



Government of Maharashtra

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Directorate of Vocational Education and Training, Maharashtra State

**SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh.
Sambhajinagar**

SPECIFICATION FOR TRADE WELDER (NSQF LEVEL-3) ITEMS





SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

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SPECIFICATION FOR TRAINEES TOOL KIT

1] WELDING HELMET FIBER

1.1 Basic Indicative Diagram



- 1.2 Industrial-grade welding helmet with flip-up lens designed for maximum safety and comfort against UV and IR light
- 1.3 Compliant with ANSI Z87.1-2010 and CE EN175 requirements for RX safety eyewear; made from Impact Resistant Polypropylene.
- 1.4 Includes handy flip-up #11 shade lens for easier viewing of welded objects or to use the helmet as a face shield
- 1.5 Should include a two-way adjustable headband for just the right fit
- 1.6 Lightweight and well-balanced, wears comfortably for long hours or in restricted Spaces



SPECIFICATION FOR TRAINEES TOOL KIT

2] WELDING HANDSHIELD FIBER

SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS Page 8 Version 2 2022

2.1 Basic Indicative Diagram



2.2 Industrial-grade welding helmet with flip-up lens designed for maximum safety and comfort against UV and IR light

2.3 Compliant with ANSI Z87.1-2010 and CE EN175 requirements for RX safety eyewear; made from Impact Resistant Polypropylene/Fiber.

2.4 Includes handy flip-up #11 shade lens for easier viewing of welded objects or to use the helmet as a face shield

2.5 Should include a two-way adjustable headband for just the right fit

2.6 Lightweight and well-balanced, wears comfortably for long hours or in restricted spaces



SPECIFICATION FOR TRAINEES TOOL KIT

3] CHIPPING HAMMER

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3.1 Basic Indicative Diagram



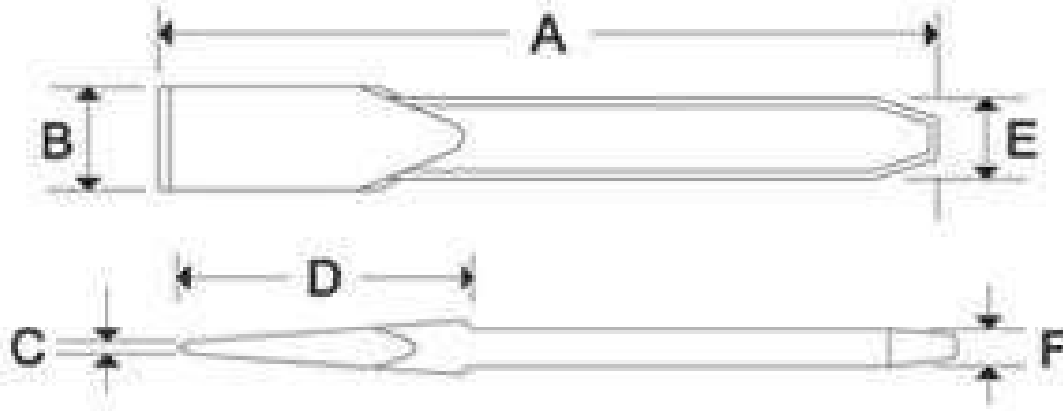
- 3.2 Weight: 250 grams + 10%
- 3.3 High carbon Steel forged head
- 3.4 Hardened and tempered for high strength
- 3.5 Handle: Spiral metal Handle
- 3.6 Should be useful to clean and remove slag from welds



SPECIFICATION FOR TRAINEES TOOL KIT

4] CHISEL COLD- 19X150MM

4.1 Basic Indicative Diagram



4.2 Generally Conform to I.S 5663 - 1970

4.3 Dimensions in mm: A: 150, B: 19, C: 3.0, D: 57

4.4 Drop forged from high grade carbon Steel

4.5 Hardness

4.5.1 Cutting Portion: 55 - 57 HRC

4.5.2 Striking Portion: 35 - 45 HRC

4.6 Body should be rounded off for comfortable grip

4.7 Cutting edges should be ground accurately to appropriate angle for cutting

4.8 Should be phosphate & painted to provide anti rusting properties



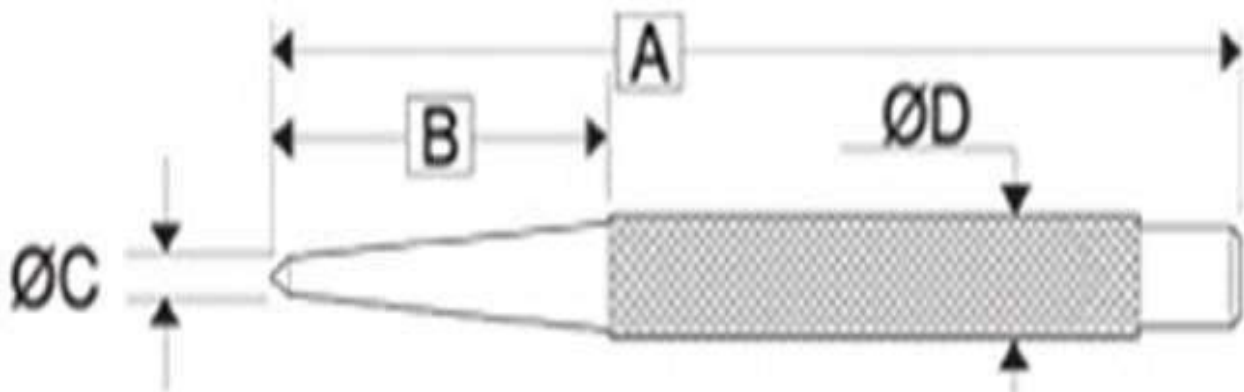
SPECIFICATION FOR TRAINEES TOOL KIT

5] CENTRE PUNCH

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5.1 Basic Indicative Diagram



5.2 Generally conform to I.S. 7177 - 1974

5.3 Dimensions (in mm): A - 127, B - 33, Ø C - 4, Ø D - 9

5.4 Made from high grade chrome Steel

5.5 Hardness

5.5.1 Working surface: 55 - 57 HRC

5.5.2 Body: 35 - 45 HRC

5.6 Overall Length: 100mm

5.7 Black phosphate finish, Hardened & tempered

5.8 Deep knurling on body for firm grip

This item specification is not available on GeM Portal



SPECIFICATION FOR TRAINEES TOOL KIT

6] DIVIDERS – 200MM

6.1 Basic Indicative Diagram



6.2 Spring Divider Size(L): 200 mm

6.3 Material for

6.3.1 Legs: Carbon & Alloy Steel

6.3.2 Spring: Spring Steel

6.3.3 Others: Free Cutting Steel

6.4 Finish for

6.4.1 Legs: Polished

6.4.2 Rest parts: Auto Black

6.5 Hardness for

6.5.1 Tip: 50 - 55 HRC

6.5.2 Spring: 45 - 50 HRC

6.6 Proper rust preventive packing



SPECIFICATION FOR TRAINEES TOOL KIT

7] STAINLESS STEEL RULE - 300 mm, Graduated both in Metric and English Unit

SPECIFICATION FOR MECHANICAL MEASURING EQUIPMENTS GROUP ITEMS Page 35

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7.1 Basic Indicative Diagram



7.2 Material: Stainless Steel

7.3 Thickness: 0.5 mm

7.4 Hardness: 30 - 35 HRC (Specially Hardened)

7.5 Finish: Polished 2B / Anti-Glare Satin Chrome

7.6 Surface roughness: 0.6 Microns max

7.7 Range: 300 mm

7.8 Measuring least count: Metric Graduation +0.5 mm and English graduation 1 /64 inch

7.9 Accuracy: Metrology Standard EEC Class - I



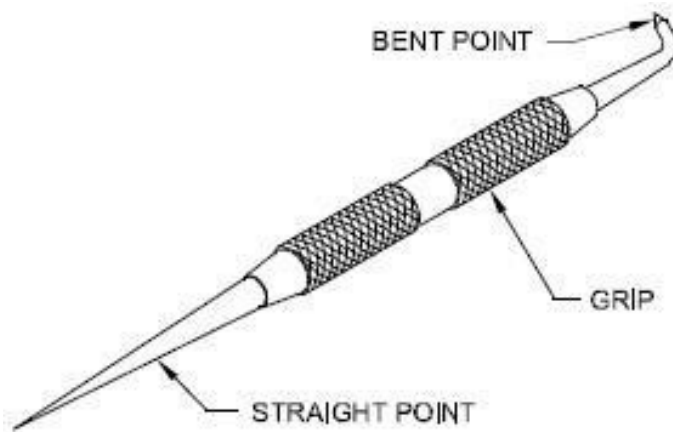
SPECIFICATION FOR TRAINEES TOOL KIT

8] SCRIBER – 150 mm double point.

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8.1 Basic Indicative Diagram



8.2 Scriber with Min. Length 150

8.3 90 ° Bend and Straight

8.4 Both Point end Hardness 55 - 60 HRC

8.5 Should be of material EN - 9



SPECIFICATION FOR TRAINEES TOOL KIT

9] FLAT TONGS

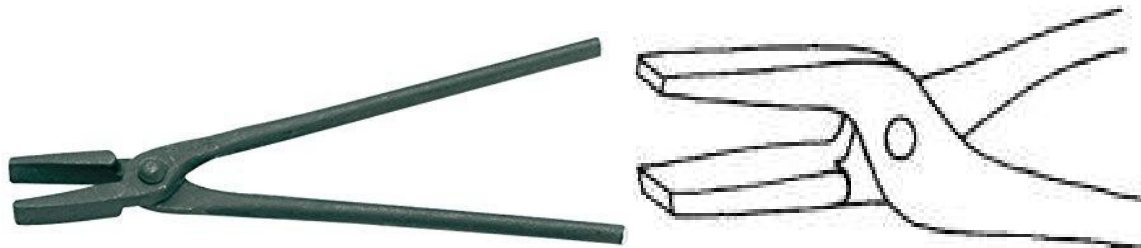
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9.1 Basic Indicative Diagram



9.2 Material: Mild Steel

9.3 Flat Tong: 300 mm

9.4 Length: 300 mm



SPECIFICATION FOR TRAINEES TOOL KIT

10] HACKSAW FRAME - Fixed type 300mm

10.1 Basic Indicative Diagram



10.2 Fixed for 12 inch (300mm) blades

10.3 The blade can additionally be set for sawing at 90°

10.4 Storage compartment in the tubular bow should allow for storing spare blades

10.5 Should be Fitted with a 12" (300 mm) Steel hacksaw blade

10.6 Overall Length(L): 430mm + 10%

10.7 Height(H): 150 mm + 10%

10.8 Depth of Bow(H): 106mm + 10%

10.9 Strong Frame

10.10 Should have adjustable tension lever

10.11 Should be able to build 30000 PSI in 12 turns



SPECIFICATION FOR TRAINEES TOOL KIT

11] FILE HALF ROUND - 300mm bastardwith Handle

10.1 Basic Indicative Diagram



Range (In MM)

From To

10.2 Generally conforming to IS 1931-2000

10.3 Body Length (L) 298 302

10.4 Tang Length (TL) 60 61

10.5 Width (W) 23.70 24.7

10.6 Thickness (T) 6.55 7.25

10.7 No. of Upcut / Inch (23-24 F/S) (23-24 R/S)

10.8 Upcut inclination 650 650

10.9 No. of Overcut / Inch (17-18 F/S)(17-18 R/S)

10.10 Overcut Inclination 500 500

10.11 No. of Edge cut / Inch 23 24

10.12 Edge cut Inclination 650 650

10.13 Hardness 60 HRC 64 HRC

10.14 Rake Angle -70 -120



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12] FILE FLAT – 350mm bastard

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12.1 Basic Indicative Diagram



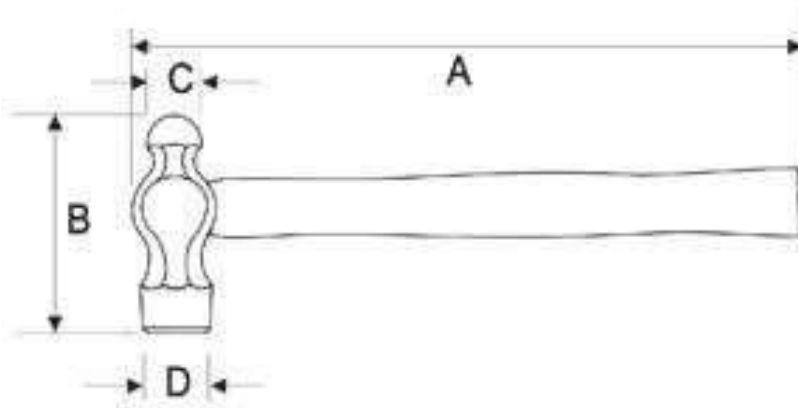
From	To	Range (In MM)	
12.2 Generally conforming to IS 1931-2000			
12.3 Body Length (L)		348	352
12.4 Tang Length (TL)		74	76
12.5 Width (W)		34.6	35.6
12.6 Thickness (T)	6.3	7.3	
12.7 No. of Upcut / Inch		15	16
12.8 Upcut inclination	64°	66°	
12.9 No. of Overcut / Inch	12	13	
12.10 Overcut Inclination	44°	46°	
12.11 No. of Edge cut / Inch	18	19	
12.12 Edge cut Inclination	89°	91°	
12.13 Hardness	60 HRC	64 HRC	
12.14 Rake Angle	-7°	-12°	



