उत्पाद मानुयल

बालू और ग्रिट विस्फोटन के लिए रबड़ के होज - विशिष्टि

IS 5894: 2018/ ISO 3861: 2005 के अनुसार

PRODUCT MANUAL FOR
RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION
ACCORDING TO IS 5894: 2018/ ISO 3861: 2005

भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरणके प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप मे उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

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 license/certificate.

1	उत्पाद **Product**	:	IS 5894: 2018/ ISO 3861: 2005
	शीर्षक **Title**	:	Rubber Hoses for Sand and Grit Blasting — Specification
	संशोधन संख्या **No. of Amendments**	:	Nil
2	नमुनाकरण दिशा निर्देश **Sampling Guidelines:**		
a)	कच्चा माल **Raw material**	:	Manufacturer to submit declaration/undertaking in compliance to Clause 5 of IS 5797: 2022/ISO 1825:2017
b)	समूहिकरण दिशा निर्देश **Grouping guidelines**	:	कृपया Annex-A देखें Please refer ANNEX-A
c)	नमूने का परिमाण **Sample Size**	:	5 metres Proof pressure test and Electrical Resistance test using electrically conducting compounds to be done on full length of hose or hose assembly shall be conducted as part of factory testing.
3	परीक्षण उपकरणो की सूची **List of Test Equipment**	:	कृपया Annex-B देखें Please refer ANNEX–B
4	निरीक्षण व परीक्षण स्कीम **Scheme of Inspection and Testing**	:	कृपया Annex-C देखें Please refer ANNEX–C

5	एक दिन में संभावित परीक्षण **Possible tests in a day :**	:	i) Internal diameter ii) Concentricity iii) Tolerance on Length iv) Minimum thickness of lining and cover v) Tensile strength vi) Elongation at break vii) Proof pressure viii) Change in Length at Proof pressure ix) Change in diameter at Proof pressure x) Twist at Proof pressure xi) Burst pressure
6	लाइसेन्स का कार्यक्षेत्र / **Scope of the Licence**:		
	IS 5894: 2018/ ISO 3861: 2005 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है: Licence is granted to use standard Mark as per IS 5894: 2018/ ISO 3861: 2005 with the following scope:		
	उत्पाद का नाम **Name of the product**	Rubber Hoses for Sand and Grit Blasting	
	Classification	a) Electrically bonded (*designated and marked **M grade***); and/or ii) Electrically conductive with a conductive rubber layer (*designated and marked **Ω grade***)	
	Nominal Internal Diameter(s)	… mm up to and including … mm (to be indicated for each classification)	

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ANNEX-A
GROUPING GUIDELINES
FOR RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION ACCORDING TO IS 5894: 2018/ ISO 3861: 2005

1. The manufacturer shall declare the grade (classification as per Clause 4 of IS 5894: 2018/ ISO 3861: 2005), in their application for considering grant of licence and/or change in scope of licence, which they intend to cover in the scope of the licence.

2. Sample of each grade (as per Clause 4 of IS 5894: 2018/ ISO 3861: 2005) and of any nominal internal diameter to be drawn and tested to cover all sizes being manufactured subject to availability of testing and manufacturing facilities, for considering grant of licence/inclusion of that grade.

3. It shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the nominal sizes to be included in the licence.

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

ANNEX – B
LIST OF TEST EQUIPMENT
FOR RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION ACCORDING TO IS 5894: 2018/ ISO 3861: 2005

