



**SPECIFICATION FOR  
GENERAL HAND TOOLS - FILES**





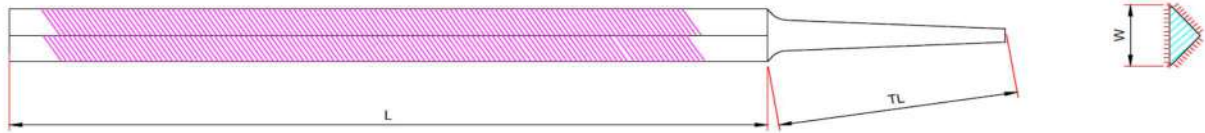
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1 File - Cant Saw - Smooth - 150 mm with Handle

1.1 Basic Indicative Diagram

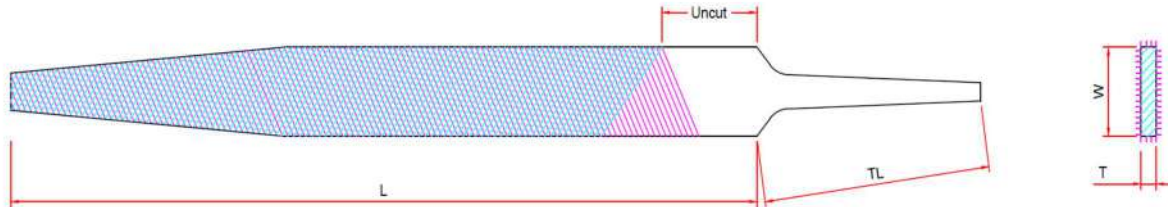


		Range (In MM)	
		From	To
1.2	Generally conforming to IS 1931-2000		
1.3	Body Length (L)	150	152
1.4	Tang Length (TL)	50	51
1.5	Width (W)	12.4	12.7
1.6	No. of Upcut / Inch	50	51
1.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
1.8	No. of Edge cut / Inch	58	59
1.9	Edge cut Inclination	89 <sup>0</sup>	91 <sup>0</sup>
1.10	Hardness	60 HRC	64 HRC
1.11	Rake Angle	2 <sup>0</sup> (-ve)	5 <sup>0</sup> (-ve)



**2 File - Flat - Bastard - 200 mm with Handle**

**2.1 Basic Indicative Diagram**

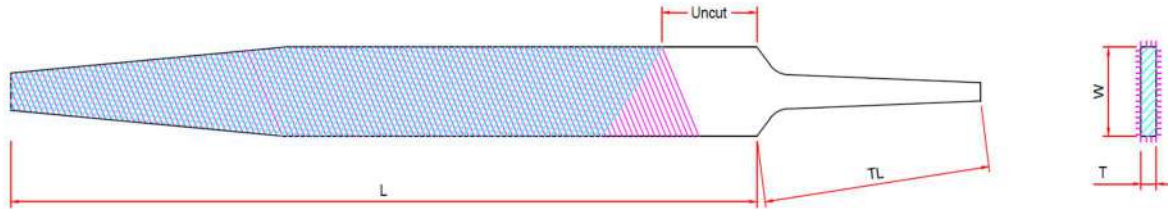


		Range (In MM)	
		From	To
2.2	Generally conforming to IS 1931-2000		
2.3	Body Length (L)	198	202
2.4	Tang Length (TL)	54	56
2.5	Width (W)	19.6	20.6
2.6	Thickness (T)	3.7	4.4
2.7	No. of Upcut / Inch	24	26
2.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
2.9	No. of Overcut / Inch	18	20
2.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
2.11	No. of Edge cut / Inch	25	27
2.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
2.13	Hardness	60 HRC	64 HRC
2.14	Performance in 7500 strokes	15	15.5
2.15	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**3 File - Flat - Bastard - 300 mm with Handle**

**3.1 Basic Indicative Diagram**

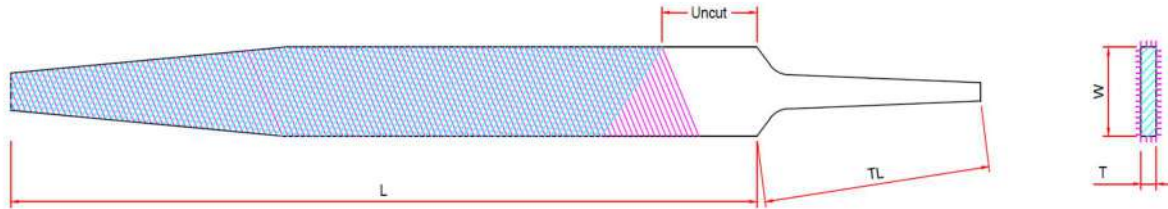


		Range (In MM)	
		From	To
3.2	Generally conforming to IS 1931-2000		
3.3	Body Length (L)	298	302
3.4	Tang Length (TL)	69	71
3.5	Width (W)	28.9	29.9
3.6	Thickness (T)	5.35	6.05
3.7	No. of Upcut / Inch	15	16
3.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
3.9	No. of Overcut / Inch	12	13
3.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
3.11	No. of Edge cut / Inch	18	19
3.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
3.13	Hardness	60 HRC	64 HRC
3.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**4 File - Flat - Bastard - 350 mm with Handle**

4.1 Basic Indicative Diagram

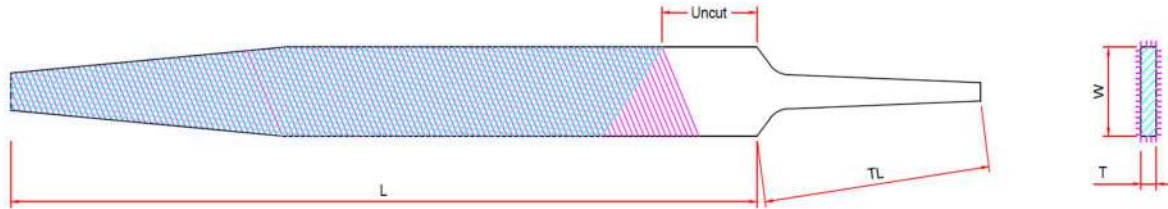


		Range (In MM)	
		From	To
4.2	Generally conforming to IS 1931-2000		
4.3	Body Length ( L )	348	352
4.4	Tang Length (TL)	74	76
4.5	Width (W)	34.6	35.6
4.6	Thickness (T)	6.3	7.3
4.7	No. of Upcut / Inch	15	16
4.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
4.9	No. of Overcut / Inch	12	13
4.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
4.11	No. of Edge cut / Inch	18	19
4.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
4.13	Hardness	60 HRC	64 HRC
4.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**5 File - Flat - Second Cut - 150 mm with Handle**

