Government of Maharashtra

Directorate of Vocational Education and Training

Craftsman Training Scheme

SPECIFICATION FOR FURNITURE

Version 4, 2024

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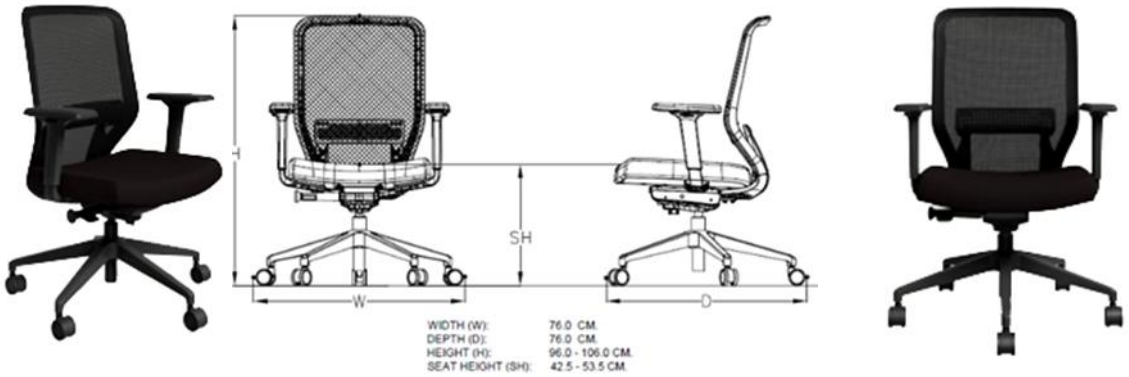
1.1 Basic Indicative Diagram:



1.2 Conforming to BIS Code 513, 303, 7138, 7888, 12637 and 13871.

1.3 Dimensions:

1.3.1	Overall Size:	760W X 760D X 960H1 - 1060H2 mm, ±10 mm
1.3.2	Seat Size:	520W X 500D X 425H1 - 540H2 mm, ±10 mm
1.3.3	Mid Back size:	480W X 670H mm, ±10 mm
1.3.4	Net Weight:	Minimum 10 Kgs

1.4 Construction:

1.4.1 Seat:

Seat shall be made up of 15 mm, ±1 mm thick hot-pressed plywood upholstered with fabric and moulded polyurethane foam.

1.4.2 Back:

Back is injection moulded in glass filled Nylon which is upholstered with Mesh fabric. The back consists of adjustable Lumbar support made of injection moulded Polypropylene having an adjustment of 50, ±1 mm.

1.4.3 Seat Foam:

The High Resilience Polyurethane Seat Foam is moulded with density 45 ±2 kg/m³ and hardness 14 ±2 kgf as per IS:7888 for 25% compression.

1.4.4 Armrest (Adjustable) :

The height adjustable armrest is made of Polypropylene and can be adjusted to 60, ±1 mm height. It also has swivel and to-and-fro adjustment with moulded PU arm top.

1.4.5 Active Bio-Synchro mechanism:

The adjustable tilting mechanism is designed with the following features:

1.4.5.1 360° revolving type.

1.4.5.2 Front-pivot for tilt with feet resting on ground and continuous lumber support ensuring more comfort.

1.4.5.3 Tilt tension adjustment can be operated in seating position.

1.4.5.4 5 position Tilt limiter giving option of variable tilt angle to the chair.

1.4.5.5 Seat / back tilting ratio of 1:2.

1.4.5.6 The mechanism housing is made up of HPDC Aluminium and black powder coated (DFT 40 to 60 micron).

1.4.6 Pneumatic Height Adjustment:

The pneumatic height adjustment with an adjustment stroke of 100 ±3 mm.

1.4.7 Pedestal Assembly:

The pedestal is injection moulded in black 30% glass-filled Nylon and fitted with 5 nos. twin wheel castors. The pedestal pitch-center diameter is 680 mm ±5 mm (760 ±10 mm. with castors).

1.4.8 Twin Wheel Castors:
The twin wheel castors are injection moulded in black Polyamide having 60, ±1 mm wheel Diameter.

1.5 Performance:

1.5.1 The weight bearing capacity of the chair should be minimum 125Kgs.

1.6 Finish:

1.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

1.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

1.7 Colour:

1.7.1 The colour of the Fabric shall be Jet Black and the powder coating shall be Jet Black.

1.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

1.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

1.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

1.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

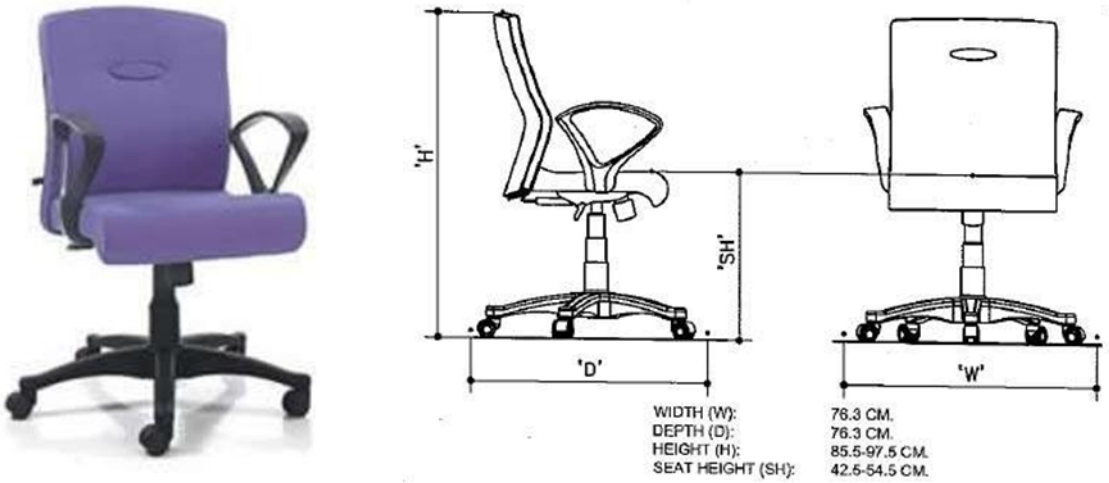
1.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

1.12 Warranty: Minimum 1 Year against all manufacturing defects

1.13 Country of Origin: India

2 Conference Chair - Revolving, Mid Back, Fabric

2.1 Basic Indicative Diagram:



2.2 Conforming to BIS Code 513, 303, 7138, 7888, 12637 and 13871.

2.3 Dimensions:

2.3.1	Overall Size:	760W X 760D X 850H1 - 975H2 mm, ±10 mm
2.3.2	Seat Size:	470W X 480D X 425H1 - 540H2 mm, ±10 mm
2.3.3	Mid Back Size:	475W X 580H mm, ±10 mm
2.3.4	Net Weight:	Minimum 10 Kgs

2.4 Construction:

2.4.1 Seat and Back:

2.4.1.1 Seat and back shall be made up of 12 mm, ±1 mm thick hot-pressed plywood, upholstered with fabric upholstery covers (Fabric colour shall be approved by DVET) and moulded Polyurethane foam.

2.4.1.2 The Seat and Back covers are injection moulded in black Co-polymer Polypropylene.

2.4.1.3 The Back foam shall be designed with contoured lumbar support for extra comfort. Lumber support assembly has height adjustment of 50 ± 5 mm. The seat shall have extra thick foam on front edge to give comfort to political area. The polyurethane foam shall be as per manufacturer's specification. Seat durability test (cyclic test) to perform 1,00,000 cycles for a load of 57 Kgs made to free fall on the seat from a height of 25 mm.

2.4.2 Foam:

The High Resilience Polyurethane Foam shall be moulded with density = 45 ±2 Kg/m3 and Hardness = 20 ± 2 Kgs on Hampden machine complying to IS:7888 at 25% compression and it should be covered with fabric as per manufacturer's shade card. The polyurethane foam shall be as per manufacturer's specification.

2.4.3 Armrest:

The one-piece armrests shall be injection moulded from black co-polymer Polypropylene.

2.4.4 Center tilt Synchro mechanism:

2.4.4.1 360-degree revolving, upright position locking, tilt tension adjustment, seat and back should tilt in the ration 1:3 (60 seat tilt/ 180 back tilt). The pneumatic height adjustment with stroke up to 125 mm.

2.4.5 Telescopic Bellow Assembly:
The bellow shall be 3 pieces telescopic type and injection moulded in black Polypropylene.

2.4.6 Pedestal Assembly:
The pedestal is injection moulded in black 30% glass-filled Nylon and fitted with 5 nos. twin wheel castors. The pedestal pitch-center dia. is 68.0cm without castors.

2.4.7 Twin Wheel Castors:
The twin wheel castors are injection moulded in 30% Glass Filled black Nylon

2.5 Performance:

2.5.1 The weight bearing capacity of the chair should be minimum 125Kgs.

2.6 Finish:

2.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

2.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

2.7 Colour:

2.7.1 The colour of the Fabric shall be Carbon Black and the powder coating shall be Black.

2.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

2.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

2.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

2.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

2.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

2.12 Warranty: Minimum 1 Year against all manufacturing defects

2.13 Country of Origin: India

3 Instructor/ Office Chair - Non-Revolving, Mid Back, Mesh

3.1 Basic Indicative Diagram:

3.2 Conforming to BIS Code 513, 303, 7138, 7888, 12637 & 13871

3.3 Dimensions:

3.3.1	Overall Size:	610W X 610D X 900H mm, ±10 mm.
3.3.2	Seat Size:	470W X 480D X 460H mm, ±10 mm.
3.3.3	Mid Back Size:	475W X 580H mm, ±10 mm
3.3.4	Net Weight:	Minimum 10 Kgs

3.4 Construction:

3.4.1 Seat:

Seat shall be made up of 12 mm, ±1 mm thick hot-pressed plywood, upholstered with fabric and moulded polyurethane foam.

3.4.2 Back:

Back is injection moulded in glass filled Nylon (as per design shown in the image including horizontal stripes on the rear face of back rest) which is upholstered with Mesh fabric.

3.4.3 Seat Foam:

High Resilience Polyurethane Foam:

The High Resilience Polyurethane Seat Foam shall be moulded with density = 45 ±2 Kg/m3 and Hardness = 20 ± 2 Kgs on Hampden machine complying to IS:7888 at 25% compression and it should be covered with fabric as per manufacturer's shade card. The polyurethane foam shall be as per manufacturer's specification.

3.4.4 Armrest:

The one-piece armrests shall be injection moulded from black co-polymer Polypropylene. Tested to perform 60,000 cycles for a load of 40 Kgs applied at 10 Deg.

3.4.5 Understructure Assembly:

The understructure assembly is a cantilever type powder coated (DFT 50-60 microns) tubular mainframe made of dia. 25 ± 3 mm X 2 ± 1.6 mm thick M.S. ERW Tube (IS: 7138).

3.5 Performance:

3.5.1 The weight bearing capacity of the chair should be minimum 125Kgs.

3.6 Finish:

3.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

3.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

3.7 Colour:

3.7.1 The colour of the Fabric shall be Jet Black and the powder coating shall be Jet Black.

3.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

3.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

3.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

3.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

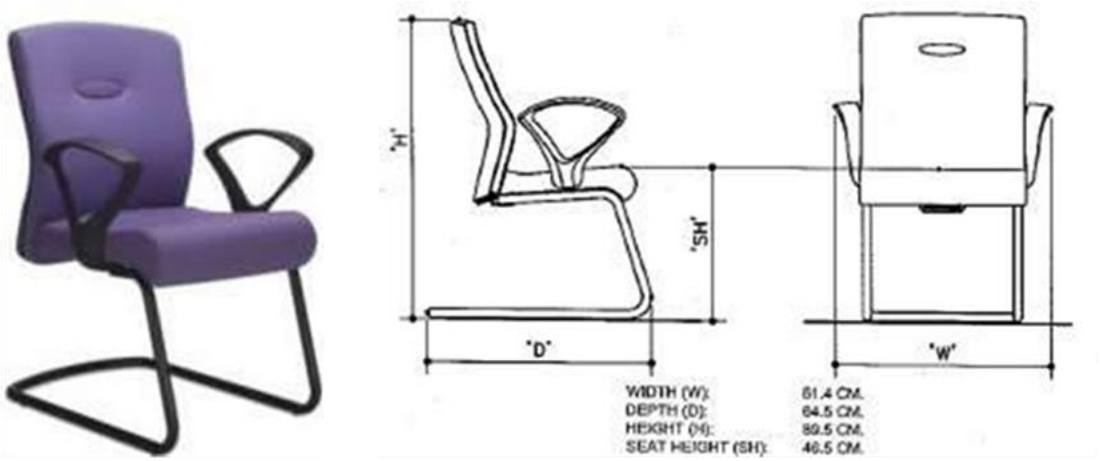
3.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

3.12 Warranty: Minimum 1 Year against all manufacturing defects

3.13 Country of Origin: India

4 Instructor/ Office Chair - Non-Revolving, Mid Back, Fabric

4.1 Basic Indicative Diagram:



4.2 Conforming to BIS Code 513, 303, 7138, 7888, 12637 & 13871.

4.3 Dimensions:

4.3.1	Overall Size:	610W X 610D X 900H mm, ±10 mm.
4.3.2	Seat Size:	470W X 480D X 460H mm, ±10 mm.
4.3.3	Mid Back Size:	475W X 580H mm, ±10 mm.
4.3.4	Net Weight:	Minimum 10 Kgs

4.4 Construction:

4.4.1 Seat and Back Assembly:
Seat and Back are made up of 12 mm, ±1 mm thick hot-pressed plywood, upholstered with fabric upholstery covers (Fabric colour shall be approved by DVET) and moulded Polyurethane foam.

4.4.2 The back foam is designed with contoured lumbar support for extra comfort. The seat has extra thick foam on front edge to give comfort to political area. The polyurethane foam shall be as per manufacturer's specification. Seat durability test (cyclic test) to perform 1,00,000 cycles for a load of 57 Kgs made to free fall on the seat from a height of 25 mm.

4.5 Foam:
The High Resilience Polyurethane Foam shall be moulded with density = 45 ±2 Kg/m3 and Hardness = 20 ± 2 Kgs on Hampden machine complying to IS:7888 at 25% compression and it should be covered with fabric as per manufacturer's shade card. The polyurethane foam shall be as per manufacturer's specification.

4.6 Armrest:
The one-piece armrests shall be injection moulded from black co-polymer Polypropylene. Tested to perform 60,000 cycles for a load of 40 Kgs applied at 10 Deg.

4.7 Understructure Assembly:
The understructure assembly is a cantilever type powder coated (DFT 50-60 microns) tubular mainframe made of dia. 25 ± 3 mm X 2 ± 1.6 mm thk M.S. ERW Tube (IS: 7138).

4.8 Performance:

4.8.1 The weight bearing capacity of the chair should be minimum 125Kgs.

4.9 Finish:

4.9.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

4.9.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

4.10 Colour:

4.10.1 The colour of the Fabric shall be Blue Iceberg/ Azure/ Carbon Black/ Milan Red/ Copper Moon and the powder coating shall be Black.

4.10.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

4.11 Manufacturing Process: As per Annexure A attached with this Specification Document.

4.12 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

4.13 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

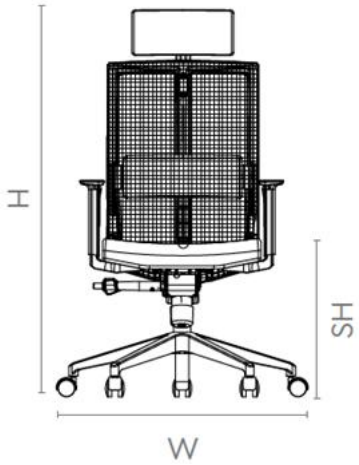
4.14 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

4.15 Warranty: Minimum 1 Year against all manufacturing defects

4.16 Country of Origin: India

5 Officer/ Executive Chair - Revolving, Full Back, Mesh

5.1 Basic Indicative Diagram:



5.2 Conforming to BIS Code 513, 303, 7138, 7888, 12637 & 13871.

5.3 Dimensions:

5.3.1	Overall Size:	750W X 750 X 1100H1-1300H2 mm, ±10 mm.
5.3.2	Seat Size:	450W X 500D X 420H1-540H2 mm, ±10 mm.
5.3.3	Full Back Size:	430W X 640D mm, ±10 mm.
5.3.4	Net Weight:	Minimum 15 Kgs

5.4 Construction:

5.4.1 Seat:

The seat is made up of 12 mm, ±1 mm thick hot-pressed plywood upholstered with knitted fabric and moulded polyurethane foam.

5.4.2 Back:

The Back is made up of injection moulded glass filled Nylon which is upholstered using Net fabric with high tenacity yarn.

5.4.3 Foam:

The High Resilience Polyurethane Seat Foam is moulded with density 55 ±2 kg/m³ and hardness 16 ± 2 kgf as per IS:7888 for 25% compression.

5.4.4 Arm Rests:

The armrests have an Up-Down adjustment of 8.5 ±0.5cm which is provided in armrest structure. Armrest Top has an integrated layer of Thermoplastic Elastomer (TPE).

5.4.5 Lumbar Support Assembly:

The Lumbar support consists of polypropylene pad with moulded polyurethane foam and covered with polyester fabric. The Height of Lumbar pad can be adjusted through two projecting knobs provided on the rear side of the pad. Lumbar pad has an adjustment of 8.0 ±0.5 cm in height.

5.4.6 Front Pivot Synchro Mechanism:

The adjustable tilting mechanism is designed with the following features:

5.4.6.1 360° revolving type.

5.4.6.2 Single point control.

5.4.6.3 Front-pivot for tilt with feet resting on ground and continuous lumbar support ensuring more comfort.

5.4.6.4 Tilt tension adjustment can be operated in seating position.

5.4.6.5 4 position Tilt limiter giving option of variable tilt angle to the chair.

5.4.6.6 Seat/ back tilting ratio of 1: 2.

5.4.7 Head Rest:
The Headrest assembly is made up of injection moulded glass filled Polypropylene which is upholstered with moulded HR polyurethane foam and polyester fabric. It has an adjustment of 4.2 ±0.5cm and rotation adjustment of overall 76˚ ±2˚ and it is assembled over Full back chair. The complete headrest assembly is retro fit to the main chair.

5.4.8 Pneumatic Height Adjustment:
The pneumatic height adjustment has an adjustment stroke of 10.0 ±0.3 cm.

5.4.9 Pedestal Assembly:
The pedestal is injection moulded in black 30% glass-filled Nylon and fitted with 5 Nos. twin wheel castors. The pedestal pitch-center dia. is Ø66.1 ± 0.5 cm (76.1 ± 1.0 cm. with castors).

5.4.10 Twin Wheel Castor:
The twin wheel castors are injection moulded in black Polyamide having 6.0± 0.1cm wheel Diameter.

5.5 Performance:

5.5.1 The weight bearing capacity of the chair should be minimum 120-150Kgs.

5.6 Finish:

5.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

5.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

5.7 Colour:

5.7.1 The colour of the Knitted Fabric seating shall be Black Ink and the powder coating shall be Black.

5.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

5.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

5.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

5.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

5.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

5.12 Warranty: Minimum 1 Year against all manufacturing defects

5.13 Country of Origin: India

6 Officer/ Executive Chair - Revolving, Full Back, Fabric

6.1 Basic Indicative Diagram:

6.2 Conforming to BIS Code 513, 7138, 7888, 12637 & 13871.

6.3 Dimensions:

6.3.1	Overall Size:	750W X 750D X 1100H1-1300H2, ±10 mm.
6.3.2	Seat Size:	450W X 460D X 440H1-540H2, ±10 mm.
6.3.3	High Back Size:	430W x 740D, ±10 mm.
6.3.4	Net Weight:	Minimum 15 Kgs

6.4 Construction:

6.4.1 Seat:

The Cushioned Seat is made of Injection moulded Plastic outer and inner. Plastic Inner is upholstered with stitched cover and moulded High Resilience Polyurethane foam of Density 45 ±2 kg/cum, and hardness load 16 ±2 Kgf as per IS:7888 for 25% compression. The stitched cover is made from spacer fabric and leatherette.

6.4.2 Back:

The Cushioned back is made of PU Foam with insitu moulded MS ERW Round Tube of size 1.9 ±0.03cm x 0.16 ±0.0128cm. It upholstered with spacer fabric and leatherette.

6.4.3 Arm Rests:

The armrest top is moulded from polyurethane(PU) and mounted on to a drop lift adjustable type tubular armrest support made of at 3.81 ±0.03 cm x 0.2 ±0.01 cm thick MS ERW tube. The armrest height adjustable up to 6.5 ±0.5cm in 5 steps. The Armrest structure is powder coated (DFT 40-60 micron).

6.4.4 Active Bio-Synchro Mechanism:

The adjustable tilting mechanism is designed with the following features:

6.4.4.1 360° revolving type.

6.4.4.2 Front-pivot for tilt with feet resting on ground and continuous lumbar support ensuring more comfort.

6.4.4.3 Tilt tension adjustment can be operated in seating position.

6.4.4.4 5-position Tilt limiter giving option of variable tilt angle to the chair.

6.4.4.5 Seat/ back tilting ratio of 1: 2

6.4.4.6 The mechanism housing is made up of HPDC Aluminium black powder coated.

6.4.5 Seat Depth Adjustment:
Seat depth adjustment is integrated in the seat through a sliding mechanism. Seat depth adjustment range is of 6.0 ±0.5 cm.

