



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

INDEX

SR.NO.	HAND TOOL / MACHINE NAME
1	Caliper outside spring joint
2	Caliper inside spring joint
3	Caliper odd-leg firm joint
4	Steel Rule
5	Scriber
6	Hammer ball peen
7	Centre punch
8	Prick punch
9	Divider spring joint
10	Safety goggles clear glass (Good quality)
11	Surface Plate § Granite
12	Work bench
13	Marking table (CI)
14	Bench vice
15	V-Block
16	Universal Surface gauge
17	Hammer ball peen
18	Chisel cold flat
19	Hammer copper/brass
20	Hacksaw fixed
21	File flat
22	File flat
23	File flat
24	File half round
25	File round
26	File half round
27	Knurling tool revolving head
28	Combination set
29	Screwdriver
30	Spanner double ended
31	Spanner adjustable
32	Pliers flat nose
33	Caliper transfer inside
34	Micrometer Outside
35	Micrometer Outside
36	Micrometer Outside
37	Micrometer Inside
38	Micrometer Inside
39	Depth Gauge Micrometer
40	Vernier Caliper Outside, Inside and Depth
41	Dial Vernier Caliper with metric
42	Vernier Bevel Protractor
43	Vernier Micrometer



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

44	Vernier Micrometer
45	Gauge Feeler



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

SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

46	Gauge - Radius Set
47	Centre Gauge
48	Screw Pitch Gauge
49	Drill Angle Gauge
50	Universal Dial Test Indicator - Plunger Type
51	Vernier Height Gauge
52	Try Square
53	Magnifying Glass
54	Plain Ring and Plug Gauge
55	Wheel Dresser Hunting Type with Star Cutter
56	Wheel Dresser Diamond
57	Screw Thread micrometer interchangeable
58	Morse Taper Plug & Ring Gauge
59	Sine Bar with centers
60	Slip Gauge metric set
61	Morse Taper
62	Twist Drill
63	Drill Twist Set
64	Drill Chuck
65	Tap & Die
66	Tap and Die Set
67	Tap & Die
68	Tap & Die
69	Reamer machine
70	Reamer Adjustable
71	Tool Holder RH & straight for mm square tool bit
72	Parting Tool Holder with H.S.S. blade
73	Tool Bits
74	Boring Tool holder
75	Steel Rule
76	Oil Can
77	Dog Carrier
78	Angle Plate
79	Spirit Level
80	Tool Maker's button
81	Combination Drill / Centre Drill
82	Oil Stone
83	Tap Wrench (adjustable)
84	Die Handle
85	Tool Bit assorted sizes on holder
86	Machine Vice - Swivel Base
87	Chalk Board on mobile stand
88	Spare Grinding Wheel Ajax type for carbide tool
89	Almirah
90	St. Locker with drawer (Pigeonholes)



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

SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

SR NO	HAND TOOL / MACHINE NAME
९१	Desk
९२	Stool
९३	Angle Gauge for tool grinding
९४	Hand Chaser
९५	Hand Chaser
९६	Revolving Center (to suit Lathe tailstock)
९७	Tool Cemented carbide assorted shaped (External) for steel turning
९८	Thread Plug Gauge
९९	Thread Ring Gauge
१००	Machine Chaser
१०१	Coventry Die head
१०२	Gauge Drill Grinding
१०३	Magnetic Chuck
१०४	Lathe Mandrels (Diff. Types)
१०५	Coventry Type Die Head (Self-opening)
१०६	Collapsible Tap with attachment
१०७	Fire Extinguisher and buckets
१०८	Bore dial gauge stems
१०९	Lathe S.S. & S.C. (All geared head stock) ७५०mm between center with D.R.O.
११०	Lathe S S and S C (All Geared Head Stock) १०००mm between center and Gap bed
१११	Lathe Machine S S and S C (All Geared Type) १०००mm between center with D.R.O.
११२	Grinding machine pedestal type
११३	Drill machine pillar type-motorized
११४	Power saw machine § hydraulic feed system
११५	CNC lathe/CNC turn Centre
११६	a) Simulator b) Desktop Computers
११७	Tool holders
११८	LCD projector / large screen TV
११९	Digimatic Electronic Vernier Caliper
१२०	Digimatic electronic outside Micrometer



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

9. Caliper outside spring joint १५०

1.1. Basic Indicative Diagram



1.2 Outside Callipers with Size: 150 mm

1.3 Material for

1.3.1 Legs: Carbon & Alloy Steel

1.3.2 Spring: Spring Steel

1.3.3 Others: Free Cutting Steel

1.4 Finish for

1.4.1 Legs: Polished

1.4.2 Rest parts: Auto Black

1.5 Hardness for

1.5.1 Tip: 50 - 55 HRC

1.5.2 Spring: 45 - 50 HRC

1.6 Proper rust preventive packing



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

2. Caliper - Inside, Spring Type - 150 mm

2.1 Basic Indicative Diagram



2.2 Inside calipers with Size: 150 mm

2.3 Material for

2.3.1 Legs: Carbon & Alloy Steel

2.3.2 Spring: Spring Steel

2.3.3 Others: Free Cutting Steel

2.4 Finish for

2.4.1 Legs: Polished

2.4.2 Rest parts: Auto Black

2.5 Hardness for

2.5.1 Tip: 50 - 55 HRC

2.5.2 Spring: 45 - 50 HRC

2.6 Proper rust preventive packing



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

3. ODD LEG CALLIPER FIRM JOINT

3.1 Basic Indicative Diagram



3.2 Inside calipers with Size: 95mm

3.3 Material for Legs: Carbon & Alloy

3.4 Steel Others : Free Cutting Steel

3.5 Finish For Legs:

Polished

3.6 Rest Parts : Auto Black

3.7 Hardness for Tip: 40-45 HRC Spring : 85-90

HRC

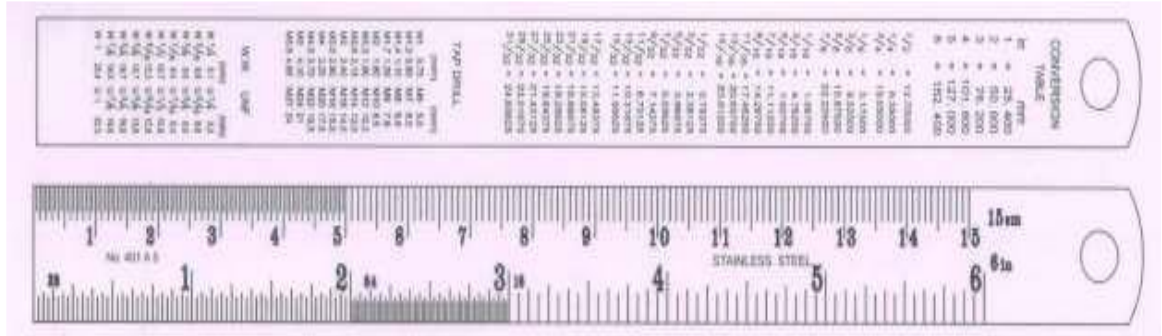
3.8 Proper rust preventive packing



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४.Steel Rule १५० mm, Graduated both in Metric and English Unit

4.1 Basic Indicative Diagram



४.२ Material: Stainless Steel

४.३ Thickness: ०.५ mm

४.४ Hardness: ३० - ३५ HRC (Specially Hardened)

४.५ Finish: Polished २B / Anti-Glare Satin Chrome

४.६ Surface roughness: ०.६ Microns max

४.७ Range: १५० mm Scale

४.८ Measuring least count: Metric Graduation +०.५ mm and English graduation १/६४ inch

४.९ Accuracy: Metrology Standard EEC Class § I



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

4.Scriber 940mm x 3 mm

5.1 Basic Indicative Diagram



5.2 Scriber with Min. Length 150

5.3 90 ° Bend and Straight

5.4 Both Point end Hardness 55 - 60 HRC

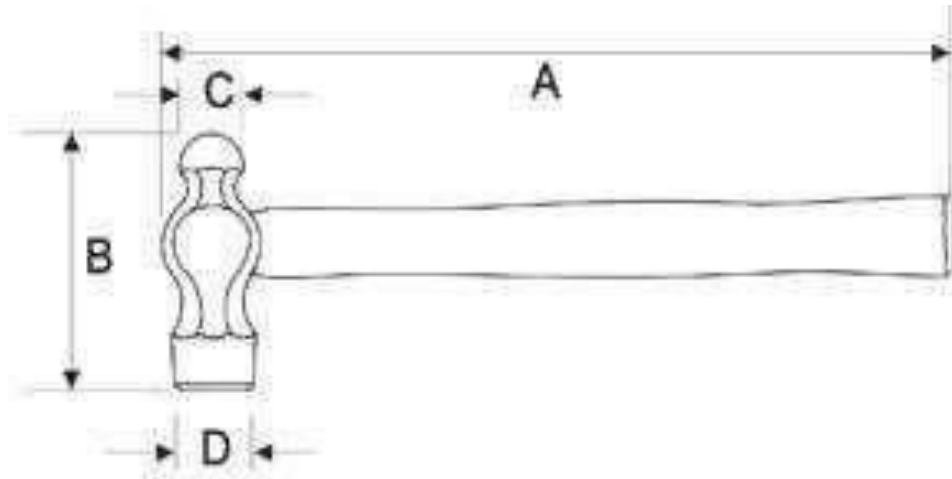
5.5 Should be of material EN – 9



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

6. Hammer Ball Peen – २५०grams with Handle

6.1 Basic Indicative Diagram



6.2 Generally conform to I.S.८४१-१९८३ Ball Peen Hammer

6.3 Length: ३००mm+१०%

6.4 Weight: २५०grams

6.5 Drop forged from high grade carbon Steel

6.6 Material: EN-९

6.7 Partially hardened upto ४६-५६ HRC on striking surface Depth of Hardness: ६mm

6.8 Phosphate and painted

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

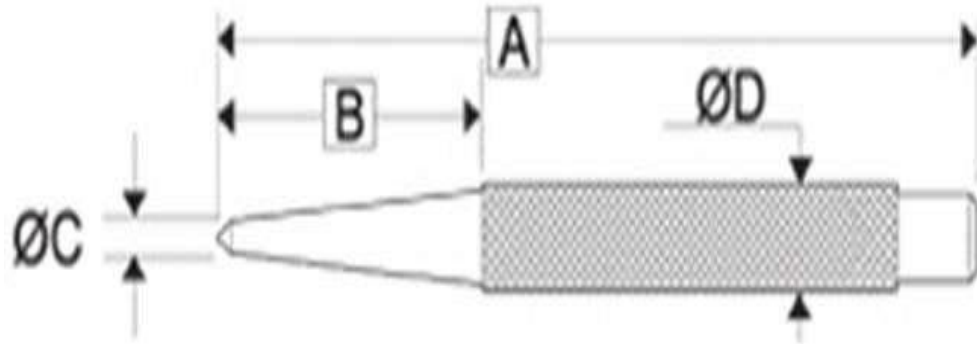
6.10 Handle fixed firmly to hammer head so that it does not Come out after long use.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

7. Centre punch 900 mm

7.1 Basic Indicative Diagram



7.2 Generally conform to I.S. 7177 - 1974

7.3 Dimensions (in mm): A - 100, B - 33, ØC - 4, ØD - 10

7.4 Made from high grade chrome Steel

7.5 Hardness

7.5.1 Working surface: 55 - 57 HRC

7.5.2 Body: 35 - 45 HRC

7.6 Overall Length: 100mm

7.7 Black phosphate finish, Hardened & tempered

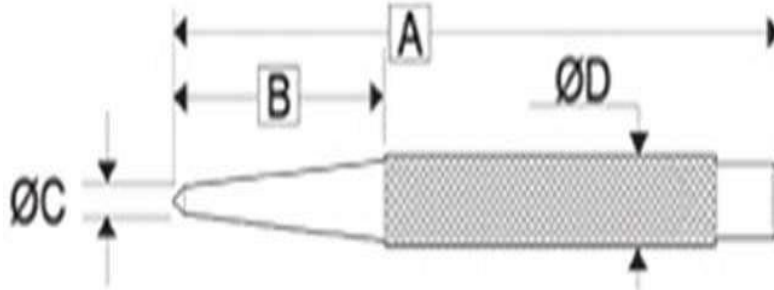
7.8 Deep knurling on body for firm grip



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

8. Prick punch 900 mm

8.1 Basic Indicative Diagram



8.2 Generally conform to I.S. 7177 - 1974

8.3 Dimensions (in mm): A - 100, B - 33, Ø C - 3 mm, Ø D - 10 mm

8.4 Hardness: 55 to 60 HRC

8.5 Manufactured from carbon Steel

8.6 Single piece construction with round shank & round chamfered striking end

8.7 Induction hardened to ensure consistent Hardness with special tempering process to prevent the head from fracturing, thereby preventing accidents

8.8 Rust inhibiting black oxide finish

8.9 Point angle 30 degree



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

9. Divider spring joint 940 mm

9.1 Basic Indicative Diagram



9.2 Spring Divider Size(L): 150 mm

9.3 Material for

9.3.1 Legs: Carbon & Alloy Steel

9.3.2 Spring: Spring Steel

9.3.3 Others: Free Cutting Steel

9.4 Finish for

9.4.1 Legs: Polished

9.4.2 Rest parts: Auto Black

9.5 Hardness for

9.5.1 Tip: 50 - 55 HRC

9.5.2 Spring: 45 - 50 HRC

9.6 Proper rust preventive packing



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

90.Safety goggles clear glass (Good quality)

10.1 Basic Indicative Diagram



10.2 Help provide limited impact protection from flying particles

10.3 Hard-coated polycarbonate lens offers 99% UV protection

10.4 Meets ANSI Z 87.1 standards

10.5 Lightweight, contemporary style

10.6 Adjustable temple

10.7 Eye protection against dust & impact

10.8 Universal size



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

11 SURFACE PLATE GRANITE 9000*9000*200mm

11.1 Basic Indicative Diagram



- 11.2 Uniformity In Hardness
- 11.3 Accurate Under Load Conditions
- 11.4 Vibration Absorbent
- 11.5 Easy To Clean
- 11.6 Rust-Proof, Non-Corrosive
- 11.7 Lower Co-efficient of Thermal Expansion
- 11.8 Warp Resistant
- 11.9 Low Porosity
- 11.10 Non-Abrasive
- 11.11 Non-Magnetic
- 11.12 Granite Grade 9.0
- 11.13 Over all flatness $\leq 99\mu\text{m}$
- 11.14 Length 9000mm
- 11.15 Width 9000 mm
- 11.16 Thickness 200 mm
- 11.17 Working height 240-300mm
- 11.18 Stand Cast Iron with adjustable screw
- 11.19 Corners Chamfered and rounded
- 11.20 Protection cover Suitable size



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

12

WORK BENCH

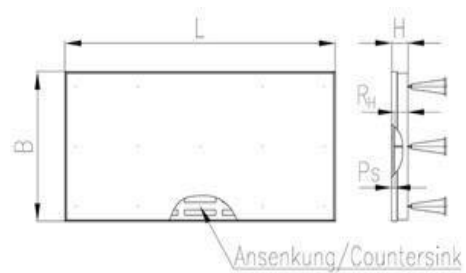


- 12.1 SIZE 280*920*80CM
- 12.2 TOP WOOD (NOT PLYWOOD)
- 12.3 BODY SQUARE PIPE (40*40MM)
- 12.4 Overall Length:280cm
- 12.5 Overall Width: 920cm



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१३. MARKING TABLE CAST IRON



- 13.1 Material :-Cast Iron
- १३.२ Size :-१२०*१२०cm
- 13.1 Height With Table:-१५०cm
- 13.1 Material: special cast iron with steel alloy
- 13.1 Wear-resistant surface
- 13.1 Surface machined to DIN ८७६/III or DIN ८७६/II
- 13.1 ४ sides squarer to the plate surface
- 13.1 Exactly adjustable through different kinds of supports
- 13.1 Prepared for the installation on supports VS/VSK



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

16 Bench vice 924 mm jaw

14.1 Basic Indicative Diagram



14.2 Total Length: 380 mm \pm 2 mm

14.3 Height: 155 mm \pm 2 mm

14.4 Jaw Width: 125 mm \pm 2 mm

14.5 Jaw depth: 70 mm \pm 2mm

14.6 Jaw opening: 145 mm \pm 2mm

14.7 Body should be made from shock resistant Cast Iron & should be free from sand holes.

14.8 Malleable Steel nuts for extra tuff grip.

14.9 Jaw made of special carbon Steel (properly heat treated grinded).

14.10 Clamping force: 2600 Kgf



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

15 V Block – 940 x 900 x 900 mm with Clamp (Hardened & Ground)



- 15.1 Total Length:-940 mm \pm 9mm
- 15.2 Total Width.:-900 mm \pm 0.2mm
- 15.3 Total Height:-900 mm \pm 0.2mm
- 15.4 Angle:-90Degree
- 15.5 V run out:-90 μ
- 15.6 Clamping capacity:-34mm