SPECIFICATION FOR TRAINEES TOOL KIT

13] HAMMER BALL PEN – 1Kg. with handle

13.1 Basic Indicative Diagram



13.2 Generally conform to I.S. 841 - 1983

13.3 Ball Peen Hammer

13.4 Length: 300 mm + 10%

13.5 Weight: 1Kg.

13.6 Drop forged from high grade carbon Steel

13.7 Material: EN - 9

13.8 Partially hardened up to 46 - 56 HRC on striking surface

13.9 Depth of Hardness: 6 mm

13.10 Phosphate and painted

13.11 Handle

13.11.1 Material: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle

13.11.2 Handle fixed firmly to hammer head so that it does not come out after long use



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14] TIP CLEANER

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14.1 Basic indicative diagram



14.2 Tip should cover Size No. 6 through No. 26

14.3 Cleaning Drill Size 77 – 49

14.4 Material: Stainless Steel

14.5 13 Stainless Steel tips cleaners with file

14.6 Should efficiently clean the tip of the cutting torch after the welding process.

14.7 Should have corrosion abrasion resistance

14.8 Should have sturdy construction



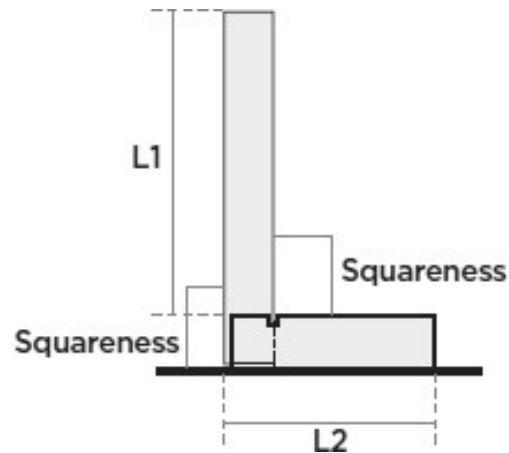
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15] TRY SQUARE

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15.1 Basic Indicative Diagram



- 15.2 Blade length (L1): 150 mm
- 15.3 Stock length (L2): 100 mm
- 15.4 Squareness: 16 microns
- 15.5 Material for Blade: Spring Steel
- 15.6 Stock: MS
- 15.7 Hardness of Blade: 40 - 50 HRC
- 15.8 Groove on the inner corner of the stock



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

16] SPINDLE KEY

16.1 Basic Indicative Diagram



16.2 MATERIAL :- Mild Steel

16.3 DOUBLE ENDED FOR OPEN Oxygen & Acetylene Gas Cylinder.

16.4 Chrome Plated Finish.



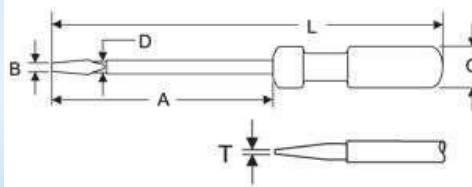
SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

17-A] SCREW DRIVER- 300MM

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16.5 Basic Indicative Diagram



16.6 Generally conform to IS 844 - 1979

16.7 Insulated Blade

16.8 Dimensions:

16.8.1 Size: 8 mm X 300 mm (A - 300 mm, D - 8 mm)

16.8.2 Tip Bit Size: B X T : 8.0 mm X 1.2 mm

16.9 Blade:

16.9.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)

16.9.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement

16.9.3 Hardness on Tip: 55 - 58 HRC

16.9.4 Minimum Torque Value: 1.17 Kg.m

16.9.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

16.10 Handle:

16.10.1 Material of Handle: Cellulose Acetate

16.10.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything

16.10.3 Handle should withstand rough use including hammering

16.10.4 Handle design should be such that it gives comfortable grip even at higher torques

16.10.5 Handle & blade assembly should be insert moulded

16.11 Tip:

16.11.1 Tip should be formed by Forging & Trimming

16.11.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.

16.11.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

16.11.4 Tip sides & faces should be well ground with good finish

16.11.5 Double ear coining should be provided for the blade.



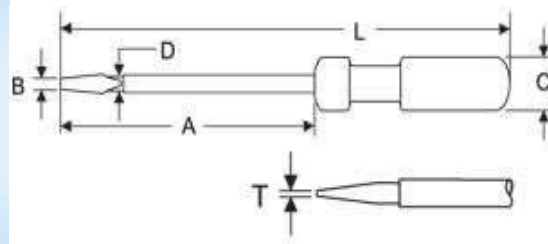
SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

17-B] SCREW DRIVER- 250MM

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 03

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17.1 Basic Indicative Diagram



17.2 Generally conform to IS 844 - 1979

17.3 Insulated Blade

17.4 Dimensions:

17.4.1 Size: 10 mm X 250 mm (A - 250 mm, D - 10 mm)

17.4.2 Tip Bit Size: B X T : 10 mm x 1.2 mm

17.5 Blade:

17.5.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)

17.5.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement

17.5.3 Hardness on Tip: 55 - 58 HRC

17.5.4 Minimum Torque Value: 1.46 Kg.m

17.5.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

17.6 Handle:

17.6.1 Material of Handle: Cellulose Acetate

17.6.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything

17.6.3 Handle should withstand rough use including hammering

17.6.4 Handle design should be such that it gives comfortable grip even at high torques

17.6.5 Handle & blade assembly should be insert molded

17.7 Tip:

17.7.1 Tip should be formed by Forging & Trimming

17.7.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.

17.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

17.7.4 Tip sides & faces should be well ground with good finish

17.7.5 Double ear coining should be provided for the blade



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

18] NUMBER PUNCH – 6mm

18.1 Basic Indicative Diagram



18.2 Manufactured from select quality carbon Steel

18.3 Individual Punches should be induction hardened for durability and extended life

18.4 Hardness at Stamping end: 58 – 62 HRC

18.5 Hardness at Striking end: 38 – 42 HRC. This prevents splintering of the punch

18.6 Chamfered striking end to prevent breakage and accidents due to flying splinters

18.7 Number Punch Set should contain 9 pieces - '0' to '9'.

18.8 Numbers '6' & '9' can be interchangeable



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

19] LETTER PUNCH – 6mm

19.1 Basic Indicative Diagram



19.2 Manufactured from select quality carbon Steel

19.3 Individual Punches should be induction hardened for durability and extended life

19.4 Hardness at Stamping end: 58 – 62 HRC

19.5 Hardness at Striking end: 38 – 42 HRC. This prevents splintering of the punch

19.6 Chamfered striking end to prevent breakage and accidents due to flying splinters

19.7 Letter Punch Set should contain 27 pieces, alphabets 'A' through 'Z' and ampersand '&'



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SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

20] MAGNIFYING GLASS

20.1 Basic Indicative Diagram



SIZE :-Diameter 100MM
Magnification: 10 x



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

21] UNIVERSAL WELD MEASURING GAUGE

SPECIFICATION FOR MECHANICAL MEASURING EQUIPMENTS GROUP ITEMS

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21.1 Basic Indicative Diagram



21.2 Material: Base in Stainless Steel x6Ce17 thick 2.0 and scale in S.S.

21.3 Thickness: 1.0 mm

21.4 Range: As per given in following diagrams

21.5 Least count: Linear 1.0 mm & Angular-1 Degree

21.6 Accuracy: Metrology Standard EEC-1

21.7 Finish: Polished 2B finish / Antiglare Satin Chrome

21.8 Should be supplied in Wooden / Plastic Box with proper cushioning



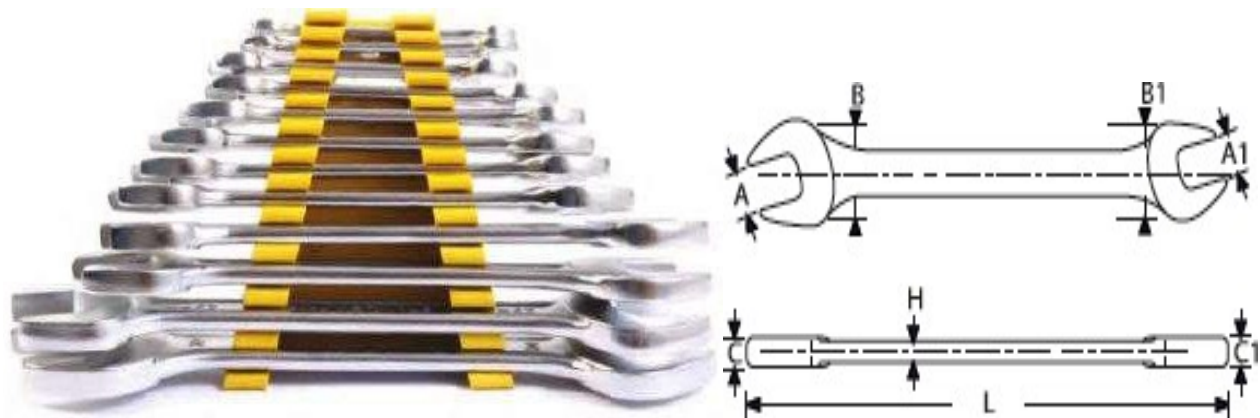
SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

22] SPANNERD.E.Set- 6 - 32 mm Set of 12

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 03

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22.1 Basic Indicative Diagram



22.2 Generally Conform to IS 2028 - 1998

22.3 Sizes: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22, 21X23, 24X27, 25X28, 30X32 mm

22.4 Slightly Rounded handles - Sand Blasted

22.5 Non Damaging Grip on nut due to close wrench opening tolerances

22.6 I - section design of handle and heads to combine strength and low weight

22.7 Salt Spray Test should be conducted

22.8 Should not have Sharp Cuts, Pit Marks, Cutting Burs

22.9 Should have Anti - Slip design Feature

22.10 Thoroughly corrosion protected with Nickel chrome finish

22.11 Deep forged from Chrome vanadium Steel (31CrV3)

22.12 Hardness: 42 - 45 HRC

22.13 Head at each end are of different sizes and set at an angle of 15 degrees

22.14 Web should be provided in forging

22.15 Minimum Torque Values in Kg.m

22.15.1 Nominal Width A/F 6-0.6, 7-0.9, 8-1.3, 9-1.9, 10-2.5, 11-3.3, 12-4.2

22.15.2 Nominal Width A/F 13-5.3, 14-6.5, 15-7.8, 16-9.4, 17-10.9, 18-13.0

22.15.3 Nominal Width A/F 19-15.2, 20-17.50, 21-20.20, 22-22.9, 23-26.0, 24-29.3

22.15.4 Nominal Width A/F 25-32.8, 26-36.6, 27-40.7, 28-45.0, 30-54.6, 32-65.50



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

23-A] C- CLAMP – 10cm. (100mm)

22.16 Basic Indicative Diagram



22.17 Generally conform to I.S 9181 - 1988

22.18 Capacity (B): 100 mm

22.19 Throat Depth (C): 75 mm

22.20 Body hot drop forged from high grade Steel

22.21 All parts fully heat treated and black phosphate for long free trouble service

22.22 Hardness: 27 - 38 HRC

22.23 I - section frame for strength and toughness

22.24 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces

22.25 Acme thread on screw to provide higher, quicker, easier movement for clamping/ unclamping

22.26 Hex Head on screw to facilitate use of spanners for tightening as and when required

22.27 Serrations provided on PAD & C - clamp body for better gripping

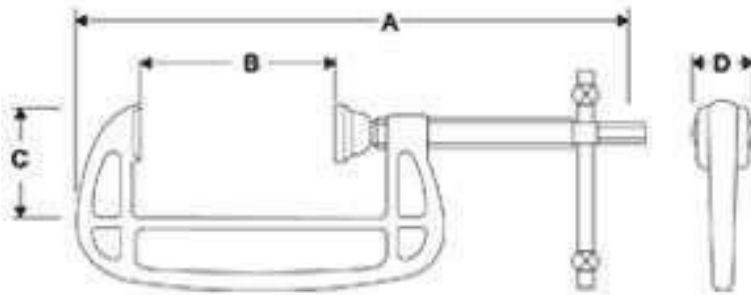
22.28 Tension Load Test (Min): 2510 Kg



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

23-B] C- CLAMP – 15cm. (150mm)

24.1 Basic Indicative Diagram



24.2 Generally conform to I.S 9181 - 1988

24.3 Capacity (B): 150 mm

24.4 Throat Depth (C): 106 mm

24.5 Body hot drop forged from high grade Steel

24.6 All parts fully heat treated and black phosphate for long free trouble service

24.7 Hardness: 27 - 38 HRC

24.8 I - section frame for strength and toughness

24.9 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces

24.10 Acme thread on screw to provide higher, quicker, easier movement for clamping/
unclamping

24.11 Hex Head on screw to facilitate use of spanners for tightening as and when required

24.12 Serrations provided on PAD & C - clamp body for better gripping

24.13 Tension Load Test (Min): 3525 Kg



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

24] HAMMER SLEDGE - Double Faced 4Kg.

24.14 Basic Indicative Diagram



24.15 Generally conform to I.S. 841 - 1983

24.16 Size: 4000 grams

24.17 Drop forged from high grade carbon Steel

24.18 Partially hardened upto 46 - 56 HRC on striking surface

24.19 Depth of Hardness: 10 mm

24.20 Phosphated and painted

24.21 Handle

24.21.1 Material: Hickory Wood

24.21.2 Handle fixed firmly to hammer head so that it does not come out after long use



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25] S.S.TAPE– 5meters flexible in case.

