इंटरनेट मानक

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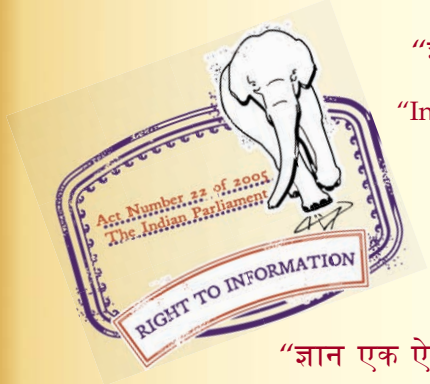
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 3587 (1986): Rasps [PGD 5: Assembly Hand Tools]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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UDC 621 918·4

Indian Standard

SPECIFICATION FOR RASPS

(Second Revision)

1. Scope — Covers the dimensions and other requirements for six type of rasps.

2. Nomenclature — Shall be as given in Fig. 1.

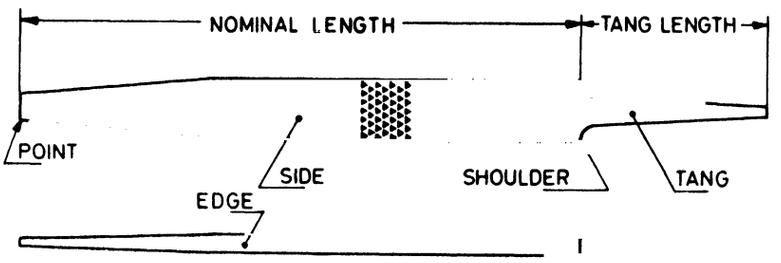

FIG. 1 NOMENCLATURE FOR RASPS

3. Dimensions and Tolerances

3.1 The shapes and dimensions of different types of rasps shall be as specified in Tables 1 to 6. Dimensions in respect of width, thickness and diameter shall be measured on the uncut portion of the rasps.

3.2 *Tolerances*

3.2.1 The tolerance on nominal length *L* shall be as follows:

a) For 150 mm length	$+6$ mm 0
b) For lengths over 150 mm up to and including 250 mm	$+8$ mm 0
c) For length over 250 mm	$+10$ mm 0

3.2.2 The tolerance on width *b* shall be as follows:

a) Wood rasps and cabinet rasps	±1·6 mm
b) Shoe rasps and horse or farriers rasps	±3·2 mm

3.2.3 The tolerance on thickness *t* shall be as follows:

a) Wood rasps and cabinet rasps:	
1) Nominal length 150 mm	±0·8 mm
2) Nominal length above 150 mm	±1·6 mm
b) Shoe rasps and horse or farriers rasps	±3·2 mm

3.2.4 The tolerance on diameter *d* of round wood rasp shall be ±1·6 mm.

3.2.5 The tolerance on the tang length *a* shall be —20 percent for all sizes.

3.2.6 The tolerance on the number of cuts per row shall be ±10 percent subject to minimum of ±1 cut per row and the tolerance on the number of rows shall be ±5 rows for 100 mm length.

4. Cuts — This standard specifies three grades of cuts, namely, bastard, second cut and smooth. The number of cuts per row and rows per centimetre applicable to rasps of different types shall be as given in Tables 1 to 6.

5. Material — The material for rasps and hand prover shall conform to 30C8 or 40C8 of IS : 1570 (Part 2)-1979 'Schedules for wrought steels: Part 2 Carbon steel (unalloyed steels) (*first revision*)' with a maximum phosphorus and sulphur content of 0·05 percent each.

6. Heat Treatment — The rasps shall be heat-treated to meet the performance requirements laid down in **12.3**, which takes care of hardness and sharpness characteristics of the rasps.

