



उत्पाद मैनुअल
शुंडाकर रोलर बियरिंग्स
आईएस 12102 : 2026 के अनुसार

PRODUCT MANUAL
TAPERED ROLLER BEARINGS
According to IS 12102: 2026

यह उत्पाद नियमावली सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-1 के अंतर्गत प्रमाणन के संचालन में एकरूपता और पारदर्शिता सुनिश्चित करने के लिए संदर्भ सामग्री के रूप में उपयोग की जाएगी। बीआईएस प्रमाणन प्राप्त करने के इच्छुक भावी आवेदक भी इस दस्तावेज़ का उपयोग कर सकते हैं।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या / IS No.	:	IS 12102: 2026
	शीर्षक / Title	:	Tapered Roller Bearings
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूनाकरण दिशानिर्देश / Sampling Guidelines		
a)	कच्चा माल Raw material	:	Rolling Elements (Cl. 6.6) Rings (Cl. 8.1) Cage (Cl. 8.2) <i>Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.</i>
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	04 bearings
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	Designation as per Cl. 5 Bearing outside diameter (D) Bearing width (T,C,B for Single Row Tapered Roller Bearings)/ B1,C2 for Double-Row or Matched Pair of Tapered Roller Bearings) Material of the Rolling elements, Rings and Cages, in addition to the parameters given in scope of the licence under S. No. 6 <i>Note: Apart from the above, any other requirements/ parameters may also be declared as per the standard, as applicable.</i>
3.	परीक्षण उपकरण की सूची List of Test Equipment	:	Please refer ANNEX – B

4.	निरीक्षण एवं परीक्षण योजना Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	All Tests (except Temperatures, Cl. 13.4) <i>Note: This section is for the guidance of BIS Certification Officers/ Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/ auditor.</i>
6.	लाइसेंस का दायरा / Scope of the Licence:		
“Licence is granted to use Standard Mark as per IS 12102:2026 with the following scope:			
Name of the product		Tapered Roller Bearings	
Type (Variant*)		Single-Row Tapered Roller Bearings (Variant: None) Single-Row Tapered Roller Bearings with Flanged Outer Ring (Variant: R) Double-Row or Matched Pair of Tapered Roller Bearings (Variants: DZ, DZU, D, DU, DB, DBU) Four-Row or Matched Pair of Tapered Roller Bearings	
Bearing bore diameter (d)		From mm to mm	
Material	Rolling elements	To be declared by the manufacturer	
	Rings	To be declared by the manufacturer	
	Cages	To be declared by the manufacturer	
Tolerance Class		P0 (tolerance class normal) / P6X (tolerance class 6X) / P5 (tolerance class 5) / P4 (tolerance class 4) / P2 (tolerance class 2)	

* As per IS 13962

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ANNEX - A **Grouping Guidelines**

1. Tapered Roller Bearings as per IS 12102:2026 may be classified as below:

Type (Variant*)		Single-Row Tapered Roller Bearings (Variant: None) Single-Row Tapered Roller Bearings with Flanged Outer Ring (Variant: R) Double-Row or Matched Pair of Tapered Roller Bearings (Variants: DZ, DZU, D, DU, DB, DBU) Four-Row or Matched Pair of Tapered Roller Bearings
Bearing bore diameter (d)		From mm to mm
Material	Rolling elements	To be declared by the manufacturer
	Rings	To be declared by the manufacturer
	Cages	To be declared by the manufacturer
Tolerance Class*		P0 (tolerance class normal) / P6X (tolerance class 6X) / P5 (tolerance class 5) / P4 (tolerance class 4) / P2 (tolerance class 2)

* As per IS 13962

2. Further, Tapered Roller Bearings are grouped as following:

Group	Nominal Size for Bearing Bore Diameter (d)
Group-I	Upto and including 120 mm
Group-II	Above 120 mm to Upto and including 250 mm
Group-III	Above 250 mm to Upto and including 400 mm
Group-IV	All others above 400 mm

3. Based on the above classification and grouping, following grouping guidelines shall be followed for considering Grant of Licence (GoL)/Change in Scope of Licence (CSoL):

- Samples of Tapered Roller Bearings of each type shall be tested separately.
- Samples of Tapered Roller Bearings of each variant shall be tested separately.
- Samples of Tapered Roller Bearings for each type of material (for rings, rollers and cage) and each tolerance class shall be tested separately.
- Samples of Tapered Roller Bearings of any bearing bore diameter from each of the group defined in Sl. No. 2 above, for any of bearing outside diameter and width shall be tested to cover all other bearing bore diameter in that group. However, it shall be ensured that bearing of largest nominal dia for which the firm intends to take the licence is tested.
For example, if a manufacturer intends to cover Tapered Roller Bearings upto bearing bore diameter of 500 mm, Tapered Roller Bearings of any bearing bore diameter from Group-I, II & III shall be tested and largest bearing bore diameter (i.e) 500 mm shall be tested to cover the entire range.

