



GAGRO COMPANY

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Laboratory scientific equipment

Apparatus, Models & Charts



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(A) APPLIED MECHANICS LAB

- Universal Force Table (Normal)
- Link Polygon Apparatus
- Apparatus To Study Equilibrium of Non Concurrent Forces
- Parallelogram of Forces Apparatus
- Polygon of Forces Apparatus
- Triangle & Parallelogram of Forces Apparatus
- Polygon & Triangle of Forces Apparatus
- Law of Conservation of Mass
- Apparatus To Verify The Law of Forces In Three Dimensions
- Parallel Forces Apparatus (Tubular Spring Balance)
- Parallel Forces Apparatus (Dial Type 10 kg. Balance)
- Parallel Forces Apparatus overhang Beam Type
- Apparatus for Reaction of Forces in Beam 20Kg Balance
- Bell Crank Lever Apparatus
- Compound Lever Apparatus
- Cranked Compounded Lever Apparatus
- Lever Apparatus
- Moments Disc Apparatus
- Law of Moments Apparatus
- Cantilever Beam Apparatus
- Structural Mechanics Apparatus (Complete Set of 14)
- Jointed Roof Truss on Wheels
- Shear Legs Apparatus (Without Weight)
- Simple Jib Crane Apparatus
- Jib Crane With Slotted Weights
- Geared Jib Crane (Without Weight)
- Friction Slide Apparatus (Without Weight)
- Inclined Plane Apparatus
- Combined Inclined Plane And Friction Slide Apparatus
- Coil Friction Apparatus (Without Weight)
- Combined Coil And Flat Belt Friction Apparatus
- Rope Brake And Dynamometer
- Crony Brake Dynamometer
- Pulley Blocks Brass, 8 cm Dia. 6 mm Grove
 - (A) Single
 - (B) Double
 - (C) Tripple
- Pulley Blocks Aluminium. 8 cm Dia. 2 cm Grove
 - (A) Single
 - (B) Double
 - (C) Tripple
- Differential Pulley Block Model
- Pulley Demonstration Set
- Pulley System Different Type
- Chain Pulley Blocks
 - (A) Worm Gear Type (1 Ton.)
 - (B) Spur Gear Box Type (1 Ton.)
 - (C) Weston's Differential, Triple Purchase (1 Ton.)
- Compound Wheel And Axle Apparatus



Centrifugal Force Apparatus



Center of Gravity Apparatus



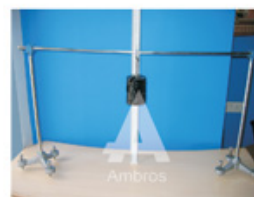
Screw Jack Apparatus



Parallelogram of Forces Apparatus

Combine Coil &
Belt Friction Apparatus

Compound Screw Jack



Deflection of Beam Apparatus



Friction Slide Apparatus



Moment of Inertia of Flywheel

Applied Mechanics Lab

- Wheel and Differential Axle Apparatus
- Winch Crab Single Purchase Apparatus
- Winch Crab Double Purchase Apparatus
- Worm and Worm Wheel Apparatus
 - (A) Single
 - (B) Double
 - (C) Tripple
- Screw Efficiency Apparatus
- Screw Jack Apparatus
- Compound Screw Jack Apparatus
- Compound Screw Jack with Transverse Motion
- Deflection of Beam Apparatus (Without Weight)
- Bending of Beam Apparatus (With Weight)
- Elasticity of Fixture Apparatus
- Shear Force Apparatus (With Weight)
- Bending Moment Apparatus (With Weight)
- Stresses In Beam Apparatus (With Weight)
- Compression of Coiled Springs (Without Weight)
- The Combined Compression And Extension of Springs Apparatus
- Hook's Law Apparatus (With Weight)
- Young's Modulus Apparatus (Searle's Pattern)
- Young's Modulus Apparatus
- Young's Modulus Apparatus (Vernier Type) (Without Weight)
- Young Modulus of a Metal Rod by an Interference Method
- Rigidity of Wires
- Rigidity of Wires With Stand
- Maxwell Vibration Needle
- Tortion Apparatus (Clamp Pattern) (Without Weight)
- Tortion Apparatus Searle's Type
- Tortion Apparatus Vertical Type
- Second Law of Motion Apparatus
- Simple Pendulum
- Bar Pendulum or Compound Pendulum
- Kater's of Reversible Pendulum
- Moment of Inertia of Flywheel
 - (A) 15 cm
 - (B) 20 cm
 - (C) 25 cm
 - (D) 30 cm
 - (E) 37cm
 - (F) 45cm
- Fletcher Trolley
- Atwood Machine (Complete With Stand)
- Apparatus To Find Center of Gravity
- Centrifugal Force Apparatus



Tortion Apparatus Searle's
Type - Vertical



Flywheel Apparatus-
With Counter



Combined Compression And
Extension of Springs Apparatus



Fletcher Trolley Apparatus



Tortion Apparatus Searle's
Type - Horizontal



Winch Crab Double Purchase



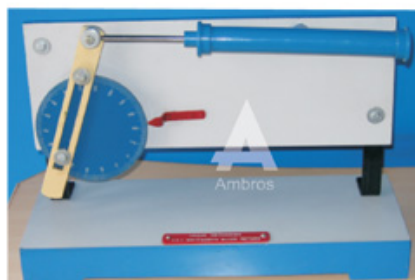
Inclined Plane Apparatus

(B) ENGINEERING MODELS**(i) GEAR MODELS**

- 9151 Single Stage Spur Gears
- 9152 Single Stage Spur Gears with Intermediate
- 9153 Two Stage Spur Gears
- 9154 Three Stage Spur Gears
- 9155 Single Stage Bevel Gears
- 9156 Single Stage Helical Gears
- 9157 Single Stage Spiral Gears
- 9158 Gear Sets
 - (A) Set Of 4
 - (B) Set Of 8
- 9160 Herringbone Gears
- 9162 Internal Gear Pinion Drive
- 9163 Rack and Quadrant Gears
- 9164 Sliding Wedge Gear With Straight Line
- 9165 Rack & Pinion
- 9166 Epicycle Gear
- 9167 Epicyclic Gear (Sun & Planet Type)
- 9168 Cycloidal Gear
- 9169 Reversing Gears
- 9170 Worm Gear
- 9171 Train Of Gear Wheels
 - (A) Simple
 - (B) Compound
- 9172 Inter Connected Gears
- 9173 Gear Box (3 speed & reverse gear)
 - (A) Without Clutch
 - (B) With Clutch
- 9174 Differential Gear
- 9175 Shaper Model

