Government of Maharashtra

Directorate of Vocational Education and Training

Craftsman Training Scheme

SPECIFICATION FOR GENERAL HAND TOOLS

VERSION 4, 2024

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1 Angle plate - Adjustable - 250 X 250 X 300 mm

1.1 Basic Indicative Diagram

1.2 Dimensions
- 1.2.1 Length: 250 ± 4 mm
- 1.2.2 Width: 250 ± 4 mm
- 1.2.3 Height: 300 ± 4 mm

1.3 Body should be made of ductile Cast Iron.
1.4 Tilting Angle: 0 - 90 degree
1.5 Smooth tilting movement
1.6 Should be provided with swiveling face with machined “T” slots.
1.7 Working face flatness: 12 microns per 300 mm
1.8 Base of angle should be adjustable and with cutting slot for fixing.
1.9 “T” Slot of plate: M12

2 Anvil - 25 Kg with Stand

2.1 Basic Indicative Diagram

2.2	Total Length:	430 ± 2mm
2.3	Total Width:	135 ± 1 Mm
2.4	Base Length:	250 ± 1mm
2.5	Height:	173 ± 1mm
2.6	Total Weight:	25 Kg
2.7	Material:	Ductile Cast Iron

2.8 Suitable stand should be supplied for Anvil

3 Anvil - 50 Kg with Stand

3.1 Basic Indicative Diagram

3.2	Total Length:	515 ± 2mm
3.3	Total Width:	155 ± 1 mm
3.4	Base Length:	265 ± 1 mm
3.5	Height:	240 ± 1 mm
3.6	Total Weight:	50 Kg
3.7	Material:	Ductile Cast Iron

3.8 Suitable stand should be supplied for Anvil

4 Anvil - 100 Kg with Stand

4.1 Basic Indicative Diagram

4.2	Total Length:	650 ± 2mm
4.3	Total Width:	240 ± 1 mm
4.4	Base Length:	400 ± 1 mm
4.5	Height:	285 ± 1 mm
4.6	Total Weight:	100 Kg
4.7	Material:	Ductile Cast Iron

4.8 Suitable stand should be supplied for Anvil

5 Carpenter Marking Gauge

5.1 Basic Indicative Diagram

5.2	Material:	Hard wood
5.3	Total Length:	204 ±2 mm
5.4	Width:	18 ±2 mm
5.5	Thickness:	18 ±2 mm
5.6	Fence Length:	65 ±2 mm
5.7	Width:	55 ±2 mm
5.8	Thickness:	27 ±2 mm

5.9 Should be used for marking layouts

5.10 Gauge should be made from hard wood with Steel chrome plated screw & hardened spur

5.11 Should be easy to operate during marking & long durable work.

5.12 Pin should be accurately tilted to avoid pin chatter and line is maintained

6 Carpenter Mortise Gauge

6.1 Basic Indicative Diagram

6.2 Material: Hard wood
6.3 Total Length: 204 ±2 mm
6.4 Width: 18 ±2 mm
6.5 Thickness: 18 ±2 mm
6.6 Fence Length: 65 ±2 mm
6.7 Width: 55 ±2 mm
6.8 Thickness: 27 ±2 mm
6.9 Should be able to make accurate marking when making mortise joints.
6.10 Gauge should made from hard wood with brass pull side wear plates and thumbscrew.
6.11 Easy operation during marking
6.12 Brass pull side and thumbscrew to enhance in gauge

7 Carpenter Square - 200 mm

7.1 Basic Indicative Diagram

7.2 Dimensions

7.2.1	Total Length:	204 ± 2 mm
7.2.2	Blade Length:	204 ± 2 mm
7.2.3	Blade Width:	50 ± 1 mm
7.2.4	Blade thickness:	1 ± 0.2 mm

7.3 Should be made of Cast Iron with a Steel blade

8 Chisel - Bevel Edge, Set of 8 with Handle

8.1 Basic Indicative Diagram

8.2 Beveled edge chisel generally conforming I.S. 1930-2003
8.3 Blade should be made from high grade alloy steel for sharp and long cutting life.
8.4 Hardness of Blade: 58-60 HRC
8.5 Ergonomically designed handle with soft grip.
8.6 Steel cap should be provided to avoid handle damage during hammer striking.
8.7 Pre-sharpened cutting edge for immediate use.
8.8 Blade sizes: 6 mm, 8 mm, 10 mm, 12 mm, 19 mm, 25 mm, 32 mm and 38 mm.

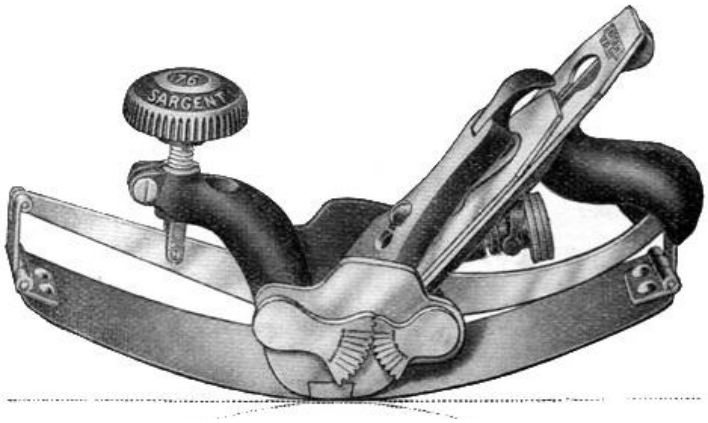
9 Hand Drill Machine - 6 mm

9.1 Basic Indicative Diagram

9.2 Total Length: 425 mm ± 2 mm
9.3 Opening: 6 mm
9.4 Material: Cast Iron
9.5 Should have double pinion gear

10 Plane - Adjustable Circular, 250 mm

10.1 Basic Indicative Diagram



10.2	Total Length:	250 mm ± 2 mm
10.3	Total Width:	63 mm ± 1mm
10.4	Blade Length:	50 mm ± 1mm
10.5	Blade Thickness:	3 mm ± 0.2 mm
10.6	Blade Hardness:	50 - 55 HRC
10.7	Blade Material:	C - 63
10.8	Cast Iron Body with precision milled face	
10.9	Blade	
	10.9.1 Fully Adjustable High Carbon Steel	
	10.9.2 Angle:	45 Degree
10.10	Casting Grade:	Grade 15
10.11	Sole Flatness:	100 µ

11 Plane - Jack - 335 mm X 50 mm Blade

11.1 Basic Indicative Diagram

11.2 Generally conforming to IS 15385 - 2003
11.3 Length: 335 mm (+/ - 5%)
11.4 Blade Width: 50 mm (+/ - 5%)
11.5 Material: Investment & Seasonal Fine Grey Iron Casting
11.6 Blade material: High carbon Tool Steel (induction hardened)
11.7 Adjustment Screw & Nut Material: Brass
11.8 Brass nut to make the operation of removing tight blades very easy
11.9 Mouth Width: More than 6 mm for easy flow of chips/dust during operation
11.10 Finish: Powder coated on ungrounded area and rust preventive oil at grounded area

12 Plane - Trying - 450 mm X 60 mm Blade

12.1 Basic Indicative Diagram

12.2 Generally conforming to IS 15385 - 2003
12.3 Length: 450 mm (+/ - 5%)
12.4 Blade Width: 60 mm (+/ - 5%)
12.5 Material: Investment & seasonal fine grey Iron Casting
12.6 Blade material: High carbon Tool Steel (induction hardened)
12.7 Adjustment Screw & Nut Material: Brass
12.8 Brass nut to make the operation of removing tight blades very easy
12.9 Mouth Width: More than 6 mm for easy flow of chips/dust during operation
12.10 Finish: Powder coated on ungrounded area and rust preventive oil at grounded area

13 Round Crow Bar - with Chisel and Claw End, Length = 1500 mm, Diameter = 30 mm

13.1 Basic Indicative Diagram

13.2	Length:	1500 mm ± 2mm
13.3	Diameter - (hexagonal):	30 mm ± 2mm
13.4	Material:	EN - 8

14 Router Plane - 12mm

14.1 Basic Indicative Diagram

14.2	Total Length:	106 mm ± 1 mm
14.3	Total Width:	58 mm ± 1 mm
14.4	Blade Length:	50 mm ± 0.5 mm
14.5	Blade Width:	12 mm ± 0.2mm
14.6	Blade Thickness:	6.5 mm ± 0.2mm
14.7	Blade Hardness:	50 to 60 HRC
14.8	Blade Material:	High Speed Steel
14.9	Casting Grade:	Grade 15
14.10	Sharp Edges Angle:	25˚

15 Sheet Cutter - Sun mica/ Lamination Sheet Cutter

15.1 Basic Indicative Diagram

15.2 Length: 150 mm + 5%
15.3 Width: 23 mm + 5%
15.4 Height: 14 mm + 5%
15.5 Should be able to cut 1 mm laminate

16 Spoke Shaves - Flat Sole, Adjustable, 250 mm

16.1 Basic Indicative Diagram

16.2	Total Length:	286 mm ± 1 mm
16.3	Total Width:	70 mm ± 1 mm
16.4	Blade Length:	50 mm ± 1 mm
16.5	Blade Width:	42 mm ± 0.5 mm
16.6	Blade Thickness:	3 mm ± 0.2 mm
16.7	Hardness of blade varies from:	50 to 55 HRC
16.8	Material:	Cast Iron grade 15
16.9	Material:	C 63

16.10 Should be useful tool for detailed work like pattern making, carving and model making.

16.11 blade should have vertical and lateral adjustments.

17 Spoke Shaves - Round Sole, Adjustable, 250 mm

17.1 Basic Indicative Diagram

17.2	Total Length:	286 mm ± 1 mm
17.3	Total Width:	70 mm ± 1 mm
17.4	Blade Length:	50 mm ± 1 mm
17.5	Blade Width:	42 mm ± 0.5 mm
17.6	Blade Thickness:	3 mm ± 0.2 mm
17.7	Hardness of Blade:	50 to 55 HRC
17.8	Material:	Cast Iron grade 15
17.9	Material:	C 63

17.10 Should work on plane complex surfaces and irregular patterns on wood craft such as arcs and curves.

17.11 Should be suitable for smoothing, sharping and curving the convex surfaces of all kinds of woods.

17.12 Double - screw should be easily adjusted.

17.13 Should be useful for detailed work like pattern making, carving and model making.

17.14 Blade should have vertical and lateral adjustments.

18 Trammel Points - with Beam 600 mm

18.1 Basic Indicative Diagram

18.2 Beam size: 600 mm ± 2 mm
18.3 Scribes circle Diameter: 900 mm ± 2 mm
18.4 Should be useful instrument for draftsmen, tool makers and machinist with fine adjustment for accurate layout work.

19 Wood Carving Tool Set - Set of 12 Pieces

19.1 Basic Indicative Diagram

19.2 Set of 12 Wood Carving Chisels
19.3 Should have good selection of the various shapes needed in woodworking
19.4 Wood Carving Chisel Set includes 12 pieces
19.5 Size: 8 inch Long (Approx.)
19.6 The handles should be made of quality polished wood for comfortable grip
19.7 Chisels should be made of sharp harden Steel
19.8 Should be housed in suitable bag.

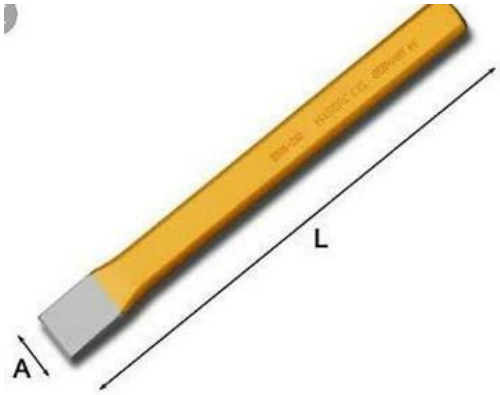
20 Wooden Straight Edge - 4 Feet

20.1 Basic Indicative Diagram

20.2 Total Length: 4 Feet
20.3 Thickness: 1 Inch
20.4 Width: 3 Inch
20.5 Wood: Hard Wood

21 Chisel - Flat, 21 mm X 150 mm

21.1 Basic Indicative Diagram



21.2 Size: 21 mm X 150 mm
21.3 Made from high carbon Steel
21.4 Heat Treated
21.5 Hardness
  21.5.1 Cutting Portion: 55 - 57 HRC
  21.5.2 Striking Portion: 35 - 45 HRC
21.6 Spraying Surface
21.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

22 Chisel - Bolster, 100 mm X 200 mm

22.1 Basic Indicative Diagram

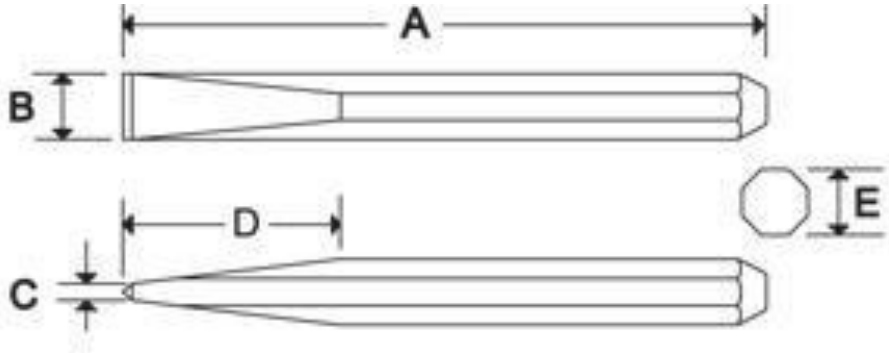
22.2	Total Length:	200 mm ± 2 mm
22.3	Blade Width:	100 mm ± 1 mm
22.4	Thickness:	3.5 mm ± 0.1 mm

22.5 Made from forged single piece solid Steel.
22.6 Cutting edges should be ground, hardened & tempered
22.7 Hardness:
- 22.7.1 Cutting portion: 45 - 49 HRC
- 22.7.2 Striking portion: 30 - 35 HRC

22.8 Shaft should be Octagonal
22.9 Powder coated for corrosion resistance
22.10 Should be able to be used for demolition, cutting & shaping of bricks & block

23 Chisel - Cold, 16 mm X 150 mm

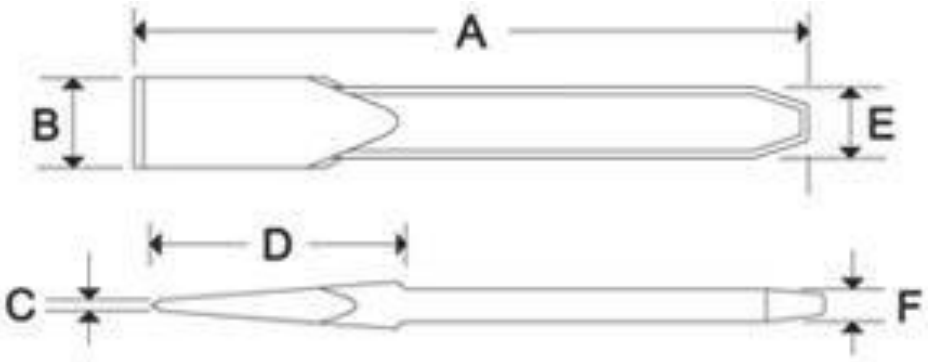
23.1 Basic Indicative Diagram



23.2 Generally Conform to I.S 402 - 1990
23.3 Dimensions in mm: A: 150, B: 16, C: 3.25, D: 70
23.4 Drop forged from high grade carbon Steel
23.5 Hardness
23.5.1 Cutting Portion: 55 - 57 HRC
23.5.2 Striking Portion: 35 - 45 HRC
23.6 Octagonal Body to facilitate comfortable holding while in use
23.7 Cutting edges should be ground accurately to appropriate angle for metal cutting
23.8 Should be phosphated & painted to provide anti rusting properties

24 Chisel - Cold, 20 mm X 150 mm

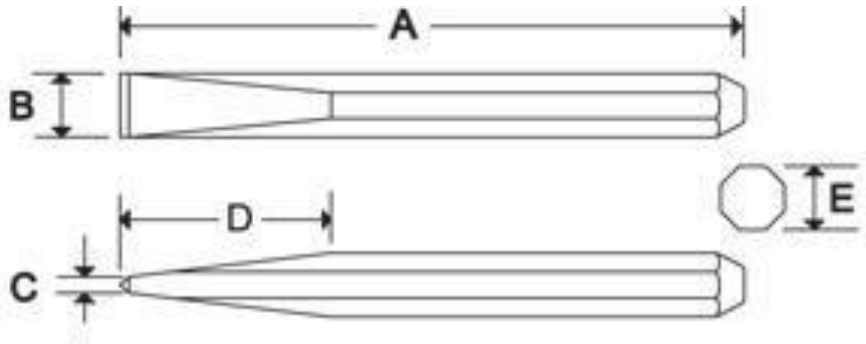
24.1 Basic Indicative Diagram



24.2 Generally Conform to I.S 5663 - 1970
24.3 Dimensions in mm: A: 150, B: 20, C: 3.0, D: 57
24.4 Drop forged from high grade carbon Steel
24.5 Hardness
24.5.1 Cutting Portion: 55 - 57 HRC
24.5.2 Striking Portion: 35 - 45 HRC
24.6 Body should be rounded off for comfortable grip
24.7 Cutting edges should be ground accurately to appropriate angle for cutting
24.8 Should be phosphate & painted to provide anti rusting properties

25 Chisel - Cold, 25 mm X 200 mm

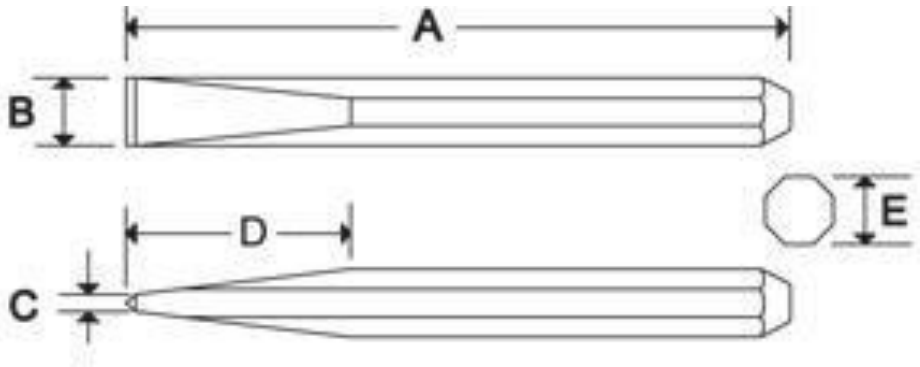
25.1 Basic Indicative Diagram



25.2 Generally Conform to I.S 402 - 1990
25.3 Dimensions in mm: A: 200, B: 25, C: 4, D: 100
25.4 Drop forged from high grade carbon Steel
25.5 Hardness
25.5.1 Cutting Portion: 55 - 57 HRC
25.5.2 Striking Portion: 35 - 45 HRC
25.6 Octagonal Body to facilitate comfortable holding while in use
25.7 Cutting edges should be ground accurately to appropriate angle for metal cutting
25.8 Should be phosphate & painted to provide anti rusting properties

26 Chisel - Cold, 30 mm X 300 mm

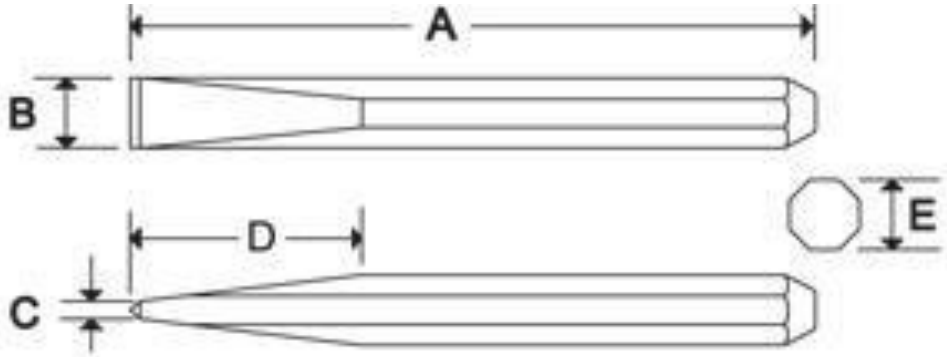
26.1 Basic Indicative Diagram



26.2 Generally Conform to I.S 402 - 1990
26.3 Dimensions in mm: A: 300, B: 32, C: 4.75, D: 130
26.4 Drop forged from high grade carbon Steel
26.5 Hardness
26.5.1 Cutting Portion: 55 - 57 HRC
26.5.2 Striking Portion: 35 - 45 HRC
26.6 Octagonal Body to facilitate comfortable holding while in use
26.7 Cutting edges should be ground accurately to appropriate angle for metal cutting
26.8 Should be phosphate & painted to provide anti rusting properties

27 Chisel - Cold, 9 mm X 125 mm

27.1 Basic Indicative Diagram



27.2 Generally Conform to I.S 402 - 1990
27.3 Dimensions in mm: A: 125, B: 9, C: 1.50, D: 40
27.4 Drop forged from high grade carbon Steel
27.5 Hardness
27.5.1 Cutting Portion: 55 - 57 HRC
27.5.2 Striking Portion: 35 - 45 HRC
27.6 Octagonal Body to facilitate comfortable holding while in use
27.7 Cutting edges should be ground accurately to appropriate angle for metal cutting
27.8 Should be phosphate & painted to provide anti rusting properties

28 Chisel - Cold, Cross Cut, 6 mm X 150 mm

28.1 Basic Indicative Diagram

28.2 Size: 6mm X 150mm
28.3 Made from high carbon Steel 45#
28.4 Heat treated
28.5 Hardness
- 28.5.1 Cutting Portion: 55 - 57 HRC
- 28.5.2 Striking Portion: 35 - 45 HRC

28.6 Spraying Surface
28.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

29 Chisel - Cold, Half Round, 10 mm X 200 mm

29.1 Basic Indicative Diagram

29.2 Size: 10 mm X 200 mm
29.3 Made from high carbon Steel 45#
29.4 Heat treated
29.5 Hardness
- 29.5.1 Cutting Portion: 55 - 57 HRC
- 29.5.2 Striking Portion: 35 - 45 HRC

29.6 Spraying Surface
29.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

30 Chisel - Cold, Round Nose, 6 mm X 100 mm

30.1 Basic Indicative Diagram

30.2 Size: 6mm X 100mm
30.3 Made from high carbon Steel 45#
30.4 Heat treated
30.5 Hardness
- 30.5.1 Cutting Portion: 55 - 57 HRC
- 30.5.2 Striking Portion: 35 - 45 HRC

30.6 Spraying Surface
30.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

31 Chisel - Cold, Round Nose, 9 mm X 100 mm

31.1 Basic Indicative Diagram

31.2 Size: 9 mm X 100 mm
31.3 Made from high carbon Steel 45#
31.4 Heat treated
31.5 Hardness
- 31.5.1 Cutting Portion: 55 - 57 HRC
- 31.5.2 Striking Portion: 35 - 45 HRC

31.6 Spraying Surface
31.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

32 Chisel - Diamond Point, 9 mm X 150 mm

32.1 Basic Indicative Diagram

32.2 Size: 9 mm X 150 mm
32.3 Made from high carbon Steel 45#
32.4 Heat treated
32.5 Hardness
- 32.5.1 Cutting Portion: 55 - 57 HRC
- 32.5.2 Striking Portion: 35 - 45 HRC

32.6 Spraying Surface
32.7 Hardened and Tempered Edges to Cut Steel and Concrete easily

33 Chisel - Firmer, Gouge, Set of 6 with Wooden Handle

33.1 Basic Indicative Diagram

33.2 Dimensions

S.N	Total Length	Blade Length	Blade Width
1	250 ±2 mm	130 ± 2 mm	6 ± 0.5 mm
2	250 ±2 mm	130 ± 2 mm	10 ± 0.5 mm
3	250 ±2 mm	130 ± 2 mm	12 ± 0.5 mm
4	250 ±2 mm	130 ± 2 mm	16 ± 0.5 mm
5	250 ±2 mm	130 ± 2 mm	20 ± 0.5 mm
6	250 ±2 mm	130 ± 2 mm	25 ± 0.5 mm

33.3 Material: Hardened carbon Steel
33.4 Arc blade with wooden handle
33.5 Should be able to make arc groove on wood
33.6 Should be rust resistant and durable
33.7 Hardness Cutting portion: 49 - 55 HRC

34 Chisel - Knife, 50 mm

34.1 Basic Indicative Diagram

34.2 Dimensions

34.2.1	Total Length:	175 mm ± 2 mm
34.2.2	Blade Length:	50 mm ± 2 mm
34.2.3	Blade thickness:	2 mm ± 0.2mm
34.2.4	Blade Width:	19 mm ± 1 mm

34.3 Blade Hardness: 55 - 60 HRC

34.4 Blade should be made of High Quality Carbon Steel

34.5 Handle made of hard wood

34.6 Blades should be pre - sharpened and ready to use

35 Chisel - Mortise, Set of 4 with Wooden Handle

35.1 Basic Indicative Diagram

35.2 Dimensions

S.N.	Total Length	Blade Length	Blade Width
1	256 ±2 mm	130 ± 2 mm	6 ± 0.5 mm
2	256 ±2 mm	130 ± 2 mm	9 ± 0.5 mm
3	256 ±2 mm	130 ± 2 mm	12 ± 0.5 mm
4	256 ±2 mm	130 ± 2 mm	15 ± 0.5 mm

35.3 Cutting edges angle: 22 Degree
35.4 Blade should be made of High Carbon Steel
35.5 Cutting Portion Hardness: 49 - 55 HRC

