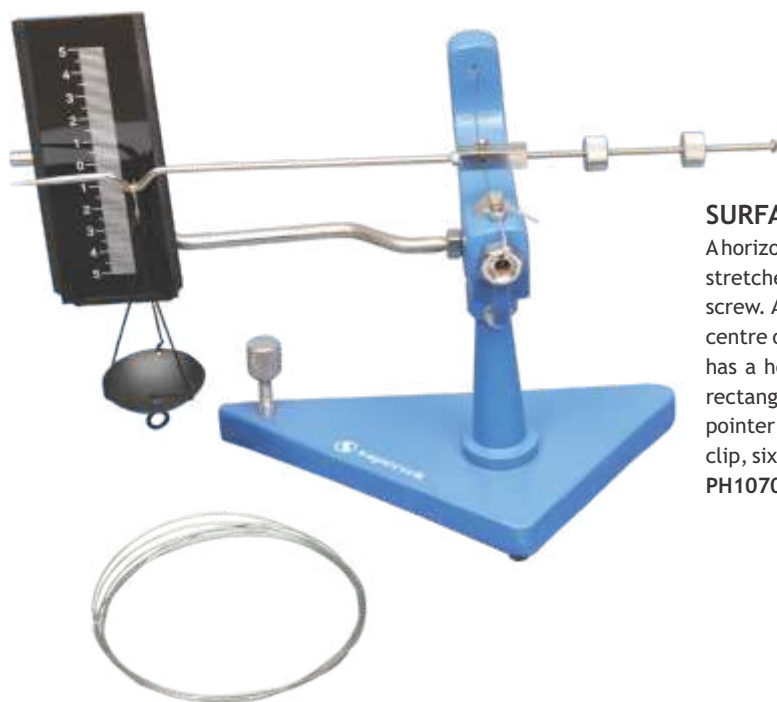
PH10640



SMOKE CELL

Smoke cell is an apparatus used for the observation of Brownian motion in smoke particles. It comprises a box with plastic lid as well as flanges to be used with a microscope. The box consists of a smoke cell and a cylindrical condensing lens. Illumination is provided by a 12 volts 3 watt festoon bulb. Apparatus is pre-set to focus the light at correct height. The dimensions of the apparatus are 90 x 46 x 20 mm. The set is supplied with a squeeze bottle type smoke generator and user manual.

PH10650B



SURFACE TENSION BALANCE, SEARLE'S

A horizontal frame is mounted on a rod fitted to a base & carries a steel wire stretched across it, the tension of which can be adjusted by a tightening screw. A light weight metal pointer with a counterpoise is attached to the centre of the wire by a clamp. A pan is hung from a notch in the pointer and has a hook at its underside from which can be suspended a light weight rectangular frame or a metal clip to hold a micro slide edge. The tip of the pointer moves over a graduated scale. With rectangular wire frame, slide clip, six micro slides and 3 meters of spare wire.

PH10705



MAGDEBURG HEMISPHERES

Made of Aluminium Diam. 75mm approx. with stopcock and handles.

PH12181

MAGDEBURG PRESSURE DISKS

The set consists of two plastic, 10cm-diameter hemispheres. Each half has a wooden handle firmly attached to it. One of the hemispheres has a raised edge to hold a rubber seal, while the other hemisphere has a stopcock for attaching to vacuum tubing. Join the hemispheres, hook them up to a vacuum pump, and evacuate the air inside the hemispheres. You will find it hard to pull them apart. Open the stopcock to let air in and the hemispheres will separate easily.

PH12184



Heat

BALL AND RING

A simple apparatus for demonstrating thermal expansion. Apparatus consist of brass ball and ring. Cold ball passes through the ring but does not pass when heated. Brass ball is connected to the rod with a chain.

	Ball Diam., mm
PH20020/1	19
PH20020/3	22
PH20020/5	25



BALL AND RING

Heavy duty, both ball and ring are mounted on separate handles. When cool, the 25 mm brass ball passes easily through the matching brass ring; when hot, it won't go through.

PH20022



Best
Seller



BALL AND RING

Gravesande's ring mounted on tripod stand, ball with chain. Cold ball passes through the ring but does not pass when heated.

	Ball diam., mm
PH20023/1	19
PH20023/2	22
PH20023/3	25



BAR AND GAUGE

To illustrate expansion of metal on heating and contraction on cooling, with steel bar of length 100 x 10 mm and plated brass gauge with a cutout to just accommodate the bar and two holes through which the bar passes when cold.

PH20024



BAR BREAKING APPARATUS

A heavy cast iron stand slotted to carry a stout iron bar, with ten cast iron breaking bars.

PH20030

BREAKING BARS

For use with above, pack of 10.

PH20032



LINEAR EXPANSION APPARATUS, MICROMETER SCREW FORM

A 500 mm long metal rod is supported in a plated brass tube with three tubules for steam inlet, outlet and thermometer. The tube is mounted on a stand with an adjusting screw at one end and a micrometer screw reading to 0.01 mm on the other, with terminals for connecting a bell or galvanometer to indicate contact. With copper, brass and iron test rods but without thermometer.

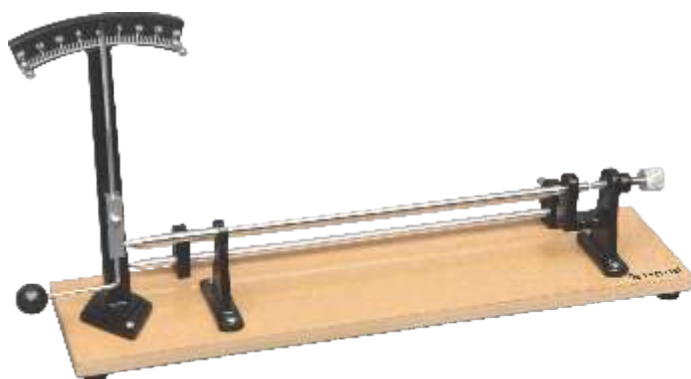
PH20044



EXPANSION APPARATUS

Two cast metal uprights, height 18 cm, fitted with two nickel plated rods supporting expansion bar of length 38 cm. Expansion bar is fixed to one upright and moves a pointer on the other, when heated. With scale reading 0 to 90°, supplied with one each, aluminium, brass and iron expansion bars.

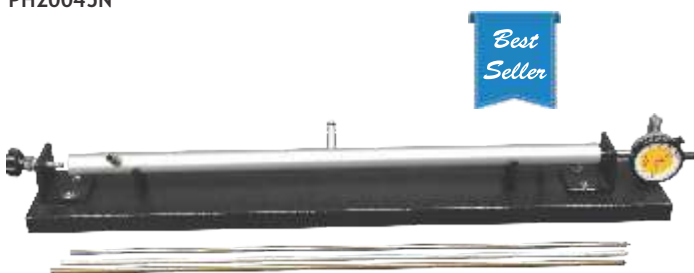
PH20045



PYROMETER

Fitted on a wooden base cast metal uprights and rod mountings. A 20-0-20 scale is provided to notice the expansion in rods. The counter weighted needle is used for easy reading. A knurling screw is provided for zero adjustment. Supplied with three metal rods one of each Aluminium, Brass and Steel.

PH20045N



LINEAR EXPANSION

A high quality apparatus to determine precisely co-efficient of expansion of various metals. An aluminium channel carries a 60 cm long metal rod enclosed in a heating jacket having three nipples for water intake, water outlet and thermometer insertion. Dial indicator is a precision instrument sensitive to 0.01mm/division and is securely mounted. As the apparatus works with hot water, there is no danger from any steam escaping and causing burns on the skin. Complete with four expansion rods of steel, brass, copper and aluminium.

PH20047



COMPOUND BAR

Brass and iron, 200x25 mm, reverted, with wooden handle.

PH20060



BI METALLIC STRIP

Demonstration Apparatus for Illustration of Thermoexpansion A 12V Halogen bulb is fitted below the bi-metallic strip. When heated the strip bends upward and breaks the circuit.

PH20062



EXPANSION OF LIQUIDS APPARATUS

To show different liquids have different thermal expansions. Five graduated glass bulb tubes are supported in a galvanized iron water trough by a support frame. Bulbs are of approx. 35 mm diam. with stem of 400 mm length.

PH20071



HOPE'S APPARATUS

To determine temperature at maximum density of water. Sheet iron cylinder and trough on a base, with tubules for thermometers but without thermometers.

Cylinder size 340 x 50 mm

Trough size 100 x 200 mm

PH20077S

Cylinder size 203 x 50 mm

Trough Size 63 x 100 mm

PH20077E

HYPSONOMETER, REGNAULT'S

Double walled copper cylinder, 340x60mm, mounted on steam boiler, with thermometer tubule at top and side outlets for manometer and draining.

PH20078



CHARLE'S LAW KIT

A glass U-tube of 10 mm diam. the shorter limb of which has a stopcock near top and the longer limb can take a plastic tube. A scale is provided and can be attached to the shorter limb. With red indicator oil but without 2000 ml tall form beaker which acts as a reservoir.

PH20093



ABSOLUTE EXPANSION OF MERCURY APPARATUS, DULONG AND PETIT

To determine the co-efficient of absolute expansion of mercury. Glass tubes with vertical limbs contained within glass jackets approx. 460 x 25 mm height x diameter, are closed by bungs and fitted with inlet and outlet tubes. Upper ends of these vertical limbs are angled on emergence from the jackets to produce two short, adjacent limbs placed against a silvered glass scale 0 to 12 cm x 1 mm. Mounted on stand 610 x 230 mm, height x width. Overall height 750 mm approx., supplied without mercury.

PH20084

Best Seller



CHARLE'S LAW APPARATUS

To determine co-efficient of expansion of a gas at constant pressure. A glass U-tube with a bulb and stopcock at one end, the other limb being open. An outlet tube from the bottom of the U tube passes through a rubber bung and has a stopcock at the end. The stem below the bulb is graduated 3x0.1 ml. An inlet tube with a mohr clip also passes through the bung. A glass water jacket encloses the U tube. All glass parts made of borosilicate glass requires only 20 ml mercury, which is not included.

PH20089



ICE MELTING KIT

Demonstrates the difference in thermal conductivity of two different materials. The kit consists of two identical blocks, one made of aluminum and other of plastic. When an ice cube is placed on aluminum it turns into water in seconds, while on plastic block, it melts slowly. The aluminum block has a larger heat capacity and a higher thermal conductivity, while the plastic block has lower values of both parameters. With instructions.

PH20095



LATENT HEAT OF STEAM APPARATUS

Consists of a thick brass calorimeter 90 x 65 mm, a bung with steam inlet and outlet tubes, a felt cover and a one liter brass sheet boiler with bung to take the steam tube. PH20120



CALORIMETER SET

Consisting of a joint less copper calorimeter 75x50 mm on rubber supports, spun outer copper vessel of 100x75 mm diam. copper lid for outer vessel with central tubule for thermometer and slit for copper stirrer, with a looped copper stirrer for the inner vessel. PH20152

CALORIMETER SET

Copper calorimeter 75 x 50 mm with felt insulation, outer vessel of 100 x 65 mm size with a plastic lid having holes for thermometer and stirrer. A thermometer holder is fixed to the outer vessel. Complete with stirrer. PH20163



Best
Seller

CALORIMETER, ELECTRIC

Double-Wall Calorimeter with 1.5 ohm heating coil and 4 mm standard terminals for electrical connections. Complete with insulated stirrer and single-hole rubber stopper. Operates on 6-V DC. Instructions included. PH20168

CALORIMETER, JOULE'S

Polished aluminum container placed in an outer wooden case with thermometer, plastic top fitted with two terminals for heating coil and a hole for thermometer. PH20172



CALORIMETER JOULE'S

Nickel plated copper calorimeter of 50 x 75 mm lagged and enclosed in an outer vessel of 75 x 100 mm size, with cover having terminals, a heating coil suitable for 3-6 V supply and holes for thermometer and stirrer. With stirrer but without thermometer.

PH20175



HEAT TRANSFER ACTIVITY

To observe heat transfer under different conditions by measuring the temperatures of the insulated containers before and after connecting them with the metal bar. Consists of two insulated containers, two thermometers and a metal bar and instruction manual.

PH20187



BLOCK CALORIMETER

Metal, for experiments on specific heat of different metals, cylindrical metal blocks 1 kg \pm 2%. Each block has a central hole for a special immersion heater and an offset hole for Thermometer.

- PH20181/1 Aluminium Alloy
- PH20181/2 Mild Steel
- PH20181/3 Copper
- PH20181/4 Brass



SPECIFIC HEAT DEMONSTRATION SET

Unique way to illustrate the different heat capacities of various metals features a slanted panel with four grooves to hold four different metals. Place a sheet of bee's wax in the front of the pane and submerge the metal samples in hot water. When the metals are placed on the grooves simultaneously they will melt and sink through to different levels based on their specific heat. Includes four metals cylinders: Aluminum, Copper, Lead and Tin; support stand, two pieces of bees wax and instructions.

PH20202



IMMERSION HEATER

Specially designed for metal block calorimeters. Heating element enclosed in a metal tube with two connecting leads which are insulated with heat resistant insulation. 12 V, 50 W.

PH20185



SPECIFIC HEAT SPECIMEN SET

Consists of five 1/2"-diameter hooked cylinders machined to equal mass. 25g, Metal identifications stamped on one end. Includes Aluminum, Copper, Stainless Steel, Tin and Zinc.

PH20205

SPECIFIC HEAT SPECIMEN SET

Set of 4 consisting of Aluminum, Copper, Stainless Steel and Zinc. With brass hook. Each cylinder is 19 mm in diam. (mass 50gm)

PH20205S



SET OF SIX METAL CYLINDERS

Equal in size, 38 x 9.5 mm, Copper, Lead, Brass, Iron, Zinc and Aluminium.

PH20206E

PH20206S with wooden stand



SET OF SIX METAL CYLINDERS

Equal in mass, each of 100 gm, Copper, Lead, Brass, Iron, Zinc and Aluminium dia. 19 mm

PH20209E

PH20209S with wooden stand



METALS

In rivet or pellet form, for specific heat experiments.

PH20214/1	Aluminium 100 gm
PH20214/2	Brass 250 gm
PH20214/3	Copper 250 gm
PH20214/4	Lead shots 500 gm
PH20214/5	Mild steel 500 gm

Shiv Dial Sud & Sons

23, Industrial Estate
Ambala Cantt - 133 006, INDIA



STEAM GENERATOR 1

Seamless construction, Safer than traditional models, features a tripod base that dissipates heat more evenly and efficiently. The base and legs are of chrome plated steel for heat and corrosion resistances are also unlikely to melt if the unit is used improperly. Supplied with instructions. PH20220

STEAM HEATER 2

Copper cylindrical vessel 180x115 mm with steam vent and a vertical tube terminating in chute passing through side of vessel. A brass tube sliding fit in the central tube, with lower angle cut to seal the chute, enables heated material to be transferred to calorimeter without loss of heat. PH20230



STEAM BOILER 3

Cylindrical, with conical top and short neck for bung, with handle, G.I. Sheet.

PH20238/1 Capacity 1000 ml

PH20238/3 Capacity 2000 ml

STEAM BOILER 4

Cylindrical spun body made of copper.

PH20245/1 Capacity 1000 ml

PH20245/3 Capacity 2000 ml

STEAM BOILER

Cylindrical spun body made of copper with water level indicator.

PH20250/1 Capacity 1 L, with water level indicator

PH20250/2 Capacity 2 L, with water level indicator



STEAM TRAP

All glass.

PH20255



WOOD AND METAL CYLINDER

To show that metal has a lower specific heat than wood, constructed of wood on one end and hollow metal on the other. One way is to simply let students feel both ends of the cylinder at room temperature, enabling them to see that the metal end is cooler than the wooden end. Another easy demonstration is to wrap paper on both ends and hold the cylinder over a flame for five seconds. The metal end will be relatively unmarked while the wooden end will show scorch marks. Includes instruction manual.

PH20271

HEAT CONDUCTIVITY BAR SET

A simple, effective apparatus demonstrates the heat conductivity of various metals. Four metals bars (Copper, Aluminum, Brass and Steel) are mounted on a base with a hole for suspension. Every metal bar has same cross-sectional area and its conductivity value is marked on the back of the base. The sensitive temperature indicators are attached to the front of each of the four metal bars. The color of the temperature indicator changes with the change in temperature. Place the bars in a beaker of hot water and compare their relative conductivities. With instructions.

PH20272



INGENHOUSZ'S APPARATUS

To demonstrate different conductivities of different metals. Rods of 5 different metals and wood, fitted along one side of a metal tank.

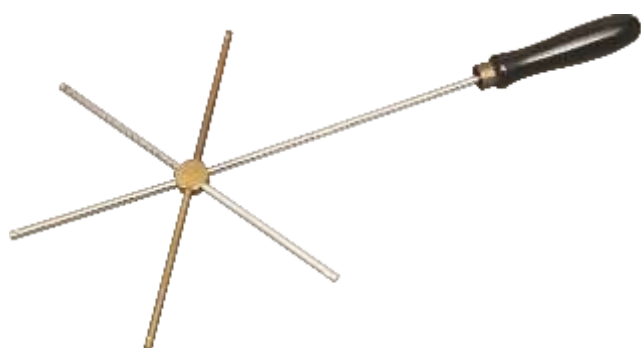
PH20280



THERMAL CONDUCTIVITY OF METALS APPARATUS

Strips of four different metals fixed on a wooden ring of outer diam. 130 mm and each having a depression for putting wax.

PH20275



CONDUCTOMETER, FIVE ROD FORM

For demonstrating the different heat conductivities of five metals by observing the melting of wax.

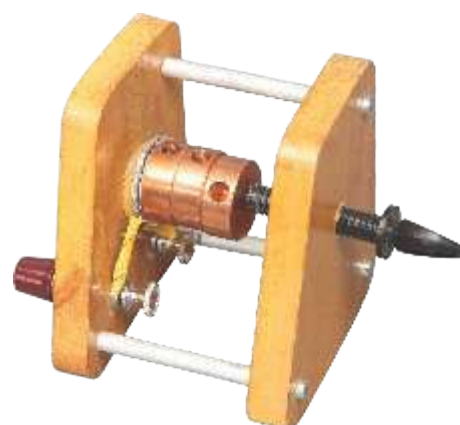
PH20278



SEARLE'S APPARATUS FOR THERMAL CONDUCTIVITY OF COPPER

Steam heated, with 230 x 25 mm copper bar, with a steam chamber at one end, the other end having a copper coil for cold water with inlet and outlet tubes. With two thermometer pockets. In box with insulated lagging, removable cover, without thermometers.

PH20290



LEE'S DISC APPARATUS

For poor conductors, 3 cylindrical blocks of Copper 50 mm diameter 12.5 mm thick, with radial holes for thermometers, are clamped in a wooden frame by a screw, with 2.5 W, 6 V heating element and a set of 3 bad conductor discs.

PH20305

CONVECTION IN WATER APPARATUS

To show the convection of heat in a liquid. Comprising a rectangle of 18 mm glass tubing, with short funnel at top.

PH20316S Size 350 x 200 mm

PH20316E Size 200 x 150 mm



CONVECTION OF HEAT IN AIR APPARATUS

To show the convection of heat in air. Metal box, 230 x 75 x 75 mm, with sliding glass front and two detachable glass chimneys. Supplied without candles.

PH20320

CONVECTION OF HEAT IN AIR APPARATUS

To show the convection of heat in air. Metal box, 225 x 105 x 105 mm, with sliding glass front and two detachable glass chimneys. Supplied with candles.

PH20320S

LESLIE CUBE

Consisting of a galvanized iron box of 130 mm sides. The vertical faces are blackened dull, blackened bright, white and polished respectively, with a tubule at top for thermometer.

PH20325



LESLIE CUBE

Brass box of 75 mm side, with tubule at top.

PH20327

CROOKE'S RADIOMETER

Set of four mica vanes, with one side of each blackened, in a partially exhausted glass bulb, with stand.

PH20338



CROOKE'S RADIOMETER, DOUBLE

As above but with two sets of mica vanes placed in two separate bulbs, blackened in such a way that rotations are in opposite directions.

PH20340



HEAT ABSORPTION AND RADIATION COMPARATOR

To demonstrate the phenomenon of heat absorption and radiation between different surfaces. One 12V bulb is used as heat source and two parabolic metal discs used as different bodies, one slot is provided behind the discs to hold the thermometer. Two sockets are provided for power input. with two thermometers & plain glass

PH20346

ENERGYCONVERSION KIT

To show qualitatively energy conversion from one form of energy to another in different ways. The kit comprises a number of separately available units. All units are mounted on a 160 x 140 mm base and have 4 mm socket terminals where needed.

LARGE MOTOR/GENERATOR UNIT 1

With 2-6 V DC motor with a 15 mm Diam. 'V' Pulley on base with terminals.
PH20370



SMALL MOTOR/ GENERATOR UNIT

As above, but with 1.5 - 4.5 V motor.
PH20375

SWITCH UNIT 2

Double pole double throw knife switch on base with terminals labeled 'Battery', 'Motor', 'Lamp'
PH20380



LAMP UNIT 3

With 3 M.E.S. Lamp sockets connected in parallel, on base with terminals, with three lamps of 3.5 V, 0.25 A
PH20385



FLY WHEEL UNIT 4

Steel fly wheel 100 mm diam.
with pulley 20 mm diam. on shaft
held in brackets, mounted on base.
PH20390

FLYWHEEL UNIT 5

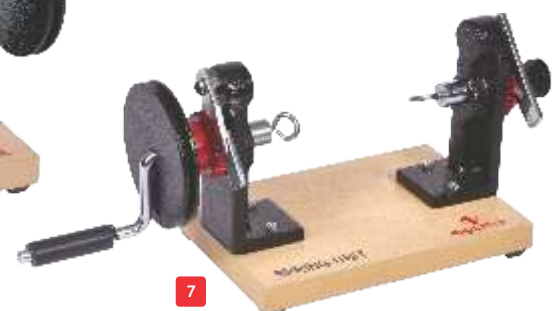
Complementary to PH20390 having same mass but 50 mm diam. with 20 mm pulley, on base.
PH20395

LINE SHAFT UNIT 6

Steel shaft, pulley of 70 mm diam. Shaft overhangs the base to allow a wound up weight to fall down.
PH20400

SPRING UNIT 7

For showing conversion of potential energy stored in twisted rubber to kinetic/electrical energy. Elastic bands are looped and stretched between pulley and support. A crank handle and pulley combined with ratchet stop allows the rubber to be wound up and released to drive a dynamo, supplied without dynamo.
PH20405





FRICTION CALORIMETER UNIT

Aluminium calorimeter 60 x 6 mm with integral pulley, 20 mm diam. rotates in a boss, mounted on base. The friction brake consists of cork lined jaws on pillar, which also mounted on base.

PH20415



TURBINE / PUMP UNIT

This simple unit can help the student understand the operating principle of pump and turbine. The unit consists of a rotor attached to a pulley via a shaft. It also includes 3 metal nozzles and a stopcock. When driven by a motor, the unit works as a pump, raising the water to higher potential energy. Whereas when the rotor is made to rotate by flowing water, the unit acts as a turbine.

PH20425



STEAM ENGINE UNIT

Working model, with boiler, safety valve, whistle, steam chamber & flywheel, on base, to drive dynamo models etc.

PH20420



HEAD OF WATER UNIT

The unit consists of a wooden base with upper and a lower platform. The upper platform has a hole to allow use as a simple circulation system with a single reservoir. Includes two glass basins and shaped glass tubes. This unit is used as an accessory with Pump / Turbine Unit (PH20425).

PH20432

HAND WHEEL DRIVE UNIT

Converts muscular energy to other forms of energy. 75 mm diam. hand cranked pulley with rubber belt to drive a small pulley of 20 mm diam. to which a drive output pulley is directly attached. Pulley shafts are mounted in bearings on aluminium casting, on standard base.

PH20422



STORAGE BATTERY UNIT

To demonstrate the principle of lead acid accumulator, glass jar with plastic lid having two 4 mm terminals connected to two lead plates.

PH20435





WATER TURBINE WITH DYNAMO

To show conversion of mechanical energy into electrical energy. Turbine with transparent cover, inlet and outlet tubes directly connected to a dynamo. Fitted on base.

PH20445



New

HYDROELECTRIC POWER STATION

Ideal for classroom demonstration, this hydroelectric power station model allows students to directly observe the process of conversion of water flow to electrical energy that occurs in hydroelectric power plants. The water turbine is mounted on a plastic base together with a dynamo, newton disc, lamp, LED, and a two way selecting switch. The switch selects delivering power to either a lamp or a Newton's Color Disc. The LED can be removed if you instead want to draw current from the 4mm output terminals. Includes instructions.

PH20452



New

ENERGY CONVERSION KIT

Energy conversion kit is used to demonstrate the energy conversion between different (solar, mechanical, electrical etc.) forms of energy. It is very easy to work with. It is mounted on a solid plastic board provided with an ON/OFF switch, a solar cell, battery holder and crank hand. 4 mm sockets are provided for the output.

Additional Accessories Included:

- 2 AA batteries
- An electromagnet
- A Buzzer
- A Motor with fan
- LED
- Resistor

PH20448



New

WIND POWER DEMONSTRATOR

This wind power generator can be used to demonstrate the generation of electricity by a wind-powered turbine. Wind produced by the hand cranked fan subsequently turns a second fan connected to a generator. When the fan rotates, it produces electricity and lights up a small LED and a voltmeter. Instructions included.

PH20450

MODELS OF ENGINES

Sectional, to enable all moving parts to be seen clearly. When required, a simple carburetor is depicted in cross section and a low voltage bulb is used to simulate action of spark plug. Internal passages are suitably colored to show nature of gases passing through them. All models are of cast alloy and each is fitted on a base.



TWO STROKE PETROL ENGINE MODEL

Showing internal structure and operating principles of a simple piston air cooled two stroke engine. Mounted on a polished wood base with schematic diagram, overall height 360 mm approx.

PH20471



FOUR STROKE PETROL ENGINE MODEL

Air cooled, four stroke, with operation of valves clearly shown. Mounted on a polished wooden base with schematic diagram, overall height 450 mm approx.

PH20475



FOUR STROKE DIESEL ENGINE MODEL

Four stroke water cooled diesel engine, shows functioning of fuel injection system together with hot coil starting device.

PH20480



MODEL OF STEAM ENGINE

Locomotive design, sectional, the valve and piston mechanism clearly visible through a glass plate with forward and reverse motions, demonstrates working with an air blower or even with mouth blowing.

PH20490

HERO ENGINE

A functional glass model of steam turbine. Comprises a glass bulb 70 mm diameter approx, with side arms bent at right angles. With stand.

PH20495



HERO'S ENGINE

Hero's Engine demonstrates the principle of jet propulsion. The apparatus consists of a small Erlenmeyer flask with a rubber stopper and two tubes with tangentially oriented jets. A collar is provided around the flask to hang it above a heating source. When water boils inside the flask, steam escapes the jets and the flask spins.

PH20497

MIRROR, PLANE

Rectangular, glass, back silvered, with protective coating, pack of 10.

	Size, mm
PH30025/1	75 x 25
PH30025/2	75 x 50
PH30025/3	75 x 75
PH30025/4	100 x 25
PH30025/5	100 x 50
PH30025/6	100 x 75
PH30025/7	150 x 25
PH30025/8	150 x 50



MIRROR SUPPORT BLOCK

Wooden block 50 x 50 x 50 mm with slot to take rectangular mirrors.
PH30030



CONCAVE MIRROR, SPHERICAL

Optically worked, back silvered, with protective coating.

	Diam., mm	Focal Length, mm
PH30045/1	50	75
PH30045/2	50	100
PH30045/3	50	150
PH30045/4	50	200
PH30045/5	50	300
PH30046/2	60	100
PH30046/3	60	150
PH30046/4	60	200
PH30046/5	60	300
PH30048/2	75	100
PH30048/3	75	150
PH30048/4	75	200
PH30048/5	75	300

CONVEX MIRROR, SPHERICAL

Optically worked, back silvered, with protective coating.

	Diam., mm	Focal Length, mm
PH30053/1	50	75
PH30053/2	50	100
PH30053/3	50	150
PH30053/4	50	200
PH30053/5	50	300
PH30054/2	60	100
PH30054/3	60	150
PH30054/4	60	200
PH30054/5	60	300
PH30056/2	75	100
PH30056/3	75	150
PH30056/4	75	200
PH30056/5	75	300



MIRROR, WITH BASE

To explore light reflection and refraction properties of concave and convex mirrors, laws of reflection, image formation, the effects of surface curvature on reflection, spherical aberration etc. Each mirror is securely held on a plastic base, diameter of the mirror is 95 mm approx.

PH30058/1	Concave
PH30058/3	Convex



LENSES, SET OF SIX

Glass, one each double convex, Plano - convex, concavo - convex, convexo - concave, Plano - concave and double concave lens, in box.

	Diam., mm
PH30060/1	38
PH30060/2	50



LENS, DOUBLE CONVEX, SPHERICAL

Clear glass, ground edges.

	Diam., mm	Focal Length, mm	Power
PH30062/2	25	100	+10D
PH30062/3	25	150	+6.6D
PH30064/1	38	50	+20D
PH30064/2	38	100	+10D
PH30064/3	38	150	+6.6D
PH30064/4	38	200	+5D
PH30064/5	38	250	+4D
PH30064/6	38	300	+3.3D
PH30064/8	38	500	+2D
PH30064/9	38	1000	+1D
PH30067/1	50	50	+20D
PH30067/2	50	100	+10D
PH30067/3	50	150	+6.6D
PH30067/4	50	200	+5D
PH30067/5	50	250	+4D
PH30067/6	50	300	+3.3D
PH30067/8	50	500	+2D
PH30067/9	50	1000	+1D
PH30070/2	60	100	+10D
PH30070/4	60	200	+5D
PH30070/6	60	300	+3.3D



LENS, DOUBLE CONCAVE, SPHERICAL

Clear glass, ground edges

	Diam., mm	Focal Length, mm	Power
PH30075/1	38	50	-20D
PH30075/2	38	100	-10D
PH30075/3	38	150	-6.6D
PH30075/4	38	200	-5D
PH30075/5	38	250	-4D
PH30075/6	38	300	-3.3D
PH30075/8	38	500	-2D
PH30075/9	38	1000	-1D
PH30078/1	50	50	-20D
PH30078/2	50	100	-10D
PH30078/3	50	150	-6.6D
PH30078/4	50	200	-5D
PH30078/5	50	250	-4D
PH30078/6	50	300	-3.3D
PH30078/8	50	500	-2D
PH30078/9	50	1000	-1D
PH30080/2	60	100	-10D
PH30080/4	60	200	-5D
PH30080/6	60	300	-3.3D

LENS PLANO- CONVEX

Clear glass, ground edges.

	Diam., mm	Focal Length, mm	Power
PH30085/1	25	50	+20D
PH30085/2	25	70	+14D
PH30088/3	32	1000	+1D
PH30090/3	38	150	+6.6D
PH30092/2	50	140	+7D
PH30092/7	50	400	+2.5D
PH30094/3	100	150	+6.6D

CYLINDRICAL LENSES

Cylindrical lenses made of highly polished glass, magnifies in only one dimension. These lenses are used in transforming a point image to a line or changing the height of an image without changing its width.



Double-Convex:

Size 50 x 50 mm	Focal Length, mm
PH30101/2	75
PH30101/6	150
PH30101/7	200

Size 50 x 45 mm	Focal Length, mm
PH30103/2	75
PH30103/6	150
PH30103/7	200

Double Concave:

Size 50 x 50 mm	Focal Length, mm
PH30105/2	75
PH30105/6	150
PH30105/7	200

Size 50 x 45 mm	Focal Length, mm
PH30107/2	75
PH30107/6	150
PH30107/7	200

Plano- Convex:

Size 50 x 50 mm	Focal Length, mm
PH30109/1	60
PH30109/2	75
PH30109/3	100
PH30109/4	150

Size 50 x 45 mm	Focal Length, mm
PH30111/1	60
PH30111/2	75
PH30111/3	100
PH30111/4	150

Plano- Concave:

Size 50 x 50 mm	Focal Length, mm
PH30113/1	60
PH30113/3	150
PH30113/6	300

Size 50 x 45 mm	Focal Length, mm
PH30115/1	60
PH30115/3	150
PH30115/6	300

LENS HOLDER WOODEN

Wooden, with V shaped slot to take spherical lens or mirror up to 75 mm diam., with index mark.

PH30125



LENS HOLDER

With 6 mm diam. Metal rod, to fit into standard optical bench mounts and stands.

PH30137/2 To hold 38 mm lens

PH30137/4 To hold 50 mm lens



LENS HOLDER

Metal holder with sides grooved to hold lens up to 50mm diam. on wooden support.

PH30142



SPHEROMETER 1

Brass dial head 40 mm diam., divided and marked in 100 divisions, vertical scale 10-0-10 mm, fitted on tripod stand, distance between legs 40 mm.

PH30153/1 Screw pitch 1 mm

PH30153/2 Screw pitch 0.5 mm

SPHEROMETER 2

Brass dial head 40 mm diam. divided and marked in 100 divisions, vertical scale 10-0-10 mm, fitted on heavy brass disc, with 3 pointed legs, distance between legs 40 mm.

PH30155/1 Screw pitch 1 mm

PH30155/2 Screw pitch 0.5 mm



MAGNIFIER, FOLDING

Fitted in plastic frame

PH30177/5	Single,	x4	1
PH30177/6	Double,	x7	
PH30177/7	Triple,	x10	2
PH30177/8	Single,	x4, with leather pouch	3

WATCHMAKER'S EYE GLASS

Diameter 25 mm, mounted in plastic eye-grip frame.

	Magnification
PH30180/1	x 2.5
PH30180/2	x 3
PH30180/3	x 3.5
PH30180/4	x 4



MAGNIFIER, FOLDING

Pocket type magnifier mounted in single body with a metal cover which doubles as handle fitted with a single lens of diam. 18 mm with a magnification of X 10.



PH30186

BIFOCAL MAGNIFIER 3X/5X

Two magnifiers built into one compact handle with a diam. of 50 mm made of acrylic

PH30188



MAGNIFIER, READING GLASS

In metal frame and handle, chrome plated.

	Diam., mm	F.L. mm	Magnification
PH30192/1	40	100	x 3.5
PH30192/2	50	120	x 3
PH30192/3	50	150	x 2.5
PH30192/4	60	150	x 2.5
PH30192/5	75	150	x 2.5
PH30192/6	75	200	x 2.25
PH30192/7	100	150	x 2.5
PH30192/8	100	250	x 2.25



MAGNIFIER, READING GLASS

In metal frame with black plastic handle.

	Diam., mm	F.L. mm	Magnification
PH30195/2	40	100	x 3.5
PH30195/4	50	120	x 3
PH30195/5	50	150	x 2.5
PH30195/6	60	150	x 2.5
PH30195/7	75	150	x 2.5
PH30195/8	75	200	x 2.25



MAGNIFIER, READING GLASS

All plastic frame.

	Diam., mm
PH30197/1	50
PH30197/3	75
PH30197/5	100



LINEN TESTER

These are collapsible pocket magnifiers. The optical system is a single element, glass Double Convex Lens. The housing is made of machined, black high grade plastic for a high finish look. These magnifier fold flat to fit in your pocket. Scales are etched on the inner faces of the viewers base. PH30205



BLOCK, GLASS

Free from air bubbles, all sides polished

	Size, mm
PH30251/1	75 x 50 x 12
PH30251/2	75 x 50 x 18
PH30251/3	100 x 50 x 18
PH30251/4	100 x 60 x 18
PH30251/5	115 x 65 x 18

BLOCK, GLASS

Moulded glass, all sides polished,

	Size, mm
PH30254/1	75 x 50 x 18
PH30254/3	100 x 60 x 18



BLOCK, ACRYLIC

Rectangular, clear, all sides polished

PH30257/1	100x45x18 mm approx
PH30257/2	115x65x20 mm approx



BLOCK, GLASS, SEMI-CIRCULAR

90 mm diam., 16 mm thickness

PH30260



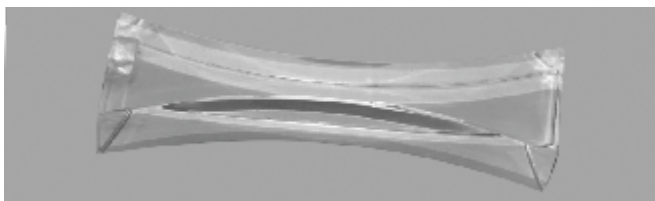
BLOCK ACRYLIC, SEMI-CIRCULAR

PH30262/1	90 mm diam. x 16 mm thick
PH30262/3	75 mm diam. x 20 mm thick

LENS, BICONVEX, ACRYLIC

PH30265/1	75 mm long, 115 mm radii, 25 mm thickness
PH30265/2	75 mm long, 145 mm radii, 25 mm thickness





LENS, BICONCAVE, ACRYLIC

PH30268 75 mm long, 115 mm radii, 25 mm thickness



TRIANGLE, ACRYLIC

PH30270/1 90° x 60° x 30°, 75 mm Hypotenuse
PH30270/2 90° x 45° x 45°, 75 mm Hypotenuse



TRIANGLE, ACRYLIC

Equilateral, 60° x 60° x 60°, 57 mm side
PH30272

PINS

For optical experiments. Pack of 100g.

PH30280/1 Length 50 mm, plated brass
PH30280/2 Length 50 mm, plated iron
PH30280/3 Length 75 mm, plated brass
PH30280/4 Length 75 mm, plated iron



PRISM

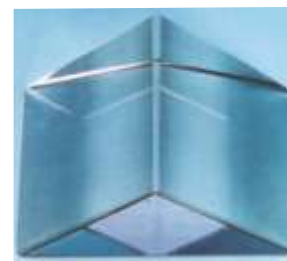
Glass, equilateral, polished faces, edges slightly beveled, 60° x 60° x 60°.

	Length x Face, mm
PH30288/1	25 x 25
PH30288/3	38 x 38
PH30288/5	50 x 50

PRISM, GLASS

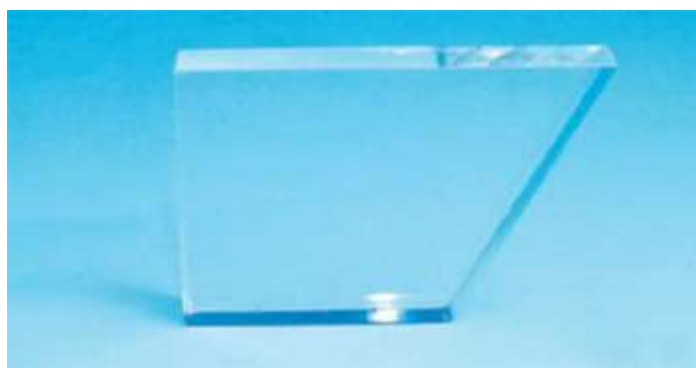
Right angle, polished faces, edges slightly beveled, 90° x 45° x 45°.

	Hypotenuse x Length, mm
PH30292/1	35 x 25
PH30292/2	50 x 38
PH30292/3	70 x 50



PRISM, GLASS

Right angle, polished faces, edges slightly beveled, 90° x 60° x 30°
Size 28 x 38 mm
PH30294



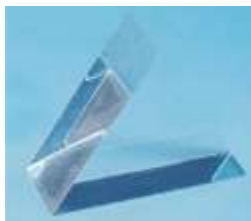
PRISM, ACRYLIC

Equilateral prisms clear with long sides for refractive index measurements, trapezoidal prism with a frosted base to show ray paths inside the prism. 75 mm side, 9 mm thick
PH30295

EQUILATERAL PRISMS, ACRYLIC

Polished on all faces.

	Side(mm)	Height(mm)
PH30297/1	25	12
PH30297/3	50	20



CUBE, GLASS, HOLLOW

50 mm side, cemented, with hole and stopper at top.

PH30311



CORNER CUBE REFLECTOR

To demonstrate principles of light and reflection, The reflector features three front-surfaced triangular mirrors mounted at right angles to one another on a hardwood base. Light beams hitting any of the mirrors from any angle are bounced off the other two mirrors and reflected back in the same direction they came from. With instructions.

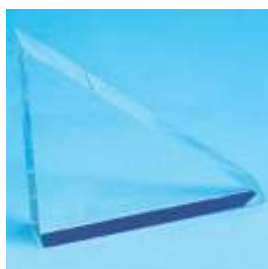
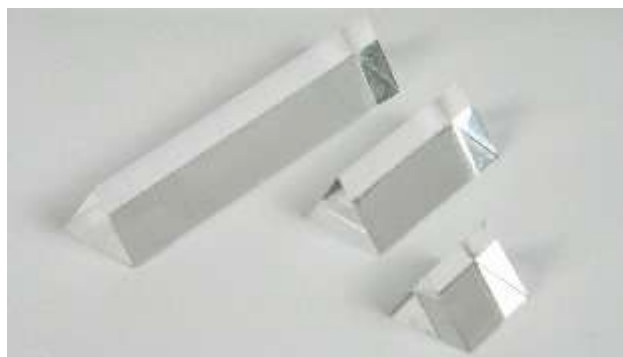
PH30312



ACRYLIC PRISM SET

Set of three crystal-clear acrylic, equilateral prisms 25mm faces, 25mm, 50mm and 100mm long.

PH30305



RIGHT ANGLE PRISMS, ACRYLIC

PH30307 Hypotenuse 36 mm Height 25 mm

PRISM, GLASS, HOLLOW

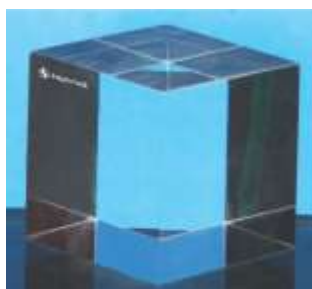
Equilateral, cemented, with hole and stopper.

PH30309/1	Side 38 mm
PH30309/2	Side 50 mm

ACRYLIC REFRACTION CUBE

Face 5 cm transparent and highly polished for clarity.

PH30310



ACRYLIC LIGHT DEMONSTRATION CUBE

To demonstrate refraction and provides a better understanding of Snell's Law. Comprises of acrylic cube and a glass mug. Includes instructions.

PH30313

ACRYLIC RAY OPTICS SET

Made of polished acrylic 15 mm thick, the set is provided in a convenient storage box. Set consists of: rectangle (75mm sides), double convex lens and two double concave lenses with a focal length of about 10 cm, equilateral prism, and semi-circular block.

PH30315





OPTICS KIT

To demonstrate basic principles of light and color. The kit contains double convex lens, double concave lens, plain lens, clear glass screen, glass mirror, white plastic screen, 4 cellophane squares (4 colors), 3 lens/mirror supports, acrylic equilateral prism, graduated plastic beaker, candle and flashlight. Packed in a reusable storage case, complete with instructions.

PH30317

TRANSPARENT TANK

For PH20351, size 70x70x70 mm

PH30352



LARGE RECTANGULAR TRANSPARENT TANK

Clear plastic, approx. 600 x 200 x 75 mm for use in wave motion and ray optics demonstrations.

PH30356



WHITE BOARD OPTICS SET

A comprehensive set of equipment for performing ray optics and color mixing experiments using magnetic-backed components. The components can be used with whiteboard (included) or any installed steel / magnetic board. The set includes one light box with power adapter, three slits, one transparent color filters (set of 7), one opaque color filters (set of 7), one rectangular acrylic block, one semicircular acrylic block, one right angle block $90^\circ \times 45^\circ \times 45^\circ$, one right angle $90^\circ \times 60^\circ \times 30^\circ$, one equilateral prism, four plastic coated ring magnets, one double convex block, one mirror strip, one double concave lens, one rectangular acrylic bar, one acrylic liquid container, two magic alphabet card and one mirror holder. The size of whiteboard supplied is approx. 580 x 390 mm.

PH30325



OPTICAL DISC

A 500 mm diam. disc marked every 5° is mounted on a heavy stand and is rotatable around its centre. It can be held in any desired position. The lamp house, with a 12V 24 W special filament lamp has rotatable slots to provide light beams of varying widths and also narrow single, double and triple beams. Attached to the lamp house is an adjustable lens carrier with lens to provide diverging, parallel or converging light beams which are clearly visible in classroom. The lamp house can be held in any desired position around the disc. Optical elements are two 50 x 25 mm plane glass mirrors, and a metallic cylindrical mirror, each mounted in a holder, for reflection. For refraction, 20 mm thick acrylic semi-circular block, bi-convex lens, bi-concave lens each 140 mm long and a trapezium with 125 mm base are provided. Each of these elements has embedded magnets to hold on to the disc.

PH30360



RAY BOX

To provide a simple means of producing single or multiple rays of light for use in elementary optics. Made of die-cast alloy, the ray box has an open front and vertical internal grooves to accommodate a slit plate and a cylindrical lens. Supplied complete with a plastic plate having single and triple slits, a 12 V 24 W SBC line filament lamp and a lamp holder.

PH30375

RAY BOX MULTI SLIT

Plastic moulded ray box featuring ventilated metal lamp housing. One single slit and two triple slits provided with ray box which can be used simultaneously. A 12V 2Amp bulb with a vertical filament is used as a light source.

PH30378



RAY BOX

A ray box consisting of a rugged sheet metal box with a 12V, 10W festoon type axially straight filament lamp. Fitted with a cartridge for holding 4 types of slits - single, double, triple and wide slots. Ideal for quick adjustment to get the desired ray/beam type. Includes color filters. Also included is a convex cylindrical collimating lens for adjusting the beam to obtain long clear tracks which can be parallel, converging or diverging.

PH30410



LIGHT BOX AND OPTICAL SET

A Robust light box in matt black finish with a 12 V 24 W axial filament lamp with flexible leads. One end of the box takes a cylindrical convex lens in an adjustable sliding mount to enable production of convergent, parallel or divergent beams. Complete with accessories which consist of: 5 Plastic blocks, one rectangular, one semicircular, one equilateral prism $60^\circ \times 60^\circ \times 60^\circ$, one right angle prism $90^\circ \times 60^\circ \times 30^\circ$ and one right angle prism $90^\circ \times 45^\circ \times 45^\circ$. 3 Cylindrical acrylic lenses: one double convex, one double concave, both having the same radius of curvature and one thick convex lens. 3 Mirrors, one plane glass, one curved parabolic and one curved semicircular. 2 Slit plates, one with three narrow and one narrow slits, the other with four narrow and one wide slits. 1 Set of eight colour filters, Red, Green, Blue, Cyan, Violet, Yellow, Orange and Magenta. 1 Set of coloured cards, Red, Green, Blue, Violet, Orange, Cyan, Yellow and Pink. Complete with one spare lamp, in box.

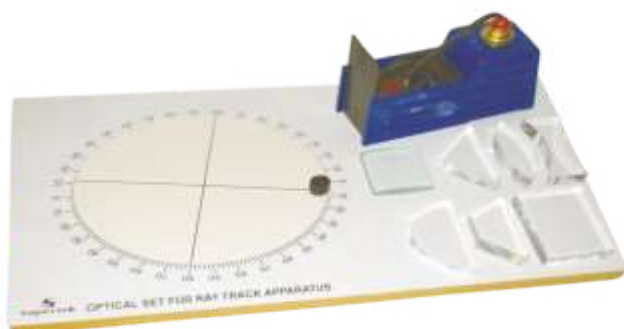
PH30407



LIGHT REFLECTION AND REFRACTION SET

This optical kit helps students study the two important wave properties: Reflection and Refraction. The kit consists of a wooden base and rotating platform. The rotating platform provides a high degree of accuracy when making angular measurements as well as easy rotation without disturbing the light source. The kit also includes one semicircular acrylic lens, one semicircular transparent tank, one mirror with support and one small metal 'D'. Light source is not included.

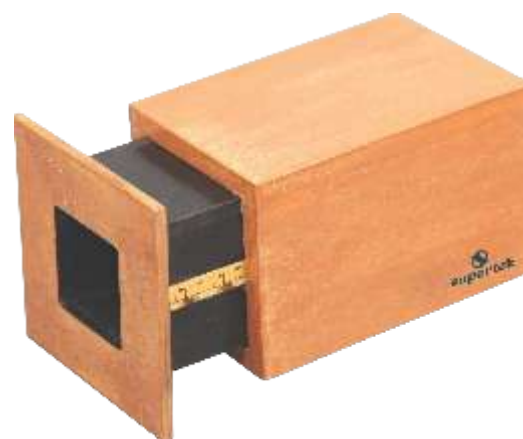
PH30414D



OPTICAL SET FOR RAY TRACK APPARATUS

Comprises a white painted wooden board mounted on nonskid plastic feet, and a removable turntable about 170 mm in diameter. Two orthogonal lines along the turntable's diameter divide it into four equal quadrants. Just beyond the rim of the turntable, a circular scale graduated $90^\circ - 0^\circ - 90^\circ - 0^\circ - 90^\circ$, with 1° subdivision. Also includes a ray box with a 12V, 24W bulb. Supplied complete with a cylindrical convex lens with focal length approx. 75 mm and a plastic plate having single and triple slits. An optical set is available separately, comprising of one each of rectangular, semi-circular, right-angled triangular - $90^\circ - 45^\circ - 45^\circ$ trapezoidal, biconvex and biconcave prisms.

PH30414



PIN HOLE CAMERA

To illustrate images produced by small apertures. Comprises a polished wooden box with a ground glass screen at one end and a hole at the other.

PH30455



PERISCOPE, PLASTIC

Periscope that allows the view of an obstructed field above or below the level of viewer. It is a Z shaped tube with mounted mirrors on both sides at 45° facing each other.

PH30460



RAY OPTICS KIT

Consists of 2 lamps and two stands, 1 pair housing shields, 2 combined single and triple slit plates, 2 multiple slit combs, 2 holders for combs and slit plates, 4 wooden light barriers, and following cylindrical lenses, of size 50×50 mm. 4 No Lenses of +7D, 2 of +10D, 2 of +17D and 2 of -17D.

PH30415

COMPACT LIGHT SOURCE

A 12V 100W lamp in ventilated housing. Apertures are provided to enable lamp to be used as a horizontal 'line' source or a powerful pointer source. Mounted on a rod for being supported on a laboratory stand.

PH30430

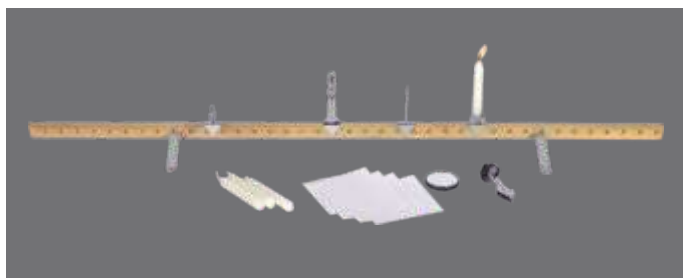


MODEL TELESCOPE

A simple model to show the working of astronomical telescope, comprising a plano-convex lens diam. 38 mm FL 100 mm, mounted in metal tube which slides in an outer tube of 400×42 mm, size, with a convex lens objective diam. 50 mm FL 500 mm, in case.

PH30480





COMPLETE OPTICAL BENCH SET

The complete optical bench set is an economical alternative to conventional, expensive optical benches. This set provides accurate demonstrations of basic optics principles. The complete set includes:

- » Optical bench-double-sided meter stick.
- » One object and marker.
- » One screen support.
- » One candle holder.
- » One pair of metal supports.
- » Two lens supports—38 and 50mm
- » Five white board screens, each 10 x 12.5 cm with a millimeter scale along one side.
- » 12 paraffin candles.
- » Lens concave 38 and 50mm with focal length 15cm each.
- » Concave mirror 50mm
- » Bulb holder and bulb with connecting banana plug leads.

PH30510



OPTICAL BENCH, JUNIOR

On wooden base, with 1.5 meter scale, with six sliding bases. Each sliding base is with an index mark, a moulded pillar and locking screw, with following accessories:

- » One lamp house with 12 V lamp.
- » One object screen, metal.
- » One lens holder for 38 mm diam. Lenses.
- » One receiving screen, metal, white
- » One object needle, mounted in moulded pillar
- » One plane mirror in metal frame.
- » 38mm convex lens with 10, 15, 20 cm focal length.

Each of these accessories is mounted on a 6 mm MS rod which fits into the pillars and is adjustable for height.

PH30518



OPTICAL BENCH

Bench has two steel rods, one of which is graduated in mm with heavy metal end supports with leveling screws with four metal slides which slide smoothly on the bench. Two of the slides have transverse motion arrangement. Complete with two lens holders and two object needles.

Lens convex 38mm with 10, 15, 20 cm Focal length.

PH30523 Graduated to 1 m

PH30526 Graduated to 1.5 m



OPTICAL BENCH

An optical bench made of square aluminium pipe with rigid supports can be used to perform a variety of experiments related to the fundamental of optics, such as image formation, reflection/refraction through the optical elements with this optical bench. This 1 m optical bench consist of 4 riders including a light source with accessories two needles and three convex lenses 38mm dia. with Focal length 10, 15, 20 cm.

PH30532A



OPTICAL BENCH, WOODEN

A wooden base board with one meter scale divided into mm with following accessories :

- » One wire gauge screen
- » One each white face object and receiving screens each 150 x 100 mm, with aperture, mounted on wooden base with an index mark
- » Two plane glasses 150 x 100 mm
- » One wooden lens holder 'V' shaped
- » One needle, vertically mounted in a short wooden rod, on base
- » One candle holder on base
- » The components have the same optical center height.

PH30515

ACCESSORIES FOR OPTICAL BENCH

All accessories are with 6 mm mounting rods, where required, to fit in optical bench slides. The length of the rods and size of components are designed to provide approximately the same optical centre height.



LENS HOLDER

V-section, to accommodate any lens or mirror up to 75 mm diam.

PH30548



PRISM TABLE

Brass disc 82 mm diam. mounted on 6 mm rod.

PH30550



DIFFRACTION OBJECT HOLDER

For supporting diffraction objects or any other item in 50 mm square mount. Rectangular metal frame with spring clips and a mounting rod.

PH30552



OBJECT NEEDLE

Rod with pointed end, overall length 80 mm approx.

PH30558



CROSS-WIRES

75 mm diam. circular black metal screen having 10 mm aperture with cross-wires.

PH30560



OBJECT SCREEN

A 75 mm metal screen with 10 mm central aperture covered with wire gauze.

PH30575



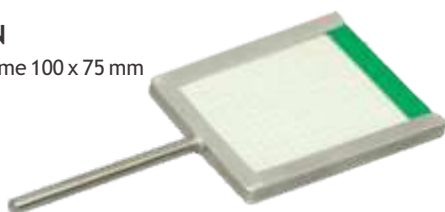
ADJUSTABLE SLIT

A 75 mm diam. circular metal disc with 12.5 mm central aperture. A screw controlled spring loaded precision slit is mounted on one side of the disc. Max opening 4 mm wide and 10-12 mm long.

PH30580

RECEIVING SCREEN

White enamel metal frame 100 x 75 mm with a graph paper.
PH30585



CANDLE HOLDER

20 mm diam. x 22 mm deep cylindrical metal holder mounted on rod of 6 mm diam.
PH30587



GREASE SPOT PHOTOMETER

Comprises a waxed paper screen with a wax free central zone mounted on a black metal frame 100x75 mm, with a central aperture of 51 mm diam. mounted on rod.
PH30592



COMBINED OBJECT AND RECEIVING SCREEN

Comprising a black metal frame 150 x 100 mm with an aperture, and a removable white card screen. The card has an aperture with an index point for use as an object, or the card may be inverted and used as a receiving screen. Mounted on a base 100 x 50 mm.
PH30635



MATT WHITE SCREEN

The metal screen is painted matt white, with a cut-out in one side to locate over a meter rule. It may be used in either the vertical or the horizontal position as required.
PH30637



POLARISER AND ANALYSER (POLAROID)

Two identical units each with a Polaroid disc mounted in a rotatable mount with an aperture of 25 mm. Both mounts have a pointer moving over a 75 mm diam. scale divided 0-90° -0-90° -0 x 1°
PH30610

STAND FOR OPTICAL BENCH ACCESSORIES

For use with our optical bench PH30518 The stand for mounting various optical accessories is made of wooden base (75 x 40 mm). The pillar can take 6 mm dia. rod and has a lock screw. The stand is marked with an index line. Overall height 72 mm.
PH30625



POLARISING FILTER STRESS DETERMINATION

Demonstrate stress patterns in solids with this new and valuable equipment. Two polarising filters, mounted on a graduated frame are placed on a plastic base. Clear acrylic pieces of different shapes are introduced between the filters; when pressure is applied to the solids the resulting stress patterns are observed. An important method of demonstrating polarisation and stress. Includes instructions.
PH30642



New

YOUNG'S SLIT

A double slit 10 mm long x1 mm separation in 50 x 50 mm frame. Mounted in channel with a hinged joint and micrometer screw to give fine adjustment. For observation of fringes produced by interference between two beams of light from a common source.

PH30657



FRESNEL'S BIPRISM

The 40 x 30 mm bi prism with optically worked surfaces is mounted in a frame with hinged joint and has a micrometer screw for adjustment. For determination of the wavelength of light by measurement of interference fringes produced by interference between two beams of light originating as a single beam from a common source and split by the bi prism.

PH30670



FRESNEL'S BIPRISM

Optically worked surfaces, 40 x 30 mm. unmounted.

PH30672

NEWTON'S RINGS APPARATUS

A flat glass plate and a slightly convex lens of 50 mm diam. are placed in a metal frame with three pressure adjusting screws to produce Newton's Rings.

PH30675



NEWTON'S RING APPARATUS, REFLECTED SYSTEM

A frame 60 x 58 x 50 mm high with a glass plate mounted at an angle of 45° to reflect light downwards on a Plano-convex lens of one meter focal length, resting on a glass plate 38 x 38 x 3 mm. Complete with lens.

PH30675D



NEWTON RING MICROSCOPE

For Newton Ring Apparatus. Can also be used in various positions, heavy cast iron body, microscope tube mounted on a carriage sliding on top of the base, provided with fine adjustment screw, scale 120 mm long, vernier reading to 0.01 mm fitted with X10 Ramsden eye-piece, glass cross-line graticule and 75 mm focus achromatic objective.

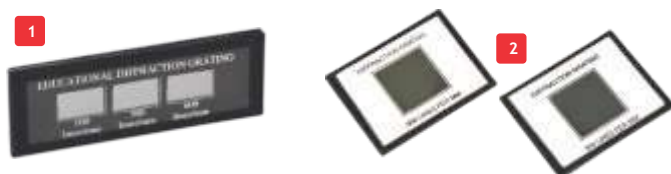
PH30675M



LASER REFLECTION AND REFRACTION TANK

Laser Reflection and Refraction Tank demonstrates the principle of reflection and refraction. The clear circular acrylic tank has a circular scale graduated on the white base of the tank, making it easy to measure angles. Adjust the pivot-arm mounted laser to any angle along its full 360° range and measure the angle of reflection or refraction. Rotate the laser and observe first a reflected ray, then both a reflected and refracted ray, and finally just a refracted ray. Leveling screws on the tank's base make leveling quick and easy. The laser is attached to the pivot-arm by a magnet and can be removed for use in other experiments. Instructions included.

PH30676



DEMONSTRATION DIFFRACTION 3 IN ONE 1

For demonstrating the principle of the diffraction grating and the way in which its properties are dependent upon the number of lines per unit length. Comprises a card mount 90 x 40 mm approximately with three 16 x 9 mm apertures, each containing a diffraction grating replica. The gratings are of 100 lines/ mm, 300 lines/ mm and 600 lines/ mm, respectively and are protected by cover glasses.

PH30677

DIFFRACTION GRATING REPLICA 2

Transmission type, 30 x 25 mm. range 600 lines per mm, with protective glass cover.

PH30685



POLAROID FILM

Framed in cardboard frame. SIZE 50 x 50 mm

PH30695



MALUS LAW

Students can investigate the relationship between the intensity of transmitted light and the angle of rotation of two polarizing filters. A graduated cartridge containing two polarizing filters allows students to observe the change in intensity as they are rotated relative to one another. The analyzer allows quantitative readings to be taken using a voltmeter at five degree intervals as the polarizing filters are rotated from minimum to maximum transmission. The output from the analyzer changes linearly with light intensity and so the resulting data can be used to verify Malus Law. Includes instructions.

PH30686



Best Seller

NEWTON'S COLOR DISC

To demonstrate the discovery made by Newton that white light is composed of seven colors. Consisting of a pulley mounted on a metal stand, the seven colored disc is driven by gears connected to a hand driven wheel. When the colored disc rotates, the eye can't distinguish between individual colors and perceive it as white color.

PH30698



NEWTON COLOUR DISC 1

Multi-coloured disc mounted on metal stand, rotated by a hand wheel.
PH30700

COLOR WHEEL KIT 2

Hand held, all colors are blended on spinning the wheel size 22.8 cm diam. approx.
PH30702



NEWTON'S COLOUR DISC, MOTOR DRIVEN

Newton's color disc of 75 mm diameter is mounted on the axle of a small motor, which is fitted on a plastic case. 4mm sockets are provided for connections. It operates on 4-6 volts DC.
PH30702M



LIGHT KIT

Simple kit that helps explain students the principle of reflection and refraction. Using mirrors, lenses, acrylic prism set and a ray box, light can be reflected and refracted in different ways. The acrylic prism set includes a triangular, half-round, double convex and rectangular prism and two double concave prisms all packed in a wooden storage box. A Newton color disc is also provided with this set. The color disc illustrates an important property of light that white light is composed of seven colors. With instructions.
PH30703

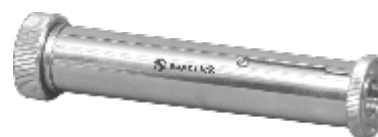
COLOUR FILTER SET

In cardboard frames, 50 x 50 mm set of 7 primary and secondary colours.
PH30705



COLOR MIXING APPARATUS

The color mixing apparatus consists of three super bright LED's RED, GREEN and BLUE to demonstrate the creation of secondary color with a combination of three primary colors. Intensity of these three LED's are controlled with a microcontroller based controller. Intensity can be varied from 0-100 %. LED's data can be stored to memory and later restored. The kit consists of two screens (one white Perspex screen and a black aperture screen) and a power supply.
PH30710



DIRECT VISION SPECTROSCOPE

For quick examination of spectral composition of white light. Consists of a metal tube with draw-out focusing and an adjustable slit, fitted with achromatic objective and prism, in case.
PH30725



SPECTROSCOPE

Hand held simplest form of spectroscope. It can be used to get a general idea of the correlation between wavelength and observed color. A diffraction grating is used which spreads the incident light into its component wavelengths. An illuminated reference scale against which the spectrum may be viewed is also provided.
PH30727

SPECTROMETER, STANDARD

Reads to 6 minutes of arc (0.1°) 170 mm diam. metal scale graduated $360^\circ \times 1^\circ$, independently rotatable, with locking screw, vernier attached to the telescope reads to 0.1° (6 minutes of arc). Collimator is mounted on a fixed pillar, with an achromatic objective of 150 mm focal length and 21 mm aperture, and has an adjustable slit 6 mm long. The telescope is on a movable pillar, with a fine adjustment screw, an achromatic objective of 170 mm focal length, 21 mm aperture, Ramsden eye-piece and glass crosswire graticule. Both collimator and telescope have spiral focusing system and have axis adjusting arrangement. The table has 3 leveling screws, with lines marked to assist prism placement. With prism and grating holders, one small screw driver and one Tommy bar for axis adjustment. Without prism.

PH30738



SPECTROMETER, INTERMEDIATE

Reads to 1 minute of arc. 150mm diam. Scale with protective cover and acrylic windows to read verniers, is fixed to the telescope Movement. The table is attached to double ended verniers reading to 1 minute of arc with magnifier provided for the purpose. Both telescope and table rotations have fine adjustments. Collimator is on fixed pillar with 175mm fl achromatic objective of 25 mm aperture and an adjustable slit. The telescope is on a movable pillar with 175mm achromatic objective x 8 Ramsden eye-piece and glass cross line graticule. Both telescope and collimator have rack and pinion focussing and their optical axes can also be adjusted. Prism table has lines to assist prism placement hand has three leveling screws. With prism clamp, diffraction grating holder and one Tommy bar for axis adjustment, in case

PH30745

SPECTROMETER, ADVANCED

Vernier reading to 30 seconds of arc. The 175 mm diam. scale is fixed. The table and telescope movements are completely independent of each other and read to 30 seconds of arc by means of double ended verniers and magnifiers. Both rotations have fine adjustment screws. Coarse adjustments can also be made by release of clamping screw. Collimator is mounted on a fixed pillar and is fitted with 175 mm fl. achromatic objective with 32 mm clear aperture and a laterally adjustable slit 6 mm long. Telescope is mounted on a movable pillar fitted with 175 mm fl. achromatic objective of 32 mm clear aperture and x 10 Ramsden eye-piece with a glass cross line graticule. Both the telescope and collimator have rack and pinion focusing and can be adjusted for leveling the axes of both units as well as for adjusting to the axis of rotation. Prism table is marked with lines to assist prism placement and has three table leveling screws. It also has an interchangeable clamping unit for the prism and diffraction grating. Complete with prism clamp, diffraction grating holder and a Tommy bar for adjusting optical axis. In case.

PH30750





SPECTROMETER PRISM

Optically worked working sides, equilateral Borosilicate crown glass, refractive index 1.510

	Length x Face, mm
PH30752/1	25 x 25
PH30752/2	32 x 32
PH30752/3	38 x 38

Hard crown glass, refractive index 1.519 to 1.523

	Length x Face, mm
PH30755/1	25 x 25
PH30755/2	32 x 32
PH30755/3	38 x 38

Dense flint glass, refractive index 1.620 to 1.623

	Length x Face, mm
PH30756/1	25 x 25
PH30756/2	32 x 32
PH30756/3	38 x 38



SODIUM LAMP

For producing monochromatic light at high intensity.

PH30758/1 35 watt



TRANSFORMER AND STAND FOR SODIUM LAMP

The transformer is housed in a two-part sheet steel case with ventilation and has a lamp house support rod mounted directly on to the transformer case to provide a convenient, self-contained assembly with 1.5m wire.

PH30760/1 35 W



VERNIER MICROSCOPE

For measurement on two axes, with horizontal and vertical scales, heavy stand with leveling screws, and a carriage fitted with micrometer screw for fine adjustment. Another sliding carrier is provided on vertical bar also with micrometer screw for fine adjustment. Microscope tube is fitted with rack and pinion focusing. Stainless steel scales and verniers, horizontal scale 160 mm with vernier reading to 0.01 mm and vertical scale 140 mm with vernier reading to 0.01 mm. Ramsden eye-piece X10 with crossline graticule and 50mm focus objectives Magnifier is provided to read vernier.

PH30780



BELL JAR AND VACUUM PUMP SET

Simple, innovative kit allows you to perform a number of experiments on vacuum and air pressure. The kit clearly demonstrates the method by which a pump works. Also illustrates that air has mass and helps find its mass and density. Explain the effect of surrounding air pressure on a sealed balloon. The balloon will expand when the surrounding air is removed. And also demonstrate that liquid boils at reduced temperature when the surrounding air pressure is reduced. with 2 balloons With instructions.

PH36013

BELL IN BELL JAR 1

Without air or matter, sound waves cannot travel and therefore cannot be heard. This bell jar effectively demonstrates this concept using a battery-operated buzzer housed inside the jar. When the buzzer is placed beneath the jar and a vacuum is created inside the jar, students will observe a total absence of sound. Once the air is returned to the jar, the sound of the buzzer can be heard once more. The activity requires a vacuum pump & plate, not included.

PH36015A



VACUUM PUMP WITH PLATE

This setup consist of a metal plate and a hand vacuum pump mounted on a heavy metal base. A rubber seal is provided on top to perform a variety of bell jar experiments.

	Plate Dia. , mm
PH36016/1	150
PH36016/2	200
PH36016/3	250

VACUUM PLATE, METAL 2

Top plate measures 11" in diameter and can be used with bell jars up to 9" in diameter. Constructed of cast iron, the plate is equipped with a 3/8" hose connection, vacuum release valve, and rubber gasket to provide a tight seal.

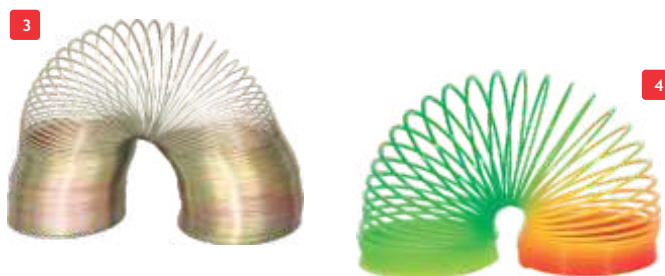
PH36017



VACUUM OR PRESSURE APPARATUS

Vacuum or pressure, apparatus is a hand operated device. It consists of metal barrel with a piston and two nozzles for vacuum and pressure respectively. Can be used with vacuum plate PH36017

PH36018



WIRE HELIX (SLINKY) 3

To illustrate wave motion. Flat section steel wire in helical coil.

	Closed Length, mm	Diameter, mm
PH36021/1	75	50
PH36021/3	110	75
PH36021/5	165	75

SLINKY, PLASTIC 4

Easier to handle as it does not tangle. Size 63 mm diam. x 65 mm length.

PH36023



SLINKY SPRING WITH STAND 5

Long slinky for super wave demonstrations. On stand with instructions.

PH36025

STEEL SPRING, NARROW 6

Diam. 20 mm. length 3 meters approx. when closed, extending to 10 meters, for transverse wave motion experiments.

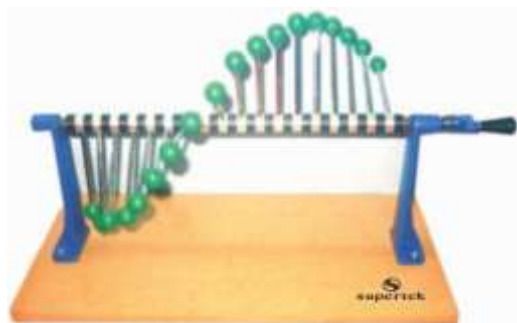
PH36032



LONGITUDINAL WAVE DEMONSTRATION

To study waves and to demonstrate compression, rarefaction, amplitude, wavelength, echoes, volume and pitch. Inexpensive model for creating longitudinal/compression waves by simply pushing a Slinky along a track. Includes instructions.

PH36035



WAVE MACHINE, POWELL'S

Consisting of 19 spheres, each mounted on a 75 mm long rod, with a collar for attachment to a shaft. The spheres are mounted at 20° intervals, equally spaced along the shaft. The shaft rotates in two pillars mounted on a base.

PH36038

WAVE MACHINE, METAL

Demonstrating longitudinal and transverse waves. A number of eccentric discs move a number of metal rods. Transverse waves are obtained by straight rods and longitudinal waves by bent rods.

PH36040



WAVE MACHINE, PLASTIC

Made of plastic. The rotating handle is fitted with a circular scale marked in degrees to indicate the indication. The plastic highlighted tips make easy observation of wave motion.

PH36042



RIPPLE TANK

Transparent acrylic plastic ripple tank, supported in a sturdy plastic frame which has recesses to hold four legs with leveling feet. The tank edges are shaped to minimise undesired reflections. Tank has a drain hole closed by a rubber stopper. With two light alloy uprights to carry a horizontal rippler support rod which is adjustable for height. The ripple assembly, elastically suspended from the support rod, consists of a 4-6 V DC motor mounted on a wooden beam. The motor has an eccentric weight which causes the beam to oscillate. Two point sources are provided by two plastic spheres, each mounted on a right angle rod. A metal rod is fixed centrally into a socket in one short side of the frame to afford support to the illuminant. Overall size of the tank 580 x 500 x 80 mm, window area 370 x 280 mm, height of tank above bench level (with legs attached) approx. 375 mm. Complete with following accessories.

- » Two straight obstacles of aluminium alloy length 130 mm.
- » One straight obstacle length 40 mm.
- » One curved reflector radius 200 mm.
- » One trapezoidal plastic plate for refraction.
- » One wood hand wave roller.
- » One water dropper.
- » One pkt. rubber bands.
- » One foam plastic sponge.
- » One illuminant with a 12 V, 24 W lamp mounted in a lamp house and provided with a long supporting rod which can be attached to a retort stand. With instructions.

PH36044



RIPPLE TANK CONTROLLER

Output 12V AC, 21 W for illuminant and 0 - 3V DC. variable for ripple motor.
Operates from 220 V A.C. mains.

PH36062



DIGITAL STROBOSCOPE

Stroboscopic flashes are triggered by either the internal oscillator or by external pulses which may be connected to the socket mounted on the rear panel of the instrument. Example of the many applications of this unit are to be found in motion analysis multi exposures photography, examination of moving parts and measurement of rotational speed.

Specifications:-

Input Volts: 220V AC, 50 Hz

Max. Flash Rate: 9999 Flashes per minute.

Resolution: 1

Display: 7 Segment LED (4 Digit)

PH36067P



HAND STROBOSCOPE

For use with ripple tank, simple form.
A disc of 250 mm diam. with 12 equispaced slots and a finger hole, rotating on its axis, with handle.

PH36066

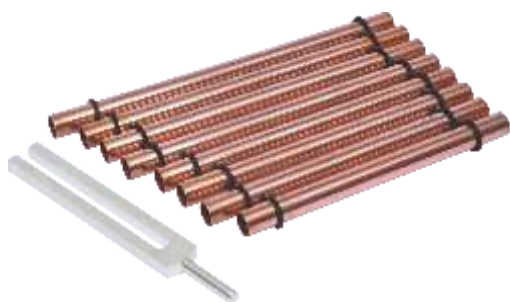
RIPPLE TANK, DUAL PURPOSE

This dual purpose tank is a versatile apparatus allowing all types of waves and wave motion. With illuminator lamp and important accessories included it forms a complete ready to use unit. The unique design and size allows it to be used on an overhead projector as well. Supplied in foam packing and consists of the following components :

- » Ripple Tank 40 x 40 cm.
- » Four push Fit Legs.
- » Ripple motor with eccentric cam, mounted on PVC bar.
- » Three supports for illuminator and the motor unit.
- » Motor hanging clamps.
- » Spring for motor support.
- » Lamp Unit halogen 6 Volts.
- » Concave Perspex Plate.
- » Convex Perspex.
- » Rectangular Perspex Plate.
- » Curved Reflector.
- » Barrier Large.
- » Barrier Small.
- » Plastic Roller Bar.

PH36068





PIPES, RESONANCE DEMONSTRATION

Set of eight copper pipes with tuning fork (256 Hz) to show how resonance tones can only be created from certain pipes. O-rings are attached to the ends of the pipes which protects the tubes from the drop. Includes Instructions.

PH36072

TUNING FORK, SUPERIOR

Made of aluminum, Accurate, each pc is individually tested.

	Hz.	Tone
PH36121/1	100	
PH36121/2	128	C1
PH36121/3	256	C
PH36121/4	288	D
PH36121/5	320	E
PH36121/6	341.6	F1
PH36121/7	384	G
PH36121/8	426.7	A
PH36121/9	480	B
PH36121/10	512	C'
PH36121/11	1024	C''
PH36121/12	2048	C''
PH36121/14	4096	C4



SONOMETER, 3-WIRE

Hollow wooden sounding box 1290 x 130 x 110 mm, with mm scale, has two fixed bridges 72 cm apart over which wires are stretched. To one wire is fitted a spring balance reading to 100N x 5N and its tension can be adjusted by a winged nut and measured. Another wire passes over a pulley and can be loaded as desired. A third wire, for comparison, can have its tension adjusted by a wrest-pin. With 3 movable bridges, wrest-pin key, spring balance, and set of four wires of different diameters, each 1.5 meter long, without masses.

PH36105

TUNING FORK SET, MAJOR CHORDS

4 precision aluminium alloy tuning forks to sound the major chords (C-256, E-320, G-384, and C-512). Frequency and note are stamped on each fork.

PH36124



ADJUSTABLE TUNING FORK

Sliding weights on each prong of tuning fork can be adjusted to deliver tones at C-128, D-144, E-160, F-170.7, G-192, A-213.3 and B-240 frequencies.

PH36125



SONOMETER, TWO WIRE

1200 x 115 x 60 mm hollow box with two fixed bridges with a one meter scale in between, and with a pulley and wrest pin for wires, complete with a long movable bridge, wrestpin length, without masses.

PH36108



TUNING FORKS, SET OF 8 1

Aluminium, frequency 256 to 512 Hz, set of 8, in case with hammer.
PH36126/1

TUNING FORKS, SET OF 13 2

Consists of 13 aluminum tuning forks (G-100, C-128, C-256, D-288, E-320, F-341.3, G-384, A-426.6, B-480, C-512, C-1024, C-2048 and C-4096) packaged in a wooden box. Includes a mallet. Forks are stamped with frequency and note.
PH36126/3



TUNING FORK SET, EVEN FREQUENCY

Six precision aluminium alloy tuning forks.
Set consists of 125 Hz; 250 Hz; 500 Hz;
1,000 Hz; 2,000 Hz; and 4,000 Hz.
PH36127



MUSIC TUNING FORK SET

The high quality tuning fork set covers the octave from middle to high C. It consists of one each of 261.6C, 293.7D, 329.6E, 349.2F, 392G, 440A, 493.9B and 523.2. Set of eight, with activator.
PH36128



TUNING FORKS SET

Made of steel, chromatic scale, frequency 256 to 512, in Styrofoam case. Chrome Plated.

PH36129/1 Set of 8

PH36129/3 Set of 13



TUNING FORKS, SET OF 4

Threaded shanks, mounted on a common resonance box and having frequencies of C1 (256), E (320), G (384) and C2 (512) Hz. Size of box 285 x 115 x 63 mm approx., complete with hammer.
PH36133



TUNING FORKS, SET OF 2

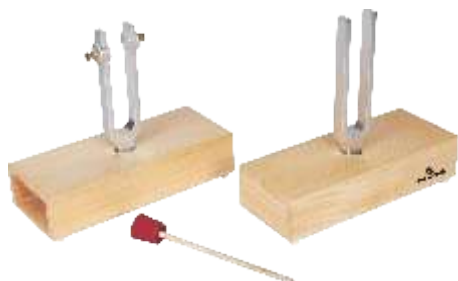
The forks have threaded shanks and will screw in the box tops. Frequency of each is A (426). One fork is fitted with a sliding mass to alter its frequency. On sounding both forks, a clear 'beat' is produced. Supplied with one hammer. Size of box 180 x 88 x 53 mm approx.

PH36137

RUBBER HAMMER, MEDIUM

For activating tuning forks. Rubber ball is mounted on a sturdy, wooden handle.

PH36138



TUNING FORKS, SET OF 2, SUPERIOR

Set of two resonance boxes with extra heavy aluminium forks having double the duration of audible vibration than the ordinary forks. One fork is weighted and can be adjusted over range of about 30 Hz. forks are of different lengths 19.4 cm and 17.5 cm approx.

PH36140

TUNING FORK ACTIVATOR

Tuning Fork Activator is used as a surface to gently strike the tuning fork to activate vibrations. Rubber activator is tapered so the bottom is wider for stability. Made of solid rubber.

PH36143



TUNING FORK, ELECTRICALLY MAINTAINED

On sturdy base, can be used in horizontal or vertical position. Prong size is 300 x 25 x 10 mm. Actuated by an electromagnet between the prongs, works with 6 V D.C. Amplitude of vibration can be varied by adjusting the position of the electromagnet.

PH36145



MELDE'S APPARATUS

Improved type, to show effects of vibrations in a stretched cord and to investigate relation between frequency, tension and density. Comprising an adjustable length of thin steel rod mounted in a pair of socket terminals near one end and passing through an A.C. energising coil and a permanent magnet. The other end of the wire has a small boss with clamping screw for attaching to cord. Two adjustable contacts are also fixed on either side of the armature connected to terminal sockets to provide a quick changeover switch in capacitor charge/discharge experiments etc.

PH36148



TWIN TONE BAR SET

To demonstrate resonance, sympathetic vibrations and beat phenomenon. The two precision-made bars are mounted on a single solid resonance cavity. The cavity has two chambers with one bar tuned to 440Hz., the other to 441Hz. Includes: hammer and instructions.

PH36152



VELOCITY OF SOUND APPARATUS

This dual purpose apparatus provides a compact facility for the measurement of the velocity of sound in air and also for the analysis of standing waves. It requires an audio signal generator and a dual beam oscilloscope (not included). A phase measurement between the speaker and microphone signals is made on an oscilloscope. The distance required to traverse through a 360° phase shift is noted. Knowing the frequency and distance, the speed of sound is computed. With the reflector in place a standing wave can be generated. Nodes and antinodes can easily be seen from the amplitude variations on the CRO.

PH36165



TUNING FORK WAVE RECORDER

Apparatus to show the waves of a tuning fork, change of waves with the frequency of tuning fork. Also demonstrates characteristics of waves and sound visually. It consists of three different type of tuning forks, marker and a paper role. Mounted on wooden stand. With instructions.

PH36168

New



RESONANCE APPARATUS

Investigate the length, frequency and velocity of sound waves by studying the resonance of air columns. In the experiment, described below, you will use the wave equation ($v = \lambda f$) to measure the speed (v) of sound; here (f) is the frequency and (λ) is the wavelength. A vibrating tuning fork, held over the top of the graduated water cylinder, will begin to resonate with the air column above the water in the cylinder. After taking the measurements of the air column and the tuning fork, the speed of sound can be calculated.

PH36178P



RESONANCE APPARATUS, SIMPLE FORM

For measuring the resonant length of an air column driven by a tuning fork. Comprises a brass tube 292 x 25.4 mm diameter fixed to a base with a sliding inner tube 305 mm long which allows the length of the air column to be varied from 350 to 530 mm.

PH36178

RESONANCE APPARATUS

A resonance apparatus is used to locate the resonance positions in air columns. From these resonance positions, it is possible to calculate the speed of sound using the water level and the frequency of the tuning fork used. Apparatus consists of a chrome plated brass resonance tube 100 cm long, a reservoir 250 ml, a meter scale mounted on a stand and rubber tubing.

PH36187





TOOTH TUNES KIT

A Hands-on kit that teaches the principles of sound induction/conduction. When students bite on the wooden rod, the frequencies of the attached audio signal, from a radio, is then transmitted from their teeth to their ears. Includes activity material for five students and an instruction manual.

PH36197



SINGING ROD

When rubbed in a specific manner, this aluminum rod generates a loud, high-pitched sound. A perfect accessory to Kundt's Apparatus. Includes: rod, special resin and instructions.

PH36198



VIBRATION GENERATOR

To produce mechanical vibrations when used with a signal generator. The input is fed to a coil, which is mounted within the field of a cylindrical permanent magnet. The unit is mounted on a strong base and is enclosed in a plastic case. The coil and magnet assembly are protected from the entry of foreign particles. A threaded extension of the armature allows attachment of the item to be vibrated, e.g., plates for chladni's figure experiments. A specially designed coil system enables the unit to be operated at its maximum rating for a prolonged period without any damage due to overheating. Electrical input via a pair of 4mm shielded sockets and oscillating mechanical output is available through a shaft at the top. A locking arrangement provides safety to the apparatus during storage or transportation by blocking the motion of shaft. The unit is electrically secured by means of a fuse. Avoid long periods of sustained rapid vibration and keep dry as moisture will damage the mechanism.

PH36214



CUP LOUDSPEAKER KIT

To illustrate how electric signals are converted into sound in loudspeakers. This kit can also be used to explain electromagnetism, the interaction of magnetic fields and the mechanical amplification of sound. With assembly and activity instructions.

PH36210



STEEL STRIPS FOR RESONANCE

The resonance strips are designed to demonstrate the relationship between the frequency and wavelength of a cantilevered beam. The steel strips when used with the Vibration Generator show resonance at different frequencies. The resonant frequencies of resonance strips depend on the different lengths of the strips. The apparatus provides three steel strips with holes at different length and connected with one another through a screw.

PH36214A



KINETIC THEORY MODEL

The Kinetic Theory Model apparatus is used along with the vibration generator to demonstrate the movement of molecules in a gas. An approximate relationship between the floating height, i.e., volume of the gas and weight of the disc, i.e., pressure of the gas can be observed. The platform has a rubber surface and small stainless steel balls are loaded into the tube. With the change in the speed of vibration generator, the heating of the gas stimulates resulting change in the agitation of the balls inside the tube. It comprises theory of piston, steel balls and a base or placing on an overhead projector

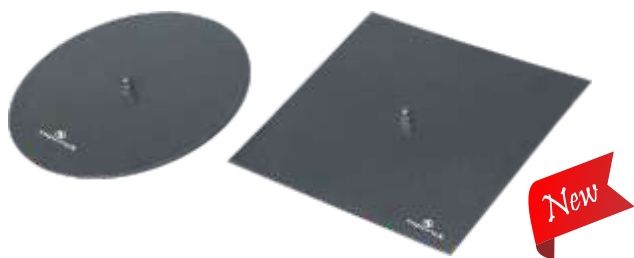
PH36214B



LOOP PIANO WIRE

Loop piano wire is an accessory for vibration generator. It is used to demonstrate the wave motion, i.e., for demonstrating the relationship between frequency and the number of vibrational nodes

PH36214C



CHLADNI PLATES SQUARE AND ROUND PLATE

The Chladni Plates Kit allows the continuous vibrations to be produced at measurable frequencies to determine the resonant frequencies of the plates and examine the modes of vibration at any frequency. A thin layer of sand is spread over the plate. The sand collected along the nodal lines of the wave patterns painted clear and beautiful pictures of the various modes of vibration. The plate's resonances are audible. Kit is made of metal sheet in two shapes: square and round. The round plate can be vibrated about its center or an offset point to investigate both symmetric and asymmetric modes of vibration.

PH36214D



BAR MAGNET, CHROME STEEL

In pair, with keepers, painted.

	Size, mm
PH40020/1	37 x 12 x 5
PH40020/2	50 x 12 x 5
PH40020/3	75 x 12 x 5
PH40020/4	100 x 12 x 5
PH40020/5	150 x 12 x 5

BAR MAGNET, ALNICO

Powerful and permanent, in pair, with keepers.

	Size, mm
PH40025/3	50 x 15 x 10
PH40025/5	75 x 15 x 10
PH40025/6	100 x 15 x 10
PH40025/7	150 x 15 x 10
PH40025/8	50 x 15 x 15

MAGNETS, ALNICO

Painted Alnico magnets pair with separator and keepers.

	Size, In.
PH40028/1	2 x 1/2 x 1/4
PH40028/3	3 x 1/2 x 1/4

BAR MAGNETS, ALNICO

Unpainted, 2 x 1/2 x 1/4 in. Poles are marked for easy identification. Per pair

PH40031



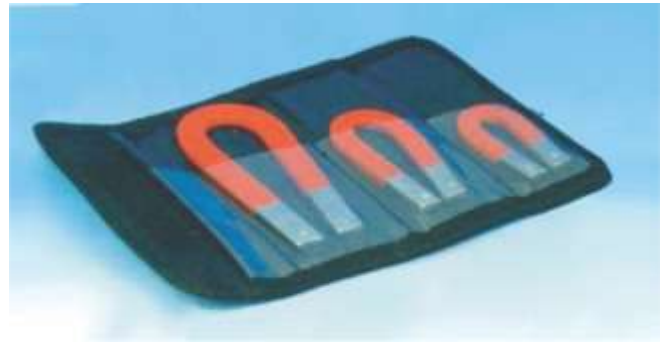
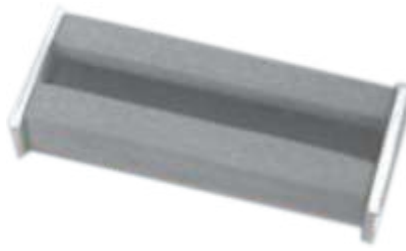
BAR MAGNET, CERAMIC

Overall size 80 x 18 x 12 mm, per pair with plastic cover.

PH40035A

BAR MAGNET, CERAMIC

Size 50 x 12 x 8 mm, per pair
PH40037A



SET OF THREE HORSE SHOE MAGNETS

One each of length 75, 100 and 125 mm in plastic wallet chrome steel, with keepers.

PH40050



MAGNET, HORSE SHOE CHROME

Chrome steel, with keepers.

	Size, mm
PH40045/1	50 x 12 x 5
PH40045/2	75 x 12 x 5
PH40045/3	100 x 12 x 5
PH40045/4	150 x 12 x 5

MAGNET U SHAPED, ALNICO

With keeper.

	Size, mm	Center gap, mm
PH40060/1	37 x 6 x 10	9
PH40060/2	50 x 15 x 10	20
PH40060/3	75 x 15 x 10	20



MAGNET, HORSE SHOE, ALNICO

With keeper.

	Size, mm
PH40046/1	50 x 12 x 15
PH40046/2	75 x 12 x 15
PH40046/3	100 x 12 x 15



MAGNET CYLINDRICAL, ALNICO

In pair, with keeper.

	Length x Diam., mm
PH40075/1	37 x 10
PH40075/2	50 x 10
PH40075/3	75 x 10
PH40075/6	37 x 12
PH40075/7	50 x 12
PH40075/8	75 x 12
PH40075/9	100 x 12



MAGNET STEEL HORSESHOE, UNPAINTED

Includes keeper. Available in two sizes

	Size, Inch.
PH40047/1	3
PH40047/3	5

RING MAGNETS, CERAMIC

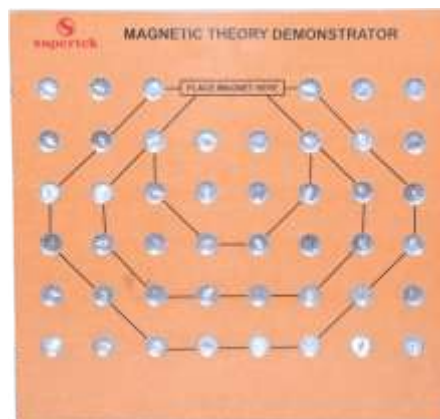
	Diam. x hole x thickness, mm
PH40080/1A	32 x 18 x 6
PH40080/2	36 x 18 x 6
PH40080/3	36 x 18 x 8
PH40080/4	45 x 22 x 8
PH40080/5	45 x 22 x 11
PH40080/6	53 x 24 x 10
PH40080/7	72 x 32 x 10



FLOATING RING MAGNETS

Demonstrate laws of magnetic attraction and repulsion. Consists of a stand with 5 magnetic rings sealed in plastic case to reduce wear and breakage.

PH40093



New

MAGNETIC PENDULUM

The Random Oscillating Magnetic Pendulum (ROMP) is a popular desktop toy. It consists of a pendulum, with a small magnet attached to the end, which can swing freely over a metal base. On the base there are nine numbers of strong, disc-shaped magnets, which act on the pendulum with either an attractive or repulsive force. When the pendulum is displaced and released, it tends to swing in an erratic, unpredictable pattern. Due to friction, the pendulum eventually comes to rest over one of the magnets.

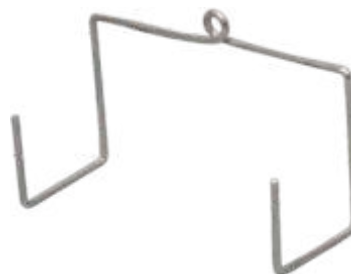
PH40098



MAGNETIC FIELD DEMONSTRATOR, WOODEN

To demonstrate the magnetic lines of forces, 46 magnetic compasses are fitted on a (302x302) mm approximately square wooden base. Permanently fitted magnetic compasses provide an advantage of easy handling and storage.

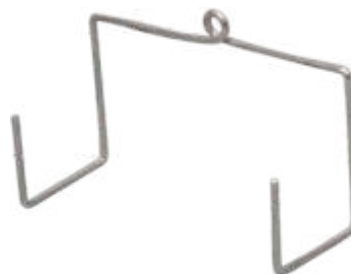
PH40100W



STIRRUP FOR MAGNET

Brass, for suspension of magnets or insulating diameter.

PH41105



New



MAGNETIC FIELD DEMONSTRATOR, ACRYLIC

An elegant method for displaying the shape of magnetic fields without using iron filings. Ideal for student investigations or for demonstration using an overhead projector. The transparent plate is comprised of a matrix of small circular chambers. Each chamber contains an iron rod and functions independently as a plotting compass.

PH40100P

IRON FILING

in plastic bottle.

PH41120/1	100 gm
PH41120/3	250 gm
PH41120/5	500 gm

IRON FILINGS

In sprinkler, 500 gm

PH41123





MAGNETIC KIT

A kit of magnets and accessories in a storage tray.

Contents :

- » One Horseshoe magnet, 100 mm, with keepers.
- Two ceramic bar magnets, 75 mm long.
- » Three ceramic ring magnets, 38 mm diam.
- » Two plotting compasses clear both sides, 19 mm diam.
- » One lodestone specimen.
- » One pack Iron Filing.
- » One each strip of Iron, Aluminium, Zinc and Copper metal.

PH41130

IRON BAR, SOFT

200 x 12 mm length x diam.

PH41134

MILD STEEL BAR

200 x 12 mm Length x Diam.

PH41136



VARIABLE MAGNETIC FIELD COIL

An enamelled copper wire solenoid is wound on a clear acrylic tube. The extreme ends of the solenoid are movable and the magnetic field can be varied by moving the extreme ends. 4mm sockets are provided to apply the current across the solenoid. Coil Dia 60mm, Length 350mm.

PH41150

RING LAUNCHER

The ring launcher consists of a vertically mounted solenoid of thick copper wire with an iron core. The coil is energized with by pressing the push button on the panel. Two aluminum rings are supplied with the apparatus. These rings fit over the solenoid and are supported at some height above the base by an adjustable collar. The behaviour of the rings when the coil is energized depends on the type of the ring placed over the coil at the time. The solid aluminum ring is propelled straight up while the slotted ring remains static, thus demonstrating the principle of electromagnetic induction as well as Lenz law.

PH41154



MAGNETISING AND DEMAGNETISING COIL

For ordinary magnets, iron bars, strips etc. Consists of a 250 mm long solenoid wound with insulated copper wire and mounted on a base, with switch and 4mm terminals. Operating voltage is 12 V A.C. or D.C. At 6A max.

PH41155



MAGNETIC INDUCTION CIRCUIT BOARD

It is an apparatus to demonstrate the fundamentals of magnetic induction. Students can find relationship between magnetic field strength and induced voltage. The unit is complete with a coil fixed in the board, a cylindrical magnet, a pair of connecting leads and a galvanometer. With instruction manual.

PH41157



ELECTROMAGNETIC CIRCUIT BOARD

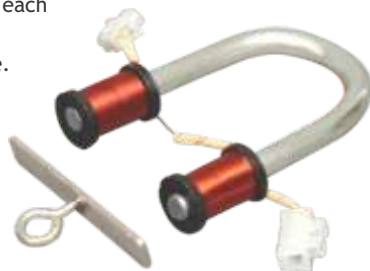
Visual demonstration of the electromagnetic field, compasses placed around a wire coil in the center of the circuit board shows an immediate and drastic change in direction when the board is turned on. Without battery, with instruction manual.

PH41158

ELECTROMAGNET

Iron, U core, circular section, with flat ends, has one bobbin in each limb wound with enameled copper wire, with armature.

PH41160



ELECTROMAGNET, DEMONSTRATION

Mounted on a plastic box. Working on 6-9 V DC. Demonstrates change in strength of magnet with change in voltage.

PH41163



VARIABLE ELECTROMAGNET

The variable coil electromagnet has 6 different coil options: 100, 200, 300, 400, 500 and 600 coils. A steel hook underneath gives students the opportunity to measure the strength of the magnetic field generated by varying different number of coils. A variable D.C. low voltage supply is required.

PH41164



DEMONSTRATION RELAY

This Relay Demonstration Unit allows the investigation and study of how a relay functions in a clear and practical manner. A useful property of this Demonstration Relay Unit is that the circuit powering the coil is easily seen to be completely separate from the circuit switched on by the relay. This is one of the reasons relays are used where a safe low voltage circuit can be used to control a high-voltage circuit. When a current flows through the coil an electro-magnetic field is produced. This field attracts the iron armature whose end makes the contact, completing the circuit and illuminating the Lamp. When the current is switch off, the contact will open again, switching the circuit off.

PH41165



IRON-CLAD ELECTROMAGNET

To familiarize students with the concept of electromagnets. This Compact and powerful electromagnet lifts up to approx. 40 kg using one D-cell battery. Supplied without battery. With instruction manual.

PH41167



IRON-CLAD ELECTROMAGNET

Used to demonstrate that how electric energy is converted into a very strong magnetic field. The precision machined contact surface makes this electromagnet so strong that it generates tremendous lifting power. The electromagnet consists of core and yoke with vertically fitted four 'D' type cell holders around the electromagnet. The core has a cylindrical coil wound with enameled copper wire on annular insulated bobbin. It can also be operated with 6V/2 Amp DC power supply.

PH41167D



FORCE ON A CONDUCTOR IN A MAGNETIC FIELD (LAPLACE LAW)

To demonstrate the electromagnetism. A pair of powerful magnets in U shape holder. A pair of brass rail with 4mm socket is used for demonstration. A brass axle with two plastic discs is free to roll along the rails and complete the circuit between rails. As the axle placed on the rails near the poles of magnets and power supplied to the rails, the axle repelled and rolls away from the center of magnetic field along the rails.

PH41170



MAGNETIC FORCE ACCELERATOR

A ramp with metal sides is filled with permanent magnets, North Pole up, covered with a large label. Three Aluminium tubes of different diameters can be placed in turn across the ramp, connecting the metal sides. A 12V DC voltage is applied to the sides of the ramp so that a large current flows (up to 15A). The Aluminium tube is immediately accelerated rapidly along the ramp and shoots off the end, breaking the circuit. As well as confirming the Right Hand Rule, students can observe the difference in the current drawn by the tube when the ramp is horizontal and when one end is raised using the included wooden prop. Requires a power supply that can deliver 12VDC/15A, not included.

PH41170M



FORCE BETWEEN CONDUCTORS DEMONSTRATOR

An easy and safe way to demonstrate the magnetic force between two current carrying parallel conductors. A cylindrical base, containing a dedicated power supply, supports a rectangular frame. Attached inside the frame are two parallel heavy duty metal tubes supported by fine cone bearings which also supply current to the tubes. The directions of the currents in the tubes can be selected, and movable metal arrows on the frame uprights indicate the current direction in each tube. A push button applies a large current at low voltage to the tubes, which then swing together or apart, depending on whether the tube currents are in the same or opposite directions.

PH41171



FORCE ON A CONDUCTOR BALANCE

To demonstrate that when a current is passed through a conductor in a magnetic field, it is subjected to attraction or repulsion depending upon the direction of current in it. The apparatus consists of a plastic base 9" x 6" x 1" on which two contact pillars are mounted. Each pillar is provided with an external circuit. A balanced beam is supported by the pillars on two bearings which form the fulcrum. Two screwed masses are provided in the beam system, one moving vertically for the adjustment of sensitivity and the other moving horizontally for the adjustment of the equilibrium position, when no current is flowing. Scale is marked 0-80 x 1 mm and rider is of 1 gm. Includes instruction manual.

PH41172B

B.I.L COIL

A printed circuit board coil with 5 and 10 turns. It can be placed between the poles of a permanent magnet on the top pan of a digital balance so that when a current is passed through it a force is exerted on the magnet due to the magnetic effect of the current. Quantitative measurements can be taken to investigate the formula $F = BIL$.

PH41173



SIMPLE GALVANOSCOPE

A former with terminals and engraved circle marked 0-180°-0 figured every 45°, wound with 30 turns of insulated copper wire, complete with a magnetic needle 75 mm long and a pivot for the needle.

PH41175



HELMHOLTZ COILS

Helmholtz Coils are a special arrangement of coils that are placed in such a way as to generate a very uniform magnetic field between them when a current is applied. The strength of the magnetic field is proportional to the number of turns in the coils and the current applied to them. The Supertek Helmholtz Coils setup consists of two field coils mounted on a track to provide a uniform magnetic field between the coils. The proper separation for Helmholtz coils is marked on the track. A pair of precision coils and 400 turns of wire are wound on heat resistant former of about 150 mm diameter.

PH41176



HELMHOLTZ COIL

Pair of coils for generating a uniform magnetic field perpendicular to the axis of a tube.

Specifications:

Coil diameter: 300 mm approx.

Coil spacing: 150 mm

Number of turns per coil: 124

Enamelled copper wire thickness: 1.2 mm

DC resistance: 2 Ohms each

Maximum coil current: 5.5 A

Maximum coil voltage: 6 V

Maximum flux density at 5 A: 2 mT

PH41176B



MAGNETOMETER

A plastic box with aluminium dial graduated in 0-90° four times, anti-parallax mirror and steel pivot. The short magnetic needle has a synthetic sapphire bearing and a light aluminium pointer designed for precise readings and maximum damping. The compass box has a hollow circular cavity to fit tangent galvanometer stand or deflection magnetometer base.

PH41180



TANGENT GALVANOMETER

Plastic bobbin with 2, 50 and 500 turns of insulated copper wire and rotatable on vertical axis is mounted on a moulded plastic base, with leveling screws and four terminals, with magnetometer PH41180 mounted at the center of the bobbin.

PH41187

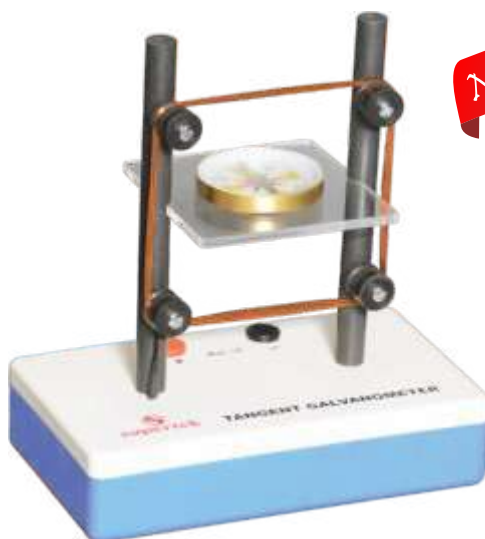


New

TANGENT GALVANOMETER

Classic demonstration of how a current loop generates a magnetic field. Two coils of insulated wire, with 5 and 10 turns respectively, are wound around a plastic ring. The ring is mounted on a plastic base with 3 binding posts that allow connection to five, ten, or fifteen turns of wire. A magnetic compass (included) can be placed on the base to observe and measure deflection of the compass. with compass 38mm Includes instructions.

PH41187B



New

TANGENT GALVANOMETER

Supertek tangent galvanometer is used to investigate the magnitude and direction of the magnetic field produced by a current carrying conductor. The apparatus may also be used to determine the magnitude and direction of the horizontal component of the earth's magnetic field. In this tangent galvanometer, 305 cm of wire is wound on the nonmagnetic stand, which is of sturdy design. 4mm sockets are provided for the input. Supplied with user manual.

PH41187E



TANGENT GALVANOMETER

Investigate magnetic fields produced by an electric current. Students observe as a current carrying coiled wire produces a magnetic field perpendicular to the direction of the current. Students learn that the strength of the magnetic field varies with the number of times the wire is coiled and voltage applied across the coils. Complete instructions provided.

PH41187N

MAGNETIC NEEDLE

Steel, with brass bearing.

	Length, mm
PH41195/2	50
PH41195/4	75
PH41195/5	100

NEEDLE STAND

For magnetic needles, with plastic base and metal pillar which supports a steel needle pivot, overall height 100 mm.

PH41197



PLOTTING COMPASS

Both sides glass, with needle pivoted between top and bottom glass plates, diam. 20 mm.

PH41210



PLOTTING COMPASS

In aluminium case, with card dial.

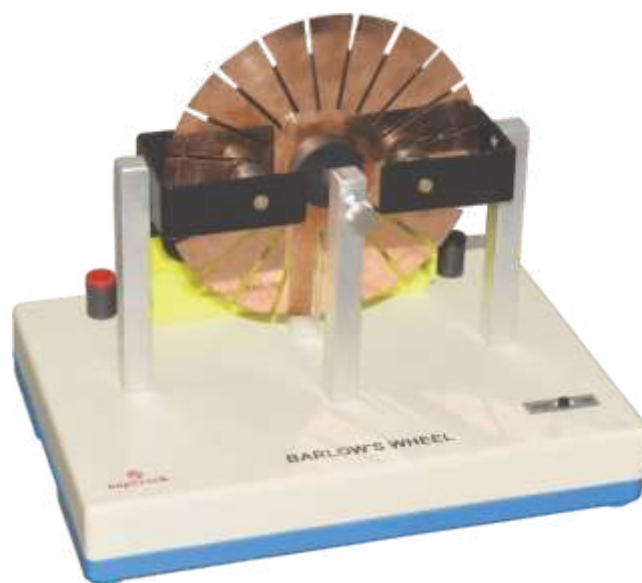
	Diam., mm
PH41212/4	25
PH41212/5	38
PH41212/6	50



POCKET COMPASS

Diam. 50 mm with cover and locking arrangement. Dial marked with points of compass and degrees.

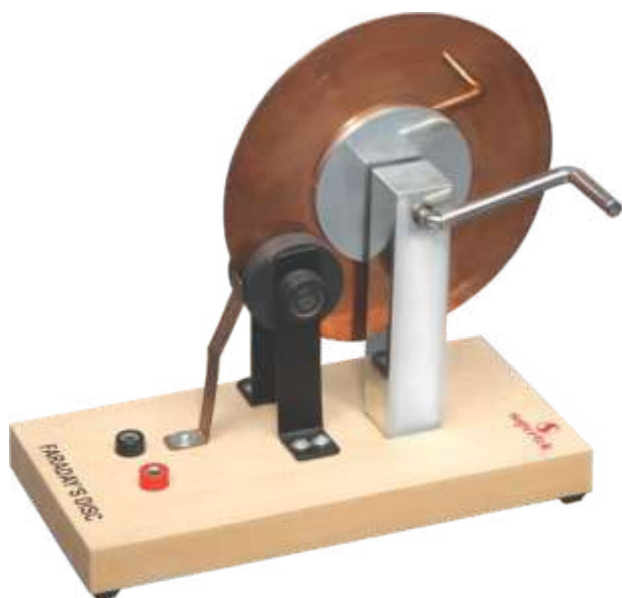
PH41214



BARLOW'S WHEEL

This apparatus spins an electrically charged copper wheel spin, without the aid of a motor. When the wheel is electrified by a voltage source (battery), the slotted copper disc sets up eddy currents throughout the structure. This electricity is then attracted to 4 strong neodymium magnets, causing the wheel to spin.

PH41225



FARADAY'S DISC

To demonstrate conversion of mechanical energy into electrical energy. A copper disc with a turning handle rotates between two poles of a horse shoe magnet. On base with two terminals, one of which is connected to a pillar supporting the disc and the other to a brush bearing on edge of the disc.

PH41226



RACING RINGS

Racing Rings consists of three rods one each of copper, aluminum and PVC. When ring magnet is dropped down the PVC rod, it falls unobstructed. When the rings are sent down either of the metal rods, they experience a slower fall. The two metal rods create an induced magnetic field to that adds resistance to the rings' travel. Since the metals are different, they fall at different rates.

PH41232

OERSTED APPARATUS

To show action of electric current on a magnet. A 75 mm cobalt steel needle supported on a pivot is mounted on base and is surrounded by a copper strip rectangle with two terminals.

PH41228



MAGNETIC FIELD APPARATUS

A wooden table supports a plastic ring wound with three coils of 5, 10 and 20 turns of insulated copper wire, connected to terminals on the base. without compasses

PH41230



MAGNETIC FIELD INCLINATION

To illustrate Earth's magnetic field. Consists of as a dip needle in an aluminum mounting, the dip needle indicates the inclination and declination of the magnetic field.

PH41240



LENZ'S LAW LOOP DEMO

To demonstrate Lenz's laws. The apparatus moves when a magnet passes through the closed loop and does not move when the loop is open, proving Lenz's law. Magnet not included.

PH41258



ELECTROMAGNETIC FIELD DEMONSTRATOR

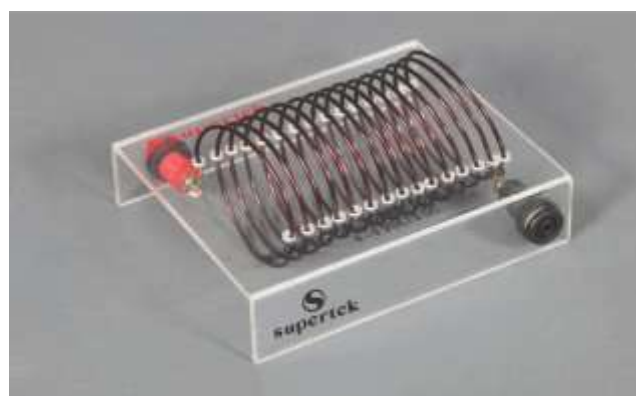
This apparatus demonstrates the magnetic field patterns associated with the different shapes of current carrying conductors. Comprises three conductors, each of different shape/configuration - straight rectangular, circular loop and solenoid - all mounted on a plastic base. Each configuration is provided with a pair of 4mm sockets to connect them to a low voltage DC power source, with output current not exceeding 5A. With the included iron filings and 8 magnetic compasses, you can investigate the associated field and flux patterns.

PH41259

MAGNETIC FIELD DEMO, VERTICAL WIRE

For investigating magnetic field around a wire. Maximum current is approx. 8A. Diam. of wire is 1.5 mm.

PH41260



MAGNETIC FIELD DEMO, LONG SOLENOID

For investigating the magnetic field associated with a solenoid coil. Coil size 51 x 92 mm. (diam. x length) approx., diam. of wire 1.5 mm.

PH41262



MAGNETIC FIELD DEMO, VERTICAL COILS

For investigating magnetic field associated with vertical coils. Single turn and 5 turn coils. Maximum current is approx. 8A for the single turn and approx. 5A for the 5 turn. Diameter of coil 62 mm, wire diameter 1.5 mm.

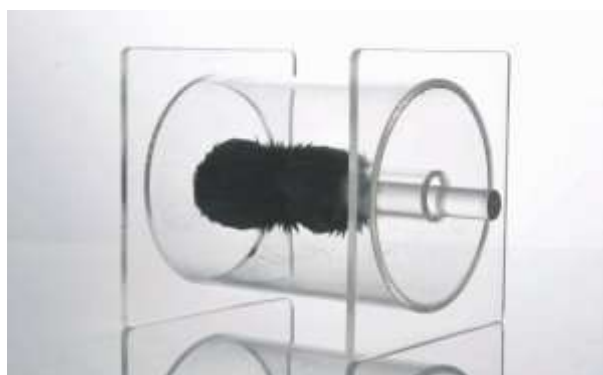
PH41265



MAGNETIC FIELD DEMONSTRATOR, STUDENT

To demonstrate the magnetic field line. Iron filling filled with silicon oil in a flat and transparent box which allows students to visualize the field of a small magnet. size 100 x 75 x 10mm.

PH41270



MAGNETIC FIELD CHAMBER MODEL

Transparent acrylic chamber contains iron filings. Chamber also has an internal tunnel into which bar magnet can be inserted to demonstrate magnetic field pattern. Other-shaped magnets can be investigated by positioning their poles near one side of chamber. With Cylindrical magnet. PH41272



MAGNETIC FIELD DEMONSTRATOR

Consist of a closed transparent box with a transparent tube through the center. The box contains iron filings and silicon oil. When one or more cylindrical magnets are inserted into the central tube, the filings are attracted and line up along the field lines in all dimensions. With Cylindrical Magnet. PH41275



AMPERE'S RULE DEMONSTRATION

To Investigate magnetic field around a wire. Includes a clear acrylic frame with brass conductor, binding posts, one 45 mm diam. compass and six 16 mm diam. compasses and instruction manual. PH41280



TESLA COIL

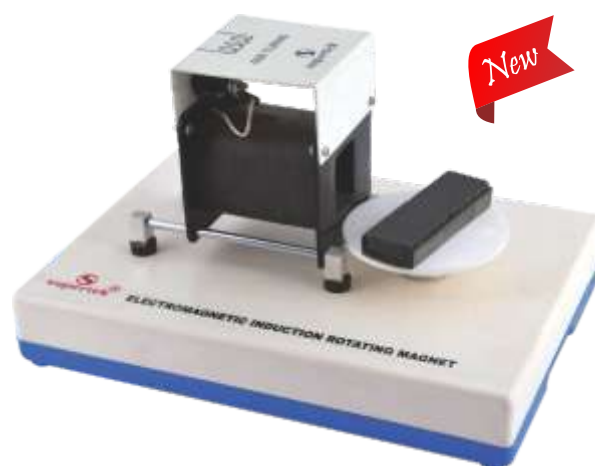
This hands-free Tesla coil is used to demonstrate the unusual properties of high-frequency electrical phenomena. Teach many important topics such as transformers, electromagnetism, resonating electrical circuits, electric inductance, capacitance, and electrical power transmission. The set includes two antenna plates, small neon lightbulb, mini discharge electrode, and lamp socket. Provided with instruction manual. Available in two versions

PH41282/1

Works on 110 V

PH41282/2

Works on 220 V



ROTATING MAGNET FOR ELECTROMAGNETIC INDUCTION

This simple device demonstrates the principle of electromagnetic induction and the effect of magnetic field of coil on the speed of rotation of the magnet, kept at some distance away from the coil. Fitted on plastic base. Includes a magnet and instruction manual.

PH41284

MAXIMUM FLUX COIL

Easy to use copper wire coil of 200 turns with internal diameter of 45mm approximately. Max current obtained is 1A to show the effect of electromagnetism. The coil is connected to 45cm co-axial cable coming from metal tube with banana pins for external connections. Magnetic field has a good linear relationship with current. The coil is supplied with support stand and clamp. **PH41286**



EBONITE ROD

Polished, 300 x 13 mm length x diam. **PH45020**

POLYTHENE ROD

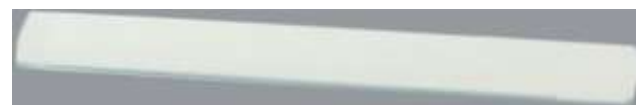
300 x 13 mm length x diam. **PH45025**

PERSPEX ROD

300 x 13 mm length x diam. **PH45030**

FRICTION ROD, COMPOUND

Half glass, half brass, 300 x 13 mm length x diam. **PH45038**



POLYTHENE STRIP

250 x 250 x 1.5 mm length x width x thickness. **PH45039**

ELECTROMAGNETIC INDUCTION DEMONSTRATOR

Electromagnetic Induction Demonstrator kit is used for demonstrating the important experiments performed by Faraday and how they lead to some of the significant conclusions in electromagnetism. It is designed to perform studies even beyond the basic experiments. It comprises of three solenoids of 20, 40 and 80 turns, each of identical cross section, mounted on a transparent base along with a milliammeter. These three coils of different lengths are provided to understand the effect of length of coil on induced current. Repeatedly inserting a magnet into the coil and removing it causes electric current to flow through the coil, which can be read directly from the milliammeter. Also notice that the milliammeter shows zero current when the magnet is not moving. Using this apparatus, students can study correlations between induced current to that of magnetic field strength, number of turns of coil, magnetic field polarity and speed. Requires 1.5V dry cell battery (not included) **PH41288**



LAPLACE LAW APPARATUS

Laplace Apparatus works without mercury. The study of Lorentz's force is a crucial topic of introductory physics courses and interaction between electric currents and magnetic fields is a major issue of electromagnetism. Power supply is required but not included. **PH41290**



FLANNEL RUBBER

250 mm square. **PH45040**



WOOLEN RUBBER

250 mm square.
PH45042



SILK (VISCOSE) RUBBER

300 mm square.
PH45045



FRICTION ROD SET

Kit demonstrates the generation of electrostatic charges using a friction rod. The complete kit includes a solid plastic rod, hard rubber rod, and a hollow glass rod; three friction pads (cotton, silk, fur); balloons and instructions.

PH45048



ELECTROSTATIC MATERIALS KIT

Set of material for demonstrating the generation of electrostatic charges with friction rods. It provide the classic introduction to electrostatic, this kit allows students to rub any of the rods with rubbing cloths and detect the polarity of charge. Includes a solid glass rod, hard rubber rod, silk cloth, rubber cloth, fur friction pad, PVC pipe, stirrup and pith balls. With Instruction manual.

PH45050



ELECTROSTATIC CHARGE KIT

This is a basic kit for the study of electricity. For the generation of electricity by friction and to store and transfer electricity. Includes electrophorus, 6 different friction rods, acetate cloth, woolen cloth, silk cloth, proof plane, neon lamp, a conductive ball with hook, an acrylic rod with hook & 12 pith balls. With the instruction manual.

PH45052

NYLON THREAD

Mono-filament.

PH45058



VAN DE GRAAFF GENERATOR, HAND DRIVEN

A simple hand driven van de graaff generator for producing very high electric potentials at low currents. The apparatus consist of a wooden base, insulated perspex stand, rubber belt, removable metal dome (135 mm dia), a driving wheel and driving belt. The discharge sphere (50 mm dia) is mounted on a pivoted arm, with handle for adjustment. The length of spark is around 30mm. Includes standard accessories.

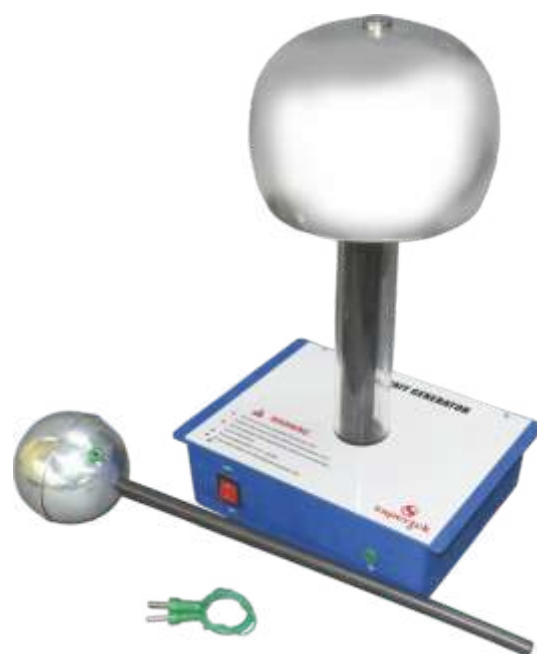
PH45080



VAN DE GRAAFF GENERATOR, MOTOR DRIVEN

The motor driven van de graaff provides continuous supply of charge at high voltage (upto 200 KV). The diameter of metal dome is 180 mm and discharge sphere is 100 mm. The generator produces a spark length of approx. 3". Supplied with standard accessories.