Adopted 14 January 1986 | | Gr 5

INDIAN STANDARDS INSTITUTION
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NEW DELHI 110002

7. General Requirements — The teeth shall not overlap and shall be formed by raising portions of the stock from the surface of the blank and shall be uniform and regular. The rasps shall be evenly hardened and tempered. When held near the middle of nominal length and struck by a piece of steel, the rasp shall give a clear metallic ring.

8. Workmanship and Finish — The rasps shall be well-shaped and shall be reasonably straight. They shall be properly cleaned and shall not show cracks, scales, rust or other manufacturing defects.

9. Handles — When the handles are required to be supplied with the rasps, they shall conform to the requirements of Class 5 as specified in IS : 620-1975 'General requirements for wooden tool handles (*third revision*)'.

10. Designation — Rasp shall be designated by commonly used name, grade of cut, nominal length, and number of this standard.

Example:

A round wood rasp with smooth grade of cut having nominal length $L = 150$ mm shall be designated as:

Round Wood Rasp, Smooth 150 IS : 3587

11. Sampling — For ascertaining the conformity of the lot, the procedure for sampling and inspection as given in IS : 2500 (Part 1)-1973 'Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (*first revision*)' shall be followed. The sampling plan, inspection level and AQL to be followed for various characteristics shall be as given in **11.1** and **11.2**.

11.1 For dimensions and visual inspection a single sampling plan with inspection level IV and AQL of 2·5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

11.2 For warpage test, distortion test and hand prover test, a single sampling plan with inspection level I and AQL of 2·5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

12. Tests

12.1 *Warpage Test* — Warpage is the angular displacement between the plane of the side at shoulder and at the point. Warpage shall be measured by means of an instrument consisting of one horizontal surface and the pivoted surface to which an indicating pointer is attached, supported on a master flat surface. A typical instrument used for warpage test is given in Fig. 2. The horizontal surface shall

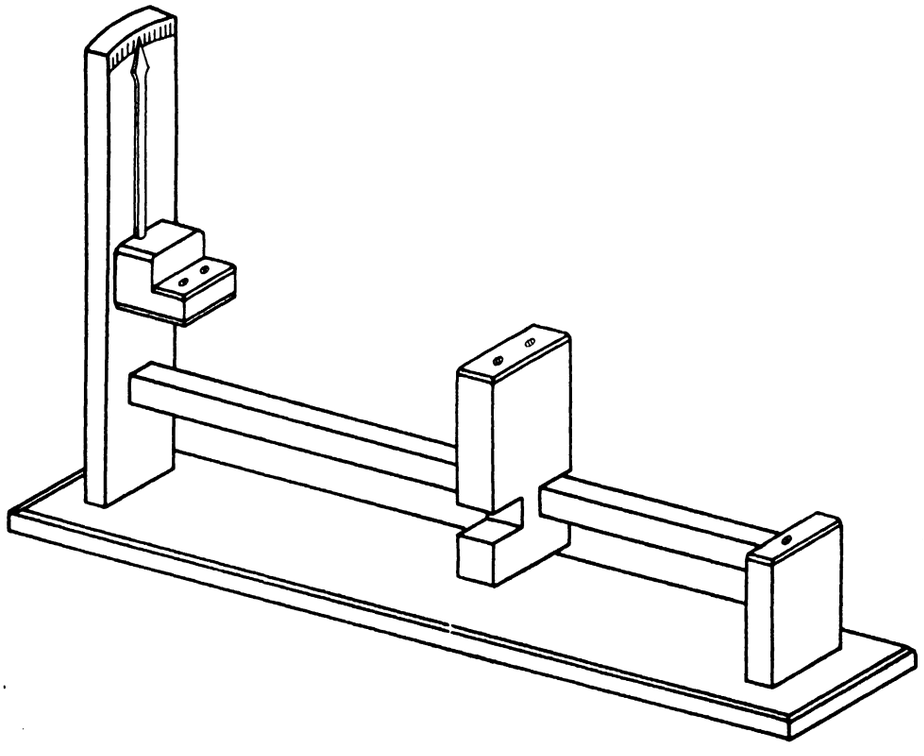


FIG. 2 INSTRUMENT FOR MEASURING WARPAGE

AMENDMENT NO.1 AUGUST 1991
TO
IS 3587 : 1986 SPECIFICATION FOR RASPS

(Second Revision)