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

16 Universal Surface gauge २५० mm arm

16.1 Basic Indicative Diagram



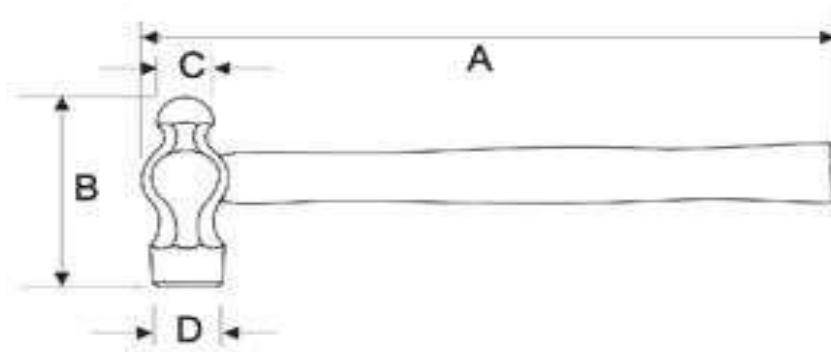
- 16.2 Base should be made from case hardened steel, ground on bottom and at one end.
- 16.3 Should have provision for Fine adjustment. This adjustment should be made by a knurled thumbscrew
- 16.4 Height: 450 mm
- 16.5 Base length: 100 mm
- 16.6 Width: 85 mm
- 16.7 Scriber: 150 mm
- 16.8 Should be supplied in Wooden / Plastic Box with proper cushioning



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

99. Hammer ball peen 640 gm with handle

17.1 Basic Indicative Diagram



17.2 Generally conform to I.S. 841 - 1983

17.3 Ball Peen Hammer

17.4 Length: 300 mm + 10%

17.5 Weight: 800 grams

17.6 Drop forged from high grade carbon Steel

17.7 Material: EN - 9

17.8 Partially hardened upto 46 - 56 HRC on striking surface

17.9 Depth of Hardness: 6 mm

17.10 Phosphated and painted

17.11 Handle

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

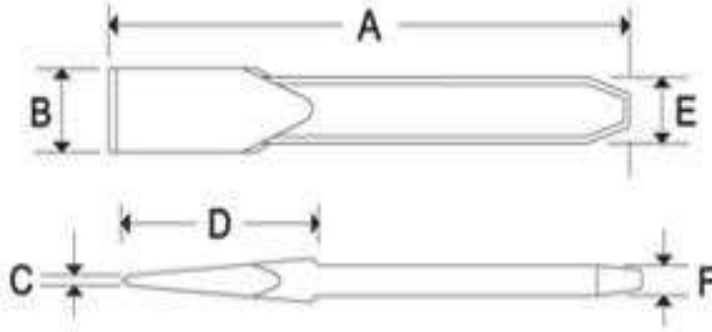
17.11.2 Handle fixed firmly to hammer head so that it does not come out after long use



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१८. Chisel cold flat २० x १५० mm

18.1 Basic Indicative Diagram



18.2 Generally Conform to I.S 5663 - 1970

18.3 Dimensions in mm: A: 150, B: 20, C: 3.0, D: 57

18.4 Drop forged from high grade carbon Steel

18.5 Hardness

18.5.1 Cutting Portion: 55 - 57 HRC

18.5.2 Striking Portion: 35 - 45 HRC

18.6 Body should be rounded off for comfortable grip

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

18.8 Should be phosphate & painted to provide anti rusting properties



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

19 Hammer copper/brass 400 gm with handle



19.1	Length	:	300 mm +90%
19.2	Weight	:	400grams
19.3	Material	:	Copper
19.4	Handle Material	:	Hickory Wood



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

20. Hacksaw fixed 200 mm (Pistol grip)

20.1 Basic Indicative Diagram



20.2 One - piece body is designed for ultra - high tension of 150 Kg

20.3 Should have Pre - tensioning mechanism to hold blade in place for quick and easy blade changes.

20.4 Should have Thumb - dial adjustable tension mechanism allows for tension memory.

20.5 Should have Large cutting capacity - up to 4 - 3/4 inch (+ 10%) throat depth for extra - deep cutting.

20.6 Power load sliding tension should deliver leverage when increasing tension and control when releasing blade.

20.7 Contoured handle and front thumb grip should be ergonomically designed for better control.

20.8 Blade should be able to be positioned at 45° or 90° cutting angle.

20.9 Should have long reach cutting capability.

20.10 Should provide removable file inside frame for finishing up surfaces after cutting.

20.11 Should be able to store 3 blades inside frame.

20.12 Should accept 12 Inch blade

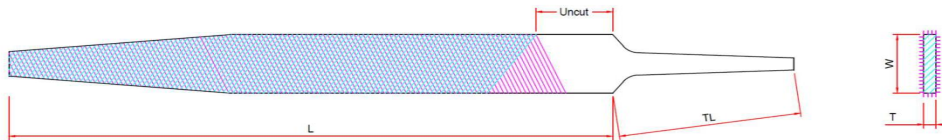
20.13 Hacksaw blade should be included



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

21. File flat 300 mm rough

21.1 Basic Indicative Diagram



Range (In MM)

From To

21.2 Generally conforming to IS 1931-2000

21.3 Body Length (L) 298 302

21.4 Tang Length (TL) 69 71

21.5 Width (W) 28.9 29.9

21.6 Thickness (T) 5.35 6.05

21.7 No. of Up cut / Inch 15 16

21.8 Up cut inclination 64° 66°

21.9 No. of Overcut / Inch 12 13

21.10 Overcut Inclination 44° 46°

21.11 No. of Edge cut / Inch 18 19

21.12 Edge cut Inclination 89° 91°

21.13 Hardness 60 HRC 64 HRC

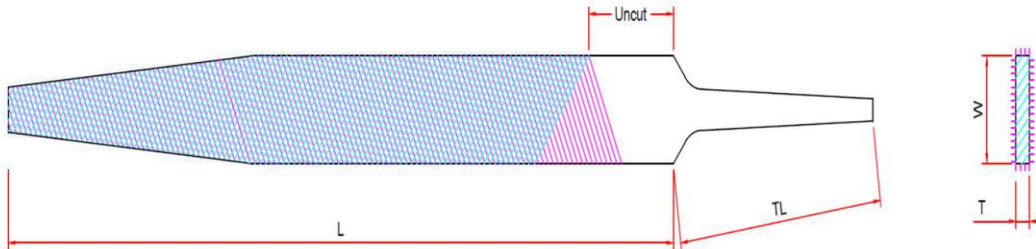
21.14 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

22. File flat 240 mm 2nd cut

22.1 Basic Indicative Diagram



Range (In MM)

From To

22.2 Generally conforming to IS 1931-2000

22.3 Body Length (L) 248 252

22.4 Tang Length (TL) 59 61

22.5 Width (W) 23.9 24.9

22.6 Thickness (T) 5.05 5.75

22.7 No. of Upcut / Inch 29 30

22.8 Upcut inclination 64° 66°

22.9 No. of Overcut / Inch 23 24

22.10 Overcut Inclination 44° 46°

22.11 No. of Edge cut / Inch 31 32

22.12 Edge cut Inclination 89° 91°

22.13 Hardness 60 HRC 64 HRC

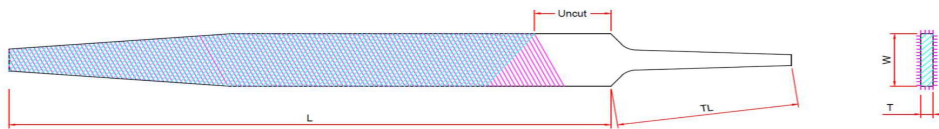
22.14 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

23. File flat 240 mm smooth

23.1 Basic Indicative Diagram



Range (In MM)

From To

23.2 Generally conforming to IS 1931-2000

23.3 Body Length (L) 248 252

23.4 Tang Length (TL) 59 61

23.5 Width (W) 23.9 24.9

23.6 Thickness (T) 5.05 5.75

23.7 No. of Up cut / Inch 38 40

23.8 Up cut inclination 64° 66°

23.9 No. of Overcut / Inch 31 32

23.10 Overcut Inclination 44° 46°

23.11 No. of Edge cut / Inch 41 42

23.12 Edge cut Inclination 89° 91°

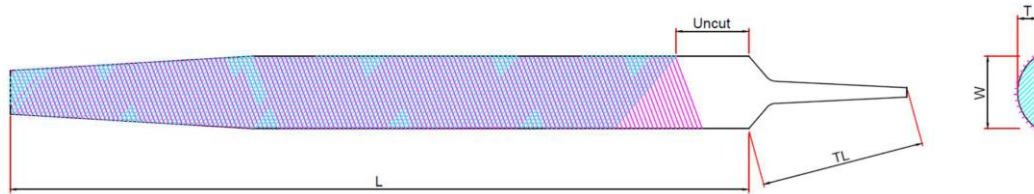
23.13 Hardness 60 HRC 64 HRC

23.14 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

24. File half round 240 mm 2nd cut



Range (In MM)

From To

24.2 Generally conforming to IS 1931-2000

24.3 Body Length (L) 250 252

24.4 Tang Length (TL) 60 61

24.5 Width (W) 23.70 24.7

24.6 Thickness (T) 6.55 7.25

24.7 No. of Up cut / Inch (29-30F/S) (28-29R/S)

24.8 Up cut inclination 65° 65°

24.9 No. of Overcut / Inch (24-25 F/S) (24-25R/S)

24.10 Overcut Inclination 50° 50°

24.11 No. of Edge cut / Inch 28 29

24.12 Edge cut Inclination 65° 65°

24.13 Hardness 60 HRC 64 HRC

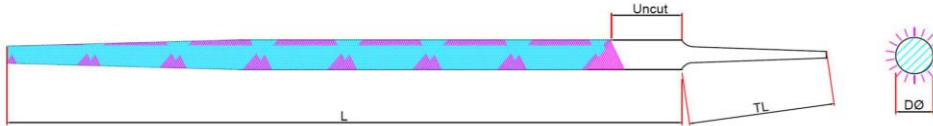
24.14 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

25. File round 25 mm smooth

25.1 Basic Indicative Diagram



Range (In MM)

From To

25.2 Generally conforming to IS 1931-2000

25.3 Body Length (L) 248 252

25.4 Tang Length (TL) 59 61

25.5 Diameter (Ø) 8.35 9.35

25.6 No. of Up cut / Inch 36 37

25.7 Up cut inclination 64° 66°

25.8 No. of Overcut / Inch 36 37

25.9 Overcut Inclination 49° 51°

25.10 Hardness 60 HRC 64 HRC

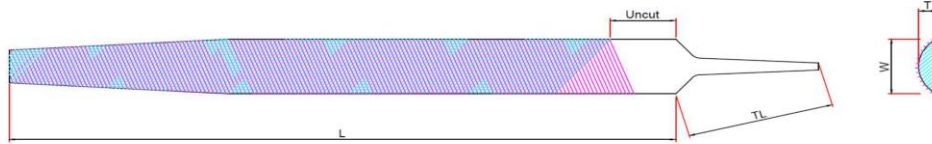
25.11 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

26. File half round 940 mm smooth

26.1 Basic Indicative Diagram



Range (In MM)

From To

26.2 Generally conforming to IS 1931-2000

26.3 Body Length (L) 150 152

26.4 Tang Length (TL) 50 51

26.5 Width (W) 15.20 16.20

26.6 Thickness (T) 3.95 4.65

26.7 No. of Up cut / Inch 50-54 (F/S) 53-54 (R/S)

26.8 Up cut inclination 65° 65°

26.9 No. of Overcut / Inch 46-47 (F/S) 44-45 (R/S)

26.10 Overcut Inclination 50° 50°

26.11 No. of Edge cut / Inch 44 45

26.12 Edge cut Inclination 65° 65°

26.13 Hardness 60 HRC 64 HRC

26.14 Rake Angle -7° -12°



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

27. Knurling tool revolving head (Rough,med,fine) diamond and straight

27.1 Basic Indicative Diagram



27.2 Total Length: 183 mm \pm 3 mm

27.3 Width: 28 mm \pm 1 mm

27.4 Thickness: 13 mm \pm 2 mm

27.5 Knurls Diameter: 19 mm

27.6 Fine Pitch: 0.8 mm

27.7 Medium Pitch: 1 mm

27.8 Coarse Pitch: 1.8 mm

27.9 Body Material: Mild Steel

27.10 Hardness: 55 - 60 HRC

27.11 Should have Knurling tool impact on job for gripping of piece

27.12 Should be easy to use on lathe machine during knurling

27.13 Should be possible to change the knurl tool as per work job requirement



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

28. Combination set 300 mm (Complete Set)

28.1 Basic Indicative Diagram



28.2 Should consist of Centre head, Protractor head, Square head, Blade

28.3 Centre head:

28.3.1 Should be able to locate center of cylinder of diameter 30 to 100 mm

28.3.2 Accuracy: + 0.15 mm

28.4 Protractor head:

28.4.1 Should be able to set the blade at desired angle to an edge of work piece

28.4.2 Should be able to measure angles

28.4.3 Range: 0 to 180 Degree

28.4.4 Accuracy: 7 min

28.5 Square head:

28.5.1 Should be able to set the blade at 90 or 45 Degree to an edge of an work piece

28.5.2 Accuracy: + 8 min for 90 Degree

28.5.3 Accuracy: + 10 min for 45 Degree

28.6 Blade:

28.6.1 Range: 300 mm

28.6.2 Graduation: 0.5 mm and 1 /32 inch on front face

28.6.3 1 mm and 1 /64 inch on back face

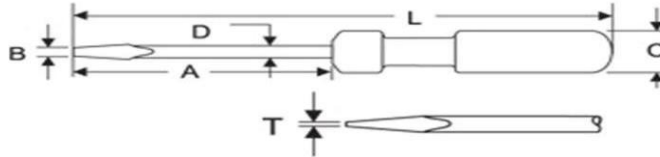
28.7 Should be supplied in Wooden / Plastic Box with proper cushioning



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

29. Screwdriver 90 X 200 mm

29.1 Basic Indicative Diagram



29.2 Generally conform to IS 844 - 1979

29.3 Dimensions:

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

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

29.4 Blade:

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

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

29.4.3 Hardness on Tip: 55 - 58 HRC

29.4.4 Minimum Torque Value: 1.46 Kg.m

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

29.5 Handle:

29.5.1 Material of Handle: Cellulose Acetate

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

29.5.3 Handle should withstand rough use including hammering

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

29.5.5 Handle & blade assembly should be insert moulded

29.6 Tip:

29.6.1 Tip should be formed by Forging & Trimming

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

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

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

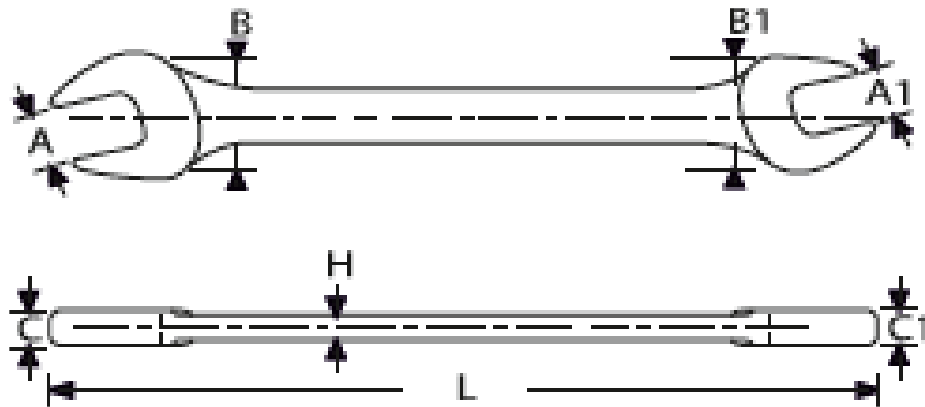
29.6.5 Double ear coining should be provided for the blade



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

30. Spanner double ended ξ mm to 29 mm

30.1 Basic Indicative Diagram



30.2 Generally Conform to IS 2028 - 1998

30.3 Sizes: 6X7, 8X9, 10X11, 12X13, 14X15, 16X17, 18X19, 20X22

30.4 Slightly Rounded handles - Sand Blasted

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

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

30.7 Thoroughly corrosion protected with Nickel chrome finish

30.8 Deep forged from Chrome vanadium Steel (31CrV3)

30.9 Hardness: 42 - 45 HRC

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

30.11 Web should be provided in forging

30.12 Minimum Torque Values in Kg.m

30.12.1 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

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

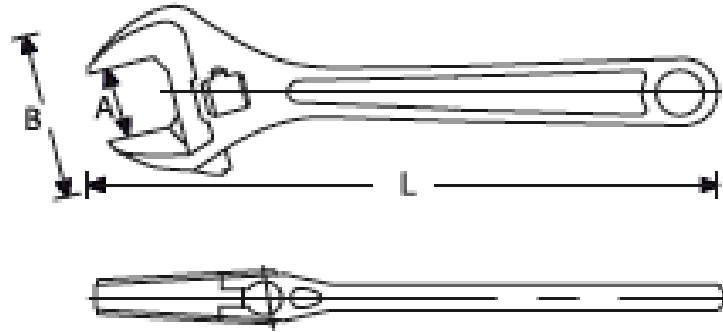
30.12.3 Nominal Width A/F 19 - 15.2, 20 - 17.50, 21 - 20.20, 22 - 22.9



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

31. Spanner adjustable 300 mm

31.1 Basic Indicative Diagram



31.2 Generally Conform to IS 6149 - 1984 Grade II

31.3 Length (L): 300 mm

31.4 Plain Carbon Steel/ Cr - V Steel

31.5 Knurl adjusting mechanism for quick & precise adjustment

31.6 Built - in tension spring stabilizes movable jaw.

31.7 Laser - etched mm jaw scale for easy adjustment

31.8 Drop forged with high grade forging Steel

31.9 Play between jaws: 1.20 mm (maximum)

31.10 Hardness: 40 - 50 HRC

31.11 Minimum Torque Value: 49 Kg.m

31.12 Torque Test: Should withstand torque till 52.5 Kg.m

31.13 Maximum Opening (A): 35 mm

31.14 Made with 15 degree head angle to allow use in narrow spaces having arc movement of only 30 degree

31.15 Jaw Shank should not protrude out even when fully opened. In full condition, movable jaw should align with outer radius of the handle.