PH45090



VAN DE GRAAFF GENERATOR,

A small but powerful van de graaff generator. Generates high potential (upto 200 KV) and sparks up to 3". With aluminium dome (7" dia) and discharge sphere (4" dia). Total height about 18". Comes with one replacement belt and standard accessories.

PH45095



VAN DE GRAAFF GENERATOR, MOTOR DRIVEN

This high-quality generator will deliver a very high static potential upto 400 KV. The diameter of large dome is 250 mm and discharge sphere is 125mm. Sparks of 5" are typical. If the conditions are right, spark lengths of 10" are possible. With standard accessories.

PH45092



WIMSHURST MACHINE, SUPERIOR

This traditional electrostatic charge generator consists of two parallel transparent discs supported on rigid uprights. Each disc has a number of radial aluminium segments and are driven in opposite directions by hand wheel and belt. The electrostatic charge on aluminium segments is collected by combs mounted on either end of the discs and stored in the two leyden jars. When the potential difference between the jars is sufficiently high. A spark will flow between the adjustable discharging spheres.

	Disc Size	Spark Length
PH45118S	8"	Up to 2"
PH45120S	10"	Up to 3"

New



NEWTON'S / COULOMB'S LAW DEMONSTRATION

Study the concepts of Newton's and Coulomb's laws with this apparatus. This apparatus can be used to demonstrate repulsion, attraction of charged bodies and provides the ability to measure the angle between the 2 strings and thus the force between the two charged spheres. The charge can be provided by a Wimshurst machine or a Van de Graff generator or by simply rubbing a plastic rule with on a duster. Includes manual.

PH45122



ELECTRIC WHIRL

On stand, with insulated base.

PH45126



PROOF PLANE

20 mm diam. Metal disc with insulating handle.

PH45129



ELECTROPHORUS

Plated metal disc 50 mm diameter mounted on 90 mm long handle, with a plastic base.

PH45135



CONDUCTOR

Plated brass, each conductor on insulated stand.

PH45145 Sphere diam. 5 cm

PH45147 Pointed cone with rounded narrow end 5 x 10 cm diam. x length

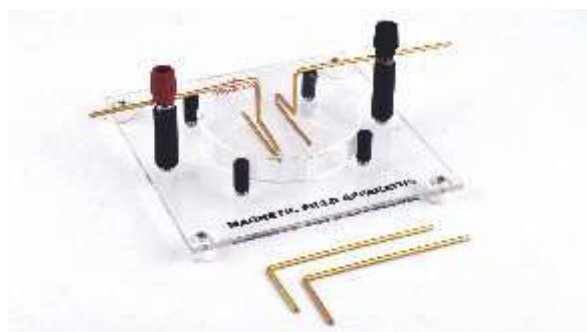
PH45150 Cylinder, Rounded Ends 5 x 12.5 cm diam. x length

BIOT'S APPARATUS

A spherical conductor on insulating stand with two hollow hemispheres, each with insulated handle, to show that electrostatic charge resides on outer surface.

PH45165





ELECTRIC FIELD APPARATUS

For visual demonstration of electric fields. A transparent plastic base supports a glass dish 90 mm diam. and two 4 mm socket terminals mounted on two insulated pillars with two wire point electrodes and two T-shaped electrodes.

PH45175



ICE PAILS, FARADAY

Aluminium, set of four nesting cylinders, largest of size 125 x 140 mm diam. x ht. The smaller pails are fitted with insulated feet.

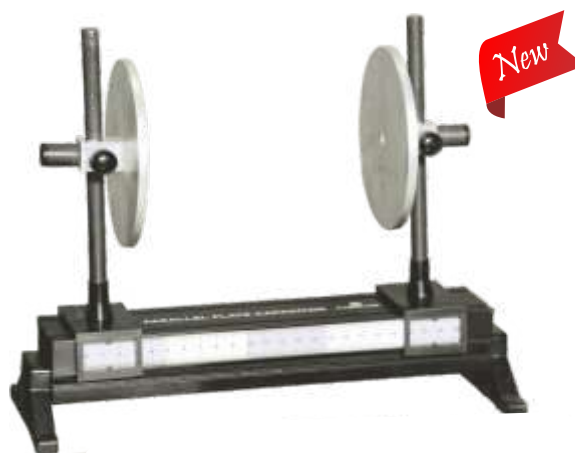
PH45180



BUTTERFLY NET, FARADAY

Net with cord, on insulated pillar on a metal tripod base, to show electric charge resides on outer surface of a conductor.

PH45183



PARALLEL PLATE CAPACITOR

For investigating the relationship between the electrical quantities charge, voltage and capacitance, as well as for measuring the absolute permittivity and dielectric constant of various materials. Equipped with a fine control mechanism for precise adjustment of the distance between the plates.

PH45185



AEPINUS AIR CONDENSER

Two circular plates of 100 mm diam. are carried on a pair of insulated pillars. The gap is adjustable. A support for interposing sheet of dielectric material is provided, on an insulated base. The terminals are provided with 4 mm sockets for connection and additional vertical sockets for connection and additional vertical sockets to carry a pair of suspended cork balls (Supplied with the apparatus).

PH45194N

LEYDEN JAR

With removable internal and external metal vessels and a middle plastic one. A metal sphere is fitted to the inner vessel by a brass rod.

PH45208





DISCHARGER

Two small plated brass spheres mounted on jointed arms, with insulated handle.
PH45212



ELECTROSCOPE, PITH BALL

A pair of light weight balls is suspended from a rod on insulated base.
PH45241



ELECTROSCOPE, SIMPLE

Flask type, conical flask with rubber stopper which holds a metal rod with disc top and lower flat end to which a leaf may be pasted. Supplied with a booklet of 6 leaves and instructions for fitting.
PH45246



GOLD LEAF ELECTROSCOPE

In rectangular cast metal case, with removable glass window and fitted with 4 mm earthing socket. A metal disc passes through an insulating polythene bush and ends in a flat support for "gold leaf". With a transparent scale to show quantum of deflection. With a supply of leaves and instructions for fitting.
PH45250



GOLD LEAF ELECTROSCOPE

The electroscope consist of metal case, with glass window and fitted with 4 mm earthing socket. A metal disc passes through an insulating bush and ends in a flat support for "gold leaf". Also includes a transparent scale to show quantum of deflection, supply of leaves and instruction manual.
PH45255



ELECTROMETER

As PH45255, but with a pivoted aluminium pointer moving over the scale. Eliminates problem of breaking of leaves and their refixing.

PH45260



OPEN CASE FORM ELECTROSCOPE

Charge is indicated by deflection of an aluminized plastic straw which rotates freely on the saddle of the conducting rod. A scale on the instrument's back is graduated in degrees to allow measurement of the deflection. The conducting rod is recessed in the metal housing to shield against air currents. With replacements aluminized straws.

PH45265



ELECTROSCOPE, METAL CASE

Enclosed to prevent air currents from affecting the deflection of leaves. Each leaf is suspended from two small hooks. The leaves pivot, rather than bend, when charged. Front and rear side of box is made of square glass to allow visibility. supplied with a booklet of 6 leaves .

PH45263



ELECTROSCOPE

With front and rear removable glass windows to permit easy observation of leaves. supplied with a booklet of 6 leaves with instructions.

PH45268



BRAUN ELECTROSCOPE WITH ACCESSORIES

Rugged and sensitive electroscope with various accessories to change its capacitance. A sensitive aluminum vane is balanced in a vertical position on a metal support which is insulated from its base. Four attachments, each equipped with a banana plug which fits the vane system top are included, a 3 inch conducting sphere, a proof plane with detachable insulating handle and an aluminum cup (Faraday ice pail). With instructions.

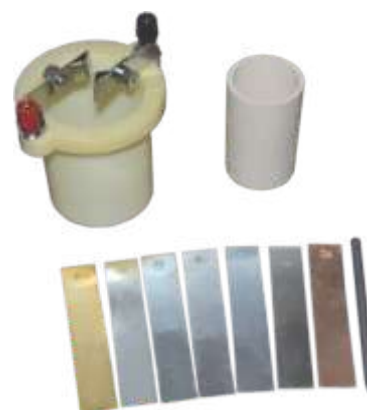
PH45270



SIMPLE VOLTAIC CELL

A simple voltaic cell with one copper and one zinc plate electrode (size 90 x 25 x 1.5 mm). Each electrode is fitted with terminal. Also includes a battery jar of size.

PH50055



ELECTROSTATIC KIT

Comprising one electroscope, one packet of metal leaves, 4 metallised spheres, 1 reel of nylon thread, two polythene plates 75 x 75 mm, one electrophorus plate with insulating handle, 1 proof plane, Two aluminium cans, one cellulose acetate strip, 1 polythene strip, one stirrup for suspending strips, one flannel rubber, one wire hook and instructions.

PH45272

VOLTAIC CELL SET, STUDENT

To demonstrate the characteristics of simple and primary cells. Consists of a plastic jar with a screw-on plastic rim containing two adjustable electrode holders, eight electrodes of different metals and a porous ceramic cup. With Instructions

PH50058



PLATES FOR SIMPLE CELL

Each plate is fitted with a 4 mm socket terminal.

	Material	Size, mm
PH50060/1	Zinc	90 x 25 x 1.5
PH50060/2	Copper	90 x 25 x 1.5
PH50060/3	Lead	90 x 25 x 1.5
PH50060/4	Carbon	90 x 25 x 6

ELECTRODES

Package of 12.



	Material	Size, mm
PH50067/1	Aluminium	22 x 127
PH50067/2	Brass	22 x 127
PH50067/3	Carbon	19 x 127
PH50067/4	Carbon Rod	6 x 127
PH50067/5	Copper	22 x 127
PH50067/6	Lead	22 x 127
PH50067/7	Nickel	22 x 127
PH50067/8	Tin	22 x 127
PH50067/9	Zinc	22 x 127
PH50067/10	Iron	22 x 127
PH50067/12	Nickel Plated Iron	22 x 127

DANIEL CELL

Outer copper vessel 125 x 75 mm with perforated shelf and terminal, a porous pot 150 x 50 mm and a zinc rod 125 x 12 mm, with support and terminal.

PH50080



ZINC ROD

Size 125 x 12 mm, with terminal.

PH50090

POROUS POT

Cylindrical

Ht. x diam., mm.

PH50110/1 150 x 50



LECLANCHE CELL

Porous pot filled with a mixture of manganese dioxide, carbon and a zinc rod with brass terminal.

PH50117

POROUS POT FOR LECLANCHE CELL

Filled, with terminal

PH50120



DEMONSTRATION ELECTRIC BELL 1

Mounted on a panel, large size parts, wiring of electric bell is clearly visible. Operates on 4 - 9 V.

PH50133

DEMONSTRATION ELECTRIC BELL 2

The large size of this battery operated apparatus allows students to better understand the operation of this basic circuit. Works on 9V Battery. with Instructions. On wooden stand. without battery.

PH50135



New

CIRCUIT BREAKER DEMONSTRATION

Investigate the working principle of circuit breaker type fuse, with this demonstration model. The apparatus is built on a robust plastic base and includes resistive loads to simulate external wiring circuits. Applications of the thermal response of bimetal strips and also electromagnetism (movement from a solenoid) are clearly demonstrated in this model.

When a 12VDC supply is connected (not supplied) the LED lights to show that current is flowing in the external circuit and the bi-metal strip can be seen to bend as its heater coil raises the temperature. After a few minutes the bending is sufficient to trip the mechanism and the current path is broken. At any current selection a short circuit situation can be initiated by pressing the red button and this produces an immediate response from the solenoid to disconnect the supply

PH50136C



New

EARTH, NEUTRAL AND LIVE BOARD DEMONSTRATION

This apparatus is an effective demonstration of how the earth wire and fuse act together to protect both the user and the appliance.

When the appliance is connected correctly and the LEDs in the appliance will illuminate to show the appliance is working. A fault is then demonstrated by swapping the live wire from inside the appliance to the case to show either the fuse melts (protecting the user and appliance) or in the case of no earth wire, the LEDs illuminate to indicate the passage of current through the person to ground. The fuse is easily visible and can be seen to 'blow' when a fault occurs. The unit is supplied with 10 metres of fuse wire and full instructions. A 12V D.C. power supply is required. Connections are made via 4mm shrouded sockets.

PH50136E



SIMPLE CIRCUIT MODULES

Designed to demonstrate to implement and applications of electrical, electronic devices and simple circuits. These modules are fitted with 4 mm sockets. Components are directly mounted on printed PCB with diagram.

Various modules are available as following:

PH50138/1	Resistor
PH50138/2	LDR 1
PH50138/3	LED 2
PH50138/4	Push Switch 3
PH50138/5	Motor
PH50138/6	Reed Relay
PH50138/7	Reed Switch 6
PH50138/8	Relay Nand Gate
PH50138/9	Buzzer 9
PH50138/10	Thermistor 5
PH50138/11	Lamp Holder
PH50138/12	Single Pole Double Throw Switch
PH50138/13	Electromagnet
PH50138/14	Power Transistor



CONDUCTORS AND INSULATORS

To distinguish between the conductors and insulators. Kit contains five strips of different material (wood, acrylic, copper brass and aluminium), one lamp and one 9V battery mounted on plastic base.

PH50140



WORCESTER CIRCUIT BOARD

Enables students to investigate nature and properties of electricity by using simple circuits which are easily constructed on a base board. The connector system uses P.C.B. strips with cut-out sections whose ends can easily be inserted in spring terminals, ensuring low contact resistance and ease of connection. The kit consists of :

- Baseboard, plastic, with spring terminals and three battery holders.
- Batteries.
- Lamps 1.25 V M.E.S.
- Lamp holders mounted on P.C.B. connectors.
- Plain connector P.C.Bs.
- Wire wound potentiometer with crocodile clip connections.
- Silicon diode.
- Resistor 3.9 ohm 2.5 W
- pair Leads, red, with crocodile clip at each end.
- pair Leads, black, with crocodile clip at each end
- pair Leads, yellow, with crocodile clips at each end.
- Switches mounted on P.C.B. connectors
- PVC rod 15 cm long
- Soft iron nails, 5 cm long
- 2m Bare copper wire, swg 20
- 2m Bare eureka wire, swg 34
- 2m Plastic covered copper wire
- Electrode support
- Pencil lead electrodes
- Sheet copper foil, 150 mm square
- Pack Steel wool
- Instruction manual in English.

PH50152



WESTMINSTER ELECTROMAGNETIC KIT

A very effective and motivating learning aid in elementary electromagnetism. Consists of 8 anisotropic alloy magnets, 8 ceramic ferrite magnets, 4 steel magnet yokes, 6 plotting compasses, 4 hardboard formers to take compasses, 1 bottle iron filings 250 gm, 4 dispensers for iron filings, 4 double C-cores, 4 clips for C cores, 4 Aluminium rings, 4 Aluminium split rings, 4 armatures with axle tubes, 4 Aluminium axle rods, 8 split pins, 16 rivets, 4 formers for coils, 4 reels cello tape, 4 reels copper wire, 4 sheets white pasteboard, 4 plain postcards, 4 reels white cotton thread, 1 length latex rubber tubing, 4 each resistors 100 ohms and 10 ohms, 4 support bases, 10 M.E.S. bulbs, 8 MES bulb holders, 1 wood clamp and 1 wooden block. With instructions.

PH50160

POWER SUPPLY, 2 V

For Westminster Electromagnetic Kit giving 1 V full wave rectified D.C. and 1 and 2 V.A.C. outputs at 8 A max. The circuit diagram is printed on the top panel which also carries mains switch, light indicator and output sockets for D.C. and A.C. With 1.5 meter mains detachable cable.

PH50163



DEMOUNTABLE TRANSFORMER

This heavy duty demountable transformer can be used for the study of transformer theory and many other alternating current phenomena. This kit consists of:

1. A magnetic circuit made of highly permeable U shape metal sheet, which can be closed using two clamps with tightening screws.
2. Section: 40 x 40 mm with 150 mm length and 170 mm height.
3. One coil of 6000 turns with maximum current of 0.2 ampere. Intermediary coil of 2000 turns output.
4. One coil of 600 turns with maximum current of 2.5 ampere, which is mainly used to create the primary of transformer.
5. One coil of 1200 turns, with maximum current of 1.25 ampere, fitted with intermediary 400 and 800 turns' outputs.
6. One coil of 72 turns, with maximum current of 12 ampere, fitted with intermediary 6, 30, 54 and 66 turns' outputs.
7. Power supply cable.

PH50170

TRANSFORMER STAND AND CORE

Apparatus is designed primarily for demonstration of the basic principles of transformers. It consists of a laminated U-core with laminated I-core, both with 30 x 25 mm cross section to form a closed core of size 105 x 140 mm. Heavy aluminium alloy stand with removable clamping rods, 2 pole pieces, each 65 x 25 x 25 mm with one end cone shaped, to accept support rod and shading ring. Poles also have a hole drilled through lengthwise to take a light beam

PH50175



LOW VOLTAGE COILS, FOR DEMOUNTABLE TRANSFORMER

Each wound on a rectangular insulated bobbin, connections by 4 mm sockets spaced at 19 mm.

PH50175/1 300 turns

PH50175/2 600 turns

MAINS VOLTAGE COILS, FOR DEMOUNTABLE TRANSFORMER

Wound on rectangular bobbin, for use with 220 - 240 mains. With detachable mains connector with moulded plug, A4 mm socket is provided for earthing.

PH50175/3 1200 turns

PH50175/4 3600 turns

ACCESSORIES SET FOR DEMOUNTABLE TRANSFORMER

Comprising 1 welding coil of 5 turns on former with insulated handle and short-circuiting pins, 1 annular melting trough with insulated handle to show heating by induction, 1 jumping ring which is thrown clear when primary current is started and a floating ring which remains freely suspended when primary current is flowing.

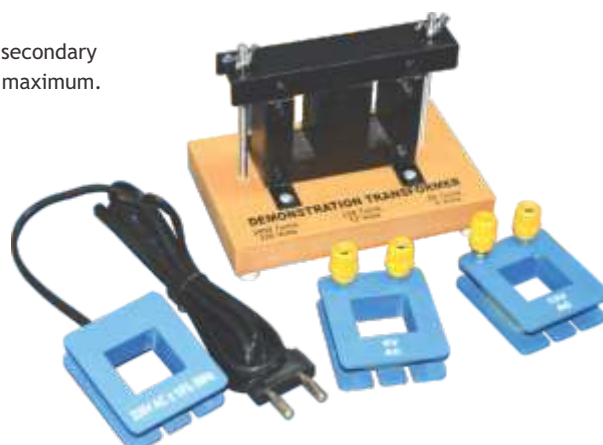
PH50180



DEMONSTRATION TRANSFORMER

With one mains coil, 240 V, 50 Hz, 2400 turns and two interchangeable secondary coils 65 and 130 turns giving outputs of 6 and 12 V approximately at 2 A maximum.

PH50185





DC MOTOR KIT

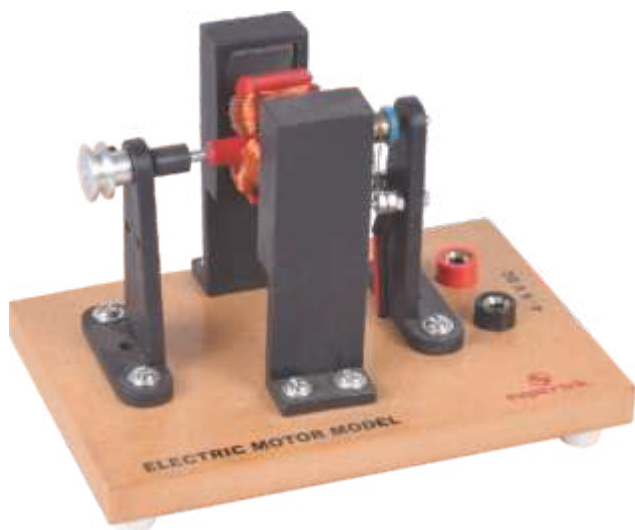
A simple kit for students to gain insight into field poles, armatures and switches, Kit includes one mounting base, field pole, armature, two wire brushes, a piece of copper wire, two shaft supports, a AA battery holder, AA battery, and 4 each of screws and nuts. With assembly instructions
PH50202



ELECTRIC MOTOR MODEL

With this simple electric motor model students can investigate the relationship between voltage supplied to rotor and polarity / position of magnets. On applying 6V DC to 4mm sockets, the rotor will begin to rotate across its vertical axis.

PH50210



ELECTRIC MOTOR MODEL

Operates on 4 to 6 V battery, on wooden base with two 4 mm socket terminals, provided with self induced magnetic field.

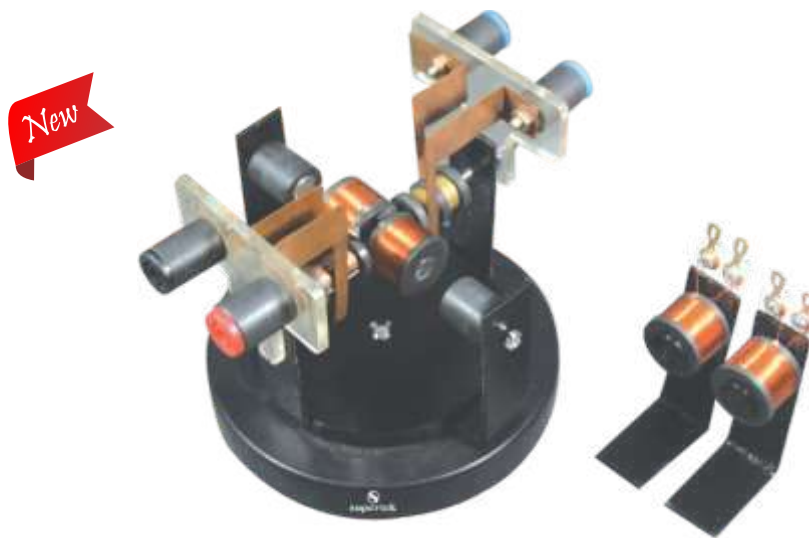
PH50207



ELECTRIC MOTOR, DEMONSTRATION

A simple form of D.C. motor with 2 pole armature wound with insulated copper wire and a permanent magnetic field provided by a removable bar magnet, with a commutator and phosphor bronze brushes connected to 4 mm sockets, open construction, all parts visible.

PH50213



ST. LOUIS MOTOR DEMONSTRATION

Students can explore how a simple electric motor works by doing a series of investigations. This St. Louis motor can be adjusted so students can study the effect of voltage and position of the brushes on the commutator. This model is capable of AC & DC operation. The motor consists of a two pole armature. The brush holder, with binding post terminals, can be rotated for experiments. The permanent magnets, supported by clamps, can be adjusted to the desired location. This apparatus requires AC/DC Power Supply and connecting leads (not included).

PH50215B

MOTOR-GENERATOR MODEL SET

This motor-generator set gives students an insight into the physical and technical relationships on which electric motors, generators and transformers are based. The modular system allows to set up different function models without tools:

- Various DC motors
- Series and shunt motor
- Synchronous motor
- DC generator and alternator
- Transformer

This set allows the performance of 10 student experiments about the following topics:

- Magnetic field of a coil
- Conversion of electrical energy into kinetic energy
- Commutator
- Direct current motor
- Synchronous motor
- Series and shunt-wound motors
- Electromagnetic induction
- The electrical generator
- Engine-generator
- Transformer

PH50217





DEMONSTRATION DYNAMO MODEL

The electric motor model (same as PH50213) is mounted on a base and provided with a driving wheel. Output is through 4 mm sockets and a LED is also provided as a simple output indicator. Also includes one spare belt.

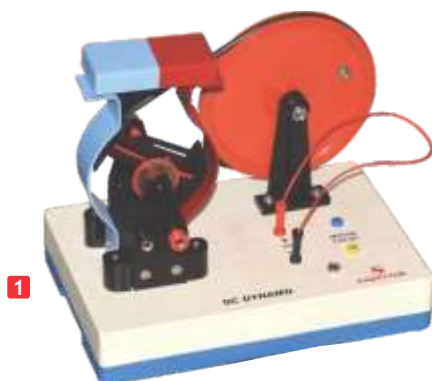
PH50218



MODEL AC DC GENERATOR

Generates both AC and DC. When the two brushes of the generator are put in the two ends (on the complete loop) of the commutator, the output is an AC. When the brushes are put in the middle (on the half loop) of the commutator, the output is a DC with one spare belt. Includes Instructions.

PH50222



DYNAMO

Dynamo model for generating electrical current using a commutator. The setup includes driving wheel (with one spare belt) mounted on plastic base. LED is also provided as a simple output indicator.

PH50220/1 Output DC current **1**

PH50220/3 Output both DC and AC current **2**



BICYCLE DYNAMO ASSEMBLY

A cycle dynamo, with a crank handle, is fitted on base and connected to a lamp holder with a lamp.

PH50223

DOUBLE 'C' CORE AND CLIP

As used in Westminster Electromagnetic Kit.

Size 90 x 50 x 22 mm.

PH50225





PAIR OF COILS, 120 TURNS

Each centre tapped, wound on plastic former, to fit double 'C' core, with three 4 mm socket terminals.

PH50227

PAIR OF COILS, 2400 TURNS

As above but with 2400 turns, with three 4 mm socket terminals.

PH50230

COIL, 240 TURNS

Centre tapped, to fit 'C' core, with three 4 mm socket terminals.

PH50232



INDUCTION COIL, RUHKORFF

Coils are wound with highly insulated copper wire impregnated with paraffin wax; input 6-8 V DC through two 4 mm socket terminals, with an adjustable trembler system. The spark suppression capacitor is housed in the base. A pair of pointer electrodes with insulated handles for adjustment of the spark gap is provided.

PH50238/1	Spark length 10 mm
PH50238/2	Spark length 25 mm
PH50238/3	Spark length 50 mm
PH50238/4	Spark length 75 mm
PH50238/5	Spark length 100 mm



INDUCTION COIL

This box form Induction Coil has a 50 mm spark gap and can produce pulses of high voltage spark from a low voltage direct current source such as a battery. It is suitable for use with gas-filled discharge tubes, vacuum tubes, eudiometers and for general laboratory work. It is comprised of two coils fully enclosed in a polished wooden case with binding posts. Spark gap at the discharge points can be adjusted by sliding rods back and forth.

PH50240



INDUCTION COIL, RUHKORFF

Supertek induction coil is a device, which produces a spark with an input of 6 to 12 V DC and is therefore ideal for use with vacuum tubes, eudiometers etc. A fully adjustable vibrator system is incorporated and spark suppression capacitors are housed in the base. A pair of pointer electrodes is supplied with the instrument. Pointer electrodes have an insulating handle for adjustment of the spark gap. Low voltage input is given via a pair of mounted 4 mm Sockets. Induction Coil

PH50237	15 mm
PH50237/4	25 mm



PRIMARY AND SECONDARY COIL

The apparatus demonstrates the principle of Electromagnetic Induction and helps explain the concept of a transformer. Primary and Secondary coil consist of coils mounted on plastic spools, with 2 binding posts on each coil. You can slide the primary coil inside the secondary coil. Also includes a soft iron core for induction experiments. Primary coil has 480 turns while secondary coil has 3800 turns. Requires a galvanometer and bar magnets, not supplied with apparatus.

PH50250



PRIMARY AND SECONDARY COILS

To demonstrate electromagnetic induction and transformer principles. Primary coil with 175 turns, secondary coil with three different windings 500; 1,000 and 1,500 turns. Coils are wound on molded pipe and are provided with 4 mm safety sockets. With Plated Iron core. PH50252



AIR CORE SOLENOID

Air Core Solenoid helps investigate the magnetic field of a long coil. It can also be used with the Current Balance as an accessory to measure the force on a conductor in a magnetic field. The solenoid has coils wound on a plastic tube with approximately 575 turns of copper wire. It can carry a current of 5A continuously, or 10A intermittently. PH50255

CURRENT BALANCE

The Current Balance is used as an accessory to Air Core Solenoid (PH50255) to measure the force experienced by a conducting loop carrying an electric current when it is placed in a magnetic field.

PH50255/1



SOLENOID

This solenoid is used to generate a variable magnetic field and hence verify the relationship between magnetic field, current, number of windings and length of solenoid.

PH50260



THERMOCOUPLE, SINGLE

Copper and constantan wires twisted together at one end and soldered for about 20 mm. Length of the coiled lead is about 50 mm.

PH50310



THERMOCOUPLE, DOUBLE

Copper-constantan-copper, to form hot and cold junctions. Length of soldered junctions is about 38 mm. The coiled lead is about 50 mm long.

PH50314

THERMOCOUPLE, DOUBLE, MOUNTED

As above but mounted on base with insulated stand and terminals.

PH50315



THERMOCOUPLE, SINGLE

Bars of bismuth and antimony soldered together with coiled connecting leads, which can be extended to 500 mm approx.

PH50318



THERMOPILE

Comprising of 3 iron wires and 3 copper wires welded to make 5 junctions (3 on top and 2 on bottom side). Brass terminals are provided for connections.

PH50330





PLATINUM RESISTANCE THERMOMETER

Platinum wire of about 2 ohms resistance, non inductively wound on a mica frame with copper leads, together with a pair of compensatory leads, all being connected to 4 mm socket terminals, for temperatures up to 150°C.
PH50335



WHEATSTONE BRIDGE, TWO GAP

Comprising a resistance wire (SWG 26) stretched along a meter scale subdivided in mm and marked every cm. is clamped to stout brass plates so as to avoid end errors. A plated brass strip with 4 mm socket terminal is fitted along the meter rule to provide a two gap system for normal Wheatstone bridge work. Complete with jockey.
PH50401



WHEATSTONE BRIDGE, FOUR GAP

Four gap systems, enabling two additional resistances to be interpolated in the additional gaps, enable greater accuracy of measurement by reducing unwanted resistance to a minimum. Two brass strips are provided to close the gaps when so required. Complete with jockey.
PH50404



SLIDE WIRE WHEATSTONE BRIDGE

Consists of a resistance wire with a sliding contact and a strip of aluminum to provide two "arms" of the bridge for known and unknown resistance. Strips of heavy aluminum are provided with a single gap in each of two arms for the resistance. All components are mounted on a heavy sheet metal base. With Instructions.
PH50410



POTENTIOMETER

A one meter long single resistance wire passes over a meter scale and is firmly clamped to stout brass end-plates, on wooden base. Complete with knife-edge jockey.
PH50415



1



2

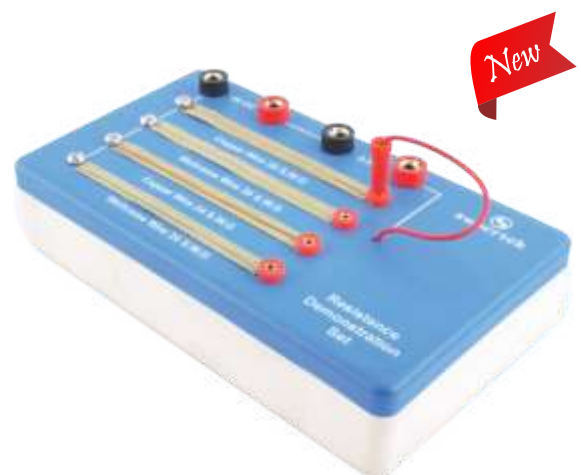
JOCKEY

For Wheatstone bridge and potentiometer, with insulated handle, plated brass contact and a plated brass terminal.

PH50417 Superior with 4 mm socket
PH50418 Economy

1

2



New

RESISTANCE DEMONSTRATION SET

Resistance Demonstration Set demonstrates the relation between resistance and cross section of different wires. This set has 2 copper and 2 nichrome wires of different diameters. A pair of colour-coded terminal used for power supply connection. This set uses 6V DC to operate.

PH50420



RESISTANCE SUBSTITUTION BOX

Set of 12 preferred value carbon resistors with rotary selection switch, in a box. Values are 33 Ω (10 W), 100 Ω (10 W), 330 Ω (5 W) 1 k Ω (1 W), 3.3 k Ω (1 W), 10 k Ω (0.25 W), 33 k Ω (0.25 W), 100 k Ω (0.25 W), 330 k Ω (0.25 W), 1 M Ω (0.25 W), 3.3 M Ω (0.25 W) and 10 M Ω (0.25 W)
PH50430



RESISTANCE SUBSTITUTION BOX

Resistance Substitution Box is a convenient instrument for determining the desired resistance values in circuits under design or test. This resistance substitution box has 12 different values 100 Ω , 220 Ω , 470 Ω , 1 k Ω , 2 k Ω , 4 k Ω , 10 k Ω , 22 k Ω , 47 k Ω , 100 k Ω , 220 k Ω and 470 k Ω . All resistors are precision 1% resistors and are of 1 watt rating. Selected resistor can be attached in any circuit with 4mm two red safety sockets.
PH50430N



RESISTOR SET

Consisting of six resistors of resistances with different current ratings. The resistors can be used in either the series or parallel mode. The resistors can be connected to any of the desired circuits through the safety sockets provided on the top of the kit for each resistor separately. Accuracy $\pm 5\%$. The specifications of each resistor are printed on the top panel of the kit. Mounted in plastic molded box.
PH50437



RESISTANCE BOX

Resistance Box kit is an excellent device, which provides a very good learning technique in making different combinations of resistances, either in series or in parallel; or in both ways, to obtain the desired value of resistance for any circuit application. It consists of 10 resistors of equal values, 10 Ω , 2 W. These resistances have $\pm 1\%$ tolerance.
PH50438



RHEOSTAT, SINGLE TUBE

A layer of oxidized resistance wire is wound on a porcelain tube which is supported by end supports. A sliding contact and three 4 mm socket terminals are provided for use as a rheostat or as a potentiometer.

	Ohms	Amp	Tube Length, mm
PH50450/6	23	2.3	150
PH50450/7	10	3.3	150
PH50452/5	22	2.8	200
PH50453/3	24	3.3	250
PH50455/5	28	4.2	400

Other ranges also available on request.



RHEOSTAT, PROTECTED

Single tube, for use with high voltage up to 220 V, fitted with 4 mm socket terminals, with protected cover.

	Resistance in Ohms	Current in amps
PH50460/1	3	12
PH50460/2	10	8
PH50460/3	33	4.4
PH50460/4	100	2.5
PH50460/5	330	1.4
PH50460/6	1000	0.8



RHEOSTAT, PROTECTED

These linear variable rheostats are mounted inside protective cover. The wire is wound on a ceramic tube. Three 4 mm safety socket terminals are provided for connection so the rheostat can serve as variable resistor as well as voltage divider.

	Resistance	Current
PH50460P/2	0-10 Ω	4 A
PH50460P/3	0-33 Ω	3.1 A
PH50460P/4	0-100 Ω	1.8 A
PH50460P/5	0-330 Ω	1 A
PH50460P/6	0-1000 Ω	0.57 A

RESISTANCE COIL, ECONOMY

With transparent cover, non-inductive visible winding, insulated support, with brass terminals.

PH50468/1	0.1 ohm
PH50468/3	0.5 ohm
PH50468/4	1 ohm
PH50468/5	2 ohm
PH50468/2	0.2 ohm
PH50468/7	10 ohm
PH50468/8	20 ohm
PH50468/9	50 ohm
PH50469/5	100 ohm



RESISTANCE COIL

With transparent cover, non-inductive visible winding, insulated support, with brass terminals. Square end supports.

PH50470/1	0.1 ohm
PH50470/6	5 ohm
PH50470/2	0.2 ohm
PH50470/7	10 ohm
PH50470/3	0.5 ohm
PH50470/8	20 ohm
PH50470/4	1 ohm
PH50470/9	50 ohm
PH50470/5	2 ohm
PH50471/5	100 ohm

RESISTANCE COIL, 4 mm TERMINALS

With transparent cover, non-inductive visible winding, insulated support, with brass terminals. Square end supports. But with 4 mm socket brass terminals.

PH50473/1	0.1 ohm
PH50473/2	0.2 ohm
PH50473/3	0.5 ohm
PH50473/4	1 ohm
PH50473/5	2 ohm
PH50473/6	5 ohm
PH50473/7	10 ohm
PH50473/8	20 ohm
PH50473/9	50 ohm
PH50474/5	100 ohm



RESISTANCE UNIT

In black plastic round case, with two 4 mm socket terminals, accuracy $\pm 1\%$.

	Size
PH50485/1	0.1 ohm
PH50485/2	0.2 ohm
PH50485/3	0.5 ohm
PH50485/4	1 ohm
PH50485/5	2 ohm
PH50485/6	5 ohm
PH50485/7	10 ohm
PH50485/8	20 ohm
PH50485/9	50 ohm
PH50486/5	100 ohm



RESISTANCE UNITS

A range of units where a highly stable resistance coil is placed inside a plastic box. Connection are made via 4mm terminals. Accuracy $\pm 1\%$.

	Resistance	Max. Volts	Max. mA
PH50488/1	1	0.7	700
PH50488/2	2	1.0	500
PH50488/3	5	1.6	320
PH50488/4	10	2.2	220
PH50488/5	20	3.0	150
PH50488/6	50	5.0	100
PH50488/7	100	7.0	70
PH50488/8	200	10.0	50



RESISTANCE UNITS, INTERLOCKING

in plastic case 57 x 25 mm (diam. x depth) with 4 mm terminals, one of which is fitted with a copper slotted lug for being connected to another unit, non inductively wound, adjusted to $\pm 0.1\%$ of nominal value.

PH50550/1	0.1 ohm
PH50550/2	0.2 ohm
PH50550/3	0.5 ohm
PH50550/4	1 ohm
PH50550/5	2 ohm
PH50550/6	5 ohm
PH50550/7	10 ohm
PH50550/8	20 ohm
PH50550/9	50 ohm
PH50551/5	100ohm



FIX RESISTANCE

A heavy duty resistor (50W) of fixed value is mounted on a plastic base. 4mm sockets are provided for connections.

	Ohms
PH50492/1	0.1 Ω
PH50492/2	1 Ω
PH50492/3	10 Ω
PH50492/4	100 Ω
PH50492/5	150 Ω
PH50492/6	220 Ω
PH50492/7	470 Ω
PH50492/8	1 K Ω
PH50492/9	10 K Ω
PH50492/10	100 K Ω



RESISTANCE COILS

The kit illustrates that the resistance of a wire depends on its length, diameter and material of that wire. Each of the eight coils is wound on plastic spools with brass terminals for easy connection. The coils are stored in a clear plastic box.

PH50500



RESISTANCE BOX, PLUG PATTERN

All plugs are turned to a fine standard taper and are interchangeable. These are moulded in fluted plastic tops. The brass blocks are undercut and are fitted to a thick insulating plate. Heavy 4 mm brass terminals are used. Coils are non-inductively wound and are treated to be strain-free. Coil values are engraved on the plate and an infinity plug is also included. Accuracy $\pm 0.5\%$ for 0.01 to 0.05 ohm coils, $\pm 1\%$ for the rest.

PH50560/1	0.01 to 0.1 ohm, Total 0.2 ohm
PH50560/2	0.1 to 1 ohm, Total 2 ohm
PH50560/3	0.1 to 5 ohm, Total 11 ohm
PH50560/4	0.1 to 10 ohm, Total 21 ohm
PH50560/5	0.1 to 50 ohm, Total 111 ohm
PH50560/6	0.1 to 100 ohm, Total 211 ohm
PH50560/7	0.1 to 500 ohm, Total 1111 ohm
PH50560/8	1 to 10 ohm, Total 20 ohm
PH50560/9	1 to 50 ohm, Total 110 ohm
PH50561/4	1 to 100 ohm, Total 210 ohm
PH50561/5	1 to 500 ohm, Total 1110 ohm
PH50561/6	1 to 1000 ohm, Total 2110 ohm
PH50561/7	1 to 5000 ohm, Total 11110 ohm

DECADE RESISTANCE BOX

Consists of six rotary switches in decade sequence mounted on a plastic box with each value clearly marked. The total resistance value can vary from 0 to 1,111,110 $\times 1 \Omega$. Accuracy is within $\pm 0.5\%$. Two universal binding posts are provided for easy connections.

PH50562





RESISTANCE BOX, DECADE PATTERN

For rapid measurement and hard use. Each dial has a zero position and 10 steps, with fully aged constantan coils. Accuracy $\pm 0.1\%$.

SINGLE DIAL

PH50565/1	0.1 to 1 ohm in steps of 0.1 ohm
PH50565/3	1 to 10 ohm in steps of 1 ohm
PH50565/5	10 to 100 ohm in steps of 10 ohm
PH50565/7	100 to 1000 ohm in steps of 100 ohm
PH50565/9	1000 to 10000 ohm in steps of 1000 ohm



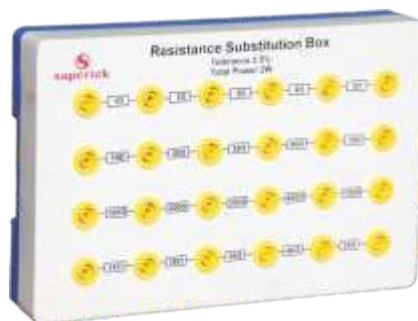
TWO DIALS

PH50567/1	Units and tens, total resistance 110 ohm
PH50567/3	Hundreds and thousands, total resistance 11,000 ohm



FOUR DIALS

PH50570/1	Range 0.1 to 1,110 ohm
PH50570/3	Range 1 to 11,110 ohm



New

RESISTANCE SUBSTITUTION BOX

This unit includes a set of 2W resistors of different values. These resistors can be connected by means of 4mm sockets and arranged in series to give the full range from 1 to 12,221 Ω . A clear connection diagram on the main panel makes the unit easy to use.

PH50572



POST OFFICE BOX, PLUG TYPE

Plug type, with three pairs of ratio coils of 10, 100 and 1000 ohms and 16 series coils from 1 to 5000 ohms, total 11,110 ohms, giving a range from 0.01 ohm to 1,111,000 ohms. Two tapping keys are provided for battery and galvanometer. Accuracy ratio coils $\pm 0.05\%$, others $\pm 0.1\%$.

PH50580



POST OFFICE BOX, WHEATSTONE BRIDGE

With two ratio dials of 10, 100 and 1000 ohms each and a resistance arm of four dials, each of ten coils of 1, 10, 100 and 1000 ohms, giving total resistance of 11,110 ohms, with 4 mm socket terminals for battery, galvanometer and unknown resistance. Highly stable resistances are used.

PH50585

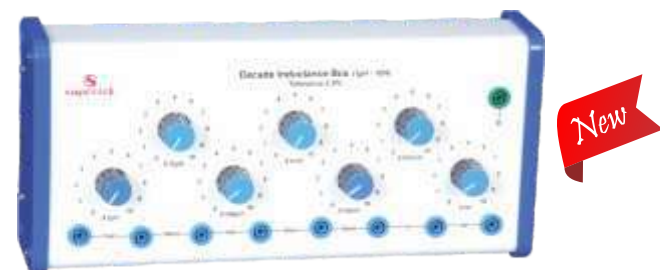


DECADE INDUCTANCE BOX - 3 DIAL

Housed in a box with three dials and fitted with 4 mm output plugs, the unit allows a range of inductances from 1mH to 1110mH.

3 Decade Inductance Box (i) 1 mH to 10 mH in steps of 1 mH(ii) 10 mH to 100 mH in steps of 10 mH(iii) 100 mH to 1000 mH in steps of 100 mH

PH50586C



DECADE INDUCTANCE BOX - 7 DIAL

Housed in a box with seven dials and fitted with 4 mm output plugs, the unit allows a range of inductances from 1 μ H to 11111110 μ H.

7 Decade Inductance Box (i) 1 μ H to 10 μ H in steps of 1 μ H (ii) 10 μ H to 100 μ H in steps of 10 μ H (iii) 100 μ H to 1 mH in steps of 100 μ H (iv) 1 mH to 10 mH in steps of 1 mH (v) 10 mH to 100 mH in steps of 10 mH (vi) 100 mH to 1 H in steps of 100 mH (vii) 1 H to 10 H in steps of 1 H

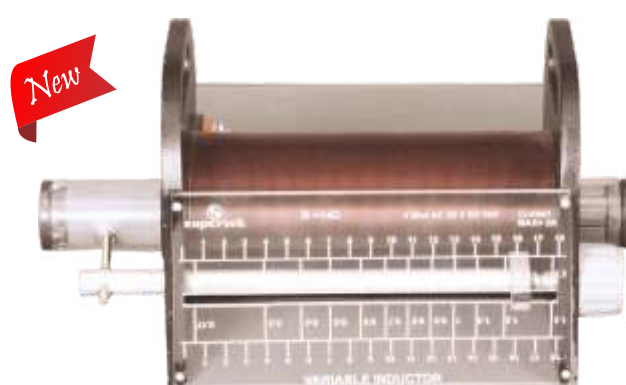
PH50586G



THREE STEP INDUCTOR

This three step inductor consists of a coil of enamelled copper wire wound over an insulated spool. The coil consists of 4 layers of 200 turns each. The tappings at 200, 400 and 800 turns are brought out at 4mm sockets. The output inductances at these tappings are as follows. No. of turns Inductor Resistance 200 0.3mH 0.6Ohm; 400 1.2mH 1.2 Ohm; 800 5mH 2.6Ohm. One can easily change the inductor value of the instrument on just inserting a soft iron core inside the bobbin.

PH50586S



VARIABLE INDUCTOR

The enamelled wire winding and a cylindrical soft iron core are built into this unit. The iron core displacement inside the winding can manually adjusted by the knob to give precise measurements up to 1.3 H. Connections are made through 4mm sockets.

Specifications: Resistivity: 0.0165 W/m; self-induction coefficient: 0.15 to 1.3 H; Voltage: 30V A/C or 60V D/C.

PH50586VI



CAPACITOR INVESTIGATION BOARD

Capacitor Investigation Board is an excellent kit used for study of the charging and discharging of the capacitors. A toggle switch is used to change the charging and discharging mode of capacitor, external + 12V DC 2Amp supply is used for charging the capacitors through the current limiting resistors. The charging of the capacitor can be viewed on CRO. Once the capacitor is fully charged, it can be discharged by turning the toggle switch towards discharge. The discharging of the capacitor can also be viewed on CRO. These experiments can also be performed using the ammeter and voltmeter. Three different combinations of C&R are provided for observing different wave forms.

PH50587



DECADE CAPACITANCE BOX

Capacitance range of 0 to 1.1µF in steps of 0.01µF. Markings for the dials is printed on the sturdy case.

- Capacitance Range : 0 to 1.1µF x 0.01µF
 - Accuracy : +5%
 - Voltage Rating : 400 VDC
- PH50588**



CAPACITANCE SUBSTITUTION BOX

With rotary switch and a pair of 4 mm socket terminals. Contains twelve standard preferred value non-polarised capacitors from 100 pF to 0.47µF. Tolerance ±2%. Values are 100 pF, 220 pF, 470 pF, 1nF, 2.2 nF, 4.7 nF, 10 nF, 22 nF, 47 nF, 0.1 µF, 0.22 µF and 0.47 µF.

PH50601

DECADE CAPACITANCE BOX

Contains four capacitors of 1µF, 2µF, 2µF and 5µF linked in parallel, each via an ON/OFF slide switch. Can be linked together to provide upto 10 µF in 1µF steps. External connections by 4 mm socket terminals.

PH50604



MOTOR WITH SOLAR CELL

A solar cell and solar motor mounted on metal base. Solar cell unit comprises a 30 x 70 mm selenium photo-voltaic cell. Low power motor is designed specifically to run from solar cells. Demonstrates conversion of solar energy to electrical energy, then to mechanical energy.

PH50605



SOLAR DEMONSTRATION KIT

To demonstrate the effect of solar power in various devices, Each component in this kit connects to the solar cell. The kit includes a mounted solar cell with terminals, a motor, a LED, a rechargeable battery and an ammeter mounted on a base. With instructions.

PH50607

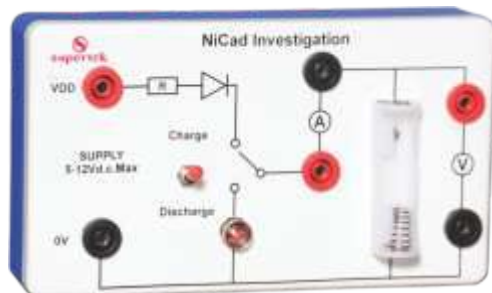


OPEN WOUND SOLENOID

Wide spaced heavy gauge copper wire coil to carry current up to 10A is mounted on a base with 4 mm socket terminals. A platform is supported across the centre of the coil to show the field by use of iron filings or a small compass. Dimension of coil 150 x 50 mm diam.

PH50630

New



NI CAD BATTERY INVESTIGATION

This setup is designed to investigate the charging and discharging characteristics of typical re-chargeable battery with external voltmeter and ammeter connected. You can manually measure the input and output energy by taking reading from these meters. A toggle switch is provided to select between charging and discharging. Connection are made via 4mm plugs.

PH50632

New



TRANS-RATIO

Trans-Ratio is a simple transformer system that allows students to investigate the relationship between primary voltage, secondary voltage and the turns ratio. The Primary coil has tapplings at 200, 400 and 600 turns while the Secondary has 100, 200, 300, 400, 500 and 600 turns all brought out to 4mm sockets. An AC supply of upto 6V as well as AC voltmeters are required for demonstration purpose.

PH50634

New

DIRECTION OF CURRENT

Red and green LED's are fitted in a plastic enclosure in such a way that they indicate the direction of current flowing in the circuit. Connection can be made via 4mm sockets.

PH50666



New

PHASE SHIFTER

A plastic box enclosed with four electrolytic capacitors. The series and parallel combination of these capacitors can be used with an external A.C. source to introduce 90° Phase shift between current and voltage. Connections are made via 4mm sockets.

PH50668



OHM'S LAW

To demonstrate Ohms Law. Consisting of a wooden enclosure with milliammeter, voltmeter, rheostat, push key and terminal posts. Requires an external battery (not supplied) and a suitable resistance (not supplied). Resistance can be calculated using Ohm's Law by noting current and voltage. A rheostat is provided to control current flow. Circuit diagram is provided on the panel. With instructions.

PH50670



SIMPLE CIRCUITS KIT

To explain working of electricity by simple circuits. Students can create simple circuits and learn about electricity, currents, voltages, series circuits and much more. Kit includes: D cell battery holder, knife switch, 2 light bulb holders, 2 light bulbs, 5 alligator connector cords and instruction manual.

PH50680



TELEGRAPH KIT

Students can discover how people communicated long distances before the telephone. With the Telegraph Kit, students can learn Morse code and even send a secret message to a friend. Kit includes: D cell battery holder, contact key, light bulbs, alligator connector cords, buzzer and instruction manual.

PH50685



CONDUCTION KIT

Students can make their own conduction tester through the kit and check themselves which substances are conductors and which are insulators. Included in the kit is 2 D cell battery holders, 1 light bulb, 1 light bulb holder, 4 alligator connector cords, a sample pack, and Instruction manual.

PH50690



SUPERTEK ELECTRICITY KIT, BASIC

This economical kit consists of various components, which help students explore many electrical and electronic concepts. Supplied with instruction manual. Kit consists of: Cell Holder (12), Bulb Holder, MES, Mounted on Base (20), Push Key (8), Two Way Switch (4), Universal Clip (4), Electrode Holder (4), Variable Resistance (4), Bulbs, MES (40), Connecting Lead, 4mm, 10cm, Red (12), Connecting Lead, 4mm, 10cm, Black (12), Connecting Lead, 4mm, 25cm, Red (4), Connecting Lead, 4mm, 25cm, Black (4), Crocodile Clips (8), Carbon Rod (12), Soft Iron Rod (8), Silicon Diode (4), Resistance, Fixed (4), Copper Foil Sheet, 150x150mm (1), Copper Wire, Bare, 20SWG (1 Reel), Copper Wire, Insulated, 50m (1 Reel), Eureka Wire, 34SWG (50gm), Steel Wool (1 Pack).

PH50800



SUPERTEK ELECTRICITY KITS, PRIMARY

Primary Electricity Kits are designed to teach students the basic concepts for electricity. The various individual components are mounted on stable, robust plastic bases. Each component is with two 4mm diameter sockets.

Students can perform a variety of experiments by connecting these individual components in a circuit via 4mm stackable connecting leads. Kit A is for a group of 6 students, while Kit B contains additional components that can be issued by teacher as required. Only one Kit B is sufficient for a class of 30 students. Includes instruction manual.

SUPERTEK ELECTRICITY KIT I, PRIMARY

The kit contains Cell Holder (6 Nos, without Cells), Bulb Holder, MES, Mounted on Base (6 Nos), Bulbs, MES (6 Nos), Push Key (3 Nos), 2-Way Switch (3 Nos), Connecting Lead, 4mm, Red (9 Nos) Connecting Lead, 4mm, Black (9 Nos)

PH50805/1



SUPERTEK ELECTRICITY KIT II, PRIMARY

The kit consists of Variable Resistance (4 Nos), Motor, Mounted on Base (3 Nos), Buzzer, Mounted on Base (3 Nos), Universal Clips (4 Nos), Electrode Holder (2 Nos), Bulbs, MES (20 Nos), Crocodile Clips (8 Nos), Carbon Rods (6 Nos), Soft Iron Rod (6 Nos), Silicon Diode (3 Nos), Resistance, Fixed (3 Nos), Insulated Copper Wire (1 Reel).

PH50805/2

ACCUMULATOR

Mass type, in plastic container, rating at slow discharge.

PH60052 2 Volt 20 Amp
PH60072 2 Volt 45 Amp





BATTERY HYDROMETER

For measuring density of electrolyte in lead-acid cells. A hydrometer float is contained in a glass body which is provided with a rubber bulb and a nozzle.

PH60082



BATTERY ELIMINATOR

Battery eliminator is designed to give the most popular battery voltages. Substitutes a wide variety of batteries including AA, AAA, C, D, and 9V types. The voltage is conveniently selected by a rotary switch. The output is fully protected from short circuits and overloads. Battery Eliminator operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

	Output Volts	Output Current
PH60104/1	1.5, 3, 4.5, 6, 7.5, 9 and 12 V DC	1A
PH60104/2	1.5, 3, 4.5, 6, 7.5, 9 and 12 V DC	2A
PH60104/3	1.5, 3, 4.5, 6, 7.5, 9 and 12 V DC	3A



COMPONENT HOLDER

The component holder, with 4 mm socket connectors, is an instrument for holding the electronic components such as resistors, capacitors, LEDs, LDRs etc for the use in different experimental circuits.

PH60106



CELL HOLDER

Rectangular plastic box with cover to hold 1.5 V dry cell, with sockets for output.

PH60110/2	For one cell
PH60110/3	For two cell
PH60110/4	For four cell

CELL HOLDER, SINGLE

Made up of plastic. For one D size battery.
PH60112



MULTIPLE BATTERY HOLDER

To Holds 4 D batteries. With metal contact strips between batteries so that 1.5, 3.0, 4.5 or 6.0 V may be selected without removing the batteries. Include one set of color coded connecting wires with insulated crocodile clips.

PH60115



CELL HOLDER, DOUBLE

Supertek double cell holder is a high quality easy to load and easy to remove cell holder for holding two standard D size batteries. It is fitted on the sturdy plastic base. 4mm sockets are provided for the input signals separately with each cell holder. Double cell holder can be used as a single cell holder by using only one cell holder. It may also be used for the parallel or series combinations of two cells. Supplied without battery.

PH60119D



CELL HOLDER, SINGLE

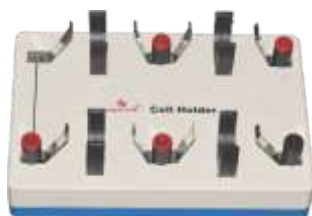
Supertek single cell holder is a high quality easy to load and easy to remove the standard D size battery. It is fitted on the sturdy plastic base. 4mm sockets are provided for the output. Two or more cell holders can be used for the parallel or series combinations. Supplied without battery.

PH60119S

CELL HOLDER

To hold up to four dry cells beneath it enables use of one, two, three or four cells.

PH60120



POWER SUPPLY 12V AC AND DC

Mains Input: 220 V ($\pm 10\%$), 50 / 60 Hz

Output Voltage: 2 to 12 V AC in 2 V steps. Full wave rectification 2 to 12 V DC in 2 V steps

Protection: Both outputs are provided with overload and short circuit protection.

	Output Current:
PH61010/1	1 A
PH61010/2	2 A
PH61010/5	5 A



12V AC/DC POWER SUPPLY

Provides AC and DC voltages for low current applications. D.C. output is 0 to 12 volts variable and is electronically smoothed. AC out-put is fixed 12 volts. The unit is provided with continuous overload and short circuit protection.

DC Output	: 0 to 12 Volts, Variable
Max DC Current	: 500 mA
AC Output	: 12 Volts Fixed
Max AC Current	: 500mA
Protection	: Continuous overload and short circuit protection
PH61011	



DC POWER SUPPLY

Provides diode rectified DC output voltage at rated current. Voltages are controlled by selecting the appropriate voltage socket on the front panel. An analog current meter displays the current drawn by the load. Outputs are provided with overload and short circuit protection. Operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

	Output Volts	Output Current
PH61013/1	2, 4, 6, 8, 10, 12, 15, 18, 21, 24, 27, 30 V DC	1 A
PH61013/3	2, 4, 6, 8, 10, 12, 15, 18, 21, 24, 27, 30 V DC	2 A
PH61013/5	2, 4, 6, 8, 10, 12, 15, 18, 21, 24, 27, 30 V DC	5 A



Best Seller

POWER SUPPLY, CONTINUOUSLY VARIABLE, 25V

The power supply provides continuously variable AC and DC outputs. A meter is provided to indicate both AC and DC voltages. An internal fuse is provided at input and a resettable cut-out for output.

Mains input: 220 V ($\pm 10\%$), 50 / 60 Hz.

Output Voltage: 0 to 25 V AC and wave rectified DC

Output Current (Max.): 10 A for AC, 8 A for DC

Voltage Selection: Voltage is controlled by a large rotating knob on front panel.

Display Meter: Analog meter for AC and DC voltages. Selector switch to select between AC and DC.

Circuit Protection: Mains input 3 A internal glass fuse link. Output is protected by a resettable cut-out.

Output Terminals: Colour coded 4 mm sockets.

PH61015



AC / DC POWER SUPPLY

Provides AC and diode rectified DC output voltage at rated current. DC Voltages are controlled by rotary switch on the front panel. Both AC and DC outputs may be used simultaneously, provided the combined output current does not exceed the rated current. Power supply operates on 220V, 50Hz input.

DC Output : 0 12V, 2A

AC output : 6V / 12V, 5A

PH61018



AC/DC POWER SUPPLY

Provides AC and diode rectified DC output voltage at rated current. Voltages are controlled by rotary switch on the front panel. Both AC and DC outputs may be used simultaneously, provided the combined output current does not exceed the rated current. Outputs are provided with overload and short circuit protection. Power supply operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

	Output Volts	Output Current
PH61019/1	1-12 V AC / DC Step-1 V	1 Amp
PH61019/3	1-12 V AC / DC Step-1 V	2 Amp
PH61019/7	1-12 V AC / DC Step-1 V	5 Amp
PH61021/1	2-12 V AC / DC Step-2 V	1 Amp
PH61021/3	2-12 V AC / DC Step-2 V	2 Amp
PH61021/7	2-12 V AC / DC Step-2 V	5 Amp



REGULATED DC POWER SUPPLY

Regulated DC power supply unit provides a continuously variable DC output voltage with excellent load and line regulation. The voltage output is displayed on analog / digital meter. An internal protection is provided by a slow blow fuse at the input and overload protection at the output. Power supply operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

	Output Volts	Output Current	Display
PH61022/1	0 - 15 V DC	1 A	Analog
PH61022/2	0 - 15 V DC	2 A	Analog
PH61022/5	0 - 15 V DC	5 A	Analog
PH61022D/1	0 - 15 V DC	1 A	Digital
PH61022D/2	0 - 15 V DC	2 A	Digital
PH61022D/5	0 - 15 V DC	5 A	Digital
PH61022D/20	DC - 0-15V	200 mA	Digital
PH61024/1	0 - 30 V DC	1 A	Analog
PH61024/2	0 - 30 V DC	2 A	Analog
PH61024/5	0 - 30 V DC	5 A	Analog
PH61024D/1	0 - 30 V DC	1 A	Digital
PH61024D/2	0 - 30 V DC	2 A	Digital
PH61024D/5	0 - 30 V DC	5 A	Digital

Please mention 'A' for analog and 'D' for digital meter at the end of part no. to specify the display required.

SPECTRUM TUBE POWER SUPPLY

Housed in black metal body, specially designed spectrum tube sockets enable the tube to be placed in position easily and also provides protection against electrical contact. Bottom socket is spring loaded for easy tube placement and removal. Holds upto 26cm spectrum tubes.

	Voltage
PH61025/1	Works on 220 V ($\pm 10\%$), 50 / 60 Hz
PH61025/3	Works on 110 V ($\pm 10\%$), 50 / 60 Hz

For use with Spectrum Tubes PH95014





20V DC REGULATED POWER SUPPLY

Provides continuously variable regulated voltage in the range of 0 - 20 V DC.

Mains Input: 220 V ($\pm 10\%$), 50 / 60 Hz

Output Current (Max.): 500 mA

Protection: Continuous overload and short circuit protection.

PH61028



New

ADVANCED POWER SUPPLY

This advanced power supply is widely used due to its high precision, reliable performance and overload protection circuit. This power supply provides a continuously variable, regulated DC voltage with excellent load and line regulation. The power supplies work in both constant voltage (CV) and constant current (CC) mode. Coarse and fine knobs are provided for very minute adjustments. Dual displays help continuously monitor both output voltage and current. Outputs are provided with overload and short circuit protection. Power supply operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

Output Volts: 0 - 12V DC

Output Current: 0 - 5 A

PH61033D/5



ADVANCED POWER SUPPLY

Advanced power supply is specially designed for scientific research and product development in laboratories, universities, colleges and electronic production lines. This instrument is widely used due to its high precision, reliable performance and overload protection circuit. This power supply provides a continuously variable, regulated DC voltage with excellent load and line regulation. The power supplies work in both constant voltage (CV) and constant current (CC) mode. Dual displays help continuously monitor both output voltage and current. Outputs are provided with overload and short circuit protection. Power supply operates on 220 V ($\pm 10\%$), 50 / 60 Hz input.

4-WAY DC REGULATED POWER SUPPLY

Provides three fixed and one variable D. C. Voltage in one unit. With safety and protection from overload and short circuits.

1. 2.5-20 V DC/2.5 A

2. 5 V DC/3 A

3. 5 V DC/0.5 A

4. 12 V DC/1 A

With analog voltmeter and ammeter.

PH61030



	Output Volts	Output Current	Displays
PH61035/1	0 - 30 V DC	0 - 1 A	Analog
PH61035/2	0 - 30 V DC	0 - 2 A	Analog
PH61035/5	0 - 30 V DC	0 - 5 A	Analog
PH61035D/1	0 - 30 V DC	0 - 1 A	Digital
PH61035D/2	0 - 30 V DC	0 - 2 A	Digital
PH61035D/5	0 - 30 V DC	0 - 5 A	Digital
PH61035D/7	0 - 30 V DC	0 - 7 A	Digital

Please mention 'A' for analog and 'D' for digital meter at the end of part no. to specify the display required.



CONSTANT CURRENT POWER SUPPLY

This power supply, specially designed for Hall Probe Experiment (PH93225), provides 100% protection against crystal burn-out due to over current protection circuit. Power supply is a regulated and is ripple free.

Specifications:

Output Current: 0 - 20 mADC

Resolution: 10 μ A

Display: 3½ digit LED

Power Supply: 220 V ($\pm 10\%$), 50 / 60 Hz

PH61500



SMOOTHING UNIT

Smoothing unit reduces ripple from nonregulated power supplies. Maintains a ripple-free output when high currents are drawn. Unit comprises of a LC network of an inductor with two 2200 μ F capacitors. Maximum input can be upto 8A at 35V, absolute maximum 40V DC.

PH62500



POWER SUPPLY E.H.T.

A floating, high voltage power source useful for supplying charge for quantitative electrostatic experiments, gas discharge tubes / spectrum tubes. Continuously variable output up to 6 KV DC. 6V/2A AC or 12V/2A AC filament heating supply, insulated for EHT Voltages. Current limited output: 0-6 KV DC, 50 μ A with 50M Ω resistor is also provided in this power supply. A rotary control knob provided on the front panel to adjusts the EHT output. Non-hazardous maximum load capacity of 3mA (short circuit current). A digital/analog meter is provided on the front panel to set the required voltage. All outputs via clearly marked 4mm shielded sockets. Both input and output fuse protected. Plastic Box with Indicator type ON/OFF switch. Supplied complete with detachable mains lead.

Please mention 'A' for analog and 'D' for digital meter at the end of part no. to specify the display required.

PH62053

ALL **supertek** POWER SUPPLIES ARE **CE** CERTIFIED AND ARE DESIGNED IN ACCORDANCE WITH **EN 61010-1 (SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT) STANDARDS**

The following tests are carried out for power supplies and other electrical instruments:

- With standing programmed voltage
- Time sequence test
- High voltage burn-out test
- Continuity test
- Voltage drop test
- Insulation resistance test.
- Leakage current test (leakage substitute, test)
- Functional tests (power, voltage, frequency)
- Discharge time measurements

MOVING COIL METERS

For D. C. use only, with permanent magnet, spring controlled movement, jeweled bearings, hard polished pivots, and knife edge pointer. Each meter is mounted on a plastic / acrylic stand with color coded terminals. These meters are available in following sizes:

MO-65 1

Scale Length approx. 50 mm, dial diam. 65 mm mounted in desk stand with two color coded terminals. Overall size 90 x 110 x 90 mm approx. Accuracy : +2.5% FSD

EDM-80 2

Scale Length approx. 60 mm with anti-parallax mirror scale, dial size 72 x 72 mm with color coded terminals. Overall size 90 x 110 x 125 mm approx. Accuracy : +2% FSD

EDM-100 3

Scale Length approx. 85 mm with anti-parallax mirror scale, dial size 80 x 100 mm with color coded terminals. Overall size 100 x 100 x 140 mm approx.

The ranges covered are

Voltmeters: 0 - 1 Volt to 0 - 600 Volt.

Millivoltmeters: 0 - 1 mV to 0 - 1000 mV

Ammeters: 0 - 1 Amp to 0 - 10Amp, with internal shunt.

Milliammeters: 0 - 10 mA to 0 - 1000 mA

Microammeter: 0 - 100 uA to 0 - 500 uA

VOLTMETER, MOVING COIL

For D. C. measurements, any single range, 0-1, 1.5, 2, 5, 10, 25, 50, 100, 250, 300 volts.

PH63001



1



2

MILLI - VOLTMETER, MOVING COIL

For D. C. measurements, any single range, 0-25, 50, 100, 150, 250, 500mV. PH63003

AMMETER, MOVING COIL

For D. C. measurements, any single range, 0-1, 1.5, 3, 5, 10Amp. PH63005

MILLI - AMMETER, MOVING COIL

For D. C. Measurements, any single range, 0-1, 5, 10, 25, 50, 100, 250, 500 mA.

PH63007

MICRO - AMMETER, MOVING COIL

For D. C measurements, any single range, 0-50, 100, 150, 200, 250, 500, A. PH63009

GALVANOMETER, MOVING COIL

For D. C. measurements, Scale 35-0-35 or 50-0-50. PH63012

VOLTMETER, DUAL SCALE, MOVING COIL

For D. C. measurements. 1/5, 3/15, 5/15 Volts. PH63019

AMMETER, DUAL SCALE, MOVING COIL

For D. C. measurements. 2.5/5, 1/5, 1.5/3, 5/10Amps. PH63021

A.C. VOLTMETER, MOVING COIL

Permanent magnet type with in-built rectifier, any single range, 0-30, 60 Volts.

PH63027

A.C. AMMETER, MOVING COIL

Permanent magnet type, with current transformer, any single range, 0-1, 3, 5, 10Amps.

PH63030

A.C. MILLIAMMETER RECTIFIER TYPE

Without current transformer, any single range, 0-5, 10, 25, 50, 100, 250, 500mA.

PH63033



3



DEMONSTRATION METER

With interchangeable scales. A versatile instrument and demonstration meter that can be converted to an A. C., or D. C. voltmeter or ammeter with selection of various ranges for each mode. With a high quality moving coil, spring controlled movement with full scale deflection of 5 mA or 100 mV D. C. The long pointer has a spade end and is clearly visible from a distance. Fitted in case with glass front and back. The instrument can be used with different dials to give different voltage and current ranges. All dials are interchangeable and each has a plug coupler to fit the instrument. The coupler connects appropriate resistors, shunts or rectifiers to convert the instrument to the range as given on the scale of the particular dial. The scales have clear bold figures and are marked on both sides to enable the lecturer also to observe the reading from the back of the instrument. A zero adjuster allows the instrument to be used for centre zero dials. One dial of range 50-0-50 mV D. C. is supplied with the instrument. In plastic case.

PH64200



DIALS, INTERCHANGEABLE

For use with demonstration meter. Each dial comprises a plastic panel with a sealed moulded capsule on one side containing appropriate shunts or voltage multipliers.

	DCA Range	DC V Range	
PH64201	5-0-5 mA	PH64220	50-0-50 mV
PH64202	10-0-10 mA	PH64221	5-0-5 V
PH64203	0-10 mA	PH64222	0-1 V
PH64204	0-50 mA	PH64223	0-5 V
PH64205	0-100 mA	PH64224	0-10 V
PH64206	0-500 mA	PH64225	0-15 V
PH64207	0-1 A	PH64226	0-300 V
PH64208	0-5 A		
PH64209	0-10 A		

	ACA Range	AC V Range	
PH64230	0-10 mA	PH64240	0-5 V
PH64231	0-50 mA	PH64241	0-10 V
PH64232	0-100 mA	PH64242	0-15 V
PH64233	0-500 mA	PH64243	0-50 V
PH64234	0-1 A	PH64244	0-300 V
PH64235	0-5 A		
PH64236	0-10 A		



MULTIRANGE METER

Design to serve dual purpose as volt meter and ammeter. It offers quadruple range. A slide selector is provided to select the required range.

Measuring range

Volt : 0-100 mV, 1 V, 10 V and 50 V

Ampere : 0-100 μ A, 100 mA, 1 A and 5 A.

Accuracy : ± 2.5 FSD

Dimension : 160 x 115 60 mm approx.

PH64250



MULTI RANGE VOLTMETER

The moving coil multi-range voltmeter can be used to measure A.C. as well as D.C. voltages. The operation of these meters depend on the interaction between the field of permanent magnet and moving coil field. To measure the voltage, select the desired voltage range and toggle the switch to choose between A.C and D.C.

Range: 0-5-25-50-100-250-500 Volts

Accuracy: D.C. ± 2 FSD, A.C. ± 2.5 FSD

PH64254



MULTI RANGE AMMETER

The moving coil multi-range ammeter can be used to measure A.C. as well as D.C. currents. The operation of these meters depend on the interaction between the field of permanent magnet and moving coil field. To measure the current, select the desired range and toggle the switch to choose between A.C and D.C.

Range: 0-10mA-100mA-500mA-1A-2.5A-5A

Accuracy: D.C. ± 2 FSD, A.C. ± 2.5 FSD

PH64256

DEMONSTRATION VERTICAL METER

Meter is designed to demonstrate the working of moving coil type meters. Fixed on wooden base. It comes with accuracy of ± 2.5 FSD. Scale length 80mm approx. Over all size 115 x 115 x 175 mm approx. PH64260



BALLISTIC GALVANOMETER

For measurement of small quantities of electrical charge. the moving coil is suspended by a phosphor bronze strip, which carries an optically true concave mirror. The coil can be raised, lowered or set to zero by an adjusting knurled knob at top. A knob at back is provided for clamping and releasing the coil. With leveling screws.

Resistance	Period	Sensitivity of coil
PH64302/1	100 ohms	10-12 sec.
PH64302/5	500 ohms	10-12 sec.



SPOT REFLECTING GALVANOMETER

Housed in metal body with built in lamp and scale.

Coil Res. : 100 μ A
Time Period : 2 Sec. Approx.
Sensitivity : 15 mm/ μ A
Scale Length : 180 mm
Dimensions : 295 x 210 x 130 mm approx.
In Put : 220 V AC
PH64290



SPOT GALVANOMETER

High sensitivity, very useful as null detector. Housed in sturdy plastic case with in-built lamp and scale arrangement, taut band type movement, with Alcomax magnet, clamp and free arrangement for safe transportation, easy replacement of the 6 V lamp, working on 220V A. C. with internal transformer. With a rotary switch for selecting any of the five shunt powers 1, 1/10, 1/100, 1/1000 and short circuit.

Galvanometer resistance : 125 ohms
Current per mm deflection : 5×10^{-8}
Volts per mm deflection : 6.25×10^{-6}
Critical damping resistance : 1000 ohms
PH64300



DIGITAL METERS

The battery powered digital meters measures DC voltages / current and output the display on a LCD screen. The special IC circuit provides features like auto zero and auto polarity detection.

	Range	Meter Type
PH64305/1	0-2V	Voltmeter
PH64305/5	0-20V	Voltmeter
PH64305/7	0-200V	Voltmeter
PH64305/9	0-500V	Voltmeter
PH64410/1	0-2A	Ammeter
PH64410/3	0-20A	Ammeter

DIGITAL MULTIMETER, ECONOMY

Specifications:

Resistance: 200 ohm, 2000 ohm, 20k ohm, 200k ohm, & 2000k ohm
D.C. Voltage: 200 mV, 2000 mV, 20V, 200V & 1000 V
A.C. Voltage: 200 & 750 V
D.C. Current: 2000 μ A, 20 mA, 200 mA, 10 A
Testing: Diode, transistor & continuity
Power: Battery 9 V
PH64505



DIGITAL MULTIMETER

Display 3 1/2 digit, 2000 count Backlit LCD, 1.1" digits.

Data Hold To Freeze the displayed data.

Over range indication "1" is displayed

Polarity Automatic (no indication for positive polarity); Minus (-) sign for negative polarity.

Measurement Rate 2 times per second, nominal

Low Battery Indication "BAT" is displayed if battery voltage drops below operating voltage Battery one 9 volt battery

Fuses mA, μ A ranges; 0.2A/250V Fast blow A range; 1 OA/250V fast blow.

Operating Temperature 32° F to 122° F (0°C to 50°C)

Includes local level, appliance, portable equipment etc.



TECHNICAL SPECIFICATIONS

Function	Range	Resolution	Accuracy
DC Voltage (V DC)	200 mV	0.1 mV	$\pm (0.5\%$
	2000 mV	1 mV	reading + 2
	20V	0.01V	$\pm(0.8\%$
AC Voltage (VAC)	600V	1V	$\pm (1.2\%$
	200V	0.1V	
	600V	1V	
	2000 μ A	1 μ A	
DC Current (A DC)	20 mA	10 μ A	$\pm (1.0\%$
	200 mA	100 μ A	reading + 2 digits)
	10A	10 mA	$\pm (2.0\%$
Resistance	200 Ω	0.1 Ω	$\pm (0.8\%$
	2000 Ω	1 Ω	
	20K Ω	0.01K Ω	
	200 K Ω	0.1K Ω	
	2000 K Ω	1 K Ω	
Battery Test	9 V	10mV	$\pm (1.0\%$
	1.5 V	1mV	reading + 2 digits)

PH64510

MULTIMETER ANALOGUE

This pocket Multimeter is a universally usable multi-function instrument. The instrument has been designed in accordance with the most up-to-date safety regulations and ensures safe, reliable measurement. It is a useful aid, for all standard measurements, to the electrician on site, in industry or for hobby electronics. Analogue Display DC and AC voltage measurements up to 1000V DC current measurement up to 250mA. Resistance measurement up to 2M Ω

Operating temperature: 0-40°C, max 75% RH

Display: Analogue display Meter

Battery: 1.5V battery



Function Range Accuracy

DC V	0 - 2.5/10/50/1000V $\pm 5\%$
ACV	0 - 10/50/250/1000V $\pm 5\%$
DCA	0 - 10/250mA $\pm 5\%$
RESISTANCE	0-20k Ω /2M Ω (R x 10 / Rx 1k) $\pm 5\%$
BAT TEST	1.5V (250mA) / 9V (10mA) $\pm 10\%$ (Middle of GOOD line)
Resistance of meter	DC 10k Ω /V, AC 4.5k Ω /V

PH64520

ANALOGUE MULTIMETER (8 FUNCTION 19-RANGE)

Product Features

- AC/DCV, DCA, Resistance, Diode Check, Continuity, dB & Transistor leak current
- 20kOhm/V DC sensitivity
- Mirrored scale
- 1 Year Warranty

Product Description

YX-360TRE-B is an analog multimeter, you can use it to measure AC/DC voltage, DC current, resistance, diode check, continuity and transistor leak current, for DC current, it can measure as low as 10 micro amps and up to 250 mA, which is hard to do with a digital multimeter.

- Specifications: *DCV: 0 - 0.1V $\pm 1\%$ 0.25V/2.5/10V/50V/250/1000 $\pm 3\%$
 * ACV: 0 - 10/50/250/1000V $\pm 4\%$ *DCA: 0 - 50 μ A/2.5mA/25mA/250mA $\pm 3\%$
 * Resistance: 0 - 2K/20K/200K/2M/20Mohm $\pm 3\%$ *dB: -10 dB - 22 dB
 * Diode check (including LED)
 * Continuity: Both Buzzer & flash
 * Transistor leak current

Features:

- All range fused
- Compact size
- Tilt back-stand
- Continuity flash
- 0 ohm adjustment Accessories:
- Test leads (attached)
- AA battery X 2 (installed)
- User Manual

Brand Name	Sunwa
Model Number	YX-360TRE-B
Power Source Type	Battery-powered

PH64522



INSULATED 4MM SOCKET TERMINALS

With moulded captive head, 4 mm. socket, plastic body, nut and washers. Will also clamp wire and spade terminals.

PH90001



BANANA PLUG

Spring insert, screwed on plastic body.

PH90005/1 4 mm Pin

PH90005/4 2 mm with socket at rear

PH90005/6 4 mm with socket at rear



SOCKET FOR BANANA PLUG

Hard plastic, with fixing nut screwed in plastic body.

PH90007/1 For 4mm pins

PH90007/3 For 2mm pins



PLUGS, TRANSVERSE HOLE

4mm, with screw connection for wire and 4mm transverse hole for extra connection, moulded in flexible plastic.

PH90008 Black

PH90009 Red



PLUG 2 MM

A miniature test 2 mm plug for measurements and test Beryllium copper spring.

Body: A.B.S Contact: Brass, nickel plated.

Current Rating: 5A D. C. Max.

Colours: Red, Black, Yellow, Green, Blue and Gray.

PH90012

4MM SOCKET OR JACK

High quality, fully Bakelite fuse holder with metal nut and superior quality of brass part. Suitable for 32 x 6.3 fuse. Its resistance capacity is quite more than other plastic or Bakelite fuse holder Current rating 10 amp.

PH90014



SPADE TERMINAL ADAPTOR

Spade shaped standard terminal with 4 mm socket connector to convert screw terminal for use with 4 mm plug connection.

PH90035



FLEXIBLE LEADS, PVC

Insulated, with crocodile clip at each end.

	Length	Colour
PH90045/1	250 mm	Black
PH90045/2	250 mm	Red
PH90045/3	500 mm	Black
PH90045/4	500 mm	Red
PH90045/5	750 mm	Black
PH90045/6	750 mm	Red
PH90045/7	1000 mm	Black
PH90045/8	1000 mm	Red



FLEXIBLE LEADS, PVC

Insulated with 4 mm plug at one end and crocodile clip at the other.

	Length	Colour
PH90050/1	250 mm	Black
PH90050/2	250 mm	Red
PH90050/3	500 mm	Black
PH90050/4	500 mm	Red
PH90050/5	750 mm	Black
PH90050/6	750 mm	Red
PH90050/7	1000 mm	Black
PH90050/8	1000 mm	Red



TEST PROBE

Test probe with 4 mm plug at one end and testing pin at other. Metal part is of brass, nickel plated. Insulation is A.B.S.1 meter wire is used of 60/42 strands and O.D of wire is 3.8 mm. Set of red and black colour.

PH90056

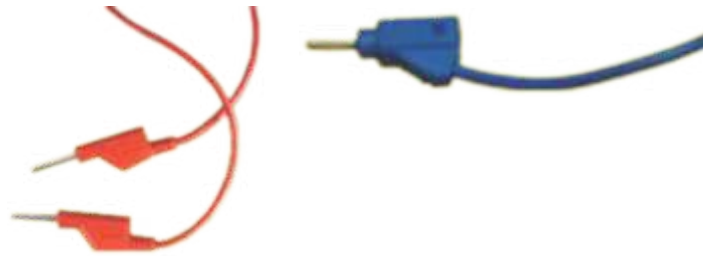




CROCODILE CLIP

With strong spring, clamping screw for wire. The shank will accept 4 mm plugs.

PH90110



4 MM MOULDED PATCH CORD (HEAVY DUTY)

Integrally moulded 4 mm to 4 mm spring loaded patch cord with 4 mm socket at rear end for connection of other 4 mm plug. Red, Black, Yellow, Blue and Green colours are available. Any length is available. 60/42 wire with 4 mm O.D. is used.

PH90128/1



THUMB TYPE CROCODILE CLIP

Nickel plated, It is one side insulated. Wire can be connected by screw, soldering and also accepts 4 mm plug. Colours Red and Black. Length 50.6 mm Jaws Open 11.3 mm.

PH90116

2mm to 2mm spring loaded patch cord with 2mm socket at rear end for connection of other 2 mm plug. It is lock type plug and only plug is also available. Red, Black, Yellow, Blue and Green colours are available. Any length is available. 23/40 wire with 3mm O.D. can be used. Plug insulation is nylon.

PH90128/5

15 AMP BATTERY CHARGING CLIPS

Chrome plated, Teeth on one Jaws and notch on other makes it stand erect on round battery post without looping over. It is popular size for battery operated equipments, charges, emergency lights etc.

PH90130



FULLY INSULATED CROCODILE CLIP

Metal part is Brass, Tin plated. It has socket for 4 mm banana plug at the end and screw for connection of wires. It is well designed and can resist up to 20 amps. Insulation is Nylon. Red, Black, Yellow, Blue and Green colours are available. Other colours are also available incase of quantity.

PH90120/1 Length 40 mm Jaws open 6.2 mm.

PH90120/3 Length 82 mm Jaws open 15 mm.



HIPPO CLIP - BIG CROCODILE CLIP

Chrome plated, Superior design clip with strong full channel construction throughout is a unique feature of clip. It is made in M.S. and brass high quality spring designed for maximum strength and long life. It has sleeves on both sides. Sleeves are in Red and Black.

PH90135

COPPER WIRE, BARE

Wound on reel.

	SWG	Net Weight
PH90300	12	500 gm
PH90301	14	500 gm
PH90302	16	500 gm
PH90303	18	250 gm
PH90304	20	250 gm
PH90305	22	250 gm
PH90306	24	250 gm
PH90307	28	250 gm
PH90308	30	250 gm
PH90309	32	250 gm
PH90310	34	250 gm
PH90311	36	125 gm



WIRE FLEXIBLE, TWIN

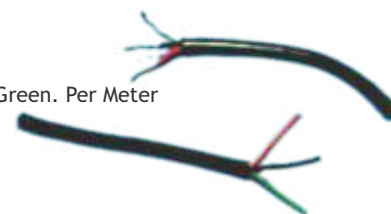
Multistrand copper wire, PVC insulated, to carry 2 A
PH90545



CABLE, THREE CORE

Multistrand copper wire, PVC insulated color Red, Black and Green. Per Meter

PH90550	3A
PH90552	6A
PH90556	15A



EUREKA / CONSTANTAN WIRE, BARE

Copper nickel alloy resistance wire, low temperature coefficient, reel of 125 gm.

PH90430	SWG 16
PH90431	SWG 18
PH90432	SWG 20
PH90433	SWG 22
PH90434	SWG 24
PH90435	SWG 26
PH90436	SWG 28
PH90437	SWG 30
PH90438	SWG 32
PH90439	SWG 34



NICHROME WIRE, BARE

Reel of 125 gm net.

PH90530	SWG 18
PH90531	SWG 20
PH90532	SWG 22
PH90533	SWG 24
PH90534	SWG 26
PH90535	SWG 28
PH90536	SWG 30
PH90537	SWG 32



WIRE FLEXIBLE, SINGLE

PVC insulated
PH90542



SOLDERING IRON WOODEN HANDLE

With wooden handle- don't need to worry about hands scalded. Plating alloy welding head- have longer life than ordinary welding head. Welding can be carried out 2 minutes after the electricity.

PH90565/1	25 W
PH90565/5	65 W



WITH BAKELITE HANDLE

PH90565/7	25 W
PH90565/9	65W



SOLDERING WIRE

PH90570	100 gm
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SOLDERING FLUX PASTE

For use with soldering iron pack of 50 gm
PH90572

KEYS AND SWITCHES

CONTACT KEY, SINGLE

Contact key with a spring arm, press knob, contact stud and a connecting strip with two 4 mm terminals, on plastic base of size 110 x 50 mm.
PH90600





PLUG SWITCH, ONE WAY

Two brass blocks with 4mm insulated terminals are mounted on a moulded base, an accurately tapered plug with a fluted top fits into the tapered hole between the two blocks, ensuring very low contact resistance.

PH90615



PLUG SWITCH, TWO WAY

With three brass blocks, each with a 4mm insulated terminal.

PH90625



KNIFE SWITCHES

Knife switches are basic components for any electrical lab. These switches are mounted on plastic base and features metal poles and knives for easy connections. Educators use these knife switches to explain open electrical circuits. Rated at 5A.

PH90634/1	Single Pole, Single Throw (SPST) Knife Switch	1
PH90634/2	Single Pole, Double Throw (SPDT) Knife Switch	2
PH90634/3	Double Pole, Single Throw (DPST) Knife Switch	3
PH90634/4	Double Pole, Double Throw (DPDT) Knife Switch	4



KNIFE SWITCH

As above but mounted on insulated plate with three 4 mm socket terminals.

PH90636

Single Pole Double Throw

PH90639

Double Pole Double Throw



REVERSING KEY

To change polarity rapidly. A plastic bar with two terminals and two brushes is pivoted to rotate over two contact strips so that its rotation reverses polarity of connections on the base.

PH90640

CARTRIDGE FUSES

With transparent glass body, quick blow type, 20 mm long.

PH90660	250 mA
PH90661	500 mA
PH90662	1 A
PH90663	2 A
PH90664	3 A
PH90665	5A



FUSE HOLDER

To take above fuses of 20 mm length.

PH90670

FUSE WIRE

Tinned copper 100 gm reel.

PH90680	2 A
PH90682	5 A
PH90684	10 A
PH90690	15 A

FLASH LAMP BULB, ROUND

M.E.S. cap.

PH90711	2.5 V
PH90712A	3.8 V
PH90714A	6.2 V
PH90715	12 V



6-VOLT LAMP BOARDS

Terminals on these lamp boards let you connect lamps in series or parallel. Lamp board features removable shunt wires that allow for quick changing from parallel to series or any combinations of the two. All units have plastic bases with rubber feet. Small incandescent bulbs included. Available in three or five-socket sizes.

PH90778/1	3 Socket Lamp Board
PH90778/3	5 Socket Lamp Board



LAMP HOLDER M.E.S

Rolled shell of brass mounted in moulded plastic base.

PH90770



WIRE CUTTER AND STRIPPER

This wire cutter and stripper is for use in installation, repairing and experiments. It will work as a cutter as well as stripper. It has new design handle for making proper pressure on cable. It has locking system at handle of tool.

PH90790



LAMP HOLDER M.E.S. MOUNTED

Fitted on base with two 4 mm sockets.

PH90775

TOOL KIT

Consists of Combination plier, Cross pein hammer, Wire stripper and cutter, Adjustable wrench and screw driver kit in nylon bag.

PH90795



ALL DEVICES ARE PROVIDED WITH CIRCUIT DIAGRAM ON BASE, WITH 4 MM COLOUR CODED SOCKET



GERMANIUM DIODE UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration.
PH92010



SILICONE DIODE UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration.
PH92014



ZENER DIODE UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration.
PH92018



LIGHT DEPENDENT RESISTER UNIT (LDR)

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration. Shows that resistance is inversely proportional to light density.
PH92024



N-P-N TRANSISTOR UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration.
PH92028



P-N-P TRANSISTOR UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration.
PH92032



THERMISTOR UNIT

Mounted on base, with 4 mm colour coded sockets, with circuit diagram printed for demonstration. Thermistor is mounted above the base to avoid the damage from heat.
PH92038



TRANSISTOR CHARACTERISTICS APPARATUS

This instrument is designed to study input and output characteristics of common emitter and common base PNP & NPN Transistors. Instrument comprises of two DC regulated power supplies 0 - 10 V DC (150 mA) and 0 - 1 V DC (150 mA). Four round meters for voltage and current measurement. Connections of supplies and transistors are brought out at 4mm Sockets. 4mm stackable lead and instruction manual is also provided with this instrument.

PH92110



ZENER DIODE CHARACTERISTICS APPARATUS

This instrument is designed to study forward and reverse, voltage vs current characteristics of zener diode. A DC regulated power supply 0 - 15 V DC (150 mA), two round meters for voltage and current measurement are provided in this instrument. Three different value zener diodes mounted behind the panel. Connections of supplies, meters and zener diodes are brought out at 4mm sockets. 4mm stackable lead and instruction manual is also provided with instrument.

PH92160



FET CHARACTERISTICS APPARATUS

This instrument is designed to study input and output characteristics of FET. Two DC regulated power supply 0 - 5 V DC (150 mA), 0 - 15 V DC (150 mA), two round meters for voltage & one current meter are provided in this instrument. FET is mounted behind the panel. Connections of supplies, meters & FET are brought out at 4mm sockets. 4mm stackable lead and instruction manual is also provided with instrument.

PH92140



THERMISTOR CHARACTERISTICS APPARATUS

This instrument is designed to plot negative resistance co-efficient characteristics of a thermistor. Instrument comprises of variable DC Regulated Power Supply 0 - 10 V DC (150mA). Two digital meters for voltage and current measurement. One thermistor is kept in Oven. Connections of supplies, meter and thermistor are brought out at 4 mm Sockets. 4mm stackable lead and instruction manual is also provided with instrument.

PH92168



SEMICONDUCTOR DIODE / PN JUNCTION DIODE CHARACTERISTICS APPARATUS

This instrument is designed to study forward and reverse characteristics of PN Junction Diode. Instrument comprises of two DC Regulated Power Supplies 0 - 3 V DC (150 mA) and 0 - 30 V DC (150 mA). Two dual range round meters for voltage and current measurement are provided on the front panel. Connections of supplies, meters and PN Junction diode are brought out at 4mm sockets. 4mm stackable lead and instruction manual is also provided with instrument.

PH92150



LCR IMPEDANCE APPARATUS

This instrument is designed to calculate AC power factor of LCR circuit when connected in series. Instrument comprises of variable AC Power Supply 0 - 15 V AC. Two AC moving coil meters one for voltage and current measurement are provided on the front panel. 2 Resistance, 2 Capacitors and 1 Inductance are inside the panel and connections are brought out at 4mm sockets. 4mm stackable lead and instruction manual is also provided with instrument.

PH92172

LOGIC GATE MODULES

These modules are used for verification of truth tables. A red and green LEDs is provided on the panel to show the HI and LO conditions of the output. Truth table is printed on the panel.



TWO INPUT OR GATE

To study the OR digital logic gate and verification of the truth table.
PH92210



TWO INPUT NAND GATE

To study the NAND digital logic gate and verification of the truth table.
PH92228



TWO INPUT EX-OR GATE

To study the EX-OR digital logic gate and verification of the truth table.
PH92215



TWO INPUT AND GATE

To study the AND digital logic gate and verification of the truth table.
PH92232



TWO INPUT NOR GATE

To study the NOR digital logic gate and verification of the truth table.
PH92220



New



SEVEN SEGMENT LED DISPLAY CIRCUIT

A common anode seven segment module is fitted on a board with 8 bit dip switch to control each segment of seven segment LED display. A resistor is fitted with common point of seven segment display to protect the LEDs
PH92350

New



BRIDGE RECTIFIER

Bridge Rectifier is made of four diodes connected in a bridge circuit. It is housed in a plastic moulded box. This bridge rectifier converts alternating current (AC) into direct current (DC). It provides the same output polarity for either input polarity. All the electronic devices require direct current, so bridge rectifiers are used inside the power supplies of almost all electronic equipment. For the easy understanding of the internal circuitry, the circuit diagram is printed on the box.

PH92352

New

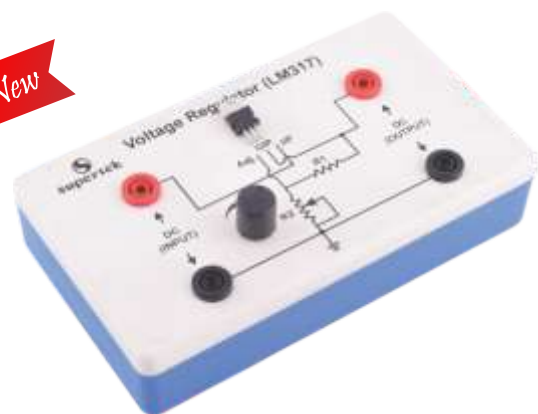


EMITTING DIODE (LED'S)

Bridge rectifier is designed with four LED's internally arranged in bridge pattern fitted inside a plastic moulded case. Two LED's are red and two LED's are green. This device is used to demonstrate the functioning of a bridge rectifier, i.e., to convert alternating current (AC) into direct current (DC). Two yellow sockets are used for AC input. Two sockets, one red and one black, are used for DC output. For the easy understanding of the internal circuitry, the circuit diagram is printed on the box.

PH92354

New



VOLTAGE REGULATOR

The Voltage Regulator module regulates an unregulated DC power supply. The unregulated DC supply is applied to input sockets 4mm and regulated output is available at output sockets 4mm. The output can be adjusted by the knob provided.

PH92360

New



ANALOG TO DIGITAL CONVERTER

The ADC unit converts an analog signal to digital signal. When a variable voltage is applied to the input terminals it is converted into a digital output. Therefore, a 3 volt input will correspond to binary 11, and 7 volt will correspond to binary 111. A low frequency AC input signal can be converted into a changing digital value. Use on its own or combined with the DAC to decode back into a stepped analogue voltage.

PH92370A

New



DIGITAL TO ANALOG CONVERTER

The DAC unit converts a digital input in the range 0 to binary 111 into an analogue voltage output. Binary 111 gives 7 volts. The system is of particular application when discussing digital data communication, loss of information, resolution etc.

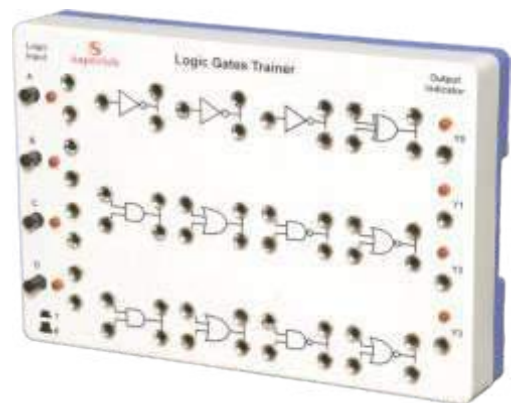
PH92370D



NUMERICAL SYSTEM

This panel is used to demonstrate the number systems such as binary, decimal and hexadecimal numbers. Toggle switches used to activate the displays showing the particular number entered. Input may be entered either as decimal or binary numbers with a toggle switch for mode selection. Decimal numbers are shown on a three digit seven segment LED display. operates on 220V.

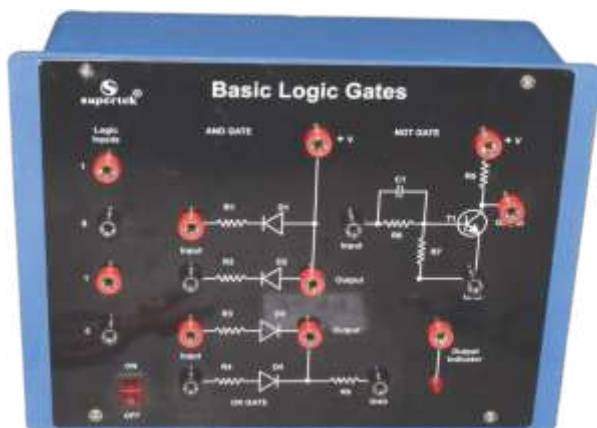
PH93002



LOGIC GATES TRAINER

Logic Gates Trainer has been designed to study logic gates and applications. This trainer board is designed to verify the truth table of various logic functions, to prove De-Morgan's theorem, Half adder and Full adder by using logic gates. The board is absolutely self-contained and requires no additional apparatus. 12V/1A DC adaptor is required to operate it.

PH93005B



LOGIC GATES TRAINER

Logic Gates Trainer is a self training course in basic digital electronics and is first step to understand fundamentals of any computer. It enables the student to understand AND, OR, NOT, NAND & NOR Gates and in the process to make connections. Supplied with user's manual.

PH93005



LOGIC GATE CIRCUIT TRAINER

Study and verification of flip flops, counters, shift registers, encoders, decoders, multiplexers and de-multiplexers. Consists of 8 debounced logic inputs, 8 red LED output indicators, +5 V DC (1 A) regulated, short circuit and overload protected power supply, 1 Hz monoshot clock pulse. All the IC's and components have been placed inside the cabinet and connections brought out at 4 mm sockets.

PH93007



STUDY OF LOGIC GATES, BOOLEAN IDENTITIES AND DEMORGAN'S THEOREMS

To verify the truth table of 3 input AND gate, OR gate, NAND gate, NOR gate, single input NOT gates, Boolean expressions and Demorgan's theorems. Consists of 5 V DC regulated power supply, 4 push-to-ON switches provided for selecting logic 1 and logic 0, 2 Red LED output indicators, circuit diagram printed for 5 OR, 5 AND and 4 NOT gates and their respective ICs placed inside the cabinet and connections brought out at sockets.

PH93010



OPERATION AMPLIFIER KIT

To study Operational Amplifier Characteristics and Applications. Consists of 3 D. C. regulated power supplies of 0 - 5 V Continuously variable, ± 15 V D. C. regulated power supply, Sine, Square, Triangular wave outputs, one Bread board having two main strips and two distribution strips. Complete with two dual range meters and necessary components.

PH93015



STUDY OF OPERATION AMPLIFIER

To demonstrate the function of operational amplifier using TL081 and L272 with discrete components different value of resistors, capacitor. Input can be applied from microphone, LDR. Offset null control is also provided. Output can be fed through the power amplifier into a loudspeaker.

PH93020

New



INSTRUMENTATION AMPLIFIER

Instrumentation amplifier is a switched gain precision operation amplifier. This is used for precise and accurate, low noise differential signal acquisition. 4mm sockets are used for the input signal. It can be interfaced with a wide range of sensors. It can take small voltage changes from a sensor and make those changes large enough to be measured using CRO. It is not able to drive a low impedance load such as a loudspeaker or relay. The output can be read on CRO. Digital multimeter may also be used to read the output. With switched gain of 5 to 1000, it can handle signal inputs over a very wide range making it suitable for almost all applications.

PH93020B

LINEAR IC TRAINER

This trainer consist of :

Regulated power supply of $\pm 12V/250\text{ mA}$.

Variable 0 to $\pm 5V/250\text{ mA}$

Sine wave oscillation of 1KHz

Digital Voltmeter of 0-20 V DC, LCD display, 3 ½ Digit

Functional diagram of IC 741 is printed with 2 mm sockets

One extra 8 pin IC Base with 2 mm sockets

Potentiometer of 10 K Ohms

Required Resistance and Capacitances mounted on board

Interconnection Leads and Manual to perform 15 experiments on IC 741 e.g. inverting, non-inverting, summing, difference, multiplier, differentiator, integrator etc.

PH93025



DIGITAL TRAINER USING NAND GATES

Complete with Regulated power supply of + 5V/500 mA

Provided with 4 Logic input switches (bounceless)

4 LED Indicators (Buffered)

Functional diagram of

3 Input NAND - 6 No.

4 Input NAND - 4 No.

1 Input NOT Gates - 4 No. is printed on board

12 Interconnection Leads and User's Manual is provided.

PH93027



DISCRETE COMPONENT TRAINER

Trainer consisting of Power Supply of +5 V, $\pm 12\text{ V}$, each of 250 mA, Silicon, Germanium diodes, Zeners, PNP and NPN Transistors, FET, One speaker, 12 different values of carbon film resistances of $\frac{1}{4}\text{ W}$, $\frac{1}{2}\text{ W}$ and 1 watt. 12 assorted values of capacitors from 100 PF to 1000 μF , Integrated Circuit (IC) Base and IC 74LS00 1 No. each.

LED, LDR, Photo diode, Solar Cell Logic Switches (4 No.) and LED Indicators (4 No.) etc., 2 mm Interconnection Leads - 10 No. and Comprehensive User's Manual.

PH93030





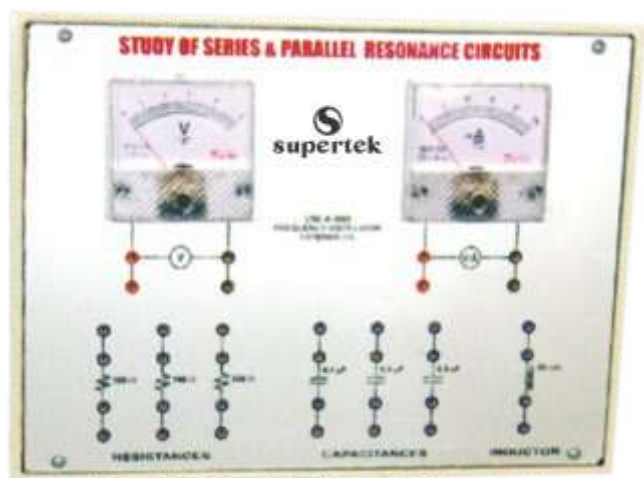
HALF WAVE/ FULL WAVE AND BRIDGE RECTIFIER APPARATUS

Objective : To study Efficiency and Ripple factor in case of Half wave, Full wave and Bridge rectifier on application of load and filters.

Features : Instrument comprises of AC Power Supply, 3 meters to measure Output Voltage, Output Current and ripple factor on electronic AC Voltmeter, 4PN Junction Diodes, Filter Circuit kit, load Resistances selectable using bandswitch and all important connections points at 4mm Sockets.

Optional Acc : Digital AC millivoltmeter.

PH93032



LCR RESONANCE APPARATUS

Objective : To plot Frequency Vs. Current Characteristics of LCR circuit when connected in series or in parallel.

Features : Instrument comprises of 3 Resistances, 3 Capacitors and 1 Inductance connected inside and connections brought out at Sockets. 2AC moving coil meters to measure voltage and current.

Optional Acc. : Audio Frequency Function Generator

PH93035



FIBER OPTICS COMMUNICATION SET

Objective: To construct an optical transmitter and transmission of signal through Fiber Optics Cable. To construct an Optical Receiver and study the Attenuation of Signal when transmitted from Transmitter to Receiver end. Analog and Digital link can also be studied as this unit is complete with Sine and Square Waves. Bending losses can also be studied.

Features: Instrument comprises of Microphone Preamplifier stages consists of MIC (Microphone), Preamplifier and Amplifier (Voice is converted to electrical signal and then amplified) and fed to LED (Transmitter) and then through fibre cable, signal is sent to Photodetector (Transistor) and again amplifier and output is sent to Speaker Unit. Power Supply of +6 VDC is used in Amplifier ckt. 2 No. Fiber Optics cables are provided (one of them is 50 cm long and the other is 100 cm long). One more fiber cable of 50mm length having connector at one end is also provided. Connectors at both end of fiber cable are provided for insertion in sockets provided on the front panel. Bending losses can also be studied in long wire.

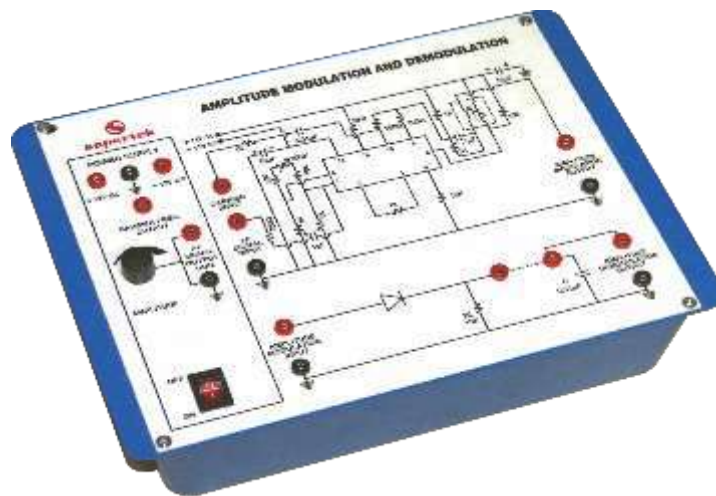
Standard: MIC with 2 meter long lead and a Speaker 4", 4 ohm are mounted in a vertical box.

Accuracy: with 1 meter long connecting leads. 2 No. Fiber optic cable having length of 50 cm and 100 cm are provided.

Optional : Digital multimeter (3 1/2 Digit, Big size Display) This model also include Digital Multimeter and wooden frame for measurement of Numerical aperture i.e. complete in all respect including facility for measurement of numerical aperture.

PH93040





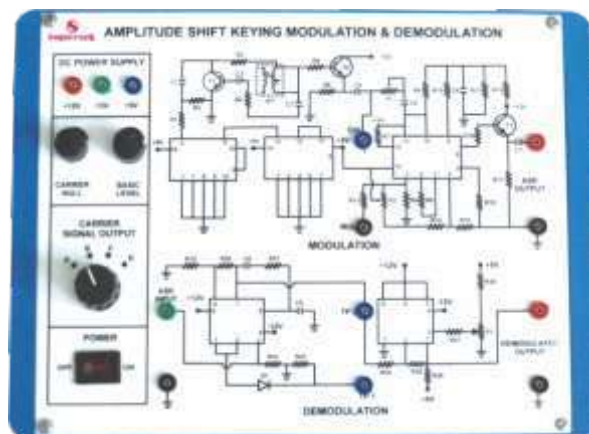
AMPLITUDE MODULATION AND DEMODULATION

Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission. It is still used in radio system to transmit audio signal although it has lesser in popularity compared to FM (Frequency Modulation) due to its lower signal to noise ratio.

Technical Specification

- IC based DC regulated power supply $\pm 12V$ / 500mA.
- Audio frequency 1 KHz / 0-2 Vpp for modulating signal 455 KHz / 2.5 Vpp approx. for Carrier Frequency

PH93100



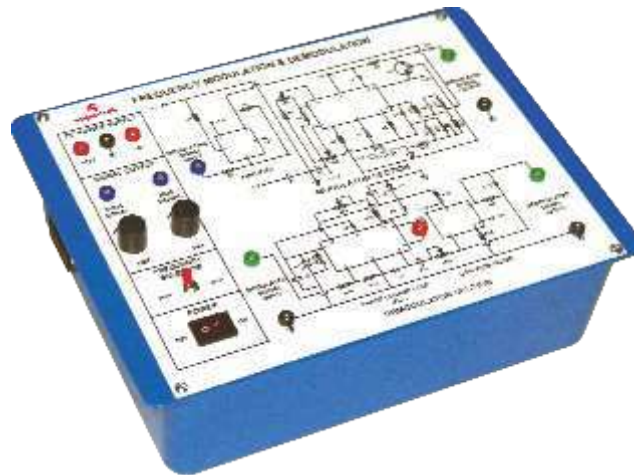
AMPLITUDE SHIFT KEYING MODULATION AND DEMODULATION

This Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission and to study the Amplitude shift keying Modulation and Demodulation. Whole instrument is placed in plastic moulded box and 2 mm banana plug leads are provided for modulation and demodulation connections.

Technical Specification

- Fixed Output DC Regulated Power Supply of ± 12 , +5volts
- 100KHz with 5 Vpp amplitude (Approx.) for carrier frequency
- In built square wave data generator
- Circuit diagrams for Modulator and Demodulator are printed on the milky white top panel.

PH93105



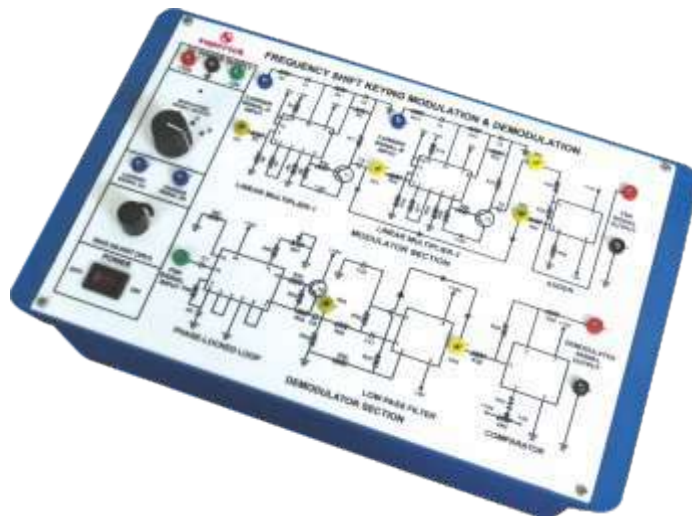
FREQUENCY MODULATION AND DEMODULATION

This Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission and to study the Frequency Modulation and Demodulation. Whole instrument is placed in plastic moulded box and 2 mm banana plug leads are provided for modulation and demodulation connections.

Technical Specification

- Fixed Output DC Regulated Power Supply of ± 12 volts
- Built in Modulating signal Generator of 2 KHz and 4 KHz selectable with a toggle switch with Amplitude to 3V peak to peak approximately.
- Circuit diagrams for Modulator and Demodulator are printed on the milky white top panel.

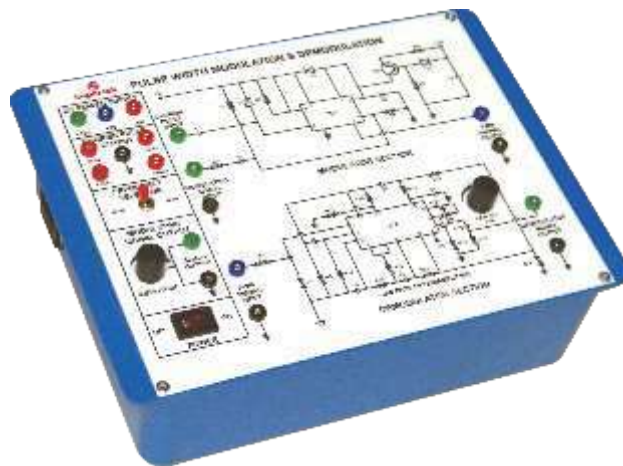
PH93110



FREQUENCY SHIFT KEYING MODULATION AND DEMODULATION

This Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission and to study the Frequency Shift Keying Modulation and Demodulation. Whole instrument is placed in plastic moulded box and 2 mm banana plug leads are provided for modulation and demodulation connections.

PH93115



PULSE WIDTH MODULATION AND DEMODULATION

This Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission and to study the Pulse Width Modulation and Demodulation. Whole instrument is placed in plastic moulded box and 2 mm banana plug leads are provided for modulation and demodulation connections.

Technical Specification

- Built in IC based DC Regulated Power supply $\pm 12\text{VDC}$, $+5\text{VDC}$
 - Four level Built in carrier pulse Output
 - Frequency Range: 8 KHz, 16 KHz, 32 KHz, 64 KHz Amplitude : 5Vpp approx.
 - Built in sine wave Audio Frequency Function Generator for modulating signal
Frequency Range: 1 KHz and 2 KHz selectable with a toggle switch
Amplitude : 0-10Vpp and 0-4Vpp approx.
 - Circuit Diagram for Modulation and Demodulation is printed on the milky white top panel.
- PH93120



PHASE SHIFT KEYING MODULATION AND DEMODULATION

This Instrument is design to demonstrate the method to transmit signals via. Electromagnetic transmission and to study the Phase Shift Keying Modulation and Demodulation. Whole instrument is placed in plastic moulded box and 2 mm banana plug leads are provided for modulation and demodulation connections.

Technical Specification

- Fixed Output DC Regulated Power Supplies of $\pm 12\text{V}$ and $\pm 5\text{V}$
 - Built in Carrier wave Generator (Sine Wave) of 5V peak to peak amplitude, 22 KHz $\pm 5\%$ Frequency range with output on sockets.
 - Built in Data Generator using IC 7490 with four modulating signal outputs on sockets
 - IC TL084 & IC 7486 are using for PSK demodulator
 - Circuit diagram is printed on the milky white top panel and important connections are brought out on the sockets.
- PH93125



MICRO CONTROLLER DEVELOPMENT BOARD

Microcontroller Development board is designed to train Engineers about the structural design, instructions and utilize the 8051 microcontroller Board. A 40pin ZIF socket for easy insertion of 89 series microcontroller with four 10 Pin FRC connectors is provided on the board. Outputs from I/O port from microcontroller are available on FRC connectors those can be easily connect with different modules. Microcontroller Development Board consists of EEPROM with 4K memory changeable with more RTC DS1307 with 32 KHz crystal with battery backup One 12V stepper motor with drivers

- One 16 x 2 LCD display
 - 8 Output LED indicators
 - 4 multiplexed 7-segment display
 - 8 single bit toggle switch
 - 4 x 4 matrix keyboard
 - Single Channel ADC with potentiometer and provision of external inputs
 - RS 232 serial communication
 - One 12V DC motor driver
- PH93130

SIGNAL GENERATOR

Audio frequency Generator is versatile instrument providing sine, square & triangular wave functions over a wide range from 2 - 220 KHz in decade ranges. The amplitude of the waveforms can be varied from 20mV to 20V pk to pk about zero level with the help of three step coarse control and fine control. The complete unit is enclosed in an attractive metal cabinet without BMC cable.

PH93205



SIGNAL GENERATOR, DIGITAL

Audio frequency generator is a versatile instrument providing sine, square & triangular wave functions over a wide range from 2 to 220 KHz in decade ranges. The amplitude of the waveforms can be varied from 20 mV to 20 V peak to peak about zero level with the help of three step coarse control & fine control. The complete unit is enclosed in an attractive metal cabinet and operates on 24V DC adapter.

PH93205D



SIGNAL GENERATOR

1 Hz to 100 KHz in five decade ranges selected by rotary switch named as frequency Multiplier. Sine Triangular and Square waveforms selected by push switch with LED indication. Output signal is 0-3.5 V rms (10 V peak to peak) open circuit continuously control with uncalibrated amplitude control knob. Mains rocker switch with indicator Light. Signal Generator is versatile for general laboratory use; output signal is adjustable with the combination of Freq. multiplier and set frequency dial with a low level of distortion. Output Voltage is continuously variable with selector range 1V and 10V. There is two pair of output safety sockets. One for CRO output (experiment for amplification, filter etc.) and another pair of sockets to speaker to drive a speaker and to demonstrate the audio signal frequency range 20 Hz to 20 KHz without BMC cable.

PH93210



SIGNAL GENERATOR, DIGITAL

This signal generator is a useful test instrument capable of generating multiple waveform and offers excellent waves shape, signal linearity, waveform symmetry and frequency range with selection of sine, triangular and square wave and amplitude variable 10 V peak to peak. 1 Hz to 100 kHz in five decade ranges selected by rotary switch named as frequency multiplier. Sine, triangular and square waveforms selected by push switch with LED indication. Output signal is 0-3.5 Vrms (10 V peak to peak) open circuit continuously control with uncalibrated amplitude control knob. Mains rocker switch with indicator Light. Signal Generator is versatile for general laboratory use; output signal is adjustable with the combination of frequency multiplier and set frequency dial with a low level of distortion. Set frequency is displayed on a 4 seven segment display. Output Voltage is continuously variable with selector range 1V and 10V. There is two pair of output safety sockets. One for CRO output (experiment for amplification, filter etc.) and another pair of sockets to speaker to drive a speaker and to demonstrate the audio signal frequency range 20 Hz to 20 KHz without BMC cable

PH93210D



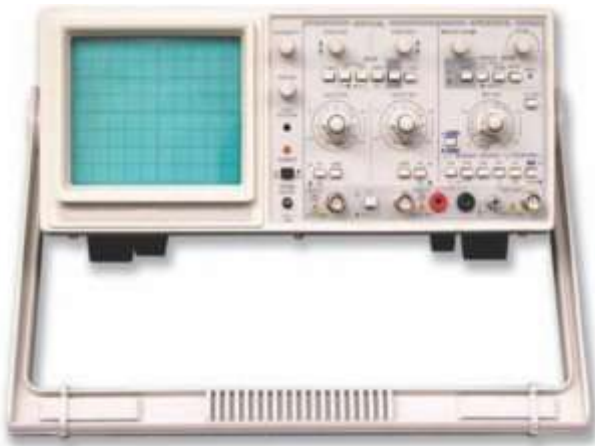
OSCILLOSCOPE

This Oscilloscope is corresponding to horizontal with small size. The bandwidth of Y axis is DC 10 MHz and the deflection factor is 5 mV - 5 V / div. It can be up to 50 V / div. using with the 10:1 probe. Sweep deflection factor is 0.1 μ s / div.

- Single Channel Single Trace Oscilloscope
- Bandwidth : 10MHz
- Confirms to EN61010-1 (1993) and EN-IEC61326-1(1997)
- Wide measurement
- High sensitivity and trigger lock
- Sweep switch adopts digital code switch and accuracy
- Proper to use in colleges and for engineers and technicians
- Deflection factor is 5mV-5V/div in 1-2-5 Sequence in 10 steps
- Accuracy: $\pm 5\%$
- Maximum Input Voltage: 400Vpk
- Sweep deflection factor is 0.1us/div-0.1s/div
- Accuracy: $\pm 5\%$
- Trigger Sensitivity: INT:1.5div EXT:0.3V
- Trigger mode: INT, EXT, LINE, TV
- Trigger Sweep Mode: NORM, AUTO, TV. LOCK
- Calibration Signal: 0.5V Square wave of 1kHz
- CRT Effective working Area: 8x10div 1div=6 mm
- Auxiliary Power Supply: 220V AC 50Hz

PH93215

**GOVERNMENT OF INDIA
RECOGNIZED EXPORT HOUSE**



OSCILLOSCOPE

This is a portable type of Oscilloscope for two traces. The band width is 0-20MHz. The instrument is of easy operation with comfortable controls. Its reasonable structure and technology makes it convenient to repair and calibrate.