(ii) MECHANISM MODELS

- 9177 Friction Wheel Drive
- 9178 Chain Drive
- 9179 Geneva Drive
- 9180 Pawl & Ratchet Rod Model
- 9181 Crank & Connecting Rod Model
- 9182 (I) Slide Crank Mechanism
 - (A) Reciprocating Engine Mechanism
 - (B) Oscillating Cylinder Mechanism
 - (C) Witworth Quick Return Mechanism
- 9182(II) Slide Crank Mechanism With Caliberated Dials
 - (A) Reciprocating Engine Mechanism
 - (B) Oscillating Cylinder Mechanism
 - (C) Witworth Quick Return Mechanism
- 9183 Four Bar Link Mechanism
- 9184 Scotch Yoke Mechanism
- 9185 Elipse Tracer Model
- 9186 Watt's Mechanism
- 9187 Peucellir Linkage Drive Model
- 9188 Pentograph Mechanism
- 9189 Kinematic Pairs
- 9190 Crank Shaft To Slider Mechanism
- 9191 Crank & Slotted Link Mechanism
- 9192 Two Crank Linkage Drive Model
- 9193 Slotted Link Bar Mechanism



Witworth Quick Return Mechanism



Inversions Of Four Bar Mechanism



Rotary To Reciprocating Mechanism



Cam Analysis Apparatus - Manual

Engineering Models

- 9194 Inversion Of Four Bar Mechanism
- 9195 Crank Drive To Oscillating Link Mechanism
- 9196 Crank Slotted Lever Apparatus (fully Calibrated)
- 9197 Inversion Of Single Slide Crank Mechanism
- 9198 Inversion Of Double Slide Crank Mechanism

(iii) CAM & FOLLOWER MODELS

- 9200 Cams & Followers Set of 5 :-
 - (A) Plate Cam : With Flat Faced Reciprocating Follower
 - (B) Tangent Cam : With Roller Oscillating Follower
 - (C) Cylindrical Cam : With Translating Follower
 - (D) Translating Cam : With Reciprocating Knife Edge Follower
 - (E) End Cam : With Translating Follower
- 9201 Action Of Cams
- 9202 Triangular Eccentric Cam
- 9203 Tri Clover Leaf Cam
- 9204 Harmonic Motion (simple type)
- 9205 Harmonic Motion



Epicyclic Gear - Sun & Planet Type

(iv) BRAKE MODELS

- 9206 Single Shoe Brake
- 9207 Double Shoe Brake
- 9208 Band Brake
- 9209 Band and Block Brake
- 9210 Internally Expanding Brake
- 9211 Disc Brake Model
- 9212 Disc Brake Actual Working
- 9213 Hydraulic Brake Unit (Single Brake Drum)
- 9214 Hydraulic Brake Unit (Two Brake Drums)
- 9215 Hydraulic Brake Unit (Four Brake Drums)
- 9216 Mechanical Brake System
- 9217 Power Brake Actual Working
- 9218 Air Brake Working Model



Gear Drive Set of 4

(v) BELT PULLEY MODELS

- 9225 Model of Belt Pulleys
 - (A) Flat Belt Pulley
 - (B) Rope Pulley
 - (C) V' Belt Pulley
 - (D) Cone or Step Pulley
- 9226 Belt Drive Single Speed
- 9227 Belt Drive Two Stage
- 9228 Belt Drive Lose And Fast



Oscillating Cylinder Mechanism

(vi) BEARING MODELS

- 9240 Shafting General Bearing
 - (A) Open Truck Bearing
 - (B) Simple Bearing
 - (C) Bush Bearing
 - (D) Thrust Bearing
 - (E) Plummer Block or Pedestal Bearing
 - (F) Foot Step Bearing
- 9241 Bearings
 - (A) Ball Bearings
 - (B) Roller Bearings
 - (C) Taper Bearings
 - (D) Thrust Bearings



Four Bar Chain Mechanism

Engineering Models

- 9242 Ball Bearings Set
- 9243 Swivel Bearings
- 9244 Hanger Brackets
- 9245 Wall Brackets

(vii) KEY & JOINTS MODELS

- 9250 Keys
- 9251 Knuckle Joint
- 9253 Cotter Joint
- 9254 Gib & Cotter Joint
- 9255 Tie Rod Joint
- 9256 Sleeve & Cotter Joint
- 9257 Socket & Spigot Joint
- 9258 Rivetted Joints
- 9259 Rivetted Joints
 - (A) Rivetted Joints Tripple
 - (B) Rivetted Joints Quadruple
 - (C) Rivetted Joints Angle Iron and Girder Joints
- 9260 Rivets Four Types
- 9261 Rolled Sectional Models
- 9262 Girder Models
 - (A) Plate Girder
 - (B) Box Girder
 - (C) N.Girder

(viii) COUPLING MODELS

- 9263 Sellers Coupling
- 9264 Universal Coupling
- 9265 Hook's Coupling
- 9266 Hook's Coupling(Double)
- 9267 Double Hook's Coupling Experimental Apparatus
- 9268 Flexible Coupling
- 9269 Box or Muff Coupling
- 9270 Flanged Coupling
- 9271 Split Muff Coupling
- 9272 Oldham's Coupling
 - (A) Big
 - (B) Small