(*Page* 1, *clause* 3.2.1) — Substitute the following for the existing clause :

' 3.2.1 The tolerance on nominal length *L* shall be as follows:

a) For 150 mm length	± 4 mm
b) For lengths over 150 mm up to and including 300 mm	± 6 mm
c) Over 300 mm	± 8 mm

(PED 05)

Reprography Unit, BIS, New Delhi, India

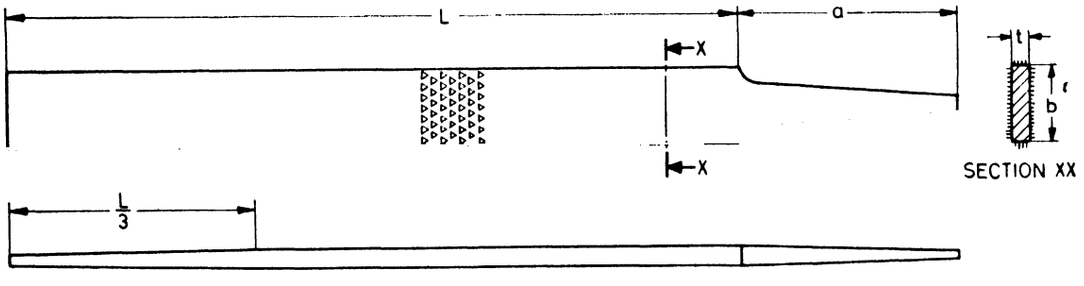
be adjustable so as to accommodate the length of the rasp under test. The shoulder shall be pressed against the horizontal surface, the pivoted surface shall then be rotated on its pivot to bear on the side of the point. The warpage shall be indicated by a pointer on a scale graduated in degree.

The rasps shall meet the warpage requirements given in respective tables.

TABLE 1 DIMENSIONS AND TEST REQUIREMENTS FOR FLAT WOOD RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) Rectangular cross-section, parallel in width throughout, parallel for two-thirds of nominal length, then tapering towards point in thickness.

b) Sides : Rasp punched, Edges : File cut (single cut). Made in two cuts, bastard and smooth.

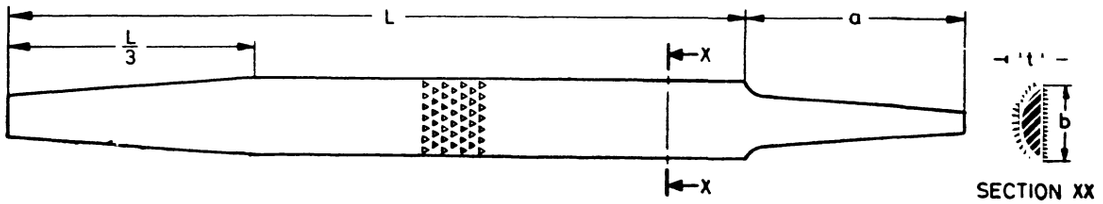
Nominal Length *L*	*b*	*t*	*a*	Bastard		Smooth*		Second Cut*		Test Requirement	
				Number of Cuts per Row	Number of Rows per Centimetre	Number of Cuts per Row	Number of Rows per Centimetre	Number of Cuts per Row	Number of Rows per Centimetre	Warpage	Distortion
200	20·5	5	60	7	2·56	8	3·74	7	2·95	3°	0·50
250	25	6·5	70	7	2·17	9	3·74	8	2·95	3°	0·50
300	30	7	80	7	2·17	10	3·74	9	2·56	3°	0·50
350	35	7·5	90	7	1·87	11	2·95	10	2·17	3°	0·75
400	39	9	100	7	1·67	12	2·17	11	2·17	3°	0·75

*Non-preferred.