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26.1 Basic Indicative Diagram



26.2 Tape length: 5 meters

26.3 Tape width: 13 mm

26.4 Tapes coated with Epoxy based scratch guard material to ensure longer life

26.5 Bold & Easy to read printing

26.6 Ensures Class II Accuracy at 20 Degrees when subjected to tension of 50 Newton

26.7 Strong Copper Rivet to ensure stronger end hook



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

26] H.P.WELDING TORCH- WITH 5 NOZZLES

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME

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28.1 Basic indicative diagram



28.2 Material: Forged Brass Body and Nozzles for High Strength and longer life

28.3 Should be suitable for versatile applications using oxygen & acetylene

28.4 Should be suitable for gas welding/brazing from 0.5mm to 3mm thick plate

28.5 Should have safety protection to give dependable performance against backfire

28.6 5 TIPS should be provided of different sizes along with torch for gas Welding/ Brazing

Torch comes with 6 swaged nozzles of sizes: 2, 3, 6, 13, 20, 30

Light weight for comfort operating

Fine gas controlling system



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

27] OXYGEN GAS PRESSURE REGULATOR - DOUBLE STAGE

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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29.1 Basic indicative diagram



29.2 Compliance: generally conforming to IS: 6901 - 2009

29.3 Should have stainless steel diaphragm in first stage to absorb shock of inlet pressure up to 230 bar.

29.4 Should have flexible rubber diaphragm in second stage for fine gas control.

29.5 Should have forged brass bonnet in first stage and die cast special alloy bonnet in second stage for higher strength.

29.6 Should have teflon moulded valve at the heart of the regulator and stainless steel machined & ground valve spindle in the valve assembly capsule in both stages for leakproof performance.

29.7 Should have distinctive colour for pressure adjusting knob labels.

29.8 Should have triple filter: one in inlet and two wire-mesh in the valve assembly protect the sensitive internal parts from any dust particles.

29.9 Weight: 2.40 Kg.

29.10 Should have self-adjusting safety valve, Double protection through separate safety valves in first and second stage.

29.11 Should have second stage plenum chamber volume is six times than first stage ensuring very stable flow characteristics.

29.12 Oxygen (O)

29.12.1 Max Inlet Pressure: 230 BAR

29.12.2 Max Outlet Pressure: 10 BAR

29.12.3 Max Flow: 1000 LPM

29.12.4 Inlet Connections: 5/8" BSP RH (Male)

29.12.5 Outer Connections: 3/8" BSP RH (Male)



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

28] ACETYLENE GAS PRESSURE REGULATOR - DOUBLE STAGE

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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29.3 Basic indicative diagram



29.4 Compliance: generally conforming to IS: 6901 - 2009.

29.5 Should have stainless steel diaphragm in first stage to absorb shock of inlet pressure up to 230 bar.

29.6 Should have flexible rubber diaphragm in second stage for fine gas control.

29.7 Should have forged brass bonnet in first stage and die cast special alloy bonnet in second stage for higher strength.

29.8 Should have Teflon moulded valve at the heart of the regulator and stainless steel machined & ground valve spindle in the valve assembly capsule in both stages for leakproof performance.

29.9 Should have distinctive colour for pressure adjusting knob labels.

29.10 Should have triple filter: one in inlet and two wire-mesh in the valve assembly protect the sensitive internal parts from any dust particles.

29.11 Weight: 2.40 Kg.

29.12 Should have self-adjusting safety valve, Double protection through separate safety valves in first and second stage.

29.13 Should have second stage plenum chamber volume is six times than first stage ensuring very stable flow characteristics.

29.14 Acetylene

29.14.1 Max Inlet Pressure: 25 BAR

29.14.2 Max Outlet Pressure: 1.5 BAR

29.14.3 Max Flow: 250 LPM

29.14.4 Inlet Connections: 5/8" BSP LH (Male)

29.14.5 Outer Connections: 3/8" BSP LH (Male)



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

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29] CO2 GAS PRESSURE REGULATOR –DOUBLE STAGE

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29.15 Basic indicative diagram



311.2 Compliance: generally conforming to IS: 6901 - 2009.

31.3 Should have unbreakable moulded pressure adjusting knob.

31.4 Should have profile rubber diaphragm.

31.5 Should be stainless steel machined & ground valve spindle

31.6 Should have Teflon moulded valve at the heart of the regulator.

31.7 Should have sintered filter in the inlet, wire mesh filter in valve assembly

31.8 Should have self-adjusting safety valve.

31.9 Weight: 1 to 1.30 Kg. approx.

31.10 Regulators should have outlet flow-gauge design, so that additional flow-meter is not required

31.11 Max Inlet Pressure: 200 BAR

31.12 Max Flow: 25 LPM

31.13 Inlet Connections: BSW 0.86 X 14 TPI RH (Female)

31.14 Outer Connections: 3/8" BSP RH (Male)



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

30] ARGON GAS PRESSURE REGULATOR –DOUBLE STAGE

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30.1 Basic indicative diagram



30.2 Compliance: generally conforming to IS: 6901 - 2009.

30.3 Should have unbreakable moulded pressure adjusting knob.

30.4 Should have profile rubber diaphragm.

30.5 Should be stainless steel machined & ground valve spindle

30.6 Should have Teflon moulded valve at the heart of the regulator.

30.7 Should have sintered filter in the inlet, wire mesh filter in valve assembly

30.8 Should have self-adjusting safety valve.

30.9 Weight: 1 to 1.30 Kg. approx.

30.10 Regulators should have outlet flow-gauge design, so that additional flow-meter is not required

30.11 Max Inlet Pressure: 200 BAR

30.12 Max Flow: 25 LPM

30.13 Inlet Connections: 5/8" BSP RH (Male)

30.14 Outer Connections: 3/8" BSP RH (Male)



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

31] METAL RACK – 182cm X 152cm X 45cm

31.1 Basic indicative diagram



31.2 Metal Rack Size :- 182cm X 152cm X 45cm

31.3 Material :- M.S. Square pipe 35 x 35 x 3 mm thk.

31.4 Colour :- Powder coating for Anti rust proof-long life

33.6 Required 4Shelf by M.S. Square pipe 35 x 35 x 3 mm thk.

33.7 Load Capacity per Shelf 150- 200 Kg



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

32] FIRST AID BOX

32.1 Basic indicative diagram



32.2 Material :- high grade G.I. Metal

32.3 Colour :- Powder coating for Anti rust proof-long life

32.4 Size :- H=32.5cm , W= 28.5cm, D= 8cm

34.4 Front Transparent Acrylic glass.3Shelf,Security lock on door for safety.



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SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

33] STEEL LOCKERS – WITH 8 PIGEON HOLES

33.1 Basic indicative diagram



33.2 Type :- Storage Locker

35.2 Size :- 78”X33”X18”

35.2 Material :- high grade CRCASHEET. Heavy gauge

35.2 Design Type :- Customized

35.2 Surface Finesh :- Powder coating for Anti rust proof-long life

35.2 Colour :- Gray

35.2 Automation Grade :- Manual

35.2 Capacity :- 80 Kg / pigeon hole

35.2 Door type :- Fixed With Heavy Hinges And Handle

35.4 Number Of pigeon hole :- 8 Heavy locking System



34) STEEL ALMIRAH / CUPBOARD

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33.3 Basic Indicative Diagram:



33.4 Manufacturing, Supplying and Installation of Steel Cupboard having four shelves making five compartments with two door shutter as per the following design, specification, manufacturing process and tests.

33.5 Confirming to IS CODE – 513 (2008), 13871 (1993)

33.6 Dimensions: Overall size of 915mm (W) X 485mm (D) X 1980mm (H).

33.7 Construction:

33.7.1 The construction shall be welded construction with 0.7mm thick CRCA for shelf and 0.8mm thick for sides and back conforming to IS: 513 -2008 grade. The width of the side sheet shall correspond to the depth of the top. The side 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.

33.7.2 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 0.8mm thick CRCA.

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

33.7.4 All material should be used of relevant ISI specification.

33.8 Configuration (Doors):

33.8.1 Two door shutters shall be made of 0.8mm thick CRCA and all other metal component shall be made of 0.9 mm thick CRCA. CRCA D grade conforming to IS: 513 -2008. Shutter shall have metal stiffeners suitably welded or riveted to stiffen the door. The centre to centre distance between two adjacent things to the right side of the cabinet shall have a hole for the handle and key slot for the key of the lock.

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



35) BLACKBOARD AND EASEL WITH STAND

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33.9 Basic Indicative Diagram:



33.10 Confirming to IS CODE - 3087, 733

33.11 Size of Green Board: 1200 mm X 900 mm

33.12 Black 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.

33.13 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 0.095mm min. thickness on top and 0.03 mm min. on the back. The top shall be free from waviness and shall show excellent erasability.

33.14 Core Materials:

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

33.15 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.)

33.16 Aluminium Frame:

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)

The Frame section shall be Front: 25mm, side: 18mm, wall thickness: 0.8mm (+ 0.03mm)



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34] FLASH BACK ARRESTER (TORCH MOUNTED)

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34.1 Basic indicative diagram



34.2 Flashback arrestors for reliable protection against dangerous reverse gas flows and flashbacks.

34.3 Material:

34.3.1 Housing: Brass,

34.3.2 Flame Arrestor: Stainless Steel

34.3.3 Seal: Elastomer

34.4 Weight: 110 Grams

34.5 Acetylene (A)

34.5.1 Max Working Pressure: 1.5 BAR

34.5.2 Inlet Female Thread: 3/8" BSP LH

34.5.3 Outer Male Thread: 3/8" BSP LH

34.6 LPG (P)

34.6.1 Max Working Pressure: 5 BAR

34.6.2 Inlet Female Thread: 3/8" BSP LH

34.6.3 Outer Male Thread: 3/8" BSP LH

34.7 Oxygen (O)

34.7.1 Max Working Pressure: 30 BAR

34.7.2 Inlet Female Thread: 3/8" BSP RH

34.7.3 Outer Male Thread: 3/8" BSP RH



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

35] FLASH BACK ARRESTER (CYLINDER MOUNTED)

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35.1 Basic indicative diagram



35.2 Flashback arrestors for reliable protection against dangerous reverse gas flows and flashbacks.

56.3 Material:

56.3.1 Housing: Brass,

56.3.3 Seal: Elastomer

39.4 Weight: 180 Grams

39.5 Acetylene (A)

39.5.1 Max Working Pressure: 1.5 BAR

39.5.2 Inlet Female Thread: 3/8" BSP LH

39.5.3 Outer Male Thread: 3/8" BSP LH

39.6 LPG (P)

39.6.1 Max Working Pressure: 5 BAR

39.6.2 Inlet Female Thread: 3/8" BSP LH

39.6.3 Outer Male Thread: 3/8" BSP LH

39.7 Oxygen (O)

39.7.1 Max Working Pressure: 30 BAR

39.7.2 Inlet Female Thread: 3/8" BSP RH

39.7.3 Outer Male Thread: 3/8" BSP RH



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38) Multi Angle magnetic Clamp Set



Product Specification

38.1) Type Of Magnet Used	Electromagnet
38.2) Applications	Magnetic Clamps



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

GENERAL SHOP OUT FIT

39)WELDING TRANSFORMER – 400 Amp., OCV 60-100V,60% duty cycle

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35.3 Basic indicative diagram



35.4 Should have 2 lines of 3 phase supply

35.5 Should have user friendly AC ARC Welder with Stepless, smooth and infinitely variable current regulation

35.6 Should have forced air cooled transformer – with less coil temperature rise resulting in longer service life

35.7 Should have stepless, smooth and infinitely variable current regulation by moving core magnetic shunt design

35.8 Should have adjustment of welding current possible even while welding is in progress

35.9 Should have ON-OFF switch control, current control and current indicator provided on the front panel

35.10 A Special design provides for excellent dynamic characteristic and ensures smooth and optimum metal transfer

35.11 With VRD (Voltage reducing device) for protection against electric shock when welding is not going on, energy saving and helps in reduction in machine heating

35.12 Input supply: 415 V AC, 3 phase, 50 Hz

35.13 Input KVA @ 415 V supply @ 100% Duty Cycle: 19

35.14 Input Switch Fuse Rating: 80 A

35.15 Recommended Capacitor rating for Power factor correction: 8 KVAR

35.16 Open circuit voltage @ 415 V input supply: 80 V AC or higher

35.17 Welding Current range: 60 – 400 Amps AC

35.18 Welding Voltage range: 22.5 – 36 Volts AC

35.19 Welding current at 40°C, 10 minute cycle, @ 60% duty cycle: 305 A AC v.18 Welding current at 40°C, 10 minute cycle, @ 100% duty cycle: 230 A AC

40.19 Maximum intermittent hand welding current: 400 A AC

40.20 Applicable Electrode sizes: 2.5 – 6.3 mm

40.21 Cooling Type: Forced Air

40.22 Ambient temperature rating: 40°C

40.23 Class of insulation: A

40.24 Degree of protection: IP 23 S

40.25 Dimensions L X W X H in mm: 745 X 460 X 540 (Approx.)

40.26 Weight: 98 Kg (Approx.)



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40) WELDING TRANSFORMER OR INVERTER BASED WELDING MACHINE – 300 Amp.

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a. Basic indicative diagram



b. Three phase Welding Transformer with 'Open-delta' design for conversion of three phase input into single phase output

c. Should have user friendly AC ARC Welder with Stepless, smooth and infinitely variable current regulation

d. Should have forced air cooled transformer – with less coil temperature rise resulting in longer service life

e. Should have stepless, smooth and infinitely variable current regulation by moving core magnetic shunt design

28.6 Should have adjustment of welding current possible even while welding is in progress

41.7 Should have one swivel front wheel and two rear wheel arrangement for easy move ability from job to job on the shop-floor

41.8 Should have ON-OFF switch control, current control and current indicator provided on the front panel

41.9 Input supply: 380 / 415 V AC, 3 phase, 50 Hz

41.10 Input KVA @ 415 V supply @ 100% Duty Cycle:16.5

41.11 Input Switch Fuse Rating: 55 A

41.12 Recommended Capacitor rating for Power factor correction: 6 KVAR

41.13 Open circuit voltage @ 415 V input supply: 65 V AC or higher

41.14 Welding Current range: 40 – 300 A AC

41.15 Welding Voltage range: 22 – 32 V AC

41.16 Welding current at 40°C, 10 minute cycle, @ 60% duty cycle: 225 A AC

41.17 Welding current at 40°C, 10 minute cycle, @ 100% duty cycle: 175 A AC

41.18 Maximum intermittent hand welding current: 300 A AC

41.19 Applicable Electrode sizes: 2.5 – 5 mm

41.20 Cooling Type: Forced Air

41.21 Ambient temperature rating: 40°C

41.22 Class of insulation: A

41.23 Degree of protection: IP 23 S

41.24 Dimensions L X W X H in mm 720 X 500 X 800 (Approx.)

41.25 Weight: 125 Kg (Approx.)



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41) D.C. ARC WELDING RECTIFIERS SET WITH ALL ACCESSORIES – 400 Amp.