(x) SCREW & NUT MODELS

- 9280 Hemispherical Sectional Models of Screw Threads
- 9281 Hemispherical Sectional Models of Screw Threads Nuts
- 9282 Standard Bolt
- 9283 Bolts of Four Types
- 9284 Foundation Bolts
- 9285 Foundation Bolts (with nomenclature)
- 9286 Locking Arrangement of Bolts

(xi) GYROSCOPE MODELS

- 9290 Standard Gyroscope
- 9291 Gyroscope With Counter Poise
- 9292 Bicycle Wheel Gyroscope
- 9293 Revolving Stool For Above



Scotch Yoke Mechanish



Slide Crank Mechanism



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Bolts of Different
Type Set of 10



Kinematic Pairs



Geneva Mechanism

Mechanism Models

The models give an idea to explain the most fundamental and frequently used mechanisms and give a deep understanding of the Theory of machines. All the components are made with high degree of precision, interchangeability and easy to assemble or disassemble. The models are assembled on transparent Perspex sheets, so that it is easy to visualize & understand the mechanical motions & functions. All the models are provided with rotating handles, so that a student can understand the actual mechanisms more deeply by rotating themselves which otherwise is difficult to understand in the real big machines

- 1 Single Stage spur gear
- 2 Single stage spur gear with intermediate gear
- 3 Two stage Spur gear
- 4 Three stage Spur Gear
- 5 Three speed & reverse gear
- 6 Worm Gear
- 7 Bevel Gear
- 8 Rack & Quadrant Gear Drive
- 9 Reversing Gear (Tumbler Type)
- 10 Epicyclic Gear (Sun & planet)
- 11 Cycloidal Motion
- 12 Internal Rolling gear drive
- 13 Internal Gear & Pinion Drive
- 14 Helical Gear
- 15 Spiral Gear 90 Degree
- 16 Spiral Gear Single Stage with Intermediate Gear
- 17 Herringbone gear
- 18 Crank drive to Oscillating Link
- 19 Crank Shaft & slider mechanism
- 20 Two Crank & Linkage Drive (Variable velocity)
- 21 Crank & slotted Link Drive (Oscillator)
- 22 Crank & slotted link drive(variable velocity)
- 23 Friction wheel drive circumference
- 24 Centrifugal Mechanism and clutch drive
- 25 Friction Wheel Drive (Variable Speed)
- 26 Cone Clutch Drive (single sided)
- 27 Cone clutch drive (Two Speed)
- 28 Dog Clutch drive Single Sided
- 29 Dog Clutch Drive (Two Speed)
- 30 Flat Belt Drive (With Tensioner)
- 31 Belt drive toothed
- 32 Belt drive single speed
- 33 Belt Drive Two stage
- 34 Belt Drive (Contra Rotation)
- 35 Belt Drive - multi speed
- 36 Chain Drive With Tensioner
- 37 Geneva Drive(Maltese Cross)
- 38 Sliding wedge gear with straight line & arcuate output
- 39 Can with straight Line & lever follower
- 40 Face cam Drive (free Follower)
- 41 Face cam drive (Double sided)Trapped Followers
- 42 Oldhams coupling
- 43 Differential Gear
- 44 Lathe Screw Cutting
- 45 Shaper Mechanism Model
- 46 Crank & Connecting Rod
- 47 Four bar link Mechanism
- 48 Bevel Gear type reversing mechanism
- 49 Scotch Yoke Mechanism
- 50 Ellipse Tracer
- 51 Watt Mechanism
- 52 Peaucellier linkage drive
- 53 Pantograph mechanism
- 54 Allen Link Motion
- 55 Hobbing



Crank Shaft & Slider Mechanism



Belt Drive Single Speed



Face Cam Drive (Free Follower)



Can with straight Line
& Lever Follower



Bevel Gear



Spiral Gear 90 Degree



Internal Gear & Pinion Drive



Two Crank & Linkage Drive



Rack & Quadrant Gear Drive



Single Stage Spur Gear



Crank Drive to Oscillating Link



Oldhams Coupling



Herringbone gear



Differential Gear

Mechanism Models



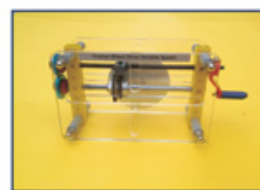
Belt Drive toothed



Four Bar Link Mechanism



Dog Clutch Drive Single Sided



Friction Wheel Drive



Crank & Slotted Link Drive



Allen Link Motion



Chain Drive With Tensioner

Sliding wedge gear
with straight line &

Crank & Connecting Rod



Worm Gear



Crank & Connecting Rod



Flat Belt Drive (With Tensioner)



Bevel Gear type Reversing mechanism



Belt Drive Two stage



Cone Clutch Drive (single sided)



Crank & slotted link drive



Face cam drive Double sided Trapped



Helical Gear



Geneva Drive (Maltese Cross)



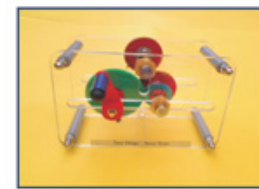
Belt Drive (Contra Rotation)



Three stage Spur Gear



Single stage spur gear with...



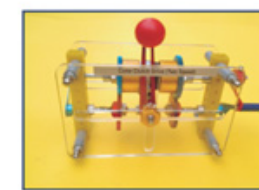
Two stage Spur gear



Friction wheel drive circumference



Epicyclic Gear (Sun & planet)



Cone clutch drive (Two Speed)



Spiral Gear Single Stage with...



Watt Mechanism

(C) DRAWING MODELS

9300 OBJECT DRAWING MODELS

Wooden, beautifully painted and specially designed for illustrating and teaching geometrical drawing. Approximate size of the model is 20x12 cm.