- Dual Trace Dual Channel Oscilloscope with Component Test Facility
 - Bandwidth : 20MHz
 - Full bandwidth sweeping circuit is used in the sweeping system
 - The flexible and convenient triggering mode has the functions for selecting signals from one channel or triggered by Ext signals
 - ALT trigger to observe signals from two irrelative channels
 - The instrument has the functions of TV-H / TV-V synchronization and trigger-lock to observe all kinds of signals stably
 - From the terminal for trigger input, CH1 and CH2 signals can be output along with the triggering channel to connect the Ext frequency counter
 - Y deflection operation : Y1, Y2, ALT, CHOP, ADD, mode X-Y
 - Vertical Deflection : 5mV/Div to 20V/Div in factor 1-2-5 sequence in 12 steps
 - Rising time : < 18nS
 - Maximum Input Voltage : 400V (DC +ACp-p)
 - Triggering Source : Y1, Y2, ALT, POWER, EXT
 - Trigger Coupling : AC/DC (EXT), NORM/TV-H, TV-V
 - Horizontal Sweep Mode : AUTO, TRIG, LOCK, SINGLE
 - Sweep time factor : 0.1uS/div to 0.2s/div in 1-2-5 sequence in 20 steps
 - Magnification : x10
 - X-Y Mode input : X-Axis Y1 and Y-Axis Y2
 - Z Axis minimum input level : TTL Level
 - Component Test Facility
 - Calibration Signal : Square wave of 0.5V at 1kHz
 - CTR Display size : 8cm x 10cm
 - Auxiliary Power Supply : 230V 50Hz AC
- PH93220**



DIGITAL GAUSS METER

Digital Gauss meter works on the principle of Hall Effect in semiconductor. When a semiconductor with current flowing in one direction is introduced perpendicular to a magnetic field a voltage is produced at right angle to the current path. The magnitude of this voltage is proportional to the intensity of the magnetic field. This voltage is called Hall Voltage. This Hall voltage is amplified and calibrated as magnetic field.

Specifications:

Range: 0-2KG & 0-20KG
 Resolution: 1G at 0-2KG range
 Display: 3½digit LED
 Power Supply: 220 V, ±10%, 50 Hz AC
 Transducer: Hall probe-In As
PH93225G



TESLAMETER

The teslameter is used for the measurement of flux densities in steady magnetic fields. The unit includes a Hall sensor probe for measuring axial and tangential magnetic fields up to 20mT. The magnetic field probe is provided with a metric scale for measuring distances. In addition to having a digital display, the unit outputs a voltage proportional to the magnetic field which can be measured with a data logger, XY-recorder or analogue multimeter.

PH93240



HALL EFFECT EXPERIMENT

Introduction

The resistivity measurements of semiconductors cannot reveal whether one or two types of carriers are present; nor distinguish between them. However, this information can be obtained from Hall Coefficient measurements, which are also basic tools for the determination of carrier density and mobility in conjunctions with resistivity measurement.

Working

When a conductor through which current is flowing, is placed in the magnetic field, a potential difference is generated between two opposite edges of the conductor in the direction mutually perpendicular to both the field and the conductor. This potential developed is Hall voltage and the phenomenon is called Hall Effect. In the experimental setup, the crystal mounted on PCB is placed perpendicular to the pole pieces. A constant current is passed through the crystal using the constant current source. Magnetic field is produced by electromagnet operated by 0-12VDC, 5A power supply. Magnetic field intensity is measured by gauss meter with gauss probe. A Hall voltage thus produced is measured by the multimeter.

The following parts are included in Hall Effect Experiment:

PH93225H	Hall Probe
PH61033D/5	Advanced Power Supply
PH93225E	Electromagnet Setup
PH61500	Constant Current Power Supply
PH93225G	Digital Gauss Meter
PH64505	3 1/2 Digit Multimeter
PH93225	Hall Effect Experiment (Complete)

LOST VOLT APPARATUS

This apparatus helps in experimental determination of the internal resistance and the EMF of a cell. The unit requires connection to a 6V DC source, a voltmeter and an ammeter (not included).

PH93262



New

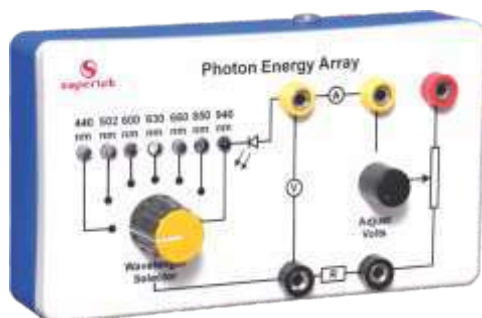


PLANCK'S CONSTANT

Modern LEDs (light emitting diodes) cover the range from deep blue (440nm) to infra-red (940nm). By monitoring the voltage at which each LED just begins to emit light a graph of energy input as a function of light emitted frequency can be plotted and an approximate value of Planck's constant deduced. Complete with viewing tube but without power supply with stackable lead red 2pcs. & black 3pcs.

PH94005

New



PHOTON ENERGY ARRAY

This unit is designed for the Advanced Physics Course and provides everything necessary for studying the characteristics of modern LEDs. Measurements taken with the unit enable an approximate value of Planck's constant to be determined.

PH94008

New



PHOTO DETECTOR

Photo detector shows that the electro-magnetic spectrum extends on either side of the visible spectrum. The detector area is only 1mm dia. so that it can be passed through the visible spectrum produced by a projector and prism. The output is monitored on a multimeter and gives measurable readings from 300nm to 1000nm demonstrating the presence of invisible UV and IR. Requires 9V battery and multimeter with 200mV scale or similar (not included).

PH94010

New



RF TELEMETRY

Supertek RF telemetry system consists of a radio frequency transmitter and matching radio frequency receiver both operating at 433MHz. The system is designed for the radio frequency transmission and reception. The radio frequency transmitter sends out a variable audio signal and the radio frequency receiver with built in loud speaker receives the signal. The system enables the teachers to demonstrate a variety of wave phenomenon. The system also enables the properties of the radio communications to be investigated and compared with those of visible light and other wave motions such as audible sound and water waves etc. For the operation of the system, a 9 volt PP3 battery is required.

PH94020

New



ULTRASONIC TRANSMITTER AND RECEIVER SET

This apparatus consists of a self-contained transmitter and receiver operating in the 40 kHz region. The transmitted wave is modulated at a user controlled variable frequency of about 2 kHz and this is detected by the receiver which amplifies the signal and drives a miniature integral loudspeaker. Both transmitter and receiver are contained in separate plastic enclosures measuring 175x100x40mm which contain all the electronics and the 9V batteries. The receiver has front panel 4mm sockets so that the output can be monitored on an oscilloscope for more quantitative measurements. The system is ideal for demonstrating sound waves above the hearing threshold and reflection properties associated with sonar etc.

A special feature is the second transducer on the transmitter which can be switched on when required to produce two coherent sources. By moving the receiver along a line parallel to the two sources interference patterns can be dramatically demonstrated simplifying the Young's slits experiment or enabling it to be demonstrated using waves other than light. Complete with batteries, full instructions and suggestions for use.

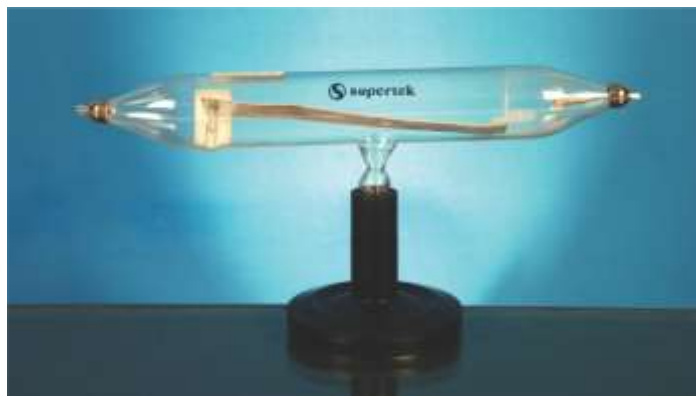
PH94022

SPECTRUM TUBES

Made of glass, 26 cm long overall, narrowed to capillary width for 8.5 to 10 cm of the length. Metal wires holding the electrodes are sealed through the ends and welded to metal caps, which have loops for connecting wires.

	Gas
PH95014/1	Air
PH95014/2	Argon
PH95014/3	Bromine Vapor
PH95014/4	Carbon Dioxide
PH95014/5	Chlorine
PH95014/6	Deuterium
PH95014/7	Helium
PH95014/8	Hydrogen
PH95014/9	Iodine Vapor
PH95014/10	Krypton
PH95014/11	Mercury Vapor
PH95014/12	Neon
PH95014/13	Nitrogen
PH95014/14	Oxygen
PH95014/15	Water Vapor

For use with Spectrum Tube Power supply PH61025



DEFLECTION TUBE

To show deflection of cathode rays by a magnet. Horizontal tube is fitted with a fluorescent aluminium plate, the cathode side of which is bent at right angle and is provided with a slit. Cathode rays passing through the slit cast a sharp and bright shadow across the aluminium plate. When a magnet is brought near, the cathode rays deflect sharply.

PH95035

MAGNETIC DEFLECTION OF AN ELECTRON BEAM

Designed to observe how electron beam is affected by a magnetic field. The power supply holds a deflection tube with cathode and an anode. The cathode end features a phosphorous coating, which glows when exposed to electrons. As we brings a magnet (not supplied) near, it causes the electron beam to move in a perpendicular direction to show the deflection of an electron and how a cathode and anode both work.

PH95038/1 Power Supply with deflection tube
PH95038/5 Deflection Tube Spare



CROSS AND SHADOW TUBE

To show rectilinear propagation of cathode rays. A cross in the path of cathode rays casts its shadow on the fluorescent wall.

PH95030



CANAL RAY TUBE

To show positive rays. Vertical type, with two fused discs at each end and a perforated cathode in the center through which canal rays pass. The space below the cathode is filled with characteristic glow of cathode rays and the upper portion has canal rays. A magnet brought near the upper portion will repulse the rays, showing the positive nature of the canal rays.

PH95040



ELECTRICAL RADIOMETER, MECHANICAL EFFECT

Glass sphere having two side disc electrodes and set of mica vanes placed on a vertical spindle rotating under impact of cathodes rays. The vanes start moving in opposite direction if polarity of current is changed.

PH95045

MOLECULAR VIBRATING TUBES

Highly evacuated glass tube with mercury and glass beads. Upon heating on a spirit lamp, the glass beads soon start moving in exact resemblance to the Brownian movement.

PH95048



REPULSION TUBE

Vertical tube with two parallel wire cathodes at two ends of tube with third electrode to serve as anode.

PH95067



HEATING EFFECT, PLATINUM FOIL

Cathode rays generate intense heat when focussed at a point, shown by platinum foil becoming red hot.

PH95070



RECTILINEAR PROPAGATION OF CATHODE RAYS

V-shaped to demonstrate cathode rays extend in straight lines perpendicular to cathode disc.

PH95062



HEATING EFFECT, WAX COATING

Wax melts quickly when cathode rays are focussed on it, showing cathode rays generate intense heat when focussed at a point.

PH95075



ELECTRONICS KIT 1

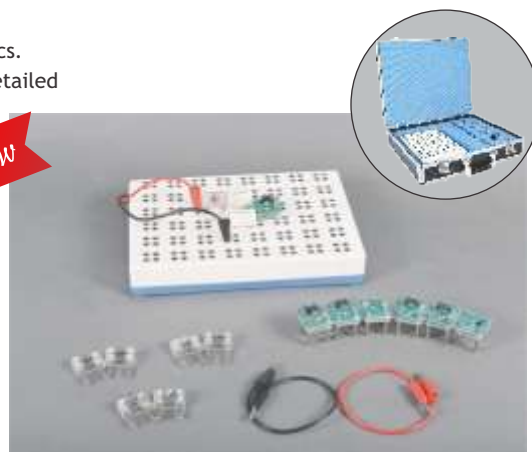
Electronics Kit 1 includes materials for over 10 activities on electronics based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included.

Experiments include:

- Forward Bias Diode
- Half-Wave Rectifier
- Zener Diode
- Transistor as a Switch
- Measuring Gain with a PNP Power Transistor
- Infrared Diode and Phototransistor
- Light Dependent Resistor
- Temperature Dependent Resistors
- Silicon Controlled Rectifier
- TRIAC
- Unijunction Transistor

SKEL01

New



ELECTRONICS KIT 2

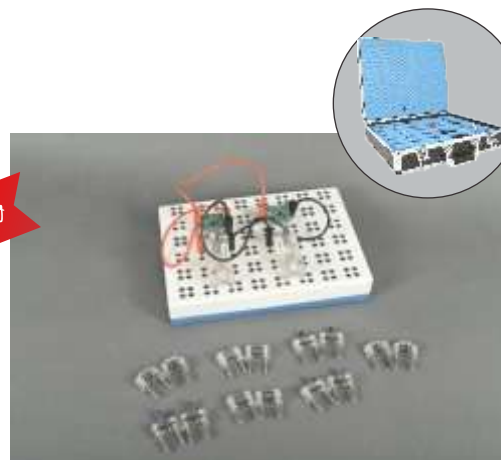
Electronics Kit 2 is a supplemental kit to Electronics Kit1. It includes materials for 5 activities on advanced electronics based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included.

Experiments topics include:

- Stable multivibrator,
- Full wave rectifier,
- Full wave rectifier with capacitor,
- Push pull amplifier,
- Two stage audio amplifier,
- Two stage audio amplifier.

SKEL02

New



ELECTROSTATICS KIT 1

Electrostatics Kit 1 includes materials for over 10 activities on electrostatic based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included.

Experiments topics include:

- Electrostatics with rods and cloth
- Charge distribution on an object
- Types of charges
- Comparing magnetic and electrostatic forces
- Electroscope
- Insulator versus conductor
- Charging by induction and conduction
- Electrophorus
- Coulomb's law
- Charge inside a conductor
- Faraday's ice pail.

SKES01

New



HEAT KIT 1

Heat Kit 1 includes materials for over 13 activities on thermodynamics based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included.

Experiments include:

- Psychrometry
- Newton's law of cooling
- Specific heat of metals
- Specific heat of water
- Expansion of water
- Heat of fusion
- Linear expansion of a solid
- Phase transitions and cooling curves
- Heat conduction in a rod
- Convective heat transfer
- Pulse glass
- Expansion of a gas
- Expansion of a liquid
- Thermocouple
- Thermostat.

SKHE01



MAGNETICS KIT 1

Magnetics Kit 1 includes materials for 7 activities on magnetism based topics. The kit comes in a heavy duty carry-case for ease of storage. Simple to set-up with all components easily accessible. A full manual with detailed activities for both the teacher and the student is included along with scientific background on each topic. Activities are designed to guide students to discover concepts but are styled so the instructor knows what equipment is needed for each activity.

Experiments include:

- Magnetic and non-magnetic objects
- North and south poles
- Earth's magnetic field
- Observing magnetic field lines
- Interacting forces
- Strength of magnets using ferromagnetic chains
- Eddy currents.

SKMG01



MAGNETICS KIT 2

Magnetics Kit 2 is a supplemental kit to Magnetics Kit 1. It includes materials for 4 activities on advanced magnetism based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included.

Experiments include:

- Diamagnetic, Paramagnetic, and Ferromagnetic Substances
- Predicting Magnetic Field Lines
- Current Induced Magnetic Fields
- Magnetic Field Induced Current

SKMG02



MECHANICS KIT 1

Mechanics Kit 1 includes components for 18 activities on mechanics based topics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included

Experiments include:

- Pendulum-simple harmonic motion
- Constant motion of a cart
- Constant acceleration of a cart
- Free fall
- Inertia
- Newton's second law
- Newton's third law
- Relationship between weight and mass
- Pulleys with a spring
- Vertical force table and vector addition
- Pulley mechanical advantage
- Lever
- Atwood machine
- Mechanical advantage of multiple pulley system
- Incline plane
- Friction
- Hooke's law with springs
- Harmonic motion of a spring.

SKME01



MECHANICS KIT 2

Mechanics Kit 2 includes materials for over 13 activities on fluid mechanics. The kit comes in a heavy duty carry-case for ease of storage. A full manual with detailed activities for both the teacher and the student is included along with scientific background on each topic.

Experiments include:

- Water velocity from a spout
- Mariotte's bottle
- Force pump
- Boyle's law with a syringe
- Pascal's ball
- Communicating vessels
- Density of an unknown liquid (U tube)
- Open tube manometer
- Hare's apparatus
- Cartesian diver
- Bernoulli's principle
- Viscosity (Ostwald viscometer)
- Capillary tubes.

SKME02



Supertek is pleased to present an additional range of products for Higher Science Experiments. These experiments are intended for High Schools, Universities and Technical Colleges.

The equipments are designed for efficient and easy understanding of the concepts and included pedagogy and instructions to complement the experiments.

Modularity and accuracy have been the key principles in designs and utmost care is taken in manufacturing to provide fine and flawless finish to the products.

Experiments

Faraday Effect

Brewster Angle

Biot-Savart's Law

Atomic Spectra

Malus Law

Photoconductivity

Size of Particle

Pin Diode Characteristics

The Brochure provides a list of Apparatus required to perform the experiment, You can ask for Complete Experimental set up or individual apparatus as per your requirement

Experiments Under Development

- Planck's Constant
- Energy Band Gap
- Beer Lambert's Law
- Quincke's Tube
- BH Curve
- Geometric Optics
- Single Slit
- Quarter Wave & Half Wave Plate
- Interferometer



Faraday Effect Experiment

Objectives

- Observe the effect of a magnetic field on plane of polarization of polarized light as it passes through a dispersive medium.
- Measure the Verdet's constant of a given dispersive material.

Principle

When a linearly polarized light passes through an optical medium in a region of strong magnetic field, the plane of polarization of linearly polarized light rotates by an angle. The angle of rotation of plane polarized light is proportional to the length of optical medium and component of magnetic field in the direction of light. The factor of proportionality is a medium specific and is called Verdet's constant. And this effect is known as the Faraday Rotation or Faraday Effect. Discovered by Michael Faraday in 1845, the Faraday effect was the first experimental evidence that light and electromagnetism are related. In the experimental setup the optical medium is SF6 glass cube.

Key Features

- **Modular U-Core design with precise optical alignment** - U-Core along with pole pieces are designed with Poka-Yoke principle so that the optical alignment is undisturbed when the pole pieces are moved to accommodate samples of different dimension.
- **Light Sensor** - This enables measurement of light intensity which in turn helps in measuring the amount of rotation of plane polarization. The meter reads with a precision of 1 lux. Sensor based measurements eliminate the errors in values due to simple eyesight measurement. Moreover, it provides the freedom to conduct the experiment at any setting of polarizer-analyzer angles.

What You Need

OB1	Optical Bench Set 0.8m	1
HA001	Light Source Holder	1
HA004	Polarizer Holder	1
HA006	Analyzer Holder	1
UP025	Electromagnet Set Assembly	1
AC004	Glass Block	1
HA510	Light Sensor Holder	1
PH93225G	Teslameter Digital	1
PH61035D/7	Power Supply for Electromagnet	1
PH61022D/2	Power Supply for Light Source	1
DP1	Data Processor	1

FEE1-C : Complete Equipment Set With Instruction Manual



Brewster Angle Experiment

Objectives

Measurement of Brewster's angle for a given dielectric dispersive medium.

Principle

When un-polarized light is incident on the surface of a dielectric (such as a glass), at a certain angle of incidence the reflected light is completely plane-polarized. This phenomenon was discovered by Sir David Brewster and, thus, the specific angle is called Brewster's angle or polarization angle. Also, from the experiment, it can be confirmed that the reflected ray and the refracted ray are 90° apart when the incident angle is set at Brewster's angle.

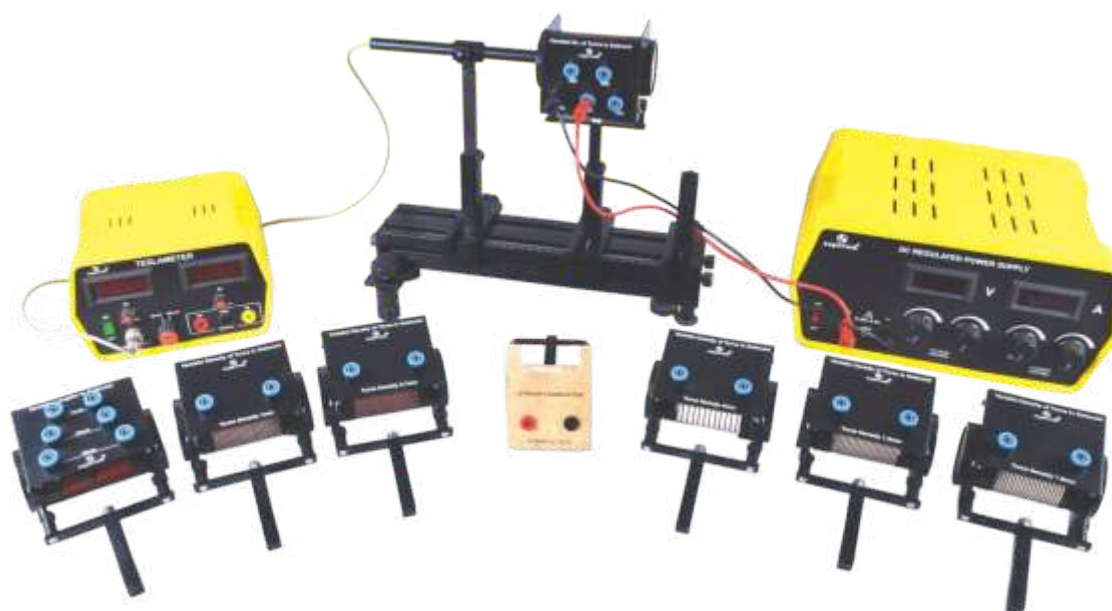
Key Features

- **Rotating Table:** A simple, smooth and compact rotating table. The rotating table used is extremely smooth to operate. It is a single assembly that holds glass sample, analyzer and light sensor, thus minimizing the size of the whole equipment. Smooth rotation makes measurement continuous and accurate.
- **Light Sensor:** This enables measurement of light intensity at various angles of reflection. The meter reads with a precision of 1 lux. The Lux meter helps obtain a continuous smooth curve of angle vs intensity and determine the Brewster angle much more accurately than the manual method.

What You Need

OB1	Optical Bench Set 0.8m	1
HA001	Light Source Holder	1
HA010	Converging Lense Holder	1
HA012	Adjustable Collimating Slit Holder	1
UP030	Rotating Table Assembly	1
AC002	Analyzer Square	1
HA511	Light Sensor Holder	1
PH61022D/2	Power Supply for Light Source	1
AC004	Glass Block	1
DP1	Data Processor	1

BAE1-C : Complete Equipment Set With Instruction Manual



Biot-Savart's Law Experiment

Objectives

- Measuring the magnetic field of a straight conductor and of circular conductor loops as a function of the current.
- Measuring the magnetic field of a straight conductor as a function of the distance from the axis of the conductor.
- Measuring the magnetic field of circular conductor loops as a function of the loop radius and the distance from the loop.

Principle

Electric currents generate magnetic fields. Biot-Savart law is an equation describing the magnetic field generated by a constant electric current. It relates the magnetic field to the magnitude, direction, length and proximity of the electric current. In this experiment, we study the magnetic field characteristics in straight conductor and different types of circular coils.

Key Features

- Multiple coil variants: The equipment comprises of variety of coil to carry out experiment. One can study Biot savart law for a straight conductor, coils of variable length, density and number of turns. All coils are mount on a common horizontal bench and upright system.
- 2-axis Teslameter: The equipment is provided with a teslameter with probes to measure both axial and tangential directions. A square shaft mount is provided for accurate mounting of the probes.

What You Need

OB2	Optical Bench Set 0.4m	1
HA015	Solenoid with Variable Turns	1
HA016	Solenoid with Variable Lengths	1
HA017	Solenoid with Different Winding Density (Set)	1
HA018	Straight Conductor Holder	1
PH93240	Teslameter, With Axial and Tangential Hall Probe	1
PH61035D/5	Power Supply	1

BSL1-C : Complete Equipment Set With Instruction Manual



Atomic Spectra Experiment

Objectives

- To understand the concept of diffraction of light.
- To measure and analyze the emission spectral lines of different elements.

Principle

The source of electromagnetic radiation is atoms. When the atoms of an element are in an excited state, they return to a lower energy state by emitting electromagnetic (EM) radiation. The transition of the electrons in the atom from higher energy level to a lower unique energy levels for the occupation of electrons, due to this the EM spectrum emitted is a unique signature of an element or a substance. The study of the characteristics of EM radiation emitted by atoms is called Atomic Emission Spectroscopy.

Key Features

- **Precise Optical Alignment:** The optical alignment of the components is attained by optical bench, the setting up time is faster and experimentation is easy.
- **Rotating table with On-board Telescope:** The telescope on the rotating table is mounted with bearings for smooth rotation. The diffraction grating mounted is mounted at the center of the rotating table. The telescope is easy to focus and operate. The angle of the rotating arm has a least count of 0.1° for accurate measurement of the spectral lines.
- **Power Supply Built in the Discharge Tube Holder:** The built-in power supply makes a more compact system with easier changing of the discharge tubes. Easy power connection and no unnecessary wire intrusions.

What You Need

OB1	Optical Bench Set 0.8m	1
HA010	Converging Lens Holder	1
HA012	Adjustable Collimating Slit Holder	1
UP040	Spectrum Tube Power Supply Assembly	1
UP035	Telescope Assembly	1
AC021	Spectrum Tube, Hydrogen	1
AC022	Spectrum Tube, Helium	1
AC023	Spectrum Tube, Mercury	1
AC024	Spectrum Tube, Krypton	1
AC025	Spectrum Tube, Argon	1

ASE1-C : Complete Equipment Set With Instruction Manual



Malus Law Experiment

Objectives

- To experimentally verify the malus's law.

Principle

Light, when modelled as a wave phenomenon, can be classified as a transverse electromagnetic wave consisting of oscillating electric and magnetic fields that are oriented perpendicular to each other. Depending on the orientation of the plane of polarization of the electric field with respect to the direction of propagation of the wave, the wave can be classified as polarized or un-polarized. To measure the variation of transmission of an EM wave through two polarizers as a function of the angle of orientation between them and proving the Malus's Law.

Key Features

- Precise Optical Alignment:** The optical alignment of the components is attained by optical bench, the setting up time is faster and experimentation is easy.
- Easy Analyzer Movement:** The design of the analyzer helps for easier rotation without disturbing the optical alignment. The least count of 1° aids for more accurate readings.
- Digital Lux Meter:** A digital lux meter enables the measurement of light intensity for each rotation of the analyzer. The least count of 1 Lux provides accurate readings.

What You Need

OB2	Optical Bench Set 0.4m	1
HA001	Light Source Holder	1
HA004	Polarizer Holder	1
HA006	Analyzer Holder	1
HA510	Light Sensor Holder	1
PH61022D/2	Power Supply for Light Source	1
DP1	Data Processor	1

MLE1-C : Complete Equipment Set With Instruction Manual



Photoconductivity Experiment

Objectives

- To study the photoconductivity of CdS Photoresistor, in the following conditions
 - Applied voltage vs photocurrent (IPH) at constant irradiance (Φ).
 - Photocurrent (IPH) vs irradiance (Φ) at constant applied voltage (V).

Principle

The phenomenon of photoconductivity occurs when an incident light shown upon a semiconductor causes an increase in its electrical conductivity. This is because of excitation of electrons across the energy gap into the conduction band, which leads to an increase in the number of free carriers in the conduction band, hence, an increase in the conductivity of the semiconductor. Here, we can study the characteristics of the CdS photoresistor under different conditions of light intensity and applied voltage.

Key Features

- Precise Optical Alignment:** The optical alignment of the components is attained by optical bench, the setting up time is faster and experimentation is easy.
- Fine and Easy Light Intensity Adjustment:** Light intensity adjustment is done via use of two polarizers. This helps in easier and fine light intensity adjustments.
- Simple and Easy Connections:** The color-coded terminals on the various components aids in the ease of connections thus reducing the setup time.

What You Need

OB2	Optical Bench Set 0.4m	1
HA001	Light Source Holder	1
HA004	Polarizer Holder	1
HA006	Analyzer Holder	1
HA020	LDR Module Holder	1
PH61022D/20	Power Supply, 0-15V, 200mA	1
PH61022D/2	Power Supply for Light Source	1

PCE1-C : Complete Equipment Set With Instruction Manual



Size of Particle Experiment

Objectives

- To measure the width/thickness of the given samples by analyzing the diffraction pattern.

Principle

The characteristics of light such as interference, diffraction can be understood when light is studied as a wave phenomenon. Interaction of waves with matter results in either transmission, reflection, absorption and diffraction of the wave. When the size of matter is comparable to the wavelength of wave that it interacts with, a phenomenon called diffraction occurs. Diffraction of light due to particles is a function of the size of the particle and the wavelength of the light incident. It is possible to measure the size of a particle by studying the diffraction patterns created by it.

Key Features

- Easy Adjustable Laser:** The multiple degree of freedom on the laser mount helps in effortless movement of the laser source. This helps in aligning the laser source with sample quite easily.
- Laser Range Finder:** The addition of a laser range finder allows the user to use any standard wall as a screen, increasing the distance between the screen and the sample. Thus, the diffraction pattern can be seen distinctly and thus increasing the accuracy of the readings.
- Multiple Samples can be Tested and Verified:** The modular setup helps in measuring the diameters of different samples and other everyday objects as well.

What You Need

OB1	Optical Bench Set 0.8m	1
HA003	Laser Source Holder	1
HA008	Grating Holder	1
HA024	Screen Holder	1
AC010	Laser Distance Meter	1

SOP1-C : Complete Equipment Set With Instruction Manual



Pin Diode Characteristics Experiment

Objectives

- To study the response of PIN diode, in the following conditions
 - Photo current (I_{ph}) vs Applied voltage at constant irradiance (Φ) under Reverse biased condition of the PIN diode.
 - Current (I) vs Voltage (V) under forward bias condition of the PIN diode.

Principle

The PN-Junction diodes, though are versatile, have a few limitations regarding the amount of current they could handle before breakdown and also have low switching frequency, low power handling capacity and low quantum efficiency. To overcome all these issues PIN diode was designed. PIN diodes are also extensively used a photo diode in PIN photo diode configuration and are very important in optical fiber communication.

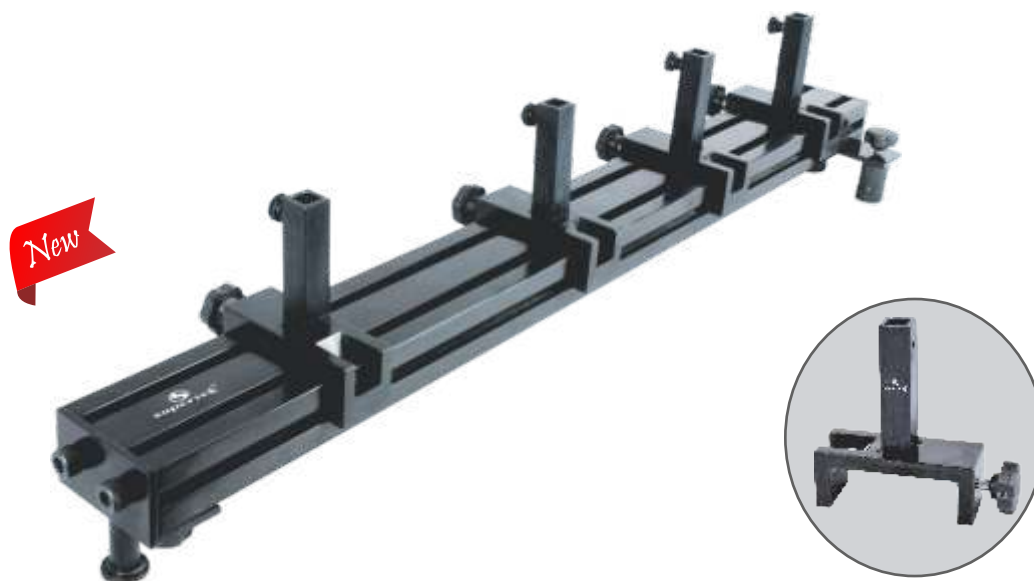
Key Features

- Precise Optical Alignment: The optical alignment of the components is attained by optical bench, the setting up time is faster and experimentation is easy.
- Fine and Easy Light Intensity Adjustment: Light intensity adjustment is done via use of two polarizers. This helps in easier and fine light intensity adjustments.
- Simple and Easy Connections: The color-coded terminals on the various components aids in the ease of connections thus reducing the setup time.

What You Need

OB2	Optical Bench Set 0.4m	1
HA001	Light Source Holder	1
HA004	Polarizer Holder	1
HA006	Analyzer Holder	1
HA021	Photodiode Module Holder	1
PH64505	Multimeter	1
PH61022D/2	Power Supply for Light Source	2

PIN1-C : Complete Equipment Set With Instruction Manual



Optical Bench

A versatile and modular system that can be utilized across many experiments. The optical bench has three core parts: Rail, Mounts and Uprights. All the core parts have been designed in such a way that they are suitable for multiple types of experiments.

Key Features

- Excellent stability and easy set-up of optical bench - Mounts can be fixed to the rail by just aligning and sliding in two screws into the rail and fastened. The uprights can be placed and fastened at any desired position with ease.
- Height adjustable mounts - The optical bench is designed with three-point mounts, with two of them height adjustable and lockable with a range of 20 mm. The height adjustment gives precision in maintaining horizontal axis of the bench. The mount bases are rubber padded to avoid sliding of optical bench on the lab benches.
- Anti-rotation square holders on the uprights (Patent Pending) - The optical bench uprights are designed with square holders and square shafts for holding accessories. One of the major needs in optical experiments is to maintain alignment of accessories. More often, the accessory holder is susceptible to rotation. Square shafts ensure anti rotation of the accessories and makes experimenting hassle free. It also avoids any kind of lateral bend or movement of the accessories.
- All parts are scratch resistant and movement of uprights on the rail is seamless.

OB1	0.8m Rail x1, Mounts x2, Uprights x4
OB2	0.4m Rail x1, Mounts x2, Uprights x4



Light Source Holder

Light source holder consists of 15W projector light mounted on square rod. The light source with optical glass lens, creates a bright and sharp spot of light.

Specifications

- White Color Light Beam
- Power 15W

HA001



Polarizer / Analyzer Holder

The polarizer linearly polarizes the light from the light source. The analyzer records the angle of polarization of light after it passes through a medium. When used together, one can find the total angle of rotation in light.

HA004 - Polarizer Holder

HA006 - Analyzer Holder



Laser Source Holder

An adjustable laser source mounted on a square rod. Laser source has a ball bearing mount. This enable the user to minutely adjust the direction of laser source, during experimentation, to get proper optical alignment.

Specifications

- Red Laser

HA003



Grating Holder

Diffraction grating mounted on a square rod.

Specification

- Diffraction Grating - 500 Lines / Inch

HA008



Converging Lens Holder

Our lens holder can hold 50mm diameter lenses and mirrors for optical bench experiments.
HA010



Solenoid with Variable Turns

Solenoid with variable turns is mounted on square rod. Output terminals are provided at 100, 200, 400 and 600 turns.
HA015



Adjustable Collimating Slit Holder

Precision, spring loaded adjustable slit is mounted on a square rod.

Specifications

- Slit Opening: 4mm (Max.)
HA012



Solenoid with Variable Lengths

Solenoid with variable lengths is mounted on square rod. Output terminals are provided at 30, 60 and 90mm lengths.
HA016



Solenoid with Different Winding Density (Set)

Set of 5 solenoids, each with different turn density (number of turns per unit length). Solenoids are mounted on square rod. spacing between two consecutive turns in the solenoid varies from 0.7 to 4mm.

HA017



Straight Conductor Holder

Straight conductor is mounted on square rod. Solenoid with multiple turns acts a straight conductor along the one open edge of the solenoid.

Specifications

- Wire gauge 21SWG.
- No. of turns 35.

HA018



LDR Module Holder

LDR module is mounted on square rod. LDR module is provided with terminals for easy connections.

HA020



Screen Holder

Black screen mounted on a square rod. Size 110 x 100mm.

HA024



Photodiode Module Holder

Photodiode module is mounted on square rod. Photodiode module is provided with terminals for easy connections

HA021



Light Sensor Holder

Light sensor module, mounted on a square rod, when used with the Data Processor gives precise measurement of light intensity. The least count of 1 Lux provides accurate readings.

HA510



Light Sensor Holder

Light sensor module for use with rotating table assembly (UP030). The light sensor when used with Data Processor measures light intensity at various angles of reflection and gives a continuous smooth curve of angle vs light intensity. The meter reads with a precision of 1 lux.

HA511



Electromagnet Set Assembly

Electromagnet set includes U core, pole pieces coils (x 2) and coils (x 2) mounted on two uprights.

Specifications

- Coils
 - 500 turns
 - Current: 7A(Max.)
 - Wire: 17 SWG, Copper
 - Connections: 4mm safety socket
- U Core
 - 150 x 130mm (Lx H), 40 x 40mm cross section
- Pole Pieces
 - Length = 75mm
 - Material: Ferromagnetic

UP025



Rotating Table Assembly

A simple, smooth and compact rotating table. The rotating table used is extremely smooth to operate. It is a single assembly that holds glass sample, analyzer and light sensor, thus minimizing the size of the whole equipment. Smooth rotation makes measurement continuous and accurate.

UP030

Spectrum Tube Power Supply Assembly

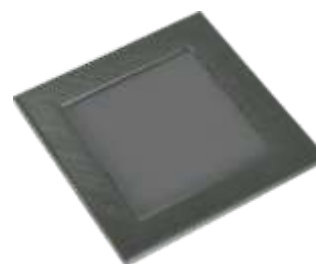
The built-in power supply makes a more compact system with easier changing of the discharge tubes. Easy power connection and no unnecessary wire intrusions.



Specifications

- Input Voltage: 220V, 50 Hz AC
- Output Voltage: 0-5000V (open circuit)
- Socket: Spring loaded

UP040



Analyzer Square

Polarizing sheet in a plastic frame. Size 100 x 100mm.

AC002



Telescope Assembly

The telescope on the rotating table is mounted with bearings for smooth rotation. The diffraction grating mounted is mounted at the center of the rotating table. The telescope is easy to focus and operate. The angle of the rotating arm has a least count of 0.1° for accurate measurement of the spectral lines.

UP035



Glass Block

High grade optical glass block.

Specifications

- Grade - SF6 or Equivalent.
- Size - 20 x 20 x 20mm

AC004



Laser Distance Meter

Portable Laser Distance Meter measures any distance from 0.05 to 40 meters, easily, quickly and with high accuracy. Laser Distance Meter has multi-functions, including self-calibration function, with adjustable range of -9 to 9mm and saves the latest 30 data values. Power is supplied by two AAA batteries (Included)

Specifications

- Designed for Linear, Area and Volume Measurement
 - Range 0.05 to 40m
 - Tolerance $\pm 2\text{mm}$
 - Readability 30 Degrees
- AC010



Spectrum Tubes

Spectrum tubes produce bright, well defined spectral lines when the gas inside the tube is excited before the spectroscope. The glass body is provided with metal end caps and has capillary along the middle portion to concentrate the discharge glow. For use with spectrum tube power supply (UP040)

Specifications

- Length 200mm
- Capillary Length 45mm
- Max. Current 3mA

AC021 - Spectrum Tube, Hydrogen

AC022 - Spectrum Tube, Helium

AC023 - Spectrum Tube, Mercury

AC024 - Spectrum Tube, Krypton

AC025 - Spectrum Tube, Argon



Data Processor

A compact data display system with the ability to capture, process and display multiple sensor data.

Specifications

- 3.5" Touch display interface to able to select which sensor data to be displayed.
 - 3 sensor data can be interfaced at a given point.
 - The Compact Size of 175mm x 100mm x 40mm makes it handy to use.
 - Powered by Micro USB connector makes it more versatile.
- DP1



DIGITAL GAUSS METER

Digital Gauss meter works on the principle of Hall Effect in semiconductor. When a semiconductor with current flowing in one direction is introduced perpendicular to a magnetic field a voltage is produced at right angle to the current path. The magnitude of this voltage is proportional to the intensity of the magnetic field. This voltage is called Hall Voltage. This Hall voltage is amplified and calibrated as magnetic field.

Specifications:

Range: 0-2KG & 0-20KG

Resolution: 1G at 0-2KG range

Display: 3½digit LED

Power Supply: 220 V, $\pm 10\%$, 50 Hz AC

Transducer: Hall probe-InAs

PH93225G



REGULATED DC POWER SUPPLY

Regulated DC Power Supply Unit provides a continuous DC output voltage with excellent load and line regulation at rated current. The voltage output is displayed on analog / digital meter. An internal protection is provided by a slow blow fuse at the primary and overload protection at the output. Power supply operates on 220V, 50Hz input.

	Output Volts	Output Current
PH61022D/2	DC - 0-15V	2 Amp
PH61022D/20	DC - 0-15V	200 mA



ADVANCED POWER SUPPLY

Advanced power supply is specially designed for scientific research and product development in laboratories, universities, colleges and electronic production lines. This instrument is widely used due to its high precision, reliable performance, and perfect overload protection circuit. This power supply provides a continuous DC output voltage with excellent load and line regulation. These power supplies have complete control for both voltage and current output. Dual displays (analog / digital) help continuously monitor both output voltage and current. The power supply has short circuit and overload protection. Power supply operates on 220 V, 50 Hz input.

PH61035D/5	DC - 0-30 V	0-5 Amp
PH61035D/7	DC - 0-30 V	0-7 Amp

Please mention 'A' for analog and 'D' for digital meter at the end of part no. to specify the display required.



TESLAMETER

The teslameter is used for the measurement of flux densities in steady magnetic fields. The unit includes a Hall sensor probe for measuring axial and tangential magnetic fields up to 20mT. The magnetic field probe is provided with a metric scale for measuring distances. In addition to having a digital display, the unit outputs a voltage proportional to the magnetic field which can be measured with a data logger, XY-recorder or analogue multimeter.

PH93240



DIGITAL MULTIMETER, ECONOMY

Specifications:

Resistance: 200 ohm, 2000 ohm, 20k ohm, 200k ohm, & 2000k ohm
 D.C. Voltage: 200 mV, 2000 mV, 20V, 200V & 1000 V
 A.C. Voltage: 200 & 750 V
 D.C. Current: 2000 uA, 20 mA, 200 mA, 10 A
 Testing: Diode, transistor & continuity
 Power: Battery 9 V
 PH64505



BULB HOLDER

MES bulb holder with 4mm sockets. MES bulb not included.
PH50800/A1



ELECTRODE HOLDER

Electrode holder for use with the Basic Electricity Kit
PH50800/A6



CELL HOLDER

Single cell holder with 4mm sockets, ingeniously molded so a cell can only be inserted the correct way around. Takes one D cell (not included).
PH50800/A2



CHANGEOVER SWITCH

Moving the contact directs the current through different circuits.
PH50800/A7



RHEOSTAT, VARIABLE

Vary the current in a circuit using this rheostat.
Supplied with 11Ω coil.
PH50800/A3



MOTOR

Electric motor with drive pulley securely mounted on yellow plastic. For use with the Basic Electricity Kit.
PH50800/A8



PUSH SWITCH

Push switch for use with the Basic Electricity Kit
PH50800/A4



BUZZER

Connect the positive lead to the + terminal.
Takes plugs or use crocodile clips. It features the Buzzer symbol on top.
PH50800/A9



UNIVERSAL CLIP

This Universal Clip holds components and materials for investigation.
PH50800/A5



3-WAY SWITCH

A 3-way switch for use with the Basic Electricity Kit.
PH50800/A10



ON-OFF SWITCH

On/Off switch for use with the Basic Electricity Kit
PH50800/A11



RESISTOR, 470Ω 2W

470Ω 2W Resistor
PH50800/A15



PARALLEL BOARDS

One pair of parallel boards.
PH50800/A12



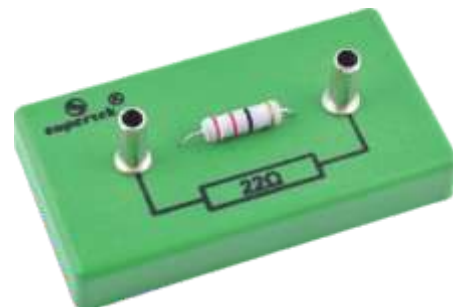
RESISTOR, 100Ω 1W

100 Ω 1W Resistor
PH50800/A16



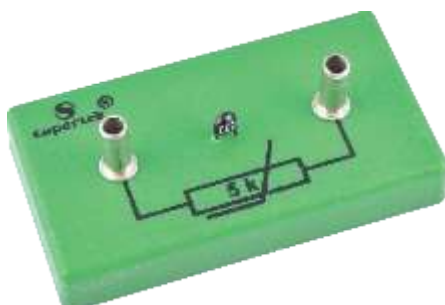
RHEOSTAT COIL, 15Ω

Rheostat Coil 15Ωs
PH50800/A13



RESISTOR, 22Ω 2W

22 Ω 2W Resistor
PH50800/A17



NTC THERMISTOR, 5KΩ

5kΩs NTC Thermistor
PH50800/A14

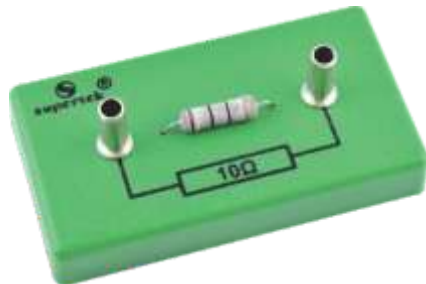


RESISTOR, 47Ω 2W

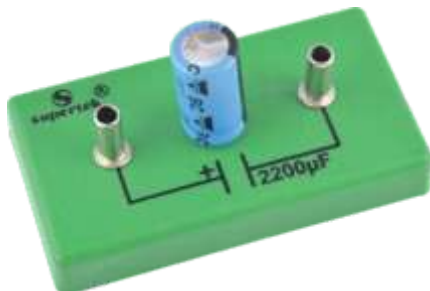
47 Ω 2W Resistor
PH50800/A18



RESISTOR, 1KΩ 0.5W
1KΩ 0.5W Resistor
PH50800/A19



RESISTOR, 10Ω 2W
10Ω 2W Resistor
PH50800/A20



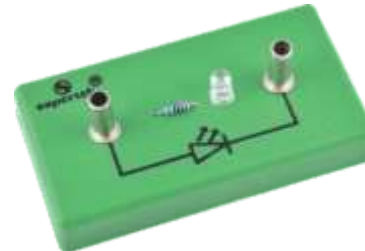
CAPACITOR, 2200UF
2200μF Capacitor
PH50800/A21



SUPER CAPACITOR, 10F
10F Super Capacitor
PH50800/A22



DIODE, 1N5408
A general-purpose diode, 3A maximum current
PH50800/A23



WHITE LED 30mA MAX
White LED with a forward voltage of 3V and max current of 30mA.
PH50800/A24



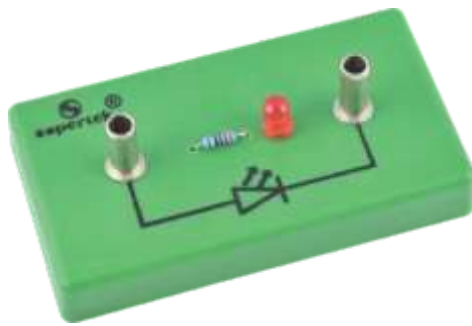
POTENTIOMETER, 100Ω 1W
100Ω 1W Potentiometer
PH50800/A26



REED SWITCH
Reed switch for use with the Basic Electricity Kit
PH50800/A27



GREEN LED
Mounted green LED bulb with 4mm sockets.
PH50800/A28



RED LED

Mounted red LED bulb with 4mm sockets.
PH50800/A29



1000uF CAPACITOR 25V

1000uF Capacitor 25V
PH50800/A34



VOLTMETER

This simple, miniature, voltmeter is an ideal way to make Voltage measurements in electrical circuits.

Specification:

Maximum Voltage 20V dc
Resolution 10 mV
Accuracy $\pm 2\%$
Input impedance 1M Ω
Connectors 4mm
PH50800/A30



4700uF CAPACITOR 25V

4700uF Capacitor 25V
PH50800/A35



AMMETER

This simple, miniature, ammeter is an ideal way to make current measurements in electrical circuits. The ammeter is overload protected.

Specification:

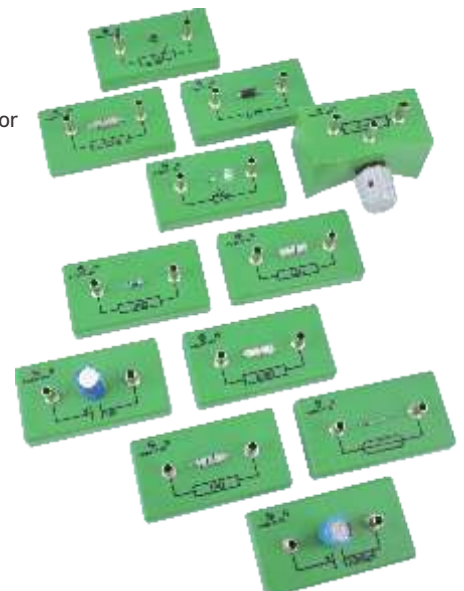
Maximum current 2ADC
Resolution 10 mA
Accuracy $\pm 2\%$
Input impedance 300 m Ω
Connectors 4mm
PH50800/A31

COMPLETE KIT, ADVANCED

Kit Contains:

- 5K Ω Thermistor
- 1N5408 Diode
- White LED (30mA Max)
- 100 Ω 1W Variable resistor
- 1k Ω 0.5W resistor
- 470 Ω 2W resistor
- 100 Ω 1W resistor
- 47 Ω 2W resistor
- 22 Ω 2W resistor
- 10 Ω 2W resistor
- 2200uF capacitor
- 10F super capacitor
- Reed switch

PH50808



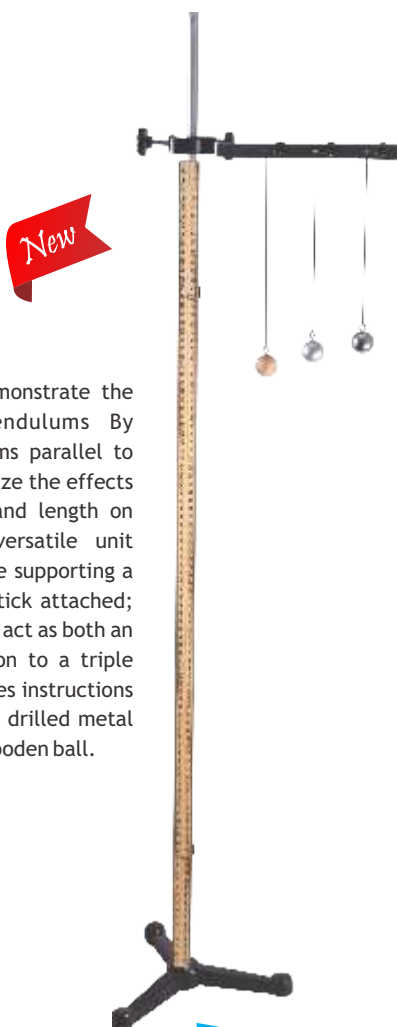


PH10538N

SMART PHOTOGATE TIMER

Photogate timer has been designed to measure the time interval between two photogates. It can measure the time it takes to pass through one photogate, measure acceleration of a released ball, determine the acceleration due to gravity (with a picket fence), determine elastic and inelastic collision times, calculate cycles, determine the period of a pendulum, count interrupts and time with stop watch with great accuracy. All the results are displayed on a LCD Display. This timer allows you to watch the experiment as it happens and perform calculations easily and accurately. Includes a magnetic ball drop.

PH10538N



PH10566B

PENDULUM ON STAND

Everything You Need to Demonstrate the Properties of Simple Pendulums By suspending several pendulums parallel to one another, you can dramatize the effects of such variables as mass and length on pendulum behavior. This versatile unit consists of a heavy steel base supporting a aluminum rod, with meter stick attached; an adjustable slide which can act as both an index and a stop; in addition to a triple pendulum clamp. Also includes instructions and three balls — two 25mm drilled metal balls and one 25mm drilled wooden ball.

PH10566B

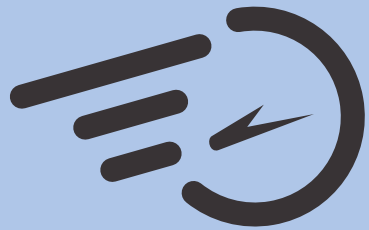


PH30375L

LED RAY BOX

A metal Ray Box comprises of a die cast enclosure, delivers white light but runs much cooler than conventional ray boxes. It uses the latest cool ultra bright LED technology giving superior white light. Supplied complete with slit plate and battery pack (2 x AA size batteries are not included).

PH30375L



PH36018B

HAND VACUUM PUMP

The vacuum pump is made of durable plastic. It can easily provide a vacuum of 500mmHg by pumping its handle, the pumping rate of which is about 15ml per pumping. The pump itself is sealed and self lubricated. By changing its working mode, the pump can be used to establish air pressure as high as approx. 2 atm. It is a must for middle and primary school laboratories.

PH36018B

ELECTRONIC FREQUENCY CONTROLLER

Electronic Frequency Controller for use with ripple tank, to operate both the vibrator and a lamp for illumination. A digital display with two control knobs one for Frequency and another for amplitude are provided. Output signal is square wave from 1-100 Hz with increment set of 1Hz.

PH36069



PH36069



PH45271

COULOMB METER

Coulomb Meter is designed to use as a digital electroscope. The LCD display will show the number of coulombs deposited into the instrument either by source of static electricity (a charged plastic rod) current through a resistance or from a capacitor. This instrument shows the charge digitally in Coulombs up to 1999 nC. Accuracy ± 10 nC.

PH45271

DEMONSTRATION TRANSFORMER SET, ADVANCED

The classic demonstration transformer apparatus is added with some additional safety features. Rather than the traditional mains (220-230 V AC) coil we have designed a dedicated Demonstration Transformer Power Supply with fixed (25 V AC) voltage and high current output to which 100-turn or 150-turn mains coil substitutes connect. The advantage is that no lethal mains voltage is involved, instead the voltages to these mains coil replacements is 25V AC and so safe. Additional AC and DC outputs are provided up to 4V for other experiments.

Includes:

1. U and I Core Set
2. 100 and 150 Turns Mains Coil Substitute for use with power supply ((PH50172AC/3)
3. 300, 600, 600-0-600, 900, 1800 turns coils.

Additional Items Required but Not Included:

1. Induction Accessory Set (PH50172AC/1)
 2. Motor Accessory Set (PH50172AC/2)
 3. Demonstration Transformer Power Supply (PH50172AC/3)
- PH50172A



PH50172A



PH50172AC/1

DEMONSTRATION TRANSFORMER INDUCTION ACCESSORY KIT

Includes:

1. Copper Coil - With screw clamps to hold a nail for the nail melting demonstration.
2. Nails - Steel flat-headed nails 65 x 3 mm or 2½ x 1/8 inch, some with a central groove making the nail thinner at that point.
3. Solid and Split Aluminium Rings-Two solid and one split for the ring-launching demonstration.
4. Solder Trough - Effectively a single turn coil in the form of a circular trough. Approximately 300 mm of solder is formed into a 50 mm dia meter circle to lie in the trough.

PH50172AC/1

DEMONSTRATION TRANSFORMER MOTOR ACCESSORY KIT

Includes:

1. Vertical Support Rod
2. Pair of Aluminium Quadrant Plates
3. Aluminium Motor Disc
4. Pole Pieces
5. Clamping screws and Support rod

PH50172AC/2



New

PH50172AC/2



New

PH50172AC/3

DEMONSTRATION TRANSFORMER POWER SUPPLY (PH50172AC/3)

The demonstration transformer power supply is a unique power supply designed for use specifically with the Demonstration Transformer (PH50172A and PH50172S).

- Output Voltage: Fixed output of 4 & 8V DC @ 5A, 2 & 4V AC @ 5A
- Output Voltage for Mains Coil Substitute: 4V @ 10A
- With Resettable short circuit protection.

PH50172AC/3

DEMONSTRATION TRANSFORMER SET, STANDARD

The standard demonstration transformer set allows users to use the traditional 800 turns mains coil instead of the dedicated power supply. This is a more economical option but users do not benefit from the enhanced safety features of Demonstration Transformer Set.

Includes:

4. U and I Core Set
5. 800 Turns Mains Coil
6. 300, 600, 600-0-600, 900, 1800 turns coils.

Additional Items Required but Not Included:

4. Induction Accessory Set (PH50172AC/1)
5. Motor Accessory Set (PH50172AC/2)

PH50172S



New

PH50172S



PH62053

POWER SUPPLY E.H.T.

A floating, high voltage power source useful for supplying charge for quantitative electrostatic experiments, gas discharge tubes / spectrum tubes. Continuously variable output up to 6 KV DC. 6V/2AAC or 12V/2AAC filament heating supply, insulated for EHT Voltages. Current limited output: 0-6 KV DC, 50 μ A with 50M Ω resistor is also provided in this power supply. A rotary control knob provided on the front panel to adjusts the EHT output. Non-hazardous maximum load capacity of 3mA (short circuit current). A digital/analog meter is provided on the front panel to set the required voltage. All outputs via clearly marked 4mm shielded sockets. Both input and output fuse protected. Plastic Box with Indicator type ON/OFF switch. Supplied complete with detachable mains lead.

Please mention 'A' for analog and 'D' for digital meter at the end of part no. to specify the display required.

PH62053

MICRO VOLTMETER

The Micro voltmeter is an effective and robust replacement for a spot galvanometer, with 9 ranges from 100 μ V to 1V. The input resistance of 1k Ω gives 10M Ω /V on 100 μ V range, which is considerably better than a spot galvanometer. The instrument has a large moving coil meter, with auto-zero facility. Input is by way of 4mm sockets or a BNC socket, for very low voltages where a shielded lead is preferred.

- An effective and robust replacement for a centre-zero galvanometer
- 10 M Ω /V on 100 μ V range - considerably better than a spot galvanometer
- Auto-zero facility

PH64304



PH64304

ADVANCED SIGNAL GENERATOR

The advanced signal generator is a versatile unit that has both high and low impedance outputs, making the unit ideal for driving vibration generators and loudspeakers whilst an internal speaker (which can be turned on or off) can be used to demonstrate the human hearing range. The unit also includes an auxiliary input for amplifying external sound signals. A separate headphone socket lead and 4mm adapter is also available to transfer the various sound signals into the signal generator.

- Frequency range: 1 to 110 kHz in 5-decade range
- Waveforms: Sine, square or triangular.
- Digital LED display
- Low impedance output x watts: Perfect for driving vibration generators or loudspeakers
- High impedance output: Can be attenuated by a factor of 10 or 100
- Built-in loud speaker (can be switched off)
- Internal short circuit protection
- Amplitude and frequency modulation options
- Input impedance: 1MW Frequency response 1Hz to 100kHz, -3dB
- Output power: 4W into 4W load

PH93210G



PH93210G

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ACHIEVEMENTS

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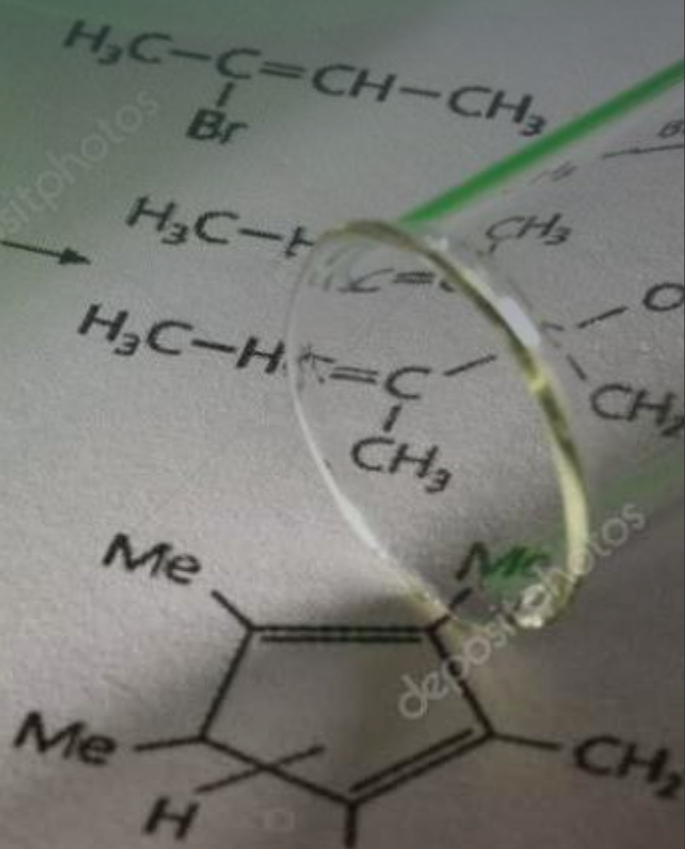
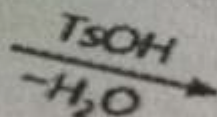
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CHEMISTRY & LAB SUPPLIES

2020



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Infrastructure



Achievements



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ABSORPTION TUBE, CALCIUM CHLORIDE

Borosilicate Glass, straight form, with one bulb.

	Length, mm	Diam., mm
CH10010/1	100	12
CH10010/3	120	15
CH10010/5	150	18

ABSORPTION TUBE, CALCIUM CHLORIDE

Borosilicate Glass, U form.

	Length, mm	Diam., mm
CH10012/1	100	12
CH10012/3	120	15
CH10012/5	150	18



ABSORPTION TUBE, CALCIUM CHLORIDE

Borosilicate Glass, with side arms.

	Length, mm	Diam., mm
CH10015/1	100	12
CH10015/5	120	15
CH10015/7	150	18



ABSORPTION TUBE, CALCIUM CHLORIDE

Borosilicate glass, with side arms. Limbs closed by hollow glass stoppers.

	Length, mm	Diam., mm
CH10018/1	100	12
CH10018/3	125	20
CH10018/5	150	25



ASPIRATOR BOTTLE

Glass, with ground stopper and tubule.

	Capacity, Liter
CH10020/1	1
CH10020/2	2
CH10020/4	2.5
CH10020/6	3
CH10020/8	5



ASPIRATOR BOTTLE

Borosilicate glass, with socket at bottom.

	Capacity, ml
CH10022/1	250
CH10022/3	500
CH10022/5	1000

ASPIRATOR BOTTLE

Borosilicate glass, with interchangeable stopper and stopcock.

	Capacity, Liter
CH10024/1	1
CH10024/2	2
CH10024/3	5

ASPIRATOR BOTTLE, POLYTHENE

Polythene, autoclavable.

The leakproof spigot screwed to the bottle body requires only a half turn to open or close. Threads should be totally disengaged before Autoclaving.

	Capacity, Liter
CH10026/10	2
CH10026/1	5
CH10026/3	10
CH10026/5	20



AUTOCLAVE, GAS

Suitable for natural/bottled gas. The container is made of seamless aluminium body and lid. A rubber gasket makes the lid and body airtight with help of tightening bolts and nuts. Lid is fitted with pressure gauge and double safety valve. Pressure 15 psi.

	Diam., cm	Ht., cm
CH10027G/1	30	30
CH10027G/3	30	38

**AUTOCLAVE, ELECTRIC**

Made of seamless aluminium body and lid. The lid is fitted with pressure gauge and double safety valve. Fitted with 2 kW heater. Pressure 15 psi

	Diam., cm	Ht., cm
CH10027E/1	30	30
CH10027E/3	30	38

**AUTOCLAVE, PORTABLE SINGLE DRUM**

- Portable single drum Autoclave, highly efficient apparatus designed to meet the requirements of Labs.
 - Very simple to operate and economical to use.
 - The container is seamless made of thick stainless steel.
- CH10027P

**AUTOCLAVE**

Stainless Steel

- Stainless steel seamless sterilizer.
- Thermally insulated and vulcanized polychloroprene (Synthetic Rubber) gasket.
- Easy and safe handling.
- Works on any fuel e.g. charcoal, kerosene, Gas or electricity.
- Size 350 mm (diam.) x 300-325 mm (height)

CH10027S

**BALANCE, BERANGER**

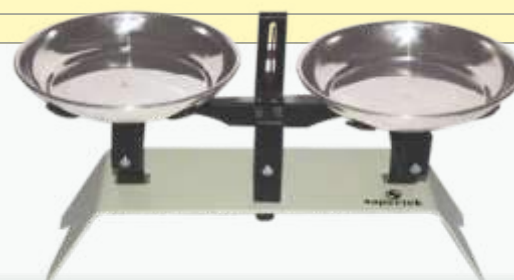
Beam with central knife edge and pointer, with two pans and heavy base.

	Capacity, Kg
CH10028/1	2
CH10028/3	5
CH10028/5	10

BALANCE, ROBERVAL

Simple Model, body made of steel plate and pans are of metal.

	Capacity, Kg
CH10030/1	2
CH10030/3	5





BALANCE, DOUBLE BEAM

Two pan balance for accurate and rapid weighing upto 2 kg. The balance has two beams with centre reading sliding masses. These weigh up to 0-200 gm x 10 gm & 0-10 gm x 0.1 gm, total 210 gm. Supplementary masses extend the range to 2 kg. With spring loaded zero adjuster and magnetic damping. With stainless steel pans of 150 mm diameter.

CH10031



BALANCE, PHYSICAL

General purpose balance for student use. Cast alloy beam fitted with balancing nuts, agate bearings and knife edges. The hangers have double hooks for specific gravity experiments. Detachable nickel plated brass pans, enamelled central pillar, and plumb line, mounted in polished wooden case with levelling screws

Capacity 250 gm, sensitivity 2 mg.

CH10035



BALANCE, SINGLE PAN

Single pan balance, cap. 311 gm x 10 mg with 4 beams each provided with a non-removable slider and graduated 0 to 200 x 100 g, 0 to 100 x 10 g, 0 to 10 x 1 g and 0 to 1 g x 10 mg respectively. Additional masses are not required. With zero adjustment and stainless steel pan 90mm diameter with 2 pouring spouts and handle. A platform housed in the base can be used for density determination.

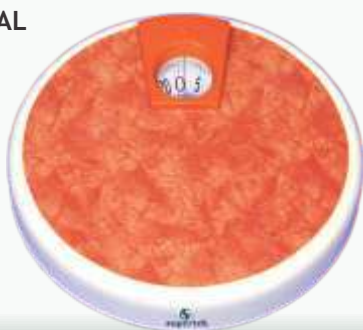
CH10032

BALANCE, TRIPLE BEAM CH10045
SEE PAGE NO.4

PLATFORM SCALE, PERSONAL WEIGHING MACHINE

Range 125 x 0.5 kg.

CH10033



BALANCE, CHEMICAL

Advanced, Beam engraved with a rider scale, for use with 10 mg rider, balancing nuts, agate bearings and knife edges. Fitted on a wooden board in a polished wooden case. Capacity 200 gm, sensitivity 0.5 mg.

CH10036



BALANCE, ANALYTICAL

Short triangular beam, with rider scale. The beam supports are extended and relieve the agate knife edges when at rest. Pillar is highly finished and removable pans are suspended by stirrups from double hooks. The balance is mounted in a polished wooden case, fully glazed. Complete with rider slide, leveling screws.

Capacity 200 gm, sensitivity 0.1 mg.

CH10037

BALANCE MASS SET, PHYSICAL

Brass, chrome plated, in case with lid, complete set with forceps and light metal fractional weights.

CH10038/1	1 mg to 50 gm
CH10038/3	1 mg to 100 gm
CH10038/5	1 mg to 200 gm
CH10038/7	1 gm to 1000 gm



BALANCE MASS SET, ANALYTICAL

Brass, chrome plated, complete set with light alloy fractional weights, 10 mg rider and forceps, in a nicely polished case. Accuracy class B.

CH10042/1	1 mg to 50 gm
CH10042/3	1 mg to 100 gm
CH10042/5	1 mg to 200 gm



BALANCE, TRIPLE BEAM

Single pan, to weigh up to 2610 gm. The balance has three beams with sliding masses giving weighing capacity of 610 gm which can be increased to 2610 gm with three supplementary masses. Stainless steel pan of 150 mm diam. Provided with spring loaded zero adjuster and magnetic damping for rapid weighing.

CH10045	Beams	0-500 x 100 gm
		0-100 x 10 gm
		0-10 x 0.1 gm



BALANCE, LEVER, DUAL SCALE

A simple single pan balance with two ranges 0-250 x 1 gm and 0-1000 x 5 gm. Die cast aluminum alloy frame, other parts are chrome plated. With leveling screw to set zero and a pointer for reading without parallax error. With detachable pan having a hook for experiments on specific gravity.

CH10060



BALANCE, TABLE TOP

- High resolution upto 30,000 counts
- Easy to read High bright red LED display
- Built in rechargeable battery for continues use
- Rust proof stainless steel platter
- Fast weighing response time
- Overload protection design
- Auto Power Off, Battery Indicator
- RS-232C Interface (Optional)

	Capacity, kg	Readability, gm	Pan size, mm
CH10062/1	3	0.1	210 x 260
CH10062/2	10	0.5	210 x 260
CH10062/4	30	1	210 x 260



BALANCE, ECONOMIC COMPACT

- Compact and space saving
- High quality LED / LCD Display
- Simple Battery Operation (Six AA size)
- DC Adaptor available is it optional
- Auto zero tracking
- Low battery indicator
- Auto calibration with External Weight
- Stable indicator accurate result

	Capacity, gm	Readability, gm	Pan size, mm
CH10066/1	300	0.01	Dia. 120
CH10066/2	600	0.1	155 x 155
CH10066/3	3000	0.5	155 x 155
CH10066/4	6000	1	155 x 155

BALANCE, TABLE TOP

- High resolution up to 30,000 counts
- Easy to read High bright red LED display
- Built in rechargeable battery for continues use
- Rust proof stainless steel platter
- Fast weighing response time
- Overload protection design
- Auto Power Off, Battery Indicator
- RS-232C Interface (Optional)

	Capacity, Kg	Readability, gm	Pan size, mm
CH10064/1	10	0.1	230 x 320
CH10064/3	20	0.1	230 x 320
CH10064/5	30	0.1	230 x 320

Refer
Physics
Catalogue
For
Spring
Balances

BALANCE, PRECISION

- 2,00,000 Internal Resolutions
- Multifunction Weighing Units
- RS 232 Interface Available
- Overload Protection Design
- Auto Zero tracking, Low Battery Indicator
- Auto Calibration with External Weight
- Easy to read LCD Display with back light
- S.S. Weighing Pan, Level indicator, Adjustable Fit
- High Resolution, Quick Weighing, Accurate Result
- In built rechargeable battery for continues use

- Response Time : 3 - 4 Sec.
- Calibration : Automatic External
- Tare Range : Full
- Operating Temp. : 10°C to 40°C
- Housing Dimension : 316 x 210 x 308 mm
- Weight Approx. : 6 kgs.



	Capacity, gm	Readability, gm	Repeatability, gm	Linearity, gm	Pan size, mm
CH10068/2	200	0.001	0.001	0.002	80
CH10068/3	300	0.001	0.001	0.002	80

BALANCE, HIGH PRECISION

- Automatic External Calibration
- Multifunction Weighing Units
- A built in under hook for below weighing
- Easy to read VFD Display
- Density measurement (Optional)
- Standard RS 232 C Interface
- High Resolution, Quick Weighing1
- Based on E.M.F.C. Technology
- Percentage (%) Weighing
- Tare range upto max.
- Capacity of the Balance
- Counting Weighing Mode
- Accurate Result

- Response Time : 3 - 4 Sec.
- Calibration : Automatic External
- Tare Range : Full
- Operating Temp. : 10°C to 40°C
- Housing Dimension : 330 x 200 x 100 mm
- Data Output : RS232C
- Weight Approx. : 8.5 kgs.



	Capacity, gm	Readability, gm	Repeatability, gm	Linearity, gm	Pan size, mm
CH10070/2	3000	0.01	± 0.01	± 0.02	150



BAROMETER, ANEROID, WALL TYPE

100 mm dial graduated from 28" to 31" and 940 to 1040 millibars, with an index pointer, with transparent top cover, mounted in plastic case 160 mm diam approx.

CH10073



BAROMETER, ANEROID, DEMONSTRATION

100 mm dial graduated from 28" to 31" and 940 to 1040 millibar, with an index pointer, demonstration type, in transparent plastic case with pressure pump. For educational demonstration purpose only.

CH10075

BAROMETER, FORTIN'S

For school/college laboratories. Nominal 6 mm bore glass tube. With engine divided dual scales 675 to 820 x 1 mm Hg and 26.5 to 32.5 x 0.05 inch Hg. Verniers reading 0.05 mm and 0.002 inch. Mounted on polished wooden board for wall mounting. Supplied without mercury but with instructions for filling.

CH10076



BASINS, EVAPORATING

Porcelain, round form, with lip, both sides glazed. For bigger dishes, glazed inside and partially outside.

	Diam., mm	Capacity, ml
CH10110/1	25	8
CH10110/2	40	15
CH10110/3	50	20
CH10110/4	60	40
CH10110/5	75	100
CH10110/6	85	125
CH10110/7	100	175
CH10110/8	110	275
CH10110/9	125	450
CH10110/10	140	500
CH10110/11	150	850
CH10110/12	175	1300
CH10110/13	200	1700
CH10110/14	250	3300
CH10110/15	300	4500
CH10110/16	350	7500
CH10110/17	400	14000



BASINS, EVAPORATING

Porcelain, flat form, with lip, both sides glazed

	Capacity, ml	Diam., mm	Ht., mm
CH10115/1	35	65	16
CH10115/2R	50	75	20
CH10115/3	80	85	22
CH10115/4	100	100	23
CH10115/5R	200	110	34
CH10115/6	300	150	29

EVAPORATING BASIN HT (ROUND FORM)

Evap. Dish, Round Form with lip. High Temp. Export Quality, Glazed inside and outside both side. For bigger Dishes, glazed inside and partially outside.

	Capacity, ml	Diam., mm	Ht., mm
CH10116/1	35	60	24
CH10116/3	70	75	30
CH10116/4	80	80	30
CH10116/5	120	94	42
CH10116/7	150	100	42
CH10116/9	250	115	45
CH10116/10	385	145	48
CH10116/11	525	162	51
CH10116/13	765	185	54
CH10116/15	1285	215	75



**BASIN, EVAPORATING (SHALLOW FORM)**

Evaporating Dish, with lip, shallow form, rounded bottom edge, vertical sides, glazed inside and outside except for bottom and rim.

	Capacity, ml	Ht., mm	Diam., mm
CH10117	100	32	77

**BASIN, FUSED SILICA/QUARTZ**

Round bottom, with spout, translucent.

	Ht., mm	Diam., mm	Capacity, ml
CH10119/1	23	55	20
CH10119/2	27	75	45
CH10119/3	36	94	85
CH10119/4	45	100	100

BASIN, FUSED SILICA/QUARTZ

Flat bottom, with spout, translucent.

	Ht., mm	Diam., mm	Capacity, ml
CH10121/1	15	69	20
CH10121/2	15	79	25

BATH, SAND

Shallow form, made of thick G.I. sheet.

	Diam., mm
CH10122/1	125
CH10122/2	150
CH10122/3	200

**WATER BATH**

Hemispherical, made of thick copper sheet, with a set of concentric rings and 2 handles.

	Diam., mm
CH10122H/1	100
CH10122H/2	125
CH10122H/3	150
CH10122H/4	200

**WATER BATH, ELECTRIC**

Aluminium body, concentric rings, with constant level device and 1 kW heater with automatic cut-out, size 145 x 200 mm (Ht x Diam). Complete with connector plug and 1 meter of 3 core cable.

CH10122E

**WATER BATH, RECTANGULAR, ELECTRIC**

Single wall, chamber made of stainless steel, having 75 mm holes and concentric rings at top with tubules for water level arrangement. 1 kW heater with cut-out device. Complete with connector plug and 1 meter of 3 core cable.

CH10122S/1	300 x 250 x 100 mm (6 Hole)
CH10122S/2	425 x 325 x 100 mm (12 Hole)



WATER BATH, RECTANGULAR, ELECTRIC

Double walled, inner chamber of stainless steel, outer made of stove enamelled mild steel. Top has 75 mm holes with concentric rings. Temperature range upto 100°C, accuracy $\pm 1^\circ\text{C}$, Heater fitted with automatic cut-out device, thermostat, two indicator lights, mains switch. Works on 220-240V, 50 Hz.

CH10123/1	300 x 250 x 100 mm (6 holes)
CH10123/2	425 x 325 x 100 mm (12 holes)



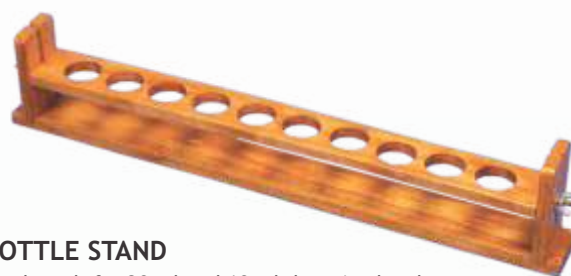
WATER BATH, SEROLOGICAL

Double walled, inner chamber of stainless steel, outer made of stove enamelled mild steel, with insulation in between, Thermostatic temperature control from 5°C above room temperature to 95°C with accuracy $\pm 0.5^\circ\text{C}$. Bath has a stainless steel dome cover, perforated and removable shelves, drain plug, two indicator lights, thermostat control knob, heater with automatic cut-out. Works on 220-240 V, 50 Hz. With connector plug and 1 metre of 3 core cable. Supplied without racks.

	Inner chamber size, mm
CH10124/1	300 x 250 x 175 (for 2 racks)
CH10124/2	325 x 300 x 175 (for 4 racks)
CH10124/3	450 x 300 x 175 (for 6 racks)

BLOW PIPE

Nickel plated brass, curved head, length 18 cm.
CH10126



BOTTLE STAND

Hardwood, for 30 ml and 60 ml dropping bottle.

CH10128/1	6 holes
CH10128/2	12 holes



BEAKERS

Polypropylene, have excellent clarity and good chemical resistance, raised graduation on outer surface. With spout. Polypropylene.

	Capacity, ml
CH10155/2	25
CH10155/1	50
CH10155/3	100
CH10155/7	250
CH10155/9	500
CH10155/11	1000
CH10155/13	2000
CH10155/15	5000

Refer
Glassware
Catalogue
For Glass
Beakers



BEAKERS, TPX

- Manufactured from high purity polymethyl pentene (TPX).
- Tapered stacking style saves space and make it easy to handle.
- All sizes have easy to read silk-screened graduations.
- Precise pouring spouts.
- Can be autoclaved.

	Capacity, ml
CH10157/1	50
CH10157/3	100
CH10157/5	250
CH10157/7	500
CH10157/9	1000
CH10157/10	2000
CH10157/11	5000
CH10157/12	10000



BEAKERS SET

Available in polypropylene/polycarbonate, these beakers are with screen printed graduation. Set of five beakers (one each of 50, 100, 250, 500 and 1000 ml)

CH10160	Polypropylene
CH10162	Polycarbonate



BEAKERS, WITH HANDLE (MEASURING JUGS)

Polypropylene, autoclavable and have non-drip spout. These jugs have raised graduations, provide excellent contact clarity and are provided with excellent thumb grip on handle.

	Capacity, ml
CH10165/1	500
CH10165/3	1000
CH10165/5	2000
CH10165/7	3000
CH10165/9	5000



BEAKERS, WITH HANDLE DUAL SCALE

Molded in polypropylene are autoclavable and have excellent contact clarity when filled with liquids. The unique feature of these jugs is the dual graduation scale which can measure the liquids in ml as well as in US Oz. These permanently raised molded graduations are very well visible. These jugs have excellent chemical resistance. Thumb grip on handle makes handling more convenient.

	Capacity ml
CH10166/3	500
CH10166/4	1000
CH10166/5	2000
CH10166/6	3000

BEAKERS, WITH HANDLE, TPX

- Manufactured from high purity polymethylpentene (TPX)
- Rectangular handle for easy carrying and pouring
- All sizes have easy to read silk-screened graduations
- Precise pouring spouts
- Can be autoclaved

	Capacity, ml
CH10167/1	100
CH10167/2	250
CH10167/3	500
CH10167/4	1000
CH10167/5	2000
CH10167/6	5000
CH10167/7	10000





BEEHIVE SHELF

Porcelain, glazed inside and outside top diameter.

	Diam., mm
CH10175/1	60
CH10175/3	75
CH10175/4	85
CH10175/5	100

BELL JAR

Glass, with knob at top, ground rim.

	Ht., mm	Diam., mm
CH10177/1	200	100
CH10177/2	225	150
CH10177/3	400	250
CH10177/4	450	250



BELL JAR

Glass, with ground glass stopper at top, ground rim.

	Ht., mm	Diam., mm
CH10179/1	200	100
CH10179/2	225	150
CH10179/3	400	250
CH10179/4	450	250



BOTTLE, REAGENT

Soda Glass, Narrow mouth with dust proof flat stopper.

Clear glass	Amber glass	Capacity, ml
CH10210/1	CH10215/1	30
CH10210/2	CH10215/2	60
CH10210/3	CH10215/3	125
CH10210/5	CH10215/5	250
CH10210/6	CH10215/6	500
CH10210/7	CH10215/7	1000
CH10210/8	CH10215/8	2000



BOTTLE, REAGENT

Soda Glass, Wide mouth with dust proof flat stopper.

Clear glass	Amber glass	Capacity, ml
CH10217/1	-	30
CH10217/2	-	60
CH10217/3	CH10220/3	125
CH10217/4	CH10220/4	250
CH10217/5	CH10220/5	500
CH10217/6	CH10220/6	1000
CH10217/7		2000



BOTTLE, REAGENT

Borosilicate Glass, with acid proof polypropylene stopper.

Clear glass	Amber glass	Capacity, ml
CH10225/1	CH10230/1	30
CH10225/2	CH10230/2	60
CH10225/3	CH10230/3	125
CH10225/4	CH10230/4	250
CH10225/5	CH10230/5	500
CH10225/6	CH10230/6	1000
CH10225/7	CH10230/7	2000

BOTTLE, DROPPING

T.K. Pattern, with grooved glass grip stopper and spout.

Clear glass	Amber glass	Capacity, ml
CH10258/3	CH10260/3	30
CH10258/5	CH10260/5	60
CH10258/7	-	125



BOTTLE, REAGENT

Polypropylene, with screw cap.

Narrow Mouth	Wide Mouth	Capacity, ml
CH10250/10	-	4
CH10250/12	-	8
CH10250/14	-	15
CH10250/16	CH10252/10	30
CH10250/1	CH10252/1	60
CH10250/3	CH10252/3	125
CH10250/5	CH10252/5	250
CH10250/7	CH10252/7	500
CH10250/9	CH10252/9	1000

BOTTLE, DROPPING

T.K. Pattern, plastic.

	Capacity, ml
CH10264/5	60
CH10264/7	125



BOTTLE, PIPETTE DROPPING

Pipette dropping bottle having a three piece pipette section comprising a glass stopper, high density polythene stopper with dust-proof head & vinyl teat. Both stopper & teat are highly resistant to chemical attack by acid & alkalis.

Clear glass	Amber glass	Capacity, ml
CH10254/1	CH10256/1	30
CH10254/3	CH10256/3	60
CH10254/5	CH10256/5	125



BOTTLE, MC CARTNEY (BIJOU)

Narrow mouth, clear glass, with aluminium screw cap and rubber liner, autoclavable.

	Capacity, ml
CH10266/1	7
CH10266/3	14
CH10266/5	28



WIDE MOUTH SQUARE BOTTLE

This autoclavable bottle, made of Polypropylene, can be used for storing & shipping chemicals & reagents. Being wide mouthed, it is always convenient to pour in & take out the reagents. The built in depressions on two sides provide excellent grip while holding this bottle .

	Capacity, ml
CH10282	4000



WASH BOTTLE

Low Density polyethylene squeeze bottle with jet through screw cap.

	Capacity, ml
CH10275/1	125
CH10275/3	250
CH10275/5	500



HEAVY DUTY VACCUM BOTTLE

This autoclavable bottle, made of Polypropylene, has thick walls, is rugged & can be used for repeated applications of vacuum .

	Capacity, ml
CH10284	2000



WASH BOTTLE

Made of Low Density Polyethylene, translucent & unbreakable. With built in delivery tube making it a one piece wash bottle. These bottles are graduated on the outer surface to give an approximate idea about the volume of solution filled or dispensed.

	Capacity, ml
CH10278/1	250
CH10278/3	500
CH10278/4	125

NARROW MOUTH BOTTLE

This autoclavable bottle, made of polypropylene, can be used for storing & transferring chemicals and other reagents safe & sound.

	Capacity, ml
CH10280	4000



CARBOY

Carboys, made of Polypropylene, are much lighter than glass. These autoclavable, dependable & durable Carboys are provided with wide handles making it convenient while carrying or pouring purposes.

	Capacity, Ltr.
CH10286/1	10
CH10286/3	20



CARBOY WITH STOP COCK

Adding in line of Aspirators, these Polypropylene Carboys are autoclavable, dependable & durable. These are also equipped with a leakproof spigot screwed to the body. These carboys are in excellent replacement for glass carboys and are used for storing & dispensing distilled water & other laboratory solutions

	Capacity, Ltr.
CH10288/1	10
CH10288/3	20



**BRUSH, BEAKER**

Hard nylon bristles on twisted G.I. wire, head 140 x 63 mm, overall length 400 mm approx.

CH10305

**BRUSH, BEAKER**

Hard nylon bristles on stainless steel wire, head 150 x 85 mm, overall length 400 mm.

CH10307

**BRUSH, BEAKER**

Hard nylon bristles on wooden handle, head 150 x 75 mm, overall length 325 mm approx.

CH10309

**BRUSH, BOTTLE**

Hard nylon bristles, mounted on twisted G.I. wire, head 120 x 65 mm, overall length 500 mm.

CH10310

**BRUSH, BURETTE**

Hard nylon bristles, mounted on twisted G.I. wire, Available in following sizes

CH10314/1	Head 15 x 150 mm., overall length 900 mm
CH10314/3	Head 25 X 150 mm., overall length 915 mm

**BRUSH, TEST TUBE**

Hard nylon bristles, mounted on twisted G.I. wire, head 90 x 45 mm., overall length 250 mm.

CH10317

**BRUSH, SEMI MICRO TEST TUBES**

For small test tube of 6-10 mm diam., head 10 x 70 mm, overall length 175 mm. Nylon White.

CH10319



BRUSH, FLASK

Hard nylon bristles, mounted on twisted G.I. wire, head 130 x 50 mm. overall length 360 mm.

CH10320



BRUSH, FLASK

For round bottom flask upto 100 mm diam., Nylon bristles on twisted G.I. wire handle. Overall length 330 mm.

CH10322



BRUSH, PIPETTE

Nylon Bristles on twisted G.I. Wire, head size 125 x 10 mm, overall length 650 mm for pipettes and tubes from 8-12 mm dia.

CH10324

BURETTE, ACRYLIC

Transparent acrylic body and a leakproof stopcock fitted with a self lubricating PTFE plug. Each Burette is individually calibrated to give maximum accuracy. Acrylic body is unaffected by dilute mineral acids and bases except Hydrofluoric Acid and Ammonium Hydroxide.

	Capacity, ml	Subdivision, ml
CH10500/1	25	0.1
CH10500/3	50	0.1
CH10500/5	100	0.2



Refer
Glassware
Catalogue
For Glass
Burettes

BURETTE

Glass, with pinch clip, rubber tubing and glass jet.

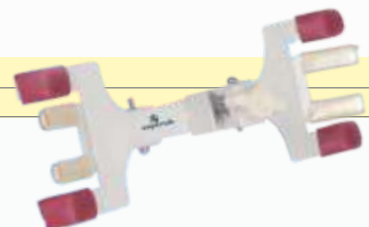
	Capacity, ml	Subdivision, ml
CH10502/1	25	0.1
CH10502/2	50	0.1
CH10502/3	100	0.2

BURETTE CLAMP

Holds burette in vertical position, die pressed burette clamp of plated steel, jaws having V grooves, with boss to accommodate rods upto 16 mm diam.

CH10540/1 For One Burette

CH10540/2 For Two Burettes



BURETTE CLAMP, SHEET METAL

For holding burettes vertically in a retort stand, sheet metal, die pressed with built-in boss head and spring loaded jaws covered with rubber sleeve.

CH10543/1 For One Burette

CH10543/2 For Two Burettes



info@shivsons.com
www.shivsons.com



BURETTE CLAMP, METAL, DIE CAST

Complete body of die cast metal making it light weight, durable and sturdy. Provided with a spring loaded positive grip and release. The special design provides vice like grip to the burette for a positive clamping. Boss head clamp secures a firmly at desired position on the rod of about 13 mm diameter.

CH10546/1 For One Burette

CH10546/2 For Two Burettes



BURETTE CLAMP

High density polythene body, non-corrosive, unbreakable, easy to fit burette, graduation can be seen clearly along its entire length.

CH10550/1 For One Burette

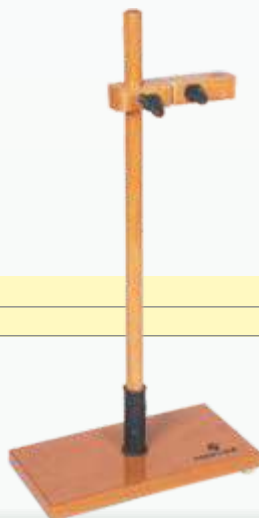
CH10550/2 For Two Burettes

BURETTE STAND

Cork lined wooden clamp with plastic screw, base with four rubber feet, rod fitted with plastic socket with thread which fits into the base, polished.

CH10552/1 For One Burette

CH10552/2 For Two Burettes



BURETTE & FUNNEL STAND

Stand as CH10552 but can hold one burette and one funnel.

CH10557/1



BURETTE DRAINING AND STORAGE

Rack Hardwood construction, for mounting on the wall, holding 12 burettes, capacity 50 ml, in the vertical position. Complete with fixing plates.

CH10560/1

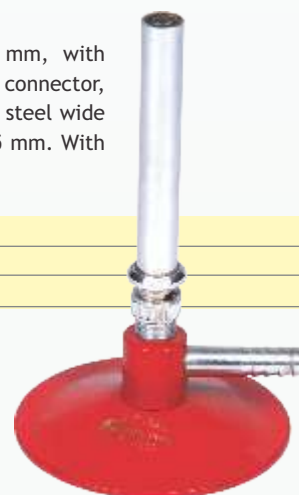
BUNSEN BURNER

Nickel plated burner tube 100 x 12 mm, with adjustable screwed air regulator, rifflled connector, mounted on a stove enamelled, pressed steel wide base of 80 mm diam. Overall height 125 mm. With one spare jet.

CH10600/1 LP (Bottled) Gas

CH10600/3 Natural Gas

CH10600/5 Artificial (Coal) Gas



BUNSEN BURNER, WITH STOPCOCK

As CH10600 but fitted with a stopcock in the inlet tube to control flow of gas.

CH10604/1	LP (Bottled) Gas
CH10604/3	Natural Gas
CH10604/5	Artificial (Coal) Gas



BURNER, NATURAL GAS

Efficient and durable burner. Gas flow is controlled by a needle valve, permitting easy flame adjustment and minimizing possibility of tipping. Air flow is adjusted by a heavy gauge mixing tube threaded into a heavy die-cast zinc alloy base.

CH10606



BURNER WITH FLAME STABILIZER

These burners control gas flow by a needle valve for easy flame adjustment. The stabilizer top allows gas to emerge at a low velocity in an annular ring acting as a pilot for the principal flame and steadying it.

CH10608/1	LP (Bottled) Gas
CH10608/3	Natural Gas



BUNSEN BURNER

Nickel plated burner tube 115 x 13 mm, with rotatable air regulator, riffled connector, mounted on a stove enamelled, heavy die cast base of 80 mm diam, overall height approx. 140 mm.

CH10610/1	LP (Bottled) Gas
CH10610/3	Natural Gas



BUNSEN BURNER

With one piece Die-cast base and riffled Nozzle, Air Regulator.

CH10613/1	LP (Bottled) Gas
CH10613/3	Artificial (Coal) Gas
CH10613/5	LP (Bottled) Gas



BUNSEN BURNER

As CH10613, with Flame retainer for use with Natural Gas.

CH10615



BUNSEN BURNER, ADJUSTABLE

With one piece die-cast heavy base and riffled nozzle and adjustable gas and air inlets. A brass threaded needle valve and a rubber O ring for gas regulation, and air vents for air regulation. With flame retainer at top, for natural gas.

CH10620/1	Natural Gas
CH10620/3	LP (Bottled) Gas



BUNSEN BURNER, MICRO

Miniature, 9 cm high with fine gas control needle and adjustable air regulator, with built-in flame retainer.

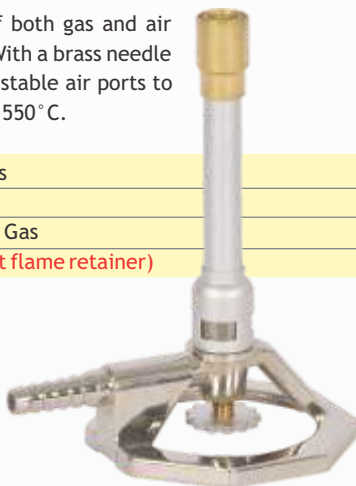
CH10623/1	Natural Gas
CH10623/3	LP (Bottled) Gas

**BURNER TIRRILL**

Tirrill burner allows adjustment of both gas and air supply resulting in a hotter flame. With a brass needle valve to adjust gas supply and adjustable air ports to regulate air supply. Can reach upto 1550 °C.

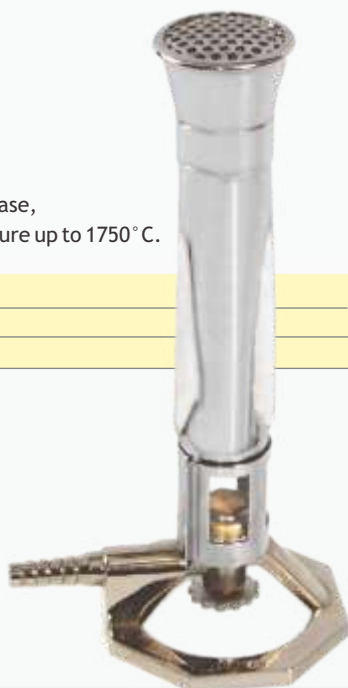
CH10624/1	LP (Bottled) Gas
CH10624/3	Natural Gas
CH10624/5	Artificial (Coal) Gas

Artificial (Coal) gas burner is without flame retainer)

**MEKER BURNER**

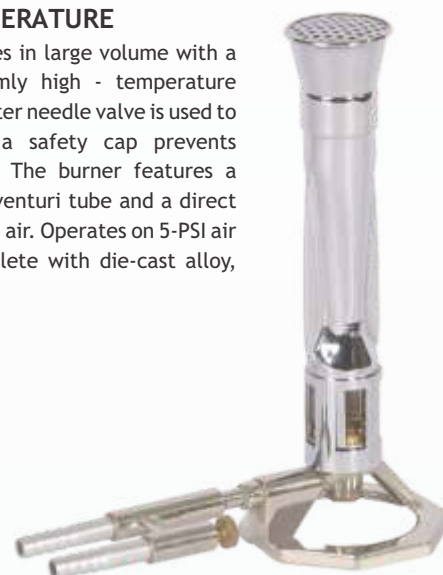
Superior quality, one piece die-cast base, with gas and air regulators, temperature up to 1750 °C.

CH10625/1	LP (Bottled) Gas
CH10625/3	Natural Gas
CH10625/5	Artificial (Coal) Gas

**BURNER, HIGH TEMPERATURE**

Designed to burn all gases in large volume with a short, wide and uniformly high - temperature flame. A special micrometer needle valve is used to regulate the gas and a safety cap prevents dangerous back flashes. The burner features a plated, injector shaped venturi tube and a direct feed inlet for compressed air. Operates on 5-PSI air pressure. Supplied complete with die-cast alloy, plated octagonal base.

CH10626

**BUNSEN BURNER, PILOT FLAME**

With pilot flame, saves time when the burner is only needed on an intermittent basis. Base is stamped steel with chrome plating. Sleeve- type regulator and stopcock for reliable gas control. Pilot light tube has a screw adjustment for flame control.

CH10627

**TECLU BURNER**

Natural gas burner with conical mixing section, screwed air regulator & gas control needle. It gives a very hot flame suitable for glasswork and soldering. Burner tube 125 x 13 mm (H x D). Base dia 80 mm, 9 mm inlet.

CH10628



MEKER BURNER, HEAVY BASE

For high temperature work. Nickel plated burner tube with perforated plate of 25 mm diam. at top, which provides flame stability and ensures high and evenly distributed temperature. With rotatable air regulator around the jet. Heavy wide die cast metal base of 80 mm diam. With riffled gas inlet, overall height 150 mm.

CH10630/1	LP (Bottled) Gas
CH10630/3	Natural Gas



SPIRIT LAMP, POLYHEDRAL SHAPED, GLASS

Polyhedral, heavy duty, complete with cap and one wick. Capacity 100 ml approx.

CH10645

BURNER MEKER - ECONOMY

Economical burner for routine use. The burner comprises of a perforated mesh plate on a nickel plate burner tube with a tapered bottom, mounted on a casted base with riffled gas inlet tube 10 mm OD, burner plate dia 25 mm, Overall height 175 mm base dia 80 mm approx.

CH10632



BURNER TUBE

With reinforced ends for fitting to bunsen burner and gas tap. Length 1 meter.

CH10635



FLAME SPREADER

Produce a fishtail flame for glass working. The 18 mm top is excellent for burners with flame stabilizer.

CH10640



BURNER, METHYLATED SPIRIT

Metal, complete with wick, wick holder and cap.

CH10648/1	Aluminium, 60 ml
CH10648/5	Brass, 60 ml

BURNER, METHYLATED SPIRIT

Glass, with cap, wick and metal wick holder.

	Capacity, ml
CH10642/1	60
CH10642/3	125





ALCOHOL BURNER, WICKLESS

A safe alternative to conventional alcohol burner, chrome plated tank has a screw top with rubber gasket. Uses a copper torch instead of a wick. capacity approx. 100 ml, fully leakproof.

CH10652



CENTRIFUGE, ECONOMICAL

Economical unit for small capacity centrifuging requirements. The standard unit is fitted with resiliently mounted motor with 3500 RPM for vibration free performance, a built in 5 step speed regulator and one non removable angle motor. complete with tube carriers. Available with following angle head rotors.

CH10654/1	15 ml x 4 tubes
CH10654/3	15 ml x 6 tubes
CH10654/5	15 ml x 8 tubes



CENTRIFUGE, UNIVERSAL

Compact model for routine work in laboratories. The special features include easy lid lock, stepless speed regulator and timer. Available with following rotors.

CH10655/1	15 ml x 4 tubes, 5000 RPM, Swing out head
CH10655/2	15 ml x 6 tubes, 5000 RPM, Swing out head
CH10655/3	15 ml x 8 tubes, 5000 RPM, Swing out head
CH10655/4	15 ml x 12 tubes, 4200 RPM, Angle head
CH10655/5	50 ml x 4 tubes, 2800 RPM, Angle head
CH10655/6	50 ml x 6 tubes, 2400 RPM, Angle head



1



2

CENTRIFUGE, MEDICO

For general purpose use in pathology labs, small hospitals, schools and colleges. The centrifuge with 5 step speed regulator is provided with swing out rotor head. Available in two models with 4 x 15 ml and 8 x 15 ml rotors.

Technical Data	CH10656/1 1	CH10656/3 2
Max. speed	3700 RPM	3500 RPM
Max. RCF	1950 xg	1900 xg
Max. tube size	15 ml	15 ml
Max. capacity	60 ml	120 ml
Connected load	0.11 kVA	0.13 kVA



CENTRIFUGE, CLINICAL

For general purpose use in pathology labs, small hospitals, schools and colleges. The centrifuge with 5 step speed regulator is provided with fixed angle rotor head.

Technical Data	CH10658/1	CH10658/3
Max. speed	4500 RPM	4000 RPM
Max. RCF	2050 xg	1650 xg
Max. tube size	15 ml	5 ml
Max. capacity	120 ml	120 ml
Connected load	0.13 kVA	0.13 kVA



CENTRIFUGE, LABORATORY

For Clinical & Pathological Laboratories. Suitable for infertility labs where low speed is recommended.

- Brush less AC Motor
 - Sea thru acrylic lid.
 - Digital Timer 0-99 minutes.
 - Maximum speed 3000 r.p.m. without load and 2850 rpm on load.
 - With 8 x 15ml Swing out head
 - With 8 reduction adpoter to accept test tubes of size 12 x 100 mm.
- CH10671



CENTRIFUGE, MINI

Micro processor controlled Centrifuge machine with speed from 1000 to 10000 r.p.m.

- Digital display of time and RPM
 - High quality brushless Motor
 - R.P.M. in steps of 1000 rpm.
 - Fitted with 0-15 minute electronic digital timer.
 - Completed with one rotor each for 6 micro
 - Centrifuge of 1.5 ml capacity and 12 micro
 - Centrifuge of 0.5 ml capacity.
- CH10670



CENTRIFUGE, MICRO

Microprocessor based high speed Micro Centrifuge Max. R.P.M. 16000
 Heavy duty plastic injection moulded body
 Stainless Steel projection bowl
 Fitted with well balanced universal motor
 Microprocessor based Digital Timer of range 0-15 min. with LCD display.
 Microprocessor controlled Preset speed from 2000 to 16000 r.p.m.
 Digital display shows Set Time/Run Time/R.P.M.
 Rotor head for 12 eppendorf tubes of 1.5ml/2ml.

CH10672

ROTOR HEAD

For use with CH10672, accommodates 24 Micro Tubes.
 CH10672S



CENTRIFUGE, HAEMATOCRITE

Microprocessor based Haematocrite Centrifuge Machine, Max. speed 13000 r.p.m. Compact plastic injection moulded body
Inner safety bowl made of stainless steel
Well balance universal motor having long life with imported carbons.
Digital display shows Set time/Run time/R.P.M.
Microprocessor based Digital timer of range 0-15 min with LCD display.
Microprocessor controlled Preset speed from 2000 to 13000 r.p.m.
With following accessories:
Micro Hematocrite rotor to accommodate 24 capillaries of 75 mm x 1mm
Heparinised capillary tubes 75 mm long x 1mm bore (Pack of 100)
Non-Heparinised capillary tubes 75 mm long x 1mm bore (Pack of 100.)
Reading device
Sealing wax-1 tray.
CH10673

CENTRIFUGE, HAND

Cast metal body, removable crank handle and head, for bench mounting, supplied complete with aluminium buckets for 15 ml glass tubes.

CH10700/1	For 2 Tubes
CH10700/3	For 4 Tubes



Centrifuge Accessories

CENTRIFUGE TUBES

Printed graduations and writing area for Sample Identification.
Caps can be closed with one hand.
Available in bulk non-sterile and pre-sterilized formats.
50ml rated to 13,000g; 15ml to 13,000g.
Certified RNase/DNase free.
Available in Racked Formats.
Conical Bottom tube with Cap

	Capacity, ml	Qty/pack
CAC10102/1	15	500
CAC10102/2	15, Pre-sterilized	500
CAC10102/3	15, Racked	500
CAC10102/4	15, Racked, Pre-sterilized	500
CAC10102/5	50	500
CAC10102/6	50, Pre-sterilized	500
CAC10102/7	50, Racked	300
CAC10102/8	50, Racked, Pre-sterilized	300



CENTRIFUGE TUBE ROUND BOTTOM

Centrifuge tubes with round bottom are moulded in Polypropylene & Polycarbonate. Tubes have excellent clarity and are strong enough to be used upto 50,000xG. These tubes can be autoclaved, however, repeated autoclaving in PC tubes reduces their mechanical strength.



	Capacity
CAC10104/1	16 ml Cent. Tube PP
CAC10104/2	50 ml Cent. Tube PP
CAC10104/3	16 ml Cent. Tube PC
CAC10104/4	50 ml Cent. Tube PC
CAC10104/5	Cap. For 16ml Cent. Tube
CAC10104/6	Cap. For 50ml Cent. Tube

OAK RIDGE CENTRIFUGE TUBES

Oak ridge centrifuge tubes, made of Polypropylene, have excellent contact clarity and can be used upto 50,000xG. The screw cap is fitted with silicon O-Ring making it totally leakproof. These tubes should not be used below 4°C

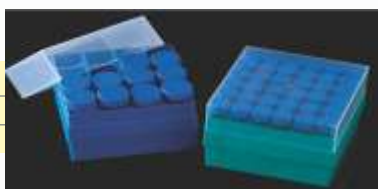


	Capacity, ml
CAC10106/1	30
CAC10106/2	50
CAC10106/3	100

CENTRIFUGE TUBE BOX, PP

- Provides durable and rugged alternative to cardboard or foam racks
- Can withstand temperature from -90°C to 121°C
- With distinctive green color on 15 ml and blue color on 50 ml.
- All grids are properly indexed with clear lid that provides easy tube identification.
- Can be autoclaved.

	Capacity, ml
CAC10150/1	15
CAC10150/2	50



MICRO CENTRIFUGE TUBES

Qty. 1000 per pack

*ClickSeal High-Capacity Microcentrifuge tubes fit all popular microcentrifuge rotors

*Writing surface on flat cap and side wall for quick sample ID

*Superior clarity and external graduations ensure accurate, reproducible lab results

*Withstands temperatures from +121°C to -80°C and RCF of 27,000xg with proper rotor support

*Positive Click Seal design allows repeated cap closure and eliminates pressure-induced popping of caps during incubation

*Certified RNase-DNase Safe for Total Sample Integrity.

*Thin membrane in Cap Center Allows easy access to Sample by Syringe Needle.

*Click Seal Microcentrifuge Tubes 0.5ml, 1.5ml, 2.0ml are engineered to close with a "snap" and stay closed during centrifugation up to 18,000 RCF - even during boiling or autoclaving.

*A wide range of colored tubes for easy sample identification.

*The tubes are manufactured of a copolymer material to offer exceptional strength and chemical resistance.

*These tubes feature ultra-smooth conical bottoms, which allow for 100% visibility and no sharp "gates" to cause cuts and scratches.

*Diamond polished molds allow tubes to be manufactured without contaminating releasing fluids.

CAC10202/1	Click Seal MC Tube 0.65ml, Natural
CAC10202/2	0.65ml Graduated MCT, Rainbow
CAC10202/3	0.65ml Graduated MCT, Red, Yellow, Green, Blue, Violet
CAC10202/4	0.65ml Graduated MCT, Amber
CAC10202/5	Click Seal MC Tube 1.7ml, Natural
CAC10202/6	Graduated MCT, Rainbow
CAC10202/7	1.7ml Graduated MCT, Red, Yellow, Green, Blue, Violet
CAC10202/8	1.7ml Graduated MCT, Amber
CAC10202/9	Click Seal MC Tube 2.0ml, Natural
CAC10202/10	Graduated MCT, Rainbow
CAC10202/11	2.0ml Graduated MCT, Red, Yellow, Green, Blue, Violet
CAC10202/12	Graduated MCT, Amber

LOW RETENTION TUBES

CAC10202/13	Click Seal MC Tube 0.65ml, Natural, Low Retention
CAC10202/14	Click Seal MC Tube 1.7ml, Natural, Low Retention
CAC10202/15	Click Seal MC Tube 2.0ml, Natural, Low Retention

MICRO PESTLE

This double ended pestle's one end fits 1.5ml. Micro centrifuge tube & the other one fits 0.5 ml. Micro centrifuge tube.

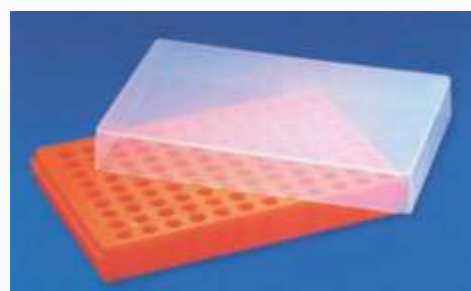
CAC10210/1



MCT FLOAT RACK

This Float Rack mould in Polypropylene is quite compact, autoclavable and can hold 16 micro centrifuge tubes for incubation in water baths. Easy to load, these are essential in microbiology & immunology labs. The surface of the rack has raised alpha-numeric index for easy identification and has a central rod handle for convenient lifting.

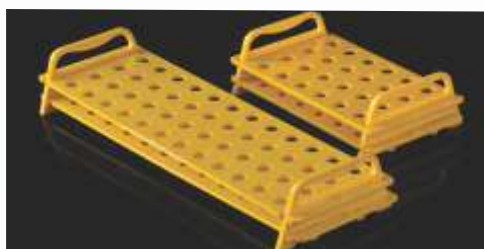
	Type
CAC10250	16 MCTs of 1.5 ml.



MCT TWIN RACK

Supertek provides this Polypropylene Twin Purpose Rack for both 0.5 ml and 1.5 ml micro centrifuge tubes. Each side has 108 holes for 0.5 & 1.5 ml. MCT's respectively. The transparent top provides an excellent view as well as a protection cover for the tubes stored. Each face of the base has a unique alpha-numeric index for easy identification of the tube.

	Size
CAC10252	Rack for 0.5ml & 1.5ml. MCTs.



RACK FOR MICRO CENTRIFUGE TUBE, PC

- Easy to hold ergonomic design
- Each hole has molded in numbers and letters for easy sample identification.
- Racks are stackable when empty or full.
- Compatible with both 1.5 ml and 2.0 ml micro centrifuge tube.
- Easy removal and insertion of tubes.
- Can be used in wide temperature range.
- Can be autoclaved.

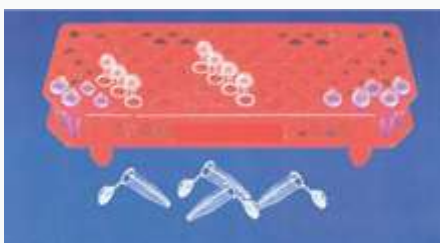
	Tube Capacity, ml	Places	Array	Color
CAC10254/1	1.5 and 2.0	24	6 x 4	White
CAC10254/2	1.5 and 2.0	24	6 x 4	Yellow
CAC10254/3	1.5 and 2.0	48	12 x 4	White
CAC10254/4	1.5 and 2.0	48	12 x 4	Yellow



RACK FOR MICRO CENTRIFUGE TUBES

Moulded in Polycarbonate, these autoclavable rack are made for holding 1.5ml micro centrifuge tubes. These racks have a unique stacking feature which prevents movement in any direction. The holes are numbered & lettered for easy identification.

	Type
CAC10256/1	24 Tubes
CAC10256/2	48 Tubes



RACK FOR MICRO CENTRIFUGE (FOLDING)

These two-tier versatile racks, made of Polypropylene, are autoclavable & can be used dry, in water baths or in freezers. These racks are provided with alpha numeric index for easy sample identification. Racks are stackable even when loaded and have purpose designed label spaces on each side.

	Size
CAC10258/1	100 Places for 1.5 ml MCTs



MCT BOX

MCT boxes are moulded in polycarbonate and are therefore strong as well as autoclavable. One size can hold 64 MCTs of 1.5ml & the other can hold 100 MCTs of 0.5ml. These boxes are designed to work at temperatures ranging from -190°C to +121°C. The transparent cover provides a good view of the contents inside & is numbered for better inventory control.

	Size
CAC10265/1	Rack for 100 MCTs of 0.5ml
CAC10265/2	Rack for 64 MCTs of 1.5ml



PCR TUBE

* Quantitative PCR compatible tubes and plates. Certified to be RNase- and Endotoxin safe.

* Ultra-thin and consistent wall thickness manufactured from 99.9% pure virgin polypropylene.

* Unique cap design prevents sample evaporation.

8 STRIP PCR TUBES & CAPS

Qty./pack 125 Strips

CAC10302/1	8-Strip PCR Tubes w/ caps; Clear 0.2 ml
CAC10302/2	8-Strip PCR Tubes and Flat Caps 0.2 ml
CAC10302/4	8-Strip PCR Tubes w/o cap 0.2 ml
CAC10302/5	8-Strip 0.2ml Domed PCR Caps
CAC10302/6	8-Strip 0.2ml Flat PCR Caps

8 STRIP PCR TUBE WITH ATTACHED CAPS

Qty./pack 240 Strips

CAC10302/7	0.2ml 8-Strip PCR Tubes w/ attached Flat caps
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NON-STERILE MICRO TUBES & CAPS

CAC10302/8	0.1ml 4-Tube & 4-Cap Strips, Roto-Gene Compatible
CAC10302/9	PCR Tubes, Flat Cap, Clear 0.2ml
CAC10302/10	PCR Tubes, Domed Cap, Clear 0.2ml
CAC10302/11	PCR Tubes, Flat Cap, Clear 0.2ml
CAC10302/12	PCR Tubes, Flat Cap, Clear 0.5ml

PCR TUBE RACK

This rack, as the name suggests, is used for keeping PCR tubes. Top & base of this rack are made of tough & transparent polycarbonate while the middle portion is made of Polypropylene. The tube holding spaces are uniformly placed so as to facilitate the use of multi-pipettes. A no. of racks can be stacked together to save shelf space.



	Size
CAC10350/1	Rack for 96 PCR Tubes of 0.2ml



CHARCOAL BLOCK

Compressed, for blow pipe work, rectangular blocks, size 100 x 25 x 25 mm, pack of 12.

CH10716

CHARCOAL BORER

Mounted on wooden handle.

CH10718



CORK BORER

Chrome plated brass, various size tubes, each with cutting edge at bottom and handle at top, with cleaning rod.

CH10720/1 Set of 6 borers, 4-12 mm

CH10720/3 Set of 12 borers, 4-19 mm

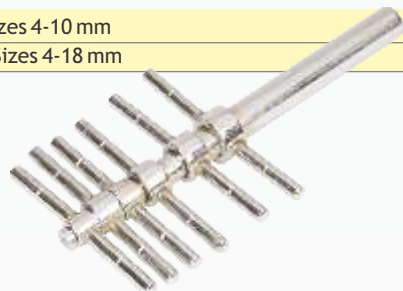


CORK BORER, SUPERIOR

Chrome Plated Brass. Complete with cleaning rod having good grip and pipes of thick gauge.

CH10724/1 Set of 6, Sizes 4-10 mm

CH10724/3 Set of 12, Sizes 4-18 mm



CORK BORER SHARPENER

Plated metal cone with hinged cutter blade set in slot, with wooden handle.

CH10730



CORK STOPPER, BARK

Pack of 100.

	Bottom, mm	Top, mm	Length, mm
CH10735/1	4	6	13
CH10735/2	5	8	13
CH10735/3	7	10	13
CH10735/4	8	11	16
CH10735/5	9	13	17
CH10735/6	10	14	19
CH10735/7	11	16	20
CH10735/8	12	17	22
CH10735/9	13	19	24
CH10735/10	14	21	25
CH10735/11R	17	22	27
CH10735/12	18	24	29
CH10735/13	20	25	31
CH10735/14	21	27	31
CH10735/15	22	29	31
CH10735/16	24	30	31
CH10735/17	25	32	31
CH10735/18	27	33	31
CH10735/19	27	35	38
CH10735/20	30	36	38
CH10735/21	31	38	38
CH10735/22R	33	40	38
CH10735/23	34	41	38
CH10735/24	36	43	38
CH10735/25	38	45	38
CH10735/26	39	46	38

CLIP, MOHR

For use with tubes upto 11 mm outer diameter.

CH10738/1 Plated Metal

CH10738/3 Plated Brass



CLIP, HOFFMAN

Screwed, hinged side bar, for use with tubes upto 20 mm outer diameter.

CH10740/1 Plated Metal

CH10740/3 Plated Brass

**COMBUSTION BOAT, PORCELAIN**

Glazed /unglazed max. use temp. 1150° C



	Ht., mm	Width, mm	Length, mm
CH10742/1	11	13	90
CH10742/3	10	12	80

COMBUSTION BOAT, ALUMINA

99.7% alumina Combustion Boat, with Tail and Hole unglazed. Max. use temp. 1750° C.



	Ht., mm	Width, mm	Length, mm
CH10744/1	11	12	90
CH10744/2	13	15	86
CH10744/3	17	20	108
CH10744/4	19	30	119

CONTAINER, URINE

These containers can be used for collecting a wide range of samples of sputum, urine etc. Moulded in polypropylene these container have excellent contact clarity and the cap has built-in seal that makes it completely leakproof.

Capacity, ml

CON10002/1 30

CON10002/2 60

**CONTAINER, STOOL**

These containers, as the name suggests, are used for collecting stool samples. The cap is provided with a spoon like structure that proves helpful in lifting samples.

Capacity, ml

CON10004/1 30

CON10004/2 60

**CONTAINER, STOOL**

In addition to the range of existing sample containers, this Stool Container has the unique feature of one piece moulded cap-spoon combination.

Capacity, ml

CON10006 25

**MAGENTA BOX**

Magenta Box is very often used in tissue culture & Agricultural research experiments. Main body of this box is made of tough & transparent Polycarbonate which provides excellent view of the contents inside while the cover is made of Polypropylene. This autoclavable box is square in shape giving itself a space saving feature.

CON10008

**STORAGE BOXES**

These Storage Boxes, made of Polypropylene, to be an excellent option for storage of different powdered reagents & other material in the laboratory. Square shape of these boxes help in saving shelf space. Available in three different sizes, these boxes have Polypropylene caps, are autoclavable, provide good chemical resistance & heavy duty service.



Capacity, ml

CON10010/1 250

CON10010/2 500

CON10010/3 1000

SAMPLE CONTAINER (PRESS & FITTYPE)

Made of Polypropylene, these disposable containers are used for collecting sample of sputum or urine etc. Graduated on the outer surface, these containers have cap that work in a press & fit manner & make these containers leakproof. These disposable containers are E.T.O. Sterilized.



Capacity, ml

CON10012/1 50

CON10012/2 25

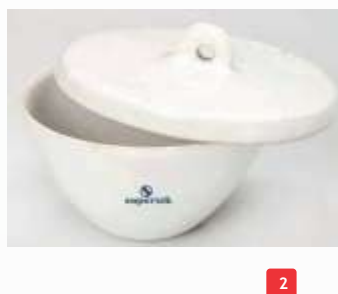
MEDICINE CUP

These transparent polypropylene cups can be used to measure different volumes of medicines to be administered. The inbuilt graduations make measuring very easy.



Capacity, ml

CON10014/2 25



CRUCIBLE, GOOCH 1

Porcelain, with fixed perforated bottom, glazed inside and outside, except for outside bottom surface and rim.