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a. Basic indicative diagram



- b. DC Arc Welding Rectifiers set with Standard Accessories - 400 A, OCV 60-100 V, 60% Duty Cycle
- c. Should be three phase inverter based IGBT based DC Welder
- d. Should be suitable for Long distance welding (100 meter + 100 meter cables) and cellulosic electrodes
- e. TIG Welding should be possible with External HF Unit
- f. Should be capable of Welding with all types of cellulosic electrodes
- g. Should have arc force adjustment on panel.
- h. should have BUILT-IN VRD (Voltage reducing device) for protection against electric shock when welding is not going on.
- i. Input supply: 415 V AC +15%, -10%, 3 phase, 50 / 60 Hz
- j. Input KVA @ 415 V Supply @ 100% Duty Cycle: 14
- k. Input KVA @ 415 V Supply @ No load: 0.24
- l. Power factor: 0.9 or higher
- m. Efficiency %: 85% or higher
- n. Open circuit voltage @ 415 V input supply: 80 V DC or higher
- o. Welding Current range: 10 – 400 A
- p. Welding current at 40°C, 10 minute cycle, @ 60% duty cycle: 400 A
- q. Welding current at 40°C, 10 minute cycle, @ 100% duty cycle: 310 A
- r. Protections: OV/ UV, Single Phasing, Over Temperature
- s. Compatibility to International standard: Generally, conforms to IEC 60974-1
- t. Current and Arc Force setting: Potentiometer
- u. Current display (set current and actual current): 3 Digit – 7 segment Digital Panel Meter
- v. Electrode sizes applicable: 2.5 – 6.3 mm
- w. Cooling type: Forced Air
- x. Ambient temperature rating: 40 Degree C
- y. Class of insulation: H
- z. Degree of protection: IP 23 S
- aa. Dimensions L X W X H in mm: 660 X 305 X 530 (Approx.)
- bb. Weight: 40 Kg (Approx.)



GENERAL SHOP OUT FIT

42-A] GMAW WELDING MACHINE – 400 Amp.

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cc. Basic indicative diagram



- dd. Should have digitally controlled Gas metal arc welding (GMAW) outfit with High efficiency and power factor (above 0.9) – resulting in energy saving
- ee. Should have auto “Weld Stop” when welding torch is taken away from weld job
- ff. Should be compatible to Power Generator Supply
- gg. Should have digital Panel for adjusting the welding parameters
- hh. Should have excellent dynamic response through special dynamic inductance control enables superior arc characteristics.
- ii. Should have 2T, 4T operating modes, Crater voltage and Crater current adjustment through digital panel.
- jj. Should have feature to avoid globule formation.
- kk. Input supply: 415 V AC +15%, -10%, 3 phase, 50 / 60 Hz
- ll. Input KVA @ 415 V supply @ 100% Duty Cycle: 12
- mm. Input KVA @ 415 V supply @ No load: 0.24
- nn. Power factor: 0.9 or higher
- oo. Efficiency %: 85% or higher
- pp. Open circuit voltage @ 415 V input supply: 65 V DC
- qq. Welding / Crater Current range: 50 – 400 A

- rr. **Welding / Crater Voltage range: 16 – 39 Volts DC**
- ss. **Welding current at 40°C, 10 minute cycle, @ 60% duty cycle: 400 A**
- tt. **Welding current at 40°C, 10 minute cycle, @ 100% duty cycle: 310 A**
- uu. **Protections: Over/ Under Voltage, Single Phasing, Over Temperature**
- vv. **Compatibility to International standard: Generally, conforms to IEC 60974-1**
- ww. **Wire diameters applicable: 1.2 / 1.6 Aluminum, 0.8 / 1.0 / 1.2 / 1.6 for all Steel**
- xx. **Cooling Type: Forced Air**
- yy. **Ambient temperature rating: 40 Degree C**
- zz. **Class of insulation: H**
- aaa. **Degree of protection: IP 23 S**
- bbb. **Dimensions L X W X H in mm: 700 X 450 X 600 (Approx.)**
- ccc. **Weight: 45 Kg (Approx.)**
- ddd. **Technical Specifications for Wire Feeder Unit:**
 - i. **Wire feed speed: 1.5 – 18 m / min.**
 - ii. **Wire Drive Unit: 4 Roll Drive with PMDC Motor, 42 V DC**
 - iii. **Suitable for Wire Spool capacity: 15 Kg**
 - iv. **Wire feeder Dimensions L X W X H in mm: 563 X 230 X 410 (Approx.)**
 - v. **Weight (approx.): 16 Kg (Approx.)**
- eee. **Technical Specifications for Torch:**
 - i. **Current Rating: 400 Amps @ 60% Duty cycle (for CO₂), 350 A, @ 60% Duty cycle (for mixed gas)**
 - ii. **Suitable for Diameters: 0.8 – 1.6 mm**
 - iii. **Torch length: 3 Meters**
- fff. **Gas Flow Meter and Gas Pre Heater to be provided**



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GENERAL SHOP OUT FIT

43-A] AC / DC GTAW WELDING MACHINE – 300 Amp.

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Basic indicative diagram



ggg. Should have large input supply voltage range with under/over voltage and single phase protection

hhh. Should have minimum efficiency of 80 %

iii. Should have latest PWM inverter technology with inbuilt SPOT TIG welding facility, AC/ DC as well as mixed TIG welding facility.

jjj. Should also have Inbuilt PULSE TIG welding controls with independent settings of all parameters from front panel.

kkk. Constant Current characteristics irrespective of arc length variation for smooth, stable arc for spatter-less welding

lll. Should have water cooling unit with suitable type of water cooled TIG torch

mmm. Input supply: 415 V AC +15%, -10%, 3 Phase, 50/ 60 Hz

nnn. Input KVA @ 415 V Supply @ 100% Duty Cycle: Manual Metal Arc (MMA) mode – 7, TIG mode – 7.5

ooo. Input KVA @ 415 V Supply @ 60% Duty Cycle: MMA Mode – 10, TIG mode – 11

ppp. Power factor: 0.9 or higher

qqq. Efficiency %: 80% or higher

rrr. Open circuit voltage @ 415 V input supply: 70 V DC or higher

sss. Welding current range: 10 – 300 A (TIG Mode)

ttt. Welding current at 40 Degree C, 10 minute cycle, @ 60% duty cycle: 300 A (TIG Mode)

uuu. Welding current at 40 Degree C, 10 minute cycle, @ 100% duty cycle: 230 A (TIG Mode)

vvv. Should have an option of remote controller and Foot switch control for Current setting

www. Should have protections: Over/ Under Voltage, Single Phasing, Over Temperature

xxx. Front panel functions:

- i. MMA/ TIG Selection Switch
- ii. 2T/ 4T/ SPOT/CYCLE Selection Switch
- iii. Pulse/ Normal Mode Selection Switch
- iv. HF On/ HF Off Selection Switch
- v. Normal/ Foot Switch Selection Switch
- vi. Menu Switch for Selecting all functions-
- vii. Gas Pre Flow, Start Current, Upslope Time, Base Current, Pulse Current, Down Slope Time, Crater Current, Gas Post Flow Time, Cleaning for AC, AC Frequency, AC Offset, Pulse Width/ Spot Time, Pulse Frequency as Per Selected Mode of Operation.
- viii. Torch Switch Connector
- ix. Foot Switch Connector
- x. Remote Connector
- xi. Gas Out Connector
- xii. Cam-Lock Output Connectors
- xiii. Mains On 'Green' Colour Indication
- xiv. Trip 'Red' Colour LED for that machine is under protection mode.
- xv. Water / Gas Cooled Selection Switch
- xvi. Encoder for Selected Parameter Value Increment / Decrement.
- yyy. Cooling type: Forced Air
- zzz. Ambient temperature rating: 40 Degree C
- aaaa. Class of insulation: H
- bbbb. Degree of protection: IP 23 S
- cccc. Dimensions L X W X H (without handle) in mm: 650 X 425 X 515 (Approx.)
- dddd. Weight: 50 Kg (Approx.)
- eeee. Gas Flow Meter to be provided



SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

GENERAL SHOP OUT FIT

44] AIR PLASMA CUTTING EQUIPMENT – CAPACITY TO CUT 12 MM

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ffff. Basic indicative diagram



gggg. Should be three phase inverter based

hhhh. Should have soft switching technology for high efficiency and cutting capacity

iiii. Should be suitable for both manual and mechanized cutting operation with suitable Cutting Torch

jjjj. Should have digital display for precise setting of cutting current

kkkk. Should have time delay function for effective protection to cutting torch

llll. Should have self-Hold ON / OFF setting feature for the machine to be typically suitable for use with Automatic CNC Cutting outfit

mmmm. Input supply: 380 - 415 V AC, 3 phase, 50 / 60 Hz

nnnn. Rated Input KVA 14.5

oooo. Cutting Current range: 30 – 100 Amps

pppp. Cutting current at 40°C: 10 minute cycle @ 100% duty cycle: 100 Amps

qqqq. Maximum severing capacity: 40 mm

rrrr. Optimal cutting capacity: 1 – 20 mm

ssss. Maximum automated cutting capacity: ≤ 15 mm

tttt. Nominal Air Pressure requirement: 0.45 MPa / 4.5 Bar

uuuu. Dimensions L X W X H (approx.): 550 X 300 X 500 mm

vvvv. Weight (approx.): 40 Kg



GENERAL SHOP OUTFIT

45] AIR COMPRESSOR SUITABLE FOR ABOVE AIR PLASMA CUTTING SYSTEM.

TWO STAGE COMPRESSOR 15KW SPECIFICATION FOR MECHANICAL TOOLS AND
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a. Basic indicative diagram



Product Specification

Horse Power	3 HP
Brand	HRK
Compressor Technology	Reciprocating Compressor
Model Name/Number	HRKS-60
Discharge Pressure	12.3 Bar
Air Tank Capacity	175 L
Maximum Flow Rate	60 CFM
Air Quality Standard	Class I
Cooling Method	Air Cooled
Frequency	50 Hz
Voltage	230 V
Country of Origin	Made in India



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GENERAL SHOP OUT FIT

46] AUTO DARKENING WELDING HELMET

b. Basic indicative diagram



- c. Viewing Area :- 90 X 40mm
- d. Ultra Violet / Infra Red Protection
- e. Best Quality Auto Darkening.
- f. As well as find one that wears comfortably all day on the job.



GENERAL SHOP OUT FIT

47] SPOT WELDING MACHINE – 15 KVA

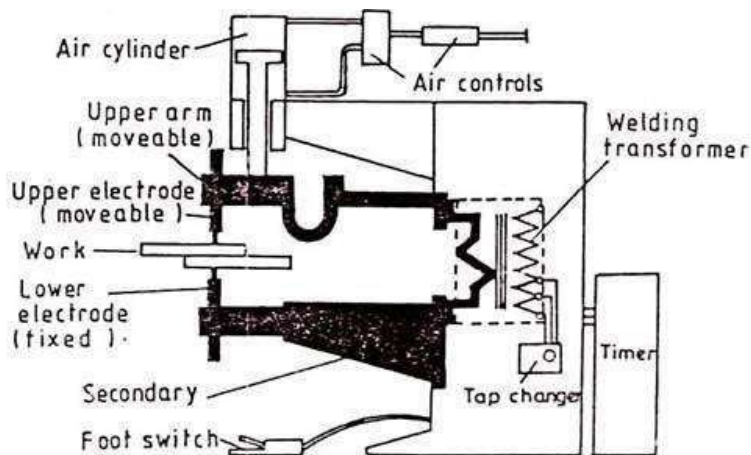
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g. Basic indicative diagram



- h. Should have water-cooled transformer
- i. Should have high strength robust sturdy pedestal type frame for high speed spot welding operation.
- j. Electro-valve and gas cylinder should be connected directly for increasing speed of responding and spot welding and reducing air flow cost.
- k. Descending speed of the machine head pressurization should be adjusted as per requirement which will soften impact and lower noise when the work piece is pressurized.
- l. Should have straight type pressing structure
- m. Should have pneumatic cylinder operation, having single Force up to - 600 KGF or double stroke.
- n. Should have water cooled electrode and welding arm
- o. Transformer rating: 35 to 200 kVA
- p. Controllers - AC / Medium frequency Direct Current (MFDC)
- q. Input supply: 415 V AC, 2 lines of 3 phase, 50 Hz
- r. Power Supply connection cable size: 50 sq. mm. copper, 3 Core, 2P + E
- s. Thyristor Assembly: Water cooled
- t. Recommended MCCB with RCCB rating: 30 mA / 30 ms
- u. Throat Gap / Throat Depth: 300 mm / 450 mm
- v. Pneumatic cylinder: Single operating type
- w. Nominal Force: 350 kgf @5 bar for Single Acting Cylinder
- x. Welding Stroke: 50 – 80 mm
- y. Maximum Short circuit current: 12000 A
- z. Nominal cooling water flow requirement: 16 Litres/ Minute @ 3 bar pressure
- aa. Joining material thickness (maximum): 2.5 + 2.5 mm Steel, 1.5 + 1.5 mm Brass