DISSECTED MODELS

- (A) Rectangular prism.
- (B) Rectangular Pyramid.
- (C) Triangular Prism.
- (D) Triangular Pyramid.
- (E) Square Prism.
- (F) Square Pyramid.
- (G) Pentagonal Prism.
- (H) Pentagonal Pyramid.
- (I) Hexagonal Prism.
- (J) Hexagonal Pyramid.
- (K) Octagonal Prism.
- (L) Octagonal Pyramid.
- (M) Decagonal Prism.
- (N) Decagonal Pyramid.
- (O) Cube 20 x 20 cm
- (P) Cone
- (Q) Cone cut in four sections
- (R) Sphere 15 cm
- (S) Cylinder



9301 OBJECT DRAWING MODELS

UNDISSECTED MODELS

- (A) Rectangular Prism.
- (B) Rectangular Pyramid.
- (C) Triangular Prism.
- (D) Triangular Pyramid.
- (E) Square Prism.
- (F) Square Pyramid.
- (G) Pentagonal Prism.
- (H) Pentagonal Pyramid.
- (I) Hexagonal Prism.
- (J) Hexagonal Pyramid.
- (K) Octagonal Prism.
- (L) Octagonal Pyramid.
- (M) Decagonal Prism.
- (N) Decagonal Pyramid.
- (O) Cube 20 x 20 cm
- (P) Skeleton Cube 20 x 20 cm
- (Q) Cone
- (R) Sphere 15 cm
- (S) Half Sphere
- (T) Cylinder

Drawing Models

- (U) Semi – Cylinder
 - (U) Quarter Cylinder
 - (V) Tetrahedron
 - (W) Octahedron
 - (X) Circle
 - (Y) Double Cross
 - (Z) Single Cross
 - (Z1) Model Plates (Set of 7)
- 9307 Cube Dissectible: A cube of 15 cm side dissectible in six square pyramids, beautifully painted in two colours.
- 9315 A Set of Wooden Model on Interpenetration of Solids as under :
- (A) Two cylinders of different diameters penetrating each other at right angles.
 - (B) Two cylinders of different diameters with oblique penetration.
 - (C) A cylinder into a cone with oblique penetration.
 - (D) A Cone and cylinder with penetration at right angles.
 - (E) Two cones at right angles.
 - (F) Two square prisms of different sizes at right angles.
 - (G) Two square prisms at oblique angles.
 - (H) Sphere and cone at centre.
 - (I) Sphere and cylinder eccentric.
 - (J) Sphere and cylinder at centre.
- 9316 Binomial Cube: $(A + B)^3$ Wooden model to explain the formula. Very interesting model in Wooden case.
- 9317 Cubic Decimeter: 10 cm cube, wooden, with printed dial, dissectible in 3 parts.
- 9318 Slide Rule Model: Very instructive wooden model about 70x14cm in size with four scales. Designed to explain how to multiply, to divide, to square and to find square root and to find cube of with instructions.
- 9321 Geometrical instrument Box:
- 9325 Projection of Straight Line Apparatus:
- 9326 Carpentry Joints: A set of 20 wooden joints in polished wooden box with nomenclature.



(E) HEAT ENGINE LAB

(I) BOILER MODEL

- 10110 Model of Lancashire Boiler
- 10111 Model of Cornish Boiler
- 10112 Model of Babcock And Wilcox Boiler
- 10113 Model of Locomotive Boiler
- 10114 Model of Cochran Boiler
- 10115 Vertical Water Tube Boiler
- 10116 Model of Lamount Boiler
- 10117 Model of Benson Boiler
- 10118 Model of Loeffler Boiler
- 10119 Model of Valox Boiler
- 10120 Model of Marcet Boiler
- 10121 Model of Stirling Boiler
- 10122 Model of Nestlar Boiler

(II) MOUNTINGS & ACCESSORIES OF STEAM BOILERS

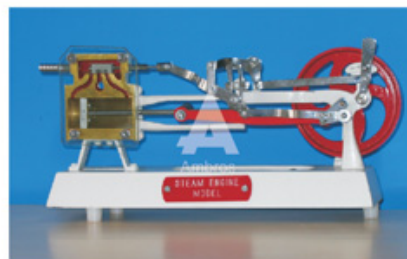
- 10131 Lever Safety Valve
- 10132 Spring Loaded Safety Valve
- 10133 Dead Weight Safety Valve
- 10134 Combined High Steam And Low Water Safety Valve
- 10138 Water Gauge Model
- 10139 Stop Valve Hopkinson Type
- 10140 Feed Check Valve
- 10145 Steam Injector
- 10146 Pressure Gauge
- 10147 Pressure Gauge 60mm dia
- 10148 Blow off Cock
- 10150 Reducing Valve
- 10151 Fusible Plugs
- 10152 Anti-Priming Pipe
- 10155 Expansion Steam Trap
- 10156 Float Steam Trap
- 10160 Green Economiser
- 10161 Sudgen Super Heater

(III) STEAM ENGINE MODELS

- 10165 Model of Steam Engine
- 10167 Steam Engine Model With A Boiler
- 10170 Steam Engine 'D' Slide Valve
- 10171 Model of Piston Valve Steam Engine
- 10172 Model of Compound Steam Engine
- 10173 Model of Uniflow Steam Engine
- 10174 Model of Drop Valve Steam Engine
- 10175 Model of Mayer Expansion Valve Steam Engine
- 10176 Model of Corliss Valve Steam Engine
- 10180 Stephenson Link Motion
- 10181 Gooch Link Motion
- 10182 Allan Link Motion
- 10183 Joy Valve Gear
- 10184 Walscharet Valve Gear

