उत्पाद मानुयल

श्वसन यंत्र के लिए विनिर्देश: भाग 4 बचाव श्वसन यंत्र (अल्प अवधि वाला स्व-निहित प्रकार)

IS 10245 (Part 4):1982 के अनुसार

PRODUCT MANUAL FOR
Respiratory Protective Devices — Specification for breathing apparatus: Part 4 escape breathing apparatus (Short Duration Self - Contained Type)
According to IS 10245 (Part 4):1982

भारतीय मानक ब्यूरो -विनियम की स्कीम (अनुरूपता मूल्यांकन)I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारासंदर्भ सामग्री के रूप मे उपयोग किया जाएगा। बीआईएस लाइसेन्सप्रमाण 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 licence/certificate.

1.	**उत्पाद** **Product**	:	IS 10245 (Part 4):1982
	शीर्षक **Title**	:	Specification for breathing apparatus: Part 4 escape breathing apparatus (Short Duration Self - Contained Type)
	संशोधन संख्या **No. of amendments**	:	0
2.	**नमुनाकरण दिशा निर्देश** **Sampling Guidelines**		-
a)	**कच्चा माल** **Raw material**	:	Material shall comply to the requirements of Cl 3.2 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)	**समूहिकरण दिशा निर्देश** **Grouping Guidelines**	:	Each type, breathing component and duration shall be tested separately to cover that variety
c)	**नमूने का परिमाण** **Sample Size**	:	2 devices

d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर** **Parameters to be Declared in Test Request**	:	1. Type 2. Breathing component 3. Duration Note: This section indicates declared values to be specified against a parameter (to be specified 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 उपकरणो की सूची List of Test Equipment**	:	Please refer Annexure – A
4.	**निरीक्षण व परीक्षण स्कीम** **Scheme of Inspection and Testing**	:	Please refer Annexure - B
5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**	:	All tests are possible in a day 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.	**लाइसेन्स का कार्यक्षेत्र** **Scope of the Licence :**		
	IS 10245 (Part 4):1982 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्रके लिए प्रदान किया जाता है Licence is granted to use Standard Mark as per IS 10245 (Part 4):1982 with the following scope:		
	Name of the product	Specification for breathing apparatus: Part 4 escape breathing apparatus (Short Duration Self - Contained Type)	
	Type and duration	Open-Circuit Escape Breathing Apparatus, …….. Litres, and/or Closed-Circuit Escape Breathing Apparatus ……min	
	Breathing component	1. With/without Facepiece 2. With/without Mouthpiece	

ANNEXURE A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl No.	Test Used in with Clause Reference	Test equipment
1.	Clause 3.3 Strength and Resistance to Water	Water storage tank
2.	Clause 3.6 Leak Tightness	Breathing machine
3.	Clause 3.8.1 Facepiece	Apparatus as per Cl 3.8.1, including 1. Water Storage tank 2. Pressure gauge 3. ~~Breathing Tube~~ 4. Arrangement to provide a test pressure of 1.7 kN/m^2
4.	Clause 3.8.3, 3.13 Inward Leakage	1. Test panel of ten clean shaven person selected as per the criteria given in A-1.1. 2. Argon Gas detection system 3. Argon cylinder 4. Plastic hood 5. Treadmill 6. Arrangement for determination of argon (mass spectrometer)
5.	Clause 3.8.4 Mass	1. Weighing balance
6.	Cl 3.8.8.2 Field of vision	Arrangement for measurement of field of vision
7.	Clause 3.13 Inward Leakage of relief valves	Apparatus as per Appendix D including Leak tight box connected by a tube to a Breathing Simulator (as per Appendix B)
8.	Clause 3.15 Pressure Guage	Pressure gauge, arrangement to provide a pressure greater than max Cylinder pressure
9.	Clause 3.19.2, 3.20 Carbon Dioxide content, Laboratory Performance test, Resistance to Breathing	1. Breathing Machine 2. Carbon Dioxide gas analyzer 3. Carbon dioxide gas cylinder 4. (in case of canister/carbon cartridge) a tray and an arrangement for horizontal reciprocating motion as per B 2.3 5. Head/torso
10.	Clause 3.8.8,3.19.1, 3.19.2, 3.21 Practical Performance	Practical performance testing set up as per C.1.1 with two subjects, treadmill and vertical ladder
11.	Cl 3.14, Flexible hoses and tubes for high pressure tubes and couplings)	Arrangement to provide twice the maximum working pressure

ANNEXURE B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

i. 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.

ii. 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.

iii. RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

a. For the guidance of manufacturers, the recommended definition of control unit is: the entire quantity of the breathing apparatus of one variety assembled in a day.

b. For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1.

c. 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.