GENERAL SHOP OUT FIT

48] PORTABLE GAS CUTTING MACHINE – (CAPABLE OF CUTTING STRAIGHT & CIRCULAR)

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bb. Basic indicative diagram



- cc. Cutting Capacity: Up to 75 mm thick Plate
- dd. Straight Cutting: In 1.8 meters length or its multiples by adding extra track.
- ee. Circle Cutting: From Ø150 mm to Ø1200 mm.
- ff. Bevel Cutting: Up to 45°, 50 mm thick plate
- gg. Cutting Speed: Min.: 0-200 mm/min.(approx)
- hh. Max.: 800-1000 mm/min.(approx.)
- ii. Horizontal Adjustment of Cutting Torch: 80 mm
- jj. Vertical Adjustment of Cutting Torch: 60 mm
- kk. Weight of the machine: 8 Kgs. (Approx.)
- ll. Power Supply: 220/250V, 1Ø, 50 Hz, or 220/250V DC
- mm. Speed Control: Wire Wound Potentiometer
- nn. Inlet Gas Hose connections for Gas Torch 1/4" BSP RH & LH
- oo. Cutting Nozzles: 75 mm Length, A type for Oxy-Acetylene & P type for Oxy-LPG
- pp. Unique design with louvers for ventilation which reduces overheating of motor and electrical parts.
- qq. Unbreakable, smooth and precise horizontal and vertical adjustment of torch.
- rr. Bevel setting with locking facility ensures bevel accuracy during continuous cutting operation.
- ss. Heat reflector with air gap, which protects the motor and other electrical parts from overheating.
- tt. Non-metallic moulded lifting handle, hence machine can be lifted easily even if when it is hot.
- uu. Travels on standard 1.8 meter long extruded Aluminium rail track



GENERAL SHOP OUT FIT

49] PEDESTAL GRINDER – DIA 300MM

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vv. Basic indicative diagram



A] FEATURES :-

- 1) Spindle Hardened Ground And Vibration Free
- 2) SKF/FAG/TATA or ISI Marked Heavy Duty Ball Bearing Totally Sealed Type
- 3) Wheel Flanges And Guard
- 4) Pedestal Rigid And Casted in One Piece C.I.
- 5) Eye Shield

B] SPECIFICATION :-

- ww. ELECTRIC Motor :- 1HP ,3 Phase (A Special build up Motor Confirming to ISI Specification)
- xx. SPEED OF MOTOR :- 200 to 3000 RPM Approx.
- yy. Grinding Wheel Size :- 300 mm
- 50.5 Material :- Heavy Duty
- 50.6 Center Height :- 900mm to 1000mm Aprox.
- 50.7 Push Button Type Starter With Overload Relays For Motor Protection



GENERAL SHOP OUT FIT

50] BENCH GRINDER – DIA 150MM

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zz. Basic indicative diagram



aaa. Grinder Motor 1HP 1440RPM

51 .3 Wheel Size 150 x 25 x 25.4 mm

51 .4 Spindle RPM 1440 RPM

51 .5 Motorized With Double side with smooth and rough wheel with Tool Base

51.6 Bench Grinders complete with inbuilt drive suitable for Operation on AC 415 Volts 3 Phase, 50 Cycles Supply.

517 Grinder should be complete with two grinding wheels.

51.7.1 One fine & one coarse wheel

51.7.2 Two wheel Guards with exhaust outlets,

51.7.3 Two adjustable tools rests

51.8 Rotary switch in the base and connecting cable or terminal block

51.9 Low Noise : below allowable noise level

51.10 High Filtering efficiency even for the finest dust



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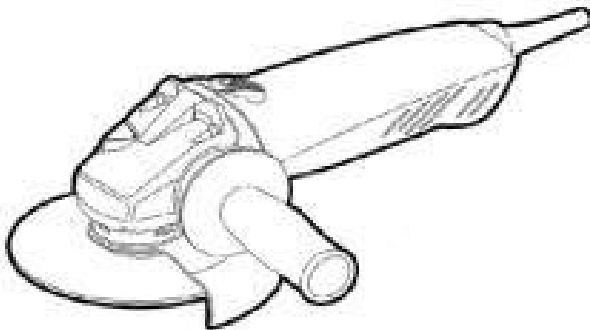
GENERAL SHOP OUT FIT

51] AG 4 GRINDER

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 04

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bbb. Basic Indicative Diagram:



ccc. Generally Conforming to ISO 9001:2008

ddd. Power input: 670 Watt (Min.)

eee. Wheel Diameter: 4 Inch

fff. Frequency: 50/60 Hz

ggg. Amperage: 3 A

hhh. Voltage: 220/230 V

iii. Disc Diameter: 100 mm

jjj. Cord Length: 2 m

kkk. Should have spindle lock

lll. Should have side handle

mmm. Should have Fiber body – shock proof – double insulation

nnn. Should have Cut-out carbon brushes

ooo. Should have Anti-rotation protective guard

ppp. Should have Armored coils for protecting the motor

qqq. Dimensions: ($\pm 10\%$): 316 mm X 126 mm X 88 mm

rrr. No Load Speed: 11000 rpm

sss. Net Weight ($\pm 10\%$): 1.8 Kg

ttt. Grinding Spindle Thread: M10

uuu. Switch Type: Toggle

vvv. Standard Accessories:

- i. Auxiliary handle
- ii. Back Flange
- iii. Locking Nut
- iv. Two-hole Spanner
- v. Protective Guard
- vi. 100 mm Grinding Discs = 5 Nos
- vii. 100 mm Cutting Discs = 5 Nos



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GENERAL SHOP OUT FIT

52] SUITABLE GAS WELDING TABLE – WITH FIRE BREAKS

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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www. Basic Indicative Diagram



xxx. Length: 900 mm

yyy. Width: 600 mm

zzz. Height: 750 mm

aaaa. Welding Table Top should have arrangement for keeping Fire Bricks.

bbbb. Fire bricks of size 240 X 120 X 80 mm (Approx.) should be supplied to cover table top.

cccc. Should have arrangement for mounting Positioner on one side of table with TurnTable with slots to keep JIGs for clamping the Job as required for Welding.

dddd. Positioner should be motorized with Speed Controller and is operated by Foot Switch.

eeee. Should have suitable clamp to hold the job in various positions.

ffff. Clamp should be with Vertical and Horizontal pipe fixed with coupling to adjust Height and Length.

gggg. Water Tank should be made of stainless steel, fitted to one end of the Welding Table

hhhh. Should have tool box fitted to the welding table to keep Gas Welding accessories

iiii. Suitable stand should be attached to the Welding Table for keeping Gas Welding Torch

jjjj. Should have partition to keep all jobs and other items in the Table.

kkkk. Minimum 6 number of Extra Bricks should be provided in addition to the Bricks required for Table



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GENERAL SHOP OUT FIT

53] SUITABLE ARC WELDING TABLE – WITH POSITIONER
SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME
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III. Basic Indicative Diagram

mmmm. Length: 900 mm, $\pm 10\%$

nenn. Width: 600 mm, $\pm 10\%$

oooo. Height (Including leveller): 750 mm $\pm 10\%$

pppp. Material: Mild steel

qqqq. Table top

rrrr. Thickness: 16 mm

ssss. Finish: Nitride finish for weld splash, rust & scratch resistance

tttt. Should have 16 mm holes in Grid form of 50 mm x 50 mm

uuuu. Should have M.S. structure with M.S. angle of 50 x 50 x 5 mm.

vvvv. Should be provided with suitable GTAW, GMAW welding Gun Holder

wwww. Should be supplied with suitable KIT of Jigs/ Fixtures / Clamps (Clamping and HoldingKit) for welding of different jobs like

- i. Square Tube Framing
- ii. Round Tube Framing
- iii. I-Beam Framing
- iv. Sheet metal Box welding
- v. LAP joint position
- vi. Butt joint position
- vii. T-joint position.

xxxx. Should be supplied with minimum ten sets of required clamps and accessories for the above jobs.

yyyy. KIT Should be supplied to perform one job at a time.

zzzz. All the Jigs / Fixtures / Clamps should be fit into holes on the table for quick and accurate holding and mounting the job.

aaaaa. Should be provide Accessories:

- i. Cleaning brush
- ii. Spanner set
- iii. Allen key set
- iv. Anti-spatter liquid 5 litre

bbbbb. Should be supplied with

- i. Plasma cutting tray
- ii. Round stock plier
- iii. Removable tool tray
- iv. Magnetic part tray
- iv. Magnetic tool bar

54.18 Should be supplied with positioner to hold a job in vertical and overhead position.



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GENERAL SHOP OUT FIT

54] TROLLY FOR CYLINDER (H.P. UNIT)

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cccc. **Basic indicative diagram**



- dddd. Should be suitable to be used with full size Oxygen & Acetylene Cylinders.
eeee. Should have robust Construction
ffff. Should have Solid wheels for easy movement
gggg. Should have Safety chain for securing cylinders
hhhh. Wheel Size: 10 to 12 Inch



GENERAL SHOP OUT FIT

55] HAND SHEARING MACHINE – CAP.CUT 6MM SHEET AND FLATS

iiii. Basic indicative diagram



jjjjj. Max Shear Width	300mm
56.3 Blade Length	250mm
56.4 Cutting Capacity (Square)	10 mm
56.5 Cutting Capacity (Sheet)	5mm
56.6 Cutting Capacity (Flat)	6mm
56.7 Usage/Application	Sheet Cutting
56.8 Automation	Manual Hand Operated

KEY FEATURES :- • Angle Iron Cutting Cap :- 25,32,40,50 deg.(thickness Up to 6mm.)

- Last Longer
- Interchangeability
- Tool Steel Har



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GENERAL SHOP OUT FIT

56] POWER SAW MACHINE – 18”

kkkkk. Basic indicative diagram



IIII. Size :- 18”

- mmmmm. Electric Motor :- 2HP ,3 Phase, ISI MARK :- Siemens/Crompton/ Kirloskar
nnnnn. Blade Size 16” to 18”
ooooo. Weight Approx. :- 550 to 600 kg.(Light Weight Offer Will Not Be Consider)
ppppp. Cutting For Round Bar M.S. :- 10”
qqqqq. Cutting For Square Bar M.S. :- 8”
rrrrr. Coolant Pump Mechanical (0.1hp)
sssss. Floor Space :- 1200 X 650 approx.
ttttt. D.O.L. Starter :- L&T/Siemens or any other equivalent.
uuuuu. Length Gauge, Guards, Spout Fittings
vvvvv. Motor Pulley :- 01no.
wwwww. Maintenance Manual Book :- 02 no.
xxxxx. With Auto feed Hydraulic system and stopper
yyyyy. With Adjustable Vice



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GENERAL SHOP OUT FIT

57] PORTABLE DRILLING MACHINE – CAP. 6MM



zzzzz. Basic indicative diagram

aaaaaa. Drilling Cap. = 6mm

bbbbbb. Chuck Cap. Min./Max. = 0.5 – 6.5mm

cccccc. No Load Speed = 4000rpm

dddddd. Power Out Put = 136W

eeeeee. Input Power = 350W

ffffff. Drilling Spindle Connecting thread = 3/8" - 24UNF

gggggg. Drill Key

hhhhhh. Drilling machine should generally conforming to IS 36501 - 1981.

iiiiii. Power input: 600 Watt (Min.)

jjjjjj. No load speed: 0 – 2800 rpm

kkkkkk. Should have soft in line grip for a secure hold

llllll. Should have Rotating brush plate for constant power in reverse and forward rotation

mmmmm. Should have Forward / Reverse rotation for inserting and removing screws

nnnnnn. Should be able to have Easy and precise control of the RPM - variable speed

oooooo. Should have double insulation – shock proof fiber body

pppppp. Dimensions:

58.18.1 Overall Length in mm ($\pm 10\%$): 275 mm

58.18.2 Overall Height in mm ($\pm 10\%$): 180 mm

58.18.3 Net Weight (without cable & blade) ($\pm 10\%$): 1.7 kg

58.19 Protection Class: Double Insulation

58.20 Standard Accessories

58.20.1 Auxiliary handle = 01 no

58.20.2 Blow molded plastic case to securely fit all pieces for easy organization and convenient portability = 01

58.20.3 Depth gauge = 01 no

58.20.4 Spirit level (225 mm) with 3 spirit bulbs (for horizontal, vertical & angular level testing) = 01 no

58.20.5 Knife (Length - 150 mm, Blade width 15 mm) = 01 no

58.20.6 Claw Hammer (Weight 340 grams) = 01 no

58.20.7 Adjustable Wrench (Length 150 mm, Maximum jaw opening 19 mm) = 01 no

58.20.8 Combination Plier (Length 160 mm, Maximum jaw opening 25 mm) = 01 no

58.20.9 Measuring tape (Length 3 meter, 11 mm tape width) = 01 no

58.20.10 Drill bits

58.20.12 Magnetic Bit Holder: 01 no

58.20.13 Socket: 7 no

58.20.14 Socket Adaptor: 1 no

58.20.15 Assorted Screws: 30 no

58.20.16 Assorted Plastic Plugs: 30 no

58.20.17 Assorted Plastic Plugs: 3



GENERAL SHOP OUT FIT

58] OVEN FOR ELECTRODE DRYING – 0° TO 350°C, 10KG CAP.

