



www.bis.gov.in

उत्पाद मैनुअल

संपीड़ित हवा के लिए थर्मोप्लास्टिक होज (वस्त्र प्रबलित) की - विशिष्टि

IS 12492: 2025 के अनुसार

PRODUCT MANUAL

Thermoplastics Hoses (Textile Reinforced) for Compressed Air — Specification

ACCORDING to IS 12492: 2025

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 12492: 2025
	शीर्षक Title	:	Thermoplastics Hoses (Textile Reinforced) for Compressed Air — Specification
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX –A
c)	नमूने का परिमाण Sample Quantity	:	20 m (test specimens in the form of sheets (5 nos, size 200 mm x 200mm and thickness 2 or 1 mm as per the dumbbell type), 4 disks of dia 50 mm and thickness 1 mm, for both lining and cover may be provided, if the same cannot be taken out from the product).
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	Name of the Product: Type: Nominal bore: Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-B

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All tests except Resistance to ageing, Resistance to liquids, Hydrolysis test, Exposure to a xenon arc lamp and Low-temperature flexibility are possible in a day		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 12492: 2025 with the following scope:		
	Name of the product		Thermoplastics Hoses (Textile Reinforced) for Compressed Air
	Type		Type A and/or Type B and/or Type C and/or Type D
	Size (Nominal Bore in mm)		... mm up to and including ... mm (to be indicated for each type)

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX-A
Grouping Guidelines

1. Following grouping guidelines shall apply for Grant of Licence (GoL)/Change in Scope of Licence (CSoL). Hoses have been classified into groups as follows: -

Group	Sizes in mm (Nominal Bore)
1	4-9
2	10-16
3	19-31.5
4	38-50

2. Samples of Thermoplastics Hoses of each type (Type-A/Type-B/Type-C/Type-D) and the highest and lowest sizes of the range of sizes (of each type) from each group intended to be covered in the scope of licence shall be tested.
3. Scope of the licence shall be restricted based on the manufacturing and testing facilities available.
4. During operation of the licence, samples of each variety covered in the scope of the licence shall be tested in rotation, to the extent possible

ANNEX-B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Inside diameter Bore size, liner and cover and wall thickness and length, CI 7.1 (ISO 4671)	– Micrometer – Vernier calipers – Plug gauges – thickness calliper dial gauge with rounded feet, – optical magnifier, – Scale/measuring tape, – Arrangement for maintaining test temperature 23+7/-3 °
2.	Concentricity, CI 7.2 (ISO 4671)	
3.	Tolerances on length, CI 7.3 (ISO1307)	
4.	Tensile strength and elongation at break of lining and cover, CI 8.1.1 (ISO 37)	– Tensile-testing machine as per CI 7.4 of IS 3400 (Part 1) : 2021/ISO 37 : 2017, – arrangement for maintaining standard laboratory temperature – Dies and cutters – Thickness gauge
5.	Resistance to ageing, CI 8.1.2 (ISO188, ISO 37)	– Air oven as per CI 4.1 of IS 3400 (Part 4): 2012/ ISO 188: 2011, – Tensile-testing machine as per CI 7.4 of IS 3400 (Part1): 2021/ISO 37: 2017, – arrangement for maintaining standard laboratory temperature, – Dies and cutters, – Thickness gauge
6.	Loss in mass on heating, CI 8.1.3(ISO 176:2005,)	– Analytical balance – Micrometer, – Thermostatic bath or oven – Wire cages – Activated carbon – Containers (metal cans of cylindrical form) – conditioning chamber in accordance with ISO ISO 291
7.	Resistance to liquids, CI 8.1.4 (ISO1817)	– Total immersion apparatus as per CI 3.1 of IS 3400 (Part 6): 2018/ISO 1817 : 2015, – A micrometre dial gauge, – Test liquids as per CI 5 of IS 3400 (Part 6) : 2018/ISO 1817 : 2015, – arrangement for maintaining standard laboratory, – weighing balance, – sinker Distilled water, – oil No. 1
8.	Hydrolysis test, CI 8.1.5 (Annex A,ISO 37)	– air oven, – desiccator, – thermostatically controlled environmental test chamber, – Tensile-testing machine as per CI 7.4 of IS 3400 (Part1): 2021/ISO 37: 2017, – arrangement for maintaining standard laboratory temperature,

