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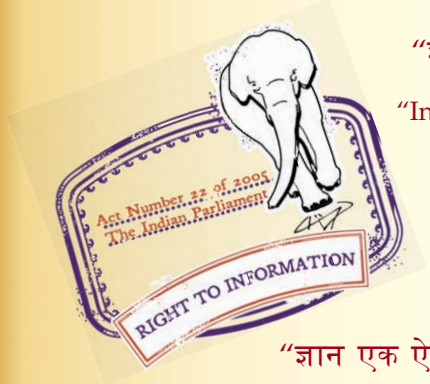
IS 10649 (1983): Ring Gauges for Drill Chuck Taper Arbors of Morse Taper and Jacob Taper Type [PGD 25: Engineering Metrology]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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UDC 621·753·3 [531·718·2] : 621·95 : 621·9-229·323 : 621·9-229·22

Indian Standard

(Reaffirmed 1998)

SPECIFICATION FOR RING GAUGES FOR DRILL CHUCK TAPER ARBORS OF MORSE TAPER AND JACOB TAPER TYPE

Engineering Metrology Sectional Committee, EDC 43; *and* Gauges Subcommittee, EDC 43 : 3 [Ref: Doc: EDC 43 (3341)]

1. Scope — Covers the requirements of ring gauges for the inspection of drill chuck taper arbors of Morse and Jacob taper type as covered in IS : 9094 (Part 1) - 1979 ' Drill chuck taper arbors: Part 1 Having taper shanks '.

2. Terminology

2.1 *Ring Gauge* — The ring gauge is externally stepped and represents an internal taper of basic size. It is used for inspecting the taper of drill chuck taper arbor.

3. Dimensions — Shall be as given in Tables 1 and 2.

4. Material and Hardness

4.1 *Material* — Shall be made from gauge steel as mentioned in IS : 7018 (Part 1) - 1983 'Technical supply conditions for gauges: Part 1 General (*first revision*)'.

4.2 *Hardness* — The gauge shall be suitably heat treated for hardness and stabilization. The gauging surface shall have a hardness of 700 *HV* (60 *HRC*), *Min* (*see* IS : 1501-1968 'Method for Vickers hardness test for steel'). The gauges shall be demagnetised.

5. Designation — Ring gauge shall be designated by the commonly used name, designation of taper and number of this standard.

Example

a) Ring gauge for inspecting drill chuck taper B16 (having Morse Taper 2) shall be designated as:

Ring gauge, Taper B16 IS : 10649

b) Ring gauge for inspecting drill chuck taper having Jacob taper 33 shall be designated as:

Ring gauge, Taper 33 IS : 10649

6. Workmanship and Finish — The gauges shall be well finished and free from cracks, burrs, rust or other defects. The gauging surfaces shall be ground and lapped. The knurling shall be smooth and free from sharp corners.

7. Marking — Ring gauges shall be legibly and indelibly marked with the serial number, designation of the taper, manufacturers name, initials or recognized trade-mark and the year of manufacture.

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

8. Protective Coating and Packing — The gauges shall be covered with suitable rust-proof coating and packed in non-absorbent paper. The gauges shall then be packed in boxes for safe handling. Each type and size of gauge shall be packed separately, and the cover shall bear the type and size of gauge, manufacturer's name, initials and the year of manufacture.

9. Recommendations for Use — The external taper shank of the Morse taper/Jacob taper drill chuck taper arbor shall be inspected with the help of a ring gauge of the corresponding type. The ring gauge shall be inserted as far as it goes with light pressure. At the extreme position, the small end of the taper shank under test shall lie flush or short of the face of the ring gauge on the small end within the gauge limits shown as *a**. This may be varified by the help of a straight edge (*see* Fig. 1).

*$a = (L_3 - L_1)$ as given in IS : 9094 (Part 1) - 1979.

Adopted 29 September 1983

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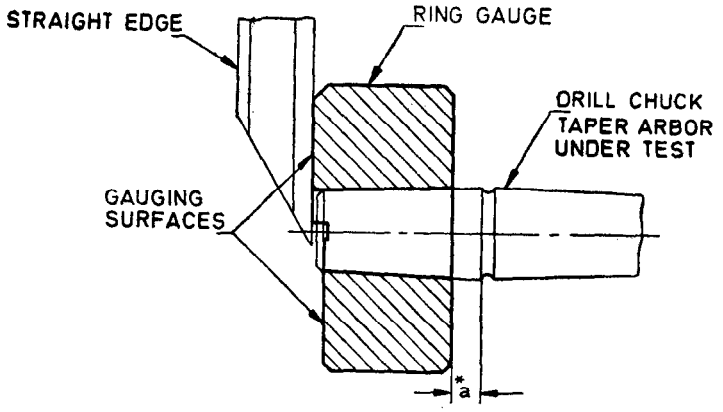
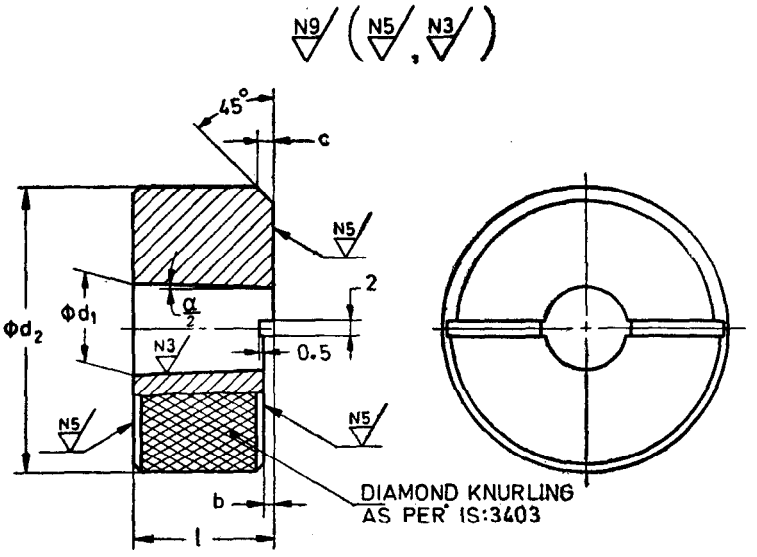