(IV) GOVERNORS MODELS

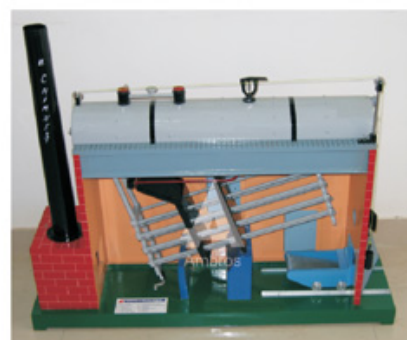
- 10190 Watt's Governors
 - 1 Ordinary
 - 2 Early
 - 3 Cross Arm



Steam Engine Model



Locomotive Boiler Model



Babcock & Wilcox Boiler Model



Diesel Engine Models



Petrol Engine Models

Heat Engine Lab

10191 Governor Model

1 Loaded

2 Porter

3 Hartnell

10192 Rotating Arrangement

10193 Governor Models With Rotator

10194 Throttle Valve

10195 Eccentric Model

10196 Stuffing Box

10197 Cross Head

Steam Engine Model With
Boiler - Working Model(v) SECTIONAL WORKING MODELS OF PETROL
& DIESEL ENGINE

10211 Sectional Working Model Of 2 Stroke Petrol Engine

10212 Sectional Working Model Of 4 Stroke Petrol Engine

10213 Sectional Working Model Of 2 Stroke Diesel Engine

10214 Sectional Working Model Of 4 Stroke Diesel Engine

10220 Gas Turbines Or Turbojet Engine

10221 Ram Jet Engine

10225 Wankel Engine



Lancashire Boiler

(vi) STEAM TURBINE MODELS

10227 De-Laval Turbine (Velocity Compounded)

10228 Pressure & Velocity Compounded Steam Turbine

10229 Air or Steam Pressure Turbine (Pressure Compounded)

10230 Pure Reaction & Hero's Steam Turbine



Nestler Boiler Model

(vii) STEAM CONDENSER MODELS

10232 Jet Condenser — Parallel Flow

10233 Jet Condenser — Counter Flow

10234 Surface Condenser

10235 Evaporative Condenser

10236 Ejector Condenser

10237 Air Pre Heater



Air or Steam Pressure Turbine



Cochran Boiler Model

(F) CIVIL ENGG. MODELS

(i) BRIDGE MODELS

- 10251 Plate Girder Bridge
- 10252 Lattice Girder Bridge
- 10253 Lattice Bowstring Girder Bridge
- 10254 Road Suspension Bridge
- 10255 Stone Arch Bridge
- 10256 R.C.C. Deck Slab Bridge
- 10257 R.C.C. Balanced Cantilever Bridge
- 10258 Floating Bridge
- 10259 T Beam Bridge
- 10260 Lift Bridge Across A Port Channel
- 10265 Bridge Trusses
 - (A) Plate Type
 - (B) N. Type
 - (C) Warren Type
 - (D) Lattice Type
 - (E) Lattice Bowstring Type



Collar Beam Truss Model



Raking Shore



Model of An Aqueduct

(ii) CULVERT MODELS

- 10266 Road Culvert With Single Arch
- 10267 Road Culvert Brick Barrel Type
- 10268 Road Culvert Box Type
- 10269 Road Culvert With R.C.C. Slab
- 10270 Road Culvert Skew Type
- 10271 Railway Culvert



Suppressed Weir



Suppressed Weir

(iii) ROAD MODELS

- 10275 Flyover Road Junction
 - (A) Clover Leaf Junction
 - (B) Diamond Pattern
- 10276 Model of Cross Section Of National Highway
- 10277 Model of Sub-Surface Drainage
- 10278 Road Signs

(iv) RAILWAY MODELS

- 10285 Model of Points Crossing
- 10286 Model of Inter Locking

(v) BUILDING MODELS

- 10301 Grillage Foundation
- 10302 Model of Foundation
- 10305 Pile Driving Machine Model
- 10306 Piles of Different Types
 - (A) Steel Sheet Pile
 - (B) Screw Pile
 - (C) Timber Pile
- 10307 Wing Walls
- 10310 Pneumatic Caisson



Road Culvert With Single Arch

Civil Engg. Models

- 10315 Model of Bricks
 10320 Bricklayer's Scaffolding
 10325 Raking Shore
 10326 Flying Shore
 10330 Centring of Arch
 10335 Carpentry Joints
 10338 Model of Door Leaf
 (A) Fully Panelled Door
 (B) Half Panelled & Half Glazed Door
 (C) Sash Door
 (D) Ledged & Braced Door
 (E) Flush Door
 10339 Model of Doors With Surrounding Frames
 (A) Fully Panelled Door
 (B) Half Panelled & Half Glazed Door
 (C) Sash Door
 (D) Ledged & Braced Door
 (E) Flush Door
 10340 Model Of Venetained Door With Surrounding Frame
 10342 Model of Windows
 (A) Louvred or Venetain Window
 (B) Double Hung Window
 (C) Sliding Window
 (D) Casement Window
 (E) Awning Window
 (F) Hopper Window
 (G) Bay Window
 10343 Corner Window Lintel
 10345 Model of Stair Cases
 (A) Dog Legged Stairs
 (B) Open Well Stairs
 (C) Quarter Turn Stairs
 (D) Bifurcated Stairs
 (E) Geometrical Stairs
 10346 Spiral Stair
 10348 Lean To Roof Model
 10350 Collar Beam Truss Model
 10351 King Post Truss Model
 10352 Queen Post Truss Model
 10354 Joints of Trusses
 10355 Model of Steel Roof Truss
 10360 Model of Roof Showing Ridge Hip And Valley
 10362 Model of Partition Wall
 10363 Model of Jack Arch Flooring
 10364 T Beam And Slab Reinforcement
 10366 Two Rooms And Varandah
 10367 Two Storied Building