		– Dies and cutters, – Thickness gauge
9.	Hydrostatic requirements, CI 8.2.1(ISO 1402)	– Pressure source, – Calibrated pressure gauge or pressure transducer with digital readout, – length measuring tape, – temperature-controlled tanks for carrying out test at specified temperature – circumferential measuring tape /vernier callipers
10.	Adhesion, CI 8.2.2 (ISO 8033,)	– Tensile Test machine as per CI 5.1 of IS 3400 (Part 24) :2021/ISO 8033: 2016, – Conditioning chamber
11.	Exposure to a xenon arc lamp, CI8.2.3 (ISO 30013, ISO 105-A02)	– Xenon-arc lamps as per 6.2 of ISO 30013:2011(E), – conditioning chamber in accordance with ISO 23529 or ISO 291
12.	Bending test, CI 8.2.4 (ISO 10619-1)	– Test apparatus as per CI 4.1/ 5.1/6.1/7.1 of IS 443 (Part10) : 2023/ISO 10619-1 : 2017, – arrangement for maintaining standard laboratory temperature, – oven/conditioning chamber, – stopwatch
13.	Low-temperature flexibility, CI 8.2.5 (ISO 10619-2:2011)	– Test apparatus as per 5.2 of IS 443 (Part 11) : 2023/ ISO 10619-2 : 2021 – conditioning chamber (-10 +-2 °C), test rig as per CI 5.2.3 of IS 443 (Part 11) : 2023/ ISO 10619-2 : 2021 for hoses with a bore greater than 22 mm, – Pressure source, – Calibrated pressure gauge or pressure transducer with digital readout, – stopwatch

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan 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 defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: entire length of hoses of the same type and size manufactured from the same consignment of raw material in a day shall constitute one 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**.

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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 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 each length of hose provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each consumer pack or on each length of hose.

a) “For BIS certification details please visit www.bis.gov.in”

4. REJECTION - All 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
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
5	Couplings and end fittings	5	IS 12492	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	Materials and construction			R	-do-		
7	Dimensions and Tolerances	7	IS 12492				
7.1	Inside diameter, tolerances and minimum wall thickness	7.1	IS 12492	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		
7.2	Concentricity	7.2	IS 12492	R	-do-		
7.3	length	7.3	IS 12492	R	-do-		
8	Physical properties						
8.1	Plastic compounds						
8.1.1	Tensile strength and elongation at break of lining and cover		IS 3400 (Part 1) : 2021/ISO 37 : 2017	R	One	Once in a month	
8.1.2	Resistance to ageing		IS 3400 (Part 1): 2021/ISO 3 2017, ISO 188	R	One	Once in a month	

8.1.3	Loss in mass on heating		Method B of IS 13360 (Part 8/Sec 4): 2018/ISO 176: 2005	R	One	Once in a month	
8.1.4	Resistance to liquids	8.1.4	IS 12492	R	One	Once in a month	
8.1.5	Hydrolysis test	Annex A	IS 12492	S	One	Once in three months	
8.2	Performance requirements on finished hoses						
8.2.1	Hydrostatic requirements		IS 443 (Part 3): 2017/ISO 1402 : 2009	R	One	Each control unit	
8.2.2	Adhesion		IS 3400 (Part 24) : 2021/ISO 8033 : 2016	R	One	Once in a week	
8.2.3	Exposure to a xenon arc lamp		ISO 30013	S	One	Once in three months	
8.2.4	Bending test		IS 443 (Part 10) : 2023 /ISO 10619-1 : 2017	R	One	Once in a week	
8.2.5	Low-temperature flexibility		method B of IS 443 (Part 11): 2023/ISO 10619-2 : 2022	S	One	Once in three months	