**5.1 Basic Indicative Diagram**

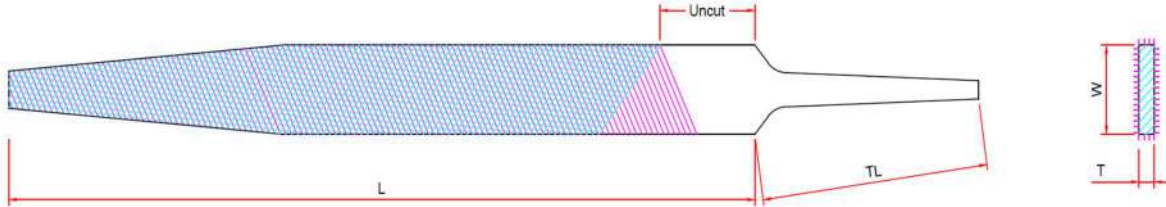


		Range (In MM)	
		From	To
5.2	Generally conforming to IS 1931-2000		
5.3	Body Length (L)	148	152
5.4	Tang Length (TL)	44	46
5.5	Width (W)	15.1	16.1
5.6	Thickness (T)	3.25	3.95
5.7	No. of Upcut / Inch	41	42
5.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
5.9	No. of Overcut / Inch	35	36
5.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
5.11	No. of Edge cut / Inch	43	44
5.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
5.13	Hardness	60 HRC	64 HRC
5.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**6 File - Flat - Second Cut - 250 mm with Handle**

**6.1 Basic Indicative Diagram**



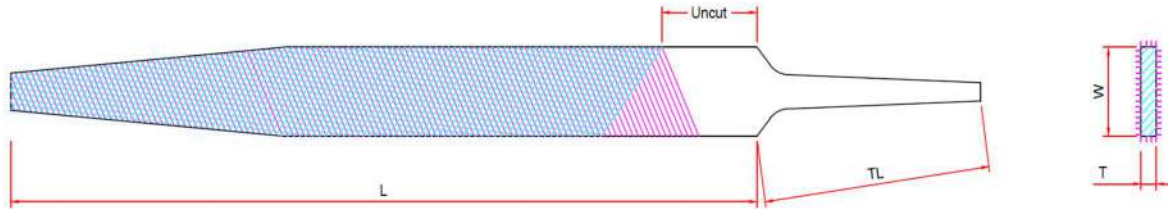
		Range (In MM)	
		From	To
6.2	Generally conforming to IS 1931-2000		
6.3	Body Length (L)	248	252
6.4	Tang Length (TL)	59	61
6.5	Width (W)	23.9	24.9
6.6	Thickness (T)	5.05	5.75
6.7	No. of Upcut / Inch	29	30
6.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
6.9	No. of Overcut / Inch	23	24
6.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
6.11	No. of Edge cut / Inch	31	32
6.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
6.13	Hardness	60 HRC	64 HRC
6.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$





**7 File - Flat - Smooth - 150 mm with Handle**

**7.1 Basic Indicative Diagram**

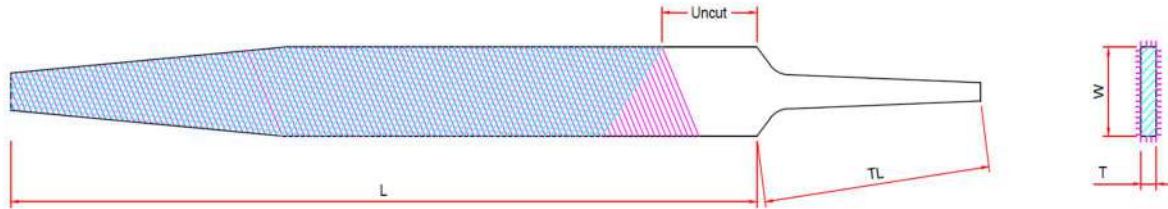


		Range (In MM)	
		From	To
7.2	Generally conforming to IS 1931-2000		
7.3	Body Length (L)	148	152
7.4	Tang Length (TL)	44	46
7.5	Width (W)	15.1	16.1
7.6	Thickness (T)	3.25	3.95
7.7	No. of Upcut / Inch	52	54
7.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
7.9	No. of Overcut / Inch	46	47
7.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
7.11	No. of Edge cut / Inch	55	56
7.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
7.13	Hardness	60 HRC	64 HRC
7.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**8 File - Flat - Smooth - 250 mm with Handle**

**8.1 Basic Indicative Diagram**

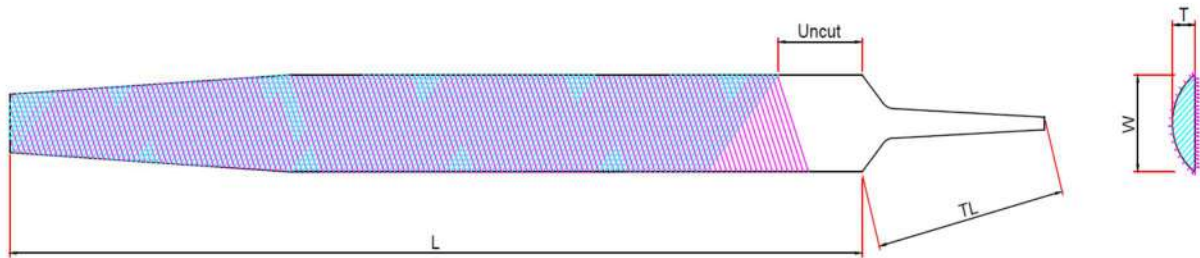


		Range (In MM)	
		From	To
8.2	Generally conforming to IS 1931-2000		
8.3	Body Length (L)	248	252
8.4	Tang Length (TL)	59	61
8.5	Width (W)	23.9	24.9
8.6	Thickness (T)	5.05	5.75
8.7	No. of Upcut / Inch	38	40
8.8	Upcut inclination	$64^{\circ}$	$66^{\circ}$
8.9	No. of Overcut / Inch	31	32
8.10	Overcut Inclination	$44^{\circ}$	$46^{\circ}$
8.11	No. of Edge cut / Inch	41	42
8.12	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
8.13	Hardness	60 HRC	64 HRC
8.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**9 File - Half Round - Bastard - 200 mm with Handle**

