



**PRODUCT MANUAL**  
**FOR RUBBER SEALS — JOINT RINGS FOR WATER SUPPLY, DRAINAGE AND SEWERAGE PIPELINES**  
**ACCORDING TO IS 5382:2018**

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 licence/certificate.*

1.	<b>Product</b>	:	IS 5382:2018/ ISO 4633:2015
	<b>Title</b>	:	Rubber Seals — Joint Rings for Water Supply, Drainage and Sewerage Pipelines — Specification for Materials
	<b>No. of Amendments</b>	:	Nil
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	Materials are to conform to the requirements of Cl 4.1 of IS 5382:2018 (The standards for these requirements are under development and it has been decided to not insist on compliance to these requirements till further orders)
b)	<b>Grouping guidelines</b>	:	Separate samples of rubber seals of each type of application and hardness class of any nominal size may be tested to cover those types and hardness classes of all sizes being manufactured, subject to availability of manufacturing and testing facilities. During operation of licence, samples of each variety shall be drawn in rotation.
c)	<b>Sample Size</b>	:	Rubber Sealing Rings, Qty- 5 Nos, Rubber Test Slab- 2, Rubber Small Button -6, Rubber Big Button-3 of each type of rubber
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX –A
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX –B
5.	<b>Possible tests in a day</b> :Dimensions, hardness, tensile strength and elongation at break (Already conditioned samples)		
6.	<b>Scope of the Licence :</b>		
	Licence is granted to use Standard Mark as per IS 5382:2018/ISO 4633:2015 with the following scope:		
	<b>Name of the product</b>		Rubber Seals — Joint Rings for Water Supply, Drainage and Sewerage Pipelines

	Material Hardness Class	40/50/60/70/80
	Nominal Sizes	DN 150 etc.
	Type of Application	WA/WC/WG
	Optional Requirements	Low temperature performance at –25 °C and/or Volume change in oil

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**ANNEX A**

**List of Test Equipment**

***Major test equipment required to test as per the Indian Standard***

S. No.	Test Equipment	Test used in with clause reference
1.	Vernier Calipers, Pi-Tape, Measuring scale/tape	4.2.1 – Dimensional Tolerances
2.	IRHD Hardness Tester Apparatus as per IS 3400 (Part 2)	4.2.3 - Hardness
3.	Tensile testing machine, dies and cutters, thickness gauge, cone gauge, test rig (for ring test pieces) as per IS 3400 (Part 1)	4.2.4 – Tensile Strength and Elongation at Break
4.	Compression set apparatus as per ISO 815-1	4.2.5.2 – Compression set at 23° C and 70° C
5.	Low Temperature Compression set apparatus as per ISO 815-2	4.2.5.3 – Low temperature compression set at -10° C
6.	Ageing Oven (As per IS 3400 (Part 4))	4.2.6 – Accelerated ageing in air
7.	Compression Device, Counterforce measuring device, Air Oven, temperature measuring equipment as per IS 3400 (Part 28)	4.2.7 –Stress relaxation in compression
8.	Total immersion apparatus, apparatus for testing one surface only, 1 mg balance, instruments for measuring thickness, length and width of the test piece and measuring change in surface area as per IS 3400 (Part 6)	4.2.8- Volume change in water
9.	Ozone resistance test apparatus comprising test chamber, source of ozonized air and means of regulating the ozone flow as per IS 3400 (Part 20)	4.2.9 – Ozone resistance
10.	Tensile Testing Machine	4.2.10.2 – Strength of spliced joints
11.	Low Temperature Compression set apparatus as per ISO 815-2, Apparatus for Determination of crystallization effects by hardness measurements (ISO 3387)	4.3.1 – Low Temperature performance at 25° C
12.	Apparatus for volume change in water, Standard oils IRM 901 and IRM 903	4.3.2 – Volume change in oil