6.4.6 Adjustable Back Support:

6.4.6.1 Back Frame is connected to the Up/Down mechanism housed in Plastic T spine.

6.4.6.2 It can be adjusted in the. range of 7.42 ±0.5 cm for the comfortable back support to suit individual need.

6.4.7 Pneumatic Height Adjustment:
The pneumatic height adjustment has an adjustment stroke of 10.0 ±0.3 cm.

6.4.8 Pedestal Assembly:
The pedestal assembly is injection moulded in black colour with 30% glass filled nylon with 5 Nos. twin wheel castor made up of injection moulded.

6.4.9 Twin Wheel Castor:
5 Nos. Twin wheel castors are injection moulded in plastic having 6.0 ±0.1 cm wheel diameter and assembled to pedestal.

6.5 Performance:

6.5.1 The weight bearing capacity of the chair should be minimum 120-150Kgs.

6.6 Finish:

6.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

6.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

6.7 Colour:

6.7.1 The colour of the leatherette shall be Black Ink and the powder coating shall be Black.

6.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

6.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

6.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

6.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

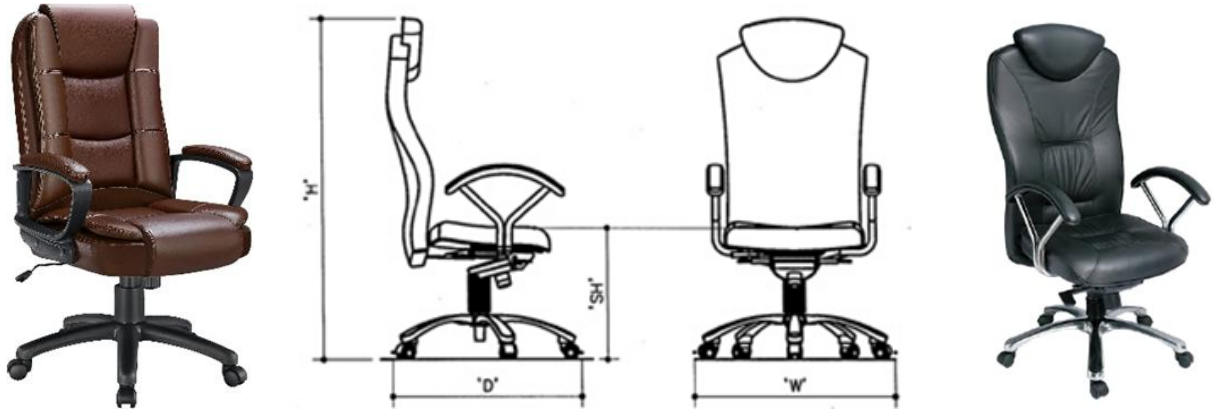
6.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

6.12 Warranty: Minimum 1 Year against all manufacturing defects

6.13 Country of Origin: India

7 Officer/ Executive Chair - Revolving, Full Back, High End

7.1 Basic Indicative Diagram:



7.2 Conforming to BIS Code 513, 303, 7138, 7888, 577 & 13871

7.3 Dimensions:

7.3.1	Overall Size:	750W X 750D X 1100-1400H mm, ±10 mm.
7.3.2	Seat Size:	450W X 500D X 460-590H mm, ±10 mm.
7.3.3	High Back Size:	430W x 740D, ±10 mm
7.3.4	Net Weight:	Minimum 15 Kgs

7.4 Construction:

7.4.1 Seat and Back Assembly:

7.4.1.1 The seat is made up of 12 mm, ±1 mm thick hot-pressed plywood and upholstered with leather and moulded Polyurethane Foam.

7.4.1.2 The back foam is designed with contoured lumbar support for extra comfort.

7.4.1.3 The chair has 360-degree Revolving type, Front pivot synchro tilt mechanism, 5 position locking with anti-shock back mechanism.

7.4.1.4 The cushioned seat is made of Injection moulded plastic outer and inner. Plastic liner is upholstered with leatherette and moulded high Resilience (HR) Polyurethane foam of density 45 ±2 Kg/cum and hardness load 16 ±2 Kgf as per IS:7888 for 25% compression.

7.4.2 Back Assembly:

The cushioned back is made of PU foam with insitu moulded MS ERW Round tube of size 1.9 ±0.03 cm x 0.16 ±0.0128 cm. It is upholstered with leatherette.

7.4.3 Foam:

The High Resilience Polyurethane Foam is moulded with density 45 ±2 Kg/cum and hardness load 16 ±2 Kgf as per IS:7888 for 25% compression.

7.4.4 Seat-Back Connecting Spine:

The seat and back are arrested together with a 90 mm (W) spine made of 0.8 ±0.05 cm thick HR steel and is black powder-coated (DFT 40-60 microns).

7.4.5 Armrest Assy:

7.4.5.1 The armrest assy comprises of three parts viz. the armrest support tube and PU armrest and the armrest top.

7.4.5.2 The armrest tube assy is made of 2.54 ±0.03cm X 0.16 ±0.0128cm MS ERW support tubes and Chrome plated.

7.4.5.3 The P.U. armrest is made of black integral skin polyurethane with 50-70 shore 'A' Hardness and reinforced with M.S. insert.

7.4.5.4 The armrest top is made of ABS and upholstered with foam and leather.

7.4.6 Front Pivot Synchro Tilt Mechanism:

The mechanism is designed with the following features:

7.4.6.1 360° revolving type.

7.4.6.2 Seat back tilting ratio of 1:1.5

7.4.6.3 Front pivot for tilt with feet resting on ground ensuring more comfort.

7.4.6.4 Tilt tension adjustment.

7.4.6.5 5 position locking with anti-shock back mechanism, which prevents the backrest from impacting the user when the lock is released.

7.4.6.6 Static seat depth adjustment 5.0 ±0.5cm with 5 position locking.

7.4.7 Seat Base Assy:

The seat base assy. is designed with 360° Revolving type without back tilt.

7.4.8 Pneumatic Height Adjustment:

It has an adjustment stroke of 9.0 ±0.3cm.

7.4.9 Blow Moulded Bellow:

The bellow is 1 piece and blow moulded in black Polypropylene.

7.4.10 Telescopic Bellow Assembly:

The bellow is 3-piece telescopic type and injection moulded in black Polypropylene.

7.4.11 Pedestal Assy:

The pedestal is made of die-cast aluminium with buffing finish. It is fitted with 5nos. twin wheel castor. The pedestal is 67.0 ±0.5cm pitch-centre dia. (77.0 ±1.0cm with castors).

7.4.12 Twin Wheel Castors:

The twin wheel castors are injection moulded in black Nylon.

7.5 Performance:

7.5.1 The weight bearing capacity of the chair should be minimum 120-150 Kgs.

7.6 Finish (Powder Coating for Metal surface):

7.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

7.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

7.7 Colour:

7.7.1 The colour of the leatherette shall be Camel/ Dark Tan/ Brown/ Natural and the powder coating shall be Black.

7.8 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

7.9 Manufacturing Process: As per Annexure A attached with this Specification Document.

7.10 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

7.11 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

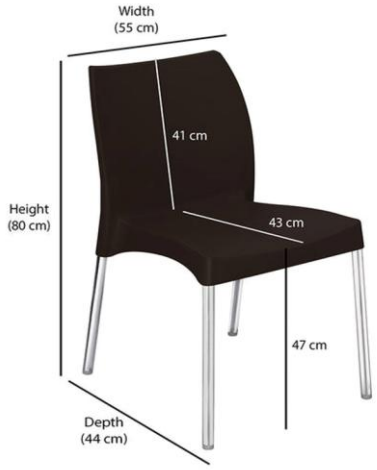
7.12 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

7.13 Warranty: Minimum 1 Year against all manufacturing defects

7.14 Country of Origin: India

8 Computer/ Visitor Chair

8.1 Basic Indicative Diagram:



8.2 Conforming to BIS Code 10910, 13713, 5416 and 14887.

8.3 Dimension:

8.3.1	Overall Size:	550W X 440D X 800H mm, ±10 mm
8.3.2	Seat Size:	550W X 430D X 470H mm, ±10 mm
8.3.3	Back Rest size:	550W X 410H mm, ±10 mm
8.3.4	Net Weight:	Minimum 2 Kgs

8.4 Construction:

8.4.1 The seat and back should be made up of injection moulded high impact strength polypropylene polymer compound with indoor grade UV resistance.

8.4.2 The 04 Nos. legs shall be of Stainless Steel tubular frame understructure

8.5 Performance:

8.5.1 Strength of Chair conforming to IS 5416 (Part 1)

8.5.2 Stability of Chair conforming to IS 5416 (Part 2)

8.5.3 Maximum Ash Content is not more than 1% in Conformity test as per Annex D of IS: 14887

8.5.4 The weight bearing capacity of the chair should be minimum 110 Kgs.

8.6 Colour:

8.6.1 The colour of the plastic body shall be Season Rust Brown.

8.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

8.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

8.8 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

8.9 Mode of Supply: Assembled ready to use.

8.10 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

8.11 Warranty: Minimum 1 Year against all manufacturing defects

8.12 Country of Origin: India

9 Plastic Chair - with Arms, SS Legs

9.1 Basic Indicative Diagram:

9.2 Conforming to BIS Code 10910, 13713, 5416 & 14887.

9.3 Dimensions:

9.3.1	Overall Size:	585W X 550D X 775H mm, ±10 mm
9.3.2	Seat Size:	550W X 430D X 470H mm, ±10 mm
9.3.3	Back Rest Size:	550W X 410H mm, ±10 mm
9.3.4	Net Weight:	Minimum 2 Kgs.

9.4 Construction:

9.4.1 The seat and back should be made up of injection moulded high impact strength polypropylene polymer compound with indoor grade UV resistance.

9.4.2 Two numbers of rest arms without seat cushion.

9.4.3 The 04 Nos. legs shall be of Stainless Steel tubular frame understructure.

9.5 Performance:

9.5.1 Strength of Chair conforming to IS 5416 (Part 1)

9.5.2 Stability of Chair conforming to IS 5416 (Part 2)

9.5.3 Maximum Ash Content is not more than 1% in Conformity test as per Annex D of IS: 14887

9.5.4 The weight bearing capacity of the chair should be minimum 125 Kgs.

9.6 Colour:

9.6.1 The colour of the plastic body shall be Black.

9.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

9.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

9.8 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

9.9 Mode of Supply: Assembled ready to use.

9.10 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

9.11 Warranty: Minimum 1 Year against all manufacturing defects

9.12 Country of Origin: India

10 Plastic Chair - with Arms, Rectangular Back

10.1 Basic Indicative Diagram:

10.2 Conforming to BIS Code 10910, 13713, 5416 & 14887.

10.3 Dimensions:

10.3.1	Overall Size:	570W X 600D X 900H mm, ±10 mm
10.3.2	Seat Size:	550W X 450D X 450H mm, ±10 mm
10.3.3	Back Rest Size:	550W X 410H mm, ±10 mm
10.3.4	Net Weight:	Minimum 2 Kgs

10.4 Construction:

10.4.1 The seat, back and the understructure including legs should be made up of injection moulded high impact strength polypropylene polymer compound with indoor grade UV resistance.

10.4.2 Two numbers of rest arms without seat cushion.

10.5 Performance:

10.5.1 Strength of Chair conforming to IS 5416 (Part 1)

10.5.2 Stability of Chair conforming to IS 5416 (Part 2)

10.5.3 Maximum Ash Content is not more than 1% in Conformity test as per Annex D of IS: 14887

10.5.4 The weight bearing capacity of the chair should be minimum 125 Kgs.

10.6 Colour:

10.6.1 The colour of the plastic body shall be Season Rust Brown.

10.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

10.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

10.8 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

10.9 Mode of Supply: Assembled ready to use.

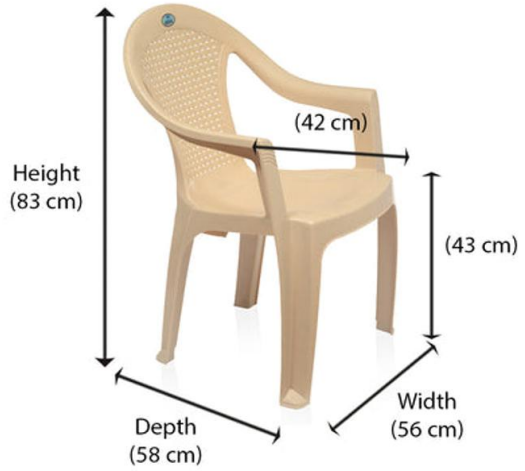
10.10 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

10.11 Warranty: Minimum 1 Year against all manufacturing defects

10.12 Country of Origin: India

11 Plastic Chair - with Arms, Oval Back

11.1 Basic Indicative Diagram:



11.2 Conforming to BIS Code 10910, 13713, 5416 & 14887.

11.3 Dimensions:

11.3.1	Overall Size:	560W X 580D X 830H mm, ±10 mm
11.3.2	Seat Size:	550W X 420D X 430H mm, ±10 mm
11.3.3	Back Rest Size:	550W X 410H mm, ±10 mm
11.3.4	Net Weight:	Minimum 2 Kgs

11.4 Construction:

11.4.1 The seat, back and the understructure including legs should be made up of injection moulded high impact strength polypropylene polymer compound with indoor grade UV resistance.

11.4.2 Two numbers of rest arms without seat cushion.

11.5 Performance:

11.5.1 Strength of Chair conforming to IS 5416 (Part 1)

11.5.2 Stability of Chair conforming to IS 5416 (Part 2)

11.5.3 Maximum Ash Content is not more than 1% in Conformity test as per Annex D of IS: 14887

11.5.4 The weight bearing capacity of the chair should be minimum 125 Kgs.

11.6 Colour:

11.6.1 The colour of the plastic body shall be Marble Beige.

11.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

11.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

11.8 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

11.9 Mode of Supply: Assembled ready to use.

11.10 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

11.11 Warranty: Minimum 1 Year against all manufacturing defects

11.12 Country of Origin: India

12 Low Back Sewing Machine Chair

12.1 Basic Indicative Diagram:

12.2 Conforming to BIS Code 303, 13871, 7888, 17637 & 12637.

12.3 Dimensions:

12.3.1	Overall Size:	650W X 650D X 610H1-775H2 mm, ±10 mm.
12.3.2	Seat Size:	450W X 450D X 50H mm, ±10 mm.
12.3.3	Back Rest Size:	450W X 200H mm, ±10 mm.
12.3.4	Seat Height Range:	400H1 - 570H2 mm, ±10 mm.
12.3.5	Net Weight:	Minimum 7.5 Kgs

12.4 Construction:

12.4.1 Seat and Back Assembly:

12.4.1.1 The seat and back are made up of 12 mm, ±1 mm thick hot-pressed plywood and upholstered with 100% polyester fabric upholstery covers (Fabric colour shall be approved by DVET) and moulded Polyurethane foam.

12.4.1.2 The chair has 360-degree Revolving type anti-shock back mechanism.

12.4.1.3 The seat and back are arrested together with a 90 mm (W) spine made of 8 mm thick HR steel. Backrest foam design must be based on lumber support.

12.4.2 Foam:

The High Resilience Polyurethane Foam shall be moulded with density = 45 ±2 Kg/m3 and Hardness = 20 ± 2 Kgs on Hampden machine complying to IS:7888 at 25% compression and it should be covered with fabric as per manufacturer's shade card. The polyurethane foam shall be as per manufacturer's specification.

12.4.3 Legs:

12.4.3.1 Leg shall be fixed 5-legged base with glides for stability and minimal movement during operation made of powder-coated mild steel section/ pipe with a wall thickness of not less than 1.25 mm for durability and resistance to wear.

12.4.3.2 The five-pronged base shall be provided with anti-slip glides to ensure a stable and firm foundation, preventing unintended sliding on smooth surfaces.

12.4.4 Height Adjustment Mechanism:

12.4.4.1 Central pneumatic cylinder for seat height adjustment ranging from 400 mm to 570 mm

12.5 Performance:

12.5.1 The weight bearing capacity of the chair should be approx. 125 Kgs.

12.6 Finish:

12.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

12.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

12.7 Colour:

12.7.1 The colour of the Fabric and powder coating shall be Carbon Black.

12.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

12.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

12.9 Marking: Each chair shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

12.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

12.11 Packing: In the absence of any specific agreement as to the mode of packing, each chair shall be properly protected to prevent damage of the surface and edges in transit and in storage.

12.12 Warranty: Minimum 1 Year against all manufacturing defects

12.13 Country of Origin: India

13 Stool - Height 450 mm

13.1 Basic Indicative Diagram:

13.2 Conforming to BIS Code 7138, 303, 2046, 347, 4837 & 13871.

13.3 Dimensions:

13.3.1	Overall Size:	350W X 350D X 450H mm, ±10 mm.
13.3.2	Seat Size:	350 X 350 mm, ±10 mm.
13.3.3	Height Size:	450 mm, ±10 mm.
13.3.4	Net Weight:	Minimum 5 Kgs

13.4 Construction:

13.4.1 Seat of the stool shall be made of 25 mm thick BWP plywood finished with 0.8-1.0 mm thick matt finish decorative laminate with TW fillet edge lipping all over the work surface edges finished in matching colour.

13.4.2 The seat top shall be fitted using bolt and nut assembly by drilling through-holes in the metal frame and wooden seat (pre-application of laminate). Two nos. 6 mm dia. stainless steel/ zinc-coated bolts with nuts and washers across each other shall be used to attach the wooden seat to the frame by tightening the nuts securely to hold the seat in place. The visible bolt shall be covered with plastic caps.

13.4.3 Care shall be taken to ensure all laminated edges are smooth, properly finished, and free from sharp or rough surfaces to prevent potential harm.

13.4.4 Four Legs and Cross braces (below seat and foot rest): Fabricated component in 25 mm X 25 mm X 1.0-1.2 mm thick CRCA ERW Tube (IS: 7138).

13.4.5 The distance between Legs (center to center of legs) shall be length of table top minus 50 mm X width of table top minus 50 mm.

13.4.6 The metal framework shall be assembled by means of welding.

13.4.7 All welded joints shall be machine smooth finished, sharp edges to be removed and free from objectionable projection or irregularities.

13.4.8 Ends of legs shall be fitted with shoes of rubber, plastic, or any other resilient material to prevent sliding.

13.4.9 The stool shall be of rigid construction and provide a firm seat surface in all position which a trainee may have to adopt while working.

13.5 Performance:

13.5.1 The weight bearing capacity of the stool shall be approx. 100 - 120Kgs.

13.6 Finish:

13.6.1 Metal framework

13.6.1.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

13.6.1.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

13.6.2 TW Lipping over the edges of the seat

13.6.2.1 The lipping over the edges of the seat shall be finished with varnish of matching colour.

13.7 Colour:

13.7.1 The colour of the laminate and varnish shall be Steel Blue/ Mustard Yellow/ Olive Green.

13.7.2 The colour of the matte/ semi-gloss powder coating shall be Dove Grey for all metal framework.

13.7.3 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

13.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

13.9 Marking: Each stool shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

13.10 Mode of Supply: Assembled ready to use.

13.11 Packing: In the absence of any specific agreement as to the mode of packing, each stool shall be properly protected to prevent damage of the surface and edges in transit and in storage.

13.12 Warranty: Minimum 1 Year against all manufacturing defects

13.13 Country of Origin: India

14 Stool - Height 600 mm

14.1 Basic Indicative Diagram:

14.2 Conforming to BIS Code 7138, 303, 2046, 347, 4837 & 13871.

14.3 Dimensions:

14.3.1	Overall Size:	350W X 350D X 600H mm, ±10 mm.
14.3.2	Seat Size:	350 X 350 mm, ±10 mm.
14.3.3	Height:	600 mm, ±10 mm.
14.3.4	Net Weight:	Minimum 7 Kgs

14.4 Construction:

14.4.1 Seat of the stool shall be made of 25 mm thick BWP plywood finished with 0.8-1.0 mm thick matt finish decorative laminate with TW fillet edge lipping all over the work surface edges finished in matching colour.

14.4.2 The seat top shall be fitted using bolt and nut assembly by drilling through-holes in the metal frame and wooden seat (pre-application of laminate). Two nos. 6 mm dia. stainless steel/ zinc-coated bolts with nuts and washers across each other shall be used to attach the wooden seat to the frame by tightening the nuts securely to hold the seat in place. The visible bolt shall be covered with plastic caps.

14.4.3 Care shall be taken to ensure all laminated edges are smooth, properly finished, and free from sharp or rough surfaces to prevent potential harm.

14.4.4 Four Legs and Cross braces (below seat and foot rest): Fabricated component in 25 mm x 25 mm x 1.0-1.2 mm thick CRCA ERW Tube (IS: 7138).

14.4.5 The distance between Legs (centre to centre of legs) shall be length of table top minus 50 mm x width of table top minus 50 mm.

14.4.6 The metal framework shall be assembled by means of welding.

14.4.7 All welded joints shall be machine smooth finished, sharp edges to be removed and free from objectionable projection or irregularities.

14.4.8 Ends of legs shall be fitted with shoes of rubber, plastic, or any other resilient material to prevent sliding.

14.4.9 The stool shall be of rigid construction and provide a firm seat surface in all position which a trainee may have to adopt while working.