31.16 Adjustable Wrenches Black Phosphate Finish

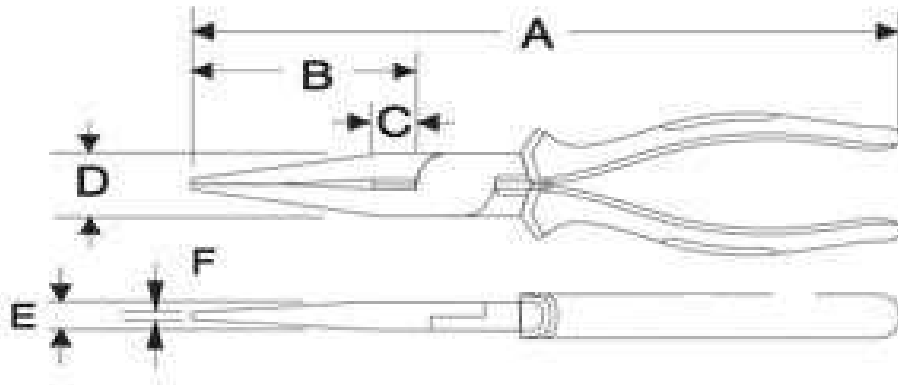
31.17 Light weight handle design



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

32. Pliers flat nose 94° mm side cutting

32.1 Basic Indicative Diagram



32.2 Generally conform to IS 3552 - 1989

32.3 Length: 150 mm

32.4 Drop Forged from High Carbon Steel & scientifically treated to give tough body (45 - 48 HRC)

32.5 Cutting edges should be induction hardened. Cutting edge Hardness 55 - 60 HRC.

32.6 Rivet should be hardened and made of carbon Steel

32.7 High Voltage Insulation: Should be able to withstand 4000 V DC or 2800 V AC

32.8 Minimum load value: 9.58 Kg

32.9 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.

32.10 Thicker Sleeves for comfortable Grip

32.11 Special thumb protector for sleeves to minimize the risk of electric shock in case plier slips while in use.

32.12 Should be able to cut soft (74 to 84 Kg/ mm²) & Hard (140 mm²) wires

32.13 Should be able to cut Hard wire of Diameter: 1.60 mm & Soft wire of Diameter: 1.0 mm

32.14 Cutting edges should be sharp and precision machined to appropriate angle to cut thick and thin wires with ease



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

33. Caliper transfer inside 94° mm

33.1 Basic Indicative Diagram



33.2 Spring Divider Size(L): 150 mm

33.3 Material for

33.3.1 Legs: Carbon & Alloy Steel

33.3.2 Spring: Spring Steel

33.3.3 Others: Free Cutting Steel

33.4 Finish for

33.4.1 Legs: Polished

33.4.2 Rest parts: Auto Black

33.5 Hardness for

33.5.1 Tip: 50 - 55 HRC

33.5.2 Spring: 45 - 50 HRC

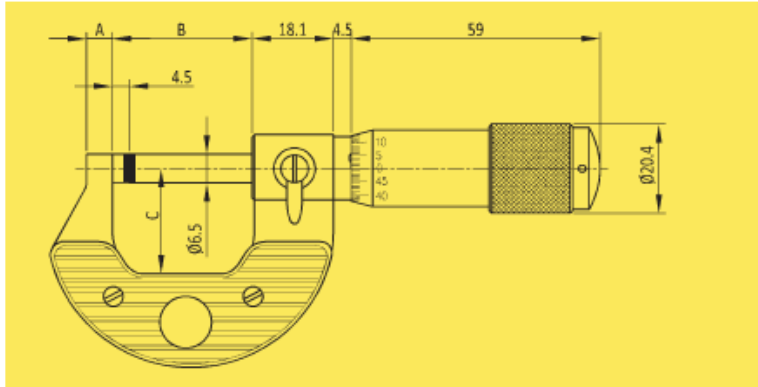
33.6 Proper rust preventive packing



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

34. Micrometer Outside ϕ to 25 mm, Least Count 0.01 mm with NABL Accredited lab. Certificate

34.1 Basic Indicative Diagram:



34.2 Compliance: Generally Compliant to IS 2967 / 1938

34.3 Range: 0 mm -25 mm

34.4 Reading: 0.01 mm

34.5 Accuracy: 4 μ m

34.6 Spindle Material: Stainless Steel / Alloy steel

34.7 Standard Accessories:

34.7.1 Suitable spanner,

34.7.2 Wooden / Plastic Box with proper cushioning

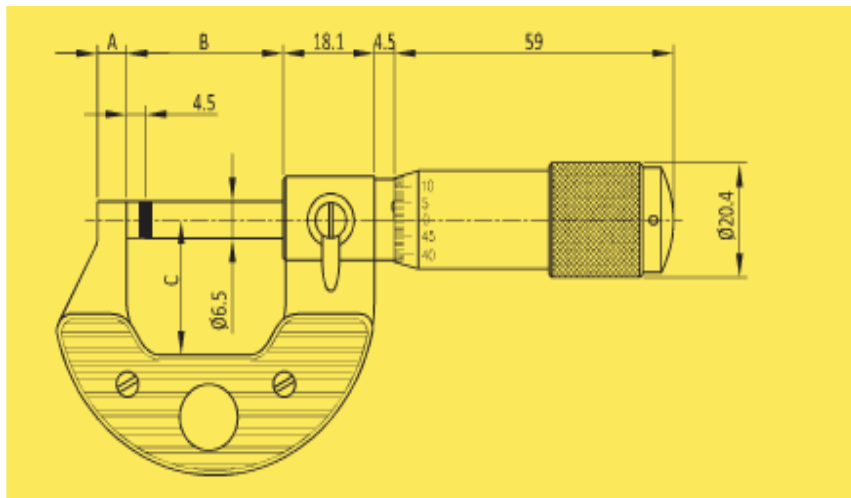
34.7.3 Operating Manual



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

35. Micrometer Outside 25 to 50 mm, Least Count 0.01 mm with NABL Accredited lab. Certificate

35.1 Basic Indicative Diagram:



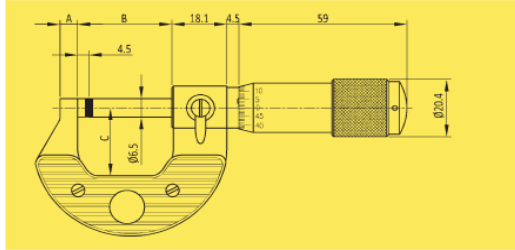
- 35.2 Compliance: Generally Compliant to IS 2967 / 1938
35.3 Range: 25 mm -50 mm
35.4 Reading: 0.01 mm
35.5 Accuracy: 4 μ m
35.6 Spindle Material: Stainless Steel / Alloy Steel
35.7 Standard Accessories:
35.7.1 Suitable spanner
35.7.2 Distance Piece
35.7.3 Wooden / Plastic Box with proper cushioning
35.7.4 Operating Manual



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

36. Micrometer Outside upto 75 mm, Least Count 0.01 mm with NABL Accredited lab. Certificate

36.1 Basic Indicative Diagram:



- 36.2 Compliance: Generally Compliant to IS 2967 / 1938
36.3 Range: 50 mm -75 mm
36.4 Reading: 0.01 mm
36.5 Accuracy: 4 μm
36.6 Spindle Material: Stainless Steel / Alloy Steel
36.7 Standard Accessories:
36.7.1 Suitable spanner
36.7.2 Distance Piece
36.7.3 Wooden / Plastic Box with proper cushioning
36.7.4 Operating Manual



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

37. Micrometer Inside up to 25 mm, Least Count 0.01 mm with NABL Accredited lab. Certificate

37.1 Basic indicative diagram



- 37.2 Generally conforming to DIN 863, part 4
37.3 Display Type: Analog / Digital
37.4 Range: 20 to 25 mm
37.5 Accuracy: 0.004 mm
37.6 Depth: 66 mm (Required Extension Rod)
37.7 Setting Ring: 20 mm
37.8 Graduation: 0.005 mm
37.9 Should have tungsten carbide measuring faces on all 3 point heads
37.10 Blind bore measurement should be possible
37.11 Ratchet stop to ensure consistent measurement
37.12 Should be supplied in Wooden / Plastic Box with proper cushioning
37.13 Certification from appropriate bodies should be supplied with setting ring & micrometer



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)



38 MICROMETER INSIDE २५ TO ५० MM LC ०.०१MM

३८.१	Range	:-	Up to २५ - ५० mm
३८.२	Head adjustment range	:-	७ mm
३८.३	Graduation	:-	०.०१ mm
३८.४	Interchangeable rod	:-	२ (३८, ५० mm)
३८.५	Extension collar	:-	१ (६ mm)
३८.६	Mass	:-	६० g
३८.७	Accuracy	:-	$\pm(६+L/५०) \mu\text{m}^*$
			*L = Maximum measuring length (mm) $\pm[0.0003+0.00004 (R/2)]$ "
३८.८	Measuring spindle	:-	Spindle pitch ०.५ mm with spindle lock
३८.९	Measuring face	:-	Hardened steel
३८.१०	Measuring method	:-	२-point
३८.११	Delivered	:-	Including box, key
३८.१२	Digital/Analog	:-	Analog
३८.१२	Inch-Metric	:-	

NABL accredited lab certificate interchangeable



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

39 DEPTH GAUGE MICROMETER

३९.१ Basic Indicative Diagram



39.2	Range	:-	0 – 940 mm
39.3	Flatness of reference surface (base)	:-	१.३ μm
३९.४	Flatness of measuring face (rod)	:-	०.३ μm
३९.५	Number of rods	:-	६
३९.६	Graduation	:-	०.०१ mm
३९.७	Mass	:-	३७० g
३९.८	Measuring span	:-	२५ mm
39.9	Spindle pitch	:-	०.५ mm, with spindle lock
39.10	Micrometer Head Feed (०–२५)		±३ μm
39.11	Zero point errors of rods		±४ μm (०–१५० mm)
39.12	Parallelism between measuring face (rod) and reference surface (base)	:-	(४+ L/५०) μm L=max. measuring length (mm)
39.13	Measuring face	:-	Hardened, precision ground, micro-lap finish
39.14	Base	:-	Hardened tool steel
39.15	Scale	:-	Thimble and sleeve satinchrome finish ø१८ mm
39.16	Digital/Analog	:-	mm



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

Analog

३१.१७ Inch-Metric

:-

Metric interchangeable
rods

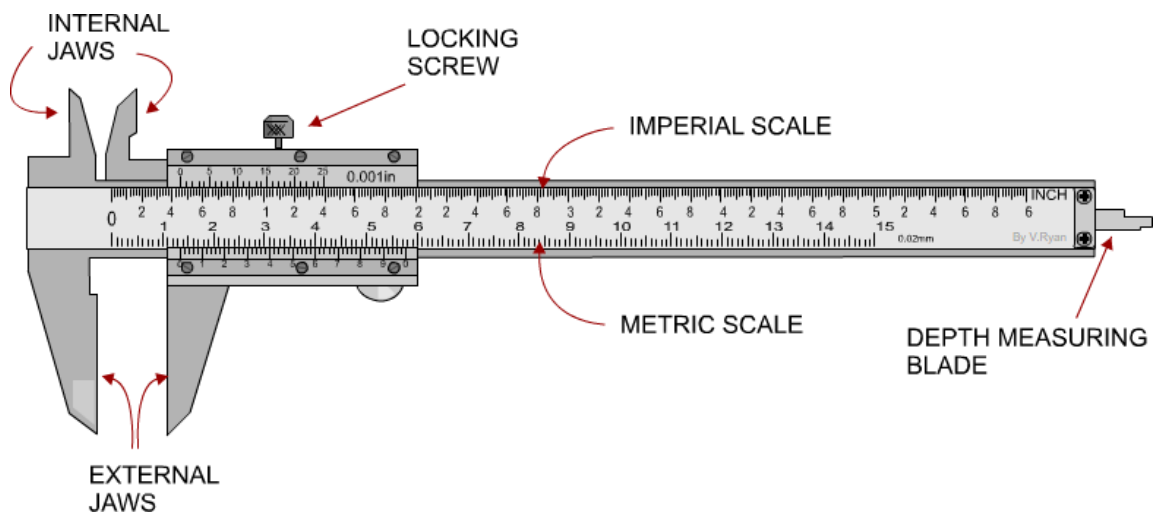
NABL accredited lab certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

40. Vernier Caliper Outside, Inside and Depth

40.1 Basic Indicative Diagram



- | | | |
|-------------------------------|----|---|
| ४०.२ Range | :- | ० § २०० mm/ ८ inch with metric and inches scale(LC =०.०२mm) with fine adjustment with NABLAccredited lab. Certificate |
| ४०.३ Depth bar | :- | Flat |
| ४०.४ Mass | :- | १८० g |
| ४०.५ Delivered | :- | In a box |
| ४०.६ With upper locking screw | :- | YesNABL |

accredited lab certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४१ DIAL VERNIER CALIPER WITH METRIC २०० mm / ८ inches with
metric & inch scale (L.C. = ०.०२mm)

४१.१ Basic Indicative Diagram



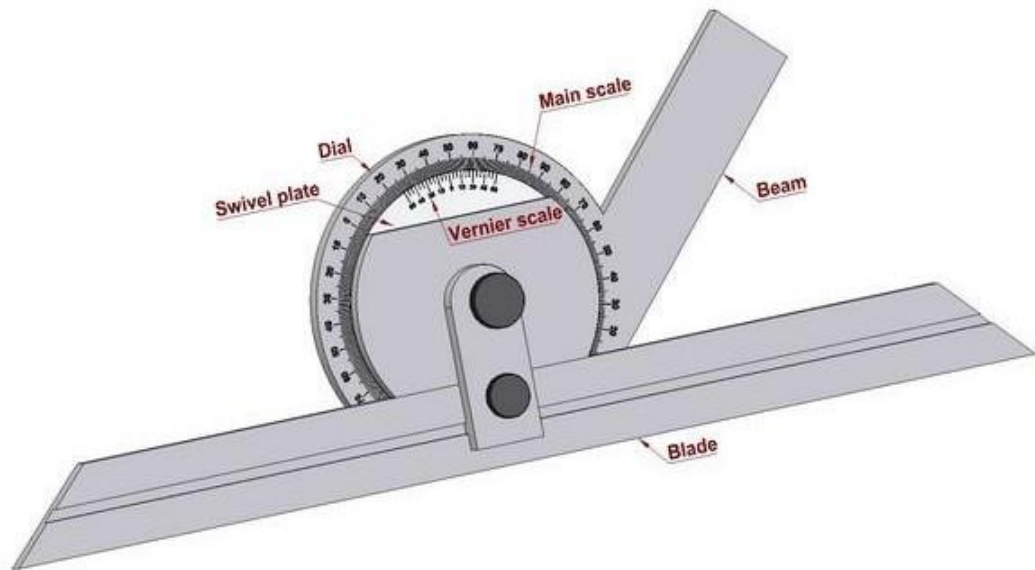
- ४१.२ Material :- Nickel chromium
४१.३ Measuring Range :- ०-२०० mm, with NABL Accredited lab certificate
४१.४ Dial Reading Graduation :- ०.०५ mm
४१.५ Calibration Certificate / inspection Certificate / Test Certificate
४१.६ NABL Accredited lab certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४२ VERNIER BEVEL PROTRACTOR ३०० MM