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

**Annex- B**  
**SCHEME OF INSPECTION AND TESTING**

1. **LABORATORY** - A laboratory shall be maintained, which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
- 1.1 The manufacturer shall prepare a calibration plan for the test equipments.
2. **TEST RECORDS** - The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **PACKING AND MARKING** - The Standard Mark as given in Schedule of the license shall be incorporated, on each sealing ring or packing or both, provided always the material thus marked conforms to all the requirements of the specification.
- 3.1 The packing and marking shall be done as per the provisions of the Indian Standard. In addition, the following shall be marked on each sealing ring or packing or both
  - i) BIS Licence No. CM/L-.....
  - ii) Details of BIS website shall be marked as follows: "For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)"
4. **CONTROL UNIT** – For the purpose of this scheme, all finished sealing rings of the same type, dimension, design, manufactured from the same type of rubber and produced in one day shall constitute a control unit.
- 4.1 On the basis of tests and inspection results, the decision regarding conformity or otherwise of a control unit as a whole with the requirements of the standard, shall be taken as given in Table 1.
5. **LEVELS OF CONTROL** – The tests, as indicated in Table 1 and at the levels of control specified therein, shall be carried out on the whole production of the factory covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2 above. All the production which conforms to the Indian Standard and covered by this licence shall be marked with Standard Mark.
- 5.1 All production which conforms to the Indian Standard and covered in the licence should be marked with Standard mark.
6. **STORAGE** – Instructions for storage as given in the Indian Standard shall be complied.
7. **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. A separate record shall be maintained giving information relating to the rejection of the production not conforming to the requirement of the specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the specification.

**TABLE 1: LEVELS OF CONTROL**  
(Para 5 of the Scheme of Inspection and Testing)

(1)				(2)	(3)		(4)
Test Details				Test equipment requirement R:required(or) S: Sub-contracting permitted	Levels of Control		Remarks
Clause	Requirements	Test Method			No.	of Samples	Frequency
		Clause	Reference				
4.1	Requirements for materials			Standards Under development. Kept in Abeyance.			
4.1.1	General	4.1.1	IS 5382:2018				
4.1.2	Effect on water supply	4.1.2	-do-				
4.1.3	Microbiological deterioration	4.1.3	-do				
4.2	Requirements for finishedseals						
4.2.1	Dimensional tolerances		IS 16752:2018/ISO 3302-1		Five	Each Control Unit	
4.2.2	Imperfections and defects		IS 16751:2018/ISO 9691:1992	R	Each sealing ring		
4.2.3	Hardness		IS 3400 (Part 2):2014/ISO 48	R	Three	Each Control Unit	

4.2.4	Tensile Strength and Elongation at Break		IS 3400 (Part 1):2012/ISO 37	R	-do-	-do-	
4.2.5	Compression set in air		ISO 815-1, ISO 815-2	R	-do-	-do-	
4.2.6	Accelerated ageing in air		IS 3400 (Part 4):2012/ISO 188	R	One	Every Tenth Control Unit	See Note 3
4.2.7	Stress relaxation in compression		IS 3400 (Part 28):2018/ISO 3384-1:2011	R	One	Every six months	
4.2.8	Volume change in water		IS 3400 (Part 6):2012/ISO 1817	R	One	Every Tenth Control Unit	See Note 3
4.2.9	Ozone Resistance		IS 3400 (Part 20):1994/ISO 1431-1	S	One	Once in three months	
4.2.10	Splices of prevulcanized profile ends		Annex A	R	One	Every Tenth Control Unit	See Note 3
4.3	Optional Requirements						
4.3.1	Low temperature performance at - 25 deg C		ISO 815-2, ISO 3387	S	As agreed between purchaser and manufacturer		
4.3.2	Volume change in oil		IS 3400 (Part 6):2012/ISO 1817	S	-do-		

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification.

Note-3: In case of any failure each and every control unit shall be tested till five consecutive control units are found to be satisfactory and only then the frequency suggested in this table may be followed.