	Diam., mm	Ht., mm	Capacity, ml
CH10760/1R	29	32	15
CH10760/5R	36	45	30
CH10760/7R	40	49	50
CH10760/9	55	83	140

CRUCIBLE, SQUAT 2

Porcelain, Squat form with lid, glazed inside and outside, except for outside bottom surface and rim.

	Diam., mm	Ht., mm	Capacity, ml
CH10765/0	24	20	5
CH10765/1R	32	20	10
CH10765/5R	41	26	20
CH10765/7	50	31	30
CH10765/9	61	37	50
CH10765/13R	76	46	100
CH10765/15R	84	52	150
CH10765/19R	102	60	250
CH10765/21R	120	87	500

CRUCIBLE, TALL

Porcelain, Tall form with lid, glazed inside and outside, except for outside bottom surface and rim.



	Diam., mm	Ht., mm	Capacity, ml
CH10768/0	15	15	1.3
CH10768/00	24	20	5
CH10768/1R	31	26	10
CH10768/3R	35	29	15
CH10768/4	40	32	25
CH10768/5R	43	37	30
CH10768/6R	50	40	40
CH10768/7R	53	43	50
CH10768/9R	65	54	100
CH10768/10R	88	72	250



CRUCIBLE, BITUMEN

Porcelain, with perforated bottom, glazed inside and out except for outside bottom surface and rim. Used for similar applications as Gooch crucibles.

	Diam., mm	Ht., mm	Capacity, ml
CH10770	44	24	28



CRUCIBLE, ROSE

Porcelain, Rose, unglazed for High Temperature Applications.

	Diam., mm	Ht., mm	Capacity, ml
CH10772	50	60	75



CASSEROLE

Porcelain, With lip and flat porcelain handle, glazed inside and out except for rim and top of handle.

	Diam., mm	Ht., mm	Capacity, ml
CH10774/1	40	22	25
CH10774/2	70	33	65
CH10774/3	85	42	140
CH10774/4	100	52	200
CH10774/5	125	75	500
CH10774/6	150	88	760
CH10774/7	175	98	1250



CRUCIBLE, POROUS 1

Porcelain, Porous bottom crucible, with porous disc permanently formed into walls. Stable porosity and rate of flow. Available with very fine (1.2 micron), fine (5 micron) and medium (15 micron) pore dia. Discs.

	Apx. Pore Diam., microns	Ht., mm	Capacity, ml
CH10776/1	1.2	42	25
CH10776/2	5.0	42	25
CH10776/3	15	42	25

CRUCIBLE, ALUMINA (HIGH FORM) 2

99.7% Alumina Crucible, High Form, unglazed. Max. use temp. 1750°C.

	Diam., mm	Ht., mm	Capacity, ml
CH10778/1	23	28	5
CH10778/2	29	33	10
CH10778/3	40	35	20
CH10778/4	51	47	50
CH10778/5	60	62	100
CH10778/6	82	93	250
CH10778/7	96	116	500
CH10778/8	110	132	750
CH10778/9	126	148	1000

CRUCIBLE, ALUMINA (CYLINDRICAL FORM)

99.7% Alumina Crucible, Cylindrical Form, unglazed.

Max. use temp. 1750°C.

	Diam., mm	Ht., mm	Capacity, ml
CH10780/1	17	48	5
CH10780/2	28	29	10
CH10780/3	28	42	15
CH10780/4	31	40	20
CH10780/5	35	47	30
CH10780/6	42	58	50
CH10780/7	54	39	60
CH10780/8	40	92	80
CH10780/9	52	68	100



CRUCIBLE, ALUMINA (CONICAL FORM)

99.7% Alumina Crucible, Conical Form, unglazed. Max. use temp. 1750°C.

	Diam., mm	Ht., mm	Capacity, ml
CH10782/1	18	18	2
CH10782/2	27	35	5
CH10782/3	33	44	20
CH10782/4	48	45	30
CH10782/5	46	53	50
CH10782/6	64	86	100



CRUCIBLE, SILICA, QUARTZ, SQUAT

Translucent, complete with lid.

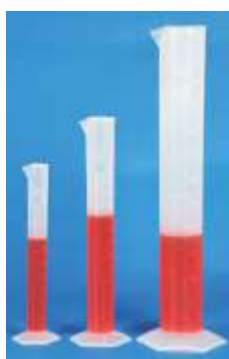
	Diam., mm	Ht., mm	Capacity, ml
CH10784/1	25	41	15
CH10784/2	28	47	25
CH10784/3	37	57	50
CH10784/4	67	45	80
CH10784/5	71	50	100
CH10784/6	82	51	150

CRUCIBLE, PURE NICKEL

Polished, complete with lid.

	Capacity, ml
CH10786/1	15
CH10786/2	25
CH10786/3	50
CH10786/4	100
CH10786/5	200
CH10786/6	250





MEASURING CYLINDER, HEXAGONAL

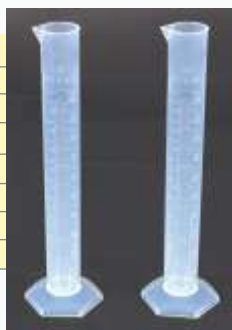
The hexagonal base provides excellent stability to the cylinder where as the tapered spout works well while pouring any reagent. Polypropylene.

	Capacity, ml
CH10815/1	10
CH10815/2	25
CH10815/3	50
CH10815/5	100
CH10815/6	250
CH10815/9	500
CH10815/10	1000

MEASURING CYLINDER, HEXAGONAL, CLASS B

Moulded in polypropylene, Measuring Cylinders have superb contact clarity & very good chemical resistance. These are autoclavable to 121 °C for 20 minutes at 15 psi. Permanent raised graduations are moulded in for reproducibility. These cylinders are chemically non-absorbent. Hexagonal based provides added stability.

	Capacity, ml
CH10816/1	10
CH10816/2	25
CH10816/3	50
CH10816/5	100
CH10816/6	250
CH10816/9	500
CH10816/10	1000



CONICAL MEASURES

These conical measures are very good for measuring small quantities of reagents. Moulded in Polypropylene, these autoclavable measures have a hexagonal base which provides it excellent stability. The measures are clear, have good chemical resistance and have raised graduations for easy reading.

	Capacity, ml
CH10817/1	12
CH10817/2	25
CH10817/3	50
CH10817/7	125
CH10817/9	200



MEASURING CYLINDER, TPX CLASS "B"

- Transparent graduated cylinders have excellent value.
- Molded in large neat and easy to read graduations.
- Hexagonal shape gives stability to the base.
- Cylinders have generous pour spout for smooth flow of liquid during pouring.
- Can be autoclaved.
- Meets accuracy requirements of class B under DIN 1261 / ISO 6706

	Capacity, ml	Sub Division, ml	Error Limit, mm
CH10819/1	10	0.2	± 0.2
CH10819/2	25	0.5	± 0.5
CH10819/3	50	1	± 1
CH10819/4	100	1	± 1
CH10819/5	250	2	± 2
CH10819/6	500	5	± 5
CH10819/7	1000	10	± 10
CH10819/8	2000	20	± 20

MEASURING CYLINDER, TPX CLASS "A"

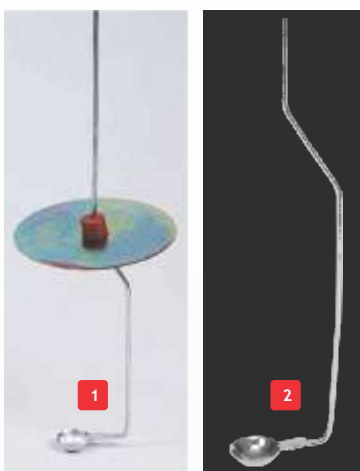
- These transparent graduated cylinders have excellent value.
- Molded in large neat and easy to read graduations
- Hexagonal shape gives stability to the base
- Cylinders have generous pour spout for smooth flow of liquid during pouring.
- Autoclaving at 121 °C does not affect accuracy.
- Meets accuracy requirements of class A under DIN 12681
- Supplied with conformity test certificate that indicates batch number and year of production that is also marked on the cylinder.

	Capacity, ml	Sub Division, ml	Error Limit, mm
CH10821/1	10	0.2	± 0.1
CH10821/2	25	0.5	± 0.25
CH10821/3	50	1	± 0.5
CH10821/4	100	1	± 0.5
CH10821/5	250	2	± 1
CH10821/6	500	5	± 2.5
CH10821/7	1000	10	± 5
CH10821/8	2000	20	± 10

DEFLAGRATING SPOON 1

Die pressed steel spoon, 20 mm diam., welded with rod. Complete with cover of 90 mm diam having cork in centre for holding the rod.

CH10825

**DEFLAGRATION SPOON 2**

Deflagrating and combustion spoon, designed for burning phosphorus, sulfur etc. stainless steel spoon with 16" handle and 3/4" diameter.

CH10827

**DISTILLATION APPARATUS**

To separate mixture of two liquids by raising the temperature of the mixture to a point where one of the liquids will boil but the other remains liquid. Kit consists of 300 mm Liebig condenser, 50 mm diam. Kjeldahl flask, 500 ml boiling flask, cast iron base with support rod, clamp, tripod, wire gauze, and a 500 ml Erlenmeyer flask.

CH10850

DISTILLATION APPARATUS SET

An inexpensive but versatile distillation apparatus. The Kit consists of :

- 500 ml filtering flask
- 500 ml round bottom borosilicate flask with side tube
- 300 mm Graham condenser
- 250 ml Erlenmeyer flask
- Glass stopper
- Support stand with rod
- Burette clamp
- Extension clamp
- Clamp holder
- Activity guide.

CH10852

**DISTILLATION APPARATUS**

With ground glass standard interchangeable joints. Borosilicate glass. Consisting of round bottom flask with 24/29 socket, still head with 24/29 and 19/26 cones, condenser with 19/26 socket and cone, and receiver adapter with 19/26 socket.

CH10854/1	Flask capacity 1 liter, condenser 200 mm
CH10854/2	Flask capacity 2 liters, condenser 400 mm
CH10854/3	Flask capacity 3 liters, condenser 450 mm

**DISTILLATION APPARATUS**

With ground glass standard interchangeable joints. Borosilicate glass. Comprises round bottom flask with 24/29 socket, still head with 24/29 & 19/26 cones and 19/26 socket, condenser with 19/26 socket and cone, receiver with 19/26 socket, separating funnel 100 ml with 19/26 cone.

CH10856/1	Flask capacity 1 litre, condenser 300 mm
CH10856/2	Flask capacity 2 litres, condenser 400 mm
CH10856/3	Flask capacity 3 litres, condenser 450 mm
CH10856/4	Flask capacity 5 litres, condenser 600 mm

DISTILLATION APPARATUS, VERTICAL TYPE

Borosilicate glass. Consists of double walled condenser, with standard interchangeable ground joints.

Capacity, Ltr.	Single Stage	Double Stage
1	CH10858/1	CH10860/1
2	CH10858/2	CH10860/2
3	CH10858/3	CH10860/3
4	CH10858/4	CH10860/4
5	CH10858/5	CH10860/5



DISTILLATION COLUMN, FRACTIONATING, YOUNG'S

Borosilicate glass, pear shaped bulbs, with side tube.

	No. of bulbs
CH10862/1	8
CH10862/2	12



DESSICATOR

Borosilicate glass, with cover.

	Diam., mm
CH10910/3	160
CH10910/7	200
CH10910/8	250



DESSICATOR, VACUUM

Borosilicate glass, cover fitted with stopcock.

	Diam., mm
CH10912/1	160
CH10912/3	210
CH10912/5	240
CH10912/7	300



DISTILLATION COLUMN, FRACTIONATING

Borosilicate glass, rod and disc type, with side tube.

	No. of discs
CH10864/1	15
CH10864/2	20



DESSICATOR PLATE

Porcelain plates, perforated to fit diameters of desiccator.

	Diam., mm	No. of Holes
CH10913/1	95	3
CH10913/3	115	3
CH10913/5	140	6
CH10913/7	165	7
CH10913/9	190	8
CH10913/11	230	10
CH10913/13	290	13



DESSICATOR PLATE

Porcelain, Desiccator, on three feet, 16 mm High, glazed on top surface.

	Diam., mm	No. of Holes
CH10914/1	95	3
CH10914/2	115	3
CH10914/3	142	5
CH10914/4	146	7
CH10914/5	190	7
CH10914/6	230	8



DESSICATOR

Soda Glass, with ground glass cover. having knob at top.

	Diam., mm
CH10905/1	100
CH10905/3	125
CH10905/5	150
CH10905/7	200
CH10905/9	250



DESSICATOR (VACUUM)

These Desiccators are made of Polypropylene and Polycarbonate. These autoclavable vacuum desiccators can hold vacuum upto 740 mm of Hg for 24 hrs. Without any greasing. The top dome, moulded in rigid and transparent Polycarbonate, gives a crystal clear view of the desiccant placed inside. The knurled knob on the top provides easy handling of the dome. The lower part is made of Polypropylene. An internal groove is provided on the flange to hold a silicon rubber O-Ring. The Polypropylene stopcock is fitted with a self lubricating PTFE plug. This plug works three way i.e. vacuum creations, shutting off and vacuum releasing.

	Size, mm
CH10915/2	150
CH10915/4	200
CH10915/6	250
CH10915/7	300



DESSICATOR (VACUUM) ALL CLEAR

These Vacuum Desiccator are provided with a transparent polycarbonate bottom that makes it more robust and provides excellent view of the desiccator. All the other features are same as PP/PC vacuum desiccator.

	Size, mm
CH10917/1	150
CH10917/2	200
CH10917/3	250
CH10917/4	300

DESSICATOR (PLAIN)

Plain Dessicator are physically the same as Vacuum Dessicator. Only difference is the absence of stop cock. Grease should be applied on the flanges to make it air tight.

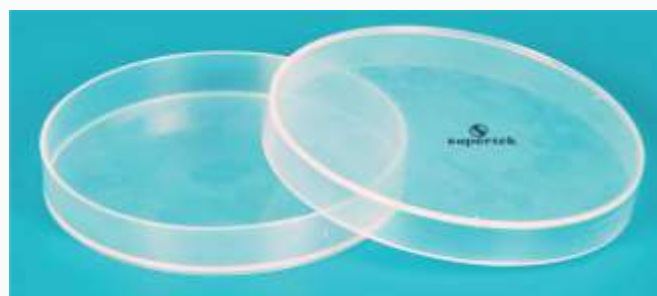
	Size, mm
CH10919/1	150
CH10919/3	200
CH10919/5	250
CH10919/6	300



PETRI DISH

Borosilicate Glass. Fused edges, complete with cover.

	Diam., mm
CH10927/1	50
CH10927/2	75
CH10927/3	90
CH10927/4	100
CH10927/5	125



PETRI DISH

Polypropylene, clear, unbreakable and autoclavable.

	Diam., mm
CH10933/1	50
CH10933/3	75
CH10933/5	100
CH10933/6	125
CH10933/7	150



RACK FOR PETRI DISHES 1

Clear acrylic with polycarbonate posts. Useful during inoculation, incubation & storage. Visibility from all sides enables the culture to be seen and checked during incubation.

CH10935/1 Rack for 90 mm petri dishes

CH10935/3 Rack for 60 mm petri dishes

CONDUCTIVITY METER

A simple apparatus for testing the electrical conductivity of liquids. Connect the apparatus to the main supply and place the electrodes in the liquid used for testing. A strong conductor is a material that will let electric charges to flow through it very easy and therefore the bulb of conductivity meter glows brightly. The weak conductors allow electric charges to flow through it slowly and therefore the bulb of conductivity meter glows dimly. The bad conductors do not allow electric charges to flow through it and therefore the bulb of conductivity meter does not glow at all. Bulb provided is large and bright enough to be seen by the entire class. The conductivity meter includes a clamp on the back for attaching to a support stand. Instructions and appliance bulb are also included.

CH10936



DRAINING BASKET 2

As the name suggests, this basket with wide net like structure on all sides prove really useful for draining different laboratory apparatus after washing them. Made of Polypropylene, this basket can be repeatedly autoclaved.

	Size
CH10936A	400 mm x 400 mm x 100 mm



DRAINING RACK 3

Draining Rack provides an excellent option for post wash draining of tubes & bottles in the laboratory. The back plate has 20 holes into which pegs are tightened with the help of screw-nuts. Bottom of the rack is provided with a tray which collects all the waste water drained down which can further be collected in a container via drain tube. This rack does not rot, stain or rust.

CH10936B

CONDUCTIVITY METER 4

To quantitatively measure the conductivity of solutions. This conductivity meter uses a green and a red light emitting diode (LED) to indicate relative conductivity. The light varies with the conductivity. requires 9 volt battery (not supplied). With instruction manual.

CH10937



ELECTROLYSIS OF WATER

Economical and compact design to observe the electrolysis of water and collect small volumes of hydrogen and oxygen gases. Consists of a stand assembly, electrodes, 2 attached wires with alligator clips, 2 test tubes, and trough. Requires a 6- or 9-V battery (not included). Supplied without solutions. With instructions.

CH10938



HOFFMAN VOLT METER, COMPLETE SET 5

To Observe the effects of electric currents on liquids. Eudiometer tube having capacity of 50 ml and graduation of 0.2 ml is made of sturdy Borosilicate glass with a large center reservoir bulb. The unit comes with a stand and a pair each of carbon and platinum electrodes. It runs on a 6 V battery or low-voltage power supply (not included). Includes instructions. Ready to use.

CH10939

HOFFMAN VOLTAMETER, GLASS PART 6

The glass unit has two connected limbs, each graduated 50 x 0.2 ml, with stopcocks, with a tube and a funnel shaped reservoir Bulb. Borosilicate Glass.

CH10940

METAL STAND

For above metal enamelled base chrome plated rod, one clamp and one support for holding Hoffman Voltmeter.

CH10942



PLATINUM



CARBON

ELECTRODES, PLATINUM

Platinum wire or foil fused into glass rod with internal lead, with rubber stopper and glass protection tube, per pair.

CH10945

ELECTRODES, CARBON

Carbon electrodes in rubber stoppers, fitted with terminals, per pair.

CH10947



BROWNLEE ELECTROLYSIS APPARATUS

Improved design with greater safety for accurate and precise use. The apparatus features front spring clips for easy removal of the test tubes while they remain submerged. With both ungraduated and graduated test tubes. Supplied with battery jar and instructions.

CH10948



STUDENT WET CELL & POROUS CUP

The set consists of a cell body of transparent plastic; a screw-on plastic ring; two brass electrode holders; 1 porous ceramic cup; ten electrodes: one each of aluminum, nickel, graphite, and iron; two each of copper, lead and zinc; and instructions.

CH10949

SALT BRIDGE

Inverted "U" tube with its ends closed by sintered discs. Dia of arms 13 mm, overall width 80 mm., overall height 100 mm.

CH10950



ELECTROLYSIS CELL

Open ended glass tube, 75 x 25 mm fitted with 2 carbon electrodes through a rubber cork, separated by a plastic sheet, complete with two collecting tubes of size 75 x 10 mm.

CH10951



ELECTRODE ROD HOLDERS

Plastic strip 75 x 25 x 8 mm, with two 6.5 mm holes, fitted with two knurled head screws. Supplied complete with 2 crocodile clips and two 300 mm long PVC covered wires.

CH10952



VOLTAMETER, COPPER 1

Two copper plates, size 120 x 50 mm, each fitted with a terminal on wooden support. Complete with glass jar, 150 x 100 mm. ht x diam.

CH10953

VOLTAMETER, COPPER 2

With two outer 75 x 50 mm and a central 70 x 45 mm copper plates, suspended from copper wires fitted with 4 mm connectors and supported by two insulated bars.

With glass jar, 150 x 100 mm.

CH10954



SIMPLE CELL POT

Simple Cell pot, as the name suggests, is used for making Simple Cell & Voltmeters etc. Moulded in Polypropylene, this Pot has very good contact clarity and excellent chemical resistance. Being in Polypropylene, this Pot is much durable than the one use conventionally.

CH10955/2

Supertek Cellulose filter paper are manufactured from virgin cellulose fiber and used for general filtration. At Present we offer 1 to 6 grade filter paper with particle retention upto 2.5 μm to suit different laboratory applications. These cellulose filters are used in qualitative analytical techniques to determine and identify materials.

Supertek Filter papers are made on high tech machines and undergo a strict quality control both during production as well as packing.



Grade 1: 9 μm ,

Grade 1 filter paper is the most widely used filter paper for routine applications with medium retention and flow rate.

This grade covers a wide range of laboratory applications and is frequently used for clarifying liquids. Traditionally the grade is used in qualitative analytical separations for precipitates such as lead sulfate, calcium oxalate (hot), and calcium carbonate.

It is used for soil analysis and seed testing procedures. In the food industry, Grade 1 is used for numerous routine techniques to separate solid foodstuffs from associated liquid or extracting liquid and is widely used in education for teaching simple qualitative analytical separations.

	Diameter, mm	Qty / Pack
FP-001-090	90	100
FP-001-110	110	100
FP-001-125	125	100
FP-001-150	150	100
FP-001-185	185	100
FP-001-215	215	100
FP-001-240	240	100

Grade 2: 9 μm ,

Grade 2 filter paper is slightly more retentive and having more absorbing power than Grade 1 with a corresponding increase in filtration time. In addition to general filtrations, the extra absorbency is utilized, for example, to hold soil nutrient in plant growth trials. Also used for monitoring specific contaminants in the atmosphere and in soil testing.

	Size, mm	Qty / Pack
FP-002-090	90	100
FP-002-110	110	100
FP-002-125	125	100
FP-002-150	150	100
FP-002-185	185	100
FP-002-215	215	100
FP-002-240	240	100

Grade 3: 5 μm ,

Grade 3 filter paper is almost double the thickness of Grade 1 with still finer particle retention and excellent loading capacity; more precipitate can be held without clogging. The extra thickness gives increased wet strength and makes this grade highly suitable for use in Buchner funnels. The high absorbency is particularly valuable when the paper is used as a sample carrier.

	Size, mm	Qty / Pack
FP-003-090	90	100
FP-003-110	110	100
FP-003-125	125	100
FP-003-150	150	100
FP-003-185	185	100
FP-003-215	215	100
FP-003-240	240	100

GRADE 4: 22 μ m,

Grade 4 filter paper is a standard grade filter paper used when high flow rates in air pollution monitoring are required and the collection of fine particles is not critical. Grade 4 filter paper is extremely fast filter paper with excellent retention of coarse particles and gelatinous precipitates such as ferric hydroxide and aluminum hydroxide. Very useful as a rapid filter for routine clean-up of biological fluids or organic extracts during analysis. These cellulose filters are used in qualitative analytical techniques to determine and identify materials.

	Diameter, mm	Qty / Pack
FP-004-090	90	100
FP-004-110	110	100
FP-004-125	125	100
FP-004-150	150	100
FP-004-185	185	100
FP-004-215	215	100
FP-004-240	240	100

GRADE 5: 2.5-3 μ m,

Grade 5 filter paper is a standard grade clarifying filter paper excellent for cloudy suspensions and for water and soil analysis. This grade of filter papers provides maximum degree of fine particle filtration in the qualitative range. Capable of retaining the fine precipitates encountered in chemical analysis. Slow flow rate.

	Diameter, mm	Qty / Pack
FP-005-090	90	100
FP-005-110	110	100
FP-005-125	125	100
FP-005-150	150	100
FP-005-185	185	100
FP-005-215	215	100
FP-005-240	240	100

GRADE 6: 3 μ m,

Grade 6 filter paper is often specified for boiler water analysis. These cellulose filters are used in qualitative analytical techniques to determine and identify materials. Twice as fast as Grade 5 with similar fine particle retention.

	Diameter, mm	Qty / Pack
FP-006-090	90	100
FP-006-110	110	100
FP-006-125	125	100
FP-006-150	150	100
FP-006-185	185	100
FP-006-215	215	100
FP-006-240	240	100

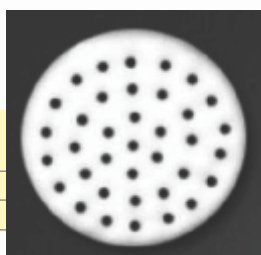
**General Properties of Supertek Filter Papers**

Grade	Particle Retention Liquid, μ m	Initial Filtration Speed (Secs/100 ml)	Thickness, mm	Weight, g/m ²	Dry Bursting Strength, kPa
Qualitative					
1	9	155	0.20	87	89
2	9	250	0.21	98	108
3	5	325	0.40	180	187
4	22	38	0.21	95	67
5	2.5-3	1480	0.21	95	173
6	3	710	0.20	100	125

FILTER DISC

Porcelain, Glazed all over except bottom, perforated small holes all over the surface.

	Diam, mm
CH11013/1	12.00
CH11013/2	20.23
CH11013/3	25.50



EXTRACTION THIMBLES

Cellulose and glass microfiber extraction thimbles are known for their purity and consistent high quality. The thimbles are widely used in Soxhlet extraction units, providing a safe, convenient, and efficient method of solvent extraction of solids and semi-solids. Soxhlet extraction is a widely used technique for the analysis of fats in foods and pesticides in soil materials as well as many other procedures that involve a solid liquid extraction.

	Size, mm
CH11014/1	18 x 55
CH11014/2	19 x 90
CH11014/3	22 x 65
CH11014/4	22 x 80
CH11014/5	25 x 80
CH11014/6	25 x 100
CH11014/7	28 x 80
CH11014/8	28 x 100
CH11014/9	28 x 120
CH11014/10	30 x 80
CH11014/11	30 x 100

PLATINUM WIRE

Platinum wire fused into glass rod, protected in a glass tube.

CH11015



FLASK SUPPORT, POLYPROPYLENE

For round bottom flasks upto 10 litres, autoclavable.

CH11076

FLASK, VOLUMETRIC, POLYPROPYLENE

Blown in polypropylene, are strong, unbreakable and have good contact clarity. These autoclavable flasks are provided with screw caps to prevent leakage.

	Capacity, ml
CH11078/1	25
CH11078/2	50
CH11078/3	100
CH11078/4	250
CH11078/5	500
CH11078/6	1000



FLASK, CONICAL, POLYPROPYLENE

These cone shaped flasks are rigid, translucent and autoclavable. The screw cap keeps the contents of the flask contamination free and makes the flask leakproof. Threads should be disengaged before autoclaving.

	Capacity, ml
CH11080/1	100
CH11080/2	250
CH11080/3	500



FILTER FUNNEL, POLYTHENE

Plain, long stem.

	Diam., mm
CH11087/7	100
CH11087/11	150





ANALYTICAL FUNNEL

Designed specifically for analytical chemistry, the body of the funnel is 60°. Moulded in PP, these funnels are provided with internal & external ribs to prevent air blockage.

	Size, mm
CH11089/10	35
CH11089/1	50
CH11089/2	62
CH11089/3	75
CH11089/4	100

POWDER FUNNEL

These polypropylene funnels are best suited for transferring powdered reagents. The unique feature of these funnels is its parallel stem that minimizes bridging of powder. These funnels are steam autoclavable at 121°C



	Size, mm
CH11091/1	65
CH11091/2	80
CH11091/3	100
CH11091/4	150

INDUSTRIAL FUNNEL

Industrial Funnels are designed in such a way that they make filling of carboys, drums and barrels very convenient. The handles of these funnels make their handling very easy.

	Size, mm
CH11093/1	200
CH11093/2	250



FUNNEL, BUCHNER

Porcelain, straight sides, integral perforated plate, glazed inside and outside.

	Diam., mm
CH11108/1	35
CH11108/2	50
CH11108/4	60
CH11108/5	75
CH11108/6	100
CH11108/7	125
CH11108/8	150
CH11108/9	200
CH11108/10	300
CH11108/11	400



FUNNEL, HIRSCH

Porcelain, Hirsch, with fixed perforated plate. Glaze except for rim.

	Diam., mm	Ht., mm	Capacity, ml
CH11109/1	30	50	10
CH11109/2	40	70	12
CH11109/3	50	75	25
CH11109/4	75	130	50
CH11109/5	100	175	140



FUNNEL TABLE

Porcelain, Buchner, table type, one piece, with side outlet for vacuum filtration. Glazed inside and out except for rim.

	Diam., mm	Ht., mm	Capacity, Ltr.
CH11111/1	145	107	1
CH11111/2	220	120	2

FUNNEL, BUCHNER

Polypropylene, two piece funnels easy to clean and autoclavable.

	Size, mm
CH11112/1-sp	55
CH11112/1	70
CH11112/2	90
CH11112/3	110



THISTLE FUNNEL 1

Borosilicate Glass.

	Length, mm
CH11114/1	200
CH11114/3	250
CH11114/5	300



THISTLE FUNNEL, SHORT STEM 2

Borosilicate Glass, for filling barometer tubes, burette etc. CH11116

THISTLE FUNNEL, SAFETY 3

Borosilicate glass, with bend and two safety bulbs, length of stem 300 mm. CH11118

FUNNEL STAND

Cork lined wood clamp with plastic screw, base with four feet, rod fitted with plastic socket, one end having threads which fit into the base.

CH11124/1	For 1 Funnel
CH11124/3	For 2 Funnels



SEPARATORY FUNNEL

Separatory funnel is made of polypropylene, giving it excellent contact clarity and strength. This pear shaped, autoclavable separating funnel has a leakproof threaded screw cap. The Polypropylene stopcock, fitted with a self lubricating PTFE plug, is push fitted to the stem of the separatory funnel

	Capacity, ml
CH11125/1	100
CH11125/3	250
CH11125/5	500



FUNNEL HOLDER 4

Made of Polypropylene these corrosion free funnel holders can hold funnels with dia 3" to 6". The extra plate provided can be placed to hold funnels bearing dia 1" to 3". Two tapered wedges are provided to ensure firm grip on Rods having dia 1/2" or 3/8".

CH11126/1	Single
CH11126/2	Double

SEPARATORY FUNNEL HOLDER 5

This non-corrosive Separatory Funnel Holder, moulded in Polypropylene, has a front opening which provides clear view of the solution and allows unobstructed placement of separating funnels. Two tapered wedges are provided to ensure firm grip on Rods having dia 1/2" or 3/8".

CH11127

GAS TUBE

Graduated, glass, sealed at one end. Capacity 50 x 0.2 ml. CH11128

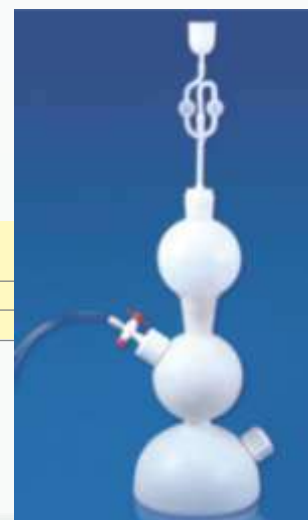


info@shivsons.com
www.shivsons.com

KIPP'S APPARATUS

Made of polyethylene, unbreakable, leakproof, detachable for easy cleaning.

	Capacity, ml
CH11134/2	250
CH11134/4	500
CH11134/6	1000



GAS JAR

Glass, with foot and ground flange.

	Diam., mm	Height, mm
CH11136/1	50	150
CH11136/2	50	200
CH11136/3	50	250
CH11136/5	75	200
CH11136/7	75	250
CH11136/9	75	300

**GAS JAR COVER**

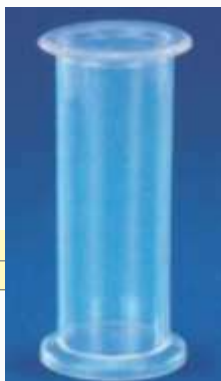
Ground glass, circular, diam. 75 mm.

CH11140

GAS JAR

These transparent polystyrene gas (specimen) jar are used to preserve different specimens in the lab are provided with a cap that fits in tight. These Jars provided excellent protection to the species preserved in it.

	Size, mm
CH11143	Ø50 mm X h 200 mm

**GAS WASHING BOTTLE, DRESCHER'S**

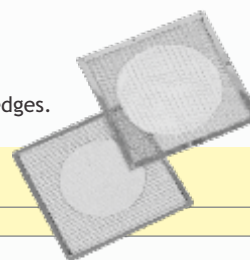
Borosilicate glass, inlet and outlet tubes in a stopper which fits the bottle having interchangeable 19/26 ground glass joint.

	Capacity, ml
CH11155/1	125
CH11155/2	250

**GAUZE, IRON**

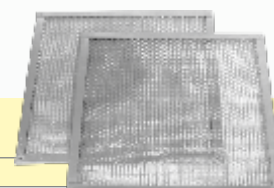
Ceramic Center, with folded edges.

	Size, mm
CH11157/2	125 x 125
CH11157/5	150 x 150

**GAUZE, IRON**

Plain.

	Size, mm
CH11157P/2	125 x 125
CH11157P/5	150 x 150

**BUNSEN EUDIOMETERS**

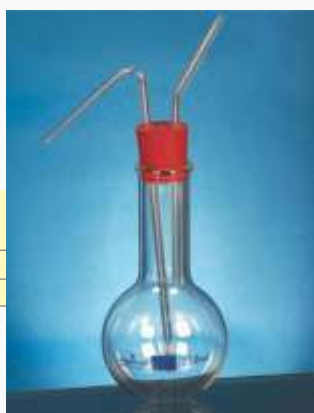
For demonstrating combining volume ratios of gases. Long, sturdy tubes have platinum electrodes sealed at the closed end, Amber graduation capacity 50 ml.

CH11145

**GAS WASHING BOTTLE**

Flat bottom flask with stopper and two glass tubes.

	Capacity, ml
CH11150/2	250
CH11150/3	500
CH11150/5	1000

**HEATING MANTLES**

Heating mantles are used to uniformly heat various round bottom glassware vessels such as flasks, by placing them directly on the heating element without substantially increasing the risk of glass shattering. These heating mantles are made of rolled aluminium body. The heating element is flexible, insulated and anchored securely in glass fabric. The temperature of heating element can go upto 350° C, controlled through energy regulator.

Note: The heating element cord may be slightly brown in color. This is a result of testing during the QC process.

	Capacity, ml	Rating (W)
CH11161/1	50	60
CH11161/2	100	60
CH11161/3	250	150
CH11161/4	500	200
CH11161/5	1000	300
CH11161/6	2000	450
CH11161/7	3000	450
CH11161/8	5000	600



HEATING MANTLES, DIGITAL

Heating mantles are used to uniformly heat various round bottom glassware vessels such as flasks, by placing them directly on the heating element without substantially increasing the risk of glass shattering. These heating mantles are made of rolled aluminium body. The heating element is flexible, insulated and anchored securely in glass fabric. The temperature of heating element can go upto 350°C. PID microprocessor controller provides precise temperature regulation of external probe. Includes external temperature probe, support rods and clamps.

Note: The heating element cording may be slightly brown in color. This is a result of testing during the QC process.

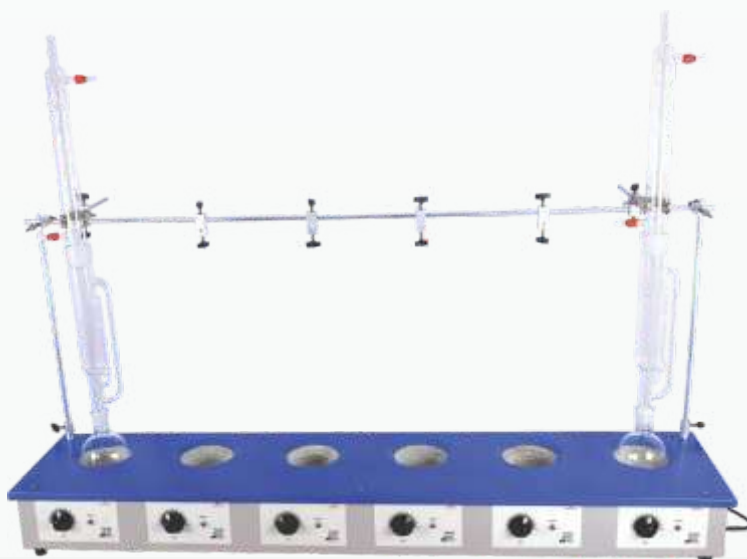
	Capacity, ml	Rating (W)
CH11161D/3	250	150
CH11161D/4	500	200
CH11161D/5	1000	300
CH11161D/6	2000	450
CH11161D/7	3000	450
CH11161D/8	5000	600

HEATING MANTLE, MULTI POSITION

These multi position heating mantles are designed to heat between 3 and 6 round bottom flasks simultaneously. They are often used for distillation, extraction and reflux procedures, wherever heating of multiple flasks is required. Each heating mantle can be regulated with its individual built-in temperature controller. Maximum operating temperature of heating elements is 350°C. Vented housing and unique air flow ensures unit is cool to touch. These units include support rods and clamps.

Note: The heating element cording may be slightly brown in color. This is a result of testing during the QC process.

	No. of Position	Capacity, ml	Rating (W)
CH11162A/1	3	100	300
CH11162A/2	3	250	450
CH11162A/3	3	500	600
CH11162A/4	3	1000	900
CH11162B/1	6	100	600
CH11162B/2	6	250	900
CH11162B/3	6	500	1200
CH11162B/4	6	1000	1800





SOXHLET EXTRACTION HEATING UNIT

Unit comprises a compact box section of mild steel housing, Heating mantles consist of coiled element supported by glass yarn net. These flexible units ensure close contact with flask surface and even distribution of heat. The housing has two vertical and two horizontal rods with clamps to fix glass apparatus. Each heating mantle is provided with an energy regulator and indicator lamp. Without glass parts.

CH11164/3 Unit of three mantles, 375 watt

CH11164/6 Unit of six mantles, 750 watt

GLASS PARTS FOR ABOVE

CH11164S



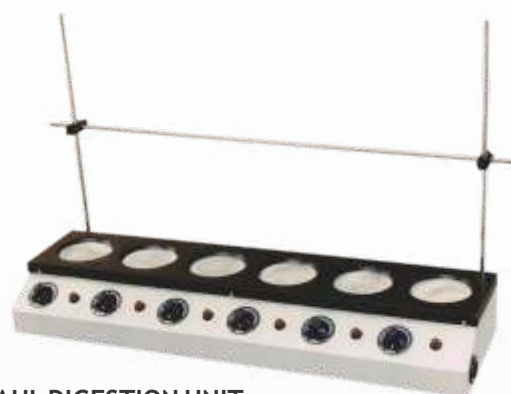
KJELDAHL DISTILLATION UNIT

Useful for distillation for 300 and 500 ml flasks, provided with tubular stand and brass condenser rack. Each heating mantle is provided with an energy regulator and indicator lamp, with six heating mantles, without glass parts.

CH11165

GLASS PARTS FOR ABOVE

CH11165S



KJELDAHL DIGESTION UNIT

Useful for estimation of nitrogen contents of substances by digestion, for 300 and 500 ml flasks. Provided with lead fume duct, mild steel stand and pair of hangers. Each heating mantle has an energy regulator and indicator lamp, without glass parts. Unit with six heating mantles.

CH11166

GLASS PARTS FOR ABOVE

CH11166S



LABORATORY HOT PLATE , ROUND

Cast Iron Hotplate of diam. 20 cm mounted on steel body. Maximum surface temp. Approx. 300° C, temp. is controlled by a three position rotary switch. Works on 220 V AC / 50 Hz.

CH11168



LABORATORY HOT PLATE, ROUND

This general purpose hot plate consist of top surface of Diam. 20 cm (8") that is mounted on a steel body. The top surface encloses an 800W heating element. Maximum surface temperature can go upto 350°C. The temperature is controlled by an energy regulator.

	Max. Temp (°C)	Input Rating
CH11168B/1	350	110V AC / 60 Hz
CH11168B/2	350	220V AC / 50 Hz



LABORATORY HOT PLATE, RECTANGULAR

This heavy duty hot plate consist of rectangular, cast iron plate mounted on top of MS body. The top plate encloses a heavy duty heating element. Maximum surface temperature can go upto 350 °C. Temperature is controlled by a three position rotary switch and energy controller.

	Max. Temp(°C)	Size (cm)	Rating
CH11170/1	350	30x25 (12x10")	1.2 kW
CH11170/2	350	40x25(16x10")	1.2 kW
CH11170/3	350	45x30(18x12")	1.6 kW



LABORATORY HOT PLATE, RECTANGULAR, DIGITAL

This heavy duty hot plate consist of rectangular, cast iron plate mounted on top of MS body. The top plate encloses a heavy duty heating element. Maximum surface temperature can go upto 350 °C. Temperature is controlled by a PID controller. Includes external temperature probe, support rods and clamps.

	Max. Temp(°C)	Size (cm)	Rating
CH11170D/1	350	30x25 (12x10")	1.2 kW
CH11170D/2	350	40x25(16x10")	1.2 kW
CH11170D/3	350	45x30(18x12")	1.6 kW



HEATING MANTLE WITH STIRRER

These are specially designed to meet laboratory requirement of convenient stirring in flask with simultaneous uniform heating by heating mantles. These have two tier constructions with the upper part consisting of heating element while the lower part has the motor for stirring.

Accurate step-less speed control allows smooth variation up to 1200 rpm. Heating energy is controlled by energy regulator. The temperature of heating element can go upto 350° C.

Note: The heating element cording may be slightly brown in color. This is a result of testing during the QC process.

	Capacity, ml	Rating (W)
CH11172/1	50	60
CH11172/2	100	60
CH11172/3	250	150
CH11172/4	500	200
CH11172/5	1000	300
CH11172/6	2000	450



HEATING MANTLE WITH STIRRER, DIGITAL

These are specially designed to meet laboratory requirement of convenient stirring in flask with simultaneous uniform heating by heating mantles. These have two tier constructions with the upper part consisting of heating element while the lower part has the motor for stirring.

Accurate step-less speed control allows smooth variation up to 1200 rpm. Heating is precisely controlled by PID controller. The temperature of heating element can go upto 350° C. Includes external temperature probe, support rods and clamps.

Note: The heating element cording may be slightly brown in color. This is a result of testing during the QC process.

	Capacity, ml	Rating (W)
CH11172D/3	250	150
CH11172D/4	500	200
CH11172D/5	1000	300
CH11172D/6	2000	450



INCUBATOR, UNIVERSAL

Double walled, inner chamber made of thick anodized aluminium or stainless steel and outer of mild steel, The gap of 75 mm between two walls is filled with glass wool for heat insulation. The door has double viewing to permit observation without opening. Heating elements are placed in ribs at the bottom and at sides. Built-in L-shape horizontal thermometer 0 to 110 °C. for uniform heating. Temperature is controlled by a precision thermostat from 5 °C above room temperature to 70 °C, with sensitivity of $\pm 1^\circ\text{C}$. Complete with 2 indicator lamps, Adjustable perforated shelves. Having arrangement to fit an automatic timer. Works on 220-240 V, 50 Hz. Supplied complete with 1.5 meter of 3-core cable.

Aluminium	Stainless Steel	Inner Size, mm	No. of Shelves
CH11177/1	CH11178/1	300 x 300 x 300	2
CH11177/2	CH11178/2	350 x 350 x 350	2
CH11177/3	CH11178/3	450 x 450 x 450	2
CH11177/4	CH11178/4	450 x 600 x 450	2
CH11177/5	CH11178/5	600 x 600 x 600	2
CH11177/6	CH11178/6	600 x 900 x 450	3
CH11177/7	CH11178/7	600 x 900 x 600	3

OPTIONAL ACCESSORIES

Factory fitted, in any of the above sizes.

CH11179T	Timer
CH11179C	Circulatory Fan
CH11179E	Electronic digital temperature indicator.



DIGITAL PHOTO COLORIMETER, 8 FILTERS

8 filters mains operated with optical density in 2½ digit LED display, Range 400 to 700 nm, 1 ml solution measurement.

Designed to deliver stable, direct readout of absorbance. Available in compact and easy to operate finish, these systems are capable for analyzing any level of concentration of solution.

Technical Specifications :-

Std. Glass Filter	: 8
Mini Volume	: 1 ml
Display	: 2½ Digit LED
Range	: 400-700 nm
Output	: OD (0 to 1.99)
Resolution	: OD : 0.01
Accuracy	: 0.5% FSI
Detector	: Selenium Photocell
Light Source	: 6.8v, 300mA
Power	: 230V $\pm 10\%$, 50 Hz, AC
Accessories	: Test Tube Set of 5, Spare Lamp, Dust Cover, Manual
Filters	: 8 Filters - 400, 420, 480, 500, 520, 540, 620, 680 nm

CH11180



CONDUCTIVITY METER

Useful for measuring conductivity of homogeneous electrolytic solutions. Supplied with conductivity cell of cell constant 1, cell stand and standard conductivity solution.

Range : 0.01 micro siemen/ cm to 199.9 milli siemens/ cm in 5 ranges of 20 micro s/cm, 200 micro s/cm, 2 milli s/cm, 20 milli s/cm and 200 milli s/cm.

Accuracy : $\pm 3\%$ of range

Re-Calibration: Front panel control with the help of standard conductivity solution supplied with the meter, helps in easy re-calibration of the conductivity meter.

Display: $3\frac{1}{2}$ digit, 7 segment, bright LED type of 12.5 mm height. Decimal point and over-range indications are provided.

Power Requirements : $230 \pm 10\%$ volts AC, 50/60 Hz, 5 VA

Standard Accessories: Conductivity cell of cell constant 1, cell stand, standard conductivity solution and instruction manual.

CH11182



WATER AND SOIL ANALYSIS KIT $3\frac{1}{2}$ DIGIT LCD DISPLAY COVERING 5 PARAMETERS

pH, Conductivity, TDS, ORP and Temperature. Battery cum mains operated, complete with accessories, fitted in briefcase.

CH11184



SINGLE BEAM MICROPROCESSOR UV-VIS SPECTROPHOTOMETER

Range 195 to 1000 nm with facility for automatic concentration, %Transmission, Absorbance and K Factor measurements. Manual wavelength calibration and selection. Sample holder with 4 position selector control for 10 mm path length cuvettes. Interface (RS 232). Set of 2 quartz and 4 glass cuvettes is provided. Software included (Imported).

Features:

- Cover 195 to 1000 nm
- 4 Position Cuvette Holder
- RS-232C Computer Interface
- High wavelength Precision
- Compact and Good Looking Shape
- Highly Accurate and Stable

Technical Specifications :

Photometric Range	: %T : 0 to 100%, Abs.: 0 to 1.999 Conc.: 0 to 1999, K-Factor : 0 to 1999
Accuracy	: ± 0.005 Abs at 1.0 Abs ± 0.010 Abs at 1.0 Abs
Stray Light	: Less than 0.1% Abs at 320 nm
Readability	: ± 1 Count
Data Readout	: Single Line LCD display
Key Board	: 4 KEYS, Soft touch membrane type
Painter Interface	: Printer interface for any printer
Serial Interface	: RS 232C interface
Light Source	: a) Tungsten Halogen Lamp b) Deuterium Lamp (D2)
Detector	: Wide range Silicon Photodiode
Optics	: Complete mirror optics with resolution 1200 grooves/mm grating
Sample Holder	: 4 position adjustable sample holder
Power	: $230V \pm 10\%$, 50 Hz. AC
Dimensions	: 420 x 350 x 240 mm (L x b x h) Approx.
Weight	: 10 Kg. (Approx.)
Wavelength	: 195 to 1000 nm
Spectral Bandwidth	: 2 nm
Accuracy	: ± 0.5 nm
Repeatability	: ± 0.3 nm
Resolution	: 0.1 nm

CH11186



DIGITAL COLONY COUNTER

4 digit LED display Range 0-9999 with 125 memory, hold and count correction facility. Data restored even after power failure.

Technical Specifications :

Digital Display	: 4 digit, 999 Max. Count
Dish size	: 110 mm
Magnification	: x 1.7
Dimensions	: L 210 x B 270 x H 125 mm (approx.)
Weight	: 3 Kgs. (approx.)
Packaging	: 23 cm x 28 cm x 20 cm
Power	: 230V - 10% AC, 50 Hz, 40W
Accessories	: Marking Pen (1 No.) Magnifier Lens (1 No.)

CH11187

AUTOMATIC MELTING POINT APPARATUS 1

High Precision Melting Point is Displayed on 3½ digit display on front panel. Automatic Furnace cut off with audio and visual indication. Range 40°C to 350°C, readability 1°C. Fully automatic operation.

Technical Specifications :

Display	: Digital 3½ Digit, Bright LED
Accuracy	: 1%
Operation	: Fully Automatic
Dimensions	: L 405 x B 360 x H 235mm (approx.)
Weight	: 5 Kg. (approx.)
Power	: 230V + 10, 50Hz.
Accessories	: Capillary Tube - 100 No Cleaning Tool - 1 No.

Features:

- Fully Automatic
- Range upto 350°C
- Highly Accurate
- No Silicon Oil/Heating Media Required

CH11188



DIGITAL DISSOLVED OXYGEN METER

3½ digit LED display with Gold/Silver D.O. Probe. (Table Model)

These are used to evaluate oxygen liquefy in water and index of biological and physical processes in water. With the specification of power 230V A.C. 50 Hz. and range between D.O. 0 to 20.0 PPM, these are highly durable and accurate.

Technical Specifications :

Range D.O.	: 0 to 20.0 ppm
Resolution D.O.	: 0.1 ppm
Accuracy D.O.	: 0.1 ppm + 1 count
Temp. Compensation	: 0°C to 50°C Manual
Compensation D.O.	: + 3%
D.O. Sensor type	: Amperometric Gold/Silver membrane

General :

Display	: 3½ digit LED display
Power	: 230V A.C. 50 Hz.
Weight	: 2 Kg.

Standard Accessories :

DO Electrode	: 1 No.
Instruction Manual	: 1 No.
D.O. Membranes	: 10 Nos.

CH11189





AUTO KARL FISHER TITRIMETER

Auto Karl Fisher Titrimeter having array of LED's provided with inbuilt stirrer, auto zero burette, adjustable timer, dual platinum electrode and other accessories.

Features :

- Durable
- High Performance
- Superior Efficiency
- Reliable Operations

Technical Specifications :

Display	:	Array of 10 LED's in line
Sample Size	:	1-50 mg of water
K.F. Dispensing	:	0.05 ml
Resolution		
Indication	:	RUN ADD END Display in Auto Mode
Power	:	230V + 10/50 Hz.
Size	:	435 x 305 x 150mm
Weight	:	5 Kg. (Approx.)
Buzzer	:	Yes

CH11190

JAR, COUPLIN

With cover, for 5 slides in vertical position.

CH11192



JAR, COUPLIN

Coplin Jar made of Polypropylene can hold 10 slides of the size 1"x3" back to back. The interior of the Coplin Jar is grooved in a way to hold slides in vertical position. Domed & shallow thread screw cap provides protection to the slides.

CH11193



JAR, STAINING, RECTANGULAR

With cover, for 10 slides in horizontal position.

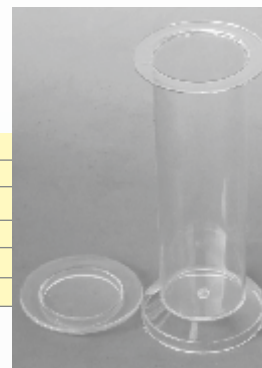
CH11194



JAR, SPECIMEN

Round, with ground flange, Knobbed stopper.

	Ht. x diam., mm
CH11196/1	150 x 50
CH11196/2	200 x 50
CH11196/3	250 x 50
CH11196/4	200 x 75
CH11196/5	250 x 75



JAR, SPECIMEN

Rectangular, with cover, but without stopper.

	Ht. x length x width., mm
CH11198/1	50 x 50 x 30
CH11198/2	100 x 50 x 60
CH11198/3	150 x 100 x 50
CH11198/4	150 x 90 x 60
CH11198/5	150 x 120 x 90
CH11198/6	200 x 100 x 150



STAINING BOX

Moulded in Polypropylene, this staining box helps in staining, fixing, de-staining and handling fragile electrophoresis gels and membranes. Box as well as cover will resist temperatures from - 70°C to +70°C. The LDPE plug provides leakproof seal and allows easy liquid drainage.



	Size
CH11199	125mm x 125mm x 50mm

LABORATORY FITTINGS

WATER TAP, SWAN NECK

Inlet tail is threaded 1/2 in. BSP, The outlet brass tube is coupled to the tap standard by means of a sleeve nut allowing the neck to swivel or to be locked in any desired direction, leakproof operation, designed for pressures upto 80 p.s.i. finished in hard chrome plating.



CH11200/1	Water Tap, Single
CH11200/2	Water Tap, Single, heavy
CH11200/3	Water Tap, Two way
CH11200/4	Water Tap, Two way, heavy
CH11200/5	Water Tap, Three way
CH11200/6	Water Tap, Three way, heavy





GAS TAPS

Made of selected material, heavy construction, made to ensure leak proof performance. Each piece is tested for pressure. Lever handle is spring loaded and has locking arrangement to ensure that rotation does not go beyond 90°, standard nozzles have 1 mm bore, inlet 1/4 in. BSP, flange diam. 54 mm with three holes to screw on bench or any other surface. Designed to operate pressure upto 2 P.s.i (0.14 Kg/cm²), suitable for coal gas, natural gas or bottled L.P.G., supplied complete with adaptor.

CH11205/1 One way gas tap

CH11205/3 Two way gas tap

CH11205/5 Three way gas tap

CH11205/7 Four way gas tap

Accessories

CH11207/1 Adaptor, spare

CH11207/3 Nut for joining adaptor to copper tube

CH11207/5 T-joint, flared, forged brass with 3 nuts, size 5/16"



DRAWING MATHEMATICAL SET

For students use, set comprises 1 compass, 1 divider, 1 protractor, 1 set square 60°, 1 set square 45°, 1 plastic ruler 15 cm, 1 eraser and 1 pencil. Complete set in sheet metal Box.

CH11215

DRAWING BOARD

Soft wood, clamped edges.

CH11218/1 440 x 320 mm

CH11218/3 630 x 450 mm



MICROMETER SCREW GAUGE

Brass Body, with steel screw of 0.5 mm pitch, thimble with ratchet stop, range 0 to 25 mm, reading to 0.01 mm, in plastic pouch.

CH11219



METRIC MICROMETER

Stain finish frame, calibrated to 25 mm x 1 mm pitch with friction thimble to permit consistent measurements. Machine-cut graduations, with ratchet stop.

CH11220



VERNIER CALLIPERS

Plated steel. Double scale, reading 0-12 cm x 0.1 mm and 5 x 0.01 inch, with depth gauge and thumb wheel for fine adjustment, in plastic pouch.

CH11225



VERNIER CALLIPERS, IME TYPE

Chrome plated steel, heavy type, scale 150 x 0.1 mm and 6 x 0.01 inch, sliding jaw with thumb movement for fine adjustment.

CH11230



VERNIER CALLIPERS

Plastic with scale printed black.

CH11235





METER RULE

Non-warping wood, 25 mm wide, double scale in mm, figured every cm. The scales on the two edges read in opposite directions.

CH11500/1	1 meter
CH11500/3	½ meter



MEASURING TAPE

Woven metal wired tape in ABS case, with handle for rewinding.

	Length, metre
CH11510/1	5
CH11510/2	10
CH11510/3	20
CH11510/4	30
CH11510/5	50



METER STICK, DOUBLE SIDED 1

Graduation dm, cm, mm on one side and inch, 1/8 inch on other side.
CH11504

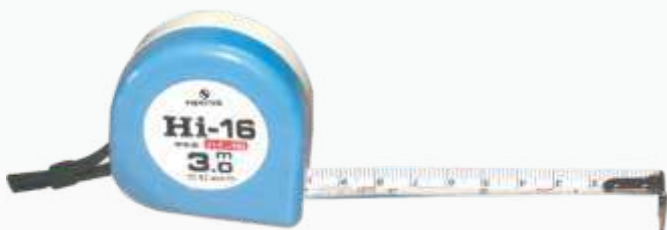
METER STICK, DOUBLE SIDED 2

With metal ends, graduation dm, cm, mm on one side and inch, 1/8 inch on other side.
CH11508



HALF METER STICK, DOUBLE SIDE

Graduation dm, cm, mm on one side and inch, 1/8 inch on other side.
CH11512



MEASURING TAPE

Steel, in unbreakable case, self re-winding. graduated in mms, figured every cm.

	Length, metre
CH11509/1	1
CH11509/2	2
CH11509/3	3
CH11509/5	5

Shiv Dial Sud & Sons

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Ambala Cantt - 133 006, INDIA

Tel : +91-171-2699537, 2699297
info@shivsons.com
www.shivsons.com

MELTING POINT APPARATUS

Useful for determining melting points upto 300°C. Consists of an aluminum block which accepts three capillary tubes and a thermometer. The block is heated by two heating elements which are provided with a built-in energy regulator. The lamp provides uniform and shadowless illumination of samples. A lens is provided for the capillaries. Heating block and controls are enclosed in a metal box. Works on 220 V, 50 Hz supply.

CH11513



MELTING POINT APPARATUS, THIELE

Borosilicate glass, with side tube, overall size 182 x 84 mm.

CH11516



MELTING POINT APPARATUS, DIGITAL

	CH11514
Display	4 Digit Seven segment LED display
Temperature	0 - 300° C
Resolution	0.1° C
Capillary Glass Tube	100 mm long, 0.8 to 1.1 mm Internal Diam.
Boiling Point Tube	6 x 75 mm Glass Tube
Sample Size	Fine powder properly dried at a temperature considerably below its melting point, 4 to 6 mm high
Oil Bath	Silicon oil bath beaker - 200 ml capacity with teflon cover fitted with oil immersion heater. it is having three holes for holding the capillaries, one for boiling point tube & one for thermometer
Stirrer Speed	Controllable with front knob
Power	230 V \pm 10% AC, 50 Hz
Dimension	315 x 290 x 230 mm (L x B x H) Appx.
Weight	12 Kgs. Appx.

Accessories

Box of capillaries

Glass tubes for liquid sample (6 x 75 mm) 2 Nos.

Magnetic capsule

Bottle of silicon oil - 250 ml

Glass cylindrical beaker with teflon cover fitted with immersion heater.

MELTING POINT TUBES

Thin walled capillary tubes, 100 x 1.8 mm approx. pack of 100 tubes.

CH11517



New products can be developed as per buyer's specifications and requirements



GEOMETRICAL MODELS

Set of plane and solid geometric shapes. Plane shapes include triangles, figures with four, five, six, seven, eight, nine and ten sides, circle, semi-circle and quadrant. The solid shapes include cylinder, sphere, cube, tetrahedron, pyramid, cone, prism. Cube size 30 mm, cylinder height 50 mm.

CH11520



ATOMIC MODEL SET

With plastic balls in various sizes and colors, and link lugs, in box.

CH11550/1	Set of 60 balls
CH11550/3	Set of 120 balls
CH11550/5	Set of 360 balls



ATOMIC MODEL SET

Consists of moulded balls of different colors and sizes along with connecting lugs of different sizes. These sets are very helpful in modelling different organic and Inorganic compounds.

SENIOR SET : This set consists of 185 lugs and 370 balls of prescribed colors and size packed in a moulded box having separate space for every particular color and size of ball. Senior set.

CH11555/2

JUNIOR SET : This set consists of 37 connecting lugs and 75 balls of different colors and sizes packed in a moulded box.

CH11555/4



GEOMETRICAL MODELS & FIGURES

Made of hard wood, set of 16, in box.

	Size, mm
CH11522/1	40 x 25
CH11522/2	50 x 30



ATOMIC MODEL SET

This set consists of moulded balls of different colours and sizes along with connectors of different sizes. The sizes and shapes of the balls and connecting lugs have been designed in accordance with internationally acceptable standards.

CH11560/2	Student Set
CH11560/4	Teacher Set

MODEL SET MOLECULAR - INORGANIC/ORGANIC

The set can be used to make any number of organic and inorganic molecules, can be used to demonstrate isomerism in organic compounds and many of the most common geometries shown by atoms main group and transition metal compounds. Packed in a suitable box with teaching notes. Available in two options :

64 atoms of Different colors and 26 medium link grey 31mm and 12 long flexible links grey 46 mm. 3 Lone pair, pear shape Beige colour.

CH11562/1



52 atoms of Different colour and 20 medium link grey 31 mm, 5 medium link purple colour 31 mm and 12 long flexible links grey 46 mm. 3 lone pair electron cloud flat pear shaped.

CH11562/3



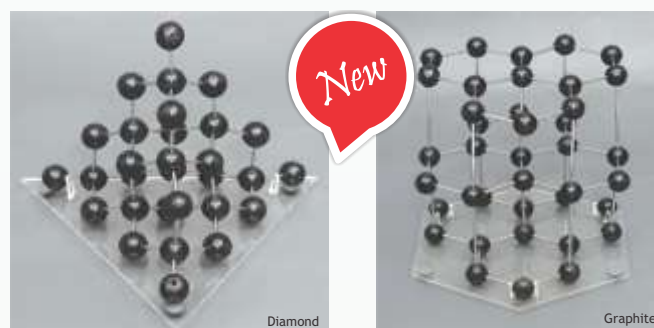
MODEL SET MOLECULAR - INORGANIC/ORGANIC

The set can be used to make models of many organic molecules and also to illustrate various forms of isomerism in organic systems.

Atom parts are made of solid plastic spheres and are available with from 1 - 6 holes in the usual angular orientations.

The contains 50 atoms of Different colours, 26 short white links, 26 medium grey links 31 mm and 10 long grey flexible links 46 mm. 1 Link Removers Beige colour. Packed in a suitable box with teaching notes.

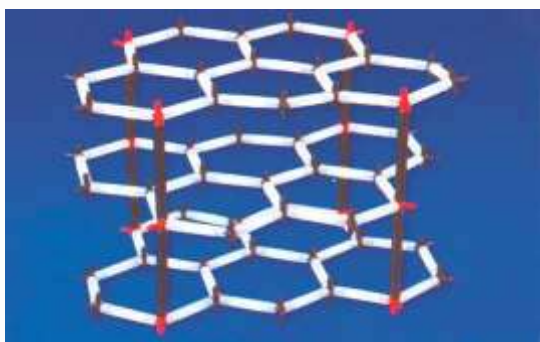
CH11564



LARGE CRYSTAL MODEL

Large crystal models to introduce crystal lattices and unit cells to students. Mounted permanently onto a clear acrylic base to minimize the possibility of lost parts.

CH11566/1	Sodium Chloride
CH11566/2	Diamond
CH11566/3	Graphite



CRYSTAL MODEL SET

These crystal model sets contain different colored jacks (Red, Black, and White) and connectors (long & short) in a prescribed number to be joined together on an illustrated way to form structures like Diamond, Graphite and Sodium Chloride.

CH11570/2	Diamond
CH11570/3	Sodium Chloride
CH11570/4	Graphite

CRYSTAL MODEL SET

Made of hard wood, set of 20, in box.
CH11572



MEGAMOLECULES - THE STRUCTURE OF WATER

The kit allows students to explore the attractions between water molecules which are responsible for creating surface tension. Electrical forces between the water molecules are simulated with the help of magnets. The hydrogen atom of one water molecule is attracted to the lone pair of electrons of the other water molecule.

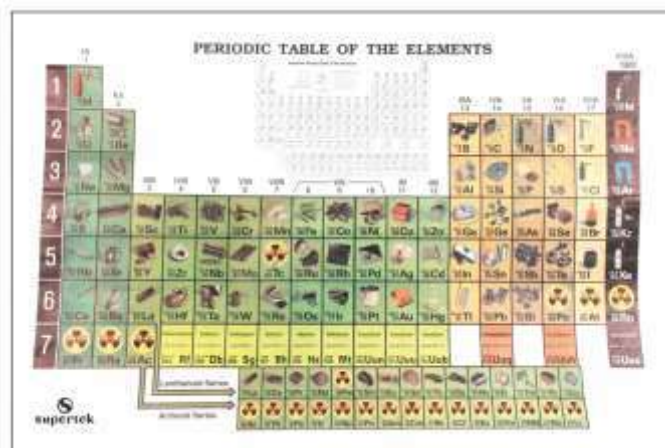
Kit consists of: 2

MAGNETIC WATER MOLECULES

1 Foam Fish

1 Modeling Activity

CH11575



CHART, POLYART, PLASTIC

Class room size 75 x 100 cms. Printed on polyart plastic sheet, colored, fitted with plastic roller.

CH11580/1	Periodic Table
CH11580/2	Chart Laboratory Safety
CH11580/3	Chart Laboratory Techniques
CH11580/4	Chart pH Colour



PERIODIC PUZZLE, WOODEN

To show the working of periodic tables in form of blocks. Supplied in wooden box.

CH11585/1A	Set of 118 Elements.	1
CH11585/3A	Set of 20 Elements.	2

**MORTAR & PESTLE**

Porcelain, Mortar with spout, glazed outside except bottom, unglazed inside. Pestle unglazed to grinding surface.

	Inside Diam., mm	Capacity, ml
CH11605/1	60	60
CH11605/2	75	100
CH11605/3	85	150
CH11605/4	100	275
CH11605/5	125	550
CH11605/6	150	900
CH11605/7	175	1500
CH11605/8	200	2000
CH11605/9	250	4200
CH11605/10	300	7000
CH11605/11	350	-
CH11605/12	400	-

MORTAR & PESTLE, AGATE

Made of Naturally occurring Agate Stone, recommended for use in laboratories demanding contamination-free results.

	O.d., mm	I.d., mm	H.t., mm
CH11610/2	28	23	20
CH11610/3	40	31	27
CH11610/4	50	40	30
CH11610/5	60	57	33
CH11610/6	78	65	39
CH11610/7	100	87	44
CH11610/8	115	100	51
CH11610/9	125	111	61
CH11610/10	150	134	63

PESTLE

	Length, mm		Length, mm
CH11615/1	25	CH11615/6	100
CH11615/2	40	CH11615/7	115
CH11615/3	50	CH11615/8	125
CH11615/4	65	CH11615/9	150
CH11615/5	75		

**SEROLOGICAL PIPETTES, STERILE, POLYSTYRENE**

- Individually wrapped graduated pipettes with paper/ plastic peel-pack.
- Unique color-coded plug allows easy size identification.
- Sterile, individually wrapped and certified nonpyrogenic and DNase, RNase-free.
- Lot numbers printed on each pipette wrapper.
- Accuracy within $\pm 2\%$ at full volume.

	Length, mm	Capacity, ml
CH11620/1	270	1
CH11620/2	270	2
CH11620/3	295	5
CH11620/4	295	10
CH11620/5	298	25
CH11620/6	300	50

**PASTEUR PIPETTES, LDPE**

- Unbreakable, non-toxic all-in-one pipettes eliminate the hazard of broken glass and exposure to infectious materials.
- Molded from translucent low-density polyethylene they are inert to biological fluids and most acids.
- Can be sealed and refrigerated.
- The low-affinity, low binding surface reduces the loss of cells and valuable proteins.
- Sterile and non-sterile options available.

	Capacity, ml	Length, mm
CH11622/1	1.0	150
CH11622/2	1.0 (Sterile)	150
CH11622/3	3.0	155
CH11622/4	3.0 (Sterile)	155



UNIVERSAL OVEN

For heating up to 250°C. Inside chamber made of thick aluminium or stainless steel sheet. Outside made of mild steel, the gap between the walls being filled with glass wool. Heating elements are placed in ribs at the bottom and sides of chamber for uniform heating. Thermostatic control is provided which gives a temperature fluctuation of not more than $\pm 1^\circ\text{C}$ read by an L-shape thermometer. The insulated door closes firmly against heat resistant gasket and is provided with a handle with spring latch. Front panel has ON/OFF switch, 2 neon indicators and dial for temperature setting. Unit provided with 1.5 m of 3-core cable. Works on 220-240 V.A.C.

Aluminium	Stainless Steel	Inner Size, mm	No. of Shelves
CH11812/1	CH11813/1	300 x 300 x 300	2
CH11812/2	CH11813/2	350 x 350 x 350	2
CH11812/3	CH11813/3	450 x 450 x 450	2
CH11812/4	CH11813/4	450 x 600 x 450	2
CH11812/5	CH11813/5	600 x 600 x 600	2
CH11812/6	CH11813/6	600 x 900 x 450	3

OPTIONAL ACCESSORIES

Factory fitted, to be ordered along with the oven.

CH11814T	Timer
CH11814F	Air Circulating fan
CH11814I	Digital temperature indicator
CH11814C	Digital temperature controller-cum-indicator

DIGITAL PH METER

Handy and accurate pH measuring instrument for chemical, Food, Waste water and laboratory applications. Different pH combination Electrodes available.

- Sensor / Input : pH Combination Electrode
 - Range : 0 to 14.00 pH
 - Accuracy : ± 0.02 pH
 - Special Features : Portable
 - Battery Operated
 - 0 to 100°C Temp. Compensation
 - Interchangeable pH Electrode
- PHM10001



pH METER

For measurements of pH values of homogeneous electrolytic solutions. Supplied with glass combination type of electrode, electrode stand & pH buffer solutions of 4 & 7 pH. The buffer solutions help in easy re-calibration of the pH meter. Standardization (7pH) and slope (4pH) adjustment controls are provided on the front panel. Detachable electrode ensures replacement convenience. Self check facility control on front panel enables users to ensure that the pH meter is functioning properly. Temperature setting on front panel provides compensation for different temperatures of solutions.



- **pH Range** : 0 to 14.00 with resolution of 0.01 pH
- **Milli Volt Range**: 0 to ± 1999 milli volts DC with resolution of 1 milli volts. pH or milli volt measurement selection is provided with a front panel control.
- **Accuracy** : ± 0.04 pH for pH measurements
 $\pm 0.2 \pm 2$ milli volts form milli volts measurements
- **Temperature Compensation**: 0°C to 100°C , settable with continuously adjustable front panel control.
- **Self Check Facility**: Available with front panel control. Displays read 7.00 ± 0.02 pH to indicate proper functioning of the pH meter.
- **Re-Calibration**: Front panel preset control of STANDARDIZATION enables calibration of 7 pH.
Front panel preset control of SLOPE enables calibration of 4 pH. Buffer solutions of 4 & 7 pH are supplied with the pH meter to re-calibrate the pH meter.
- **Display**: $3\frac{1}{2}$ digit, 7 segment, bright LED type of 12.5 mm height. Decimal point, over-range and negative polarity indications are provided.
- **Power Requirements** : $230 \pm 10\%$ volts AC, 50/60 Hertz, 5 VA
Standard Accessories: Glass combination type of pH electrode, electrode stand, buffer solutions of 4 & 7 pH and instructions manual.
PHM10004

PORTABLE pH METER 'HANDY'

$3\frac{1}{2}$ digit LCD display in ABS Plastic body, touch switches with combination pH electrode.
PHM10006



pH METER, POCKET

- Range : - 0.0 to 14.0 pH
 - Resolution : - 0.1 pH
 - Accuracy : - ± 0.1 pH (@ $20^\circ\text{C}/68^\circ\text{F}$)
 - Batteries : 3 x 1.5V alkaline
- PHM10008



PIPETTE PUMP

A fast release pipetting device for precise pipetting & zip quick emptying. The Knurled thumbwheel can be rotated to draw up or dispense liquids while the releaser may be pushed in for zip - quick emptying. The moulded chuck has a silicon rubber collet inside to hold various pipettes of standard sizes. It resists acids and alkalis and can be easily disassembled for thorough cleaning.

	Size, ml
CH11815/1	2
CH11815/4	10
CH11815/5	25



MINIATURE FIXED VOLUME MICROPIPETTES

Low cost miniature fixed volume pipettes are specially designed for use with Diagnostic Kits.

Features : FULLY AUTOCLAVABLE

- Each pipette is individually calibrated as per ISO 8655 standards.
- Colour coded for different volumes for easy identification in laboratory environment.
- UNIQUE TIP-CONE
The tip cone of Li'lPet (5µl, 10µl, 20µl) is designed to accept both regular 200µl tips or ultra micro tips upto 20µl
- Use of Ultra micro tips for volumes upto 20µl enhances the accuracy and precision very significantly.
- Two-step plunger operation facilitates super blow-out from the tip (last drop dispensing), resulting in very high accuracy & precision.
- This also allows these pipettes to be used for reverse pipetting and repetitive pipetting. 130 mm in length which is an optimum size for user comfort during pipetting.



OPTIMUM SIZE

130 mm in length which is an optimum size for user comfort during pipetting.

	Vol. µl	Acc. ±%	CV ≤%
MM-5	5	1.5	1.0
MM-10	10	1.0	1.0
MM-20	20	0.5	0.5
MM-25	25	0.5	0.5
MM-50	50	0.4	0.3
MM-100	100	0.3	0.3
MM-200	200	0.5	0.5
MM-250	250	0.5	0.5
MM-500	500	0.5	0.5
MM-1000	1000	0.5	0.5

ELECTRONIC MICROPIPETTES

Based on Stepper Motor with Microprocessor controlled piston movement. These are user friendly and offer effortless pipetting. Accuracy & precision levels are very high and user-independent. This is a complete solution for every pipetting need.

- User friendly software.
- Easy, User friendly calibration.
- Recharging during operation.
- Optimized ergonomics and working comfort.
- Large Liquid Crystal Display.
- Built-in tip ejector.
- Six models cover the complete pipetting range from 0.2µl to 10000µl.

FEATURES

- Easy selection of modes from a single key
- Stepper mode
- Dilution mode
- Standard mode
- Calibration Mode

» Variable Working Speeds

Speed can be selected on a scale of 1-5.

» Volume Selection

Easy volume selection by 'UP' & 'DOWN' keys.

» Large Fire Button

Single 'FIRE BUTTON' for filling and dispensing.

» Large Liquid Crystal Display

Two line Alphanumeric LCD.

» Calibration

User friendly calibration mode facilitates easy calibration by the user.



	Volume Range	Inc. µl	Vol. µl	Acc. ±%	CV ≤%
ME-10	0.2-10 µl	0.05	0.2	12.00	10.00
			5	1.00	0.70
			10	0.90	0.40
ME-120	5-120 µl	0.5	5	3.50	1.50
			50	0.70	0.30
			120	0.40	0.15
ME-300	20-300 µl	1.0	20	2.50	0.70
			150	0.60	0.20
			300	0.40	0.15
ME-1000	50-1000 µl	5.0	50	2.00	1.00
			500	0.60	0.20
			1000	0.40	0.15
ME-5000	100-5000 µl	10.0	100	1.60	0.40
			2500	0.80	0.20
			5000	0.50	0.15
ME-10000	500-10000 µl	50.0	500	1.50	0.30
			5000	0.50	0.15
			10000	0.60	0.20

PIPETTE FILLING DEVICE

Friendly, efficient and reliable electronic pipette filling instrument.
Designed for ease and comfort to suit all types of liquid handling needs in every Laboratory.
Available in two attractive designs to cater individual preference.

Features

- Two LEDs
 - Red - low charging
 - Green - Charging status.
- Continuous adjustment of pump speed during operation.
- An universal Silicon collect is provided to accept all standard pipettes up to 100ml. Internal knurlings on the collet holds the pipette firmly.
Comfortable grip.
- In-line membrane filter (0.2 micron) prevents
 - a. Aerosol Contamination.
 - b. Liquid from entering the equipment by accident.
- Ni-MH 3.6V rechargeable batteries are used in combination with low power consumption circuit and vacuum/pressure pump. Allows eight hours of continuous operation.



Pipette Filling Device

	Description
NE-WG	White body/Grey collect and plunger
NE-WV	White body/Violet collect and plunger
NE-WR	White body/Red collect and plunger



Available in attractive colour combination

BOTTLE TOP DISPENSER

An unique combination of affordable pricing and high performance. Simple design clubbed with variety of useful features makes Supertek Bottle Top Dispensers an obvious choice for all dispensing needs. High precision and accuracy is ensured through careful selection of component raw material and several stages of strict quality checks during manufacturing process. Each instrument is individually calibrated in accordance with ISO 8655 standards and comes with individual Calibration certificate.



Description	
Piston	PTFE
Cylinder	Glass
Volume Adjustment Knob	Screw Type
Valve Housing	PTFE
Valve assembly	Glass Ball & Seat
Discharge Assembly	PTFE
Delivery tube	FEP
Inlet tube	FEP
Calibration	Individually calibrated and certified. In-lab easy Calibration by the user is also possible.
Accuracy & Reproducibility	In accordance with ISO 8655 standards.
Compatibility	Excellent compatibility with all reagents except HF

Features:

- Easy to use, simple construction and smooth, effortless plunger movement for bubble free dispensing.
- Piston : Specially designed PTFE Piston with Silicone O-Ring ensures wiper-like smooth, effortless piston movement and high accuracy.
- Each instrument comes with five adaptors to fit in most of the laboratory reagent bottles. Standard threads : 30mm. Adaptors : 28mm, 32mm, 36mm, 40mm and 45mm
- Nozzle cap prevents any unwanted drop on the work space.
- Easy to dis-assemble for cleaning and servicing.
- Glass Barrel is protected by a polypropylene sleeve. It also ensures no glass splitting in case of any accidental breakage.
- Valve Manifold : Specially designed, springless, single piece PTFE valve manifold in the Research Model ensures excellent chemical compatibility, leak proof valve functioning and excellent reproducibility.
- Instrument is fully autoclavable at 121°C, 15 psi. No need for dis-assembling the instrument for autoclaving.
- Screw type volume adjustment knob with large pointer ensures precise, easy and quick volume adjustment.
- Calibration : Specially designed universal calibration tool is provided for convenient and quick in-lab user re-calibration. This is in compliance with GLO/ ISO Norms.

	Vol. Range	Increment	Accuracy ±%	±ml	CV ±%	±ml
BTDR-1	0.25-2.5 ml	0.05 ml	0.6	0.015	0.2	0.005
BTDR-2	0.5-5 ml	0.1 ml	0.5	0.025	0.1	0.005
BTDR-3	1-10 ml	0.2 ml	0.5	0.050	0.1	0.010
BTDR-4	2.5-30 ml	0.5 ml	0.5	0.150	0.1	0.030
BTDR-5	5-60 ml	1.0 ml	0.5	0.300	0.1	0.060

HIGH PRECISION MICROPIPETTES (RBO Series)

VARIABLE VOLUME FULLY AUTOCLAVABLE

High precision micropipette series for advance users in the field of Molecular biology, Microbiology, Immunology, Cell Culture, Analytical Chemistry, Biochemistry, Genetics etc. High quality spring mechanism ensures softer plunger movement. Nine volume ranges cover the complete pipetting range from 0.2 μ l to 10 ml offering a wide choice to select the most suitable model for any application.



All Supertek Pipettes are
as per ISO 8655 Standard

FULLY AUTOCLAVABLE Variable Volume Micropipettes

	Volume Range	Inc. μ l	Vol. μ l	Acc. $\pm\%$	CV $\pm\%$
RBO-2	0.2 - 2.0 μ l	0.002	0.2	12.0	6.0
			1.0	2.5	1.5
			2.0	1.5	0.7
RBO-10	0.5 - 10 μ l	0.02	0.5	5.0	2.8
			5.0	1.5	0.8
			10.0	1.0	0.4
RBO-20	2 - 20 μ l	0.02	2.0	5.0	1.5
			10.0	1.0	0.6
			20.0	1.0	0.3
RBO-50	5 - 50 μ l	0.1	5.0	2.5	1.5
			25.0	0.7	0.3
			50.0	0.7	0.3
RBO-100	10 - 100 μ l	0.2	10.0	2.5	0.7
			50.0	0.8	0.3
			100.0	0.8	0.15
RBO-200	20 - 200 μ l	0.2	20.0	2.5	0.7
			100.0	1.0	0.3
			200.0	0.6	0.2
RBO-1000	100 - 1000 μ l	1.0	100.0	1.6	0.3
			500.0	0.6	0.2
			1000.0	0.5	0.2
RBO-5000	0.5 - 5 ml	10.0	500.0	1.5	0.3
			2500.0	0.6	0.2
			5000.0	0.6	0.2
RBO-10000	1 - 10 ml	20.0	1000.0	1.5	0.3
			5000.0	0.6	0.2
			10000.0	0.6	0.2

FULLY AUTOCLAVABLE Fixed Volume Micropipettes

Fixed Volume Pipettes are designed for many different types of routine laboratory work. Using the some state-of-art design and basic features of Variable Volume Pipettes, these fixed volume pipettes are ideal for Clinical Diagnostics, Control Analysis etc.

Color Coding

Attractive color coding for easy identification between different volume ranges



	Vol. μ l	Acc. $\pm\%$	CV $\pm\%$
RBO-F-1	1.0	2.5	1.8
RBO-F-2	2.0	2.5	1.2
RBO-F-5	5.0	1.5	0.8
RBO-F-10	10.0	1.0	0.5
RBO-F-20	20.0	0.5	0.3
RBO-F-25	25.0	0.5	0.3
RBO-F-50	50.0	0.3	0.3
RBO-F-100	100.0	0.3	0.2
RBO-F-200	200.0	0.3	0.2
RBO-F-250	250.0	0.3	0.2
RBO-F-500	500.0	0.3	0.2
RBO-F-1000	1000.0	0.3	0.2
RBO-F-2000	2000.0	0.3	0.2
RBO-F-5000	5000.0	0.3	0.2
RBO-F-10000	10000.0	0.3	0.2



LARGE GRIPPY

Specially designed large grippy is provided for comfortable grip and ease during working.

MULTICHANNEL MICROPIPETTES

Recommended for ELISA, Molecular screening, Kinetic studies, DNA amplifications etc.

8 - Channel Fully Autoclavable Micropipette

12- Channel Fully Autoclavable Micropipette

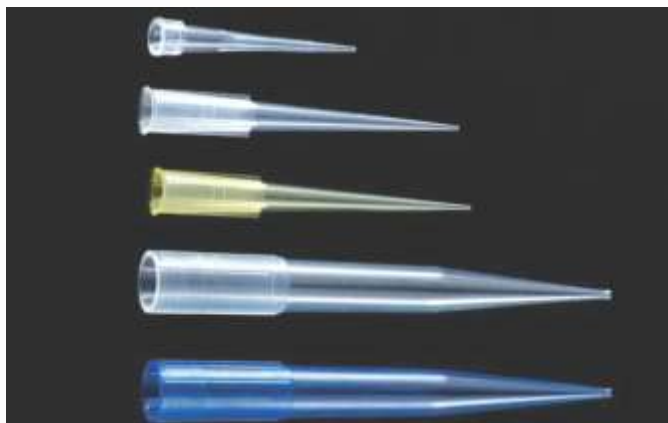
8-Channel Fully Autoclavable Micropipette	12-Channel Fully Autoclavable Micropipette	Volume Range	Inc. μ l	Vol. μ l	Acc. $\pm\%$	CV $\pm\%$
RBO-MCA/8	RBO-MCA/12	0.5 - 10 μ l	0.1	1	4.00	4.00
				5	2.50	2.50
				10	1.50	1.50
RBO-MCA/8	RBO-MCA/12	02 - 20 μ l	0.1	2	4.00	4.00
				10	1.50	1.50
				20	1.50	1.00
RBO-MCA/8	RBO-MCA/12	05 - 50 μ l	1.0	5	3.00	2.00
				25	1.50	1.00
				50	0.50	0.50
RBO-MCA/8	RBO-MCA/12	10 - 100 μ l	1.0	10	3.00	1.50
				50	1.00	0.50
				100	1.00	0.50
RBO-MCA/8	RBO-MCA/12	20 - 200 μ l	1.0	20	2.00	0.80
				100	1.00	0.50
				200	0.70	0.25
RBO-MCA/8	RBO-MCA/12	40 - 300 μ l	1.0	40	2.00	0.80
				150	1.00	0.50
				300	0.70	0.25



8- Channel



12- Channel



TIPS RACK

Core Highlights

- * Tips are available in hinged racks of 96 tips(10ul & 200ul) & 100 tips(1000ul) and are compatible with multichannel pipettors and robotic systems .
- * Transparent, hinged lid can remain open at 120° or it can be removed.
- * Both lid and the base can withstand autoclaving .
- * The two-position latch allows lid to be shut tightly or kept slightly ajar for more effective autoclaving .
- * All sterilized tip racks are individually sealed in plastic and have a tear strip for easy opening without sharp instruments.
- * Easily refilled with pre-loaded, snap-in tips wafers (reloads).
- * Certified RNase, DNase, DNA free and Non-Pyrogenic.

PIPETTE TIPS

Core Highlights

- * All tips are molded in exclusive 99.9% virgin polypropylene resin.
- * Use finest porous plastic filter membrane available.
- * Filters are free of particles, starch and surfactants.
- * Filter Tips fit all single and multi-channel pipettors.
- * Tips are RNase/DNase and Pyrogen -free

	Description	Qty/Pack
CH11827B	10µl Natural	1000/PK
CH11827B/1	Extra long clear tips for P2/P10 for Eppendorf research/reference, Bulk	1000/PK
CH11827B/2	200µl Bevelled Natural	1000/PK
CH11827B/3	200µl Bevelled Yellow	1000/PK
CH11827B/4	200µl Yellow, Graduated	1000/PK
CH11827B/5	200µl Clear, Graduated	1000/PK
CH11827B/6	1000/PK1000µl Natural	1000/PK
CH11827B/7	1000µl Blue	1000/PK
CH11827B/8	5000µl Clear	1000/PK
CH11827B/9	10000µl Clear	1000/PK

LOW RETENTION TIPS

CH11827B/10	10µl Natural, Low Retention	1000/PK
CH11827B/11	Extra long clear tips for P2/P10 for Eppendorf research/reference, Bulk, Low Retention	1000/PK
CH11827B/12	200µl Bevelled Natural, Low Retention	1000/PK
CH11827B/13	1000µl Natural, Low Retention	1000/PK

	Description	Qty/Pack
CH11829B	Empty Racks for GenTip 10ul	10/PK
CH11829B/1	Empty Racks for GenTip 200ul	10/PK
CH11829B/2	Empty Racks for GenTip 1000ul	10/PK
CH11829B/3	Empty Racks for 5ml & 10ml Tips	Each
CH11829B/4	10µl Natural Mini Racks of 96/pk	10/PK
CH11829B/5	200µl Yellow Mini Racks of 96/pk	10/PK
CH11829B/6	200µl Natural Mini Racks of 96/pk	10/PK
CH11829B/7	1000µl Blue Mini Racks of 100/pk	10/PK
CH11829B/8	1000µl Natural Mini Racks of 100/pk	10/PK
CH11829B/9	10µl STERILE Natural Mini Racks of 96/pk	10/PK
CH11829B/10	200µl STRL Yellow Mini Racks of 96/pk	10/PK
CH11829B/11	200µl STRL Natural Mini Racks of 96/pk	10/PK
CH11829B/12	1000µl STERILE Blue Mini Racks of 100/pk	10/PK
CH11829B/13	1000µl STERILE Natural Mini Racks of 100/pk	10/PK



PIPETTE, DROPPING

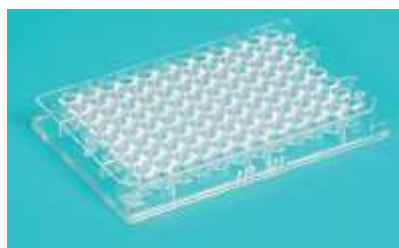
Pipette with rubber teat, length approx 40 mm.
CH11830



96 WELL MICROTITER / ELISA PLATES

Description

We offers a line of quality Microtiter plates for manual or automated sample processing.



		Qty/Pack
CH11832B	Microtitration Plates, Flat Bottom, Sterile	100 Plates
CH11832B/1	Microtitration Plates, Round Bottom, Sterile	100 Plates
CH11832B/2	Lids for Microtiter Plates, Sterile	100 Plates
CH11832B/3	Microtitration Plates with Lids, Flat Bottom, Sterile	250 Plates
CH11832B/4	Microtitration Plates with Lids, Round Bottom, Sterile	250 Plates

UNIVERSAL REAGENT RESERVOIR

This Universal Reagent Reservoir is a graduated single reagent reservoir with maximum volume of 50 ml, reservoir with 8 separate numbered 5 ml, reagent channels & a reservoir with 12 separate numbered 5 ml reagent channels. Made of polypropylene these reagent reservoirs are repeatedly autoclavable and can be used with all multi-channel pipettes.



	Capacity, ml
CH11833	50

REAGENT RESERVOIR

Moulded in Polypropylene, this autoclavable Reagent Reservoir is helpful for multi-channel pipettes to be used into microtiter plates.



	Capacity, ml
CH11834	75

TEATS FOR PIPETTES

Rubber, with rolled edges, for use with dropping pipettes, pack of 100.

CH11835

PIPETTE BULB

Made of rubber, with thick walled neck size small, medium, large, extra large.

CH11838

PIPETTE FILLER

Comprises a rubber bulb and three pinch valves, for use with pipettes upto 50 ml.

CH11840



PIPETTE STAND

To hold 12 pipettes horizontally.

CH11850	Polypropylene
CH11852	Wooden



PIPETTE STAND

To hold 24 pipette vertically. Plastic.
CH11855/1



PIPETTE BOX

Made of polypropylene, this Pipette Box is designed in such a way that it can hold pipettes of different lengths. The top of the box screws on the bottom and the height can be adjusted by screwing or unscrewing the top.

CH11856



PIPETTE RACK STAND, ACRYLIC

Keep pipettors within easy reach inside this convenient rack. Holds five standard size pipettors.

No. of Places	L x W x H, mm
5	190 x 135 x 265

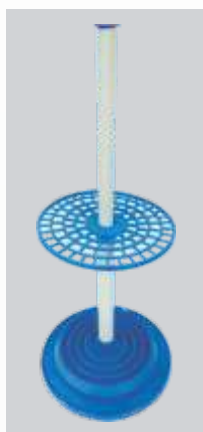
CH11857



PIPETTE STAND (94 PIPETTES ROTARY)

Polypropylene holds a maximum of 94 pipettes and rotates on a central vertical axis for convenient selection of any particular pipette. The lower rotating disc has four concentric troughs with tapered sides and open bottoms which cradle the pipette tips protectively and permit water drops to run off. The upper disc has a grid pattern concentric with the bottom discs and keeps the pipettes vertical. Liquids draining off the pipettes are retained on the top of the stationary base by the outer ring. This stand can be easily disassembled & reassembled.

CH11860



CARRIER TRAYS

This autoclavable Polypropylene Tray has a unique feature i.e. its handle which proves really helpful in carrying reagents or laboratory apparatus from one place to another, single handedly.

	Size
CH11866	380mm x 240mm x 115 mm



LABORATORY TRAY

Needless to say, Polypropylene laboratory Tray moulded in Polypropylene is a multipurpose tray that can be used for sterilizing, drying glassware porcelainware & other laboratory instruments. These steam autoclavable trays have tapered walls which prove good for nesting.

	Size
CH11862/1	450mm x 350mm x 75 mm
CH11862/3	375mm x 300mm x 75 mm



UTILITY TRAY

Adding to the already existing range of autoclavable laboratory trays, is the utility Tray and as the name suggests this Polypropylene Tray can be utilized for purposes ranging from drying glassware to sterilizing and to store and laboratory apparatus.

	Size
CH11864	375mm x 350mm x 130mm



INSTRUMENT TRAY

This autoclavable trays have cover which fits into groove of trays to minimize spillage of material .Smaller size can be used to sterilize small instrument whereas the larger size allows pipettes to be fully immersed in disinfectant prior to sterilizing .

	Size
CH11868/1	220mm x 150mm x 70 mm
CH11868/2	450mm x 150mm x 70 mm



PNEUMATIC TROUGH

These Troughs, made of polypropylene, are autoclavable and are available in different sizes. These can be used for a wide range of purposes including storage, sterilizing & drying labware etc.

	Diam., mm	Height, mm
CH11869/1	180	60
CH11869/2	200	100
CH11869/3	250	100



PNEUMATIC TROUGH

Glass, circular.

	Diam., mm	Height, mm
CH11870/2	150	100
CH11870/3	200	100
CH11870/4	250	100
CH11870/5	250	125
CH11870/6	300	125
CH11870/8	300	150



VACUUM PUMP, ROTARY, OIL-SEALED

General purpose, single stage with low level of vapour emission. Can be used as a pressure device also. Direct drive, compact construction, displacement 32 liters/minute, ultimate vacuum without gas ballast 0.1 mm of mercury, motor rating 0.25 HP, rpm 1425, supplied with 1 meter 3-core mains cable and 1.5 litre oil. For use on 220-240 V, 50 Hz.

CH11871



MERCURY TROUGH

Round Form, all glazed except bottom.

CH11872	Diam., mm	Height, mm	Cap., ml
	83	41	100



PORCELAIN TROUGH

All glazed, bottom unglazed

	Diam., mm	Height, mm	Cap., ml
CH11874/1	100	73	350
CH11874/2	150	90	1000
CH11874/3	200	95	1900
CH11874/4	250	100	3000
CH11874/5	300	105	4800



REFRACTOMETER, HAND

Convenient to use. The built-in ocular scale gives direct reading for percentage of sugar density. Accuracy 0.2%.

	Range
CH12017/1	0 to 32%
CH12017/2	28 to 62%
CH12017/3	58 to 90%



REFRACTOMETER, ABBE

For quick examination of refractive indices & mean dispersion of liquids, solids and powders. Comprising Abbe double prisms, with thermostat, compensator, telescope mirror and radial arm with vernier. Range nD 1.3000 to nD 1.7000 in steps of 0.001, sugar percentage 0 to 95% in steps of 1 division.

CH12019

FIRE BLANKET

Woven fiber glass blanket, for smothering small fires in laboratories, 900 x 900 mm approx., with a pouch for mounting on wall.

CH12021



BENCH TOP BETA SHIELD, ACRYLIC

- Designed to be used in the laboratory during procedure that handle B-emitting isotopes.
- Protect the lab worker and its angled top allows contents of the tube located behind the shield to be viewed from the top.
- The base of the Beta shield provides a large flat work surface and minimizes the risk of "hot spots" on the lab bench.

	L x W x H (mm)
CH12022	45 x 30 x 30



GLOVE BOX HOLDER, ACRYLIC

- Clear and pristine holder to give clean appearance
- Top loading of the glove box
- Easy to dispense the gloves through the holder
- Each holder has holes that help it to be installed in a convenient location to the proximity of your works and tasks.

	No. of Places	L x W x H, mm
CH12024/1	1	260 x 100 x 138
CH12024/2	2	260 x 100 x 270
CH12024/3	3	260 x 100 x 415



SAFETY GOOGLES BOX, ACRYLIC

- Can be set on the bench top or mounted on the wall for storage of goggles, glasses and other small lab products.
- Safety lid keeps the box free of dust and contamination.
- Clear window helps to view the inventory from the outside.

	L x B x H, mm	Size
CH12026/1	23 x 16 x 18	Small
CH12026/2	23 x 16 x 25	Large

SAFETY GOOGLES, PC

- Polycarbonate lens with side shield
 - Impact resistant and light weight frames for comfortable eye wear
 - 99.9% UVA/ UVB protection
- CH12028



SAFETY FACE SHIELD

- Clear face shield of polycarbonate provides high impact and splash protection.
- Ratchet adjustment on the head gear provides comfortable fit.

	L x B x T, Inch
CH12030	15.5 x 8 x 0.04



HAND PROTECTORS

Heat & cold resistant silicon rubber glove, with the help of this, one can easily handle heated up material like flask, bottles & beakers etc. Studded surface is used for positive grip of material with a temperature of 250°C. Pockets for fingers & thumb fit every hand size.

CH12032

GOGGLE SANITIZER

For Laboratory use, a high power 25W UV lamp is used to kill germs on goggles. The cabinet is of heavy gauge steel for durability and has enamel finish. can sanitize up to 35 goggles at a time and is suitable for desk top or wall mounting. The sanitizer comes with safety feature that will prevent the UV light from operating unless the doors are closed and latched properly. The cabinet is also designed to prevent any leakage during UV rays during operation and comes with a filtered pilot hole so that the user can check the operations while in use.

- * Accommodates upto 35 pairs of goggles
- * UV bulb for sanitization
- * Key Lock and 2 Safety Switches
- * Pilot Hole
- * µL approved Components

All components used are µL approved

	Size
CH12040	26" W x 29" H x 10-3/20"



SIEVES

200 mm diam. polished seamless brass frame. Each sieve is marked with nominal aperture. Stainless steel mesh.

	Mesh, mm
CH12110/1	4.75
CH12110/2	3.35
CH12110/3	2.8
CH12110/4	2.36
CH12110/5	2
CH12110/6	1.7
CH12110/7	1.4
CH12110/8	1.18
CH12110/9	1
CH12110/10	0.85
CH12110/11	0.71
CH12110/12	0.6
CH12110/13	0.5
CH12110/14	0.425
CH12110/15	0.355
CH12110/16	0.3
CH12110/17	0.25
CH12110/18	2.36
CH12110/19	0.15
CH12110/20	0.125
CH12110/21	0.106
CH12110/22	0.09
CH12110/23	0.075
CH12110/24	0.063
CH12110/25	0.053
CH12110/26	0.045
CH12110/27	0.04



SIEVES, LID AND RECEIVER

To fit the above sieves.

CH12115



SOIL TESTING KITS

- I. For quick estimation of pH, Nitrogen (N), Phosphorous (P) and Potassium (K) availability in Soil (4x10 tests)
- II. For quick estimation of Organic carbon availability in Soil (1x25 tests)

Features:

- Very simple testing methods.
- All the tests can be conducted in the field itself.
- Recommendations about fertilizers and quantity to be added.
- Very distinguishable colour charts of pH, Nitrogen, Phosphorous, Potassium and Organic carbon.
- Testing apparatus are provided.
- Refill pack is also available for kit-1 (with reagents only).

CH12118



SPATULA

Moulded in Polypropylene, Spatula consists of a spoon on one side while the other end is a flat construction with a knife edge. This edge is helpful in breaking up crystals of different salts while the spoons used to draw salts from the containers.

	Size, mm
CH12210/1	150
CH12210/2	200



SPATULA WITH SPOON (PORCELAIN)

Glazed, spoon on one end, spatula on other.

	Length, mm	Capacity, ml
CH12212/1	100	0.1
CH12212/2	125	0.3
CH12212/3	165	0.5
CH12212/4	198	1.2
CH12212/5	260	5.5



SPATULA (PORCELAIN)

Glazed, long spatula on one end, knob on other. Length 205 mm.

CH12213



STAINLESS-STEEL SPATULA

9" length with round blade at one end & a square on other end.

CH12218



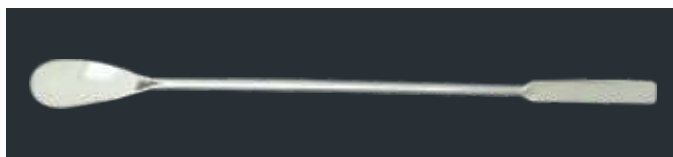
SPATULA, CHATAWAY

Stainless steel, one end flat, other bent up.

	Size, mm
CH12220/1	100
CH12220/3	150
CH12220/5	200

**MICRO-SPATULA 20CM LONG**

Stainless-steel with thin, flexible rounded ends.
CH12221

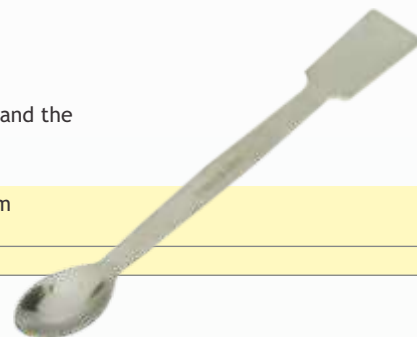
**SPOON AND SPATULA TOOL, 9 IN. (22.9CM) LONG**

Spoon and Spatula Tool 9", Stainless steel, Polished.
CH12228

**SPATULA**

Stainless steel, one end flat and the other end spoon form.

	Length, mm
CH12230/1	120
CH12230/3	150

**SPATULA**

Stainless steel, angle end, rounded, length 100 mm.
CH12223

SPATULA

Stainless steel, raised centre section, one end flat and bent up, other end formed into a scoop, stainless steel, length 140 mm.
CH12225

**SPATULA, TROWEL**

Double ended, trowel shaped scoops 175 x 15 mm.
CH12227

**SODIUM SPOON**

For holding sodium under water, with gauze cage, overall length 255 mm.
CH12235

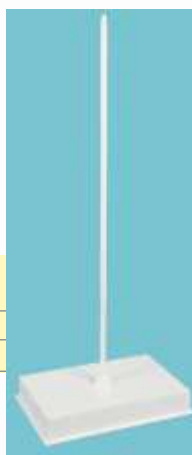
**TONG MERCURY**

Nickel-plated steel, for lifting globules of mercury. Length 20 cms.
CH12240

RETORT STAND

These non-corrosive, moulded retort stand provided excellent replacement for the metal ones. Even the metallic rod has a polypropylene covering making it non-corrosive. The rod measuring 12.5mm x 750mm can be screwed into the heavy base giving way to a perfectly stable retort stand.

	Size, mm	Description
CH12253/1	225x150	Side Hole
CH12253/2	300x200	Centre Hole
CH12253/3	300x200	Side Hole



RETORT STAND, RECTANGULAR BASE

Pressed steel base with hole 10x1.5mm, metric thread in the center of one short side.

	Length, cm	Width, cm
CH12315/1	16	10
CH12315/3	20	12.5
CH12315/5	25	16
CH12315/7	31.5	20



RETORT STAND, RECTANGULAR BASE

Cast Iron, with tapped hole 10 x 1.5mm, metric thread in the center of one short side.

	Length, cm	Width, cm
CH12320/1	16	10
CH12320/3	20	12.5
CH12320/5	25	15



TRIPOD BASE SUPPORT STAND

Bases constructed of cast-iron and finished with chemical-resistant baked black enamel with plated rod. Available in various lengths and rod diameters

	Length, Inch	Dia., Inch
CH12255/1	18	0.3
CH12255/2	24	0.5
CH12255/3	36	0.5

RETORT STAND

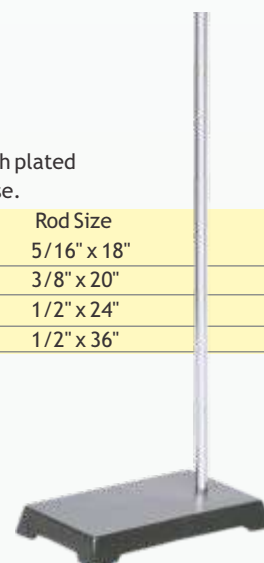
Mild steel base, stove enamelled, fitted with one levelling screw and nylon feet, with chrome plated mild steel rod.

	Base, mm	Length, mm	Diam., mm
CH12310/2	150 x 100	500	9
CH12310/3	175 x 125	600	9
CH12310/4	200 x 125	600	12
CH12310/5	225 x 150	750	12
CH12310/6	300 x 175	750	12

RETORT STAND

Heavy black enamel cast iron base with plated rods, which are threaded to fit the base.

	Base Size	Rod Size
CH12321/1	4" x 6-3/4"	5/16" x 18"
CH12321/2	5" x 8"	3/8" x 20"
CH12321/3	5-1/2" x 9"	1/2" x 24"
CH12321/4	6-1/2" x 11"	1/2" x 36"



**RETORT STAND, BASE**

Steel base with tapped hole, (10 x 1.5 mm metric thread) in the center of one short side. Finished in blue and fitted with rubber feet.

	Size, mm
CH12322/1	160 x 100
CH12322/3	200 x 125
CH12322/5	250 x 160
CH12322/7	315 x 200

**CLAMP**

Pressed metal, cork lined jaws, can open upto 50 mm.

CH12325/1 Black Painted

**CLAMP, 3 PRONG**

Die cast aluminium, with plated brass inserts, accepts articles upto 70 mm diam, rubber covered jaws.

CH12345

**3 PRONG CLAMP**

Made of aluminum casting, 3 prong clamp with interlocking jaws allow you to hold objects from 1/8" to 3-1/2" in diameter. It can be used for both burettes and condensers. The jaws are lined with rubber to insure a secure grip. Rod attached is 8 mm in diameter and 150 mm long.

CH12346

**CLAMP UNIVERSAL-2 PRONG CORK LINED**

Two prong clamps die casted with other parts of plated brass, accepts articles from 15-75 mm dia. Actuated by nickel plated brass insert and twin screw, Jaws are cork lined. Fitted with 150 x 8 mm long nickel plated mild steel rod.

CH12326

**3 PRONG CLAMP, UNIVERSAL**

Die cast aluminum alloy, clamp accepts articles up to 90 mm diameter Jaws covered with PVC, Fitted with 150 x 8 mm rod.

CH12347

**UNIVERSAL CLAMP**

Pressure die cast aluminium alloy, other parts are of plated brass, cork lined, ensures firm grip at all angles of opening, opens upto 90 mm, with 250 x 8 mm nickel plated mild steel rod.

CH12340

**CLAMP UNIVERSAL-3 PRONG CORK LINED**

Cork lined Jaws which accepts articles up to 80 mm Diameter. Fitted with 150 x 8 mm long nickel plated mild steel rod. Overall length 27 cm Approx.

CH12347M

3 PRONG CLAMP, ADJUSTABLE

Zinc alloy die cast jaws, each Jaw individually adjustable. Double adjustable - one screw moves one jaw and the other screw moves the other two jaws. Maximum jaw opening 60 mm.

CH12343/1



EXTENSION CLAMP

Three-prong, aluminum extension clamp; prongs covered with rubber tubing. Overall length: 10". Jaws open to 85 mm.

Rod Dia. 8 mm, Rod length 145 mm.

CH12347N



CLAMP, EXTENSION UNIVERSAL

A steel clamp with a locking swivel. The swivel permits orientation at a wide variety of angles. Outer jaws open freely to accommodate apparatus like condenser and other irregular shapes. Jaws are covered with a plastic material to cushion apparatus held in the jaws.

CH12352/1 Jaw Opening Size 2"

CH12352/3 Jaw Opening Size 3"



EXTENSION BURETTE CLAMP, ECONOMY CHOICE

Extension clamp with round, cork-coated jaws. Will hold burettes, test tubes and flasks up to 2½" in diameter. Overall length is 8".

CH12348



BURETTE CLAMP

Rounded steel jaws, for use with retort stands. Jaws opening from 10 to 35 mm diameter. Jaws can be rotated through 360° and locked in any position. fits support rods up to 15 mm diameter.

CH12349/1

CH12349/3 with plastic coated jaws



BOSS, SWIVEL

Aluminium alloy holds rods up to 12 mm, swivels and locks at any angle.

CH12354

**BURETTE CLAMP**

Aluminium, with steel rod, cork lined jaws, for holding burettes and other objects of diam. upto 60 mm.

CH12356

**BOSS HEAD, SWIVEL**

With an adjustable holder swivel at the centre to fix boss head at any angle. Can hold rods up to 16 mm diameter.

CH12362

**BOSS**

Zinc Alloy, with nickel plated clamping screws, can accommodate rods up to 12 mm.

CH12357

**BASE SLOTTED**

Cast metal, For holding flat objects like manometer, board etc. upto 34 mm. thick in the vertical position. Size 9.5 cm length and 7.5 cm width.

CH12363

**BOSS HEAD ROUND**

Aluminium die casted Alloy, Black powder coated, Accept rods upto 13 mm diameter, fitted with mild steel plated thumb screw.

CH12358

**SQUARE BOSS HEAD**

Die Casted Alloy, accepts article square and round section upto 16 mm diameter at right angle to each other. Can also hold flat articles such as drawing board, magnets, rulers etc.

CH12363S

**BOSS**

Pressure die cast aluminium alloy. With offset jaws, nickel plated clamping screws, to hold rods up to 16 mm. with stands heavy clamping pressure.

CH12359

**CLAMP HOLDER (BOSS HEAD)**

Aluminum alloy with plastic clamping screws, holds rods up to 5/8" in diameter. With offset jaws for greater strength.

CH12360

**RIGHT-ANGLE CLAMP HOLDER**

Cast iron holder with steel thumbscrews. For rods up to 5/8" (22 mm) diameter.

CH12364



CHANNEL BASE

Cast metal, For holding flat objects upto 13 mm thick. Size 10.5 cm length and 8.5 cm width.

CH12367



RINGS WITH CLAMPS

Cast iron with side arm & V clamp to fit rods upto 13 mm. The distance from support clamp centre to centre of ring is 4½" for all rings. Fits ¾" rods.

	ID, Inch
CH12371/1	2
CH12371/2	3
CH12371/3	3½
CH12371/4	4½
CH12371/5	5½



EXTENSION SUPPORT RINGS

Strong, heat-resistant cast steel.

	ID, Inch
CH12368/1	2
CH12368/2	3
CH12368/3	4
CH12368/4	5



THERMOMETER CLAMP

A lightweight clamp for supporting thermometers and similar apparatus up to 13 mm in diameter. The clamp holds rods up to 16 mm in diameter. Adjustable 360° jaw which can be easily tightened into any position with a wing nut. Overall length is 140 mm.

CH12373



SUPPORT RING WITH CUT-OUT

Cast Iron with 3" diameter & plated for corrosion resistance. The support ring features a cut-out area to permit easy insertion of leveling bulbs & assembled materials.

CH12369

RETORT STAND RING

Iron, with integral boss to accept rods upto 12 mm diam. Boss is fitted with a plated thumb screw.

	Diam., mm
CH12374/2	50
CH12374/4	75
CH12374/6	100



SUSPENSION CLAMP

For suspending specimens over a hotplate. Clamp holds items at a distance of 4 ½" from the support rod. Aluminum hook swivels and locks at any angle.

CH12370



CLAMP & SUPPORT ROD

Holds rods vertically or horizontally. Cast iron, black enamel finish. With rod approx. 510 x 10 mm. Can clamp on table up to 50 mm thickness.

CH12375



HOOK COLLAR CLAMPS

CH12376/1	0.5"
CH12376/2	0.75"

V-GROOVE CLAMP

For securely holding rods up to 3/4" diameter either horizontally or vertically in a machined V groove. It clamps to table tops up to 3" thick.

CH12377

**STAND BURNER HIGH-LOW**

	Size, mm
CH12382/1	90
CH12382/3	130

RING STAND WITH RINGS

- Cast iron, rectangular base.
- Nickel-plated steel rod.
- Cast iron rings with nickel-plated steel thumb screws.

**LABORATORY JACK**

This laboratory support jack is made from aluminium and stainless steel. It can be adjusted from 3" to 10" with its large knob and can support up to 20 kg., has a 5" x 6" platform. The 8" x 8" jack is the same jack but is also supplied with a removable 8" x 8" platform and 18" support rod.

	Ring per set	Ring Dia., mm	Base Size, mm
CH12380/1	2	75, 100	100 x 150
CH12380/3	3	75, 100, 125	125 x 200
CH12380/5	4	75, 100, 125, 150	150 x 250
CH12380/7	5	50, 75, 100, 125, 150	150 x 300

CH12385/1	5" x 6"
CH12385/3	8" x 8"

**LABORATORY JACK**

These highly stable laboratory jacks can hold a variety of glassware and other lab equipments with ease. These durable laboratory jacks are equipped with an ergonomic knob that provide smooth height adjustment. Available in mild steel, aluminium, stainless steel.

Mild Steel	Stainless Steel	Aluminium	Size	Max. Height	Dynamic Load (kg)	Static Load (kg)
CH12385B/1	CH12385C/1	CH12385D/1	4.5" x 6"	11" (28cm)	2	10
CH12385B/2	CH12385C/2	CH12385D/2	6" x 6"	11" (28cm)	4	20
CH12385B/3	CH12385C/3	CH12385D/3	8" x 8"	11" (28cm)	7	30



STIRRER

Made of Polypropylene, these stirrers are very useful for stirring different solutions in the laboratory. These stirrers prove to be tough and long lasting.

	Size
CH12389/1	ø-10 mm x h-250 mm
CH12389/2	ø-6 mm x h-150 mm
CH12389/3	ø-7 mm x h-200 mm
CH12389/4	ø-7 mm x h-250 mm
CH12389/5	ø-7 mm x h-300 mm



POLICEMEN STIRRING RODS

This, infact, is a multipurpose apparatus which works as a stirrer as well spatula. The fattened ends of this rod form two small spatulas.

	Size
CH12390	ø-6 mm x h-245 mm



SOFT LOOP STERILE

This non-toxic disposable loop is accurate to semi quantitative stand for handling samples.

	Size
CH12391/1	Soft loops 1µl
CH12391/2	Soft loops 10µl



L SHAPED SPREADER

This sterile, smooth spreader enables even spreading of liquid samples across the surface of a jar plate without grouping & cutting the medium.

CH12392



MAGNETIC STIRRER

With continuously variable stirring speed, ON/ OFF switch with indicator lamp and continuous speed control mounted on front panel, Complete with 2 No. Teflon coated stirrer bar, of size 9 x 25 mm & 9 x 35 mm. Speed 50-1500 rpm., Capable of stirring up to 2 liters.

CH12393



HOT PLATE MAGNETIC STIRRER

Hot Plate Magnetic Stirrer is used for simultaneous heating and stirring of solutions. Two control knobs on the front panel allow you to set heat output and stirring speed independently. These are equipped with powerful heating elements providing very quick heating of the samples. The integrated circuit allows user to precisely control the temperature and speed. It is supplied complete with Teflon coated stirrer bar, support rod, boss head and clamping rod for connecting external temperature probe.

	Max. Capacity	Top Plate	Max. Temp (°C)	Max. Stirring Speed (Rpm)	Input Rating
CH12395B/1A	500ml	Aluminium	400	1500	110V AC / 60 Hz
CH12395B/2A	500ml	Aluminium	400	1500	220V AC / 50 Hz
CH12395B/1C	500ml	Ceramic Coated	450	1500	110V AC / 60 Hz
CH12395B/2C	500ml	Ceramic Coated	450	1500	220V AC / 50 Hz
CH12395H/1A	5L	Aluminium	400	1500	110V AC / 60 Hz
CH12395H/2A	5L	Aluminium	400	1500	220V AC / 50 Hz
CH12395H/1C	5L	Ceramic Coated	450	1500	110V AC / 60 Hz
CH12395H/2C	5L	Ceramic Coated	450	1500	220V AC / 50 Hz



HOT PLATE MAGNETIC STIRRER, ADVANCED

This advanced hot plate magnetic stirrer is designed to provide reliable performance, dependable safety and precise control. The high density glass ceramic top plate offers excellent chemical resistance against strong acids and bases. PID temperature technology controls heating process ensuring that target temperature is reached quickly and accuracy is enhanced. It also has excellent speed control upto 1500 rpm, giving you gentle and precise control of the stirring speed. The body is made with heat-resistant and anti-corrosion die-cast aluminum body and finished with a high quality powder coating.

Technical Specifications

- Top Plate: Chemical resistant glass ceramic plate
- Top Plate Dimensions: 180 x 180mm
- Max. Capacity: 5 L
- Temperature Range: RT - 510 °C
- Hot plate indication
- Selection of hot plate and probe temperature.
- Heat Output: 600 W
- Stirring Range: Upto 1500 rpm
- Independent display for RPM and Temperature.
- Error code display for any kind of failure.
- Includes stirring bar, support rods, clamps and external probe.
- Dimensions: 355 x 225 x 115 mm
- Weight: 5.6 Kg

	Max. Capacity	Top Plate	Max. Temp (°C)	Max. Stirring Speed (RPM)	Input Rating
CH12395H/1G	5L	Glass Ceramic	510	1500	110V AC / 60 Hz
CH12395H/2G	5L	Glass Ceramic	510	1500	220V AC / 50 Hz

MOTORLESS MAGNETIC STIRRER

AN IDEAL STIRRING DEVICE FOR LOW VISCOSITY LIQUIDS, CAN WORK CONTINUOUSLY FOR LONGER DURATION

SALIENT FEATURES

1. Power on / off switch with fuse protections
2. Smooth variable speed control
3. Direction selector (Clock Wise - Counter Clock Wise)
4. Reset Button
5. Viscosity selector (High - Low)
6. Compact sleek stainless steel housing

TECHNICAL SPECIFICATIONS :

Model	CH12398/1	CH12398/3	CH12398/5 (with Remote Control)
Number of Stations	1	1	1
Stirring Volume	50 ml - 3 litres	50 ml - 3 litres	50 ml - 3 litres
Mains Input	240v AC (-15 to + 10%) 50 Hz (- 15 to + 5%)	240v AC (-15 to + 10%) 50 Hz (- 15 to + 5%)	240v AC (-15 to + 10%) 50 Hz (- 15 to + 5%)
Fuse	1 No. 100 mA	2 Nos. 100 mA 5A	2 Nos. 100 mA 5A
Power Consumption - Drive	6 watts	6 watts	6 watts
Power Consumption - Heater	500 watts	500 watts
Speed Range (Standard)	100 - 900 R.P.M.	100 - 900 R.P.M.	100 - 900 R.P.M.
Speed Range (Optional)	50 - 150 R.P.M.	50 - 150 R.P.M.	50 - 150 R.P.M.
Speed Variation	Constant speed even if Viscosity changes or Supply voltage vary within specified limits	Constant speed even if Viscosity changes or Supply voltage vary within specified limits	Constant speed even if Viscosity changes or Supply voltage vary within specified limits
Magnetic Stirring Paddle	9 mm dia x 35 mm long	9 mm dia x 35 mm long	9 mm dia x 35 mm long
Hot Plate	(Not Applicable)	250 °C	350 °C
Temperature			
Temperature Control	(Not Applicable)	Electronic Control	Electronic Control
Stirring Plate	130 mm dia.	160 mm dia.	160 mm dia.
Electrical Protection	Current limit & short circuit	Current limit & short circuit	Current limit & short circuit
Housing - Base Plate	Aluminium	Aluminium	Aluminium
Housing - Top Plate	Stainless Steel	Stainless Steel	Stainless Steel
Hot Plate	Not Applicable	Aluminium	Aluminium

DIMENSIONAL SPECIFICATIONS :

Width	152 mm	164 mm	160 mm
Depth	253 mm	350 mm	160 mm
Height	70 mm	110 mm	78 mm
Weight	2.1 kg	3.2 kg	2.5 kg

FUNCTIONAL FEATURES :

Drive : Motor Less Drive, No wear and tear of moving parts or bearings. Suitable for continuous operation for longer duration.

Speed Control : Step less Variable speed facilitating stirring from 100 - 900 R.P.M.

Re-Set Option : In case the magnetic follower moves off center due to external disturbance to the liquid or shifting of the vessel, the reset button can bring the follower in position and will restart the stirring at the speed set by you.

Direction Selection : Allows you the options of stirring clock wise or counter clockwise rotation.

High / Low Speed Mode : Option of High Speed Mode & Low Speed to select, depending on the viscosity of the solution being stirred.

Heating & Temp. Control : Surface Temperature of Hot Plate - Model

CH12398/3-250° C and CH12398/5 - 350° C Electronic temperature control.