9.1 Basic Indicative Diagram

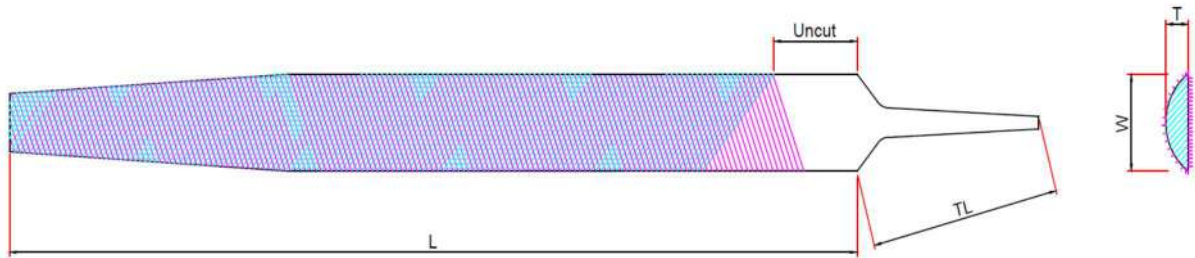


		Range (In MM)	
		From	To
9.2	Generally conforming to IS 1931-2000		
9.3	Body Length (L)	198	202
9.4	Tang Length (TL)	55	56
9.5	Width (W)	18.90	19.90
9.6	Thickness (T)	5.15	5.85
9.7	No. of Upcut / Inch	(25-26 F/S)	(24-26 R/S)
9.8	Upcut inclination	$65^{\circ}$	$65^{\circ}$
9.9	No. of Overcut / Inch	(20-21 F/S)	(20-21 R/S)
9.10	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
9.11	No. of Edge cut / Inch	25	26
9.12	Edge cut Inclination	$65^{\circ}$	$65^{\circ}$
9.13	Hardness	60 HRC	64 HRC
9.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**10 File - Half Round - Bastard - 250 mm with Handle**

10.1 Basic Indicative Diagram

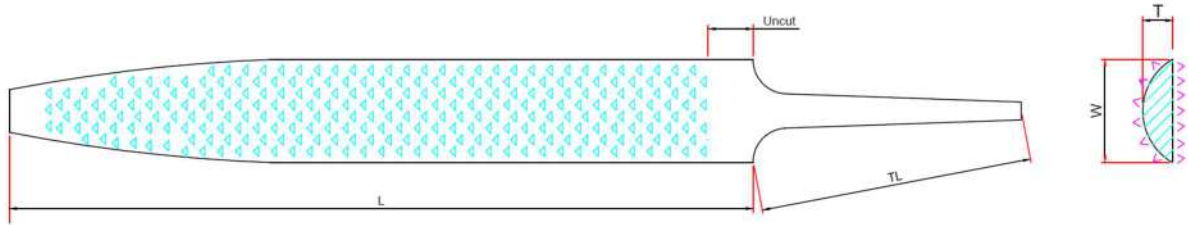


		Range (In MM)	
		From	To
10.2	Generally conforming to IS 1931-2000		
10.3	Body Length (L)	250	252
10.4	Tang Length (TL)	60	61
10.5	Width (W)	23.70	24.7
10.6	Thickness (T)	6.55	7.25
10.7	No. of Upcut / Inch	(23-24 F/S)	(23-24 R/S)
10.8	Upcut inclination	$65^{\circ}$	$65^{\circ}$
10.9	No. of Overcut / Inch	(17-18 F/S)	(17-18 R/S)
10.10	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
10.11	No. of Edge cut / Inch	23	24
10.12	Edge cut Inclination	$65^{\circ}$	$65^{\circ}$
10.13	Hardness	60 HRC	64 HRC
10.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



11 File - Half Round - Bastard RASP Cut - 250 mm with Handle

11.1 Basic Indicative Diagram



		Range (In MM)	
		From	To
11.2	Generally conforming to IS 3587:1986		
11.3	Body Length ( L )	248	252
11.4	Tang Length (TL)	59	61
11.5	Width (W)	23.70	24.7
11.6	Thickness (T)	6.55	7.25
11.7	No. of Teeth Per Row (R/S)	9	
11.8	No. of Row Per Inch (R/S)	7.5	
11.9	No. of Teeth per Row (F/S)	8	
11.10	No. of Row Per Inch (F/S)	7.5	
11.11	No. of Edge cut / Inch	27	29
11.12	Edge cut Inclination	87 <sup>0</sup>	93 <sup>0</sup>
11.13	Hardness	50 HRC	55 HRC
11.14	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



**12 File - Half Round - Second Cut - 150 mm with Handle**

12.1 Basic Indicative Diagram



		Range (In MM)	
		From	To
12.2	Generally conforming to IS 1931-2000		
12.3	Body Length (L)	148	152
12.4	Tang Length (TL)	49	51
12.5	Width (W)	15.20	16.20
12.6	Thickness (T)	3.95	4.65
12.7	No. of Upcut / Inch	(41-42 F/S)	(37-38 R/S)
12.8	Upcut inclination	$65^{\circ}$	$65^{\circ}$
12.9	No. of Overcut / Inch	(36-36 F/S)	(32-33 R/S)
12.10	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
12.11	No. of Edge cut / Inch	37	38
12.12	Edge cut Inclination	$65^{\circ}$	$65^{\circ}$
12.13	Hardness	60 HRC	64 HRC
12.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



13 File - Half Round - Second Cut - 250 mm with Handle

13.1 Basic Indicative Diagram



		Range (In MM)	
		From	To
13.2	Generally conforming to IS 1931-2000		
13.3	Body Length (L)	250	252
13.4	Tang Length (TL)	60	61
13.5	Width (W)	23.70	24.7
13.6	Thickness (T)	6.55	7.25
13.7	No. of Upcut / Inch	(29-30F/S)	(28-29R/S)
13.8	Upcut inclination	65 <sup>0</sup>	65 <sup>0</sup>
13.9	No. of Overcut / Inch	(24-25 F/S)	(24-25R/S)
13.10	Overcut Inclination	50 <sup>0</sup>	50 <sup>0</sup>
13.11	No. of Edge cut / Inch	28	29
13.12	Edge cut Inclination	65 <sup>0</sup>	65 <sup>0</sup>
13.13	Hardness	60 HRC	64 HRC
13.14	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



**14 File - Half Round - Smooth - 150 mm with Handle**

14.1 Basic Indicative Diagram



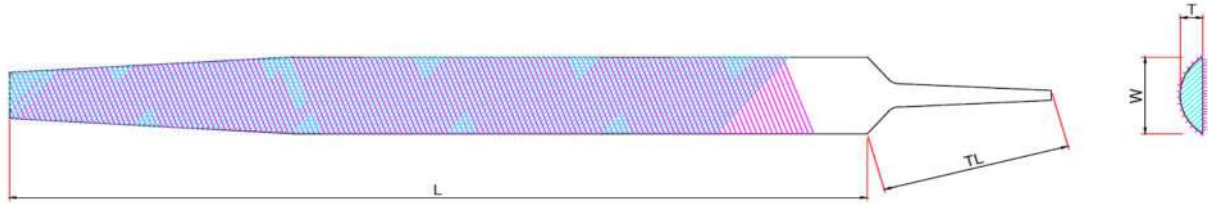
		Range (In MM)	
		From	To
14.2	Generally conforming to IS 1931-2000		
14.3	Body Length (L)	150	152
14.4	Tang Length (TL)	50	51
14.5	Width (W)	15.20	16.20
14.6	Thickness (T)	3.95	4.65
14.7	No. of Upcut / Inch	50-54 (F/S)	53-54 (R/S)
14.8	Upcut inclination	$65^{\circ}$	$65^{\circ}$
14.9	No. of Overcut / Inch	46-47 (F/S)	44-45 (R/S)
14.10	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
14.11	No. of Edge cut / Inch	44	45
14.12	Edge cut Inclination	$65^{\circ}$	$65^{\circ}$
14.13	Hardness	60 HRC	64 HRC
14.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$