14.5 Performance:

14.5.1 The weight bearing capacity of the stool shall be approx. 100 - 120Kgs.

14.6 Finish:

14.6.1 Metal framework

14.6.1.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

14.6.1.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

14.6.2 TW Lipping over the edges of the seat

14.6.2.1 The lipping over the edges of the seat shall be finished with varnish of matching colour.

14.7 Colour:

14.7.1 The colour of the laminate and varnish shall be Steel Blue/ Mustard Yellow/ Olive Green.

14.7.2 The colour of the matte/ semi-gloss powder coating shall be Dove Grey for all metal framework.

14.7.3 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

14.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

14.9 Marking: Each stool shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

14.10 Mode of Supply: Assembled ready to use.

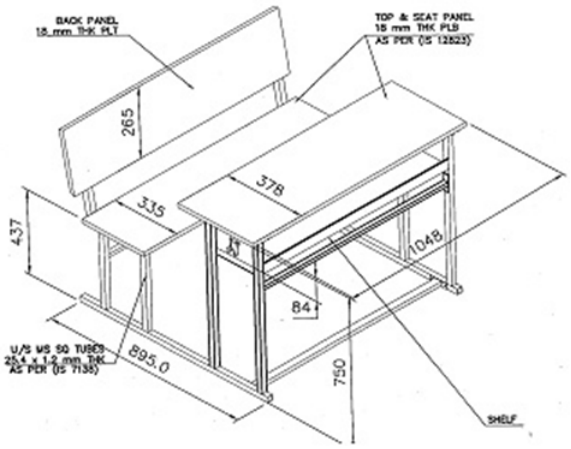
14.11 Packing: In the absence of any specific agreement as to the mode of packing, each stool shall be properly protected to prevent damage of the surface and edges in transit and in storage.

14.12 Warranty: Minimum 1 Year against all manufacturing defects

14.13 Country of Origin: India

15 Dual Desk - Square Pipe Structure

15.1 Basic Indicative Diagram:



15.2 Conforming to BIS Code 513, 3074, 1161, 303, 2046 & 13871.

15.3 Dimensions:

15.3.1	Overall Size:	1025W X 890D X 750H mm, ±10 mm.
15.3.2	Desk Size:	1025W X 375D X 750H mm, ±10 mm.
15.3.3	Bench/ Seat Size:	1025W X 335D X 435H mm, ±10 mm.
15.3.4	Back Panel Size:	1025W X 260H mm, ±10 mm.
15.3.5	Net Weight:	Minimum 25 Kgs

15.4 Construction:

15.4.1 Desk / Seat / Back and Top panel made up of 19 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

15.4.2 Back panel should be of 19 mm, ±1 mm thick BWP plywood (IS: 303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

15.4.3 Understructure made up of 25 mm X 25 mm X 1.2 mm thick square powder coated Electric Resistance Welded (ERW) tube at base that are welded or bolted to the desk and seat supports that are made up of 1 mm thick powder coated CRCA (IS:513) section. The welded edges should be machine finished.

15.4.4 Storage shelves made up of 0.6 mm thick powder coated CRCA (IS:513) sheet which is affixed below the desk top. Hooks are provided on either side of the vertical frame of the desks. Understructure is assembled using M-5 tap tight screws.

15.4.5 PVC/ Plastic caps shall be provided to all holes, openings of the framework.

15.5 Performance:

15.5.1 The weight bearing capacity of the Dual Desk shall be approx. 200 Kgs for seating and 50 Kgs for Desktop.

15.6 Finish:

15.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (+/- 10).

15.6.2 Process: The body including understructure, framework, storage shelf including fittings involves an 8 step powder coating process consisting of antirust surface treatment viz. Hot water rinse, Knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (+/-10). The material is then oven baked with a controlled temperature of 180 deg.C to 200 deg.C.

15.6.3 Tests: The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

15.7 Colour:

15.7.1 The colour of the laminate shall be Core Ash / Grey and Black for framework.

15.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

15.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

15.9 Marking: Each bench shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

15.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

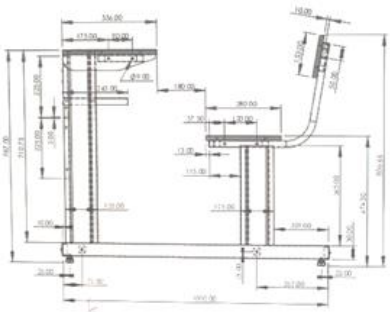
15.11 Packing: In the absence of any specific agreement as to the mode of packing, each bench shall be properly protected to prevent damage of the surface and edges in transit and in storage.

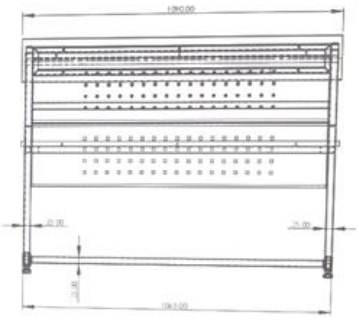
15.12 Warranty: Minimum 1 Year against all manufacturing defects

15.13 Country of Origin: India

16 Dual Desk - Square Pipe Structure with Front Modesty

16.1 Basic Indicative Diagram:





16.2 Conforming to BIS Code 513, 3074, 1161, 303, 2046 & 13871.

16.3 Dimensions:

16.3.1	Overall Size:	1050W X 1000D X 835H mm, ±10 mm
16.3.2	Desk Size:	1050W X 350D X 785H mm, ±10 mm
16.3.3	Bench/ Seat Size:	1050W X 280D X 450H mm, ±10 mm
16.3.4	Back Panel Size:	1050W X 150H mm, ±10 mm
16.3.5	Net Weight:	Minimum 25 Kgs

16.4 Construction:

16.4.1 Desk / Seat / Back and Top panel made up of 19 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour. Back panel should be of 19 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

16.4.2 Understructure made up of 25 mm X 25 mm X 1.2 mm thick CRCA square powder coated Electric Resistance Welded (ERW) tube at base that are welded/ bolted to the two horizontal base support 50 x 25 x 1.2 mm CRCA rectangle section, desk and seat supports that are made up of 1 mm thick powder coated CRCA (IS:513) section. The welded edges should be fillet machine finished.

16.4.3 Storage shelves made up of 0.6-0.8 mm thick powder coated CRCA (IS:513) sheet which is affixed below the desk top. Hooks are provided on either side of the vertical frame of the desks. Understructure is assembled using M-5 tap tight screws.

16.4.4 Front view (Modesty) of the Dual Desk made up of closed panelled 0.6-0.8 mm thick powder coated CRCA (IS:513) sheet with square shaped perforation for the lower part area below the shelve and square shaped mould embossing in the shelve area.

16.4.5 Side view of the Desk area and Seat area made up of closed panelled 0.6-0.8 mm thick powder coated CRCA (IS:513) sheet welded to the vertical square pipe supports.

16.4.6 Adjustable leveler and PVC/ Plastic caps shall be provided to all holes, openings of the framework.

16.4.7 All welded edges should be fillet machine finished (through grinders or polishing instrument).

16.5 Performance:

16.5.1 The weight bearing capacity of the Dual Desk shall be approx. 200 Kgs for seating and 50 Kgs for Desktop.

16.6 Finish:

16.6.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

16.6.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

16.7 Colour:

16.7.1 The colour of the laminate shall be shades of Blue/ Orange and Ivory White for framework.

16.7.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

16.8 Manufacturing Process: As per Annexure A attached with this Specification Document.

16.9 Marking: Each bench shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

16.10 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

16.11 Packing: In the absence of any specific agreement as to the mode of packing, each bench shall be properly protected to prevent damage of the surface and edges in transit and in storage.

16.12 Warranty: Minimum 1 Year against all manufacturing defects

16.13 Country of Origin: India

17 Sofa - Single Seated

17.1 Basic Indicative Diagram:

17.2 Conforming to BIS Code 303, 513, 7138, 710, 577, 7888, 12637, & 6911.

17.3 Dimensions:

17.3.1	Overall Size:	850-950W X 720-910D X 780-860H mm, ±10 mm
17.3.2	Seat Size:	550-600 X 540-600 mm, ±10 mm
17.3.3	Seat Height:	450 mm, ±10 mm
17.3.4	Height:	780-860 mm, ±10 mm
17.3.5	Net Weight:	Minimum 20 Kgs

17.4 Construction:

17.4.1 Seat Foam:
The seat shall be made up of PU foam in Density 28 ±2 kg/cum with an additional top layer of supersoft PU foam in Density 32 ±2 kg/cum, upholstered with fabric or leatherette.

17.4.2 Back Foam:
The back shall be made up of PU foam in Density 28 ±2 kg/cum with two additional top layer of supersoft foam of density 32 ±2 kg/cum, upholstered with fabric or leatherette.

17.4.3 Understructure:
Understructure shall be made up of 1.2 ±0.1 cm thick hot-pressed plywood (moisture resistance and termite proof as per IS:303) and pinewood of cross sections devoid of major knots and surface defects. 6 nos. per seat and 3.8 mm dia. zigzag spring assembly shall be mounted over understructure for cushioning purpose.

17.4.4 Leg Assembly:
Leg assembly shall be a welded assembly made in Stainless steel (grade SS 202) tube and plate with plastic endcap.

17.5 Performance:

17.5.1 The weight bearing capacity of the one-seater sofa shall be approx. 120 Kgs.

17.6 Colour:

17.6.1 The colour of the fabric/ leatherette shall be Black/ Dark Tan/ Camel/ Brown/ Coffee.

17.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

17.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

17.8 Marking: Each sofa shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.
17.9 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.
17.10 Packing: In the absence of any specific agreement as to the mode of packing, each sofa shall be properly protected to prevent damage of the surface and edges in transit and in storage.
17.11 Warranty: Minimum 1 Year against all manufacturing defects
17.12 Country of Origin: India

18 Sofa - Three Seated

18.1 Basic Indicative Diagram:

18.2 Conforming to BIS Code 303, 513, 7138, 710, 577, 7888, 12637, & 6911.

18.3 Dimensions:

18.3.1	Overall Size:	1900-2100W X 720-910D X 780-860H mm, ±10 mm.
18.3.2	Seat Size:	1650-1800 x 540-600 mm, ±10 mm.
18.3.3	Seat Height:	450 mm, ±10 mm.
18.3.4	Height:	780-860 mm, ±10 mm.
18.3.5	Net Weight:	Minimum 30 Kgs

18.4 Construction:

18.4.1 Seat Foam:
The seat shall be made up of PU foam in Density 28 ±2 kg/cum with an additional top layer of supersoft PU foam in Density 32 ±2 kg/cum, upholstered with fabric or leatherette.

18.4.2 Back Foam:
The back shall be made up of PU foam in Density 28 ±2 kg/cum with two additional top layer of supersoft foam of density 32 ±2 kg/cum, upholstered with fabric or leatherette.

18.4.3 Understructure:
Understructure shall be made up of 1.2 ±0.1 cm thick hot-pressed plywood (moisture resistance and termite proof as per 1S:303) and pinewood of cross sections devoid of major knots and surface defects. 6 nos. per seat and 3.8 mm dia. zigzag spring assembly shall be mounted over understructure for cushioning purpose.

18.4.4 Leg Assembly:
Leg assembly shall be a welded assembly made in Stainless steel (grade SS 202) tube and plate with plastic endcap.

18.5 Performance:

18.5.1 The weight bearing capacity of the three-seater sofa shall be approx. 350Kgs.

18.6 Colour:

18.6.1 The colour of the fabric/ leatherette shall be Black/ Dark Tan/ Camel/ Brown/ Coffee.

18.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

18.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

18.8 Marking: Each sofa shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

18.9 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

18.10 Packing: In the absence of any specific agreement as to the mode of packing, each sofa shall be properly protected to prevent damage of the surface and edges in transit and in storage.

18.11 Warranty: Minimum 1 Year against all manufacturing defects

18.12 Country of Origin: India

19 Sofa Set - 1+3+1

19.1 Basic Indicative Diagram:

19.2 The set shall content following items as per specifications given in this document
- 19.2.1 Sofa - Single Seated: Qty 02 No.
- 19.2.2 Sofa - Three Seated: Qty 01 No.

19.3 Warranty: Minimum 1 Year against all manufacturing defects

19.4 Country of Origin: India

20 Three Seated Chrome Plated Garden Bench

20.1 Basic Indicative Diagram:

20.2 Conforming to BIS Code 18573, Research Designs & Standards Organisation (RDSO).

20.3 Dimensions:

- 20.3.1 Overall Dimension: 1500-1650L X 500-600D X 800-900H mm ±10 mm
- 20.3.2 Length of Bench: 1500-1650 mm ±10 mm
- 20.3.3 Width of Bench: 450 mm ±10 mm
- 20.3.4 Clear Height of Bench: 450 mm ±10 mm
- 20.3.5 Base Plate (to be fixed on ground): 400 mm X 120 mm X 8 mm ±10 mm
- 20.3.6 Connecting Leg (for connecting base plate to seat): 320 mm X 40 mm ±10 mm
- 20.3.7 Length of Back Rest: 1500-1650 mm ±10 mm
- 20.3.8 Width of Back Rest: 450 mm ±10 mm
- 20.3.9 Seat and Back rest connecting pipe size: 40 mm dia. X 2 mm thickness ±10 mm
- 20.3.10 Clear Height of Bench with Back Rest: 890 mm ±10 mm
- 20.3.11 Separation of Seating space: By using square pipe of size 50 mm X 50 mm ±10 mm
- 20.3.12 Net Weight: Minimum 35 Kgs

20.4 General Information:

- 20.4.1 A durable, sleek and ergonomic bench designed for visitor seating in waiting areas. Made from high-quality stainless steel, this bench is suitable for both indoor and outdoor applications, offering comfort and longevity with minimal maintenance.

20.5 Construction:

- 20.5.1 Seating Capacity: 3 - Seater
- 20.5.2 Punching / Perforation in seating plate and backrest.
- 20.5.3 All fabrication work complete with using: CNC Laser cutting/ Water jet cutting (no shearing) and Argon welding.
- 20.5.4 Argon welding done by using: suitable SS 304 Grade welding rods and TIG (Tungsten inert gas) Arc welding method as per IS : 9604/ Latest.
- 20.5.5 Joint welding: Under controlled condition by using tungsten electrodes as per IS : 13907 / Latest and SS304L grade filler material.
- 20.5.6 Treatment of welds: With K-2 solutions

20.6 Material and Thickness:

- 20.6.1 Material for bench: Stainless steel 304 Grade conforming to IS : 6911 / ASTM A240 / A240M.

20.6.2 The central support on which the seat will be mounted shall be 50 mm X 70 mm X 1.2 mm Cold Formed Welded Carbon Steel Rectangular Hollow Section as per IS 18573.
20.6.3 Thickness of stainless-steel sheet / plate: 16 Gauge
20.6.4 Round pipe size: 50 mm Dia with 2 mm thickness
20.6.5 Square pipe size: 50 mm X 50 mm X 2 mm thickness
20.6.6 Base plate thickness: 8 mm
20.6.7 Stainless steel fastener size: 10 mm X 100 mm

20.7 Performance:
20.7.1 The weight bearing capacity of the bench shall be approx. 350 Kgs.

20.8 Finishing:
20.8.1 Finishing / Polishing of product: Uniform smooth Mirror finish as per table 8 of IS:6911/latest - polished to be done with automatic polishing machine.
20.8.2 No Welding marks: To be Visible

20.9 Certification:
20.9.1 Confirmatory test in respect of stainless steel: Grade 304

20.10 Marking: Each bench shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

20.11 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

20.12 Packing: In the absence of any specific agreement as to the mode of packing, each bench shall be properly protected to prevent damage of the surface and edges in transit and in storage.

20.13 Warranty: Minimum 1 Year against all manufacturing defects

20.14 Country of Origin: India

21 Three Seated Cast Iron Garden Bench

21.1 Basic Indicative Diagram:

21.2 Conforming to BIS Code 210.

21.3 Dimensions:

- 21.3.1 Overall Dimension: 1500-1650L X 500-600D X 800-900H mm ±10 mm
- 21.3.2 Total Length of Bench: 1500-1650 mm ±10 mm
- 21.3.3 Clear Height of Bench: 450 mm ±10 mm
- 21.3.4 Clear Height of Bench with Back Rest: 890 mm ±10 mm
- 21.3.5 Length of Back Rest: 1500-1650 mm ±10 mm
- 21.3.6 Net Weight: Minimum 40 Kgs

21.4 General Information:

- 21.4.1 A 3-seater cast iron bench is a durable and decorative seating option, ideal for public spaces, parks, gardens, and visitor areas. Known for its sturdy construction and elegant design, this type of bench provides a comfortable place for visitors to rest while also adding aesthetic value to any environment
- 21.4.2 Material:
  - 21.4.2.1 Side Frame Material: Cast Iron
  - 21.4.2.2 Seat Material: Mild Steel Pipe 14 Gauge
  - 21.4.2.3 Back Rest Material: Mild Steel Pipe 14 Gauge

21.5 Technical Parameters:

- 21.5.1 Bench Type: Integrated Seat and Back
- 21.5.2 Seating Capacity: 3-Seater
- 21.5.3 Stand/Legs Design: Decorative
- 21.5.4 Finish: Powder Coating
- 21.5.5 Back Rest: Yes
- 21.5.6 Arm Rest: Yes
- 21.5.7 Colour of Seat and Back: Black and Wooden Texture

21.6 Performance:

- 21.6.1 The weight bearing capacity of the bench shall be approx. 350 Kgs.

21.7 Marking: Each bench shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

21.8 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

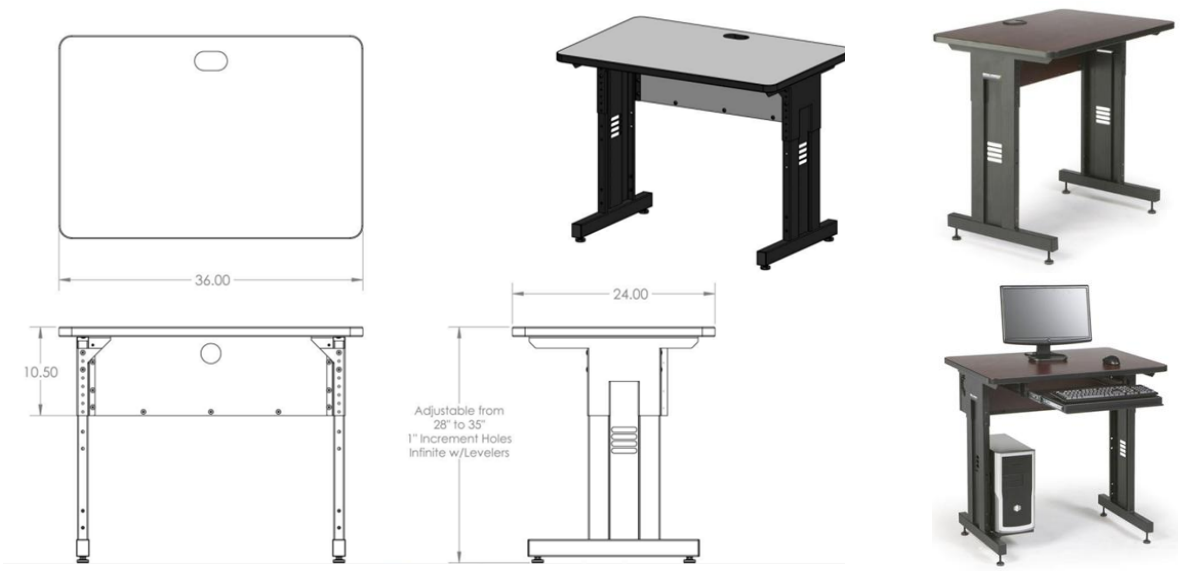
21.9 Packing: In the absence of any specific agreement as to the mode of packing, each bench shall be properly protected to prevent damage of the surface and edges in transit and in storage.

21.10 Warranty: Minimum 1 Year against all manufacturing defects

21.11 Country of Origin: India

22 Computer Table - Single Seated

22.1 Basic Indicative Diagram:



22.2 Conforming to BIS Code 513, 7138, 303, 2046 & 13871.

22.3 Dimensions:

22.3.1	Overall Size:	900L X 600D X 750H mm, ±10 mm.
22.3.2	Table Top:	900L X 600D mm, ±10 mm
22.3.3	Net Weight:	Minimum 20 Kgs

22.4 Construction:

22.4.1 Table Top:

22.4.1.1 Table Top is rectangular size and 19 mm thick, ±1 mm constructed from "Boiling Water Grade" (BWP) plywood (IS:303). Both the top and bottom surfaces shall be finished with a 1.0 mm thick matt finish decorative laminate (IS:2046) of approved colour.

22.4.1.2 A modesty panel 300 mm high, made of 19 mm thick, ±1 mm BWP plywood with a matt finish laminate of approved colour on both sides shall be provided at the rear end of the table, ensuring structural stability and enhancing the aesthetic appearance of the table.

22.4.1.3 The worktop shall include a slot for a grommet, positioned as per the requirement for cable management.

22.4.1.4 The work surface edges shall be finished with teak wood (TW) fillet edge lipping in matching colour. All laminated edges shall be smooth, properly finished, and free from sharp or rough surfaces to prevent potential harm.

22.4.2 Understructure:

22.4.2.1 The understructure should be made from 1.0 mm thick CRCA steel sheets as per BIS 513 for durability and stability. The frame should consist of tubular steel sections or folded sheet metal of size 25 mm x 25 mm, designed to provide adequate support for the table top and peripherals. The structure and the accessories tray should be epoxy polyester powder coated in an in-house powder coating facility with standard pre-treatment procedure.