४२.१ Basic Dig



४२.२	Blade edge angle	:-	६०°, ४५°, ३०° edges
४२.३	Blade length	:-	३०० mm
४२.४	Mass	:-	३९० g
४२.५	Graduation	:-	५'
४२.६	Inch-Metric	:-	Metric
४२.७	Delivered	:-	In a box with acute angle attachment, holder for height gauge, magnifier

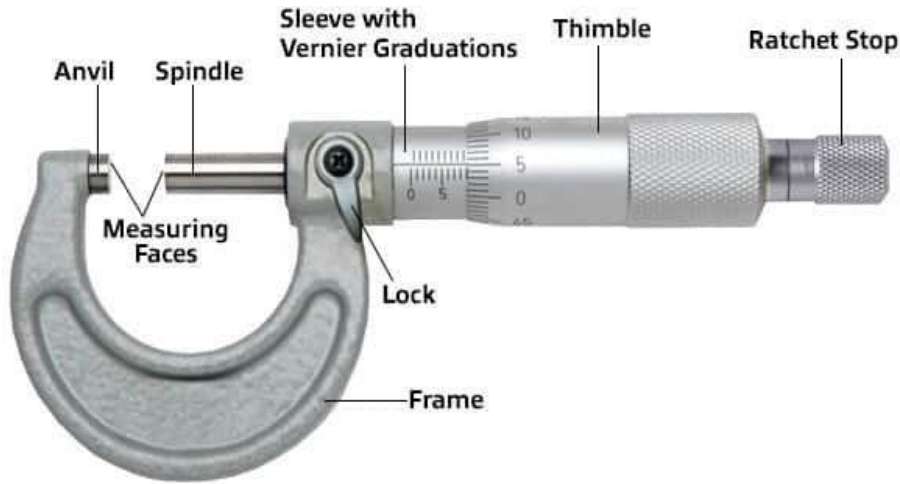
४२.८ Blade with NABL Accredited lab certificate magnifying glass for easy reading
adjustable beam to any position with measuring range



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४३ VERNIER MICROMETER ०-२५ MM O/S, LC § ०.००१ MM

४३.१ Basic Dig



४३.२ Range	:-	० - २५ mm
४३.३ Parallelism	:-	२ μm
४३.४ Maximum Permissible Error	:-	±२ μm
४३.५ Measuring force	:-	५ - १० N
४३.६ Remarks	:-	Ratchet Stop
४३.७ Mass	:-	१८० g
४३.८ Measuring face	:-	Carbide-tipped, micro-lap finish
४३.९ Measuring spindle	:-	With spindle lock, ø६,३५ mm, spindle pitch ०,५ mm
४३.१० Scale	:-	Thimble and sleeve satin chrome finish, ø१८ mm
४३.११ Digital/Analog	:-	Analog
४३.१२ Inch-Metric	:-	Metric
४३.१३ Graduation	:-	०.००१ mm
४३.१४ Measuring spindle	:-	With spindle lock, ø६,३५ mm, spindle pitch ०,५ mm
४३.१५ Delivered	:-	Including box, key, setting standard (from २५ mm upward), certificate of inspection (०-५० mm range)

NABL Accredits lab certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४४ VERNIER MICROMETER २५ § ५०MM L.C. § ०.००१MM

४४.१ Basic Dig



४४.२	Range	:-	२५ – ५० mm
४४.३	Parallelism	:-	२ µm
44.5	Maximum Permissible Error J MPE	:-	±२ µm
44.6	Measuring force	:-	५ – १० N
	Remarks	:-	Ratchet
	Stop		
44.7	Mass	:-	२७० g
44.8	Measuring face	:-	Carbide-tipped, micro-lap finish
44.9	Measuring spindle	:-	With spindle lock, Ø६,३५ mm, spindle pitch ०,५ mm
44.10	Scale	:-	Thimble and sleeve satin chrome finish, Ø१८ mm
44.11	Digital/Analog	:-	Analog
44.12	Inch-Metric	:-	Metric
44.13	Graduation	:-	०,००१ mm
44.14	Measuring spindle	:-	With spindle lock, Ø६,३५ mm, spindle pitch ०,५ mm
44.15	Delivered	:-	Including box, key, setting standard (from २५ mm upward), certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

of inspection (0-40 mm range)

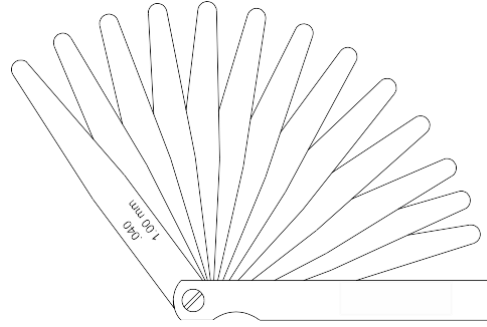
NABL accredits lab certificate



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४५ Feeler Gauge –0.0५ mm to 0.३mm by 0.0५ , 0.४ to १.0 mm by 0.१mm १३ leaves

४५.१ Basic Indicative Diagram



- | | | | |
|-------|---|----|---|
| ४५.२ | Material | :- | Spring steel C-६० |
| ४५.३ | Hardness | :- | ५५-५८ HRC |
| ४५.४ | Range | :- | 0.0५ to 0.३ mm by 0.0५ & 0.४ to १.0 mm by 0.१ 0.१mm |
| ४५.५ | Accuracy | :- | As per T२ grade tolerances |
| ४५.६ | No. of Blades | :- | १३ leaves |
| ४५.७ | Finish | :- | Fine Polished |
| ४५.८ | Material | :- | High Carbon Steel or Chrome Vanadium Steel |
| ४५.९ | Each leaf should have permanent marked leaf thickness in metric & English | | |
| ४५.१० | Packing: Each assembly should be stacked with external cover duly marked with model size with tightening screw in plastic pouch | | |



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

४६. Gauge – Radius Set १ mm to २५ mm by ०.५ mm

46.1 Basic Indicative Diagram



46.2 Material: 0.5 Thickness S.S.420 H & T

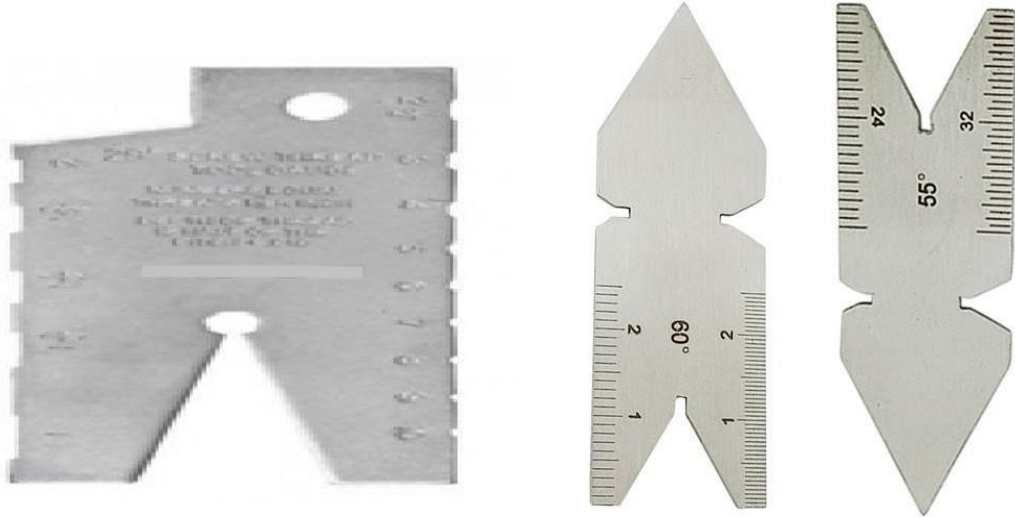
46.3 Range: 1-7, 7.5-15, 15.5-25 mm incremental of 0.5 mm

46.2.4 Finish: Polished by Tumbling



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

- 47 Center gauge ६००,५५०,२९०
Basic Indicative Diagram



- 47.1 Material :- SPCC /High C Steel
47.2 Thickness :- १.२mm (t१.२)
४७.३ Accuracy :- $\pm 0.२'$ ($\pm १0'$)



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

48 Screw Pitch Gauge Whitworth & Metric each (0.25 to 6mm)

48.1 Basic Indicative Diagram



48.2 Material: Carbon Steel

48.3 Range: 21 Leaves 4 - 80 TPI (55°) and Metric 60°

48.4 Finish: Polished

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



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

49 Drill Angle Gauge

49.1 Basic Indicative Diagram



49.2 Material: 1.0 mm thick S.S.202

49.3 Range: 118° to 135° drill point angles

49.4 Least count: 1.0 mm lip length & 1 /16 inch drill length scale

49.5 Finish: Polished

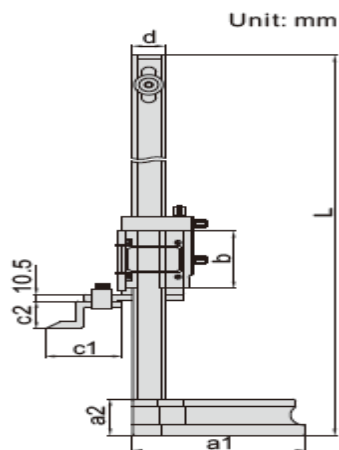
49.6 Should be supplied in Wooden / Plastic Box with proper cushioning



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

- 51 Vernier Height Gauge ϕ – 300 mm, LC = 0.02 mm
with NABL Accredited lab. Certificate

51.1 Basic Indicative Diagram:



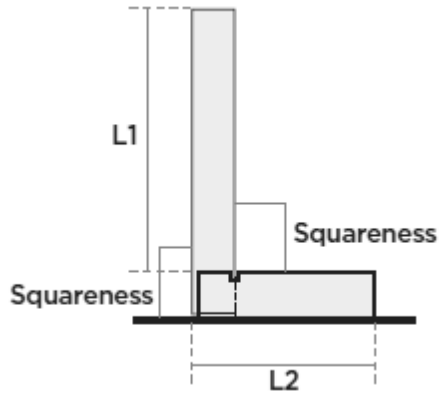
- 51.2 Range: 0 mm - 300 mm
51.3 Overall Length: 545 mm (Approx.)
51.4 Overall Width (Base) in mm: 135 mm (Approx.)
51.5 Net Weight - Kg: 3.1 Kg (Approx.)
51.6 Accuracy: ± 0.04 mm
51.7 Material: Stainless Steel / Alloy Steel
51.8 Standard Accessories
51.8.1 Fine Adjusting Unit
51.8.2 Carbide Tip Scriber point with clamping unit
51.8.3 Operating Manual
51.8.4 Magnifying Glass
51.8.5 Wooden / Plastic Box with proper cushioning and corrugated box with proper cushioning for magnetic stand



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

52 Try Square 90° blades

52.1 Basic Indicative Diagram



52.2 Blade length (L1): 150 mm

52.3 Stock length (L2): 100 mm

52.4 Squareness: 16 microns

52.5 Material for Blade: Spring Steel

52.6 Stock: MS

52.7 Hardness of Blade: 40 - 50 HRC

52.8 Groove on the inner corner of the stock



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

53 MAGNIFYING GLASS

५३.१ Basic Indicative Diagram



- ५३.२ :- DIA ७५ MM
५३.३ :- MAGNIFYING FACTOR १०X
५३.४ :- LENS DOUBLE
५३.५ :- FOCAL LENGTH ३.१५MM



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

५४ PLAIN RING AND PLUG GAUGE

Standard size: १२/१६/२०/२५/३०/३२/३६/४०/४५/५०mm

५४.१ Basic Dig



The Gauges, Plug and gauge are made of superior quality high Carbon Chrome alloy Steel Heat treated and hardened to ५८-६० HRC, to provide a high Degree of wear resistance.

Fine lapped to get maximum seating and surface finish.

Should be supplied in Wooden / Plastic Box with proper cushioning

Rough ground and kept for longer period of time before finishing is given this is done to prevent any distortions and ensure stability throughout their use.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

५५ WHEEL DRESSERS HUNTING ON TYPE WITH STAR CUTTER



- ५५.१ DIAMETER १" TO २/३"
- ५५.२ THICKNESS ३/३२" TO १/८"
- ५५.३ CUTTING FACE १/२" TO १.७५"
- ५५.४ CUTTER SET ४ CUTTER- २ SPACERS, १२ CUTTERS- ४ SPACERS



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

ॡॢ. Wheel Dresser Diamond



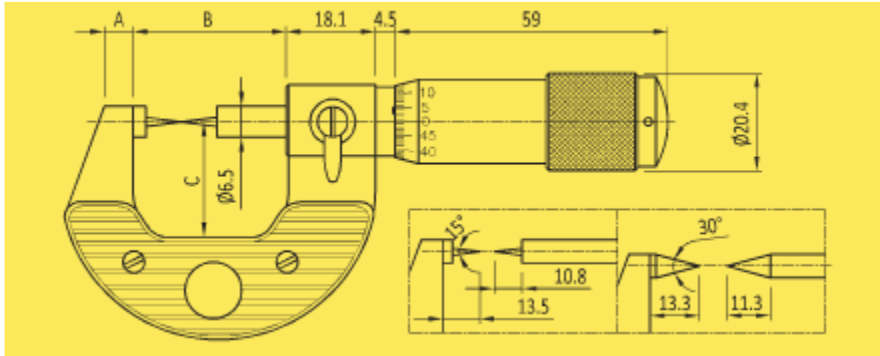
- ॡॢ.१ SKU: TOO.DIA.१ॢ१ॢॢॢॢॢ
ॡॢ.ॢ Type of Product: Single Point Diamond Dresser
ॡॢ.ॣ Tip Material: Raw Diamond १mm to ॡmm
ॡॢ.। Sub Type: Regular Size: ०.ॡॡ or १ Carat
ॡॢ.॥ Carat Shank Size: १ॢ.ॡ x १ॣॡ mm
ॡॢ.० Material: Carbon Steel Knurling Handle



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

49. Screw Thread micrometer interchangeable(0-25 mm)

57.1 Basic Indicative Diagram:



57.2 Compliance: Generally Compliant to DIN 863

57.3 Range: 0 mm - 25 mm

57.4 Reading: 0.01 mm

57.5 Accuracy: 4 μ m

57.6 Point angle of spindle in Degree: 30 Degree

57.7 Material: Stainless Steel / Alloy Steel

57.8 Standard Accessories:

57.8.1 Suitable spanner

57.8.2 Wooden / Plastic Box with proper cushioning

57.8.3 Operating Manual



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

58 MORSE TAPER RING AND PLUG GAUGE
NO :- 0 TO 9 MT

58.1 Basic Dig



The Gauges, Plug and gauge are made of superior quality high Carbon Chrome alloy Steel Heat treated and hardened to 47-50 HRC, to provide a high Degree of wear

resistance.

Fine lapped to get maximum seating and surface finish.