15 File - Half Round - Smooth - 200 mm with Handle

15.1 Basic Indicative Diagram

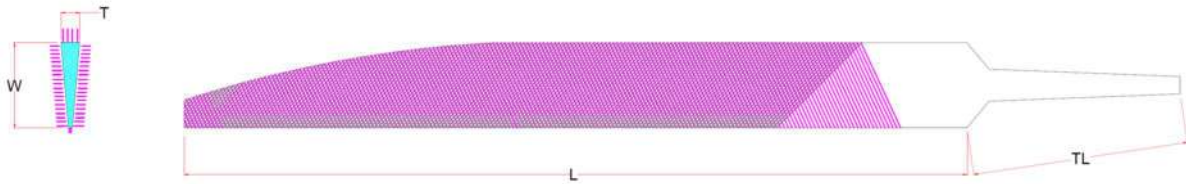


		Range (In MM)	
		From	To
15.2	Generally conforming to IS 1931-2000		
15.3	Body Length ( L )	200	202
15.4	Tang Length (TL)	55	56
15.5	Width (W)	18.90	19.90
15.6	Thickness (T)	5.15	5.85
15.7	No. of Upcut / Inch	(44-45 F/S)	(45-46 R/S)
15.8	Upcut inclination	65 <sup>0</sup>	65 <sup>0</sup>
15.9	No. of Overcut / Inch	(40-41 F/S)	(40-41 R/S)
15.10	Overcut Inclination	50 <sup>0</sup>	50 <sup>0</sup>
15.11	No. of Edge cut / Inch	45-46	45-46
15.12	Edge cut Inclination	65 <sup>0</sup>	65 <sup>0</sup>
15.13	Hardness	60 HRC	64 HRC
15.14	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



16 File - Knife Edge - 150 mm with Handle

16.1 Basic Indicative Diagram

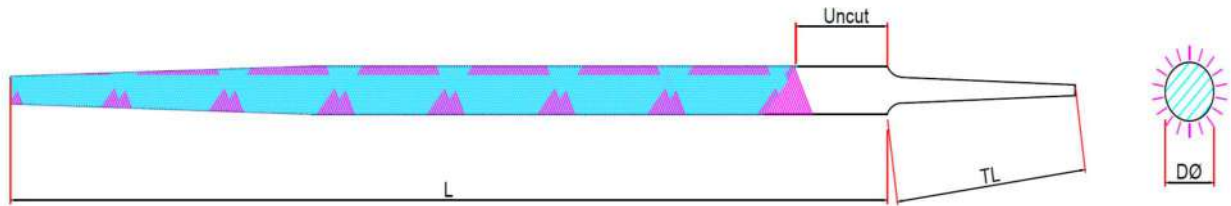


		Range (In MM)	
		From	To
16.2	Generally conforming to IS 1931-2000		
16.3	Body Length ( L )	150	152
16.4	Tang Length (TL)	50	51
16.5	Width (W)	19	19.4
16.6	Thickness (T)	3	4
16.7	No. of Upcut / Inch	53	54
16.8	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
16.9	No. of Overcut / Inch	46	47
16.10	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
16.11	No. of Edge cut / Inch	55	56
16.12	Edge cut Inclination	89 <sup>0</sup>	91 <sup>0</sup>
16.13	Hardness	60 HRC	64 HRC
16.14	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



17 File - Round - Bastard - 250 mm with Handle

17.1 Basic Indicative Diagram

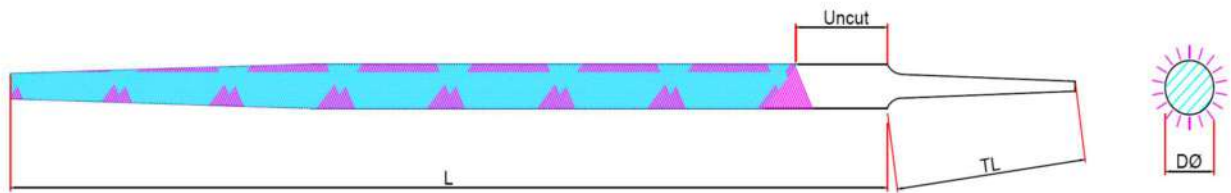


		Range (In MM)	
		From	To
17.2	Generally conforming to IS 1931-2000		
17.3	Body Length ( L )	248	252
17.4	Tang Length (TL)	59	61
17.5	Diameter (Ø)	8.35	9.35
17.6	No. of Upcut / Inch	20	21
17.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
17.8	No. of Overcut / Inch	20	21
17.9	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
17.10	Hardness	60 HRC	64 HRC
17.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



18 File - Round - Second Cut - 200 mm with Handle

18.1 Basic Indicative Diagram

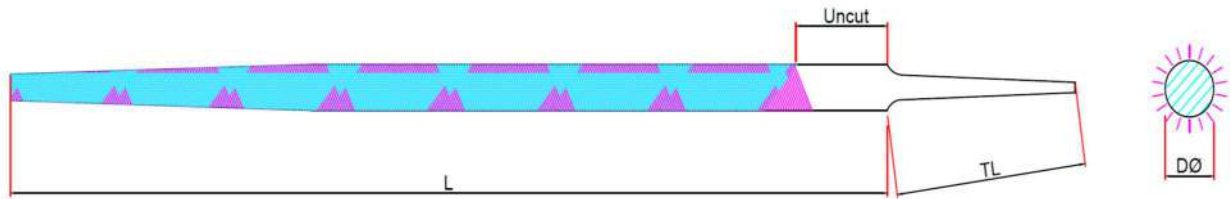


		Range (In MM)	
		From	To
18.2	Generally conforming to IS 1931-2000		
18.3	Body Length ( L )	198	202
18.4	Tang Length (TL)	55	55
18.5	Diameter ( $\varnothing$ )	6.35	7.25
18.6	No. of Upcut / Inch	31	32
18.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
18.8	No. of Overcut / Inch	31	32
18.9	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
18.10	Hardness	60 HRC	64 HRC
18.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