22.4.3 Leg:

22.4.3.1 Fabricated component in 2 Nos. X 50 mm X 25 mm X 1.2 mm thick CRCA ERW Tube (IS: 7138) welded with 0.6 mm thick CRCA steel sheet on both sides as per design, to provide vertical support and overall stability.

22.4.3.2 The vertical leg and the adjoining sheet shall be welded to the leg base made of 50 mm x 50 mm x 1.2 mm thick CRCA ERW Tube (IS: 7138).

22.4.3.3 For Steel framework, only welded construction is acceptable. All welded edges should be machine finished.

22.4.3.4 The leg base shall be provided with screw type leveler.

22.4.4 Wire Management:

22.4.4.1 Entry of wires into the Table shall be possible from the floor.

22.4.4.2 Horizontal Wire Carrier: 0.7 mm thick CRCA (IS: 513)

22.4.4.3 Vertical Wire Carrier: 0.8 mm thick CRCA (IS: 513)

22.4.4.4 A surface mounted power box on the modesty panel under the table top shall be included, designed to accommodate standard 8-module Anchor Roma or equivalent switches. Additionally, provision shall be made with one RJ45 female socket in the module for integrating internet.

22.4.5 CPU Holder and Keyboard Tray:

22.4.5.1 A CPU holder on the bottom left side of the understructure and a pull-out keyboard tray (KBPT) of heavy-duty CRCA metal powder coated shall be provided below the table top. The tray shall be operated on keyboard channel.

22.5 Finish:

22.5.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door with hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

22.5.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

22.6 Colour:

22.6.1 The colour of the laminate shall be Walnut and black colour powder coating for all metal work.

22.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

22.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

22.8 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

22.9 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

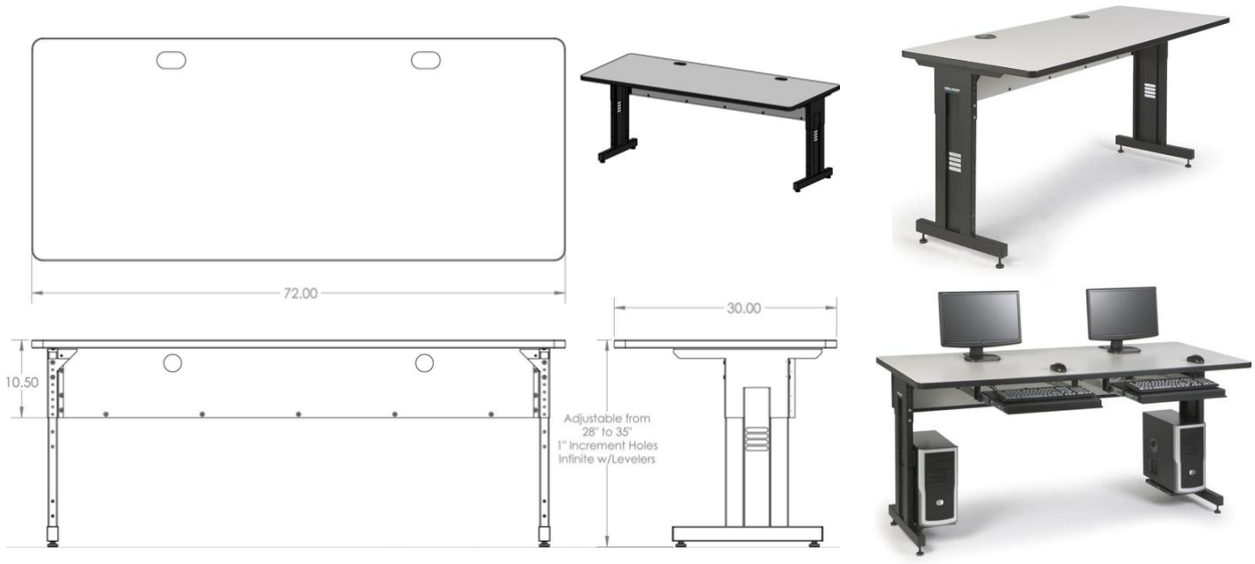
22.10 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

22.11 Warranty: Minimum 1 Year against all manufacturing defects

22.12 Country of Origin: India

23 Computer Table - Double Seated

23.1 Basic Indicative Diagram:



23.2 Conforming to BIS Code 513, 7138, 303, 2046 & 13871.

23.3 Dimensions:

23.3.1	Overall Size:	1800L X 750D X 750H mm, ±10 mm
23.3.2	Table Top:	1800L x 750D, ±10 mm
23.3.3	Net Weight:	Minimum 35 Kgs

23.4 Construction:

23.4.1 Table Top:

23.4.1.1 The table top shall be 1800L x 750D in rectangular size and 19 mm thick, ±1 mm, constructed from "Boiling Water Grade" (BWP) plywood (IS:303). Both the top and bottom surfaces shall be finished with a 1.0 mm thick matt finish decorative laminate (IS:2046) of approved colour.

23.4.1.2 A modesty panel 300 mm high, made of 19 mm thick, ±1 mm BWP plywood with a matt finish laminate of approved colour on both sides shall be provided at the rear end of the table, ensuring structural stability and enhancing the aesthetic appearance of the table.

23.4.1.3 The worktop shall include two slots for the grommet, positioned as per the requirement for cable management.

23.4.1.4 The work surface edges shall be finished with teak wood (TW) fillet edge lipping in matching colour. All laminated edges shall be smooth, properly finished, and free from sharp or rough surfaces to prevent potential harm.

23.4.2 Understructure:

23.4.2.1 The understructure should be made from 1.0 mm thick CRCA steel sheets as per BIS 513 for durability and stability. The frame including cross supports should consist of tubular steel sections or folded sheet metal of size 50 mm x 25 mm, designed to provide adequate support for the table top and peripherals. The structure and the accessories tray should be epoxy polyester powder coated in an in-house powder coating facility with standard pre-treatment procedure.

23.4.3 Leg:

23.4.3.1 Fabricated component in 2 nos. x 50 mm x 25 mm x 1.2 mm thick CRCA ERW Tube (IS: 7138) welded with 0.6 mm thick CRCA steel sheet on both sides as per design, to provide vertical support and overall stability.

23.4.3.2 The vertical leg and the adjoining sheet shall be welded to the leg base made of 50 mm x 50 mm x 1.2 mm thick CRCA ERW Tube (IS: 7138).

23.4.3.3 For Steel framework, only welded construction is acceptable. All welded edges should be machine finished.

23.4.3.4 The leg base shall be provided with screw type leveler.

23.4.4 Wire Management:

23.4.4.1 Entry of wires into the Table shall be possible from the floor.

23.4.4.2 Horizontal Wire Carrier- 0.7 mm thick CRCA (IS: 513)

23.4.4.3 Vertical Wire Carrier- 0.8 mm thick CRCA (IS: 513)

23.4.4.4 Two Nos. surface mounted power box on the modesty panel under the table top shall be included, designed to accommodate standard 8-module Anchor Roma or equivalent switches. Additionally, provision shall be made with one RJ45 female socket in the module for integrating internet.

23.4.5 CPU Holder and Keyboard Tray:

23.4.5.1 Two Nos. CPU holder, one on the bottom left side and other on the bottom right side of the understructure and two nos. pull-out keyboard tray (KBPT) of heavy-duty CRCA metal powder coated shall be provided below the table top. The tray shall be operated on keyboard channel.

23.5 Finish:

23.5.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door with hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

23.5.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

23.6 Colour:

23.6.1 The colour of the laminate shall be Walnut and black colour powder coating for all metal work.

23.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

23.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

23.8 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

23.9 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

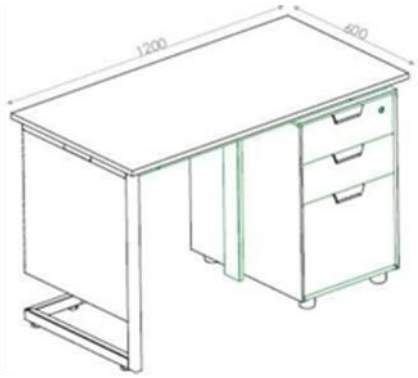
23.10 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

23.11 Warranty: Minimum 1 Year against all manufacturing defects

23.12 Country of Origin: India

24 Instructor/ Office Table

24.1 Basic Indicative Diagram:



24.2 Conforming to BIS Code 513, 7138, 303, 2046 & 13871.

24.3 Dimensions:

- 24.3.1 Overall Size: 1200L X 600D X 740H mm, ±10 mm.
- 24.3.2 Net Weight: Minimum 30 Kgs

24.4 Construction:

- 24.4.1 Top Work surface:
  - 24.4.1.1 19 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.
  - 24.4.1.2 The worktop shall be provided with the slot for grommet, as per requirement.
- 24.4.2 Understructure:
  - 24.4.2.1 Rectangular Frame Fabricated component in 1.2 mm thick CRCA (IS: 513).
- 24.4.3 Leg:
  - 24.4.3.1 Fabricated component in 38 mm x 25 mm x 1.2 mm thick CRCA ERW Tube (IS: 7138).
  - 24.4.3.2 Plastic Cap for Cable travel- Injection Moulded Polypropylene.
  - 24.4.3.3 Leveller glide for Leg- Nylon 6 and MS Bolt.
- 24.4.4 Storage Pedestal:
  - 24.4.4.1 Out of 3 drawers (Box + Box + File), the bottom most will be the file drawer and top drawer shall have a pencil tray. The storage unit shall also have suitable sliding arrangement, handle locking facility, etc.
  - 24.4.4.2 Shell- 0.6 mm thick CRCA (IS: 513).
  - 24.4.4.3 Drawer Tray- 0.6 mm thick CRCA (IS: 513).
  - 24.4.4.4 Drawer Front- 0.8 mm thick CRCA (IS: 513).
  - 24.4.4.5 Frame Assembly- 1.2 mm thick CRCA (IS: 513).
  - 24.4.4.6 Lock- 10 Lever Cam Lock central locking mechanism.
  - 24.4.4.7 Handle- Injection Moulded Polypropylene.
  - 24.4.4.8 Leveller- Nylon 6 and MS Bolt.
- 24.4.5 Wire Management:
  - 24.4.5.1 Entry of wires into the Table shall be possible from the floor.
  - 24.4.5.2 Horizontal Wire Carrier: 0.7 mm thick CRCA (IS: 513)

24.4.5.3 Vertical Wire Carrier: 0.8 mm thick CRCA (IS: 513)

24.4.5.4 Only provision of carrier for electrical/ data slots below the work top shall be provided

24.5 Finish:

24.5.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door with hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

24.5.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

24.6 Colour:

24.6.1 The colour of the laminate shall be Silver Grey/ Teak and hues of Grey for framework.

24.6.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

24.7 Manufacturing Process: As per Annexure A attached with this Specification Document.

24.8 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

24.9 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

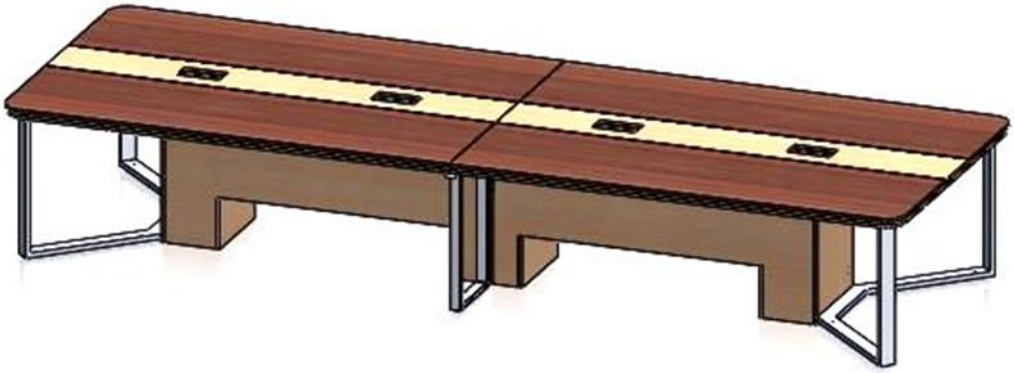
24.10 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

24.11 Warranty: Minimum 1 Year against all manufacturing defects

24.12 Country of Origin: India

25 Conference Table - 14 Seated

25.1 Basic Indicative Diagram:



25.2 Conforming to BIS Code 303, 2046, 4923 & 13871.

25.3 Dimensions:

25.3.1 Overall Size: 4400-4500W X 1500D X 740-750H mm, ±10 mm.

25.3.2 Net Weight: Minimum 190 Kgs

25.4 Construction:

25.4.1 Work Top/ Table Top:

25.4.1.1 The free-standing conference table shall be constructed using recommended carpentry joints, nails, and screws to ensure robust assembly and long-term durability. The table top shall be fabricated from 36 mm ±2 mm thick BWP (Boiling Water Proof) plywood, achieved by laminating two layers of 19 mm, ±1 mm thick BWP plywood (IS:303) for enhanced strength and moisture resistance. Both surfaces of the table top shall be finished with 1.0 mm thick decorative laminate, featuring an approved dual-tone design and color on the top surface, and white or ivory white laminate on the underside, conforming to IS 2046. The edges shall be sealed with 2 mm thick matching PVC lipping for a seamless finish. The table shall include four soft-closing dual-access flaps for convenient access to power supply and data cables.

25.4.2 Under-structure:

25.4.2.1 The under-structure of the conference table shall be constructed using a combination of corrosion-resistant, epoxy polyester powder-coated to the thickness of minimum 50 - 60 microns (±10) mild steel hollow frame sections conforming to IS 4923, with a section size of 50 X 25 X 1.2 mm, as per the approved design.

25.4.2.2 The frame shall be integrated with 1.0 mm thick decorative laminated wooden panels made of 19 mm, ±1 mm thick BWP plywood (IS:303), ensuring enhanced stability and an aesthetically appealing finish.

25.4.2.3 The modesty panels shall also be fabricated from 19 mm, ±1 mm thick BWP plywood (IS:303), finished with 1.0 mm thick decorative laminate and securely assembled using high-quality fasteners. The design shall ensure sufficient legroom, efficient cable management, and structural integrity to support the table top and associated accessories.

25.4.3 Wire Management:

25.4.3.1 A wire raiser fabricated from 0.8 mm thick CRCA mild steel conforming to IS 513, with a corrosion-resistant powder-coated finish, shall be provided to facilitate the organized routing of wires and cables from the flooring. A power box with two cutouts on either side shall be included, designed to accommodate standard 8-module Anchor Roma or equivalent switches. Additionally, provision (optional as per client requirements) shall be made for an extra cutout with a mounting plate adjacent to each cutout for integrating audio-visual cables, such as HDMI, VGA-A, and others.

25.5 Colour:

25.5.1 The laminate for the table top shall feature a dual-tone finish in Natural Teak or Cherry Walnut, with matching 2 mm thick PVC lipping applied to the edges for a seamless appearance. The laminate for the underside of the table top shall be finished in White or Ivory White.

25.5.2 The laminate for all surfaces of the modesty panel in the under-structure shall match the dual-tone finish selected for the center area of the table top, ensuring a cohesive aesthetic design.

25.5.3 The powder coating for the mild steel hollow frame sections of the under-structure shall be finished in Steel Grey glossy, providing a durable and visually appealing surface.

25.5.4 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

25.6 Manufacturing Process: As per Annexure A attached with this Specification Document.

25.7 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

25.8 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

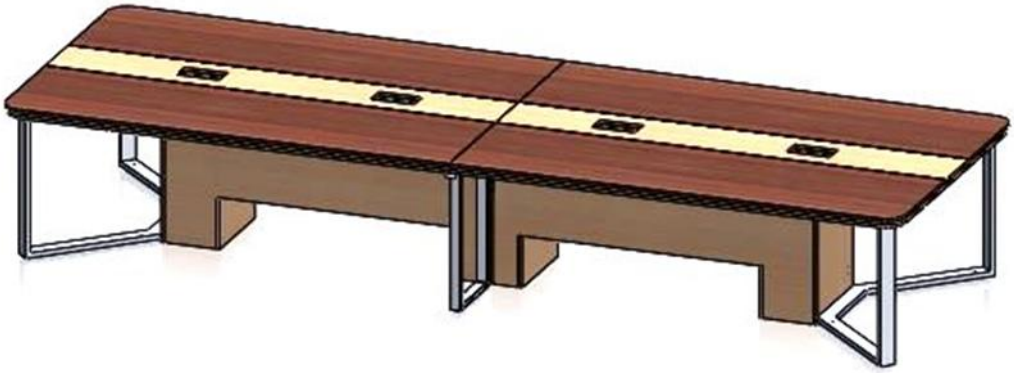
25.9 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

25.10 Warranty: Minimum 1 Year against all manufacturing defects

25.11 Country of Origin: India

26 Conference Table - 20 Seated

26.1 Basic Indicative Diagram:



26.2 Conforming to BIS Code 303, 2046, 4923 & 13871.

26.3 Dimensions:

- 26.3.1 Overall Size: 5900-6000W X 1500D X 740-750H mm, ±10 mm.
- 26.3.2 Net Weight: Minimum 250 Kgs

26.4 Construction:

- 26.4.1 Work Top/ Table Top:
  - 26.4.1.1 The free-standing conference table shall be constructed using recommended carpentry joints, nails, and screws to ensure robust assembly and long-term durability. The table top shall be fabricated from 36 mm ±2 mm thick BWP (Boiling Water Proof) plywood, achieved by laminating two layers of 19 mm, ±1 mm thick BWP plywood (IS:303) for enhanced strength and moisture resistance. Both surfaces of the table top shall be finished with 1.0 mm thick decorative laminate, featuring an approved dual-tone design and color on the top surface, and white or ivory white laminate on the underside, conforming to IS 2046. The edges shall be sealed with 2 mm thick matching PVC lipping for a seamless finish. The table shall include five soft-closing dual-access flaps for convenient access to power supply and data cables.
- 26.4.2 Under-structure:
  - 26.4.2.1 The under-structure of the conference table shall be constructed using a combination of corrosion-resistant, epoxy polyester powder-coated to the thickness of minimum 50 - 60 microns (±10) mild steel hollow frame sections conforming to IS 4923, with a section size of 50 X 25 X 1.2 mm, as per the approved design.
  - 26.4.2.2 The frame shall be integrated with 1.0 mm thick decorative laminated wooden panels made of 19 mm, ±1 mm thick BWP plywood (IS:303), ensuring enhanced stability and an aesthetically appealing finish.
  - 26.4.2.3 The modesty panels shall also be fabricated from 19 mm, ±1 mm thick BWP plywood (IS:303), finished with 1.0 mm thick decorative laminate and securely assembled using high-quality fasteners. The design shall ensure sufficient legroom, efficient cable management, and structural integrity to support the table top and associated accessories.

26.4.3 Wire Management:

26.4.3.1 A wire raiser fabricated from 0.8 mm thick CRCA mild steel conforming to IS 513, with a corrosion-resistant powder-coated finish, shall be provided to facilitate the organized routing of wires and cables from the flooring. A power box with two cutouts on either side shall be included, designed to accommodate standard 8-module Anchor Roma or equivalent switches. Additionally, provision (optional as per client requirements) shall be made for an extra cutout with a mounting plate adjacent to each cutout for integrating audio-visual cables, such as HDMI, VGA-A, and others.

26.5 Colour:

26.5.1 The laminate for the table top shall feature a dual-tone finish in Natural Teak or Cherry Walnut, with matching 2 mm thick PVC lipping applied to the edges for a seamless appearance. The laminate for the underside of the table top shall be finished in White or Ivory White.

26.5.2 The laminate for all surfaces of the modesty panel in the under-structure shall match the dual-tone finish selected for the center area of the table top, ensuring a cohesive aesthetic design.

26.5.3 The powder coating for the mild steel hollow frame sections of the under-structure shall be finished in Steel Grey glossy, providing a durable and visually appealing surface.

26.5.4 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

26.6 Manufacturing Process: As per Annexure A attached with this Specification Document.

26.7 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

26.8 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

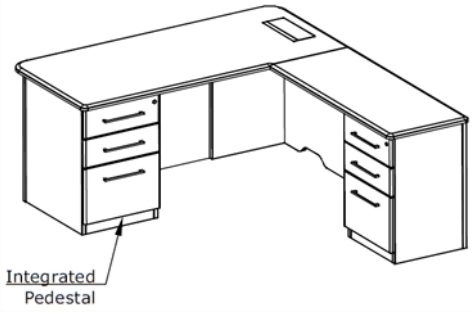
26.9 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

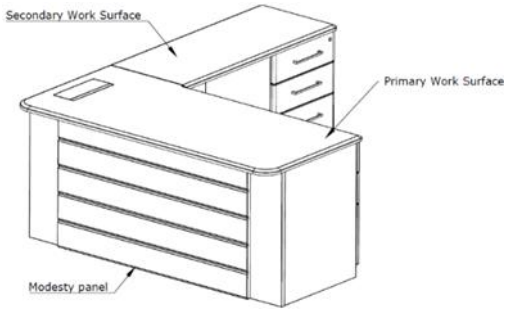
26.10 Warranty: Minimum 1 Year against all manufacturing defects

26.11 Country of Origin: India

27 Officer/ Executive Table

27.1 Basic Indicative Diagram:





27.2 Conforming to BIS Code 513, 303, 2046 & 13871.

27.3 Dimensions:

27.4 Primary:

27.4.1 Overall Size: 1800 mm (W) X 900 mm (D) X 750 mm (H), ±10 mm with integrated Pedestal

27.4.2 Qty 1 No.

27.5 Secondary Side Table (ERU):

27.5.1 Overall size of 1200 mm (W) x 500 mm (D) X 750 mm (H), ±10 mm with integrated Pedestal

27.5.2 Qty 1 No.

27.6 Main Table Construction:

27.6.1 Primary Work Surface:

27.6.1.1 Top made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.6.1.2 Soft closing access flap with in-build power box are provided on work surface for wire management.

