



## PRODUCT MANUAL FOR CONTROLLED PERCOLATING HOSE FOR FIRE FIGHTING ACCORDING TO IS 8423 : 1994

*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 8423 : 1994
	<b>Title</b>	:	Controlled Percolating Hose for Fire Fighting
	<b>No. of Amendments</b>	:	3
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	As per clause 3.1 of IS 8423: 1994
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX –A
c)	<b>Sample Size</b>	:	Hose - 2 Nos of 30 meter each
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX –B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX –C
5.	<b>Possible tests in a day:</b>		Please refer ANNEX –D
6.	<b>Scope of the Licence</b>		
	Licence is granted to use Standard Mark as per IS 8423: 1994with the following scope:		
	<b>Name of the Product</b>	Controlled Percolating Hose for Fire Fighting	
	<b>Type of Hose</b>	Made of Jacket of cotton/ Made of Jacket of synthetic material/ Made of combination of cotton and synthetic material	
	<b>Sizes</b>	38 mm, 50 mm, 63 mm and 70 mm	

**ANNEX A**

**Grouping Guidelines**

1. IS 8423: 1994 covers Controlled Percolating Hose for Firefighting Purposes which are classified as given below:

**a) Type of Hose**

- (i) Made of Jacket of cotton
- (ii) Made of Jacket of synthetic material
- (iii) Made of combination of cotton and synthetic material

**b) Sizes**

38, 50, 63, 70 mm

2. Considering the above following grouping guidelines is developed for GoL/CSoL:

- One sample of Hose of maximum size from each Type shall be tested for all requirements to cover Hoses of all sizes upto and including the size tested for that particular Type of Hose.

3. The Firm shall declare the varieties they intend to cover 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 types and sizes covered in the Licence are tested in rotation, to the extent possible.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No	Tests used in with Clause reference	Test equipment
1	Penta chlorophenyl Laurate (PCPL) test for cotton yarn	<ul style="list-style-type: none"> <li>- Copper sulphate</li> <li>- Ethylene glycol</li> <li>- Pyridine</li> <li>- Sod. Hydroxide</li> <li>- Sid. Sulphate</li> <li>- Pentachlorophenol</li> <li>- Hydrochloric acid</li> <li>- Weighing balance</li> <li>- Round bottom flask</li> <li>- Double surface condenser</li> <li>- Sand bath with reflux condenser</li> <li>- Separating funnel</li> <li>- Quartz wool</li> <li>- spectrophotometer</li> </ul>
2	Diameter (Clause 4.1)	<ul style="list-style-type: none"> <li>- Conical or cylindrical plug gauge</li> </ul>
3	Length (Clause 5)	<ul style="list-style-type: none"> <li>- Measuring tape/Steel Tape</li> </ul>
4	Coil diameter (Clause 6)	<ul style="list-style-type: none"> <li>- Steel scale</li> </ul>
5	Mass (Clause 7)	<ul style="list-style-type: none"> <li>- Weighing balance</li> <li>- Conditioning chamber to maintain temperature <math>27 \pm 2</math> °C and humidity <math>65 \pm 5</math> %</li> </ul>
6	Percolation (Clause 8.1)	<ul style="list-style-type: none"> <li>- Water supply arrangement under pressure with suitable regulatory valves and pressure gauges</li> <li>- Stop watch</li> <li>- Tray for collection of percolated water</li> <li>- Measuring cylinder</li> </ul>
7	Evenness of wetting out (Clause 9.1)	<ul style="list-style-type: none"> <li>- Hydraulic pressure testing arrangement with suitable end plugs and pressure gauge</li> <li>- Stop Watch</li> </ul>
8	Hydrostatic proof pressure (Clause 10.1)	<ul style="list-style-type: none"> <li>- Hydraulic pressure testing arrangement with controlled pressure rating and with suitable end plugs and pressure gauge</li> <li>- Stop Watch</li> </ul>
9	Hydrostatic bursting pressure (Clause 11)	<ul style="list-style-type: none"> <li>- Hydraulic pressure testing arrangement with controlled pressure rating and with suitable end plugs and pressure gauge</li> <li>- Stop Watch</li> </ul>

10	Flammability (Clause 12)	<ul style="list-style-type: none"><li>- Hydraulic pressure testing arrangement with suitable end plugs and pressure gauge</li><li>- Blow lamp</li><li>- Stop Watch</li></ul>
11	Kink Test (Clause 13)	<ul style="list-style-type: none"><li>- Hydraulic pressure testing arrangement with controlled pressure rating and with suitable end plugs and pressure gauge</li><li>- Stop Watch</li></ul>
12	Change in size (Clause 14)	<ul style="list-style-type: none"><li>- Hydraulic pressure testing arrangement with controlled pressure rating and with suitable end plugs and pressure gauge</li><li>- Stop Watch</li><li>- Steel scale</li><li>- Vernier caliper</li></ul>

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

## ANNEX C

### 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 equipment.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** – As per the requirement of IS 8423: 1994.

**4. CONTROL UNIT** – All hoses of same size and type manufactured from the same lot of jacket shall constitute a control unit.

**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**

1				2	3		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Recommended Levels of Control		
CI	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
3	Jacket of cotton – PCPL test	3.1	IS 8423 IS 3552(Part 2)	S	One	Each consignment	Further testing is not required if received with manufacturer test certificate.
3	Other rotproofing material, if used	3.1	IS 8423 IS 1389	S	One	Each consignment	
3	Construction and visible defects	3.1	IS 8423	R	-	All Hoses	Hoses not meeting the requirement shall be rejected.
4	Diameter	4.1, 4.1.1	IS 8423	R	Three	Each Control Unit	
5	Length	5.1	IS 8423	R	Three	Each Control Unit	
6	Coil Diameter	6.1	IS 8423	R	Two	Each Control unit	
7	Mass	7.1, Table 1	IS 8423	R	One	Each Control Unit	Hoses not meeting the requirement shall be rejected.
8	Percolation	8.1, 8.1.1, Table 2	IS 8423	R	Two	Each Control unit	-
9	Evenness of wetting out	9.1	IS 8423	R	Two	Each Control unit	
10	Hydrostatic proof Pressure Test	10.1 8.3	IS 8423 IS 443	R	Two	Each Control unit	

11	Hydrostatic Burst Pressure Test	11.1 8.2	IS 8423 IS 443	R	One	Each Control unit	
12	Flammability	12.1	IS 8423	R	Two	Each Control unit	
13	Kink Test	13.1	IS 8423	R	Two	Each Control unit	
14	Change in Size	14.1, 14.2	IS 8423	R	Two	For every 30 hoses or 1000 metre of hoses whichever is less.	
16	Packing	16.1	IS 8423 IS 380	R	-	All hoses	-

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled 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 approval by B.O. Head.

**ANNEX D****Possible Tests in a day**

<b>Sl No.</b>	<b>Requirement</b>	<b>Clause reference</b>
1	Diameter	4.1
2	Length	5.1
3	Coil Diameter	6.1
4	Percolation Test	8
5	Evenness of wetting out	9
6	Hydraulic Proof Pressure Test	10
7	Hydraulic Burst Pressure	11
8	Flammability Test	12
9	Kink Test	13
10	Change in Size	14