36 Chisel - Scribing, Gouge, Set of 6 with Wooden Handle

36.1 Basic Indicative Diagram

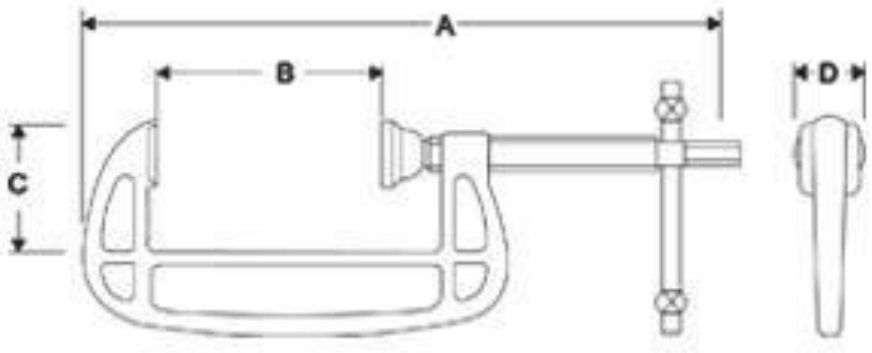
36.2 Dimensions

S.N.	Total Length	Blade Length	Blade Width
1	250 ±2 mm	130 ± 2 mm	6 ± 0.5 mm
2	250 ±2 mm	130 ± 2 mm	10 ± 0.5 mm
3	250 ±2 mm	130 ± 2 mm	12 ± 0.5 mm
4	250 ±2 mm	130 ± 2 mm	16 ± 0.5 mm
5	250 ±2 mm	130 ± 2 mm	20 ± 0.5 mm
6	250 ±2 mm	130 ± 2 mm	25 ± 0.5 mm

36.3 Material: Hardened Carbon Steel
36.4 Arc blade with wooden handle
36.5 Should be able to make arc groove on wood
36.6 Should be rust resistant and durable
36.7 Cutting portion Hardness: 49 - 55 HRC

37 Clamp - C, 50 mm

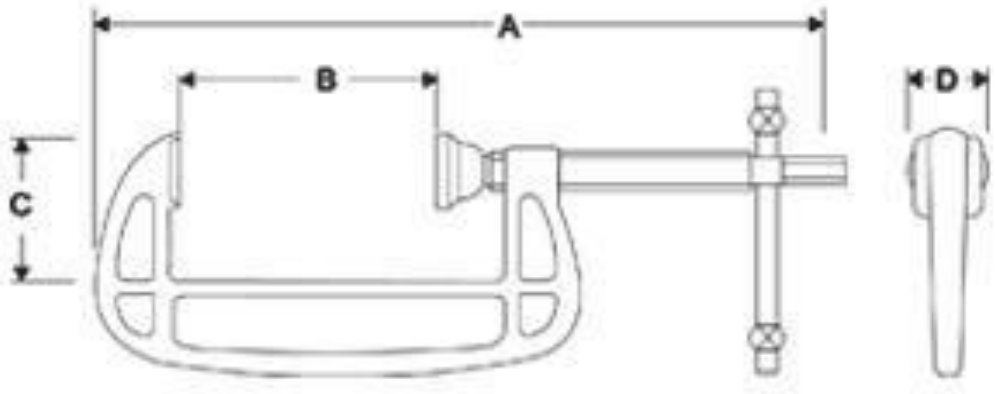
37.1 Basic Indicative Diagram



37.2 Generally conform to I.S 9181 - 1988
37.3 Capacity (B): 50 mm
37.4 Throat Depth (C): 49 mm
37.5 Body hot drop forged from high grade Steel
37.6 All parts fully heat treated and black phosphate for long free trouble service
37.7 Hardness: 27 - 38 HRC
37.8 I - section frame for strength and toughness
37.9 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces
37.10 Acme thread on screw to provide higher, quicker, easier movement for clamping/ unclamping
37.11 Hex Head on screw to facilitate use of spanners for tightening as and when required
37.12 Serrations provided on PAD & C - clamp body for better gripping
37.13 Tension Load Test (Min): 1835 Kg

38 Clamp - C, 100 mm

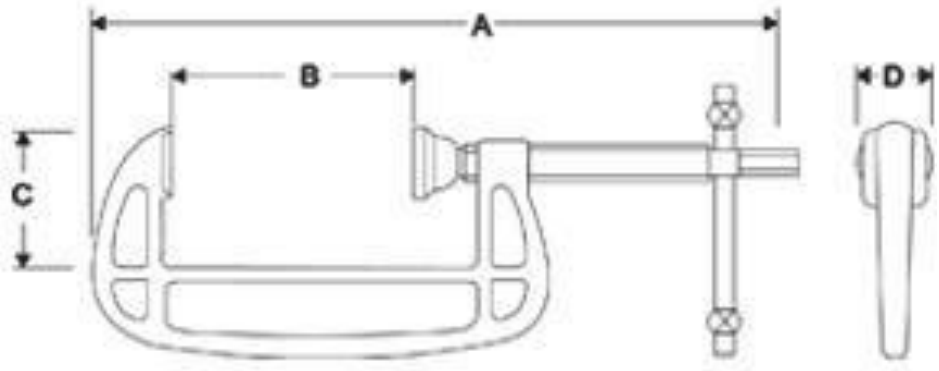
38.1 Basic Indicative Diagram



38.2 Generally conform to I.S 9181 - 1988
38.3 Capacity (B): 100 mm
38.4 Throat Depth (C): 75 mm
38.5 Body hot drop forged from high grade Steel
38.6 All parts fully heat treated and black phosphate for long free trouble service
38.7 Hardness: 27 - 38 HRC
38.8 I - section frame for strength and toughness
38.9 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces
38.10 Acme thread on screw to provide higher, quicker, easier movement for clamping/ unclamping
38.11 Hex Head on screw to facilitate use of spanners for tightening as and when required
38.12 Serrations provided on PAD & C - clamp body for better gripping
38.13 Tension Load Test (Min): 2510 Kg

39 Clamp - C, 200 mm

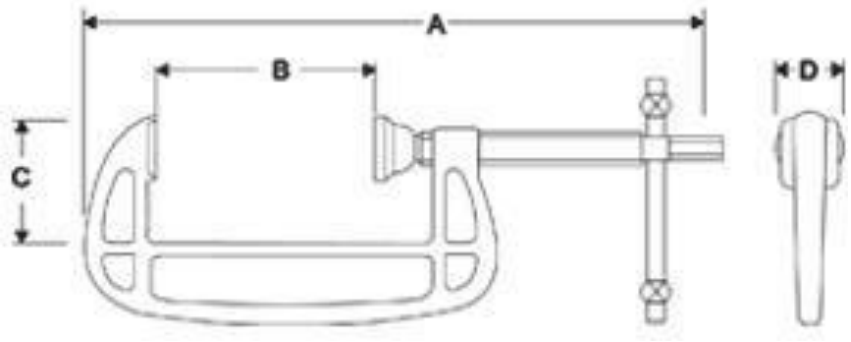
39.1 Basic Indicative Diagram



39.2 Generally conform to I.S 9181 - 1988
39.3 Capacity (B): 200 mm
39.4 Throat Depth (C): 106 mm
39.5 Body hot drop forged from high grade Steel
39.6 All parts fully heat treated and black phosphate for long free trouble service
39.7 Hardness: 27 - 38 HRC
39.8 I - section frame for strength and toughness
39.9 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces
39.10 Acme thread on screw to provide higher, quicker, easier movement for clamping/ unclamping
39.11 Hex Head on screw to facilitate use of spanners for tightening as and when required
39.12 Serrations provided on PAD & C - clamp body for better gripping
39.13 Tension Load Test (Min): 3525 Kg

40 Clamp - C, 300 mm

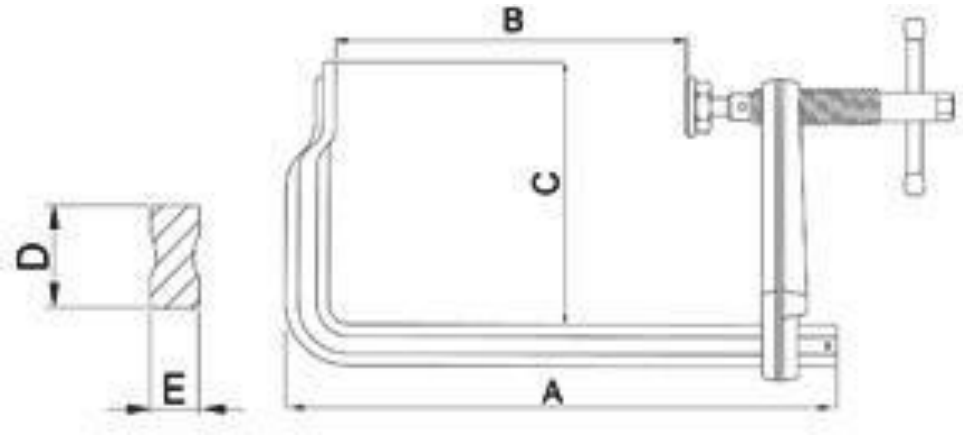
40.1 Basic Indicative Diagram



40.2 Generally conform to I.S 9181 - 1988
40.3 Capacity (B): 300 mm
40.4 Throat Depth (C): 130 mm
40.5 Body hot drop forged from high grade Steel
40.6 All parts fully heat treated and black phosphate for long free trouble service
40.7 Hardness: 27 - 38 HRC
40.8 I - section frame for strength and toughness
40.9 Swivel Head on ball end of operating screw to ensure good grip on angle work pieces
40.10 Acme thread on screw to provide higher, quicker, easier movement for clamping/ unclamping
40.11 Hex Head on screw to facilitate use of spanners for tightening as and when required
40.12 Serrations provided on PAD & C - clamp body for better gripping
40.13 Tension Load Test (Min): 4200 Kg

41 Clamp - Parallel, Adjustable, 200 mm (F Clamp)

41.1 Basic Indicative Diagram



41.2 Made of High Grade Quality Steel
41.3 High Quality & durable clamping Tool which should be able to retain dimensions & resist distortion even at high clamping force
41.4 Capacity (B): 200 mm
41.5 Throat Depth (C): 80 mm
41.6 Rail Size: 15.5 X 7.5 mm
41.7 Hardness: 45 - 48 HRC
41.8 Steel Slide rail for smooth action
41.9 I - Section frame for more strength
41.10 Swivel Head on ball end of operating screw to ensure a secure and easy clamping of irregular shapes
41.11 Fixed Bracket & Pressure plate should be produced from a single piece so that the clamp gets maximum strength

42 Diamond Wheel Dresser - Single Stone Mounted, 2.0 Carat

42.1 Basic Indicative Diagram

42.2	Total Length:	150 mm ± 1 mm
42.3	Diameter:	Ø 12.5 mm ± 0.1 mm
42.4	Material:	En8
42.5	Should be suitable for clamping on work piece or piece of material chucked in lathe.	
42.6	Hardness:	20 to 25 HRC
42.7	Carat:	2 Carat

43 Drill Chuck - 13 mm Capacity with Arbor and Key

43.1 Basic Indicative Diagram

43.2	Total Length:	160 mm ± 2 mm
43.3	Maximum Diameter:	44 mm ± 1mm
43.4	Shank:	MT - 2
43.5	Capacity:	1.5 mm to 13 mm
43.6	Key operated guided jaws type	
43.7	Material:	Carbon Steel
43.8	Screw rings should be hardened and ground	
43.9	Key should be hardened and blacked	

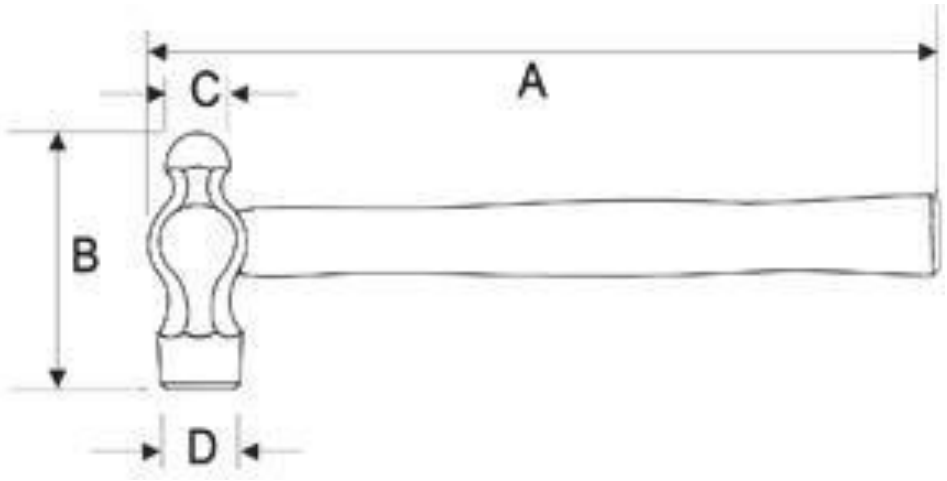
44 Drill Chuck - 20 mm Capacity with Arbor and Key

44.1 Basic Indicative Diagram

44.2	Total Length:	204 mm ± 2 mm
44.3	Maximum Diameter:	52 mm ± 1mm
44.4	Shank:	MT - 3
44.5	Capacity:	5 mm to 20 mm
44.6	Key operated guided jaws type	
44.7	Material:	Carbon Steel
44.8	Screw rings should be hardened and ground	
44.9	Key should be hardened and blacked	

45 Hammer - Ball Peen, 200 grams with Handle

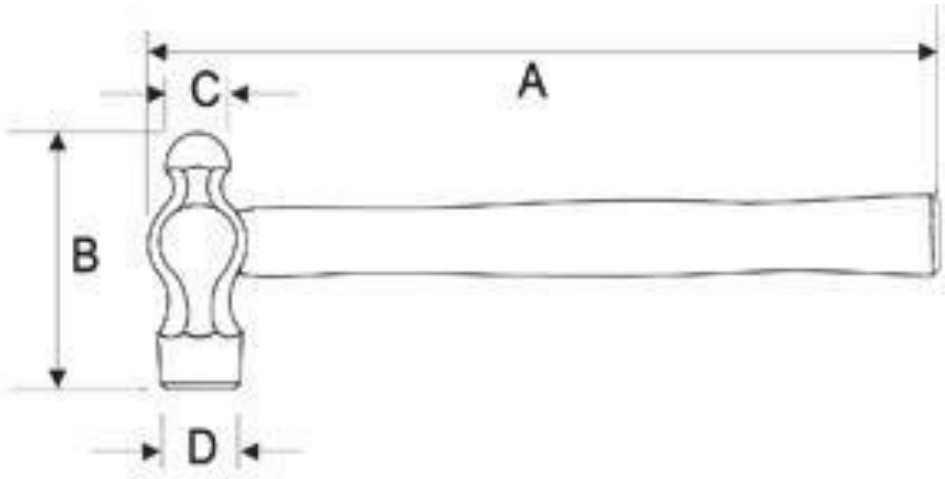
45.1 Basic Indicative Diagram



45.2 Generally conform to I.S. 841 - 1983
45.3 Ball Peen Hammer
45.4 Length: 300 mm + 10%
45.5 Weight: 200 grams
45.6 Drop forged from high grade carbon Steel
45.7 Material: EN - 9
45.8 Partially hardened upto 46 - 56 HRC on striking surface
45.9 Depth of Hardness: 6 mm
45.10 Phosphated and painted
45.11 Handle
45.11.1 Material: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle
45.11.2 Handle fixed firmly to hammer head so that it does not come out after long use

46 Hammer - Ball Peen, 500 grams with Handle

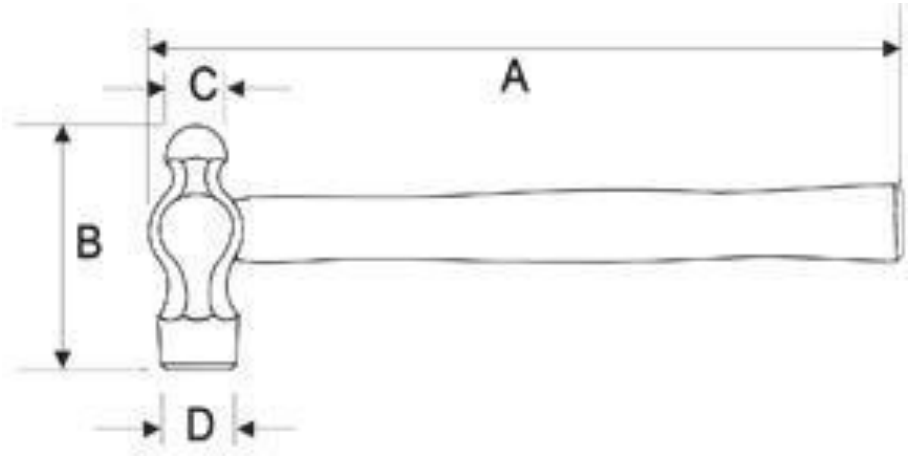
46.1 Basic Indicative Diagram



46.2 Generally conform to I.S. 841 - 1983
46.3 Ball Peen Hammer
46.4 Length: 300 mm + 10%
46.5 Weight: 500 grams
46.6 Drop forged from high grade carbon Steel
46.7 Material: EN - 9
46.8 Partially hardened upto 46 - 56 HRC on striking surface
46.9 Depth of Hardness: 6 mm
46.10 Phosphated and painted
46.11 Handle
46.11.1 Material: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle
46.11.2 Handle fixed firmly to hammer head so that it does not come out after long use

47 Hammer - Ball Peen, 800 grams with Handle

47.1 Basic Indicative Diagram



47.2 Generally conform to I.S. 841 - 1983
47.3 Ball Peen Hammer
47.4 Length: 300 mm + 10%
47.5 Weight: 800 grams
47.6 Drop forged from high grade carbon Steel
47.7 Material: EN - 9
47.8 Partially hardened upto 46 - 56 HRC on striking surface
47.9 Depth of Hardness: 6 mm
47.10 Phosphated and painted
47.11 Handle
47.11.1 Material: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle
47.11.2 Handle fixed firmly to hammer head so that it does not come out after long use

48 Hammer - Brick Layer, 600 grams with Handle

48.1 Basic Indicative Diagram

48.2 Weight: 600 grams
48.3 High carbon Steel forged head
48.4 Hardened and tempered for high strength
48.5 Handle: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle
48.6 Selected clear lacquered hickory handle
48.7 Special insert processing for head and handle to prevent release

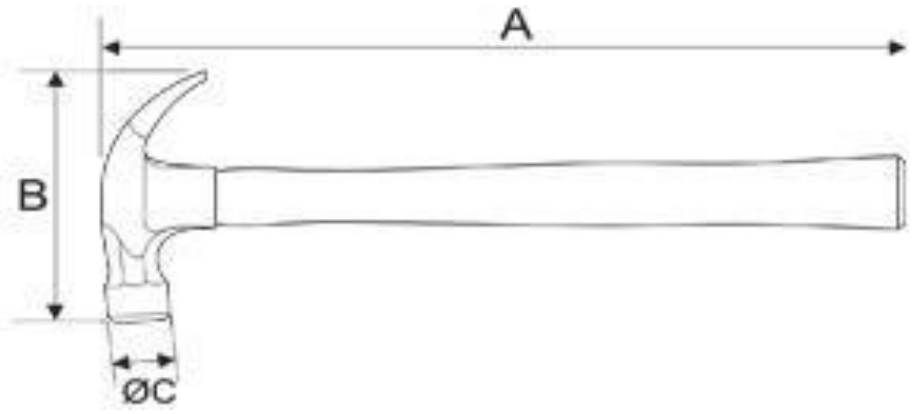
49 Hammer - Chipping, 250 grams with Handle

49.1 Basic Indicative Diagram

49.2 Weight: 250 grams + 10%
49.3 High carbon Steel forged head
49.4 Hardened and tempered for high strength
49.5 Handle: Spiral metal Handle
49.6 Should be useful to clean and remove slag from welds

50 Hammer - Claw, 340 grams with Handle

50.1 Basic Indicative Diagram



50.2 Generally conform to I.S. 6546 - 1989
50.3 Size: 340 grams
50.4 Drop forged from high grade carbon Steel
50.5 Partially hardened upto 46 - 56 HRC on striking surface
50.6 Depth of Hardness: 6.0 mm
50.7 Phosphated and painted
50.8 Handle
- 50.8.1 Material: Hickory Wood/ Red Wood/ Babul Wood / Indestructible Handle
- 50.8.2 Handle fixed firmly to hammer head so that it does not come out after long use

51 Hammer - Copper/ Brass, 1000 grams with Handle

51.1 Basic Indicative Diagram

51.2 Brass Head
51.3 Weight: 1000 gram
51.4 12 inch Handle Hammer
51.5 Non Sparking
51.6 Handle
- 51.6.1 Material: Indestructible Handle
- 51.6.2 4 spring Steel bars running all the way through handle. Bars locked with hammer head using Steel locking plates
- 51.6.3 Ergonomic rubber grip to absorb shock & vibration

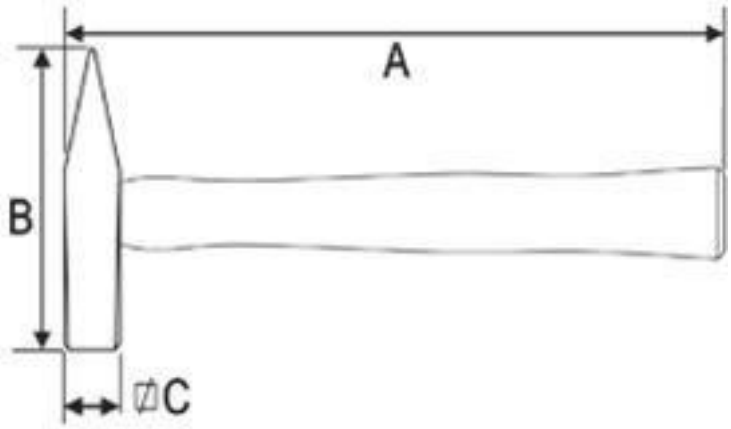
52 Hammer - Cross Peen, 500 grams with Handle

52.1 Basic Indicative Diagram
52.2 Generally conform to I.S. 841 - 1983

52.3 Cross Peen
52.4 Weight: 500 grams
52.5 Drop forged from high grade carbon Steel
52.6 Partially hardened upto 46 - 56 HRC on striking surface
52.7 Depth of Hardness: 6.0 mm
52.8 Phosphated and painted
52.9 Handle
- 52.9.1 Material: Hickory Wood/ Red Wood/ Babul Wood / Indestructible Handle
- 52.9.2 Handle fixed firmly to hammer head so that it does not come out after long use

53 Hammer - Machinist, 300gm with Handle

53.1 Basic Indicative Diagram

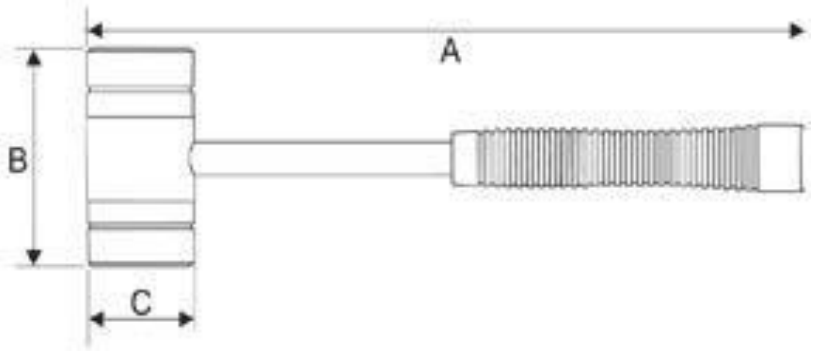


53.2 Generally conform to I.S. 841 - 1983
53.3 Weight: 300 grams
53.4 Drop forged from high grade carbon Steel
53.5 Material C45
53.6 Partially hardened upto 46 - 56 HRC on striking surface
53.7 Depth of Hardness: 6 mm
53.8 Phosphated and painted
53.9 Handle
- 53.9.1 Material: Hickory Wood/ Red Wood/ Babul Wood / Indestructible Handle
- 53.9.2 Handle fixed firmly to hammer head so that it does not come out after long use

54 Hammer - Nylon, 30 mm with Handle

54.1 Basic Indicative Diagram

54.2 Generally conform to I.S. 10838 - 1984



54.3 Mallet Diameter: 30 mm

54.4 Mallet should be made of Cellular Acetate Material

54.5 Striking part (Head) should be replaceable

54.6 Handle

54.6.1 Material: Should be made of cold rolled mild Steel pipe and should be chrome plated

54.6.2 Handle should be fitted with rubber grip sleeves.

54.6.3 Handle fitted firmly to hammer head so that it does not come out after long use

55 Hammer - Round Flat and Cross Pin, 320 grams with Handle

55.1 Basic Indicative Diagram

55.2 High carbon Steel forged head
55.3 Hardened and tempered for high strength
55.4 Handle: Hickory Wood/ Red Wood/ Babul Wood/ Indestructible Handle
55.5 Special insert processing for head and handle to prevent release
55.6 Weight: 320 gram (± 10%)

56 Hammer - Sledge, 1800 grams with Handle

56.1 Basic Indicative Diagram

56.2 Generally conform to I.S. 841 - 1983
56.3 Size: 1800 grams
56.4 Drop forged from high grade carbon Steel
56.5 Partially hardened upto 46 - 56 HRC on striking surface
56.6 Depth of Hardness: 10 mm
56.7 Phosphated and painted
56.8 Handle
- 56.8.1 Material: Hickory Wood
- 56.8.2 Handle fixed firmly to hammer head so that it does not come out after long use

57 Hammer - Sledge, 6000 grams with Handle

57.1 Basic Indicative Diagram

57.2 Generally conform to I.S. 841 - 1983
57.3 Size: 6000 grams
57.4 Drop forged from high grade carbon Steel
57.5 Partially hardened upto 46 - 56 HRC on striking surface
57.6 Depth of Hardness: 10 mm
57.7 Phosphated and painted
57.8 Handle
- 57.8.1 Material: Hickory Wood
- 57.8.2 Handle fixed firmly to hammer head so that it does not come out after long use

58 Hammer - Wooden Mallet

58.1 Basic Indicative Diagram

58.2 Dimensions

- 58.2.1 Total Length: 325 mm ± 3 mm
- 58.2.2 Max. Width.: 128 ± 1 mm
- 58.2.3 Min. Width: 112 ± 1 mm
- 58.2.4 Thickness: 60 mm ± 1 mm

58.3 Wood material: Hard Wood

58.4 Handle grip is secured by a long taper

58.5 Should be light weight for fine working

58.6 Finishing: Fine finishing with body or chamfered.

58.7 Should easy to operate for operator during hammering.

59 Brush Steel Wire - 150 X 50 mm

59.1 Basic Indicative Diagram

59.2 Made from still bristles with wooden handle
59.3 Length: 150 mm
59.4 Width: 50 mm
59.5 Overall Length: 290 mm + 10%

60 Center Square - Size 400 X 250 mm Blade

60.1 Basic Indicative Diagram

60.2 Dimensions

60.2.1	Total Length:	400 mm
60.2.2	Total Width:	250 mm
60.2.3	Stock Length:	240.5 mm
60.2.4	Stock Width:	44 mm
60.2.5	Stock Thickness:	21 mm
60.2.6	Blade Length:	356 mm
60.2.7	Blade Width:	44 mm
60.2.8	Blade Thickness:	3 mm

60.3 Material: Mild Steel

60.4 Should be Fine Finish, Durable and Rust Proof.

61 Dog Carrier - Straight & Bent Tail, 50 mm

61.1 Basic Indicative Diagram

61.2	Length:	163 mm ± 1 mm
61.3	Outer Diameter:	90 mm ± 1 mm
61.4	Inner Diameter:	55 mm + 1 mm
61.5	Thickness:	29 mm ± 1 mm
61.6	Material:	Cast Iron
61.7	Finish:	Gray hammer tone finish.