19 File - Round - Smooth - 150 mm with Handle

19.1 Basic Indicative Diagram

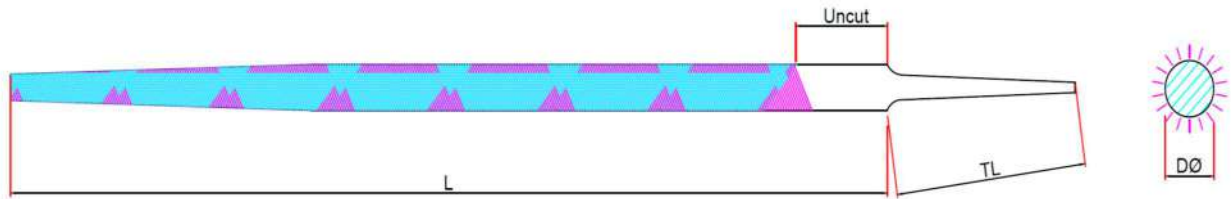


		Range (In MM)	
		From	To
19.2	Generally conforming to IS 1931-2000		
19.3	Body Length (L)	148	152
19.4	Tang Length (TL)	50	50
19.5	Diameter ( $\varnothing$ )	5.4	6.4
19.6	No. of Upcut / Inch	47	48
19.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
19.8	No. of Overcut / Inch	47	48
19.9	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
19.10	Hardness	60 HRC	64 HRC
19.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



20 File - Round - Smooth - 250 mm with Handle

20.1 Basic Indicative Diagram

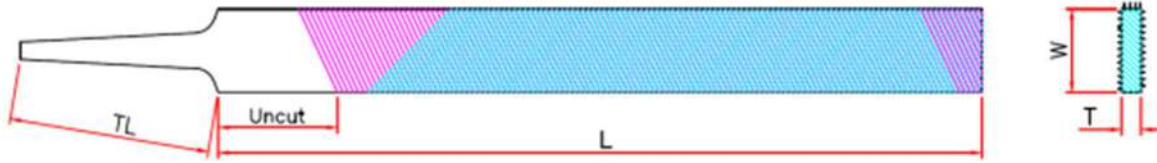


		Range (In MM)	
		From	To
20.2	Generally conforming to IS 1931-2000		
20.3	Body Length (L)	248	252
20.4	Tang Length (TL)	59	61
20.5	Diameter ( $\varnothing$ )	8.35	9.35
20.6	No. of Upcut / Inch	36	37
20.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
20.8	No. of Overcut / Inch	36	37
20.9	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
20.10	Hardness	60 HRC	64 HRC
20.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



21 File - Safe Edge - Second Cut - 200 mm with Handle

21.1 Basic Indicative Diagram

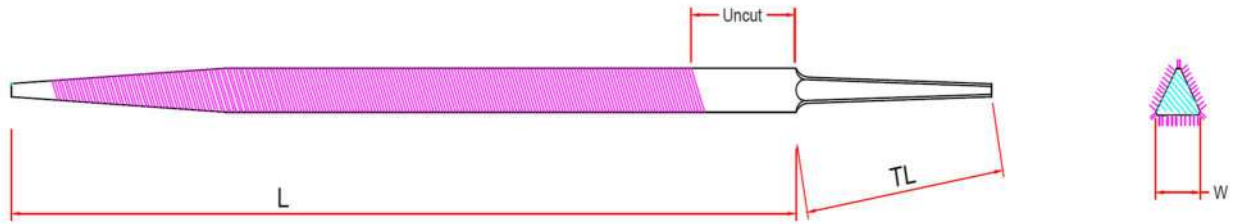


		Range (In MM)	
		From	To
21.2	Generally conforming to IS 1931-2000		
21.3	Body Length (L)	198	202
21.4	Tang Length (TL)	54	56
21.5	Width (W)	19.6	20.6
21.6	Thickness (T)	3.7	4.4
21.7	No. of Upcut / Inch	34	35
21.8	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
21.9	No. of Overcut / Inch	29	30
21.10	Overcut Inclination	44 <sup>0</sup>	46 <sup>0</sup>
21.11	No. of Edge cut / Inch	36	37
21.12	Edge cut Inclination	89 <sup>0</sup>	91 <sup>0</sup>
21.13	Hardness	60 HRC	64 HRC
21.14	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



22 File - Slim Taper - 150 mm with Handle

22.1 Basic Indicative Diagram



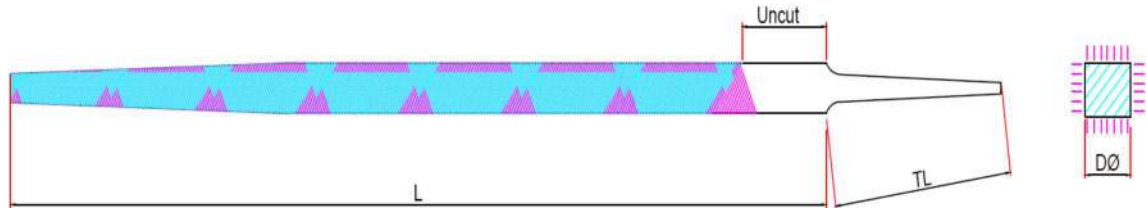
		Range (In MM)	
		From	To
22.2	Generally conforming to IS 1931-2000		
22.3	Body Length (L)	148	152
22.4	Tang Length (TL)	42	43
22.5	Width (W)	8.20	8.50
22.6	No. of Upcut / Inch	51	52
22.7	Upcut inclination	59 <sup>0</sup>	60 <sup>0</sup>
22.8	No. of Edge cut / Inch	60	61
22.9	Edge cut Inclination	76 <sup>0</sup>	78 <sup>0</sup>
22.10	Hardness	60 HRC	64 HRC
22.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>





23 File - Square - Bastard - 150 mm with Handle

23.1 Basic Indicative Diagram

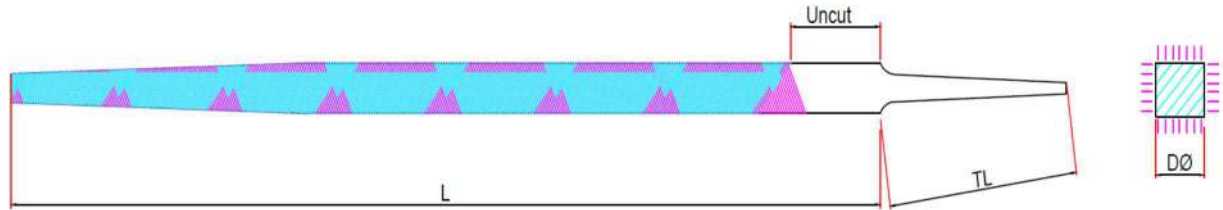


		Range (In MM)	
		From	To
23.2	Generally conforming to IS 1931-2000		
23.3	Body Length ( L )	148	152
23.4	Tang Length (TL)	49	51
23.5	Square Side	5.10	6.10
23.6	No. of Upcut / Inch	33	35
23.7	Upcut inclination	65 <sup>0</sup>	65 <sup>0</sup>
23.8	No. of Overcut / Inch	27	28
23.9	Overcut Inclination	50 <sup>0</sup>	50 <sup>0</sup>
23.10	Hardness	60 HRC	64 HRC
23.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