Major test equipment required to test as per the Indian Standard

Sl. No	Tests used in with Clause Reference	Test Equipment
1	Internal diameter, Cl. 6.1	Vernier Calipers, Internal Diameter Gauge, Micrometer
2	Concentricity, Cl. 6.1	Mandrel, dial indicator gauge or micrometer with a rounded anvil or Vernier slid calipers, thickness caliper dial gauge
3	Tolerance on Length, Cl. 6.1	Vernier Slide Calipers, Micrometer or dial gauge or optical magnifier, optical magnifying glass
4	Thickness of lining and cover, Cl. 6.1	Vernier Slide Calipers, Micrometer or dial gauge or optical magnifier, optical magnifying glass
5	Thickness of lining and cover, Cl. 6.1	Vernier Slide Calipers, Micrometer or dial gauge or optical magnifier, optical magnifying glass
6	Tensile strength, Cl. 7.1, Table 2	Dies and cutters, Thickness gauge, Cone gauge, Tensile Testing Machine, Test rig for ring test pieces
7	Elongation at break, Cl. 7.1, Table 2	Dies and cutters, Thickness gauge, Cone gauge, Tensile Testing Machine, Test rig for ring test pieces
8	Resistance to ageing a) Change in tensile strength from original value b) Change in elongation at break from original value, Cl. 7.1, Table 2	Apparatus as per ISO 188 Ageing Oven equipped with Flow meter and Digital temperature controller Apparatus as per ISO 37 Dies and cutters, Thickness gauge, Cone gauge, Tensile Testing Machine, Test rig for ring test pieces
9	Abrasion resistance Cl. 7.1, Table 2	Abrasion Machine, Abrasive sheet, Hollow drill, Balance(LC ±1 mg.), Standard reference compounds
10	Proof pressure, Cl. 7.2, Table 3	Dial Pressure Gauge, Calibrated pressure gauge or pressure transducer with digital readout, Dimensional equipment, sliding vernier caliper or micrometre, length measuring tape, circumferential measuring tape (π tape)
11	Change in Length at Proof pressure, Cl. 7.2, Table 3	Dial Pressure Gauge, Calibrated pressure gauge or pressure transducer with digital readout, Dimensional equipment, sliding vernier caliper or micrometre, length measuring tape, circumferential measuring tape (π tape)
12	Change in diameter at Proof pressure, Cl. 7.2, Table 3	Dial Pressure Gauge, Calibrated pressure gauge or pressure transducer with digital readout, Dimensional equipment, sliding vernier caliper or micrometre, length measuring tape, circumferential measuring tape (π tape)

13	Twist at Proof pressure, Cl. 7.2, Table 3	Dial Pressure Gauge, Calibrated pressure gauge or pressure transducer with digital readout, Dimensional equipment, sliding vernier caliper or micrometre, length measuring tape, circumferential measuring tape (π tape)
14	Minimum Burst pressure, Cl. 7.2, Table 3	Dial Pressure Gauge, Calibrated pressure gauge or pressure transducer with digital readout, Dimensional equipment, sliding vernier caliper or micrometre, length measuring tape, circumferential measuring tape (π tape)
15	Adhesion between components, Cl. 7.2, Table 3	Dynamometer, Grips, Mandrel, cutting blade
16	Ozone resistance Cl. 7.2, Table 3	Ozone cabinet with apparatus for generating ozone, monitoring and controlling the ozone concentration, Test piece holder(as shown in Figure 1 of ISO 7236), Test piece holder(as shown in Figure 2 of ISO 7236)
17	Flexibility at 23^0 C, Cl. 7.2, Table 3	Method A Apparatus consisting of two guides A and B, guide A being fixed in a plane and guide B being movable in that plane parallel to and in line with guide A (as per figure 1 of ISO 1746)
18	Low-temperature Flexibility, Cl. 7.2, Table 3	Mandrel, Conditioning chamber
19	Electrical resistance, Cl. 7.2, Table 3	Insulation resistance measuring instrument having a nominal open-circuit voltage of 500 V d.c., Ohmmeter with a capacity of 10^{12} Ω/10^{10} Ω and sufficiently accurate to determine the resistance to within ±10 %, 4.5 V battery, 4 V(0.3 A) test lamp, conductive silver lacquer or colloidal graphite or conductive liquid(consisting of anhydrous polyethylene glycol, water, wetting agent and potassium chloride), Outer electrode: a copper sheet-metal band of standard width 25 mm clamped around the outer hose wall, inner electrode, conditioning chamber,

This is an indicative list and may not be taken as being exhaustive

ANNEX C
SCHEME OF INSPECTION AND TESTING
FOR RUBBER HOSES FOR SAND AND GRIT BLASTING — SPECIFICATION ACCORDING TO IS 5894: 2018/ ISO 3861: 2005

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 and implement 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 the Schedule of the licence,shall be printed on the container or the label applied to it, provided always that the product so marked conform to requirements of the specification.