TABLE 2 DIMENSIONS AND TEST REQUIREMENTS FOR HALF ROUND WOOD RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) One side flat and one convex, parallel for approximately two-thirds rasp nominal length, then tapering towards the point in width and thickness.

b) Sides (both flat and convex) rasp punched, edges file cut (single cut). Made in two cuts, bastard and smooth.

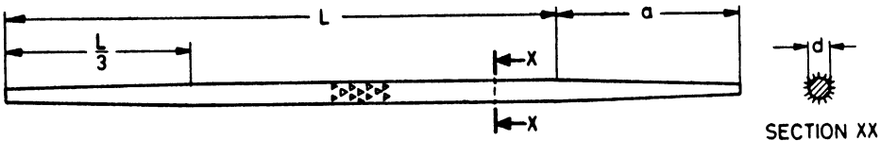
Nominal Length *L*	*b*	*t*	*a*	Bastard			Smooth*			Second Cut*			Test Requirement Warpage
				Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	
				Round side	Flat side		Round side	Flat side		Round side	Flat side		
150	16	4·5	50	7	6	3·74	8	7	5·0	8	7	3·74	4°
200	20	6·0	60	8	7	2·56	9	8	3·74	8	7	2·95	4°
250	25	7·0	70	8	7	2·56	10	9	3·74	9	8	2·95	4°
300	30	8·0	80	8	7	2·17	11	10	3·74	10	9	2·95	4°
350	34	10·0	90	9	7	1·87	12	11	2·95	11	10	2·17	4°
400	40	11·0	100	9	7	1·67	13	12	2·56	11	10	2·17	4°

*Non-preferred.

TABLE 3 DIMENSIONS AND TEST REQUIREMENTS FOR ROUND WOOD RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) Round cross-section, parallel for approximately two-thirds rasp nominal length then tapering towards the point.

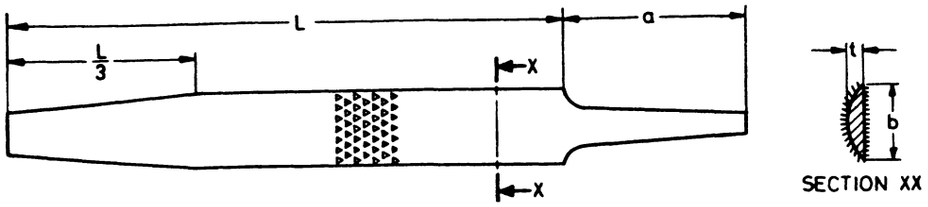
b) Rasp punched. Made in three cuts, bastard second cut and smooth.

Nominal Length *L*	*d*	*a*	Number of Cuts			Test Requirements Distortion
			Bastard	Second Cut	Smooth	
150	6	50	450	660	345	0·50
200	8	60	620	920	345	0·50
250	10	70	800	1 200	345	0·65
300	12	80	990	1 500	345	0·65
350	14	90	1 190	1 820	345	0·75

TABLE 4 DIMENSIONS AND TEST REQUIREMENTS FOR CABINET RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) One side flat and one convex. parallel for approximately two-thirds rasp nominal length and then tapering towards the point in width and thickness. This section is thinner than half round rasps.

b) Sides (both flat and convex) : Rasp punched. Edges file cut (single cut). Made in two cuts, second cut and smooth.