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qqqqqq. Basic indicative diagram



- rrrrrr. Input Voltage: 230 V
ssssss. Current: 2 A
tttttt. Phase: Single Phase
uuuuuu. Frequency: 50 Hz
vvvvvv. Watts: 0.5 KW
wwwwww. Temperature: 50-250 Degree Celcius
xxxxxx. Capacity: 5 Kg
yyyyyy. Dimensions (L X W X H) mm
i. External: 515 X 190 X 190
ii. Internal: 435 (L) X 62 (Ø)
Temperature Control: Ther



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GENERAL SHOP OUT FIT

59] WORK BENCH – 340 X 120 X 75 CM WITH 4 BENCH VICES OF 150MM JAW

zzzzzz. Basic Indicative Diagram :- Work Bench



aaaaaaa. Total Length :- 340 cm.

bbbbbbb. Total Width :- 120 cm.

ccccccc. Height: 75 cm

60.4 Material :- M.S. Square pipe 50mm x 50mm x 5mm

60.4 Quality M.S. Plate top 5mm thick.

60.5 Powder coated frame, properly welded



GENERAL SHOP OUT FIT

60] OXY-ACETYLENE GAS CUTTING BLOW PIPE

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60.1 Basic indicative diagram



60.2 Should have ANM nozzle for use with Acetylene

60.3 Should have “positive suction” NM nozzles to safeguard the torch and operator from “sustained backfire” or “flashback”.

60.4 Maximum cutting thickness: 300 mm

60.5 Length of torch: 450 to 500 mm

60.6 Weight of torch: 1 to 1.5 Kgs

60.7 Standard: Generally confirming to IS: 7653 – 1975 and Certified by Bureau of Indian Standards.

60.8 Should be supplied with ISI certification license nu



GENERAL SHOP OUT FIT

61A) OXYGEN CYLINDER



61.1	Basic indicative diagram	
61.2	Water Capacity (Litres)	D-Type (46.7 Litre)
61.3	Working Pressure	150 kgf/cm ²
61.4	Type of Cylinder	Empty
61.5	Certification	ISO
61.6	Purity	Above 99%
61.7	Cylinder Material	Carbon Steel
61.8	Cylinder Diameter	232/229mm
61.9	Cylinder Wall Thickness	6.0mm
61.10	Cylinder Colour	Black
61.11	Indian Standards	IS:- 309 - 2005

Product Description

Industrial Oxygen Cylinders offered comes designed and developed in quality construction finish and provide suitable support as high-pressure vessels.



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GENERAL SHOP OUT FIT

61B) ACETYLENE CYLINDER

Basic indicative diagram



61.1 Material :- Solid Drawn Steel

61.2 As per ISI Standard

61.3 Capacity 47 Kilogram

61.4 Application Welding

61.6 Volume 5.5 - 7.5 cubic meter

**61.7 Cylinder Colour Maroon/Red
Indian Standards IS:- 7312-1993**



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GENERAL SHOP OUT FIT

62) CO2 CYLINDER

63.1 Basic indicative diagram



62.2 Body Material	M.S
62.3 Cylinder Capacity	30 KG
62.4 Working Pressure	15KG
62.5 Gas Type	GOOD
62.6 Outside Diameter	VARIABLE
62.7 Colour	Black with White Neck
62.8 Height	5FEET
62.9 Shape	CYLINDER
62.10 Height Approx	5FEET
62.11 Usage/Application	INDUSTRIES



63) ARGON GAS CYLINDER

63.1 Basic indicative diagram



63.2 Cylinder Capacity	7 cubic meter
63.3 Working Pressure	130 kg/cm ²
63.4 Atomic Mass	39.948 u
63.5 Purity	99.999% Argon
63.6 Body Material	Cast Iron
63.7 Formula	Ar



GENERAL SHOP OUT FIT

64) ANVIL – 24 Sq. inches working area with stand.

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a. Basic Indicative Diagram



- b. Total Length: 515 ± 2 mm
- c. Total Width: 155 ± 1 mm
- d. Base Length: 265 ± 1 mm
- e. Height: 240 ± 1 mm
- f. Total Weight: 50 Kg
- g. Material: Ductile Cast Iron
- h. Suitable stand should be supplied for Anvil



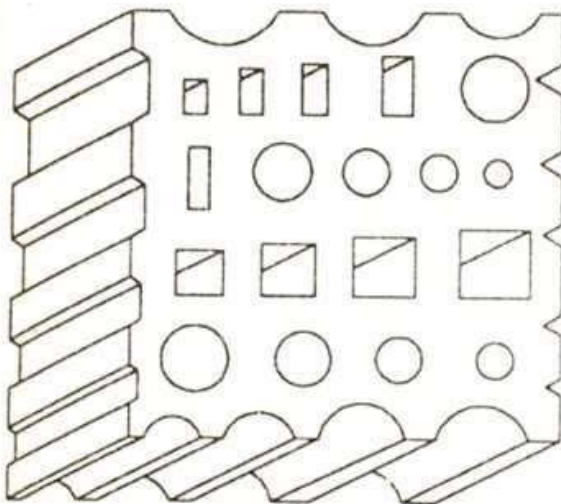
GENERAL SHOP OUT FIT

65) SWAGE BLOCK

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a. Basic indicative diagram



- b. Generally conforming to IS:845- 1974
- c. Material: Cast iron Grade 20
- d. Size: 330 X 330 X 150 mm
- e. Should be sound castings, free from blow holes, scales and other defects.
- f. Should be smoothly finished all over.
- g. The surface of holes, slots and sides shall be properly formed and reasonably smooth. The half circles and other shapes on the vertical edges shall be less than half the intended nominal dimension.



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GENERAL SHOP OUT FIT

66) MAGNETIC PARTICAL TESTING KIT

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a. Basic indicative diagram



- b. Kit should contain
- c. Magnetic crack detector,
- d. One AC/HWDC Yoke,
- e. One pair of Cables,
- f. One pair of Prods, ASTM
- g. Dry Powder Blower & Dry Powder
- h. Cord length of Yoke: 6 Feet
- i. Operating Voltage of Yoke: 230V AC, 50 HZ
- j. Output Current of MPI: 1000 Amp
- k. Operating Voltage of MPI: 230V AC
- l. Lifting Capacity of Yoke: 0-5 Kg in AC
- m. Leg Spacing: 0-30 Cm Across Poles
- n. Lifting Capacity in DC of Yoke: 0-30 Kg
- o. Field Indicator to be provided
- p. Testing Block to be provide



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GENERAL SHOP OUT FIT

67A) FIRE EXTINGUISHERS (FOAM TYPE)

q. Basic indicative diagram



Construction:	Manufactured out of M.S. Sheets (CRCA)/Plates of IS:513 grade and all are of welded construction. (Also available in S. S. construction on special request)
Cap :	Gun metal
IS Specification :	9 Ltrs IS:10204& 50 Ltrs - As per IS 13386 latest revision
Capacity:	9 Ltrs& 50 Ltrs
Anti-Corrossive :	Body coated with lead & tin alloy treatment internally and externally by electrolytic deposition process
Hydraulic Testing :	Each Body Hydraulically tested at 25 Kgf /Cm
Charge :	AFFF in concentrate of 3% or6% shall be supplied in a separate packing and CO2 gas cartridge will be fixed in each extinguisher) & water to be filled upto marked level at site.
Finish :	Fire Red Epoxy polyester powder coated/Painted in Synthetic Enamel fire red.
Accessories:	Wall mounting brackets, (50 Ltrs. Capacity extinguisherts Wheel mounted type)
Approval :	9 ltr capacity approved by TAC
Operation :	Keep the Fire Ate extinguisher upright. Remove the safety clip and strike the knob, direct the discharge from Nozzle to fall gently on fire.
Maintenance :	The Fire Extinguisher must be maintained as per IS:2190 for satisfactory performance
Optional :	You may also use Alcohol Resistant Foam in Fires involving Polar Solvents
Caution :	Not to be used in fires involving electricity



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GENERAL SHOP OUT FIT

67B) FIRE EXTINGUISHERS (CO2 TYPE)

67.1 Basic indicative diagram



Specification:

67.2 Capacity :- 4.5 kg

67.3 Clip For Sturdy construction

67.4 Charge	CO2 Gas
67.5 Capacity	2 kg
67.6 Rating	8B
67.7 Minimum Effective Discharge Time	8 seconds (Minimum)
67.8 Bulk Range Discharge	1 Meter (Minimum)
67.9 Cylinder Testing Pressure	250 bar
67.10 Gas Storage Pressure	50Kg/cm ² approx.
67.11 Filling Density	0.667 Max.
67.12 Working Temperature	-30° C to 55° C
67.13 Weight of one charged extinguisher	9 kg (approx.)
67.14 Standard Specification	IS 15683:2006
67.15 Suitable for	B and C Class Fire



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GENERAL SHOP OUT FIT

68 FIRE BUCKETS WITH STAND

68.1 Basic indicative diagram



68.2 Fire Bucket Stand for 4 Buckets.

68.3 Stand Material MS Square Tube and 3ft x 2ft

68.4 Height = 3.5 Ft. Wide = 3 Ft

68.5 Standard G. I. Sheet Buckets 04Nos.

Fire Buckets

Capacity	5-8 Litre
Body Material	Mild steel black sheets used for the manufacture of buckets shall conform to Grade St 34 or Grade St 42 of IS : 1079-1968†.
Metal Thickness	18 - 20 SWG
Colour	Red
Finishing	Paint Coated

IS Specifications IS : 2546-1974

- Bottom—The bottom shall be dished and shall be joined to the body by butt welding so that there is no raw edge or crevice on the inside of the bucket. The thickness of the bottom sheet shall be 1 mm.
- Ears—The ears shall be made of mild steel sheet and shall be fitted to the body at the top by means of welding with the flat head on the side. The thickness of sheet for ears shall be 2-8 mm.
- Top Handle—The top handle shall be of mild steel rod of 10 mm in diameter with its ends bent up.
- Bottom Handle—The bottom handle shall be of mild steel rod of 10 mm in diameter and it shall be joined to the bottom by welding as shown in Fig. 1. The grip shall have no sharp edges.
- MARKING AND PACKING
- Each bucket shall be stamped or embossed on its side with the manufacturer's name or trade-mark, year of manufacture and its capacity. Embossing shall be sufficiently deep so that the marking remains quite legible after galvanizing.
- The product may also be marked with Standard Mark
- The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder.
- Buckets shall be suitably packed



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GENERAL SHOP OUT FIT

69) PORTABLE ABRASIVE CUT –OFF MACHINE

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69.1 Basic Indicative Diagram



69.2 Cutting Capacity (MS) at rectangle 0° 100 X 195 mm ($\pm 5\%$)

69.3 Cutting Capacity (MS) at square 0° 120 X 120 mm ($\pm 5\%$)

69.4 Cutting Capacity (MS) at L-profile 0° 130 X 130 mm ($\pm 5\%$)

69.5 Cutting Capacity (MS) at rectangle 45° miter 105 X 115 mm ($\pm 5\%$)

69.6 Cutting Capacity (MS) at square 45° miter 110 X 110 mm ($\pm 5\%$)

69.7 Cutting Capacity (MS) at L-profile 45° miter 115 X 115 mm ($\pm 5\%$)

69.8 Tool dimensions (Width X Length X Height) 250 X 520 x 400 mm ($\pm 5\%$)

69.9 No-load speed 3800 rpm

69.10 Cutting disc diameter 355 mm

69.11 Cutting disc bore 25.4 mm

69.12 Weight 15 Kg ($\pm 5\%$)

69.13 Rated input power 2200 W

69.14 Depth of cut 7 to 8 inch



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GENERAL SHOP OUT FIT

70 SUTABLE GAS CUTTING TABLE

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70.1 Basic Indicative Diagram



70.2 Length: 900 mm

70.3 Breadth: 600 mm

70.4 Height: 750 mm

70.5 Material: 32 X 32 X 3 mm angle Iron M.S. Structure.

70.6 Should have angle Iron support at bottom

70.7 Should be provided one Tool Tray

70.8 Should be provided suitable Quenching Tank (Stainless Steel).



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GENERAL SHOP OUT FIT

71-A] WELDING SIMULATORS FOR – SMAW/GMAW/GTAW
Basic Indicative Diagram



Purpose : Virtual Simulation device for Welding Trade is used to Train Students

- **Type of welding simulator :** Virtual Reality Type
- **Process Support by welding simulator :** SMAW, GMAW, GTAW
- **Type of Display:** LCD Touch Screen Display
- **Minimum Size of monitor in inch:** 15.6
- **Additional Viewing facility for Students :**42" Inch Display
- **Random Access Memory in GB :** 16 GB
- **Size of hard disk in GB:**1000 GB
- **Processor:**Intel I7 or higher
- **Operating System :**Win 10
- **Welding Position competency:**1G 2G 3G 4G 5G FOR PIPE, 1F 2F 3F, Butt Fillet , T, Pipe to Pipe, Pipe to plate
- **Play Back Option**
- **Tracking System:**Infrared / Magnetic Tracking System
- **Scene Creation Facility :** Environmental scene creating options for Laboratory Training environment , Construction environment and Shipyard environment.
- **Work piece parameters:** Work angle, travel angle, speed and nozzle to- plate distance , torch angle and straightness.
- **Difficulty levels:**Basic, Intermediate ,Advance
- **Synchronisation:** Real workpiece and virtual workpieces should be able to be synchronised with sync button present on the Torches.
- **Language of unit :** English , Hindi, Marathi
- **Connectivity :** Wi-Fi/LAN
- **Provision of Multi Pass Welding Support**
- **Polarity Selection Option :**DC and AC