VORTEX MIXER

The vortex mixer mixes the contents of test tube thoroughly and quickly. This economical, easy-to-use vortex mixer can be set to run continuously over a long period of time. The speed of mixing can be controlled by the rotating knob.

	Max. RPM	Input Rating
CH12400/1	2000	110V AC / 60 Hz
CH12400/2	2000	220V AC / 50 Hz

One Hole

	No.	B. Diam.mm	T. Diam.mm	Ht
CH12510/1	000	6	9	16
CH12510/3	0	9	13	15.5
CH12510/4	1	11	14	18.5
CH12510/5	2	13	16.5	20
CH12510/6	3	14	19	21
CH12510/7	4	15	21	22
CH12510/8	5	17.5	22.5	23
CH12510/9	6	20	24.5	24
CH12510/10	7	20	26	27.5
CH12510/11	8	21	26.5	27.5
CH12510/12	9	21.5	28	31
CH12510/13	10	26	30	33
CH12510/14R	11	29	33	32
CH12510/15	12	30	34.5	34.5
CH12510/16	13	31	38.5	37
CH12510/17	14	32	41.5	42.5
CH12510/18R	15	38	42	40.5
CH12510/19R	16	35	45	36.5
CH12510/20	17	40	49.5	40.5
CH12510/21	18	48	53.5	33.5
CH12510/22R	19	44	58	45
CH12510/23	20	51	60	56.5

RUBBER STOPPERS

With number moulded in on each piece. Dimensions are approximate.

Solid

	No.	B. Diam.mm	T. Diam.mm	Ht
CH12500/1	000	6	9	16
CH12500/3	0	9	13	15.5
CH12500/4	1	11	14	18.5
CH12500/5	2	13	16.5	20
CH12500/6	3	14	19	21
CH12500/7	4	15	21	22
CH12500/8	5	17.5	22.5	23
CH12500/9	6	20	24.5	24
CH12500/10	7	20	26	27.5
CH12500/11	8	21	26.5	27.5
CH12500/12	9	21.5	28	31
CH12500/13	10	26	30	33
CH12500/14R	11	29	33	32
CH12500/15	12	30	34.5	34.5
CH12500/16	13	31	38.5	37
CH12500/17	14	32	41.5	42.5
CH12500/18R	15	38	42	40.5
CH12500/19R	16	35	45	36.5
CH12500/20	17	40	49.5	40.5
CH12500/21	18	48	53.5	33.5
CH12500/22R	19	44	58	45
CH12500/23	20	51	60	56.5



Two Hole

	No.	B. Diam.mm	T. Diam.mm	Ht
CH12520/1	000	6	9	16
CH12520/3	0	9	13	15.5
CH12520/4	1	11	14	18.5
CH12520/5	2	13	16.5	20
CH12520/6	3	14	19	21
CH12520/7	4	15	21	22
CH12520/8	5	17.5	22.5	23
CH12520/9	6	20	24.5	24
CH12520/10	7	20	26	27.5
CH12520/11	8	21	26.5	27.5
CH12520/12	9	21.5	28	31
CH12520/13	10	26	30	33
CH12520/14R	11	29	33	32
CH12520/15	12	30	34.5	34.5
CH12520/16	13	31	38.5	37
CH12520/17	14	32	41.5	42.5
CH12520/18R	15	38	42	40.5
CH12520/19R	16	35	45	36.5
CH12520/20	17	40	49.5	40.5
CH12520/21	18	48	53.5	33.5
CH12520/22R	19	44	58	45
CH12520/23	20	51	60	56.5

ASTM RUBBER STOPPERS

Are available with one-hole, two holes, or as solid rubber and come in 16 different sizes. All stoppers are made of natural rubber.



SOLID	Stopper Size	Top Dia. mm	Bottom Dia. mm	Height in mm	No. of Solid Stoppers Per Pound (Approx)
CH12525/1	000	12.7	8.2	21	207
CH12525/2	00	15	10	25	110
CH12525/3	0	17	13	25	69
CH12525/4	1	19	14	25	52
CH12525/5	2	20	16	25	45
CH12525/6	3	24	18	25	36
CH12525/7	4	26	20	25	26
CH12525/8	5	27	23	25	20
CH12525/9	5 1/2	28	24	25	22
CH12525/10	6	32	26	25	16
CH12525/11	6 1/2	34	27	25	16
CH12525/12	7	37	30	25	11
CH12525/13	7.5	39	31	25	11
CH12525/14	8	41	33	25	9
CH12525/15	8.5	43	36	25	9
CH12525/16	9	45	37	25	7
CH12525/17	10	50	42	25	5
CH12525/18	10 1/2	53	45	25	5
CH12525/19	11	56	48	25	4
CH12525/20	11 1/2	63	50	25	4
CH12525/21	12	64	54	25	3
CH12525/22	13	68	58	25	3
CH12525/23	13 1/2	75	62	35	3
CH12525/24	14	90	75	39	2
CH12525/25	15	103	83	39	2
CH12525/26	16	127	90	50	2

One Hole	Stopper Size	Top Dia. mm	Bottom Dia. mm	Height in mm	No. of One Hole Stoppers Per Pound (Approx)
CH12530/1	000	12.7	8.2	21	210
CH12530/2	00	15	10	25	121
CH12530/3	0	17	13	25	76
CH12530/4	1	19	14	25	57
CH12530/5	2		20	1625	49
CH12530/6	3	24	18	25	38
CH12530/7	4	26	20	25	28
CH12530/8	5	27	23	25	21
CH12530/9	5 1/2	28	24	25	23
CH12530/10	6	32	26	25	17
CH12530/11	6 1/2	34	27	25	17
CH12530/12	7	37	30	25	12
CH12530/13	7.5	39	31	25	12
CH12530/14	8	41	33	25	8
CH12530/15	8.5	43	36	25	8
CH12530/16	9	45	37	25	6
CH12530/17	10	50	42	25	4
CH12530/18	10 1/2	53	45	25	4
CH12530/19	11	56	48	25	4
CH12530/20	11 1/2	63	50	25	4
CH12530/21	12	64	54	25	3
CH12530/22	13	68	58	25	3
CH12530/23	13 1/2	75	62	35	3
CH12530/24	14	90	75	39	2
CH12530/25	15	103	83	39	2
CH12530/26	16	127	90	50	2

Two Hole	Stopper Size	Top Dia. mm	Bottom Dia. mm	Height in mm	No. of Two Hole Stoppers Per Pound (Approx)
CH12535/1	000	12.7	8.2	21	210
CH12535/2	00	15	10	25	134
CH12535/3	0	17	13	25	88
CH12535/4	1	19	14	25	62
CH12535/5	2	20	16	25	53
CH12535/6	3	24	18	25	42
CH12535/7	4	26	20	25	29
CH12535/8	5	27	23	25	22
CH12535/9	5 1/2	28	24	25	24
CH12535/10	6	32	26	25	17
CH12535/11	6 1/2	34	27	25	17
CH12535/12	7	37	30	25	12
CH12535/13	7.5	39	31	25	12
CH12535/14	8	41	33	25	7
CH12535/15	8.5	43	36	25	7
CH12535/16	9	45	37	25	5
CH12535/17	10	50	42	25	4
CH12535/18	10 1/2	53	45	25	4
CH12535/19	11	56	48	25	3
CH12535/20	11 1/2	63	50	25	3
CH12535/21	12	64	54	25	3
CH12535/22	13	68	58	25	3
CH12535/23	13 1/2	75	62	35	3
CH12535/24	14	90	75	39	2
CH12535/25	15	103	83	39	2
CH12535/26	16	127	90	50	2

LITMUS TEST PAPER

Book of 100 leaves.

CH12610 Red

CH12612 Blue



pH INDICATOR PAPER

pH indicator paper, universal, pH 1-14, including colour scale, pack of 100 leaves.

CH12615





pH INDICATOR PAPER DISPENSER

Indicator paper supplied in plastic dispenser containing 5 meters of 8 mm wide test strip. A color chart is provided on the side of each dispenser.

CH12620/1 Range pH 1 to 14

CH12620/2 Range pH 1 to 11



LENS CLEANING TISSUE PAPER

Size 10 x 15 cms. Pack of 100 leaves. Used for cleaning lens, camera, spectrometer and microscope lenses etc.

CH12625

LABEL BOOKS

For laboratory, self adhesive, size 55 x 27 mm with name of chemicals and reagent commonly used in laboratory.

CH12630



TEST TUBE WITH SCREW CAP

These Polypropylene tubes provide excellent aption for RIA, coagulation & bacteriology etc. The cap is screwed on to the tube & hence this tube can be filled up to the brim.



CH12666 16x100 mm Ext. Thread



TEST TUBE CAP

This transparent Polypropylene cap for test tubes proves to be an excellent protection to the contents to the tubes. The grooves inside the cap tighten the fitting on the tube while the outer grooves would hold identification labels. The built in seal ring would set in the tube making the combination a leakproof one.

CH12668 Cap for Test tube \varnothing 25 mm

TEST TUBE HOLDER

Wood, with steel spring for closing jaws, length 180 mm approx for 11-19 mm diam. tubes.

CH12670



TEST TUBE HOLDER

Metal strips with a slider, mounted in wooden handle.

CH12680/1 Brass

CH12680/3 Plated Steel



TEST TUBE HOLDER, CROSS PATTERN

Stout brass strips mounted in wooden handle to hold tubes from 12 mm to 40 mm. Overall length 220 mm.

CH12683

**TEST TUBE HOLDER**

Plated spring steel wire with finger grip, with a wire collar to hold test tubes up to 38 mm.

CH12695

**TEST TUBE STAND**

Aluminium, stackable pattern with five 28 mm, six 9 mm and eight 13 mm diam. holes arranged in three rows.

CH12715

**TEST TUBE STAND**

Wooden, with side supports.

	Holes 22 mm	Holes 32 mm	Pegs
CH12710/1	4	2	-
CH12710/2	4	2	6
CH12710/3	6	2	-
CH12710/4	6	2	8
CH12710/6	10	2	-
CH12710/8	10	2	12



No. of Holes	Diam. 10 mm	Diam. 12 mm	Diam. 15 mm	Diam. 18 mm	Diam. 25 mm
12	CH12720/1	CH12725/1	CH12730/1	CH12735/1	CH12745/1
18	CH12720/2	CH12725/2	CH12730/2	CH12735/2	CH12745/2
24	CH12720/3	CH12725/3	CH12730/3	CH12735/3	CH12745/3
36	CH12720/4	CH12725/4	CH12730/4	CH12735/4	CH12745/4
48	CH12720/5	CH12725/5	CH12730/5	CH12735/5	CH12745/5
100	CH12720/6	CH12725/6	CH12730/6	CH12735/6	CH12745/6



UNIVERSAL MULTI RACK

Polypropylene, compatible with different sizes of tubes. Four sides of this rack can be used for tubes of $\varnothing 30$ mm, $\varnothing 20$ mm, $\varnothing 17$ mm & $\varnothing 12$ mm
CH12750



TEST TUBE STAND

Polypropylene, autoclavable, available in two sizes, with drying pins.

CH12755/2	16 mm & 25 mm \varnothing Tubes
CH12755/3	25 mm \varnothing Tubes



TEST TUBE STAND (ROUND TEST ROUND)

Circular twelve places Polypropylene test tube stand has four 25 mm dia holes and eight 19 mm dia holes in its top plate. The base has matching hemispherical wells & 16 vertical pins for drying tubes surrounded by a trough to catch drippings. This autoclavable rack can be easily disassembled for cleaning purpose.

	Size
CH12760	19 mm & 25 mm \varnothing Tubes



TEST TUBE STAND (3 TIER)

3 tier design provide clear view of the tube contents and convenient insertions and removal of tubes. These autoclavable racks can withstand sub-freezing temperatures.

Material : Polypropylene

CH12765/1	13 mm x 31 Tubes
CH12765/2	16 mm x 31 Tubes
CH12765/3	20 mm x 20 Tubes
CH12765/4	25 mm x 12 Tubes
CH12765/5	25 mm x 18 Tubes
CH12765/6	32 mm x 12 Tubes
CH12765/8	25 mm x 36 Tubes
CH12765/9	13 mm x 18 Tubes
CH12765/10	15 mm x 18 Tubes
CH12765/12	18 mm x 12 Tubes
CH12765/13	13 mm x 62 Tubes
CH12765/14	16 mm x 62 Tubes
CH12765/15	20 mm x 40 Tubes
CH12765/17	13 mm x 48 Tubes
CH12765/19	13 mm x 72 Tubes



Material : Polycarbonate

CH12770/1	13 mm x 31 Tubes
CH12770/2	16 mm x 31 Tubes
CH12770/3	20 mm x 20 Tubes
CH12770/4	25 mm x 12 Tubes
CH12770/8	13 mm x 62 Tubes
CH12770/12	16 mm x 62 Tubes
CH12770/15	20 mm x 40 Tubes
CH12770/16	25 mm x 24 Tubes
CH12770/17	25 mm x 18 Tubes
CH12770/18	25 mm x 36 Tubes
CH12770/19	32 mm x 12 Tubes

TEST TUBE PEG RACK

These racks can conveniently hold inverted tubes for drying purpose and minimize collection of airborne contaminants inside the tube. The rack can also be used to hold and dry electrophoresis and chromatography plates.



	Size
CH12772/1	13 mm x 90 Tubes
CH12772/2	16mm x 60 Tubes

TEST TUBE STAND (WIRE PATTERN)

An economical substitute for wire racks, here are these submersible, autoclavable racks which are stackable when empty. These are available in different colors and are made of a special blend of polypropylene that makes it sink in a water bath and maintain their stability even in agitated water. These space saving racks can easily be disassembled for cleaning purposes. The base is in the form of a grid with square openings and has fold up sides and end bars that lock into rack tops.



	Size
CH12775/1	13 mm x 90 Tubes
CH12775/2	16 mm x 60 Tubes
CH12775/6	20 mm x 40 Tubes
CH12775/7	25 mm x 24 Tubes
CH12775/8	30 mm x 21 Tubes

TEST TUBE BASKETS

Test Tube Baskets are made of Polypropylene. These autoclavable, Unbreakable and non-corrosive Baskets are ideal for rinsing & draining glassware. These are also useful for storage of test tubes or culture tubes during sterilization or incubation.



	Size
CH12777/1	140 mm x 120 mm x 110 mm
CH12777/2	160 mm x 160 mm x 160 mm



TEST TUBE STAND & DRYING RACK

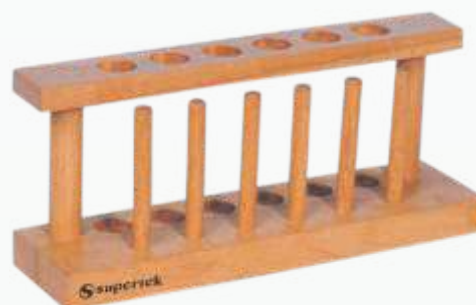
12 holes in two rows for tubes up to 25 mm in dia and 12 draining pins. CH12780



TEST TUBE SUPPORT, 12 HOLES

With dove tail joining and 12 holes in two rows.

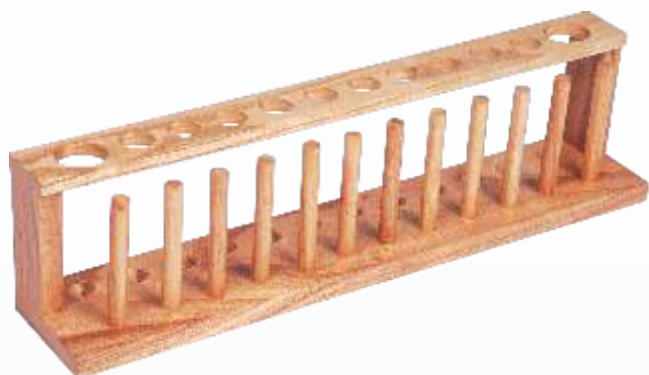
	For Tube Diam., mm
CH12782	22
CH12784	25



TEST TUBE SUPPORTS WITH DRAINING PINS

Made of wood with turned wood posts. Has holes for tubes up to 19 mm in diameter.

	No. of Holes
CH12785	6
CH12790	10



TEST TUBE STAND WOODEN

Strongly constructed, with 12 holes in one row and 12 draining pins. Ten holes accommodate tubes up to 25 mm in dia.

CH12792



TEST TUBE STAND WOODEN

Constructed from a solid wood block, 15 slotted holes accommodating tubes up to 13 mm in dia.

CH12796



TEST TUBE STAND WOODEN

With drilled holes to accommodate 7 tubes up to 13 mm in dia. Strongly constructed with dovetail joints.

CH12799



TEST TUBE STAND WOODEN

The top shelf contains seven holes for tubes up to 19 mm in dia; the lower has six holes for tubes up to 25 mm in dia. With six draining pins.

CH12794



NESTLER CYLINDER STAND

This stand as the name suggests is use for keeping nestler cylinders. Made of polypropylene, this stand is available in two sizes, one for 50ml nestler cylinder & other for 100 ml. Nestler cylinder.

	Capacity, ml
CH12799P/1	50
CH12799P/2	100



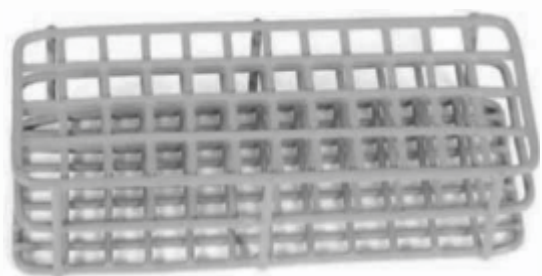
WIRE RACKS, EPOXY-COATED

Ideal for test tube storage, incubation and refrigeration. Coated with a heat cured epoxy, the sturdy steel wire racks resists abrasion and withstand corrosion.

Rectangular racks features square holes, three tiers for tubes support, and a wire lined bottom. Color coded for easy identification. With stand wide range of temperature. Autoclavable.

Colors available: Blue, Green, Orange, Yellow, Purple.

	Tube O.D., mm	Format	No. of Places	Dim. (LxWxH), cm
CH12800/1	0-13	6 x 12	72	20.5 x 11.3 x 6.4
CH12800/2	10-13	9 x 12	108	20.5 x 16.4 x 6.4
CH12800/3	10-13	6 x 15	90	25.7 x 11.3 x 6.4
CH12800/4	10-13	6 x 20	120	33.1 x 11 x 6.4
CH12800/5	15-16	4 x 10	40	20.2 x 9.2 x 6.4
CH12800/6	15-16	4 x 12	48	24 x 9.2 x 6.4
CH12800/7	15-16	6 x 12	72	24 x 13 x 6.4
CH12800/8	15-16	9 x 12	108	24 x 18.6 x 6.4
CH12800/9	15-16	9 x 20	180	38.6 x 18.3 x 6.4
CH12800/10	15-16	5 x 20	100	38.6 x 10.8 x 6.4
CH12800/11	8-20	4 x 10	40	24.4 x 11 x 8.3
CH12800/12	18-20	8 x 10	80	24.4 x 20.3 x 8.3
CH12800/13	20-22	4 x 10	40	26.5 x 11.6 x 8.3
CH12800/14	22-25	4 x 10	40	30.2 x 13.2 x 8.3
CH12800/15	22-25	8 x 10	80	30.2 x 13.2 x 8.3
CH12800/16	25-30	6 x 8	48	28.6 x 22.5 x 10.2
CH12800/17	25-30	3 x 8	24	28.3 x 11.6 x 8.3
CH12800/18	30-40	3 x 8	24	36.5 x 15.2 x 10.2
CH12800/19	30-40	6 x 8	48	36.5 x 28.6 x 10.2



TEST TUBE RACK

Epoxy-coated steel wire racks. Resists corrosion; unaffected by organic solvents.

CH12805/1 24 Places for 15-16 mm Tubes

CH12805/2 24 Places for 18-20 mm Tubes



THERMOMETER, MERCURY

76 mm immersion type, mercury in glass, white enameled back, engraved stem, length 300 mm approx, in cardboard case.

	Range	Sub-division
CH12900/1	-10 to 50°C	0.5° C
CH12900/3	-10 to 110°C	1° C
CH12900/5	-10 to 150°C	1° C
CH12900/7	-10 to 250°C	1° C
CH12900/9	-10 to 360°C	2° C
CH12900/11	0 to 220°F	1° F
CH12900/13	0 to 400°F	2° F
CH12900/15	0 to 600°F	2° F



THERMOMETER, RED ALCOHOL

76 mm immersion type, length approx. 300 mm red colour alcohol filled, white enamelled back.

CH12915/2	-10 to 50°C	1° C
CH12915/4	-10 to 110°C	1° C

THERMOMETER RACK

Store your thermometers safely and prevent column separation. For 25 thermometers.

CH12920



TEMPERATURE MATCHING PUZZLE

To explain relationship between Fahrenheit and Celsius to students using these three-piece puzzles. Students read the thermometers printed on the middle pieces and find the matching temperatures. Thirty puzzles are packaged in a sturdy plastic container.

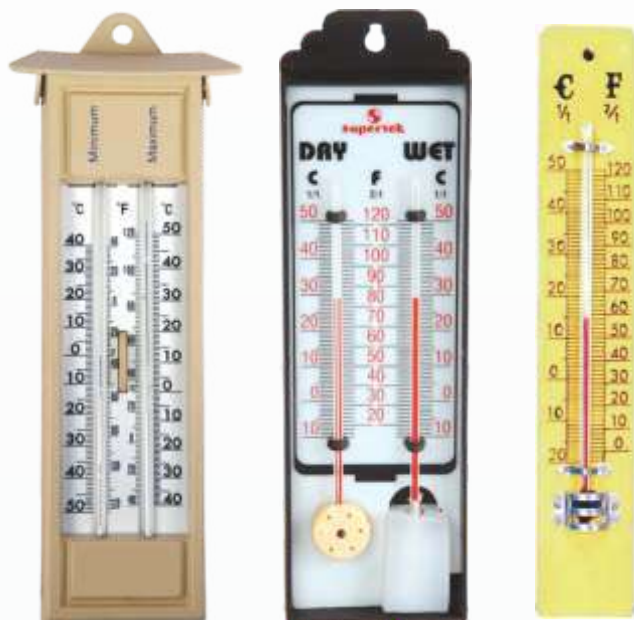
CH12922



THERMOMETER STAND

Rugged & sturdy aluminum thermometer stands with enamel finish. The protective rubber foam bottom prevents thermometer bulbs from being damaged. Holds up to 18 thermometers.

CH12923



1

2

3

THERMOMETER, MAXIMUM & MINIMUM 1

Six's type, mercury and alcohol filled, dual scale, -30 to 60°C and -20 to 140°F, with resetting magnet.

CH12925

HYGROMETER, DRY & WET BULB 2

Two thermometers mounted on scales -10 to 60°C & -20 to 140°F, with water container for one thermometer. Complete with relative humidity table.

CH12935

THERMOMETER, WALL 3

With scale reading from -20°C to 50°C x 1°C and 0 to 120°F x 2°F, with bulb guard, prismatic tube for ease of reading. On wooden base, with metal scale.

CH12945

THERMOMETER, DIGITAL

For small budget-Ideal and Handy Thermometer for food, catering and other industry.

- Sensor / Input : Pt-100
- Range : -50 to +199.9°C
- Resolution : 0.1°C
- Accuracy : $\pm 0.5\% \pm 1$ digit
- Special Features : Portable
Battery Operated
Economical
Reliable
Replaceable Temp. Probe

CH12947

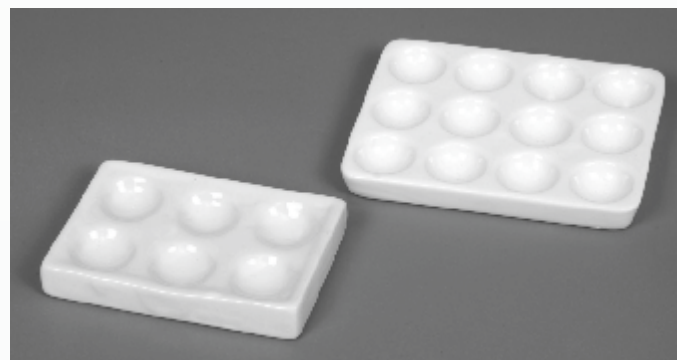


THERMOMETER, PRECISION

High Accuracy hand held thermometer for pharmaceutical food, chemical and other industry.

- Sensor / Input : Pt-1000
- Range : -50 to +199.9°C
- Resolution : 0.1°C
- Accuracy : $\pm 0.2\% \pm 1$ digit
- Special Features : Portable
Battery Operated
Highly Accuracy
Calibration Certificate

CH12949



TILE, SPOTTING

Porcelain, one side glazed.

CH12955/1 With 6 cavities

CH12955/2 With 12 cavities

CH12955/3 With 3 cavities

CH12955/4 With 30 cavities



STREAK PLATE

Streak, unglazed, as used for arsenic test and by mineralogists.

	Length, mm	Width, mm	Thickness, mm
CH12957	65	50	3



RECTANGULAR TRAY

99.7% Alumina Tray, Rectangular, unglazed. Max. use temp. 1750 °C

	Capacity, ml	Ht., mm	Width, mm
CH12959/1	5	10	26
CH12959/2	10	19	25
CH12959/3	15	12	33
CH12959/4	25	20	25
CH12959/5	30	22	50
CH12959/6	100	32	50



STOP CLOCK

With start, stop and re-set actions. 100 mm diam. dial graduated in seconds, figured every 5 seconds. In metal body.

CH12970

STOP WATCH, DIGITAL

A digital stop watch, with LCD display. Timed with Quartz movement to an accuracy of 0.01s. includes lap/cumulative timing functions, 12/24 hour clock in hours-minutes-seconds with day of week display and alarm function.

CH12972



CRUCIBLE TONGS

Jaws corrugated inside.

	With Bow Type	Length, mm
CH13005/8	Stainless steel	150
CH13005/9	Stainless steel	200



CRUCIBLE TONGS

General purpose metal tongs, for handling hot apparatus. Tips are serrated. Length: approximately 9".

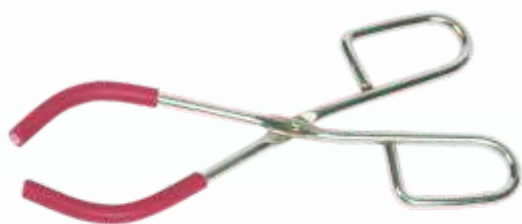
CH13010/1	Steel
CH13010/3	Stainless Steel



BEAKER TONGS

Stainless steel, jaws covered with asbestos, can firmly hold any beaker from 250 ml to 1000 ml.

	Length, mm
CH13025/1	250
CH13025/3	300

**BEAKER TONGS**

Made of nickel plated steel, with plastic-coated jaws that open to 4 1/2". Holds 50 to 2000 ml beakers. Length 9 1/2".

CH13030

**BEAKER TONGS, HEAVY DUTY**

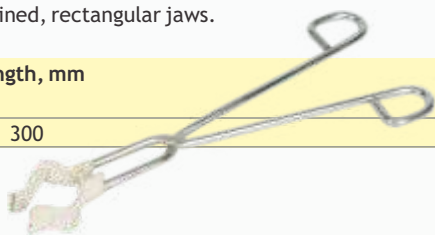
For hot beakers from 100 to 1500 ml capacity. Stainless steel with riveted joint and fiberglass-covered jaws. Length: 12 1/2".

CH13035

FLASK TONGS

Stainless steel, cork lined, rectangular jaws.

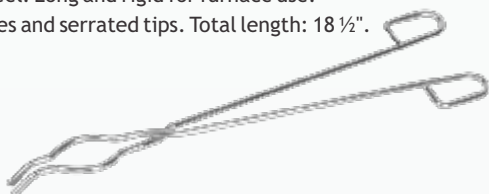
	Length, mm
CH13038/4	300

**MUFFLE FURNACE CRUCIBLE TONGS**

Nickel-plated steel. Long and rigid for furnace use.

With large handles and serrated tips. Total length: 18 1/2".

CH13040

**PIPE CLAY TRIANGLE**

Pipeclay stems on iron wire.

	Length, mm
CH13050/2	50
CH13050/4	65
CH13050/6	75

**TRIPOD STAND**

Triangular top of cast iron, with steel legs bent outwards for stability, painted.

	Length of one side, mm	Ht., mm
CH13055/2	100	150
CH13055/4	125	200

**TRIPOD STAND, STEEL**

Triangular top, all steel welded, legs bent outward for stability. Length of one side 130 mm, height 200 mm.

CH13058

**TRIPOD STAND, CIRCULAR**

Cast iron top, steel legs bent outward.

	Diam., mm	Ht., mm
CH13060/1	100	150
CH13060/3	125	200



BURNER TRIPOD

A good-quality tripod for supporting small objects over a burner. Legs are detachable for ease of storage. Made of black enameled cast iron. Size 9" Height, 3-1/2" O.D.

CH13060/2A

TRIPOD

Iron ring supported on three legs eliminates rocking. Size 127 x 230 mm.

CH13061/1



TRIPOD STAND, CIRCULAR

Consists of a circular top attached to steel legs. The lower half of the legs are bent for maximum stability.

CH13062/1	210 mm
CH13062/3	190 mm, with triangular attachment at base



RUBBER TUBING, RED

For general laboratory use, roll of 10 meter length

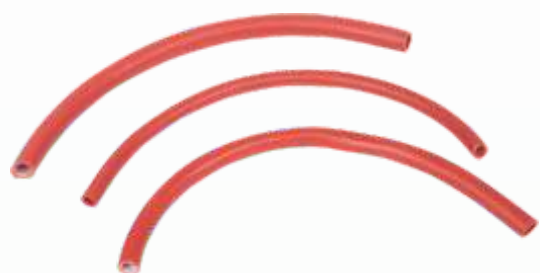
	Bore, mm	Wall thickness, mm
CH13064/1	4	1.0
CH13064/2	5	1.5
CH13064/3	6	1.5
CH13064/4	7	1.5
CH13064/5	8	1.5
CH13064/6	9	2.0
CH13064/7	10	2.0
CH13064/8	12	2.5



RUBBER TUBING, PRESSURE

For general laboratory use, roll of 10 meter length

	Bore, mm	Wall thickness, mm
CH13065/2	3.0	3.0
CH13065/3	4.5	3.0
CH13065/4	6.0	3.0
CH13065/5	8.0	3.0
CH13065/6	9.0	3.0
CH13065/7	10.0	3.5
CH13065/8	12.5	4.5



RUBBER TUBING, HIGH PRESSURE

For general laboratory use, roll of 10 meter length

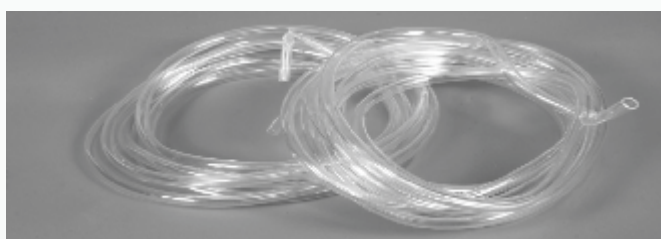
	Bore, mm	Wall thickness, mm
CH13067/1	3.0	4.5
CH13067/2	4.5	4.5
CH13067/3	6.0	4.5
CH13067/4	8.0	4.5
CH13067/5	9.0	4.5
CH13067/6	12.5	6.5



TUBING PVC

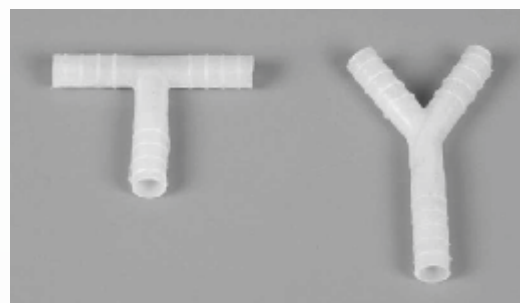
Transparent medium wall, tough and flexible, resistant to acids and alkalis, Roll of 10 meters.

	Bore, mm	Wall thickness, mm
CH13069/1	3	0.75
CH13069/2	5	1.5
CH13069/5R	8	2
CH13069/7	10	2
CH13069/9	12.5	2



TUBING, SILICON RUBBER

	Bore, mm	Wall thickness, mm
CH13070/1	3	1
CH13070/2	4	1.5
CH13070/4	6	1.5
CH13070/6	8	2.0
CH13070/8	10	2.0



TUBING CONNECTORS T & Y SHAPE

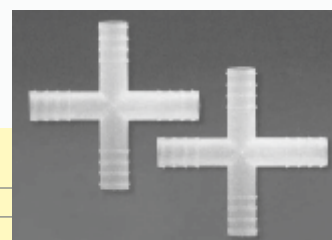
The crest & valley structure provided at all the ends of the connectors give excellent leakproof grip to the tube.

CH13075/1	T Connectors 6 mm
CH13075/3	T Connectors 8 mm
CH13075/5	T Connectors 10 mm
CH13075/7	Y Connectors 6 mm
CH13075/8	Y Connectors 8 mm
CH13075/9	Y Connectors 10 mm

CONNECTORS (CROSS)

Four way connectors prove to be an excellent option for achieving leakproof joints in tubing connections.

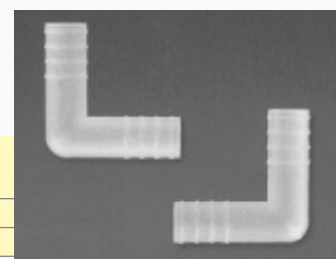
	Size, mm
CH13080/2	6
CH13080/4	8
CH13080/5	10



CONNECTORS (L SHAPED)

These L shaped connectors also add to the range of different connectors committed to provide excellent leak proof tube arrangements.

	Size, mm
CH13085/2	6
CH13085/3	8
CH13085/5	10





STORAGE VIAL

As the name suggests, these vials are commonly used for storage of biological material, human & animal cells. The Cap is provided with a built in seal ring making the vial leakproof. The base of the vial has longitudinal grooves which give it a non- twisting character when placed in a vial rack.

	Capacity, ml
VIA10002/2	2.0
VIA10002/4	5.0



STORAGE VIAL

These Polypropylene vials add to the existing range of storage vials. Available in 5 ml. & 10 ml. Capacities, these vials have polypropylene cap with built in seal ring making it a leakproof vial. Just like others storage vials these vials are also used for the storage of biological material, animal & human cells etc.

	Capacity, ml
VIA10008/2	SV-5



SCINTILLATION VIAL

These unbreakable vials, moulded in Polyethylene, are fitted with leakproof screw caps. These vials can be used with standard counting equipment for liquid scintillation system and are excellent for low activity count.

	Capacity, ml
VIA10010/1	8
VIA10010/2	20



RACK FOR SCINTILLATION VIAL

These Racks for Scintillation Vials, moulded in Polypropylene, are autoclavable & corrosion resistant. There is an individual rack for both 8 ml. & 20 ml. Vials. These rugged & stable rack can hold scintillation vials for convenient storage, handling & sample preparations.

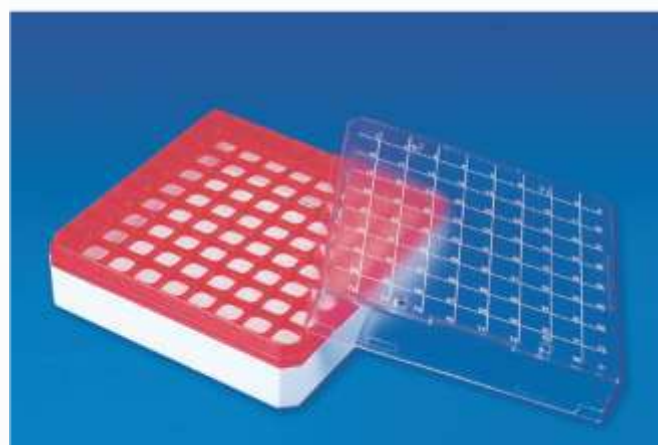
	Capacity
VIA10012/1	Rack for 90 vials of 8 ml
VIA10012/2	Rack for 50 vials of 20 ml



CRYO VIAL

Cryo vials are normally used for storage of Biological material, human & animal cells. These sterilized tubes are provided with white, prominent graduations and a long marking area for sample identification. The cap of these vials is provided with a seal ring inside to make it completely leakproof. The longitudinal grooves in the base give a non-twisting feature to these vials when placed in a cryo rack.

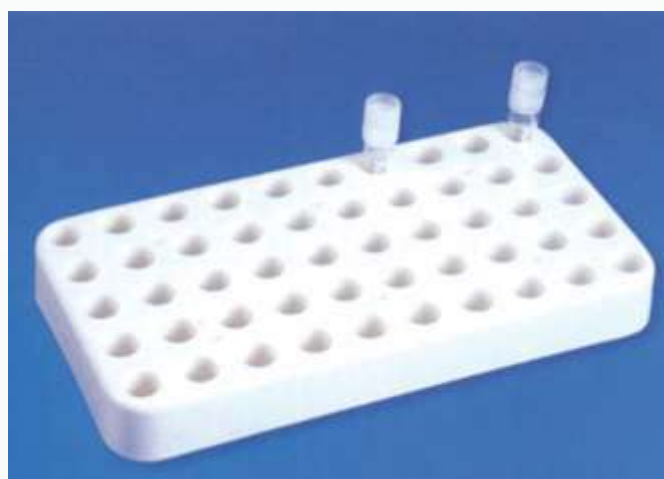
	Capacity, ml
VIA10016/2	1.8
VIA10016/3	4.5



CRYO BOX (PC)

Cryo Boxes are moulded in Polycarbonate making it extra strong and autoclavable. These can accommodate Cryo Vials of up to 4.5 ml. Capacity and are designed to be used at temperatures ranging from -190°C to $+121^{\circ}\text{C}$. The transparent cover of the box gives a good view of the contents inside and is numbered for better inventory control.

	Size
VIA10022/1	81 Places for 1ml. or 1.8 ml. Cryo vials
VIA10022/2	81 Places for 4.5 ml. Cryo vials
VIA10022/3	100 Places for 1 ml. or 1.8 ml. Cryo vials Vials
VIA10022/4	50 Places for 1 ml. or 1.8 ml. Cryo vials Vials



CRYO RACK

Cryo Rack is moulded in Polycarbonate making it tough, durable & autoclavable. This handy rack can hold 50 vials at a time. The unique feature of this rack is that vials can be unscrewed without actually picking them up as the vials will lock in every well and hence will not twist. This rack is provided with four anti skid rubbers & each well is identified with an alpha-numeric index.

VIA10020	50 places for 1, 1.8 & 4.5 ml Cryo Vials
----------	--



CRYO BOX (PP)

Moulded in Polypropylene, the top of the box is attached to the bottom through well designed built-in hinges. The bottom has built-in spaces to hold vials up to 2 ml. capacity. Available in two different sizes, these autoclavable boxes bear alpha numeric index for easy identification of different vials place inside.

	Size
VIA10024/1	81 Places for 1 ml. or 1.8 ml. Cryo vials
VIA10024/2	100 Places for 1ml. or 1.8 ml. Cryo vials

WATCH GLASS

Concave, with ground edge

	Diam., mm
CH13090/1	50
CH13090/3	75
CH13090/5	100



WATCH GLASS

Borosilicate glass, concave, fire polished edge.

	Diam., mm
CH13095/2	75
CH13095/4	100
CH13095/6	125
CH13095/8	150



WATER STILL, WALL TYPE

Automatic electrically heated. Designed to provide pyrogen free distilled water at low cost. All main parts like boiling chamber, lid, baffle, condenser tube are of stainless steel. The heating element has automatic cut-out which cuts current off if water level falls. Easy to clean and reassemble. Complete with wall mounting bracket, electrical cord, connector etc. to work on 240v, 50 Hz.

	Output, Litre/hr.	Wattage, kW
CH14020/4	2.0	2.0
CH14020/6	4.0	4.0
CH14020/8	6.0	6.0



WATER STILL

Easy to use, safe to operate and is designed for trouble free continuous operation. Suitable for general laboratory use.

Features:

The still produces 4 litres/hr of distilled water through a 3 kW heater housed in a horizontal borosilicate glass boiler.

Boiler & Condenser:

Are made of heat resistant borosilicate glass and are designed for high efficiency, boiler is with PTFE stopcock for easy cleaning. All plumbing connection are through screw thread connectors.

Stand: Powder coated for long rust free life.

Heater: 3 Kw chromium plated heater fitted with a thermostat.

Output: Approx 4 ltrs/ Hrs.
CH14030

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Company Profile

*Founded in 1943, **SHIV DIAL SUD & SONS** are universally recognized as leading and reliable manufacturers and exporters of Scientific Instruments and Laboratory Equipment for use in Education, Health and Vocational Training.*

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For the last Thirty year, all of our production is being exported to more than thirty countries. We are member of Indian Trade Promotion Organization set up by Government of India for Selected Exporters. It is our proud privilege of having been repeatedly awarded for our outstanding Export Performance.

We have pleasure to present our latest catalogue on Biological and Earth Science Equipment. This is in addition to our catalogues for Physics Apparatus & General Laboratory Apparatus. We hope you will find this catalogue useful and convenient to make enquiries & to place indents.

Apart from exporting to regular buyers, we have also been successfully participating in global tenders financed by World Bank, Asian Development Bank, African Development Bank and other leading international financial institutions.



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MICROSCOPES

'Supertek' Microscopes are a class by themselves. Manufactured under an ISO 9001 standardized system, each operation is carefully carried out and monitored. Due consideration is given to the parameters involved. The components and the final products are subjected to various tests commensurate with the quality of the microscope. While each microscope is inspected, the advanced microscopes are subjected to a whole series of tests such as freedom from optical aberrations, resolving power etc.

These microscopes are designed to require minimum maintenance and incorporate devices to guard against over-enthusiastic use by students. For the safety of the object slide, objective lens and the mechanism, it is recommended that observing from the side, the objective lens should be brought close to the object and then looking down the microscope, focussing should be done by racking the objective away from the object.

MICROSCOPE, ELEMENTARY **A**

Low cost basic equipment for use by school children to study natural science. Its light weight makes it suitable for field work as well. Focussing is by rack and pinion movement. A 84 x 76 mm stage with disc diaphragm and slide holding clips is provided. Illumination is by plano concave mirror reflector fitted under the stage. One Huygenian eye-piece x10 and one achromatic objective x10 are provided to give a sharp image of x100 magnification.

B10010

MICROSCOPE, JUNIOR **B**

Economy model for beginners. Monocular body is inclinable upto 90° for ease of working. Mechanical tube length is standard 160 mm. Focussing is through rack & pinion arrangement. A fixed stage 110 x 100 mm is provided with stage clips, illumination is by plano concave mirror reflector. With x10 Huygenian eye-piece and x10 achromatic objective, giving x100 magnification.

B10015

MICROSCOPE, JUNIOR **C**

As above, but with triple revolving nose-piece and three achromatic objectives x4, x10 and x20 giving magnification x40 to x200.

B10017



STUDENT MICROSCOPES

General Features

- Pressure die-cast parts to ensure strength and uniformity.
- Well proportioned stable, rigid and vertical body inclinable through 90°.
- Mechanical tube length 160 mm.
- Separate knobs for coarse and fine focussing. Coarse knobs are with tension adjustment arrangement.
- Triple revolving nose-piece with international standard threads, with click stops ensuring correct centering.
- High grade achromatic objectives and Huygenian eye-pieces for sharp and aberration free image
- Safety stopper to prevent damage to slides and objectives.
- Fixed square stage of 110x110 mm with two non-removable stage clips.
- Sub-stage plano concave daylight mirror reflector in metal mount, replaceable by an electrical illuminator.
- Smooth black or scratch resistant grey epoxy finish.
- Dust cover and cleaning cloth.
- Packed in moulded styrofoam box or wooden cabinet with lock and key.

OPTICS

Eye-pieces : Huygenian x10 and x15
 Objectives : Achromatic x10, and x40 (SL)
 Magnification : x100 to x600

Student Microscope Model 20200 **A**

Description as above, stage fitted with disc diaphragm having six different apertures.

B10065

STUDENT MICROSCOPE MODEL 20202 **B**

As above, but stage fitted with iris diaphragm with a sub-stage two-lens Abbe condenser N.A. 1.2, having helical motion.

B10070

STUDENT MICROSCOPE MODEL 20204 **C**

As above, but stage fitted with iris diaphragm, Abbe condenser N.A 1.2, with rack and pinion movement.

B10075

PATHOLOGICAL MICROSCOPE MODEL 20208 D

This is a standardised microscope for medical institutions and pathological laboratories.

In addition to general specifications for student microscopes:

- Fine motion knob is graduated to read to 0.002 mm.
- Fitted with detachable graduated mechanical stage.
- A sub-stage iris diaphragm with Abbe condenser N.A.1.2 which moves up and down with rack and pinion motion.

OPTICS

Eye Pieces : Huygenian x5, x10, x15 (any two)
Objectives : Achromatic x10, x40 (spring loaded) and x100 (spring loaded) oil immersion

B10080



STUDENT MICROSCOPE, INCLINED E

- Well proportioned stable, rigid and vertical body inclinable through 90°.
- Eye tube is inclined at 45°.
- Separate knobs for coarse and fine focussing. Coarse knobs are with tension adjustment arrangement.
- Triple revolving nose-piece with international standard threads, with click stop ensuring correct centering.
- Safety stopper to prevent damage to slides and objectives.
- Fixed square stage of 110x110 mm with two non-removable stage clips.
- Sub-stage plano concave daylight mirror reflector in metal mount, replaceable by an electrical illuminator.
- Smooth black or scratch resistant grey epoxy finish.
- Dust cover and cleaning cloth.
- Packed in moulded styrofoam box or wooden cabinet with lock and key.

OPTICS

Eye-pieces : Wide Field x10 and x15
Objectives : Achromatic x4, x10 and x40 (SL)
Magnification : x40 to x400

B10090



LABORATORY MICROSCOPES

Standard laboratory microscopes for routine laboratory work and educational purposes.

General Features :

- Monocular body with tube inclined at 45°, rotatable 360°, allowing convenient viewing and enabling more than one person to view image without disturbing microscope setting.
- Quadruple nose-piece.
- Coarse and fine focussing adjustment with tension control mechanism.
- Sub-stage condenser N.A. 1.2 with rack and pinion movement.

OPTICS:

Eye-piece : WF x10
Objectives : Achromatic x4, x10, x40 (SL) and x100 (SL) oil immersion.

LABORATORY MICROSCOPE, MODEL SS 1000 ML A

With plano concave mirror reflector which is replaceable by an electric illuminator, 220V 15 W

B10100

LABORATORY MICROSCOPE, MODEL 1000 HL B

With 6V-20W halogen lamp, with transformer built in the base, with luminosity control mechanism, giving a sharp and bright image.

B10105

ADVANCED MICROSCOPES, XLB SERIES

Professional microscopes for use in biological, medical, industrial laboratories and hospitals etc.

General Features

- Broad, well shaped stand to ensure stability.
- Monocular/binocular head inclined at 45°, rotatable 360° and fitted with anti-reflection coated prisms.
- Separate knobs for coarse and fine focussing. Coarse knob is with tension adjustment arrangement. Fine adjustment knob is graduated to 0.002 mm.
- Quadruple nose-piece.
- Large rectangular stage 130 x 120 mm fitted with two non-removable stage clips.
- Detachable mechanical stage with graduated scales and verniers
- Two lens Abbe condenser N.A. 1.2 with iris diaphragm, filter holder and blue filter, movable by rack and pinion mechanism.
- 6 V-20 W halogen lamp with transformer built in the base, with luminosity control regulator.
- Colour corrected optics to provide a flat, high resolution image through parfocal and precentered achromatic objectives and wide-field eye-pieces.
- Safety stopper to prevent damage to slides and objectives.
- Supplied complete with mains cable, dust cover, and cleaning cloth .
- Packed in wooden cabinet with lock and key or in Styrofoam box.

MONOCULAR MICROSCOPE MODEL XLB 111 C

Description as above, but with monocular head, inclined at 45° rotatable through 360°

OPTICS :

Eye-pieces : WF x10, WF x 15
Objectives : Achromatic. x 4, x 10, x 40 (SL) and x 100 (SL) oil immersion.

B10120

MONOCULAR MICROSCOPE MODEL XLB 111

As above, but with built-in mechanical stage with co-axial movements.

B10122

BINOCULAR MICROSCOPE MODEL XLB 121

As per above general description, but with **Binocular Head** inclined at 45° and rotating 360°

OPTICS :

Eye-pieces : WF x10 (paired) and WF x15 (paired)
Objectives : Achromatic x4, x10, x40 (SL) and x100 (SL) oil immersion.

B10130

BINOCULAR MICROSCOPE MODEL XLB 121 D

As above but fitted with built-in co-axial mechanical stage.

B10135



BIOSTAR MICROSCOPES CXL SERIES

High performance microscopes with co-axial focussing for maximum ease of operation and halogen illumination for brighter and sharper images.

General Features

- 45° inclined monocular/binocular head rotatable through 360° for convenience of working and multiple viewing.
- Large base with built-in hand rest contours.
- A robust arm with focussing knobs on both sides based on a 4-stage gear reduction system travelling on ball guides. The co-axial focussing system provides a high degree of working convenience.
- A large stage fitted with built-in mechanical stage having low drive co-axial knob for X - Y movements in horizontal plane.
- A sub-stage condenser with iris diaphragm and filter holder, with rack & pinion movement.
- A low friction four-nose objective turret on a dust proof carrier provides lasting smooth rotation. The built-in click stops bring each objective to perfect alignment.
- High degree performance and resolution.
- With 6V-20W halogen light source built in the base with on/off switch and electronic light intensity regulator. The lamp is easily replaceable.
- Complete with power cord.
- Packed in moulded Styrofoam box or in wooden cabinet with lock and key.

OPTICS :

- Eye-pieces : WF x10 (paired for binocular head) with high eyepoint.
- Objectives : Achromatic x4, x10, x40 (SL) and x100 (SL) oil immersion.

BIOSTAR MONOCULAR MICROSCOPE **A**

B10140

BIOSTAR BINOCULAR MICROSCOPE **B**

B10145



ACCESSORIES & SPARES FOR MICROSCOPES

EYE-PIECE, HUYGENIAN **C**

B10303	x 5
B10304	x10
B10305	x15

EYE-PIECE, WIDE FIELD **D**

B10308	WF x10
B10310	WF x15

EYE-PIECE, EXTRA WIDE FIELD

B10315	HKW x10
--------	---------

POINTER EYE PIECE

B10320	Huygenian	x10
B10322	Wide field	x10

OBJECTIVES

Achromatic, standard international threads, interchangeable. x40, x 60 and x100 objectives are spring loaded and are retractable for safety of slides and to avoid damage to objective lens.

ST SERIES **E**

Parfocal distance 37 mm

Magnification

B10335	x4
B10337	x10
B10338	x20
B10340	x40 (spring loaded)
B10343	x60 (spring loaded)
B10345	x100 (spring loaded) oil immersion
B10350	x100,(SL)oil immersion, high performance, for research and advanced pathological work.

DIN SERIES

Parfocal distance 45 mm

Magnification

B10355	x4
B10357	x10
B10358	x20
B10360	x40 (SL)
B10363	x60 (SL)
B10370	x100 (SL) oil immersion





MECHANICAL STAGE **A**

Detachable, for fitting on the fixed stage of microscope. The two graduated X and Y movements are adjusted by rack & pinion mechanism and have vernier scales reading to 0.1 mm.

B10380



MICROSCOPE ILLUMINATOR **B**

220 volt, 15 watt, to replace day-light mirror reflector, fits into microscope body.

B10384

SPARE LAMP

B 10388

Tungsten, 220 V, 15 W

B 10390

Halogen, 6 V, 20 W

MICROSCOPE LAMP, LOW VOLTAGE **C**

Mounted on stand, fully adjustable for height and angle. The lamp holder is fitted with a ground glass diffuser, complete with 6 volt, 20 watt lamp and flexible leads.

B10394



STAGE MICROMETER

For calibrating eyepiece graticules. Glass micrometer scale 0.1 mm x 0.01 mm is set in matt black finish aluminium slide 76x26 mm. in clear plastic case

B10400

EYE-PIECE GRATICULE

For estimating the size of objects under the microscope. The graticule is inserted into the eye-piece and calibrated, with a stage micrometer, for each objective. Graduation 0-10 mm in 100 parts of 0.1, dia 21 mm

B10403

ABBE CONDENSER D

N.A. 1.2, mounted with adjustable iris diaphragm.

B10406



REFLECTOR E

50 mm diameter, plane and concave mirror reflectors in metal frame.

B10410



DOUBLE DEMONSTRATION EYEPIECE F

Comprising a beam splitting prism of optical glass ensuring perfect view to the teacher as well as the students. With a pointer which covers the whole field, rotatable 360°

B10420



CAMERA LUCIDA G

Mirror type, to trace the image of a microscopic object on paper. A beam splitting prism of optical glass is positioned over the eyepiece with a large size swinging mirror which causes the image of the object to appear on a plane surface enabling its tracing.

B10425



CAMERA LUCIDA H

Prism type, both the object and the paper are simultaneously visible to the observer, for drawing the image of the specimen under the microscope. It fits on the eye piece tube of all standard microscopes. Supplied in velvet lined case.

B10427





PROJECTION MICROSCOPE

A greatly enlarged image of the specimen slide is projected on the screen, providing a high contrast, sharp and distortion free image. The microscope is highly suitable for group discussions as well as for teaching purposes.

General Features

- Stable and robust stand
- Monocular fixed straight tube body. Mechanical tube length 160 mm.
- Separate knobs for coarse and fine focussing.
- Fixed square stage 110 x 110 mm with graduated detachable mechanical stage.
- Triple revolving nose-piece with click stops and positive centering.
- Fixed built-in Abbe condenser N. A 0.65
- Illumination by 6V 20 W halogen lamp with solid state variable light control knob for adjusting the intensity of light.
- Grainless, optically true circular glass projection screen rotatable through 360° on microscope tube.

Eyepiece : Huygenian x10
 Objectives : Achromatic: x5, x10, x20.



PROJECTION MICROSCOPE A

As above, with screen of 150 mm diameter.
B10432

PROJECTION MICROSCOPE

As above, but with screen of 100 mm diameter.
B10434

FIELD MICROSCOPE B

A simple microscope designed for field work. Focussing is by rack and pinion. With Huygenian eyepiece x10 and achromatic objective x10. A battery holder clamp is provided to take a pencil torch to provide illumination to the object. In rexine bag for easy transportation.

B10446

B10448 Torch for field Microscope



DISSECTING MICROSCOPE C

Useful for fine dissection work etc. On heavy circular base. The distance between the eye lens and the stage is sufficient for convenient dissection. The eye-piece is mounted on a jointed revolving arm so as to be able to scan every part of the stage. The stage has two spring clips and a sub-stage reversible mirror/opal face illuminator. Focussing is by rack and pinion mechanism. Complete with detachable hand rests which provide support while doing dissection. Complete with two eye pieces x10 and x20.

B10455

DISSECTING MICROSCOPE, BULL EYE **D**

Heavy stable round base, stage fitted with two spring clips and a substage reversible mirror/opal face illuminator. Focussing is by rack and pinion mechanism, with detachable hand rests. A jointed revolving arm is provided for moving magnifying lens over full area of the stage and is easily replaceable by a special bull eye lens 80 mm dia. to increase the field of vision and for convenience of work.

Supplied complete with x10, x20 eyepieces and 80 mm dia. bull eye lens.

B10460



STEREO MICROSCOPES

Stereo-microscopes are required where an image of high quality, erect, magnified and with full preception of depth is needed. These are designed to have a long working distance and three dimensional viewing to facilitate mechanical interaction with the specimen e.g. in dissection of small specimen, study of living organism, study of rocks and minerals, inspection of electronic and other small components.

STEREO MICROSCOPE MODEL SM 501 **E**

- Straight binocular head fitted with precision prism system.
- Interpupillary distance is adjustable 50-75 mm
- Focussing is by large knobs on both sides through rack and pinion mechanism.
- Interchangeable circular black/ white stage plate is positioned in the base which also has two stage clips.
- Eyepiece : Wide field x10 (paired)
- Objective : Achromatic x2 (paired)
- Magnification : x20
- Supplied with dust cover.

In moulded styrofoam box or in wooden box

B10505



STEREO MICROSCOPE, INCLINED MODEL SM 505 **F**

- 45° inclined binocular head for ease of observation, fitted with precision prism system.
- Interpupillary distance is adjustable 50-75 mm with independent compensating adjustment on the left eye tube.
- Focussing is by large knobs on both sides by rack and pinion arrangement.
- With removable white/black plate in base with stage clips
- Eyepieces : WF x10 (paired)
- Objectives : Achromatic x2 (paired) and x4 (paired) with sliding arrangement
- Magnification : x20, x40
- With dust cover

In moulded styrofoam box or in wooden box

B10508





STEREO MICROSCOPE MODEL SM 511 A

This is an ideal stereo microscope which provides a crisp, erect image over a wide field of view. The transmitted and incident illuminations assure the best results.

Stereo binocular head is inclined at 45° for ease of viewing, is rotatable through 360° and can be locked in any position. Interpupillary distance is adjustable 50-75 mm.

- Independent compensating adjustment is provided on the left eye tube.
 - Focussing is by rack and pinion system.
 - Illumination is through two tungsten lamps which provide transmitted and incident light. One is fitted below the translucent stage plate in the base and the other near the objective turret. The illuminators may be used either individually or simultaneously through a selector switch. A built-in transformer is also provided in the base.
 - Operates on 220V 50Hz mains supply.
 - Eyepieces : WF x10 (paired).
 - Objectives : x2 (paired) and x4 (paired) mounted on a quick changing turret which keeps the specimen in focus on change of objectives. The objectives are parfocalised and precentered.
 - Magnification: x20 & x40
- Supplied in moulded styrofoam box or in wooden box
B10510

ALSO AVAILABLE

- **POLARIZING MICROSCOPES**
- **FLUORESCENCE MICROSCOPES**
- **DARK FIELD MICROSCOPES**
- **INVERTED MICROSCOPES**
- **ZOOM STEREO MICROSCOPES**

MICROTOME

HAND MICROTOME **B**

A handy and simple model with wide flat top, suitable for sectioning of fresh tissues. Screw drum is graduated in 100 close divisions and will cut the specimen in steps of 10 microns each. Complete with a single edged razor blade.

B10552



HAND MICROTOME

As B10552, but with differential screw, screw drum is graduated in 50 wide divisions.

B10554

TABLE CLAMPING DEVICE

For B10552 to fix the microtome to the table.

B10556



HAND MICROTOME **C**

Specially designed for cutting paraffin embedded specimens in varying thickness upto 50 microns, in steps of 5 microns. Cast aluminium housing with stainless steel top, complete with table clamp, fine brush, 4 microscopic slides, 1 pkt razor blades, in wooden box, with instructions.

B10558

ROCKING MICROTOME **D**

Ideal for elementary student and routine work, well designed and sturdy model to cut comparatively soft wax embedded tissues, ensuring uniformity in the cutting. It can easily section specimens upto 20 mm dia. The thickness of the sections can be varied from 2 microns to 24 microns in steps of 2 microns each. With a set of three object holders, one microtome razor with handle, one honing plate, one bottle oil for lubrication, dust cover and wooden cabinet.

B10562





ROTARY MICROTOME **A**

A sectioning equipment, economical and simple, yet providing all facilities of a standard rotary microtome. The internal mechanism is fully enclosed in a sturdy metal case, for protection against dust and grit & is driven by a handle which can be locked in position. A ball & socket type movement permits use of the entire knife edge. With a feed range of 1 to 25 microns in steps of 1 micron. Supplied complete with a set of three object holders, one razor 120 mm with back and handle, one honing plate, one bottle of oil for lubrication, dust cover and wooden cabinet.

B10565



PRECISION ROTARY MICROTOME **B**

A fully dependable sectioning equipment designed for precise sectioning of tissues up to 1 micron thickness. It has a front located feed indicator with cam drive system for accurate feed setting from 1 to 50 microns in steps of 1 micron. Prominent features include independent feed mechanism with automatic safety device, universal knife holder with lateral movement to permit use of entire knife edge, ball and flange type object holder for accurate centering of the specimen and full swing protective cover for easy cleaning and lubrication. The equipment assures smooth operation throughout the long life of the instrument as individual components are manufactured with modern techniques. The microtome razor is fabricated from fine grain steel alloy tested for microstructure and is heat treated to maintain its sharpness and strength. Supplied complete with one razor 120 mm with back and handle, a set of three object holders, one honing plate, oil can, dust cover, in wooden cabinet.

B10575



ALSO AVAILABLE : FREEZING MICROTOMES

AUTOMATIC KNIFE SHARPENER **C**

Portable, precision automatic knife sharpener with timer 0-60 minutes to adjust sharpening time. This equipment can sharpen all microtome knives up to 140 mm in length. Complete with one universal holder, two honing plates, one bottle honing glass compound, one knife inspection block and one re-dressing pad but without micro abrasives.

B10580

ACCESSORIES FOR MICROTOMES

RAZOR **D**

High quality carbon steel, flat on one side, hollow ground on the other, right handed.

B10583

RAZOR ATTACHMENT

A simple attachment permitting a safety blade in place of microtome knife, suitable for cutting accurate sections

B10585

MICROTOME RAZOR **E**

For rotary microtomes fabricated from fine grain special steel, heat treated and tested for microstructure, both sides wedged, supplied with back and handle

B10590 Size 120 mm

B10591 Size 140 mm

B10592 Size 160 mm

MICROTOME RAZOR

For rocking microtomes

B10593

OBJECT HOLDERS **F**

B10604 Set of three object holders for rotary microtomes

B10606 Set of three different object holders for rocking microtomes.

HONING STONE

B10610 Size 20 cm

LEATHER STRAP

Mounted in wooden frame, for final stropping of the knife

B10615

L-MOULDS **G**

Pair, made of brass. size 50x25x15 cm.

B10618

MICRO ABRASIVE SUSPENSION

200 ml bottle

B10624 For coarse honing

B10625 For fine honing





PARAFFIN EMBEDDING BATH **A**

Thermostatically controlled. Double walled, with cups and sleeves for glass tubes.

B10630/1	4 cups & 6 sleeves
B10630/2	6 cups & 8 sleeves
B10630/3	12 cups & 14 sleeves



TISSUE FLOATATION BATH **B**

For preparing tissue sections for microscopic slides after embedding. Double walled, inside is of seamless matt black anodised aluminium and outside is of mild steel sheet with epoxy powder coating. Thermostatic control from ambient temperature to $80^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$. Complete with indicator light, cord and plug, with thermometer clamp, but without thermometer, for working on 220/240V 50 Hz.

B10633	Dia 200 mm	Depth 75 mm
B10634	Dia 250 mm	Depth 125 mm



STAINING BOTTLE STAND **C**

For twelve 30 ml dropping bottles, polished hard wood.

B10640



STAINING TROUGH **D**

Glass with moulded glass cover, for 10 slides, back to back.

B10644



STAINING JAR, COPLIN **E**

Glass, with moulded cover to take upto 10 slides, back to back.

B10648



STAINING JAR, COPLIN **F**

High density polyethylene, to take upto 10 slides, back to back, grooved to hold slides in vertical position, with dome shaped screw threaded cap.

B10650

CAVITY BLOCK **G**

Glass, block form with cavity, complete with glass cover

B10652 40x40 mm

B10653 60x60 mm



MICROSCOPE SLIDES **H**

Made from optically flat and corrosion resistant clear glass, 75x25mm, ground edges, box of 50 slides,

Thickness of glass

B10660 2 mm.

B10662 1.35 mm.

B10664 1.25 mm.

B10666 1.15 mm.

B10668 0.9 to 1.0 mm.

B10670 Frosted 1.35 mm



MICROSCOPE CAVITY SLIDES

Polished, cavities are of 16 to 18 mm dia. Made from non-corrosive glass, polished edges, size 75x25x1.5 mm, pack of 10, in a box.

B10672 **I** With one circular cavity

B10673 **J** With two circular cavities

B10674 **K** With three circular cavities



MICRO SLIDES V.D.R.L.

Cavity slides for V.D.R.L., Kline, B.J.L. and other sero-diagnostic tests. Slide size 75X56X3 mm with polished concave cavities, each 16 mm dia x 1.75 mm depth with polished edges, frosted surface for smooth marking. Each piece packed in velvet lined box.

B10677 **L** 6 cavities

B10678 8 cavities

B10679 **M** 10 cavities

B10680 **N** 12 cavities



MICRO SLIDES, BLOOD GROUPING

Size 100x100x10 mm, 12 cavities each of 21 mm dia & 4 mm depth, with frosted slide surface for smooth marking, individually packed.

B10682 **P**



MICRO COVER GLASS **A**

Made from clear flat glass, uniform in size and free from scratches, packed in plastic box, net weight 10 gms.

Circular

B10687	Dia. 18 mm
B10688	Dia. 19 mm
B10689	Dia. 22mm

Square

B10691	Size 18 x 18 mm
B10692	Size 22 x 22 mm
B10693	Size 24 x 24 mm

Rectangular

B10696	Size 22 x 30 mm
B10697	Size 22 x 40 mm



LABELS

For microscopic slides, self adhesive

B10699



CANADA BALSAM BOTTLE

With drop on cap and glass rod

Capacity

B10702	30 ml
B10703	60 ml

SLIDE DRYING PLATE **B**

To reduce setting time of prepared slides. An electrically warmed flat plate with thermostatically controlled surface temperature. Treated to resist stains and corrosive reagents. Temperature range 25° C to 50° C, Size 400x265x65 mm.

B10708



SLIDE RACK **C**

A compact sturdy chamber holds 100 microscopic slides vertically in pre-numbered grooves. Moulded in white ABS with crystal clear polycarbonate top, for clear viewing

B10712



SLIDE BOX

Wooden box for holding microscopic slides of size 75x25 mm, serially numbered, with index card

Capacity

B10720	D	25 slides
B10722	E	50 slides
B10725	F	100 slides

SLIDE BOX

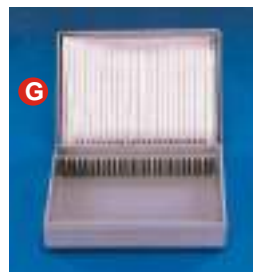
Plastic, compact, to hold slides 75x25 mm, vertically in pre-numbered grooves, provided with index card,

Capacity

B10755 **G** 25 slides

B10756 **H** 50 slides

B10758 **I** 100 slides



SLIDE BOX **J**

Plastic, for 5 slides, with hinged top

B10765



SLIDE MAILER **K**

Plastic, for 2 slides

B10770



SLIDE TRAY **L**

Die-pressed anodised aluminium sheet designed to hold 20 slides in flat position, can be used in incubator for drying slides and also to store mounted slides in a flat position.

B10775



SLIDE TRAY **M**

Dual purpose, made out of thick anodised aluminium sheet, die pressed, useful for staining slides in flat position and also for drying freshly prepared slides, in horizontal or vertical position in incubator, capacity 20 slides.

B10780



MICROSCOPIC SLIDE TRAY

Wooden, flat type, with hinged cover flap, to carry 20 slides in flat position in 20 serially numbered compartments, useful for carrying prepared slides to the class or to field.

B10785



SLIDE CABINET

Wooden laminated cabinet, drawers are of wood, each serially numbered & with velvet lined bottom, with index card frame and puller knobs, dustproof door with lock and with lever lock to prevent accidental complete drawer pull-out. An extra drawer is provided with index cards.

Capacity

B10801	500 slides in 5 drawers of 100 each
B10802 A	1000 slides in 10 drawers of 100 each
B10803	2000 slides in 10 drawers of 200 each
B10804	3000 slides in 15 drawers of 200 each
B10805	5000 slides in 20 drawers of 250 each
B10806	7500 slides in 30 drawers of 250 each
B10807	10000 slides in 40 drawers of 250 each



SLIDE CABINET, FLAT POSITION

With aluminium trays for 20 slides each, in flat position, lockable door, extra drawer with index cards

Capacity

B10831	500 slides in 25 trays
B10832	1000 slides in 50 trays
B10833	2000 slides in 100 trays
B10835	5000 slides in 250 trays
B10837	10000 slides in 500 trays



SLIDE CABINET, MULTIPURPOSE

To hold slides in flat as well as vertical position. The aluminium trays hold 20 slides each in flat position, the other half carries drawers to hold slides in vertical position which are serially numbered. Complete with extra drawer with index cards

Capacity

B10852 B	1000 slides	500 flat and 500 vertical
B10854	1600 slides	600 flat and 1000 vertical
B10858	2000 slides	800 flat and 1200 vertical

FLEXIBLE ARM MAGNIFIER C

A biconvex lens of 100 mm diam is mounted on a heavy base for stability. The arm, 300 mm long, and swivel lens mount enable the lens to be used in any position at any angle. Magnification x 2.

B10871



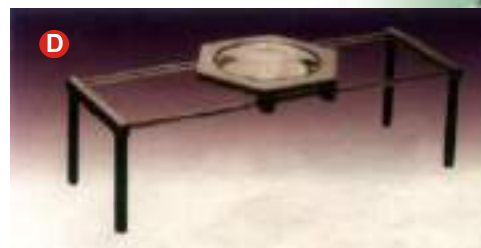
SLIDING MAGNIFIER D

A plano-convex lens set in a frame traverses on two parallel steel bars. Telescopic legs are fitted at each corner of the frame so that the magnifier can be located over objects of varying sizes.

Dimensions :

Lens diam	100 mm.
Stand length	350 mm.
Stand width	130 mm.
Stand height	100 to 150 mm.

B10875



HAND HELD ILLUMINATED MAGNIFIER E

Provides magnification along with illumination. Consists of a light and a mounted acrylic lens. Ideal for viewing maps, directories, biological and geological specimens when room light is not adequate, requires penlight cell and torch bulb.

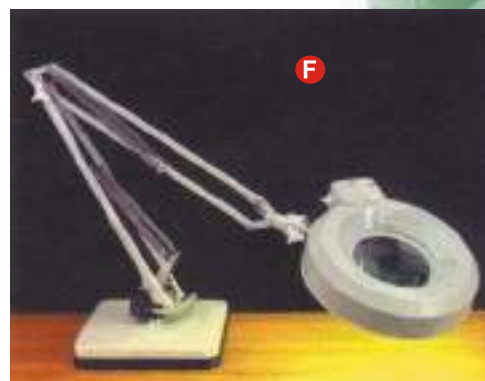
B10885



FLEXIBLE ARM ILLUMINATED MAGNIFIER F

A 130 mm diam lens and a 22 watt circular tubelight mounted around the lens, are mounted on a spring balanced stand with feather touch movement and a reach of 900 mm, allowing the lens to be placed in any position and keeps both the hands free. An ideal aid to fine assembly work, quality control and inspection. With a spot lens to increase magnification from x 2 to x 3.5. Field of view 230 mm, working distance 250 mm.

B10890





DISSECTING INSTRUMENTS SETS

All instruments are made of stainless steel, unless otherwise specified

DISSECTING SET, SDI - 1 **A**

Comprising 10 instruments detailed below::

- 1 Forceps, straight, fine points, 125 mm.
- 1 Forceps, straight, blunt points, 125 mm.
- 2 Needles
- 1 Section lifter
- 1 Scalpel, 38 mm blade.
- 1 Scalpel, 45 mm blade.
- 1 Scissors, straight, fine points, 125 mm.
- 1 Scissors, straight, blunt points, 125 mm
- 1 Seeker

B10901 In velvet lined wooden case

B10902 In folding pouch



DISSECTING SET SDI-2 **B**

Very popular model, comprising 14 instruments:-

- 1 Dissecting scissors, straight, fine points, 100 mm.
- 1 Dissecting scissors, straight, blunt points, 125 mm.
- 1 Dissecting forceps, straight, fine points, 100 mm.
- 1 Dissecting forceps, straight, blunt points, 125 mm.
- 1 Needle with lancet point.
- 1 Needle pointed.
- 1 Seeker.
- 1 Section lifter.
- 1 Scalpel, fixed blade, 38 mm.
- 1 Scalpel, fixed blade, 50 mm.
- 1 Blow pipe, nickelled brass
- 1 Hooks and chain set
- 1 Razor, carbon steel
- 1 Magnifying glass.

B10905 In velvet lined wooden case

B10906 In folding pouch



DISSECTING SET NO SDI-3 **C**

Similar to cat no B10905 but the fixed blade scalpels are replaced with B.P. scalpels No 3 and No 4, with 5 blades for each.

B10910

B10912 In folding pouch

DISSECTING SET NO SDI - 4 **D**

Similar to cat no B10905 but with following additions:-

- 6 T pins
- 1 Glass slide
- 5 Cover slips
- 1 Dropper
- 1 Brush

B10915 In velvet lined wooden case

B10916 In folding pouch



DISSECTING SET, INTERMEDIATE **E**

Everything needed for detailed dissections. Perfect for advanced, middle and high schools. Folding pouch provided. Comprising

- 1 Forceps, fine points, straight 125 mm.
- 1 Forceps, curved points, 125 mm
- 1 Cartilage knife
- 1 Scalpel with fixed blade, blade length 25 mm
- 1 Scalpel with fixed blade, blade length 38 mm
- 1 Straight needle
- 1 Bent needle
- 1 Probe
- 1 Scissors, fine points
- 1 Scissors, medium points
- 1 Dropper
- 1 Plastic ruler 150 mm.

B10920



DISSECTING SET, TEACHER'S **F**

Full value for money, selected instruments, in folding pouch, comprising

- 1 Scalpel handle with 6 assorted blades
- 2 Forceps
- 2 Scissors
- 2 Needle holders
- 12 Needles
- 1 Dropper
- 1 Ruler 150 mm

B10925





DISSECTING SET , ZOOLOGY **A**

High quality instruments for advanced high school and general college courses, in folding pouch, comprising

- 1 Dissecting forceps
- 1 Cartilage knife
- 1 Hooks and chain set
- 1 Tenaculum
- 1 Straight needle
- 1 Bent needle
- 1 Scissors, straight
- 1 Scissors, bent
- 2 Scalpels
- 2 Needle holders
- 1 Blowpipe
- 1 Probe
- 1 Ruler 150 mm

B10930

DISSECTING SETS AS PER YOUR SPECIFICATIONS CAN ALSO BE SUPPLIED



DISSECTING FORCEPS **B**

Stainless steel, ribbed sides, straight tips with fine points.

B10951 Length 100 mm.

B10953 Length 125 mm.

B10955 Length 150 mm.



FORCEPS **C**

Stainless steel, ribbed sides, curved tips for ease in reach, with fine points, 125 mm.

B10961



FORCEPS **D**

Stainless steel, ribbed sides, straight, with blunt points, 125 mm.

B10962

FORCEPS, ENTOMOLOGICAL

Stainless steel, with curved and flattened ends, length 120 mm.

B10967

FORCEPS, WATCH MAKER'S **E**

Stainless steel, very fine straight ends, length 105 mm, makes delicate dissection easy.

B10968



FORCEPS, COVER GLASS **F**

Stainless steel, with angled flattened ends for handling slides and cover glasses, length 110 mm.

B10970



FORCEPS, TOOTHED TIPS, TREVE'S **G**

Stainless steel, rat tooth 125 mm, makes grasping and separating skin and connective tissue on preserved specimen easy.

B10972



FORCEPS **H**

Stainless steel, extra long 300 mm, suitable for removing objects from deep containers.

B10975



FORCEPS, ARTERY, KELLY **I**

Stainless steel, box joints, straight. Scissor handles give precise control to prevent leakage from injected vessels. Finger grips have three position latch for varying pressure, blunt serrated tips, length 130 mm.

B10978



NEEDLE, WITH HOLDER **J**

Needle, straight, 33 mm length,

B10980 Mounted in wooden handle.

B10982 Mounted in plastic handle

B10983 Mounted in steel handle

B10984 As B10983 but with bent needle, 33 mm length



NEEDLE HOLDER **K**

Versatile, chrome plated brass metal needle holder with screw chuck to hold straight or bent needle securely, length 90 mm, includes one straight needle.

B10988



SECTION LIFTER **A**

Stainless steel, overall length 150 mm with bent up blade.
B10992



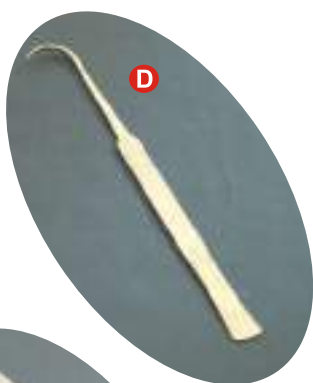
SEEKER **B**

Stainless steel, straight blunt end.
B10995



SEEKER **C**

Stainless steel, bent blunt end
B10996



TENACULUM **D**

Stainless steel, shallow curve, 125 mm
B10998



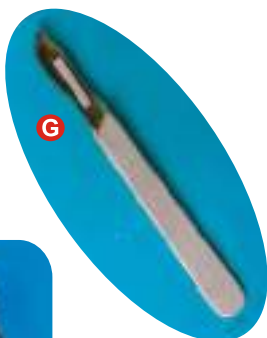
SCALPEL **E**

Stainless steel, handle with fixed blade,
B11001 Blade length 38 mm.
B11003 Blade length 45 mm.



SCALPEL HANDLE **F**

Stainless steel, Bard & Parker type, for use with removable blades
B11008 Size No. 3
B11010 Size No. 4



SCALPEL, DISPOSABLE **G**

Plastic, sterilized, for single use, with s.s. blade No 15, wrapped in aluminium foil
B11015



SCALPEL BLADES **H**

Carbon steel, sterilised,

	Blade No.	Blade No	
B11020/a	No 10	B11020/g	No 21
B11020/b	No 10 A	B11020/h	No 22
B11020/c	No 11	B11020/i	No 23
B11020/d	No 12	B11020/j	No 24
B11020/e	No 15	B11020/k	No 25
B11020/f	No 20		

HOOKS & CHAIN **I**

Three s.s. hooks chained to a loop have the strength to hold large specimen in position for dissection work. Chain length 150 mm.

B11025



DISSECTING SCISSORS **J**

Stainless steel, straight, with one fine and one blunt end.

B11031 Length 110 mm.

B11033 Length 125 mm.

B11035 Length 150 mm.



DISSECTING SCISSORS **K**

Stainless steel, open shanks, fine ends, length.

B11038 110 mm

B11040 150 mm



DISSECTING SCISSORS **L**

Stainless steel, straight closed shanks, very fine ends for delicate work, length 105 mm.

B11047



DISSECTING SCISSORS

As above, with blunt ends

B11048

DISSECTING SCISSORS **M**

Stainless steel, curved, with fine ends

B11050 Length 110 mm

B11052 Length 125 mm



DISSECTING SCISSORS

Stainless steel, curved, with blunt ends

B11054 Length 110 mm

B11055 **H** Length 125 mm



DISSECTING SCISSORS **A**

Stainless steel, straight, with blunt ends

B11059 Length 125 mm

B11060 Length 150 mm



DISSECTING SCISSORS **B**

Stainless steel, angled, for delicate dissection, length 115 mm

B11065



BONE CUTTER **C**

Carbon steel, chrome plated, spring loaded handle

B11070 Length 125 mm.

B11072 Length 150 mm.



RAZOR **D**

For cutting sections, carbon steel blade hollow ground on one surface, with handle, blade length 75 mm approx.

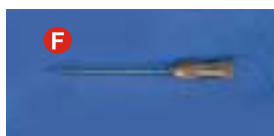
B11075



DISSECTING PIN **E**

55 mm., with plastic head

B11080



DISSECTING PIN **F**

Spike length 50 mm, with brass head

B11084



DISSECTING DISH **G**

Jointless, rectangular, anodised aluminium dish with wide lip,

Size mm

B11091 250 x 190 x 45

B11093 350 x 260 x 65

B11095 400 x 300 x 70

DISSECTING DISH BLACK WAX LINED H

Large enough for most specimens. Aluminium dish with special black wax layer on the bottom. Mild heating renews wax surface. The special black wax does not crack like paraffin and is ideal for dissection work.

Size 290x190x40 mm

B11100



DISSECTING DISH I

As above, but without wax.

B11102



BLACK WAX

For dissecting dish B11100 Pack of 1 kg.

B11104

DISSECTING DISH J

Galvanised iron sheet, white enamelled inside,

B11105 200 x 150 x 50 mm

B11106 250 x 200 x 50 mm

B11107 300 x 250 x 50 mm



DISSECTING DISH

Vitreous enamelled iron

B11110 250 x 200 x 50 mm

B11112 300 x 250 x 50 mm

DISSECTING DISH K

Stainless steel, jointless

B11115 200 x 150 x 50 mm

B11116 250 x 200 x 50 mm

B11117 300 x 200 x 50 mm

B11118 375 x 300 x 50 mm

B11120 450 X 300 x 50 mm



B11105 to B11120 can also be supplied lined either with paraffin wax or with special black wax.

DISSECTING TRAY

Polyethylene, size 450 x 350 x 75 mm

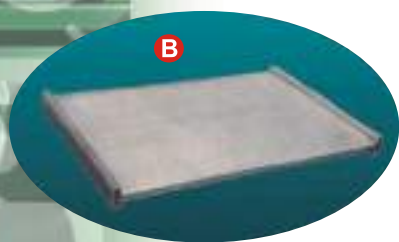
B11125



WAX

Paraffin, for dissecting trays, pack of 1 kg.

B11130



DISSECTING PINS T-HEAD **A**

Perfect pins for dissections. "T" head makes it easy to insert into pinning surface and easier to remove, reusable, plated steel.

B11138



DISSECTING BOARD **B**

Soft wood, to take dissecting awls and pins, raised short sides,

B11140 450x300mm

B11142 550x380mm

DISSECTING BLOCK **C**

Cork faced, soft wood base with cork top for pinning small specimen, size 150 x 75 mm.

B11146



ENTOMOLOGICAL PINS **D**

Black tampered steel, length 38 mm, in pack of 100 pins.

B11150



ENTOMOLOGICAL PINS STORAGE BLOCK **E**

Wood, with six holes to store entomological pins of different sizes, for easy use.

B11152



INSECT SETTING BLOCK **F**

Wood, in 5 steps of varying heights, to pin up insects and properly label the same.

B11154

E

INSECT SETTING BOX F

Wooden, inner sides of the lid and bottom are lined with synthetic washable sheet, suitable for repeated pinning. Double walled, a perforated fumigation chamber is provided on all sides of the bottom frame for storing insecticide. With index card holder and clips.

B11160	30x23x8 cm
B11161	38x25x8 cm
B11162	45x30x8 cm
B11163	60x50x9 cm



INSECT SETTING SHOWCASE

Box with glass top, useful for display of insect collection, for pinning insects on inside bottom only.

B11165	38x25x6 cm
B11166	45x30x6 cm
B11167	60x50x9 cm



INSECT CAGE G

Aluminium frame with wire mesh, hinged lid, bottom made of laminated wood.

B11172	20x15x15 cm
B11174	25x20x20 cm



ANIMAL CAGE H

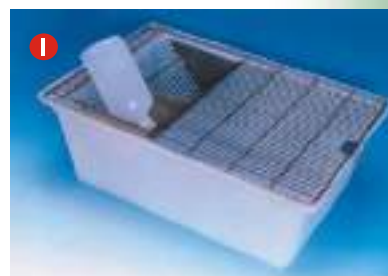
For small animals, framework covered with metal mesh. Provided with water bottle and feeding tray. An extra tray is provided below the cage for collection of animal excreta. Feeding arrangement allows removal of bin from outside of cage with automatic drop closure.

B11180	30x23x30 cm
B11182	45x45x38 cm

RABBIT CAGE I

Strong resilient cage body is moulded in polypropylene for its superior chemical resistance to urine and other body fluids. The body has rounded corners for easy cleaning and to avoid food entrapment and other contaminations. The extra strong wire lid, securely locked to the body top, is made of stainless steel which does not corrode. Repeatedly autoclavable

B11184	435x290x160 mm
B11185	430x270x150 mm
B11187	290x220x190 mm





HERBARIUM PRESS, LABORATORY USE **A**

Heavy wooden planks, with two tightening screws and flynuts for uniform and sufficient pressure. Flynuts need not be completely removed and may be left in the upper plank, size 450x300 mm.

B11224



HERBARIUM PRESS, FIELD USE **B**

Light and handy, seasoned wood batons fabrication, adjustable strap for putting sufficient pressure, size 450x300mm.

B11226



INSECT NET

Light weight, fine nylon netting, mounted on wire frame, removable handle with rubber grip. dia. of ring 300 mm, length of handle 750 mm.

B11232 **C** Aluminium handle.

B11233 **D** Wooden handle.

B11234 Chrome plated iron tube handle.



PLANKTON NET **E**

87 cm long collection bag made of strong bolting netting cloth suspended by muslin reinforcement and mounted on a strong wire ring of 30 cm dia. Three braided strong leads are attached to swivel front. Lower end of the bag is provided with a 5 cm opening with strong cloth pocket for tying the collection vial.

B11240



AQUATIC NET **F**

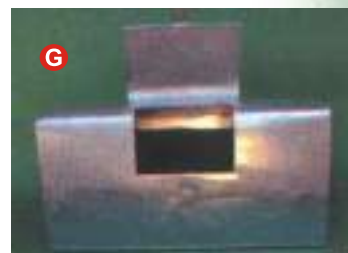
Strongly built for sweeping up of aquatic fauna and as a general utility aquatic net. Net ring and handle can be separated for ease of carriage. Strong 'D' shaped ring frame of 30 cm dia., with stout handle.

B11245

VASCULUM, BOTANICAL G

For collection of botanical specimen. Elegant in appearance, extremely handy and most useful for outdoor collection. Oval cross section aluminium metal body, hinged door, outside enamel painted, with hooks and shoulder strap, for specimen collection, size 600x200x300 mm.

B11250



POOTER H

For collecting flies, spiders and other small arthropods. Comprises 75 x 25 mm glass tube with inlet and outlet tubes through a rubber stopper. Collecting tube has a flared end and the mouth piece is with rubber tube connection with a gauze filter, to confine collected specimen to the tube.

B11260



SPECIMEN TUBES I

Transparent plastic, with polyethylene cap

Height x dia.

B11271	50 x 25 mm.
B11272	75 x 25 mm.
B11273	100 x 25 mm.
B11274	75 x 32 mm.
B11276	100 x 32 mm.
B11277	75 x 37 mm.
B11279	100 x 37 mm.



AQUARIUM J

Glass panels are sealed by silicon rubber into strong aluminium channels. Suitable for fresh or salt water.

B11310	450 x 250 x 250 mm.
B11312	600 x 250 x 250 mm.



Accessories for Aquarium

B11315	Heater
B11316	Thermostat
B11317 H	Aeration pump with diffuser
B11318	Undergravel filter





HUMAN ANATOMICAL MODELS

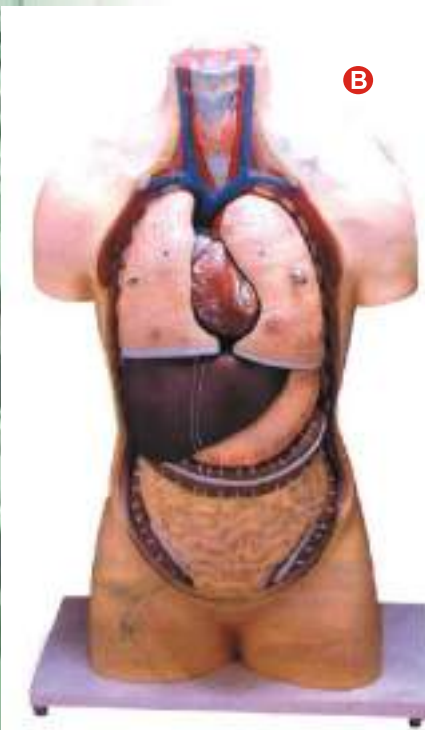
- ☐ *Made of unbreakable materials, robust construction, with fast natural colours.*
- ☐ *Details are accurately exhibited.*
- ☐ *Parts are easily removable to facilitate teaching.*

TORSOS

HUMAN TORSO WITH HEAD A

Full size, 10 parts, without sterno - abdominal wall but with ribs, sternum and clavicle with their attachments. Thoracic and abdominal organs, individually detachable lungs, stomach, liver, intestine, heart, which is further sectioned in two parts. Half of skull cap is removed, and brain can be taken out, exposing the interior of the skull. Sectioned head and neck depicts internal organs of the region, sexless, on base, with key card.

B12010



HUMAN TORSO WITH HEAD

B12012 As above, but in 7 parts

HUMAN TORSO WITHOUT HEAD B

Full size, 8 parts, shows all the major anatomical details. Visceral organs are individually detachable to expose the body cavity. Lungs, heart, liver, stomach and intestine are removable. Heart, lung, and kidney are sectioned to show internal details, sexless, on base, with key card.

B12015

HUMAN TORSO WITH INTERCHANGEABLE SEX ORGANS **C**

Similar to B12010 but with interchangeable male/female sex organs, dissectable in 14 parts, on base, with key card

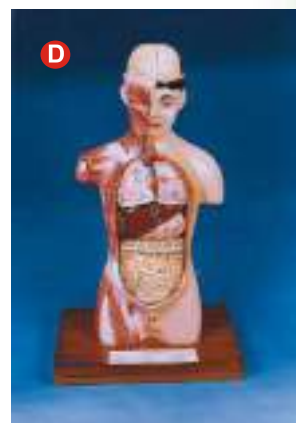
B12020



HUMAN TORSO, WITH HEAD, HALF SIZE **D**

Youth model, approx. 600 mm. in height, dissectable into 6 parts. The brain is fixed in skull and can be seen after removing the skull cap. Lungs, liver, stomach and intestine are removable to show the internal structure. On base, with key card.

B12022



HUMAN TORSO, WITHOUT HEAD, HALF SIZE **E**

Similar to cat no B12022 but without head. Dissectable into 6 parts, on base, with key card.

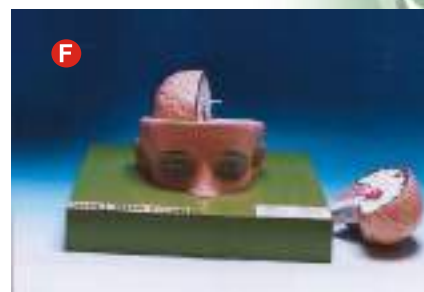
B12024



HUMAN HEAD AND BRAIN, LIFE SIZE **F**

The brain is dissectable in 2 parts, can be taken out, showing the cranial nerves and important parts of the skull, on base, with key card

B12028





HUMAN HEAD AND NECK L. S. A

Natural size, shows sectional view of head, brain, nose, mouth, pharynx, larynx and vertebral column of the neck, on base, with key card

B12032



HUMAN BRAIN, 4 PART B

A life size detailed 4 part sectioned model, The right hemisphere has the cerebellum and the stem with occipital lobe. On base, with key card.

B12035



HUMAN BRAIN, 2 PART C

A life size 2 part sectioned model of human brain, clearly showing all important parts, on removable base, with key card.

B12038



HUMAN NOSE, L. S. D

Enlarged 2 times, demonstrating clearly crossing of the windpipe and esophagus, on board, with key card.

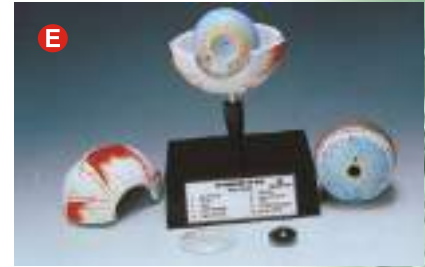
B12040

HUMAN EYE

HUMAN EYE, 5 TIMES ENLARGED **E**

An highly improved and enlarged model showing fine details in three dimensional relief. Cut in horizontal plane and separable in seven parts. After removing the upper half of the sclera (outer shell), the choroid with its verticose veins is exposed; with the removal of second shell, details of the retina come into view and the position of the yellow and blind spots is quite visible. All important anatomical features such as muscle insertions, optic nerve, blood vessels, ciliary body, cornea, crystalline lens, and iris etc are clearly numbered and are identifiable. Mounted on base, with key card.

B12050



HUMAN EYE, 3 TIMES ENLARGED **F**

7-part model. The upper half of the sclera with cornea and eye muscle attachments, both halves of choroid with iris and retina, lens and vitreous humour are removable, mounted on stand, with key card.

B12054



HUMAN EYE WITH LID **G**

Similar to cat. no B12054 but with lid.

B12056

HUMAN EYE IN BONY ORBIT **H**

A 3 times enlarged model of the eye, with 9 parts, in bony orbit. The upper half of eye ball is removable and dissects into 7 parts, showing all anatomical details. Out of six muscles controlling the eye ball two are removable. On base, with key card.

B12058



EYE MODEL ON BONY BASE **I**

A 5 times enlarged model of the eye, sectioned horizontally, dissects into 7 parts, the upper half of the sclerotic membrane, two choroid membranes, retina with vitreous humour, lens and lower half of the sclerotic membrane. On base, with key card.

B12060



HUMAN EAR



HUMAN EAR, ENLARGED, 2 PARTS **A**

Enlarged 4 to 5 times, Shows outer, middle and inner ear. Removable auditory ossicles and labyrinth with cochlea and vestibulocochlear nerve. On base with key card.

B12070



HUMAN EAR, 3 PARTS **B**

Two times enlarged, dissects into 3 parts, showing external, middle and internal portions. Ossicles and labyrinth can be taken out. On base, with key card.

B12072



HUMAN EAR, 6 PARTS **C**

Four times enlarged, dissectable into 6 parts. Shows outer, middle and inner ear. Removable tympanic membrane with malleus and incus as well as labyrinth with stapes, cochlea and vestibulocochlear nerve (2 part), with two removable bone sections to close the middle and inner ear. On board, with key card

B12075

HUMAN TOOTH

HUMAN TOOTH, MOLAR D

Molar tooth dissects into 2 parts, showing internal structure, on stand, with key card.

B12080



HUMAN TOOTH, UPPER TRIPLE ROOT E

Upper triple root molar with caries, enlarged 15 times in 2 parts, longitudinal section through crown, 2 roots and pulp cavity, on stand with key card.

B12083



HUMAN TOOTH, UPPER TRIPLE ROOT F

As B12083 but dissectable in six parts. With removable pulp and three tooth inserts with different stages of advanced caries, on stand, with key card

B12085



DENTAL CARE MODEL G

An enlarged model to demonstrate dental care with normal size brush, on base with key card.

B12088

HUMAN UPPER AND LOWER JAW H

3 times enlarged, to show the tooth roots, spongiosa, vessels and nerves, on stand, with key card

B12090





HUMAN UPPER AND LOWER JAW **A**

Showing various positions of teeth in the upper and lower jaws. Internal wall is removed to show the incisors, permanent canine and permanent premolars, molars, permanent incisors in full view and also the arteries, veins and nerves serving them, on base with key card.

B12092



HUMAN LOWER JAW WITH TEETH **B**

Greatly enlarged, internal wall is removed to show the incisors, molars, permanent canine and permanent premolars in full view, as also the arteries, veins and nerves serving them, on a large size board, with key card.

B12094



HUMAN TEETH WITH TONGUE **C**

Enlarged model, dissectable in 2 parts, with detachable teeth of lower jaw, on base, with key card.

B12096



LARYNX, 2 PARTS **D**

Natural size, 2 parts, shows larynx, wind pipe, ligaments, muscles and thyroid gland, one half is removable, on base, with key card.

B12102



LARYNX, 3 PARTS **E**

Similar to cat. no. B12102 but dissectable into 3 parts.

B12104

MODELS

BIOLOGY

HUMAN LARYNX WITH TONGUE **F**

Natural size, three parts.

Larynx showing cartilages, ligaments, muscles, relief of mucous membrane and thyroid gland.

Tongue showing front part of the lower jaw which is detachable and separates into two parts, median section, sublingual gland and sub mandibular gland are shown, on base, with key card

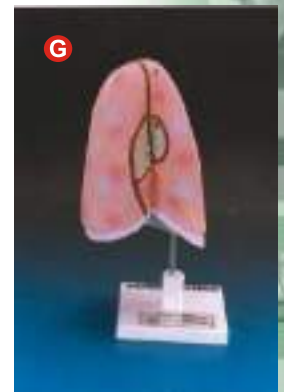
B12106



HUMAN LUNG, RIGHT **G**

Dissectable into 2 parts showing all the important details, on base, with key card

B12110



HUMAN HEART AND LUNGS **H**

Full size, 7 parts, shows 2 part removable larynx, wind pipe with bronchial tree; 2 part removable heart, subclavian artery and vein, venacava, aorta, pulmonary artery, esophagus, 2 lungs with removable front halves and diaphragm, on base, with key card.

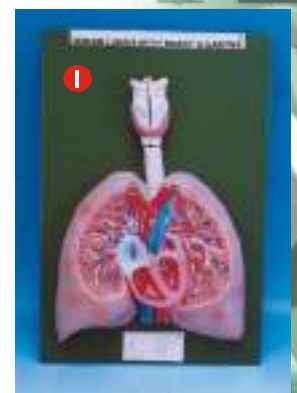
B12112



HUMAN HEART WITH LUNGS & LARYNX **I**

An enlarged model, showing detailed structure, mounted on base, with key card.

B12115





HUMAN HEART

HUMAN HEART EXTRA LARGE **A**

Extra large size and highly detailed model carefully coloured and finished. The heart is cut into 2 parts by a vertical line towards the level of the ventricular septum and separates into 2 parts after the arch of aorta and superior venacava have been removed. Both auricles and ventricles with the bicuspid and tricuspid semilunar valves as well as the sigmoid valves can be seen. Separates in 4 parts. On base with diaphragm and outline of the pericardium, with key card

B12120



HUMAN HEART **B**

3 times enlarged, dissectable into 4 parts, showing clearly both ventricles and atria open to expose the valves. The chief blood vessels and musculature of heart are shown, on base, with key card.

B12122



HUMAN HEART **C**

Three times enlarged, dissectable into 3 parts, sectioned through the ventricles and auricles. The bicuspid and tricuspid semilunar and sigmoid valves are shown, on stand with key card.

B12124



HUMAN HEART **D**

Three times enlarged, dissectable in two parts, on stand

B12126



HUMAN YOUTH HEART **E**

Natural size, the front heart wall is removable to view the chambers, on stand, with key card.

B12130

HUMAN STOMACH F

Large size, showing external details, mounted on stand, with key card.

B12135

HUMAN STOMACH

2 parts, shows stomach with cardiac portion, mucosa of stomach and vessels. The front stomach is removable to observe the interior view.

B12137

HUMAN STOMACH G

Three parts, the front half is removable to show the interior. The model shows layers of the stomach wall, the lower part of the esophagus near the cardiac portion of stomach, with duodenum and pancreas, on removable stand, with key card.

B12138

HUMAN LIVER WITH GALL BLADDER H

Natural size, showing the four lobes of the liver, peritoneum, gall bladder and vessels, on stand, with key card.

B12145

HUMAN SKIN I

Enlarged 70 times, sectioned three layers of the hair covered skin of the head, showing hair follicles, with sebaceous sweat glands, receptors, nerves, and vessels, on base, with key card.

B12150

HUMAN CIRCULATORY SYSTEM J

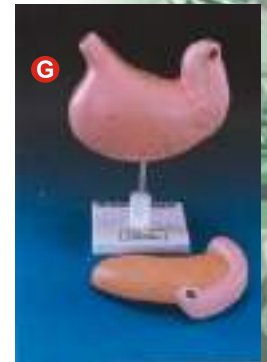
Illustrating the complete blood circulation in veins and arteries, mounted on board, with key card

B12155

HUMAN CIRCULATORY SYSTEM

Similar to cat. no. B12155 but small size.

B12157

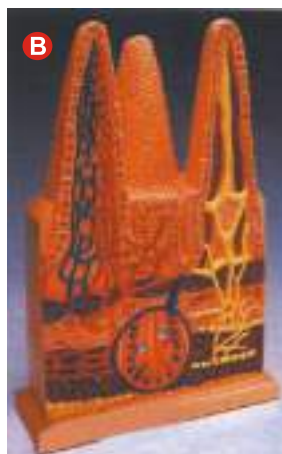




HUMAN DIGESTIVE SYSTEM **A**

Showing all important digestive organs in detail, viz. representation of nose, mouth cavity, pharynx, esophagus gastro - intestinal tract, liver with gall bladder, pancreas and spleen. Duodenum, cecum and rectum are opened. Removable transverse colon, mounted on board, with key card.

B12160



HUMAN DIGESTIVE SYSTEM

Similar to cat. no. B12160 but small size.

B12162



INTESTINAL VILLI **B**

100 times enlarged model with one entire villus, one longitudinally sectioned villus showing the arterioles and venules and one cut villus to show the lymphatic vessels, with enlarged representation of a longitudinal section of Lieberkuhn's crypt.

B12165



HUMAN RESPIRATORY SYSTEM **C**

Showing clearly all the important parts, mounted on board, complete with key card..

B12170

HUMAN RESPIRATORY SYSTEM

Similar to cat. no. B12170 but small size.

B12172



NEURON **D**

Enlarged approx 2500 times, showing structure with separate modulated nerve fibre as seen under electron microscope, on board, with key card.

B12175

HUMAN SPINAL CORD **E**

With nerve branches, 10 times enlarged, on base, with key card

B12180

HUMAN NERVOUS SYSTEM F

Showing brain and details of spinal cord and the nerves in their natural position in the body, mounted on board, with key card.

B12185

HUMAN NERVOUS SYSTEM

Similar to cat. no. B12185 but small size.

B12187

HUMAN KIDNEY L. S. G

3 times enlarged, shows renal corpuscles, tubules, medulla, calyx system and pelvis as well as blood vessels and upper portion of ureter. On board, with key card

B12190

HUMAN KIDNEY WITH ADRENAL GLAND H

Dissectable into 2 parts, shows kidney with adrenal gland, renal and adrenal vessels and upper portion of ureter. Front half of the kidney is removable to show cortex medulla and vessels as well as renal pelvis, on stand, with key card.

B12192

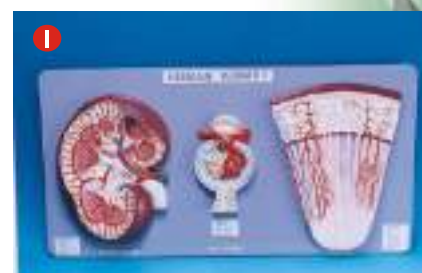
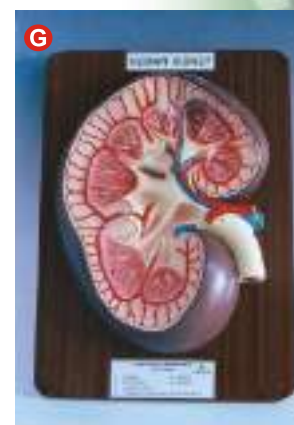
KIDNEY SECTION, NEPHRONS, BLOOD VESSELS AND RENAL CORPUSCLE I

Set of three models on one board

Kidney section, 3 times full size. Nephrons and blood vessels 120 times full size showing a section through renal cortex and medulla.

Malpighian corpuscle of kidney, 700 times enlarged showing an opened Malpighian corpuscle with glomerules and Bowman's capsule. On base, with key card.

B12195





HUMAN URINARY ORGANS

KIDNEY WITH BLADDER **A**

Natural size kidney, ureters, adrenal glands and bladder with prostate as well as the large abdominal right kidney sectioned to show all anatomical details. mounted on base.

B12198



HUMAN URINARY ORGANS **B**

Natural size, dissectable into 3 parts, shows kidneys, ureters, adrenal glands, bladder with prostate and major blood vessels. Right kidney sectioned and bladder prostate are removable, on base, with key card.

B12200

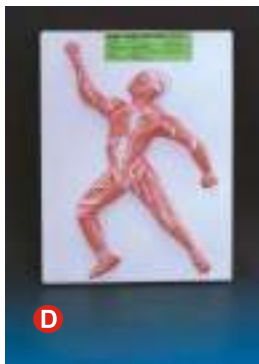


AIDS VIRUS **C**

HIV virus model is enlarged millions of times, shows the outer lipid membrane with protein structures and the internal nucleus which contains the viral hereditary matter [RNA].

The nucleus is removable and condoms can be put underneath to provide a message regarding measures to be taken for protecting against HIV infections. Supplied without condoms, on stand, with key card.

B12210



MUSCLE FIGURE **D**

About 1/10th natural size, showing the topography of muscles, in one piece, on base with key card.

B12215



HUMAN FEMALE PELVIS, 2 PART **E**

Median section. One half of female genital organs with bladder and rectum is removable, the other half is shown at normal position in the female pelvis. On board, with key card

B12310

MODELS

BIOLOGY

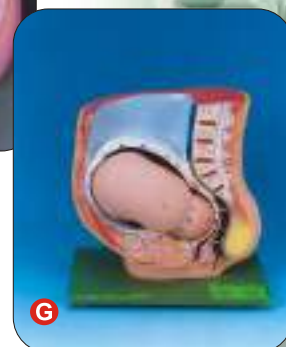
HUMAN MALE PELVIS **F**

Median section. One half of male genital organs with bladder and rectum is removable, the other half is shown at the normal position in the male pelvis. On board, with key card **B12312**



PREGNANCY PELVIS WITH BABY **G**

Showing a median section through female pelvis in 9th month of pregnancy with a removable foetus to study normal position of child before birth. On base, with key card **B12315**



EMBRYONIC DEVELOPMENT **H** (PERIOD OF GESTATION)

A set of nine detailed models, mounted on stands, showing the following stages :

1. An embryo about 6 days old, considerably enlarged.
 2. Uterus with the embryo in 1st month of gestation.
 3. Uterus with the embryo in 3rd month of gestation.
 4. Uterus with foetus in 4th month.
 5. Uterus with foetus, placenta and umbilic cord.
 6. Uterus with foetus in 5th month.
 7. Uterus with foetus in 7th month of pregnancy.
 8. Uterus with foetus in 8th month of pregnancy.
 9. Uterus with foetus in 9th month of pregnancy.
- complete with key cards.

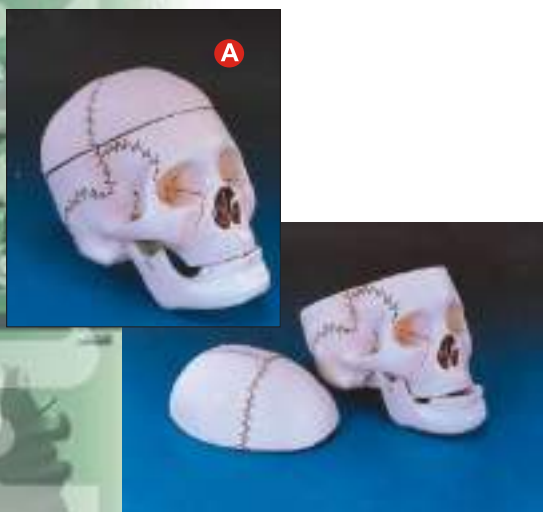
B12320



HUMAN SKULL **I**

2 part model, basic version for demonstration in schools **B12402**





HUMAN SKULL **A**

3 parts model, for anatomical study
B12405



HUMAN SKELETON **B**

Full size model, as original, articulated but without stand.
B12410



HUMAN SKELETON

Full size model, with skull dissectable in three parts, articulated
B12412



STAND FOR HUMAN SKELETON **C**

Stand for above, base fitted with castor wheels.
B12415

SKELETON MODEL, MINIATURE **D**

A miniature model for schools to give a general idea of the bones, mounted on stand, height 325 mm. approx.
B12420

ZOOLOGICAL MODELS

AMOEBA PROTEUS **E**

Model showing detailed structure, mounted on base, with key card.

B12610



AMOEBA PROTEUS 2 PARTS **F**

Enlarged approx. 1000 times. A small pseudopodium which can be opened up showing the structure as under electron microscope magnification. Separates into 2 parts, on base with key card.

B12612



PARAMECIUM **G**

One side of the model clearly shows the oral groove and their continuation into the gullet and the other side shows the details of the internal structure, mounted on base, with key card.

B12614



PARAMECIUM 2 PARTS **H**

Enlarged approx. 1600 times, shows the cell inventory of protozoa : macro and micronucleus, contractile vacuoles, cytostome with membranelles, myonemes and food vacuoles, formation of the endoplasm and ectoplasm & the network of neuronemes. A detailed block shows the structure of the pellicle of the ectoplasm, and the position and order of the trichocysts and a range of cilia in typical order. Separates into 2 parts, on stand and base, with key card

B12616





MODEL OF HYDRA **A**

A longitudinal section showing detailed structure of the body wall, nematocysts, hypostome, mouth, tentacles and gastro vascular cavity. Also showing the testis, ovary and a portion of tentacle in T. S. An accurate and three dimensional model mounted on stand, with key card.

B12620



TAENIA SOLIUM SCOLEX

A single model showing the enlarged scolex mounted on base, with key card.

B12622



COCKROACH ANATOMY **B**

A set of two models, one dissectable into two parts, showing the anatomy of cockroach, alimentary canal regions, salivary glands, reproductive organs, nervous system etc. The other model shows the ventral structure with detachable mouth parts, wings and appendages, with key card.

B12626



INSECT LIFE HISTORY

A set of ten models showing the L.H. of any one of the following insects, mounted on board, with key card.



- | | | |
|---------------|----------|---------------------------|
| B12632 | C | Anopheles mosquito |
| B12634 | | Culex mosquito |
| B12636 | D | Housefly |
| B12638 | E | Honeybee |
| B12640 | | Butterfly |
| B12642 | | Silkmoth |

MALARIAL PARASITE LIFE HISTORY F

Showing the complete rhizogonus and sporogonus cycle in plasmodium vivax. A set of 24 models, mounted on board, with key card.

B12648



ANATOMY OF STARFISH G

Showing the general structure, internal viscera, water vascular system and arm in T.S. showing details of tube feet, mounted on board, with key card.

B12650



FISH DISSECTION H

Showing the general structure after dissection, mounted on stand, with key card.

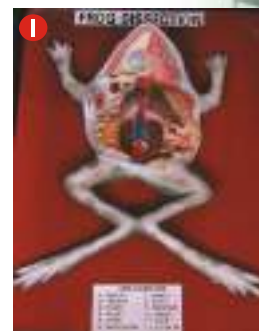
B12652



FROG DISSECTION I

Showing section of frog and detailed internal structure of a frog. A large model on board, with key card.

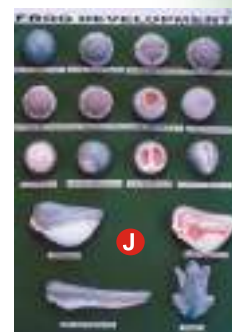
B12654



FROG DEVELOPMENT J

A set of 16 models showing the various stages of the development of frog, from egg to adult, arranged on a large size board, with key card.

B12656





EARTHWORM DISSECTION **A**

Showing the external character in a portion and the dissection in the remaining, exhibiting all important systems, mounted on board.

B12658



BIRD DISSECTION **B**

Natural size, domestic hen, the right side shows the feathers and the other side all the internal organs, on base with key card.

B12660



DEVELOPMENT OF CHICK **C**

Clearly showing the order and rate of formation of embryonic tissues and organs. It also brings out the close relations of the birds to the reptiles in mode of development and general construction. Complete development from egg to adult, set of 18, mounted on a large size board, with key card.

B12668



RAT DISSECTION

Dissection of the domestic rat showing the internal viscera, chief systems, alimentary canal and its various parts, with glands, circulatory, respiratory, excretory and the female genital organs. The head is longitudinally cut to show the brain, buccal and nasal cavities, mounted on board, with key card.

B12672

ANIMAL CELL TYPICAL **D**

A three dimensional model with one side dissected to show complete internal structures, mounted on base, with key card.

B12674

ANIMAL CELL DIVISION, MITOSIS **E**

A set of 6 models, showing the process of mitotic cell division. The chromosomes are painted for easy identification.

B12676



ANIMAL CELL DIVISION, MITOSIS **F**

A set of 10 models, showing resting cell, early prophase, prophase, late prophase, metaphase, late metaphase, anaphase, late anaphase, telophase and daughter cells, all mounted on board, with key card.

B12680



ANIMAL CELL DIVISION, MEIOSIS

A set of 6 models, showing the process of meiotic cell division.

B12681

ANIMAL CELL DIVISION, MEIOSIS **G**

A set of 12 models, showing detailed stages in meiotic cell division, realistically coloured to bring out the detailed structures as seen under a microscope. A very useful and instructive model, mounted on board, with key card.

B12682



MODEL OF D.N.A. **H**

(Deoxyribonucleic acid) Model showing segment of D.N.A. molecule mechanism of replication, to show the double helix coiling and reforming, nucleotides and the structural formula to show the molecular shapes and bonds and angles distorted. Complete model arranged on a board, fully labelled.

B12688



MODEL OF R.N.A. **I**

(Ribonucleic acid) Model showing R.N.A. molecule, D.N.A. Template molecule of chromosome, role of messenger and transfer R.N.A. colour key and structural formula. The complete model arranged on board, fully labelled.

B12690





BOTANICAL MODELS

TYPICAL FLOWER **A**

Large size model of a typical flower, all parts detachable, ovary with a single ovule inside, on base, with key card.
B12810



TYPICAL FLOWER L.S. **B**

A model showing the L.S. of a flower, mounted on board, with key card.
B12812



PLANT CELL **C**

Enlarged many times, showing the microscopic structure, with key card.
B12815



TYPICAL PLANT CELL **D**

A highly enlarged model, as seen under electron microscope, a portion of wall is removed to show ectoplast, endoplast, tonoplast, vacuoles, nuclear structure, plastids, mitochondria etc., mounted on base, with key card.
B12820

CHLYMODONUS

A complete set showing internal structure. Zoospore formation and stage in sexual reproduction. An accurately designed model, mounted on a board, with key card.

B12824

SPIROGYRA CEL E

A detailed instructive model mounted on board, with key card.

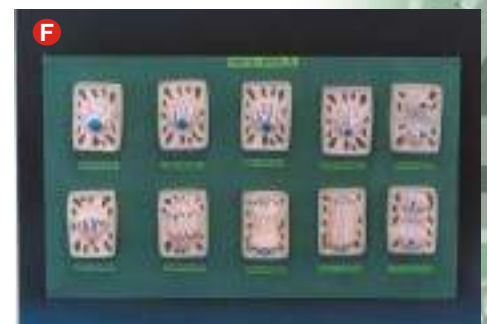
B12826



PLANT MITOSIS F

A set of 10 models showing all the stages of karyokinesis and cytokinesis from metabolic cell to the formation of two daughter nuclei. All stages are mounted on a board, with key card.

B12830



PLANT MITOSIS

A simplified and smaller set of 6 models.

B12832

PLANT CELL DIVISION MEIOSIS G

set of 15 newly designed models according to the recent concept of chromosome changes from the resting nucleus to the formation of 4 daughter cells, complete set mounted on board

B12835

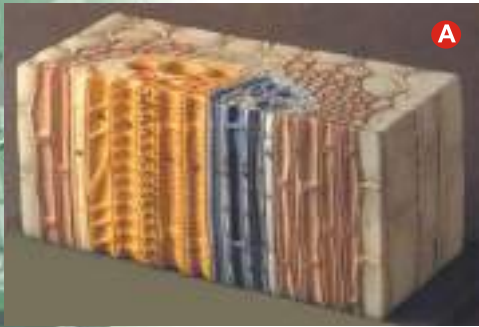


PLANT CELL DIVISION MEIOSIS H

A simplified and smaller set of 6 models.

B12842





OPEN COLLATERAL CONDUCTING BUNDLE OF A DICOTYLE **A**

Plane enlarged approx. 550 times. in one piece, on base, with key card.

B12846



FERTILISATION OF ANGIOSPERMS **B**

Polygynous type, enlarged 300 times, on board with key card,

B12848



ROOT ANATOMY **C**

This model demonstrates the general arrangement of tissues. Stem is cut transversely, longitudinally, radially and tangentially at different planes to make the structural details very clear and the formation of various tissues easily understandable, mounted on stand, with key card.

B12850



MONOCOT ROOT T.S. **D**

Showing complete internal details of the root of smilax, mounted on board, with key card.

B12856



DICOT ROOT T.S. **E**

Showing complete internal anatomy of the young dicotyledonous root, mounted on board, with key card.

B12858

ROOT TIP OF FERN F

The model shows the pointed growth resulting from an apical cell with the cells which branch out spirally from point of vegetation. Root shown in longitudinal and transverse sections, detachable, with crown of the root removable.

B12860



MONOCOT STEM ANATOMY T.S & L.S G

This model exhibits the various tissues and the scattered, closed and collateral vascular bundles in transverse and longitudinal sections in maize. The large pitted vessels, spiral and annular vessels show the cell wall thickenings in L.S. Useful model for teaching anatomy of monocot stem. Mounted on base, with keycard.

B12862



DICOT STEM ANATOMY T. S. & L. S. H

This model shows the transverse and longitudinal section of a dicotyledonous stem in which case the cambium ring has been formed but no secondary growth has yet taken place. Useful model for study of epidermis, lenticle, cork layer, cork cambium, cortical parenchyme, starch sheath, medullary rays, phloem, sieve plate, sieve tube, phloem parenchyma and inter fascicular cambium. xylem, pitted vessels, bordered pitted vessels, annular vessels, spiral vessels, pith etc. Mounted on base, with key card.

B12864



DICOT STEM T. S. I

Showing various tissues, vascular bundles in transverse section of a dicot stem of sunflower, on board

B12867





MONOCOT STEM T. S. **A**

Showing various tissues, vascular bundles in transverse section of a monocot stem of maize, on board, with key card

B12872



DICOT PLANT STEM

Cross section of the tissue structure of a garden bean's dicot stem (*Phaseolus vulgaris*), magnified 250 times.

B12875



LEAF ANATOMY **B**

3-dimensional model of leaf showing detailed structure of transverse section and longitudinal section. A large size model on stand, with key card.

B12880

ISOBILATERAL LEAF **C**

Showing the details of transverse section of leaf, mounted on board, with key card.

B12885



MONOCOT LEAF T.S. **D**

Showing details of internal structure of a typical monocot leaf, mounted on board, with key card.

B12888

DICOT LEAF T.S. E

Showing details of typical mesophytic leaf, mounted on board, with key card.

B12890



GERMINATION OF DICOT AND MONOCOT SEED

Any of the common type of seeds, set of seven models, small size, mounted on board, with key card.