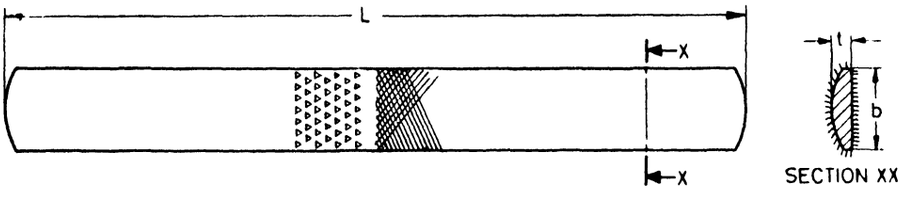
Nominal Length *L*	*b*	*t*	*a*	Bastard*			Second Cut			Smooth*			Test Requirement Warpage
				Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	Number of Cuts per Row on		Number of Rows per Centimetre on Each Side	
				Round side	Flat side		Round side	Flat side		Round side	Flat side		
150	18	3·5	50	7	6	3	7	6	3·74	10	9	5	3°
200	23	4·5	60	8	7	3	9	8	3·74	12	11	5	3°
250	28	5·5	70	9	8	2·25	11	10	2·95	12	11	3·74	3°
300	34	6·5	80	9	8	2·25	11	10	2·56	14	14	3·74	3°
350	39	7·5	90	9	9	1·90	12	11	2·56	14	14	3·74	3°

*Non-preferred.

TABLE 5 DIMENSIONS AND TEST REQUIREMENTS FOR SHOE RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) One side flat and one convex, the section being uniform throughout.

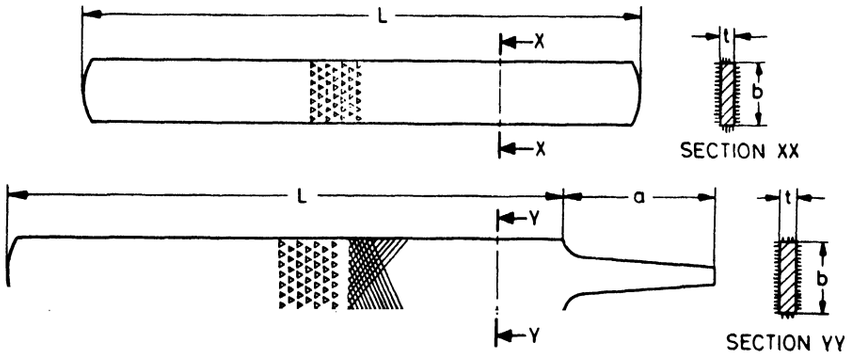
b) Flat side and convex side : File cut (double cut) for half its nominal length and rasp cut for the remainder. Edges file cut (single cut).

Nominal Length *L*	*b*	*t*	Cuts on Flat Side and Convex Side			Number of Rows per Centimetre on Each Side	Test Requirements Warpage
			Rasp Cut		File Cut		
			Number of cuts per row		Cuts per centimeter on each side		
			Flat side	Convex side			
200	22	5·5	8	9	8	5	3°
225	25	6	8	9	7	3·74	3°
250	27	7	8	9	6·5	3·74	3°

TABLE 6 DIMENSIONS AND TEST REQUIREMENTS FOR HORSE OR FARRIERS, RASPS

(*Clauses* 3.1 *and* 4)

All dimensions in millimetres.



Characteristics of the Rasp

a) Rectangular cross-section.

b) Sides : Rasp punched. Edges file cut (single cut):

1) Rasps : regular (not tanged) rasps, slim (not tanged)

2) Rasps : tanged:

Sides : One side file cut (double cut) and other side rasp cut

Edges : File cut (single cut). The horse rasp is a combination of rasp and file. Rasps may be cut as half file an half rasp : quarter file and three-quarters rasp; half file reverse as specified by the purchaser.