Should be supplied in Wooden / Plastic Box with proper cushioning

Rough ground and kept for longer period of time before finishing is given this is done to prevent any distortions and ensure stability throughout their use.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

५१. Sine Bar with centers २०० mm

59.1 Basic Indicative Diagram



59.2 Total length: 245 mm \pm 2 mm

59.3 Total width: 60 mm \pm 2 mm

59.4 Distance Between Roller: 200 mm \pm 1.0 mm

59.5 Hardness: 55 to 60 HRC

59.6 Material Quality Tool Steel, Hardened & Ground of extreme



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

ξο. Slip Gauge metric set (29 pieces in a Box) with workshop grade

ξο.1 Basic Indicative Diagram



- 60.2 Made of high-quality alloy steel
- 60.3 Ultra-micro-lapped surface finish heat treated and aged to give good wear resistance.
- 60.4 Should have inter-set wringing properties.
- 60.5 Each gauge should be marked with an identification number
- 60.6 Blocks should be heat treated to HRC65 / HV820
- 60.7 All edges should be Chamfered edges
- 60.8 Each set should be supplied with a UKAS 5 point Calibration Certificate (or equivalent)
- 60.9 Should be supplied in Wooden / Plastic Box with proper cushioning
- 60.10 Grade - 2



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६१. Morse Taper Sleeves



Specifications for this item

६२.२ Color - Grayish, Silver

६२.४ Material - steel

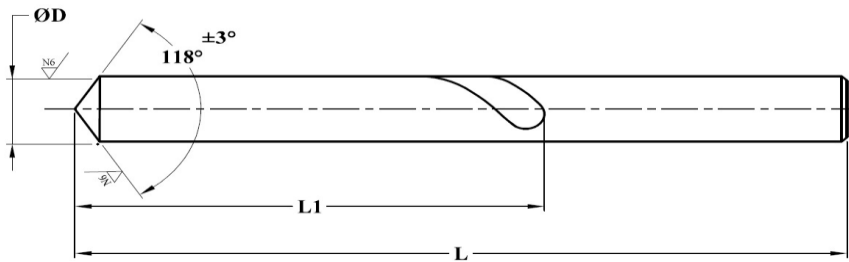
६२.४ Number of Items § ०-१, १-२, २-३, ३-४, ४-५



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६२. Twist Drill straight shank ३ to १२ mm by १ mm

62.1 Basic Indicative Diagram



62.2 Compliance: Confirming to IS: 5101 - 1991

62.3 Drill Diameter 'ØD': Ø1.0 mm to Ø13.0 mm

62.4 Shank: Parallel

62.5 Material: HSS-M2

62.6 Finish: Milled / Ground

62.7 Hardness: 760 HV to 900 HV

62.8 Surface Treatment: Bright finish

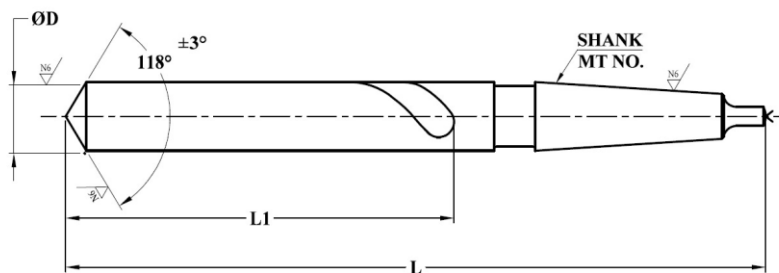
62.9 Suitable Wooden/ Plastic/ Metal Box for storage



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६३. Drill Twist Set Taper Shank - १४ mm to २० mm by १ mm

63.1 Basic Indicative Diagram



63.2 Compliance: Confirming to IS: 5103 - 1969 (Reaffirmed 1997)

63.3 Drill Diameter 'ØD': Ø14.00 h8 (+0.0 / -0.027)

63.4 Overall Length 'L': 189.00 mm

63.5 Flute Length 'L1': 108.00 mm

63.6 Shank: MT-1

63.7 Cutting Portion Material: HSS-M2

63.8 Finish: Milled / Ground

63.9 Hardness

63.9.1 Cutting Portion: 760 HV to 900 HV

63.9.2 Shank Portion: 185 HV Min.

63.10 Surface Treatment: Flutes should be Steam Tempered for better wear resistance and performance.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६४. Drill Chuck १२ mm cap with key

64.1 Basic Indicative Diagram



- 64.2 Total Length: 160 mm \pm 2 mm
- 64.3 Maximum Diameter: 44 mm \pm 1mm
- 64.4 Shank: MT - 2
- 64.5 Capacity: 1.5 mm to 13 mm
- 64.6 Key operated guided jaws type
- 64.7 Material: Carbon Steel
- 64.8 Screw rings should be hardened and ground
- 64.9 Key should be hardened and blacked



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६५ Tap and Die BA no ० to १०



65.1	Item Weight	:-	२.४२Pounds
65.2	Numbers		० to १०
65.3	Tap and Die Set -		० to १० no in a box with Die Stock and Tap Wrench
65.4	Material		High Speed Steel
65.5	Hardness		५६ - ६० HRC
65.6	Provided with suitable		Wooden/ Plastic/ Metal Box
६४.७	DIN १३-१		
६७.८	Standard		IS४२३१:२०१६



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६६ Tap and Die Set Metric ०३ to २४mm
66.1 Basic Indicative Diagram



- 66.2 Tap and Die Set - M३ to M१ॢ Taps Set and Die Sets, Die
66.3 Made of High Speed Steel
६६.४ HRC ५६ - ६०
66.5 Hand Tap Set consisting of ३ Hand Taps
viz. First, Second and Third of sizes
specified Below
66.6 Round Dies of sizes specified below



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

66.7 Hand Tap and Round Dies

Sizes: ६६.७.१ ३.०० –

०.५० mm

६६.७.२ ४.०० – ०.७० mm

६६.७.३ ५.०० – ०.८० mm

६६.७.४ ६.०० – १.०० mm

६६.७.५ ७.०० – १.०० mm

६६.७.६ ८.०० – १.०० mm

६६.७.७ ९.०० – १.२५ mm

६६.७.८ १०.०० – १.५० mm

६६.७.९ १२.०० – १.७५ mm

६६.७.१० १४.०० – २.०० mm

६६.७.११ १६.०० – २.०० mm

६६.७.१२ १८.०० – २.५० mm

६६.७.१३ १९.०० ♂ २.५०mm

६६.७.१४ २०.०० ♂ २.५०mm

६६.७.१५ २१.०० ♂ ३.००mm

६६.७.१६ २२.०० ♂ ३.००mm

६६.७.१७ २३.०० ♂ ३.५० mm

६६.७.१८ २४.०० ♂ ३.५०mm

66.8 T Handle Tap Wrench M२ – M६, M६ – M१०

66.9 Adjustable Bar Type Tap wrench M३ –

M१२, M४ – M२४ (forged body)

66.10 Provided with suitable Wooden/ Plastic/ Metal Box

66.11 IS Standard IS४२३१:२०१६



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६७ Tap and Die BSF up to १ Inch



- 67.1 Item Weight २.४२ pounds
67.2 Tap and Die Set १ BSF up to १Inch
Die Stock and Tap
Wrench
67.3 Made of High Speed Steel
६९.४ HRC ५६ – ६०
69.5 Provided with suitable Wooden/ Plastic/ Metal Box
69.6 IS Standard IS४२३१:२०१६



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

६८ Tap and Die BSW up to १ Inch



- 68.1 Item Weight २.४२ pounds
- 68.2 Tap and Die Set BSW up to १Inch Die Stock and Tap Wrench
- 68.3 Made of High Speed Steel
- ६७.४ HRC ५६ – ६०
- 67.5 Provided with suitable Wooden/ Plastic/ Metal Box
- 67.6 IS Standard IS४२३१:२०१६



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

69. Reamer machine straight flute 6 to 24 mm

69.1 Basic Indicative Diagram



69.2 Dimensions

Size (Diameter) MT Flute Length Overall Length

6 mm MT 1 47 mm 127 mm

7 mm MT 1 58 mm 134 mm

8 mm MT 1 58 mm 138 mm

9 mm MT 1 62 mm 142 mm

10 mm MT 1 66 mm 146 mm

11 mm MT 1 71 mm 151 mm

12 mm MT 1 76 mm 156 mm

13 mm MT 1 76 mm 156 mm

14 mm MT 1 81 mm 161 mm

15 mm MT 2 81 mm 181 mm

16 mm MT 2 87 mm 187 mm

17 mm MT 2 87 mm 187 mm

18 mm MT 2 93 mm 193 mm

19 mm MT 2 93 mm 193 mm

20 mm MT 2 100 mm 200 mm

21 mm MT 2 107 mm 200 mm

22 mm MT 2 107 mm 207 mm

23 mm MT 2 107 mm 207 mm

24 mm MT 3 115 mm 242 mm

25 mm MT 3 115 mm 242 mm

69.3 Compliance: Confirming to IS: 5445-1978

69.4 Cutting portion Material: HSS-M2

69.5 Finish: Milled flute



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

69.6 Hardness

69.6.1 Cutting Portion: 62 - 65 HRC

69.6.2 Shank Portion: 35 - 40 HRC

69.7 Surface Treatment: Sand blast or Steam Blue finish

69.8 Helix Angle: 7° Left Hand Helix / Right Hand Cut

69.9 Finished Hole Tolerance: H7

69.10 Holding: Taper Shank

69.11 Bevel Lead: 45°

69.12 Applications: Intended to finish existing holes to H7 tolerance in most ferrous & non ferrous metals

69.13 Suitable Wooden/ Plastic/ Metal Box for storage



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

70. Reamer Adjustable 90 to 20 mm

70.1 Basic Indicative Diagram



70.2 Each reamer should expand to the smallest size of next larger size

70.3 Should be used for light cut, repair work, removing stock or simply for enlarging holes

70.4 Should be hand operated by use of wrenches. The size can be adjusted by moving the blades in tapered slots by means of loosening one nut and tightening the other

70.5 Blades should be Hardened and Ground

70.6 Range (in mm)

70.6.1 6.35 to 7.14 No. of Blades - 4

70.6.2 7.14 to 7.94 No. of Blades - 4

70.6.3 7.94 to 8.73 No. of Blades - 4

70.6.4 8.73 to 9.52 No. of Blades - 5

70.6.5 9.52 to 10.32 No. of Blades - 6

70.6.6 10.32 to 11.11 No. of Blades - 6

70.6.7 11.11 to 11.91 No. of Blades - 6

70.6.8 11.91 to 13.49 No. of Blades - 6

70.6.9 13.49 to 15.08 No. of Blades - 6

70.6.10 15.08 to 16.67 No. of Blades - 6

70.6.11 16.67 to 18.26 No. of Blades - 6

70.6.12 18.26 to 19.84 No. of Blades - 6



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

70.6.13 19.84 to 21.43 No. of Blades -6

70.6.14 21.43 to 23.81 No. of Blades - 6

70.6.15 23.81 to 26.99 No. of Blades - 6

70.7 Material: High Speed Steel

70.8 Hardness: 50 to 55 HRC

70.9 Suitable Wooden/ Plastic/ Metal Box for storage

70.10 Each box is clearly marked with different reamer sizes to facilitate convenient storages



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

71. Tool Holder RH & Straight for mm square tool bit



- 71.1 Material Carbon Steel
- 71.2 Size 8 and 90 mm square
- 71.3 Size of Shank 95*20*20 mm
- 71.4 Shank must be hardened (Hardness Range HRC 30)
- 71.5 For clamping M8 allen Bolt with Allen Key



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

७२. Parting Tool Holder with H.S.S.Blade



72. १ Holder H.C.S. २mm slot

७१.२ shank length with १५० mm with blade set

७१.३ Heat treated hardened body Machined to precise tolerances(Hardness Range HRC ६०-६८)

७१.४ Support the blade over a wide area, reducing chance of blade breakage



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

73. Tool Bits १२*१५०mm sq. assorted shaped

73.1 Basic Indicative Diagram



73.2 Compliance: Confirming to IS : 11143-1991

73.3 Length 'L': 150 mm (\pm 1.5 mm)

73.4 Width 'W': 12 mm

73.5 Material: HSS-T42 / S400

73.6 Finish: Milled / Ground

73.7 Hardness: 65 - 69 HRC

73.8 Surface Treatment: Bright finish



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

74. Boring Tool Holder & mm sq. tool bit



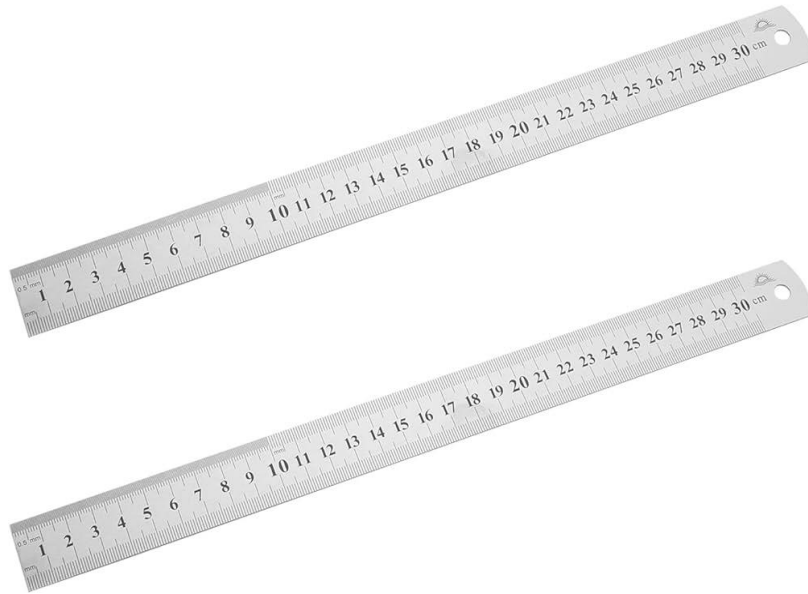
- 74.1 Double Ended one piece boring bars have १०' & ४५' square ends.
- 74.2 Set Supplied with Boring Bar, Holder, Allen Key and Screw.
- 74.3 Tool Bits for suitable to holder.
- 74.4 Shiny black finish.
- 74.5 ६ mm sq tool bit.
- 74.6 Material Tungston Carbide



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

75. Steel Rule 300 mm with Metric and Inch

75.1 Basic Indicative Diagram



75.1 Material: Stainless Steel

75.2 Thickness: 0.5 mm

75.3 Hardness: 30 - 35 HRC (Specially Hardened)

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

75.5 Surface roughness: 0.6 Microns max

75.6 Range: 300 mm

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

75.8 Accuracy: Metrology Standard EEC Class - I



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

76. Oil Can $\frac{1}{4}$ pint (pressure feed system)

76.1 Basic Indicative Diagram



76.2 Metal Oil can with 500ml Capacity

76.3 150mm rigid Steel spout

76.4 Tin coated Steel body with premium powder coated finish

76.5 Steel pump with double ball check

76.6 Discharge of 16 - 18ml per 10 strokes with general Mobil oil



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

77. Dog Carrier २५,५०,७५mm



77.1 Material :-	High tensile, malleable cast iron
77.2 Color :-	Grey
77.3 Groove :-	A 'V' groove in the body helps clamping of round jobs
७७.४ Holding Capacity	:- २५,५० and ७५mm straight tail and bent tail type carrier
७७.५ Bolt Description	:- Square Head Bolt M८



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

७८ Angle plate – Adjustable – १५० X १७५ X २५० mm Basic

Indicative Diagram



७८.१.१ Dimensions

Length: १५० ± ४ mm

७८.१.२ Width: १७५ ± ४ mm

Height: २५० ± ४ mm

Body should be made of ductile Cast Iron.

७८.१.३ Tilting Angle: ० – ९० degree

७८.१.४ Smooth tilting movement

७८.१.५ Should be provided with swiveling face with machined “T” slots.

७८.१.६ Working face flatness: १२ microns per ३०० mm

७८.१.७ Base of angle should be adjustable and with cutting slot for fixing.

७८.१.८ “T” Slot of plate: M१२



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

७९ .Spirit Level ०.०५ mm / २०० mm

79.1 Basic Indicative Diagram



79.2 Size: 200 mm

79.3 Accuracy: 0.50 mm/ meter

79.4 Precision milled base for high accuracy

79.5 Have a solid spirit bulb which doesn't break easily.

79.6 The Aluminium frame should be strong and precision extruded which increases accuracy and strength of the Spirit levels.