B12895

*New Models
can be developed
as per your specifications*

Kindly Contact :

SHIV DIAL SUD & SONS

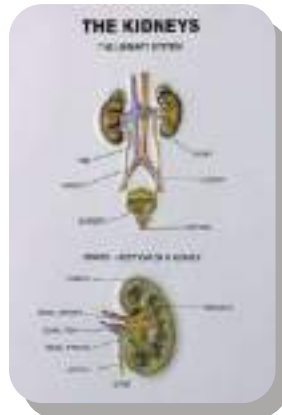
23, Industrial Estate, Ambala Cantt. -133 006 (INDIA)

Tel.: 91-171-2699297 , 2699537,

Fax: 91-171-2699154, 2699637

E-mail : shivsons@vsnl.com

Web-site : www.shivsons.com



PLAQUE MODELS

3D RAISED RELIEF PLASTIC MODELS

Vacuum formed on heavy duty plastic material to give a deep relief. Weatherproof & washable, capable of enduring years of rough classroom use. Realistically coloured, aesthetically pleasing and a great help to students to understand the subject. Useful for blind students as well.

HUMAN ANATOMY

Set of 11

- | | |
|----------------------|------------------------|
| (1) Skeleton | (2) Circulatory system |
| (3) Heart | (4) Nervous system |
| (5) Section of Brain | (6) Muscle |
| (7) Digestive system | (8) Respiratory system |
| (9) Ear | (10) Eye |
| (11) Kidneys | |

Available in following sizes:-

- A** 25 x 35 cm. sheets only in box.
- B** 25 x 35 cm. in plastic jacket with hanging hooks
- C** 35 x 50 cm. sheets only in box.
- D** 35 x 50 cm. in plastic jacket with hanging hooks
- E** 35 x 50 cm complete with hard backing, aluminium angle frame & hanging hooks
- F** 50 x 70 cm. sheets only in box.
- G** 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25 x 35 cm is available in sets only, other sizes are available singly as well.

B13002

HUMAN REPRODUCTIVE ORGANS

Set of 8

- (1) Male genital organs (front view)
- (2) Male genital organs (sagittal view)
- (3) How semen is formed
- (4) First week of egg development and implantation
- (5) Fertilization (cross section diagram of an ovary)
- (6) Eight months old foetus
- (7) Various stages of embryonic development
- (8) Female genital organs (sagittal view)

Available in following sizes:-

- A** 25 x 35 cm. sheets only in box.
- B** 25 x 35 cm. in plastic jacket with hanging hooks
- C** 35 x 50 cm. sheets only in box.
- D** 35 x 50 cm. in plastic jacket with hanging hooks
- E** 35 x 50 cm complete with hard backing, aluminium angle frame & hanging hooks
- F** 50 x 70 cm. sheets only in box.
- G** 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25 x 35 cm is available in sets only, other sizes are available singly as well.

B13004

BOTANY SERIES I

Set of 8

- (1) Root, stem and bud (A)
- (2) Root, stem and bud (B)
- (3) Leaves and their transformation
- (4) Photosynthesis
- (5) Flower and inflorescence (A)
- (6) Flower and inflorescence (B)
- (7) Fruit and seeds (A)
- (8) Fruit and seeds (B)

Available in following sizes:-

- A** 25 x 35 cm. sheets only in box.
- B** 25 x 35 cm. in plastic jacket with hanging hooks
- C** 50 x 70 cm. sheets only in box.
- D** 50 x 70 cm. complete with hard backing , aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well.

B13006



BOTANY SERIES II

Set of 8

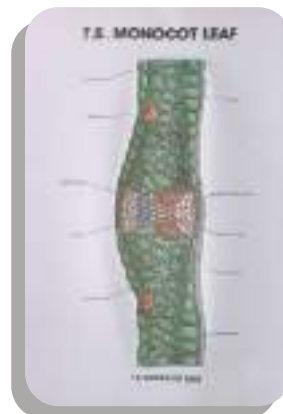
- | | |
|------------------------|-------------------|
| (1) Typical plant cell | (2) Plant Mitosis |
| (3) Meiosis | (4) D.N.A. |
| (5) R. N. A. | (6) Bacteria |
| (7) Spirogyra | (8) Funaria |

Available in following sizes:-

- A** 25 x 35 cm. sheets only in box.
- B** 25 x 35 cm. in plastic jacket with hanging hooks
- C** 50 x 70 cm. sheets only in box.
- D** 50 x 70 cm. complete with hard backing , aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well.

B13008



BOTANY SERIES III

Set of 8

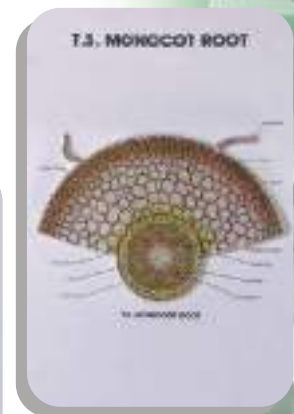
- | | |
|-------------------------|---------------------------|
| (1) Fertilization | (2) T.S. Dicot leaf |
| (3) T.S. Monocot leaf . | (4) T.S. Dicot root |
| (5) T.S. Monocot root | (6) T.S. Dicot stem |
| (7) T.S. Monocot stem | (8) Types of placentation |

Available in following sizes:-

- A** 25 x 35 cm. sheets only in box.
- B** 25 x 35 cm. in plastic jacket with hanging hooks
- C** 50 x 70 cm. sheets only in box.
- D** 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well.

B13010





BOTANY SERIES IV

Set of 8

- | | |
|--------------------------|--|
| (1) Plant kingdom | (2) Germination of sunflower and maize |
| (3) Germination of bean | (4) Yeast and pea |
| (5) Rhizopus and Mucor | (6) Fern |
| (7) Insectivorous plants | (8) Malvaceae |

Available in following sizes:-

- A 25 x 35 cm. sheets only in box.
- B 25 x 35 cm. in plastic jacket with hanging hooks
- C 50 x 70 cm. sheets only in box.
- D 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well.

B13012

ZOOLOGY SERIES I

Set of 8

- | | |
|-------------------------|--------------------|
| (1) Typical animal cell | (2) Animal mitosis |
| (3) Hydra | (4) Paramecium |
| (5) Ameoba proteus | (6) Hookworm |
| (7) Tapeworm | (8) Earthworm |

Available in following sizes:-

- A 25 x 35 cm. sheets only in box.
- B 25 x 35 cm. in plastic jacket with hanging hooks
- C 50 x 70 cm. sheets only in box.
- D 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well.

B13021

ZOOLOGY SERIES II

Set of 8

- | | |
|--------------------------------|-------------------------------------|
| (1) Euglena | (2) Animal kingdom |
| (3) L.H. of frog (development) | (4) L.H. of frog (metamorphosis) |
| (5) L.H. of mosquito | (6) Epithelial & connective tissues |
| (7) Simple and complex tissues | (8) Rabbit dissection and skeleton |

Available in following sizes:-

- A 25 x 35 cm. sheets only in box.
- B 25 x 35 cm. in plastic jacket with hanging hooks
- C 50 x 70 cm. sheets only in box.
- D 50 x 70 cm. complete with hard backing , aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well..

B13023

ZOOLOGY SERIES III

FROG

Set of 8

- (1) Frog anatomy and skeleton
- (2) Frog digestive system
- (3) Frog circulatory system
- (4) Frog respiratory system
- (5) Frog nervous system
- (6) Frog reproductive system, male
- (7) Frog reproductive system, female
- (8) Frog heart

Available in following sizes:-

A 25 x 35 cm. sheets only in box.

B 25 x 35 cm. in plastic jacket with hanging hooks

C 50 x 70 cm. sheets only in box.

D 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well..

B13025



ZOOLOGY SERIES IV

RAT

Set of 8

- (1) Rat anatomy, dissection showing internal organs (female)
- (2) Rat digestive system
- (3) Rat circulatory system
- (4) Rat respiratory system
- (5) Rat excretory system
- (6) Rat reproductive system (male)
- (7) Rat reproductive system (female)
- (8) Rat brain & heart

Available in following sizes:-

A 25 x 35 cm. sheets only in box.

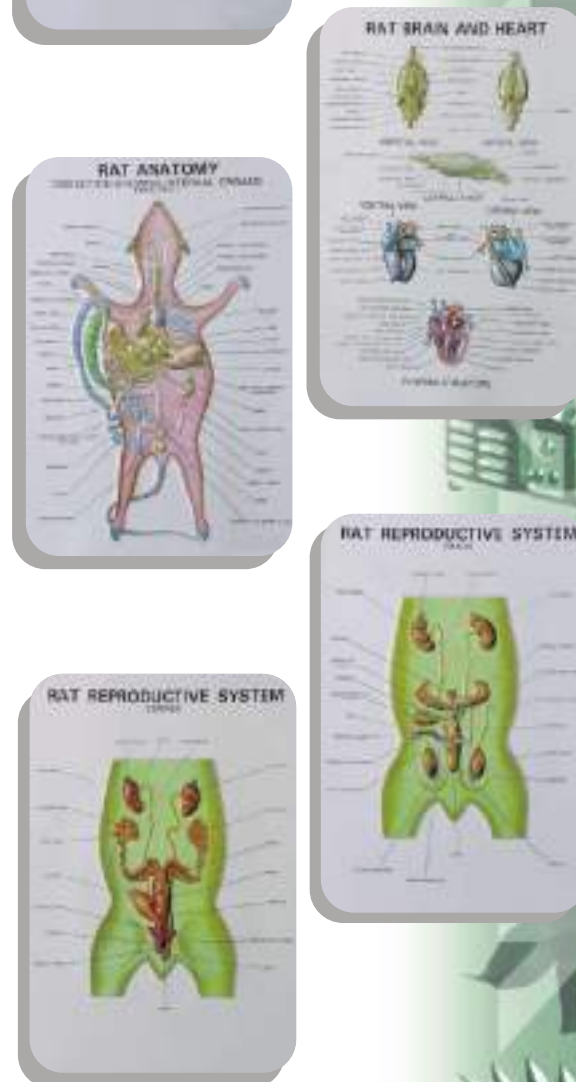
B 25 x 35 cm. in plastic jacket with hanging hooks

C 50 x 70 cm. sheets only in box.

D 50 x 70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well..

B13027



ZOOLOGY SERIES V

Set of 8

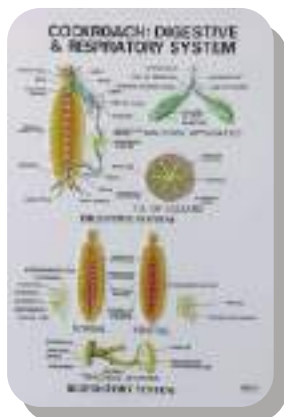
- (1) Life History of Honey Bee
- (2) Life History of Silkworm
- (3) Life History of House Fly
- (4) Malarial Parasite (Plasmodium)
- (5) Cockroach, circulatory & nervous systems
- (6) Cockroach, external features
- (7) Cockroach, digestive & respiratory systems
- (8) Earthworm, circulatory & excretory systems

Available in following sizes:-

- A** 25x35 cm. sheets only in box.
- B** 25x35 cm. in plastic jacket with hanging hooks
- C** 50x70 cm. sheets only in box.
- D** 50x70 cm. complete with hard backing, aluminium frame and hanging hooks.

While size 25x35 cm is available in sets only, other sizes are available singly as well..

B13028



NEW ADDITIONS

3D RAISED RELIEF MODELS

- | | |
|---------------|--------------------------------|
| Size | 50x70 cm. |
| B13030 | HUMAN SKIN |
| B13032 | HUMAN NERVOUS SYSTEM |
| B13033 | TYPE OF HUMAN MUSCULAR TISSUES |
| B13034 | HUMAN ENDOCRINE SYSTEM |
| B13036 | PERCH |

POLYART CHARTS

Polyart Charts are multicoloured, accurate in details, printed on plastic, laminated on both sides, washable, non-tearable and long lasting, with plastic rollers, size 75x100 cm.

HUMAN PHYSIOLOGY CHARTS

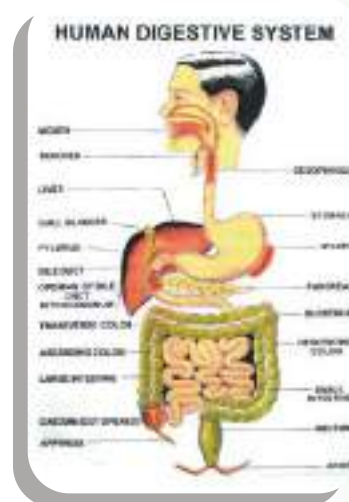
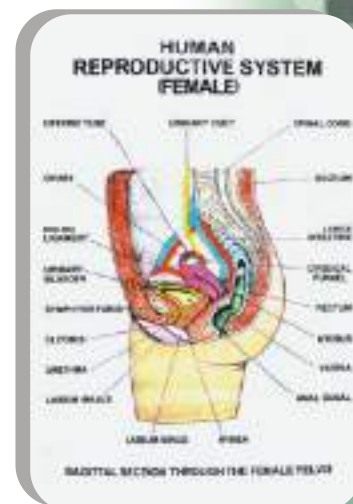
- (1) Skeletal system
- (2) Muscular system
- (3) Circulatory system
- (4) Nervous system
- (5) Digestive system
- (6) Teeth & skin
- (7) Human eye, ear & head
- (8) Lymphatic system
- (9) Respiratory system
- (10) Endocrine system
- (11) Nutrition
- (12) Immune system
- (13) Human Nose
- (14) Human Heart
- (15) Excretory system
- (16) Human Eye
- (17) Human Ear
- (18) Human Kidney
- (19) Human Lungs
- (20) Human Liver
- (21) Human Brain

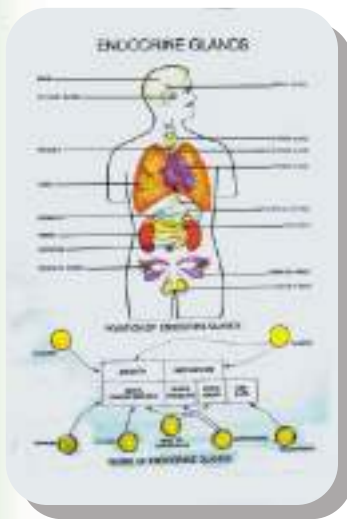
B13040

HUMAN REPRODUCTION CHARTS

- (1) Human embryological development
- (2) Human Life cycle (birth)
- (3) Human reproductive organs, male
- (4) Human reproductive organs, female

B13042





ZOOLOGY CHARTS, POLYART

Multicoloured, accurate in details, printed on plastic, laminated on both sides, with plastic rollers, size 75x100 cm. These charts are available in English or in English & Arabic combined.

- (1) Epithelial tissue, simple & stratified
- (2) Connective tissues, loose
- (3) Connective tissues skeletal (Bone Cartilage)
- (4) Connective tissues-Blood
- (5) Nerve Cells
- (6) Types of Nerve Cells
- (7) Neuroglia
- (8) Type of muscular tissues
- (9) Plasmodium Vivax, life cycle
- (10) Amphioxus Embryological Development
- (11) Sponge, External morphology with T.S.
- (12) Hydra, External morphology with T.S.
- (13) Obelia Life cycle & T.S. in Medus
- (14) Echinococcus Life Cycle
- (15) Pinworm Life cycle
- (16) Earthworm, external structure with T.S. in intestine & internal anatomy
- (17) Earthworm, circulatory system with reproductive system
- (18) Snail-L.S. through mouth
- (19) Snail-reproductive system
- (20) Crayfish-T.S. in Branchial Chamber
- (21) Crayfish Reproductive Male & Female
- (22) Cockroach Mouth parts
- (23) Cockroach, internal anatomy
- (24) Starfish, water vascular system
- (25) Starfish, Digestive system
- (26) Amphioxus General structure
- (27) Amphioxus Circulatory system
- (28) Fish Circulatory system
- (29) Fish Reproductive system for male & female
- (30) Frog circulatory system & L.S. in Heart
- (31) Frog Skeletal system & L.S. in Heart
- (32) Pigeon skeletal system with fore & hind limbs
- (33) Pigeon Arterial & Venous system
- (34) Rabbit Arterial & Venous system with L.S. in Heart
- (35) Rabbit-Reproductive system Male & Female
- (36) Classification of animals, *English only*
- (37) Typical Animal cell, *English only*

B13045

Many Charts are being developed.
Kindly inform us of your requirements.

BOTANY CHARTS, POLYART

Multicoloured, accurate in details, printed on plastic, laminated on both sides, with plastic rollers, size 75x100 cm. These charts are available in English or in English & Arabic combined.

- (1) T.S. in Dicot & Monocot stem
- (2) Pinus-1 Male & Female Strobli
- (3) L.S. Shoot Apex & its different regions
- (4) T.S. Shoot Apex & its different regions
- (5) Plant Tissue Cork
- (6) L.S. in Flower with T.S. in Anther
- (7) Plant tissue Xylem T.S. in simple Pit
- (8) Pinus II through female Strobilus L.S. through ovules
- (9) Plant tissue Collenchyma
- (10) Marchantia Life Cycle
- (11) Plant Tissue Parenchyma
- (12) L.S. in Root Tip & T.S. in its different regions
- (13) Marchantia
- (14) T.S. of Root (Secondary Growth)
- (15) Adiantum Life Cycle
- (16) Stages of formation of Female Gametophyte with the process of Pollination, Fertilisation & Formation of seed
- (17) Plant Tissue Phloem
- (18) Plant Tissue Sclerenchyma
- (19) T.S. in Stem to show growth with a drawing of Lenticel
- (20) Adiantum
- (21) T.S. Dicot & Monocot Root
- (22) Typical plant cell, *English only*
- (23) Plant Mitosis *English only*
- (24) Plant Meiosis, *English only*
- (25) Classification of Plants, *English only*

B13048

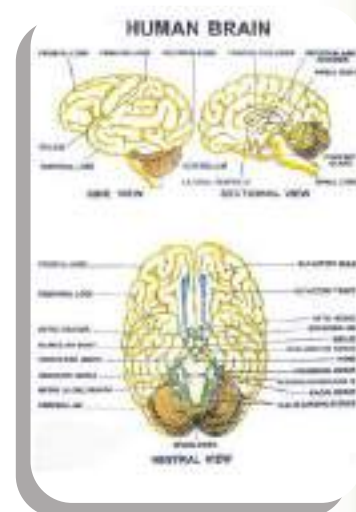
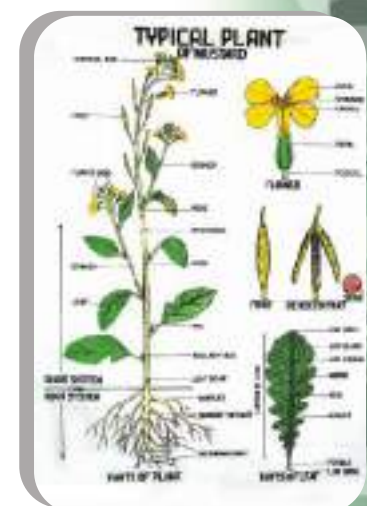
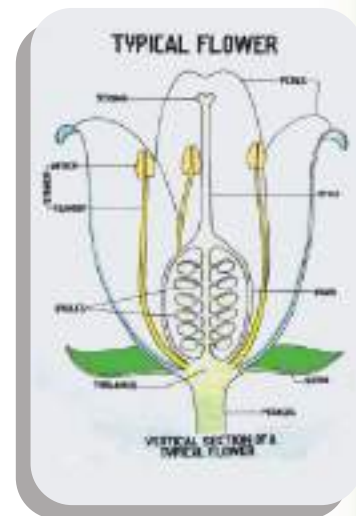
**Many Charts are being developed.
Kindly inform us of your requirements.**

BIO PERIODIC TABLES, POLYART

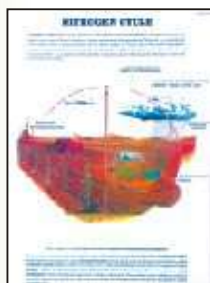
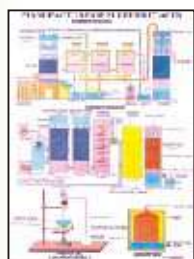
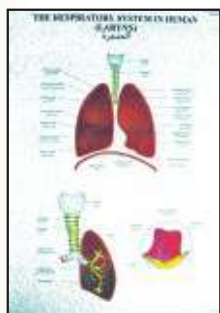
Size 100x75 cm

- (1) Periodic Table of Rare & Endangered species
- (2) Periodic Table of Fishes
- (3) Periodic Table of Vegetables
- (4) Periodic Table of Fruits & Nuts
- (5) Periodic Table of Birds

B13052



Available in
English or Arabic &
English combined



SPECIAL HUMAN PHYSIOLOGY CHARTS POLYART

Size 75X100 cm. Fitted with Plastic Rollers

{Available in English or Arabic & English Combined}

1. The Lymphatic System
2. Excretory System - Kidney, L.S.
3. Excretory System - Ureters
4. Excretory System - Urinary bladder
5. Excretory System - Malpighian Corpuscle
6. T.S. Skin
7. Reproductive System
8. Brain External Features
9. L. S. Eye - Eye Muscle
10. L. S. Eye - Tear glands
11. L. S. Eye - Physiological diseases of eye
12. Ear and its parts
13. Skeletal System
14. Endocrine glands
15. Digestive System
16. Circulatory System - Types of blood cells
17. Circulatory System - L. S. in heart & T. S. in blood vessel
18. Circulatory System - Vein valves
19. Circulatory System - Systematic & pulmonary circulation
20. Respiratory System - Larynx
21. Respiratory System - Trachae
22. Respiratory System - Alveolus
23. L. S. in Central Nervous System (CNS)
24. Region in which the nerval impulses transport to central nervous system through the synapse
25. Human Reflection Arch

B13055

GENERAL SCIENCE CHARTS POLYART

Size

75X100 cm. Fitted with Plastic Rollers

{Available in English Only}

- (1) Insects
- (2) Reproduction of Plants (Part I) Seed parts, Germination & Pollination
- (3) Reproduction of Plants (Part II) Mendel's Law, supply of Oxygen, Carbon Dioxide and Nitrogen.
- (4) The Bird, Food, Beaks and Jaws
- (5) Plants and their parts (Part I) Flower
- (6) Plants and their parts (Part II) Root & Stem
- (7) Types of Animals (Part-I) Paramecium, Amoeba, Hydra, Worm, Crayfish, Spider
- (8) Types of Animals (Part -II) Fish, Amphibians, Reptiles, Birds and Mammals
- (9) Foods and their uses Part-I
- (10) Foods and their uses Part -II
- (11) Plant Diseases and their control
- (12) Animal Diseases and their control
- (13) Human Body - all parts
- (14) Germination of Seeds
- (15) Classification of Plants
- (16) Classification of Animals
- (17) Oxygen Cycle
- (18) Carbon Cycle
- (19) Nitrogen Cycle

B13061

POLYART CHARTS IN PHYSICS & CHEMISTRY ARE ALSO AVAILABLE. DETAILS ON REQUEST

HAND DRAWN CHARTS ON REXINE

All Charts are made on PVC rexine, hand drawn, waterproof, in fast multicolours with a black background. Each chart is provided with rollers to hang on wall. Size 75x100 cm.

ZOOLOGY

CELLS & TISSUES

- 1 Typical Animal cell ultra structure
- 2 Animal Mitosis
- 3 Animal Meiosis
- 4 Animal Tissues I - Connected tissues
- 5 Animal Tissues II - Epithelial and muscular tissues
- 6 Animal Tissues III - Blood and nerve tissues
- 7 Gamatogenesis
- 8 Fertilization in Animals
- 9 Ogenesis
- 10 Spermatogenesis

B13080

PROTOZOA

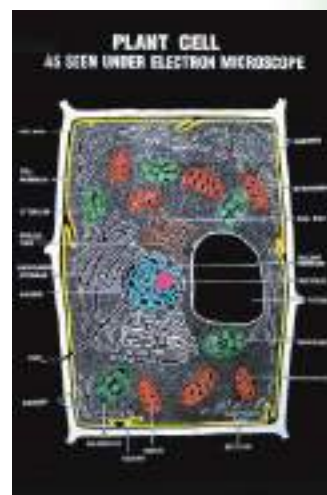
- 1 Amoeba structure & locomotion
- 2 Plasmodium (Malarial Parasite), stages of development
- 3 Paramecium structure
- 4 Paramecium Reproduction
- 5 Euglena structure & Life History
- 6 Entomoeba Histolytica - structure & L.H.

B13082

PORIFERA, COELENTERATA, PLATYHELMINTHES

- 1 Phylum Porifera showing sponges of principal types
- 2 Sycon Development structure & L.H.
- 3 Obelia structure & Life History
- 4 Hydra structure & Internal Anatomy
- 5 Ascaris Internal structure of male & female
- 6 Tapeworm structure & Life History
- 7 Liverfluke structure & Life History
- 8 Hookworm, structure & Life History

B13084



ANNELIDA

- 1 Earthworm Internal Anatomy
- 2 Earthworm Development
- 3 Earthworm Reproductive system
- 4 Earthworm Nervous system
- 5 Earthworm Digestive system
- 6 Earthworm Excretory system
- 7 Earthworm Circulatory system
- 8 Earthworm T.S. through Gizzard
- 9 Earthworm T.S. through Pharyngeal Region
- 10 Earthworm T.S. through Intestinal Region
- 11 Earthworm Respiratory system
- 12 Hirudinaria External Coelom & Haemocoelmic
- 13 Hirudinaria External Coelom & Haemocoelmic Part
- 14 Hirudinaria External Coelom & Haemocoelmic Part
- 15 Hirudinaria External Coelom & Haemocoelmic Part - III

B13086

ARTHROPODA

- 1 Food Grain Pests
- 2 Housefly Life History
- 3 Mosquito Life History showing comparison of Culex & Anopheles
- 4 Butterfly Life History
- 5 Honey Bee Life History
- 6 Silkworm Life History
- 7 Grasshopper Life History
- 8 Cockroach External Character & M.P.
- 9 Cockroach L.H.
- 10 Cockroach Digestive system
- 11 Cockroach Respiratory system
- 12 Cockroach Circulatory system
- 13 Cockroach Nervous system
- 14 Cockroach Reproductive system
- 15 Prawn Internal Anatomy
- 16 Prawn External Anatomy
- 17 Prawn Reproductive system
- 18 Prawn Digestive system
- 19 Prawn Excretory system
- 20 Prawn Nervous system
- 21 Prawn Circulatory system
- 22 Scorpion External Character, Dorsal & Ventral View

B13088

MOLLUSCA

- 1 Pila External character
- 2 Pila Reproductive system
- 3 Pila Circulatory system
- 4 Pila Nervous system
- 5 Pila Sense organs
- 6 Pila Respiratory system
- 7 Pila Digestive system
- 8 Unio External character
- 9 Unio Circulatory system
- 10 Unio Internal Anatomy
- 11 Unio Nervous system
- 12 Unio Respiratory system
- 13 Unio Digestive system

B13090

ECHINODERMATA

- 1 Starfish External Character & General Anatomy
- 2 Starfish Water Vascular System

B13092

PISCES

- 1 Scoliodon External Character
- 2 Scoliodon General Viscera
- 3 Scoliodon Digestive System
- 4 Scoliodon Brain, different views
- 5 Scoliodon Skeleton
- 6 Scoliodon Skull
- 7 Scoliodon Male Urinogenital system
- 8 Scoliodon Female Urinogenital system
- 9 Scoliodon Venous system
- 10 Scoliodon Cranial Nervous system
- 11 Scoliodon Receptor organs
- 12 Labeo Rohita External character
- 13 Labeo Rohita Axial Skeleton
- 14 Labeo Rohita Skull
- 15 Amphioxus External character
- 16 Amphioxus General anatomy
- 17 Amphioxus T.S. through different regions
- 18 Amphioxus Development
- 19 Amphioxus Excretory system

B13095

AMPHIBIA

- 1 Frog External character
- 2 Frog Internal Anatomy
- 3 Frog Skeleton
- 4 Frog Skull, different views
- 5 Frog Development part I-showing stages from egg to Gastrulation
- 6 Frog Development part II-showing Gastrula to newly hatched Tadpole
- 7 L. H. Frog showing larvae development Metamorphosis
- 8 Frog Digestive system
- 9 Frog Nervous system
- 10 Frog Reproductive system
- 11 Frog Excretory system
- 12 Frog Arterial system
- 13 Frog Venous system
- 14 Frog Respiratory system
- 15 Frog Muscular system
- 16 Frog Lymphatic system
- 17 Frog Cranial Nervous system
- 18 Frog Sense organs
- 19 Frog V.S.Skin
- 20 Frog Brain different views
- 21 Frog Heart different views
- 22 Frog Eye

B13097

REPTILIA

- 1 Types of Reptiles
- 2 Snakes Poisonous & Non-poisonous Types
- 3 Varanus Skull different views
- 4 Varanus Skeleton
- 5 Varanus Circulatory System
- 6 Varanus Excretory System
- 7 Lizard various systems (Each system on a separate chart)
- 8 Uromastix various systems (Each system on a separate chart)

B13100

AVES

- 1 Pigeon External Character
- 2 Pigeon Internal Anatomy
- 3 Pigeon Skeleton
- 4 Pigeon various systems
- 5 Fowl Skeleton
- 6 Chick Development
- 7 Chick embryo 16 Hours
- 8 Chick embryo 18 Hours
- 9 Chick embryo 24 Hours
- 10 Chick embryo 27 Hours
- 11 Chick embryo 28 Hours
- 12 Chick embryo 30 Hours
- 13 Chick embryo 33 Hours
- 14 Chick embryo 43 Hours
- 15 Chick embryo 48 Hours
- 16 Chick embryo 56 Hours
- 17 Chick embryo 72 Hours
- 18 Chick embryo 96 Hours
- 19 Beaks of Birds
- 20 Claws of Birds
- 21 Types of Birds

B13102

MAMMALS

- 1 Rat External Development
- 2 Rat General Anatomy
- 3 Rat Digestive system
- 4 Rat Male Reproductive system
- 5 Rat Female Reproductive system
- 6 Rat Arterial system
- 7 Rat Venous system
- 8 Rat Nervous system
- 9 Rat Respiratory system
- 10 Rat Skeleton
- 11 Rat Brain, different views
- 12 Rat Heart, different views
- 13 Rabbit External Development
- 14 Rabbit General Anatomy
- 15 Rabbit Digestive system
- 16 Rabbit Male Reproductive system
- 17 Rabbit Female Reproductive system
- 18 Rabbit Arterial system
- 19 Rabbit Venous system
- 20 Rabbit Nervous system
- 21 Rabbit Respiratory system
- 22 Rabbit Skeleton
- 23 Rabbit Brain, different views
- 24 Rabbit Heart, different views

B13104

COMPARATIVE STUDY

- 1 Vertebrate Hearts
- 2 Vertebrate Brains
- 3 Vertebrate Skulls
- 4 Vertebrate Limbs
- 5 Vertebrate Girdles
- 6 Vertebrate Urinogenital system
- 7 Vertebrate Embryos
- 8 Vertebrate Arterial arches circulation
- 9 Vertebrate Genital apparatus & venous system

B13106

EVOLUTION

- 1 Animal Kingdom (Classification)
- 2 Evolution of Man

B13108

BOTANY CHARTS, Rexine

CYTOLOGY

- 1 Cell Membrane showing structure & functions
- 2 Cell Wall, showing structure & functions
- 3 Endoplasmic Reticulum showing structure & functions
- 4 Mitochondrion - showing structure & functions
- 5 Golgi Complex showing structure & functions
- 6 Chloroplast - showing structure & functions
- 7 Nucleus - showing structure & functions
- 8 Chromosome - showing structure & functions
- 9 D.N.A. - showing structure & functions
- 10 R.N.A. - showing structure & functions

B13112

GENETICS

- 1 Monohybrid Crossing complete dominance
- 2 Monohybrid Crossing incomplete dominance
- 3 Dihybrid Crossing
- 4 Monohybrid Crossing
- 5 Mendelian explanation of Cross between tall & dwarf races in Garden Pea
- 6 Sex linked inheritance Drosophila
- 7 Mendelian Heridity of Blue & Adulsian fowls
- 8 Mendelian Explanation of the breeding behaviour of Red & White flowering in 4 o' clock

B13114

ALAGE & FUNGI

- 1 Chlamydomonas, General structure & Life History
- 2 Ulothrix general structure and L.H.
- 3 Oedogonium Life Cycle
- 4 Spirogyra structure & conjugation
- 5 Chara structure & L.H.
- 6 Volvox structure & L.H.
- 7 Oscillatoria structure & L.H.
- 8 Nostoc structure & L.H.
- 9 Batrachospermum structure & L.H.
- 10 Polysiphonia structure & L.H.
- 11 Ectocarpus structure & L.H.
- 12 Dictyota structure & L.H.
- 13 Fucus structure & L.H.
- 14 Rhizopus structure & L.H.
- 15 Mucor structure & L.H.
- 16 Yeast
- 17 Bacteria - I showing structure and forms
- 18 Bacteria - II showing reproduction
- 19 Virus types, structure & L.H.
- 20 Penicillium
- 21 Albugo(Cystopus) structure & reproduction
- 22 Phytophthora structure & L.H.
- 23 Puccinia graminis structure & L.H.
- 24 Agricis structure & life history

B13116

BRYOPHYTA, PTERIDOPHYTA

- 1 Riccia structure & reproduction
- 2 Marchantia structure & Life History
- 3 Anthoceros structure & reproduction
- 4 Moss (Funaria) life history
- 5 Selaginella structure & reproduction
- 6 Psilotum structure & life history
- 7 Marselia structure & reproduction
- 8 Lycopodium structure & life history
- 9 Equisetum structure & reproduction
- 10 Fern (Aspidium) structure & life history
- 11 Fern (Pteris) structure & life history
- 12 Fern (Nephrolapis) structure & life history

B13118

GYMNOSPERMS

- 1 Cycas life history
- 2 Cycas Anatomy
- 3 Cycas stem T.S.
- 4 Gnetum structure & life history
- 5 Ephedra structure & anatomy
- 6 Pinus structure & life history
- 7 Pinus anatomy
- 8 Pinus leaf
- 9 Pinus stem
- 10 Pinus stem. secondary growth

B13120

ANGIOSPERMS

- 1 Plant cell ultra structure
- 2 Mitosis in plants
- 3 Meiosis in plants (1st & 2nd division shown in one chart)
- 4 Structure of chromosome during mitosis
- 5 Structure of chromosome during meiosis
- 6 Typical plant
- 7 Plant kingdom showing flowering & non-flowering plants
- 8 Flowering plants (A classification)
- 9 Non-flowering plants (A classification)
- 10 Xerophytic plants
- 11 Mesophytic plants
- 12 Epiphytic plants
- 13 Insectivorous plants
- 14 Fossil plants
- 15 Comparison of dicot & monocot plants

B13122

SEEDS & FRUITS

- 1 Maize seed germination
- 2 Gram seed germination
- 3 Bean seed germination
- 4 Castor seed germination
- 5 Pea seed germination
- 6 Dispersal of seeds & fruits
- 7 Classification of fruits

B13124

ROOTS, STEMS, LEAVES

- 1 T.S. Dicot root
- 2 T.S. Monocot root
- 3 T.S. Dicot stem
- 4 T.S. Monocot stem
- 5 T.S. Dicot leaf
- 6 T.S. Monocot leaf
- 7 Root modification
- 8 Stem modification (Aerial)
- 9 Leaf modification
- 10 T.S. dicot stem secondary growth
- 11 Vegetative propagation
- 12 Artificial propagation
- 13 Specialised stems
- 14 Typical leaf showing parts
- 15 Types of leaves

- 16 Simple leaves
- 17 Stipules
- 18 Leaf venation
- 19 Compound leaves
- 20 Phyllotaxy
- 21 T.S. Dicot root
- 22 Leaf Lamina secondary growth

B13126

FLOWER & EMBRYOLOGY

- 1 Typical flower showing parts
- 2 Fertilization showing germination of pollen
- 3 T.S. Anther & its development
- 4 Germination of pollen grain and development of male Gametophyte
- 5 Megasporogenesis
- 6 Development of embryo and endosperms
- 7 Development of embryo in sagittaria
- 8 Embryo in Capsella
- 9 Microsporangium
- 10 Types of embryo sacs
- 11 Forms of Androecium
- 12 Form of Gynaecium
- 13 Development of Monocot embryo
- 14 Placentation
- 15 Aestivation
- 16 L.H. Datura
- 17 Inflorescence Part - I showing simple racemose & simple cymose
- 18 Inflorescence Part - II showing compound & special
- 19 Pollination different types
- 20 Forms of ovules
- 21 Forms of Calyx & corolla

B13128

HISTOLOGY

- 1 Plant Anatomy Part-I showing simple tissues, parenchyma, collenchyma & sclerenchyma
- 2 Plant Anatomy Part-II showing complex tissues, Xylem
- 3 Plant Anatomy Part-III showing complex tissues, Phloem

B13130

TAXONOMY

RENUNCULACEAE

- 1 Ranunculus Sceleratus
- 2 Delphinium Ajacis

CRUCIFERAE

- 3 Chrossica Campestris (Mustard)

PAPEAVERACEAE

- 4 Papaver Rhoeas (Garden Poppy)
- 5 Argemone Mexicana

MALVACEAE

- 6 Althaea Rosea
- 7 Hibiscus Rosa
- 8 Gossypium Herchaceum

RUTACEAE

- 9 Citrus aurantium
- 10 Murraya Exotica

LEGUMINOSAE

- 11 Lathyrus odoratus
- 12 Cassia Fistula
- 13 Acacia arabica

ROSAEAE

- 14 Rosa indica
- 15 Pyriis Malus
- 16 Prunus Persica

CUCURCHITACEAE

- 17 Lufa aegyptiaca
- 18 Musk Melon

CHENOPODIACEAE

- 19 Chenopodium album

EUPHORABIACEAE

- 20 Ricinus Communis
- 21 Eurobia Pilulifera
- 22 Eurobia Splendens

POLYGONACEAE

- 23 Polygonaceae (Polygonium)

COMPOSITEAE

- 24 Helianthus annuus
- 25 Sonchus asper

SOLANACEAE

- 26 Solanaceae Nigrum
- 27 Petunia Hychride

ASCLEPIADACEAE

- 28 Calotropis procea
- 29 Cryptostegia grandiflora

LABIATAE

- 30 Salvia officinalis
- 31 Ocimum Chasilicum

APOCYNACEAE

- 32 Nerium odoratum

ANNOANCEAE

- 33 Artachotrys odoratissimus
- 34 Annona squamosa

LILIACEAE

- 35 Asphodelu tenuifolius
- 36 Allium cepa

GRAMINEAE

- 37 Avena Sativa
- 38 Zea Mays

UMCHELLIFERAE

- 39 Coriandrum Sativum

CONVOLVULACEAE

- 40 Ipomoea Palmata

B13140

HUMAN ANATOMY CHARTS, Rexine

- 1 Human Muscular system
- 2 Human Skeleton - I showing entire skeleton
- 3 Human Skeleton- II showing axial skeleton, thoracic vertebra
- 4 Human Skeleton- III showing pectoral & pelvic girdle, hind & fore limbs
- 5 Human Nervous system
- 6 Autonomic Nervous system
- 7 Human Circulatory Arterial system
- 8 Human Circulatory Venous system
- 9 Human Lymphatic system
- 10 Human Digestive system
- 11 Human Respiratory system
- 12 Urinary Tract system
- 13 Human Reproductive system, female
- 14 Human Reproductive system, male
- 15 Human Ductless (endocrine) glands

- 16 Human Heart
- 17 Human Brain
- 18 Human Spinal Nerves
- 19 Vertebral Column
- 20 Human skull
- 21 Human Head & Neck
- 22 Human Eye
- 23 Human Ear
- 24 Human Ear, Nose & Throat
- 25 Human Skin
- 26 Human Hair
- 27 Shoulder & Elbow
- 28 Hand & Wrist
- 29 Hip & Knee
- 30 Foot & Ankle
- 31 Human Teeth & Skin
- 32 Human Liver
- 33 Human Kidney
- 34 Pregnancy & Birth
- 35 Pharynx & Larynx
- 36 Human Embryo & Foetal Development
- 37 Human body dissected to show all parts

B13145

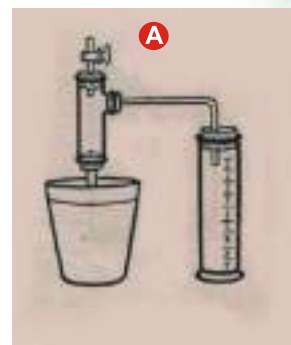
Any chart of your specification can also be made

Charts on Physiology, Forensic Science, Pharmacology, Bio-chemistry, Physics & Chemistry are also available in this series. Details on request.

PLANT PHYSIOLOGY

APPARATUS FOR EXPERIMENTS ON ROOT PRESSURE **A**

T-Tube with stopcock and graduated jar, without flowerpot
B13301



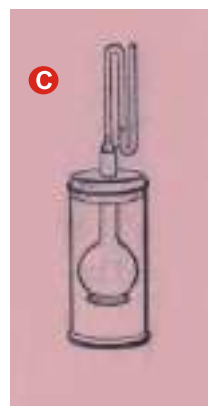
ROOT PRESSURE MANOMETER **B**

For determining the pressure exerted by the sap flowing from a stem stump. Manometer graduated 0 to 200 x 1 mm, for attachment by means of rubber tube or tape to the cut stem of a plant growing vigorously in wet soil
B13311



APPARATUS FOR DEMONSTRATION OF OSMOTIC PRESSURE **C**

Pfeiffer's, complete, as illustrated
B13315



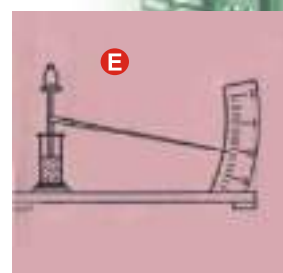
APPARATUS FOR INVESTIGATING PRESSURE EFFECTS DUE TO OSMOTIC PRESSURE **D**

B13320



APPARATUS FOR MEASURING WORK PERFORMED BY SWELLING SEEDS **E**

On base, with jar for seeds, pointer and scale
B13325



POTOMETER, SIMPLE **F**

A glass tube with stopper at both ends. The bottom stopper has a mm graduated capillary tube while the top has two holes one for a glass tube to accommodate plant shoot through a rubber tube and the other for a 2 ml. syringe to adjust air bubble during the setting up.

B13330





POTOMETER AND ATMOMETER **A**

For investigating transpiration. Measures the uptake of water by a cut plant shoot. The cut shoot may be replaced by a porous pot filled with water which enables measurement of the rate of evaporation from a moist surface, thus giving indication of relative humidity. Comprises a capillary tube with mm scale connected to a syringe and an outlet via a three way stopcock. The syringe enables adjustment of air bubble during set-up, the outlet is connected to the cut shoot or porous pot, mounted on strong vertical plate.

B13335



POTOMETER, GANONG'S

To demonstrate rates of transpiration and of water absorption by a cut shoot, with a graduated capillary tube bent down at right angle at one end with a small orifice and having water reservoir with glass stopcock and the end tube with rubber stopper for the plant shoot at the other end, on base.

B13337 **B** On wooden stand

B13339 **C** On plastic stand



POTOMETER, STUDENT'S **D**

Glass tube 160x20 mm with side arm 8 mm dia to take plant. A solid rubber stopper at top and a rubber stopper with hole at bottom, with capillary tube of 140 mm length.

B13340



POTOMETER, FARMER'S **E**

A reservoir with 3 hole stopper for holding a graduated capillary tube 390 mm long, a short length of 10 mm dia glass tube to hold plant shoot and a funnel of 25 ml with a stopcock.

B13345



POTOMETER, THODAY **F**

A glass tube 15 mm dia with a side arm leading to a thistle funnel in rubber tubing has both its ends tapered and bent at right angles. One end would accept plant stem and the other is connected to a capillary tube with mm scale, mounted on an L shaped stand.

B13347

POTOMETER DARWIN **A**

Apparatus to measure absorption of water by transpiring plants, Comprising a glass tube with upper end of straight limb closed with rubber stopper, lower end of the limb is fitted with a bored rubber stopper to take length of capillary tubing

B13349



MICROBURETTE **B**

For measuring and sampling gas given off by aquatic plants e.g Elodea. Comprises a bulb tube graduated 0 to 150 mm into which the cut end of the shoot is inserted. A 5 ml syringe is provided at top to draw gas collected in the burette for analysis. Overall height 300 mm.

B13355



TRANSPIRATION APPARATUS **C**

To measure the quantity of water absorbed and given off by a transpiring plant. Consists of a glass vessel 250x50 mm with rubber stopper at top & a side tube graduated 0-15 cmx1cm

B13358



APPARATUS FOR INVESTIGATING TRANSPIRATION **D**

With thermometer

B13360

LEAF CLASP, SIMPLE FORM **E**

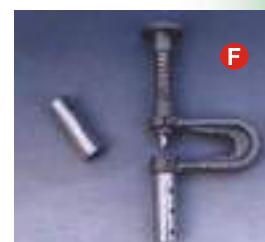
B13365



LEAF AREA CUTTER **F**

Made from steel, capable of cutting very thin material, fitted with brass pipe having holes.

B13367





RESPIROMETER, GANONG'S **A**

To measure gas evolved or absorbed by living materials or tissue extracts. A respirometer bulb with a small water reservoir at the bottom and hollow ground glass stopper at top in the neck with a hole which can be closed or opened by turning the stopper, a graduated burette opening out of the bulb which connects to a leveling tube via a rubber tubing. Respirometer chamber 50 mm dia., burette 180x20 mm graduated 0 to 25 ml. and 100 to 75 ml., with special clamp for fixing to a 12 mm dia. rod.

B13368



RESPIROSCOPE, SIMPLE **B**

Compact unit to compare rates of absorption or evolution of gases by small organisms during respiration. Two stoppered boiling tubes are connected by three way taps at either end of a manometer. One tube holds the organisms and has a syringe for altering level of liquid in the manometer during setting up. The other tube acts as a control thermo - barometer

B13370



GLASS MANOMETER TUBE **C**

Mounted on clear acrylic sheet.

B13378



J-TUBE, SCREW FITTING **D**

Glass J-tube made out of thick-walled capillary tubing, with a brass screw & collar at end of longer limb. Used for sampling small quantities of gas in respiration or photosynthesis experiments

B13382



PHOTOSYNTHESIS APPARATUS **E**

For measuring and analysing gas given off by plants. Comprises a 1 mm bore capillary tube graduated 0-10 cm in mm and connected to two 2 ml syringes. The gas can be drawn along the capillary by one syringe and collected into the other for analysis, mounted on board.

B13385

PHOTOSYNTHOMETER **A**

For demonstrating absorption of carbon dioxide by green plants in light, with equi-volumetric release of oxygen. Complete with stand

B13387

NORMAL LIGHT SCREEN **B**

Simple, Ganong's

B13392

DARK CHAMBER **C**

For experiments in phototropism. A stout cardboard black lined box with aperture tube and end cap. Overall size 200x160x130 mm, side tube 110 x 50 mm dia.

B13395

COMBINATION DARK CHAMBER **D**

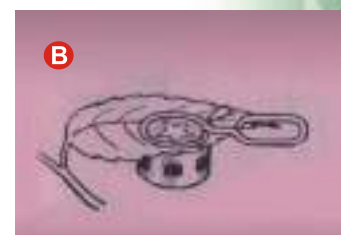
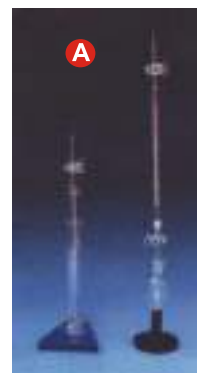
For experiments in phototropism with seedlings. Three chambered case with channels to accept variety of shutters. One chamber has a window at top and back. Provided with clear, opaque and slot shutters and one orange and one blue filter. With three glass containers for seedlings. Overall size 180 x 530 x 180 mm.

B13397

GERMINATOR **E**

An aluminium case with glass sides to observe root development at different depths, with aluminium shutters to exclude light so that roots will grow down the inside of glass. Bottom panel has holes for drainage, Overall size 380 x 70 x 270 mm.

B13398

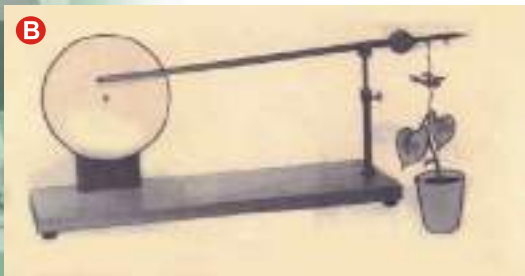




SIMPLE AUXANOMETER A

To show growth of plants and the effects of environment on the rate of growth. Comprises a light weight metal pointer counterbalanced by a mass hanger & masses, with a large easily readable scale. Complete with stands, mass hanger and masses.

B13405



ROTATING DISC AUXANOMETER B

To measure plant growth rate. The recording arm 600 mm with a bristle tip at one end is mounted on an adjustable pillar enabling alteration of height and pressure of the bristle on a disc of 200 mm dia. The other end of the arm has three eyes to give x3, x4, x5 magnifications. A smoked disc is mounted on a circular plate which is clamped to a motor spindle, & has a central pin to prevent the lever passing the centre. The disc rotates at a speed of one revolution per hour.

B13408



ROTATING DRUM AUXANOMETER C

Records growth of a plant as a series of horizontal traces, the gap between which represents one hour's growth. The recording lever has 3 notches giving x5, x7 and x10 magnifications and is mounted on an adjustable pillar to adjust its height and pressure on the pencil tip. The recording drum has a pull-through vertical slot which enables the lever to take up the slack in its thread and then draw a new trace at a lower level, on base. Lever is 680 mm and drum is 300x150 mm, circumference x height. With paper strips, pencil, motor for drum, working on 220/240 V a.c.

B13410



CLINOSTAT, CLOCKWORK D

Metal body with heavy base, fitted with a 30 hour clock drive which rotates the plant holder at one revolution per hour. Can be set at any angle between horizontal and vertical positions, complete with plant holder.

B13412

CLINOSTAT, ELECTRIC **A**

An electric motor rotates a drum in 15 minutes. The drum consists of a cork table to which germinating seedlings are pinned and has a perspex cover 105 x 100 mm htxdia. A stand enables the angle of the cork table to be set at any desired inclination. Works on 240 V.

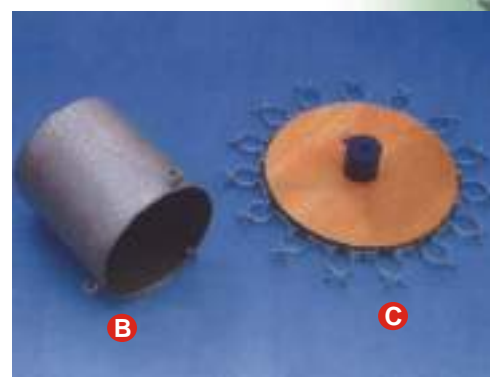
B13415



PLANT FLOWER HOLDER **B**

To fit clinostat in place of cork disc, accommodates pots upto 75 mm dia, with three hooks near upper edge to secure pots

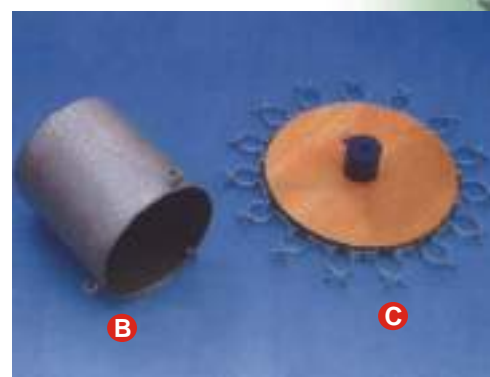
B13418



TUBE CARRIER **C**

For attaching to clinostat, takes upto 15 tubes for experiments in geotropism with germinating seedlings

B13420



GAS BURETTE **D**

For analysis of air and expired gases. A graduated burette tube with rubber stopper at one end and a glass tube connected to rubber tubing fitted into a mohr clip. The other end is closed by a suba-seal stopper.

B13425



MICROBIOLOGY

PETRI DISH **E**

Polypropylene, clear & unbreable. Ridges on inside prevent the base from sticking up to the cap.

- B13705** Cap 50 mm
- B13706** Cap 75 mm
- B13707** Cap 100 mm
- B13708** Cap 125 mm
- B13709** Cap 150 mm





PETRI DISH **A**

Glass with beaded edges

	Dia x Depth		Dia x Depth
B13715	50 x 17 mm	B13716	80 x 17 mm
B13718	100 x 17 mm	B13720	150 x 20 mm



PETRI DISH **B**

Borosilicate glass to withstand repeated dry and wet sterilisation.

	Size
B13724	50 x 17 mm
B13726	80 x 17 mm
B13728	100 x 17 mm
B13730	150 x 20 mm



PETRI DISH **C**

Disposable, clear polystyrene, 90 mm dia, packed individually in polyethylene bag and sterilised.

B13734



RACK FOR PETRI DISHES **D**

Of clear acrylic construction, with polycarbonate posts. To hold upto 60 petri dishes of 90 mm size, visibility from all sides enables the culture to be seen & checked during incubation

B13738



PETRI DISH STERILISING BOX **E**

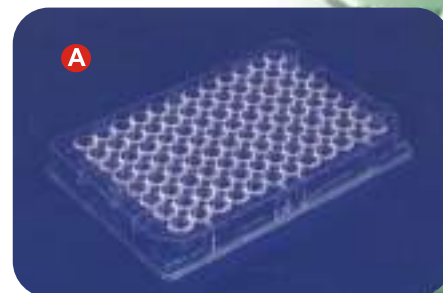
For autoclaving petri dishes. Stainless steel cylindrical can with stainless steel lid with internal removable carrier for petri dishes upto 100 mm dia., size 260x115 mm htxdia.

B13740

IMMUNOLOGY PLATES **A**

Elisa/Assay plates made of optically clear non-toxic polystyrene for a wide range of applications from single cell isolation to cell culture scale up, with 96 wells

B13742/1	Flat bottom Elisa plate
B13742/2	U bottom Elisa plate
B13742/3	Flat bottom Assay plate
B13742/4	U bottom Assay plate



McCARTNEY BOTTLE **B**

Clear glass, thick aluminium metal screw cap with rubber liner, cap 28 ml., autoclavable

B13745



CULTURE BOTTLE **C**

Round bottom borosilicate glass, autoclavable, with screw cap and rubber liner.

	Capacity	Size
B13750	5 ml	15 x 75 mm
B13752	10 ml	15 x 125 mm
B13754	30 ml	25 x 100 mm
B13756	60 ml	25 x 200 mm



CULTURE BOTTLE **D**

Flat bottom, glass, autoclavable, with screw cap and rubber liner.

	Capacity	Size
B13760	5 ml	15 x 75 mm
B13762	15 ml	25 x 57 mm
B13763	50 ml	25 x 95 mm



MICRO CENTRIFUGE TUBE **E**

With built-in snap fit plug, can withstand high force of an ultra centrifuge.

	Capacity
B13766	0.5 ml
B13768	1.5 ml



RACK FOR MICRO CENTRIFUGE TUBES **(A)**

For holding twentyfour 1.5 ml tubes. Prevents movement in any direction. Holes are numbered.& lettered.

B13770



FLOAT RACK **(B)**

Polypropylene, autoclavable, can hold 16 micro centrifuge tubes for incubation in water bath, with alpha-neumerical marking.

B13775



SAMPLE CONTAINER **(C)**

Thin walled. graduated disposable polypropylene with easily screwable leakproof cap. Capacity 100 ml.

B13780



SCINTILLATION VIAL **(D)**

Unbreakable polyethylene vial with leakproof screw cap, for use with standard counting equipment for liquid scintillation system

B13785

Cap 8 ml

B13787

Cap 20 ml



RACK FOR SCINTILLATION VIAL **(E)**

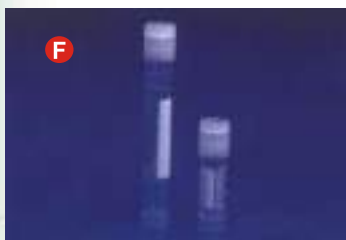
Autoclavable,

B13790

For 90 vials of 8 ml each

B13792

For 50 vials of 20 ml each



STORAGE VIALS **(F)**

To store biological material upto -190° C, with leakproof cap. Base has longitudinal grooves which make it non-twisting when placed in a vial rack

B13795

Cap 1 ml

B13796

Cap 2 ml

B13798

Cap 5 ml

MICROSCOPE PREPARED SLIDES

HUMAN HISTOLOGY

- B15001** Human blood smear
- B15002** Human oesophagus t.s.
- B15003** Human skin v.s.
- B15004** Human stomach t.s.
- B15005** Human intestine t.s.
- B15006** Human testis t.s.
- B15007** Human ovary t.s.
- B15008** Human uterus t.s.
- B15009** Human vagina t.s.
- B15010** Human blood smear
- B15011** Human spermatozoa
- B15012** Human spinal cord t.s.
- B15013** Human liver t.s.
- B15014** Human kidney t.s.
- B15015** Human brain t.s.
- B15016** Human artery t.s.
- B15018** Human bone t.s.
- B15019** Human appendix t.s.
- B15020** Human lung t.s.

BOTANY

CYANOPHYCEAE (BLUE GREEN ALGAE)

- B15101** Anabaena w.m.
- B15102** Gleotrichea w.m.
- B15103** Lyngbya w.m.
- B15104** Microcystis w.m.
- B15105** Nostoc ball t.s.
- B15106** Nostoc ball w.m.
- B15107** Nostoc in anthoceros thallus (section)
- B15108** Nostoc in cycas coralloid root (section)
- B15109** Oscillatoria w.m.
- B15110** Rivularia w.m.
- B15111** Sytonema

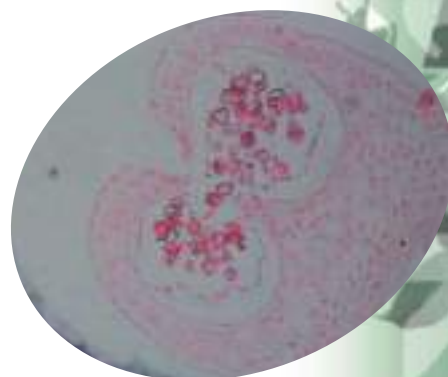
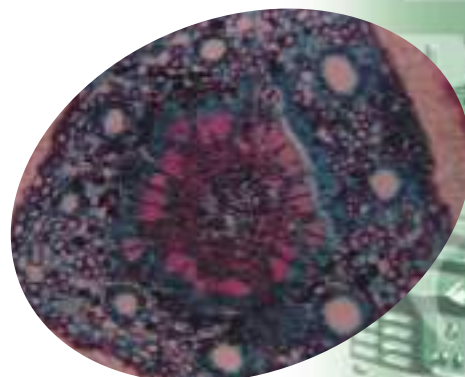
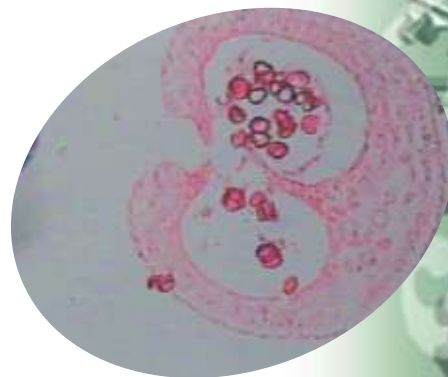
CHLOROPHYCEAE (GREEN ALGAE)

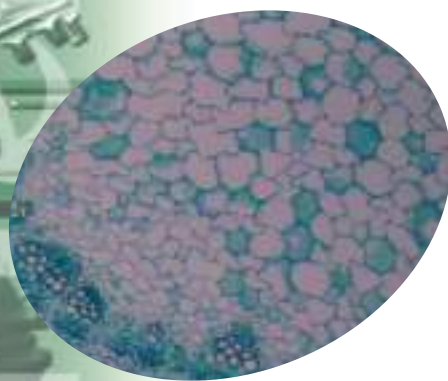
- B15121** Botrydium w.m
- B15122** Chlamydomonas w.m.
- B15123** Chara apex w.m.
- B15124** Chara sexual w.m.

- B15125** Chara sexual organs v.s.
- B15126** Chara internode t.s.
- B15127** Chlorella w.m.
- B15128** Cladophora w.m.
- B15129** Coleochaete w.m.
- B15130** Closterium w.m.
- B15131** Cosmarium w.m..
- B15133** Hydrodictyon w.m.
- B15134** Euglena
- B15135** Eudorina w.m.
- B15136** Oedogonium vegetative w.m.
- B15137** Oedogonium Capcell w.m.
- B15138** Oedogonium macrandrous w.m.
- B15139** Oedogonium nannandrous w.m.
- B15140** Oedogonium oogonial w.m.
- B15141** Pandorina w.m.
- B15142** Spirogyra vegetative w.m.
- B15143** Spirogyra scalariform conjugation w.m.
- B15144** Spirogyra lateral conjugation w.m.
- B15145** Ulothrix vegetative w.m.
- B15146** Ulothrix reproductive w.m.
- B15147** Vaucheria reproductive w.m.
- B15148** Volvox daughter colony w.m.
- B15149** Volvox oogonial w.m.
- B15150** Volvox antheridal w.m.
- B15151** Volvox zygote w .m.
- B15152** Volvox mixed stage w.m.
- B15153** Zygnuma conj w.m.

PHAEOPHYCEAE (BROWN ALGAE)

- B15161** Dictyota apical dichotomy w.m
- B15162** Dictyota oogonial thallus t.s.
- B15163** Dictyota antheridal thallus v.s
- B15164** Dictyota tetrasporic thallus v.s.
- B15165** Ectocarpus unilocular w.m.
- B15166** Ectocarpus plurilocular w.m.
- B15167** Ficus thallus t.s.
- B15168** Ficus male conceptacle v.s.
- B15169** Ficus female conceptacle vs
- B15170** Sargassum stipe t.s.
- B15171** Sargassum maleconceptacles v.s.
- B15172** Sargassum female conceptacles vs
- B15173** Sargassum leas t.s.
- B15174** Sargassum bladder t.s.



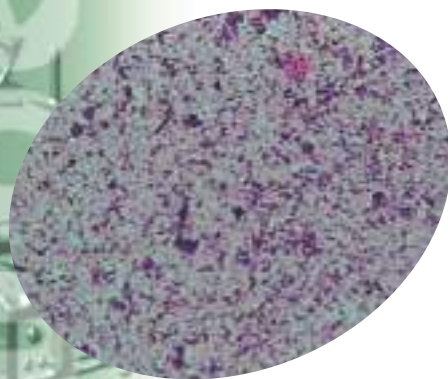


RHODOPHYCEAE (RED ALGAE)

- B15181** Batrachospermum w.m
- B15182** Batrachospermum antheridial w.m
- B15183** Batrachospermum fruitbody w.m
- B15184** Polysiphonia vegetative w.m.
- B14585** Polysiphonia tetrasporic w.m.
- B15186** Polysiphonia cystocarpic w.m.
- B15187** Polysiphonia antheridia w.m.

BACTERIOLOGY

- B15191** Bacteria, (typical)
- B15192** Bacteria bacillus form
- B15193** Bacteria coccus form
- B15194** Bacteria spirillum form
- B15195** Bacteria in root nodule of legume t.s.



FUNGI

PHYCOMYCETES

- B15201** Alternaria
- B15202** Cercospora v.s
- B15203** Colletotrichum acervelli v.s.
- B15204** Cystopus (albugo conidia) white rust of mustard on leaf t.s.
- B15205** Cystopus asexual on stem
- B15206** Cystopus sexual with zygote on stem t.s.
- B15207** Fusarium
- B15208** Mucor sporangia w.m.
- B15209** Mucor sexual, zygospore
- B15210** Phytophthora w.m.
- B15211** Phytophthora on host leaf t.s
- B15212** Pythium w.m
- B15213** Saprolegnia vegetative w.m.
- B15214** Saprolegnia sexual w.m.

ASCOMYCETES

- B15221** Aspergillus with conidia w.m.
- B15222** Erysiphae v.s.
- B15223** Morchella fruiting body t.s.
- B15224** Pencillium with conidia w.m
- B15225** Protomysis c.s.
- B15226** Peziza apothecia v.s.
- B15227** Xylaria through stroma c.s.
- B15228** Yeast w.m.

BASIDIOMYCETES

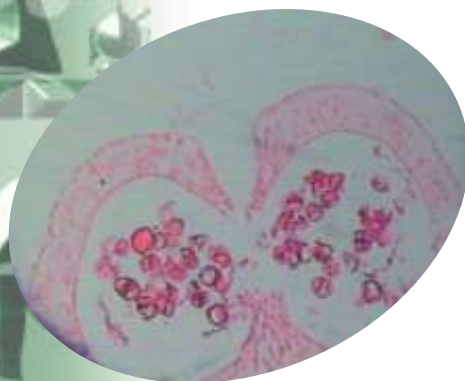
- B15231** Agaricus pileus t.s
- B15232** Agaricus young fruit (complete with stipe and pileus) v.s
- B15233** Agaricus stipe t.s
- B15234** Puccinia uredo sori v.s.
- B15235** Puccinia teleuto sori v.s.
- B15236** Puccinia aecidia cup v.s.
- B15237** Puccinia pycnidia v.s.
- B15238** Puccinia aecidia and pycnidia v.s. on same slide
- B15239** Ustilago on host t.s. showing spores
- B15240** Uromyces v.s.
- B15241** Polyporus t.s.
- B15242** Polyporus l.s.
- B15243** Lycoperdon globe v.s.

LICHEN

- B15246** Lichen apothecia v.s
- B15247** Lichen thallus v.s.

BRYOPHYTA

- B15251** Anthoceros thallus v.s. with nostoc colony
- B15252** Anthoceros thallus w.m. antheridia
- B15253** Anthoceros antheridial v.s.
- B15254** Anthoceros thallus w.m.
- B15255** Anthoceros thallus with sporophyte w.m.
- B15256** Anthoceros sporophyte t.s.
- B15257** Anthoceros sporophyte v.s.
- B15258** Riccia thallus, vegetative, w.m.
- B15259** Riccia thallus t.s
- B15260** Riccia thallus w.m. showing arrangement of sex organs.
- B15261** Riccia thallus antheridia v.s
- B15262** Riccia archegonia v.s
- B15263** Riccia sporophyte v.s (spore mothercell stage)
- B15264** Riccia sporophyte v.s. (mature)
- B15265** Moss plant w.m
- B15266** Moss plant with capsules

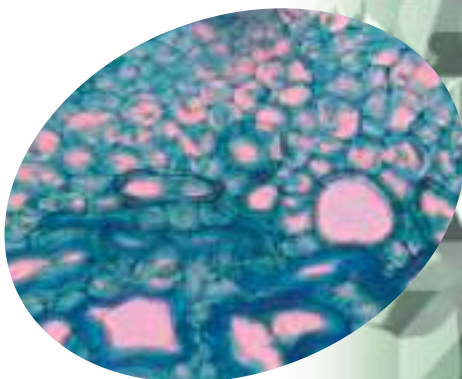
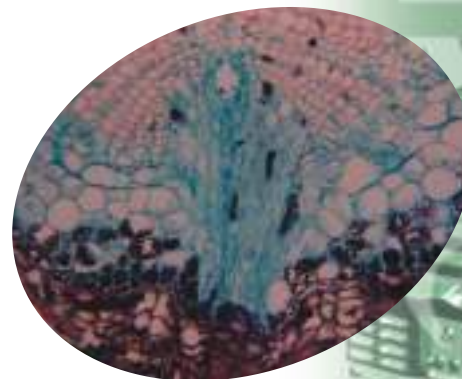
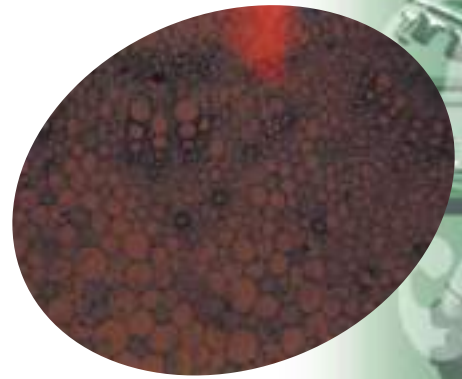


- B15267** Moss protonema w.m
- B15268** Moss capsule l.s
- B15269** Funaria plant with capsules w.m.
- B15270** Funaria archegonia v.s
- B15271** Funaria archegonia w.m
- B15272** Funaria antheridia v.s
- B15273** Funaria capsules v.s.
- B15274** Funaria stem v.s
- B15275** Funaria leaf t.s
- B15276** Funaria capsules v.s.
- B15277** Polytrichum plant with capsules w.m.
- B15278** Polytrichum capsule t.s.
- B15279** Polytrichum capsule l.s.
- B15280** Polytrichum archegonial head l.s
- B15281** Polytrichum antheridial head l.s.
- B15282** Polytrichum capsule median section
- B15283** Porella sporophyte w.m
- B15284** Porella archegonia w.m.
- B15285** Porella antheridia w.m.
- B15286** Porella plant w.m
- B15287** Marchantia thallus v.s.
- B15288** Marchantia gemma cup v.s.
- B15289** Marchantia antheridial head v.s
- B15290** Marchantia archegonial head v.s
- B15291** Marchantia young sporophyte v.s.
- B15292** Marchantia mature sporophyte v.s.
- B15293** Sphagnum veg. shoot.w.m.
- B15294** Sphagnum leaf w.m
- B15295** Sphagnum stem t.s.
- B15296** Cyathodium sporophyte v.s.
- B15297** Rebolia sporophyte v.s

PTERODOPHYTA

- B15301** Adiantum rhizome t.s
- B15302** Adiantum root t.s
- B15303** Adiantum petiole t.s.
- B15304** Adiantum sporophyte t.s.
- B15305** Adiantum sorus t.s
- B15306** Dryopteris root t.s.
- B15307** Dryopteris rhizome t.s.
- B15308** Dryopteris petiole t.s
- B15309** Dryopteris rachis t.s.
- B15310** Dryopteris sporophyll v.s.
- B15311** Dryopteris sporangia w.m
- B15312** Pteris root t.s
- B15313** Pteris rhizome t.s.
- B15314** Pteris rachis t.s
- B15315** Pteris sporangia t.s.
- B15316** Pteris sporangia w.m.
- B15317** Fern leaflet with sporangia t.s.
- B15318** Fern rachis t.s.
- B15319** Fern stolon t.s.
- B15320** Fern spores teased w.m.

- B15321** Fern prothallus antheridia w.m.
- B15322** Fern prothallus archegonia w.m.
- B15323** Fern prothallus with archegonia and antheridia w.m.
- B15324** Fern prothallus developing embryo w.m.
- B15325** Fern antheridia v.s.
- B15326** Fern archegonia v.s.
- B15327** Fern prothallus with sporophyte w.m.
- B15328** Equisetum root t.s.
- B15329** Equisetum rhizome t.s.
- B15330** Equisetum stem t.s.
- B15331** Equisetum young cone t.s.
- B15332** Equisetum young cone l.s
- B15333** Equisetum mature cone t.s.
- B15334** Equisetum mature cone l.s.
- B15335** Equisetum prothallus
- B15336** Isoetes rhizome t.s.
- B15337** Isoetes microsporophyll c.s.
- B15338** Isoetes megasporophyll c.s.
- B15339** Isoetes leaf t.s.
- B15340** Isoetes root t.s.
- B15341** Lycopodium wightanum cone l.s.
- B15342** Lycopodium wightanum cone t.s.
- B15343** Lycopodium wightanum stem t.s.
- B15344** Lycopodium apex l.s.
- B15345** Lycopodium cernuum stem t.s.
- B15346** Lycopodium phlegmaria stem t.s.
- B15347** Lycopodium leaf t.s.
- B15348** Lycopodium root t.s.
- B15349** Marselia leaf t.s.
- B15350** Marselia root c.s.
- B15351** Marselia rhizome c.s.
- B15352** Marselia petiole c.s.
- B15353** Marselia sporophyte t.l.s
- B15354** Marselia sporophyte h.t.s
- B15355** Marselia sporophyte v.l.s
- B15356** Ophioglossum leaf c.s.
- B15357** Ophioglossum rhizome t.s.
- B15358** Ophioglossum root t.s.
- B15359** Ophioglossum spike t.s.
- B15360** Ophioglossum spike l.s.
- B15361** Psilotum stem t.s.
- B15362** Psilotum rhizome t.s.
- B15363** Psilotum leaf t.s
- B15364** Psilotum synangia t.s.
- B16365** Selaginella root t.s.
- B15366** Selaginella rhizophore t.s.
- B15367** Selaginella leaf t.s.
- B15368** Selaginella stem t.s.
- B15369** Selaginella spike v.s.
- B15370** Selaginella spike cleared w.m.
- B15371** Selaginella microsporangia w.m
- B15372** Osmunda spike t.s.



GYMNOSPERMS

- B15381** Cycas normal root t.s.
- B15382** Cycas coralloid root t.s.
- B15383** Cycas leaflet t.s.
- B15384** Cycas rachis t.s.
- B15385** Cycas microsporophyll t.s.
- B15386** Cycas ovule l.s.
- B15387** Pinus male cone t.s.
- B15388** Pinus male cone l.s.
- B15389** Pinus female cone t.s.
- B15390** Pinus female cone l.s.
- B15391** Pinus pollengrains w.m.
- B15392** Pinus stem t.s.
- B15393** Pinus stem r.l.s.
- B15394** Pinus stem t.l.s.
- B15395** Pinus needle t.s.
- B15396** Pinus root, young t.s.
- B15397** Pinus root, old t.s.
- B15398** Pinus dwarf shoot t.s.
- B15399** Pinus wood t.s.
- B15400** Pinus ovule v.s.
- B15401** Gnetum stem t.s.
- B15402** Gnetum stem r.l.s.
- B15403** Gnetum stem t.l.s.
- B15404** Gnetum male cone t.l.s.
- B15405** Gnetum female cone t.s.
- B15406** Gnetum female cone l.s.
- B15407** Gnetum ovule v.s.
- B15408** Ephedra young root t.s.
- B15409** Ephedra root sec growth, t.s.
- B15410** Ephedra stem, sec growth, t.s.
- B15411** Ephedra male cone l.s.
- B15412** Ephedra female cone l.s.
- B15413** Ginkgo stem t.s.
- B15414** Ginkgo petiole t.s.
- B15415** Ginkgo male cone l.s.
- B15416** Ginkgo female cone l.s.
- B15417** Ginkgo ovule l.s.

ANGIOSPERM

ANGIOSPERM ROOTS

- B15421** Allium root tips l.s.
(showing mitotic divisions)
- B15422** Avena pneumatophore t.s.
- B15423** Beta root, storage type, t.s.
- B15424** Cuscuta, (Haustoria) root,
with host, t.s.
- B15425** Cucurbita root t.s.
- B15426** Dicot root, primary structure t.s.
- B15427** Dicot root, commencement
of sec. growth, t.s.
- B15428** Ficus aerial root t.s.
- B15429** Ficus old root t.s.
- B15430** Hydrilla root, hydrophytic, t.s.
- B15431** Ipomea root t.s.

- B15432** Legume root with nodules t.s.
- B15433** Maize root t.s.
- B15434** Monocot root t.s.
- B15435** Nymphaea root, typical
hydrophyte t.s.
- B15436** Orchid root showing
velamen t.s.
- B15437** Pandanus aerial root for
lenticel t.s.
- B15438** Sunflower, (helianthus), young
root t.s.
- B15439** Sunflower, (helianthus),
old root t.s.
- B15440** Tinospora aerial root t.s.
- B15441** Ranunculus root t.s.

ANGIOSPERM STEM

- B15452** Amaranthus stem t.s.
- B15453** Aristolachia old stem t.s.
- B15454** Begonia stem t.s.
- B15455** Begonia stem l.s.
- B15456** Boerhavia old stem t.s.
- B15457** Bougainvillea stem t.s.
- B15458** Cana indica stem t.s.
- B15459** Calotropis stem t.s.
- B15460** Casurina stem t.s.
- B15461** Chenopodium stem t.s.
- B15462** Clematis stem t.s.
- B15463** Coleus stem t.s.
- B15464** Cucurbita stem, young t.s.
- B15465** Cucurbita stem old t.s.
- B15466** Cucurbita stem l.s.
- B15467** Euphorbia stem t.s.
- B15470** Helianthus stem l.s.
- B15471** Jussiaea stem t.s.
- B15472** Mirabilis stem t.s.
- B15473** Muhlenbeckia cladode
t.s. (xerophytic)
- B15474** Nyctanthus stem t.s.
- B15475** Nymphaea stem t.s.
- B15476** Potamogeton stem t.s.
- B15477** Potato tuber c.s. for starch
grain
- B15478** Ranunculus stem t.s.
- B15479** Salvadoria stem t.s. (xerophytic)
- B15480** Sunflower, (helianthus) stem
young t.s.
- B15481** Sunflower, (helianthus)
stem old t.s.
- B15482** Tinospora stem t.s.
- B15483** Vitis stem t.s.
- B15484** Dracaena stem t.s.
- B15485** Hydrilla stem t.s.
- B15486** Maize, (zea mays), stem t.s.
- B15487** Maize, (zea mays), stem l.s.
- B15488** Monocot stem, typical t.s.
- B15489** Smilax stem t.s.

ANGIOSPERM

LEAVES

- B15490** Allium leaf t.s.
- B15491** Bryophyllum leaf t.s.
- B15492** Dracaena leaf t.s.
- B15493** Drosera leaf w.m.
- B15494** Dicot leaf typical t.s.
- B15495** Echhornia petiole t.s.
- B15496** Ficus leaf t.s.
- B15497** Helianthus,(sunflower) leaf t.s.
- B15498** Hydrilla leaf t.s.
- B15499** Utricularia w.m.
- B15500** Maize leaf t.s.
- B15501** Monocot leaf typical t.s.
- B15502** Nymphaea leaf t.s.
- B15503** Nymphaea petiole t.s.
- B15504** Nerium leaf t.s.
- B15505** Vallinaria leaf t.s.

PLACENTATION OF OVULE

- B15541** Axile placentation
- B15542** Basal placentation
- B15543** Free central placentation t.s.
- B15544** Free central placentation v.s.
- B15545** Marginal placentation t.s.
- B15546** Parietal placentation t.s.
- B15547** Superficial placentation t.s.

TYPES OF OVULES

- B15551** Orthotropus type v.s.
- B15552** Anatropus type v.s.
- B15553** Complylotrous type v.s.
- B15554** Agrinotropus type v.s.

MITOSIS

An onion root tip smear. Out of the full smear one particular stage is marked and brought out in a small black circle

- B15561** Interphase
- B15562** Prophase
- B15563** Metaphase
- B15564** Anaphase
- B15565** Telophase

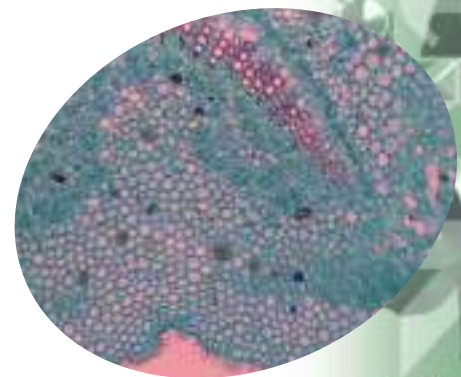
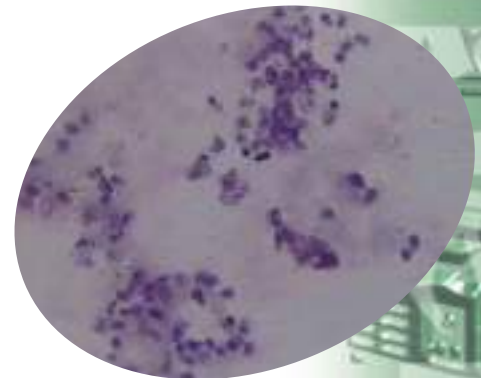
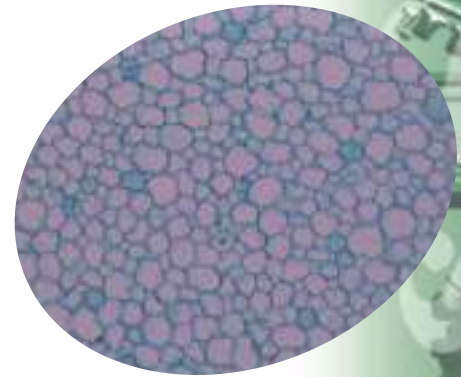
MEIOSIS

Out of the full smear,one particular stage is marked and brought out in a small black circle.

- B15571** Leptotene stage
- B15572** Zygotene stage
- B15573** Pachytene stage
- B15574** Diplotene stage
- B15575** Diakinesis stage
- B15576** Metaphase I
- B15577** Anaphase I
- B15578** Telophase I
- B15579** Metaphase II
- B15580** Anaphase II
- B15581** Telophase II

CELL/CELLCONTENTS/ TISSUES

- B15511** Typical plant cell, (onion)
- B15512** Parenchyma t.s.
- B15513** Parenchyma l.s.
- B15514** Aerenchyma v.s.
- B15515** Collenchyma t.s.
- B15516** Sclerenchma t.s.
- B15517** Stone cell t.s.
- B15518** Stomata, leaf epidermis,w.m.
- B15519** Phloem seive tubes v.s.
- B15520** Oil cavities citrus fruit v.s.
- B15521** Protoxylem & metaxylem ts
- B15522** Starch grain (potato)
- B15523** Starch grain (wheat)
- B15524** Bean cotyledon t.s.
- B15525** Aleurone layer wheat grain t.s.
- B15526** Protein bodies castor endosperm t.s.
- B15527** Spcero raphides in section
- B15528** Raphid in stem l.s.
- B15529** Cistolith in ficus leaf t.s.
- B15530** Unicellular hairs
- B15531** Multicellular hairs
- B15532** Glandular hairs
- B15533** Stinging hairs



FLORAL MOROPHOLOGY

- B15582** Anther, typical young t.s.
- B15583** Anther dehiscent t.s.
- B15584** Euphorbia cyathodium v.s.
- B15585** Hypanthodium v.s.
- B15587** Epigynous flower l.s.
- B15588** Hypogynous Flower l.s.
- B15589** Perigynous flower l.s.
- B15590** Pollen grain typical type
- B15591** Pollen grain mixed type w.m.
- B15592** Ranunculus flower l.s.
- B15593** Sunflower capitulum v.s.
- B15594** Composite inflorescence l.s. ovule, showing megasporogenesis.
- B15595** L.S.ovule showing globular embryo heart shaped embryo.
- B15596** L.S. dicot seed showing seed coat, embryo and endosperm.
- B15597** Zea mays young seed v.s.
- B15598** Seed germination seed l.s. with radicle. stem apem coleoptile

ANTHER DEVELOPMENT

- B15599** T.S. Young anther showing mass of parenchymatous B cell.
- B15600** T.S. Young anther showing differentiation of archesporial cells.
- B15601** T.S. Anther showing different wall layers and sporogenous tissue.
- B15602** Anther t.s. (showing microspore tetrads)
- B15603** T.S. Anther mature with pollen grain
- B15604** Anther t.s. (showing meiosis)
- B15605** Development of dicot embryo Set of 4 slides
- B15606** Development of monocot embryo, Set of 3 slides

ZOOLOGY SLIDES

PROTOZOA

- B16001** Amoeba proteus
- B16002** Amoeba binary fission
- B16003** Foraminifera shell w.m.
- B16004** Euglena
- B16005** Paramecium-binary fission
- B16006** Paramecium-conjugation
- B16007** Paramecium w.m.
- B16008** Balantidium coli w.m.
- B16009** Chlamydomonas w.m.
- B16010** Entamoeba histolytica w.m.
- B16011** Leishmania donovani w.m.
- B16012** Malarial parasite (in human blood)
- B16013** Malarial parasite (signet ring)
- B16014** Monocystis (Trophozoite)
- B16015** Monocystis (Sporozoite)
- B16016** Noctua w.m.
- B16017** Polystomella w.m.
- B16018** Trypanosoma in blood
- B16019** Volvox
- B16020** Vorticella

PORIFERA

- B16021** Grantia t.s.
- B16022** Sycon t.s.
- B16023** Sycon l.s.

COELENTERATA

- B16024** Hydra with bud w.m.
- B16025** Hydra with testis w.m.
- B16026** Hydra t.s.
- B16027** Hydra l.s.
- B16028** Hydra w.m.
- B16029** Hydra with ovaries w.m.
- B16030** Hydra with medusa w.m.
- B16031** Hydra with gastrula w.m.
- B16032** Obelia colony w.m.
- B16033** Obelia medusa w.m.
- B16034** Ephyra larva w.m.
- B16035** Sea anemone t.s.
- B16036** Sea anemone l.s.
- B16037** Aurelia w.m.
- B16038** Aurelia tentaculocyst w.m.

PLATYHELMINTHES

- B16041** Redia w.m.
- B16042** Cercaria w.m.
- B16043** Redia and cercaria w.m.
- B16044** Planaria w.m.

NEMATHELMINTHES

- B16045** Oxyuris w.m.
- B16046** Trichinella spiralis (cyst in muscles)
- B16047** Wucheraria bancrofti (filaria)

ANNELIDA

- B16048** Earthworm m.l.s. thr. ant region
- B16049** Earthworm t.s. thr. gizzard
- B16050** Earthworm t.s. thr. Typhlosolar region
- B16051** Earthworm setae w.m.
- B16052** Earthworm t.s. thr. pharynx
- B16053** Earthworm t.s. thr. ointestine
- B16054** Earthworm ovary w.m.
- B16055** Earthworm brain ring w.m.
- B16056** Earthworm septal nephridia
- B16057** Earthworm pharyngeal nephridia w.m.
- B16058** Leech t.s. thr. crop (with diverticula)
- B16059** Leech t.s. thr. crop (without diverticula)
- B16060** Leech t.s. thr. stomach
- B16061** Leech t.s. thr. penis sac & epididymis
- B16062** Leech t.s. thr. rectum & post sucker
- B16063** Heteronereis w.m.(small)
- B16064** Leech jaw w.m.
- B16066** Trochophore larva w.m.

ARTHROPODA (INSECTA)

- B16071** Butterfly mouth parts w.m.
- B16072** Honey bee sting apparatus w.m.
- B16073** Megalopa larva w.m.
- B16074** Mite w.m.
- B16075** Peripatus t.s.
- B16076** Prawn gill w.m.
- B16077** Prawn statocyst w.m.
- B16078** Scorpion book lung
- B16079** Sacculina t.s.
- B16080** Tick w.m.
- B16081** Anopheles male w.m.
- B16082** Anopheles female w.m.
- B16083** Anopheles mouth parts male
- B16084** Anopheles mouth parts female

- B16085** Culex mouth parts male
- B16086** Culex mouth parts female
- B16087** Cockroach mouth parts
- B16088** Cockroach salivary gland
- B16090** Grasshopper mouth par t.s.
- B16091** Housefly mouth
- B16092** Termite soldier w.m.
- B16093** Centipede w.m. stinging leg
- B16094** Bird louse w.m.
- B16095** Mysis w.m.
- B16096** Metazoea larve w.m.
- B16097** Zoea larva
- B16098** Nauplius larva w.m.
- B16099** Oniscus w.m.
- B16100** Head louse w.m.
- B16101** Cat flea w.m.
- B16102** Mosquito mouth parts w.m.
- B16103** Daphnia w.m.
- B16104** Cyclops w.m.

MOLLUSCA

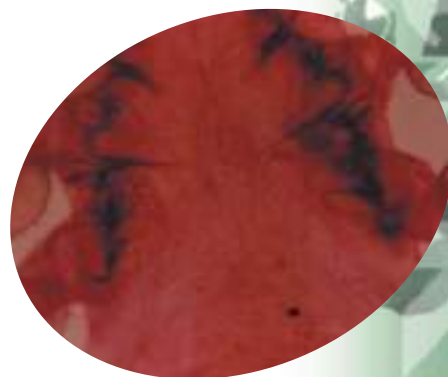
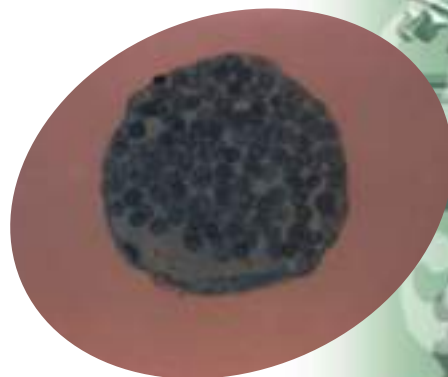
- B16111** Radula of pila w.m.
- B16112** Glochidium larva w.m.
- B16113** Freshwater mussel shell ground thin
- B16114** Freshwater mussel gill t.s.
- B16115** Valiger larva

ECHINODERMATA

- B16121** Bipinnaria larva w.m.
- B16122** Pluteus larva w.m.
- B16123** Echinopluteus w.m.
- B16124** Starfish arm t.s.

PROTOCHORDATES

- B16131** Amphioxus t.s. through pharynx
- B16132** Amphioxus t.s. through intestine
- B16133** Amphioxus t.s. caudal region
- B16134** Amphioxus w.m.
- B16135** Amphioxus t.s. tail
- B16136** Ciona w.m.
- B16137** Herdmania spicules
- B16138** Salpa w.m.
- B16139** Balanoglossus t.s. proboscis
- B16140** Balanoglossus t.s. collar
- B16141** Balanoglossus t.s. trunk
- B16142** Balanoglossus anterior region l.s.
- B16143** Balanoglossus t.s. branchial region.
- B16144** Tornaria larva w. m.
- B16145** Ammocoetes larva branchial region t.s.



PISCES

- B16151** Ctendoid scale w.m.
- B16152** Rhomboid scale w. m.
- B16153** Cycloid scale w.m.
- B16154** Placoid scale w. m.

AMPHIBIA HISTOLOGY

- B16161** Frog blood smear
- B16162** Frog oesophagus t.s.
- B16163** Frog tongue t.s.
- B16164** Frog spleen t.s.
- B16165** Frog rectum w.m.
- B16166** Frog skin w. m..
- B16166/1** Frog skin v.s.
- B16167** Frog lung l. s
- B16168** Frog liver t.s.
- B16169** Frog pancreas t.s.
- B16170** Frog stomach t.s.
- B16171** Frog intestine t.s.
- B16172** Frog lung t.s.
- B16173** Frog lung t.s. (Blown up)
- B16174** Frog kidney t.s.
- B16175** Frog testis t.s.
- B16176** Frog ovary t.s. (young)
- B16177** Frog ovary t.s. (mature)
- B16178** Bone ground thin
- B16179** Bone decalcified t.s.
- B16180** Cartilage t.s.
- B16180** Artery t.s
- B16181** Skin with chromatophores ts
- B16182** Heart l.s.
- B16183** Vein t.s.

MAMMALIAN HISTOLOGY (RAT OR RABBIT)

- B16191** Liver t.s.
- B16192** Pancreas t.s.
- B16193** Intestine t.s.
- B16194** Lung t.s.
- B16195** Kidney t.s.
- B16196** Testis t.s.
- B16197** Appendix t.s.
- B16198** Oesophagus t.s.
- B16199** Thyroid gland t.s.
- B16200** Stomach t.s.
- B16201** Ovary t.s.
- B16202** Adrenal gland t.s.
- B16203** Kidney l.s.
- B16204** Spleen t.s.
- B16205** Caecum t.s.
- B16206** Rectum t.s.
- B16207** Blood smear
- B16208** Squamous epithelium
- B16209** Stratified squamous epithelium v.s.

- B16210** Columnar epithelium
- B16211** Ciliated epithelium
- B16212** Areolar tissue
- B16213** Adipose tissue
- B16214** Dyaline cartilage t.s
- B16215** Bone ground thin t.s.
- B16216** Bone decalcified t.s.
- B16217** Striated muscle l.s.
- B16218** Cardiac muscle l.s.
- B16219** Non-striated muscle l.s.
- B16220** Nerve t.s.
- B16221** Ovary adult v.s.
- B16222** Artery t.s.
- B16253** Blood smear
- B16254** Ileum t.s.
- B16255** Ovary with corpus luteum
- B16256** Spinal cord t.s.
- B16257** Stomach cardiac t.s.
- B16258** Tooth decalcified
- B16259** Brain cerebrum t.s.
- B16260** Bone calcified t.s.
- B16261** Duodenum t.s.
- B16262** Heart t.s.
- B16263** Jejunum t.s.
- B16264** Larynx t.s.
- B16265** Oviduct t.s.
- B16266** Skin v.s.
- B16267** Tongue t.s.
- B16268** Vein t.s.
- B16269** Brain cerebellum t.s.
- B16270** Epiglottis t.s.
- B16271** Heart l.s.
- B16272** Lung l.s.
- B16273** Lymph gland t.s.
- B16274** Parathyroid gland t.s.
- B16275** Salivary gland
- B16276** Penis t.s.
- B16277** Stomach fundus t.s.
- B16278** Retina v.s.
- B16279** Tail t.s.
- B16280** Uterus t.s.

PARASITOLOGY

- B16321** Ascaris female t.s.
- B16322** Ascaris male t.s.
- B16323** Ascaris male & female t.s. in one slide
- B16324** Liver fluke w.m.
- B16325** Liver fluke m.l.s. thr. anterior region
- B16326** Liver fluke t.s.thr. testis
- B16327** Liver fluke t.s. thr. uterus
- B16328** Liver fluke t.s. thr. cirrus sac

B16329 Liver fluke t.s. thr. anal region

B16330 Liver fluke t.s. thr. post sucker

B16331 Liver fluke t.s. thr. middle region

B15332 Liver fluke t.s. thr. gonad region

B16333 Liver fluke metacercaria

B16334 Liver fluke sporocyst w.m.

B16335 Liver fluke miracidium w.m.

B16336 Tapeworm scolex w.m.

B16337 Tapeworm mature proglottid w.m.

B16338 Tapeworm gravid proglottid w.m.

B16339 Tapeworm proglottid immature

B16340 Tapeworm t.s.

B16341 Ancylostoma (hook worm)

B16342 Dracunculus

B16343 Echinococcus w.m.s

CHICK EMBRYOLOGY

B16381 Chick unincubated blastoderm w.m.

B16382 Chick primitive streak (12 hrs) m.w.

B16383 Chick 18 hrs. stage w.m.

B16384 Chick 21 hrs. stage w.m.

B16385 Chick 30 hrs. stage w.m.

B16386 Chick 36 hrs. stage w.m.

B16387 Chick 48 hrs. stage w.m.

B16390 Chick 60 hrs. stage w.m.

B16391 Chick 72 hrs. stage w.m.

B16392 Chick 24 hrs. t.s. primitive streak

B16393 Chick 36 hrs. t.s.

B16394 Chick 72 hrs. h.l.s.

B16395 Chick 96 hrs. h.l.s.

FROG EMBRYOLOGY

B16351 Egg v.s.

B16352 Early cleavage w.m.

B16353 Late cleavage w.m.

B16354 Embryo w.m. 4 mm

B16355 Frog & cell stage w.m.

B16356 Frog blastula v.s.

B16357 Frog early gastrula v.s.

B16358 Frog gastrula (yolk plug) v.s.

B16359 Frog neural plate v.s.

B16360 Frog neural fold t.s.

B16361 Frog neural tube t.s.

B16362 Tadpole w.m.

B16363 Tadpole trunk

B16364 Tadpole head region

B16365 Tadpole 4 mm sagittal section

B16366 Tadpole 7mm (external gill stage w.m.)

B16367 Tadpole 7mm sagittal section

B16368 Tadpole 10 mm (internal gill stage) w.m.

B16369 Tadpole 10 mm t.s. internal gill

B16370 Tadpole 10 mm heart

MITOSIS CELL DIVISION

B16401 Metabolic nucleus

B16402 Anaphase

B16403 Prophase

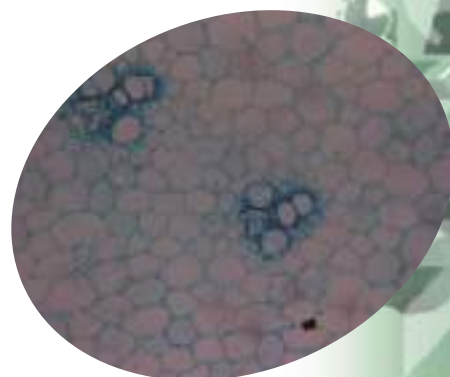
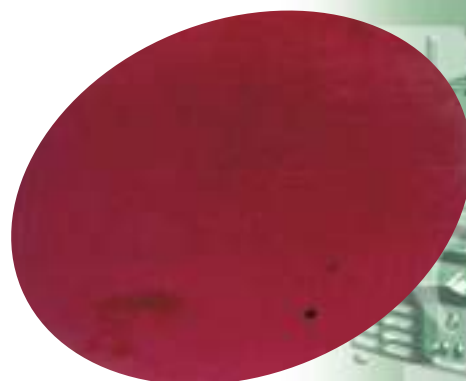
B16404 Metaphase

B16405 Telophase

MEIOSIS CELL DIVISION

B16411 Meiosis I All significant stages in one slide.

B16412 Meiosis II All significant stages in one slide.





SLIDE SETS

Very convenient and very popular. Some of these sets are given below. In addition we shall be glad to supply sets according to your requirements.

Sets for Primary Schools

B16505	Human Anatomy set	Set of 6
B16510	Plants set	Set of 8
B16520	Animals	Set of 11

Slide Set

B16525	Introduction to Histology	Set of 23
B16530	Advance Histology	Set of 79
B16533	Human Biology	Set of 24
B16535	Mitosis & Meiosis	Set of 10
B16550	General Biology	
	Set to meet requirements of West African Examination Council	Set of 40



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PLASTIC EMBEDDED SPECIMEN

Consists of a permanent block of crystal clear acrylic resin containing a plant specimen. The mounts are permanent and permit object viewing from all six sides. These can be readily and safely handled by students and can be easily stored and displayed.

These mounts are normally supplied in the following sizes depending upon the size of the specimen.

Nominal Sizes :

- A. 6x 8.5 cm
- B. 6x11 cm
- C. 9.4x12 cm
- D. 6x15 cm

ALGAE & FUNGI

- B16701** Chara Fertile
- B16702** Caulerpa
- B16703** Dictyota
- B16704** Helimeda
- B16705** Laminaria
- B16706** Padina thallus
- B16707** Sargassum with bladder
- B16708** Ulva thallus
- B16709** Collection of Algae, set of 4
- B16711** Collection of Fungi, set of 4
- B16712** Collection of Thallophyta, set of 4
- B16713** Agaricus, big size
- B16714** Morchella
- B16715** Polyporus
- B16716** Ustilago on Wheat or Barley
- B16717** Alternaria
- B16718** Albugo Conidia on leaf
- B16719** Albugo Hypertrophy
- B16721** Geaster, (Star Agaricus)
- B16722** Citrus Canker
- B16723** Puccinia on Wheat and Barberry leaf L.H.
- B16724** Lichen collection set of 3
- B16725** Phytophthora

BRYOPHYTA

- B16731** Marchantia Antheridia
- B16732** Marchantia Archegonia
- B16733** Marchantia Antheridia and Archegonia in one block
- B16734** Marchantia 4 stage Antheridia, Archegonia, sporophyte and gemma cup
- B16735** Riccia Thallus
- B16736** Anthoceros Sporophyte
- B16737** Porella Fertile
- B16738** Moss L.H. Antheridia, Archegonia and Sporophyte
- B16739** Moss with Sporophyte
- B16741** Sphagnum Fertile
- B16742** Polytrichum Fertile
- B16743** Pellia Fertile
- B16744** Collection of Bryophyta, set of 4

PTERIDOPHYTA

- B16751** Fern Fertile leaf
- B16752** Different types of Fern Fertile leaf
- B16753** Fern Prothallus with young sporophyte
- B16754** Fern Life Cycle
- B16755** Equisetum Fertile Shoot
- B16756** Equisetum Prothallus with Sporophyte
- B16757** Lycopodium Fertile Shoot
- B16758** Selaginella Fertile Shoot
- B16759** Marselia Fertile Plant
- B16761** Ophioglossum Fertile Plant
- B16762** Isoetes Plant
- B16763** Psilotum with sporangium twig
- B16764** Salvinia
- B16765** Collection of Pteridophyta, set of 4

GYMNOSPERM

- B16771** Ephedra male & female twig
- B16772** Gnetum male & female twig
- B16773** Pinus male & female cone
- B16774** Cycas micro & mega sporophyll
- B16775** Cycas L.H. micro and mega sporophyll Leaves and Coralloid Root.
- B16776** Cycas young plant
- B16777** Ginkgo twig with leaves
- B16778** Ginkgo male & female twig
- B16779** Zamia female cone L.S.
- B16781** Collection of gymnosperm, Set of 3





INSECTIVOROUS PLANT

B16785 Utricularia with bladder

B16786 Drosera Plant

B16788 Pitcher Plant

HYDROPHYTES PLANT

B16791 Eichhorina

B16792 Hydrilla plant

B16793 Vallisnaria plant

B16794 Jussiaea plant

B16795 Salvinia

B16796 Nymphaea leaf

B16797 Ceratophyllum



XEROPHYTE & PARASITE PLANT

B16801 Euphorbia

B16802 Nerium

B16803 Opentia

B16804 Asparagus

B16805 Cocoloba

B16806 Australian Acacia leaf

B16807 Loranthus with Host

B16808 Striga with Host

B16809 Cuscuta with Host

B16810 Orchid plant

B16811 Orobranche plant

B16812 Pneumatophore Root

B16813 Phylloclade of Ruscus

B16814 Bulbil of discoria

GERMINATION & DISPERSAL

B16825 Germination & Dispersal,
Gram

B16826 Germination & Dispersal,
Maize

B16828 Germination & Dispersal,
Bean or Castor

B16829 Dispersal of Fruit & Seed
by wind

B16830 Dispersal of Fruit
& Seed by water

B16832 Dispersal of Fruit & Seed
by animals.



OVERHEAD PROJECTORS

An invaluable aid to teaching & presentation. Provide a crisp and bright image on the screen in daylight in a room, of any drawing, sketch or writing on a transparent cellophane sheet, or with ready made transparencies.

OVERHEAD PROJECTOR MODEL SP-1 A

The projector is built around a 250 x 250 mm aperture Fresnel lens, mounted on a sturdy metal body. The tilting projection head is carried on a square section column and is provided with rack and pinion arrangement for focussing. With a projection lens of f-254 mm providing a projection distance is 1-3 meters. With a 240V-60W projection lamp, having an electronic control to adjust light intensity and also to interlock with the one-off switch to protect against any voltage surge while switching on. An efficient blower cooling system keeps the transparency stage cool. The top cover is designed to open only after disconnecting power supply, thus ensuring safety against electric shock.

The part are detachable for folding

Dimensions 305 x 305 x 285mm complete with cellophane roll attachment, writing pack, vinyl cover etc.

B17102



OVERHEAD PROJECTOR MODEL SP-2

As above, but with 24V 250 W halogen lamp

.B17105

OVERHEAD PROJECTOR MODEL SP-3

As B17105 with two 24V-250W halogen lamps with a quick change-over lever to enable either of the two lamps to be used.

B17107

OVERHEAD PROJECTORS ACCESSORIES

OVERHEAD PROJECTOR MODEL SP-4 B

With projection lens of f-300 mm providing projection distance 1-4 meters. Twin 24-250 W halogen lamps with a shifter assembly to change from one to the other. High -low intensity switch is provided for lamp intensity. Power is automatically cut off when top cover is opened. Folding (detachable parts) with handle to carry around. Dimensions 340 x 310 x 250 mm.. Complete with cellphone role attachment, writing pack, vinyl cover etc.

B17109 Stage Aperture 250 x 250 mm

B17110 Stage Aperture 285 x 285 mm



OVERHEAD PROJECTOR STAND

Folding type, metallic stand with adjustable height, having sturdy platform, on which the projector can be kept when in use.

.B17111

FILM SLIDES AND STRIPS ATTACHMENT

Enables the projector to be used to project 50 x 50 mm slides and 35 mm film strips.

B17113

CELLOPHANE ROLL

Made from high quality material, perfectly transparent, 10 meters in length.

B17115

TRANSPARENT OHP MOUNTS

Mounted in cardboard sheet 240 x 240 mm for preparing drawing or data transparencies.

B17117

OHP LASER POINTER

A pen like laser pointer for pin pointing the subject matter on the screen. Having range upto 100 feet

B17121

HALOGEN LAMP

24V, 250 Watts

B17123

OVERHEAD PROJECTOR TRANSPARENCIES

BIOLOGY

OVERHEAD PROJECTOR TRANSPARENCIES FOR USE WITH OVERHEAD PROJECTORS

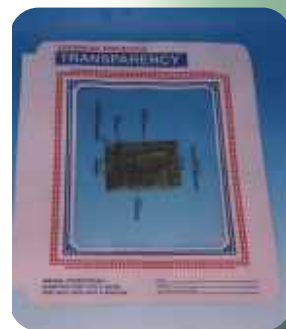
BOTANY

- B17501** Parts of plants
- B17502** Flower parts
- B17503** Types of leaves
- B17504** Stem parts
- B17505** Roots
- B17506** Seed and embryo
- B17507** Maize germination
- B17508** Sunflower germination
- B17509** Castor germination
- B17510** Gram germination
- B17511** Bean germination
- B17512** Pea germination
- B17513** Pine germination
- B17514** Pollination
- B17515** Fertilization
- B17516** Structure of ovule
- B17517** Placentation
- B17518** Stamens
- B17519** Inflorescence
- B17520** Green algae
- B17521** Spirogyra
- B17522** Ulothrix
- B17523** Oedogonium
- B17524** Oscillatoria
- B17525** Nostoc
- B17526** Volvox
- B17527** Chara
- B17528** Batrachospermum
- B17529** Ectocarpus
- B17530** Chlamydomonas
- B17531** Vaucheria
- B17532** Fungi types
- B17533** Mucor
- B17534** Yeast
- B17535** Bacteria
- B17536** Virus structure
- B17537** V.S. moss capsule
- B17538** Funaria life cycle
- B17539** Fern T.S. rachis
- B17540** Fern life cycle
- B17541** Y.S. coralloid root
- B17542** Cycas life cycle
- B17543** Selaginella life cycle
- B17544** Marchantia life cycle
- B17545** Plant tissues-1
- B17546** Plant tissues -2
- B17547** T.S. dicot stem
- B17548** T.S. monocot stem
- B17549** Dicot leaf T.S.
- B17550** Monocot leaf T.S.
- B17551** Monocot root T.S.
- B17552** Dicot root T.S.
- B17553** Mono/Dicot root comparison
- B17554** Mono/dicot stem comparison
- B17555** Wood stem

- B17556** Plant cell simple
- B17557** Plant cell(under electron microscope)
- B17558** Study of Mitosis
- B17559** Meiosis cell division
- B17560** Plant as a factory
- B17561** Life history of plant
- B17562** Classification of plants
- B17563** Xerophytes
- B17564** Hydrophytes
- B17565** Parasitic plant
- B17566** Insectivorous plants
- B17567** Utricularia (Bladderwort)
- B17568** Nepenthes (Pitcher plant)
- B17569** Respiration
- B17570** Photosynthesis
- B17571** Stomata & transpiration
- B17572** Anaerobic respiration
- B17573** Movement in plant
- B17574** Growth in plant
- B17575** Cycle of yeasting

ZOOLOGY

- B17581** Amoeba structure
- B17582** Paramecium
- B17583** Euglena
- B17584** Entamoeba histolytica
- B17585** Monocystic structure
- B17586** Malarial Parasite
- B17587** Trypanosoma
- B17588** Hookworm
- B17589** Ascaris
- B17590** Tapeworm
- B17591** Liver fluke
- B17592** Planaria structure
- B17593** Hydra
- B17594** Earthworm external
- B17595** Earthworm life history
- B17596** Common snakes
- B17597** Snake's poison apparatus
- B17598** Lizard external
- B17599** Birds external
- B17600** Beaks of birds
- B17601** Claws of birds
- B17602** Birds external with feather
- B17603** Grasshopper external
- B17604** L.H. grasshopper
- B17605** L.H. anopheles mosquito
- B17606** L.H. culex mosquito
- B17607** L.H. housefly
- B17608** L.H. butterfly
- B17609** L.H. honeybee
- B17610** L.H. silkworm
- B17611** L.H. cockroach
- B17612** Cockroach external
- B17613** Cockroach mouth parts
- B17614** Cockroach digestive system
- B17615** Cockroach circulatory System
- B17616** Cockroach reproductive system, male
- B17617** Cockroach reproductive System, female
- B17618** Cockroach respiratory system





- B17619** Cockroach nervous system
- B17620** Rabbit external
- B17621** Rabbit Skeleton
- B17622** Rabbit digestive system
- B17623** Rabbit dissection
- B17624** Rabbit Heart
- B17625** Rabbit brain
- B17626** Rabbit arterial system
- B17627** Rabbit venous system
- B17628** Rabbit reproductive system, male
- B17629** Rabbit reproductive system, female
- B17630** Rabbit skin
- B17631** Rabbit development-1
- B17632** Rabbit Development-2
- B17633** Frog external
- B17634** Frog life history
- B17635** Frog skeleton
- B17636** Frog brain
- B17637** Frog heart
- B17638** Frog reproductive system, male
- B17639** Frog, reproductive system, female
- B17640** Frog arterial system
- B17641** Frog venous system
- B17642** Frog circulatory system
- B17643** Frog v.s. Skin
- B17644** Frog dissection
- B17645** Karyo type of human male
- B17646** Organic evolution
- B17647** Horse evolution
- B17648** Elephant evolution
- B17649** D.N.A.
- B17650** R.N.A.
- B17651** Animal mitosis
- B17652** Animal meiosis
- B17653** Rat external, male
- B17654** Rat external, female
- B17655** Rat digestive system



ANIMAL CELL & TISSUES

- B17661** Animal cell, simple
- B17662** Animal cell under electron microscope
- B17663** Animal tissue -1
- B17664** Animal tissue-2
- B17665** T.S. hyaline cartilage
- B17666** T.S. mammalian bone
- B17667** T.S. spinal cord
- B17668** T.S. testis
- B17669** T.S. ovary
- B17670** Voluntary or striated muscles
- B17671** Involuntary or smooth muscles
- B17672** Cardiac muscles
- B17673** Nerve fibers & nerve cells
- B17674** Spermatogenesis
- B17675** Oogenesis



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- B17681** Reproductive organs of cock
- B17682** Reproductive organs of hen
- B17683** Embryo w.m. 16 hours
- B17684** Parts of egg shown in half
- B17685** Yolk sac
- B17686** Formation of yolk sac
- B17687** Internal egg parts
- B17688** Blastoderm surface view
- B17689** Chorion and amnion
- B17690** Embryo: L.S. 17 hours
- B17691** Embryo: W.M. 18 hours
- B17692** Embryo T.S. 24 hours
- B17693** Embryo: L.S. 18 hours
- B17694** Embryo: W.M. 24 hours
- B17695** Embryo: W.M. 28 hours
- B17696** Embryo: T.S. 33 hours
- B17697** Embryo: W.M. 33 hours
- B17698** Embryo: W.M. 48 hours
- B17699** Embryo: W.M. 72 hours
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- B17712** Cleavage development -2
- B17713** Blastula development
- B17714** Gastrula development
- B17715** Neural plate development
- B17716** Neural groove development
- B17717** Neural tube development
- B17718** C.S. embryo -1
- B17719** C.S. embryo -2
- B17720** L.S. embryo
- B17721** Tail bud development
- B17722** External gill stage
- B17723** Formation of operculum
- B17724** Internal gill stage
- B17725** Changes in metamorphosis

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- B17731** Interphase
- B17732** Early prophase
- B17733** Late prophase
- B17734** Metaphase
- B17735** Anaphase
- B17736** Late anaphase
- B17737** Telophase
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- B17739** Daughter cells

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B17742 Zygotene
B17743 Pachytene
B17744 Diplotene
B17745 Diakinesis
B17746 Metaphase -I
B17747 Anaphase -I
B17748 Telophase-I
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B17750 Metaphase -II
B17751 Anaphase -II
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B17804 Respiratory system
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B17806 Excretory system
B17807 Nervous system
B17808 Human brain
B17809 Human eye
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B17876 Nerve endings in skin
B17877 Nose structure
B17878 Olfactory nerves
B17879 Tongue & taste buds
B17880 Taste buds arrangement



SLIDE PROJECTORS

FILM SLIDE PROJECTOR **A**



A compact, versatile and multipurpose slide projector. With hard coated anastigmatic lens set objective, and 24V/150 W halogen lamp. It has a strong body and an efficient cooling system. Due to the incorporation of the latest design of condenser and heat absorbing systems, the instrument can be operated for longer durations without any damage to slides. Supplied complete with accessories for projection of 35 mm film strips, 50 x 50mm transparency slides and microscopic slides. In light weight carrying case. Supplied with one spare halogen lamp

B18005

SEMI AUTOMATIC SLIDE PROJECTOR **B**



Compact design, accepts linear magazine of 36 slides and has a manual slide changing system. With hard coated anastigmatic lens set and 24V/150 W halogen lamp with an efficient cooling system, ensuring no damage to slides. with one spare halogen lamp

B18010

AUTOMATIC SLIDE PROJECTOR **C**

Automatic 35mm slide projector with anastigmatic lens and 24V/150 watt halogen lamp, blower cooling system. With remote control system for changing slides, forward as well as reverse, of 36 slides linear magazine and also for fine focussing. Gives excellent performance.

B18015

PROJECTION SCREENS

PROJECTION SCREEN, WALL TYPE

Can be hung on wall or black board, size 120 x 130 cm. Supplied in a rexin bag.

B18021



PROJECTION SCREEN TRIPOD TYPE

Sturdy and portable with collapsible tripod stand and steel metal housing equipped with automatic spring roller system.

B18025

Screen size 120 x 130 cm

B18027

Screen size 132 x 178 cm

PROJECTOR SLIDES & TRANSPARENCIES

BIOLOGY

**PROJECTION SLIDES, SIZE 50 X50 MM OR
35 MM TRANSPARENCIES**

FOR USE WITH SLIDE PROJECTORS

**Process Coloured
(Available in sets only)**

BOTANY SECTION			ZOOLOGY SECTION		
TOPIC	SLIDES IN SET		TOPIC	SLIDES IN SET	
1. Algae Fungi	20		1. Anatomy of frog	30	
2. Angiospermic families	15		2. Anatomy of rabbit	20	
3. Bacteria	20		3. Amoeba & paramecium	20	
4. Bacteria, algae & Fungi	30		4. Animal histology	30	
5. Botany	30		5. Animal kingdom	30	
6. Bryopheta & Pteridophyta	20		6. Animal world	40	
7. Cell structure	20		7. Beaks & feet of birds	20	
8. Dispersal of seeds	20		8. Birds	30	
9. Fern	10		9. Cockroach	20	
10. Fruits	20		10. Earthworm	20	
11. Germination of seeds	20		11. Embryology of chick	20	
12. Higher plants	20		12. Embryology of frog	15	
13. Inflorescence	10		13. Embryology of rabbit	20	
14. Insectivorous & Parasitic plants	20		14. Evidence of evolution	20	
15. L.H. mucor	15		15. Fishes	30	
16. Leaves	20		16. Human physiology	50	
17. Marchantia	15		17. Hydra & obelia	20	
18. Meiosis	15		18. Insects, harmful	20	
19. Mitosis	15		19. Insects, useful	20	
20. Plant Anatomy 1	20		20. L.H. of butterfly	10	
21. Plant Anatomy 2	20		21. L.H. of honey Bee	10	
22. Plant Histology	30		22. L.H. of housefly	10	
23. Plant Kingdom	30		23. L.H. of mosquito	10	
24. Plant Physiology	30		24. L.H. Silkworm	10	
25. Pollination`	10		25. Liverfluke & tapeworm	20	
26. Roots	20		26. Mammals	30	
27. Spirogyra	20		27. Meiosis	15	
28. Stems	20		28. Mendel heredity	20	
29. Vegetative reproduction	20		29. Mitosis	10	
30. Water plants	10		30. Prehistoric animals	20	
B18041	Slides set		31. Protozoa	10	
B18043	Filmstrips set		32. Reptiles & amphibians	40	
			33. Snakes	20	
			34. Zoology	30	
			B18051	Slides Set	
			B18053	Filmstrips Set	



Projection slides on Agriculture, Primary & secondary school
science, Pathology, Rocks & Minerals
and other topics are also available.



BIO-VIEWERS A

A low cost simple teaching aid. instead of focussing slides in a microscope you can just push in a bioslide and examine the same without any hassle of focussing or locating. An inexpensive and practical alternative to microscopes.

B18065

BIO-SETS

Available on many subjects some are detailed below.

BIO VIEW SETS (BIOSLIDE SETS)

The biosets are alternate to microslides and are supplied as a filmstrip or as separate transparencies.

The transparency set has eight slides covering one topic with a booklet with detailed notes written in simple language. The topics are related to the student's own experience. A list of questions is provided at the end of the notes.

The filmstrip for use with slide projector also has eight frames covering one topic with detailed notes and questions.



BIO SETS-I

BIOSETS-II

ZOOLOGY

BOTANY

1. Ultrastructure of animal cell
2. Animal mitosis
3. Protozoa
4. Amoeba
5. Hydra
6. Life in a pond
7. Insect parts
8. Insect mouth parts
9. Tadpole to frog
10. Epithelia
11. Connective tissues
12. Transport in plants and animals
13. Feeding, digestion and Decomposition
14. How animals reproduce
15. Nervous system and sense organs

1. Cells of plant and animals
2. Plant Mitosis
3. Meiosis in lily anther
4. Bacteria
5. Virus
6. Algae
7. Leaf of a flowering plant
8. Root of a flowering plant
9. Stem of a flowering plant
10. Life of green plant
11. Monocots & dicots
12. Flower, seed and fruits
13. Photosynthesis
14. A sexual reproduction
15. Unusual plants

B18068
B18070

Bio-Set
Filmstrip

B18080 Bio-Set
B18085 Filmstrip

EARTH SCIENCE

EARTH SCIENCE

SOLAR SYSTEM MODEL B

Illustrating the nine planets which revolve around the Sun. Satellites of the planets are also shown. Mounted on base with 12 zodiac signs

B19005



SOLAR AND LUNAR ECLIPSE APPARATUS C

Showing the Earth revolving around the Sun and the Moon around Earth. With a candle to represent Sun, manually operated

B19008

B19010 As above but working with an electric motor and an electric lamp



GLOBES, POLITICAL D

With plastic graduated arc and base, waterproof, Dia 30 cm

	Dia
B19012	12.5 cm.
B19013	20 cm.
B19014	30 cm.
B19015	38 cm.



GLOBE, ILLUMINATED, DUAL PURPOSE E

Physical relief with light off and Physical cum political relief with light on.

	Dia.
P19017	20 cm.
P19018	30 cm.
P19019	40 cm.

