IS 5273 (1969): radius gauges [PGD 25: Engineering Metrology]

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# *Indian Standard*

# SPECIFICATION FOR RADIUS GAUGES

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2 *November* 1969

# *Indian Standard*

# SPECIFICATION FOR RADIUS GAUGES

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# *Indian Standard*

# SPECIFICATION FOR RADIUS GAUGES

## 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 17 September 1969, after the draft finalized by the Engineering Metrology Sectional Committee had been approved by the Mechanical Engineering Division Council.

**0.2** Radius gauges are used for gauging convex and concave radii on bends, forms, forgings, extrusions, etc, and in examination of the form of weld fillets.

**0.3** The radii of the gauges are in accordance with IS 3457 : 1987*.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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## 1. SCOPE

**1.1** This standard applies to radius gauges comprising a series of graded gauging blades for checking concave and convex radii in the range 0·6 to 25 mm, assembled in protective sheaths.

## 2. MATERIAL

**2.1** The blade of each gauge shall be made from any suitable tool steel sheet or hardenable stainless steel sheet.

## 3. BLADE FORMS

**3.1** The form of blade construction is given in figure in Table 1. This form has one each of convex and concave radius profiles and is suitable for bunching and sheathing.

*Radii for general engineering purposes (*first revision*).

†Rules for rounding off numerical values (*revised*).

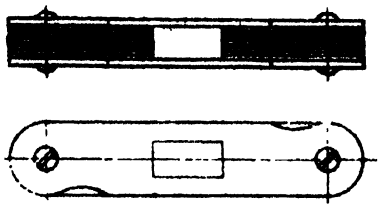
## 4. DIMENSIONS AND TOLERANCES

**4.1** The dimensions for the radius gauges shall be as specified in Table 1.

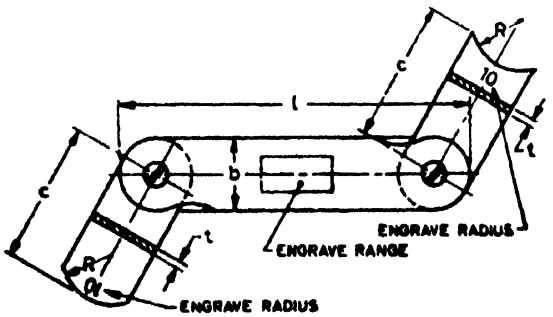
**TABLE 1 DIMENSIONS FOR RADIUS GAUGES**

( *Clauses* 3.1 *and* 4.1 )

All dimensions in millimetres.

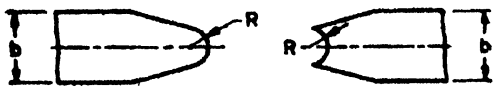


BLADES CLOSED




BLADES OPEN

THE ABOVE SKETCHES ARE ONLY FOR ILLUSTRATION




CONVEX CONCAVE

BLADE FORM FOR R<b

| Set | Sizes *R* | *b* *Nom* | *l* *Nom* | *c* *Nom* | *t* *Min* |
|---|---|---|---|---|---|
| 0·6—0·8 | 0·6, 0·8 | 10 | 50 | 20 | 0·4 |
| 1—6 | 1, 1·2, 1·6, 2, 2·5, 3, 4, 5, 6 | 12 | 65 | 25 | 0·4 |
| 8—25 | 8, 10, 12, 14, 16, 18, 20, 22, 25 | 20 | 100 | 35 | 0·8 |

**4.2 Error of Form** — The radius profile shall fall within a tolerance zone enclosed by two concentric arcs of radii equal to $R + T$ and $R - T$ (*see* Fig. 1) when examined in a profile projector with suitable magnification, where the radius of the gauge is $R$ and the form tolerance $T = \pm 0{\cdot}02$ mm for all the gauges covered in the standard.

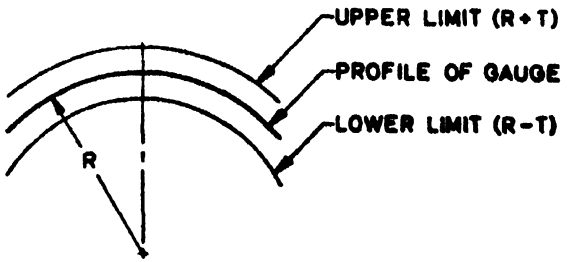



FIG. 1 ERROR OF FORM FOR PROFILE GAUGE

## 5. DESIGNATION

**5.1** The radius gauge sets shall be designated by the nominal size range and number of this standard.

*Example:*

A radius gauge set in the size range 1-6 mm shall be designated as:

Radius Gauge Set 1-6 IS : 5273

## 6. GENERAL REQUIREMENTS

**6.1 Hardness** — The plates shall be hardened and tempered to a hardness of not less than 650 *HV* [*see* IS : 1501 (Part 1) : 1984*].

**6.2** The blades shall be flat and smoothly finished.

**6.3** The radius profiles shall be preferably form ground.

**6.4** The blades shall be hinged and sheathed by suitable arrangement, such as screw and nut in such a way that it permits easy removal of blades. The arrangement shall ensure proper fastening of the blades and shall also permit the blades to be easily rotated about the hinge.

**6.5** The sheath shall be so designed as to fully protect the blade when not in use.

*Method for Vickers hardness test for metallic materials : Part 1 HV 5 to HV 100 (*second revision*)

## 7. MARKING

**7.1** Each blade shall be legibly and permanently marked with the radius of the gauge whereas the sheath shall be marked with the range of size of gauges contained in the sheath as well as manufacturers name and trade-mark.

**7.1.1** The blade and the sheath may also be marked with Standard mark.

**7.1.2** The use of the Standard Mark is govered by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 8. PRESERVATION AND PACKING

**8.1** Gauges shall be suitably protected against corrosion and shall be supplied in suitable cases.

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