61.8 'V' groove in the body to help clamping of round jobs.

62 Oil Stone - 150 mm X 50 mm X 25 mm

62.1 Basic Indicative Diagram

62.2	Length:	150 mm
62.3	Width:	50 mm
62.4	Height H1:	Course - 15 mm
62.5	Height H2:	Fine - 10 mm
62.6	Material:	SiC (Silicon Carbide)
62.7	Bond:	Vitrified

63 Pickaxe

63.1 Basic Indicative Diagram

63.2	Total Length:	540 mm ± 1 mm
63.3	Total Width:	62 mm ± 1 mm
63.4	Up& Down Hole Diameter:	Ø 42 & Ø 47 ± 1 mm
63.5	Weight:	12 Kg
63.6	Handle Wood:	Hard Wood

63.7 Good quality seasoned Wooden Handle of comfortable working Length

64 Scriber - Bend and Straight, 150 mm

64.1 Basic Indicative Diagram

64.2 Scriber with Min. Length 150
64.3 90 ° Bend and Straight
64.4 Both Point end Hardness 55 - 60 HRC
64.5 Should be of material EN - 9

65 Shovel

65.1 Basic Indicative Diagram

65.2 Should have high wear resistance.
65.3 Should have high bending strength
65.4 Good quality seasoned Wooden Handle of comfortable working Length

66 Spade

66.1 Basic Indicative Diagram

66.2 Should be made of Steel
66.3 Handle Length: 600 mm
66.4 Good quality seasoned Wooden Handle of comfortable working Length
66.5 Weight: 1 Kg (without handle)

67 Square Bevel - 150 mm

67.1 Basic Indicative Diagram

67.2	Total Length:	204 mm ± 2 mm
67.3	Blade Length:	150 mm ± 2 mm
67.4	Blade thickness:	1 mm ± 0.1 mm
67.5	Stock Length:	133 mm ± 2 mm
67.6	Bevel should be made of hardwood	
67.7	Blade Material:	Spring Steel
67.8	Holding angle:	0 - 180 Degree
67.9	Blade Finish:	Auto blacked with anti - rust properties
67.10	Blade Hardness:	45 - 49 HRC

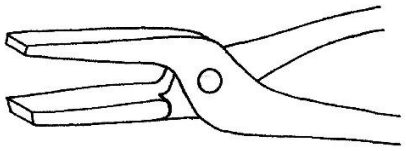
68 Stud Extractor - Roller Type for 5 to 20 mm

68.1 Basic Indicative Diagram

68.2 Capacity: 20 mm
68.3 Material: Chrome vanadium Steel
68.4 Eccentric roller grips stud more firmly
68.5 Should be compatible to half inch square drive wrench

69 Tong - Flat, 300 mm

69.1 Basic Indicative Diagram



69.2 Material: Mild Steel
69.3 Flat Tong: 300 mm
69.4 Length: 300 mm

70 Washer Cutter

70.1 Basic Indicative Diagram

70.2 Total Length: 75 mm ± 1 mm
70.3 Total Width.: 75 mm ± 0.2 mm
70.4 Total Height: 50 mm ± 0.2 mm
70.5 Angle: 90 Degree
70.6 Should be suitable to be used for plumbing to drill large hole in thin sheet material

71 Lifting Jack Screw Type - 20 Ton

71.1 Basic Indicative Diagram

71.2 Lifting Capacity: 20 Ton
71.3 Screw Diameter: 63.5 mm
71.4 Gear Worm Ratio: 8:1
71.5 Body Material: Ductile Cast Iron
71.6 Lifting Screw Material: Cold Drawn Steel
71.7 Provided with suitable Tommy Bar
71.8 It should hold load without back driving in absence of vibration.
71.9 Drive Sleeve should be supported on antifriction tapered roller

72 Lifting Jack Screw Type - 5 Ton

72.1 Basic Indicative Diagram

72.2 Lifting Capacity: 5 Ton
72.3 Screw Diameter: 63.5 Mm
72.4 Gear Worm Ratio: 6:1
72.5 Body Material: Ductile Cast Iron
72.6 Lifting Screw Material: Cold Drawn Steel
72.7 Provided with suitable Tommy Bar
72.8 It should hold load without back driving in absence of vibration.
72.9 Drive Sleeve should be supported on antifriction tapered roller

73 Aviation Snips - Left Cut, 250 mm

73.1 Basic Indicative Diagram

73.2 Size: 250 mm
73.3 Left Cut
73.4 Made of durable Chrome Vanadium Steel
73.5 Hardened & Serrated Edges for controlled cutting
73.6 Cuts metal sheet upto 1.2 mm thickness & stainless Steel upto 0.7 mm thickness
73.7 Ergonomic Comfort Grip handle
73.8 One hand release mechanism

74 Aviation Snips - Right Cut, 250 mm

74.1 Basic Indicative Diagram
74.2 Size: 250 mm

74.3 Right Cut
74.4 Made of durable Chrome Vanadium Steel
74.5 Hardened & Serrated Edges for controlled cutting
74.6 Cuts metal sheet upto 1.2 mm thickness & stainless Steel upto 0.7 mm thickness
74.7 Ergonomic Comfort Grip handle for better comfort
74.8 One hand release mechanism

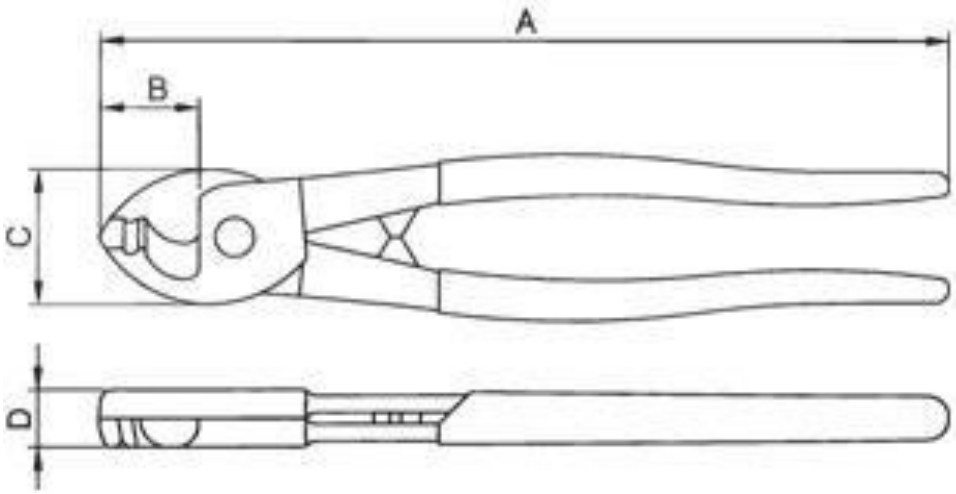
75 Aviation Snips - Straight Cut, 250 mm

75.1 Basic Indicative Diagram

75.2 Size: 250 mm
75.3 Straight Cut
75.4 Made of durable Chrome Vanadium Steel
75.5 Hardened & Serrated Edges for controlled cutting
75.6 Cuts metal sheet upto 1.2 mm thickness & stainless Steel upto 0.7 mm thickness
75.7 Ergonomic Comfort Grip handle for better comfort
75.8 One hand release mechanism

76 Cable Cutter - 150 mm

76.1 Basic Indicative Diagram



76.2 31.2 Size in mm: A: 160, B:20, C: 26, D: 10
76.3 Drop forged and differentially hardened and tempered
76.4 Hardness
76.5 Cutting Edges: 55 - 60 HRC
76.6 Body & Rivet: 40 - 50 HRC
76.7 Cutting edges should be sharp & precision machined to appropriate angle to cut the cables with ease
76.8 Dip Coated Sleeves for Cushioning Grip
76.9 Maximum Cutting capacity (O.D with PVC Sleeve): 9 mm

77 Crimping Tool - 5 in 1

77.1 Basic Indicative Diagram

77.2 Should have the following 5 functions
- 77.2.1 Wire cutter
- 77.2.2 Wire stripper
- 77.2.3 Bolt cutter
- 77.2.4 Insulation crimping
- 77.2.5 Non insulation Crimping

77.3 Size: 225 mm

77.4 Induction hardened cutting edges

77.5 Finger Guard for Better Control & Added Safety

77.6 Bi - material Grip for comfort

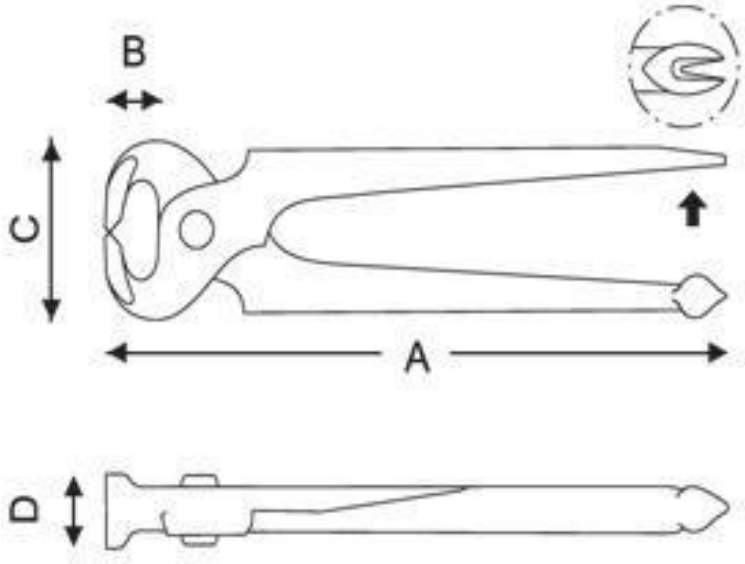
78 Crimping Tool - RJ 45

78.1 Basic Indicative Diagram

78.2 An Induction hardened cutting edges
78.3 Should be suitable for crimping RJ45 connectors
78.4 Should be able to cuts electrical wires
78.5 Length: 200 mm ± 5%
78.6 Should be used for RJ 45, RJ 12 and RJ 11 connectors as required.
78.7 Should have all-steel handles (with padding)
78.8 Should have built-in cable stripper with stop
78.9 Suitable for 22-26 AWG wires

79 Pincer - 200 mm

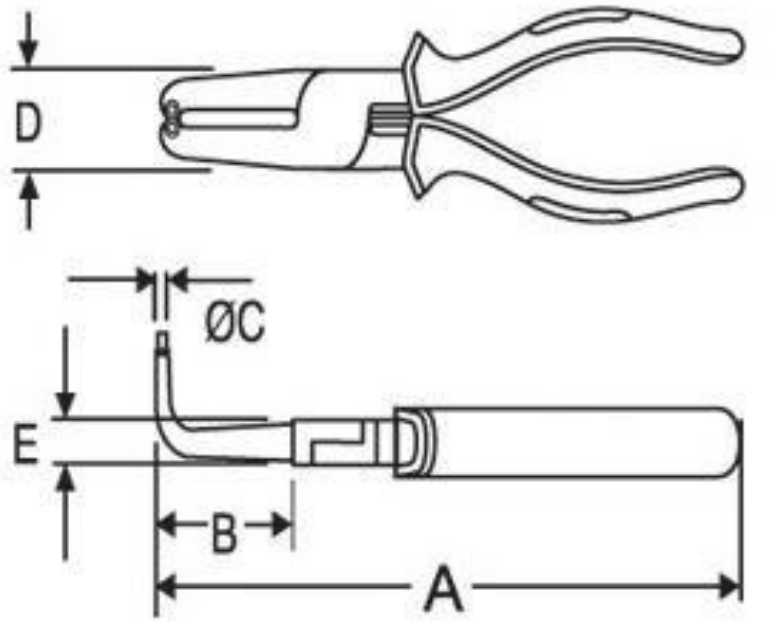
79.1 Basic Indicative Diagram



79.2 Generally conforming to IS 4095 - 1991
79.3 Groove type locking design to provide strength and wear resistance
79.4 Diamond profile formed with combination of flat and serrations enables holding both round as well as flat surfaces firmly
79.5 Jaws design enables use in any position and in confirmed space

80 Plier - Circlip, External, Bend, 180 mm

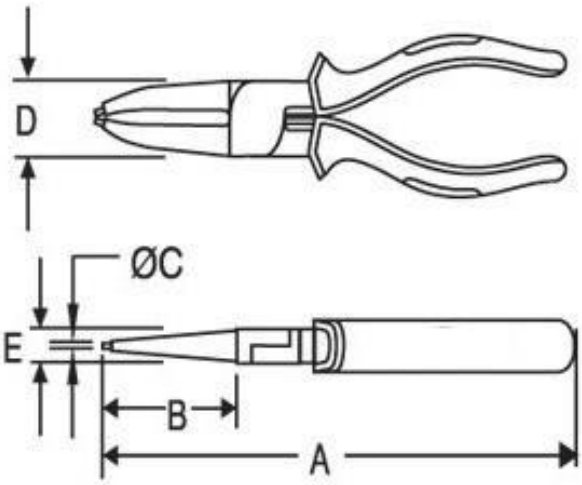
80.1 Basic Indicative Diagram



80.2 Generally conform to IS 7990 - 1976
80.3 External Bend
80.4 Capacity: 40 - 100 mm
80.5 Length: 180 mm
80.6 Tips should precision machined with dimensions to available standards. Tips are bent and provided with serrations to prevent Circlip from “Flying away” during use.
80.7 Drop Forged from suitable High Grade Steel
80.8 Hardness: 43 - 48 HRC
80.9 Rivet should be hardened to prevent play after long use
80.10 Pliers should be fitted with return spring between the shanks to facilitate smooth operation
80.11 PVC Dip coated sleeve

81 Plier - Circlip, External, Straight, 200 mm

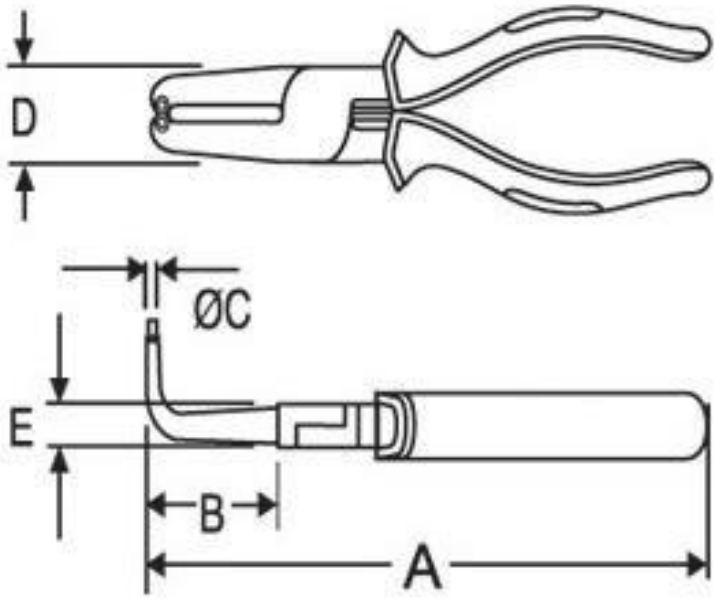
81.1 Basic Indicative Diagram



81.2 Generally conform to IS 7990 - 1976
81.3 External Straight
81.4 Capacity: 40 - 100 mm
81.5 Length: 200 mm
81.6 Tips should precision machined with dimensions to available standards. Tips are bent and provided with serrations to prevent Circlip from “Flying away” during use.
81.7 Drop Forged from suitable High Grade Steel
81.8 Hardness: 43 - 48 HRC
81.9 Rivet should be hardened to prevent play after long use
81.10 Pliers should be fitted with return spring between the shanks to facilitate smooth operation
81.11 PVC Dip coated sleeve

82 Plier - Circlip, Internal, Bend, 180 mm

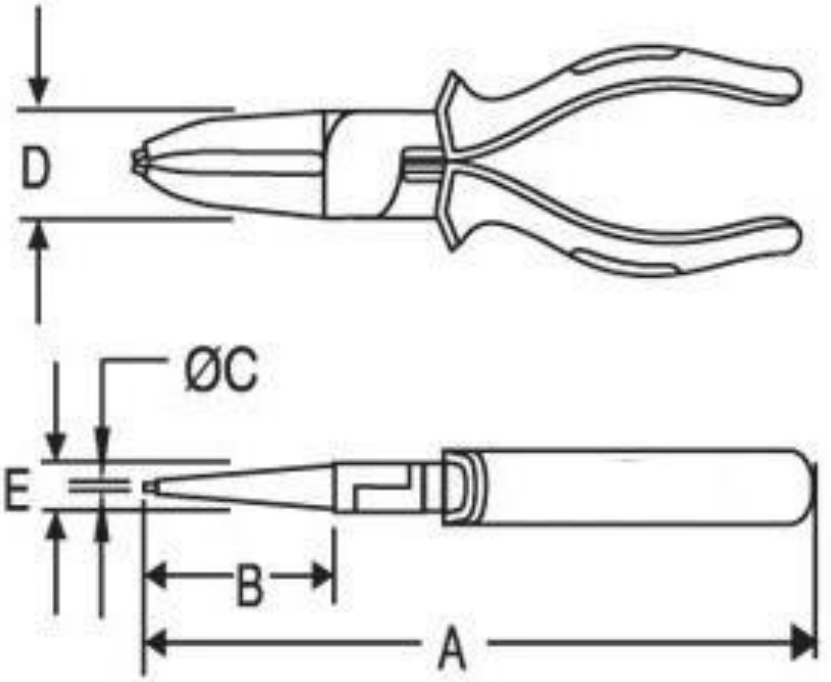
82.1 Basic Indicative Diagram



82.2 Generally conform to IS 7989 - 1976
82.3 Internal Bend
82.4 Capacity: 40 - 100 mm
82.5 Length: 180 mm
82.6 Tips should precision machined with dimensions to available standards. Tips are bent and provided with serrations to prevent Circlip from “Flying away” during use.
82.7 Drop Forged from suitable High Grade Steel
82.8 Hardness: 43 - 48 HRC
82.9 Rivet should be hardened to prevent play after long use
82.10 Pliers should be fitted with return spring between the shanks to facilitate smooth operation
82.11 PVC Dip coated sleeve

83 Plier - Circlip, Internal, Straight, 200 mm

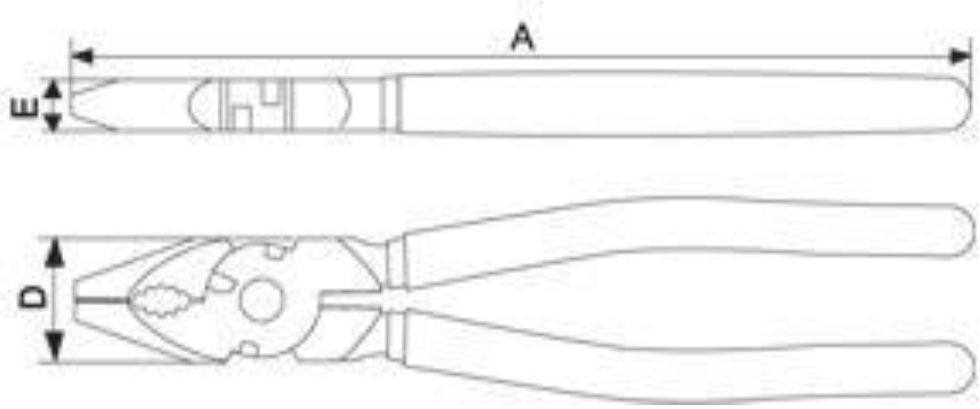
83.1 Basic Indicative Diagram



83.2 Generally conform to IS 7989 - 1976
83.3 Internal Straight
83.4 Capacity: 40 - 100 mm
83.5 Length: 200 mm
83.6 Tips should precision machined with dimensions to available standards. Tips are bent and provided with serrations to prevent Circlip from “Flying away” during use.
83.7 Drop Forged from suitable High Grade Steel
83.8 Hardness: 43 - 48 HRC
83.9 Rivet should be hardened to prevent play after long use
83.10 Pliers should be fitted with return spring between the shanks to facilitate smooth operation
83.11 PVC Dip coated sleeve

84 Plier - Combination, 200 mm

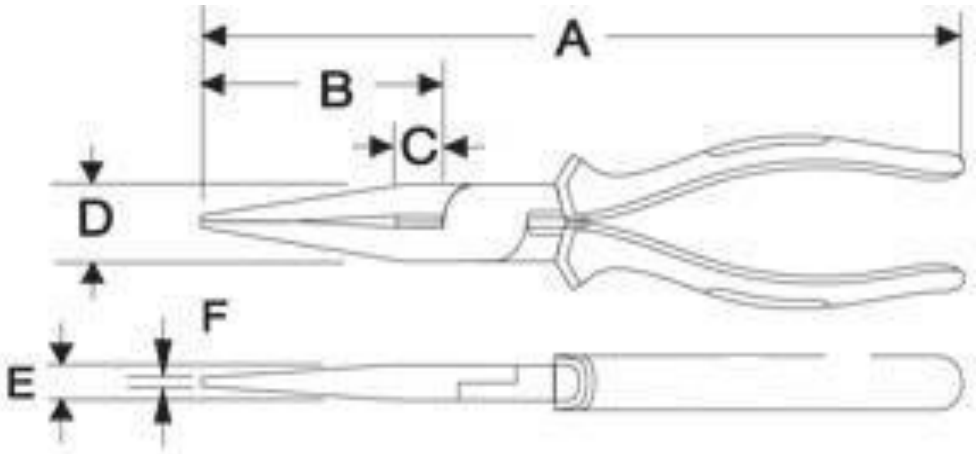
84.1 Basic Indicative Diagram



84.2 Generally conform to IS 3650 - 1981
84.3 Material: C - 70
84.4 Finish: Polished / Chrome plated / Satin finish
84.5 Length (A): 200 mm
84.6 Drop forged, hardened tempered
84.7 Differential hardening
84.8 Radius Gap from front side: Upto 0.2 mm
84.9 Play between shanks: Upto 0.3 mm
84.10 Shank Material: C70 / EN9
84.11 Rivet material: SAE 1541 / 40Cr4
84.12 Cutting Edge Hardness: 60 - 62 HRC
84.13 Shank Hardness: 40 - 48 HRC
84.14 Rivet Hardness: 38 - 42 HRC
84.15 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC
84.16 Insulation Sleeves made from High Quality CA Plastic
84.17 Thicker Sleeves for comfortable Grip
84.18 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.
84.19 Should be able to cut soft (74 to 84 Kg/mm^2) & Hard (140 Kg/mm^2) wires
84.20 Should be able to cut 2 mm of hardwire Diameter & 1 mm of soft wire Diameter

85 Plier - Flat Nose, 150 mm

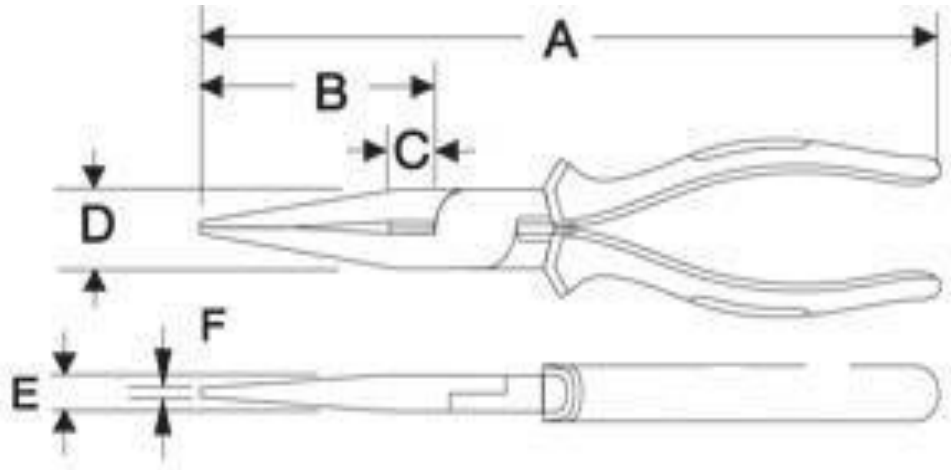
85.1 Basic Indicative Diagram



85.2 Generally conform to IS 3552 - 1989
85.3 Length: 150 mm
85.4 Drop Forged from High Carbon Steel & scientifically treated to give tough body (45 - 48 HRC)
85.5 Cutting edges should be induction hardened. Cutting edge Hardness 55 - 60 HRC.
85.6 Rivet should be hardened and made of carbon Steel
85.7 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC
85.8 Minimum load value: 9.58 Kg
85.9 Insulation Sleeves made from High Quality CA Plastic which are long lasting and will not break or crack even if it falls from Height and ensures safe electrical working.
85.10 Thicker Sleeves for comfortable Grip
85.11 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.
85.12 Should be able to cut soft (74 to 84 Kg/ mm^2) & Hard (140 mm^2) wires
85.13 Should be able to cut Hard wire of Diameter: 1.60 mm & Soft wire of Diameter: 1.0 mm
85.14 Cutting edges should be sharp and precision machined to appropriate angle to cut thick and thin wires with ease

86 Plier - Long Nose, 200 mm

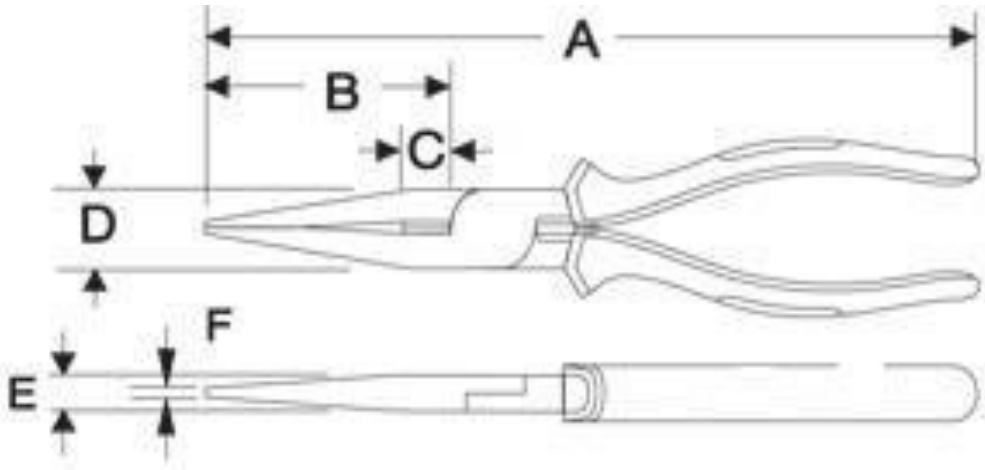
86.1 Basic Indicative Diagram



86.2 Generally conform to IS 3552 - 1989
86.3 Length: 200 mm
86.4 Drop Forged from High Carbon Steel & scientifically treated to give tough body (45 - 48 HRC)
86.5 Cutting edges should be induction hardened. Cutting edge Hardness 55 - 60 HRC.
86.6 Rivet should be hardened and made of carbon Steel
86.7 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC
86.8 Minimum load value: 13.80 Kg
86.9 Insulation Sleeves made from High Quality CA Plastic which are long lasting and will not break or crack even if it falls from Height and ensures safe electrical working.
86.10 Thicker Sleeves for comfortable Grip
86.11 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.
86.12 Should be able to cut soft (74 to 84 Kg/ mm^2) & Hard (140 mm^2) wires
86.13 Should be able to cut Hard wire of Diameter: 1.60 mm & Soft wire of Diameter: 1.0 mm
86.14 Cutting edges should be sharp and precision machined to appropriate angle to cut thick and thin wires with ease.