- **RFID Based card access system**
- **Ability to track complete history of students**
- **Should have provision for recording trainee's virtual weld assessment and give personalized feedback with Ghost playback and recording.**
- **Report Features shall be On Screen and exportable to excel with score cards**
- **Evaluation results: Marks or graphs or both. Software must suggest Pass/ Fail after completion of each course**
- **Provision of helmet: 3 D view helmet**
- **Input Supply :220-240 V, AC , 1 Ph , 50-60 Hz**
- **Maximum Power Consumption in : 400 watts**
- **Online Maintenance and update facility**
- **VR gun attachments : MIG,STICK & TIG with filler**
- **SMAW Electrode Type :Virtual**
- **SMAW Electrode Clamping Angles :90 Degree and 180 Degree**
- **SMAW TORCH WITH ELECTRODE : Yes**
- **WORK PIECE PLATES FOR LAP JOINT, BUTT JOINT, FILLET JOINT, PIPE BUT JOINT AND PIPE FILLET JOINTS**
- **WORK STAND APPROPRIATE TO FIX THE JOB IN ALL POSITIONS**
- **SOFTWARE FOR OFFLINE ACCESS TO BE PROVIDED IN DVD/CD/PEN DRIVE**
- **UPS POWER BACKUP**
- **DISPLAY SCREEN TOUCH SCREEN FACILITY FOR EASY CONTROLLING OF THE MACHINE**
- **Material Thickness selection in mm : 3 to 24 mm**
- **Number of Built in lesson for Students and instructors : Min 100**
- **Provision of lessons shall be editable**
- **Provision of Cross Sectional View option**
- **Provision for Weld Gap Checking**
- **Height & Tilt Adjustment option for work piece**
- **Live Insta Correct Feedback system**
- **Inbuilt Intelligence to prevent welding at wrong positions**
- **User login Facility**
- **Administrative and trainer login should be available on monitor screen and should evaluate students activity Data backup and Calibration facility**
- **Administrative and trainer option : 1. Evaluate students activity 2. Back up of Data of student activity 3. Calibration of system 4. Video playback with option of viewing from diff angles**
- **Machine Alerts : Wrong parameter selection, touching work piece**
- **Protection against over current, over voltage, under voltage, short current**
- **Input current in ampere : 0.5 to 11 A**
- **Length of power cable in meter : Minimum 3 metres**
- **Should be supplied with UPS with atleast 30 minutes battery backup**
- **Software License : With lifetime license including Main OS such as windows and upgradable**
- **Weight of Unit in Kg : 50 - 95 Kg**
- **Warranty in years : 3 years**



72) Water cooled induction welding/ Brazing machine 200Amp, Induction coil length 3 inch and 2.5 inch



Product Specification

72.1) Output Current	250 Amp
72.2) Country of Origin	Made in India
72.3) Minimum Order Quantity	1 Piece

72.4) 200-250 Amp., induction coil length 3 inch and 2.5 inch.

72.5) This Machine can be use Industrial Training Institute (ITI) for Educational purpose in any state of india.



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73) Plastic welding machine with Hot air gun, temp.display, varibale temp.,PE,PP & PVC Sheet or pipe welding control with stand Accessories



Product Specification

73.1) Frequency	35Khz
73.2) Operation Type	Hand Welding
73.3) Voltage	230 Volts for 50/60 Hz
73.4) Ultrasonic Power	1000 Watts



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74) Swaging and flooring tool kit 45° tubing



Product Specification

- 74.1) SKU: HAN.FLA.46684196
- 74.2) Type of Product: Flaring Tool Sets
- 74.3) Size: 1/8 to 3/4 Inch
- 74.4) Weight: 481 gm
- 74.5) Material: Steel
- 74.6) Dimension: 7.5 x 5 x 25 cm
- 74.7) Package Contains: Swaging and Flaring Tool Kit with Automotive Plumbing 14 Pieces Cone
- 74.8) Angle: 45 Degree(Tubing)



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75] LEATHER HAND GLOVES

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70.9 Basic Indicative Diagram



70.10 Material - made from split or top leather

70.11 Brightly coloured for high visibility

70.12 Length: 13.5 to 14 inches

70.13 Lining inside



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76] COTTON HAND GLOVES

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70.14 Basic Indicative Diagram



70.15 Made from cotton fiber

70.16 One side dots printed for better gripping

70.17 Approximate Weight - 90 gms per pair

70.18 Size - 8 inch (Approx.)

70.19 Elastic Length 2 inch



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77] LEATHER APRON

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70.20 Basic Indicative Diagram



70.21 Should be made from leather with pocket and straps.

70.22 Should have spark resistance

70.23 Size: 31”X19”



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78] S.S.WIRE BRUSH – 5 ROWS AND 3 ROWS
70.24 Basic Indicative Diagram



70.25 SIZE :- L = 290mm, W = 30mm, H = 15mm
70.264 X 16 S.S. Wire Rows and Wooden Handle.



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79] LEATHER HAND SLEEVES – 16”

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70.27 Basic Indicative Diagram



70.28 Made from leather.

70.29 Spark resistance

70.30 Widely used for welding

70.31 Size: 16 to 18 inch



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80] SAFETY BOOTS FOR WELDER

SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS

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70.32 Basic Indicative Diagram



- 70.33 Compliance: Generally Conforming to IS-15298
- 70.34 Size : UK 7, UK 8 and UK 9 (Size to be confirmed from DVET)
- 70.35 Genuine Full Grain Leather Barton Print
- 70.36 Steel Toe as Per IS 15298 & EN 20345 Standards
- 70.37 Red Mesh Breathable lining
- 70.38 Synthetic PU Crespy Black Collar with Extra Cushioning
- 70.39 Moulded Full Socks
- 70.40 Direct Injected light Weight PU Sole
- 70.41 Antistatic & Slip Resistant



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81] LEG GUARDS LEATHERS

SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS

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70.42 Basic Indicative Diagram



- 70.43 Made from leather.
- 70.44 Spark resistance
- 70.45 Widely used for welding
- 70.46 Size: 16 to 18 inch



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82] RUBBER HOSE CLIPS

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70.47 Basic indicative diagram



70.48 Size: 1/2 Inch

70.49 Should be suitable for clamping hose pipe for welding purpose

70.50 Material: Stainless Steel



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83] RUBBER HOSE OXYGEN – 8mm Dia x 10 Mtr.long as per BIS

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70.51 Basic indicative diagram



- 70.52 Should be manufactured as per IS 447
- 70.53 Diameter: 8 mm
- 70.54 Length: 10 Meters
- 70.55 Should be highly flexible and electrical resistant
- 70.56 Should be light in weight and abrasion resistant
- 70.57 Colour: BLACK/ BLUE
- 70.58 Core: Plasticized PVC
- 70.59 Reinforcement: High Tensile Polyester Yarn
- 70.60 Cover: Hyper Flame Retardant Thermo-compound
- 70.61 Temperature Range: -40C to +550C
- 70.62 Hose Inner Diameter (NOM.): 8.0 mm
- 70.63 Hose Outer Diameter (NOM.): 16.0 mm
- 70.64 Working Pressure: 200PSI / 15bar
- 70.65 Minimum Bursting Pressure: 800 PSI / 55bar
- 70.66 Minimum Bending Radius: 25mm
- 70.67



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84] RUBBER HOSE ACETYLENE - 8mm Dia x 10 Mtr.long as per BIS

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70.68 Basic indicative diagram



- 70.69 Should be manufactured as per IS 447
- 70.70 Diameter: 8 mm
- 70.71 Length: 10 Meters
- 70.72 Should be highly flexible and electrical resistant
- 70.73 Should be light in weight and abrasion resistant
- 70.74 Colour: RED
- 70.75 Core: Plasticized PVC
- 70.76 Reinforcement: High Tensile Polyester Yarn
- 70.77 Cover: Hyper Flame Retardant Thermo-compound
- 70.78 Temperature Range: -400C to +550C
- 70.79 Hose Inner Diameter (NOM.): 8.0 mm
- 70.80 Hose Outer Diameter (NOM.): 16.0 mm
- 70.81 Working Pressure: 200PSI / 15bar
- 70.82 Minimum Bursting Pressure: 800 PSI / 55bar
- 70.83 Minimum Bending Radius: 25mm



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85AJARC WELDING CABLES MULTI CORED COPPER – 400Amp. as per BIS

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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70.84 Basic indicative diagram



70.85 Capacity: 400 A

70.86 Length: 50 Meter

70.87 Made in accordance with IS 9857/90

70.88 Cables should be manufactured with rope-lay stranded, bunched members of Plain/Annealed Copper in accordance with IS 8130/84.

70.89 Polyester tape should separate the conductor from the rubber insulation.

70.90 The cable should be covered with general purpose grade rubber Type SE-1 or HOFr Type SE-3 in accordance with IS 6380/84



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85B] ARC WELDING CABLES MULTI CORED COPPER – 600 Amp. as per BIS

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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84.1 Basic indicative diagram



84.2 Capacity: 600 A

84.3 Length: 50 Meter

84.4 Made in accordance with IS 9857/90

84.5 Cables should be manufactured with rope-lay stranded, bunched members of Plain/Annealed Copper in accordance with IS 8130/84.

84.6 Polyester tape should separate the conductor from the rubber insulation.

84.7 The cable should be covered with general purpose grade rubber Type SE-1 or HOFr Type SE-3 in accordance with IS 6380/84



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86] ARC WELDING SINGLE COLOURED GLASS – 108mm X 82mm X 3mm (DIN 11A&
SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS Page 9

84.8 Basic Indicative Diagram



84.9 Athermal welding glass

84.10 Size: 108 mm X 82 mm X 3 mm

84.11 Black Shade Glass as per DIN No. 11A and 12A

84.12 Material: Glass



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87] ARC WELDING PLAIN GLASS - 108mm X 82mm 3mm

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84.13 Basic Indicative Diagram



84.14 Size: 108 mm X 82 mm X 1.5 mm

84.15 Material: Glass (Plain - Transparent)



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**88] GAS WELDING GOGGLES – WITH COLOURED GLASS (3A OR 4A DIN)
SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS**

Page 5 **Version 2 2022**

84.16 Basic Indicative Diagram



- 84.17 Lightweight and durable, flip up designed
- 84.18 Soft plastic frame conforms to face
- 84.19 Main Material: Plastic, soft PVC, elastic fabric
- 84.20 Lens Diameter: Approximately 4.7 cm or 1.8 inch
- 84.21 Strap Length (Stretchy): Approximately 33.5cm or 13.1 inch
- 84.22 Frame Color: Black, Green and Blue
- 84.23 Black Glass confirming to DIN No. 3 A and 4 A



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89] SAFETY GOGGLES PLAIN

SPECIFICATION FOR SAFETY EQUIPMENTS GROUP ITEMS

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84.24 Basic Indicative Diagram



- 84.25 Help provide limited impact protection from flying particles
- 84.26 Hard-coated polycarbonate lens offers 99% UV protection
- 84.27 Meets ANSI Z 87.1 standards
- 84.28 Lightweight, contemporary style
- 84.29 Adjustable temple
- 84.30 Eye protection against dust & impact
- 84.31 Universal size



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90] SPARK LIGHTER

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84.32 Basic indicative diagram



84.33 Should provide the spark that is necessary to kick-start the torch for the welding job.

84.34 Size: 25.5 cm x 3 cm (\pm 5%)

84.35 Should be provided with extra 5 Nos. of sparking Stones/ Flints



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91] AG 4 GRINDER WHEELS

Basic indicative diagram



84.36 Thickness Of Wheel :- 06mm

84.37 Bore = 16.00 mm

84.38 Size = 100m X 16mm X 6mm

84.39 Best Use For Grinding

84.40 Features :- Specification A 24 S BF,100mm,16.00mm,6.0mm



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

92] EARTH CLAMP -SIZE :-600 Amp.

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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17.1 Basic indicative diagram



17.2 Capacity: 600 A

17.3 Should have brass or copper plated jaws

17.4 Earth clamp should be made of zinc coated steel

17.5 Max Jaw Opening: 60 mm

17.6 Should have suitable fixing mechanism for welding cable



SPECIFICATION FOR INSTRUMENTS AND GENERAL SHOP OUT FIT

93] ELECTRODE HOLDER - 600 Amp.

SPECIFICATION FOR MECHANICAL TOOLS AND EQUIPMENTS GROUP ITEMS – VOLUME 06

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27.1 Basic indicative diagram



27.2 Should be Type B and should have fully insulated head to resist spatter

27.3 Jaw should be made of copper

27.4 Handle should be sturdy and made of fiberglass

27.5 Should have insulation resistance above 1 Mega Ohm

27.6 Should have dielectric strength up to 3000 V

27.7 This holder should be suitable for cables up to AL120/ CU70 Sq mm and CE certified as per European standard EN60974-11



GENERAL SHOP OUT FIT

94] DIE PENETRANT TESTING KIT

62.1 Basic indicative diagram



1. Fluorescent Penetrant Spray 420 ML :- IS-3658
2. Cleaner Spray 420 ML :- 04 IS-3658
3. Developer Spray 420 ML :- 02 IS-3658
4. with all accessories.



CLASS ROOM FURNITURE FOR TRADE THEORY

95A] INSTRUCTOR'S TABLE AND CHAIR (STEEL)

TABLE :-FURNITURE GROUP ITEMS SPECIFICATION FOR Page – 17,18,19

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CHAIR :-FURNITURE GROUP ITEMS SPECIFICATION FOR Page – 8,9,10

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84.41 Basic Indicative Diagram:



INSTRUCTOR'S TABLE

84.42 Manufacturing, Supplying and Installation of Pre-laminated Instructor Table as per the following design, specification, manufacturing process and tests.

84.43 Dimensions: Overall size of 1200mm (W) X 600mm (D) X 735mm (H).

84.44 Construction:

84.44.1 Top Work surface: 18mm thick pre-laminated board as per IS:12823 of approved shade with 2mm thick PVC edge banding all over the work surface edges.

