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उत्पाद मैनुअल

श्वसन सुरक्षा उपकरण भाग 3 ताजी हवा की नली और संपीड़ित
वायु लाइन श्वास उपकरण
IS 10245 (Part 3): 2025 के अनुसार

PRODUCT MANUAL FOR
RESPIRATORY PROTECTIVE DEVICES PART 3 FRESH AIR HOSE AND
COMPRESSED AIR LINE BREATHING APPARATUS
ACCORDING TO IS 10245 (Part 3): 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 10245 (Part 3): 2025
	शीर्षक Title	:	Respiratory Protective Devices Part 3 Fresh Air Hose and Compressed Air Line Breathing Apparatus
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Materials shall comply to Cl 5.1 of the IS. 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	:	Each type, temperature range shall be tested to be covered in the scope of licence. If Breathing apparatus with High pressure Tubing resistant to damage from contact with hot surfaces is tested, Breathing apparatus with High pressure Tubing not resistant to damage from contact with hot surfaces may also be included in the scope

c)	नमूने का परिमाण Sample Quantity	:	2 +1 apparatus. Additional components may be required for some tests Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	1. Type 2. Temperature range of use 3. Whether High pressure Tubing resistant to damage from contact with hot surfaces 4. pressure range of air supplied to the apparatus (Demand valve, Cl 8.4.1) Note: This section indicates declared values to be specified against a parameter (in Test Requests) to enable testing of sample against the requirement and determine its conformity. 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 - A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex - B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		Since testing facility is not available in any BIS/BIS recognized lab, complete testing has to be carried out in the Factory. 3 days' visit required for complete testing 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:		
	IS 10245 (Part-3) : 2025 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 10245 (Part -3): 2025 with the following scope:		
	उत्पाद का नाम Name of the product		Respiratory Protective Devices Part 3 Fresh Air Hose and Compressed Air Line Breathing Apparatus
	Type		Type 1 / Type 2/ Type 3 – Constant Flow Type / Demand Valve Type
	Temperature range of use		From...°C to.... °C
	High pressure Tubing resistant to damage from contact with hot surfaces		Applicable/not applicable

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ANNEX– A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	VISUAL INSPECTION, Annex B (Clauses 5.1.4, 5.3, 5.5.1, 5.5.2, 5.7, 5.8, 5.13 and 8.4.2)	General tools for dismantling
2.	WATER IMMERSION TEST, ANNEX C, Clause 5.2)	Apparatus as per Annex C including dummy head, breathing machine, stop watch, arrangement for immersion in water at a depth of 0.25 to 0.80 m
3.	PRACTICAL PERFORMANCE TEST, ANNEX D (Clauses 5.4.2, 5.5.1, 5.5.2, 5.7, 5.8, 5.13, 5.14 and 8.4.2)	4 Test Subjects, ambient conditions, apparatus as per the method prescribed in IS 17274 (Part 7). cold chamber (- 6 °C and - 9 °C), warm clothes
4.	Conditioning, ANNEX E (Clauses 5.9.1 and 5.9.2)	Conditioning chamber (60 ± 3 °C and at least 95 percent relative humidity), cold chamber (-30 ± 3 °C or the manufacturer's stated minimum condition whichever is the lower), breathing machine
5.	FLAMMABILITY, ANNEX F (Clauses 5.10.2 and 5.10.3)	<u>SINGLE BURNER MOVING SPECIMEN TEST</u> Test Rig as per Annex F 1.2, <u>SINGLE BURNER STATIC TEST</u> Test Rig as per F-2.2
6.	LEAK TIGHTNESS TEST, ANNEX G (Clauses 6.5.4, 7.6.4, and 8.8.4)	Breathing machine as per G-1.1
7.	Body Harness or Belt (Cl. 5.6), Strength of Hose and Couplings (6.5.3, 7.6.3, 8.8.3, 8.10.2)	Pulling Test setup to apply 1000 N
8.	Carbon Dioxide content of the Inhalation Air (Cl. 5.15)	Apparatus as per IS 17274(Part 9) RPD head form/torso Breathing Machine Exhalation and inhalation reservoirs CO2 Analyzer CO2 Cylinder CO2 Flow meter