87 Plier - Round Nose, 150 mm

87.1 Basic Indicative Diagram



87.2 Generally conform to IS 3552 - 1989
87.3 Length: 150 mm
87.4 Drop Forged from High Carbon Steel & scientifically treated to give tough body (45 - 48 HRC)
87.5 Cutting edges should be induction hardened. Cutting edge Hardness 55 - 60 HRC.
87.6 Rivet should be hardened and made of carbon Steel
87.7 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC
87.8 Insulation Sleeves made from High Quality CA Plastic which are long lasting and will not break or crack even if it falls from Height and ensures safe electrical working.
87.9 Thicker Sleeves for comfortable Grip
87.10 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.
87.11 Should be able to cut soft (74 to 84 Kg/ mm^2) & Hard (140 Kg/ mm^2) wires
87.12 Should be able to cut Hard wire of Diameter: 1.60 mm & Soft wire of Diameter: 1.0 mm
87.13 Cutting edges should be sharp and precision machined to appropriate angle to cut thick and thin wires with ease.

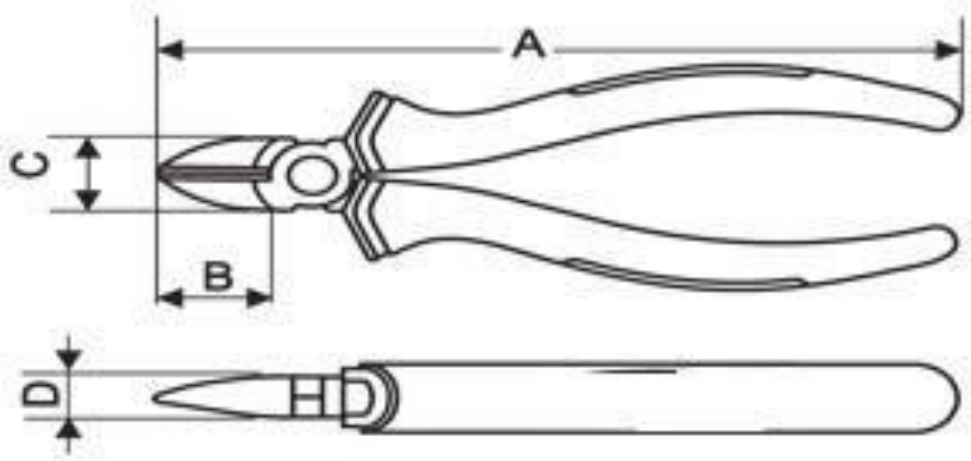
88 Plier - Saw Set, 175 mm

88.1 Basic Indicative Diagram

88.2 Size: 175 mm
88.3 Suitable for tuning and sharpening of saw blade.
88.4 Material: Steel
88.5 Hardened and Tempered

89 Plier - Side Cutting, 200 mm

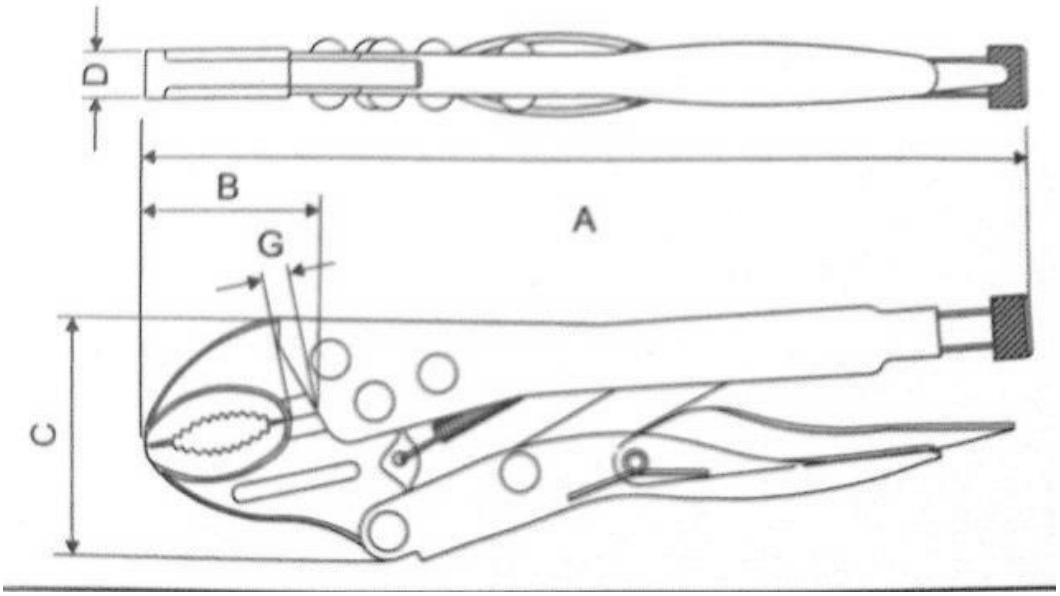
89.1 Basic Indicative Diagram



89.2 Generally conform to IS 4378 - 1990
89.3 Drop Forged from High Carbon Steel & scientifically treated to give tough body (45 - 48 HRC)
89.4 Cutting edges should be induction hardened. Cutting edge Hardness 55 - 60 HRC.
89.5 Rivet should be hardened and made of carbon Steel
89.6 Length: 200 mm
89.7 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC
89.8 Insulation Sleeves made from High Quality CA Plastic
89.9 Thicker Sleeves for comfortable Grip
89.10 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.
89.11 Should be able to cut soft (74 to 84 Kg/ mm^2) & Hard (140 Kg/ mm^2) wires
89.12 Should be able to cut 2.0 mm of hard wire Diameter & 1.5 mm of soft wire Diameter
89.13 Cutting edges should be sharp and precision machined to appropriate angle to cut thick and thin wires with ease.

90 Plier - Vice Grip, 250 mm

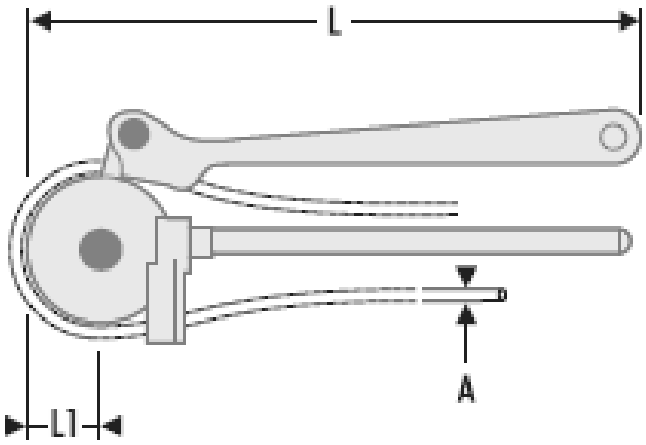
90.1 Basic Indicative Diagram



90.2 Generally conform to IS 10372 - 1982
90.3 Size: A: 250 mm, B: 45 mm, C: 65 mm, D: 12 mm
90.4 Curved jaw
90.5 Jaws should be forged from High grade Alloy Steel
90.6 Jaws should be specially hardened and tempered to give tough body
90.7 Handles should be made from good quality cold drawn Steel sheets
90.8 End Screw is provided with knurling for quick jaw adjustment
90.9 Smooth, Quick releasing mechanism helps in single handed operation
90.10 Nickel Plated for rust prevention

91 Tube Bending Plier Set

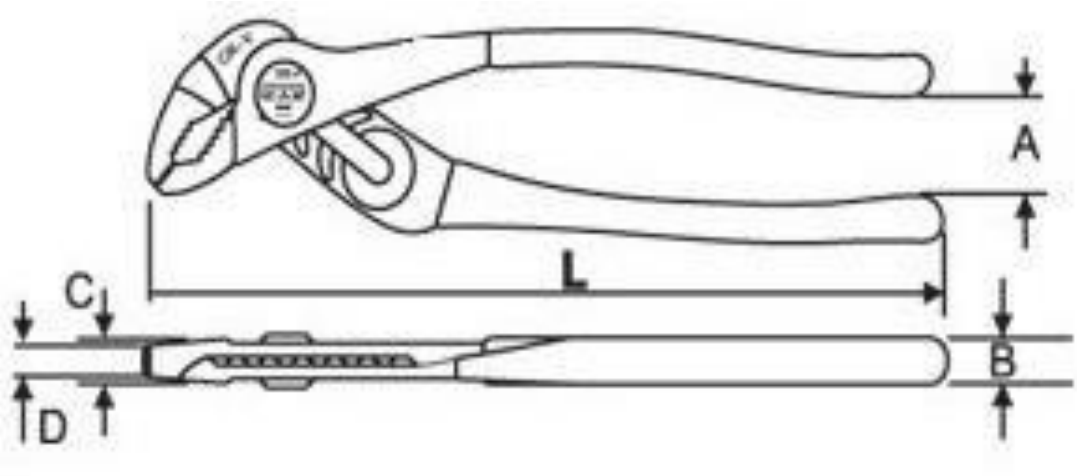
91.1 Basic Indicative Diagram



91.2 To shape pipes in cold drawn or annealed copper
91.3 Bending angle measurement (0 degrees to 180 degrees)
91.4 Made in forged and machined Steel
91.5 Can be carried on a tool box
91.6 Set consisting of
- 91.6.1 Bending Plier Diameter 8 mm
- 91.6.2 Bending Plier Diameter 10 mm
- 91.6.3 Bending Plier Diameter 12 mm
- 91.6.4 Bending Plier Diameter 14 mm
- 91.6.5 Bending Plier Diameter 16 mm

92 Water Pump Plier - 250 mm

92.1 Basic Indicative Diagram



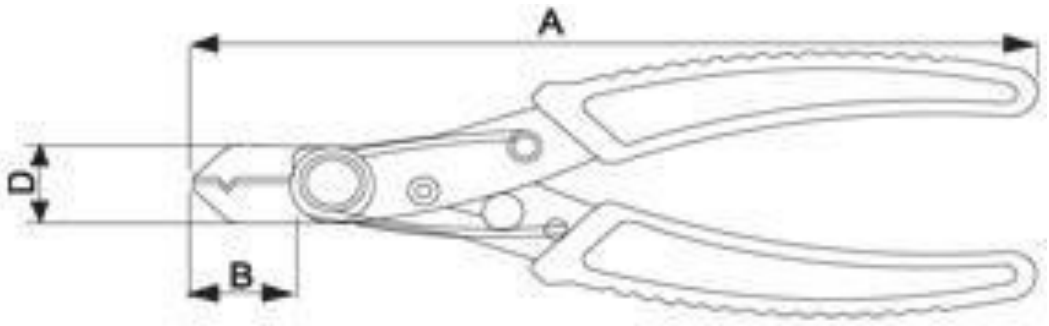
92.2 Generally conform to I.S 6118 - 1991
92.3 Drop forged from Chrome Vanadium Steel
92.4 Size: 250 mm
92.5 Maximum Opening: Ø 45 mm
92.6 Differentially heat treated to give maximum strength and wear resistance on the teeth.
92.7 Hardness
- 92.7.1 Body: 40 - 48 HRC
- 92.7.2 Teeth: 50 - 56 HRC

92.8 Specially designed angle to permit use in confined spaces
92.9 Scientifically designed jaw profile to enable firm holding of job
92.10 Five different jaw opening positions
92.11 Groove type engagement / locking of the shank
92.12 Rivet should be hardened
92.13 Phosphated to provide anti rusting properties
92.14 Double colored, cushion type sleeves for aesthetic look and comfortable grip
92.15 Gripping Capacity (A/F - Across Flat)
- 92.15.1 Position 1 Nut A/F in mm: 4.5
- 92.15.2 Position 2 Nut A/F in mm: 11
- 92.15.3 Position 3 Nut A/F in mm: 20
- 92.15.4 Position 4 Nut A/F in mm: 29
- 92.15.5 Position 5 Nut A/F in mm: 40

92.16 Minimum Load value: 16 Kg

93 Wire Cutter and Stripper - 150 mm

93.1 Basic Indicative Diagram



93.2 Generally conform to I.S. 5995 - 1971
93.3 Dimensions (in mm): A - 150, B - 18, D - 15
93.4 Sleeve should be made of Cellulose Acetate
93.5 Should withstand 400 V AC
93.6 Drop forged from high grade carbon Steel (EN 9)
93.7 Accurate machined and Heat treated

94 Plumb Bob - 115 grams

94.1 Basic Indicative Diagram

94.2 Material: Cast Iron
94.3 Weight: 115 gm + 5%
94.4 Should be supplied with good quality rope

95 Plumb Bob - 200 grams

95.1 Basic Indicative Diagram

95.2 Material: Cast Iron
95.3 Weight: 200 gm + 5%
95.4 Should be supplied with good quality rope

96 Plumb Bob - 500 grams

96.1 Basic Indicative Diagram

96.2 Material: Cast Iron
96.3 Weight: 500 gm + 5%
96.4 Should be supplied with good quality rope

97 Pipe Cutter - For Copper Tube, 3 mm to 16 mm

97.1 Basic Indicative Diagram

97.2 Body material: Cast Iron
97.3 Holding capacity: 3 mm to 16 mm
97.4 Fast and superior cutting
97.5 Should be provided with long shank

98 Pipe Cutter - Wheel Type, 3mm to 30 mm

98.1 Basic Indicative Diagram

98.2 Body material: Cast Iron
98.3 Fast and superior cutting
98.4 Should be provided with long shank

99 Pipe Dies and Die Stock Complete Set in Box 1/2" to 2"

99.1 Basic Indicative Diagram

99.2 Size: 1/2 - 3/4 - 1 inch
99.3 Size: 1.1/4 - 1.1/2 - 2 inch
99.4 Die: HSS
99.5 Stock: Casting
99.6 Handle: Mild Steel

100 Pipe Flaring Tool Set - Tube Cutter = 1/8 to 1-1/8 inches, Flaring Block = 3/16 through 5/8 inch and Flaring Yoke

100.1 Basic Indicative Diagram

100.2	Cutting size:	1/8 to 1 - 1/8 inch
100.3	Flaring block size:	3/16 to 5/8 inch
100.4	Cutting outside Diameter:	1/8 to 1 - 1/4 inch

101 Composite Pipe Installation Tools Set - Plier, Cutter and Pressing tools

101.1 Basic Indicative Diagram

101.2 Complete kit consisting of

101.2.1 Plier & Cutter (Pipe cutter)

- 101.2.1.1 Capacity 1 - 5/8 inch
- 101.2.1.2 Anti - rust anti - wear construction
- 101.2.1.3 Heat treated blade
- 101.2.1.4 Should be able to cut PVC Polyethylene pipes

101.2.2 Pressing Tool (Rounding tool)

101.2.3 Deburring tool

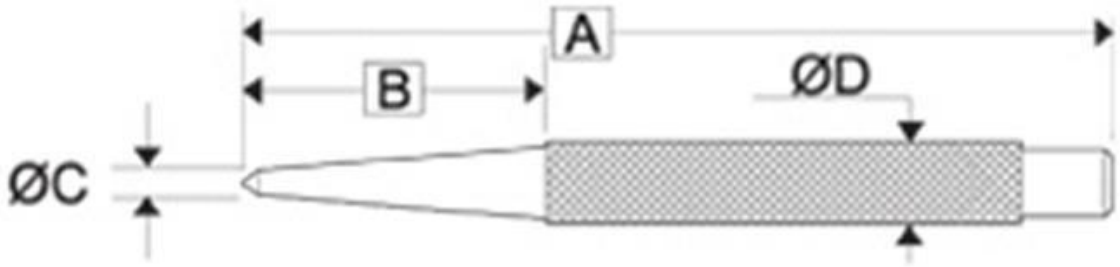
101.2.4 Pipe Holding Clamp

101.2.5 Fitting Holding Clamp

101.2.6 Internal/ External Bending Spring

102 Center Punch - 100 mm

102.1 Basic Indicative Diagram



102.2 Generally conform to I.S. 7177 - 1974
102.3 Dimensions (in mm): A - 100, B - 33, Ø C - 4, Ø D - 10
102.4 Made from high grade chrome Steel
102.5 Hardness
102.5.1 Working surface: 55 - 57 HRC
102.5.2 Body: 35 - 45 HRC
102.6 Overall Length: 100mm
102.7 Black phosphate finish, Hardened & tempered
102.8 Deep knurling on body for firm grip

103 Hollow Punch Set - 6mm to 16mm, Set of 7

103.1 Basic Indicative Diagram

103.2 Generally conform to I.S. 7177 - 1974
103.3 Hollow Punch Set - 6 mm to 16 mm, Set of 7 Pieces
103.4 Cylindrical Hollow Punch
103.5 Hole Diameter (in mm): 6,8,10,11,12,13,16
103.6 Hardness
- 103.6.1 Tip Hardness (Induction Hardened): 40 - 50 HRC
- 103.6.2 Striking end Hardness: 15 - 20 HRC

104 Letter and Number Punch - 4 mm

104.1 Basic Indicative Diagram

104.2 Manufactured from select quality carbon Steel
104.3 Individual Punches should be induction hardened for durability and extended life
104.4 Hardness at Stamping end: 58 – 62 HRC
104.5 Hardness at Striking end: 38 – 42 HRC. This prevents splintering of the punch
104.6 Chamfered striking end to prevent breakage and accidents due to flying splinters
104.7 Number Punch Set should contain 9 pieces - ‘0’ to ‘9’. Numbers ‘6’ & ‘9’ can be
104.8 interchangeable
104.9 Letter Punch Set should contain 27 pieces, alphabets ‘A’ through ‘Z’ and ampersand ‘&’

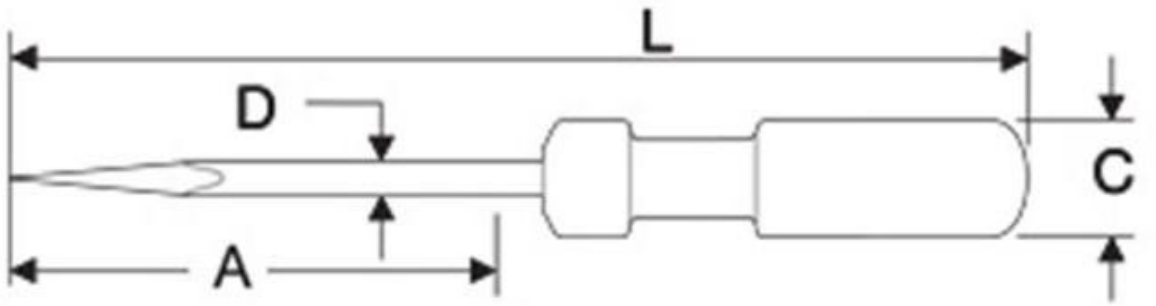
105 Nail Punch - 150 mm

105.1 Basic Indicative Diagram

105.2 Dimensions (+/ - 10%): 3/32 inch X 5 - 1/2 inch
105.3 One - piece construction forged from tempered tool Steel for strength
105.4 Hardened & tempered for long life
105.5 Powder coat finish

106 Poker - 90 mm

106.1 Basic Indicative Diagram

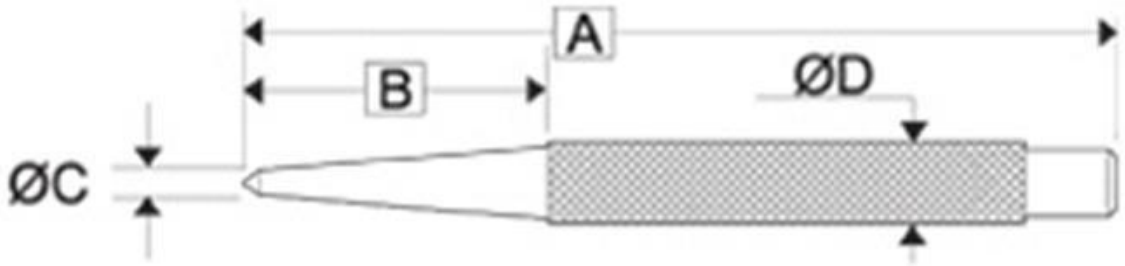


106.2 Generally conform to IS 844 - 1979
106.3 Dimensions in mm (+/ - 5%): A - 100, D - 6
106.4 Blade:
- 106.4.1 Blade made of high grade Silicon - Manganese Steel
- 106.4.2 Material of Blade EN 45 A
- 106.4.3 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement
- 106.4.4 Hardness on Tip: 55 - 58 HRC
- 106.4.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion
- 106.4.6 Tip should be formed by Forging & Trimming
- 106.4.7 Tip sides & faces should be well ground with good finish. Double ear coining should be provided for the blade.