24 File - Square - Bastard - 250 mm with Handle

24.1 Basic Indicative Diagram

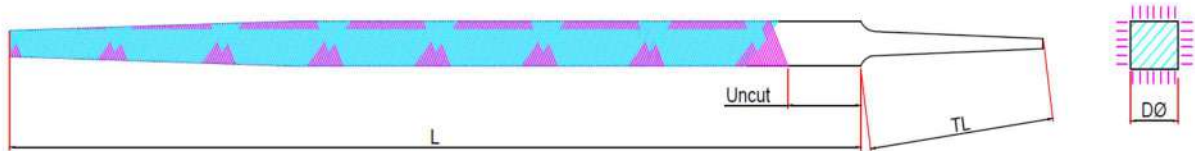


		Range (In MM)	
		From	To
24.2	Generally conforming to IS 1931-2000		
24.3	Body Length ( L )	248	252
24.4	Tang Length (TL)	59	61
24.5	Square Side	8	9
24.6	No. of Upcut / Inch	24	25
24.7	Upcut inclination	64 <sup>0</sup>	66 <sup>0</sup>
24.8	No. of Overcut / Inch	20	21
24.9	Overcut Inclination	49 <sup>0</sup>	51 <sup>0</sup>
24.10	Hardness	60 HRC	64 HRC
24.11	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



**25 File - Square - Second Cut - 200 mm with Handle**

25.1 Basic Indicative Diagram

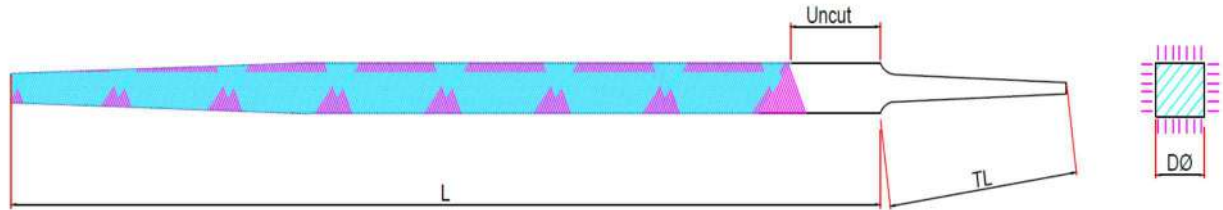


		Range (In MM)	
		From	To
25.2	Generally conforming to IS 1931-2000		
25.3	Body Length ( L )	198	202
25.4	Tang Length (TL)	55	56
25.5	Square Side	6.80	7.80
25.6	No. of Upcut / Inch	37	38
25.7	Upcut inclination	$65^{\circ}$	$65^{\circ}$
25.8	No. of Overcut / Inch	31	32
25.9	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
25.10	Edge cut Inclination	$89^{\circ}$	$91^{\circ}$
25.11	Hardness	60 HRC	64 HRC
25.12	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**26 File - Square - Smooth - 150 mm with Handle**

26.1 Basic Indicative Diagram

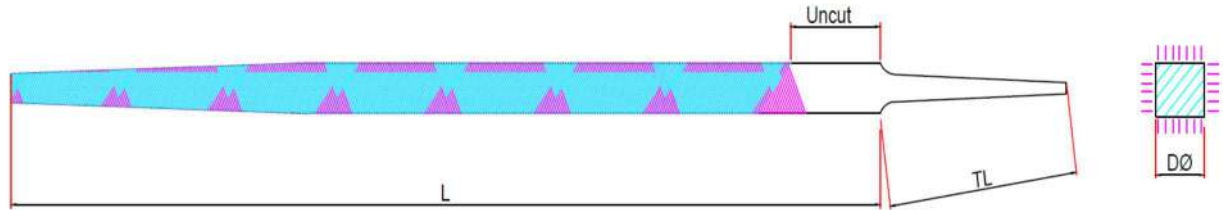


		Range (In MM)	
		From	To
26.2	Generally conforming to IS 1931-2000		
26.3	Body Length (L)	148	152
26.4	Tang Length (TL)	50	51
26.5	Square Side	5.10	6.10
26.6	No. of Upcut / Inch	57	58
26.7	Upcut inclination	$65^{\circ}$	$65^{\circ}$
26.8	No. of Overcut / Inch	50	51
26.9	Overcut Inclination	$50^{\circ}$	$50^{\circ}$
26.10	Hardness	60 HRC	64 HRC
26.11	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



**27 File - Square - Smooth - 250 mm with Handle**

27.1 Basic Indicative Diagram

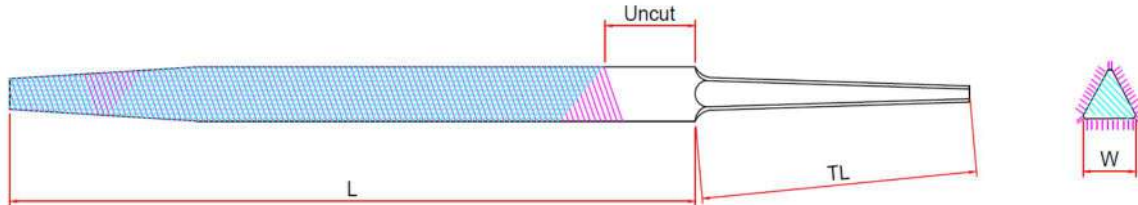


		Range (In MM)	
		From	To
27.2	Generally conforming to IS 1931-2000		
27.3	Body Length (L)	248	252
27.4	Tang Length (TL)	59	61
27.5	Square Side	8	9
27.6	No. of Upcut / Inch	41	43
27.7	Upcut inclination	$64^{\circ}$	$66^{\circ}$
27.8	No. of Overcut / Inch	36	37
27.9	Overcut Inclination	$49^{\circ}$	$51^{\circ}$
27.10	Hardness	60 HRC	64 HRC
27.11	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