79.7 Two spirit bulbs to be provided so that it can be used horizontally & vertically

79.8 Rubber moulding is provided on the sides of the spirit levels to prevent damage to the body of the spirit levels.

79.9 Magnet should be provided at the base



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

80 Tool Maker Button

Basic Indicative Dig



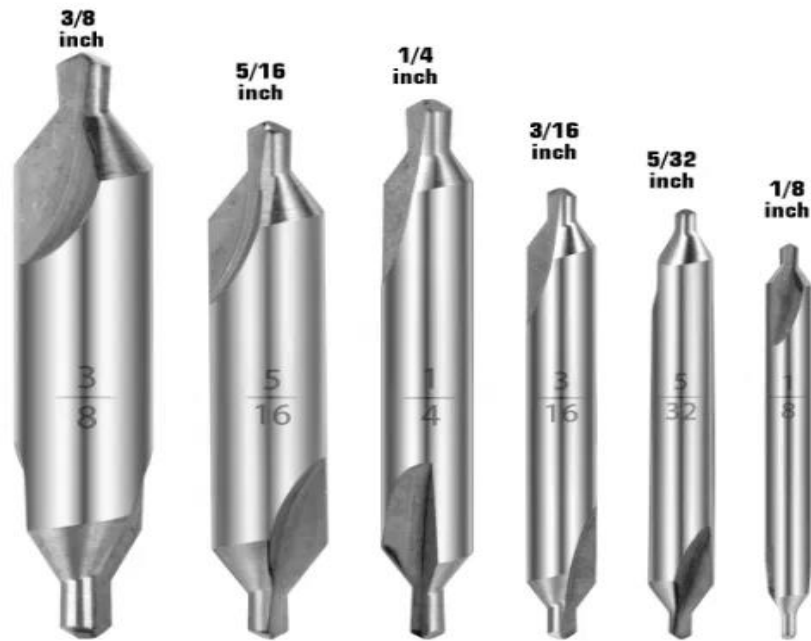
- 80.1 Toolmaker's buttons are a set of small tubes about 94mm od and 94mm long.
- 80.2 They have holes in them that are about 90mm in diameter.
- 80.3 These tubes are hardened and ground so that the outside diameters are all exactly the same nominal size and the ends are at right angles to the sides.
- 80.4 Material Harden Steel



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

81. Combination Drill / Centre Drill A3, A8 & A4

81.1 Basic Indicative Diagram



81.2 Compliance: Confirming to BS 328 : Part 2 : 1950

81.3 Body Diameter 'ØD': $\text{Ø}5 / 16'' (+0.0 / -0.002'')$

81.4 Pilot Diameter 'Ød': $\text{Ø}1 / 8'' (\pm 0.003'')$

81.5 Overall Length 'L': $2.1 / 4''$

81.6 Pilot Length 'L1': $3 / 16''$ to $5 / 32''$

81.7 Material: HSS-M2

81.8 Finish:



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

82. Oil Stone 92 mm sq. x 900 long fine

82.1 Basic Indicative Diagram



82.2 Length: 150 mm

82.3 Width: 50 mm

82.4 Height H1: Course - 15 mm

82.5 Height H2: Fine - 10 mm

82.6 Material: SiC (Silicon Carbide)

82.7 Bond: Vitrified



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

83. Tap wrench Adjustable
Basic Indicative Dig



Features

- 83.1 Adjustable Tap Handle
- 83.2 Size :- 9/8 Inch to 9 Inch, Handle Ø 8 mm to 24 mm Logn Knurling
- 83.3 Material :- Steel / Caste Iron/ H.C.S Material



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

84 Die and wrench



Features

- 84.1 Size :- 8mm, 12mm and 16mm with Logn Knurling
- 84.2 Material :- Steel / Caste Iron/ H.C.S Material



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

85. Tool Bit assorted sizes on holder

85.1 Basic Indicative Diagram



85.2 Compliance: Confirming to IS : 11143-1991

85.3 Length 'L': 150 mm (\pm 1.5 mm)

85.4 Width 'W': 10 mm

85.5 Material: HSS-T42 / S400

85.6 Finish: Milled / Ground

85.7 Hardness: 65 - 69 HRC

85.8 Surface Treatment: Bright finish



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

86. Machine Vice – Swivel Base 900 mm

86.1 Basic Indicative Diagram



- 86.2 Total Height: 343 mm \pm 2 mm
- 86.3 Base Length: 165 mm \pm 2 mm
- 86.4 Base Width: 165 mm \pm 2 mm
- 86.5 Height: 120 mm \pm 2 mm
- 86.6 Jaw Width: 100 mm \pm 2 mm
- 86.7 Jaw Opening: 1002 mm \pm 2 mm
- 86.8 Jaw Depth: 38 mm \pm 2 mm
- 86.9 Jaw Hardness: 55 HRC
- 86.10 Parallelism: 20 μ
- 86.11 Clamping Force: 2300 Kgf
- 86.12 Material Ductile Cast Iron.
- 86.13 The 360 degree swivel base should allow the vise to be set at any angle along with vertical axis.
- 86.14 Lead screw should be fully covered protects against dirt and chips.
- 86.15 Jaws should be hardened and ground ensuring longer life with maintained accuracy and repeatability



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

87. Chalk Board On Mobile Stand ६००*९००mm



८७.१ Colour	:-	Green
८७.२ Material	:-	Soft board Core, Alloy Aluminum (६०६३-T६) Frame, Premium & Virgin ABS Corners
८७.३ Frame	:-	Aluminum Material
८७.४ High tear-resistance	:-	Board Size: २x३ Feet (६०x९० CM).

A Rigid, Vibration-free Structure for ease of writing and a Modular Design for hassle-free installation. Base Castor Wheels for flexibility and portability in all environments



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

88. Spare Grinding Wheel Ajax Type for Carbide Tool



Specification:-

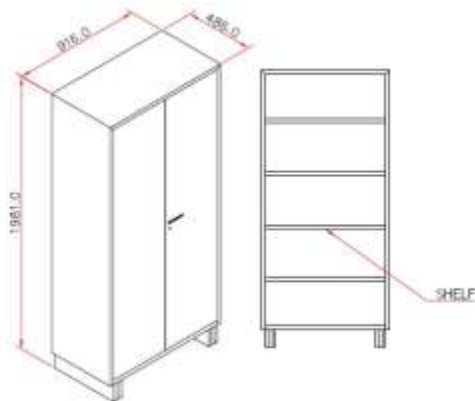
88.1	Color	:-	Green
88.2	Material Type	:-	Silicon carbide , size १५०x२५x२० mm & ३००x४०x३० mm
88.3	Grit	:-	AA१२०



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

89. Almirah 915x 485 x 1980 mm

89.1 Basic Indicative Diagram:



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

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

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

89.5 Construction:

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

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

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

89.5.4 All material should be used of relevant ISI specification.

89.6 Configuration (Doors):

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

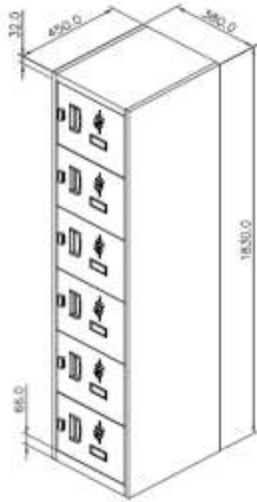
89.6.2 The clearance around the door between the door flanges and side top and bottom flanges shall not be more than 1.25mm.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

90. St. Locker with drawer (Pigeonholes)

90.1 Basic Indicative Diagram:



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

90.3 The overall size of the storage shall be 1520mm (W) x 450mm (D) x 1830mm (H).

90.4 There shall be 4 units of 6 Door Lockers of equal dimensions.

90.5 Combination:

90.5.1 6 Door Base Unit (Size-380mmW)- one number

90.5.2 6 Door Add On unit (Size-380mmW)- Three number



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

91. Desk



- 91.1 Size ξ 900 x 890 x 840 mm in sq pipe with Wooden top cover with stainless steelsheet
- 91.2 High-luster mirror chrome finish.
- 91.3 Stainless steel work surface for durability and easy maintenance.
- 91.4 Constructed of 90 gauge type 304 stainless steel for strength and durability
- 91.5 Square pipe Size 25*25mm
- 91.6 Sq. pipe should be chromium coated



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

९२. Stool १०x१०x१.५ :

92.1 Basic Indicative Diagram



92.2 The overall size of the Stool shall be ३००mm (W) x ३००mm (D) X ४५०mm(H)

92.3 It is designed such that it looks minimal yet takes care of every little detail. The understructure of this system comprises of leg assemblies and cross connectors.

92.4 Over this matrix of legs and cross connectors, the work surfaces are fixed
Components

92.4.1 Main Leg Assembly:

The main legs used in the entire system are fabricated by CO₂ welded MS tube of section २५ mm x २५ mm x १.५ mm thick (as per IS: ७१३८ ERW).

This shall be powder coated with average ५० to ६० micron thickness of epoxy powder coating, as per approved shade. This shall be connected to the cross members & to the work surface

92.4.2 Cross Connector

These are the supporting members which span across the leg assemblies and form the understructure of workstation. These shall be fabricated by CO₂ welded MS tube of section २५ mm x २५ mm x १. ५ mm thick (as per IS: ७१३८ ERW)

92.4.3 Seating surfaces:

92.4.3.1 Top २५ mm Thick laminated with PVC edge band.

92.4.3.2 Top shall be made of २५mm thick & १ mm thick formica laminated Plywood

Top grade (As per IS: १२८२३). Bottom shall have a backing laminate of



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

minimum 0.5mm thickness. All the edges of work surface shall be provided with machine pressed 2 mm thick PVC Edge band glued with hot melt EVA glue.

92.4.3.3 Underside of the work surface shall be screwed to cross connectors and leg assembly.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

92.5 Finish:

92.5.1 Epoxy Polyester Powder to the thickness of minimum 40 ± 5 microns(+/- 5).

92.5.2 Process:

The body including understructure, framework, legs, storage pedestal including fittings involves an 8 step powder coating process consisting of antirust surface treatment viz. Hot water rinse, Knock of degreasing, degreasing, cold water rinse, phosphating, cold water rinse, passivation, dryoff oven treatment and finished with powder coating using epoxy polyester powder of 40 ± 5 microns (+/- 5). The material is then oven baked with a controlled temperature of 180 deg.C to 200 deg.C.

92.5.3 Tests:

The powder coating treatment shall strictly comply with IS:93809 (1993) inclusive of method of tests i.e. Dry film/ coating thickness, Finish, Gloss &°, Colour retention, Scratch hardness, Impact resistance test, Conical Mandrel test, Erichsen cupping test, Pencil hardness, DFT measurement, Salt spray test, Adhesion Cross cut test, Rub test with MEK, Protection against humidity, Resistance to boiling water, lubricating oil, petrol, heat double bake, bleeding, detergents, acid/ alkali. The test reports shall be submitted along with the tender.

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

92.7 Colour:

92.7.1 Top Color- Highline Pine/White Cedar/Frosty White.

92.7.2 Metal Understructure- Prince Grey/ Blue.

92.7.3 Final colour combination will be decided by DVET.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

92.8 Manufacturing Process:

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

92.8.2 Raw materials (Wood working): १) Plain Plywood Board (PPB), २) Decorative Laminate १ mm formica (DL), and ३) Lipping (PVC lipping).

Process (Wood working): Plywood board from approved supplier -> Wood Cutting (cutting from mother board ६००mm x २४००mm sheet to the desired size on Panel saw machine with no sharp edges, no glue marks, no scratches, no machine marks and no cracks at drill hole) -> Lamination (Hot lamination adhering Decorative laminate to Plywood board using approved make adhesive) -> Sizing/ Routing (fine sizing and setting curvilinear shapes) -> Lipping/ Edge banding (adhering PVC lipping on MDF board using hot melt glue under heat and pressure) -> Finishing -> Assembly and Packaging (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

92.8.3 Raw materials (Metal working): १) Mild steel and २) Epoxy polyester powder (for powder coating). Process (Metal working): Assembly/ Sub-

Assembly (for welded all components get assembled and for knock down sub-assembly takes place. CO₂ welding and spot welding is done) -> Pre-treatment (८ step process including anti-rust surface treatment) ->

Powder coating (surface coating applied in the form of powder and on curing produces a protective coating, examination of test coating specimen for blisters, flaking and corrosion) -> Assembly and Packaging (carcase/ panel assembly, final inspection/ correction if required, packing and dispatch).

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

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



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१२.९ :

१२.९.१ Overall Length: ३०० mm

१२.९.२ Overall Depth: ३०० mm

१२.९.३ Overall Height: ४५० mm

१२.९.४ Net Weight: Minimum ५ Kg



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

९३. Angle Gauge for tool grinding

93.1 Basic Indicative Diagram



93.2 Material: 1.0 mm thick S.S.202

93.3 Range: 118° to 135° drill point angles

93.4 Least count: 1.0 mm lip length & 1 /16 inch drill length scale

93.5 Finish: Polished

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



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

९४. Hand Chaser (External)

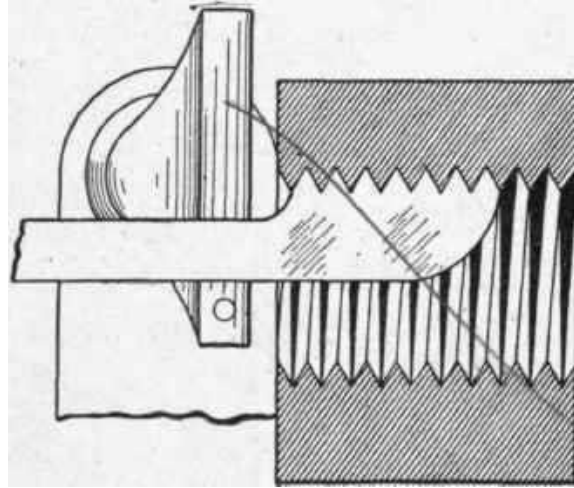


- 94.1 SIZE- M१२ & M१६ (External)
- 94.2 Heat-treated, hardened,
- 94.3 High-grade carbon steel (HRC ५८-६०) meets the highest quality standards.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

९५. Hand Chaser (Internal)



- 95.1 SIZE- M१२ & M१६ (Internal)
- 95.2 Heat-treated, hardened,
- 95.3 high-grade carbon steel (HRC ५८-६०) meets the highest quality standards.

९६. Revolving Center (to suit Lathe tailstock)

This is an accessory item so specification depends on Lathe machine specification

९७. Tool Cemented carbide assorted shaped (External) for steel turning set of

१२ no This is consumable item



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१८. Thread Plug Gauge

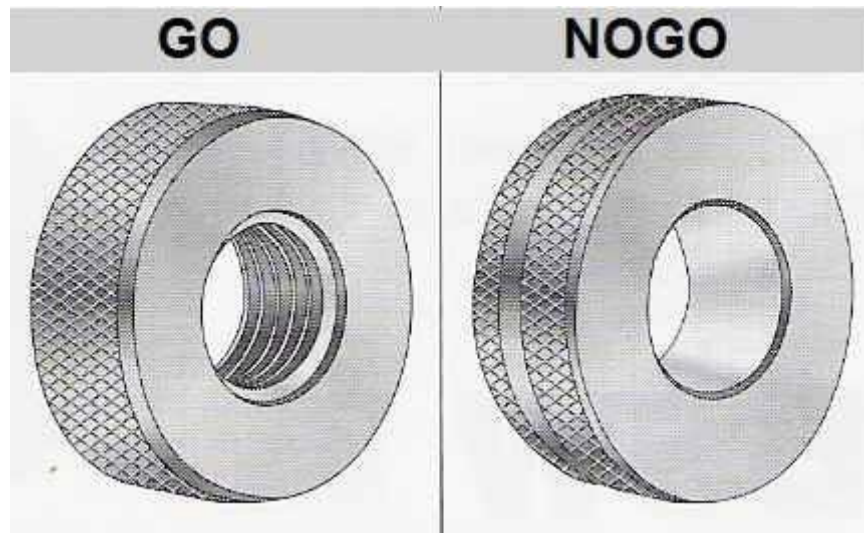


१८.१ Size	:-	M-२०& M-२१
१८.२ Usage/Application	:-	Measuring
१८.३ Material	:-	Stainless Steel
१८.४ Color	:-	Black
१८.५ Features	:-	Accuracy, Easy To Fit, Measure Fast Reading
१८.६ Type	:-	Limit Gauge (GO and No Go)
१८.७ IS Standard	:-	IS ३४५५ IS१०६८५/ ANSI Standard



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

९९. Thread Ring Gauge



९९.१ Size	:-	M-२० & M-२१
९९.२ Usage/Application	:-	Industrial Use, Measuring
९९.३ Material	:-	Stainless Steel
९९.४ Color	:-	Black
९९.५ Features	:-	Accuracy, Easy To Fit, Measure Fast Reading
९९.६ IS Standard	:-	IS ३४५५ IS ७८७६ / ANSI Standard

१००. Machine Chaser M-१२ TO M-२१ (Std. Series) to suit on

This is an accessories of machine which is used in special purpose machine but these machines are not in syllabus of turner trade

१०१. Coventry Die head

This is an accessories of machine which is used in special purpose machine



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

but these machines are not in syllabus of turner trade



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१०२. Gauge drill grinding



१०२.१ Type	:-	STANDARD
१०२.२ Material	:-	Stainless Steel
१०२.३ Size	:-	४-१२ mm
१०२.४ Measuring Range	:-	STANDARD



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१०३. Magnetic Chuck १५० mm dia.(Circular type)

Magnetic chuck is an accessories of machine which is used in milling and grinding machine but these machines are not in syllabus of turner trade

१०४. Lathe Mandrels (Diff. Types)

These are in different sizes according to required jobs

१०५. Coventry Type Die Head (Self-opening)

This is an accessories of machine which is used in special purpose machine but these machines are not in syllabus of turner trade

१०६. Collapsible Tap with attachment

This is an accessories of machine which is used in special purpose machine but these machines are not in syllabus of turner trade



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१०७. Fire Extinguisher and Buckets