4. However, the following relaxation may be considered:

- (i) If sample of Tapered Roller Bearings having highest Tolerance class is tested, all other lower tolerance class may be included in the scope of licence without further testing.
Note: Tolerance class grading - P2 (tolerance class 2) > P4 (tolerance class 4) > P5 (tolerance class 5) > P6X (tolerance class 6X) > P0 (tolerance class normal)

- (ii) If sample of Single-Row Tapered Roller Bearings with Flanged Outer Ring (Variant: R) is tested, variant 'None' may also be covered in the scope of licence.
- (iii) If sample of Double-Row or Matched Pair of Tapered Roller Bearings of highest Variant is tested, all other lower variants (except DB and DBU) may also be covered in the scope of licence.

Note: Variant D > Variant DU > Variant DZ > Variant DZU

- (iv) If sample of Double-Row or Matched Pair of Tapered Roller Bearings (Variant: DB) is tested, variants 'DBU' may also be covered in the scope of licence.
- 5. Manufacturers shall declare all the designations of Tapered Roller Bearings they intend to cover in the scope of licence. The Scope of Licence may be restricted based on the Manufacturing and testing capabilities of the Manufacturer.
 - 6. During the operation of the Licence, BO shall ensure that all the varieties of Tapered Roller Bearings covered in the Licence are tested in rotation, to the extent possible.

Note:

Manufacturer shall submit the following:

- (a) Hardness requirement, if an upper value is to be specified/ if any special heat treatment is done as per Cl. 11
- (b) Load Ratings as per Cl. 12
- (c) Product Noise, as agreed (if any) as per Cl. 13.2
- (d) Designation for all bearings as per Cl. 5

ANNEX- B
List of Test Equipments
(Indicative List, For Guidance Only)

Sl. No.	Cl. Ref.	Tests used in with Clause Reference	Test Equipment
1.	6	Boundary Dimensions	Coordinate Measuring Machine (CMM) Computerized Profile measurement system Height Gauge/Bore & OD Gauge Micrometer Dial Gauge
2.	7	Tolerances and Geometrical Characteristics	Runout Gauges for inner ring and outer ring Roundness Tester Gauge/ measuring equipment Other gauges, as applicable as per IS 11027 (Part 2)
3	8	Material	Spectrometer Chemical analysis kit
4.	10	Surface Finish	Computerized Profile Measurement System / Surface Roughness Gauge meter (R_a meter)
5.	11	Hardness	Hardness Tester Sample preparation tools
6.	13.1	Visual Inspection	Magnifying glass Defect inspection light Surface Table
7.	13.4	Temperatures	Thermometer Hot Air Oven
8.	14	Measuring and Gauging Methods	As per IS 11027 (Part 2)

The above list is indicative only and may not be treated as exhaustive.

ANNEX C

Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

- 1.1 It is expected that during operation of BIS licence manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.
- 1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or sub-contracting/ sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.
- 1.3 Recommended Levels of Control/ Control Unit:**
- 1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: *entire quantity of Tapered Roller Bearings of same type, same variant and same nominal bearing bore diameter with same tolerance class, manufactured in a day under similar process condition from the same grade of raw materials* shall constitute a control unit.
- 1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in [Table 1](#). Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.
- 1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.
- 1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING

The manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/ empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 Test Records- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING

The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the packaging of the Tapered Roller Bearings provided always that the Tapered Roller Bearings so marked conforms to each requirement of the specification.

3.1 Packing and Marking of Tapered Roller Bearings shall be done as per Cl. 15 and Cl. 16 of IS 12102:2026.

3.2 **Additional Marking requirements:** The Tapered Roller Bearings shall also be marked with the following additional requirement on its packaging:

a) "For BIS certification details please visit www.bis.gov.in"

4. REJECTION

The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE-1

(Recommended Levels of Control by BIS- for Guidance Only)

(1)				(2)		
Test Details				Levels of Control		
Cl.	Requirement	Test Methods		No. of Sample	Frequency	Remarks
		Clause	Reference			
6.6	Rolling Elements		IS 19382	01	Each consignment	No further testing is required if accompanied with Test Certificate or ISI marked.
8.1	Materials for Rings		IS 17111			
8.2	Materials for Cages	8.2	IS 12102			
6	Boundary Dimensions	6	IS 12102	Firm to also have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. Appropriate records shall be maintained by the manufacturer for evidence of conformity.		
6.1	Single-Row Tapered Roller Bearings	Table 4 to Table 8	IS 7461			
6.2	Double-Row or Matched Pair of Tapered Roller Bearings	Table 9 to Table 12	IS 7461			
6.3	Single-Row Tapered Roller Bearings with Flanged Outer Ring	Table 13 to Table 15	IS 7461			
6.4	Four-Row or Matched Pair of Tapered Roller Bearings	6.4	IS 12102			
7	Tolerances and Geometrical Characteristics		IS 5692 IS 13962			
10	Surface Finish		IS 3073			
11	Hardness		IS 1586 (Part 1)/ IS 1501 (Part 1)	01	Each Control Unit	
13.1	Visual Inspection	13.1	IS 12102	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. Appropriate records shall be maintained by the manufacturer for evidence of conformity.		
13.3	Interchangeability	13.3	IS 12102			
13.4	Temperatures	13.4	IS 12102	01	Each Control Unit	