28 File - Triangular - Bastard - 200 mm with Handle

28.1 Basic Indicative Diagram

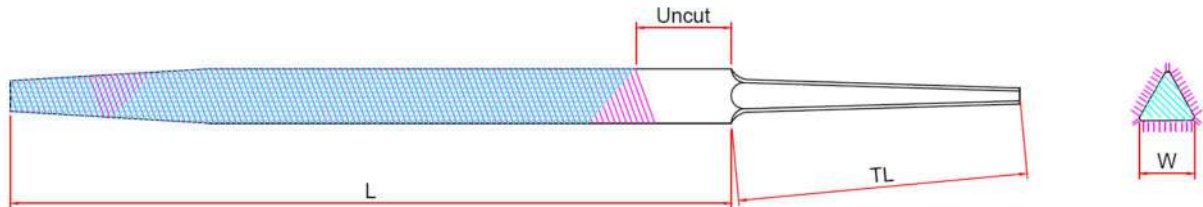


		Range (In MM)	
		From	To
28.2	Generally conforming to IS 1931-2000		
28.3	Body Length (L)	198	202
28.4	Tang Length (TL)	55	56
28.5	Equilateral Triangle Side (W)	14.25	14.95
28.6	No. of Upcut / Inch	25	27
28.7	Upcut Inclination	63 <sup>0</sup>	67 <sup>0</sup>
28.8	No. of Over cut / Inch	21	22
28.9	No. of Edge cut / Inch	31	32
28.10	Edge cut Inclination	89 <sup>0</sup>	91 <sup>0</sup>
28.11	Hardness	60 HRC	64 HRC
28.12	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



29 File - Triangular - Second Cut - 150 mm with Handle

29.1 Basic Indicative Diagram

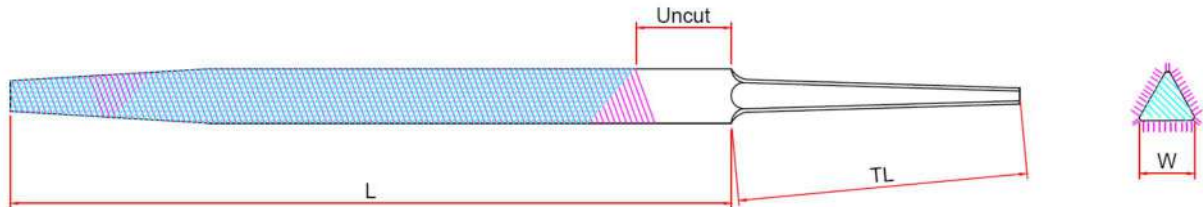


		Range (In MM)	
		From	To
29.2	Generally conforming to IS 1931-2000		
29.3	Body Length (L)	148	152
29.4	Tang Length (TL)	58	59
29.5	Equilateral Triangle Side (W)	11.05	11.75
29.6	No. of Upcut / Inch	38	39
29.7	No. of Over cut / Inch	33	34
29.8	Upcut inclination	57 <sup>0</sup>	63 <sup>0</sup>
29.9	No. of Edge cut / Inch	44	45
29.10	Edge cut Inclination	76 <sup>0</sup>	78 <sup>0</sup>
29.11	Hardness	60 HRC	64 HRC
29.12	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>



**30 File - Triangular - Smooth - 150 mm with Handle**

30.1 Basic Indicative Diagram



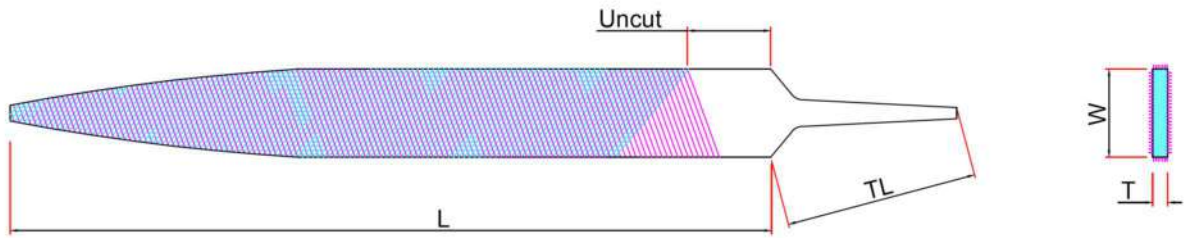
		Range (In MM)	
		From	To
30.2	Generally conforming to IS 1931-2000		
30.3	Body Length (L)	148	152
30.4	Tang Length (TL)	58	59
30.5	Equilateral Triangle Side (W)	11.05	11.75
30.6	No. of Upcut / Inch	48 <sup>0</sup>	49 <sup>0</sup>
30.7	Upcut inclination	57	63
30.8	No. of Overcut/Inch	38	39
30.9	No. of Edge cut / Inch	51	52
30.10	Edge cut Inclination	76 <sup>0</sup>	78 <sup>0</sup>
30.11	Hardness	60 HRC	64 HRC
30.12	Rake Angle	-7 <sup>0</sup>	-12 <sup>0</sup>





**31 File - Warding - Smooth - 150 mm with Handle**

























31.1 Basic Indicative Diagram



		Range (In MM)	
		From	To
31.2	Generally conforming to IS 1931-2000		
31.3	Body Length (L)	148	152
31.4	Tang Length (TL)	50	51
31.5	Width (W)	15.5	16.5
31.6	Thickness (T)	1.55	2.25
31.7	No. of Upcut / Inch	55	57
31.8	Upcut inclination	$62^{\circ}$	$68^{\circ}$
31.9	No. of Overcut / Inch	47	48
31.10	Overcut Inclination	$47^{\circ}$	$53^{\circ}$
31.11	No. of Edge cut / Inch	58	59
31.12	Edge cut Inclination	$87^{\circ}$	$93^{\circ}$
31.13	Hardness	60 HRC	64 HRC
31.14	Rake Angle	$-7^{\circ}$	$-12^{\circ}$



32 File - Needle - Set of 12, Length = 160 mm in Plastic Case

32.1	Barrrete		
32.2	Crossing		
32.3	Flat		
32.4	Half Round		
32.5	Hand Tre		
32.6	Hand		
32.7	Knife		
32.8	Marking		
32.9	Round		
32.10	Slitting		
32.11	Square		
32.12	Three Square		



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32.1 Needle File - Barrette - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.1	5.9
4	Thickness (T)	2	2.4
5	Length of cut	77.5	82.5
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	65 <sup>0</sup>	NA
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	55 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Grade	2 <sup>nd</sup>	

32.2 Needle File - Crossing - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.15	5.95
4	Thickness (T)	1.8	2.2
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Etching		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	60 <sup>0</sup>	NA
8	No. of Overcut / Inch Etching		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	50 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Rake Angle	NA	NA
12	Grade	2 <sup>nd</sup>	



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**32.3 Needle File - Flat - 160 mm**

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.5	6.3
4	Thickness (T)	1.2	1.6
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	65 <sup>0</sup>	NA
8	No. of Overcut / Inch Chisel Cut		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	55 <sup>0</sup>	NA
10	No. of Edge cut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
11	Edge cut Inclination	65 <sup>0</sup>	NA
12	Hardness	60 HRC	64 HRC
13	Grade	2 <sup>nd</sup>	

