आईएस 6457: 2024 'एकल पंक्ति बेलनाकार रोलर बियरिंग ' के अनुसर उत्पाद मैन्यूअल

PRODUCT MANUAL FOR SINGLE ROW CYLINDRICAL ROLLER BEARINGS as per IS 6457: 2024

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

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 6457: 2024
	शीर्षक **Title**	:	SINGLE ROW CYLINDRICAL ROLLER BEARINGS
	संशोधनों की संख्या **No. of amendments**	:	None
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		
a)	**कच्चामाल** **Raw material**	:	As per Cl. 6 – 'Rolling element', Cl. 7 - 'Races and Balls' and Cl. 8 – 'Cage' of IS 6455: 2020
b)	**समूहीकरण दिशानिर्देश** **Grouping Guidelines**	:	Please refer **ANNEX – A**
c)	**नमूने का परिमाण** **Sample Quantity**	:	02
d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर** **Parameters to be Declared in Test Request**	:	• Designation • Bearing bore diameter (d) • Bearing Outside diameter (D) • Bearing width (B) • Material - Rolling element , Races and Balls, Cages • Tolerance Class

3.	**परीक्षण उपकरणों की सूची List of Test Equipment**	:	Please refer **ANNEX – B**
4.	**निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing**	:	Please refer **ANNEX – B**
5.	**एक दिन में संभावित परीक्षण Possible tests in a day**	:	All tests
6.	**लाइसेंस का दायरा /Scope of the Licence:**		

"License is granted to use Standard Mark as per ***IS 6457: 2024*** with the following scope:

Name of the product		Single Row Cylindrical Roller Bearings
Variant		NU / NJ / NUP / N / RNU / RN / LNU / LNJ / LNUP / LN / HJ / RNU…N1 / Any other (as agreed between purchaser and manufacturer)
Bearing bore diameter (d)		From ….mm to …..mm
Material	**Rolling element**	(to be declared by the manufacturer)
	Races and Balls	(to be declared by the manufacturer)
	Cage	(to be declared by the manufacturer)
Tolerance Class		P 0 (tolerance class normal) / P 6 (tolerance class 6) / P 5 (tolerance class 5) / P 4 (tolerance class 4) / P 2 (tolerance class 2)

ANNEX -A
Grouping Guidelines

1. Manufacturers shall declare all the designations of Single Row Cylindrical Roller Bearings they intend to cover in the scope of licence.

2. Single Row Cylindrical Roller Bearings as per IS 6457: 2024 are classified based on the following:

Variant		NU / NJ / NUP / N / RNU / RN / LNU / LNJ / LNUP / LN / HJ / RNU…N1 / Any other (as agreed between purchaser and manufacturer)
Bearing bore diameter (d)		From ….mm to …..mm
Material	**Rolling element**	(to be declared by the manufacturer)
	Races and Balls	(to be declared by the manufacturer)
	Cage	(to be declared by the manufacturer)
Tolerance Class		P 0 (tolerance class normal) / P 6 (tolerance class 6) / P 5 (tolerance class 5) / P 4 (tolerance class 4) / P 2 (tolerance class 2)

3. Further, Single Row Cylindrical Roller Bearings are grouped as following:

Group	**Nominal Size for Bearing Bore Dia (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

4. For considering GoL / CSoL, the following grouping shall be considered:

   (i) Samples of Roller Bearings for each type of material (for rolling elements, races and balls and cage), and each tolerance class shall be tested.

   (ii) Samples of any bearing bore diameter (preferably the largest) from each of the group defined in Sl. No. 3 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 bearings of the largest bore diameter for which the firm intends to take the licence shall be tested.

   (iii) Samples of different bearing bore diameter (d) shall be selected in a manner to test the different variants offered by the firm to cover all the variants.

5. However, the following relaxation may be considered:

   (i) If LNJ variant is tested, all other variant except HJ and RNU…N1 variant shall be included in the scope of licecne. HJ and RNU…N1 shall be tested separately to cover these varieties under the scope of licence.

   (ii) If sample of 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 - P 2 (tolerance class 2) > P 4 (tolerance class 4) > P 5 (tolerance class 5) > P 6 (tolerance class 6) > P 0 (tolerance class normal)

6. The Scope of License may be restricted based on the manufacturing and testing capabilities of the manufacturer.

7. During the operation of License, it shall be ensured that all the varieties of bearings covered in the License are tested in rotation, to the extent possible.

Note: Manufacturer shall submit the following:

a) Radial Internal Clearance as per Cl. 9 of IS 6457: 2024.
b) Hardness requirement, if any special heat treatment is made as per Cl. 11.2 of IS 6457: 2024.
c) Load Ratings as per Cl. 12 of IS 6457: 2024.
d) Product noise as agreed (if any) as per Cl. 13.2 of IS 6457: 2024.

ANNEX- B
LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Material (Cl. No. 6, Cl. No. 7 and Cl. No. 8)	Spectrometer, chemical analysis kit
2	Dimensions (Cl. No 4 & Table 1)	Coordinate Measuring Machine (CMM) Height Gauge/Bore & OD Micrometer Dial Gauge
3	Bearing Tolerances and Geometrical Characteristics (IS 6457; Cl. 5.0 /IS 5692)	Coordinate Measuring Machine(CMM) Roundness Tester Gauge (RCF Gauge) Computerized Profile Gauge (CPG)
4	Radial Clearance (Cl. No. 9)	Radial Clearance Checking Machine Feeler Gauge
5	Hardness (Cl. No 11)	Rockwell HRC tester
6	Surface Finish (Cl. No. 10)	Profilometer, Surface roughness gauge meter (R_a meter)
7	Workmanship (Cl. No. 13)	Magnifying glass, defect inspection light, Surface Table, Thermometer

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 subcontracting/sharing 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.

1.2 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.2.1 For the guidance of manufacturers, the recommended definition of control unit is: Single Row Cylindrical Roller Bearings *of same variant and same tolerance class of same nominal bearing bore diameter manufactured in a day under similar process condition from the same consignment 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.

2. ENSURING COMPLIANCE THROUGH TESTING- Manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard. 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 maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or

any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be 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 *Single Row Cylindrical Roller Bearings* provided always that the bearings so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per Cl. 15 of IS 6457: 2024.

3.2 **Additional Marking requirements**: The *Single Row Cylindrical 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"

3.3 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

4. HYGIENIC CONDITIONS (if applicable) – NA.

5. REJECTION - 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

(1)				(3)		
Test Details				**Levels of Control**		
Cl.	**Requirement**	**Test Methods**		**No. of Sample**	**Frequency**	**Remarks**
		Clause	**Reference**			
6	Materials	6 7 8	IS 6457	One	Each consignment	No further testing is required if accompanied with the Test Certificate or ISI marked.
4	Dimensions and designation	4, Table 1	IS 6457	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5	Tolerances And Geometrical Characteristics		IS 5692			
9	Radial Internal Clearance		IS 5935 (Part 1)			
10	Surface Finish		IS 3073			
11	Hardness	11	IS 6455	One	Each Control Unit	
13	Workmanship and Delivery Requirement	13	IS 6455	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		