Nominal Length *L*	Regular (Not Tanged)			Slim (Not Tanged)			Regular (Tanged)				Rasp Cut, Cuts per Row	File Cut (Up Cut), Cuts per Centimetre	Test Requirement, Warpage
	b	*t*	Number of Rows per Centimetre	*b*	*t*	Number of Rows per Centimetre	*b*	*t*	*a*	Number of Rows per Centimetre			
300	34	7·5	2·75	—	—	—	39	8	80	2·75	—	—	3°
350	39	8	2·95	—	—	—	44	9	90	2·95	5	5	3°
400	44	9	2·95	39	8	2·95	48	10	100	2·95	5	4·5	3°
450	48	10	2·95	39	9	2·95	—	—	—	—	—	—	3°

12.2 *Distortion Test* — The distortion shall be considered as the deviation of the centre line of rasp from a straight line. It is half the difference between maximum and minimum gauge readings taken on opposite sides. The distortion shall be measured by means of a dial gauge and two steel blocks supported on a master flat surface. A typical instrument for measuring distortion is given in Fig. 3. Flat blocks shall be employed for flat surface rasps and V-blocks for round rasps. The flat or V-blocks shall be placed under the point and the shoulder of the rasp under test. The dial gauge readings shall be taken in the middle of nominal length at opposite sides by rotating the rasps through 180° around the centre line of the rasp.

The rasps shall meet the distortion requirements given in respective tables.

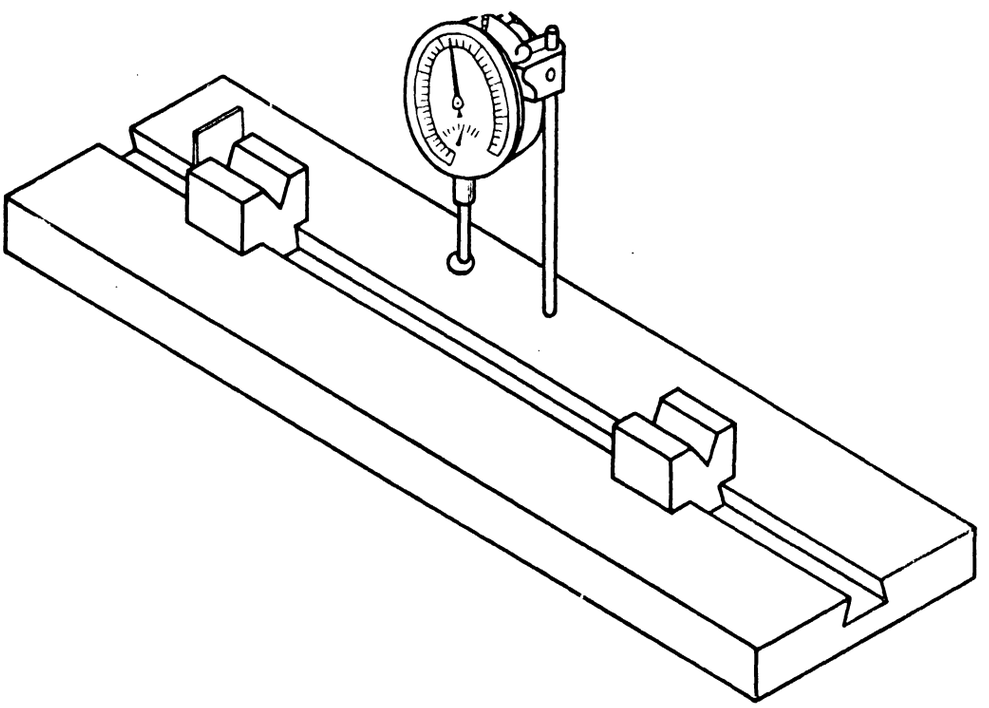


FIG. 3 INSTRUMENT FOR MEASURING DISTORTION

12.3 *Hand Prover Test* — The hardness of hand provers for testing different rasps shall be 46 to 48 *HRC* (≈ 460 to 500 *HV*).

12.3.1 The prover may be of cross-section 28 × 5 mm and of length approximately 250 mm for convenience of proper grip. The prover shall be applied to the rasp at an angle of approximately 30° and drawn firmly over the rasp from point to shoulder using only sufficient pressure to make it bite (*see* Fig. 4). The rasp that allows the prover to slip over without biting any portion of its surface shall be rejected.