**32.4 Needle File - Half Round - 160 mm**

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.2	6
4	Thickness (T)	1.6	2
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch For Flat Side Chisel Cut (For Round Side Etching)		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination		
	a) Chisel Cut ( Flat Side)	65 <sup>0</sup>	NA
	b) Etching ( Round Side)	60 <sup>0</sup>	NA
8	No. of Overcut / Inch		
	a) 0 Cut	53 (Flat Side Chisel Cut)	57 (For Round Side Etching)
	b) 2 Cut	65 (Flat Side Chisel Cut)	71 (For Round Side Etching)
9	Overcut Inclination		
	a) Chisel Cut ( Flat Side)	55 <sup>0</sup>	NA
	b) Etching ( Round Side)	50 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Grade	2 <sup>nd</sup>	



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32.5 Needle File - Hand Tre - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.4	6.2
4	Thickness (T)	1.3	1.7
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Chisel Cut ( Only edge cutting)		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination ( Only edge cutting)	65 <sup>0</sup>	NA
8	No. of Overcut / Inch On edge Chisel cut (Only edge cutting)		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination ( Only edge cutting)	55 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Grade	2 <sup>nd</sup>	

32.6 Needle File - Hand - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5	5.8
4	Thickness (T)	1.4	1.8
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Chisel cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	65 <sup>0</sup>	NA
8	No. of Overcut / Inch Chisel Cut		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	55 <sup>0</sup>	NA
10	No. of Edge cut / Inch Chisel cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
11	Edge cut Inclination	65 <sup>0</sup>	NA
12	Hardness	60 HRC	64 HRC
13	Grade	2 <sup>nd</sup>	



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**32.7 Needle File - Knife - 160 mm**

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.45	6.35
4	Thickness (T)	2	2.4
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	65 <sup>0</sup>	NA
8	No. of Overcut / Inch Chisel Cut		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	55 <sup>0</sup>	NA
10	No. of Edge cut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
11	Edge cut Inclination	65 <sup>0</sup>	NA
12	Hardness	60 HRC	64 HRC
13	Grade	2 <sup>nd</sup>	

**32.8 Needle File - Marking - 160 mm**

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.4	6.2
4	Thickness (T)	1.55	1.95
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Etching (Cutting on Round side flat side no cutting)		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination (Cutting on Round side flat side no cutting)	60 <sup>0</sup>	NA
8	No. of Overcut / Inch Etching (Cutting on Round side flat side no cutting)		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination (Cutting on Round side flat side no cutting)	55 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Grade	2 <sup>nd</sup>	



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32.9 Needle File - Round - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Body Dia	2.9	3.7
4	Length of cut	77.5	82.5
5	No. of Upcut / Inch Etching		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
6	Upcut inclination	60 <sup>0</sup>	NA
7	No. of Overcut / Inch Etching		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
8	Overcut Inclination	50 <sup>0</sup>	NA
9	Hardness	60 HRC	64 HRC
10	Grade	2 <sup>nd</sup>	

32.10 Needle File - Slitting - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	5.55	6.35
4	Thickness (T)	2	2.4
5	Length of cut	77.5	82.5
6	No. of Upcut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
7	Upcut inclination	65 <sup>0</sup>	NA
8	No. of Overcut / Inch Etching		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
9	Overcut Inclination	50 <sup>0</sup>	NA
10	Hardness	60 HRC	64 HRC
11	Grade	2 <sup>nd</sup>	



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32.11 Needle File - Square - 160 mm

S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	2.5	3.3
4	Length of cut	77.5	82.5
5	No. of Upcut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
6	Upcut inclination	65 <sup>0</sup>	NA
7	No. of Overcut / Inch Etching		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
8	Overcut Inclination	50 <sup>0</sup>	NA
9	Hardness	60 HRC	64 HRC
10	Grade	2 <sup>nd</sup>	

32.12 Needle File - Three Square - 160 mm

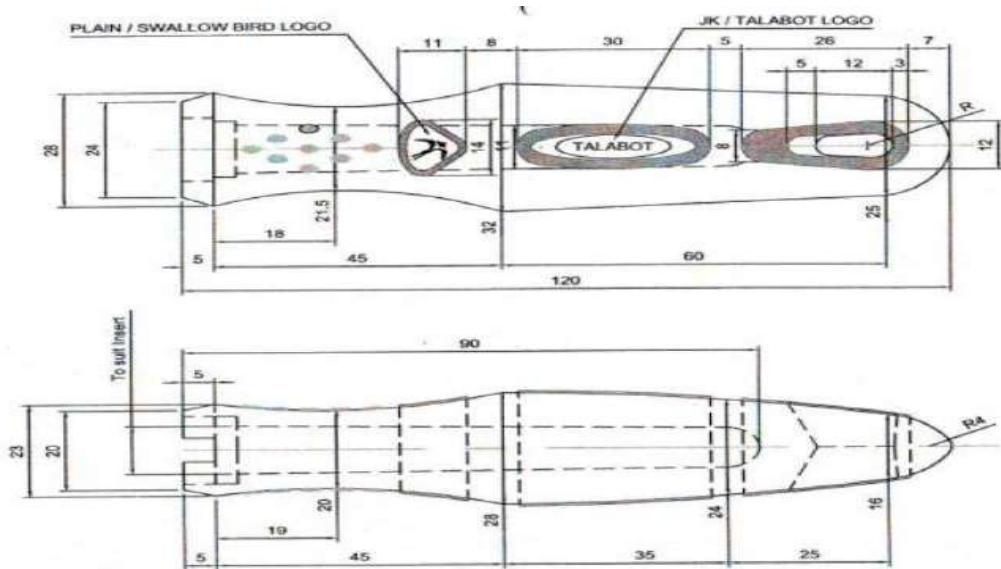
S.N.	Particulars	Range (in mm)	
		From	To
1	Total Length ( L)	158	162
2	Tang Dia	3.2	3.25
3	Width (W)	3.5	4.3
4	Length of cut	77.5	82.5
5	No. of Upcut / Inch Chisel Cut		
	a) 0 Cut	61	67
	b) 2 Cut	76	84
6	Upcut inclination	60 <sup>0</sup>	NA
7	No. of Overcut / Inch Etching		
	a) 0 Cut	53	57
	b) 2 Cut	65	71
8	Overcut Inclination	50 <sup>0</sup>	NA
9	Hardness	60 HRC	64 HRC
10	Grade	2 <sup>nd</sup>	



**33 Handle**

33.1 Each File must be provided with a Dual Component Handle as per the following details OTHER THAN NEEDLE FILES.

33.2 Basic Indicative Diagram:



33.3 Specifications of Dual Component Handle:

33.4 Material: Poly Propylene Co Polymer (PPCP)

33.5 Length: 90 mm to 120 mm depending on the Length of the File

33.6 Weight: 45 to 50 gm.(approx.)