उत्पाद मैनुअल
रोलिंग बीयरिंग — बॉल्स भाग 2 इस्पात बॉल्स
आईएस 2898 (Part 2): 2026 के अनुसर

PRODUCT MANUAL
ROLLING BEARING BALLS – PART 2: CERAMIC BALLS
According to IS 2898 (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 2898 (Part 2): 2026
	शीर्षक / Title	:	Rolling Bearing Balls – Part 2: Ceramic Balls
	संशोधनों की संख्या **No. of amendments**	:	0
2.	**नमूनाकरण दिशानिर्देश / Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	No specific requirement. *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**	:	50 balls
d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर** **Parameters to be Declared in Test Request**		Same as 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 *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:**
License is granted to use Standard Mark as per **IS 2898 (Part 2): 2026** with the following scope:	
Name of the product	Rolling Bearing Balls – Part 2: Ceramic Balls
Ball Grade	G3/ G5/ G10/ G16/ G20/ G24/ G28/ G40/ G60/ G100
Nominal Ball Diameter	From ____mm to up to and including _____mm
Material Class *(as per ISO 26602)*	Class 1/ Class 2/ Class 3

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG, NEW DELHI-110002
www.bis.gov.in

ANNEX -A
Grouping Guidelines

1. Rolling Bearing Balls – Part 2: Ceramic Balls according to IS 2898 (Part 2): 2026 may be classified as below:

    - Ball Grade: G3/ G5/ G10/ G16/ G20/ G24/ G28/ G40/ G60/ G100
    - Nominal Ball Diameter
    - Material Class (as per ISO 26602): Class 1/ Class 2/ Class 3 (in descending order)

2. Based on the above classification, following grouping guidelines shall be followed for considering Grant of Licence (GoL)/Change in Scope of Licence (CSoL):
    - Sample of most stringent ball grade shall be tested to cover Rolling Bearing Ceramic Balls of lesser stringent ball grades. If a sample of Rolling Bearing Ceramic Balls with ball grade G10 is drawn and tested, Rolling Bearing Ceramic Balls with ball grades G16, G20, G24, G28, G40, G60 and G100 shall also be included in the scope.
    - Samples of Rolling Bearing Ceramic Balls with the lowest nominal ball diameter and the highest nominal ball diameter shall be tested to cover all the nominal ball diameters.
    - Sample of Rolling Bearing Ceramic Balls made from superior Material Class shall be tested to cover all Material Classes. If sample of Class 1 is tested, Class 2 & Class 3 may also be covered.

3. The Firm shall declare the varieties of Rolling Bearing Ceramic Balls intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and testing capabilities of the Manufacturer.

4. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

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

Sl. No.	Cl. Ref.	Tests used in with Clause Reference	Test Equipment
1.	5.1, 7.1 Table 1	Ball Size	Metallurgical Microscope Comparator for ball diameter Surface Roughness Tester Waviness Tester Ultrasonic Cleaner Weighing Balance Vernier Calliper
2.	5.2, 7.1 Table 2	Quality of Geometry and Surface • Variation of ball diameter • Deviation from spherical form • Waviness • Surface Roughness • Surface appearance	
3.	5.3, 7.1 Table 3	Sorting accuracy and ball gauges • Variation of ball lot diameter • Gauge interval • Preferred gauges • Subgauge interval • Subgauges	
4.	5.4	Hardness	Hardness Tester Sample preparation tools
5.	5.5	Crushing Strength Test for Bearing Rolling Elements	Loading Arrangement as per Fig 1
6.	6	Material	As per ISO 26602

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 Rolling Bearing Ceramic Balls of same ball grade and nominal ball diameter, manufactured in a day under similar process condition from the same consignment of raw materials of same material class* 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 Rolling Bearing Ceramic Balls provided always that the Rolling Bearing Ceramic Balls so marked conforms to each requirement of the specification.

3.1 **Additional Marking requirements**: The Rolling Bearing Ceramic Balls 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	Material		ISO 26602	Each Consignment		No further testing is required if accompanied with the Test Certificate or ISI marked.
5.1	Ball Size	5.1, 7.1 Table 1	IS 2898 (Part 2)	01	Each Control Unit	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.
5.2	Quality of Geometry and Surface • Variation of ball diameter • Deviation from spherical form • Waviness • Surface Roughness • Surface appearance	5.2, 7.1 Table 2 Annex B	IS 2898 (Part 2)	01	Each Control Unit	
5.3	Sorting accuracy and ball gauges • Variation of ball lot diameter • Gauge interval • Preferred gauges • Subgauge interval • Subgauges	5.3, 7.1 Table 3 Annex C	IS 2898 (Part 2)	01	Each Control Unit	
5.4	Hardness		IS 1501 (Part 1)	01	Each Control Unit	
5.5	Crushing Strength Test for Bearing Rolling Elements	5.5	IS 2898 (Part 2)	01	Each Control Unit	
7	Dimensions and Tolerances	7.1	IS 2898 (Part 2)	01	Each Control Unit	