Double Hung Window



Bricklayer's Scaffolding



Flying Shore



Geometrical Stairs



Level Crossing



King Post Truss Model

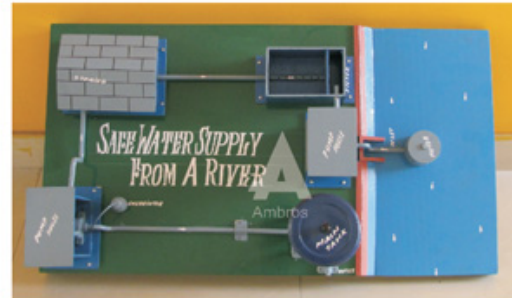
Civil Engg. Models

(vi) **IRRIGATION MODELS**

- 10380 Model of Coffor Dam
- 10382 Gravity Dam
- 10383 River Head Work
- 10384 Gibb's Module
- 10386 Saddle Syphon Spilway
- 10387 Spill Way Gate
- 10388 Volute Syphon Spilway
- 10389 Level Crossing
- 10390 Viswewaraya Gate
- 10394 Tank Sluice With Plug And Cistern
- 10395 Tank Sluice With Tower head
- 10398 Tank Weir
- 10399 Suppressed Weir
- 10400 Sluice Gate
- 10401 Canal in Take
- 10404 Model of Canal Drop
- 10405 Model of Slit Ejector
- 10406 Model of Canal Regulator
- 10408 Fish Ladder
- 10410 Model of an Aqueduct
- 10411 Syphon Aqueduct
- 10412 Super Passage of Two Span

(vii) **PUBLIC HEALTH MODELS**

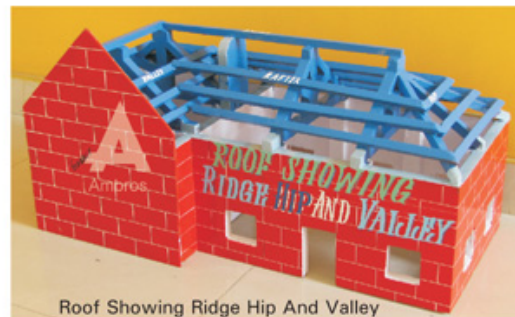
- 10425 Model of Slow Filter
- 10426 Model of Rapid Sand Filter
- 10427 Model of Pressure Filter
- 10430 Safe Water Supply From a Pond
- 10431 Safe Water Supply from a River
- 10435 Sedimentation Tank
- 10436 Flocculator
- 10437 Trickling Filter
- 10440 Indian Type Water Closet
- 10441 Septic Tank
- 10442 Imhoff Tank
- 10443 Automatic Flushing Tank
- 10445 Alum Jar Test Apparatus Electrically Operated



Safe Water Supply from a River



Two Rooms And Varandah



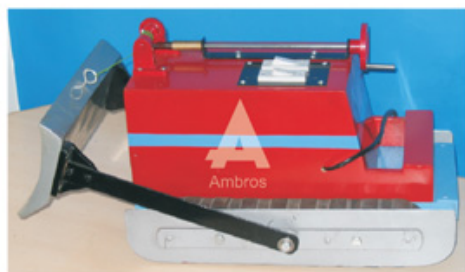
Roof Showing Ridge Hip And Valley



Lean To Roof

(G) CONTRACTION MACHINES & ENGINEERING EQUIPMENTS MODELS

9951	Blast Furnace Non Working Model	9967	Crawler Crane Working Model
9953	Open Hearth Furnace Non Working Model	9968	Road Roller Working Model
9954	Bessemer Converter Non Working Model	9970	Bulldozer Working Model
9955	Electric Arc Furnace Non Working Model	9971	Scraper Working Model
9956	Coupla Non Working Model	9975	Belt Conveyor Working Model
9957	Hoffman's Kiln Non Working Model	9976	Bucket Conveyor Working Model
9958	Ammonia Ice Plant Non Working Model	9977	Chain Conveyor Working Model
9959	Refrigerator Non Working Model	9978	Screw Conveyor Working Model
9965	Dumper Working Model	9979	Cooling Tower Non Working Model
9966	Bucket Trencher Working Model		



Bulldozer Working Model



Ammonia Ice Plant



Bucket Trencher Working Model



Road Roller Model



Open Hearth Furnace 2



Crawler Crane Working Model



Dumper Working Model



Electric Arc Furnace

(H) LIST OF ENGINEERING CHARTS (Size 20" x 30": Multi Coloured with Rollers Printed on PVC Sheet)