27.6.2 Modesty Panel:

27.6.2.1 Top made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.6.3 Under-structure:

27.6.3.1 Made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.6.4 Integrated Pedestal:

27.6.4.1 Made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.6.4.2 Drawer fronts made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.6.4.3 Pedestal construction is Box-Box-File type which Uses powder coated 400 mm long metal Panel Drawer Slides. Drawer extension is 325 mm.

27.6.4.4 Drawers have a soft closing & anti slam mechanism.

27.6.4.5 Handles are provided for ease of opening.

27.6.4.6 Pedestals are provided with lock for security.

27.7 Secondary Work Surface (ERU) Construction:

27.7.1 Top made of 25 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour.

27.7.2 PVC caps shall be provided to all holes, openings of the framework.

27.8 Door Partition Shelves:

27.8.1 19 mm, ±1 mm thick BWP plywood (IS:303) finished with 0.8-1.0mm thick matt finish decorative laminate (IS:2046) with TW fillet edge lipping all over the work surface edges finished in matching colour on both sides.

27.9 Finish:

27.9.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door with hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

27.9.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

27.10 Colour:

27.10.1 The colour of the Executive Table and Secondary Side Table (ERU) shall be similar to the colour photograph given above. Softened corners and chamfered edges that offer user comfort and convenience is the important factor. Its simple horizontal line pattern and dark wood grains make for an elegant finish.

27.10.2 Colour of Laminate of Executive Table and ERU shall be Tobacco Ash/ Walnut and Black.

27.10.3 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

27.11 Manufacturing Process: As per Annexure A attached with this Specification Document.

27.12 Marking: Each Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

27.13 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

27.14 Packing: In the absence of any specific agreement as to the mode of packing, each Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

27.15 Warranty: Minimum 1 Year against all manufacturing defects

27.16 Country of Origin: India

28 Wooden Center Table with Glass Top

28.1 Basic Indicative Diagram:

28.2 Conforming to BIS Code 13622, 2835 & 13213.

28.3 Dimensions:

- 28.3.1 Overall Size: 1000-1050W X 540-650D X 440-450H mm, ±10 mm.
- 28.3.2 Net Weight: Minimum 22 Kgs

28.4 Construction:

- 28.4.1 Primary Material: High Quality Solid Wood, Subtype: Teak Wood as per IS 13622.
- 28.4.2 Secondary Material: Tempered Glass, Subtype: Normal Glass, Glass thickness: 8-10 mm as per IS 2835.
- 28.4.3 A wooden storage shelve as per design shall be provided below the table top and provide stability to the four legs.
- 28.4.4 High gloss Polyurethane (PU) coating as per IS 13213.
- 28.4.5 The tempered glass top shall be built to hold up to 40-50 kgs of weight. The glass shall be properly fillet finished at the edges to ensure smoothness and safety, avoiding sharpness or rough surfaces.
- 28.4.6 The center table shall have no sharp edges or burrs to prevent inadvertent scratches or injuries.
- 28.4.7 Each and every piece of wood, should be treated with the industry specified techniques, making it termite resistant.

28.5 Colour:

- 28.5.1 The colour of the framework shall be Natural Teak/ Walnut.
- 28.5.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

28.6 Manufacturing Process: As per Annexure A attached with this Specification Document.

28.7 Marking: Each Center Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

28.8 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

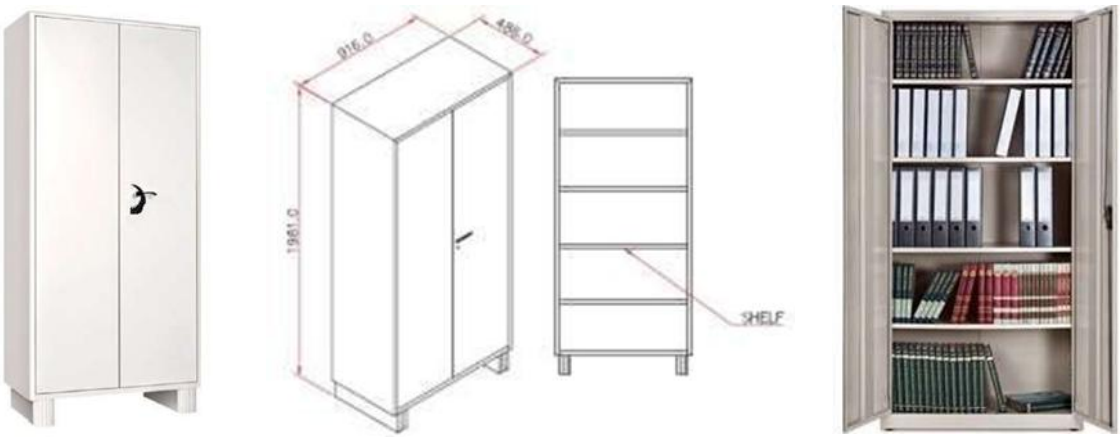
28.9 Packing: In the absence of any specific agreement as to the mode of packing, each Center Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

28.10 Warranty: Minimum 1 Year against all manufacturing defects

28.11 Country of Origin: India

29 Steel Cupboard - Large

29.1 Basic Indicative Diagram:



29.2 Conforming to BIS Code 6189, 513 & 13871.

29.3 Dimensions:

29.3.1 Overall Size: 915W X 485D X 1980H mm, ±10 mm.

29.3.2 Net Weight: Minimum 60 Kgs

29.4 Construction:

29.4.1 The construction shall be welded construction with 0.7 mm thick CRCA for shelf and 0.8 mm thick for top and bottom, door, sides and back confirming to IS: 513 -2008 grade. The width of the side sheet shall correspond to the depth of the top. The sides shall extend between the extreme surface of the top and bottom shelves. The width of the back sheet shall correspond to width of the top. The back shall extend between the extreme surface of the top and bottom shelves.

29.4.2 The length of the top and bottom shall cover the width of the cabinet and the breadth shall cover the depth of the cabinet made of 0.8 mm thick CRCA.

29.4.3 The inside folded edges shall have stiffening. The welded edges should be machine finished.

29.4.4 All material should be used of relevant ISI specification.

29.5 Configuration (Doors):

29.5.1 Two door shutters shall be made of 0.8 mm thick CRCA and all other metal component shall be made of 0.9 mm thick CRCA. CRCA D grade conforming to IS: 513 -2008.

29.5.2 Shutter shall have metal stiffeners suitably welded or riveted to stiffen the door. The centre-to-centre distance between two adjacent hinges to the right side of the cabinet shall have a hole for the handle and key slot for the key of the lock.

29.5.3 The clearance around the door between the door flanges and side top and bottom flanges shall not be more than 1.25 mm.

29.6 Hinges:

29.6.1 The hinges shall be either plain butt type made from CRCA not less than 1.6 mm thick or double folded type fabricated from CRCA sheet not less than 1.25 mm thick.

29.6.2 The hinges shall be secured to the mild steel hinge bracket not less than 2.5 mm thick on one side and shall be secured to the door on the other side of the fulcrum.

29.6.3 The number of hinges per door leaf shall not be less three.

29.7 Lock:

29.7.1 The locking and handle of the storage shall be oxidized Brass Mazak Handle or MS Handle with Nickel Coating with three way locking mechanism with shooting bolt controlled by lock operated by handle with min 03 duplicate keys of Godrej/ Vijayan or of approved make.

29.8 Shelves:

29.8.1 The shelf panel (minimum four nos.) shall be height adjustable and should be made of 0.7 mm thick CRCA steel confirming to IS: 513 -2008 grade to take the maximum load bearing capacity of 75 Kg uniformly distributed per shelf.

29.8.2 Shelves shall have lipped flanges 25 mm in width and 15 mm in depth.

29.8.3 Each shelf shall be supported by four brackets, each fabricated from CRCA steel with a minimum thickness of 1.6 mm. The brackets shall be designed and constructed to provide secure support for the shelf while allowing easy adjustments within the bracket as needed.

29.8.4 Four rack strips with machine punched slots shall be provided for supporting the shelves covering the full height of the cabinet. Rack strips shall be made of CRCA not less than 1.00 mm thick.

29.9 Pedestal:

29.9.1 Two pedestals spanning the depth of the cabinet shall be made from CRCA sheet not less than 1.00 mm thick and shall be properly stiffened.

29.9.2 The pedestal shall not project out of the cabinet and shall be 125 ± 5 mm in height.

29.10 Finish:

29.10.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door including hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

29.10.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

29.11 Colour:

29.11.1 The structure shall be epoxy powder-coated in hues of Grey, subject to approval.

29.11.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

29.12 Manufacturing Process: As per Annexure A attached with this Specification Document.

29.13 Marking: Each Steel Cupboard shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

29.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

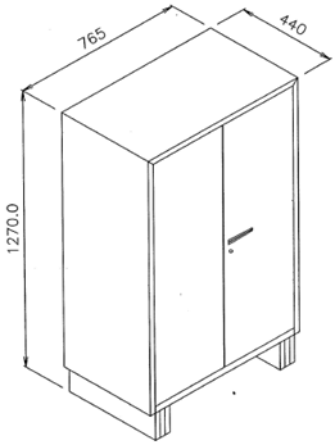
29.15 Packing: In the absence of any specific agreement as to the mode of packing, each Steel Cupboard shall be properly protected to prevent damage of the surface and edges in transit and in storage.

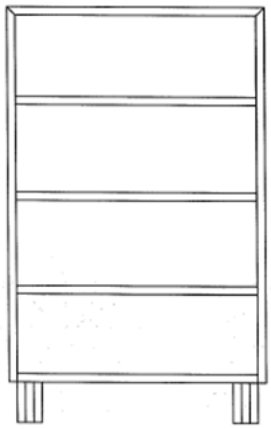
29.16 Warranty: Minimum 1 Year against all manufacturing defects

29.17 Country of Origin: India

30 Steel Cupboard - Small

30.1 Basic Indicative Diagram:





30.2 Conforming to BIS Code 6189, 513 & 13871.

30.3 Dimensions:

30.3.1 Overall Size: 765W X 440D X 1270H mm, ±10 mm.

30.3.2 Net Weight: Minimum 40 Kgs

30.4 Construction:

30.4.1 The construction shall be welded construction with min 0.6-0.7 mm thick CRCA for shelf and min 0.8 mm thick for top and bottom, door, sides and back confirming to IS: 513 -2008 grade. The width of the side sheet shall correspond to the depth of the top. The sides shall extend between the extreme surface of the top and bottom shelves. The width of the back sheet shall correspond to width of the top. The back shall extend between the extreme surface of the top and bottom shelves.

30.4.2 The length of the top and bottom shall cover the width of the cabinet and the breadth shall cover the depth of the cabinet made of 0.8 mm thick CRCA.

30.4.3 The inside folded edges shall have stiffening. The welded edges should be machine finished.

30.4.4 All material should be used of relevant ISI specification.

30.5 Configuration (Doors):

30.5.1 Two door shutters shall be made of 0.8 mm thick CRCA and all other metal component shall be made of 0.9 mm thick CRCA. CRCA D grade conforming to IS: 513 -2008.

30.5.2 Shutter shall have metal stiffeners suitably welded or riveted to stiffen the door. The centre-to-centre distance between two adjacent hinges to the right side of the cabinet shall have a hole for the handle and key slot for the key of the lock.

30.5.3 The clearance around the door between the door flanges and side top and bottom flanges shall not be more than 1.25 mm.

30.6 Hinges:

30.6.1 The hinges shall be either plain butt type made from CRCA not less than 1.6 mm thick or double folded type fabricated from CRCA sheet not less than 1.25 mm thick.

30.6.2 The hinges shall be secured to the mild steel hinge bracket not less than 2.5 mm thick on one side and shall be secured to the door on the other side of the fulcrum.

30.6.3 The number of hinges per door leaf shall not be less two.

30.7 Lock:

30.7.1 The locking and handle of the storage shall be oxidized Brass Mazak Handle or MS Handle with Nickel Coating with three way locking mechanism with shooting bolt controlled by lock operated by handle with min 03 duplicate keys of Godrej/ Vijayan or of approved make.

30.8 Shelves:

30.8.1 The shelf panel (minimum three nos.) shall be height adjustable and should be made of 0.6-0.7 mm thick CRCA steel confirming to IS: 513 -2008 grade to take the maximum load bearing capacity of 75 Kg uniformly distributed per shelf.

30.8.2 Shelves shall have lipped flanges 25 mm in width and 15 mm in depth.

30.8.3 Each shelf shall be supported by four brackets, each fabricated from CRCA steel with a minimum thickness of 1.6 mm. The brackets shall be designed and constructed to provide secure support for the shelf while allowing easy adjustments within the bracket as needed.

30.8.4 Four rack strips with machine punched slots shall be provided for supporting the shelves covering the full height of the cabinet. Rack strips shall be made of CRCA not less than 1.00 mm thick.

30.9 Pedestal:

30.9.1 Two pedestals spanning the depth of the cabinet shall be made from CRCA sheet not less than 1.00 mm thick and shall be properly stiffened.

30.9.2 The pedestal shall not project out of the cabinet and shall be 125 ± 5 mm in height.

30.10 Finish:

30.10.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door including hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

30.10.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

30.11 Colour:

30.11.1 The structure shall be epoxy powder-coated in hues of Grey, subject to approval.

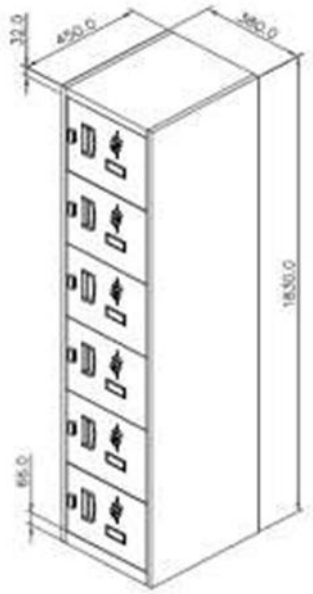
30.11.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

30.12 Manufacturing Process: As per Annexure A attached with this Specification Document.

30.13 Marking: Each Steel Cupboard shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.
30.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.
30.15 Packing: In the absence of any specific agreement as to the mode of packing, each Steel Cupboard shall be properly protected to prevent damage of the surface and edges in transit and in storage.
30.16 Warranty: Minimum 1 Year against all manufacturing defects
30.17 Country of Origin: India

31 Steel Locker - 24 Compartment

31.1 Basic Indicative Diagram:



31.2 Conforming to BIS Code 6189, 513 & 13871.

31.3 Dimensions:

31.3.1 Overall Size: 1520W X 450D X 1830H mm, ±10 mm.

31.3.2 Net Weight: Minimum 75 Kgs

31.4 Design:

31.4.1 The steel locker shall consist of 24 compartments, comprising four units of six-door lockers (main unit) with equal dimensions.

31.5 Combination:

31.5.1 6-Door Main Unit: One unit with dimension of 380W x 1830H mm.

31.5.2 6-Door Add-On Units: Three units (add-on), each with dimension of 380W x 1830H mm stacked width wise to form a row of Lockers.

31.6 Construction:

31.6.1 The construction shall be Knock Down Construction.

31.6.2 Overall Construction shall be 0.6-0.7 mm thick CRCA confirming to IS:513 - 2008 grade.

31.6.3 Door for Locker: One-piece per compartment, 0.6-0.7 mm thick CRCA with both vertical edges formed into channel-shaped formation; top and bottom shall be flanged at 90-degree angle. Hinge side (right side of the compartment) shall be formed into channel shaped formation with other three sides flanged at 90-degree angle.

31.6.4 Shelf: The shelf should have uniform load carrying capacity up to 35Kg.

31.6.5 Handle: Aesthetically appealing Snap fit ABS plastic handle.

31.6.6 Label Holder: Plastic or MS label holder should be provided for identification.

31.6.7 Lock: The locking mechanism shall be provided for individual compartment. Lock should be 10 Lever cam lock with lock lever of Godrej/ Vijayan or of approved make. Min. 03 keys for each compartment shall be provided.

31.6.8 Optional: The legs of each unit (main and add-on unit) shall be provided with screw type leveler. The height of leveler shall be 50 mm with a possible adjustment of 15 mm.

31.6.9 All material should be used of relevant ISI specification.

31.7 Finish:

31.7.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door including hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

31.7.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

31.8 Colour:

31.8.1 The structure shall be epoxy powder-coated in hues of Grey, subject to approval.

31.8.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

31.9 Manufacturing Process: As per Annexure A attached with this Specification Document.

31.10 Marking: Each Steel Locker shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

31.11 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

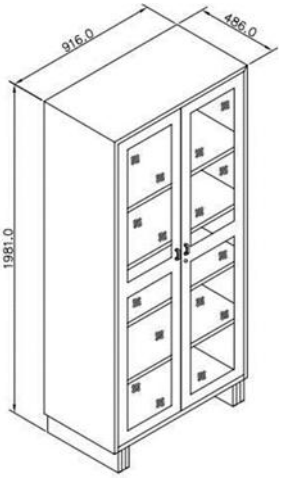
31.12 Packing: In the absence of any specific agreement as to the mode of packing, each Steel Locker shall be properly protected to prevent damage of the surface and edges in transit and in storage.

31.13 Warranty: Minimum 1 Year against all manufacturing defects

31.14 Country of Origin: India

32 Steel Book Case

32.1 Basic Indicative Diagram:



32.2 Conforming to BIS Code 6189, 513, 2835 & 13871.

32.3 Dimensions:

- 32.3.1 Overall Size: 915W X 485D X 1980H mm, ±10 mm.
- 32.3.2 Net Weight: Minimum 60 Kgs

32.4 Design:

- 32.4.1 The steel bookcase features a sturdy construction with two framed glass doors, providing visibility and protection for stored items.
- 32.4.2 It is equipped with five adjustable loading levels, allowing flexible storage for books and documents. The base is elevated on steel pedestals for added stability and durability.
- 32.4.3 The doors are lockable to ensure security, and the frame is finished with a smooth powder-coated surface for corrosion resistance and a sleek appearance.

32.5 Construction:

- 32.5.1 The construction shall be welded construction with Prime Quality CRCA confirming to IS: 513 -2008 grade.
- 32.5.2 Steel Top, Back and side are made from 0.7 mm thick CRCA. Rest in 0.8 mm CRCA confirming to IS: 513 -2008 grade.
- 32.5.3 All material should be used of relevant ISI specification.

32.6 Configuration (Doors):

- 32.6.1 Two door shutters shall be made of 0.8 mm thick CRCA sheet with 3 mm thk. Transparent float glass for clear inside vision secured in a metal frame through rubber gasket and all other metal component shall be made of 0.9 mm thick CRCA. 'D' grade conforming to IS: 513 -2008.
- 32.6.2 The glass shall be free of distortion and waves and both the surfaces of the glass shall be perfectly parallel and shall be of Asahi/ Modi/ Pilkington/ Saint Gobain or of approved make.
- 32.6.3 Shutter shall have metal stiffeners suitably welded or riveted to stiffen the door. The centre-to-centre distance between two adjacent hinges to the right side of the cabinet shall have a hole for the handle and key slot for the key of the lock.
- 32.6.4 The clearance around the door between the door flanges and side top and bottom flanges shall not be more than 1.25 mm.

32.7 Hinges:

32.7.1 The hinges shall be either plain butt type made from CRCA not less than 1.6 mm thick or double folded type fabricated from CRCA sheet not less than 1.25 mm thick.

32.7.2 The hinges shall be secured to the mild steel hinge bracket not less than 2.5 mm thick on one side and shall be secured to the door on the other side of the fulcrum.

32.7.3 The number of hinges per door leaf shall not be less three.

32.8 Lock:

32.8.1 The Door shutter shall have one 6 lever Cam lock with min. 03 common key of Godrej/ Vijayan or of approved make.

32.8.2 Two oxidized Brass Mazak Handle or MS Handle with Nickel Coating handle 75 mm long shall be provided on each shutter.

32.8.3 One oxidized brass 75 mm long tower bolt each from inside shall be provided on top and bottom rail of the left-hand side shutter.

32.9 Shelves:

32.9.1 The shelf panel (minimum four nos.) shall be height adjustable and should be made of 0.7 mm thick CRCA steel confirming to IS: 513 -2008 grade to take the maximum load bearing capacity of 75 Kg uniformly distributed per shelf. Shelves shall have lipped flanges 25 mm in width and 15 mm in depth.

32.9.2 Each shelf shall be supported by four brackets, each fabricated from CRCA steel with a minimum thickness of 1.6 mm. The brackets shall be designed and constructed to provide secure support for the shelf while allowing easy adjustments within the bracket as needed.

32.9.3 Four rack strips with machine punched slots shall be provided for supporting the shelves covering the full height of the cabinet. Rack strips shall be made of CRCA not less than 1.00 mm thick.