Technical specification

१२.१.२.१ Carbon Di-oxide based portable fire extinguishers (४.५० Liter Capacity)

१.० Type of Extinguishers	Carbon Di-oxide based portable fire extinguishers(Stored Pressure type)
२.० Media of extinguishers	Carbon Di-oxide.
४.० Conformity to standard	IS: १५६८३:२००६ with latest amendment
५.० Capacity	४.५ Liters
६.० Trolley	Trolley mounted
७.० Maximum weight of the filling portable fire extinguishers	Maximum १२ Kg
८.० Discharge range	minimum ३.० meter
९.० Burst pressure	Minimum २५० bar
१०.० Effective Discharge time	Minimum १२ seconds
११.० Discharge mechanism	Controllable mechanism
१२.० Indication for uses level	mechanical device that indicates the



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१४.०	Hose pipe	Superior grade EPDM rubber hose
१५.०	Applicable on	Class B& C and electrically started fire
१६.०	Fire rating	७०B and above
१७.०	External painting	Spray painting
१८.०	Colour	Fire red / post office red.
१९.०	Certification	CE & PESO approved
२०.०	Marking	ISI marking is must.
२१.०	Warranty	Minimum २ year

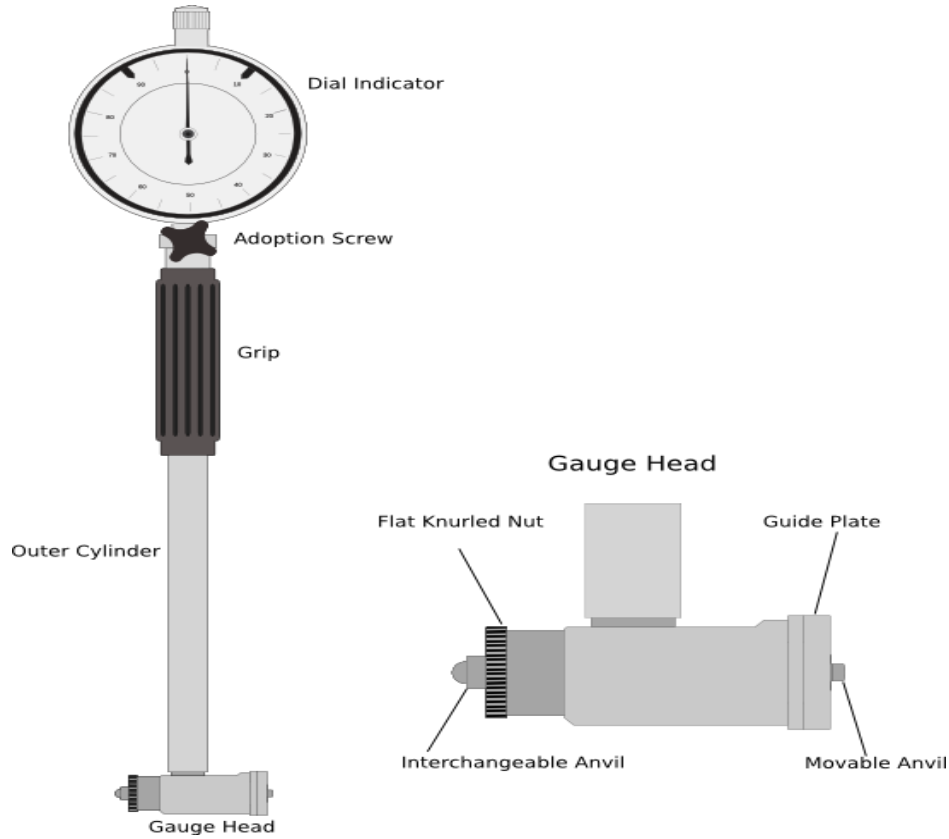
१२.१.२.२ Portable Fire Extinguisher ,Dry Powder (Cartridge Type) ६Kg

१.०	Type of Extinguisher	Dry Powder type Portable Fire Extinguisher .
२.०	Media of extinguishers	Dry chemical Powder
४.०	Capacity	६ Kg (+५% tolerance)
५.०	Shape of the body	Cylindrical
६.०	Outside diameter	१५०-१६०mm
७.०	Syphon tube	Minimum १२.५mm internal dia .
८.०	Thickness of body	Not less than १.६mm
९.०	Material of construction of body	Mild steel grade of IS ५१३
११.०	Material of construction of Syphon tube	Mild steel grade of IS ३६०१
१२.०	Material of construction of Cartridge holder, piercer & plunger.	Stainless steel grade of IS- ६५२८
१३.०	Material of spring	Spring steel wire (Grade १ of IS ४४५५(part १))



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१०८. Bore dial gauge stems



१०८. १ Size- १२ to ३५ mm & ३५ to ६५ mm , dial gauge indicator of ०.०१ mm accuracy
108.2 Compliance with JIS B ७५१५A.
108.3 Anvil and Contact point are using the carbide ball.
108.4 The measuring depth can be extend using the extension rod to measure a deep hole
108.5 Manual gauging: १२ to ३५ mm & ३५ to ६५ mm
108.6 Probe : Hardened steel
108.7 Contact points: Hard chrome or ceramic (optional on request § additional)
108.8 Tapered Needle: Hardened steel or carbide with lapped taper.
108.9 Extensive accessories include Adaptor, Indicator Holders, Depth Extension, Floating Holders,Checking Stands, and Depth



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

- 108.10 Stops, Right Angle Attachments, etc. (optional on request § additional) Special accessories like special depth stops, depth extensions, or checking stands with a larger measuring stroke
- 108.11 Dial: Generally Conforming to JISB ७५०३ / १९९७
- 108.12 Stem: Generally Conforming to IS JISB ७५१५ / १९८२



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१०९. Lathe S S and S C (All Geared Head Stock) ७५०mm between center with D.R.O.



SR. NO.	DESCRIPTION	SPECIFICATION
	CAPACITY	
१	CENTER HEIGHT	१५० MM
२	SWING OVER BED	३३५ MM
३	SWING OVER CROSS SLIDE	२०० MM
४	DISTANCE BETWEEN CENTER	७५० MM
५	MAXIMUM FACING DIAMETER	३५० MM
६	SPINDLE NOSE CAM LOCK	A-२-४/D१-४
७	SPINDLE TAPER BORE	४MT
८	SPINDLE SLEEVE	४MT
९	BORE IN SPINDLE	४० MM
१०	NO.SPINDLE SPEEDS	२X८X OR १६ BY २ SPEED MOTORS
११	RANGE OF SPINDLE SPEEDS	२०/५०- १२५०/१६००
१२	TAILSTOCK QUILL TRAVEL	MIN ११०MM
१३	TAILSTOCK QUILL DIAMETER	५०MM
१४	TAPER BORE IN SLEEVE	३ M.T.
१५	MAX. OFFSET OF TAILSTOCK ONE EITHER SIDE OF CENTER LINE	५MM
१६	CROSS SLIDE TRAVEL	१७५MM
१७	TOOL OR COMPOUND SLIDE	१००MM

समिती सदस्य-2

समिती सदस्य-1

समिती अध्यक्ष



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

98	TRAVEL	
99	TOOL SHANK CAPACITY	20MM
	TYPES OF TOOL POST	QUICK CHANGE TOOL POST
BED		
1	WIDTH OF BED	230 MM
2	DEPTH (HEIGHT OF BED	280 MM
3	STANDERED BED WAY DESIGN	2 VEE 2FLAT OR 3VEE WAY & 1 FLAT WAY
MAIN SPINDLE		
1	TYPE OF SPINDLE	THREADED
2	THREAD IN SPINDLE	6 TPI.
3	SPINDLE BORE	60 MM
4	SPINDLE ADDAPTERMORSE TAPER	MT 8
5	SPINDLE DRIVE V BELT	B 50 (2 No)
6	NO OF SPINDLE	2
7	SPINDLE SPEED	25 TO 1200 RPM
FEED AND THREAD		
1	RANGE OF LONGITUDNAL FEED	0.05 TO 0.9 MM/REV
2	RANGE OF TRANSFER FEED	0.09 TO 0.99 MM/REV
3	NO OF THREAD	56
4	RANGE OF METRIC THREAD	0.5 TO 9.5 MM
5	RANGE OF BRITISH THREAD	60 TO 8 TPI
6	LEAD SCREW DIA	80 MM
7	LEAD SCREW PITCH TPI	8 TPI
SADDLE		
1	CROSS SLIDE DIM	150 TO 500 MM
2	CROSS SLIDE TRAVEL	300MM
3	TOOL SHANK SECTION	25*25 MM
4	SADDLE TRAVEL	200 MM
5	COMPOUND SLIDE TRAVEL	150 MM
TAIL STOCK		
1	SPINDLE DIA	80 MM
2	SPINDLE TAPER	MT3
3	SPINDLE TRAVEL	150MM
4	LATERAL MOVE OF TAIL STOCK	7MM
ELECTRICAL		
1	MOTOR	5.5KW
2	COOLANT MOTOR	0.9 HP/0.95 HP



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

STANDARD ACCESSORIES

SR.NO.	DESCRIPTION	QTY	REMARK
१	QUICK CHANGE TOOL HOLDER	४	
२	CENTER ADAPTER	२	
३	DEAD CENTER	२	
४	REMOVING CENTER	१	
५	THRADE DIAL INDICATOR	१	
६	M/C LAMP	१	
७	FOLLOWER STEADY	१	
८	FACE PLATE	१	
९	FIXED STEADY	१	
१०	३ JAW CHUCK १५० MM	१	
११	४ JAW CHUCK १५० MM	१	
१२	COOLENT SYSTEM	१	
१३	LENGTH * WIDTH	२५००*१००० MM	
१४	HEIGHT	१४०० MM	
१५	WEIGHT	१२०० Kg Approx.	

DRO GENERAL FUNCTION

Centering (१/२)

Metric / inches Display (mm/inch)

Absolute / incremental (ABS / INC)

Power off Memory (REF)

Build in Calculator

Linear Error Compensation

Tool Lib for Lathe

Mechanical And Electrical Feature:-

१) Available Resolutions § १०-५-२-१-०.५-१ um (For Linear Encoder); ०.००१ or १" (For Rotary Encoder)

समिती सदस्य-२

समिती सदस्य-१

समिती अध्यक्ष



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

- २) Power supply १०० VAC $\text{१२३० VAC} \pm १०\%$ / $५०\text{Hz}-६०\text{Hz}/१५\text{VA}$
- ३) Axis Display $\text{७ Segment LED display H=१७mm}$
- ४) Maximum input Frequency ३००KHz
- ५) Operating temperature ०° १५°
- ६) Storage temperature २०° ७०°
- ७) Relative humidity १५\% (Not condensed)
- ८) Vibration resistance (EN ६००६८-२-६) २५m/s^2 (५५-२०००Hz)
- ९) Protection Class (EN ६०५२९) IP ४२



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

The Machine bed shall be a casting of robust construction heavily ribbed for stability, rigidity and vibration free operation.

Casting shall be made of high quality cast iron equivalent to Mechanite Grade GD-२५०. The saddle slideways shall be provided with suitable wipers to avoid entry of chips and swarf.

Guide ways shall be hardened and ground to a hardness of not less than Rockwell C-४५.

The maximum variation in hardness on the guide ways shall not exceed ५ RC. The design shall provide for stick slip free operation and saddle shall be provided with turcite lining.

Dry sump lubrication for minimum thermal deformation.

Induction hardened integral guide ways on bed.

Test and Fitment certificate shall be supplied along with delivery of the material. Quick change gear box for Metric/British threads.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

110. Lathe S S and S C (All Geared Head Stock) 1000mm between center and Gap bed



SR. NO.	DESCRIPTION	SPECIFICATION
	CAPACITY	
१	HEIGHT OF CENTER	१५० MM
२	SWING OVER BED	५०० MM
३	SWING OVER CROSS SLIDE	३५० MM
४	SWING IN GAP	९०० MM
५	MOVEMENT OF CROSS SLIDE	३०० MM
६	TOOL POST SIZE QUICK CHANGE	२०० MM
७	MOVEMENT OF COMPOUND SLIDE	२०० MM
८	SWING OF COMPOUND SLIDE	± ९० DEGREE
९	BETWEEN CENTER HEIGHT	१००० MM
	BED	
1	WIDTH OF BED	३५० MM
2	LENGTH OF GAP	१५० MM
3	LENGTH OF GAP INFRONT OF FACE PLATE	२५० MM
4	LENGTH OF BED	१५००MM
	MAIN SPINDLE	
1	TYPE OF SPINDLE	THREADED
2	THREAD IN SPINDLE	६ TPI.
3	SPINDLE BORE	६० MM
4	SPINDLE ADDAPTERMORSE TAPER	MT ४
5	SPINDLE DRIVE V BELT	B ५० (२ No)
6	NO OF SPINDLE	८



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

7

SPINDLE SPEED

२५ TO १२०० RPM



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

FEED

1	THREAD CAPACITY INCHES (TPI)	२/४ TO ७०/११२ TPI
2	THREAD CAPACITY METRIC (PITCH)	०.२/०.२५ TO ६/१४ MM
3	THREAD CAPACITY MODULE	०.१/०.४ TO ३/३.५ MM
4	LONGITUDINAL FEED	०.०७/०.०९ to ०.८/१mm
5	CROSS FEED	०.०१५/०.०२५ TO ०.२/०.३MM
6	LEAD SCREW PITCH	४ TPI
7	NO OF FEED RANGE	२४ NOS

SADDLE

१	CROSS SLIDE DIM	१५० TO ५०० MM
२	CROSS SLIDE TRAVEL	३००MM
३	TOOL SHANK SECTION	२५*२५ MM
४	SADDLE TRAVEL	८०० MM
५	COMPOUND SLIDE TRAVEL	१५० MM

TAIL STOCK

१	SPINDLE DIA	४० MM
२	SPINDLE TAPER	MT३
३	SPINDLE TRAVEL	१५०MM
४	LATERAL MOVE OF TAIL STOCK	७MM

ELECTRICAL

१	MOTOR	५.५KW / १४००RPM
२	BELT	V BELT B ७२

STANDARD ACCESSORIES

SR.NO.	DESCRIPTION	QTY	REMARK
१	QUICK CHANGE TOOL HOLDER	४	
२	CENTER ADAPTER	२	
३	DEAD CENTER	२	
४	REMOVING CENTER	१	
५	THRADE DIAL INDICATOR	१	
६	M/C LAMP	१	
७	FOLLOWER STEADY	१	
८	FACE PLATE	१	
९	FIXED STEADY	१	
१०	३ JAW CHUCK १५० MM	१	
११	४ JAW CHUCK १५० MM	१	
१२	COOLENT SYSTEM	१	
१३	LENGTH * WIDTH	२५००*१००० MM	



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१४	HEIGHT	१४०० MM
१५	WEIGHT	१२०० Kg Approx.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

The Machine bed shall be a casting of robust construction heavily ribbed for stability, rigidity and vibration free operation.

Casting shall be made of high quality cast iron equivalent to Mechanite Grade GD-२५०. The saddle slideways shall be provided with suitable wipers to avoid entry of chips and swarf.

Guide ways shall be hardened and ground to a hardness of not less than Rockwell C-४५.

The maximum variation in hardness on the guide ways shall not exceed ५ RC. The design shall provide for stick slip free operation and saddle shall be provided with turcite lining.

Dry sump lubrication for minimum thermal deformation.

Induction hardened integral guide ways on bed.

Test and Fitment certificate shall be supplied along with delivery of the material. Quick change gear box for Metric/British threads.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१११. Lathe Machine S S and S C (All Geared Type) १०००mm between center with D.R.O.