106.5 Handle:
- 106.5.1 Material of Handle: Cellulose Acetate
- 106.5.2 Handle should be made of high grade Cellulose Acetate Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything
- 106.5.3 Handle should withstand rough use including hammering
- 106.5.4 Handle design should be such that it gives comfortable grip even at higher torques
- 106.5.5 Handle & blade assembly should be insert molded

107 Prick Punch - 100 mm

107.1 Basic Indicative Diagram



107.2 Generally conform to I.S. 7177 - 1974
107.3 Dimensions (in mm): A - 100, B - 33, Ø C - 3 mm, Ø D - 10 mm
107.4 Hardness: 55 to 60 HRC
107.5 Manufactured from carbon Steel
107.6 Single piece construction with round shank& round chamfered striking end
107.7 Induction hardened to ensure consistent Hardness with special tempering process to prevent the head from fracturing, thereby preventing accidents
107.8 Rust inhibiting black oxide finish
107.9 Point angle 30 degree

108 Rawl Punch Holder and Bit - 6 mm

108.1 Basic Indicative Diagram

108.2	Length:	153 mm ± 1 mm
108.3	Diameter:	10 mm ± 0.2 mm
108.4	Angle:	45 Degree
108.5	Hardness:	30 - 35 HRC
108.6	Point Diameter:	6 mm
108.7	Material:	EN - 8

109 Rawl Punch Holder and Bit - 8 mm

109.1 Basic Indicative Diagram

109.2	Length:	153 mm ± 1 mm
109.3	Diameter:	12 mm ± 0.2 mm
109.4	Angle:	45 Degree
109.5	Hardness:	30 - 35 HRC
109.6	Point Diameter:	8 mm
109.7	Material:	EN - 8

110 Rawl Punch Holder and Bit - 10 mm

110.1 Basic Indicative Diagram

110.2	Length:	153 mm ± 1 mm
110.3	Diameter:	16 mm ± 0.2 mm
110.4	Angle:	45 Degree
110.5	Hardness:	30 - 35 HRC
110.6	Point Diameter:	10 mm
110.7	Material:	EN - 8

111 Rawl Punch Holder and Bit - 12 mm

111.1 Basic Indicative Diagram

111.2	Length:	153 mm ± 1 mm
111.3	Diameter:	16 mm ± 0.2 mm
111.4	Angle:	45 Degree
111.5	Hardness:	30 - 35 HRC
111.6	Point Diameter:	12 mm
111.7	Material:	EN - 8

112 Rawl Punch Holder and Bit - 14 mm

112.1 Basic Indicative Diagram

112.2	Length:	153 mm ± 1 mm
112.3	Diameter:	20 mm ± 0.2 mm
112.4	Angle:	45 Degree
112.5	Hardness:	30 - 35 HRC
112.6	Point Diameter:	14 mm
112.7	Material:	EN - 8

113 Round Punch - Solid, 3 mm

113.1 Basic Indicative Diagram

113.2	Length:	115 mm ± 1 mm
113.3	Diameter:	8 mm ± 0.1 mm
113.4	Pin Diameter:	3 mm ± 0.05 mm
113.5	Hardness:	45 - 50 HRC

113.6 Should have uniformly heat treated and knurled body

113.7 Black oxidized finish

114 Round Punch - Solid, 4 mm

114.1 Basic Indicative Diagram

114.2	Length:	115 mm ± 1 mm
114.3	Diameter:	8 mm ± 0.2 mm
114.4	Pin Diameter:	4 mm ± 0.05 mm
114.5	Hardness:	45 - 50 HRC

114.6 Should have uniformly heat treated and knurled body.

114.7 Black oxidized finish

115 Round Punch - Solid, 6 mm

115.1 Basic Indicative Diagram

115.2	Length:	115 mm ± 1 mm
115.3	Diameter:	10 mm ± 0.5 mm
115.4	Pin Diameter:	6 mm ± 0.5 mm
115.5	Hardness:	45 - 50 HRC

115.6 Should have uniformly heat treated and knurled body.

115.7 Black oxidized finish

116 Compass Saw (Nest of Saw) - 250 mm with 3 Blades

116.1 Basic Indicative Diagram

116.2 Dimensions:

S.N.	Total Length	Blade Length	Blade thickness
1	375 ±3 mm	250 ± 2mm	1 ± 0.2mm
2	375 ±3 mm	250 ± 2mm	1 ± 0.2mm
3	225 ±3 mm	150 ± 2mm	1 ± 0.2mm

116.3 Hardness: 55 - 60 HRC
116.4 Material: High Carbon Steel
116.5 The cutting capability should be able to have a long reach

117 Cross Cut Saw - 600 mm

117.1 Basic Indicative Diagram

117.2 Should be capable of cutting logs up to 30 Inch in Diameter
117.3 Teeth hardened from 45 and 49 HRC
117.4 Should be supplied with two 35 cm wood handles

118 Electrician's Knife - 100 mm

118.1 Basic Indicative Diagram

118.2 Blade should be made of high grade Steel for sharp and long cutting
118.3 Hardness: 62 - 64 HRC
118.4 ABS Plastic Body for higher strength & soft material for comfort in use
118.5 Slider locking system for enhanced safety
118.6 Blade Width: 18 mm

119 Fret Saw Frame - 150 mm

119.1 Basic Indicative Diagram

119.2 Total Length: 152 mm + 2 mm
119.3 Blade Width: 1.4 mm + 0.2 mm
119.4 Blade thickness: 0.4 mm + 0.1 mm
119.5 Total Height: 177 mm + 2 mm
119.6 Heavy duty frame with wooden handle
119.7 Should be useful for fine cutting of the thin materials plywood, plastic, etc.
119.8 Screw and nut for secure holding of blade

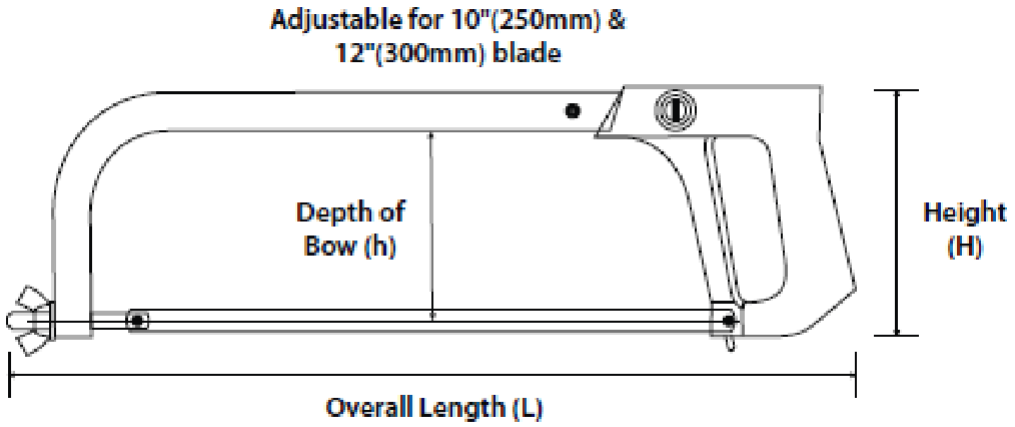
120 Glass Cutter - Diamond Point

120.1 Basic Indicative Diagram

120.2 Size: 130mm + 10%
120.3 Made from high quality diamond to score glass
120.4 3 Break off notches for various depths
120.5 Should cut glass up to 5 mm
120.6 Handle: comfortable grip handle
120.7 Should have swivel head
120.8 Should have ball end for tapping

121 Hacksaw Frame - Adjustable, 250 mm to 300 mm

121.1 Basic Indicative Diagram



121.2 Adjustable for 10 inch (250mm) & 12 inch (300mm) blades
121.3 The blade can additionally be set for sawing at 90°
121.4 Storage compartment in the tubular bow should allow for storing spare blades
121.5 Should be Fitted with a 12" (300 mm) Steel hacksaw blade
121.6 Overall Length(L): 430mm ± 10%
121.7 Height(H): 150 mm ± 10%
121.8 Depth of Bow(H): 106mm ± 10%
121.9 Strong Frame
121.10 Should have adjustable tension lever
121.11 Should be able to build 30000 PSI in 12 turns

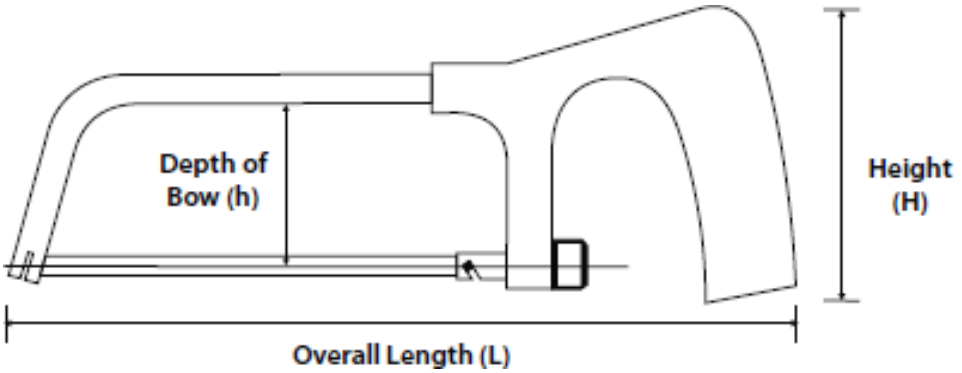
122 Hacksaw Frame - Deep Cutting, 300 mm

122.1 Basic Indicative Diagram

122.2 One - piece body is designed for ultra - high tension of 150 Kg
122.3 Should have Pre - tensioning mechanism to hold blade in place for quick and easy blade changes.
122.4 Should have Thumb - dial adjustable tension mechanism allows for tension memory.
122.5 Should have Large cutting capacity - up to 4 - 3/4 inch (± 10%) throat depth for extra - deep cutting.
122.6 Power load sliding tension should deliver leverage when increasing tension and control when releasing blade.
122.7 Contoured handle and front thumb grip should be ergonomically designed for better control.
122.8 Blade should be able to be positioned at 45° or 90° cutting angle.
122.9 Should have long reach cutting capability.
122.10 Should provide removable file inside frame for finishing up surfaces after cutting.
122.11 Should be able to store 3 blades inside frame.
122.12 Should accept 12 Inch blade
122.13 Hacksaw blade should be included

123 Hacksaw Frame - Fixed, 150 mm

123.1 Basic Indicative Diagram



123.2 Compact & lightweight strong Steel frame
123.3 Frame should have a blade tensioning device that locks when the correct blade tension is reached
123.4 Should be supplied with a 6" (150 mm) carbon Steel blade
123.5 Pistol Grip handle made of high quality ABS plastic
123.6 Length(L): 10 inch (250mm)
123.7 Height(H): 4 inch (100)
123.8 Depth of Bow(h): 2 inch (50mm)

124 Hand Saw - 300 mm

124.1 Basic Indicative Diagram

124.2	Total Length:	450 mm ± 3 mm
124.3	Blade Length:	300 mm ± 2 mm
124.4	Blade thickness:	0.8 mm ± 0.1 mm
124.5	Blade Hardness:	55 - 60 HRC
124.6	Blade material:	High Carbon Steel

124.7 Large sculpted handle and long, slightly tapered blade.

124.8 Handle design should make it easier to control and produces more precise cuts in job

125 Hand Saw - 450 mm

125.1 Basic Indicative Diagram

125.2	Total Length of hand saw:	600 mm ± 3 mm
125.3	Blade Length:	450 mm ± 2 mm
125.4	Blade thickness:	0.8 mm ± 0.1 mm
125.5	Blade Hardness:	55 - 60 HRC
125.6	Blade material:	High Carbon Steel

125.7 Large sculpted handle and long, slightly tapered blade.

125.8 Handle design should make it easier to control and produces more precise cuts in job.

126 Marking Knife - 200 mm

126.1 Basic Indicative Diagram

126.2	Total Length:	200 mm ± 2 mm
126.3	Blade Length:	64 mm ± 1 mm
126.4	Blade Thickness:	2 mm ± 0.2 mm
126.5	Blade Width:	19 mm ± 1 mm
126.6	Blade Hardness:	60 HRC
126.7	Handle Wood:	Hard Wood

126.8 Blade sharpness should be suitable for marking on job

126.9 Blade should have angle profile on the front edge

127 Rip Saw - 450 mm

127.1 Basic Indicative Diagram

127.2	Length:	600 mm ± 3 mm
127.3	Blade Width:	450 mm ± 2 mm
127.4	Blade Thickness:	0.8 mm ± 0.05 mm
127.5	Blade Hardness:	55 - 60 HRC
127.6	Blade Material:	High Carbon Steel
127.7	Handle Material:	PVC

127.8 Should have large sculpted handle with long, slightly tapered blade

128 Tenon Saw - 250 mm

128.1 Basic Indicative Diagram

128.2 Should be suitable for construction professionals effectively carry out trade specific jobs like cutting openings in gypsum board
128.3 High angled nose to increase blade stability
128.4 Should Optimize cutting performance on both the push and pull strokes
128.5 Comfort grip handle for maximum grip and comfort
128.6 Should be used for fine carpentry and should be used with a miter box
128.7 Item Weight: 150 gram
128.8 Product Dimensions: 40 mm X 370 mm X 170 mm
128.9 Size: 250 mm
128.10 Teeth Per Inch: 12

129 Scraper Set - Stainless Steel, 200 mm, Straight Blade=32mm, Straight Blade=50 mm and Angle Blade=32mm

129.1 Basic Indicative Diagram

129.2	Straight Blade (a)	
	129.2.1 Overall Length:	200 mm ± 2 mm
	129.2.2 Blade Width:	32 mm ± 1 mm
	129.2.3 Thickness:	5 mm ± 0.5 mm
	129.2.4 Blade Material:	Stainless Steel
129.3	Angle Blade	
	129.3.1 Overall Length:	200 mm ± 2 mm
	129.3.2 Blade Width:	32 mm ± 1 mm
	129.3.3 Thickness:	5 mm ± 0.5 mm
	129.3.4 Blade Material:	Stainless Steel
129.4	Straight Blade (b)	
	129.4.1 Overall Length:	200 mm ± 2 mm
	129.4.2 Blade Width:	50 mm ± 1 mm
	129.4.3 Thickness:	5 mm ± 0.5 mm
	129.4.4 Blade Material:	Stainless Steel

130 Scraper Set - 200 mm, Triangular, Half Round and Flat

130.1 Basic Indicative Diagram

130.2 Flat

130.2.1	Total Length:	330 mm ± 2 mm
130.2.2	Blade Length:	200 mm ± 1 mm
130.2.3	Blade Width:	25 mm ± 1 mm

130.3 Half round

130.3.1	Total Length:	330 mm ± 2 mm
130.3.2	Blade Length:	200 mm ± 1 mm
130.3.3	Blade Width:	20 mm ± 1 mm

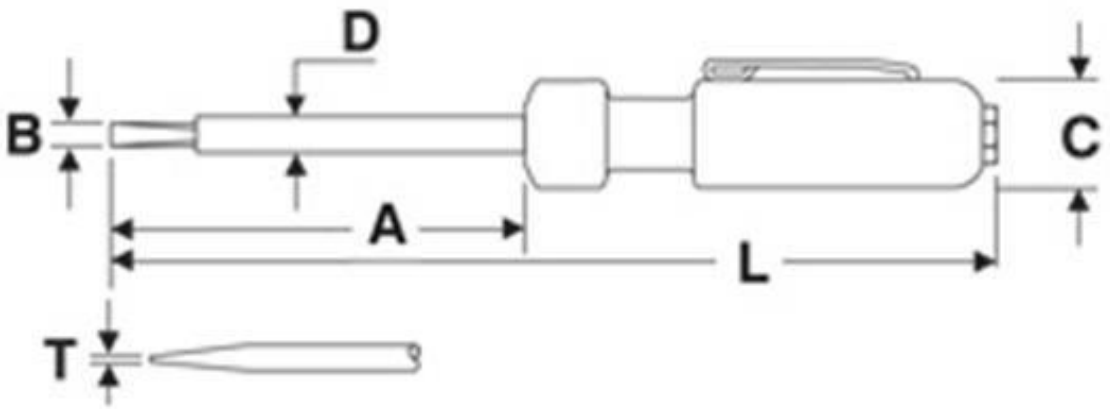
130.4 Triangular

130.4.1	Total Length:	330 mm ± 2 mm
130.4.2	Blade Length:	200 mm ± 1 mm
130.4.3	Blade Width:	16 mm ± 1 mm

130.5	Blade Material:	High Carbon Steel
130.6	Blade Hardness:	55 - 60 HRC

131 Neon Tester - 500 V

131.1 Basic Indicative Diagram



131.2 Generally conforming to IS 5579 - 1985

131.3 Dimension

131.3.1 A: 60 mm

131.3.2 D: 6 mm

131.3.3 Tip Size: B X T = 3.5 mm X 0.5 mm

131.4 Minimum Torque Value: 0.09 Kg.m

131.5 Generally conform to IS 5579 - 1985

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

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

131.8 Hardness on Tip: 55 - 57 HRC

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

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

131.11 Suitable for checking at minimum 90 V DC and 60 AC voltage and maximum upto 500 V AC

131.12 Blade is provided with PVC insulation sleeve & resistance having 1 mega ohm for preventing the electric shock

131.13 NEON filled glow lamp should give a visible glow in normal day light

131.14 Maximum leakage current of 0.12 microampere ensures safe & shock free in use.

131.15 Tip should be precision - ground to 5 degree angle to ensure firm grip in the screw slot.

132 Precision Screw Driver - Set of 6

132.1 Basic Indicative Diagram

132.2 Blade Hardness: 52 - 55 HRC
132.3 Blades made of High Grade Alloy Steel for extra-long life & High Torque
132.4 Soft material on screw driver's body for better gripping and comfort
132.5 Black Electro - lacquering finish to protect blades from corrosion
132.6 Flat Tip blades: 1.4 mm, 2.0 mm, 2.4 mm, 3.0 mm,
132.7 Philips Blades: Tip no. 0 and Tip no. 1

133 Screw Driver - Bit Set

133.1 Basic Indicative Diagram

133.2 Set of 31 pieces viz 30 bits and 1 bit driver

133.2.1 Philips bits of size 0, 1, 2, 3	4 Nos
133.2.2 Flat bits of size 2.5, 3.0, 4.0, 5.0, 6.0 mm	5 Nos
133.2.3 Torx bits T9, T10, T15, T20, T25, T30, T40	7 Nos
133.2.4 Tri wing Bits 1, 2, 3, 4	4 Nos
133.2.5 Hex bits of size 2.0, 2.5, 3.0, 4.0, 5.0, 6.0	6 Nos
133.2.6 Square bits of size S0, S1, S2, S3	4 Nos
133.2.7 Bit Driver	1 No

133.2.7.1 Material: CRV Steel
133.2.7.2 Finish: Satin finish
133.2.7.3 Handle: Made from Polypropylene + Thermo Plastic Rubber

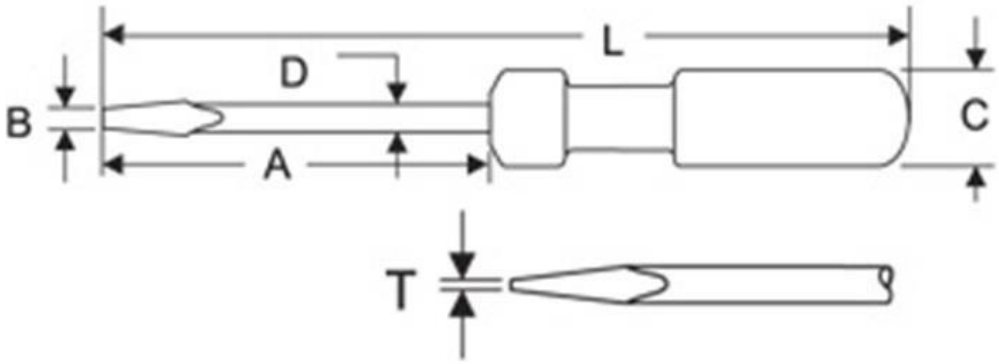
133.3 Bits

133.3.1 Material: CRV material (or better high special quality Steel)
133.3.2 Finish: Sanding grey finish
133.3.3 Hardness: 57 - 62 HRC
133.3.4 Special coating & rust prevention oil for protected against corrosion.

133.4 Philips Screw Driver Bits generally conform to IS 12168 Part II 1978
133.5 Hex Screw Driver Bit generally conform to IS 12481 - 1988
133.6 Tip should be precision ground to ensure firm grip in screw slot
133.7 Dimensions: Width - 50 mm, Height - 100 mm, Depth 50 mm

134 Screw Driver - 10 X 200 mm

134.1 Basic Indicative Diagram



134.2 Generally conform to IS 844 - 1979

134.3 Dimensions:

134.3.1 Size: 10 mm X 200 mm (A - 200 mm, D - 10 mm)

134.3.2 Tip Bit Size: B X T: 10 mm X 1.2 mm

134.4 Blade:

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

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

134.4.3 Hardness on Tip: 55 - 58 HRC

134.4.4 Minimum Torque Value: 1.46 Kg.m

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

134.5 Handle:

134.5.1 Material of Handle: Cellulose Acetate

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

134.5.3 Handle should withstand rough use including hammering

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

134.5.5 Handle & blade assembly should be insert molded

134.6 Tip:

134.6.1 Tip should be formed by Forging & Trimming

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

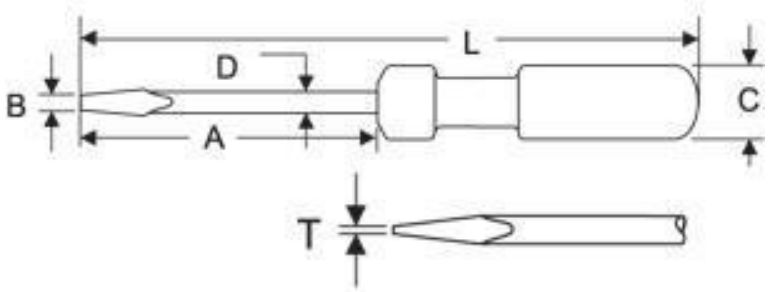
134.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

134.6.5 Double ear coining should be provided for the blade.

135 Screw Driver - 10 X 250 mm

135.1 Basic Indicative Diagram



135.2 Generally conform to IS 844 - 1979

135.3 Dimensions:

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

135.3.2 Tip Bit Size: B X T : 10 mm X 1.2 mm

135.4 Blade:

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

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

135.4.3 Hardness on Tip: 55 - 58 HRC

135.4.4 Minimum Torque Value: 1.46 Kg.m

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

135.5 Handle:

135.5.1 Material of Handle: Cellulose Acetate

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

135.5.3 Handle should withstand rough use including hammering

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

135.5.5 Handle & blade assembly should be insert molded

135.6 Tip:

135.6.1 Tip should be formed by Forging & Trimming

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

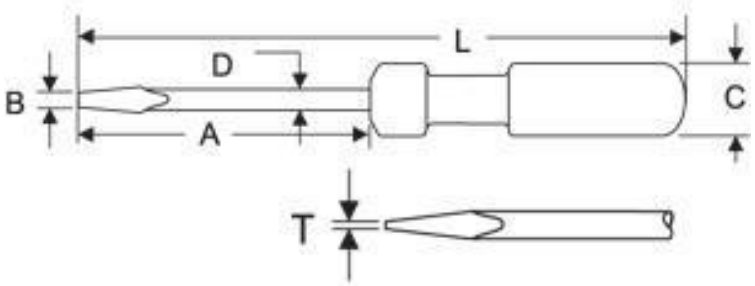
135.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

135.6.5 Double ear coining should be provided for the blade.

136 Screw Driver - 10 X 300 mm

136.1 Basic Indicative Diagram



136.2 Generally conform to IS 844 - 1979

136.3 Dimensions:

136.3.1 Size: 10 mm X 300 mm (A - 300 mm, D - 10 mm)

136.3.2 Tip Bit Size: B X T : 10 mm X 1.5 mm

136.4 Blade:

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

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

136.4.3 Hardness on Tip: 55 - 58 HRC

136.4.4 Minimum Torque Value: 1.46 Kg.m

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

136.5 Handle:

136.5.1 Material of Handle: Cellulose Acetate

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

136.5.3 Handle should withstand rough use including hammering

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

136.5.5 Handle & blade assembly should be insert moulded

136.6 Tip:

136.6.1 Tip should be formed by Forging & Trimming

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

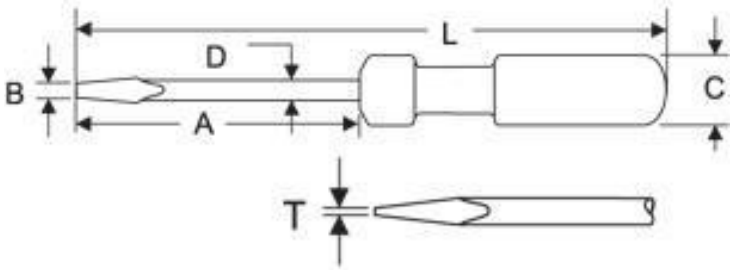
136.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

136.6.5 Double ear coining should be provided for the blade.

137 Screw Driver - 10 X 450 mm

137.1 Basic Indicative Diagram



137.2 Generally conform to IS 844 - 1979

137.3 Dimensions:

137.3.1 Size: 10 mm X 450 mm (A - 450 mm, D - 10 mm)

137.3.2 Tip Bit Size: B X T: 13.0 mm X 1.9 mm

137.4 Blade:

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

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

137.4.3 Hardness on Tip: 55 - 58 HRC

137.4.4 Minimum Torque Value: 1.46 Kg.m

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

137.5 Handle:

137.5.1 Material of Handle: Cellulose Acetate

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

137.5.3 Handle should withstand rough use including hammering

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

137.5.5 Handle & blade assembly should be insert moulded

137.6 Tip:

137.6.1 Tip should be formed by Forging & Trimming

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

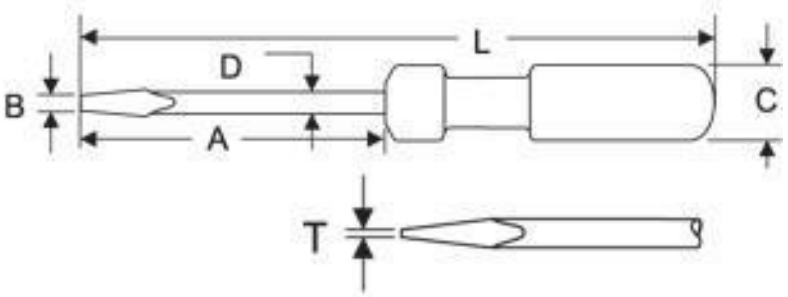
137.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