32.10 Pedestal:

32.10.1 Two pedestals spanning the depth of the cabinet shall be made from CRCA sheet not less than 1.00 mm thick and shall be properly stiffened.

32.10.2 The pedestal shall not project out of the cabinet and shall be 125 ± 5 mm in height.

32.11 Finish:

32.11.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door including hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

32.11.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

32.12 Colour:

32.12.1 The structure shall be epoxy powder-coated in hues of Grey, subject to approval.

32.12.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

32.13 Manufacturing Process: As per Annexure A attached with this Specification Document.

32.14 Marking: Each Steel Book Case shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

32.15 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

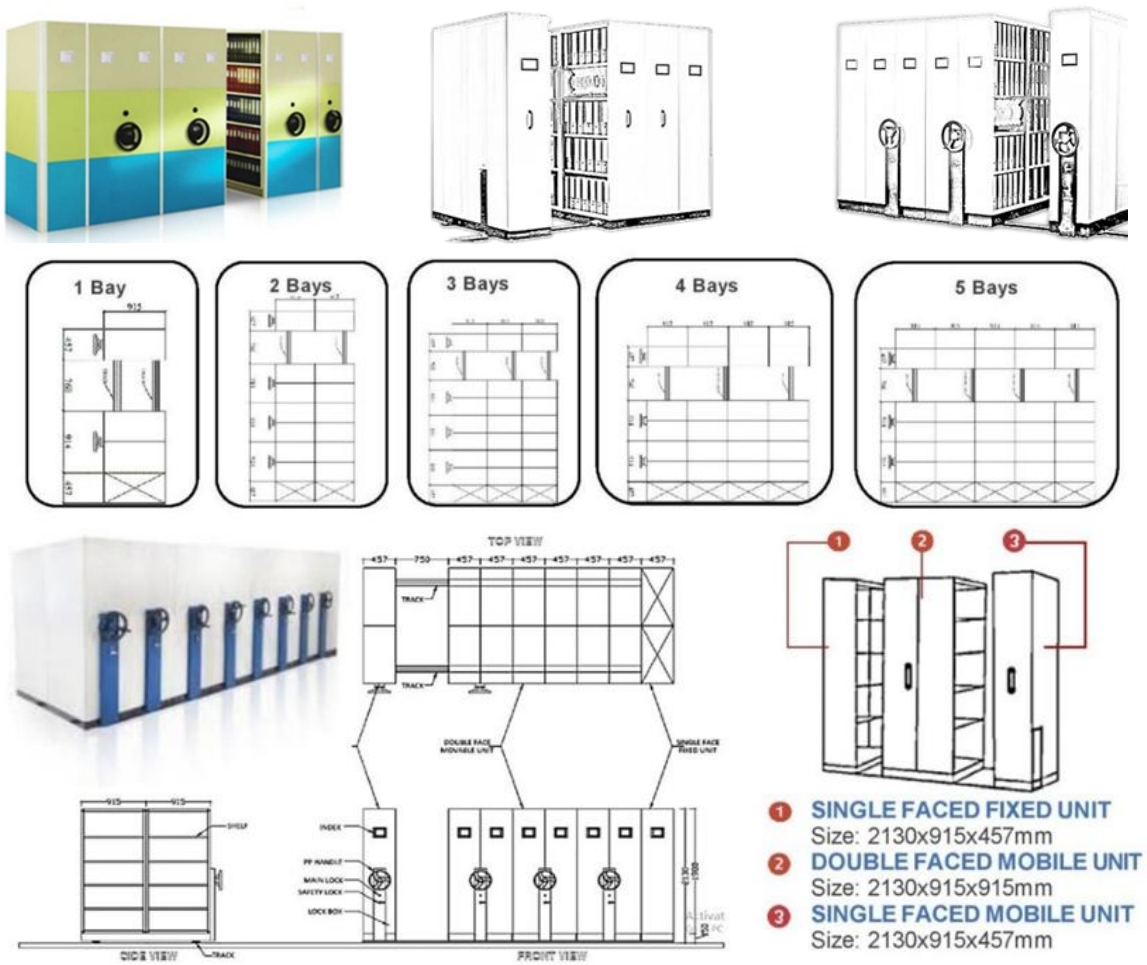
32.16 Packing: In the absence of any specific agreement as to the mode of packing, each Steel Book Case shall be properly protected to prevent damage of the surface and edges in transit and in storage.

32.17 Warranty: Minimum 1 Year against all manufacturing defects

32.18 Country of Origin: India

33 Optimizer - 1+2+1, 2 Bay

33.1 Basic Indicative Diagram:



33.2 Two Bay of Steel Optimizer consisting of following bodies:
- 33.2.1 Single Static (SD2) Two Bay Drive type
- 33.2.2 Single Last (LD2) Two Bay Drive type
- 33.2.3 Twin Mobile (TD2) Two Bay Drive type
- 33.2.4 Rail Pair (D2): bolted to undercarriage which rolls on the channels and firmly embedded to the ground as per the following design, specification, manufacturing process and tests.

33.3 Conforming to BIS Code 6189, 513, 10748 & 13871.

33.4 Dimensions:
- 33.4.1 Overall Size: 2740 X 1830 X 1980 mm, ±10 mm.
- 33.4.2 Length: SS 455 mm X (TM2 x 915 mm) X SL 455 mm= 2740 mm, ±10 mm
- 33.4.3 Width: 2 Bay X 915 mm = 1830 mm, ±10 mm
- 33.4.4 Height (Without Undercarriage): 1980 mm, ±10 mm
- 33.4.5 Rail Pair: 3660 mm, ±10 mm
- 33.4.6 Net Weight: Minimum 500 Kg

33.5 Configuration:
- 33.5.1 One set of compactor storage unit shall consist of the following bodies:
- 33.5.2 Single Static (SD2) Two Bay Drive type: Qty 1 No.
- 33.5.3 Single Last (LD2) Two Bay Drive type: Qty 1 No.

33.5.4 Twin Mobile (TD2) - Two Bay Drive type: Qty 2 Nos.
33.5.5 Rail Pair (D2) - 12'-03": Qty 2 Nos.

33.6 Construction:

33.6.1 Main Body:

33.6.1.1 Rigid Knock Down construction made out of 0.8 mm thick. CRCA Steel conforming to IS: 513-2008 grade D.

33.6.1.2 Each unit shall have 5 loading levels formed by 4 nos. adjustable shelves. Body units are bolted to undercarriage.

33.6.1.3 All material should be used of relevant ISI specification.

33.6.2 Shelf:

33.6.2.1 It is made of 0.8 mm thick CRCA steel conforming to IS: 513 -2008 grade D or DD.

33.6.2.2 The max. load bearing capacity is 80 Kg uniformly distributed per shelf Drive type configuration.

33.6.2.3 The breakup of allowable UDL per Shelf as per different configurations is given below:

S.N.	Allowable safe load per shelf in a given configuration (Block Type)	Total no. of loading levels per under structure	Allowable UDL per Shelf in Kg.
1	Single Static 2 Bay Drive Type	10	80
2	Single Last 2 Bay Drive Type	10	80
3	Twin Mobile 2 Bay Drive Type	20	60

33.6.2.4 Shelves are mounted on support brackets and shelf level can be adjusted at approx. 25.4 pitches.

33.6.2.5 There are 4 adjustable shelves per body of the bay giving 5 loading levels, if no Cradle pair is provided.

33.6.3 Undercarriage:

33.6.3.1 The Undercarriage is a welded frame made of HR sheet 3.15 mm thk conforming to IS 10748-2004 suitably fabricated using welding to take the loads based on configuration.

33.6.3.2 External Load carrying capacity per understructure - DRIVE TYPE - 1200 Kg. Maximum.

33.6.4 Movements of the System:

33.6.4.1 For Drive Type Configuration, movement of units is achieved mechanically through a PU Drive wheel and 'Sprocket-Chain-Tensioner' arrangement mounted rigidly onto body side.

33.6.4.2 Each movable undercarriage shall be provided with 2 Rollers on the shaft for driving, 2 anti-friction ball bearing for rolling and 4 anti-friction ball bearing for guiding between rail.

33.6.4.3 The effort required is about 0.05% of the load movements. The drive arrangement is covered by a 1 mm thk. HR sheet Cover fixed onto the body side occupying additional space of 74.5 mm.

33.6.4.4 The PU Drive wheel is rigidly fixed at suitable height on body side and projects out of cover by another 99.0 mm. Fixed unit also have Cover but without wheel.

33.7 Fittings:

33.7.1 Centralized Locking:

33.7.1.1 A centralized locking arrangement shall be provided through Locking Stiffener mounted onto back of Single Last unit so that it gets locked on channels when all the units are brought together.

33.7.1.2 The Recess handle lock shall be of Godrej/ Vijayan or of equivalent approved make and placed at suitable height. This arrangement occupies a space of 90.0 mm. When the last unit is Twin Movable, hinged doors are provided for the end bodies; so in this case locking stiffener is mounted onto drive unit cover; and with tile fascia option, it will be mounted in the recess of vertical trim.

33.7.1.3 Each Drive type units have Locking Knob near the Drive wheel for manual locking of individual units when a person is using those units. Knob shall be rotated to unlock position when units are to be moved.

33.7.1.4 After the unit is moved, before entering into aisle for accessing, this knob shall be rotated to lock position.

33.7.1.5 End stoppers of heavy duty shall be provided at the end of channels to prevent derailment.

33.8 Door Locking / handle:

33.8.1 Hinged doors shall have Recessed Die cast Handle cum lock giving 3-way locking through a lever and shooting bolts. While Sliding doors shall have a die cast lock and separate plastic snap-on handles.

33.8.2 Min 03 Keys shall be provided for each unit

33.9 Fasteners:

33.9.1 The nuts and bolts are galvanized / black oxidized / zinc plated.

33.10 Guide Channels:

33.10.1 It consists of 'J' section 2 mm thk HR sheet and 25 mm Square bright bar both connected by screws. Prior to the embedding of the guide channels with the help of rawl plug and screw, the ground has to be in properly leveled condition.

33.10.2 The guide track should be provided with an end stopper to avoid derailment of the units.

33.11 Label Holder:

33.11.1 Made from 2 mm thick clear transparent acrylic sheet and having outer dimension of 155 mm X 106 mm.

33.12 Finish:

33.12.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, door including hinges, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

33.12.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

33.13 Colour:

33.13.1 The structure shall be epoxy powder-coated in hues of Grey/ dual colour, subject to approval.

33.13.2 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

33.14 Manufacturing Process: As per Annexure A attached with this Specification Document.

33.15 Special Instructions:

33.15.1 The quantity of "Two Bay, 1+2+1 Drive type" modules shall be determined based on the total available area for installation at the respective Institute/ Office, subject to confirmation by DVET prior to inquiry.

33.15.2 The OEM shall be responsible for assessing the area's stability to ensure safe installation and operation of the equipment, considering load and vibrations. Adequate free movement space around the equipment shall be maintained.

33.16 Marking: Each Optimizer shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

33.17 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

33.18 Packing: In the absence of any specific agreement as to the mode of packing, each Optimizer shall be properly protected to prevent damage of the surface and edges in transit and in storage.

33.19 Warranty: Minimum 1 Year against all manufacturing defects

33.20 Country of Origin: India

34 Drawing (Draughtsman) Stand - Adjustable Type

34.1 Basic Indicative Diagram:

34.2 Conforming to BIS Code 513, 3074, 1161, 13871 & 1444.

34.3 Dimensions:

34.3.1 Width of the Stand: 960 to 980 mm (± 5 mm tolerance)

34.3.2 Depth of the Stand: 680 to 700 mm (± 5 mm tolerance)

34.3.3 Min Height of the Stand (Vertical Drawing Board): 880 to 900 mm (± 5 mm tolerance)

34.3.4 Max height of the Stand (Vertical Drawing Board): 1480 to 1500 mm (± 5 mm tolerance)

34.3.5 Min Height of the Stand (Horizontal Drawing Board): 780 to 800 mm (± 5 mm tolerance)

34.3.6 Max height of the Stand (Horizontal Drawing Board): 1080 to 1120 mm (± 5 mm tolerance)

34.3.7 Overall size of the Drawing Board: D1 of size 920L X 650W mm (± 5 mm tolerance) for A1 drawing sheet. (Not included - For Reference only)

34.3.8 Angle Adjustment: 0° to 90°

34.3.9 Net Weight: Minimum 12 Kgs

34.4 Design:

34.4.1 Adjustable Drawing Stand consists of Steel frame structure with accessories tray.

34.5 Construction:

The steel frame structure should be made of:

34.5.1 25 mm X 25 mm X 0.9 mm (20 Gauge)

34.5.2 25 mm X 50 mm X 0.9 mm (20 gauge)

34.5.3 20 mm X 20 mm X 0.9 mm (20 Gauge)

34.5.4 25 mm X 50 mm X 1.2 mm (18 Gauge)
(Thick (CRCA) Mild Steel Tubes and 0.7 mm thick CRCA (Mild Steel) Sheets.)

34.5.5 The structure should support the Engineers pattern wooden drawing board D1 of size 920L X 650W mm (± 5 mm tolerance) for A1 drawing sheet with the help of 6 self- tapping screwed joints. Other metal fittings to be manufactured using Ø5/8" (CRCA) Steel Tubes of thickness 0.9 mm and minimum Ø12 mm bright bar.

34.5.6 Accessories tray for keeping the drafting instruments should be provided with the drawing table, below the drawing board as shown in the figure. The accessory tray should be a single-piece sheet-metal part with all the 4 edges folded (bent) upwards.

34.5.7 The maximum thrust capacity of each leg/ column shall not be less than 1 KN (102 Kgs).

34.5.8 Cold Rolled (CRCA) Mild Steel Tubes of 0.9 mm and 1.2 mm thickness conforming to IS 3074 should be used for the structure.

34.5.9 Cold Rolled (CRCA) Mild Steel Sheets of 0.7 mm thickness conforming to IS 513D should be used for the accessories tray.

34.6 Functions:

34.6.1 4 levelling bolts to be used (2 in each leg) for stability on uneven floor. Levelling bolts to be manufactured using 10 mm ABS moulded bolts.

34.6.2 All pipe/ tube ends to be covered tightly and properly with ABS moulded buffers/end caps. Other plastic parts to be moulded using ABS, Nylon or Glass- filled Nylon only.

34.6.3 Stand should be such that the height of the drawing board as well as the angle can be fully adjusted with the help of 4 pivoted joints and 4 friction clutches. The design should permit a height adjustment of the drawing board from 79cm to 148cm (measured from the ground with zero adjustment of the levelling bolts) and an angle adjustment of 0° (parallel to the ground) to 90° (perpendicular the ground).

34.6.4 The friction clutches should support positive (slip-free) locking and unlocking of the drawing board at any operating position and should not slip under normal working loads/conditions. Each friction clutches to be manufactured using a set of 13 strips of 1.2 mm thick CRCA (Mild Steel) Sheets, zinc plated and insert moulded into an ABS block so that a rigid, play-free joint is formed.

34.6.5 Each friction clutch should be operated separately by a cam-operated handle as shown in the figure. These handles should fulfil the locking/unlocking action in a quarter (90°) turn of the cam. The handles to be moulded using Glass-filled Fiber Nylon and should be supplied with a 10 years replacement warranty against manufacturing defects/ breakages.

34.6.6 The tightening/ loosening bolts/ nuts with M.S. powder coated handle may be provided with additional locking mechanism such as cotter pin, lock nuts or other suitable arrangement (as per approval) to ensure that the connections stay secure at all times.

34.7 Finish:

34.7.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

34.7.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

34.8 Colour:

34.8.1 The structure shall be powder-coated in Nickel Grey color, subject to approval.

34.8.2 The accessories tray should be powder-coated in Blue Moon colour as per approval. All plastic components should be injection moulded only with virgin material in Black/ Dark Grey colour as per approval.

34.8.3 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

34.9 Manufacturing Process: As per Annexure A attached with this Specification Document.

34.10 Marking: Each Drawing (Draughtsman) Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

34.11 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

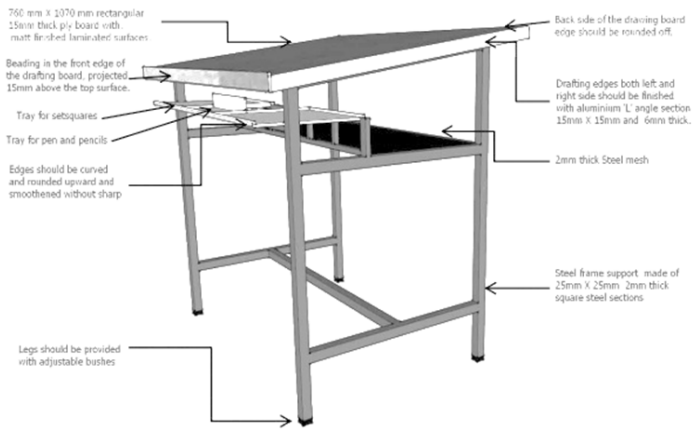
34.12 Packing: In the absence of any specific agreement as to the mode of packing, each Drawing (Draughtsman) Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

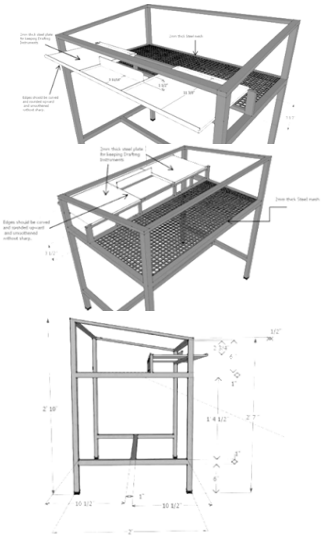
34.13 Warranty: Minimum 1 Year against all manufacturing defects

34.14 Country of Origin: India

35 Drawing (Draughtsman) Table - Fixed Type

35.1 Basic Indicative Diagram:





35.2 Conforming to BIS Code 513, 303, 3074, 1161 & 13871.

35.3 Dimensions:

35.3.1 Overall Size: 1070L X 760W X 860H1-990H2 mm.

35.3.2 Net Weight: Minimum 35 Kgs

35.4 Design:

Drawing Table consists of two parts:

35.4.1 First part is the steel frame structure.

35.4.2 Second part is the drawing board top that is made up of minimum 15 mm, ±1 mm thick made of "Boiling Water Grade" (BWP) ply wood as per BIS 303 and top and bottom surface finished with matt finish lamination (IS:2046).

35.4.3 Engineering Drawing Board (Designation D1 of size 920L x 650W mm) as per BIS 1444:1989 is a separate item and is not included in this specification.

35.5 Construction:

35.5.1 The steel frame structure should be made of 25 mm X 25 mm square 1.2 mm thick steel section frame as shown in the drawing.

35.5.2 All edges of the steel frames and joints should be smooth curve shape not be sharp.

35.5.3 The recommended angle for the drawing table top shall be 15 - 30 degrees from the lowest point (front side) ascending towards the back side, such that it reduces neck and back strain and the eyes of the user should be approximately 15-20 inches away from the workpiece to minimize strain.

35.5.4 The four legs should be provided with adjustable bushes. The maximum thrust capacity of each leg/ column shall not be less than 1 KN (102 Kgs).

35.5.5 2 mm thick steel plate for keeping drafting instruments should be provided in the front side 70 mm below the drawing board as shown in the figure, whose edge should be curved and rounded upward and smoothened without sharp.

35.5.6 2 mm thick steel mesh (size of the hole maximum 35 mm X35 mm) tray for keeping drawing sheets at the back side of the drawing table as shown in the figure.

35.5.7 Cold Rolled (CRCA) Mild Steel Tubes of 0.9 mm and 1.2 mm thickness conforming to IS 3074 should be used for the structure.

35.5.8 Cold Rolled (CRCA) Mild Steel Sheets of 2.0 mm thickness conforming to IS 513D should be used for the accessories tray.

35.5.9 For Steel framework, only welded construction is acceptable. All welded edges should be machine finished.

35.6 Drawing Board Top:

35.6.1 The drafting/ drawing board top is 1070L x 760W mm in rectangular size and 15 mm thick; board should be made of "Boiling Water Grade" (BWP) ply wood as per BIS 303 and top and bottom surface should be finished by matt finish laminate as per BIS 2046.

35.6.2 The drafting edges on the left and right sides of the drawing board should be lipped by "L" shape 6 mm thick, 15 mm x15 mm wide aluminium channels section fixed as shown in the drawing. And edges must be straight without any undulation. The board has to be fixed on top of the steel frame support as shown in the drawing.

35.6.3 Teak beading should be done in the front side edge of the drawing board as shown in the drawing and it has to be projected 15 mm above the top surface. The edges of the beading and also the rear edge of the board should be smooth curve shape not be sharp.

35.7 Finish:

35.7.1 Epoxy Polyester Powder to the thickness of minimum 50 - 60 microns (±10). The body including understructure, framework, legs, storage shelf, steel plates including fittings involves an 8-step powder coating process consisting of antirust surface treatment viz. hot water rinse, knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished with powder coating using epoxy polyester powder of minimum 50 - 60 microns (±10). The material is then oven baked with a controlled temperature of 180 deg. C to 200 deg. C.