SR. NO.	DESCRIPTION	SPECIFICATION
	CAPACITY	
१	HEIGHT OF CENTER	१५० MM
२	SWING OVER BED	३३५ MM
३	SWING OVER CROSS SLIDE	२८०MM
४	SWING IN GAP	५३५ MM
५	MOVEMENT OF CROSS SLIDE	२१० MM
६	TOOL POST SIZE QUICK CHANGE	२०*२० MM
७	MOVEMENT OF COMPOUND SLIDE	१३० MM
८	SWING OF COMPOUND SLIDE	± ९० DEGREE
९	BETWEEN CENTER HEIGHT	१००० MM
	BED	
1	WIDTH OF BED	२३० MM
2	LENGTH OF GAP INFRONT OF FACE PLATE	१२५ MM
3	LENGTH OF BED	१८३०MM
	MAIN SPINDLE	
1	TYPE OF SPINDLE	Type A२ Size ४
2	SPINDLE BORE	४२ MM
3	SPINDLE ADDAPTERMORSE TAPER	MT ४
4	SPINDLE DRIVE V BELT	All Geared Head
5	NO OF SPINDLE	८ Standard
6	SPINDLE SPEED	२५ TO १२०० RPM
	FEED AND THREAD	
1	RANGE OF LONGITUDNAL FEED	०.५ TO ०.८ MM/REV
2	RANGE OF TRANSFER FEED	०.०३ TO ०.४८ MM/REV
3	NO OF THREAD	५४ Metric & ६५ British
4	RANGE OF METRIC THREAD	०.३५ TO ६ MM
5	RANGE OF BRITISH THREAD	६० TO ४ TPI



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

6	LEAD SCREW DIA	३१.७ MM
7	LEAD SCREW PITCH TPI	४ TPI



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

SADDLE

१	CROSS SLIDE DIM	४०० x १५० x ३९
२	CROSS SLIDE TRAVEL	२१० MM
३	TOOL SHANK SECTION	२५ x २० MM
४	SADDLE TRAVEL	८६० MM
५	COMPOUND SLIDE TRAVEL	१३० MM

TAIL STOCK

१	SPINDLE DIA	४५ MM
२	SPINDLE TAPER	MT३
३	SPINDLE TRAVEL	१३०MM
४	LATERAL MOVE OF TAIL STOCK	५ MM Either Side

ELECTRICAL

१	MOTOR	३.५ KW x ३ phase / १४०० RPM (Kirloskar/ Bharat Bijlee / ABB / Crompton Make)
२	BELT	V BELT १५ २ Nos from Motor to the Head Stock

STANDARD ACCESSORIES

SR.NO.	DESCRIPTION	QTY	REMARK
१	QUICK CHANGE TOOL HOLDER	४	
२	CENTER ADAPTER	२	
३	DEAD CENTER	२	
४	REMOVING CENTER	१	
५	THRADE DIAL INDICATOR	१	
६	M/C LAMP	१	
७	FOLLOWER STEADY	१	
८	FACE PLATE	१	
९	FIXED STEADY	१	
१०	३ JAW CHUCK १५० MM	१	
११	४ JAW CHUCK १५० MM	१	
१२	COOLENT SYSTEM	१	
१३	LENGTH * WIDTH	२५००*१००० MM	
१४	HEIGHT	१४०० MM	
१५	WEIGHT	१२०० Kg Approx	



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

DRO GENERAL FUNCTION

Centering (१/२)

Metric / inches Display (mm/inch)

Absolute / incremental (ABS / INC)

Power off Memory (REF)

Build in Calculator

Linear Error Compensation

Tool Lib for Lathe

Mechanical And Electrical Feature:-

- १) Available Resolutions $\pm 10-4-2-1-0.4-1 \mu m$ (For Linear Encoder); 0.001 or $1''$ (For Rotary Encoder)
- २) Power supply ± 100 VAC ± 230 VAC $\pm 10\%$ / 50 Hz- 60 Hz/ 115 VA
- ३) Axis Display ± 9 Segment LED display $H=90$ mm
- ४) Maximum input Frequency ± 300 KHz
- ५) Operating temperature $\pm 0^\circ$ $\pm 50^\circ$
- ६) Storage temperature $\pm 20^\circ$ $\pm 70^\circ$
- ७) Relative humidity $\pm 95\%$ (Not condensed)
- ८) Vibration resistance (EN $60068-2-6$) ± 25 m/s² ($55-2000$ Hz)
- ९) Protection Class (EN 60529) $\pm IP 42$

The Machine bed shall be a casting of robust construction heavily ribbed for stability, rigidity and vibration free operation.

Casting shall be made of high quality cast iron equivalent to Mechanite Grade GD-250. The saddle slideways shall be provided with suitable wipers to avoid entry of chips and swarf.

Guide ways shall be hardened and ground to a hardness of not less than Rockwell C-45.

The maximum variation in hardness on the guide ways shall not exceed 4 RC. The design shall provide for stick slip free operation and saddle shall be provided with turcite lining.

Dry sump lubrication for minimum thermal deformation.

Induction hardened integral guide ways on bed.

Test and Fitment certificate shall be supplied along with delivery of the



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

material.

Quick change gear box for Metric/British threads.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

११२ D. E. PEDASTAL GRINDING MACHINE SPECIFICATION

११२.१ Basic Dig.



MOTOR	:-	०.७५ KW
WHEEL SIZE	:-	२५०*२५*२५. ४
SPINDLE RPM	:-	२८०० RPM
WHEEL DISTANCE	:-	८००MM
WHEEL WITH SAFTY GURAD COVER		

- 112.2 Bench Grinding Machine mounted on Rigid steel Frame.
- 112.3 Low Noise : Below allowable noise level.
- 112.4 High Filtering efficiency even for the finest dusts.
- 112.5 Total Security with :Cotton Filtering sleeves (Non- inflammable)
- 112.6 Energy Savings : Low power consumption.
- 112.7 Spindle Hardened ground and vibration free
- 112.8 SKF/FAG/TATA Or ISI Marked Heavy duty ball bearing totally sealed type
- 112.9 Wheel flanges and guard
- 112.10 Pedestal rigid and casted in one piece C.I.
- 112.11 Casting grade : FG२६० IS२१० Casting grade should be certified by NABL approved Lab.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

११३ PILLAR TYPE DRILL M/C SPECIFICATION

११३.१ Basic Dig.



SR.	DETAILS	CAPACITY/SIZE
११३.२	Drill size	१२MM
११३.३	Spindle Speed	FOUR SPEED
११३.४	Speed Range	६५० to २४०० RPM
११३.५	Spindle Nose	MT-२
११३.६	Spindle Centre to Column	१५०MM
११३.७	Spindle Travel	७५ MM
११३.८	Maxi. Distance	Spindle to Table ४२०MM
११३.९	Maxi. Distance Spindle to Base	६२०MM
११३.१०	Working Surface of Base	२४० X १९०MM
११३.११	Working Surface of Table	२०५ MM
११३.१२	Column Diameter	४७ MM
११३.१३	Machine Base	३००X२००
११३.१४	Motor	०.७५ KW/१४४०RPM
११३.१५	V-Belt Size	FHP-२३५०
११३.१६	Weight Of Machine(Approx.)	१७०kg Approx.
११३.१७	COOLENTSYSTEM	
११३.१८	Casting grade FG२६०IS२१० should be certified by	



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

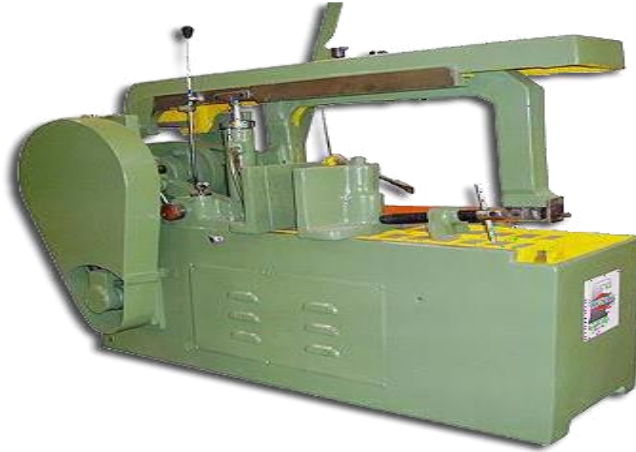
NABLApproved Lab.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

११४ HYDRUALIC POWER SAW

११४.१ BASIC DIAGRAM



DETAILS

११४.२ BLADE SIZE
११४.३ CAPACITY OF ROUND BAR
११४.४ CAPACITY OF SQUARE BAR
११४.५ BLADE SIZE
११४.६ Stroke
११४.७ NO. OF STROKE/MINUTE
११४.८ ELECTRIC MOTOR
११४.९ WEIGHT IN KG (APPROX)
११४.१० COOLENT SYSTEM
११४.११ Casting grade FG2६० IS२१०

SPECIFICATIONS

४०० MM
२५० MM
१५० MM
१८" TO २०"
५ १/२"
८५ TO १००
०.७५ KW/१४४० RPM
६०० KG



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

११५ CNC TURN



Detailed specification for २ axis CNC Lathe / Turning center

११५.१	MACHINE	Units	Size
a	Swing over bed	mm	३५० or higher
b	Turning diameter	mm	१३५ or
higherc	Distance between centers	mm	२५० or
higherd	Maximum Turning Length	mm	२०० or
higher			
e	Slant angle (bed or saddle)	degrees	३० to horizontal or higher
f	Cast Iron grade for bed and saddle		mm Grade २५ or equivalent
g	Machine weight net	kg	१५०० or higher
११५.२	SPINDLE		
a	Spindle nose	A२-४ / A२-५	
b	Bore through Spindle	mm	३५ or higher
c	Maximum spindle speed	RPM	४००० or
higherd			Spindle power, continuous
		kW	३.७ or higher
e	Minimum spindle speed @ full power	RPM	१२०० or
lowerf	Type of drive		AC servo spindle motor (digital)
g	Chuck size	mm	१३५ or higher
h	Chuck type		३-jaw hydraulic, Hydraulic Power
operatedi			Spindle bearing class P४
class			



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

j Front Bearing Dia. (ID) mm ६० or high

११५.३ AXIS

a X - axis Travel mm १०० or higher
b Z - axis Travel mm २०० or

higherc Programmable feed rate-
X & Z mm/min १० - १००००

d Minimum programmable command - X & Z mm ०.००१

e Rapid traverse - X & Z m/min २० or

higherf Type of drive - X & Z

AC servo motor

g Motor torque - Z axis Nm ३ or higher

h Motor torque - X axis Nm ३ or higher with

brakei Ball screw - Z & X axes (diameter x pitch) mm २५ x १० or higher

j Ball screw finish - Z & X axes Hardened and Ground

k Ball screw class- Z & X axes Pre-loaded with C३ or better

l Guide way type - Z & X axes Antifriction linear motion

guidewaym Guide way size - Z & X axes

mm २५ or higher

११५.४ TURRET

a Bi-Directional Tool Turret

Electromechanical/Servo/Hydraulicb No. of Tools Nos.

c Tool shank size

mm

Maximum boring bar diameter

mm

११५.५ TAIL STOCK

a Quill Diameter mm ६५ or Higher

b Quill Stroke mm ७० or Higher

c Quill Taper MT-४ or higher

d Quill actuation Hydraulic

e Tail stock base travel manual mm १५० or Higher

f Thrust (Adjustable) Kgf ३०० or Higher

११५.६ COOLANT/LUBRICATION/HYDRAULIC

a Coolant tank Capacity Liters १०० or Higher

b Coolant pump motor kW ०.३७

c Coolant pump out put LPM २० or



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

Higherd	Lubrication type	Automatic	Centralized
Lubricatione	Lubrication tank capacity		Liters
	३ or Higher		
f	Hydraulic pump discharge	LPM	८ or Higher
g	Hydraulic tank capacity	Liters	३० or
Higherh	Hydraulic system pressure maximum		Bar
	३० or Higher		

११५.७

ACCURACY as per ISO २३०-२

a	Positioning accuracy X & Z axes	mm	०.०१२
b	Repeatability X & Z axes	mm	+-
०.००७c		Geometrical Alignment	
	ISO १३०४१ PART १		
d	Accuracy of finish test piece	ISO १३०४१ PART ६	

११५.८

CNC SYSTEM

a	Control System	FANUC /Siemens	
b	System resolution	०.००१ mm	
c	Motors & Drives	Compatible with CNC controllers mentioned above	
d	Tool number display	On machine operator panel	
e	Machine control panel	Feed rate, spindle speed override knob	
f	MPG (Manual pulse generator)	On machine operator panel	
g	CNC features	Graphic Simulation, Programming help, Tool Offsets, MDI, Absolute/ Incremental Positioning, Pitch error compensation	

११५.९

POWER SOURCE

a	Mains supply (± १० %)	४१५ V, ३	
	Ph., ५० Hz	Total connected	
	load requirement	Approx. १५ kVA	

११५.१०

STANDARD EQUIPMENT

a	Voltage Stabilizer	१५ kVA	
b	Air conditioning unit for electrical Cabinet	१ No.	

समिती सदस्य-2

समिती सदस्य-1

समिती अध्यक्ष



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

c	Backup CD for PLC Ladder Logic	१ No.
d	Machine Lighting	१ No.
e	Levelling Pads and Jacking Screws	१ No.
f	Operating Manual	१ No.
g	Maintenance Manual	१ No.
h	Installation Kit	१ No.
i	Maintenance Tool Kit	१ No.
j	६ rack trolley (Size २५” x २२” x ४५”) with Lock	१ No.
k	Machine guarding with safety compliance	१ No.



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

११६a) Simulator

b) Desktop Computers

Cost of Simulator Software is very Heigh. In that cost one CNC turning center can be purchased.

११७. Tool holders

This is consumable item required as per conventional or CNC machine



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

118 LCD PROJECTOR



Hardware Interface : HDMI

Mounting Type : Tabletop

MountWattage : २६० Watts

Brightness : ३६०० Lumen

Control Type : Remote

Control

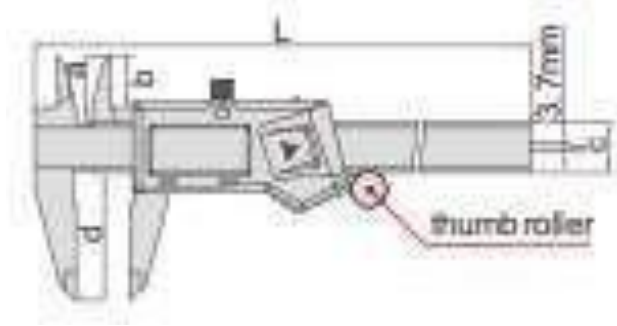
Screen Resolution : १२८० X ८०० pixel

Projection Screen, १२०-Inch, ६ft.Height x ८ft.Width, UltraHD, ३D Active, ४k
Technology



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

119 DIGIMATIC ELECTRONIC VERNIER CALLIPER
119.1 Basic Indicative Diagram



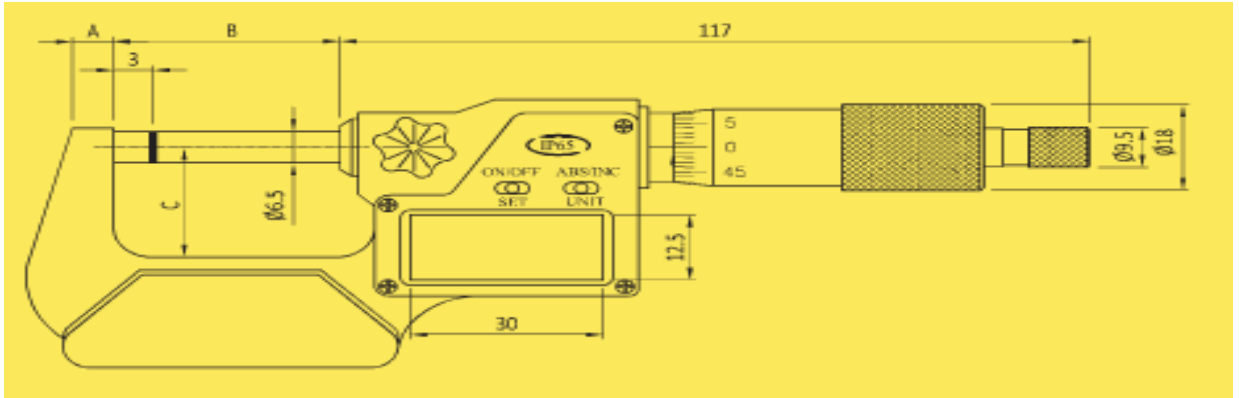
- 119.2 Compliance: Should generally comply with DIN 1&2 standards
- 119.3 Material: Stainless-steel
119.4 Length: 200 mm (+4%)
- 119.5 Resolution: 0.009mm
- 119.6 Range: 0 - 200mm / 8 INCH
119.7 Accuracy: 0.009mm AND 0.004 INCH
- 119.8 Should be supplied with thumb roller
- 119.9 Buttons: On or Off, Zero, mm or inch
Automatic Power Off
- 119.10 Can turn on Power by moving the digital unit
119.11 High moving speed should be allowed
- 119.12 Should have facility of USB data output
- 119.13 Standard Accessories:
Operating Manual
Wooden / Plastic Box with proper cushioning



Government of Maharashtra
Directorate of Vocational Education and Training, Maharashtra State
SPECIFICATION OF TOOLS AND EQUIPMENTS
SPECIFICATION FOR TRADE –TURNER (NSQF LEVEL -4)

१२०. Digimatic Electronic outside Micrometer – Digital ± 0 to २५ mm & २५ – ५० mm, LC = ०.००१mm

120.1 Basic Indicative Diagram



120.2 Compliance : Generally Compliant to DIN८६३

120.3 Range: ० to २५ mm & २५ – ५० mm

120.4 Reading: ०.००१mm

120.5 Protection level against dust and water: IP६५

120.6 Material: Stainless Steel / Alloy Steel

120.7 Standard

Accessories

Suitable spanner

Should be supplied in Wooden / Plastic Box with proper cushioning