9.	Inward Leakage of Facepiece (Cl. 5.16)	• Test panel of ten clean shaven person selected as per the criteria given in IS 17274 (Part 1). • Test agents Sulphur Hexafluoride (SF₆)/ sodium chloride aerosol (NaCl)/ corn oil, Test agent generator, Detection system • Enclosure, • Treadmill • Arrangement for the ambient conditions for testing as per IS 17274 (Part 1).
10.	Construction (Cl 6.1, 7.1, 8.1.1, 8.9)	• Air Flow meter (Rotometer) • Measuring tape • Breathing machine • Pressure guage
11.	Resistance to Breathing (6.4, 7.5, 8.7)	Test apparatus as per Method 1 and Method 2 of IS 17274 (Part 2). Breathing Resistance machine, breathing resistance gauge (differential pressure gauge), flow meter, measuring scale
12.	Resistance to collapse 6.5.2, 7.6.2, 8.8.1)	Arrangement for applying a force of 1 000 N, between two 100 mm long plates (one of which is free to move in the direction of the axis of the hose), arrangement for air flow with Air flow meter, Pressure gauge
13.	Resistance to kinking 6.5.2, 7.6.2, 8.8.2, 8.10.1)	Clamping arrangement of hose, arrangement for air flow with Air flow meter, arrangement to apply force to a rod 10 mm in diameter sited midway along the loop of hose,
14.	<i>Flexibility</i> 6.5.5, 7.6.5, 8.10.4	drum 500 mm in diameter
15.	<i>Permeation</i> 6.5.6, 7.6.6, 8.10.9	Arrangement for permeation test as per 6.5.6
16.	Air Hood or Blouse, 7.2	Test arrangement as per Annex C of IS 14166, Sound meter
17.	Fresh Air Hose Supply System, 7.6	Arrangement to measure crank speed, power and torque of blower along with flow indicator
18.	Demand Valve 8.4.1, <i>Supplementary Air Supply</i> 8.4.3	breathing resistance apparatus, apparatus as per Method 2 of IS 17274 (Part 2)
19.	Flow Control Valve, 8.5	Arrangement for flow of air at specified flow rate and pressure

20.	Compressed Air Line Supply System, 8.9	Air Flow meter (Rotometer) Measuring tape Breathing machine Pressure gauge oxygen analyzer/oxygen meter/oxygen gas detector
21.	resistant to damage from contact with hot surfaces in excess of 50 °C	Hot plate, water bath,

ANNEX B

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: Breathing Apparatus of same variety completely assembled in a day.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1 & 2**.

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 & 2.

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 & 2 giving the recommended levels of control is given below. Column 2 of Table 1 & 2 indicates routine tests where test equipment is required in house as "R"

2.2 Manufacturers shall also implement a calibration plan for the in-house test equipment.

2.2.1 In lieu of an in-house laboratory, 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).

2.3 **TEST RECORDS-** The manufacturers maintaining an in-house laboratory or shared test facilities 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

incorporated legibly and indelibly on each apparatus 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:** Each apparatus shall also be marked with the following additional requirement:

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: Subcontracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5.1	Materials	Annex B	IS 10245(pt. 3)	-	-	Each Lot received	manufacturer's certificate indicating conformity of the components to the requirements may be obtained (5.1.1, 5.1.2 & 5.1.3)
5.2	Water Immersion	Annex C	-do-	R	one	Once in a month	
5.3	Cleaning and Disinfection	Annex B	-do-	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.4	Practical Performance	Annex D	IS 10245(pt. 3) /IS 17274 (Part 7).	R	One	Once a month	
5.5	Connections						
	General	Annex B and Annex D	IS 10245(pt. 3)	R	One	Once a month	
	Couplings	Annex B and Annex D	IS 10245(pt. 3)	R	One	Once a month	
5.6	Body Harness or Belt		IS 10245(pt. 3)	R	One	Once a week	Testing not required if material is accompanied with manufacturer's test certificate indicating conformity to the requirements
5.7	Head Harness	Annex B and Annex D	IS 10245(pt. 3)/ IS 14166.	R	One	Once a month	Testing not required if material is ISI marked as per IS 14166 .or accompanied with manufacturer's test certificate indicating conformity to the requirements

5.8	Adjustable Parts	Annex B and Annex D	IS 10245(pt. 3)	R	One	Once a month	
5.9	Performance Requirements after Storage	Annex E	IS 10245(pt. 3)	R	One	Once a month	
5.10	Flammability	Annex F	IS 10245(pt. 3)	R	One	Once a month	
5.11	Face Piece	5.11	IS 10245(pt. 3); IS 14166	S	One	Each Lot received	Testing not required if material is ISI marked and indicates conformity to the requirements of the CI in Test Certificate; or accompanied with manufacturer's test certificate indicating conformity to the requirements
5.12	Half Masks/Mouth piece	5.12	IS 10245(pt. 3); IS 14746.	S	One	Each lot received	-do-
5.13	Nose Clip	Annex B and Annex D	IS 10245(pt. 3)	R	One	Once a month	Applicable if mouthpiece is provided
5.14	Temperature	Annex D	IS 10245(pt. 3)	R	One	Once a month	If apparatus is intended for use in low temperature
5.15	Carbon Dioxide Content of Inhaled Air		IS 17274 (Part 9)	R	One	Each control unit	
5.16	Inward Leakage	Method 1 or Method 2A	IS 17274 (Part 1)	R	One	Once a month	