FIG. 1 INSPECTION BY RING GAUGE

TABLE 1 DIMENSIONS OF RING GAUGES FOR DRILL CHUCK TAPER ARBORS OF MORSE TAPER TYPE

(*Clause* 3)

All dimensions in millimetres.



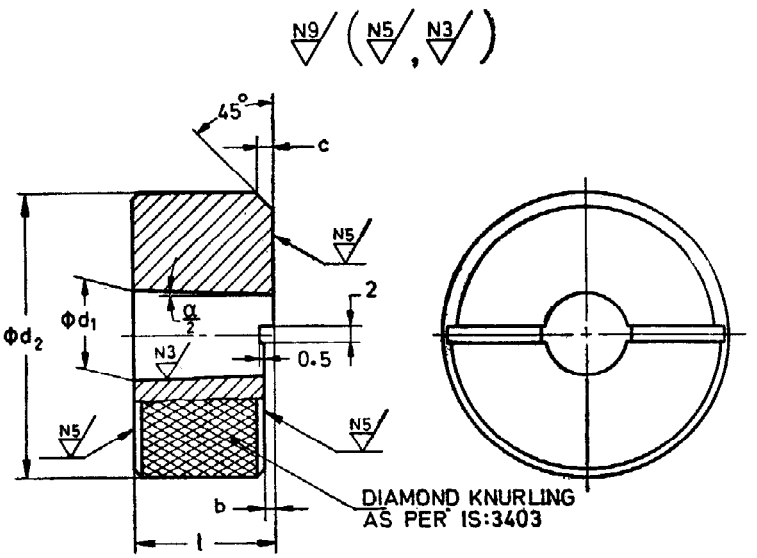
Designation of Drill Chuck Taper	Taper Type	Taper on Diameter	$\frac{\alpha}{2}$	d_1	* Ht μm	d_2	b ± 0·05	c	l IT 11
B10	MT1	0·049 88	1° 25′ 43″	10·094	±4·0	32	1·5	2	14·5
B12				12·065		38	1·5	2	18·5
B16	MT2	0·049 95	1° 25′ 50″	15·733	±4·0	38	1·5	2·5	24
B18				17·780		45	1·5	2·5	32
B22	MT3	0·050 29	1° 26′ 16″	21·793	±4·5	45	2	3	40·5
B24				23·825		53	2	3	50·5

*Ht is the permissible deviation on diameter (measured at any place) from its basic value. It is equal to ± ½ IT5 on gauge plane diameter d_1. The deviation of form and taper angle shall lie within Ht.

TABLE 2 DIMENSIONS OF RING GAUGES FOR DRILL CHUCK TAPER ARBOR OF JACOB TAPER TYPE

(*Clause* 3)

All dimensions in millimetres.



Designation of Drill Chuck Taper	Taper on Diameter	$\frac{\alpha}{2}$	d_1	*Ht** μm	d_2	*b* ±0·05	*c*	*l* IT 11
0	0·049 29	1° 24′ 42″	6·350	±3·0	32	1	1·5	11·11
1	0·077 09	2° 12′ 27″	9·754					16·67
2 SHORT	0·081 55	2° 20′ 06″	13·940				2·0	19·05
2	0·081 55	2° 20′ 06″	14·199	±4·0	38	1·5		22·22
33	0·063 50	1° 49′ 07″	15·850				2·5	25·40
6	0 051 91	1° 29′ 12″	17·170					25·40
3	0·053 25	1° 31′ 31″	20·599		45			30·96
(4)	0·052 40	1° 30′ 03″	28·550	±4·5	53	2·0	3·0	42·07
(5)	0·051 83	1° 29′ 04″	35·890	±5·5	60			47·62

**Ht* is the permissible deviation on diameter (measured at any place) from its basic value. It is equal to ± ½ IT5 on gauge plane diameter d_1. The deviation of form and taper angle shall lie within *Ht*.

Note — Sizes shown within brackets are non-preferred.

EXPLANATORY NOTE

In the preparation of this standard, considerable assistance has been derived from DIN 2222-1964 'Taper ring gauges for taper shafts for drill chucks' published by the Deutsches Institut für Normung (DIN).

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