137.6.5 Double ear coining should be provided for the blade.

138 Screw Driver - 3 X 75 mm

138.1 Basic Indicative Diagram



138.2 Generally conform to IS 844 - 1979

138.3 Dimensions:

138.3.1 Size: 3 mm X 75 mm (A - 75 mm, D - 3 mm)

138.3.2 Tip Bit Size: B X T : 3.0 mm X 0.5 mm

138.4 Blade:

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

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

138.4.3 Hardness on Tip: 55 - 58 HRC

138.4.4 Minimum Torque Value: 0.08 Kg.m

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

138.5 Handle:

138.5.1 Material of Handle: Cellulose Acetate

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

138.5.3 Handle should withstand rough use including hammering

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

138.5.5 Handle & blade assembly should be insert moulded

138.6 Tip:

138.6.1 Tip should be formed by Forging & Trimming

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

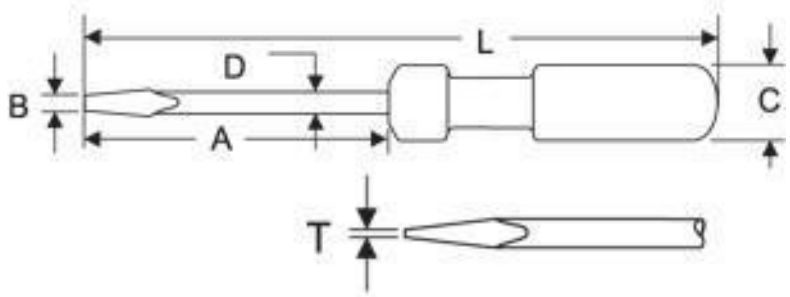
138.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

138.6.5 Double ear coining should be provided for the blade.

139 Screw Driver - 6 X 100 mm

139.1 Basic Indicative Diagram



139.2 Generally conform to IS 844 - 1979

139.3 Dimensions:

139.3.1 Size: 6 mm X 100 mm (A - 100 mm, D - 6 mm)

139.3.2 Tip Bit Size: B X T : 6 mm X 0.6 mm

139.4 Blade:

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

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

139.4.3 Hardness on Tip: 55 - 58 HRC

139.4.4 Minimum Torque Value: 0.21 Kg.m

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

139.5 Handle:

139.5.1 Material of Handle: Cellulose Acetate

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

139.5.3 Handle should withstand rough use including hammering

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

139.5.5 Handle & blade assembly should be insert moulded

139.6 Tip:

139.6.1 Tip should be formed by Forging & Trimming

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

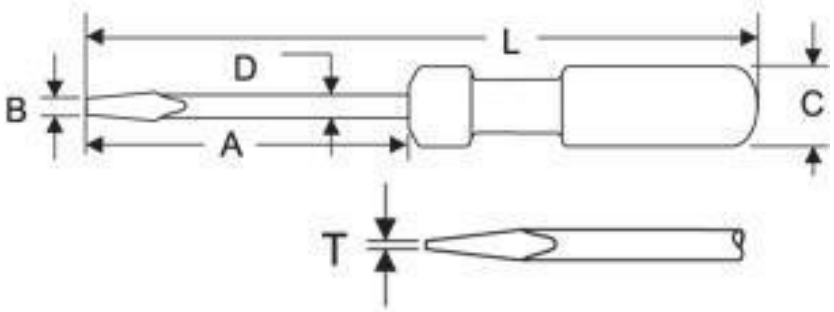
139.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

139.6.5 Double ear coining should be provided for the blade.

140 Screw Driver - 8 X 150 mm

140.1 Basic Indicative Diagram



140.2 Generally conform to IS 844 - 1979

140.3 Dimensions:

140.3.1 Size: 8mm X 150 mm (A - 150 mm, D - 8 mm)

140.3.2 Tip Bit Size: B X T : 8 mm X 1.2 mm

140.4 Blade:

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

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

140.4.3 Hardness on Tip: 55 - 58 HRC

140.4.4 Minimum Torque Value: 1.17 Kg.m

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

140.5 Handle:

140.5.1 Material of Handle: Cellulose Acetate

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

140.5.3 Handle should withstand rough use including hammering

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

140.5.5 Handle & blade assembly should be insert molded

140.6 Tip:

140.6.1 Tip should be formed by Forging & Trimming

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

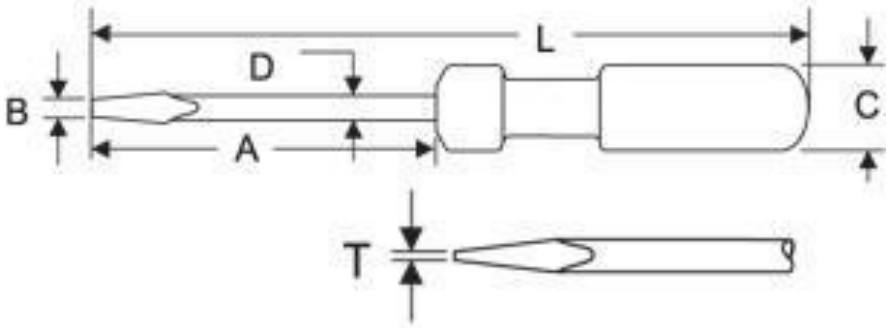
140.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

140.6.5 Double ear coining should be provided for the blade

141 Screw Driver - 8 X 200 mm

141.1 Basic Indicative Diagram



141.2 Generally conform to IS 844 - 1979

141.3 Dimensions:

141.3.1 Size: 8mm X 200 mm (A - 200 mm, D - 8 mm)

141.3.2 Tip Bit Size: B X T : 8 mm X 1.2 mm

141.4 Blade:

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

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

141.4.3 Hardness on Tip: 55 - 58 HRC

141.4.4 Minimum Torque Value: 1.17 Kg.m

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

141.5 Handle:

141.5.1 Material of Handle: Cellulose Acetate

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

141.5.3 Handle should withstand rough use including hammering

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

141.5.5 Handle & blade assembly should be insert moulded

141.6 Tip:

141.6.1 Tip should be formed by Forging & Trimming

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

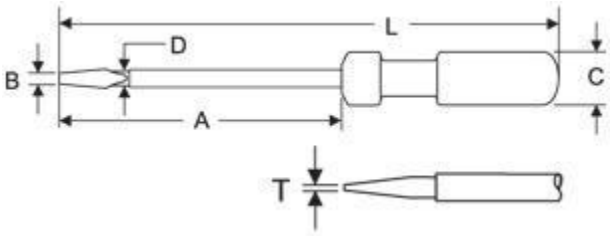
141.6.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

141.6.5 Double ear coining should be provided for the blade

142 Screw Driver - Insulated, 10 X 250 mm

142.1 Basic Indicative Diagram



142.2 Generally conform to IS 844 - 1979
142.3 Insulated Blade
142.4 Dimensions:
- 142.4.1 Size: 10 mm X 250 mm (A - 250 mm, D - 10 mm)
- 142.4.2 Tip Bit Size: B X T : 10 mm x 1.2 mm

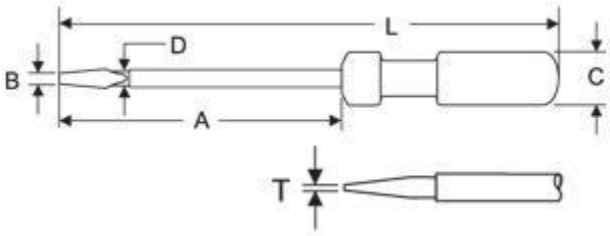
142.5 Blade:
- 142.5.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)
- 142.5.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement
- 142.5.3 Hardness on Tip: 55 - 58 HRC
- 142.5.4 Minimum Torque Value: 1.46 Kg.m
- 142.5.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

142.6 Handle:
- 142.6.1 Material of Handle: Cellulose Acetate
- 142.6.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything
- 142.6.3 Handle should withstand rough use including hammering
- 142.6.4 Handle design should be such that it gives comfortable grip even at higher torques
- 142.6.5 Handle & blade assembly should be insert molded

142.7 Tip:
- 142.7.1 Tip should be formed by Forging & Trimming
- 142.7.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.
- 142.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position
- 142.7.4 Tip sides & faces should be well ground with good finish
- 142.7.5 Double ear coining should be provided for the blade

143 Screw Driver - Insulated, 4 X 150 mm

143.1 Basic Indicative Diagram



143.2 Generally conform to IS 844 - 1979
143.3 Insulated Blade
143.4 Dimensions:
- 143.4.1 Size: 4 mm X 150 mm (A - 150 mm, D - 4 mm)
- 143.4.2 Tip Bit Size: B X T : 4 mm X 0.6 mm

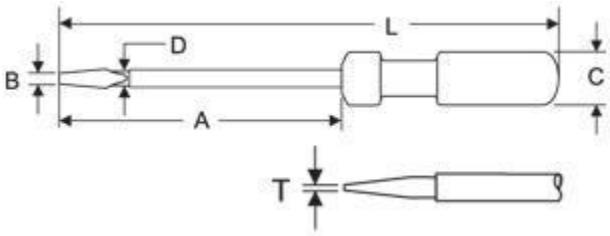
143.5 Blade:
- 143.5.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)
- 143.5.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement
- 143.5.3 Hardness on Tip: 55 - 58 HRC
- 143.5.4 Minimum Torque Value: 0.15 Kg.m
- 143.5.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

143.6 Handle:
- 143.6.1 Material of Handle: Cellulose Acetate
- 143.6.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything
- 143.6.3 Handle should withstand rough use including hammering
- 143.6.4 Handle design should be such that it gives comfortable grip even at higher torques
- 143.6.5 Handle & blade assembly should be insert molded

143.7 Tip:
- 143.7.1 Tip should be formed by Forging & Trimming
- 143.7.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.
- 143.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position
- 143.7.4 Tip sides & faces should be well ground with good finish
- 143.7.5 Double ear coining should be provided for the blade

144 Screw Driver - Insulated, 6 X 150 mm

144.1 Basic Indicative Diagram



144.2 Generally conform to IS 844 - 1979
144.3 Insulated Blade
144.4 Dimensions:
- 144.4.1 Size: 6 mm X 150 mm (A - 150 mm, D - 6 mm)
- 144.4.2 Tip Bit Size: B X T : 6 X 0.8 mm

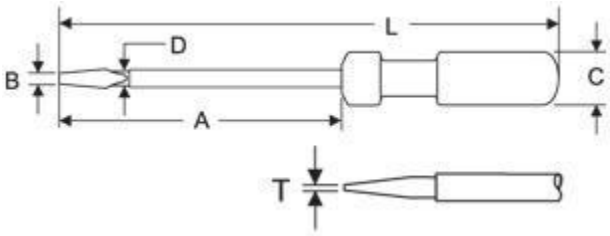
144.5 Blade:
- 144.5.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)
- 144.5.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement
- 144.5.3 Hardness on Tip: 55 - 58 HRC
- 144.5.4 Minimum Torque Value: 0.39 Kg.m
- 144.5.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

144.6 Handle:
- 144.6.1 Material of Handle: Cellulose Acetate
- 144.6.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything
- 144.6.3 Handle should withstand rough use including hammering
- 144.6.4 Handle design should be such that it gives comfortable grip even at higher torques
- 144.6.5 Handle & blade assembly should be insert moulded

144.7 Tip:
- 144.7.1 Tip should be formed by Forging & Trimming
- 144.7.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.
- 144.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position
- 144.7.4 Tip sides & faces should be well ground with good finish
- 144.7.5 Double ear coining should be provided for the blade

145 Screw Driver - Insulated, 8 X 200 mm

145.1 Basic Indicative Diagram



145.2 Generally conform to IS 844 - 1979

145.3 Insulated Blade

145.4 Dimensions:

145.4.1 Size: 8 mm X 200 mm (A - 200 mm, D - 8 mm)

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

145.5 Blade:

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

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

145.5.3 Hardness on Tip: 55 - 58 HRC

145.5.4 Minimum Torque Value: 1.17 Kg.m

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

145.6 Handle:

145.6.1 Material of Handle: Cellulose Acetate

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

145.6.3 Handle should withstand rough use including hammering

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

145.6.5 Handle & blade assembly should be insert molded

145.7 Tip:

145.7.1 Tip should be formed by Forging & Trimming

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

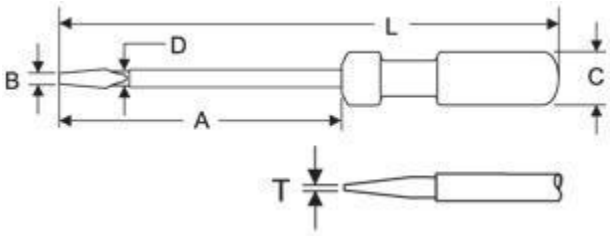
145.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position

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

145.7.5 Double ear coining should be provided for the blade.

146 Screw Driver - Insulated, 8 X 300 mm

146.1 Basic Indicative Diagram



146.2 Generally conform to IS 844 - 1979
146.3 Insulated Blade
146.4 Dimensions:
- 146.4.1 Size: 8 mm X 300 mm (A - 300 mm, D - 8 mm)
- 146.4.2 Tip Bit Size: B X T : 8.0 mm X 1.2 mm

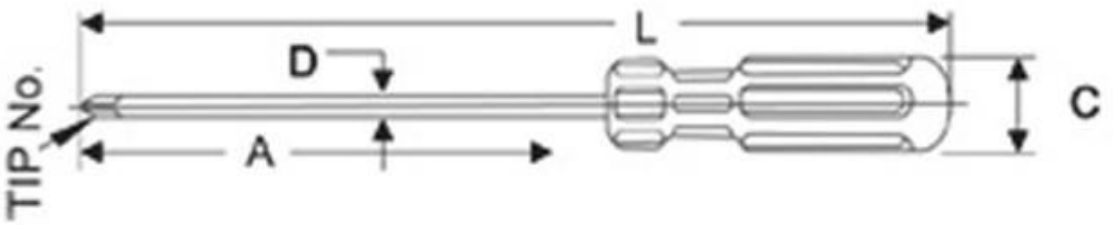
146.5 Blade:
- 146.5.1 Blade made of high grade Silicon - Manganese Steel (EN 45 A)
- 146.5.2 Blade should be differentially hardened & tempered to resist wear, bending & meet high torque requirement
- 146.5.3 Hardness on Tip: 55 - 58 HRC
- 146.5.4 Minimum Torque Value: 1.17 Kg.m
- 146.5.5 Bright and Smooth Nickel Chrome plating finish to effectively protect blade against corrosion

146.6 Handle:
- 146.6.1 Material of Handle: Cellulose Acetate
- 146.6.2 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything
- 146.6.3 Handle should withstand rough use including hammering
- 146.6.4 Handle design should be such that it gives comfortable grip even at higher torques
- 146.6.5 Handle & blade assembly should be insert moulded

146.7 Tip:
- 146.7.1 Tip should be formed by Forging & Trimming
- 146.7.2 Tip should be precision - ground to 10 degree angle to ensure firm grip in the screw slot.
- 146.7.3 The Blade tip should be magnetized to lift small screw from confined places or to hold the screw in position
- 146.7.4 Tip sides & faces should be well ground with good finish
- 146.7.5 Double ear coining should be provided for the blade.

147 Screw Driver - Philips, Set of 5

147.1 Basic Indicative Diagram



147.2 Generally conform to IS 844 - 1979

147.3 Sizes:

147.3.1 A: 50 mm	D: 3 mm	TIP SIZE: 00
147.3.2 A: 60 mm	D: 3 mm	TIP SIZE: 0
147.3.3 A: 75 mm	D: 3 mm	TIP SIZE: 1
147.3.4 A: 100 mm	D: 6 mm	TIP SIZE: 2
147.3.5 A: 200 mm	D: 8 mm	TIP SIZE: 3

147.4 Blade made of High Grade Silicon - Manganese Steel

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

147.6 Hardness on Tip: 55 - 58 HRC

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

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

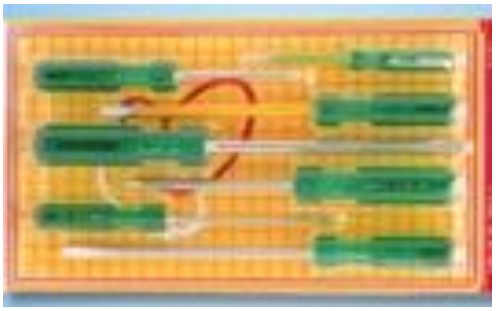
147.9 Handle should be made of high grade CA Plastic, which is non - flammable & unaffected by oil, petrol, grease, water - practically anything

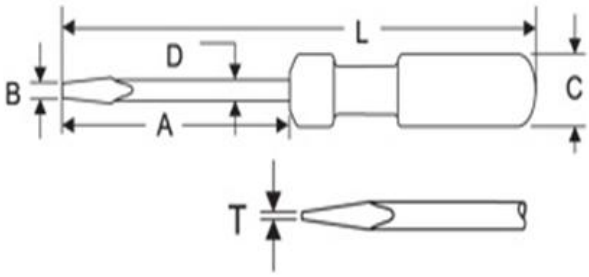
147.10 Handle should withstand rough use including hammering

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

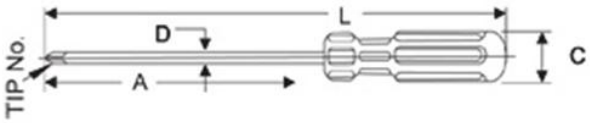
148 Screw Driver - Set of 7

148.1 Basic Indicative Diagram

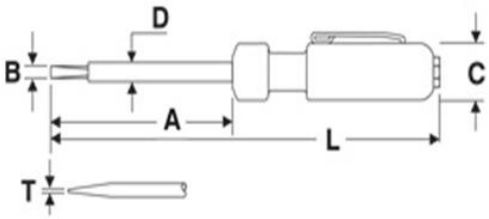




Engineer's Screw Driver



Philips Screw Driver



Line Tester

148.2 **Screw Drivers: 4 Numbers**

148.2.1 Generally conform to IS 844 - 1979

148.2.2 Sizes (Sizes in mm) (MTV - Minimum Torque Value)

148.2.2.1 A: 100, D: 4, TIP SIZE: B x T (4.0 x 0.6), MTV: 0.15 Kg.m

148.2.2.2 A: 150, D: 6, TIP SIZE: B x T (6.0 x 0.8), MTV: 0.39 Kg.m

148.2.2.3 A: 150, D: 8, TIP SIZE: B x T (8.0 x 1.2), MTV: 1.17 Kg.m

148.2.2.4 A: 125, D: 5, TIP SIZE: B x T (5.0 x 0.6), MTV: 0.18 Kg.m

148.2.3 Blade:

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

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

148.2.3.3 Hardness on Tip: 55 - 58 HRC

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

148.2.4 Tip

148.2.4.1 Tip should be formed by Forging & Trimming

148.2.4.2 Machining Aspects: Tip sides & faces should be well ground with good finish. Double ear coining should be provided for the blade.

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

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

148.2.5 Handle:

148.2.5.1 Material of Handle: Cellulose Acetate

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

148.2.5.3 Handle should withstand rough use including hammering

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

148.2.5.5 Handle & blade assembly should be insert moulded

148.3 **Philips Screw Drivers (Sizes in mm): 2 Numbers**

148.3.1 Generally conform to IS 844 - 1979

148.3.2 Sizes:

148.3.2.1 A: 75 mm D: 3 mm Tip Size: 1

148.3.2.2 A: 100 mm D: 6 mm Tip Size: 2

148.3.3 Blade:

148.3.3.1 Blade made of high grade Silicon - Manganese Steel

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

148.3.3.3 Hardness on Tip: 55 - 58 HRC

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

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

148.3.4 Handle:

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

148.3.4.2 Handle should withstand rough use including hammering

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

148.4 **Line Tester: 1 Number**

148.4.1 Generally conform to IS 5579 - 1985

148.4.2 Dimensions: A: 60 mm D: 6 mm Tip Size: B X T (3.5 x 0.5)

148.4.3 Minimum Torque Value: 0.09 Kg.m

148.4.4 Blade:

148.4.4.1 Blade made of high grade Silicon - Manganese Steel

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

148.4.4.3 Hardness on Tip: 55 - 57 HRC

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

148.4.4.5 Blade should be provided with PVC insulation sleeve & resistance having 1 mega ohm for preventing the electric shock

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

148.4.6 Suitable for checking at minimum 90 V DC and 60 AC voltage and maximum upto 500 V AC

148.4.7 NEON filled glow lamp should give a visible glow in normal day light

148.4.8 Maximum leakage current of 0.12 microampere ensures safe & shock free in use.

148.4.9 Tip should be precision - ground to 5 degree angle to ensure firm grip in the screw slot.

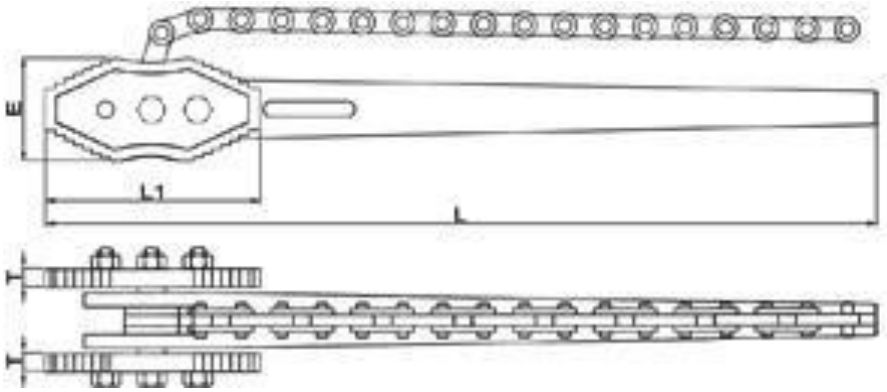
149 Screw Extractor Set - Set of 5

149.1 Basic Indicative Diagram

149.2 Five Pieces Set: Size 3 mm, 6 mm, 8 mm, 11 mm, 14 mm
149.3 Heat treated Cr - Mo Steel

150 Chain Pipe Wrench - 90 mm to 650 mm

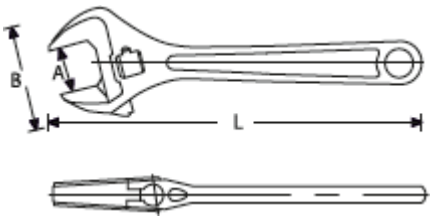
150.1 Basic Indicative Diagram



150.2 Generally conforming to I.S. 4123 - 1998
150.3 Drop forged jaws with high grade Steel
150.4 Accurately machined jaw teeth on both sides of the jaw to provide firm gripping & easy for reverse operation
150.5 Length: 650 mm
150.6 Suitable for Pipe Ø 90 mm

151 Spanner - Adjustable, 150 mm

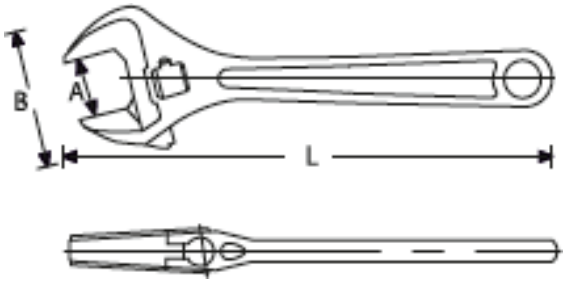
151.1 Basic Indicative Diagram



151.2 Generally Conform to IS 6149 - 1984 Grade II
151.3 Length (L): 150 mm
151.4 Plain Carbon Steel/ Cr - V Steel
151.5 Knurl adjusting mechanism for quick & precise adjustment
151.6 Built - in tension spring stabilizes movable jaw.
151.7 Laser - etched mm jaw scale for easy adjustment
151.8 Drop forged with high grade forging Steel
151.9 Play between jaws: 1.20 mm (maximum)
151.10 Hardness: 40 - 50 HRC
151.11 Minimum Torque Value: 8 Kg.m
151.12 Maximum Opening (A): 19 mm
151.13 Made with 15 degree head angle to allow use in narrow spaces having arc movement of
151.14 only 30 degree
151.15 Jaw Shank should not protrude out even when fully opened. In full condition, movable jaw should align with outer radius of the handle.
151.16 Adjustable Wrenches Black Phosphate Finish
151.17 Light weight handle design

152 Spanner - Adjustable, 300 mm

152.1 Basic Indicative Diagram



152.2 Generally Conform to IS 6149 - 1984 Grade II
152.3 Length (L): 300 mm
152.4 Plain Carbon Steel/ Cr - V Steel
152.5 Knurl adjusting mechanism for quick & precise adjustment
152.6 Built - in tension spring stabilizes movable jaw.
152.7 Laser - etched mm jaw scale for easy adjustment
152.8 Drop forged with high grade forging Steel
152.9 Play between jaws: 1.20 mm (maximum)
152.10 Hardness: 40 - 50 HRC
152.11 Minimum Torque Value: 49 Kg.m
152.12 Torque Test: Should withstand torque till 52.5 Kg.m
152.13 Maximum Opening (A): 35 mm
152.14 Made with 15 degree head angle to allow use in narrow spaces having arc movement of only 30 degree
152.15 Jaw Shank should not protrude out even when fully opened. In full condition, movable jaw should align with outer radius of the handle.
152.16 Adjustable Wrenches Black Phosphate Finish
152.17 Light weight handle design

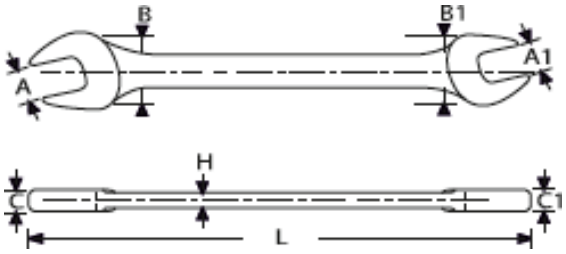
153 Spanner Set - Box Type, 6 mm to 32 mm, Set of 12

153.1 Basic Indicative Diagram

153.2 Generally conforming to I.S 2030 - 1989
153.3 Made from tubular section of Steel
153.4 Heat treated to give maximum strength
153.5 Hardness: 29 to 34 HRC (carburizing depth minimum up to 0.3 mm)
153.6 Body and Hexagon should have good alignment and ends should be square with axis
153.7 Bright Zinc plating for rust protection
153.8 Sizes in mm: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22, 21X23, 24X27, 25X28, 30X32