1600 STEAM SECTION		W - 3	Seam Welding
S - 1	Babcock and Willcox Boiler	W - 4	Flash Welding, Projection Welding Percussion Welding
S - 2	Loeffler Boiler	W - 5	Electroslag Welding
S - 3	Velox Boiler	W - 6	Oxy - Acetylene Torch
S - 4	Green's Economiser	W - 7	Welding Torches
S - 5	Jet Condensers	W - 8	Gas Flames
S - 6	Surface Condensers	W - 9	Electric Arc Welding
S - 7	Separating Calorimeters		
S - 8	Throttling Calorimeter	1607 WELDING - 2	
S - 9	Combined Separating and Throttling Calorimeter	W - 10	Submerged Arc Welding
S - 10	Mollier Diagram	W - 11	Atomic Hydrogen Welding
		W - 12	Electron Beam Welding/Laser Beam Welding
		W - 13	Thermit Welding
		W - 14	TIG Welding
		W - 15	MIG Welding
		W - 16	Weld Symbols - 1
		W - 17	Weld Symbols - 2
		W - 18	Welded Joints
1601 METROLOGY		1608 ENGINEERING DRAWING - 1	
M - 1	Vernier Caliper	ED - 1	Conventional Representation of Lines/Materials
M - 2	Vernier Depth Gauge / Vernier Height Gauge	ED - 2	Methods of Projection
M - 3	External Micrometer	ED - 3	Dimensioning - 1
M - 4	Depth Micrometer/ Inside Micrometer	ED - 4	Dimensioning - 2
M - 5	Limit Gauges	ED - 5	Orthographic Projection - 1
M - 6	Engineering Fits	ED - 6	Orthographic Projection - 2
M - 7	Thread Measurement	ED - 7	Section Planes
M - 8	Gear Tooth Vernier Caliper	ED - 8	Rivets and Riveted Joints
M - 9	Tool Maker's Microscope	ED - 9	Main Thread Forms
		ED - 10	Types of Gears
		ED - 11	Couplings - 1
		ED - 12	Couplings - 2
1602 REFRIGERATION		1609 ENGINEERING DRAWING - 2	
R - 1	Vapour Compression Refrigeration Cycle	ED - 13	Knuckle Joint
R - 2	Vapor Absorption Refrigeration Cycle	ED - 14	Types of Keys
R - 3	Window Air Condition	ED - 15	Pulleys - 1
R - 4	General Layout of Ice Factory	ED - 16	Pulleys - 2
R - 5	Ref and Air Cond. Controls-1	ED - 17	Bearings
R - 6	Ref. and Air Controls 11	ED - 18	Bolts and Washers
R - 7	Domestic Refrigerator	ED - 19	Types of Nut
R - 8	Water Cooler	ED - 20	Types of Screw
R - 9	Hermetically Sealed Compressor	ED - 21	Intersection of Two Prisms
		ED - 22	Intersection of a Prism and a Cone
		ED - 23	Development of Surfaces of Solids
1603 SMITHY		1610 BASIC ELECTRONICS	
SM - 1	Smithy's Hearh / Smithy's Anvil Swage Block	E - 1	Electronic Components (Active)
SM - 2	Blacksmith's Hammers	E - 2	Electronic Components (Passive)
SM - 3	Blacksmith's Tongs	E - 3	Diode As a Rectifier
SM - 4	Blacksmith's Swages	E - 4	Integrated Circuit Components
SM - 5	Blacksmith's Chisels	E - 5	Junction Transistors
SM - 6	Blacksmith's Fullers	E - 6	Transistors as an amplifier
SM - 7	Flatter and Set Hammer	E - 7	Push -Pull Amplifier
SM - 8	Punches and Drifting	E - 8	Loudspeaker and audio power amplifier
SM - 9	Blacksmiths Welds	E - 9	LC Oscillators
SM - 10	Hand Forging Operations	E - 10	FET/MOSFET
SM - 11	Hand Tools used in Smithy shop		
1604 AUTO - ENGINEERING - 1		1611 COMMUNICATION ELECTRONICS	
AE - 1	Two Stroke Operation	E - 11	Radio Receivers
AE - 2	Four Stroke Cycle	E - 12	Facsimile Transmission - 1 (Facsimile Sender)
AE - 3	Single Cylinder Engine	E - 13	Facsimile Transmission - 2 (Facsimile Receiver)
AE - 4	Four Stroke Petrol Engine	E - 14	Television Cameras
AE - 5	Four Stroke Diesel Engine	E - 15	B / W Television Receiver
AE - 6	Coil System of Ignition	E - 16	Colour Television Receiver
AE - 7	Electric System of Ignition	E - 17	B / W Television Transmitter
AE - 8	Spark Plugs	E - 18	A Colour - Television Transmitter
AE - 9	Layout of Simple Fuel Injection System	E - 19	Picture Tube
AE - 10	In -Line Plunger Type Fuel Injection Pump	E - 20	Modem
AE - 11	Rotary Distributor Type Fuel Injection Pump		
AE - 12	Mechanical Petrol Pump/Electrical Petrol Pump	1612 ELECTRICAL ENGINEERING - 1	
AE - 13	Piston and Piston Rings	ET - 1	Electric Cells
		ET - 2	Permanent Magnet Moving Coil Instruments
		ET - 3	Moving Iron Instruments
		ET - 4	Watt -Hour Meter
		ET - 5	Hydro -Electric Power Plant
		ET - 6	Thermo - Electric Power Plant
		ET - 7	Solar Power Plant
		ET - 8	Nuclear Power Plant
		ET - 9	Steam - Electric Power Plant
		ET - 10	Working of an Electric Motor
1605 AUTO - ENGINEERING - 2			
AE - 14	Various Types of Fuel Filters		
AE - 15	Full Pressure Engine Lubricating System		
AE - 16	Circulating Splash Lubricating System		
AE - 17	Engine Cooling System		
AE - 18	Starter Motor		
AE - 19	Constant Mesh Gear Box		
AE - 20	Four Speed Sliding Mesh Gear Box		
AE - 21	Synchromesh Gear Box		
AE - 22	Action of Differential		
AE - 23	Single Plate Clutch		
AE - 24	Hydraulic Brake System		
AE - 25	Wankel Engine		
AE - 26	The Car (Showing Carburetor, Gear Box Steering Mechanism, Suspension Unit		
1606 WELDING - 1			
W - 1	Electric Resistance Welding		
W - 2	Spot Welding		

List of Engineering Charts (Size 20" x 30": Multi Coloured with Rollers Printed on PVC Sheet)
1613 ELECTRICAL ENGINEERING - 2

- ET - 11 Direct Current Motor
- ET - 12 Alternating Current Motor
- ET - 13 Cutaway of a Single Phase Induction Motor
- ET - 14 D.C Generator
- ET - 15 Alternating Current Generator
- ET - 16 Transformers
- ET - 17 Electric Stove/ Electric Iron
- ET - 18 Soldering Iron/Immersion Heater/ Geyser
- ET - 19 Electric Bell
- ET - 20 Treatment Against Shock