35.7.2 The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss 60°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

35.8 Colour:

35.8.1 The colour of the matte/ semi-gloss powder coating shall be Dove Grey for steel.

35.8.2 Light Grey/ Off-White/ Light Beige/ Light Brown for drawing board top (Off-White for bottom)

35.8.3 Final colour scheme will be approved by DVET at the time of placement of order. Manufacturer to furnish various colour schemes available with them.

35.9 Manufacturing Process: As per Annexure A attached with this Specification Document.

35.10 Marking: Each Drawing (Draughtsman) Table shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

35.11 Mode of Supply: Assembled ready to use.

35.12 Packing: In the absence of any specific agreement as to the mode of packing, each Drawing (Draughtsman) Table shall be properly protected to prevent damage of the surface and edges in transit and in storage.

35.13 Warranty: Minimum 1 Year against all manufacturing defects

35.14 Country of Origin: India

36 Drawing Board - Size 920 mm X 650 mm

36.1 Basic Indicative Diagram:

	Min	Max
G	12	15
H	5	7
K	4	5
L	5	7

36.2 Conforming to BIS Code 1444:1989.

36.3 Dimensions:

36.3.1 The dimensions and tolerances on dimensions of the size of drawing board shall be designated as 'D1' size 920L X 650W mm ±5 mm, thickness 22 mm, ±1 mm, tolerance on straightness of working edge 0.25 mm. Recommended for use with drawing sheet of 'A1' size 841L x 594W mm.

36.3.2 Net Weight: Minimum 5 Kgs

36.4 Design:

36.4.1 The specification for Drawing Board (Engineers Pattern) shall be based on BIS 1444 - 1989 with consideration given to the need for keeping the drawing boards sizes as small as possible taking into consideration the dimensions of the parallelogram formed by the extreme movement of drafting unit. The drawing board size is in the range of sizes suitable for use with the IS0 'A' range of trimmed papers, and IS 10711 : 1983 'Sizes of drawing sheets'.

36.5 Material:

36.5.1 The working surface of the board and the battens shall be constructed from any one of the following species of timber (see IS 399:1963).

36.5.1.1 Working Surface: Benteak, Blue pine, Fir, Cypress, Oak, Red cedar.

36.5.1.2 Battens: Aini, Anjan, Bijasal, Black Chuglam, Padauk, Safed siris, Salai, Sissoo, Teak, Walnut.

36.5.2 The wood used shall be thoroughly seasoned and shall have attained a moisture content of not more than 12 percent, which may be 14 percent in the case of teak, when the board is intended for use in moist zones (see IS 287 : 1973). It shall be free from knots, cracks, sap, shakes and other defects which may affect the serviceability or appearance of the boards (see IS 707:1976).

36.5.3 Edge: The working edge shall be well seasoned, fine-grained hardwood, such as ebony (Diospyros melanoxylon Roxb. or Diospyros sp.) or rosewood (Dalbergia latifolia Roxb.), or of aluminium or plastic. Where plastics material is used it shall be of sheet form, complying with following requirements:

36.5.3.1 The material shall be homogeneous,

36.5.3.2 The coefficient of expansion shall not be greater than 0.000 09 percent within the temperature range 0 to 60°C and relative humidity range 25 percent to 100 percent,

36.5.3.3 The material shall possess toughness, hardness and flexibility in sufficient degree to permit constant handling and use without deterioration, and

36.5.3.4 The material shall contain no more than 2 percent plasticizer.

36.5.4 Washers: The washers with slots shall be made of rolled brass sheet (see IS 410:1977); or copper sheet, and shall be 1.7 to 2.0 mm in thickness. The wood screws used shall be of brass (see IS 6760 : 1972).

36.6 Construction:

36.6.1 Working Surface:

36.6.1.1 The boards shall have a smooth and true working surface. They shall not twist or bow by more than 1 mm. However, in case of drawing boards to be used on drafting machines, the twist or bow shall not exceed 2 mm.

36.6.1.2 In order to ensure a permanently true working surface, longitudinal grooves of 5 mm to 7 mm depth and 3 mm in width shall be cut at intervals of not more than 100 mm, at the back of the board, leaving the longitudinal strength practically unimpaired and taking the transverse strength out of the board so that the trueness of surface in this direction is controlled by the pair of wooden battens screwed to the back of the board.

36.6.1.3 The entire board shall be manufactured from the same species of timber pieces, 100 to 150 mm in width, shall be used in the construction of the board and the grain of the wood shall run along the length of the board. The pieces of wood shall be properly and permanently joined together by means of tongue and groove joints or butt joints and securely glued. The projection of the tongue and groove joints shall not exceed 3 mm.

36.6.1.4 The edges shall be trimmed square and the corners rounded to a radius of approximately 10 mm. Patching or stopping of defects shall not be resorted to.

36.6.1.5 When a steel straightedge, 1 m long and complying with the requirements of IS 2233 : 1962, is placed on a working surface, the surface shall not deviate from the straightedge by more than 1.5 mm, irrespective of the position of the straightedge on the surface.

36.6.2 Working Edge:

36.6.2.1 A true working edge shall be provided by the insertion of a suitable strip which shall be securely glued to the working end of the board. The dimensions and position of the strip shall be as specified in IS 1444 - 1989.

36.6.2.2 To admit of its contraction with the body of the board, the strip shall be saw-cut, after insertion, at points coinciding with the longitudinal grooves at the back of the board or located midway between them.

36.6.2.3 The edge shall be provided in all cases excepting when the drawing boards are fitted on drafting machines.

36.6.2.4 Opposite edges shall be parallel within a tolerance of ±0.5 mm over each 1 m length of working edge.

36.6.2.5 When a steel straightedge, complying with the requirements of IS 2233 : 1962, is placed along a working edge, that edge shall not deviate from the straightedge by more than 0.25 mm over each 1 m length of the working edge.

36.6.3 Battens:

36.6.3.1 Two battens smoothly finished and with chamfered or rounded edges shall be fitted to the back of the board. The battens shall be 114±6/0 mm wide in case of size D0, and 74± 6/0 mm wide in case of sizes Dl, D2 and D3. The thickness of the battens shall be 20± 5/0 mm.

36.6.3.2 The length of each batten shall be such that it leaves a margin of 10 mm on both edges of the board. They shall be fitted at a distance of 75 to 85 mm from the ends of the board by means of round-head wood screws of suitable length with oval and round washers.

36.6.3.3 The heads of the screws and the washers shall be housed in recesses below the surface of the battens in a zig zag way. The screw holes in battens and oval washers shall be slotted or elongated to allow for the expansion of contraction of the board. The end slotted holes shall be 25 mm clear from each end of battens and the others at equal intervals, clear of the grooves.

36.6.3.4 Every intermediate plank shall be provided with one screw while the end planks shall be provided with two screws. While fixing the screws, joints and grooves shall be avoided.

36.7 Finish:

36.7.1 The edges of the board shall be coated with two coats of approved varnish.

36.8 Marking: Each Drawing Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

36.9 Mode of Supply: Assembled ready to use.

36.10 Packing: In the absence of any specific agreement as to the mode of packing, each Drawing Board shall be properly protected to prevent damage of the surface and edges in transit and in storage.

36.11 Warranty: Minimum 1 Year against all manufacturing defects

36.12 Country of Origin: India

37 Drawing Board - Size 500 mm X 350 mm

37.1 Basic Indicative Diagram:

37.2 Conforming to BIS Code 1444:1989.

37.3 Dimensions:

37.3.1 The dimensions and tolerances on dimensions of the size of drawing board shall be designated as 'D3' size 500L X 350W mm ±5 mm, thickness 22 mm, ±1 mm, tolerance on straightness of working edge 0.1 mm. Recommended for use with drawing sheet of 'A3' size 420L X 297W mm.

37.3.2 Net Weight: Minimum 2 Kgs

37.4 Design:

37.4.1 The specification for Drawing Board (Engineers Pattern) shall be based on BIS 1444 - 1989 with consideration given to the need for keeping the drawing boards sizes as small as possible taking into consideration the dimensions of the parallelogram formed by the extreme movement of drafting unit. The drawing board size is in the range of sizes suitable for use with the IS0 'A' range of trimmed papers, and IS 10711 : 1983 'Sizes of drawing sheets'.

37.5 Material:

37.5.1 The working surface of the board and the battens shall be constructed from any one of the following species of timber (see IS 399:1963).

37.5.1.1 Working Surface: Benteak, Blue pine, Fir, Cypress, Oak, Red cedar.

37.5.1.2 Battens: Aini, Anjan, Bijasal, Black chuglam, Padauk, Safed siris, Salai, Sissoo, Teak, Walnut.

37.5.2 The wood used shall be thoroughly seasoned and shall have attained a moisture content of not more than 12 percent, which may be 14 percent in the case of teak, when the board is intended for use in moist zones (see IS 287 : 1973). It shall be free from knots, cracks, sap, shakes and other defects which may affect the serviceability or appearance of the boards (see IS 707:1976).

37.5.3 Edge: The working edge shall be well seasoned, fine-grained hardwood, such as ebony (Diospyros melanoxylon Roxb. or Diospyros sp.) or rosewood (Dalbergia latifolia Roxb.), or of aluminium or plastic. Where plastics material is used it shall be of sheet form, complying with following requirements:

37.5.3.1 The material shall be homogeneous,

37.5.3.2 The coefficient of expansion shall not be greater than 0.000 09 percent within the temperature range 0 to 60°C and relative humidity range 25 percent to 100 percent,

37.5.3.3 The material shall possess toughness, hardness and flexibility in sufficient degree to permit constant handling and use without deterioration, and

37.5.3.4 The material shall contain no more than 2 percent plasticizer.

37.5.4 Washers: The washers with slots shall be made of rolled brass sheet (see IS 410:1977); or copper sheet, and shall be 1.7 to 2.0 mm in thickness. The wood screws used shall be of brass (see IS 6760 : 1972).

37.6 Construction:

37.6.1 Working Surface:

37.6.1.1 The boards shall have a smooth and true working surface. They shall not twist or bow by more than 1 mm. However, in case of drawing boards to be used on drafting machines, the twist or bow shall not exceed 2 mm.

37.6.1.2 In order to ensure a permanently true working surface, longitudinal grooves of 5 mm to 7 mm depth and 3 mm in width shall be cut at intervals of not more than 100 mm, at the back of the board, leaving the longitudinal strength practically unimpaired and taking the transverse strength out of the board so that the trueness of surface in this direction is controlled by the pair of wooden battens screwed to the back of the board.

37.6.1.3 The entire board shall be manufactured from the same species of timber pieces, 100 to 150 mm in width, shall be used in the construction of the board and the grain of the wood shall run along the length of the board. The pieces of wood shall be properly and permanently joined together by means of tongue and groove joints or butt joints and securely glued. The projection of the tongue and groove joints shall not exceed 3 mm.

37.6.1.4 The edges shall be trimmed square and the corners rounded to a radius of approximately 10 mm. Patching or stopping of defects shall not be resorted to.

37.6.1.5 When a steel straightedge, 1 m long and complying with the requirements of IS 2233 : 1962, is placed on a working surface, the surface shall not deviate from the straightedge by more than 1.5 mm, irrespective of the position of the straightedge on the surface.

37.6.2 Working Edge:

37.6.2.1 A true working edge shall be provided by the insertion of a suitable strip which shall be securely glued to the working end of the board. The dimensions and position of the strip shall be as specified in IS 1444 - 1989.

37.6.2.2 To admit of its contraction with the body of the board, the strip shall be saw-cut, after insertion, at points coinciding with the longitudinal grooves at the back of the board or located midway between them.

37.6.2.3 The edge shall be provided in all cases excepting when the drawing boards are fitted on drafting machines.

37.6.2.4 Opposite edges shall be parallel within a tolerance of ±0.5 mm over each 1 m length of working edge.

37.6.2.5 When a steel straightedge, complying with the requirements of IS 2233 : 1962, is placed along a working edge, that edge shall not deviate from the straightedge by more than 0.25 mm over each 1 m length of the working edge.

37.6.3 Battens:

37.6.3.1 Two battens smoothly finished and with chamfered or rounded edges shall be fitted to the back of the board. The battens shall be 114±6/0 mm wide in case of size D0, and 74± 6/0 mm wide in case of sizes D1, D2 and D3. The thickness of the battens shall be 20± 5/0 mm.

37.6.3.2 The length of each batten shall be such that it leaves a margin of 10 mm on both edges of the board. They shall be fitted at a distance of 75 to 85 mm from the ends of the board by means of round-head wood screws of suitable length with oval and round washers.

37.6.3.3 The heads of the screws and the washers shall be housed in recesses below the surface of the battens in a zig zag way. The screw holes in battens and oval washers shall be slotted or elongated to allow for the expansion of contraction of the board. The end slotted holes shall be 25 mm clear from each end of battens and the others at equal intervals, clear of the grooves.

37.6.3.4 Every intermediate plank shall be provided with one screw while the end planks shall be provided with two screws. While fixing the screws, joints and grooves shall be avoided.

37.7 Finish:

37.7.1 The edges of the board shall be coated with two coats of approved varnish.

37.8 Marking: Each Drawing Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

37.9 Mode of Supply: Assembled ready to use.

37.10 Packing: In the absence of any specific agreement as to the mode of packing, each Drawing Board shall be properly protected to prevent damage of the surface and edges in transit and in storage.

37.11 Warranty: Minimum 1 Year against all manufacturing defects

37.12 Country of Origin: India

38 Display Board - 2 X 3 Feet, with transparent cover

38.1 Basic Indicative Diagram

38.2 Confirming to IS Code: 733 (1983)

38.3 Dimensions:

38.3.1 Overall Size: 610L X 910H X 50D mm, ±10 mm

38.3.2 Net Weight: Minimum 5 Kg

38.4 Display Board with lockable front cover: Fabric Pin up Notice board with core layer of 12 mm thick Soft Board with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

38.5 Door Cover: The Notice board shall be provided with 3 mm thick transparent Acrylic front cover with locking arrangement.

38.6 Surface Material (TOP): Crape Polyester Fabric of Thickness 0.5 mm

38.7 Core Materials: The core material should be 12 mm thick Soft Board.

38.8 Backing Materials:

The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing material shall be properly fixed on the soft board using rubber-based adhesive to avoid any moisture absorption.

38.9 Aluminium Frame:

The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)

The Frame section shall be:

38.9.1 Front: 19.0 ±1.0 mm

38.9.2 Side: 23.0 ±1.0 mm

38.9.3 Wall thickness: 1.0 ±0.1 mm

38.9.4 Total Board Thickness: 46.0 ±1.0 mm

38.10 Fitting Accessories:

38.10.1 The Board shall be provided with suitable wall mounting Brackets and necessary fitting clamps.

38.10.2 The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

38.10.3 A set of 4 Nos. of Screw and 4 Nos. for Rawal Plugs should be provided with each board for fitting on the wall.

38.11 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

38.12 Packing: The Board shall be packed in corrugated paper packing/ box packing for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

38.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

38.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

38.15 Warranty: Minimum 1 Year against all manufacturing defects

38.16 Country of Origin: India

39 Display Board - 4 x 3 Feet, with transparent cover

39.1 Basic Indicative Diagram

39.2 Confirming to IS Code: 733 (1983).

39.3 Dimensions:

39.3.1 Overall Size: 1210L X 910H X 50D mm, ±10 mm.

39.3.2 Net Weight: Minimum 10 Kg

39.4 Display Board with lockable Front Cover: Fabric Pin up board with core layer of 12 mm thick Soft Board with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

39.5 Door Cover: The Display Board shall be provided with 3 mm thick transparent Acrylic front cover with locking arrangement

39.6 Surface Material (TOP): Crape Polyester Fabric of Thickness 0.5 mm

39.7 Core Materials: The core material should be 12 mm thick Soft Board.

39.8 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing material shall be properly fixed on the soft board using rubber-based adhesive to avoid any moisture absorption.

39.9 Aluminium Frame:

The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)

The Frame section shall be:

39.9.1	Front:	19.0 ±1.0 mm
39.9.2	Side:	23.0 ±1.0 mm
39.9.3	Wall thickness:	1.0 ±0.10 mm
39.9.4	Total Board Thickness:	46.0 ±1.0 mm

39.10 Fitting Accessories:

39.10.1 The Board shall be provided with suitable wall mounting Brackets and necessary fitting clamps.

39.10.2 The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

39.10.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

39.11 Board Corners: The corner of the board should be made up with 100 % virgin ABS material.

39.12 Packing: The Board shall be packed in corrugated paper packing/ box packing for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

39.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

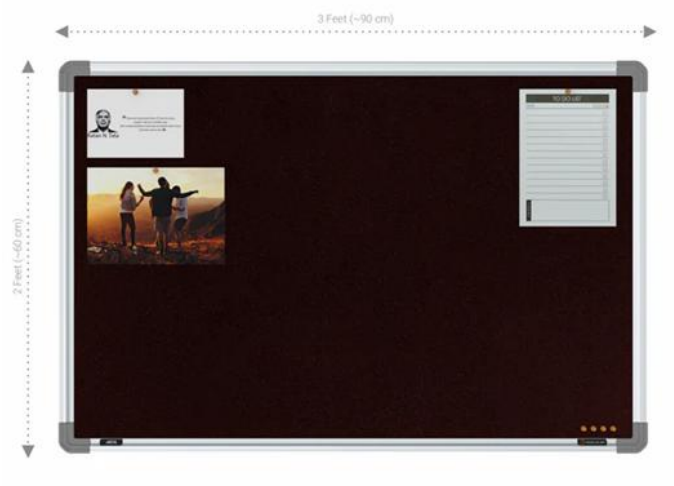
39.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

39.15 Warranty: Minimum 1 Year against all manufacturing defects

39.16 Country of Origin: India

40 Display Board - 2 X 3 Feet, without transparent cover

40.1 Basic Indicative Diagram



40.2 Confirming to IS Code: 733 (1983).

40.3 Dimensions:

40.3.1 Overall Size: 610L x 910H X 40D mm, ±10 mm.

40.3.2 Net Weight: Minimum 4 Kg

40.4 Notice Board without lockable front cover: Fabric Pin up Notice board with core layer of 12 mm thick Soft Board with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

40.5 Surface Material (TOP): Crape Polyester Fabric of Thickness 0.5 mm

40.6 Core Materials: The core material should be 12 mm thick Soft Board.

40.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing material shall be properly fixed on the soft board using rubber-based adhesive to avoid any moisture absorption.

40.8 Aluminium Frame:

The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)

The Frame section shall be:

40.8.1 Front: 19.0 ±1.0 mm

40.8.2 Side: 23.0 ±1.0 mm

40.8.3 Wall thickness: 1.0 ±0.10 mm

40.8.4 Total Board Thickness: 23.0 ±1.0 mm

40.9 Fitting Accessories:

40.9.1 The Board shall be provided with suitable wall mounting Brackets and necessary fitting clamps.

40.9.2 The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

40.9.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

40.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

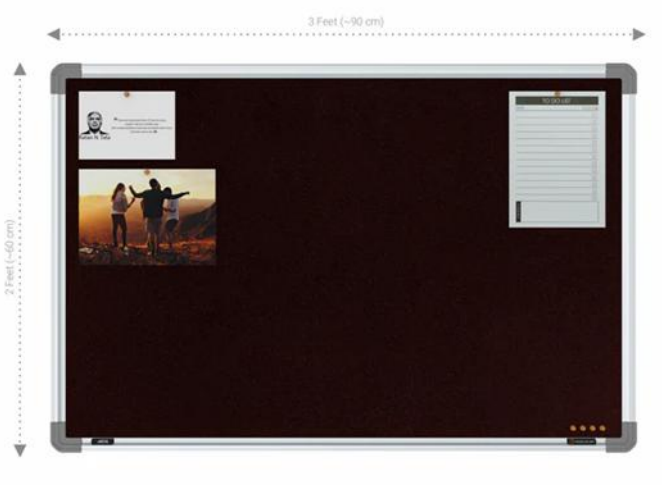
40.11 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

40.12 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

40.13 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.
40.14 Warranty: Minimum 1 Year against all manufacturing defects
40.15 Country of Origin: India

41 Display Board - 4 X 3 Feet, without transparent cover

41.1 Basic Indicative Diagram



41.2 Confirming to IS Code: 733 (1983)

41.3 Dimensions:

41.3.1 Overall Size: 1210L X 910H X 40D mm, ±10 mm.

41.3.2 Net Weight: Minimum 8 Kg

41.4 Display Board without lockable Front Cover: Fabric Pin up board with core layer of 12 mm thick Soft Board with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

41.5 Surface Material (TOP): Crape Polyester Fabric of Thickness 0.5 mm

41.6 Core Materials: The core material should be 12 mm thick Soft Board.

41.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing material shall be properly fixed on the soft board using rubber-based adhesive to avoid any moisture absorption.

