उत्पाद मैनुअल
त्रिज्य गोलाकार रोलर बियररिंग्स
बेलनाकार अथवा टेपर बोर के साथ दोहरी पंक्ति
आईएस 6454 (Part 2) : 2026 के अनुसर

PRODUCT MANUAL
RADIAL SPHERICAL ROLLER BEARINGS
DOUBLE ROW WITH CYLINDRICAL OR TAPERED BORE
According to IS 6454 (Part 2): 2026

यह उत्पाद नियमावली सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-I 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 6454 (Part 2): 2026
	शीर्षक / Title	:	Radial Spherical Roller Bearings Part 2 Double Row with Cylindrical or Tapered Bore
	संशोधनों की संख्या **No. of amendments**	:	0
2.	**नमूनाकरण दिशानिर्देश / Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	Rings and Rollers (Cl. 8.1) Cage (Cl. 8.2) *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.*
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. 14 Bearing outside diameter (D) Bearing width (B) Material of the Rings, Rollers and Cages, in addition to the parameters given in scope of the licence under S. No. 6 *Note: Apart from the above, any other requirements/ parameters may also be declared as per the standard, as applicable.*
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. 12.4) *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.*

6. लाइसेंस का दायरा / Scope of the Licence:

"Licence is granted to use Standard Mark as per **IS 6454 (Part 2):2026** with the following scope:

Name of the product		Radial Spherical Roller Bearings Part 2 Double Row with Cylindrical or Tapered Bore
Type		Double Row Radial Spherical Roller Bearings Double Row Radial Spherical Roller Bearings with Locating Snap Ring Double Row Radial Spherical Roller Bearings with Circlips
Variant		Cylindrical Bore / 1:12 Tapered Bore / 1:30 Tapered Bore
Bearing bore diameter (d)		From ……. mm to ……. mm
Material	**Rings**	To be declared by the manufacturer
	Rollers	To be declared by the manufacturer
	Cage	To be declared by the manufacturer
Tolerance Class		P0 (tolerance class normal) / P6 (tolerance class 6)/ P5 (tolerance class 5)/ P4 (tolerance class 4)/ P2 (tolerance class 2)

ANNEX - A
Grouping Guidelines

1. Double Row Radial Spherical Roller Bearings as per IS 6454 (Part 2):2026 may be classified as below:

Type		Double Row Radial Spherical Roller Bearings Double Row Radial Spherical Roller Bearings with Locating Snap Ring Double Row Radial Spherical Roller Bearings with Circlips
Variant		Cylindrical Bore / 1:12 Tapered Bore / 1:30 Tapered Bore
Bearing bore diameter (d)		From ……. mm to ……. mm
Material	**Rings**	To be declared by the manufacturer
	Rollers	To be declared by the manufacturer
	Cage	To be declared by the manufacturer
Tolerance Class		P0 (tolerance class normal) / P6 (tolerance class 6)/ P5 (tolerance class 5)/ P4 (tolerance class 4)/ P2 (tolerance class 2)

2. Further, Double Row Radial Spherical Roller Bearings are grouped as following:

Group	**Nominal Size for Bearing Bore Diameter (d)**
Group-I	Upto and including 250 mm
Group-II	Above 250 mm to Upto and including 500 mm
Group-III	Above 500 mm to Upto and including 1000 mm
Group-IV	All others above 1000 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 Double Row Radial Spherical Roller Bearings of each type shall be tested separately.
- Samples of Double Row Radial Spherical Roller Bearings of each variant shall be tested separately.
- Samples of Double Row Radial Spherical Roller Bearings for each type of material (for rings, rollers and cage) and each tolerance class shall be tested separately.
- Samples of Double Row Radial Spherical 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 Double Row Radial Spherical Roller Bearings upto bearing bore diameter of 1500 mm, Double Row Radial Spherical Roller Bearings of any bearing bore diameter from Group-I, II & III shall be tested and largest bearing bore diameter (i.e) 1500 mm shall be tested to cover the entire range.