154 Spanner Set - Double Ended, 6 mm to 22 mm, Set of 8

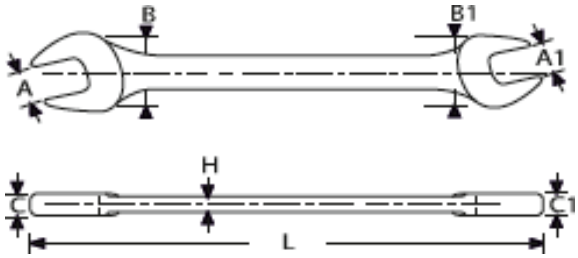
154.1 Basic Indicative Diagram



154.2 Generally Conform to IS 2028 - 1998
154.3 Sizes: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22
154.4 Slightly Rounded handles - Sand Blasted
154.5 Non Damaging Grip on nut due to close wrench opening tolerances
154.6 I - section design of handle and heads to combine strength and low weight
154.7 Thoroughly corrosion protected with Nickel chrome finish
154.8 Deep forged from Chrome vanadium Steel (31CrV3)
154.9 Hardness: 42 - 45 HRC
154.10 Head at each end are of different sizes and set at an angle of 15 degrees
154.11 Web should be provided in forging
154.12 Minimum Torque Values in Kg.m
- 154.12.1 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
- 154.12.2 Nominal Width A/F 13 - 5.3, 14 - 6.5, 15 - 7.8, 16 - 9.4, 17 - 10.9, 18 - 13.0
- 154.12.3 Nominal Width A/F 19 - 15.2, 20 - 17.50, 21 - 20.20, 22 - 22.9

155 Spanner Set - Double Ended, 6 mm to 32 mm, Set of 12

155.1 Basic Indicative Diagram



155.2 Generally Conform to IS 2028 - 1998
155.3 Sizes: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22, 21X23, 24X27, 25X28, 30X32 mm
155.4 Slightly Rounded handles - Sand Blasted
155.5 Non Damaging Grip on nut due to close wrench opening tolerances
155.6 I - section design of handle and heads to combine strength and low weight
155.7 Salt Spray Test should be conducted
155.8 Should not have Sharp Cuts, Pit Marks, Cutting Burs
155.9 Should have Anti - Slip design Feature
155.10 Thoroughly corrosion protected with Nickel chrome finish
155.11 Deep forged from Chrome vanadium Steel (31CrV3)
155.12 Hardness: 42 - 45 HRC
155.13 Head at each end are of different sizes and set at an angle of 15 degrees
155.14 Web should be provided in forging
155.15 Minimum Torque Values in Kg.m
- 155.15.1 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
- 155.15.2 Nominal Width A/F 13-5.3, 14-6.5, 15-7.8, 16-9.4, 17-10.9, 18-13.0
- 155.15.3 Nominal Width A/F 19-15.2, 20-17.50, 21-20.20, 22-22.9, 23-26.0, 24-29.3
- 155.15.4 Nominal Width A/F 25-32.8, 26-36.6, 27-40.7, 28-45.0, 30-54.6, 32-65.50

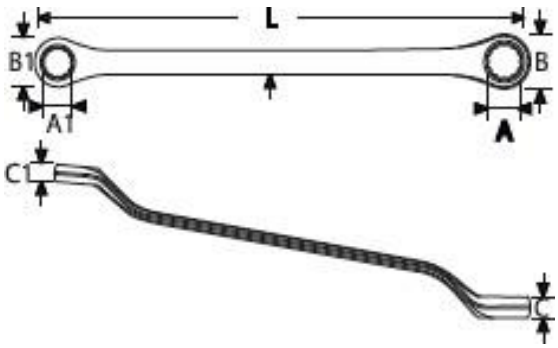
156 Spanner Set - Pin, Set of 4

156.1 Basic Indicative Diagram

156.2 Adjustable Pin Spanner Wrench
156.3 Should be non - reflective black oxide finish
156.4 Pins should be precision machined to provide engagement with side holes or slots
156.5 Should be useful to tighten side slot nuts on collars, lock nuts and bearings
156.6 Length: 7 Inch

157 Spanner Set - Ring, 6 mm to 32 mm, Set of 12

157.1 Basic Indicative Diagram



157.2 Generally Conform to IS 2029 - 1998
157.3 Sizes: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22, 21X23, 24X27, 25X28, 30X32 mm
157.4 Thin walled rings to provide accessibility in confined spaces
157.5 Slightly rounded handles - sand blasted to give comfortable grip
157.6 Non Damaging Grip on nut due to close wrench opening tolerances
157.7 I - section design of handle and heads to combine strength and low weight
157.8 Thoroughly corrosion protected with Nickel chrome finish
157.9 Deep forged from Chrome vanadium Steel (31CrV3)
157.10 Forging Finish: Should be free from forging defects such as pitted, unfilling, excess flash etc
157.11 A/F broaching finish should be good and should have flank bihex
157.12 Grinding finish: Partline flash is smooth & enough ground
157.13 Surface finish: Bright Ni - Cr plated
157.14 Plating thickness: Minimum 3.5 microns
157.15 Hardness: 42 - 48 HRC
157.16 Minimum Torque Values in Kg.m
157.16.1 Nominal Width A/F 6-1.8, 7-2.6, 8-3.50, 9-4.6, 10-5.90, 11-7.40, 12-9.10
157.16.2 Nominal Width A/F 13-10.90, 14-13.0, 15-15.30, 16-17.80, 17-20.50
157.16.3 Nominal Width A/F 18-23.4, 19-26.6, 20-30.0, 21-31.6, 22-37.5, 23-41.6
157.16.4 Nominal Width A/F 24-46.0, 25-50.6, 26-55.5, 27-60.6, 28-66.0, 30-77.5
157.16.5 Nominal Width A/F 32-90.10

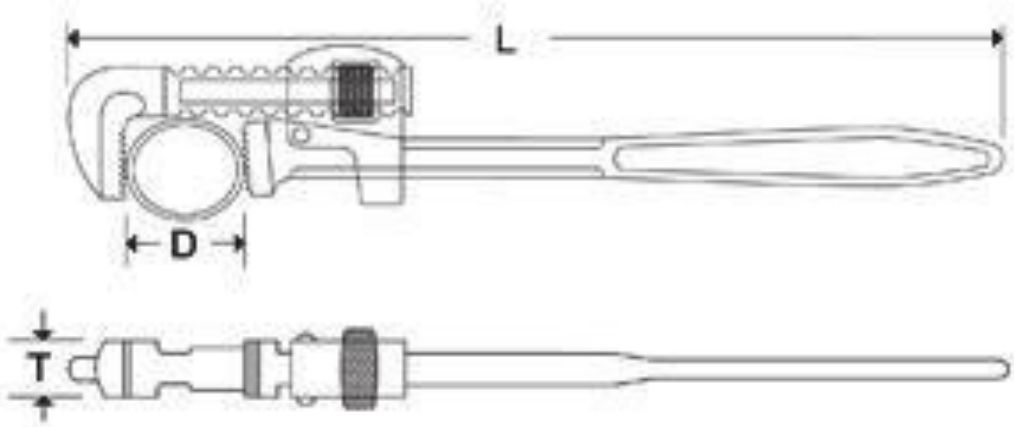
158 Spanner Set - Spark Plug, Set of 5

158.1 Basic Indicative Diagram

158.2 Generally conforming to I.S 2030 - 1989
158.3 Made from tubular section of Steel
158.4 Heat treated to give maximum strength
158.5 Hardness: 29 to 34 HRC (carburizing depth minimum up to 0.3 mm)
158.6 Body and Hexagon should have good alignment and ends should be square with axis
158.7 Bright Zinc plating for rust protection
158.8 Sizes in mm: 14 X 15, 16 X 17, 18 X 19, 20 X 22, 21 X 23

159 Stillson Pattern Pipe Wrenches - Length = 300 mm, Opening = 42 mm

159.1 Basic Indicative Diagram



159.2 Generally Conform to IS 4003 (I) 1978
159.3 Length L: 300 mm
159.4 Opening D: 42 mm
159.5 Suitable to pipe size: 32 mm
159.6 Jaws should be dropped forged from high grade carbon Steel
159.7 Differential Hardness pattern of the handle & jaw permits resistance teeth & tough body
159.8 Hardness
159.8.1 Jaws: 50 - 60 HRC
159.8.2 Jaw Shank: 35 - 45 HRC
159.9 Torque Value: 51 Kg.m
159.10 Jaws should have precision machined integral teeth with included angle of 76 degrees to provide best matching, strength & firm gripping, without biting on jobs
159.11 Should be provided with conical compression springs to balance the movable jaw properly so that forward and backward action is possible.
159.12 High grade malleable Cast Iron housing
159.13 Heat treated rivets of carbon Steel
159.14 Heat treated and specially knurled nut
159.15 Phosphated and painted to guard against rusting

160 Torque Wrenches - Range 5 Nm to 200 Nm Set of 3,

160.1 Basic Indicative Diagram

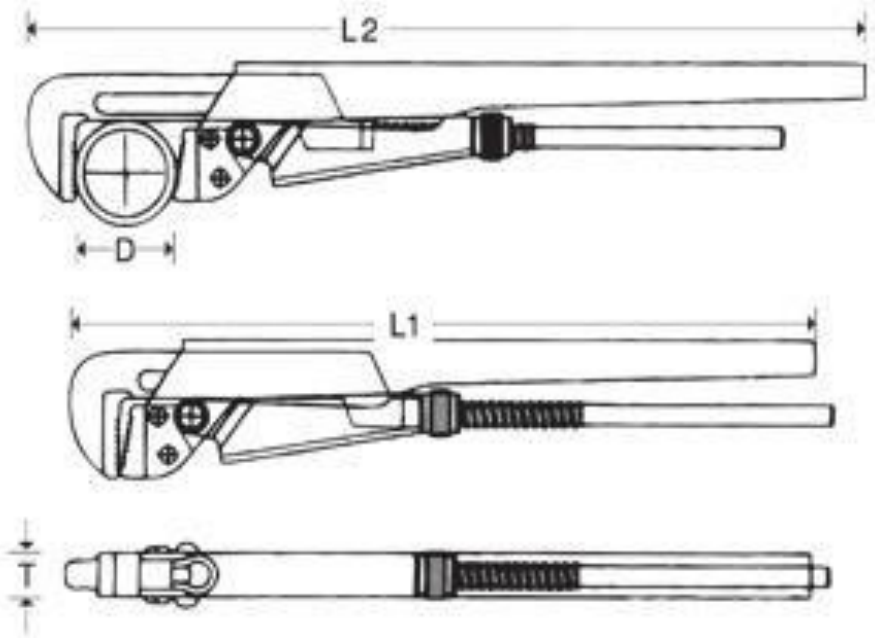
160.2 48 teeth ratchet to allow engagement angle of 7 - 1/2 ° (which is ideal) for precise adjustment & non slip use
160.3 Chrome - Molybdenum Steel Square Drive
160.4 Fully secure locking mechanism to avoid forced adjustment
160.5 Lens (Screen) for clear reading of torque value
160.6 Ratcheting Kind, click sound after achieving the torque
160.7 Each unit should be individually serial numbered & includes calibration certificate traceable to international standards
160.8 Accuracy: +/ - 4%
160.9 Torque Range 5 - 25 Nm
- 160.9.1 Fine scale 0.1 Nm
- 160.9.2 Length 325 mm
- 160.9.3 3/8 inch square drive

160.10 Torque Range 20 - 100 Nm
- 160.10.1 Fine scale 0.5Nm
- 160.10.2 Length 400 mm
- 160.10.3 1/2 inch square drive

160.11 Torque Range 40 - 200 Nm
- 160.11.1 Fine scale 0.5Nm
- 160.11.2 Length 515 mm
- 160.11.3 1/2 inch square drive

161 Universal Pipe Wrenches - 275 mm

161.1 Basic Indicative Diagram



161.2 Length: 275 mm
161.3 Least maximum Opening: 38 mm
161.4 Suitable for pipe: 26 mm
161.5 Jaws should be dropped forged from high grade carbon Steel
161.6 Differential Hardness pattern of the jaws should have wear resistance teeth
161.7 Hardness
161.7.1 Jaws: 55 - 58 HRC
161.7.2 Jaw Shank: 45 - 47 HRC
161.8 Jaws should have precision machined integral teeth with included angle of 76 degrees to provide best matching, strength & firm gripping without biting on the job.
161.9 Should be provided with specially designed tubular handles & brackets for fixing movable jaw & fix jaw so that action of forward & backward is possible
161.10 Heat treated and suitably knurled nut to make easy movement of the jaw
161.11 Phosphated Jaws
161.12 Powder coated tubular handle & bracket against rusting
161.13 Specially threaded extension bar should be provided to movable jaw for maximum opening

162 Universal Puller - 3 Leg, 150 mm

162.1 Basic Indicative Diagram

162.2 Should generally conform to I.S 9193 - 1988
162.3 No of Jaws: 3
162.4 Minimum Spread: 25 mm
162.5 Maximum Spread: 150 mm
162.6 Drop forged jaws made of carbon Steel
162.7 Hardness: 35 - 45 HRC
162.8 Reversible Jaw design to enable inside and outside operation
162.9 Jaw Design should allow flexibility of use in shallow or deep spaces
162.10 Screw threads should be precision maintained
162.11 The Pulling force should be equally distributed evenly on the bearing or gear to facilitate smooth and fast operation without any damage to bearing or gear
162.12 Protective cap on screw end to increase life of screw tip. The center screw is provided with a special adjustable cap for better gripping.
162.13 Screws should be black anodized
162.14 Jaws, link plates, protective cap and connecting bolts should be plated

163 Universal Puller - 3 Leg, 200 mm

163.1 Basic Indicative Diagram

163.2 Should generally conform to I.S 9193 - 1988
163.3 No of Jaws: 3
163.4 Minimum Spread: 35 mm
163.5 Maximum Spread: 200 mm
163.6 Drop forged jaws made of carbon Steel
163.7 Hardness: 35 - 45 HRC
163.8 Reversible Jaw design to enable inside and outside operation
163.9 Jaw Design should allow flexibility of use in shallow or deep spaces
163.10 Screw threads should be precision maintained
163.11 The Pulling force should be equally distributed evenly on the bearing or gear to facilitate smooth and fast operation without any damage to bearing or gear
163.12 Protective cap on screw end to increase life of screw tip. The center screw is provided with a special adjustable cap for better gripping.
163.13 Screws should be black anodized
163.14 Jaws, link plates, protective cap and connecting bolts should be plated

164 Plumb Level - 1000 mm

164.1 Basic Indicative Diagram

164.2 Should have rigid I - Beam cross section
164.3 Size: 1000 mm
164.4 Should have 180° rotating view
164.5 Beam Girder Section: Aluminium Body
164.6 Measuring scale should be printed on the level
164.7 Should be comfortable to hold
164.8 Should have clear acrylic vial covers for easy readability
164.9 Should have 3 tubular vials

165 Spirit Level - 300 mm

165.1 Basic Indicative Diagram

165.2 Size: 300 mm
165.3 Accuracy: 0.50 mm/ meter
165.4 Precision milled base for high accuracy
165.5 Have a solid spirit bulb which doesn't break easily.
165.6 The Aluminum frame should be strong and precision extruded which increases accuracy and strength of the Spirit levels.
165.7 Two spirit bulbs to be provided so that it can be used horizontally & vertically
165.8 Rubber moulding is provided on the sides of the spirit levels to prevent damage to the body of the spirit levels.
165.9 Magnet should be provided at the base

166 Spirit Level - 600 mm

166.1 Basic Indicative Diagram

166.2 Size: 600 mm
166.3 Accuracy: 0.50 mm/ meter
166.4 Precision milled base for high accuracy
166.5 Have a solid spirit bulb which doesn't break easily.
166.6 The Aluminum frame should be strong and precision extruded which increases accuracy and strength of the Spirit levels.
166.7 Two spirit bulbs to be provided so that it can be used horizontally & vertically
166.8 Rubber moulding is provided on the sides of the spirit levels to prevent damage to the body of the spirit levels.
166.9 Magnet should be provided at the base

167 Straight Edge - Steel, 1200 mm

167.1 Basic Indicative Diagram

167.2	Length:	1200 mm ± 1 mm
167.3	Width:	45 mm ± 1 mm
167.4	Thickness:	9 mm ± 0.1 mm
167.5	Angle:	30 Degree
167.6	Hardness:	35 HRC
167.7	Material:	Steel
167.8	Finishing	Precision Ground Tool Steel.

168 Straight Edge - Steel, 600 mm

168.1 Basic Indicative Diagram

168.2	Total Length:	600 mm ± 1 mm
168.3	Total Width:	22 mm ± 1 mm
168.4	Total Thickness:	12 mm ± 0.1 mm
168.5	Angle:	30 Degree
168.6	Hardness:	35 HRC
168.7	Material:	Steel

169 Surface Plate - Cast Iron, 1000 x 1000 mm with Stand and Cover

169.1 Basic Indicative Diagram

169.2 Total Length: 1000 mm ± 2 mm
169.3 Total Width: 1000 mm ± 2 mm
169.4 Total Height: 700 mm ± 2mm
169.5 Plate Thickness: 60 mm ± 1mm
169.6 Surface Plate Material: Cast Iron
169.7 Surface Finish: Precision Lapped Finish.
169.8 Uniformity in Hardness, Low Porosity, Non Magnetic, Easy to Clean, Rust Proof, Noncorrosive
169.9 Should be useful for measuring area flatness.
169.10 Suitable plywood cover should provided

170 Surface Plate - Cast Iron, 600 x 600 mm with Stand and Cover

170.1 Basic Indicative Diagram

170.2	Total Length:	600 mm ± 1 mm
170.3	Total Width:	600 mm ± 1 mm
170.4	Total Height:	700 mm ± 0.5 mm
170.5	Plate Thickness:	40 mm ± 0.2 mm
170.6	Surface Plate Material:	Cast Iron
170.7	Surface Finish:	Precision Lapped Finish.

170.8 Uniformity in Hardness, Low Porosity, Non Magnetic, Easy To Clean, Rust Proof, Non - corrosive

170.9 Should be useful for measuring area flatness.

170.10 Suitable plywood cover should provided

171 T Bar Cramp - 0.6 Meter

171.1 Basic Indicative Diagram

171.2	Total Length:	770 mm ± 1 mm
171.3	Width:	29 mm ± 1 mm
171.4	Clamping capacity:	630 mm + 2 mm
171.5	Height:	95 mm ± 1 mm
171.6	Beam material	Mild Steel
171.7	Jaw Material	Ductile Cast Iron

172 T Bar Cramp - 1.25 Meter

172.1 Basic Indicative Diagram

172.2	Total Length:	1400 mm ± 5 mm
172.3	Width:	29 mm ± 1 mm
172.4	Clamping capacity:	1250 mm + 2 mm
172.5	Height:	95 mm ± 1 mm
172.6	Beam material	Mild Steel
172.7	Jaw material	Ductile Cast Iron

173 T Bar Cramp - 1.75 Meter

173.1 Basic Indicative Diagram

173.2	Total Length:	2000 mm ± 5 mm
173.3	Width:	29 mm ± 1 mm
173.4	Clamping capacity:	1750 mm + 2 mm
173.5	Height:	95 ± 1mm
173.6	Beam material	Mild Steel
173.7	Jaw material	Ductile Cast Iron

174 1/2 Inch Socket Set

174.1 Basic Indicative Diagram

174.2 1/2 Inch Ratchet Socket Set, 2 Extension Bar, T - Bar, Universal Joint, Sockets = 8,9,10,11,12, 13,14,15,16,17,18,19,21,22,23,24, 26,27,28, 29,30 and 32 mm, in a Plastic Case Box

174.3 27 Pieces set which Includes 22 Pieces 1/2 inch Sockets: 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,18, 19, 21,

174.4 22, 23, 24, 26, 27, 28, 29, 30, 32 mm, Extension Bar - 5 inch, 10 inch, Universal Joint, Sliding T - Bar, Ratchet Handle

174.5 Cold forging from high quality Chrome Vanadium Steel

174.6 Ultra Premium Finish to provide scratch proof surface with enhanced protection against corrosion. (Mirror Finish & Matt finish not acceptable)

174.7 Should provide a Non slip grip even in slippery applications (Knurled Band)

174.8 48 Teeth Gear Structure Ratchet with quick release push button & Head Should be repairable.

174.9 Universal Joint should be hinged through 180° in both directions

174.10 Profile should provide larger contact area between socket and fastener

174.11 Brand & Size etched on each individual socket to ensure quick & convenient identification

174.12 Blow moulded plastic case to securely fit all pieces for easy organization and convenient portability.

175 1/4 Inch Socket Set

175.1 Basic Indicative Diagram

175.2 1/4 inch Ratchet Socket Set, 2 Extension Bar, T - Bar, Universal Joint, Spinner Handle and Sockets = 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13 and 14 mm, Hex Bit Socket = 3, 4, 5, 6, 7 and 8 mm, Slotted Bit Socket= 4, 5.5 and 7 mm, Philips Bit Sockets = PH1, PH2 and PH3, Pozi Bit Socket = PZ1, PZ2 and PZ3, Torx Bit Socket = T8, T10, T15, T20, T25, T30 and T40 in a plastic box.

175.3 42 pieces set which should include

- 175.3.1 13 pieces 1/4 inch Sockets: 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11,12, 13, 14 mm
- 175.3.2 6 pieces Hex Bit Socket
- 175.3.3 3pieces Slotted Bit Socket
- 175.3.4 3 pieces Philips Bit Socket
- 175.3.5 3pieces Pozi Bit Socket
- 175.3.6 7 pieces Torx Bit Socket
- 175.3.7 2 pieces Extension Bar
- 175.3.8 1 pc Spinner Handle
- 175.3.9 1 pc Flexible Rod Extension
- 175.3.10 1 pc Universal Joint
- 175.3.11 1 pc Ratchet Handle
- 175.3.12 1 pc Sliding Bar

175.4 Cold forging from high quality chrome Vanadium Steel

175.5 Ultra - Premium Finish to provide scratch proof surface with enhanced protection against corrosion. (Mirror Finish & Matt finish not acceptable)

175.6 Should provide a Non slip grip even in slippery applications (Knurled Band)

175.7 48 Teeth Gear Structure Ratchet with quick release push button & Head Should be repairable.