3.1 Packing - The hose shall be packed as agreed between the purchaser and the supplier, in line with the provisions of National Annex-A of IS 5894:2018.

3.2 Marking - The information as mentioned under clause 8 of IS 5894:2018, shall be legibly and indelibly marked on each hose. In addition, the following shall be incorporated on each hose:

(i) BIS Licence No. CM/L--.

(ii) BIS website details i.e. — "For details of BIS certification please visit www.bis.gov.in".

4. CONTROL UNIT – For the purpose of this scheme, all the rubber hoses of the same grade and manufactured from a rubber compound masticated and vulcanized in a day, shall constitute a control unit

4.1 The batch shall be considered fit for the purpose of marking if sample taken from control unit and tested as in Table 1 is found to conform to the relevant requirements of the specification.

4.2 In case the sample fails to conform to any of the requirements as laid down in the specification, the entire material in the batch shall be considered as unfit for the application of the Certification Mark of the Bureau. The batch could, however, be reprocessed and then retested for compliance with the specification.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – 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 (LEVELS OF CONTROL)
(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				**Test equipmentt requirement** R: required (or)S: Sub-contracting permitted	**Levels of Control**		
Cl.	Requirement	**Test Methods**			**No. of Sample**	**Frequency**	**Remarks**
		Clause Reference	**IS**				
	Dimensions						
6.1	Internal diameters	---	ISO 4671	R	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.		
6.2	Concentricity	---	ISO 4671	R	-do-		
6.3	Tolerance on Length	---	ISO 4671	R	-do-		
6.4	Thickness of lining and cover	---	ISO 4671	R	-do-		
Physical Properties (Finished Hoses)							
Cl. 7.2, Table 3	Proof pressure	--	ISO 1402	R	Each hose		
Cl. 7.2, Table 3	Change in Length at Proof pressure	--	ISO 1402	R	Each hose		
Cl. 7.2, Table 3	Change in diameter at Proof pressure	--	ISO 1402	R	Each hose		
Cl. 7.2, Table 3	Twist at Proof pressure	--	ISO 1402	R	Each hose		

Cl. 7.2, Table 3	Burst pressure	--	ISO 1402	R	One	Once in a month	
Physical Properties (Rubber compounds)							
Cl. 7.1, Table 2	Tensile strength	---	ISO 37	R	One	Once in a week	
Cl. 7.1, Table 2	Elongation at break	---	ISO 37	R	One	Once in a week	
Cl. 7.1, Table 2	Resistance to ageing a) Change in tensile strength from original value b) Change in elongation at break from original value	---	ISO 188 a) ISO 37 b) ISO 37	R	One	Once in a week	
Cl. 7.1, Table 2	Abrasion resistance	---	ISO 4649: 2010 (method A)	R	One	Once in a month	
Physical Properties (Finished Hoses)							
Cl. 7.2, Table 3	Adhesion between components	--	ISO 8033	R	One	Once in a week	
Cl. 7.2, Table 3	Ozone resistance	--	ISO 7326: 1991	S	One	Every 6 months	Also at the time of change in composition/ material
Cl. 7.2, Table 3	Flexibility at 23^0 C	--	ISO 1746: 1998 (Method A)	R	One	Every control unit	
Cl. 7.2, Table 3	Low-temperature Flexibility	--	ISO 4672: 1997 (Method B)	S	One	Every 6 months	

Cl. 7.2, Table 3	Electrical resistance	--	ISO 8031	R	One	Once in a week	

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 for the approval by BO Head.