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

~~2.~~ **ENSURING COMPLIANCE THROUGH TESTING-** Manufacturers (licensees/applicants) shall ensure compliance of their products to all the requirements of the Indian Standard for which a laboratory shall be maintained and 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.

2.1 **TEST RECORDS**- The manufacturers shall maintain test records for the tests carried out to establish conformity of the product to the Standard for operation of licence.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the breathing apparatus [face piece (where used), and apparatus], provided always that the device so marked conforms to each requirement of the specification.

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

ii. Additional Marking requirements: The breathing apparatus or package of the device shall also be marked with the following additional requirement:
a) "For BIS certification details please visit www.bis.gov.in".

4. PERFORMANCE TEST – For testing of the Breathing Apparatus involving human subjects, any national regulation related to examination of fitness of test subject with regard to medical history or any other factors shall be addressed. Performance test on Breathing apparatus shall be carried out under supervision of a Registered Medical Practitioner. For this, the licensee shall have panel of doctors, who can be called whenever the test is to be performed. The Practical performance test of the breathing apparatus shall be tested on such human subjects who practice regularly with breathing apparatus and whose medical history is known to be satisfactory. They shall be medically examined immediately before the tests and certified fit to undertake the test procedure. Record of all such testing and the names and addresses of the human subjects on whom testing is carried out shall be maintained for future reference.

5. **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)

Test Details				***Test equipment requirement*** ***R: required***	***Levels of Control***		
Cl.	***Requirement***	***Test Method***		***(or)***	***No. of Sample***	***Frequency***	***Remarks***
		Clause	***Reference***	***S: Subcontracting permitted***			
3.2	Materials	3.2	IS 10245: Part 4	-	-	Each Lot received	manufacturer's certificate indicating conformity of the components to the requirements may be obtained
3.3	Strength and Resistance to water	3.3	IS 10245: Part 4	R	One	Each control Unit	
3.4	Separation of parts	3.4	IS 10245: Part 4	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			
3.5	Adjustable parts	3.5	IS 10245: Part 4				
3.6	Leak Tightness	3.6	IS 10245: Part 4	R	One	Each control Unit	
3.7	Use as an Air line Breathing Apparatus	3.7	IS 10245: Part 4	R	One	Each control Unit	If apparatus is designed to be used as a air line apparatus
3.8	Facepiece	Appendix A & C	IS 10245: Part 4	R	One	Once in a month	If used

3.9	Head Harness	3.9	IS 10245: Part 4	R	One	Each control Unit	
3.10	Mouthpiece	3.10	IS 10245: Part 4	R	One	Each control Unit	If used
3.11	Noseclip	3.11	IS 10245: Part 4	R	One	Each control Unit	If mouth piece is used
3.12	Supporting Harness	3.12	IS 10245: Part 4	R	One	Each control Unit	-
3.13	Valves	Appendix D	IS 10245: Part 4	R	One	Each control Unit	
3.14	Flexible Hoses and Tubes	3.14	IS 10245: Part 4	R	One	Each control Unit	
3.15	Pressure Guage	3.15	IS 10245: Part 4	R	One	Each control Unit	
3.16	Gas Cylinder and Main Valve	3.16	IS 10245: Part 4	S	-	Each consignment	Approval of design under Gas cylinder Rules and Test Certificate for each lot of cylinders to be obtained.
3.17	Container	3.17	IS 10245: Part 4	R	One	Each control Unit	If supplied
3.18	Duration		IS 10245: Part 4	R	One	Each control Unit	
3.19	Condition of Inhaled Air	Appendix B & C	IS 10245: Part 4	R	One	Once in a month	
3.20	Resistance to Breathing	Appendix B	IS 10245: Part 4	R	One	Each control Unit	
3.21	Comfort	Appendix C	IS 10245: Part 4	R	One	Once in a month	