**TABLE 2: LEVELS OF CONTROL
REQUIREMENTS FOR TYPE 1, TYPE 2 AND TYPE 3 APPARATUS**

(1)						(2)	(3)		
Test Details						Test equipment requirement R: required (or) S: Subcontracting permitted	Levels of Control		
Sr No.	Requirement	Test Method					No. of Sample	Frequency	Remarks
		Clause and Test Method as applicable			Reference				
		Type 1	Type 2	Type 3					
1	Construction	6.1 Fresh Air Hose Apparatus Without Blower	7.1.1 <i>Fresh Air Hose Apparatus (with Hand Blower)</i>	8.1.1 <i>Compressed Air Line Apparatus (Constant Flow Type)</i>	IS 10245(Pt 3)	R	One	Each control unit	
		-	7.1.2 <i>Fresh Air Hose Apparatus (with Motor Operated Blower)</i>	8.1.2 <i>Compressed Air Line Apparatus (Demand Valve Type)</i>	IS 10245(pt. 3)	R	One	Each control unit	
2	Air Hood or Blouse	-	7.2 (and Annex C of IS 14166)	8.2 (and Annex C of IS 14166)	IS 10245(pt. 3)	R	one	Once a month	
3	Inhalation & Exhalation Valve	6.2	7.3	8.3	IS 10245(pt.3)	R	One	Each control unit	
4	Demand Valve	-	-	8.4.1 <i>General (Method 2 of IS 17274 (Part 2))</i>	-do-	R	One	Each control unit	
				8.4.2 <i>Couplings (Annex B and Annex D)</i>	IS 10245(pt. 3)	R	One	Once a month	
				8.4.3 <i>Supplementary Air</i>		R	One	Each control unit	

				Supply (IS 17274 (Part 2).)					
5	Flow Control Valve	–	-	8.5	IS 10245(pt. 3)	R	One	Each control unit	
6	Breathing Tube	6.3	7.4	8.6	IS 10245(pt. 3)	R	One	Each control unit	If the air supply hose is of the low pressure type,
7	Resistance to Breathing	6.4	7.5	8.7	IS 10245(pt. 3)	R	One	Each apparatus	
8	Hose	6.5 Fresh Air Hose Supply	7.6 Fresh Air Hose Supply System						
		6.5.1 Hose	7.6.1 With Blower	-	IS 10245(pt. 3)	R	One	Once a month	
		6.5.2 Low Pressure Hose	7.6.2 Low Pressure Hose (6.5.2)	8.8 Low Pressure Hose					
		a) Resistance to collapse	a) Resistance to collapse	8.8.1 Resistance to Collapse	IS 10245(pt. 3)	R	One	Alternate control units	
		b) Resistance to kinking	b) Resistance to kinking	8.8.2 Resistance to Kinking				Alternate control units	
		6.5.3 Strength of Hose and Couplings	7.6.3 Strength of Hose and Couplings (6.5.3)	8.8.3 Strength of Hose and Couplings				Once a week	
		6.5.4 Leak Tightness (Annex G)	7.6.4 Leak Tightness (Annex G)	8.8.4 Leak Tightness (Annex G)				Each apparatus	
		6.5.5 Flexibility	7.6.5 Flexibility (6.5.5.)	8.8.5 Flexibility				Each control unit	
		6.5.6 permeation	7.6.6 Permeation Test (6.5.6.)	-				Each consignment	

9	Compressed Air Line Supply	-	-	8.9	IS 10245(Pt 3)	R	One	Each control unit	
10	High Pressure Tubing	-	-	8.10.1 <i>Resistance to Kinking</i>	IS 10245(Pt 3)	R	One	Alternate control units	
		-	-	8.10.2 <i>Strength of Tube and Couplings</i>				Once a week	
		-	-	8.10.3 <i>Leak Tightness</i>				Each apparatus	
		-	-	8.10.9 <i>Permeation Test (6.5.6)</i>				Each control unit	