175.8 Universal Joint should be hinged through 180° in both directions

175.9 Spinner Handle Fit on a socket & 1/4 inch (F) square recess should allow spinner to be used with a ratchet & should also be able to work as a long extension

175.10 Profile should provide larger contact area between socket and fastener

175.11 Brand & Size etched on each individual socket to ensure quick & convenient identification

175.12 Blow molded plastic case to securely fit all pieces for easy organization and convenient portability.

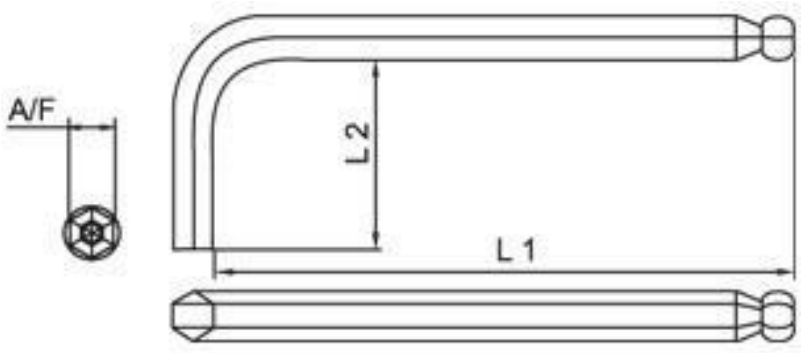
176 2 Jaw Hand Riveter with accessories

176.1 Basic Indicative Diagram

176.2 Ergonomic PVC Dip coated non - slip grip
176.3 Manufactured from high strength structural Steel
176.4 All parts that come in contact with the rivet are heat treated for increased wear resistance
176.5 Lead free powder coated finish
176.6 Should be able to be used for Al Pop/Blind Rivets: 3/32 inch (2.4mm), 1/8 inch (3.2mm), 5/32 inch (4.0mm) & 3/16 inch (4.8mm)
176.7 Should be able to be used for SS Rivet Sizes 1/8 inch (3.2mm) & 5/32 inch (4.0mm)
176.8 4 Nose pieces for a range of rivets sizes, material
176.9 Should be with Handle Lock

177 Allen Key Set - Hexagonal, 1.5 mm to 10 mm, Set of 9

177.1 Basic Indicative Diagram



177.2 Generally conform to I.S 3082 - 1988 pipe 117.3 Sizes in mm: 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10

177.3 Made from high grade alloy Steel - Chrome Vanadium Molybdenum (S2) which enables 30% higher torque as compared to Allen keys made from Cr - V Steel

177.4 Higher Hardness 57 - 62 HRC

177.5 Ball Head on one side to facilitate tightening & loosening of screws at 15 degree

177.6 Precision drawn and machined

177.7 Specially coated and Oiled for rust prevention

178 Tap and Die Set

178.1 Basic Indicative Diagram

178.2 Tap and Dies set (Threading Set) consisting of 35 pieces
178.3 Should be enclosed securely in metal cassette
178.4 Should produce ISO- Metric threads from M2 up to M12
178.5 Should consist of the following
- 178.5.1 10 HSS bright finished straight flute hand tap with a 6-8 X P taper lead
- 178.5.2 10 HSS bright finished straight flute hand taps with a 2-3 X P plug lead
- 178.5.3 10 HSS bright finished adjustable circular split dies
- 178.5.4 2 straight handle tap wrenches for taps with a square drive within a range from 1 up to 10mm
- 178.5.5 3 straight handle die stocks for dies with an outside diameter and thickness within a range from 13/16 X 1/4 up to 1.5/16 X 7/16" for 1.5 X D through or blind hole threading in free machining and plain carbon steel

179 Trowel - Brick, 11 inch X 5.5 inch

179.1 Basic Indicative Diagram

179.2 Length: 11 Inch
179.3 Width: 5.5 Inch
179.4 Weight: 455 grams + 10% (Approx.)
179.5 Blade: High Carbon Spring Steel
179.6 The handle should be lacquer polished
179.7 Handle should be made from selected hard wood
179.8 Suitable for laying bricks for block
179.9 The blade should have rounded heel shape so that the mortar is carried a little further forward on the blade
179.10 Should have wider heel to allow for more mortar to be scooped on the blade.
179.11 The impact area should be made stronger to provide extra endurance
179.12 The handle rise should be set for correct hang & balance.
179.13 The blade should be hardened & tempered to ensure durability.
179.14 Blade should be polished from the bottom & powder coated from top
179.15 Wooden handle should be attached for comfortable grip

180 Trowel - Brick, 4.5 inch X 1.87 inch

180.1 Basic Indicative Diagram

180.2 Length: 4 - .5 Inch
180.3 Width: 1.87 Inch
180.4 Weight: 150 grams + 10% (Approx.)
180.5 Blade: High Carbon Spring Steel
180.6 The handle should be lacquer polished
180.7 Handle should be made from selected hard wood
180.8 Suitable for laying bricks for block
180.9 The blade should have rounded heel shape so that the mortar is carried a little further forward on the blade
180.10 Should have wider heel to allow for more mortar to be scooped on the blade.
180.11 The impact area should be made stronger to provide extra endurance
180.12 The handle rise should be set for correct hang & balance.
180.13 The blade should be hardened & tempered to ensure durability.
180.14 Blade should be polished from the bottom & powder coated from top
180.15 Wooden handle should be attached for comfortable grip

181 Trowel - Brick, 8 inch X 5.5 inch

181.1 Basic Indicative Diagram

181.2 Length: 8 Inch
181.3 Width: 5.5 Inch
181.4 Weight: 355 grams + 10% (Approx.)
181.5 Blade: High Carbon Spring Steel
181.6 The handle should be lacquer polished
181.7 Handle should be made from selected hard wood
181.8 Suitable for laying bricks for block
181.9 The blade should have rounded heel shape so that the mortar is carried a little further forward on the blade
181.10 Should have wider heel to allow for more mortar to be scooped on the blade.
181.11 The impact area should be made stronger to provide extra endurance
181.12 The handle rise should be set for correct hang & balance.
181.13 The blade should be hardened & tempered to ensure durability.
181.14 Blade should be polished from the bottom & powder coated from top
181.15 Wooden handle should be attached for comfortable grip

182 Trowel - Heart, 6 inch

182.1 Basic Indicative Diagram

182.2 Length: 6 Inch
182.3 Weight: 250 grams + 10% (Approx.)
182.4 Blade: High Carbon Spring Steel
182.5 The handle should be lacquer polished
182.6 Handle should be made from selected hard wood
182.7 The handle rise should be set for correct hang & balance.
182.8 The blade should be hardened & tempered to ensure durability.
182.9 Blade should be polished from the bottom & powder coated from top
182.10 Wooden handle should be attached for comfortable grip

183 Trowel - Heart, 8 inch

183.1 Basic Indicative Diagram

183.2 Length: 8 Inch
183.3 Weight: 300 grams + 10% (Approx.)
183.4 Blade: High Carbon Spring Steel
183.5 The handle should be lacquer polished
183.6 Handle should be made from selected hard wood
183.7 The handle rise should be set for correct hang & balance.
183.8 The blade should be hardened & tempered to ensure durability.
183.9 Blade should be polished from the bottom & powder coated from top
183.10 Wooden handle should be attached for comfortable grip

184 Trowel - Inside Corner, 6 Inch, 90 Degree Angle

184.1 Basic Indicative Diagram

184.2 Dimension: 6 Inch X 2.5 Inch +10%
184.3 Outside Corner Trowel: 0.5 Inch
184.4 Handle: Hard wood
184.5 Should have sturdy Steel mountings

185 Trowel - Outside Corner, 6 Inch, 90 Degree Angle

185.1 Basic Indicative Diagram

185.2 Dimension: 6 Inch X 2.5 Inch Bullnose Out Side + 10% (Approx.)
185.3 Outside Corner Trowel: 0.5 Inch
185.4 Handle: Hard wood
185.5 Should have sturdy Steel mountings

186 Trowel - Plastering, 13 inch X 5 inch

186.1 Basic Indicative Diagram

186.2 Length: 13 Inch
186.3 Width: 5 Inch
186.4 Weight: 400 grams + 10% (Approx.)
186.5 Blade: High Carbon Spring Steel
186.6 Should be able to withstand pressure of hard trowling
186.7 Should have a flat blade for a consistent finish.
186.8 The blade should be properly shaped & tempered.
186.9 The handle should be made of hard wood and should have a comfortable grip.

187 Trowel - Plastering, 8 inch X 5 inch

187.1 Basic Indicative Diagram

187.2 Length: 8 Inch
187.3 Width: 5 Inch
187.4 Weight: 350 grams + 10% (Approx.)
187.5 Blade: High Carbon Spring Steel
187.6 Should be able to withstand pressure of hard trowling
187.7 Should have a flat blade for a consistent finish.
187.8 The blade should be properly shaped & tempered.
187.9 The handle should be made of hard wood and should have a comfortable grip.

188 Trowel - Pointing, 6 inch

188.1 Basic Indicative Diagram

188.2 Length: 6 Inch
188.3 Weight: 200 grams + 10% (Approx.)
188.4 Blade: High Carbon Spring Steel
188.5 The handle should be lacquer polished
188.6 Handle should be made from selected hard wood
188.7 The handle rise should be set for correct hang & balance
188.8 The blade should be hardened & tempered to ensure durability.
188.9 Blade should be polished from the bottom & powder coated from top
188.10 Wooden handle should be attached for comfortable grip

189 Trowel - Tile, 11 inch X 4 inch, Notch = 10 mm X 10 mm

189.1 Basic Indicative Diagram

189.2 Length: 11 inch + 10 %
189.3 Width: 4 inch + 10 %
189.4 Notch: 10 mm X 10 mm
189.5 Steel Plate Blade
189.6 Ergonomic Handle
189.7 45° Angled Notches
189.8 10mm Square Notches for Floor & Large Format Tiles

190 Pinching Tool

190.1 Basic Indicative Diagram

190.2 Should pinch off and re round copper tubes of the following sizes
- 190.2.1 1/4”
- 190.2.2 5/16”
- 190.2.3 3/8”
- 190.2.4 1/2”

191 Tweezers - 100 mm, Straight Tip

191.1 Basic Indicative Diagram

191.2	Total Length:	120 mm ± 1 mm
191.3	Total Width.:	9.3 mm ± 0.1 mm
191.4	Total thickness:	1.2 mm ± 0.05 mm
191.5	Material	Stainless Steel
191.6	Hardness:	40 - 42 HRC

191.7 Should be useful for beading and many aspects of watch & clock repair.

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192 Tweezers - 100 mm, Bend Tip

192.1 Basic Indicative Diagram

192.2	Total Length:	115 mm ± 1 mm
192.3	Total Width.:	9.6 mm ± 0.1 mm
192.4	Total Thickness:	1.5 mm ± 0.05 mm
192.5	Material	Stainless Steel
192.6	Hardness:	40 to 42 HRC

192.7 Should be useful for beading and many aspects of watch & clock repair

193 Magnetic V Block - 150 X 75 X 95 mm

193.1 Basic Indicative Diagram

193.2	Length:	150 mm ± 1 mm
193.3	Width:	75 mm ± 1 mm
193.4	Height:	95 mm ± 1 mm
193.5	Width of Small Vee:	25 mm
193.6	Width of Large Vee:	75 mm
193.7	Clamping Capacity:	5 - 75 mm
193.8	Surface Hardness:	35 - 40 HRC

193.9 Parallelism & Squareness of all faces and Vee should be within 10 µ

194 V Block - 125 X 85 X 40 mm with Clamp

194.1 Basic Indicative Diagram

194.2 Dimensions

	194.2.1 Total Length:	125 mm ± 1 mm
	194.2.2 Total Width.:	85 mm ± 0.2 mm
	194.2.3 Total Height:	40 mm ± 0.2 mm
194.3	Angle:	90 Degree
194.4	Vee run out:	10 µ
194.5	Clamping capacity:	25 mm

195 V Block - 150 X 100 X 75 mm with Clamp

195.1 Basic Indicative Diagram

195.2	Total Length:	150 mm ± 1mm
195.3	Total Width.:	100 mm ± 0.2 mm
195.4	Total Height:	75 mm ± 0.2 mm
195.5	Angle:	90 Degree
195.6	Veerun out:	10 µ
195.7	Clamping capacity:	25 mm

196 V Block - 40 X 40 X 50 mm with Clamp

196.1 Basic Indicative Diagram

196.2	Total Length:	40 mm ± 1 mm
196.3	Total Width.:	40 mm ± 0.2 mm
196.4	Total Height:	50 mm ± 0.2 mm
196.5	Angle:	90 Degree
196.6	Veerun out:	10 µ
196.7	Clamping capacity:	25 mm

197 V Block - 75 X 40 X 40 mm with Clamp

197.1 Basic Indicative Diagram

197.2	Total Length:	75 mm ± 1mm
197.3	Total Width.:	40 mm ± 0.2 mm
197.4	Total Height:	40 mm ± 0.2 mm
197.5	Angle:	90 Degree
197.6	Veerun out:	10 µ
197.7	Clamping capacity:	25 mm

198 V Block - 75 X 75 X 50 mm with Clamp

198.1 Basic Indicative Diagram

198.2	Total Length:	75 mm ± 1mm
198.3	Total Width.:	75 mm ± 0.2 mm
198.4	Total Height:	50 mm ± 0.2 mm
198.5	Angle:	90 Degree
198.6	Veerun out:	10 µ
198.7	Clamping capacity:	25 mm

199 Bench Vice - 75 mm

199.1 Basic Indicative Diagram

199.2 Jaw opening 75mm
199.3 Fixed base type.
199.4 Body made from SG cast iron.
199.5 Jaws are made from high grade carbon steel.
199.6 Hardness on the Jaws: 50-55 HRC
199.7 Knurling on jaw face provides firm grip on the object.
199.8 Body of the bench vice is painted to protect against rusting.
199.9 Turning Moment in KGM - 9.68

200 Bench Vice - 100 mm

200.1 Basic Indicative Diagram

200.2 Jaw opening 100 mm
200.3 Fixed base type.
200.4 Body made from SG cast iron.
200.5 Jaws are made from high grade carbon steel.
200.6 Hardness on the Jaws: 50-55 HRC
200.7 Knurling on jaw face provides firm grip on the object.
200.8 Body of the bench vice is painted to protect against rusting.
200.9 Turning Moment in KGM - 9.68

201 Bench Vice - 125 mm

201.1 Basic Indicative Diagram

201.2 Jaw opening 125mm
201.3 Fixed base type.
201.4 Body made from SG cast iron.
201.5 Jaws are made from high grade carbon steel.
201.6 Hardness on the Jaws: 50-55 HRC
201.7 Knurling on jaw face provides firm grip on the object.
201.8 Body of the bench vice is painted to protect against rusting.
201.9 Turning Moment in KGM - 9.68

202 Bench Vice - 150 mm

202.1 Basic Indicative Diagram

202.2 Jaw opening 150mm
202.3 Fixed base type.
202.4 Body made from SG cast iron.
202.5 Jaws are made from high grade carbon steel.
202.6 Hardness on the Jaws: 50-55 HRC
202.7 Knurling on jaw face provides firm grip on the object.
202.8 Body of the bench vice is painted to protect against rusting.
202.9 Turning Moment in KGM - 12.23

203 Carpenter Vice - 250 mm

203.1 Basic Indicative Diagram

203.2 Total Length: 650 mm ± 2 mm
203.3 Jaw Width.: 250 mm ± 1 mm
203.4 Jaw Opening: 280 mm ± 2 mm
203.5 Total Height: 190 mm ± 1 mm
203.6 This vice should be suitable to fix underside of the bench.
203.7 Handle of vice should have good finishing with nickel plating.
203.8 Material of Vice Body: Ductile Cast Iron

204 Hand Vice - 37 mm

204.1 Basic Indicative Diagram

204.2 Total Length: 153 mm ± 2 mm
204.3 Jaw Width: 37 mm ± 2mm
204.4 Total Height: 80 mm ± 2mm
204.5 Body material: Ductile Cast Iron
204.6 Spring should easily go up & down
204.7 Should be used during grinding, hammering etc.

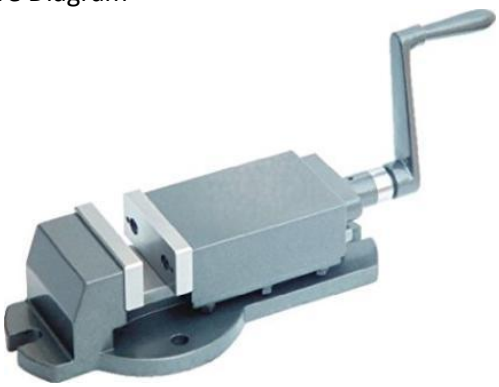
205 Hand Vice - 50 mm

205.1 Basic Indicative Diagram

205.2 Total Length: 153 mm ± 2 mm
205.3 Jaw Width: 50 mm ± 2mm
205.4 Total Height: 80 ± 2mm
205.5 Body material: Ductile Cast Iron
205.6 Spring should easily go up & down
205.7 Should be used during grinding, hammering etc.

206 Machine Vice - Plain, 100 mm

206.1 Basic Indicative Diagram



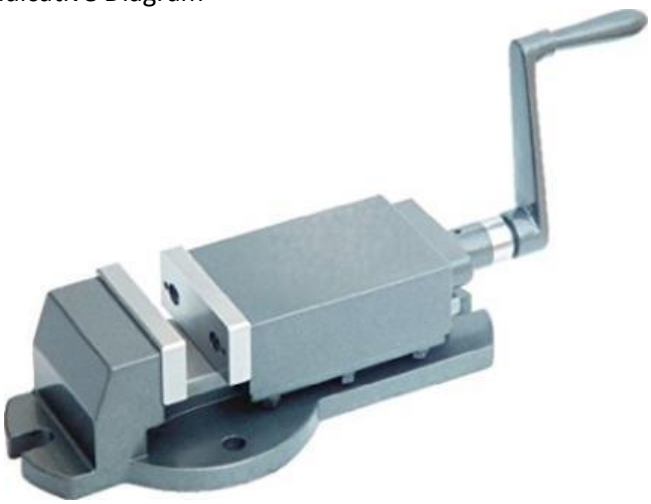
206.2	Total Length:	322 mm ± 2 mm
206.3	Base Length:	315 mm ± 2 mm
206.4	Jaw Width:	101 mm ± 2mm
206.5	Base Width:	150 mm ± 2mm
206.6	Jaw Opening:	97 mm ± 2mm
206.7	Jaw depth:	40 mm ± 1mm
206.8	Jaw Hardness:	50 to 55 HRC
206.9	Parallelism:	20 µ
206.10	Clamping Force:	2550 Kgf

206.11 Lead screw should be fully covered protects against dirt and chips.

206.12 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability.

207 Machine Vice - Plain, 150 mm

207.1 Basic Indicative Diagram



207.2	Total Length:	510 mm ± 2 mm
207.3	Base Length:	495 mm ± 2 mm
207.4	Jaw Width:	150 mm ± 2 mm
207.5	Base Width:	165 mm ± 2 mm
207.6	Jaw opening:	165 mm ± 2 mm
207.7	Jaw depth:	50 mm ± 1 mm
207.8	Jaw Hardness:	50 to 55 HRC
207.9	Parallelism:	20 µ
207.10	Clamping Force:	2550 Kgf

207.11 Lead screw should be fully covered protects against dirt and chips.

207.12 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability.

208 Machine Vice - Swivel Base, 100 mm

208.1 Basic Indicative Diagram

208.2	Total Height:	343 mm ±2 mm
208.3	Base Length:	165 mm ±2 mm
208.4	Base Width:	165 mm ±2 mm
208.5	Height:	120 mm ±2 mm
208.6	Jaw Width:	100 mm ±2 mm
208.7	Jaw Opening:	1002 mm ±2 mm
208.8	Jaw Depth:	38 mm ±2 mm
208.9	Jaw Hardness:	55 HRC
208.10	Parallelism:	20µ
208.11	Clamping Force:	2300 Kgf
208.12	Material	Ductile Cast Iron.

208.13 The 360 degree swivel base should allow the vise to be set at any angle along with vertical axis.

208.14 Lead screw should be fully covered protects against dirt and chips.

208.15 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability

209 Machine Vice - Swivel Base, 125 mm

209.1 Basic Indicative Diagram

209.2	Total Height:	400 mm ± 2 Mm
209.3	Base Length:	255 mm ± 2 mm
209.4	Base Width:	125 mm ± 2 mm
209.5	Height:	150 mm ± 2 mm
209.6	Jaw Width:	125 mm ± 2 mm
209.7	Jaw Opening:	130 mm ± 2 mm
209.8	Jaw Depth:	49 mm ± 2 mm
209.9	Jaw Hardness:	55 HRC
209.10	Parallelism:	20µ
209.11	Clamping Force:	2400 Kgf
209.12	Material	Ductile Cast Iron.

209.13 The 360 degree swivel base should allow the vise to be set at any angle along with vertical axis.

209.14 Lead screw should be fully covered protects against dirt and chips.

209.15 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability

210 Machine Vice - Swivel Base, 150 mm

210.1 Basic Indicative Diagram

210.2	Total Height:	490 mm ± 2 mm
210.3	Base Length:	295 mm ± 2 mm
210.4	Base Width:	220 mm ± 2 mm
210.5	Height:	155 mm ± 2 mm
210.6	Jaw Width:	150 mm ± 2 mm
210.7	Jaw Opening:	155 mm ± 2 mm
210.8	Jaw Depth:	55 mm ± 2 mm
210.9	Jaw Hardness:	55 HRC
210.10	Parallelism:	20µ
210.11	Clamping Force:	2800 Kgf
210.12	Material	Ductile Cast Iron.

210.13 The 360 degree swivel base should allow the vise to be set at any angle along with vertical axis.

210.14 Lead screw should be fully covered protects against dirt and chips.

210.15 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability

211 Machine Vice - Swivel Base, 200 mm

211.1 Basic Indicative Diagram

211.2	Total Height:	635 mm ± 2 Mm
211.3	Base Length:	415 mm ±2 mm
211.4	Base Width:	280 mm ± 2 mm
211.5	Height:	200 mm ± 2 mm
211.6	Jaw Width:	200 mm ± 2 mm
211.7	Jaw Opening:	200 mm ± 2 mm
211.8	Jaw Depth:	60 mm ± 2 mm
211.9	Jaw Hardness:	55 HRC
211.10	Parallelism:	20µ
211.11	Clamping Force:	3300 Kgf
211.12	Material	Ductile Cast Iron.

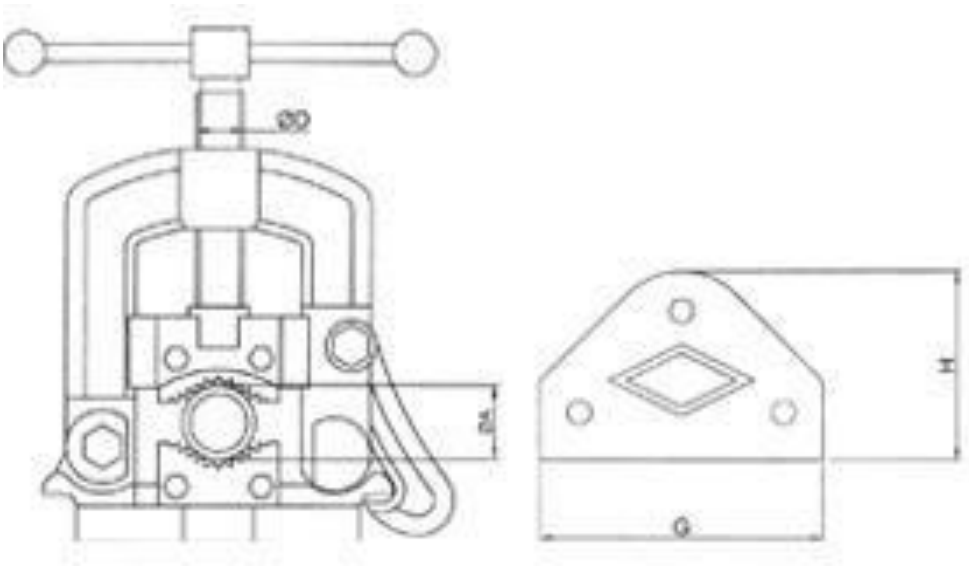
211.13 The 360 degree swivel base should allow the vise to be set at any angle along with vertical axis.

211.14 Lead screw should be fully covered protects against dirt and chips.

211.15 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability

212 Pipe Vice - 50 mm

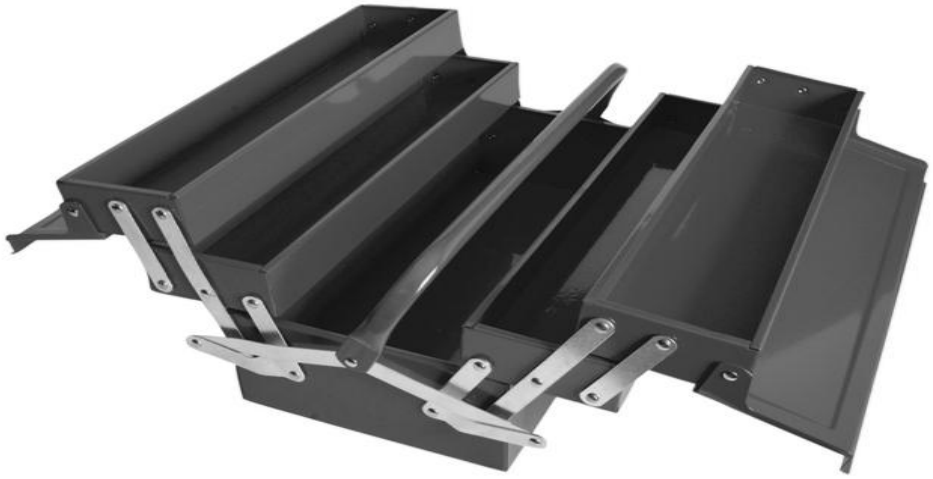
212.1 Basic Indicative Diagram



212.2 Generally Conform to 6007 - 1971
212.3 Nominal Pipe size (L): 50 mm
212.4 Body should be made of Malleable Cast Iron
212.5 Jaws should be drop forged & differentially hardened
212.6 Hardness
212.6.1 Body of the Jaw: 40 - 45 HRC
212.6.2 Teeth of the Jaw: Above 50 HRC
212.7 Vertical Upright section of the base is provided with holes for mounting of frame
212.8 Body of Pipe Vice Painted & Jaw Black anodized to guard against rusting

213 5 Tray Cantilever Tool Box - W:D:H = 450:200:200, ± 20 mm

213.1 Basic Indicative Diagram:



213.2 5 Tray Cantilever box with overall Dimensions:
- 213.2.1 Width: 450 mm
- 213.2.2 Depth: 200 mm
- 213.2.3 Height: 200 mm
- 213.2.4 Variation: ± 20 mm

213.3 Corrosion resistant powder coated finish
213.4 Riveting should be of Stainless Steel
213.5 Minimum Load Capacity: 33 kg
213.6 Construction in CRC Sheet with thickness:
- 213.6.1 Base and Side: 0.65 mm
- 213.6.2 Partition: 1.0 mm

213.7 Joining Clips should be of CRC Sheet with 1.5 mm thickness
213.8 Handle should be of ERW MS Pipe ø 12.7 mm X 1.0 mm thick
213.9 Provision of Padlock in lid
213.10 Color: Blue, Yellow, Red, Orange or Black
213.11 Marking: .

214 7 Drawer Tool Trolley - W:D:H = 700:450:900, ± 25 mm

214.1 Basic Indicative Diagram:

214.2 7 Drawer Tool Trolley with overall Dimensions:

214.2.1	Width:	700 mm
214.2.2	Depth:	450 mm
214.2.3	Height (with Wheels):	900 mm
214.2.4	Variation:	± 25 mm

214.3 Minimum Load capacity: 450 Kg
214.4 Per Drawer Average load capacity: 45 Kg
214.5 Centralized keyed locking system with 3 Keys
214.6 Single Operation for opening all drawers
214.7 Double Wall Steel Construction with thickness:
214.7.1 Base and Side: 0.8 mm
214.7.2 Front Cover: 1.6 mm
214.8 Corrosion resistant powder coated finish
214.9 Self-locking ball bearing drawer slides
214.10 All drawer's lines with 2 mm sheet
214.11 4 Heavy Duty Castors: 2 fixed & 2 swivel with toe lock with ø125 mm X 50 mm thickness
214.12 Heavy Duty Side Handle
214.13 Rubber Mat on top to avoid scratches with 5mm Thickness
214.14 Inside drawers Eva Sheet with 2mm thickness
214.15 Color: Blue, Yellow, Red, Orange or Black

215 Plastic Tool Box - W:D:H = 550:300:250, ± 20 mm

215.1 Basic Indicative Diagram:

215.2 Plastic Tool Box with overall Dimensions:
- 215.2.1 Width: 550 mm
- 215.2.2 Depth: 300 mm
- 215.2.3 Height: 250 mm
- 215.2.4 Variation: ± 20 mm

215.3 Durable Metal Hinges for higher load bearing capacity
215.4 Latch type locks for firm locking
215.5 Inside tray for storing special tools
215.6 Organizer sections on the top to store fasteners & small objects
215.7 Double wall high quality plastic construction preferably Poly Propylene or Acrylonitrile butadiene styrene (ABS)
215.8 Specially designed handle for higher load carrying capacity
215.9 Minimum Load Bearing Capacity: 18 Kg
215.10 Color: Blue, Yellow, Red, Orange or Black