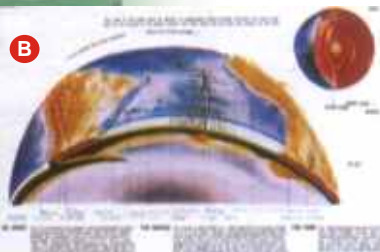




PLAQUE MODELS GEOGRAPHICAL / GEOLOGICAL

3D RAISED RELIEF PLASTIC MODELS

These are waterproof, markable and washable. All raised relief models are true in details, and have the feel of mountains and valleys. Beautifully coloured, highly informative as well as decorative. With hard backing and aluminium frame with hook for hanging, size 75x100 cm.



RIVER IN ACTION **A**

(Water Cycle), showing three stages of river action.

B19021



INTERIOR OF THE EARTH **B**

Showing inner, outer material and formation of the Earth.

B19022



GEOGRAPHICAL TERMS **C**

Showing ideal features of landscape to teach the formation of particular geographical terms.

B19023



CONVENTIONAL SIGNS **D**

Showing about 60 signs in actual relief

B19024

ROCKS AND VOLCANOES **E**

Showing in detail, (i) Sedimentary rocks, (ii) Igneous rocks, (iii) Metamorphic rocks & (iv) Volcanoes.

B19025

EARTH SCIENCE

RESTLESS EARTH F

Showing sea floor spreading with formation of crust, subduction zones, continents and mid-ocean ridges

B19026



OXYGEN AND CARBON CYCLE IN NATURE G

Showing in detail oxygen and carbon dioxide in air, photosynthesis and respiration.

B19027



FORMATION OF ROCKS H

Shows the geological cycle and process of ever changing contents of the Earth which results in formation of rocks

B19028



VOLCANIC SYSTEM I

Shows different parameters how volcanoes take place & the hanging feature thereafter.

B19029



GLACIAL LANDSCAPE J

Shows landscape before and after glacial action

B19030



AIR & WATER POLLUTION K

Showing factors that cause pollution both in air and in water.

B19031





ORIGIN OF THE EARTH A

Shows various stages through which the earth was formed

B19032



FOLDS & FAULTS B

10 different figures of folds and faults

B19033

GEOGRAPHICAL/GEOLOGICAL MODELS

Unbreakable, Fibre Glass Models

B19034



ROCK CYCLE MODEL C

Shows coastal and mountain terrain in natural colour relief & cross section diagram of the substance of a typical volcano. Complete with lesson plan, size 60x45 cm

B19045



OCEAN FEATURES MODEL D

Relief map of North Atlantic Ocean showing typical portion of ocean floor. It is easy to identify all the major ocean features, complete with lesson plan, size 45 x 60 cm.

B19046

EARTH SCIENCE

LANDFORM MODEL E

For investigation of geographical and geological features. Eight landform models join to form a continuous model showing the mountains, lakes, rivers, deserts, glaciers, coastlines, canyons and cultural point, with lesson plan, size 90 x 90 cm.

B19048



COMPARATIVE TERRAIN MODEL F

Set of 2 landform models, each includes an overlay representing ancient mountain forms that can be removed and compared with the base model to show changes millions of years later. Cross section shows basic mountain types, volcanic fault block, glaciated domes and folded mountains, with lesson plan, size 45 x 60 cm.

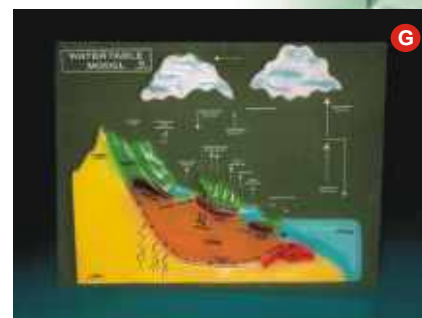
B19050



WATER TABLE MODEL G

Showing upper level of an underground surface in which soil or rock is permanently saturated with water. The water table separates the underground water zone from the capillary fringe or zone of aeration.

B19055



OPEN PIT MINE MODEL H

Open pit mining often results in a large hole, or pit being formed in the process of extracting a mineral. Deposits mined by open pit techniques are generally divided into horizontal layers called benches. The thickness of the benches depends on the type of deposit & the mineral being mined. Mining is generally conducted on a number of levels at any one time.

B19058





UNDERGROUND MINE MODEL (A)

Shows mining when any ore body lies at a considerable distance below the surface. The specific mining method selected depends upon the size, shape and orientation of the ore body and the depth involved.

B19060

ROCKS & MINERALS



ROCKS COLLECTION (B)

A comprehensive collection of igneous, metamorphic and sedimentary rocks, in wooden box, with partitioned tray containing 50 specimens, each nominally numbered and enclosed in a transparent plastics bag. Specimens may be removed from bags for detailed examination. Each specimen is labelled also on the inside of the box lid, indicating the geological name.

B19101



ROCK COLLECTION (C)

Set of 20 Igneous metamorphic and sedimentary rocks in wooden box with glass top

B19102



IGNEOUS ROCKS COLLECTION (D)

Set of 15 in wooden box with glass top.

B19103



SEDIMENTARY ROCKS COLLECTION (E)

Set of 15 in wooden show case with glass top.

B19105



METAMORPHIC ROCKS COLLECTION (F)

Set of 15 in wooden show case with glass top.

B19106

EARTH SCIENCE

MINERALS COLLECTION G

A quality collection of minerals, in wooden box, with partitioned tray containing 30 specimens, each numbered and enclosed in transparent plastics bag. Specimens may be removed from bags for detailed examination. Each specimen is labelled also on the inside of the box lid, indicating the geological name.

B19110



MINERALS COLLECTION H

As above but with 15 minerals

B19112



MINERALS COLLECTION

Set fo 50 In wooden show case with glass top

B19115

MINERALS COLLECTION I

Set of 24 minerals, in wooden show case with glass top

B19116



EARTHY MINERALS COLLECTION

A collection of earthy minerals in wooden show case, with 20 specimens. Each specimen is labelled indicating geological name.

B19120

ROCKS AND MINERALS COLLECTION J

A collection of different rocks and minerals, in wooden box, with containing 50 specimens. Each specimen is labelled.

B19130



ROCKS AND MINERALS COLLECTION

As above but with containing 24 specimen

B19132



GEOLOGICAL HAMMER (A)

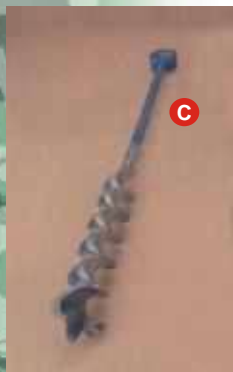
Student's,forge hardened steel with chisel head, hard wood handle, 450 gm
B19151



COLD CHISELS (B)

For geological specimen extraction. Set of six in plastic wallet comprising one each flat cold chisel 100x6mm 130x9.5 mm 150x13mm 180x16 mm 180x19 and, and one crosscut cold chisel 150x13 mm.

B19155



SOIL AUGER HELICAL (C)

Suitable for heavy soils, helix, 200mm long x 38 mm dia on stem, with eye for tommy bar, overall length 650 mm.

B19160



SOIL AUGER (D)

For withdrawing soil samples of consistent volume from a deep, continuous core. Cadmium plated sample cylinder with serrated cutting edge, with wooden handle.

B19162



SOIL AUGER (E)

For cutting solid cylindrical soil sample. Steel tube with cutting edges at lower end. An engraved index line ensures consistent volume of sample. With tommy bar, size 500x50 mm

B19165



SOIL THERMOMETER (F)

Range 0 to 110° c. comprises an aluminum tube, perforated at base, approximately 300x12 mm, with removable red alcohol filled thermometer.

B19170

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The wide range of  **supertek** products covers:

Physics Apparatus

Laboratory Apparatus

Medical Equipment

Laboratory Glasware





QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificate No: IQSC-222

Kvalitet Veritas Quality Assurance

This is to certify that the Quality Management System of

Shiv Dial Sud & Sons

23, Industrial Estate, Jagadhri Road, Ambala Cantt.-133006, India.

Has been found to the Quality Management System Standard

NS-EN ISO 9001:2000/ISO 9001:2000

**Manufacturers & Exporters of Laboratory Equipment & Consumables,
Microscopes, Hospital Equipment and Supplies.**

Valid until: 10, April, 2006

Date: 11, April, 2003

Issued by 
Authorised signatory KVQA

**The certification scope is accredited by the Norsk Akkreditering of
Norway with reference to the Parliamentary Proposition no 106
(1989/90) and Norsk Akkreditering's the status laid down in
Royal Decree of 7th October 1993**

Accredited by a member of IAF's MLA for Quality Systems

ISO/Capex Accredited, LSC, Major Winner, Delhi, India. Tel: 011-27711943, 27711941, email: kvqa@kvqa.com

Certificate of Export Recognition

Awarded to *M/s. Shiv Dial Sud & Sons, Ambala Cantt.* in recognition of their outstanding performance in the export of engineering goods, viz *Scientific Instruments* during the year 1970-71.

[Signature]
CHAIRMAN
ENGINEERING EXPORT PROMOTION COUNCIL
WORLD TRADE CENTRE
NEW DELHI
1972



**SHIV DIAL SUD & SONS, AMBALA CANTT
INSTRUMENTS - ALL TYPES PANEL - SSI**

In appreciation of
Outstanding Export Performance
for the year 1995-96
in the category of
Instruments *All Types Panel (SSSI)*
Engineering Export Promotion Council
(Northern Region)
is pleased to award

Certificate of Export Excellence

Awarded to *M/s. Shiv Dial Sud & Sons, Ambala Cantt.* in recognition of their outstanding performance in the export of engineering goods, viz *Scientific Instruments* during the year 1974-75.

[Signature]
D. K. Nair
Regional Manager
February 22, 1999

AWARDS FOR EXPORT EXCELLENCE (NORTHERN REGION 1999-2000) ENGINEERING EXPORT PROMOTION COUNCIL

M/s. SHIV DIAL SUD & Sons, Ambala Cantt. (Haryana)

have been awarded in recognition of their outstanding performance in the export of engineering goods, viz *Scientific Instruments* during the year 1974-75. *Certificate of Export Excellence* in the Category of Instruments - All types Panel - SSI in appreciation of their outstanding Export Performance during 1999-2000.



supertek

An ISO 9001:2000 Co.

SHIV DIAL SUD & SONS

Manufacturers & Exporters of Laboratory Equipment

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Fax : + 91-171-2699637/2699154 E-mail : shivsons@vsnl.com

Website : www.shivsons.com



Laboratory Glassware

2021

ISO 9001:2015 CERTIFIED COMPANY
ISO 17025:2005 ACCREDITED CALIBRATION LAB



COMPLETE SOURCE FOR YOUR ALL REQUIREMENTS OF
EDUCATIONAL & LABORATORY APPARATUS



PHYSICS



LAB SUPPLIES



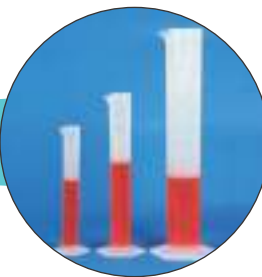
BIOLOGY & TEACHING AIDS



MICROSCOPES



LAB GLASSWARE



LAB PLASTICWARE

KINDLY ASK
FOR CATALOGUES

Shiv Dial Sud & Sons

23, Industrial Estate, Ambala Cantt. 133 006 (INDIA)

Tel : +91-171-2699297, 2699537, 2699903

E-mail: info@shivsons.com

www.supertekglassware.com

www.shivsons.com



Shiv Dial Sud & Sons

Corporate Profile



Founded in 1943, **SHIV DIAL SUD & SONS** are universally recognized as leading and reliable Manufacturer and Exporter of Laboratory Equipment and Glassware for use in Education, Health-care and Industry. We are exporting to more than sixty-five countries and have been repeatedly awarded by Government of India for our outstanding exports.

Our commitment to provide utmost precision products has resulted in our brand “**Supertek**” becoming synonymous with **Reliability, Trust & Quality** – values that also characterize our corporate philosophy.

With management consisting of Engineers and Scientists having combined experience extending to more than 75 years and a team dedicate to produce quality products with latest technologies. We specialize in providing high precision products at competitive prices. We also provide customized solutions are per client's requirement.

Our five manufacturing units have covered area of more than 100,000 sq. ft. and consist of CNC's & VMC's, Automats alongwith conventional machinery for standardized production. Our product range includes Teaching Aids, Laboratory Glassware and Supplies. This catalogue contains our Laboratory Glassware product range, catalogues for Physics, Chemistry and Lab supplies are available separately.

Supertek ventured into fabrication of laboratory glassware with a vision to provide superior quality glassware made according to International standards such as ISO, DIN & ASTM. Within a short span of time, we have set-up an independent 20,000 sq. ft. unit equipped with state of the art machinery like Automatic Volumetric calibration machines, Lehr Conveyer furnace for annealing, precision equipment for assessing glass-strain, Automatic Test tube making and printing machines alongwith many semi-automatic glass blowing machines.



With approximately 500+ standardized products, we offer our customers a wide range of Laboratory glassware. Our product range includes Volumetric Glassware, Inter-changeable Glassware, Condensers, General Labware, Glass Filtration Instruments, Glass Bottles and Tubes. We can also provide customized products depending upon customer requirement.

Glassware Unit



Manufacturing Infrastructure



Team of dedicated engineers guide skilled glass blowers working on Automatic & Semi-automatic machines to manufacture glassware products of different shapes and sizes as per International standards

Standardized products are produced using Low expansion Boro 3.3 Glass as per ISO 3585 and ASTM E-438 TYPE 1 CLASS A. The raw material is sourced from reputed suppliers all over the world. We are sufficiently stocked with raw material at any given time.



IV



We have a dedicated and experienced team of highly skilled Glass blowers ensuring standardized production of quality products.

All products manufactured by **Supertek** are annealed in Lehr conveyer furnace for producing strain free final products. Products are heated to precise annealing temperature and slowly cooled for a predefined period to ensure removal of all kinds of thermal stress and minimize chances of physical damage with change in temperature or mechanical shock.

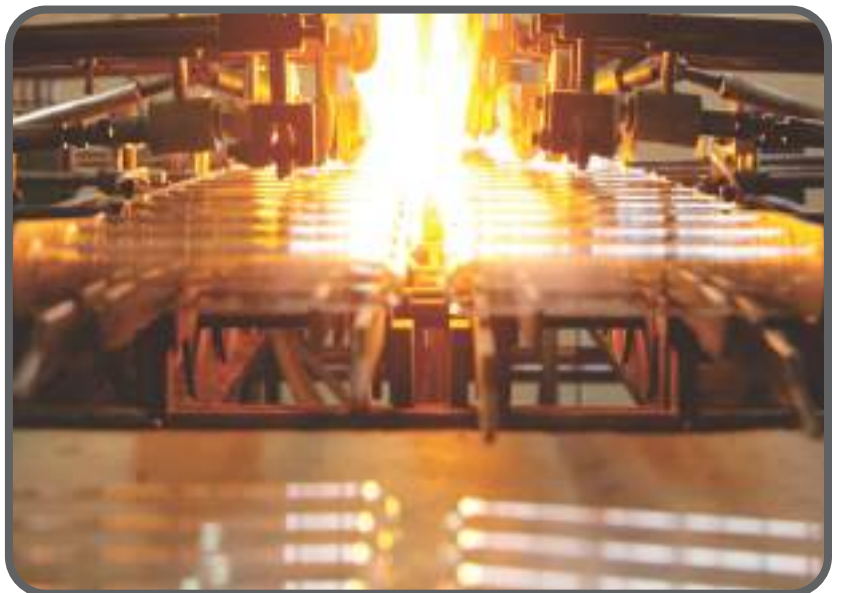


Ultrasonic washing machines are employed to ensure clean & clear products.



Delivering High volume products on time requires specialized equipment. Automatic printing machines are employed to handle production quantity of products with huge volume.

Automatic production machines are employed to handle large volume of Test tubes ensuring uniform wall thickness and strong rim.



Volumetric Calibration

Supertek brand volumetric products are precisely calibrated in controlled environment on state of the art Automatic Calibrated Machines and highly accurate Balances. These machines are tuned to deliver products with highest possible accuracy. These machines work with temperature control equipment to regulate changes in calibration with change in water temperature. Lasers are used to check water meniscus and marking is done with diamond tools requiring no human intervention.



ISO 17025:2005 Certificate

Supertek Calibration Laboratory has undertaken accreditation for calibration and testing as per ISO 17025:2005 from National Accreditation Board for testing and calibration Laboratory (NABL), which is an autonomous body under aegis of Department of Science & Technology, Government of India. NABL has a mutual recognition arrangement under the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and the International Laboratory Accreditation Cooperation (ILAC), which means the calibrated product provided to customers approved by NABL is acceptable in calibration laboratories worldwide.



List of such accreditation bodies worldwide is given on the next page.

List of Accreditation Bodies Worldwide

No.	Accreditation Body	Country
1	Organismo Argentina de Accreditation (OAA)	Argentina
2	National Association of Testing Authorities, Australia (NATA)	Australia
3	Bundersministerium fur Wirtschaft, Familie und Jugend (BMWA)	Austria
4	Belgian Accreditation Structure (BELAC)	Belgium
5	Coordenacao Geral deAcreditacao General Coordination for Accreditation (CGCRE/INMETRO)	Brazil
6	Standards Council of Canada (SCC)	Canada
7	Canadian Association for Laboratory Accreditation Inc. (CALA)	Canada
8	China National Accreditation Service for Conformity Assessment (CNAS)	People's Republic of China
9	Ente Costarricense de Accreditation (ECA)	Costa Richa
10	National Accreditation Body of Republic de Cuba (ONARc)	Cuba
11	Czech Accreditation Institute (CAI)	Czech Republic
12	Danish Accreditation (DANAK)	Denmark
13	Egyptian Accreditation Council (EGAC)	Egypt
14	Finnish Accreditation Service (FINAS)	Finland
15	Comite Francais d'Accreditation (COFRAC)	France
16	Deutsche Akkreditierungsstelle GmbH (DAKKS)	Germany
17	Hellenic Accreditation System S.A. (ESYD)	Greece
18	Oficina Guatemalteca de Accreditation (OGA)	Guatemala
19	Hong Kong Accreditation Services (HKAS)	Hong Kong China
20	National Accreditation Board for Testing and Calibration Laboratories (NABAL)	India
21	National Accreditation Body of Indonesia (KAN)	Indonesia
22	Irish National Accreditation Board (INAB)	Ireland
23	Israel Laboratory Accreditation Authority (ISRAC)	Israel
24	Silstema Italiano di Accreditamento (ACCREDIA)	Italy
25	Consorzio Pubblico per l'Accreditation (COPA)	Italy
26	Japan Accreditation Board for Conformity Assessment (JAB)	Japan
27	International Accreditation Japan (IAJapan)	Japan
28	Voluntary EMC Laboratory Accreditation Center INC (VLAC)	Japan
29	Korea Laboratory Accreditation Scheme (KOLAS)	Republic of Korea
30	Department of standards Malaysia (Standards Malaysia)	Malaysia
31	entidad Mexicana de acreditacion a.c. (ema)	Mexico
32	Dutch New Zealand Council (RvA)	The Netherlands
33	International Accreditation New Zealand (IANZ)	New Zealand
34	Norsk Akkreditering (NA)	Norway
35	Pakistan National Accreditation Council (PNAC)	Pakistan
36	Philippine Accreditation Office (PAO)	Philippines
37	Polish Center for Accreditation (PCA)	Poland
38	Instituto Portugues de Acreditacao (IPAC)	Portugal
39	Romanian Accreditation Association (RENAR)	Romania
40	Association of Analytical centers "Analitica" (AAC "Analitica")	Russian Federation

No.	Accreditation Body	Country
41	Singapore Accreditation Council (SAC)	Singapore
42	Slovak National Accreditation Service (SNAS)	Slovakia
43	Slovenian Accreditation (SA)	Slovenia
44	South African National Accreditation System (SANAS)	South Africa
45	Entidad Nacional deAcreditacion (ENAC)	Spain
46	Sri Lanka Accreditation Board for Conformity Assessment (SLAB)	Sri Lanka
47	Swedish Board for Accreditation and Conformity Assessment (SWEDAC)	Sweden
48	Swiss Accreditation Services (SAS)	Switzerland
49	Taiwan Accreditation Foundation (TAF)	Chinese Taipei
50	The Bureau of Laboratory Quality Standards, Department of Medical Science, Ministry of Public Health, Thailand (BLQSDMSc)	Thailand
51	National Standardization council of Thailand - Office of the National Accreditation Council (NSC - ONAC)	Thailand
52	Bureau of Laboratory Accreditation, Department of Science Services, Ministry of Science and Technology (BLA- DSS)	Thailand
53	Tunisian Thailand Council (TUNAC)	Tunisia
54	Turkish Accreditation Agency (TURKAK)	Turkey
55	Dubai Municipality-Accreditation Department (DAC)	United Arab Emirates
56	United Kingdom Accreditation Service (UKAS)	United Kingdom
57	American Association for Laboratory Accreditation (A2LA)	USA
58	National Voluntary Laboratory Accreditation Program (NVLAP)	USA
59	International Accreditation Service, Inc (IAS)	USA
60	ANSI-ASQ National Accreditation Board doing Business asACCLASS	USA
61	Laboratory Accreditation Bureau (L-A-B)	USA
62	Perry Johnson Laboratory Accreditation, Inc. (PJLA)	USA
63	American Society of Crime Laboratory Directors/ Laboratory Accreditation Board (ASCLD/LAB)	USA
64	Bureau of Accreditation (BoA)	Vietnam

Quality Assurance

Product quality directly depends on the quality of process. Quality control for **Supertek** products is employed in each stage of manufacturing process. This holistic view of quality assurance, involving all aspects of design, production, testing and packing ensures conformity with internal specifications as well as international standards. This is reflected in the approvals of ISO 9001:2008 & ISO17025 standard.



Quality Checks



Enamel Adhesion Check

Tests are carried out as per ISO 4794 to ensure that enamel does not rub-off even with repeated usage and stays consistent even after using in Laboratory Glassware washers.



Optical Clarity Check

Optical clarity of all the products manufactured is checked to ensure only clear glass products are supplied to all our users.



Leakage Check

All Stopcocks are checked for any form of leakage first individually and then post attachment to make sure that no apparatus supplied by **Supertek** leaks.



Residual Strain Check

Strain checking equipment (Polariscope) from one of the best manufacturer is used by Supertek to check for any residual strain in the products.



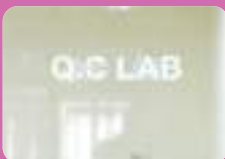
Dimensional Check

Measuring Instruments of high accuracy are used for inspection of each and every piece atleast TWICE!!



Joint Fitting Check

Dimensions and fitting of all sockets & cones are checked for proper taper ensuring zero leakage on use.



Calibration check

All Volumetric glassware are checked at our ISO 17025 certified Calibration Lab for accuracy

ISO 9001:2015 Certificate



CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

SHIV DIAL SUD & SONS

Main Site: Head office: 23, Industrial Estate, Jagadhri Road,
Ambala Cantt, Haryana, 133 006, India

See appendix for additional sites and additional site scopes

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

Head Office: Unit 23 – Design, Manufacture & Distribution of Scientific Instruments, Laboratory Equipment, Laboratory Glassware and Plastic ware.

Unit S4 - Manufacture of Laboratory Equipment and Microscopes.

Unit 88-89 - Design & Manufacture of Scientific Instruments and Laboratory Equipment.

Unit (333) - Manufacture of Laboratory Glassware.

Certificate Number:
0099257

Initial Certification Date:
26 February 2020

Date of Certification Decision:
04 March 2021

Issuing Date:
04 March 2021

Valid Until:
25 February 2023



Intertek

1054

Cliff Johnson

Calin Moldoveanu
President, Business Assurance

Intertek Certification Limited, 30A Victory Park,
 Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS
accredited body under schedule of
accreditation no. 0114



In the presence of this certificate, Interact assumes no liability to any party other than to the client, and this only in accordance with the agreed upon Definition agreement. This certificate validity is subject to the organization maintaining their system in accordance with Interact's requirements for system certification. Validity may be performed via email at certificates@interactdms.com or by scanning the code to the right with a smartphone. The certificate is not the property of Interact, its return is not to be required when requested.



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Volumetric Glassware

Supertek brand volumetric products are precisely calibrated in controlled environment to get very accurate determination and measurement of volumes. Supertek products are available in both class A and class B, calibrated on state of the art Automatic Calibration Machines.

Supertek Calibration Laboratory has undertaken accreditation for calibration and testing as per ISO 17025:2005 from National Accreditation Board for testing and calibration Laboratory (NABL), which is a autonomous body under aegis of Department of Science & Technology, Government of India. NABL has a mutual recognition arrangement under the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and the International Laboratory Accreditation Cooperation (ILAC), which means the calibrated product provided to customers approved by NABL is acceptable in calibration laboratories worldwide.



To order NABL certified products, replace the first two digits of catalogue no. by 33. For example

**BURETTE WITH STRAIGHT BORE MOULDED SCREW THREAD
GLASS STOPCOCK, CLASS A**

NABL Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Pack size
33.101.0010	22.101.0010	10	0.05	0.03	1
33.101.0025	22.101.0025	25	0.1	0.05	1

Supertek products are available with following certificates

Class A Batch Certificate

Batch Certificate contains Mean Value, standard deviation of the batch along with a batch number. Each products is printed with batch no. and same no. is mention on the certificate.

Class A Individual Certificate

Individual certificate is given with the product. Certified volume of the product and environmental conditions during calibration of the product are mentioned on the same. Each product is printed with Individual no. and certificate for same is provided with the product.

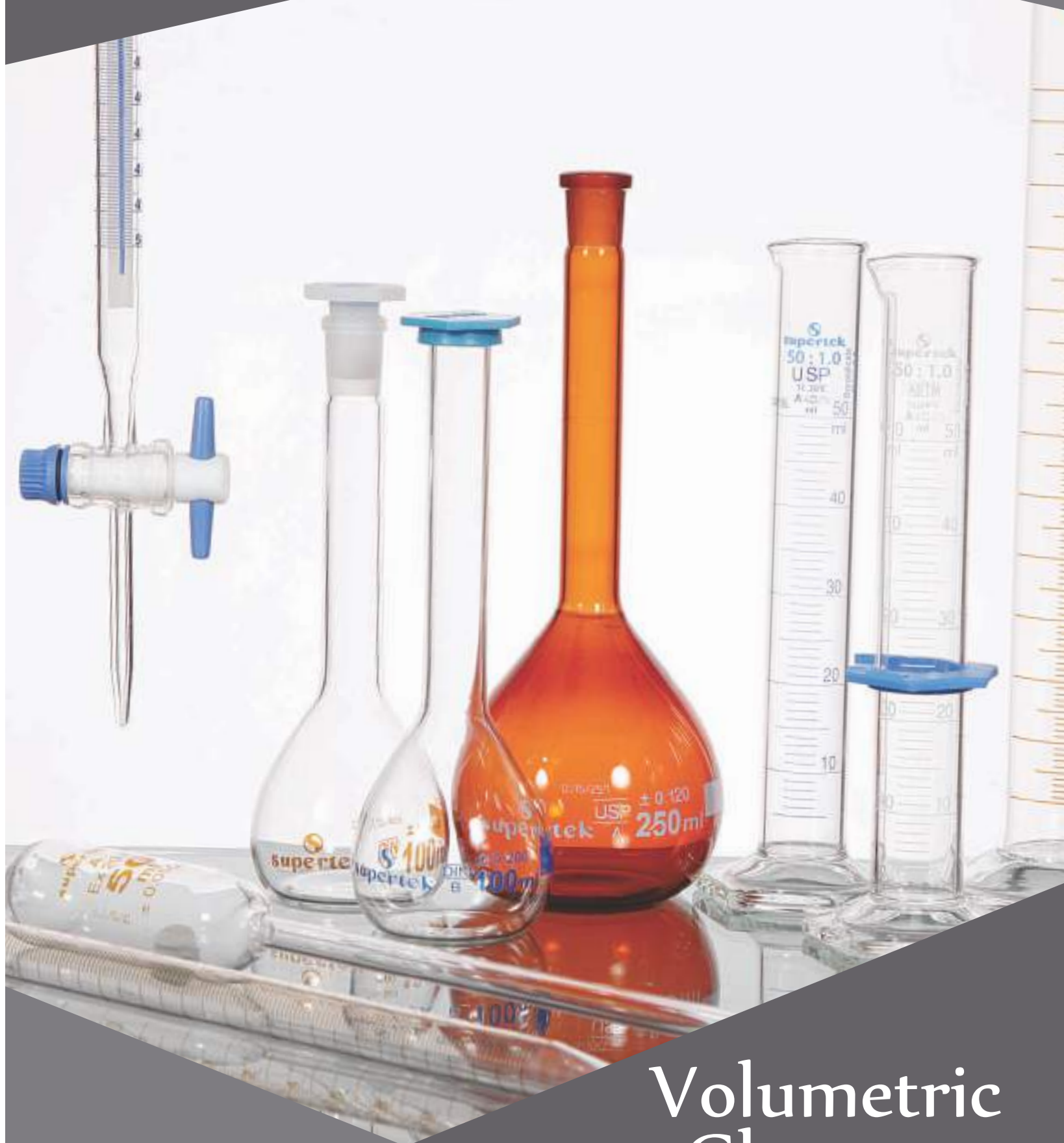
NABL Approved Class A Individual Certificate

Individual certificate which have been approved by **NABL** Certified Laboratory. Each product is printed with Individual no. and certificate for same is provided with the product.



Certificate No.
C-1108





Volumetric Glassware

www.supertekglassware.com

Burette

www.supertekglassware.com

Supertek brand burettes are manufactured from Low-expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass and DIN ISO 3585.

Each Pc. is Calibrated to deliver (Ex/TD) at + 20 °C reference temperature in controlled environment. Tolerances in volume conform to DIN ISO 385. The calibration also takes into account surface adhesion effects.

Precision Bore tubing is used for all Class A burettes. Burettes are available with conformity batch certificates and Individual certificate, which can be downloaded from www.supertekglassware.com Individual certificate is provided with the product. Batch certificate can also be provided with the product on request at extra cost.

Supertek brand burettes are graduated in blue. A class burettes have a waiting period of 30 seconds, B Class burettes don't have any waiting period.

Supertek brand burettes come with four different types of stopcocks; Glass Stopcock, PTFE Needle valve Stopcock, PTFE Key stopcock and Detachable Stopcock.

Burette With Straight Bore Moulded Screw Thread Glass Stopcock, Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Designed with straight bore stopcock that increases the life, compared to PTFE key stopcocks
- * The glass stopcock enhances control and enables smoother action
- * Printed in blue
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Pack size
11.101.0001	22.101.0001	1*	0.01	0.006	1
11.101.0002	22.101.0002	2*	0.01	0.01	1
11.101.0005	22.101.0005	5*	0.02	0.01	1
11.101.0010	22.101.0010	10	0.05	0.03	1
11.101.0025	22.101.0025	25	0.1	0.05	1
11.101.0050	22.101.0050	50	0.1	0.05	1
11.101.0100	22.101.0100	100	0.2	0.1	1



VOLUMETRIC GLASSWARE

Burette



Burette With Straight Bore PTFE Key Stopcock, Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Comes with PTFE key that is highly resistant to chemical attack
- * No need to lubricant it as PTFE key is used
- * Printed in blue
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Pack size
11.102.0010	22.102.0010	10	0.05	0.03	1
11.102.0025	22.102.0025	25	0.1	0.05	1
11.102.0050	22.102.0050	50	0.1	0.05	1
11.102.0100	22.102.0100	100	0.2	0.1	1



Best Seller

Burette With Screw Type, PTFE Needle Valve Stopcock (Rotaflo), Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Supplied with Rotaflo with PTFE key that is highly resistant to chemical attack
- * No need to lubricate it as PTFE key is used.
- * Printed in blue
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Pack size
11.103.0010	22.103.0010	10	0.05	0.03	1
11.103.0025	22.103.0025	25	0.1	0.05	1
11.103.0050	22.103.0050	50	0.1	0.05	1
11.103.0100	22.103.0100	100	0.2	0.1	1

Burette, With PTFE Detachable Stopcock, Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Comes with PTFE key that is highly resistant to chemical attack
- * No need to lubricant it as PTFE key is used
- * Printed in blue
- * Individual certificate is supplied with each product & is also available on website
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Pack size
11.104.0010	22.104.0010	10	0.05	0.03	1
11.104.0025	22.104.0025	25	0.1	0.05	1
11.104.0050	22.104.0050	50	0.1	0.05	1
11.104.0100	22.104.0100	100	0.2	0.1	1



Burette In Schellbach Stripe With Straight Bore Moulded Screw Thread Glass Stopcock, Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Designed with straight bore stopcock that increases the life, compared to PTFE key stopcocks
- * The glass stopcock enhances control and enables smoother action
- * Schellbach stripe printed in blue
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, \pm ml	Pack size
11.201.0010	22.201.0010	10	0.05	0.03	1
11.201.0025	22.201.0025	25	0.1	0.05	1
11.201.0050	22.201.0050	50	0.1	0.05	1
11.201.0100	22.201.0100	100	0.2	0.1	1



Burette In Schellbach Stripe With Straight Bore PTFE Key Stopcock, Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * Comes with PTFE key that is highly resistant to chemical attack
- * No need to lubricant it as PTFE key is used
- * Schellbach stripe printed in blue*
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, \pm ml	Pack size
11.202.0010	22.202.0010	10	0.05	0.03	1
11.202.0025	22.202.0025	25	0.1	0.05	1
11.202.0050	22.202.0050	50	0.1	0.05	1
11.202.0100	22.202.0100	100	0.2	0.1	1

Burette In Schellbach Stripe With Screw Type PTFE Needle Valve Stopcock (Rotaflo) Class A

- * Calibrated at 20°C
- * The volume content tolerances conform to Class A of ISO 385
- * Generally used in Titration process
- * No need to lubricant it as PTFE key is used
- * Supplied with Rotaflo with PTFE key that is highly resistant to chemical attack
- * Schellbach stripe printed in blue*
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, \pm ml	Pack size
11.203.0010	22.203.0010	10	0.05	0.03	1
11.203.0025	22.203.0025	25	0.1	0.05	1
11.203.0050	22.203.0050	50	0.1	0.05	1
11.203.0100	22.203.0100	100	0.2	0.1	1



Burette, Class B

- * Calibrated at 20°C
- * The volume content tolerances conform to Class B of ISO 385
- * Generally used in Titration process
- * Printed in blue

Glass Screw thread stopcock	PTFE Needle valve stopcock (Rotaflo)	PTFE key Stopcock	Detachable PTFE key stopcock	Capacity, ml	Sub-div., ml	Tolerance, (± ml)	Pack size
10.101.0010	10.103.0010	10.102.0010	10.104.0010	10	0.05	0.05	1*
10.101.0025	10.103.0025	10.102.0025	10.104.0025	25	0.1	0.1	1*
10.101.0050	10.103.0050	10.102.0050	10.104.0050	50	0.1	0.1	1*
10.101.0100	10.103.0100	10.102.0100	10.104.0100	100	0.2	0.2	1

* Rotaflo burettes have a pack size of 10.



Burette Schellbach, Class B

- * Calibrated at 20°C
- * The volume content tolerances conform to Class B of ISO 385
- * Generally used in Titration process
- * Schellbach stripe printed in blue

Glass Screw thread Stopcock	PTFE Needle Valve Stopcock (rotaflo)	PTFE key Stopcock	Capacity, ml	Sub-div.,	Tolerance, (± ml)	Pack size
10.201.0010	10.203.0010	10.202.0010	10	0.05	0.05	1*
10.201.0025	10.203.0025	10.202.0025	25	0.1	0.1	1*
10.201.0050	10.203.0050	10.202.0050	50	0.1	0.1	1*
10.201.0100	10.203.0100	10.202.0100	100	0.2	0.2	1

* Rotaflo burettes have a pack size of 10.





Burette Class B

- * Economy Model
- * Calibrated at 20°C
- * The volume content tolerances conform to Class B of ISO 385
- * Generally used in Titration process
- * Printed in blue

Straight-bore Glass Stopcock	Pinch Clip Burette	Capacity, ml	Sub-div.,	Tolerance, (± ml)	Pack size
10.105.0010	10.106.0010	10	0.05	0.05	1*
10.105.0025	10.106.0025	25	0.1	0.1	1*
10.105.0050	10.106.0050	50	0.1	0.1	1*
10.105.0100	10.106.0100	100	0.2	0.2	1

* Pinch Clip burettes have a pack size of 10.



Automatic Zero Burette

- * Complies with Class 'A' DIN ISO 385 Standard.
- * Mounted On A Reservoir With Stopcock And Rubber Bellow.
- * With automatic zero facility
- * Burettes manufactured from chemically resistant 3.3 borosilicate glass

With Intermediate stopcock PTFE key and Needle Valve Stopcock	Without intermediate stopcock	Capacity, ml	Sub-div.,	Tolerance, ± mL	Pack size
22.107.0010	22.108.0010	10	0.05	0.03	1
22.107.0025	22.108.0025	25	0.1	0.05	1
22.107.0050	22.108.0050	50	0.1	0.05	1
22.107.0100	22.108.0100	100	0.2	0.1	1



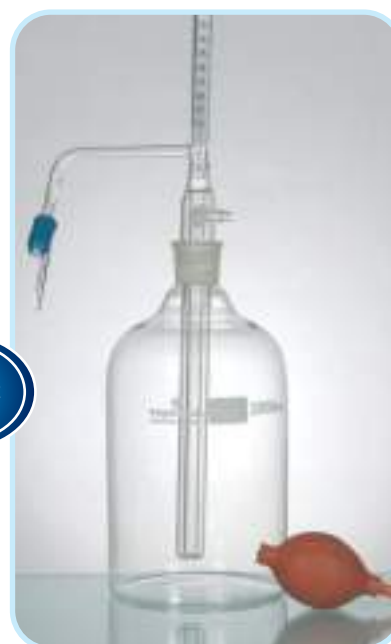
Automatic Zero Burette, Class A With Schellbach Stripe

- * Complies with Class 'A' DIN ISO 385 Standard
- * Mounted On A Reservoir With Stopcock And Rubber Bellow.
- * With automatic zero facility
- * Burettes manufactured from chemically resistant 3.3 borosilicate glass

With intermediate Stopcock PTFE Key and Needle Valve Stopcock	Without Intermediate Stopcock	Capacity, ml	Sub-div.,	Tolerance, (± ml)	Pack size
22.207.0010	22.208.0010	10	0.05	0.03	1
22.207.0025	22.208.0025	25	0.1	0.05	1
22.207.0050	22.208.0050	50	0.1	0.05	1
22.207.0100	22.208.0100	100	0.2	0.1	1



Shock Resistant Packing




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Lab Accessories



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Pipettes

www.supertekglassware.com

Supertek brand pipettes are manufactured from Low-expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass and DIN ISO 3585, unless otherwise specified.

These pipettes are manufactured in accordance to DIN ISO 835 standard for Graduated pipettes and DIN ISO 648 standard for Volumetric pipettes.

All pipettes are screen printed in durable amber color which fuses into the glass. Each product is color coded to facilitate easy identification.

These Pipettes are made from specially selected accurate bore glass tubing, have precision formed jets, bevel ground ends to resist chipping. Mouth piece of pipettes is also tooled for easy sucking and cotton plugging. Each Pipette Calibrated is to deliver (Ex, TD) at +20 °C reference temperature. The calibration also takes into account surface adhesion effects.

All A class pipettes have a waiting period of 5 seconds. Pipettes are available with conformity batch certificates and Individual certificate, which can be downloaded from www.supertekglassware.com Individual certificate is provided with the product. Batch certificate can also be provided with the product on request at extra cost.

Pipette Volumetric With One Mark, Bulb Type, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 648 Class A
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Color Code	Pack size
11.301.0001	22.301.0001	1	0.008	Blue	10
11.301.0002	22.301.0002	2	0.01	Orange	10
11.301.0005	22.301.0005	5	0.015	White	5
11.301.0010	22.301.0010	10	0.02	Red	5
11.301.0020	22.301.0020	20	0.03	Yellow	5
11.301.0025	22.301.0025	25	0.03	Blue	5
11.301.0050	22.301.0050	50	0.05	Red	5
11.301.0100	22.301.0100	100	0.08	Yellow	2

Pipette Volumetric With One Mark, Bulb Type, Class B

- * Calibrated at 20°C
- * Complies with ISO / DIN 648 Class A
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability

	Capacity, ml	Tolerance, ± ml	Color Code	Pack size
10.301.0001	1	0.015	Blue	10
10.301.0002	2	0.02	Orange	10
10.301.0005	5	0.03	White	5
10.301.0010	10	0.04	Red	5
10.301.0020	20	0.06	Yellow	5
10.301.0025	25	0.06	Blue	5
10.301.0050	50	0.1	Red	5
10.301.0100	100	0.15	Yellow	2



Pipette Graduated, Mohr Type, Color Coded, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 835 Class A
- * These pipettes are graduated for delivery from zero mark to the last graduation mark.
- * Sturdy, designed to last long usage
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Color Code	Pack size
11.302.0101	22.302.0101	0.1	0.01	0.006	White	10
11.302.0102	22.302.0102	0.2	0.01	0.006	Black	10
11.302.0001	22.302.0001	1	0.01	0.007	Yellow	10
11.302.0011	22.302.0011	1	0.1	0.007	Red	10
11.302.0002	22.302.0002	2	0.02	0.01	Black	10
11.302.0022	22.302.0022	2	0.1	0.01	Green	10
11.302.0005	22.302.0005	5	0.05	0.03	Red	10
11.302.0055	22.302.0055	5	0.1	0.03	Blue	10
11.302.0010	22.302.0010	10	0.1	0.05	Orange	10
11.302.0020	22.302.0020	20	0.2	0.1	Yellow	10
11.302.0025	22.302.0025	25	0.2	0.1	Green	10

Pipette Graduated Serological, Color Coded, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 835 Class A
- * These pipettes are graduated to the tip
- * Sturdy, designed to last long usage
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, ± ml	Color Code	Pack size
11.303.0101	22.303.0101	0.1	0.01	0.006	White	10
11.303.0102	22.303.0102	0.2	0.01	0.006	Black	10
11.303.0001	22.303.0001	1	0.01	0.007	Yellow	10
11.303.0011	22.303.0011	1	0.1	0.007	Red	10
11.303.0002	22.303.0002	2	0.02	0.01	Black	10
11.303.0022	22.303.0022	2	0.1	0.01	Green	10
11.303.0005	22.303.0005	5	0.05	0.03	Red	10
11.303.0055	22.303.0055	5	0.1	0.03	Blue	10
11.303.0010	22.303.0010	10	0.1	0.05	Orange	10
11.303.0020	22.303.0020	20	0.2	0.1	Yellow	10
11.303.0025	22.303.0025	25	0.2	0.1	Green	10

Pipette Graduated, Color Coded, Class B

- * Calibrated at 20°C
- * Complies with ISO / DIN 835
- * Sturdy, designed to last long usage
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability

Mohr type	Serological	Capacity, ml	Sub-div., ml	Tolerance, ±ml	Color Code	Pack size
10.302.0101	10.303.0101	0.1	0.01	0.01	White	10
10.302.0102	10.303.0102	0.2	0.01	0.01	Blue	10
10.302.0001	10.303.0001	1	0.01	0.01	Yellow	10
10.302.0011	10.303.0011	1	0.1	0.01	Red	10
10.302.0002	10.303.0002	2	0.02	0.02	Black	10
10.302.0022	10.303.0022	2	0.1	0.02	Green	10
10.302.0005	10.303.0005	5	0.05	0.05	Red	10
10.302.0055	10.303.0055	5	0.1	0.05	Blue	10
10.302.0010	10.303.0010	10	0.1	0.1	Orange	10
10.302.0020	10.303.0020	20	0.2	0.2	Yellow	10
10.302.0025	10.303.0025	25	0.2	0.2	Green	10



Volumetric Flasks

www.supertekglassware.com

Supertek brand Volumetric Flasks are made from Low-expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass and DIN ISO 3585 Standard. These flasks are calibrated on state of the art fully automatic Calibration machine.

This Flasks are manufactured in accordance to DIN ISO 1042 standard. All flasks are calibrated to contain (TC/In) at a +20 °C reference temperature. Total volume is marked with a circular graduation mark.

Flasks have a tooled neck suitable for standard ground stoppers. These are available with Polypropylene and Glass stoppers.

All "A" Class flasks are printed in amber color and "B" class in blue color. Available in Clear Glass and Amber Glass, these flasks have uniform thickness and accurate bore tubing used in the neck.

Volumetric Flasks are available with conformity batch certificates and Individual certificate, which can be downloaded from www.supertekglassware.com. Individual certificate is provided with the product. Batch certificate can also be provided with the product on request at extra cost.

Flask Volumetric, With Snap Cap, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042 Class A
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Amber enamel inscriptions
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Pack size
11.401.0050	22.401.0050	50	0.06	2
11.401.0100	22.401.0100	100	0.1	2
11.401.0200	22.401.0200	200	0.15	2
11.401.0250	22.401.0250	250	0.15	2
11.401.0500	22.401.0500	500	0.25	2
11.401.1000	22.401.1000	1000	0.4	2



Flask Volumetric With Polypropylene Stopper, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042 Class A
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Amber enamel inscriptions
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Stopper Size	Pack size
11.402.0005	22.402.0005	5	0.025	10/19	6
11.402.0010	22.402.0010	10	0.025	10/19	6
11.402.0020	22.402.0020	20	0.04	10/19	2
11.402.0025	22.402.0025	25	0.04	10/19	2
11.402.0050	22.402.0050	50	0.06	12/21	2
11.402.0100	22.402.0100	100	0.1	14/23	2
11.402.0200	22.402.0200	200	0.15	14/23	2
11.402.0250	22.402.0250	250	0.15	14/23	2
11.402.0500	22.402.0500	500	0.25	19/26	2
11.402.1000	22.402.1000	1000	0.4	24/29	2
11.402.2000	22.402.2000	2000	0.6	29/32	1
11.402.5000	22.402.5000	5000	1.2	34/35	1



VOLUMETRIC GLASSWARE

Flasks



Flask Volumetric, With Interchangeable Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042 Class A
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Amber enamel inscriptions
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Stopper Size	Pack size
11.403.0005	22.403.0005	5	0.025	10/19	6
11.403.0010	22.403.0010	10	0.025	10/19	6
11.403.0020	22.403.0020	20	0.04	10/19	2
11.403.0025	22.403.0025	25	0.04	10/19	2
11.403.0050	22.403.0050	50	0.06	12/21	2
11.403.0100	22.403.0100	100	0.1	14/23	2
11.403.0200	22.403.0200	200	0.15	14/23	2
11.403.0250	22.403.0250	250	0.15	14/23	2
11.403.0500	22.403.0500	500	0.25	19/26	2
11.403.1000	22.403.1000	1000	0.4	24/29	2
11.403.2000	22.403.2000	2000	0.6	29/32	1
11.403.5000	22.403.5000	5000	1.2	34/35	1



Flask Volumetric, Amber Glass With Polypropylene Stopper Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042 Class A
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * White enamel inscriptions
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Stopper Size	Pack size
11.404.0005	22.404.0005	5	0.025	10/19	6
11.404.0010	22.404.0010	10	0.025	10/19	6
11.404.0020	22.404.0020	20	0.04	10/19	2
11.404.0025	22.404.0025	25	0.04	10/19	2
11.404.0050	22.404.0050	50	0.06	12/21	2
11.404.0100	22.404.0100	100	0.1	14/23	2
11.404.0200	22.404.0200	200	0.15	14/23	2
11.404.0250	22.404.0250	250	0.15	14/23	2
11.404.0500	22.404.0500	500	0.25	19/26	2
11.404.1000	22.404.1000	1000	0.4	24/29	2
11.404.2000	22.404.2000	2000	0.6	29/32	1



Flask Volumetric, Amber Glass With Interchangeable Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042 Class A
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * White enamel inscriptions
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Stopper Size	Pack size
11.405.0005	22.405.0005	5	0.025	10/19	6
11.405.0010	22.405.0010	10	0.025	10/19	6
11.405.0020	22.405.0020	20	0.04	10/19	2
11.405.0025	22.405.0025	25	0.04	10/19	2
11.405.0050	22.405.0050	50	0.06	12/21	2
11.405.0100	22.405.0100	100	0.1	14/23	2
11.405.0200	22.405.0200	200	0.15	14/23	2
11.405.0250	22.405.0250	250	0.15	14/23	2
11.405.0500	22.405.0500	500	0.25	19/26	2
11.405.1000	22.405.1000	1000	0.4	24/29	2
11.405.2000	22.405.2000	2000	0.6	29/32	1

Flask Volumetric, Clear Glass Class B

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in blue color

Snap Cap	Polypropylene Stopper	interchangeable glass stopper	Capacity, ml	Tolerance, ± ml	Stopper Size	Pack size
	10.402.0005	10.403.0005	5	0.05	10/19	6
	10.402.0010	10.403.0010	10	0.05	10/19	6
	10.402.0020	10.403.0020	20	0.08	10/19	2
	10.402.0025	10.403.0025	25	0.08	10/19	2
10.401.0050	10.402.0050	10.403.0050	50	0.12	12/21	2
10.401.0100	10.402.0100	10.403.0100	100	0.2	14/23	2
10.401.0200	10.402.0200	10.403.0200	200	0.3	14/23	2
10.401.0250	10.402.0250	10.403.0250	250	0.3	14/23	2
10.401.0500	10.402.0500	10.403.0500	500	0.5	19/26	2
10.401.1000	10.402.1000	10.403.1000	1000	0.8	24/29	2
	10.402.2000	10.403.2000	2000	1.2	29/32	1
	10.402.5000	10.403.5000	5000	2.4	34/35	1



Dish Washer
Durable
Print

DIN ISO
1042

Flask Volumetric, Amber Glass, Class B

- * Calibrated at 20°C
- * Complies with ISO / DIN 1042
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * White enamel inscriptions

Polythene Stopper	With Glass Stopper	Capacity, ml	Tolerance, \pm ml	Stopper Size	Pack size
10.404.0005	10.405.0005	5	0.05	10/19	6
10.404.0010	10.405.0010	10	0.05	10/19	6
10.404.0020	10.405.0020	20	0.08	10/19	2
10.404.0025	10.405.0025	25	0.08	10/19	2
10.404.0050	10.405.0050	50	0.12	12/21	2
10.404.0100	10.405.0100	100	0.2	14/23	2
10.404.0200	10.405.0200	200	0.3	14/23	2
10.404.0250	10.405.0250	250	0.3	14/23	2
10.404.0500	10.405.0500	500	0.5	19/26	2
10.404.1000	10.405.1000	1000	0.8	24/29	2
10.404.2000	10.405.2000	2000	1.2	29/32	1



Flasks, Wide Mouth Volumetric With Interchangeable PP Stopper, Class A, With Batch Certificate

- * Complies with ISO / DIN 1042
- * Calibration at 20°C
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Specially designed wide mouth for testing bigger dia. Tablet without making it in powder
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance \pm ml	Stopper Size	Pack Size
11.410.0025	22.410.0025	25	0.06	12/21	2
11.410.0050	22.410.0050	50	0.1	14/23	2
11.410.0100	22.410.0100	100	0.15	19/26	2
11.410.0200	22.410.0200	200	0.2	19/26	2

* Not covered in the standards

Dish Washer
Durable
Print

DIN ISO
1042



Measuring Cylinders

www.supertekglassware.com

Supertek brand Cylinders are made from Low-expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass and DIN ISO 3585 Standard. These cylinders are calibrated on state of the art fully Automatic Calibration machine.

The cylinders are printed in durable amber stain as standard, which fuses into the glass. Each cylinder is calibrated as per DIN ISO 4788 standard and is calibrated to contain (In/TC) at a +20 °C reference temperature. Cylinders with graduation marks in blue and white enamel are also available on request.

The large hexagonal base in HEX-BASE Cylinders prevent it from rolling off a laboratory bench.

Measuring Cylinders are available with conformity batch certificates and Individual certificate, which can be downloaded from www.supertekglassware.com. Individual certificate is provided with the product. Batch certificate can also be provided with the product on request at extra cost.

Measuring Cylinder With Detachable Plastic Base & Protection Collar, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ml	Sub. Div. ± ml	Pack size
11.501.0005	22.501.0005	5	0.05	0.1	2
11.501.0010	22.501.0010	10	0.1	0.2	2
11.501.0025	22.501.0025	25	0.25	0.5	2
11.501.0050	22.501.0050	50	0.5	1	2
11.501.0100	22.501.0100	100	0.5	1	2
11.501.0250	22.501.0250	250	1	2	2
11.501.0500	22.501.0500	500	2.5	5	2
11.501.1000	22.501.1000	1000	5	10	1



ISO
17025

Dish Washer
Durable
Print

Retrace
Code

DIN ISO
4788

Measuring Cylinder With Round Glass Base, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub.-Div., ml	Pack size
11.502.0005	22.502.0005	5	0.05	0.1	2
11.502.0010	22.502.0010	10	0.1	0.2	2
11.502.0025	22.502.0025	25	0.25	0.5	2
11.502.0050	22.502.0050	50	0.5	1	2
11.502.0100	22.502.0100	100	0.5	1	2
11.502.0250	22.502.0250	250	1	2	2
11.502.0500	22.502.0500	500	2.5	5	2
11.502.1000	22.502.1000	1000	5	10	2
11.502.2000	22.502.2000	2000	10	20	1

Measuring Cylinder, With Hexagonal Glass Base, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub.-Div., ml	Pack size
11.504.0005	22.504.0005	5	0.05	0.1	2
11.504.0010	22.504.0010	10	0.1	0.2	2
11.504.0025	22.504.0025	25	0.25	0.5	2
11.504.0050	22.504.0050	50	0.5	1	2
11.504.0100	22.504.0100	100	0.5	1	2
11.504.0250	22.504.0250	250	1	2	2
11.504.0500	22.504.0500	500	2.5	5	2
11.504.1000	22.504.1000	1000	5	10	1
11.504.2000	22.504.2000	2000	10	20	1

Measuring Cylinder Accuracy As Per Class B

- * Calibrated at 20°C
- * Complies With DIN ISO 4788 Standard
- * Graduations in Amber enamel

With Plastic detachable base	Round glass base	Hexagonal base	Capacity ml	Tolerance ± ml	Sub. Div. ml	Pack size
10.501.0005	10.502.0005	10.504.0005	5	0.1	0.1	2
10.501.0010	10.502.0010	10.504.0010	10	0.2	0.2	2
10.501.0025	10.502.0025	10.504.0025	25	0.5	0.5	2
10.501.0050	10.502.0050	10.504.0050	50	1	1	2
10.501.0100	10.502.0100	10.504.0100	100	1	1	2
10.501.0250	10.502.0250	10.504.0250	250	2	2	2
10.501.0500	10.502.0500	10.504.0500	500	5	5	2
10.501.1000	10.502.1000	10.504.1000	1000	10	10	1*
10.501.2000	10.502.2000	10.504.2000	2000	20	20	1

*Pack of 2 in case of round base





Measuring Cylinder, With Hexagonal Base
And Interchangeable Polypropylene Stopper, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * Plastic stopper
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub. Div. ml	Pack size
11.505.0005	22.505.0005	5	0.05	0.1	2
11.505.0010	22.505.0010	10	0.1	0.2	2
11.505.0025	22.505.0025	25	0.25	0.5	2
11.505.0050	22.505.0050	50	0.5	1	2
11.505.0100	22.505.0100	100	0.5	1	2
11.505.0250	22.505.0250	250	1	2	2
11.505.0500	22.505.0500	500	2.5	5	2
11.505.1000	22.505.1000	1000	5	10	1
11.505.2000	22.505.2000	2000	10	20	1

Measuring Cylinder, With Hexagonal Glass Base
And Interchangeable Glass Stopper Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * Solid glass stopper
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub. Div. ml	Pack size
11.507.0005	22.507.0005	5	0.05	0.1	2
11.507.0010	22.507.0010	10	0.1	0.2	2
11.507.0025	22.507.0025	25	0.25	0.5	2
11.507.0050	22.507.0050	50	0.5	1	2
11.507.0100	22.507.0100	100	0.5	1	2
11.507.0250	22.507.0250	250	1	2	2
11.507.0500	22.507.0500	500	2.5	5	2
11.507.1000	22.507.1000	1000	5	10	1
11.507.2000	22.507.2000	2000	10	20	1





Measuring Cylinder, With Round Glass
Base And Interchangeable Polypropylene Stopper, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Plastic stopper
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub.-Div. ml	Pack Size
11.503.0005	22.503.0005	5	0.05	0.1	2
11.503.0010	22.503.0010	10	0.1	0.2	2
11.503.0025	22.503.0025	25	0.25	0.5	2
11.503.0050	22.503.0050	50	0.5	1	2
11.503.0100	22.503.0100	100	0.5	1	2
11.503.0250	22.503.0250	250	1	2	2
11.503.0500	22.503.0500	500	2.5	5	2
11.503.1000	22.503.1000	1000	5	10	2
11.503.2000	22.503.2000	2000	10	20	1

Measuring Cylinder With Round Glass Base
And Interchangable Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with Class 'A' DIN ISO 4788 Standard
- * Solid glass stopper
- * Graduations in Amber enamel
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, ± ml	Sub. Div. ml	Pack Size
11.506.0005	22.506.0005	5	0.05	0.1	2
11.506.0010	22.506.0010	10	0.1	0.2	2
11.506.0025	22.506.0025	25	0.25	0.5	2
11.506.0050	22.506.0050	50	0.5	1	2
11.506.0100	22.506.0100	100	0.5	1	2
11.506.0250	22.506.0250	250	1	2	2
11.506.0500	22.506.0500	500	2.5	5	2
11.506.1000	22.506.1000	1000	5	10	2
11.506.2000	22.506.2000	2000	10	20	1



Measuring Cylinder, With Stoppers, Class B

- * Calibrated at 20°C
- * Complies with DIN ISO 4788 Standard
- * Graduations in Amber enamel

With Hex Base and PP stopper	With Hex Base and glass stopper	With Round Base and PP stopper	With Round Base and glass stopper	Capacity, ml	Tolerance, ± ml	Sub.-Div. ml	Pack Size
10.505.0005	10.507.0005	10.503.0005	10.506.0005	5	0.1	0.1	2
10.505.0010	10.507.0010	10.503.0010	10.506.0010	10	0.2	0.2	2
10.505.0025	10.507.0025	10.503.0025	10.506.0025	25	0.5	0.5	2
10.505.0050	10.507.0050	10.503.0050	10.506.0050	50	1	1	2
10.505.0100	10.507.0100	10.503.0100	10.506.0100	100	1	1	2
10.505.0250	10.507.0250	10.503.0250	10.506.0250	250	2	2	2
10.505.0500	10.507.0500	10.503.0500	10.506.0500	500	5	5	2
10.505.1000	10.507.1000	10.503.1000	10.506.1000	1000	10	10	1*
10.505.2000	10.507.2000	10.503.2000	10.506.2000	2000	20	20	1

Pack of 2 in case of round base



Nessler Cylinder

For color comparison.

- * Calibrated at 20°C
- * Facilitates colour comparison of water samples
- * Manufactured from precision bore 3.3 borosilicate tubing selected for freedom from colour or visible defects
- * White enamel inscriptions

	Capacity, ml	Sub.-Div. ml	Tolerance, ± ml	Pack Size
11.508.0050	50	25	0.4	2
11.508.0100	100	50	0.8	2



Dish Washer
Durable
Print

DIN ISO
4788



Burettes

www.supertekglassware.com

ASTM

Supertek offers a range of volumetric glassware in conformity with ASTM Standards, manufactured from ASTM E 438 TYPE 1 CLASS 'A' BORO 3.3 GLASS.

Burette, With PTFE Key Stopcock, Class A

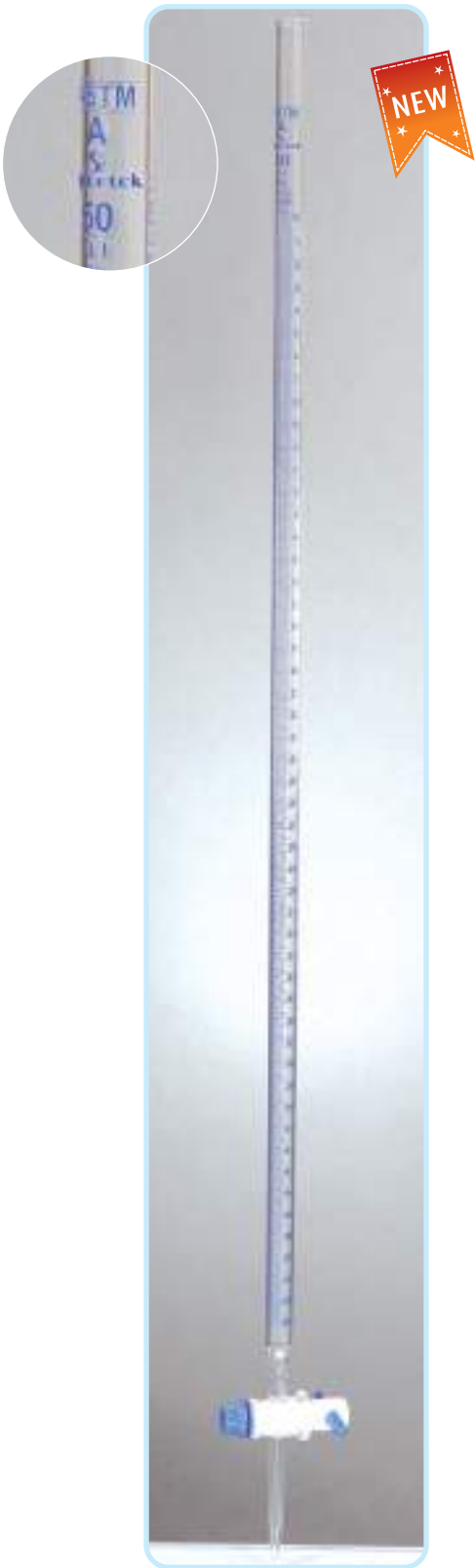
- * Calibrated at 20°C
- * Complies with class 'A' ASTM E 287 specifications
- * Generally used in Titration process
- * Comes with PTFE key that is highly resistant to chemical attack
- * No need to lubricant it as PTFE key is used
- * Printed in blue color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Grad Interval, ml	Tolerance, (± ml)	Pack Size
44.102.0010	46.102.0010	10	0.05	0.02	1
44.102.0025	46.102.0025	25	0.1	0.03	1
44.102.0050	46.102.0050	50	0.1	0.05	1
44.102.0100	46.102.0100	100	0.2	0.1	1

Burette, With PTFE Key Stopcock, Class B

- * Calibrated at 20°C
- * Complies with ASTM E 287 specifications
- * Generally used in Titration process
- * Comes with PTFE key that is highly resistant to chemical attack
- * No need to lubricant it as PTFE key is used
- * Printed in blue color

	Capacity, ml	Sub-div ml	Tolerance, (± ml)	Pack Size
48.102.0010	10	0.05	0.04	1
48.102.0025	25	0.1	0.06	1
48.102.0050	50	0.1	0.1	1



Pipettes

www.supertekglassware.com

Pipette Volumetric, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 969 specification
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Color coding band	Pack Size
44.301.0000	46.301.0000	0.5	0.006	2 BLACK	10
44.301.0001	46.301.0001	1	0.006	BLUE	10
44.301.0002	46.301.0002	2	0.006	ORANGE	10
44.301.0003	46.301.0003	3	0.01	BLACK	10
44.301.0004	46.301.0004	4	0.01	2 RED	5
44.301.0005	46.301.0005	5	0.01	WHITE	5
44.301.0006	46.301.0006	6	0.01	2 ORANGE	5
44.301.0007	46.301.0007	7	0.01	2 GREEN	5
44.301.0008	46.301.0008	8	0.02	BLUE	5
44.301.0009	46.301.0009	9	0.02	BLACK	5
44.301.0010	46.301.0010	10	0.02	RED	5
44.301.0015	46.301.0015	15	0.03	GREEN	5
44.301.0020	46.301.0020	20	0.03	YELLOW	5
44.301.0025	46.301.0025	25	0.03	BLUE	5
44.301.0030	46.301.0030	30	0.03	BLACK	5
44.301.0040	46.301.0040	40	0.05	WHITE	5
44.301.0050	46.301.0050	50	0.05	RED	5
44.301.0100	46.301.0100	100	0.08	YELLOW	1

Pipette, Volumetric Class B

- * Calibrated at 20°C
- * Complies with ASTM 969 specification
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability

	Capacity, ml	Tolerance, (± ml)	Color coding band	Pack Size
48.301.0000	0.5	0.012	2 BLACK	10
48.301.0001	1	0.012	BLUE	10
48.301.0002	2	0.012	ORANGE	10
48.301.0003	3	0.02	BLACK	10
48.301.0004	4	0.02	2 RED	5
48.301.0005	5	0.02	WHITE	5
48.301.0006	6	0.03	2 ORANGE	5
48.301.0007	7	0.03	2 GREEN	5
48.301.0008	8	0.04	BLUE	5
48.301.0009	9	0.04	BLACK	5
48.301.0010	10	0.04	RED	5
48.301.0015	15	0.06	GREEN	5
48.301.0020	20	0.06	YELLOW	5
48.301.0025	25	0.06	BLUE	5
48.301.0030	30	0.06	BLACK	5
48.301.0040	40	0.1	WHITE	5
48.301.0050	50	0.1	RED	5
48.301.0100	100	0.16	YELLOW	1





Graduated Pipettes (Mohr), Class A

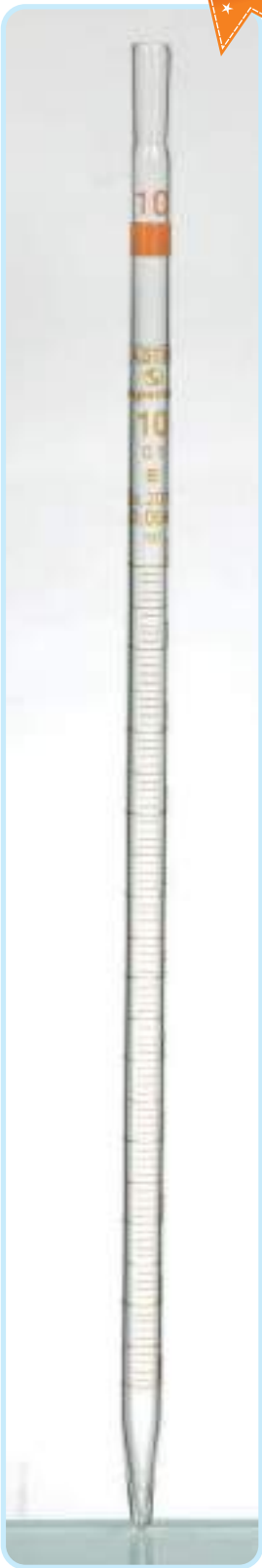
- * Calibrated at 20°C
- * Complies with ASTM E 1293 specifications
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * These pipettes are graduated for delivery from zero mark to the last graduation mark
- * Sturdy, designed to last long usage
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div. ml	Tolerance, (± ml)	Color coding band	Pack Size
44.302.0005	46.302.0005	0.1	0.01	0.0025	WHITE	10
44.302.0010	46.302.0010	0.2	0.01	0.004	BLACK	10
44.302.0015	46.302.0015	1	0.1	0.01	RED	10
44.302.0020	46.302.0020	1	0.01	0.01	YELLOW	10
44.302.0025	46.302.0025	2	0.1	0.01	GREEN	10
44.302.0030	46.302.0030	5	0.1	0.02	BLUE	10
44.302.0035	46.302.0035	10	0.1	0.03	ORANGE	10
44.302.0040	46.302.0040	25	0.1	0.05	WHITE	10

Graduated Pipettes (Mohr), Class B

- * Calibrated at 20°C
- * Complies with ASTM 1293 specifications
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * These pipettes are graduated for delivery from zero mark to the last graduation mark
- * Sturdy, designed to last long usage
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability

	Capacity, ml	Sub-div. ml	Tolerance, (± ml)	Color coding band	Pack Size
48.302.0005	0.1	0.01	0.005	WHITE	10
48.302.0010	0.2	0.01	0.008	BLACK	10
48.302.0015	1	0.1	0.02	RED	10
48.302.0020	1	0.01	0.02	YELLOW	10
48.302.0025	2	0.1	0.02	GREEN	10
48.302.0030	5	0.1	0.04	BLUE	10
48.302.0035	10	0.1	0.06	ORANGE	10
48.302.0040	25	0.1	0.1	WHITE	10





Graduated Pipette, Serological, Class A

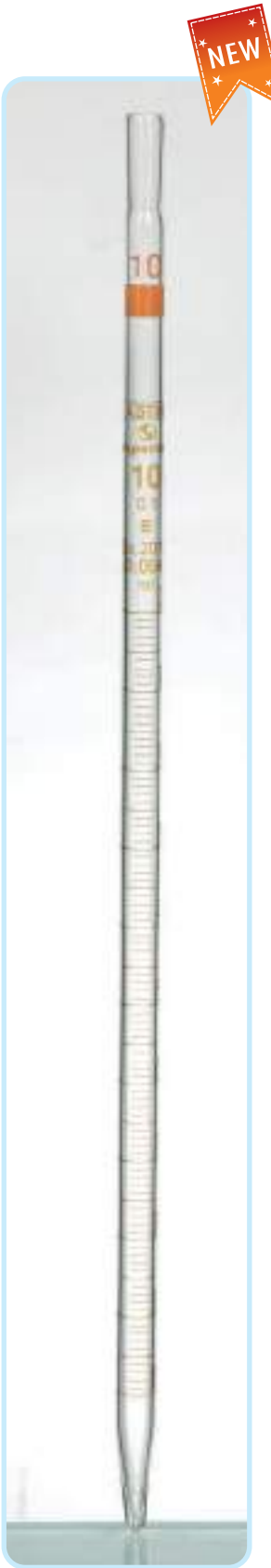
- * Calibrated at 20°C
- * Complies with ASTM E 1044 specifications
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * These pipettes are graduated to the tip
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div. ml	Tolerance, (± ml)	Color coding band	Pack Size
44.303.0005	46.303.0005	0.1	0.01	0.0025	WHITE	10
44.303.0010	46.303.0010	0.2	0.01	0.004	BLACK	10
44.303.0015	46.303.0015	1	0.1	0.01	RED	10
44.303.0020	46.303.0020	1	0.01	0.01	YELLOW	10
44.303.0025	46.303.0025	2	0.1	0.01	GREEN	10
44.303.0030	46.303.0030	5	0.1	0.02	BLUE	10
44.303.0035	46.303.0035	10	0.1	0.03	ORANGE	10
44.303.0040	46.303.0040	25	0.1	0.05	WHITE	10

Graduated Pipette (Serological), Class B

- * Calibrated at 20°C
- * Complies with ASTM 1044 specifications
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * These pipettes are graduated to the tip
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability

	Capacity, ml	Sub-div. ml	Tolerance, (± ml)	Color coding band	Pack Size
48.303.0005	0.1	0.01	0.005	WHITE	10
48.303.0010	0.2	0.01	0.008	BLACK	10
48.303.0015	1	0.1	0.02	RED	10
48.303.0020	1	0.01	0.02	YELLOW	10
48.303.0025	2	0.1	0.02	GREEN	10
48.303.0030	5	0.1	0.04	BLUE	10
48.303.0035	10	0.1	0.06	ORANGE	10
48.303.0040	25	0.1	0.1	WHITE	10





Volumetric Flasks

www.supertekglassware.com



Volumetric Flask, With Snap Cap, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Pack Size
44.401.0050	46.401.0050	50	0.05	2
44.401.0100	46.401.0100	100	0.08	2
44.401.0200	46.401.0200	200	0.10	2
44.401.0250	46.401.0250	250	0.12	2
44.401.0500	46.401.0500	500	0.20	2
44.401.1000	46.401.1000	1000	0.30	2
44.401.2000	46.401.2000	2000	0.50	1



VOLUMETRIC GLASSWARE

Flasks



Volumetric Flask, With Polypropylene Stopper Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.402.0005	46.402.0005	1	0.01	8	6
44.402.0010	46.402.0010	2	0.015	8	6
44.402.0015	46.402.0015	5	0.02	9	6
44.402.0025	46.402.0025	10	0.02	9	6
44.402.0035	46.402.0035	20	0.03	9	2
44.402.0045	46.402.0045	25	0.03	9	2
44.402.0055	46.402.0055	50	0.05	9	2
44.402.0065	46.402.0065	100	0.08	13	2
44.402.0075	46.402.0075	200	0.10	16	2
44.402.0085	46.402.0085	250	0.12	16	2
44.402.0095	46.402.0095	500	0.20	19	2
44.402.0100	46.402.0100	1000	0.30	22	2
44.402.0105	46.402.0105	2000	0.50	27	1
44.402.0110	46.402.0110	4000	1.20	38	1

Volumetric Flask With PTFE Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.410.0005	46.410.0005	1	0.01	8	6
44.410.0010	46.410.0010	2	0.015	8	6
44.410.0015	46.410.0015	5	0.02	9	6
44.410.0025	46.410.0025	10	0.02	9	6
44.410.0035	46.410.0035	20	0.03	9	2
44.410.0045	46.410.0045	25	0.03	9	2
44.410.0055	46.410.0055	50	0.05	9	2
44.410.0065	46.410.0065	100	0.08	13	2
44.410.0075	46.410.0075	200	0.10	16	2
44.410.0085	46.410.0085	250	0.12	16	2
44.410.0095	46.410.0095	500	0.20	19	2
44.410.0100	46.410.0100	1000	0.30	22	2
44.410.0105	46.410.0105	2000	0.50	27	1
44.410.0110	46.410.0110	4000	1.20	38	1



Amber Volumetric Flask, With Penny Head Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.412.0005	46.412.0005	1	0.01	8	6
44.412.0010	46.412.0010	2	0.015	8	6
44.412.0015	46.412.0015	5	0.02	9	6
44.412.0025	46.412.0025	10	0.02	9	6
44.412.0035	46.412.0035	20	0.03	9	2
44.412.0045	46.412.0045	25	0.03	9	2
44.412.0055	46.412.0055	50	0.05	9	2
44.412.0065	46.412.0065	100	0.08	13	2
44.412.0075	46.412.0075	200	0.10	16	2
44.412.0085	46.412.0085	250	0.12	16	2
44.412.0095	46.412.0095	500	0.20	19	2
44.412.0100	46.412.0100	1000	0.30	22	2
44.412.0105	46.412.0105	2000	0.50	27	1



Amber Volumetric Flask, With PTFE Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.414.0005	46.414.0005	1	0.01	8	6
44.414.0010	46.414.0010	2	0.015	8	6
44.414.0015	46.414.0015	5	0.02	9	6
44.414.0025	46.414.0025	10	0.02	9	6
44.414.0035	46.414.0035	20	0.03	9	2
44.414.0045	46.414.0045	25	0.03	9	2
44.414.0055	46.414.0055	50	0.05	9	2
44.414.0065	46.414.0065	100	0.08	13	2
44.414.0075	46.414.0075	200	0.10	16	2
44.414.0085	46.414.0085	250	0.12	16	2
44.414.0095	46.414.0095	500	0.20	19	2
44.414.0100	46.414.0100	1000	0.30	22	2
44.414.0105	46.414.0105	2000	0.50	27	1



VOLUMETRIC GLASSWARE

Flasks



Filter Papers



For more details log on to www.shivsons.com



Volumetric Flask-ASTM, Wide Mouth Heavy Duty, With PP Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.420.0005	46.420.0005	5	0.02	13	1
44.420.0010	46.420.0010	10	0.02	13	1
44.420.0020	46.420.0020	20	0.04	13	1
44.420.0025	46.420.0025	25	0.03	13	1
44.420.0030	46.420.0030	30	0.03	13	1
44.420.0050A	46.420.0050A	50	0.05	13	1
44.420.0050B	46.420.0050B	50	0.05	19	1
44.420.0100	46.420.0100	100	0.08	16	1
44.420.0150	46.420.0150	150	0.08	16	1
44.420.0200	46.420.0200	200	0.1	19	1
44.420.0250	46.420.0250	250	0.12	19	1
44.420.0300	46.420.0300	300	0.12	19	1
44.420.0400	46.420.0400	400	0.2	19	1
44.420.0500	46.420.0500	500	0.2	19	1
44.420.0750	46.420.0750	750	0.2	22	1
44.420.0900	46.420.0900	900	0.3	22	1
44.420.1000	46.420.1000	1000	0.3	22	1
44.420.1500	46.420.1500	1500	0.3	27	1
44.420.2000	46.420.2000	2000	0.5	27	1
44.420.4000	46.420.4000	4000	1	38	1





Volumetric Flask-ASTM, Wide Mouth Heavy Duty, With Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.424.0005	46.424.0005	5	0.02	13	1
44.424.0010	46.424.0010	10	0.02	13	1
44.424.0020	46.424.0020	20	0.04	13	1
44.424.0025	46.424.0025	25	0.03	13	1
44.424.0030	46.424.0030	30	0.03	13	1
44.424.0050A	46.424.0050A	50	0.05	13	1
44.424.0050B	46.424.0050B	50	0.05	19	1
44.424.0100	46.424.0100	100	0.08	16	1
44.424.0150	46.424.0150	150	0.08	16	1
44.424.0200	46.424.0200	200	0.1	19	1
44.424.0250	46.424.0250	250	0.12	19	1
44.424.0300	46.424.0300	300	0.12	19	1
44.424.0400	46.424.0400	400	0.2	19	1
44.424.0500	46.424.0500	500	0.2	19	1
44.424.0750	46.424.0750	750	0.2	22	1
44.424.0900	46.424.0900	900	0.3	22	1
44.424.1000	46.424.1000	1000	0.3	22	1
44.424.1500	46.424.1500	1500	0.3	27	1
44.424.2000	46.424.2000	2000	0.5	27	1
44.424.4000	46.424.4000	4000	1	38	1



Volumetric Flask-ASTM Amber, Wide Mouth Heavy Duty, With PP Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.430.0005	46.430.0005	5	0.02	13	1
44.430.0010	46.430.0010	10	0.02	13	1
44.430.0020	46.430.0020	20	0.04	13	1
44.430.0025	46.430.0025	25	0.03	13	1
44.430.0050	46.430.0050	50	0.05	13	1
44.430.0100	46.430.0100	100	0.08	16	1
44.430.0200	46.430.0200	200	0.1	19	1
44.430.0250	46.430.0250	250	0.12	19	1
44.430.0400	46.430.0400	400	0.2	19	1
44.430.0500	46.430.0500	500	0.2	19	1
44.430.0700	46.430.0700	750	0.2	22	1
44.430.0900	46.430.0900	900	0.3	22	1
44.430.1000	46.430.1000	1000	0.3	22	1
44.430.2000	46.430.2000	2000	0.5	27	1



Volumetric Flask-ASTM Amber, Wide Mouth Heavy Duty, With Glass Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.434.0005	46.434.0005	5	0.02	13	1
44.434.0010	46.434.0010	10	0.02	13	1
44.434.0020	46.434.0020	20	0.04	13	1
44.434.0025	46.434.0025	25	0.03	13	1
44.434.0050	46.434.0050	50	0.05	13	1
44.434.0100	46.434.0100	100	0.08	16	1
44.434.0200	46.434.0200	200	0.1	19	1
44.434.0250	46.434.0250	250	0.12	19	1
44.434.0400	46.434.0400	400	0.2	19	1
44.434.0500	46.434.0500	500	0.2	19	1
44.434.0700	46.434.0700	750	0.2	22	1
44.434.0900	46.434.0900	900	0.3	22	1
44.434.1000	46.434.1000	1000	0.3	22	1
44.434.2000	46.434.2000	2000	0.5	27	1

Volumetric Flask-ASTM, Wide Mouth Heavy Duty, With PTFE Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.428.0005	46.428.0005	5	0.02	13	1
44.428.0010	46.428.0010	10	0.02	13	1
44.428.0020	46.428.0020	20	0.04	13	1
44.428.0025	46.428.0025	25	0.03	13	1
44.428.0030	46.428.0030	30	0.03	13	1
44.428.0050A	46.428.0050A	50	0.05	13	1
44.428.0050B	46.428.0050B	50	0.05	19	1
44.428.0100	46.428.0100	100	0.08	16	1
44.428.0150	46.428.0150	150	0.08	16	1
44.428.0200	46.428.0200	200	0.1	19	1
44.428.0250	46.428.0250	250	0.12	19	1
44.428.0300	46.428.0300	300	0.12	19	1
44.428.0400	46.428.0400	400	0.2	19	1
44.428.0500	46.428.0500	500	0.2	19	1
44.428.0750	46.428.0750	750	0.2	22	1
44.428.0900	46.428.0900	900	0.3	22	1
44.428.1000	46.428.1000	1000	0.3	22	1
44.428.1500	46.428.1500	1500	0.3	27	1
44.428.2000	46.428.2000	2000	0.5	27	1



ASTM



Volumetric Flask-ASTM Amber, Wide Mouth Heavy Duty, With PTFE Stopper, Class A

- * Calibrated at 20°C
- * Complies with ASTM E 288 specifications
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Batch Certificate	Individual Certificate	Capacity, ml	Tolerance, (± ml)	Stopper size	Pack Size
44.438.0005	46.438.0005	5	0.02	13	1
44.438.0010	46.438.0010	10	0.02	13	1
44.438.0020	46.438.0020	20	0.04	13	1
44.438.0025	46.438.0025	25	0.03	13	1
44.438.0050	46.438.0050	50	0.05	13	1
44.438.0100	46.438.0100	100	0.08	16	1
44.438.0200	46.438.0200	200	0.1	19	1
44.438.0250	46.438.0250	250	0.12	19	1
44.438.0400	46.438.0400	400	0.2	19	1
44.438.0500	46.438.0500	500	0.2	19	1
44.438.0700	46.438.0700	750	0.2	22	1
44.438.0900	46.438.0900	900	0.3	22	1
44.438.1000	46.438.1000	1000	0.3	22	1
44.438.2000	46.438.2000	2000	0.5	27	1

Measuring Cylinders

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Measuring Cylinder Graduated, Hex Base, TC Class A

- * Calibrated at 20°C
- * Complies with ASTM E 1272 specifications
- * Calibrated to contain (TC, IN)
- * With bumper guard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * With double metric scale, printed in white color

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance (± ml)	Pack Size
44.504.0010	46.504.0010	10	0.2	0.1	2
44.504.0025	46.504.0025	25	0.5	0.17	2
44.504.0050	46.504.0050	50	1	0.25	2
44.504.0100	46.504.0100	100	1	0.5	2
44.504.0250	46.504.0250	250	2	1	2
44.504.0500	46.504.0500	500	5	2	2
44.504.1000	46.504.1000	1000	10	3	1
44.504.2000	46.504.2000	2000	20	6	1

Measuring Cylinder Graduated, Hex Base, TD Class A

- * Calibrated at 20°C
- * Complies with ASTM E 1272 specifications
- * Calibrated to deliver (TD, Ex)
- * With Bumper guard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * With double metric scale, printed in white color

Batch Certificate	Individual Certificate	Capacity, ml	Sub-div., ml	Tolerance, (± ml)	Pack Size
44.510.0010	46.510.0010	10	0.2	0.1	2
44.510.0025	46.510.0025	25	0.5	0.17	2
44.510.0050	46.510.0050	50	1	0.25	2
44.510.0100	46.510.0100	100	1	0.5	2
44.510.0250	46.510.0250	250	2	1	2
44.510.0500	46.510.0500	500	5	2	2
44.510.1000	46.510.1000	1000	10	3	1
44.510.2000	46.510.2000	2000	20	6	1



Measuring Cylinder Graduated, Hex Base, TC Class B

- * Calibrated at 20°C
- * Complies with ASTM E 1272 specifications
- * Calibrated to contain (TC, IN)
- * With bumper guard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * With double metric scale, printed in white color

	Capacity, ml	Sub-div., ml	Tolerance, (± ml)	Pack Size
48.504.0010	10	0.2	0.2	2
48.504.0025	25	0.5	0.34	2
48.504.0050	50	1	0.50	2
48.504.0100	100	1	1	2
48.504.0250	250	2	2	2
48.504.0500	500	5	4	2
48.504.1000	1000	10	6	1
48.504.2000	2000	20	12	1

Measuring Cylinder Graduated, Hex Base, TD Class B

- * Calibrated at 20°C
- * Complies with ASTM E 1272 specifications
- * Calibrated to delivery (TD, Ex)
- * With bumper guard
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * With double metric scale, printed in white color

	Capacity, ml	Sub-div., (ml)	Tolerance, (± ml)	Pack Size
48.510.0010	10	0.2	0.2	2
48.510.0025	25	0.5	0.34	2
48.510.0050	50	1	0.50	2
48.510.0100	100	1	1	2
48.510.0250	250	2	2	2
48.510.0500	500	5	4	2
48.510.1000	1000	10	6	1
48.510.2000	2000	20	12	1





USP

Companies producing pharmaceutical products for the USA market are supervised by Food and Drug Administration (FDA) and have to meet the requirements of the USP (United States Pharmacopeia). The USP standard has some deviation from DIN/ISO standards and covers following products

- * Volumetric Pipettes
- * Measuring Pipettes
- * Measuring Cylinder
- * Volumetric Flasks

Supertek brand USP glassware has tolerances as mentioned in USP requirement, however may not meet all detailed in constructions as mentioned in USP requirement. All Supertek USP glassware comes with a permanents identification number and individual conformity certificate, which is provided with the apparatus. These are manufactured from ASTM E-438 TYPE 1 CLASS A BORO 3.3 GLASS.

Volumetric Pipettes One Mark ,class A

- * Calibrated at 20°C
- * Complies with USP Standard
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Printed in amber color
- * [Batch certificate is available on our website](#)
- * [A calibration certificate is provided with each Individual certified product & same is available on our website](#)

Individual Certificate	Capacity, ml	Color code	Tolerance, (+ml)	Pack Size
50.301.0000	0.5	2 BLACK	0.006	10
50.301.0001	1	BLUE	0.006	10
50.301.0002	2	ORANGE	0.006	10
50.301.0003	3	BLACK	0.01	10
50.301.0004	4	2 RED	0.01	5
50.301.0005	5	WHITE	0.01	5
50.301.0006	6	2 ORANGE	0.01	5
50.301.0007	7	2 GREEN	0.01	5
50.301.0008	8	BLUE	0.02	5
50.301.0009	9	BLACK	0.02	5
50.301.0010	10	RED	0.02	5
50.301.0015	15	GREEN	0.03	5
50.301.0020	20	YELLOW	0.03	5
50.301.0025	25	BLUE	0.03	5
50.301.0030	30	BLACK	0.03	5
50.301.0040	40	WHITE	0.05	5
50.301.0050	50	RED	0.05	5
50.301.0100	100	YELLOW	0.08	2



Graduated Pipettes Serological, Class A, Type 3

- * Calibrated at 20°C
- * Complies with USP Standard
- * Calibrated for delivery (TD, Ex)
- * Generally used for accurate measurement and decanting of liquid
- * Markings are made in permanent amber stain diffused into the surface of the glass for better visibility and durability
- * Printed in amber color
- * Batch certificate is available on our website
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Individual Certificate	Capacity, ml	Color code	Tolerance, (+ml)	Pack Size
50.303.0005	0.1	WHITE	0.01	10
50.303.0010	0.2	BLACK	0.01	10
50.303.0015	1	YELLOW	0.01	10
50.303.0020	2	BLACK	0.01	10
50.303.0025	5	RED	0.02	10
50.303.0030	10	ORANGE	0.03	10
50.303.0035	25	WHITE	0.05	10





Volumetric Flask Clear Glass, With Polypropylene Stopper, Class A

- * Calibrated at 20°C
- * Complies with USP Standard
- * Calibrated to contain (TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Individual Certificate	Capacity, ml	Socket size	Tolerance, (+ml)	Pack Size
50.402.0005	5	10/19	0.02	6
50.402.0010	10	10/19	0.02	6
50.402.0020	20	10/19	0.03	2
50.402.0025	25	10/19	0.03	2
50.402.0050	50	12/21	0.05	2
50.402.0100	100	14/23	0.08	2
50.402.0200	200	14/23	0.10	2
50.402.0250	250	14/23	0.12	2
50.402.0500	500	19/26	0.15	2
50.402.1000	1000	24/29	0.30	2
50.402.2000	2000	29/32	0.50	1



Volumetric Flask Amber Glass, With Polypropylene Stopper, Class A

- * Calibrated at 20°C
- * Complies with USP Standard
- * Calibrated to contain(TC, IN)
- * Manufactured from 3.3 borosilicate glass for corrosion-free performance
- * Printed in white color
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Individual Certificate	Capacity, ml	Socket size	Tolerance, (+ml)	Pack Size
50.404.0005	5	10/19	0.02	6
50.404.0010	10	10/19	0.02	6
50.404.0020	20	10/19	0.03	2
50.404.0025	25	10/19	0.03	2
50.404.0050	50	12/21	0.05	2
50.404.0100	100	14/23	0.08	2
50.404.0200	200	14/23	0.10	2
50.404.0250	250	14/23	0.12	2
50.404.0500	500	19/26	0.15	2
50.404.1000	1000	24/29	0.30	2
50.404.2000	2000	29/32	0.50	1





Measuring Cylinder With Hexagonal Base, Class A

- * Calibrated at 20°C
- * Complies with USP Standard
- * Calibrated to contain (TC, IN)
- * Sturdy hexagonal base prevents roll-over and ensures greater stability
- * Printed in blue color
- * A calibration certificate is provided with each Individual certified product & same is available on our website

Individual Certificate	Capacity, ml	Sub-div. ml	Tolerance, (+ml)	Pack Size
50.504.0010	10	0.2	0.10	2
50.504.0025	25	0.5	0.15	2
50.504.0050	50	1.0	0.25	2
50.504.0100	100	1.0	0.50	2
50.504.0250	250	2.0	1.00	2
50.504.0500	500	5.0	1.50	2
50.504.1000	1000	10.0	3.00	1
50.504.2000	2000	20.0	6.00	1

Notes

[illegible]



Interchangeable Glassware

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Interchangeable Glassware

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INTERCHANGEABLE GLASSWARE

Joints



Socket Single, Medium Length

Conformity to ISO 383/DIN 12249 Standards.

	Socket size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.101.0005	7/16	10	120±10	12
14.101.0010	10/19	13	120±10	12
14.101.0015	12/21	16	120±10	12
14.101.0020	14/23	18	120±10	12
14.101.0025	19/26	22	120±15	12
14.101.0030	24/29	28	120±15	12
14.101.0035	29/32	32	120±15	12
14.101.0040	34/35	38	120±15	12
14.101.0045 *	40/38	45	120±15	12
14.101.0050	45/40	50	120±15	12
14.101.0055 *	50/42	55	120±15	12
14.101.0060 *	55/44	60	120±15	12

*Non DIN size

Cone Single, Medium Length

Conformity to ISO 383/DIN 12249 Standards.

	Cone size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.104.0005	7/16	6	120±10	12
14.104.0010	10/19	8	120±10	12
14.104.0015	12/21	9	120±10	12
14.104.0020	14/23	13	120±10	12
14.104.0025	19/26	16	120±15	12
14.104.0030	24/29	22	120±15	12
14.104.0035	29/32	26	120±15	12
14.104.0040	34/35	30	120±15	12
14.104.0045 *	40/38	36	120±15	12
14.104.0050	45/40	40	120±15	12
14.104.0055 *	50/42	45	120±15	12
14.104.0060 *	55/44	50	120±15	12

*Non DIN size



Cone With Tip, Medium Length

Conformity to ISO 383/DIN 12249 Standards.

	Cone size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.108.0005	7/16	6	120±10	12
14.108.0010	10/19	8	120±10	12
14.108.0015	12/21	9	120±10	12
14.108.0020	14/23	13	120±10	12
14.108.0025	19/26	16	125±10	12
14.108.0030	24/29	22	135±15	12
14.108.0035	29/32	26	135±15	12
14.108.0040	34/35	30	150±15	12
14.108.0045 *	40/38	36	135±15	12
14.108.0050	45/40	40	150±15	12
14.108.0055 *	50/42	45	150±15	12
14.108.0060 *	55/44	50	150±15	12

*Non DIN size





ASTM
E-676

Socket, Full Length Single

Conformity to ASTM E-676 Standard.

	Socket size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.112.0005	7/25	10	120±10	12
14.112.0010	10/30	13	120±10	12
14.112.0015	12/32	16	120±10	12
14.112.0020	14/35	18	120±10	12
14.112.0025	19/38	22	125±10	12
14.112.0030	24/40	28	135±15	12
14.112.0035	29/42	32	135±15	12
14.112.0040	34/45	38	150±15	12
14.112.0045	45/50	50	150±15	12

Cone, Full Length

Conformity to ASTM E-676 Standard.

	Cone size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.116.0010	7/25	6	120±10	12
14.116.0015	10/30	8	120±10	12
14.116.0020	12/32	10	120±10	12
14.116.0025	14/35	13	120±10	12
14.116.0030	19/38	16	120±10	12
14.116.0035	24/40	22	150±15	12
14.116.0040	29/42	26	150±15	12
14.116.0045	34/45	30	150±15	12
14.116.0050	45/50	40	150±15	12

ASTM
E-676



ISO
383

DIN
12249

Socket, Double (One At Each End)

Conformity to ISO 383/DIN 12249 Standards.

	Socket size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.120.0005 *	7/16	11	135±2	12
14.120.0010 *	10/19	14	135±2	12
14.120.0015	14/23	18	135±2	12
14.120.0020	19/26	22	140±2	12
14.120.0025	24/29	28	170±5	12
14.120.0030	29/32	32	170±5	12
14.120.0040	34/35	38	180±5	12

*Non DIN size



ISO 383

Cone, Double (One At Each End)

Conformity to ISO 383/DIN 12249 Standards.

	Cone size	Approx. o.d. of tube, mm	Total length, mm	Pack Size
14.124.0005 *	10/19	8	90±5	12
14.124.0010	14/23	13	90±5	12
14.124.0015	19/26	16	90±5	12
14.124.0020	24/29	22	110±10	12
14.124.0025	29/32	26	110±10	12
14.124.0030	34/35	30	120±10	12

*Non DIN size

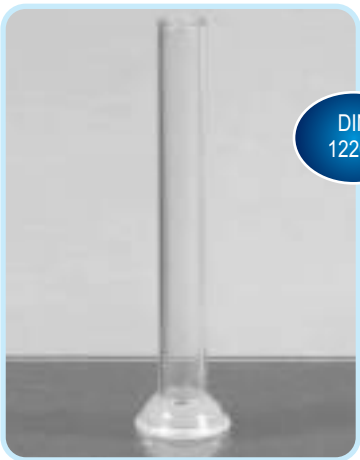
Spherical Joint, Ball

Conformity to DIN 12264 Standards.

	Cup joint male	Min. Shank length, mm	Pack Size
14.128.0010	S13	100	12
14.128.0015	S19	100	12
14.128.0020	S29	100	12
14.128.0025	S35	100	12



DIN 12264



DIN 12264

Spherical Joint, Cup

Conformity DIN 12264 Standards.

	Cup joint female	Min. Shank length, mm	Pack Size
14.132.0010	S13	100	12
14.132.0015	S19	100	12
14.132.0020	S29	100	12
14.132.0025	S35	100	12



Joint Clip, Metal

Manufactured from corrosion resistant stainless steel metal.
Used for retaining of spherical joints.

	To fit spherical joint size	Pack Size
14.136.0005	S13	10
14.136.0010	S19	10
14.136.0015	S29	10
14.136.0020	S35	10



Joint Clip, PP

Autoclavable

	To fit Conical joint size	Pack Size
14.140.0005	14/23	100
14.140.0010	19/26	100
14.140.0015	24/29	100
14.140.0020	29/32	100
14.140.0025	34/35	50



Stoppers

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Stopper, Hollow, Hexagonal Head

Conformity to DIN 12252 Standard.

Flat Bottom	Bottom with tip	Cone Size	Pack Size
14.201.0005	14.202.0005	10/19	12
14.201.0010	14.202.0010	12/21	12
14.201.0015	14.202.0015	14/23	12
14.201.0020	14.202.0020	19/26	12
14.201.0025	14.202.0025	24/29	12
14.201.0030	14.202.0030	29/32	12
14.201.0035	14.202.0035	34/35	12



DIN 12252

INTERCHANGEABLE GLASSWARE

Stoppers



Stopper, Solid Penny Or Flat Head

	Cone Size	Pack Size
14.204.0005	10/19	12
14.204.0010	14/23	12
14.204.0015	19/26	12
14.204.0020	24/29	12
14.204.0025 *	29/32	12
14.204.0030 *	34/35	12

*Non DIN size

Solid, Penny Head Glass Stoppers

	Stopper No.	Pack Size
14.206.0005	13	12
14.206.0010	16	12
14.206.0015	19	12
14.206.0020	22	12
14.206.0025	27	12





Polypropylene Stopper, Hexagonal. White & Blue

Conformity to DIN 12254 Standard.

	Cone Size	Pack Size
14.208.0005	10/19	100
14.208.0010	12/21	100
14.208.0015	14/23	100
14.208.0020	19/26	100
14.208.0025	24/29	50
14.208.0030	29/32	50
14.208.0040 *	34/35	50

*Non DIN size

Reduction Adapter

Conformity to DIN 12257 Standard.

	Socket size	Cone size	Pack Size
14.301.0005 *	14/23	14/23	12
14.301.0010	14/23	19/26	12
14.301.0015 *	14/23	24/29	12
14.301.0020	14/23	29/32	12
14.301.0025	19/26	24/29	12
14.301.0030	19/26	29/32	12
14.301.0035	19/26	34/35	12
14.301.0040	19/26	40/38	12
14.301.0045	19/26	45/40	12
14.301.0050	19/26	55/44	12
14.301.0055 *	24/29	29/32	12
14.301.0060 *	24/29	34/35	12
14.301.0065 *	24/29	40/38	12
14.301.0070 *	24/29	45/40	12
14.301.0075 *	24/29	50/42	12
14.301.0080 *	24/29	55/44	12
14.301.0085	29/32	34/35	12
14.301.0090	29/32	40/38	12
14.301.0095	29/32	45/40	12
14.301.0100 *	34/35	40/38	12
14.301.0105 *	34/35	45/40	12
14.301.0110 *	34/35	50/42	12

*Non DIN size





Expansion Adapter

Conformity to DIN 12257 Standard.

	Socket size	Cone size	Pack Size
14.304.0005	19/26	14/23	12
14.304.0010 *	24/29	14/23	12
14.304.0015 *	24/29	19/26	12
14.304.0020	29/32	14/23	12
14.304.0025	29/32	19/26	12
14.304.0030 *	29/32	24/29	12
14.304.0035 *	34/35	19/26	12
14.304.0040 *	34/35	24/29	12
14.304.0045 *	34/35	29/32	12
14.304.0050 *	40/38	24/29	12
14.304.0055 *	45/40	29/32	12

*Non DIN size

Bushing Adapters. With Drip Tip

	Socket size	Cone Size	Pack Size
14.308.0005	14/23	19/26	25
14.308.0010	19/26	29/32	25



Multiple Adapter. With Two Necks Parallel

Conformity to DIN 12594.

	Socket size	Cone size	Pack Size
14.312.0005	14/23	14/23	1
14.312.0010 *	14/23	19/26	1
14.312.0015	19/26	19/26	1
14.312.0020 *	19/26	24/29	1
14.312.0025 *	24/29	24/29	1
14.312.0030 *	19/26	34/35	1
14.312.0035	29/32	29/32	1

*Non DIN size



Multiple Adapter, With Two Necks, One Vertical & One At 45°

	Socket size	Cone size	Pack Size
14.316.0005	14/23	14/23	1
14.316.0010	14/23	19/26	1
14.316.0015	14/23	24/29	1
14.316.0020	19/26	19/26	1
14.316.0025	19/26	24/29	1
14.316.0030	14/23	29/32	1
14.316.0035	29/32	29/32	1

Multiple Adapter, With Three Necks, Two Parallel & One At 45°

	Vertical Socket size	Inclined Socket size	Cone size	Pack Size
14.320.0005	19/26	19/26	19/26	1
14.320.0010	19/26	19/26	24/29	1
14.320.0015	14/23	14/23	29/32	1
14.320.0020	19/26	19/26	29/32	1
14.320.0025	29/32	29/32	29/32	1
14.320.0030	24/29	24/29	24/29	1



Swan Neck Adapter With Screw Thread, For Use With Thermometer Or Air Leak Tube

	Socket size	Cone size	Pack Size
14.324.0005	14/23	19/26	1
14.324.0010	19/26	19/26	1
14.324.0015	19/26	24/29	1
14.324.0020	24/29	24/29	1
14.324.0025	29/32	29/32	1



Conical/spherical Adapter - Socket To Ball

	Socket size	Ball size	Pack Size
14.328.0005	19/26	S29	10
14.328.0010	24/29	S35	10

Conical/spherical Adapter - Cone To Cup

	Cone size	Cup Size	Pack Size
14.332.0005	19/26	S29	10
14.332.0010	24/29	S35	10



Receiver Delivery Adapter - Short Stem

	Socket size	Approx. Length, mm	Pack Size
14.336.0005	14/23	65	4
14.336.0010	19/26	65	4
14.336.0015	24/29	65	4
14.336.0020	29/32	65	4



Receiver Delivery Adapter - Long Stem

	Socket size	Approx. Length, mm	Pack Size
14.340.0005	14/23	190	4
14.340.0010	19/26	200	4
14.340.0015	24/29	200	4
14.340.0020	29/32	200	4

Receiver Adapter - Straight Delivery

	Socket size	Pack Size
14.344.0005	14/23	10
14.344.0010	19/26	10
14.344.0015	24/29	10
14.344.0020	29/32	10



Receiver Adapter - Plain Bend

	Socket size	Cone size	Pack Size
14.348.0005	14/23	14/23	1
14.348.0010	14/23	19/26	1
14.348.0015	19/26	19/26	1
14.348.0020	19/26	24/29	1
14.348.0025	24/29	24/29	1
14.348.0030	29/32	29/32	1



Receiver Adapter - Bend With Vent

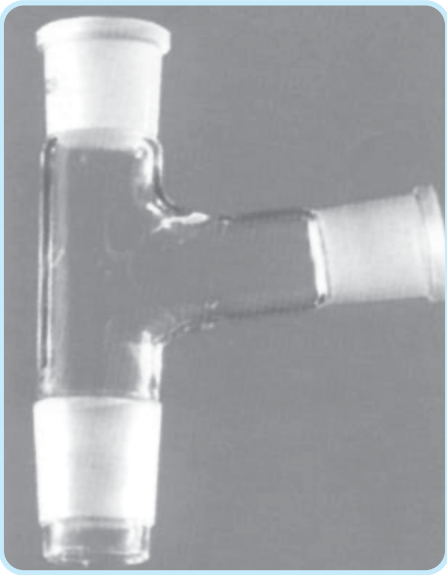
	Socket size	Cone size	Pack Size
14.352.0005	14/23	14/23	1
14.352.0010	19/26	19/26	1
14.352.0015	19/26	24/29	1
14.352.0020	24/29	24/29	1
14.352.0025	29/32	29/32	1

Receiver Adapter With Vacuum Connection

In conformity to DIN 12594

Bend type	Straight type	Socket size	Cone size	Pack Size
14.355.0005	14.356.0005	14/23	14/23	1
14.355.0010*	14.356.0010*	14/23	19/26	1
14.355.0015	14.356.0015	19/26	19/26	1
14.355.0020*	14.356.0020*	19/26	24/29	1
14.355.0025*	14.356.0025*	24/29	24/29	1
14.355.0030*	14.356.0030*	24/29	29/32	1
14.355.0035	14.356.0035	29/32	29/32	1

*Non DIN



Receiver Adapter, Socket To Cone, With Vertical Socket

	Socket size	Cone size	Pack Size
14.360.0005	14/23	14/23	1
14.360.0010	19/26	19/26	1
14.360.0015	19/26	24/29	1
14.360.0020	24/29	24/29	1
14.360.0025	29/32	29/32	1

Receiver Adapter, With Multiple Connection

	Socket Size	Cone Size	Pack Size
14.364.0005	14/23	14/23	1
14.364.0010	14/23	19/26	1
14.364.0015	19/26	19/26	1



Recovery Bend, Sloping

	Cone Size to fit flask	Cone Size to fit condenser	Pack Size
14.368.0005	14/23	14/23	1
14.368.0010	24/29	14/23	1
14.368.0015	19/26	19/26	1
14.368.0020	24/29	19/26	1
14.368.0025	29/32	19/26	1
14.368.0030	29/32	29/32	1
14.368.0035	24/29	24/29	1
14.368.0040	34/35	24/29	1
14.368.0045	29/32	24/29	1
14.368.0050	34/35	34/35	1

Recovery Bend, Vertical

	Cone Size to fit flask	Cone Size to fit condenser	Pack Size
14.372.0005	14/23	14/23	1
14.372.0010	19/26	19/26	1
14.372.0015	24/29	19/26	1
14.372.0020	24/29	24/29	1
14.372.0025	29/32	29/32	1



Still Head, Plain With Thermometer Socket

	Socket Size	Cone Size to fit flask	Cone Size to fit condenser	Pack Size
14.376.0005	14/23	14/23	14/23	1
14.376.0010	14/23	19/26	19/26	1
14.376.0015	14/23	24/23	19/26	1
14.376.0020	14/23	29/32	19/26	1
14.376.0025	14/23	34/35	19/26	1
14.376.0030	14/23	24/29	24/29	1
14.376.0035	14/23	34/35	24/29	1
14.376.0040	14/23	29/32	24/29	1
14.376.0045	14/23	29/32	29/32	1
14.376.0050	14/23	34/35	29/32	1



Claisen Head, Sloping, With Two 14/23 Sockets

	Socket Size	Cone Size to fit flask	Cone Size to fit condenser	Pack Size
14.380.0005	14/23	14/23	14/23	1
14.380.0010	14/23	19/26	19/26	1
14.380.0015	14/23	24/29	19/26	1
14.380.0020	14/23	24/29	24/29	1
14.380.0025	14/23	29/32	29/32	1
14.380.0030	14/23	34/35	24/29	1

Splash Head Adapter, Pear Shape, Straight

	Socket to fit flask	Cone to fit condenser	Pack Size
14.384.0005	14/23	14/23	1
14.384.0010	19/26	24/29	1
14.384.0015	29/32	29/32	1





Splash Head, Pear Shape, Vertical

	Cone to fit flask	Cone to fit condenser	Pack Size
14.388.0005	14/23	14/23	1
14.388.0010	19/26	19/26	1
14.388.0015	24/29	19/26	1
14.388.0020	24/29	24/29	1
14.388.0025	29/32	29/32	1

Splash Head, Pear Shape, Sloping

	Cone to fit flask	Cone to fit condenser	Pack Size
14.392.0005	14/23	14/23	1
14.392.0010	19/26	19/26	1
14.392.0015	24/29	19/26	1
14.392.0020	24/29	24/29	1
14.392.0025	29/32	29/32	1



Steam Distillation Head, Sloping

	Cone to fit flask	Cone to fit condenser	Pack Size
14.396.0005	24/29	19/26	1
14.396.0010	34/35	19/26	1
14.396.0015	34/35	24/29	1



Adapter, Cone To Flexible Tubing Right Angle Connection With Screw Thread

STRAIGHT B	RIGHT ANGLE A	Socket	Pack Size
14.399.0005	14.400.0005	14/23	1
14.399.0010	14.400.0010	19/26	1
14.399.0015	14.400.0015	24/29	1
14.399.0020	14.400.0020	29/32	1

Adapter, Cone To Flexible Tubing, Straight Connection With Glass Stopcock

	Cone	Pack Size
14.404.0005	14/23	1
14.404.0010	19/26	1
14.404.0015	24/29	1
14.404.0020	29/32	1

(Also available with PTFE key & Needle Valve stopcock on request. Please ask for Prices)



Adapter, Cone To Flexible Tubing, Right Angle Connection With Glass Stopcock

	Cone	Pack Size
14.408.0005	14/23	1
14.408.0010	19/26	1
14.408.0015	24/29	1
14.408.0020	29/32	1

(Also available with PTFE key & Needle Valve stopcock on request. Please ask for Prices)

Adapter, Socket To Flexible Tubing, Straight Connection With Glass Stopcock

	Socket	Pack Size
14.412.0005	14/23	1
14.412.0010	19/26	1
14.412.0015	24/29	1
14.412.0020	29/32	1

(Also available with PTFE key & Needle Valve stopcock on Request. Please ask for Prices)



Adapter, Socket To Flexible Tubing, Right Angle Connection With Glass Stopcock

	Socket	Pack Size
14.416.0005	14/23	1
14.416.0010	19/26	1
14.416.0015	24/29	1
14.416.0020	29/32	1

(Also available with PTFE key & Needle Valve stopcock on Request. Please ask for Prices)



Adapter, Cone With Stem To Flexible Tubing Right Angle Connection

	Socket	Pack Size
14.420.0005	14/23	1
14.420.0010	19/26	1
14.420.0015	24/29	1
14.420.0020	29/32	1

Adapter, Socket To Flexible Tubing Straight Connection

	Socket Size	Pack Size
14.424.0005	14/23	1
14.424.0010	19/26	1
14.424.0015	24/29	1
14.424.0020	29/32	1



Adapter, Socket To Cone With Side Arm And Screw Thread

	Socket size	Cone size	Pack Size
14.428.0005	14/23	14/23	1
14.428.0010	14/23	19/26	1
14.428.0015	14/23	24/29	1
14.428.0020	14/23	29/32	1
14.428.0025	19/26	19/26	1
14.428.0030	19/26	24/29	1
14.428.0035	19/26	29/32	1
14.428.0040	24/29	24/29	1
14.428.0045	24/29	29/32	1
14.428.0050	29/32	29/32	1



U Tube With Two Sockets

	Socket Size	Pack Size
14.432.0005	14/23	10
14.432.0010	19/26	10

Drying Tube

	Cone Size	Pack Size
14.436.0005	14/23	10
14.436.0010	19/26	10
14.436.0015	24/29	10
14.436.0020	29/32	10



Thermometer Pocket

	Cone Size	Approx Stem Length, mm	Pack Size
14.440.0005	14/23	45	10
14.440.0010	19/26	45	10

Air Leak Tube/Gas Inlet Tube

	Cone Size	Pack Size
14.444.0005	14/23	10
14.444.0010	19/26	10
14.444.0015	24/29	10
14.444.0020	29/32	10



Adapter Cone Screw Thread

	To fit stirrer	Cone Size	Pack Size
14.448.0005	6 mm	14/23	10
14.448.0010	6 mm	19/26	10
14.448.0015	6 mm	24/29	10
14.448.0020	6 mm	29/32	10



NEW

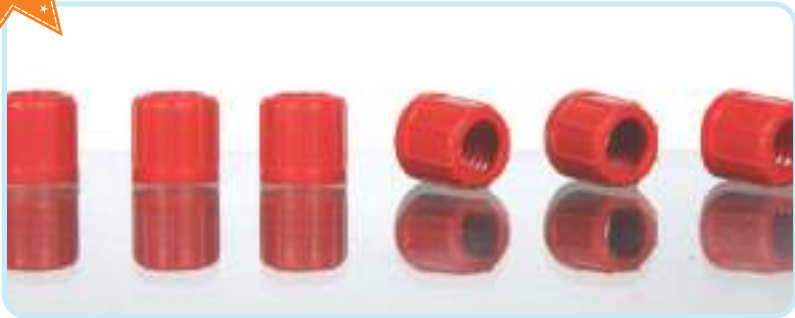
Plastic Hose Connectors

	Thread GL	Type	Pack Size
14.452.01	14	Straight	100

Screw Thread Cap

	Thread GL	Type	Pack Size
14.454.01	14	Straight	100

NEW




supertek[®]



Condensers
www.supertekglassware.com

Condensers

www.supertekglassware.com

Supertek brand condensers are manufactured from low-expansion Boro 3.3 Glass as per ASTM E-438 Type-1 standard and DIN ISO 3585. These condensers have a standard taper joint with drip tip.

A condenser is used to facilitate the cooling of hot vapors and liquids. It consists of a bigger glass tube, containing a smaller glass tube running through its length. Hot liquids pass through this smaller glass tube.

Usually, the outer glass tube has two tube connections to aid the passing of a coolant (usually water or anti-freeze mixture). The coolant goes inside through the lower connection, while the upper connection serves as the outlet

Multiple condensers may be connected in a series.

NOTE : All condensers can be supplied with different joint sizes as per requirement

Supertek offers you the choice of a wide range of Condensers.

Condenser, Air

	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.101.0005	200	14/23	14/23	1
16.101.0010	200	19/26	19/26	1
16.101.0015	250	24/29	24/29	1
16.101.0020	400	19/26	19/26	1
16.101.0025	500	24/29	24/29	1
16.101.0030	500	34/35	34/35	1
16.101.0035	600	19/26	19/26	1
16.101.0040	750	24/29	24/29	1
16.101.0045	750	-	19/26	1
16.101.0050	750	-	24/29	1
16.101.0055	1000	-	19/26	1
16.101.0060	1000	-	24/29	1



Best Seller

Liebig condensers have a basic fluid circulating design. It consists of an inner straight tube and an outer tube having connector for fluid inflow and outflow. Connectors can be of glass or plastic screw thread as per requirement.