41.8 Aluminium Frame:

The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)

The Frame section shall be:

41.8.1 Front: 19.0 ±1.0 mm

41.8.2 Side: 23.0 ±1.0 mm

41.8.3 Wall thickness: 1.0 ±0.10 mm

41.8.4 Total Board Thickness: 23.0 ±1.0 mm

41.9 Fitting Accessories:

41.9.1 The Board shall be provided with suitable wall mounting Brackets and necessary fitting clamps.

41.9.2 The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

41.9.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

41.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

41.11 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

41.12 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

41.13 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.
41.14 Warranty: Minimum 1 Year against all manufacturing defects
41.15 Country of Origin: India

42 Green Board - 4 X 3 Feet, with 4 Leg Stand

42.1 Basic Indicative Diagram

42.2 Confirming to IS Code: 3087, 733.

42.3 Dimensions:

- 42.3.1 Overall Size and Weight:
  - 42.3.1.1 Overall Length: 1200 ±10 mm
  - 42.3.1.2 Overall Width: 600 ±10 mm (Stand)
  - 42.3.1.3 Overall Height: 2700 ±10 mm (with stand)
  - 42.3.1.4 Net Weight: Minimum 17 Kg
- 42.3.2 Green Board:
  - 42.3.2.1 Overall Size: 1210L X 910H mm ±10 mm
  - 42.3.2.2 Net Weight: Minimum 12 Kgs
- 42.3.3 Four Leg Stand:
  - 42.3.3.1 Height: 1800 ±10 mm
  - 42.3.3.2 Material: Mild Steel with grey powder coating
  - 42.3.3.3 Length After opening: 600 ±10 mm
  - 42.3.3.4 Pipe thickness: 25 mm X 25 mm
  - 42.3.3.5 Gauge: 20
  - 42.3.3.6 Weight: Minimum 5 Kgs

42.4 Green Board with Ceramic Coated Steel Sheet Top Surface: Steel writing board for writing purpose mounted on wooden based particles board (as per IS: 3087) with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

42.5 Writing Surface: The writing top surface shall be made of steel sheet of thickness 0.27 to 0.30 mm. It shall have vitreous enamel coating of 0.095 mm min. thickness on top and 0.03 mm min. on the back. The top shall be free from waviness and shall show excellent erasability.

42.6 Core Materials: The core material shall be 9 mm thick wood Base plain particle board.(Supported with Test Certificates of the Manufacturers.)

42.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing sheet shall be properly fixed with particle board using rubber-based adhesive to avoid any moisture absorption. (Supported with Test Certificates of the Manufacturers.)

42.8 Aluminium Frame:

42.8.1 The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer).

42.8.2 The Frame section shall be

42.8.2.1	Front:	25 ±1.0 mm
42.8.2.2	Side:	18 ±1.0 mm
42.8.2.3	Wall thickness:	1 ±0.1 mm

42.9 Fitting Accessories:

42.9.1 The writing board shall be provided with suitable wall mounting Brackets.

42.9.2 The board should be provided with necessary fitting clamps. The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

42.9.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

42.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

42.11 Free Accessories:

42.11.1	Pen/ Chalk Tray:	Qty 1 No.
42.11.2	Magnetic Duster:	Qty 1 No.

42.12 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

42.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

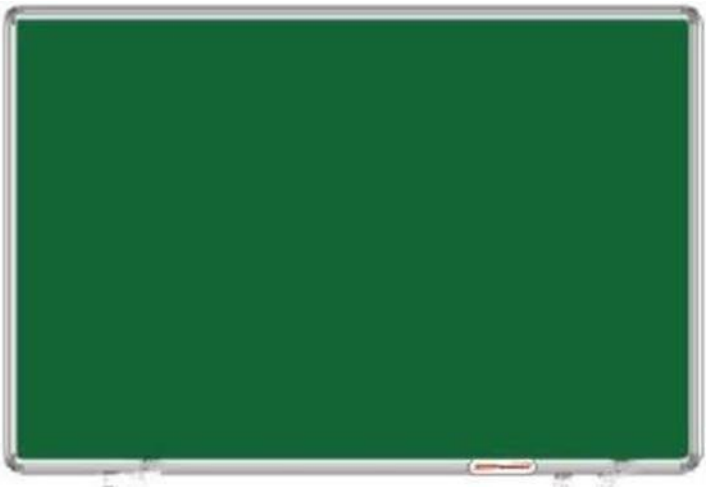
42.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

42.15 Warranty: Minimum 1 Year against all manufacturing defects

42.16 Country of Origin: India

43 Green Board - 4 X 6 Feet

43.1 Basic Indicative Diagram



43.2 Confirming to IS Code: 3087, 733.

43.3 Dimensions:

- 43.3.1 Overall Size: 1810L X 1210H mm, ±10 mm
- 43.3.2 Net Weight: Minimum 25 Kg

43.4 Green Board with Ceramic Coated Steel Sheet Top Surface: Steel writing board for writing purpose mounted on wooden based particles board (as per IS: 3087) with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

43.5 Writing Surface: The writing top surface shall be made of steel sheet of thickness 0.27 to 0.30 mm. It shall have vitreous enamel coating of 0.095 mm min. thickness on top and 0.03 mm min. on the back. The top shall be free from waviness and shall show excellent erasability.

43.6 Core Materials: The core material shall be 9 mm thick wood Base plain particle board. Supported with Test Certificates of the Manufacturers.

43.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing sheet shall be properly fixed with particle board using rubber-based adhesive to avoid any moisture absorption. (Supported with Test Certificates of the Manufacturers.)

43.8 Aluminium Frame:

- 43.8.1 The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)
- 43.8.2 The Frame section shall be
  - 43.8.2.1 Front: 25 ±1.0 mm
  - 43.8.2.2 Side: 18 ±1.0 mm
  - 43.8.2.3 Wall thickness: 1 ±0.1 mm

43.9 Fitting Accessories:

- 43.9.1 The writing board shall be provided with suitable heavy duty wall mounting Brackets.
- 43.9.2 The board should be provided with necessary fitting clamps. The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

43.9.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

43.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

43.11 Free Accessories:

43.11.1 Pen/ Chalk Tray: Qty 1 No.

43.11.2 Magnetic Duster: Qty 1 No.

43.12 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

43.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

43.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

43.15 Warranty: Minimum 1 Year against all manufacturing defects

43.16 Country of Origin: India

44 White Board - 4 X 3 Feet

44.1 Basic Indicative Diagram

44.2 Confirming to IS Code: 3087, 733

44.3 Dimensions:

- 44.3.1 Overall Size: 1210L X 910H mm, ±10 mm
- 44.3.2 Net Weight: Minimum 12.5 Kg

44.4 White Board with Ceramic Coated Steel Sheet Top Surface: Steel writing board for writing purpose mounted on wooden based particles board (as per IS: 3087) with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

44.5 Writing Surface: The writing top surface shall be made of steel sheet of thickness 0.27 to 0.30 mm. It shall have vitreous enamel coating of 0.095 mm min. thickness on top and 0.03 mm min. on the back. The top shall be free from waviness and shall show excellent erasability. Gloss of sheet shall be 60 deg @ Lead 60.

44.6 Core Materials: The core material shall be 9 mm thick wood Base plain particle board. (Supported with Test Certificates of the Manufacturers.)

44.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing sheet shall be properly fixed with particle board using rubber-based adhesive to avoid any moisture absorption. (Supported with Test Certificates of the Manufacturers.)

44.8 Aluminium Frame:

- 44.8.1 The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)
- 44.8.2 The Frame section shall be
  - 44.8.2.1 Front: 25 ±1.0 mm
  - 44.8.2.2 Side: 18 ±1.0 mm
  - 44.8.2.3 Wall thickness: 1 ±0.1 mm

44.9 Fitting Accessories:

- 44.9.1 The writing board shall be provided with suitable heavy duty wall mounting Brackets.
- 44.9.2 The board should be provided with necessary fitting clamps. The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

44.9.3 A set of 4 nos. of Screw and 4 nos for Rawal Plugs should be provided with each board for fitting on the wall.

44.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

44.11 Free Accessories:

44.11.1 Pen/ Chalk Tray: Qty 1 No.

44.11.2 Magnetic Duster: Qty 1 No.

44.12 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

44.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

44.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

44.15 Warranty: Minimum 1 Year against all manufacturing defects

44.16 Country of Origin: India

45 White Board - 4 X 6 Feet

45.1 Basic Indicative Diagram

45.2 Confirming to IS Code: 3087, 733

45.3 Dimensions:

- 45.3.1 Overall Size: 1810L X 1210H mm, ±10 mm
- 45.3.2 Net Weight: Minimum 25 Kg

45.4 White Board with Ceramic Coated Steel Sheet Top Surface: Steel writing board for writing purpose mounted on wooden based particles board (as per IS: 3087) with electro galvanized backing steel sheet and frame anodized extruded Aluminium alloy hollow section.

45.5 Writing Surface: The writing top surface shall be made of steel sheet of thickness 0.27 to 0.30 mm. It shall have vitreous enamel coating of 0.095 mm min. thickness on top and 0.03 mm min. on the back. The top shall be free from waviness and shall show excellent erasability. Gloss of sheet shall be 60 deg @ Lead 60.

45.6 Core Materials: The core material shall be 9 mm thick wood Base plain particle board. (Supported with Test Certificates of the Manufacturers.)

45.7 Backing Materials: The backing material sheet shall be minimum 0.25 mm thick electro galvanized steel sheet. Both the top and the backing sheet shall be properly fixed with particle board using rubber-based adhesive to avoid any moisture absorption. (Supported with Test Certificates of the Manufacturers.)

45.8 Aluminium Frame:

- 45.8.1 The Board shall have all round framing of anodized extruded aluminium alloys hollow section. Designation 63400 as per IS: 733-1983 with Amendment No. 1 (Reaffirmed 2006) Edition 4.1. (Supported with Test Certificates of the manufacturer)
- 45.8.2 The Frame section shall be:
  - 45.8.2.1 Front: 25 ±1.0 mm
  - 45.8.2.2 Side: 18 ±1.0 mm
  - 45.8.2.3 Wall thickness: 1 ±0.1 mm

45.9 Fitting Accessories:

- 45.9.1 The writing board shall be provided with suitable heavy duty wall mounting Brackets.
- 45.9.2 The board should be provided with necessary fitting clamps. The clamps should be Mild steel with suitable corrosion free coating like chrome plating/ Powder coating material to sustain board weight.

45.9.3 A set of 4 nos. of Screw and 4 nos. for Rawal Plugs should be provided with each board for fitting on the wall.

45.10 Board Corners: The corner of the board should be made up with 100% virgin ABS material.

45.11 Free Accessories:

45.11.1 Pen/ Chalk Tray: Qty 1 No.

45.11.2 Magnetic Duster: Qty 1 No.

45.12 Packing: The Board shall be packed in corrugated paper packing/ box for local delivery and in wooden crate for dispatch by rail/ road transport to withstand transit hazards.

45.13 Marking: Each Board shall be clearly and legibly marked on its surface with the manufacturer's name or trademark and also the year of manufacture.

45.14 Mode of Supply: Knock down condition for assembly at site/ Assembled ready to use.

45.15 Warranty: Minimum 1 Year against all manufacturing defects

45.16 Country of Origin: India

46 Podium - Rectangular

46.1 Basic Indicative Diagram:

46.2 Conforming to BIS Code 303, 14587, 399, 13622 & 2046.

46.3 Dimensions:

46.3.1	Overall Size:	600W X 500D X 1050H1 - 1175H2 mm, ±10 mm
46.3.2	Thickness of podium top:	19 mm, ±2 mm
46.3.3	Thickness of gable end and modesty panel:	19 mm ±2 mm
46.3.4	Length of podium top:	600 mm ±10 mm
46.3.5	Depth of podium:	500 mm ±10 mm
46.3.6	Height of podium:	1175 mm ±10 mm
46.3.7	Presenter side height:	1050 mm ± 10 mm
46.3.8	Dimension of leg:	40 mm X 40 mm ±5 mm
46.3.9	Net Weight:	Minimum 25 Kgs

46.4 General Information: A ‘Podium’ is an essential piece of furniture in auditoriums and conference halls, designed to support effective communication during presentations, speeches, or performances. It provides a dedicated space for the speaker and often serves as a focal point for the audience.

46.5 Construction:

- 46.5.1 Frame type: Free standing
- 46.5.2 Understructure of podium: Gable end and modesty panel
- 46.5.3 Storage: Open Storage
- 46.5.4 Shelves: 1 shelve
- 46.5.5 Reading surface: Angled surface
- 46.5.6 Top position: Fixed

46.6 Material:

- 46.6.1 Podium top Material: 19 mm, ± 1 mm thick BWP plywood finished in decorative laminate 1.0 mm thick
- 46.6.2 Gable end and modesty panel material: 19 mm, ± 1 mm thick BWP plywood finished in decorative laminate 1.0 mm thick

46.7 Miscellaneous:

- 46.7.1 Podium top long sides: To be post form half round profile with corner edge bending
- 46.7.2 Podium top plain sides: CP Teak Wood Lipping in matching color on all sides
- 46.7.3 Gable end and modesty panel plain side: CP Teak Wood Lipping in matching color on all sides

46.8 Shelves:
- 46.8.1 Width of shelves: 400 mm ±10 mm
- 46.8.2 Depth of shelves: 300 mm ±10 mm

46.9 Footrest:
- 46.9.1 Material of footrest: 19 mm, ± 1 mm thick BWP plywood finished in decorative laminate 1.0 mm thick
- 46.9.2 Length of footrest: 500 mm ±10 mm
- 46.9.3 Depth of footrest: 350 mm ±10 mm
- 46.9.4 Height of footrest (front / back): 100 mm/ 50 mm ±10 mm
- 46.9.5 Finish of exposed edges: CP Teak Wood Lipping in matching color on all sides
- 46.9.6 Material thickness of footrest: 19 mm ±2 mm

46.10 Colour and Finish:
- 46.10.1 Podium top finish: 19 mm, ± 1 mm thick BWP plywood finished in decorative laminate 1.0 mm thick conforming to IS 2046
- 46.10.2 Table top shade: As per Buyer's choice

46.11 Packing: In the absence of any specific agreement as to the mode of packing, each Podium shall be properly protected to prevent damage of the surface and edges in transit and in storage.

46.12 Marking: Each Podium shall be clearly and legibly marked on its surface with the manufacturer’s name or trademark and also the year of manufacture.

46.13 Mode of Supply: Assembled ready to use.

46.14 Warranty: Minimum 1 Year against all manufacturing defects

46.15 Country of Origin: India

47 Podium - Designer

47.1 Basic Indicative Diagram:

47.2 Conforming to BIS Code 14587, 399, 13622 & 2046.

47.3 Dimensions:

47.3.1	Overall Size: 600W X 500D X 1050H1 - 1175H2 mm, ±10 mm.	
47.3.2	Thickness of podium top:	19 mm ±2 mm
47.3.3	Thickness of gable end and modesty panel:	19 mm ±2 mm
47.3.4	Length of podium top:	600 mm ±10 mm
47.3.5	Depth of podium:	500 mm ±10 mm
47.3.6	Height of podium:	1175 mm ±10 mm
47.3.7	Presenter side height:	1050 mm ± 10 mm
47.3.8	Dimension of leg:	50 mm X 50 mm ±5 mm
47.3.9	Net Weight:	Minimum 15 Kgs

47.4 General Information: A 'Podium' is an essential piece of furniture in auditoriums and conference halls, designed to support effective communication during presentations, speeches, or performances. It provides a dedicated space for the speaker and often serves as a focal point for the audience.

47.5 Construction:

- 47.5.1 Frame type: Free standing
- 47.5.2 Understructure of podium: Four legs
- 47.5.3 Shelves: without shelve
- 47.5.4 Reading surface: Angled surface
- 47.5.5 Top position: Fixed

47.6 Material:

- 47.6.1 Podium top Material: Teak wood

47.7 Miscellaneous:

- 47.7.1 Podium top long sides: To be post form half round profile with corner edge bending
- 47.7.2 Podium top plain sides: CP Teak Wood Lipping

47.8 Shelves:

- 47.8.1 Width of shelves ±10 mm: N.A
- 47.8.2 Depth of shelves in mm, ±10 mm: NA

47.9 Footrest:

47.9.1 Material of footrest: Flat single layer prelaminated MDF board conforming to having designation PLMDF-22 of IS 14587/Latest
47.9.2 Length of footrest: 600 mm ±10 mm
47.9.3 Depth of footrest: 350 mm ±10 mm
47.9.4 Height of footrest (front / back): 125 mm/75 mm ±10 mm
47.9.5 Finish of exposed edges: To be banded with 0.5-1.0 mm thick PVC tape with the help of hot melt glue
47.9.6 Material thickness of footrest ±2 mm: 19 mm

47.10 Colour and Finish:
47.10.1 Podium top finish: Laminate in colour with swede finish 0.6-0.8 mm thickness of type S, F or P having index no.3.2.3 conforming to IS 2046 with having balancing laminate of 0.5 mm thick on other side
47.10.2 Table top shade: As per Buyer's choice

47.11 Packing: In the absence of any specific agreement as to the mode of packing, each Podium shall be properly protected to prevent damage of the surface and edges in transit and in storage.

47.12 Marking: Each Podium shall be clearly and legibly marked on its surface with the manufacturer’s name or trademark and also the year of manufacture.

47.13 Mode of Supply: Assembled ready to use.

47.14 Warranty: Minimum 1 Year against all manufacturing defects

47.15 Country of Origin: India

48 Annexure A: Manufacturing Process

The manufacturing processes given are generalized. Need to consider wherever it is applicable as per the specification of the product):

48.1 Raw materials (Wood working): 1) Plain Particle Board (PPB), 2) Medium Density Fibre Board (MDF), 3) Pre-laminate Board (PLB), 4) Decorative Laminate (DL), 5) Fabric and 6) Lipping (PVC lipping).
Process (Wood working): MDF board from approved supplier -> Wood Cutting (cutting from mother board 600 mm X 2400 mm sheet to the desired size on Panel saw machine with no sharp edges, no glue marks, no scratches, no machine marks and no cracks at drill hole) -> Lamination (Hot lamination adhering Decorative laminate to MDF board using approved make adhesive) -> Sizing/ Routing (fine sizing and setting curvilinear shapes) -> Lipping/ Edge banding (adhering PVC lipping on MDF board using hot melt glue under heat and pressure) -> Finishing -> Assembly and Packaging (car case/ panel assembly, final inspection/ correction if required, packing and dispatch).

48.2 Raw materials (Wood working): 1) BWP-grade plywood, 2) MR grade plywood, 3) Commercial plywood, 4) Decorative Laminate (DL) and 5) Lipping.
Process (Wood working): Ply wood from approved supplier -> Wood Cutting: Cutting plywood sheets (for e.g. 1220 mm x 2440 mm) to the desired size on a panel saw machine. Ensure no sharp edges, glue marks, scratches, machine marks, or cracks at drill holes. -> Lamination: Adhering decorative laminate to the BWP plywood surface using an approved make adhesive. Perform lamination under heat and pressure using a hot press to ensure uniform bonding. -> Sizing/ Routing: Fine sizing and shaping to meet design specifications, including curvilinear or intricate shapes, using routers or trimmers. -> Lipping/ Edge Banding: Applying PVC lipping or edge bands to exposed edges using hot melt glue under heat and pressure. Ensure the edges are smooth, seamless, and well-finished. -> Finishing: Sanding and polishing edges and surfaces to achieve a professional look. -> Assembly and Packaging: Assembling panels or carcasses as per design requirements. -> Final inspection for quality assurance and corrections if needed. -> Packing the finished product using protective materials (e.g., foam sheets or corrugated boxes) for safe dispatch.

48.3 Raw materials (Metal working): 1) Stainless Steel (Nickel and Chromium added to prevent steel from rusting), 2) Mild steel and 3) Epoxy polyester powder (for powder coating).
Process (Metal working): CRCA sheet from approved supplier -> Notching (cutting at the edge and punching holes, shearing, turret punching/ press operation, deburring of punched sheet) -> Metal forming (blending for the purpose of different applications, sheet bending) -> Assembly/ Sub-Assembly (for welded all components get assembled and for knock down sub-assembly takes place. CO2 welding and spot welding is done) -> Pre-treatment (8 step process including anti-rust surface treatment) -> Powder coating (surface coating applied in the form of powder and on curing produces a protective coating, examination of test coating specimen for blisters, flaking and corrosion) -> Assembly and Packaging (car case/ panel assembly, final inspection/ correction if required, packing and dispatch).

48.4 Raw materials (Metal working): 1) Aluminium Extrusion.
Process (Metal working): Aluminium Extrusion from approved supplier -> Cutting of Aluminium extrusions to desired size -> Assembly and Packaging (car case/ panel assembly, final inspection/ correction if required, packing and dispatch).

48.5 In-house CNC Laser cutting machines should be used for cutting sheet-metal as well as tubular parts.

48.6 All plastic components to be made up of ABS/ Nylon/ Glass-filled Nylon and should be in-house moulded on a fully automatic CNC controlled vertical injection moulding machine. Plastic parts should not have visible sink marks, warpage, flash, discoloration, blow holes, ejector marks or any other defect.

48.7 The item should be manufactured with proper in-house tooling, jigs, dies and fixtures to ensure uniformity and standardization in all parts.

48.8 The item should have interchangeability of all components to ensure free availability and fixing/ replacement of any part of the structure over 5 years.

48.9 All sheet-metal shearing, bending and folding operations to be carried out on in-house press brakes, hydraulic presses and shearing machines/ iron workers.

48.10 In-house MIG welding for clean and full-strength welds and a play-free structure. All welded edges should be machine finished (through grinders or polishing instrument).

48.11 All edges, corners and joints of the steel frame and the accessories tray should be chip free and properly chamfered/ rounded.

48.12 The structure and the accessories tray should be epoxy polyester powder coated in an in-house powder coating facility with standard pre-treatment procedure.

48.13 The manufacturing processes given are generalized. Need to consider wherever it is applicable as per the Specifications of the product.

48.14 All raw materials for manufacturing process shall be as per relevant IS code.