13. Preservative Treatment — It is recommended that the rasps may be given a suitable rust-preventive treatment before packing.

13.1 Unless otherwise agreed upon by the manufacturer and the purchaser, rasps shall be individually wrapped in waxed paper to avoid damage to the teeth and to protect them against corrosion. They shall be then packed in cardboard boxes; each box containing rasps of similar type, cut and length.

14. Marking — Each rasp shall be marked legibly with the grade of cut, and the manufacturer's name initials or trade-mark. Each box containing rasp of similar type, cut and length shall be labelled or marked to show the description, nominal length and quantity contained in the box.

14.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

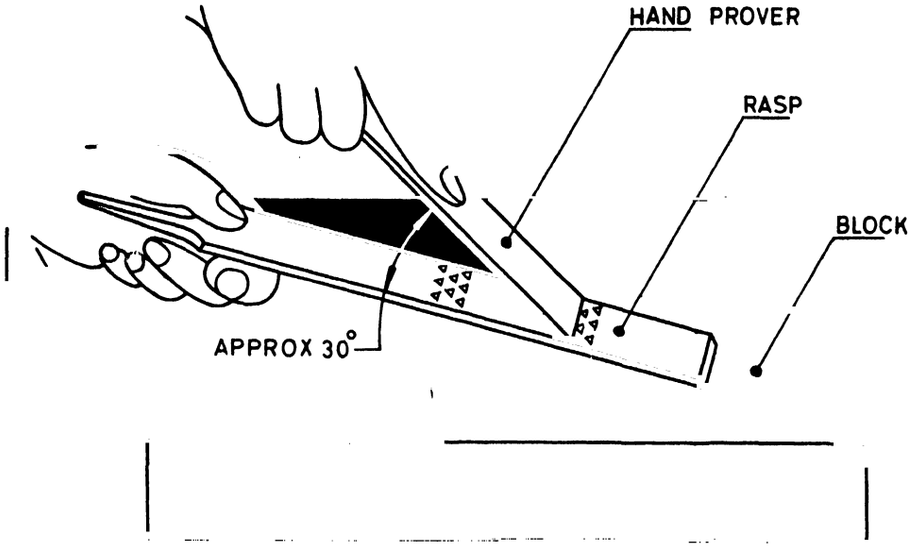


FIG. 4 HAND PROVER TEST

EXPLANATORY NOTE

This specification was first issued in 1966. The first revision was taken up in 1976 with a view to make following modifications:

Suitable alterations made in the material and hardness values;

Modifications done on the tolerances specified on the nominal length, number of cuts and number of rows;

Necessary modifications made in Tables 1 to 6 by deleting bastard cut for cabinet rasps and second cut for half-round wood rasps. The smooth cut for flat wood rasps, half round wood rasps and cabinet rasps were made optional;

Distortion test requirements has been deleted for half round wood rasps, cabinet rasps, shoe rasps and horse or farriers rasps as it is not possible to conduct this test on these types of rasps because of their unsymmetrical cross-section.

The second revision has been taken up to bring the dimensions in line with modern manufacturing practices. The hardness clause has been replaced by heat-treatment clause, as the hand prover test takes care of the characteristics like hardness as well as sharpness of the rasps. A new figure, showing the proper application of hand prover has also been included. The recommended dimension of the hand prover has also been mentioned. Bastard cut in cabinet rasps, second cut in flat wood rasps and half round wood rasps, though optional have been included again, being a demand in the market.

While preparing this standard assistance has been derived from the details supplied by leading manufacturers and from the following publication :

ISO 234/1-1983 Files and rasps: Part 1 Dimensions, issued by International Organization for Standardization (ISO); and

BS 498 : Part 1 : 1960 Specification for files and rasps: Part 1 Rasps and engineer's files, issued by British Standards Institution.

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