Condenser, Liebig

- * Conformity to DIN 12576.
- * Elementary Design
- * Lighter wall of the inner tube facilitates effective heat transfer
- * Designed with standard joints providing universal fitting.
- * Available with Glass & Plastic hose connector
- * Detachable plastic screw thread connectors provide easy and safe attachment of flexible tubing.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.104.0005 *	16.104.5005 *	200	-	-	1
16.104.0010 *	16.104.5010 *	250	-	-	1
16.104.0015 *	16.104.5015 *	300	-	-	1
16.104.0020 *	16.104.5020 *	400	-	-	1
16.104.0025 *	16.104.5025 *	450	-	-	1
16.104.0030 *	16.104.5030 *	500	-	-	1
16.104.0035	16.104.5035	160	14/23	14/23	1
16.104.0040	16.104.5040	250	19/26	19/26	1
16.104.0045	16.104.5045	250	24/29	24/29	1
16.104.0050 *	16.104.5050 *	250	29/32	29/32	1
16.104.0055 *	16.104.5055 *	300	24/29	24/29	1
16.104.0060 *	16.104.5060 *	300	29/32	29/32	1
16.104.0075 *	16.104.5075 *	400	19/26	19/26	1
16.104.0080	16.104.5080	400	24/29	24/29	1
16.104.0085	16.104.5085	400	29/32	29/32	1

* Non DIN sizes

CONDENSER

Liebig

DIN 12576

Glass Connector

DIN 12576

Screw Thread Connector

Best Seller

Condenser, Coil, Graham (Coil Distillate Type) **A**

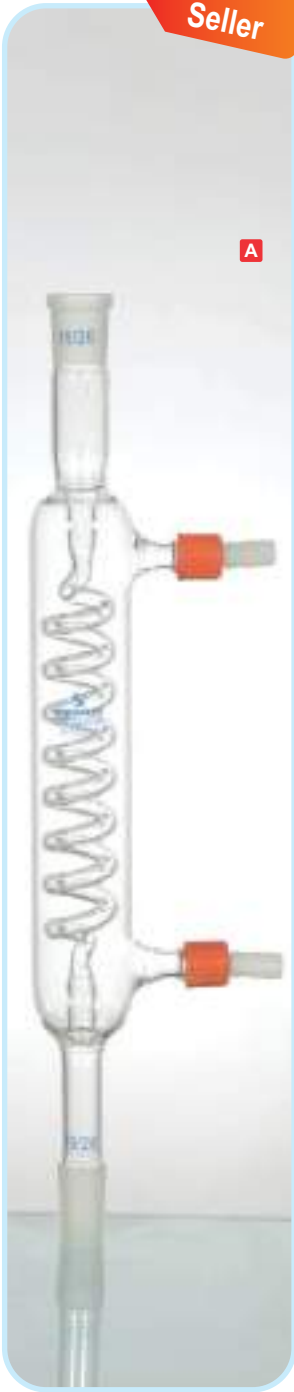
- * The coiled condensation tubes provide greater surface area for cooling
- * Designed with standard joints providing universal fitting.
- * Available with Glass & Plastic hose connector
- * Detachable plastic screw thread connectors provide easy and safe attachment of flexible tubing.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.108.0005	16.108.5005	200	-	-	1
16.108.0010	16.108.5010	300	-	-	1
16.108.0015	16.108.5015	400	-	-	1
16.108.0020	16.108.5020	500	-	-	1
16.108.0025	16.108.5025	160	14/23	14/23	1
16.108.0030	16.108.5030	160	19/26	19/26	1
16.108.0035	16.108.5035	250	19/26	19/26	1
16.108.0040	16.108.5040	250	24/29	24/29	1
16.108.0045	16.108.5045	300	19/26	19/26	1
16.108.0050	16.108.5050	300	24/29	24/29	1
16.108.0055	16.108.5055	400	24/29	24/29	1
16.108.0060	16.108.5060	500	24/29	24/29	1
16.108.0065	16.108.5065	500	34/35	34/35	1
16.108.0070	16.108.5070	600	34/35	34/35	1

Condenser, Coil, Graham (Jacket Distillate Type) **B**

- * The coiled condensation tubes provide greater surface area for cooling
- * Designed with standard joints providing universal fitting.
- * Available with Glass & Plastic hose connector
- * Detachable plastic screw thread connectors provide easy and safe attachment of flexible tubing.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.112.0005	16.112.5005	200	-	-	1
16.112.0010	16.112.5010	300	-	-	1
16.112.0015	16.112.5015	400	-	-	1
16.112.0020	16.112.5020	500	-	-	1
16.112.0025	16.112.5025	160	14/23	14/23	1
16.112.0030	16.112.5030	160	19/26	19/26	1
16.112.0035	16.112.5035	250	19/26	19/26	1
16.112.0040	16.112.5040	250	24/29	24/29	1
16.112.0045	16.112.5045	300	19/26	19/26	1
16.112.0050	16.112.5050	300	24/29	24/29	1
16.112.0055	16.112.5055	400	24/29	24/29	1
16.112.0060	16.112.5060	500	24/29	24/29	1
16.112.0065	16.112.5065	500	34/35	34/35	1
16.112.0070	16.112.5070	600	34/35	34/35	1





Condenser, Allihn (Bulb Condenser)

Conformity to DIN 12581

- * Better surface area than the Liebig Condenser. Series of bulbs provide higher cooling capacity which is Ideal for reflux applications
- * Designed with standard joints providing universal fitting.
- * Available with Glass & Plastic hose connector
- * Detachable plastic screw thread connectors provide easy and safe attachment of flexible tubing.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.136.0005	16.136.5005	200	-	-	1
16.136.0010	16.136.5010	300	-	-	1
16.136.0015	16.136.5015	400	-	-	1
16.136.0020	16.136.5020	500	-	-	1
16.136.0025	16.136.5025	200	-	19/26	1
16.136.0030	16.136.5030	200	-	24/29	1
16.136.0035	16.136.5035	200	-	29/32	1
16.136.0040	16.136.5040	200	-	34/35	1
16.136.0045	16.136.5045	200	-	40/38	1
16.136.0050	16.136.5050	200	-	50/42	1
16.136.0055	16.136.5055	250	-	50/42	1
16.136.0060	16.136.5060	200	19/26	19/26	1
16.136.0065	16.136.5065	200	24/29	24/29	1
16.136.0070	16.136.5070	300	19/26	19/26	1
16.136.0075	16.136.5075	300	24/29	24/29	1
16.136.0080	16.136.5080	400	24/29	24/29	1
16.136.0085	16.136.5085	500	24/29	24/29	1
16.136.0090	16.136.5090	500	34/35	34/35	1
16.136.0095	16.136.5095	600	34/35	34/35	1
16.136.0100	16.136.5100	750	34/35	34/35	1



Condenser, Coil, Reversible

- * Designed with standard joints providing universal fitting.
- * Available with Glass & Plastic hose connector
- * Detachable plastic screw thread connectors provide easy and safe attachment of flexible tubing.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.116.0005	16.116.5005	160	-	19/26 & 24/29	1
16.116.0010	16.116.5010	160	-	24/29 & 24/29	1
16.116.0015	16.116.5015	160	-	24/29 & 34/35	1

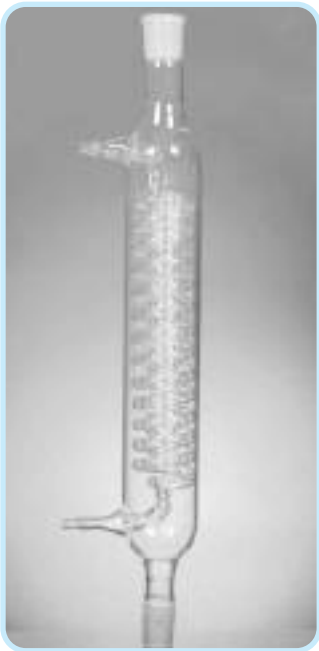
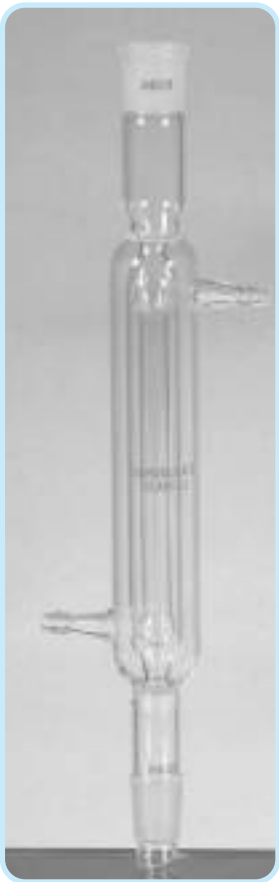




Condenser, Double Surface, Davies

These condensers are majorly used in research laboratories. A double-surface condenser has a water jacket both on the outside and through the center of the condensing tube. It is required where the condenser liquid is very volatile. Hence for distilling ethers, alcohols, esters, aromatics, petroleum products, and essential oils these condensers are widely used.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.124.0005	16.124.5005	200	-	-	1
16.124.0010	16.124.5010	150	19/26	19/26	1
16.124.0015	16.124.5015	150	24/29	24/29	1
16.124.0020	16.124.5020	200	19/26	19/26	1
16.124.0025	16.124.5025	200	24/29	24/29	1
16.124.0030	16.124.5030	200	29/32	29/32	1
16.124.0035	16.124.5035	200	-	19/26	1
16.124.0040	16.124.5040	200	-	24/29	1
16.124.0045	16.124.5045	200	-	34/35	1
16.124.0050	16.124.5050	250	-	19/26	1
16.124.0055	16.124.5055	250	19/26	19/26	1
16.124.0060	16.124.5060	250	24/29	24/29	1
16.124.0065	16.124.5065	300	19/26	19/26	1
16.124.0070	16.124.5070	300	24/29	24/29	1
16.124.0075	16.124.5075	400	24/29	24/29	1
16.124.0080	16.124.5080	500	24/29	24/29	1
16.124.0085	16.124.5085	500	34/35	34/35	1
16.124.0090	16.124.5090	600	34/35	34/35	1



Condenser, Double Coil, With Common Inlet

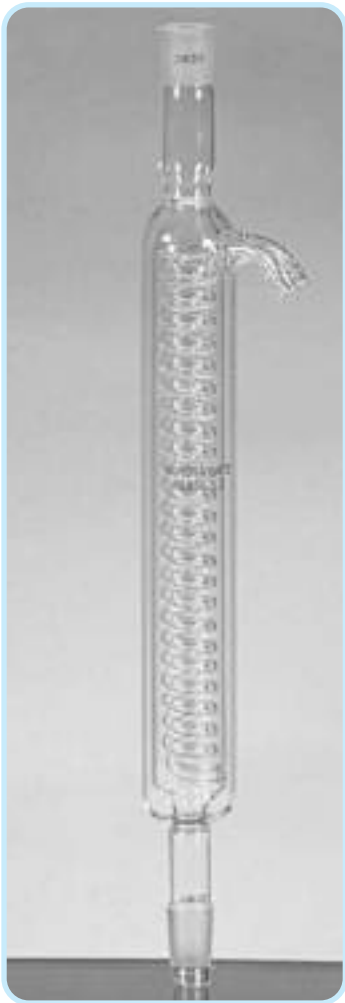
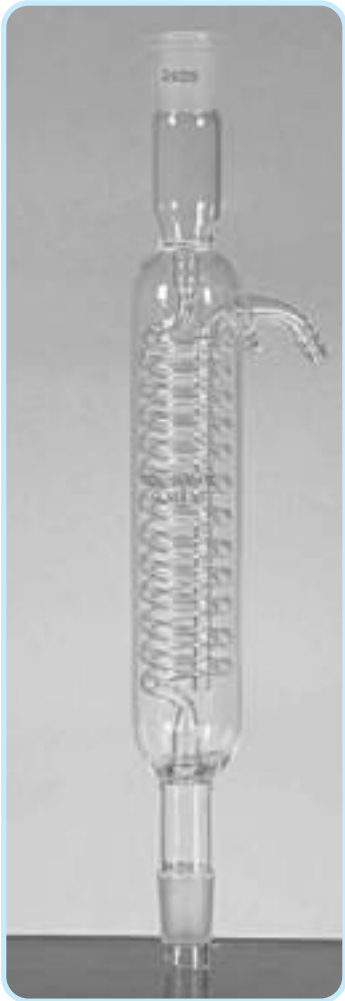
Features a double coil design with a common water inlet
Suitable for pilot plant work

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.120.0005	16.120.5005	200	19/26	19/26	1
16.120.0010	16.120.5010	200	24/29	24/29	1
16.120.0015	16.120.5015	350	34/35	34/35	1
16.120.0020	16.120.5020	450	34/35	34/35	1
16.120.0025	16.120.5025	600	34/35	34/35	1

Condenser, Jacketed Coil, Double Surface Condenser

Double surface condensers with a coil as the inner surface provides approximately twice the surface area of plain coil condensers of the same effective length.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.128.0005	16.128.5005	160	19/26	19/26	1
16.128.0010	16.128.5010	160	24/29	24/29	1
16.128.0015	16.128.5015	160	-	34/35	1
16.128.0020	16.128.5020	160	-	40/38	1
16.128.0025	16.128.5025	200	19/26	19/26	1
16.128.0030	16.128.5030	200	24/29	24/29	1
16.128.0035	16.128.5035	300	19/26	19/26	1
16.128.0040	16.128.5040	300	24/29	24/29	1
16.128.0045	16.128.5045	400	24/29	24/29	1
16.128.0050	16.128.5050	400	34/35	34/35	1
16.128.0055	16.128.5055	500	34/35	34/35	1



Condenser, Inland Revenue

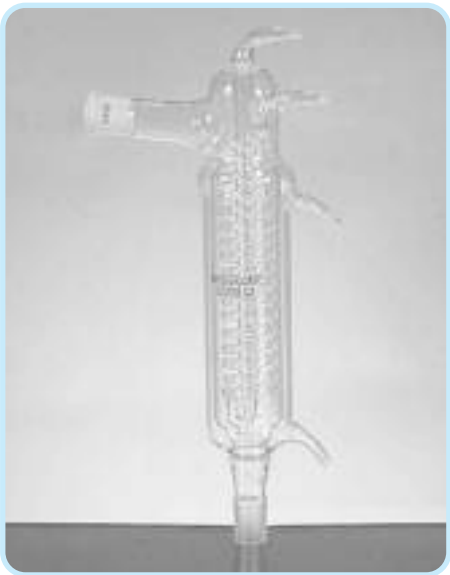
- * Inland Revenue Pattern
- * Highly efficient
- * Vapour and distillate move down through the coil
- * Coolant water flows outside the coil

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.132.0005	16.132.5005	200	-	-	1
16.132.0010	16.132.5010	200	19/26	19/26	1
16.132.0015	16.132.5015	200	24/29	24/29	1

Condenser, Friedrich

- * Specially designed inner spiral tubes ensure a long vapour path
- * Offer better heat transfer
- * Condenser has a standard taper outer joint and a lower inner drip tip joint

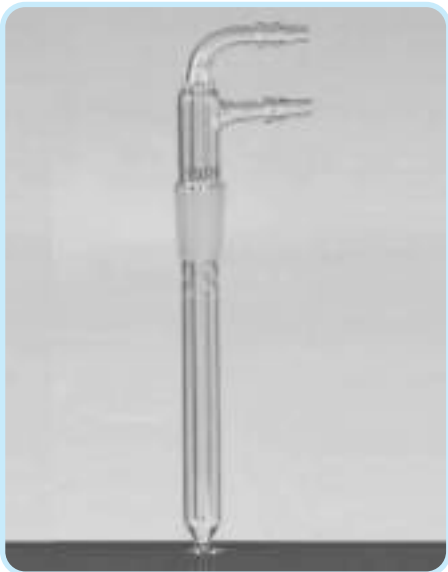
Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.140.0005	16.140.5005	160	19/26	19/26	1
16.140.0010	16.140.5010	200	19/26	24/29	1
16.140.0015	16.140.5015	250	19/26	24/29	1



Condenser, Ether

Highly efficient coil condenser suitable for condensing very volatile liquids. Inner coil with large surface area. Outer water jacket to avoid vapour creep around the coil. Coil and jacket are independent and can be fed from separate water supplies for maximum efficiency.

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.144.0005	16.144.5005	160	19/26	24/29	1
16.144.0010	16.144.5010	200	19/26	24/29	1
16.144.0015	16.144.5015	250	19/26	24/29	1



Condenser, Immersion (cold Finger)

- For immersion into distillation assemblies etc.
- * Can be used to regulate refluxing by adjusting the flow of air or water through it

Glass Connector	Screw Thread Connector	Effective Length, mm	Cone Size	Pack Size
16.148.0005	16.148.5005	100	19/26	1

Dimroth Condenser . The Condenser Comes With Glass & Plastic Thread Condenser.

Conformity to DIN 12591
Similar to the coil condenser with advantage of having that both inlet and outlet pipes at the top.
There is an internal double spiral through which the coolant travels.
Dimroth condensers are much more effective than conventional condensers

Glass Connector	Screw Thread Connector	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.152.0005	16.152.5005	160	14/23	14/23	1
16.152.0010	16.152.5010	160	19/26	19/26	1
16.152.0015	16.152.5015	250	19/26	19/26	1
16.152.0020	16.152.5020	250	24/29	24/29	1
16.152.0025	16.152.5025	250	29/32	29/32	1
16.152.0030 *	16.152.5030 *	300	24/29	24/29	1
16.152.0035 *	16.152.5035 *	300	29/32	29/32	1
16.152.0040	16.152.5040	400	29/32	29/32	1

* Non DIN sizes



Soxhlet Extraction Apparatus, Consist Of Flask, Extractor And Condenser

Glass connector	Screw-Thread Connector	Condensor type	Effective Capacity, ml	Extractor socket	Extractor cone	Flask Capacity, ml	Pack Size
16.308.0005	16.308.5005	Allihin	100	45/40	29/32	250	1
16.308.0010	16.308.5010	Allihin	250	45/40	29/32	500	1
16.308.0015	16.308.5015	Allihin	500	60/46	29/32	1000	1
16.308.0020	16.308.5020	Allihin	1000	71/55	29/32	2000	1
16.308.0025	16.308.5025	Dimroth	100	45/40	29/32	250	1
16.308.0030	16.308.5030	Dimroth	250	45/40	29/32	500	1
16.308.0035	16.308.5035	Dimroth	500	60/46	29/32	1000	1
16.308.0040	16.308.5040	Dimroth	1000	71/55	29/32	2000	1

Spare Extractor For Soxhlet Apparatus

- * Conformity to DIN 12602
- * Made of Borosilicate Glass
- * Designed with a bulb in the siphon tube near the top, to aid the siphoning action
- * The vapour tube also protects the siphon tube from accidental damage

	Effective Capacity, ml	Socket Size	Cone Size	Pack Size
16.312.0005	100	45/40	29/32	1
16.312.0010	250	45/40	29/32	1
16.312.0015	500	60/46	29/32	1
16.312.0020	1000	71/55	29/32	1

Spare Condensers For Soxlet Extraction Apparatus

Allihn Condensor

- * Made of Borosilicate Glass
- * Greater Surface area than the Liebig Condenser owing to a series of bulbs, resulting in higher cooling capacity
- * Ideal for laboratory scale refluxing

Glass connector	Screw-Thread Connector	Effective Capacity, ml	Cone Size	Effective Length, mm	Pack Size
16.301.0005	16.301.5005	100	45/40	300	1
16.301.0010	16.301.5010	250	45/40	400	1
16.301.0015	16.301.5015	500	60/46	400	1
16.301.0020	16.301.5020	1000	71/55	400	1

Dimroth Condensor

Made of Borosilicate Glass

Similar to the coil condenser with advantage of having that both inlet and outlet pipes at the top. There is an internal double spiral through which the coolant travels.

Dimroth condensers are much more effective than conventional condensers

Glass connector	Screw-Thread Connector	Effective Capacity, ml	Cone Size	Effective Length, mm	Pack Size
16.304.0005	16.304.5005	100	45/40	300	1
16.304.0010	16.304.5010	250	45/40	400	1
16.304.0015	16.304.5015	500	60/46	400	1
16.304.0020	16.304.5020	1000	71/55	400	1




Magnetic Stirrers



For more details log on to www.shivsons.com or ask for our Chemistry and Lab Supplies catalogue.

Organic Chemistry Sets

www.supertekglassware.com

Various sets of glassware using interchangeable ground glass joints (sockets & cones) are so designed that the experiments may be done rapidly with a small number of components. The sets are versatile and can be easily assembled and used. All components are made from heat and chemical resistant Boro 3.3 glass as per ASTM E-438 Type-1 standard and DIN ISO 3585.

Organic Chemistry Set Equivalent To 27 BU

A highly popular and versatile set, designed to cover the essential requirements for the teaching of organic chemistry and suitable for preparation upto 30 g. Complete set comprising 9 items of glassware, all with 14/23 joints

Pear shaped flask, 50 ml	1
Stillhead	1
Liebig Condenser	1
Screwcap adapter	1
Receiver adapter	1
Air Leak/steam inlet tube	1
Dropping funnel, 50 ml with rotaflo tap	1
Stopper	1
Thermometer	1
16.401.0050	



Organic Chemistry Set Equivalent To 29 BU

The set is ideal for introducing students to the principal techniques of preparative organic chemistry. Although the set is very simple, a surprising number of preparations on the 30g scale can be carried out. Complete set comprises 5 items, all with 14/23 joints

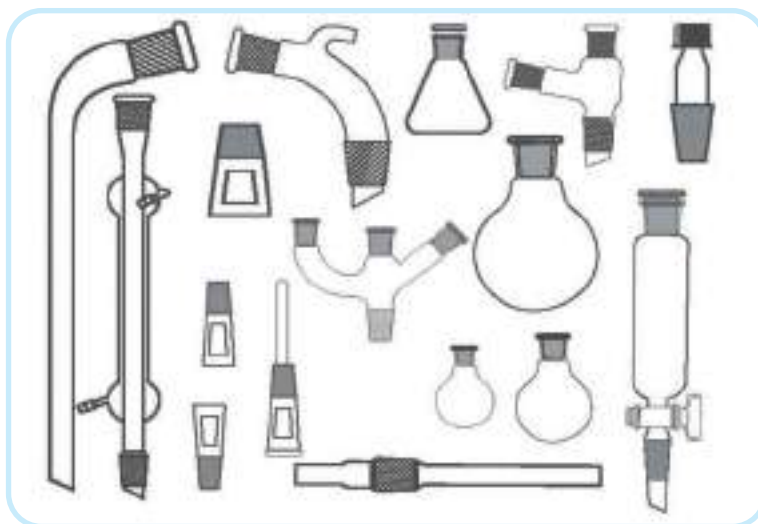
Pear shaped flask, 50 ml	1
Stillhead	1
Liebig Condenser	1
Screwcap adapter	1
Receiver adapter	1

16.401.0025

Organic Chemistry Set Equivalent To 34 BU

For working up to the 150 g scale . Complete set comprising 16 items.

	Socket Size	Cone Size
Stillhead	14/23	19/26
Receiver	19/26	24/29
Air Leak/steam inlet tube	-	19/26
Liebig Condenser	19/26	19/26
Dropping Funnel, 100ml	19/26z	19/26
Reducing adapter	19/26	24/29
Multiple adapter	19/26	24/29
Flask, R.B., 50 ml	24/29	-
Flask erlenmeyer, 250 ml	24/29	-
Flask, R.B., 250 ml	24/29	-
Stopper (2 No.)	-	19/26
Thermometer pocket	-	14/23
Receiver adapter, bent	19/26	-
Flask, R.B., 100ml	24/29	-
Stopper	-	24/29



16.401.0075

Note : Other organic sets also available on request.



Burners



For more details log on to
www.shivsons.com or ask for our Chemistry and Lab Supplies catalogue.

A fractionating column is an item used in distillation of liquid mixtures to separate the mixture into its component parts, or fractions, based on the differences in volatilities.

Fractionating columns are used in small scale laboratory distillations as well as for large-scale industrial distillations.

Fractionating Column, Vigreux

	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.201.0005	360	24/29	24/29	1
16.201.0010	600	24/29	24/29	1
16.201.0015	360	29/32	29/32	1
16.201.0020	750	34/35	34/35	1



Fractionating Column, Dufton

	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.204.0005	160	19/26	19/26	1
16.204.0010	300	19/26	19/26	1
16.204.0015	160	24/29	24/29	1
16.204.0020	300	24/29	24/29	1



Fractionating Column, Plain, Designed For Use With Various Types Of Column Packing

	Effective Length, mm	Socket Size	Cone Size	Pack Size
16.208.0005	250	24/29	24/29	1
16.208.0010	500	24/29	24/29	1
16.208.0015	500	29/32	29/32	1
16.208.0020	750	24/29	24/29	1
16.208.0025	250	34/35	24/29	1
16.208.0030	500	34/35	24/29	1
16.208.0035	600	34/35	34/35	1



General Labware

www.supertekglassware.com

General Labware

www.supertekglassware.com

Supertek brand Labware is manufactured from Low-expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass & DIN ISO 3585. Our Labware has easy to read scale and large labeling field for easy marking in a durable white enamel. Uniform wall thickness makes these products ideal for heating applications. Printed in white as a standard, Supertek Labware are also available in blue printing, please mention the same while placing your order.

Beaker, Low Form, With Graduation & Spout

- * Conformity to ISO 3819/DIN 12331 Standard. Printed in white color.
- * The spout design enables clean and precise pouring
- * Uniform wall thickness distribution makes it ideal for heating liquids
- * The easy-to-read scale and labeling field for marking.
- * High resistance to chemical attack

	Capacity, ml	Pack Size
15.101.0005	5	12
15.101.0010	10	12
15.101.0025	25	10
15.101.0050	50	10
15.101.0100	100	10
15.101.0150	150	10
15.101.0250	250	10
15.101.0400	400	10
15.101.0500	500	6
15.101.0600	600	6
15.101.1000	1000	6
15.101.2000	2000	4
15.101.3000	3000	1
15.101.5000	5000	1
15.101.9910*	10000	1

*NON-DIN



Beaker, Tall Form, With Graduation & Spout

- * Conformity to ISO 3819/DIN 12331 Standard. Printed in white color.
- * The spout design enables clean and precise pouring
- * Uniform wall thickness distribution makes it ideal for heating liquids
- * The easy-to-read scale and labeling field for marking.
- * High resistance to chemical attack

	Capacity, ml	Pack Size
15.104.0050	50	10
15.104.0100	100	10
15.104.0150	150	10
15.104.0250	250	10
15.104.0400	400	10
15.104.0600	600	6
15.104.0800	800	6
15.104.1000	1000	6
15.104.2000	2000	4
15.104.3000	3000	1



DIN
12331

ISO
3819

A
121 °C

Dish Washer
Durable
Print

Beaker, Low Form, With Double Capacity Scale

- * Conformity to ASTM E-960 Standard. Printed in white color.
- * The spout design enables clean and precise pouring
- * Uniform wall thickness distribution makes it ideal for heating liquids
- * The easy-to-read scale and labeling field for marking.
- * High resistance to chemical attack
- * Double graduation metric scale for convenience

	Capacity, ml	Graduation interval	Pack Size
15.105.0010	10	-	12
15.105.0020	20	10 ml	10
15.105.0030	30	10 ml	10
15.105.0050	50	10 ml	10
15.105.0100	100	10 ml	10
15.105.0150	150	20 ml	10
15.105.0250	250	25 ml	10
15.105.0400	400	25 ml	10
15.105.0600	600	50 ml	6
15.105.1000	1000	50 ml	6
15.105.2000	2000	200 ml	4
15.105.4000	4000	500 ml	1



ASTM
E-960

A
121 °C

GENERAL LABWARE

Beakers & Flasks



Flask, Flat Bottom

- * Conformity to ISO 1773 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have a durable matt-finished enameled area for marking.

	Capacity, ml	Pack Size
15.108.0050	50	10
15.108.0100	100	10
15.108.0250R	250	10
15.108.0500	500	10
15.108.1000	1000	6
15.108.2000	2000	6
15.108.3000	3000	1
15.108.5000	5000	1
15.108.9910	10000	1

ISO
1773

A
121 °C

Dish Washer
Durable
Print

Flask Flat Bottom, Wide Neck

- * Conformity to ISO 24450 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have a durable matt-finished enameled area for marking.

	Capacity, ml	Pack Size
15.112.0050	50	10
15.112.0100	100	10
15.112.0250	250	10
15.112.0500	500	10
15.112.1000	1000	6
15.112.2000	2000	6



Flask, Round Bottom

- * Conformity to ISO 1773 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have a durable matt-finished enameled area for marking.

	Capacity, ml	Pack Size
15.116.0050	50	10
15.116.0100	100	10
15.116.0250	250	10
15.116.0500	500	10
15.116.1000	1000	6
15.116.2000	2000	6
15.116.3000	3000	1
15.116.5000	5000	1
15.116.9910	10000	1

Flask Support, Polypropylene

For round bottom flasks upto 10 litres, autoclavable.
CH11076





Flask, Round Bottom, Wide Neck

- * Conformity to ISO 24450 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have a durable matt-finished enameled area for marking.

	Capacity, ml	Pack Size
15.120.0050	50	10
15.120.0100	100	10
15.120.0250	250	10
15.120.0500	500	10
15.120.1000	1000	6
15.120.2000	2000	6

Flask, Conical (Erlenmeyer) Graduated

- * Conformity to ISO 1773 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have an easy to read scale & durable matt-finished enameled area for marking.
- * The conical form makes them suitable for mixing liquids

	Capacity, ml	Pack Size
15.124.0025	25	10
15.124.0050	50	10
15.124.0100	100	10
15.124.0250	250	10
15.124.0500	500	10
15.124.1000	1000	6
15.124.2000	2000	6
15.124.3000	3000	1
15.124.5000	5000	1

Flask Erlenmeyer Narrow Neck, Stopper Fit

- * Conformity to ASTM 1404 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim

	Capacity, ml	Stopper Size	Pack Size
15.125.0010	10	00	10
15.125.0025	25	0	10
15.125.0050	50	1	10
15.125.0125	125	5	10
15.125.0250	250	6	10
15.125.0500	500	7	10
15.125.1000	1000	9	6
15.125.2000	2000	10	6
15.125.4000	4000	10	1
15.125.5000	5000	10	1





Flask, Conical (Erlenmeyer) Graduated, Amber Color

- * Conformity to ISO 1773 Standard. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have an easy to read scale & durable matt-finished enameled area for marking.
- * The conical form makes them suitable for mixing liquids

Cat. No.	Capacity, ml	Pack Size
15.126.0050	50	10
15.126.0100	100	10
15.126.0250	250	10
15.126.0500	500	10
15.126.1000	1000	6
15.126.2000	2000	6

Flask, Conical (Erlenmeyer) Graduated, Wide Neck

- * Conformity to ISO 24450. Printed in white color.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
- * Strong sturdy rim
- * All sizes have a durable matt-finished enameled area for marking.

	Capacity, ml	Pack Size
15.128.0025	25	10
15.128.0050	50	10
15.128.0100	100	10
15.128.0250	250	10
15.128.0500	500	10
15.128.1000	1000	6
15.128.2000	2000	6



ISO 24450



Flask, Kjeldahl, Long Neck

Designed for Nitrogen Determination as per Kjeldahl Method.

	Capacity, ml	Dia. mm	Approx. Height mm	Pack Size
15.132.0010R	10	30	180	2
15.132.0030R	30	40	180	2
15.132.0100R	100	58	200	2
15.132.0300R	300	81	295	2
15.132.0500R	500	101	300	2
15.132.0800R	800	113	375	2

Dish Washer
Durable
Print

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121 °C



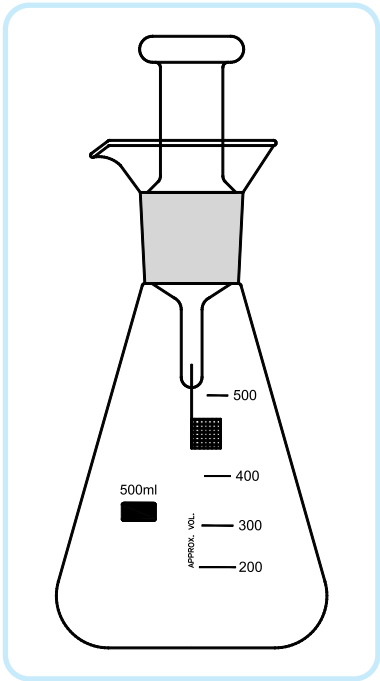
Flask, Kjeldahl, With Joint

	Capacity, ml	Socket Size	Approx Height mm	Pack Size
15.136.0005R	50	19/26	200	2
15.136.0010R	100	19/26	200	2
15.136.0015R	100	24/29	200	2
15.136.0020R	300	24/29	295	2
15.136.0025R	500	24/29	300	2
15.136.0030R	800	24/29	375	2

Oxygen Combustion Flasks as per USP

- * Complies to ASTM E205 - 96
- * Manufactured from 3.3 borosilicate, glass
- * Use for the determination of bromine, chlorine, iodine and sulfur

	Capacity, ml	Pack Size
15.139.0250	250	2
15.139.0500	500	2



Flask, Distillation

- with side tube and reinforced bead, conformity to ASTM 1405 Standard.
- * Uniform wall thickness distribution makes these Flasks ideal for heating
 - * All sizes have a durable matt-finished enameled area for marking.
 - * Suitable for distillation process

	Capacity, ml	Ht. x OD (mm) Approx	Pack Size
15.140.0100	100	64x210	2
15.140.0125	125	70x215	2
15.140.0250	250	88x230	2
15.140.0500	500	110 x 250	1
15.140.1000	1000	130 x 305	1



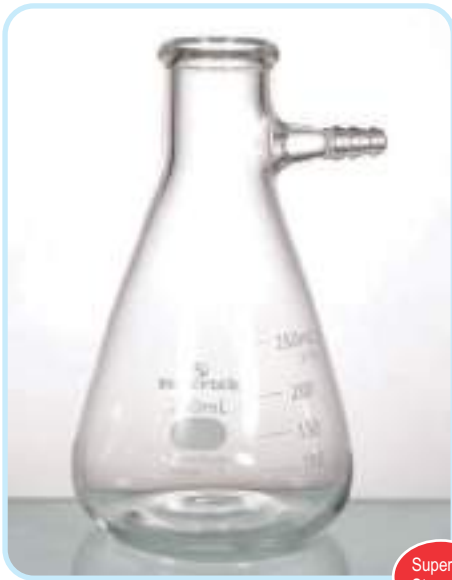
ASTM 1405



Flask, Distillation

with 19/26 joint, side arm.

	Capacity, ml	Ht. x OD (mm) Approx	Pack Size
15.144.0125	125	70x215	2



Flask, Filter Bolt Neck With Tubule At Side

- * Heavy wall for Superior strength.
- * The shape is designed to impart maximum mechanical strength
- * The neck finish is designed for strength and to ensure good stopper fit

	Capacity, ml	Ht. x OD (mm) Approx	Pack Size
15.148.0100	100	105 x 68	10
15.148.0250	250	135 x 90	10
15.148.0500	500	170 x 106	10
15.148.1000	1000	220 x 135	6

ISO 1773

Dish Washer
Durable
Print

A
121 °C

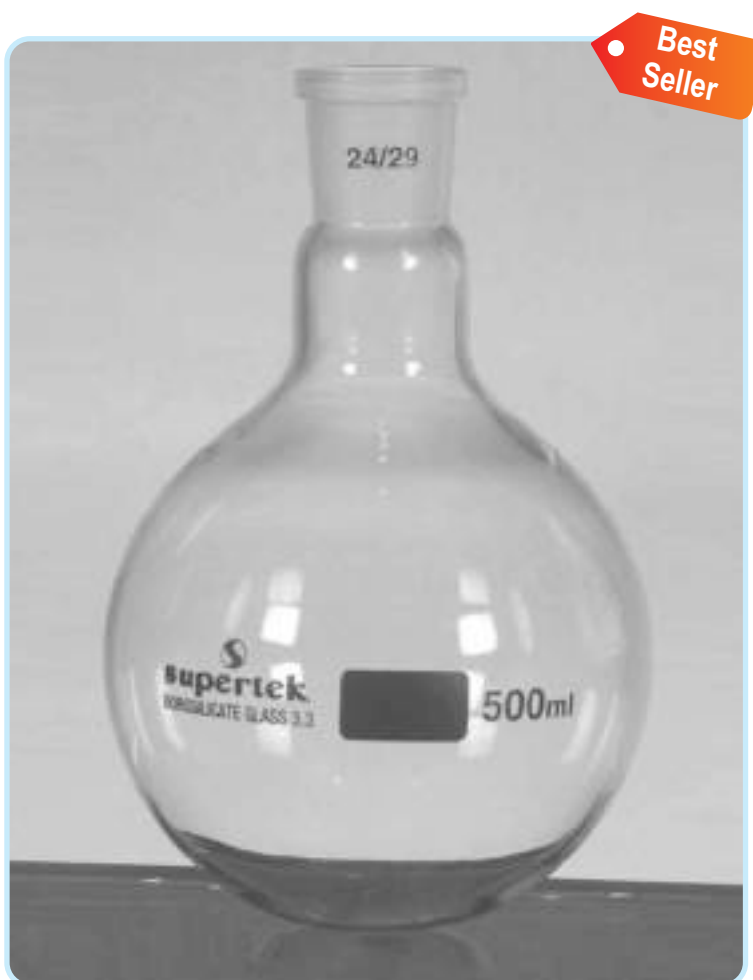
Superior
Strength

Flask Round Bottom, Single Neck

	Capacity, ml	Socket Size	Pack Size
15.201.0001	5	10/19	10
15.201.0001A	5	14/20	10
15.201.0002	5	14/23	10
15.201.0003	10	10/19	10
15.201.0003A	10	14/20	10
15.201.0004	10	14/23	10
15.201.0004A	10	19/22	10
15.201.0005	25	14/23	10
15.201.0006	25	14/20	10
15.201.0010 *	25	19/26	10
15.201.0012	25	19/22	10
15.201.0015 *	25	24/29	10
15.201.0017	25	24/40	10
15.201.0020	50	14/23	10
15.201.0022	50	14/20	10
15.201.0025	50	19/26	10
15.201.0027	50	19/22	10
15.201.0030	50	24/29	10
15.201.0032	50	24/40	10
15.201.0035	50	29/32	10
15.201.0036	50	34/35	10
15.201.0040	100	14/23	10
15.201.0042	100	14/20	10
15.201.0045	100	19/26	10
15.201.0047	100	19/22	10
15.201.0050	100	24/29	10
15.201.0052	100	24/40	10
15.201.0055	100	29/32	10
15.201.0056	100	34/35	10
15.201.0057	150	19/26	10
15.201.0058	150	24/29	10
15.201.0058A	150	24/40	10
15.201.0059	150	29/32	10
15.201.0059A	150	34/35	10
15.201.0060 *	250	14/23	10
15.201.0062	250	14/20	10
15.201.0065	250	19/26	10
15.201.0066	250	19/22	10
15.201.0070	250	24/29	10
15.201.0072	250	24/40	10
15.201.0075	250	29/32	10
15.201.0080	250	34/35	10
15.201.0085	500	19/26	10
15.201.0087	500	19/22	10
15.201.0090	500	24/29	10
15.201.0092	500	24/40	10
15.201.0095	500	29/32	10
15.201.0100	500	34/35	10
15.201.0105 *	1000	19/26	6
15.201.0110	1000	24/29	6
15.201.0111	1000	24/40	6
15.201.0115	1000	29/32	6
15.201.0120 *	1000	34/35	6
15.201.0125	2000	24/29	6
15.201.0126	2000	24/40	6
15.201.0130	2000	29/32	6
15.201.0135 *	2000	34/35	6
15.201.0138	3000	24/29	1
15.201.0139	3000	24/40	1
15.201.0140 *	3000	29/32	1
15.201.0145 *	3000	34/35	1
15.201.0147	3000	40/38	1
15.201.0148	5000	24/29	1
15.201.0150	5000	29/32	1
15.201.0155	5000	34/35	1
15.201.0157	5000	40/38	1
15.201.0160	5000	45/40	1
15.201.0162	5000	50/42	1
15.201.0163	5000	55/44	1
15.201.0165	10000	34/35	1
15.201.0168	10000	40/38	1
15.201.0170	10000	45/40	1
15.201.0185	10000	50/42	1
15.201.0190	10000	55/44	1
15.201.0195	20000	40/38	1
15.201.0200	20000	50/42	1
15.201.0205	20000	55/44	1

* Non ISO sizes

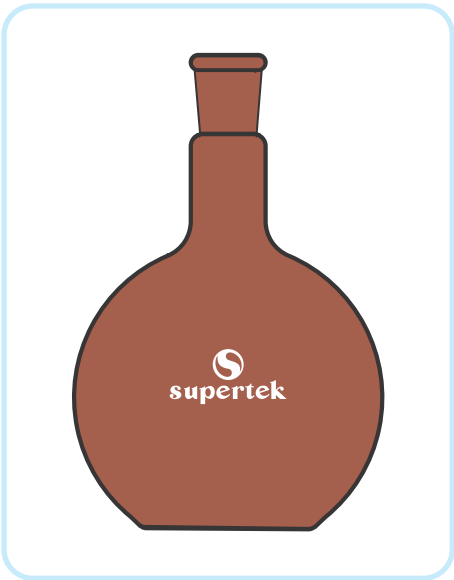
- * Made of 3.3 borosilicate glass
- * In Compliance to DIN ISO 4797 Standard. Printed in white color.
- * Uniform wall thickness distribution and the round-bottom shape makes them ideal for heating
- * Equipped with standard interchangeable joint
- * Large labelling field



Flask Round Bottom, Single Neck, Amber Colour

- * Made of 3.3 borosilicate glass
- * In Compliance to DIN ISO 4797 Standard. Printed in white color.
- * Uniform wall thickness distribution and the round-bottom shape makes them ideal for heating
- * Equipped with standard interchangeable joint
- * Large labelling field

	Capacity, ml	Pack Size
15.203.0025	25	10
15.203.0050	50	10
15.203.0100	100	10
15.203.0150	150	10
15.203.0250	250	10
15.203.0500	500	10
15.203.1000	1000	6
15.203.2000	2000	6

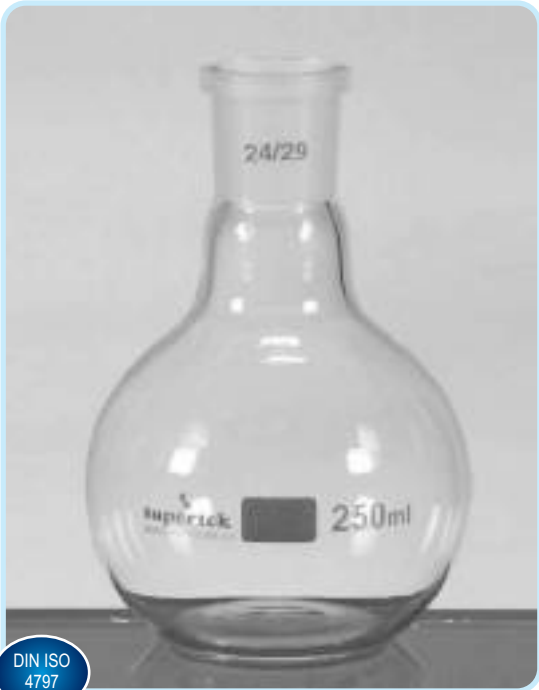


Flask Flat Bottom, Single Neck, Amber Colour

- * Made of 3.3 borosilicate glass
- * In Compliance to DIN ISO 4797 Standard. Printed in white color.
- * Uniform wall thickness distribution and flat-bottom shape makes them ideal for heating
- * Equipped with standard interchangeable joint
- * Large labelling field

	Capacity, ml	Pack Size
15.205.0025	25	10
15.205.0050	50	10
15.205.0100	100	10
15.205.0150	150	10
15.205.0250	250	10
15.205.0500	500	10
15.205.1000	1000	6
15.205.2000	2000	6

- * In Compliance to DIN ISO 4797 Standard.
Printed in white color.
- * Uniform wall thickness distribution
makes these flasks ideal for heating
- * All sizes have a durable matt-finished enamelled
area for marking with an ordinary pencil
- * Equipped with standard interchangeable joint
- * The flat base ensures that the flask can be placed
down even without the supporting ring



Flask Flat Bottom, Single Neck

	Capacity, ml	Socket Size	Pack Size
15.204.0001A	5	10/19	10
15.204.0001B	5	14/23	10
15.204.0002A	10	10/19	10
15.204.0002B	10	14/23	10
15.204.0003A	25	14/23	10
15.204.0003B	25	19/26	10
15.204.0003C	25	24/29	10
15.204.0004A	50	14/20	10
15.204.0004B	50	14/23	10
15.204.0005	50	19/26	10
15.204.0006	50	19/22	10
15.204.0007	50	24/40	10
15.204.0010	50	24/29	10
15.204.0015	50	29/32	10
15.204.0016	50	34/35	10
15.204.0018	100	14/23	10
15.204.0019	100	19/22	10
15.204.0020	100	19/26	10
15.204.0025	100	24/29	10
15.204.0026	100	24/40	10
15.204.0030	100	29/32	10
15.204.0032	100	34/35	10
15.204.0033	125	24/40	10
15.204.0035 *	150	19/26	10
15.204.0040 *	150	24/29	10
15.204.0045 *	150	29/32	10
15.204.0048	150	34/35	10
15.204.0050	250	19/26	10
15.204.0053	250	24/40	10
15.204.0055	250	24/29	10
15.204.0060	250	29/32	10
15.204.0065	250	34/35	10
15.204.0067	300	24/29	10
15.204.0070 *	500	19/26	10
15.204.0072	500	24/40	10
15.204.0075	500	24/29	10
15.204.0080	500	29/32	10
15.204.0085	500	34/35	10
15.204.0090	1000	24/29	6
15.204.0092	1000	24/40	6
15.204.0095	1000	29/32	6
15.204.0100	1000	34/35	6
15.204.0105	2000	24/29	6
15.204.0110	2000	29/32	6
15.204.0115	2000	34/35	6
15.204.0120	3000	24/29	1
15.204.0125	3000	34/35	1
15.204.0130	3000	40/38	1
15.204.0135	5000	24/29	1
15.204.0140	5000	34/35	1
15.204.0145	5000	40/38	1
15.204.0150	5000	45/40	1
15.204.0155	5000	50/42	1
15.204.0160	10000	34/35	1
15.204.0165	10000	40/38	1
15.204.0170	10000	45/40	1
15.204.0175	10000	50/42	1
15.204.0180	10000	55/44	1
15.204.0185	20000	40/38	1
15.204.0190	20000	50/42	1
15.204.0195	20000	55/44	1

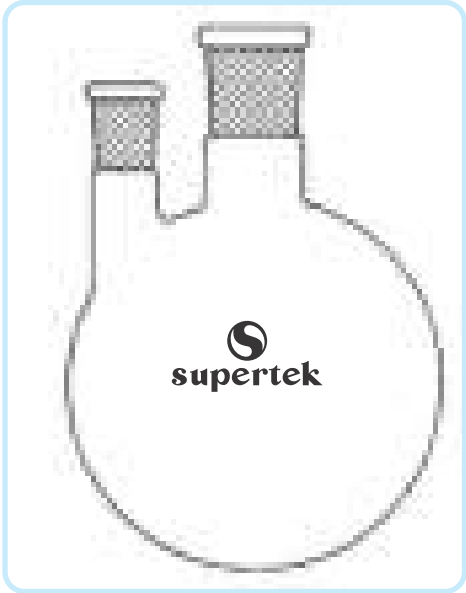
* Non ISO sizes

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Flask Round Bottom, Two Necks (Side Neck Parallel)

	Capacity, ml	Socket center neck	Socket Side Neck	Pack Size
15.210.0020	50	24/29	14/23	2
15.210.0025	50	29/32	14/23	2
15.210.0030	100	24/29	14/23	2
15.210.0035	100	24/29	19/26	2
15.210.0040	100	29/32	14/23	2
15.210.0045	250	24/29	14/23	1
15.210.0050	250	24/29	19/26	1
15.210.0055	250	29/32	14/23	1
15.210.0060	500	24/29	14/23	1
15.210.0065	500	24/29	19/26	1
15.210.0070	500	29/32	14/23	1
15.210.0075	1000	24/29	14/23	1
15.210.0080	1000	24/29	19/26	1
15.210.0085	1000	29/32	14/23	1
15.210.0090	1000	34/35	14/23	1
15.210.0095	1000	34/35	19/26	1
15.210.0100	2000	24/29	19/26	1
15.210.0105	2000	24/29	24/29	1
15.210.0110	2000	34/35	19/26	1
15.210.0115	2000	34/35	24/29	1
15.210.0120	3000	24/29	14/23	1
15.210.0125	3000	24/29	19/26	1
15.210.0130	3000	24/29	24/29	1
15.210.0135	3000	34/35	14/23	1
15.210.0140	3000	34/35	19/26	1
15.210.0145	3000	34/35	24/29	1
15.210.0150	5000	24/29	14/23	1
15.210.0155	5000	24/29	19/26	1
15.210.0160	5000	24/29	24/29	1
15.210.0165	5000	34/35	14/23	1
15.210.0170	5000	34/35	19/26	1
15.210.0175	5000	34/35	24/29	1
15.210.0180	5000	40/38	14/23	1
15.210.0185	5000	40/38	19/26	1
15.210.0190	5000	40/38	24/29	1
15.210.0195	10000	50/42	19/26	1
15.210.0200	10000	50/42	24/29	1
15.210.0205	10000	50/42	34/35	1
15.210.0210	10000	55/44	19/26	1
15.210.0215	10000	55/44	24/29	1
15.210.0220	10000	55/44	34/35	1
15.210.0225	20000	50/42	19/26	1
15.210.0230	20000	50/42	24/29	1
15.210.0235	20000	50/42	34/35	1
15.210.0240	20000	55/44	19/26	1
15.210.0245	20000	55/44	24/29	1
15.210.0250	20000	55/44	34/35	1

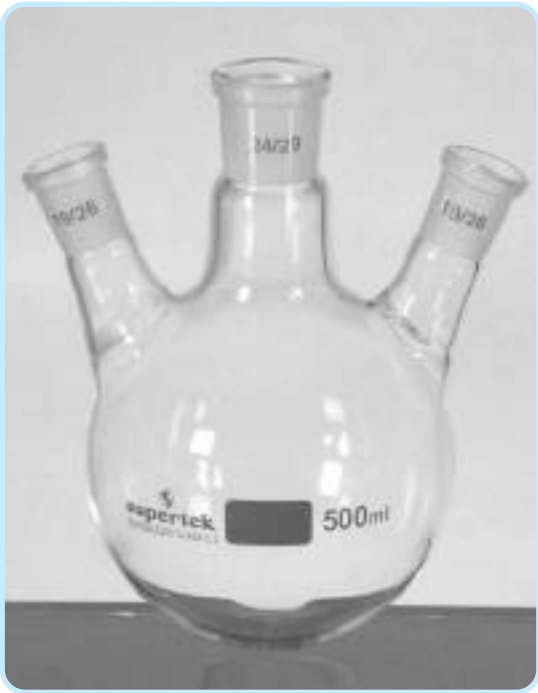




Flask Round Bottom, Three Necks At Angle

- * Printed in white color.
- * Uniform wall thickness and the round-bottom shape makes them ideal for heating
- * Accessories, thermometer, column, dropping funnels, boiling capillaries, etc., can be fitted depending upon the application
- * Generally used in distillation and extraction processes

	Capacity, ml	Center Socket	Side Sockets	Pack Size
15.212.0005	100	19/26	14/23	2
15.212.0010	100	24/29	14/23	2
15.212.0015	100	24/29	19/26	2
15.212.0020	100	29/32	14/23	2
15.212.0025	250	19/26	19/26	1
15.212.0030	250	24/29	14/23	1
15.212.0035	250	24/29	19/26	1
15.212.0040	250	29/32	14/23	1
15.212.0045	250	29/32	19/26	1
15.212.0050	250	29/32	29/32	1
15.212.0055	500	24/29	14/23	1
15.212.0060	500	24/29	19/26	1
15.212.0065	500	29/32	14/23	1
15.212.0070	500	29/32	19/26	1
15.212.0075	500	29/32	29/32	1
15.212.0080	1000	24/29	14/23	1
15.212.0085	1000	24/29	19/26	1
15.212.0090	1000	29/32	14/23	1
15.212.0095	1000	29/32	19/26	1
15.212.0100	1000	29/32	29/32	1
15.212.0105	2000	24/29	19/26	1
15.212.0110	2000	29/32	24/29	1
15.212.0115	2000	29/32	29/32	1



DIN 12392

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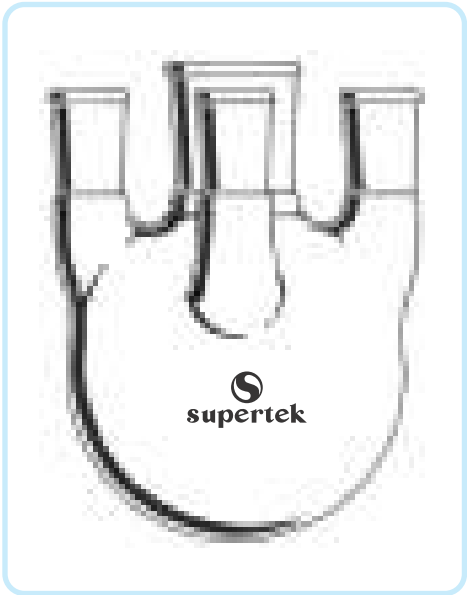
Flask Round Bottom, Three Necks Parallel

- * Conformity to DIN 12392 Standard. Printed in white color.
- * Uniform wall thickness distribution and the round-bottom shape makes them ideal for heating
- * Accessories, thermometer, column, dropping funnels, boiling capillaries, etc., can be fitted depending upon the application
- * Generally used in distillation and extraction processes

	Capacity, ml	Center Socket	Side Sockets	Pack Size
15.216.0005	250	24/29	19/26	1
15.216.0010	250	29/32	14/23	1
15.216.0015	250	29/32	29/32	1
15.216.0020	500	24/29	19/26	1
15.216.0025	500	29/32	14/23	1
15.216.0030	500	29/32	19/26	1
15.216.0035	500	29/32	29/32	1
15.216.0040	1000	24/29	19/26	1
15.216.0045	1000	29/32	14/23	1
15.216.0050	1000	29/32	19/26	1
15.216.0055	1000	29/32	24/29	1
15.216.0060	1000	29/32	29/32	1
15.216.0065	2000	24/29	19/26	1
15.216.0070	2000	29/32	19/26	1
15.216.0075	2000	29/32	29/32	1
15.216.0080	2000	34/35	19/26	1
15.216.0085	2000	34/35	24/29	1

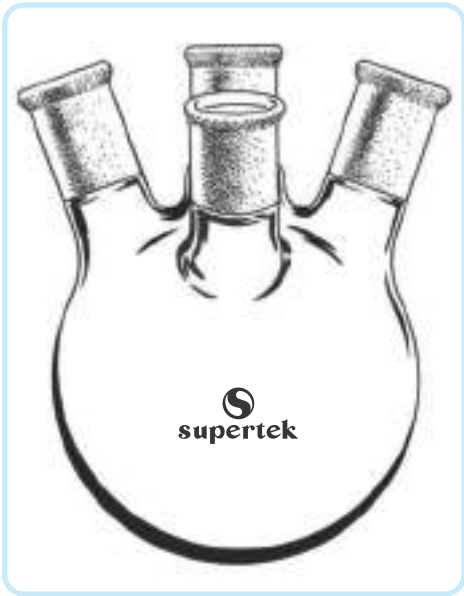
Round Bottom Flask, Four Necks (Parallel)

	Capacity, ml	Center Socket	Side Sockets	Pack Size
15.217.0005	50	24/29	24/29	1
15.217.0010	100	24/29	14/23	1
15.217.0015	100	24/29	19/26	1
15.217.0020	250	19/26	19/26	1
15.217.0025	250	24/29	14/23	1
15.217.0030	250	24/29	19/26	1
15.217.0035	250	29/32	14/23	1
15.217.0040	250	29/32	29/32	1
15.217.0045	500	19/26	19/26	1
15.217.0050	500	24/29	14/23	1
15.217.0055	500	24/29	19/26	1
15.217.0065	500	24/29	24/29	1
15.217.0070	500	29/32	14/23	1
15.217.0075	500	29/32	19/26	1
15.217.0080	500	29/32	29/32	1
15.217.0085	500	34/35	24/29	1
15.217.0090	1000	24/29	14/23	1
15.217.0095	1000	24/29	19/26	1
15.217.0100	1000	24/29	24/29	1
15.217.0105	1000	29/32	14/23	1
15.217.0110	1000	29/32	19/26	1
15.217.0115	1000	29/32	24/29	1
15.217.0120	1000	29/32	29/32	1
15.217.0125	1000	34/35	24/29	1
15.217.0130	2000	24/29	14/23	1
15.217.0135	2000	24/29	19/26	1
15.217.0140	2000	29/32	19/26	1
15.217.0145	2000	29/32	29/32	1
15.217.0150	2000	34/35	19/26	1
15.217.0155	2000	34/35	24/29	1
15.217.0160	3000	34/35	19/26	1
15.217.0165	3000	34/35	24/29	1
15.217.0170	5000	34/35	19/26	1
15.217.0175	5000	34/35	24/29	1
15.217.0180	10000	34/35	24/29	1
15.217.0185	10000	45/40	24/29	1
15.217.0190	10000	55/44	24/29	1
15.217.0195	20000	55/44	24/29	1



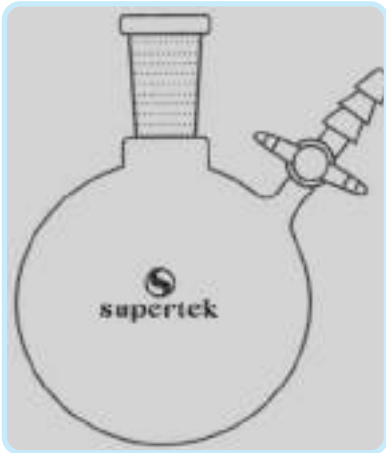
Round Bottom Flask, Four Necks (At An Angle)

	Capacity, ml	Center Socket	Side Sockets	Pack Size
15.218.0005	50	24/29	24/29	1
15.218.0010	100	14/23	14/23	1
15.218.0015	100	19/26	14/23	1
15.218.0020	100	24/29	14/23	1
15.218.0025	100	24/29	19/26	1
15.218.0030	100	29/32	14/23	1
15.218.0035	250	19/26	14/23	1
15.218.0040	250	19/26	19/26	1
15.218.0045	250	24/29	14/23	1
15.218.0050	250	24/29	19/26	1
15.218.0055	250	29/32	14/23	1
15.218.0060	250	29/32	19/26	1
15.218.0065	250	29/32	29/32	1
15.218.0070	500	24/29	14/23	1
15.218.0075	500	24/29	19/26	1
15.218.0085	500	24/29	24/29	1
15.218.0090	500	29/32	14/23	1
15.218.0095	500	29/32	19/26	1
15.218.0100	500	29/32	29/32	1
15.218.0105	500	34/35	24/29	1
15.218.0110	1000	24/29	14/23	1
15.218.0115	1000	24/29	19/26	1
15.218.0120	1000	24/29	24/29	1
15.218.0125	1000	29/32	14/23	1
15.218.0130	1000	29/32	19/26	1
15.218.0135	1000	29/32	29/32	1
15.218.0140	1000	34/35	24/29	1
15.218.0145	2000	24/29	14/23	1
15.218.0150	2000	24/29	19/26	1
15.218.0155	2000	29/32	24/29	1
15.218.0160	2000	29/32	29/32	1
15.218.0165	2000	34/35	19/26	1
15.218.0170	2000	34/35	24/29	1
15.218.0175	3000	34/35	19/26	1
15.218.0180	3000	34/35	24/29	1
15.218.0185	5000	34/35	19/26	1
15.218.0190	5000	34/35	24/29	1
15.218.0195	10000	34/35	24/29	1
15.218.0200	10000	45/40	24/29	1
15.218.0205	10000	55/44	24/29	1
15.218.0210	20000	55/44	24/29	1



Flasks, Solvent Storage, Glass stopcock

	Capacity, ml	Socket Size	Pack Size
15.219.0025	25	14/23	2
15.219.0050	50	14/23	2
15.219.0100	100	19/26	2
15.219.0250	250	24/29	1
15.219.0500	500	24/29	1



Flask Pear Shape, Single Neck

- * Made of 3.3 borosilicate glass
- * The conical shape makes them ideal for small scale reaction
- * Large labelling field

	Capacity, ml	Socket Size	Approx Overall height, mm	Approx diameter, mm	Pack Size
15.220.0025	25	14/23	90	38	10
15.220.0050	50	14/23	110	48	10
15.220.0100	100	14/23	125	58	10



Flask Pear Shape, Two Necks

	Capacity, ml	Center Socket	Side Sockets	Approx Overall height, mm	Pack Size
15.224.0050	50	14/23	14/23	110	1
15.224.0100	100	14/23	14/23	125	1

Flask Pear Shape, Three Necks

Center neck with one parallel side neck and one angle side neck

	Capacity, ml	Center Socket	Side Socket	Pack Size
15.228.0025	25	14/23	14/23	1
15.228.0050	50	14/23	14/23	1
15.228.0100	100	14/23	14/23	1



Flask Pear Shape, Distillation

Printed in white color.

	Capacity, ml	Socket Size	Cone Size	Pack Size
15.232.0010	10	14/23	14/23	4
15.232.0025	25	14/23	14/23	2
15.232.0050	50	14/23	14/23	2
15.232.0100	100	14/23	14/23	2



Flask Pear Shape, Claisen

Printed in white color.

	Capacity, ml	Socket Size	Cone Size	Pack Size
15.236.0010	10	14/23	14/23	2
15.236.0025	25	14/23	14/23	1
15.236.0050	50	14/23	14/23	1
15.236.0100	100	14/23	14/23	1

Flask Pear Shape, Claisen-vigreux

Printed in white color.

	Capacity, ml	Socket Size	Cone Size	Pack Size
15.240.0025	25	14/23	14/23	1
15.240.0050	50	14/23	14/23	1
15.240.0100	100	14/23	14/23	1



Flask Vigreux With Side Neck

Printed in white color.

	Capacity, ml	Socket Size	Cone Size	Pack Size
15.244.0025	25	14/23	14/23	1
15.244.0050	50	14/23	14/23	1
15.244.0100	100	14/23	14/23	1

- * To be used in Rotary Evaporator. Printed in white color.
- * Ideal for heating sensitive solvent solute combinations
- * Facilitate the extraction of key components like odour, oil, drugs, natural extract and fragrance

GENERAL LABWARE

Flasks



ISO 4797

Flask, Conical, (Erlenmeyer) With Joint

- * Conformity to ISO 4797 Standard. Easy to read scale, printed in white color.
- * Uniform wall thickness distribution makes these flasks ideal for heating
- * The conical form makes them suitable for mixing of liquids
- * Equipped with standard interchangeable joints

	Capacity, ml	Socket Size	Pack Size
15.252.0001A	5	14/20	10
15.252.0002A	10	14/20	10
15.252.0002B	10	19/22	10
15.252.0003	25	10/19	10
15.252.0004	25	14/20	10
15.252.0005	25	14/23	10
15.252.0010	25	19/26	10
15.252.0011	25	19/22	10
15.252.0015	50	14/23	10
15.252.0016	50	14/20	10
15.252.0020	50	19/26	10
15.252.0022	50	19/22	10
15.252.0025	50	24/29	10
15.252.0027	50	24/40	10
15.252.0030	50	29/32	10
15.252.0035	100	14/23	10
15.252.0040	100	19/26	10
15.252.0045	100	24/29	10
15.252.0050	100	29/32	10
15.252.0051A	125	14/20	10
15.252.0051B	125	19/22	10
15.252.0051C	125	24/40	10
15.252.0052	150	19/26	10
15.252.0053	150	24/29	10
15.252.0054	150	29/32	10
15.252.0055	200	29/32	10
15.252.0060	250	19/26	10
15.252.0065	250	24/29	10
15.252.0066	250	24/40	10
15.252.0070	250	29/32	10
15.252.0072	250	34/35	10
15.252.0075	300	29/32	10
15.252.0080	500	19/26	10
15.252.0085	500	24/29	10
15.252.0086	500	24/40	10
15.252.0090	500	29/32	10
15.252.0093	500	34/35	10
15.252.0095	1000	24/29	6
15.252.0096	1000	24/40	6
15.252.0100	1000	29/32	6
15.252.0105	1000	34/35	6
15.252.0108	2000	24/29	6
15.252.0110	2000	29/32	6
15.252.0120	2000	34/35	6

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Dish washer Durable Print

Flask, Conical, (Erlenmeyer) With Screw Cap

- * Easy to read scale, printed in white color.
- * Uniform wall thickness distribution makes these flasks ideal for heating
- * The conical form makes them suitable for mixing of liquids
- * Caps made of PP can be used to close these flasks

Cat. No.	Capacity, ml	Pack Size
15.256.0025	25	10
15.256.0050	50	10
15.256.0100	100	10
15.256.0150	150	10
15.256.0250	250	10
15.256.0500	500	10
15.256.1000	1000	6
15.256.2000	2000	6
15.256.5000	5000	1



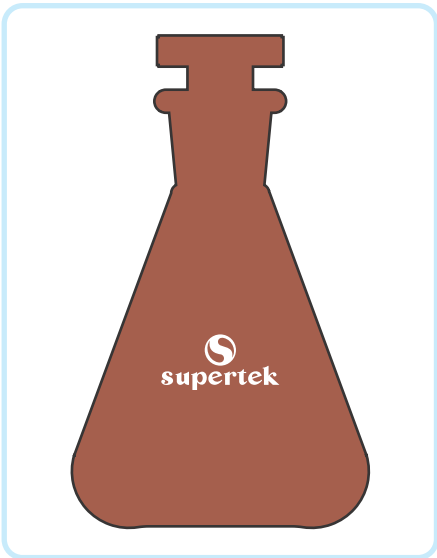
Conical Flask With Ground Joint & Hollow Glass Stopper

- * Easy to read scale, printed in white color.
- * Uniform wall thickness distribution makes these flasks ideal for heating
- * The conical form makes them suitable for mixing of liquids
- * These Flasks can be closed with a glass stopper

	Capacity, ml	Joint Size	Pack Size
15.260.0100	100	29/32	10
15.260.0250	250	29/32	10
15.260.0500	500	29/32	10
15.260.1000	1000	29/32	6
15.260.2000	2000	29/32	6

Amber Color Flask Conical With Interchangeable Stopper

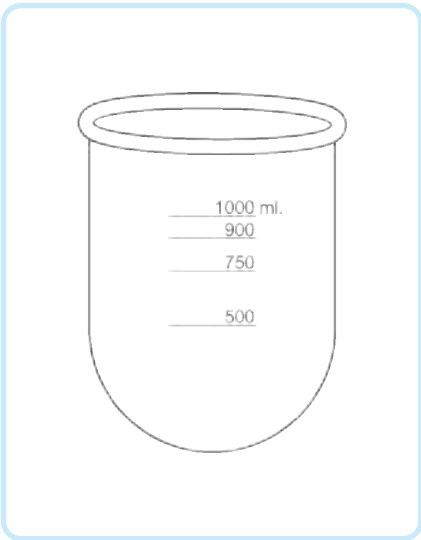
	Capacity, ml	Socket Size	Pack Size
15.262.0025	25	14/23	10
15.262.0050	50	19/26	10
15.262.0100	100	29/32	10
15.262.0250	250	29/32	10
15.262.0500	500	29/32	10
15.262.1000	1000	29/32	6
15.262.2000	2000	29/32	6



Flask, Iodine

- * For determination of Iodine with ground joint and stopper.
- * Large labeling field for easy marking
- * The handle of the stopper projects above the liquid seal, facilitating its removal

	Capacity, ml	Joint Size	Min. cup capacity, ml	Pack Size
15.264.0005	250	24/29	20	10
15.264.0010	250	29/32	20	10
15.264.0015	500	24/29	20	10
15.264.0020	500	29/32	20	10



Flask For Dissolution Apparatus, Without Side Cut as per USP, with Certificate

- In compliance with requirements of USP Ch. 711
- * Smooth base, straight sides and a flat flange
 - * Graduated in intervals of 50ml
 - * Used in determination of dissolution characteristics of drugs in capsules and tablets

	Capacity ml	Approx O.D. x Height mm	Pack Size
15.322.1000	1000	131 x 173	6
15.322.2000	2000	131 x 285	2

Flask For Dissolution Apparatus, With Side Cut as per USP, with Certificate

- In compliance to requirements of USP Ch. 711
- * Smooth base, straight sides and a flat flange side-cuts at the flange
 - * Graduated in intervals of 50ml
 - * Used in determination of dissolution characteristics of drugs in capsules and tablets

	Capacity ml	Approx O.D. x Height mm	Pack Size
15.324.1000	1000	124 x 173	6
15.324.2000	2000	131 x 285	2

Amber Flask For Dissolution Apparatus, Without Side Cut as per USP, with Certificate

- In Compliance with requirements of USP Ch. 711
- * Smooth base, straight sides and a flat flange
 - * Graduated in intervals of 50ml
 - * Used in determination of dissolution characteristics of drugs in capsules and tablets
 - * Amber color is applied to reduce UV light penetration

	Capacity ml	Approx O.D. x Height mm	Pack Size
15.326.1000	1000	131 x 173	6
15.326.2000	2000	131 x 285	2



Amber Flask For Dissolution Apparatus, With Side Cut as per USP, with Certificate

- In Compliance with requirements of USP Ch. 711
- * Smooth base, straight sides and a flat flange side-cuts at the flange
 - * Graduated in intervals of 50ml
 - * Used in determination of dissolution characteristics of drugs in capsules and tablets
 - * Amber color is applied to reduce UV light penetration

	Capacity ml	Approx O.D. x Height mm	Pack Size
15.328.1000	1000	124 x 173	6
15.328.2000	2000	124 x 285	2

Flask Reaction, Wide Neck

100 mm i.d., 150 mm o.d, flat flange joint

	Capacity, ml	Pack Size
15.268.1000	1000	1
15.268.2000	2000	1
15.268.3000	3000	1
15.268.5000	5000	1
15.268.9910	10000	1
15.268.9920	20000	1



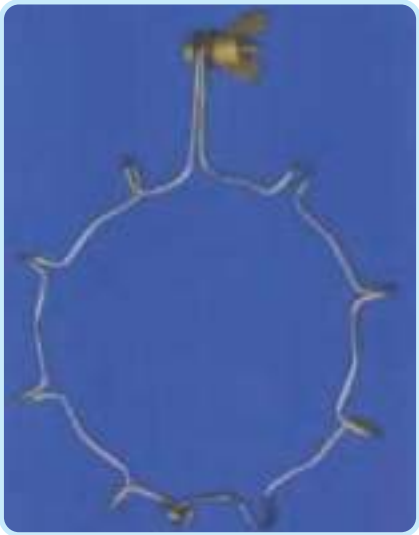
Lids For Reaction Flask, Multi Socket - With Flat Flange Joint, Flange Bore 100 mm

	Centre Socket	Parallel Socket	Side Socket			Pack Size
			5°	10°	15°	
15.272.0005	19/26	19/26	24/29	19/26	-	1
15.272.0010	19/26	14/23	14/23	14/23	29/32	1
15.272.0015	29/32	14/23	14/23	14/23	29/32	1

Stainless Steel Clip

Stainless Steel Clip with wing nuts for holding 100 mm flat flange

15.276.0005	5
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Flask, Culture, Haffkine

- * Complies with IS 7183
- * The large, flat bottom surface ensures uniform culture thickness
- * Typically used for the preparation of culture in nutrient media

	Capacity, ml	App. O.D. x Height mm	Pack size
15.280.3000	3000**	245 x 273	1
15.280.4000	4000	246 x 310	1

* Suitable for use in Polenske Apparatus
 ** 3000 ml not covered in standards



Weighing Scoop

- * Weighing Scoops have an open tubular arm
- * Ideal for weighing small quantities of dyes and powders

	Capacity, ml	Pack size
15.315.0001	1	10
15.315.0002	2	10
15.315.0003	3	10
15.315.0006	6	10
15.315.0010	10	10

Watch Glass

Cat. No.	Diam., mm	Pack Size
CH13090/1A	35	10
CH13090/1	50	10
CH13090/2	65	10
CH13090/3	75	10
CH13090/4	80	10
CH13090/5	100	10
CH13090/7	120	10
CH13090/10	150	10



Stirrer

- * Ideal for very sensitive samples
- * Made of polished 3.3 borosilicate glass

	Approx. O.D. x Height mm	Pack size
15.320.0815	8 x 150	20
15.320.0820	8 x 200	20
15.320.0825	8 x 250	20
15.320.0830	8 x 300	20
15.320.1015	10 x 150	20
15.320.1020	10 x 200	20
15.320.1025	10 x 250	20
15.320.1030	10 x 300	20



Funnels

www.supertekglassware.com



Filter Funnel, 60° Angle Long Stem

- * Complies with ISO / DIN 4798
- * Made of thermal shock resistant and chemical resistant Borosilicate 3.3 glass
- * Designed with a 60° angle to ensure precise fitting of the filter paper
- * Generally used for filtering and decanting liquids of varied densities

	Dia., mm	Pack Size
15.301.0025	25	10
15.301.0035	35	10
15.301.0040	40	10
15.301.0050	50	10
15.301.0055	55	10
15.301.0065	65	10
15.301.0070	70	10
15.301.0075	75	10
15.301.0080	80	10
15.301.0100	100	6
15.301.0125	125	4
15.301.0150	150	4

Filter Funnel, 60° Angle, Short Stem

- * Complies with ISO / DIN 4798
- * Made of thermal shock resistant and chemical resistant Borosilicate 3.3 glass
- * Designed with a 60° bowl angle to ensure precise fitting of the filter paper
- * Generally used for filtering and decanting liquids of varied densities

	Dia., mm	Pack Size
15.304.0025	25	10
15.304.0035	35	10
15.304.0038	38	10
15.304.0040	40	10
15.304.0050	50	10
15.304.0055	55	10
15.304.0065	65	10
15.304.0070	70	10
15.304.0075	75	10
15.304.0080	80	10
15.304.0100	100	6
15.304.0125	125	4
15.304.0150	150	4
15.304.0200	200	2

Powder Funnel

- * Ideal for transferring powders
- * Designed with a short wide stem to facilitate smooth flow
- * Made of thermal shock resistant and chemical resistant Borosilicate 3.3 glass
- * Supplied with ground glass cone for easy fitting on flask

Cat. No.	Funnel diam. Approx., mm	Cone Size	Pack Size
15.308.0005	45	14/23	10
15.308.0010	70	14/23	10
15.308.0015	70	29/32	10
15.308.0020	80	29/32	10
15.308.0025	100	14/23	6
15.308.0028	100	24/29	6
15.308.0030	100	29/32	6
15.308.0035	125	24/29	4
15.308.0040	150	24/29	4
15.310.0055	55	-	10
15.310.0080	80	-	10
15.310.0100	100	-	6
15.310.0125	125	-	4
15.310.0150	150	-	4



A 121 °C Dish washer Durable Print



Supertek brand Separating & Dropping Funnels are made from borosilicate 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass & DIN ISO 3585. They have easy to read scale in a durable white enamel. Printed in white as a standard, These funnels are available in blue & white printing and comply with Din ISO 4800 standard.

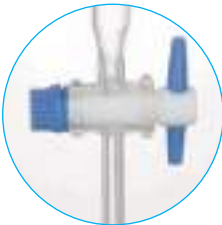
Separating Funnels

www.supertekglassware.com

Separating Funnel Squibb Shape, Plain With Polythene Stopper

- * Conformity to DIN ISO 4800 Standard. Printed in white color.
- * Made of Borosilicate 3.3 glass
- * Squibb shape,
- * Generally used in the separation phase

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.401.0050	15.403.0050	15.405.0050	50	19/26	2
15.401.0100	15.403.0100	15.405.0100	100	19/26	2
15.401.0250	15.403.0250	15.405.0250	250	29/32	2
15.401.0500	15.403.0500	15.405.0500	500	29/32	2
15.401.1000	15.403.1000	15.405.1000	1000	29/32	1
15.401.2000	15.403.2000	15.405.2000	2000	29/32	1



PTFE Key Stopcock

Separating Funnel Squibb Shape, Graduated With Polythene Stopper

- * Conformity to DIN ISO 4800 Standard. Printed in white color.
- * Made of Borosilicate 3.3 glass
- * Easy to read scale
- * Squibb shape,
- * Generally used in the separation phase

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.410.0050	15.413.0050	15.415.0050	50	19/26	2
15.410.0100	15.413.0100	15.415.0100	100	19/26	2
15.410.0250	15.413.0250	15.415.0250	250	29/32	2
15.410.0500	15.413.0500	15.415.0500	500	29/32	2
15.410.1000	15.413.1000	15.415.1000	1000	29/32	1
15.410.2000	15.413.2000	15.415.2000	2000	29/32	1



Glass Stopcock

Separating Funnel Globe Shape, Plain With Polythene Stopper

- * Conformity to DIN ISO 4800 Standard. Printed in white color.
- * Made of Borosilicate 3.3 glass
- * Globe shape,
- * Generally used in the separation phase

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.421.0050	15.423.0050	15.425.0050	50	19/26	2
15.421.0100	15.423.0100	15.425.0100	100	19/26	2
15.421.0250	15.423.0250	15.425.0250	250	29/32	2
15.421.0500	15.423.0500	15.425.0500	500	29/32	2
15.421.1000	15.423.1000	15.425.1000	1000	29/32	1
15.421.2000	15.423.2000	15.425.2000	2000	29/32	1



RotaFlo Stopcock

Separating Funnel, Plain, Globe Shape With Socket And Cone

- * Made of Borosilicate 3.3 glass
- * Conformity to DIN ISO 4800 Standard Printed in white color.
- * Globe shape,
- * Generally used in the separation phase

Glass stopcock with screw thread	PTFE needle stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.431.0050	15.433.0050	15.435.0050	50	19/26	2
15.431.0100	15.433.0100	15.435.0100	100	19/26	2
15.431.0250	15.433.0250	15.435.0250	250	29/32	2
15.431.0500	15.433.0500	15.435.0500	500	29/32	1
15.431.1000	15.433.1000	15.435.1000	1000	29/32	1
15.431.2000	15.433.2000	15.435.2000	2000	29/32	1



Separating Funnel, Plain, Globe Shape With Stem Inside Of Cone

- * Made of Borosilicate 3.3 glass
- * Conformity to DIN ISO 4800 Standard. Printed in white color.
- * Globe shape,
- * Generally used in the separation phase

Glass stopcock with screw thread	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.440.0005	15.444.0005	50	14/23	2
15.440.0010	15.444.0010	50	29/32	2
15.440.0015	15.444.0015	100	14/23	2
15.440.0020	15.444.0020	100	29/32	2
15.440.0025	15.444.0025	250	29/32	2
15.440.0030	15.444.0030	500	29/32	2
15.440.0035	15.444.0035	1000	29/32	1

Dropping Funnel, Cylindrical, Plain With Polypropylene Stopper

- * Conformity to DIN ISO 4800 Standard. Printed in white color.

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.448.0005	15.450.0005	15.452.0005	50	14/23	2
15.448.0010	15.450.0010	15.452.0010	50	29/32	2
15.448.0015	15.450.0015	15.452.0015	100	14/23	2
15.448.0020	15.450.0020	15.452.0020	100	29/32	2
15.448.0025	15.450.0025	15.452.0025	250	29/32	1
15.448.0030	15.450.0030	15.452.0030	500	29/32	1
15.448.0035	15.450.0035	15.452.0035	1000	29/32	1


DIN ISO
4800

A
121 °C

Dish washer
Durable
Print



Dropping Funnel, Cylindrical, Plain With Polypropylene Stopper, Socket & Cone

Conformity to DIN ISO 4800 Standard. Printed in white color.

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Socket & cone	Pack Size
15.455.0005	15.458.0005	15.460.0005	50	14/23	2
15.455.0010	15.458.0010	15.460.0010	50	29/32	2
15.455.0015	15.458.0015	15.460.0015	100	14/23	2
15.455.0020	15.458.0020	15.460.0020	100	29/32	2
15.455.0025	15.458.0025	15.460.0025	250	29/32	1
15.455.0030	15.458.0030	15.460.0030	500	29/32	1
15.455.0035	15.458.0035	15.460.0035	1000	29/32	1

Dropping Funnel, Cylindrical, Graduated With Polypropylene Stopper

Conformity to DIN ISO 4800 Standard. Printed in white color.

Glass stopcock with screw thread	PTFE needle valve stopcock (Rotaflo)	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.465.0005	15.468.0005	15.470.0005	50	14/23	2
15.465.0010	15.468.0010	15.470.0010	50	29/32	2
15.465.0015	15.468.0015	15.470.0015	100	14/23	2
15.465.0020	15.468.0020	15.470.0020	100	29/32	2
15.465.0025	15.468.0025	15.470.0025	250	29/32	1
15.465.0030	15.468.0030	15.470.0030	500	29/32	1
15.465.0035	15.468.0035	15.470.0035	1000	29/32	1



Dropping Funnel, Cylindrical, With Stem Inside Cone, Graduated

Conformity to DIN ISO 4800 Standard. Printed in white color.

Glass stopcock with screw thread	PTFE key stopcock	Capacity, ml	Neck Size	Pack Size
15.472.0005	15.474.0005	50	14/23	2
15.472.0010	15.474.0010	50	29/32	2
15.472.0015	15.474.0015	100	14/23	2
15.472.0020	15.474.0020	100	29/32	2
15.472.0025	15.474.0025	250	29/32	1
15.472.0030	15.474.0030	500	29/32	1
15.472.0035	15.474.0035	1000	29/32	1





Separating Funnel, Gilson With Polypropylene Stopper

Printed in white color.

Glass stopcock	PTFE Stopcock	Capacity, ml	Neck Size	Stopcock Type	Pack Size
15.476.0050	15.478.0050	50	19/26	Solid Glass	2
15.476.0100	15.478.0100	100	19/26	Solid Glass	2
15.476.0250	15.478.0250	250	29/32	Solid Glass	2
15.476.0500	15.478.0500	500	29/32	Solid Glass	2
15.476.1000	15.478.1000	1000	29/32	Solid Glass	1
15.476.2000	15.478.2000	2000	29/32	Solid Glass	1

Pressure Equalizing Funnel, Cylindrical, With Socket, Glass Stopcock And Stem With Cone

Printed in white color.

Glass Stopcock	PTFE Key stopcock	Capacity, ml	Socket & cone	Pack Size
15.480.0005	15.482.0005	50	14/23	2
15.480.0010	15.482.0010	50	29/32	2
15.480.0015	15.482.0015	100	14/23	2
15.480.0020	15.482.0020	100	29/32	2
15.480.0025	15.482.0025	250	29/32	1
15.480.0030	15.482.0030	500	29/32	1



GENERAL LABWARE

Pressure Equalising Funnels



Pressure Equalizing Funnel, Pear Shape, With Socket, Glass Stopcock And Stem With Cone

Printed in white color.

Glass Stopcock	PTFE Key Stopcock	Capacity, ml	Socket & cone	Pack Size
15.485.0050	15.488.0050	50	14/23	1
15.485.0100	15.488.0100	100	14/23	1
15.485.0250	15.488.0250	250	29/32	1
15.485.0500	15.488.0500	500	29/32	1

Absorption Tube, Calcium Chloride Straight Form, With One Bulb

	Length mm	Dia. mm	Pack Size
17.134.0100	100	12	12
17.134.0120	120	15	12
17.134.0150	150	18	12



Absorption Tube, Calcium Chloride U Form

	Length mm	Dia. mm	Pack Size
17.136.0100	100	12	10
17.136.0120	120	15	10
17.136.0150	150	18	10



Absorption Tube, Calcium Chloride U Form With Side Arms

	Length mm	Dia. mm	Pack Size
17.142.0100	100	12	10
17.142.0120	120	15	10
17.142.0150	150	18	10




supertek®

Laboratory Supplies



For more details log on to www.shivsons.com or ask for our Chemistry and Lab Supplies catalogue.



Desiccator, With Cover, Neutral Glass With Porcelain Plate

	Dia.,mm	Pack Size
19.101.0160	160	1
19.101.0210	210	1
19.101.0250	250	1
19.101.0300	300	1



Desiccator, Vacuum Neutral Glass With Porcelain Plate

	Dia.,mm	Pack Size
19.104.0160	160	1
19.104.0210	210	1
19.104.0250	250	1
19.104.0300	300	1

GENERAL LABWARE

Desiccator

supertek®

Plasticware



For more details log on to www.shivsons.com or ask for our Chemistry and Lab Supplies catalogue.

Dish, Crystallizing

- * Fire-polished rims to reduce chipping
- * High resistance to chemical attack and thermal shock

With Spout	Without Spout	O.D.,mm	Ht.,mm	Pack Size
19.108.0040	19.105.0040	40	25	4
19.108.0050	19.105.0050	50	30	4
19.108.0060	19.105.0060	60	35	4
19.108.0070	19.105.0070	70	40	4
19.108.0080	19.105.0080	80	45	4
19.108.0095	19.105.0095	95	55	4
19.108.0100	19.105.0100	100	50	4
19.108.0150	19.105.0150	150	75	1
19.108.0190	19.105.0190	190	100	1



Petri Dish Fused Edges, Complete With Cover

- * Made of Borosilicate glass 3.3
- * Ideal for use in Lab work
- * Even wall thickness
- * Can be sterilized repeatedly

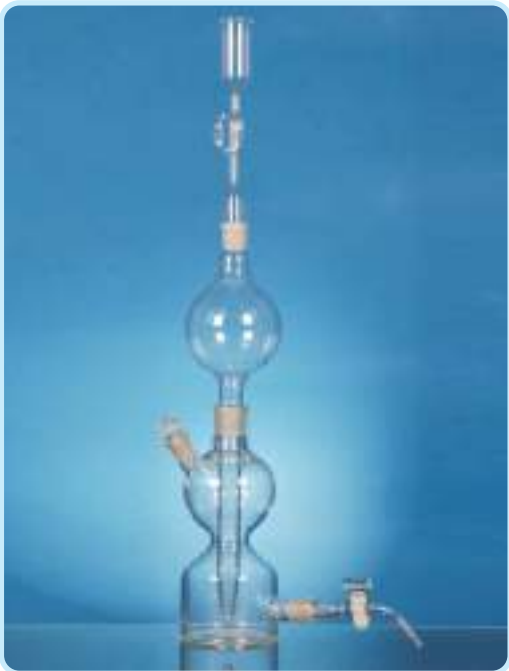
	Dia.,mm	Pack Size
19.112.0050	50	10
19.112.0075	75	10
19.112.0090	90	10
19.112.0100	100	10
19.112.0125	125	10

Gas Generator, Kipp's With Ground Glass Joints

Complete with delivery tube, thistle funnel and glass stopcock

- * Manufactured from Borosilicate 3.3 glass
- * Used to produce common gases
- * Simple to operate and assemble

	Capacity, ml	Pack Size
12.160.0250	250	1
12.160.0500	500	1
12.160.1000	1000	1



Stopcocks

www.supertekglassware.com

Stopcock, Straight

Glass stopcock	PTFE Key Stopcock	Size, mm	Bore, mm	Pack Size
15.501.0005	15.503.0005	12.5	2.5	10
15.501.0010	15.503.0010	14.5	2.5	10
15.501.0015	15.503.0015	15.8	4	10
15.501.0020	15.503.0020	18.8	6	10



Stopcock, Straight, With Screw Type Needle Valve With PTFE Key (Rotaflo)

	Bore size mm	Pack Size
15.508.0005	0-3	10
15.508.0010	0-6	10



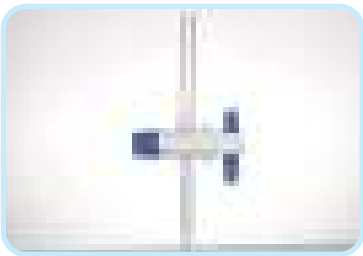
Stopcock For Burette, With Solid Glass Key Size 12.5 Mm, Bore Size 2.5 mm

	Pack Size
15.510.0005	10



Stopcock For Burette, With Ptfе Keysize 12.5 Mm, Bore Size 2.5 mm

	Pack Size
15.515.0005	10



Rotaflo Stopcock, 90°

	Bore size mm	Pack Size
15.520.0005	0-3	10
15.520.0010	0-6	10



Detachable PTFE Key Stopcock, For Burette

	Pack Size
15.530.0005	10





Sintered Glassware

www.supertekglassware.com

Sintered Glass

www.supertekglassware.com

Sintered Glass Filter Disc

Used extensively for filtration of both liquids or gases. In four ranges as detailed below.

Porosity Grade	Pore Size	General Use
1	90-150	Coarse precipitate, filtration, gas dispersion, coarse grain material filtration.
2	40-90	Medium & crystalline precipitate filtration, medium filtration & washing of gases
3	15-40	Fine gas filtration and dispersion, mercury filtration, fine grain material filtration, collection of fine precipitates. Analytical work with medium precipitates.
4	5-15	Valves of mercury collection of very fine precipitates. Analytical work with fine precipitates.



Crucible Gooch, With Sintered Disc

Grade 1	Grade 2	Grade 3	Grade 4 ml	Capacity, mm	Disc, Dia.	Pack Size
18.101.0005	18.101.0020	18.101.0035	18.101.0050	15	20	10
18.101.0010	18.101.0025	18.101.0040	18.101.0055	30	30	10
18.101.0015	18.101.0030	18.101.0045	18.101.0060	50	40	10

Buchner Funnel, With Sintered Disc

Grade 1	Grade 2	Grade 3	Grade 4 ml	Capacity, mm	Disc, Dia.	Pack Size
18.104.0005	18.104.0040	18.104.0075	18.104.0110	35	30	2
18.104.0010	18.104.0045	18.104.0080	18.104.0115	80	40	2
18.104.0015	18.104.0050	18.104.0085	18.104.0120	100	50	2
18.104.0020	18.104.0055	18.104.0090	18.104.0125	200	65	1
18.104.0025	18.104.0060	18.104.0095	18.104.0130	500	90	1
18.104.0030	18.104.0065	18.104.0100	18.104.0135	1000	120	1
18.104.0035	18.104.0070	18.104.0105	18.104.0140	2000	120	1



Buchner Funnel, With Sintered Disc, Cone On Stem

Grade 1	Grade 2	Grade 3	Grade 4	Capacity, ml	Disc, dia. mm	Cone	Pack Size
18.108.0005	18.108.0035	18.108.0065	18.108.0095	35	30	14/23	2
18.108.0010	18.108.0040	18.108.0070	18.108.0100	80	40	14/23	2
18.108.0015	18.108.0045	18.108.0075	18.108.0105	100	50	14/23	2
18.108.0020	18.108.0050	18.108.0080	18.108.0110	200	65	19/26	1
18.108.0025	18.108.0055	18.108.0085	18.108.0115	500	90	19/26	1
18.108.0030	18.108.0060	18.108.0090	18.108.0120	1000	120	24/29	1



Conical Filter, (hirsch Type) With Sintered Disc

Grade 1	Grade 2	Grade 3	Grade 4	Capacity, ml	Disc, Dia. mm	Pack Size
18.112.0005	18.112.0020	18.112.0035	18.112.0050	20	20	2
18.112.0010	18.112.0025	18.112.0040	18.112.0055	60	30	2
18.112.0015	18.112..0030	18.112.0045	18.112.0060	175	30	2



Filtering Tube With Sintered Disc, Sealed In Center
With Reduced Ends

Grade 1	Grade 2	Grade 3 mm	Grade 4	Disc, Dia.	Pack Size
18.120.0005	18.120.0030	18.120.0055	18.120.0080	30	2
18.120.0010	18.120.0035	18.120.0060	18.120.0085	40	2
18.120.0015	18.120.0040	18.120.0065	18.120.0090	50	2
18.120.0020	18.120.0045	18.120.0070	18.120.0095	65	2
18.120.0025	18.120.0050	18.120.0075	18.120.0100	90	2



Glass Filter Holder With Silicon Stopper **A**

- * Made of borosilicate 3.3 glass with fritted glass filter base
- * The filtration base has a high quality silicon stopper
- * Anodised aluminium spring clamp for good grip
- * The filter size is 25mm & 47mm
- * Facilitates analysis of particulate or biological contamination of vacuum filtering liquid
- * The scaled funnels simplify dosing and analysis

	Membrane Dia. mm	Funnel Capacity, ml	Flask Capacity, ml	Pack Size
18.144.0125	25	15	125	1
18.144.1000	47	300	1000	1
18.144.2000	47	300	2000	1

Spares For Glass Filter Holder With Silicon Stopper

	Capacity	Description
18.144.0125-1 B	15 ml	Funnel for 25 mm filter holder
18.144.0125-2 D	25 mm	Clamp for 25 mm filter holder
18.144.0125-3 C	25 mm	Fritted glass base with stopper for 25 mm filter holder
18.144.0125-4	125 ml	Flask for 25 mm filter holder
18.144.1000-1	300 ml	Funnel for 47 mm filter holder
18.144.1000-2	47 mm	Clamp for 47 mm filter holder
18.144.1000-3	47 mm	Fritted glass base with stopper for 47 mm filter holder
18.144.1000-4	1000 ml	Flask for 47 mm filter holder
18.144.2000-1	2000 ml	Flask for 47 mm filter holder



All Glass Filter Holder - 47 mm, Filtration Assembly

- * Made of borosilicate 3.3 glass with fritted glass filter base
- * Anodised aluminium spring clamp
- * The filter size is 47mm
- * Used for filtration of HPLC solvents and aqueous mobile phase solutions and buffers
- * The scaled funnels simplify dosing and analysis

	Membrane Dia. mm	Funnel Capacity, ml	Flask Capacity, ml	Pack Size
18.147.0500	47	300	500	1
18.147.1000	47	300	1000	1
18.147.2000	47	300	2000	1

Spares For All Glass Filter Holder - 47 mm, Filtration Assembly

	Capacity	Description
18.147.0500-1	300 ml	Funnel for 47 mm filter holder
18.147.0500-2	47 mm	Clamp for 47 mm filter holder
18.147.0500-3	47 mm	Fritted glass base with joint for 47 mm filter holder
18.147.0500-4	500 ml	Flask for 47 mm filter holder
18.147.1000-4	1000 ml	Flask for 47 mm filter holder
18.147.2000-4	2000 ml	Flask for 47 mm filter holder

Best
Seller



Gooch Crucible With Rubber Bung, Filtration Assembly

- * Made of borosilicate 3.3 glass with fritted glass filter base
- * Used for filtration of HPLC solvents and aqueous mobile phase solutions and buffers
- * Sintered Gooch & parts available as per requirement

Parts For Gooch Crucible With Rubber Bung, Filtration Assembly

Crucible Gooch, With Sintered Disc

Grade 1	Grade 2	Grade 3	Grade 4 ml	Capacity, mm	Disc, Dia.
18.101.0005	18.101.0020	18.101.0035	18.101.0050	15	20
18.101.0010	18.101.0025	18.101.0040	18.101.0055	30	30
18.101.0015	18.101.0030	18.101.0045	18.101.0060	50	40

	Capacity	Description
18.149.0015-1	15ml	Rubber cone for mounting 15ml crucible into adapter
18.149.0030-1	30ml	Rubber cone for mounting 30ml crucible into adapter
18.149.0050-1	50ml	Rubber cone for mounting 50ml crucible into adapter
18.149.0015-2	15ml	Funnel for mounting 15ml crucible into adapter
18.149.0030-2	30ml	Funnel for mounting 30ml crucible into adapter
18.149.0050-2	50ml	Funnel for mounting 50ml crucible into adapter
18.149.0015-3	15ml	Rubber Cork for fitting 15ml funnel into Flask
18.149.0030-3	30ml	Rubber Cork for fitting 30ml funnel into Flask
18.149.0050-3	50ml	Rubber Cork for fitting 50ml funnel into Flask
18.149.0125	125ml	Filter Flask 125 ml
18.149.0250	250ml	Filter Flask 250 ml
18.149.0500	500ml	Filter Flask 500 ml
18.149.1000	1000ml	Filter Flask 1000 ml
18.149.2000	2000ml	Filter Flask 2000 ml



Absorption Column Plain

Without Stopcock	Glass Stopcock	PTFE Needle Valve Stopcock	PTFE Key Stopcock	Effective Length, cm	Disc dia. mm	Pack Size
18.152.0005	18.156.0005	18.180.0005	18.176.0005	20	10	1
18.152.0010	18.156.0010	18.180.0010	18.176.0010	30	15	1
18.152.0015	18.156.0015	18.180.0015	18.176.0015	50	20	1
18.152.0020	18.156.0020	18.180.0020	18.176.0020	60	25	1
18.152.0025	18.156.0025	18.180.0025	18.176.0025	60	40	1



Chromatography Column, With Integral Sintered Disc

Without Stopcock	PTFE Needle Valve	Glass Stopcock	PTFE Key Stopcock	Effective Length, cm	Disc Dia. mm	Pack Size
18.164.0005	18.160.0005	18.168.0005	18.172.0005	15	10	1
18.164.0010	18.160.0010	18.168.0010	18.172.0010	20	15	1
18.164.0015	18.160.0015	18.168.0015	18.172.0015	30	20	1
18.164.0020	18.160.0020	18.168.0020	18.172.0020	40	20	1
18.164.0025	18.160.0025	18.168.0025	18.172.0025	40	30	1
18.164.0030	18.160.0030	18.168.0030	18.172.0030	50	30	1
18.164.0035	18.160.0035	18.168.0035	18.172.0035	50	40	1
18.164.0040	18.160.0040	18.168.0040	18.172.0040	60	40	1

Chromatography Column, With Integral Sintered Disc, Socket And Cone

	Bore mm	Effective Length, mm	Socket Size	Cone Size	Pack Size
18.184.0005	10	100	14/23	19/26	1
18.184.0010	10	200	14/23	19/26	1
18.184.0015	10	300	14/23	19/26	1
18.184.0020	18	200	14/23	19/26	1
18.184.0025	18	300	14/23	19/26	1
18.184.0030	18	300	24/29	19/26	1
18.184.0035	18	400	24/29	19/26	1
18.184.0040	18	400	24/29	24/29	1





Bottles

www.supertekglassware.com

Bottles

www.supertekglassware.com



Best Seller

Bottle, Reagent Interchangeable Glass/PP Stopper, Narrow Mouth, Clear

- In conformity to DIN ISO 4796-2 Standard. Printed in white color.
- * These narrow mouth reagent storage bottles have a sturdy ground neck
 - * All sizes have a enameled area for marking
 - * These bottles are strong and chemical resistant
 - * Supplied with solid glass stopper and PP stoppers As per requirement

Glass Stopper	Polypropylene Stopper	Capacity, ml	Socket	Pack Size
12.101.0050	12.102.0050	50	14/23	12
12.101.0100	12.102.0100	100	14/23	12
12.101.0250	12.102.0250	250	19/26	12
12.101.0500	12.102.0500	500	24/29	6
12.101.1000	12.102.1000	1000	29/32	6
12.101.2000	12.102.2000	2000	29/32	2



Bottle, Reagent Interchangeable Glass/PP Stopper, Narrow Mouth, Amber.

- In conformity to DIN ISO 4796-2 Standard. Printed in white color.
- * These narrow mouth reagent storage bottles have a sturdy ground neck
 - * All sizes have a enameled area for marking
 - * These bottles are mechanically strong and chemical resistant
 - * The uniform Amber colour is highly durable and has high chemical resistance
 - * Ideal for use with light-sensitive media and for the long-term storage of substances
 - * Supplied with solid glass stopper and PP stopper As per requirement

Glass Stopper	Polypropylene Stopper	Capacity, ml	Socket	Pack Size
12.104.0050	12.105.0050	50	14/23	12
12.104.0100	12.105.0100	100	14/23	12
12.104.0250	12.105.0250	250	19/26	12
12.104.0500	12.105.0500	500	24/29	6
12.104.1000	12.105.1000	1000	29/32	6
12.104.2000	12.105.2000	2000	29/32	2



Bottle, Reagent, With Screw Cap

- In conformity to DIN ISO 4796-1 Standard. Printed in white color.
- * These bottles are mechanically strong and chemical resistant
 - * Provided with a pouring ring for drip-free operation
 - * The screw caps and pouring ring are made of PP
 - * The bottles, screw caps and pouring rings can be sterilized and autoclavable
 - * 100 ml to 2000 ml Bottles have uniform GL 45 thread



DIN ISO 4796-1

Clear Glass	Amber Glass	Capacity, ml	Pack Size
12.108.0010	12.112.0010	10	10
12.108.0025	12.112.0025	25	10
12.108.0050	12.112.0050	50	10
12.108.0100	12.112.0100	100	10
12.108.0250	12.112.0250	250	10
12.108.0500	12.112.0500	500	10
12.108.1000	12.112.1000	1000	6
12.108.2000	12.112.2000	2000	2
12.108.3000	12.112.3000	3000	1
12.108.5000	12.112.5000	5000	1
12.108.9910	12.112.9910	10000	1
12.108.9920	12.112.9920	20000	1



DIN ISO 4796-1

Bottle, Dropping Bottle With Rubber Teat, Dropping Pipette Ground Into Bottle Neck.

- Printed in white color.
- * Made form 3.3 borosilicate glass
 - * Highly chemical resistance
 - * Supplied with interchangeable ground joint transparent pipette with rubber teat



Best Seller

Clear Glass	Amber Glass	Capacity, ml	Pack Size
12.116.0030	12.120.0030	30	12
12.116.0060	12.120.0060	60	12
12.116.0125	12.120.0125	125	12



Bottle, Mc Cartney (Bijou) Narrow Mouth, Clear Neutral Glass, Autoclavable, With Aluminium Screw Cap And Rubber Liner.



	Capacity, ml	Pack Size
12.124.0007	7	500
12.124.0014	14	400

Bottle, Mc Cartney (Bijou) Universal, Wide Mouth, Clear Neutral Glass, Autoclaveable, With Aluminium Cap And Rubber Washer

	Capacity, ml	Pack Size
12.128.0028	28	400

Dish washer Durable Print



Caps, PP Screw Cap with Pouring Ring for Laboratory Reagent Bottles

- * Autoclavable upto 140°C
- * Made of high grade polypropylene

Cat. No.	Colour	DIN Thread	Pack Size
12.103.0005	Blue	GL 45	10
12.103.0010	Orange	GL 45	10
12.103.0015	Yellow	GL 45	10
12.103.0020	Green	GL 45	10
12.103.0025	Grey	GL 45	10
12.103.0030	Blue	GL 25	10
12.103.0035	Blue	GL 32	10

Bottle, Dropping Bottle With Rubber Teat, PP Stopper & Glass Dropper

- Made from 3.3 borosilicate glass
- Highly chemical resistance
- Supplied with polypropylene stopper, transparent pipette with rubber teat

Clear Glass	Amber Glass	Capacity	Pack Size
12.113.0030	12.114.0030	30	12
12.113.0060	12.114.0060	60	12
12.113.0125	12.114.0125	125	12



Bottle, Dropping Bottle With Rubber Teat, PP Stopper & Graduated Glass Dropper

- Made from 3.3 borosilicate glass
 - Highly chemical resistance
 - Supplied with polypropylene stopper, transparent pipette with rubber teat
- Pipette is Graduated for easy estimation of volume

Clear Glass	Amber Glass	Capacity	Pack Size
12.118.0030	12.119.0030	30	12
12.118.0060	12.119.0060	60	12
12.118.0125	12.119.0125	125	12



Bottles, Culture, Roux, Off-Set Neck

- Complies with IS 6942
- Designed to hold approximately half of the stated capacity of solution, when the Bottle is laid flat
- The offset neck is tool-finished for greater strength and uniform stopper fit
- These bottles facilitate the growing of mass cultures and single or monolayer cultures
- It withstands repeated sterilisation (wet or dry)

	Capacity	Pack size
12.122.1000	1000 ml	10



Bottles, Solution, Plain, Tooled Neck

These bottles are mechanically strong and chemical resistant
Bottles are specially designed for handling and safely storing culture media

- All sizes have a durable matt-finished enamelled area for marking

	Capacity	Approx Neck I.d.	Pack Size
12.129.0250	250	18	10
12.129.0500	500	23	10
12.129.1000	1000	28	6
12.129.2000	2000	33	2
12.129.3000	3000	44	1
12.129.5000	5000	44	1
12.129.9910	10000	54	1
12.129.9920	20000	54	1

Pyknometer, Gay- Lussac (S.G. Bottle), Un Calibrated

In conformity to ISO 3507

- * These bottles are mechanically strong and chemical resistant
- * All sizes have a durable matt-finished enameled area for marking
- * Available with Glass & PTFE stoppers

PTFE Stopper	Glass Capillary Stopper	Capacity, ml	Pack Size
12.130.0010	12.131.0010	10	6
12.130.0025	12.131.0025	25	6
12.130.0050	12.131.0050	50	6
12.130.0100	12.131.0100	100	6

Pyknometer, Gay- Lussac (S.G. Bottle), Calibrated

In conformity to ISO 3507

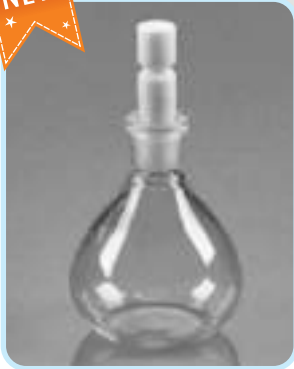
- * These bottles are strong and chemical resistant
- * All sizes have a durable matt-finished enamelled area for marking
- * Available with Glass & PTFE stoppers

PTFE Stopper	Glass Capillary Stopper	Capacity, ml	Pack Size
12.132.0010	12.133.0010	10	6
12.132.0025	12.133.0025	25	6
12.132.0050	12.133.0050	50	6
12.132.0100	12.133.0100	100	6

Best Seller



NEW



Pyknometer With Ground-in Thermometer

- * In Compliance to ISO 3507
- * Labeling field for easy marking
- * Manufactured from 3.3 Borosilicate Glass for corrosion-free performance
- * Supplied with thermometer (0°C to 50°C)

Cat. No.	Capacity, ml	Pack Size
12.134.0010	10	6
12.134.0025	25	6
12.134.0050	50	6
12.134.0100	100	6

Pyknometer With Ground-in Thermometer, Class A With Individual Works Certificate

- * In Compliance to ISO 3507
- * Labeling field for easy marking
- * Manufactured from 3.3 Borosilicate Glass for corrosion-free performance
- * Supplied with thermometer (0°C to 50°C)
- * With thermometer certificate

Cat. No.	Capacity, ml	Pack Size
12.135.0010	10	6
12.135.0025	25	6
12.135.0050	50	6
12.135.0100	100	6



Weighing Bottle, Tall Form

- * These bottles are strong and chemical resistant
- * Made of borosilicate glass 3.3

	Dia. x ht. mm	Capacity ml	Pack Size
12.140.2040	20 x 40	5	25
12.140.2565	25 x 65	15	25
12.140.3065	30 x 65	25	25
12.140.4090	40 x 90	60	12

Weighing Bottle, Squat Form

	Dia. x ht. mm	Capacity ml	Pack Size
12.136.5035	50 x 35	20	12
12.136.6040	60 x 40	40	12



Woulff Bottle, Two Necks

Printed in white color.

	Capacity, ml	Pack Size
12.144.0250	250	1
12.144.0500	500	1
12.144.1000	1000	1



Woulff Bottle, Three Necks

Printed in white color.

	Capacity, ml	Pack Size
12.148.0250	250	1
12.148.0500	500	1
12.148.1000	1000	1



Aspirator Bottle With GL 45 Screw Cap And Socket At Bottom

	Capacity, ml	Pack Size
12.153.0250	250	1
12.153.0500	500	1
12.153.1000	1000	1

Aspirator Bottle With GL 45 Screw Cap And Stopcock

Printed in white color.

	Capacity, ml	Pack Size
12.155.1000	1000	1
12.155.2000	2000	1
12.155.5000	5000	1



Gas Washing Bottle - Flat Bottom Flask

With stopper and inlet & outlet glass tubes printed in white color.

- * These bottles are mechanically strong and chemical resistant
- * All sizes have a enameled area for marking

	Capacity, ml	Pack Size
12.164.0250	250	1
12.164.0500	500	1
12.164.1000	1000	1

Gas Washing Bottle, Dreschel's

Inlet and outlet tubes in a stopper which fits the bottle having interchangeable 19/26 ground glass joint. Printed in white color.

- * These bottles are strong and chemical resistant
- * All sizes have a enameled area for marking

	Capacity, ml	Pack Size
12.168.0125	125	1
12.168.0250	250	1



Bod Bottles

These bottles are used for determining oxygen demand in samples of sewage, Industrial waste, polluted water or any other sample, diluted samples are incubated in the bottles and analyzed. Its stoppers are designed to prevent air entrapment and flared mouth forms a water seal to prevent intrusion of air. Supertek brand BOD bottles are manufactured from Boro 3.3 glass as per ASTM E-438 type 1, Class A standard. These bottle have a large permanent marking space for labeling of bottle numbers.

Bod Bottles

Printed in white color.

Pennyhead stopper	Robotic stopper	Capacity, ml	Pack Size
12.174.0060	12.172.0060	60	6
12.174.0300	12.172.0300	300	2

These bottles are unnumbered. if required bottles with sequence number can also be provided at extra cost.



Plasticware



For more details log on to www.shivsons.com or ask for our Chemistry and Lab Supplies catalogue.

Tubes

www.supertekglassware.com

Supertek brand Test tubes, Screw cap tubes is manufactured from Low-Expansion Boro 3.3 glass in conformance with ASTM E-438 TYPE 1 CLASS A glass & DIN ISO 3585. The test tubes are mechanically very strong, yet still retain good thermal shock resistance. These are printed in white enamel.

Test Tube

- Fire polished rim and uniform wall thickness
Conformity to ISO 4142
- * Made of borosilicate 3.3 glass
 - * High thermal shock resistance & chemical attack resistance
 - * Available with & without rim
 - * Packed in breakage resistant special designed boxes.

With Rim.	Without rim	Nominal Size, mm	Pack Size
17.101.1075	17.104.1075	10 x 75	100
17.101.1275	17.104.1275	12 x 75	100
17.101.1010	17.104.1010	10 x 100	100
17.101.1210	17.104.1210	12 x 100	100
17.101.1610	17.104.1610	16 x 100	100
17.101.1512*	17.104.1512*	15 x 125	100
17.101.1612	17.104.1612	16 x 125	100
17.101.1515*	17.104.1515*	15 x 150	100
17.101.1615	17.104.1615	16 x 150	100
17.101.1815	17.104.1815	18 x 150	100
17.101.2510	17.104.2510	25 x 100	100
17.101.2015	17.104.2015	20 x 150	100
17.101.2515	17.104.2515	25 x 150	100
17.101.2520	17.104.2520	25 x 200	100
17.101.3220	17.104.3220	32 x 200	100
17.101.3820	17.104.3820	38 x 200	50

*Non-ISO



Test Tube - With Side Arm

* Fire polished rim and uniform wall thickness

	Size, mm	Pack Size
17.108.1512	125 x 15	20
17.108.1815	150 x 18	20
17.108.2515	150 x 25	10

Tube Flat Bottom With Rim

- * Made of borosilicate glass, designed with a flat bottom
- * High thermal shock resistance
- * Used for pathological tests and disintegration apparatus

	Approx. O.D. x Length mm	Pack size
17.110.1813	18 x 138	100
17.110.1855	18 x 55	100
17.110.1411	14 x 110	100



Culture Tube, Media - Round Bottom, With Screw Cap*

- * Made of borosilicate glass, designed with a round bottom
- * Designed with special caps to facilitate handling and sealing
- * The caps are available with PTFE liner & Rubber liner

With rubber liner	With Teflon Liner	Capacity, ml	Size mm	Pack Size
17.112.0005	17.113.0005	5	75 x 16	100
17.112.0010	17.113.0010	10	125 x 16	100
17.112.0030	17.113.0030	30	100 x 25	100
17.112.0060	17.113.0060	60	200 x 25	100

Culture Tube, Media - Flat Bottom, With Screw Cap

With rubber liner	With Teflon Liner	Capacity, ml	Size mm	Pack Size
17.116.0005	17.117.0005	5	50 X 16	100
17.116.0015	17.117.0015	15	57 X 25	100
17.116.0030	17.117.0030	30	95 X 25	100



Test Tube - With Socket, Plain

Glass Stopper	Polypropylene Stopper	Length x dia., mm	Socket	Pack Size
17.120.1210	17.121.1210	100 X 12	10/19	100
17.120.1512	17.121.1512	125 x 15	12/21	100
17.120.1815	17.121.1815	150 X 18	14/23	100
17.120.2515	17.121.2515	150 X 25	19/26	100
17.120.2520	17.121.2520	200 X 25	19/26	100
17.120.3220	17.121.3220	200 X 32	24/29	50
17.120.3820	17.121.3820	200 X 38	24/29	50

Test Tube - With Socket, Graduated

Glass Stopper	Polypropylene Stopper	Size mm	Capacity, ml	Sub. Div., ml	Socket	Pack Size
17.124.0005	17.125.0005	100 X 12	5	0.1	10/19	100
17.124.0010	17.125.0010	125 x 16	10	0.1	12/21	100
17.124.0015	17.125.0015	150 x 22	25	0.5	19/26	100
17.124.0020	17.125.0020	200 x 25	50	1	19/26	100



Tube, T Or Y Shape For Connection

T shape	Y shape	Diam.,mm	Pack Size
17.129.0007	17.130.0007	7	12
17.129.0010	17.130.0010	10	12
17.129.0012	17.130.0012	12	12

Centrifuge Tube, Conical Bottom, Plain

Centrifuge tubes are thick-walled and resistant to mechanical stress

	Capacity, ml	Ht. x O.D.,mm	Pack Size
17.146.0005	3	76 x 10	100
17.146.0010	5	100 x 13	100
17.146.0015	10	110 x 15	100
17.146.0020	12	110 x 16	100
17.146.0025	15	120 x 17	100
17.146.0030	25	125 x 22	100
17.146.0037	50	135 x 30	50



Centrifuge Tube, Conical Bottom, Graduated

Centrifuge tubes are thick-walled and resistant to mechanical stress

	Capacity, ml	Ht. x O.D.,mm	Pack Size
17.150.0005	5	100 x 13	100
17.150.0010	10	110 X 15	100
17.150.0015	15	120 x 17	100
17.150.0020	25	125 X 22	100
17.150.0025	50	125 X 28	50

Centrifuge Tube, With Screw Cap, Plain

	Capacity, ml	Ht. x O.D., mm	Pack Size
17.154.0010	10	110 X 15	100
17.154.0015	15	120 X 17	100



Centrifuge Tube, With Screw Cap, Graduated

	Capacity, ml	Ht. x O.D., mm	Pack Size
17.158.0010	10	110 X 15	100
17.158.0015	15	120 X 17	100

Centrifuge Tube, Conical Bottom With Interchangeable Stopper

	Capacity, ml	Ht. x O.D., mm	Pack Size
17.162.0005	3	76 x 10	100
17.162.0010	5	100 x 13	100
17.162.0015	12	110 x 16	100
17.162.0020	15	120 x 17	100
17.162.0025	25	125 x 22	100



Centrifuge Tube, Conical Bottom Graduated, With Interchangeable Stopper

	Capacity, ml	Ht. x O.D., mm	Pack Size
17.166.0005	3	76 x 10	100
17.166.0010	5	100 x 13	100
17.166.0015	12	110 x 16	100
17.166.0020	15	120 x 17	100
17.166.0025	25	125 x 22	100



Centrifuge Tube, Round Bottom Graduated

	Capacity, ml	Ht. x O.D., mm	Pack Size
17.170.0005	12	16 x 110	100
17.170.0010	30	24 x 110	50
17.170.0015	40	28 x 110	50
17.170.0020	50	30 x 110	50
17.170.0025	100	45 x 110	25
17.170.0030	200	55 x 116	25



Care and Maintenance of Laboratory Glassware



General Precautions

Any glassware, which is scratched, chipped or cracked is not to be used. Defects like these can seriously weaken the glass and made it prone to breakage in use.

- Do not lift or carry large glass flasks, beakers or bottles etc. by the neck or rim. This causes stress and can lead to breakage. Support the product from the base and sides.
- Never use excessive force to fit rubber bungs into the neck of glass aspirators, test tubes, conical flasks, etc. Take care to select the correct size.
- Never force rubber hoses or flexible tubing onto the glass side-arms of Buchner, filter flasks, wash bottle heads etc. Always lubricate the tubing and ease on gently whilst wearing protective gloves. (Most **Supertek** glassware avoids this problem with detachable plastic hose connectors).

When treated with proper care, Supertek brand glassware will have a longer life and provide satisfactory service. To obtain maximum life and performance from your glassware, correct handling is essential. The following notes should serve as a guide to new users and to remind more experienced handlers of there commended standard operating procedures.

- When stirring solutions in glass vessels, such as beakers and flasks, avoid using stirring rods with sharp ends which can scratch and weaken the glassware.
- Use of hydrofluoric acid, hot phosphoric acid and strong hot alkalis can cause corrosion and should be avoided.
- Do not mix concentrated sulphuric acid with water inside a glass measuring cylinder. the heat of reaction can break the seal at the base of the cylinder.
- Wash glassware promptly after use to avoid hard dried residues. Use a biodegradable, phosphate free detergent specially formulated for laboratory use.
- Do not use cleaning brushes which are badly worn and where the metal spine may scratch the glass.

Heating and Cooling

The maximum recommended working temperature for glassware is 500°C (for short periods only). However, once the temperature exceeds 150°C extra special care should be taken to ensure that heating and cooling is achieved in a slow and uniform manner.

- Never heat glassware that is scratched, chipped, cracked or etched. Such defects reduce the thermal strength, making the glassware more prone to breakage.
- Do heat vessels gently and gradually to avoid breakage by thermal shock. Similarly, allow hot glassware to cool gradually and in a location away from cold draughts.



If using a hotplate, ensure that the top plate is larger than the base of the vessel to be heated. Also, never put cold glassware onto a hotplate which is already well heated. Warm up gradually from ambient temperature.

- If using a Bunsen burner, employ a soft flame and use a wire gauze with ceramic centre to diffuse the flame
- **Supertek** borosilicate glass is microwave safe. However, as with any microwave Vessel, be sure it holds a microwave absorbing material, such as water, before placing in the oven.



- When autoclaving **Supertek** containers, e.g. bottles, with screwcaps - always slacken off the caps. Autoclaving with tightly screwed caps can result in pressure differences and consequent breakage.

Preparation of Media

Take great care when heating liquids that have a HIGH VISCOSITY. Viscous liquids can act as thermal insulators and can cause 'hot spots' or even thermal breakage of the glassware. This is particularly important with MEDIA SOLUTIONS as the viscosity usually increases considerably during preparation.

- Do regularly stir the solution to assist even distribution of heat. If using a magnetic stirrer set the speed to ensure adequate agitation of the whole liquid.
- Check the stirring action regularly to ensure that thorough agitation is maintained.
- Heat vessels gradually and avoid very rapid boil-up rates.
- For personal safety, consider sitting the hotplate in a tray. This will help contain the liquid in the event of breakage.

Vacuum and Pressure Use

Because working conditions can vary enormously, **Supertek** cannot guarantee any glassware against breakage when used under vacuum or pressure.

- The application of positive pressures in side glass apparatus is particularly hazardous and should be avoided if at all possible. Safety precautions should always be taken to protect personnel and a number of these are listed below:

- Always use an adequate safety screen and / or protective cage.
- Do not use flat bottomed vessels such as Erlenmeyer flasks and bottles under vacuum as they are likely to implode. Exceptions are vessels with specially thick-ened walls such as Buchner filter flasks and desiccators.
- Avoid stress caused by over-tightening clamps. Support glassware gently where possible.

Never subject glassware to sudden pressure changes. Always apply and release pressure gradients and vacuums gradually.

Ground Glass Joints

Lubricate the ground surfaces of joints to prevent leakage in use and facilitate separation . Use a silicone-free laboratory grease and apply a light coat completely around the upper part of the joint Alternatively, consider joint sleeves which can be fitted between the cone and socket.

- If ground glass joints do seize, then the following remedies can be considered;
- Always wear thick protective gloves and safety spectacles. Never use force.

- Carefully rock the cone in its socket to achieve separation.
- If the joint is 'dry', try to provide lubrication. Hold the joint upright and add penetrating oil to the top of the cone. Wait until the penetrating oil is well into the joint before trying to separate.
- If the use of temperature is permissible, e.g. no volatile liquids present, then warm the outer socket under a running stream of hot water from the tap. Hold under the tap for a few minutes before trying to separate.

Sintered Glassware

New apparatus having sintered glass discs should be washed before use to remove loose particles of dust etc. Wash through with hot dilute hydrochloric acid followed by a thorough rinse with water.

- Do ensure that the porosity of the sintered disc is appropriate for the application.

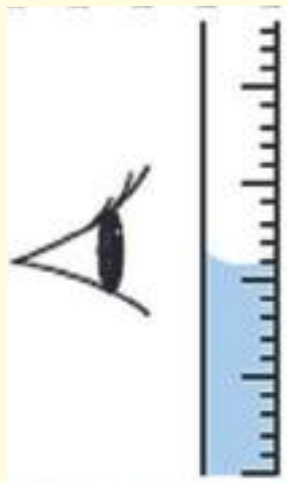


- Never subject sintered glassware to differential pressures exceeding 100kN/m^2 (1 bar).
- Take extra care when heating sintered ware as the thermal endurance is less than standard borosilicate glass products. Always heat and cool very gradually.

Volumetric Glassware

Do ensure that all volumetric glassware is kept scrupulously clean. Dirt, and especially grease, can distort the shape of the meniscus and also cause droplets of liquid to adhere to the vessel walls. Both seriously impair accuracy. Good cleanliness is indicated by uniform wetting of the glass surface with distilled water)

- Do not expose volumetric glassware to direct heat e.g. hotplates, bunsen flame.
- Autoclaving at 121°C and cleaning in automatic dishwasher is acceptable and will not affect the accuracy of **Supertek** glassware
- Never pipette by mouth. Always use a purpose designed pipette filler.
- All items should be held in a vertical position when reading the meniscus. The meniscus should be at eye.



As with all glassware scratched or chipped items should not be used.

This information is provided in good faith by Supertek for the safety of its customers. Please note that the advice given is for general laboratory applications and may not necessarily apply to all tests or procedures. If you are in any doubt, contact the Supertek Technical Services Department for specific advice at info@shivsons.com

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Technical Data

supertek Laboratory Glassware is made of Heat resistant Borosilicate 3.3 Glass, unless otherwise specified. It is suitable for use in laboratories as well as industrial application.

CHEMICAL COMPOSITION	
	Approx % by weight
SiO ₂	81
B ₂ O ₃	13
Na ₂ O/(K ₂)	4
Al ₂ O ₃	2
THERMAL PROPERTIES	
The typical thermal properties of supertek glassware are given below:	
Coefficient of Linear Expansion	32.5 x 10 ⁻⁷ /°C
Strain Point	515°C
Annealing Point	565°C
Softening Point	820°C
Specific Heat	0.2
Thermal Conductivity (Cal/cm ³ °C/sec)	0.0027

CHEMICAL DUABILITY

Glassware is resistant to water, netural and acid solutions, concentrated acids and their mixtures as well as to chlorine, bromine, iodine and organic matters. Only hydrofluoric acid, very hot phosphoric acid and alkaline solutions increasingly attack the glass surface with rising concentration and temperature.

Terms And Conditions

- All correspondence should be addressed to our corporate office at following address
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