4. However, the following relaxation may be considered:

(i) If sample of Double Row Radial Spherical Roller Bearings with Locating Snap Ring is tested, Double Row Radial Spherical Roller Bearings without Locating Snap Ring may also be covered in the scope of licence. If sample of Double Row Radial Spherical Roller Bearings with Circlips is tested, Double Row Radial Spherical Roller Bearings without Circlips may also be covered in the scope of licence.

(ii) If Double Row Radial Spherical Roller Bearings of variant 1:30 Tapered Bore is tested, Double Row Radial Spherical Roller Bearings of variant 1:12 Tapered Bore and variant Cylindrical Bore may also be included in the scope of licence. If Double Row Radial Spherical Roller Bearings of variant 1:12 Tapered Bore is tested, Double Row Radial Spherical Roller Bearings of variant Cylindrical Bore may also be included in the scope of licence.

(iii) If sample of Double Row Radial Spherical Roller Bearings having highest Tolerance class is tested, all other 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) > P6 (tolerance class 6) > P0 (tolerance class normal)

5. Manufacturers shall declare all the designations of Double Row Radial Spherical 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 Double Row Radial Spherical 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. 10
(b) Load Ratings as per Cl. 11
(c) Product Noise, as agreed (if any) as per Cl. 12.2
(d) Designation for all bearings as per Cl. 14

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

Sl. No.	Cl. Ref.	Tests used in with Clause Reference	Test Equipment
1.	4, 6 Table 1	Boundary Dimensions	Coordinate Measuring Machine (CMM) Computerized Profile measurement system Height Gauge/Bore & OD Gauge Micrometer Dial Gauge Runout Gauges for inner ring and outer ring Roundness Tester Gauge/ measuring equipment Gauges or other dimensional measuring arrangements for snap ring and snap ring grooves Other gauges, as applicable as per IS 11027 (Part 2)
2.	5	Tolerances and Geometrical Characteristics	
3	7	Radial Internal Clearance	Radial Internal Clearance Checking Machine
4.	8	Material	Spectrometer Chemical analysis kit
5.	9	Surface Finish	Computerized Profile Measurement System / Surface Roughness Gauge meter (R_a meter)
6.	10	Hardness	Hardness Tester Sample preparation tools
7.	12.1	Visual Inspection	Magnifying glass Defect inspection light Surface Table
8.	12.4	Temperatures	Thermometer Hot Air Oven
9.	13	Measuring and Gauging Methods	As per IS 11027 (Part 2)
10.	4.2	Circlips	Testing arrangement for bend & twist test Testing arrangement for fracture test Testing arrangement for Deformation (conical and spiral) test Test arrangement for Permanent Set and Grip Test Tests for finish as per IS 3618

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 Double Row Radial Spherical 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 on the packaging of the Double Row Radial Spherical Roller Bearings provided always that the Double Row Radial Spherical Roller Bearings so marked conforms to each requirement of the specification.

3.1 Packing and Marking of Double Row Radial Spherical Roller Bearings shall be done as per Cl. 15 and Cl. 16 of IS 6454 (Part 2):2026.

3.2 **Additional Marking requirements**: The Double Row Radial Spherical 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**			
8.1	Materials for Rings, Rollers		IS 17111	01	Each consignment	No further testing is required if accompanied with the Test Certificate or ISI marked.
8.2	Materials for Cages	8.2	IS 6454 (Part 2)			
4	Boundary Dimensions	4	IS 6454 (Part 2)	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.		
4.1	Double Row Radial Spherical Roller Bearings	Table 1	IS 6454 (Part 2) IS 5669			
4.2	Double Row Radial Spherical Roller Bearings with Locating Snap Ring		IS 11904			
4.2	Double Row Radial Spherical Roller Bearings with Circlips		IS 3075 (Part 1)			
5	Tolerances and Geometrical Characteristics		IS 5692			
7	Radial Internal Clearance		IS 5935 (Part 1)/ IS 11027 (Part 2)			
9	Surface Finish		IS 3073			
10	Hardness		IS 1586 (Part 1)/ IS 1501 (Part 1)	01	Each Control Unit	
12.1	Visual Inspection	12.1	IS 6454 (Part 2)	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.		
12.3	Interchangeability	12.3	IS 6454 (Part 2)			
12.4	Temperatures	12.4	IS 6454 (Part 2)	01	Each Control Unit	