1622 ELECTRICAL TECHNOLOGY - 3

- ET - 21 Wireman's Tools -1
- ET - 22 Wireman's Tools -2
- ET - 23 Wireman's Tools -3
- ET - 24 Types of Cable/ Conductor Termination
- ET - 25 Procedure of Making a Joint/ Telegraph Joint
- ET - 26 Britannia Joint/ Belhanger's Joint
- ET - 27 Western Union Joint/ T- Joint between 1/8"Wires
- ET - 28 T- Joint between 3/22"Wires/ PVC insulated Wires
- ET - 29 Types of Fuses
- ET - 30 Earthing

1623 ELECTRICAL TECHNOLOGY -4

- ET - 31 Electrical Accessories -1
- ET - 32 Electrical Accessories -2
- ET - 33 Electrical Accessories -3
- ET - 34 Types of Electric Poles
- ET - 35 Methods of Supporting a Pole
- ET - 36 Types of Insulators/ Brackets
- ET - 37 Filament Lamps
- ET - 38 Fluorescent Tube
- ET - 39 Mercury Vapour Lamp
- ET - 40 Sodium Vapour Lamp

1614 PRODUCTION - 1

- P - 1 Milling Cutters -1
- P - 2 Milling Cutters -2
- P - 3 Elements of Jigs and Fixtures (Locating Devices)
- P - 4 Elements of Jigs and Fixtures (Clamping Devices)
- P - 5 Elements of jigs and Fixtures (Indexing Devices)
- P - 6 Elements of jigs (Drill Brushes)
- P - 7 Sheet Metal Tools -1
- P - 8 Sheet Metal Tools -2
- P - 9 Lathe Parts
- P - 10 Screw Cutting in the Lathe
- P - 11 Taper Turning

1615 PRODUCTION - 2

- P - 12 Universal Dividing Head
- P - 13 Turret Lathe
- P - 14 Capstan Lathe
- P - 15 Parts of Standard Shaper
- P - 16 Vertical Milling Machine
- P - 17 Column and Knee Type Milling Machine
- P - 18 Grinding Machines
- P - 19 Grinding Wheels
- P - 20 Sensitive Drilling Machine/ Vertical Drilling Machine
- P - 21 Radial Drilling Machine

1617 CARPENTRY

- C - 1 Carpentry Marking Tools
- C - 2 Carpentry Measuring Tools
- C - 3 Carpentry Saws
- C - 4 Carpentry Chisels
- C - 5 Carpentry Planes
- C - 6 Carpentry Braces
- C - 7 Carpentry Holding Tools
- C - 8 Hand Tools Used in Carpentry
- C - 9 Carpentry Joints -1
- C - 10 Carpentry Joints -2
- C - 11 Types of Patterns -1
- C - 12 Types of Patterns -2

1618 HYDRAULICS

- H - 1 Hydro- Electric Power Plant
- H - 2 Pelton Wheel
- H - 3 Francis Turbine

- H - 4 Kaplan Turbine
- H - 5 Centrifugal Pumps
- H - 6 Impellers of Centrifugals Pumps

1619 FITTING - 1

- F - 1 Pipe Vice/Bench Vice
- F - 2 Type of Hammer
- F - 3 Fitting Chisels
- F - 4 Kinds of Files
- F - 5 Scrapers
- F - 6 Hacksaws
- F - 7 Try Square / Vee Block / Angle Plate
- F - 8 Sawing /Filling / Chiselling
- F - 9 Tapes and Dies

1620 FITTING -2

- F - 10 Reamers
- F - 11 Pipe Fittings
- F - 12 Wrenches
- F - 13 Hand Tools Used in Fitting Shop
- F - 14 Tapping a Blind Hole
- F - 15 Cutting a Thread With and Stocks
- F - 16 Methods of Filling
- F - 17 Tapping Through Holes

1621 FOUNDRY TECHNOLOGY

- FT - 1 Coupla Furnace
- FT - 2 Blast Furnace
- FT - 3 Electric Arc Furnace
- FT - 4 Foundry Hand Tools -1
- FT - 5 Foundry Hand Tools -2
- FT - 6 Centrifugal Casting

INSTRUMENTATION - I

- I - 1 Analog Transducers
- I - 2 Digital Transducers
- I - 3 Instrumentation Amplifiers
- I - 4 A-D & D-A Converters
- I - 5 Data Transmission Elements - I
- I - 6 Data Transmission Elements - II
- I - 7 Motion Measurement
- I - 8 Force Measurement

INSTRUMENTATION - II

- I - 9 Pressure Measurement
- I - 10 Temperature Measurement - I
- I - 11 Temperature Measurement - II
- I - 12 Speed Measurement
- I - 13 Liquid Level Measurements - I
- I - 14 Liquid Level Measurements - II
- I - 15 Flow Measurements - I
- I - 16 Flow Measurements - II

COMPUTER ENGINEERING - I

- COM-1 Use of Computer
- COM-2 Basic Computer Systems
- COM-3 Keyboard
- COM-4 Central Processing Unit
- COM-5 Laser Printer
- COM-6 Dot Matrix/Ink jet Printer
- COM-7 Floppy Disk & Disk Drive
- COM-8 Hard Disk Drive
- COM-9 Motherboard
- COM-10 Computer Memory
- COM-11 Physical Devices Used to Construct Memories

COMPUTER ENGINEERING - II

- COM-12 Magnetic Surface Recording Methods - I
- COM-13 Magnetic Surface Recording Methods - II
- COM-14 Interconnection of Computer Units
- COM-15 Cache Memory/Memory interleaving
- COM-16 Processor to I-O & Input to Memory Communication
- COM-17 Understanding D.O.S.
- COM-18 D.O.S. commands - I
- COM-19 D.O.S. commands - II
- COM-20 Basics of MS Word - I
- COM-21 Basics of MS Word - II

Workshop Safety Charts (Set of 36 Charts Size Each Charts 50cm x 33cm)