84.44.2 Understructure: Rectangular Frame Fabricated component in 1.2mm thick CRCA (IS: 513).

84.44.3 Leg:

84.44.3.1 Fabricated component in 38mm x 25mm x 1.2mm thick CRCA ERW Tube (IS: 7138).

84.44.3.2 Plastic Cap for Cable travel- Injection Moulded Polypropylene.

84.44.3.3 Leveler glide for Leg- Nylon 6 and MS Bolt.

84.44.4 Storage Pedestal:

84.44.4.1 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.

84.44.4.2 Shell- 0.6mm thick CRCA (IS: 513).

84.44.4.3 Drawer Tray- 0.6mm thick CRCA (IS: 513).

84.44.4.4 Drawer Front- 0.8mm thick CRCA (IS: 513).

84.44.4.5 Frame Assembly- 1.2mm thick CRCA (IS: 513).

84.44.4.6 Lock- 10 Lever Cam Lock central locking mechanism.

84.44.4.7 Handle- Injection Moulded Polypropylene.

84.44.4.8 Leveler- Nylon 6 and MS Bolt.

84.45 Wire Management:

84.45.1 Entry of wires into the Table shall be possible from the floor

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

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

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

84.46 Finish:

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

84.46.2 Process: The body including understructure, framework, legs, storage pedestal 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 50 – 60 microns (+/-10). The material is then oven baked with a controlled temperature of 180 deg.C to 200 deg.C.

84.46.3 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.

84.47 Colour:

84.47.1 The colour of the PLB shall be Silver Grey / Teak and Core Ash/ Grey for framework.

84.47.2 Final colour scheme will be approved by DVET at the time of placement of order.

Manufacturer to furnish various colour schemes available with them.

7.8 Manufacturing Process:

91.8.1 The complete unit shall be as per manufacturer's specifications and shall be submitted along with the tender.

91.8.2 Raw materials (Wood working): 1) Plain Particle Board (PPB), 2) Medium Fibre Board (MDF), 3) Pre-laminate Board (PLB), 4) Decorative (DL), 5) Fabric and 6) Lipping (PVC lipping). Process (Wood working): MDF board from approved supplier -> Wood Cutting (cutting from mother board 600mm x 2400mm 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

91.8.3 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch)

91.8.4 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

91.8.5 The manufacturing processes given are generalized. Need to consider wherever it is applicable as per the Specifications of the product.

91.8.6 All raw materials for manufacturing process shall be as per relevant IS code.

91.9 Size and Weight:

91.9.1 Overall Length: 1200 mm

91.9.2 Overall Width: 600 mm Overall Height: 735 mm

91.9.3 Net Weight: Minimum 40 - 50 Kg



INSTRUCTOR'S CHAIR :-

FURNITURE GROUP ITEMS SPECIFICATION FOR Page – 8,9,10

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91.1 Basic Indicative Diagram:

91.2 Manufacturing, Supplying and Installation of Mid-back Tubular framed Chair for Instructor in the Classroom as per the following design, specification, manufacturing process and tests.

91.3 Dimensions:

91.3.1 Overall size of 610mm (W) X 640mm (D) X 850mm (H).

91.3.2 Seat Size: 470mm (W) x 480mm (D) X 450mm (H).

91.3.3 Mid Back size: 475mm (W) x 580mm (H).

91.4 Construction:

91.4.1 Seat and Back Assembly:

and Back Assembly: Seat and back are made up of 12mm thick hot pressed plywood, upholstered with fabric upholstery covers (Fabric colour shall be approved by DVET) and molded Polyurethane foam. 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 25mm.

91.4.2 High Resilience Polyurethane Foam: The HR 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.

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

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

91.5 Finish:

91.5.1 Epoxy Polyester Powder coated to the thickness of 50 – 60 microns (+/-10).

91.5.2 Process: The body including tubular framework, support, etc. for Chair 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 50 – 60 microns (+/-10). The material is then oven baked with a controlled temperature of 180 deg.C to 200 deg.C.

91.5.3 Tests: The powder coating treatment shall strictly comply with IS:13871 (1993) inclusive of m 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, , acid/ alkali. The test reports shall be submitted along with the tender.

91.6 Colour:

91.6.1 The colour of the Fabric shall be Carbon Black, Milan Red, Copper Moo

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

91.7 Manufacturing Process:

91.7.1 The complete unit shall be as per manufacturer's specifications and Flow chart of manufacturing process shall be submitted along with the tender.

91.7.2 Raw materials (Wood working): 1) Medium Density Fibre Board (MDF), 2) Plywood 3) Fabric. Process (Wood working): Plywood from approved supplier -> Wood Cutting (cutting from 12mm thk. mother plywood 1200mm x 2400mm 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) -> Sizing/ Routing (fine sizing and setting curvilinear shapes) -> Fabric from approved supplier -> Inspection of fabric -> Fabric cutting to desired shape -> Ironing to cut piece of fabric -> Fabric stapling on the tile -> Fabric pasting to metal tile -> Fabric tile inspection -> Fabric tile plastic wrapping -> Assembly and Packaging (panel assembly, final inspection/ correction if required, packing and dispatch).

91.7.3 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

91.7.4 Raw materials (Metal working): 1) Aluminium Extrusion. Cutting of Aluminium extrusions to desired size -> Assembly and Packaging (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

91.7.5 The manufacturing processes given are generalized. Need to consider wherever it is applicable as per the Specifications of the product.

91.7.6 All raw materials for manufacturing process shall be as per relevant IS code.

91.8 Size and Weight:

91.8.1 Overall Length: 610 mm

91.8.2 Overall Width: 640 mm

91.8.3 Overall Height: 850 mm

91.8.4 Net Weight: Minimum 6 to 8 Kg



CLASS ROOM FURNITURE FOR TRADE THEORY

96A] STUDENTS CHAIR WITH WRITING PAD

84.48 Basic Indicative Diagram:



84.49 Confirming to IS CODE 10910

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

84.51 Dimensions:

84.51.1 Seat Size: 525 mm (W) X 532 mm (D)

84.51.2 Back Size: 516 mm (W) X 405 mm (H)

84.51.3 With Suitable writing pad

84.52 M.S. Powder Coated Under structure:

The powder coated (DFT 50+/-10 Microns) welded tubular frame should be made from 2.22+/-0.03 cm X 0.16 +/- 0.0128 cm and 3.5+/-0.03 cm X 1.5 +/- 0.03 cm X 0.16 +/- 0.0128 cm M.S. E.R.W tube.

84.53 Finish: Epoxy Polyester Powder to the thickness of minimum 50 – 60 microns (+/-10).

84.54 Process: The body including under structure, framework, legs, storage pedestal including fittings involves an 8 step powder coating process consisting of antirust surface treatment viz. Hot water rinse, Knock off degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dry off oven treatment and finished

with powder coating using epoxy polyester powder of 50 – 60 microns (+/-10). The material is then oven baked with a controlled temperature of 180 deg.C to 200 deg.C.

84.55 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. The finishing processes given are generalized. Need to consider wherever it is applicable as per the Specs. of the product. Colour:

84.55.1 Blue/ Red/ Yellow

84.55.2 Chair Seat and Back Color- Blue/ Red/ Yellow.

84.55.3 Final colour combination will be decided by DVET.

84.56 Manufacturing Process:

84.56.1 The complete unit shall be as per manufacturer's specifications and Flowchart of manufacturing process shall be submitted along with the tender.

84.56.2 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).
84.56.3 lipping).Process (Wood working): MDF board from approved supplier -> Wood Cutting(cutting from mother board 600mm x 2400mm 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/ Edgebanding (adhering PVC lipping on MDF board using hot melt glue under heat and pressure) -> Finishing -> Assembly and Packaging (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

84.56.4 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

84.56.5 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 (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

84.56.6 The manufacturing processes given are generalized. Need to consider wherever it is applicable as per the Specifications of the product.

84.56.7 All raw materials for manufacturing process shall be as per relevant IS code.

84.57 Size and Weight:

84.57.1 Overall Length: 525 mm

84.57.2 Overall Depth: 558 mm

84.57.3 Overall Height: 845 mm

84.57.4 Net Weight: Minimum 5 Kg



CLASS ROOM FURNITURE FOR TRADE THEORY

97A] WHITE BOARD SIZE 1200MM X 900MM

SPECIFICATION FOR FURNITURE GROUP ITEMS

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84.58 Basic Indicative Diagram:



84.59 Manufacturing, Supplying and Installation of wall mounted Ceramic coated steel sheet top surface White Board with the following design, specifications, manufacturing process and tests.

84.60 Size of White Board: 4 X 3 feet.

84.61 Confirming to IS CODE – 3087, 733

84.62 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.

84.63 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 0.095mm 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.

84.64 Core Materials:

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

84.65 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.)

84.66 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

84.66.1 Front: 25 mm,

84.66.2 Side: 18 mm

84.66.3 Wall thickness: 0.8 mm (+ 0.03 mm)

84.67 Fitting Accessories:

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

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

Board Corners:

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

84.68 Packing:

The boards 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.

84.69 Free Accessories:

1 No. Chalk Tray and 1 No. Magnetic Duster and 1 No. Marker should be provided free with each board.

84.70 Marking:

84.70.1 Each board shall be provided with indelible marking for: -

84.70.2 Name/Trade mark of the manufacturer

84.70.3 Type of board

84.70.4 Supply Order No. and date.

84.71 Weight: The weight of the Green board shall be 15-20 Kg



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State

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SPECIFICATION FOR TRADE – WELDER (NSQF LEVEL- 3) Regional Office, Chh. Sambhajinagar

CLASS ROOM FURNITURE FOR TRADE THEORY

98A] INSTRUCTOR LAPTOP WITH LATEST {VISTA AND ABOVE} CONFIGURATION
PRELOADED WITH OPERATING SYSTEM AND MS OFFICE PACKAGE

Basic Indicative Diagram:



94.2Colour	ANY
94.3Form Factor	Ultrabook
94.4Item Height	Millimeters 17
94.5Item Width	Centimeters 21.7
94.6Standing screen display size	14Inches
94.7Resolution	x 1080 1920
94.8Product Dimensions	x 21.7 x 1.7 cm; 1.41 Kilograms 32.5
94.9Batteries	Lithium ion batteries required. (included) 1
94.10Item model number	2N1L0PA
94.11Processor Brand	Intel
94.12 Processor Type	Core i5Family
94.13Processor Speed	GHz 4.2
94.14Processor Count	1
94.15RAM Size	GB 16
94.16Memory Technology	DDR4
94.17Computer Memory Type	DDR4 SDRAM
94.18Maximum Memory Supported	GB 16
94.19Hard Drive Size	GB 512

1

94.20 Hard Disk Description	SSD
94.21 Hard Drive Interface	Solid State
94.22 Audio Details	Headphones, Speakers
94.23 Graphics Coprocessor	INTEL/STANDARD
94.24 Graphics Chipset Brand	Intel/ STANDARD
94.25 Graphics Card Description	Integrated
94.26 Graphics RAM Type	WRAM
94.27 Graphics Card Interface	Integrated
94.28 Number of USB 3.0 Ports	2
94.29 Number of HDMI Ports	1
94.30 Optical Drive Type	No Optical Drive
94.31 Operating System	Windows 10 Home
94.32 Average Battery Life (in hours)	Hours 8
94.33 Are Batteries Included	Yes
94.34 Lithium Battery Energy Content	Watt Hours 43
94.35 Lithium Battery Weight	Grams 0.85
94.36 Number Of Lithium Ion Cells	3
94.37 Included Components	Laptop, Power Adapter, User Manuals
94.38 Hard Disk Drive:	1TB



CLASS ROOM FURNITURE FOR TRADE THEORY

99] LCD PROJECTOR WITH SCREEN

84.72 Basic Indicative Diagram:



95.2Product Dimensions	x 15 x 5 cm; 1 Kilograms 20
95.3Operating System	Android Based
95.4Hardware Interface	VGA, USB, HDMI
95.5Resolution	4K
95.6Mounting Hardware	Main Unit Projector, Power Adapter, Power Cable, RemotControl,Manual.hdmicable,audio video cable
95.7Display Technology	LED
95.8Standing screen display size	Inches 100.5
95.9Display Type	LCD, DLP
95.10Screen Resolution	x 2160 3840
95.11Resolution	3840x2160
95.12Wattage	Watts 150
95.13Power Source	AC
95.14Batteries Included	No
95.15Batteries Required	No
95.16Connector Type	Wi-Fi
95.17Maximum Operating Distance	Feet 12
95.18Form Factor	Portable
95.19Mounting Type	Ceiling Mount, Wall Mount
95.20Supports Bluetooth Technology	Yes



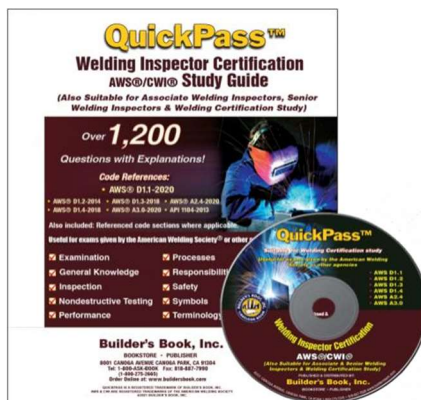
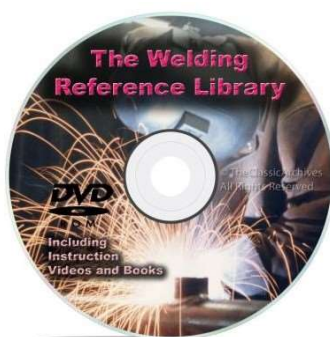
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CLASS ROOM FURNITURE FOR TRADE THEORY

100] WELDING PROCESS, INSPECTION AND CODES DVD/Casie

Indicative Diagram:



AS PER NIMI STANDARED