



**उत्पाद मैनुअल
आई एस 12300: 2024 के अनुसार
छोटे रेफ्रिजेरेंट सिलिंडरों के लिए गैस सिलिंडर वाल्व के लिए**

दस्तावेज़ संख्या – पी एम/आई एस 12300/3/नवम्बर 2025

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/ प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

**PRODUCT MANUAL FOR
GAS CYLINDER VALVES FOR SMALL REFRIGERANT CYLINDERS
ACCORDING to IS 12300: 2024**

Document No.- PM/IS 12300/3/November 2025

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.

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1.	Product	:	IS 12300: 2024
	Title	:	Gas Cylinder Valves for Small Refrigerant Cylinders
	No. of Amendments	:	One
2.	Sampling Guidelines:		
a)	Raw material	:	As per Cl. 3 of IS 12300: 2024
b)	Grouping guidelines	:	Each Variety of valve shall be tested for Grant of Licence/Change in Scope of Licence.
c)	Sample Size	:	(a) Assembled valves- 5 pieces (b) Samples for Material Testing, Izod and Tensile- 3 pieces each (c) Valve body piece for chemical testing- 3 pieces
3.	List of Test Equipment	:	Please refer ANNEX-A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX- B
5.	Possible tests in a day:	:	All Tests
6.	Scope of the Licence:	:	Please refer ANNEX- C

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ANNEX -A**List of Test Equipment***Indicative list of major test equipment required to test as per the Indian Standard*

Sl. No.	Tests Used in with Clause Reference	Test Equipment
1.	Tensile strength and % Elongation, Cl.3.3	Tensile testing machine
2.	Izod impact test, Cl. 3.4	Izod Impact testing machine
3.	Valve inlet connections, Cl. 8,9, Table 1,2	Thread Plug Gauges and Ring gauges of suitable sizes, Vernier caliper, Pitch gauge
4.	Valve outlet connections, Cl. 10, Table 1,2, Fig.2, 3, 4, 5	Thread Plug Gauges and Ring gauges of suitable sizes, Vernier caliper, Pitch gauge
5.	Pneumatic test, Cl. 13	Test bench with Pressure gauges
6.	Hydraulic Strength test, Cl. 14	Test bench with Pressure gauges
7.	Cycle test, 15.2	Holding fixture for cycle test, Test bench with pressure gauge and count meter, Torque Wrench
8.	Dimensions Cl. 7	Vernier Caliper, Inside Caliper

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

ANNEX -B

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 equipments. The following equipments shall be calibrated at a frequency shown against each and records kept:

1.1.1 Tensile Testing Machine - Once in a year

1.1.2 Impact Testing Machine- Once in three years

1.1.3 Pressure Gauges - Once in a month

1.1.4 Pyrometer used for heating furnace- Once in six months

1.1.5 Master gauges against which inspection gauges are checked periodically shall be sent for rechecking in an independent laboratory once in three years.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity. Records of all the tests made at the valve manufacturer's works shall be kept and copies of test certificates shall be forwarded to the purchaser of the valve and the inspecting authority.

3. LABELLING AND MARKING – As per the requirements of IS 12300:2024. In addition, each valve shall also be marked with the following on the valve body: Control unit number, The word "Refrigerant gas", . The Standard Mark, as given in the Schedule of the licence, shall be marked on each Valve provided always that the Valve thus marked conforms to all the requirement of the specification. In addition, the licence no. CM/L-_____ and details of BIS website shall be marked at an appropriate place as follows: "For details of BIS certification please visit www.bis.gov.in"

4. CONTROL UNIT – For the purpose of this scheme, the control unit shall consist of a lot of forged valve blanks of the same designation and size from the material of the same heat manufactured in a day/days from same supplier under similar process of production.

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 Each control unit of finished valves shall be offered for inspection to BIS before dispatch (See Table 2). Valves failing to meet the requirements of the specification shall not be marked with the BIS Standard Mark.

5.2 A certificate as per ANNEX-I shall be issued by the BIS Certification Officer in respect of every control unit of valves marked with BIS Standard Mark.

5.3 The manufacturer shall maintain a system of works inspection at all stages of manufacture to ensure that the individual valve fittings are free from all manufacturing defects and comply in all respect with the requirements of the Indian Standards Specification.

5.4 One sample of each consignment of raw materials received in the factory shall be analyzed for chemical composition. The composition shall be such that the material shall be compatible under the conditions of service with the gas to be contained in the cylinder and complies with the declaration submitted at the time grant of license or inclusion.

5.5 The material shall conform to the requirements specified in Cl. 3 of IS 12300:1988. A test certificate shall be supplied by the supplier with the supply of the material for the valve fabrication. BIS shall be given the opportunity of making an independent check test, if necessary. The manufacturer of the valves should establish means to identify the valves with the certificate. Material with seams, cracks, lamination or other injurious defects shall not be used.

5.6 DESIGN and DRAWING - The manufacturer shall submit assembly drawing for a given valve design as per IS 12300: 2024 for approval of statutory authority through BIS. At the time of design approval the valves shall be checked for conformity to all the requirements of the specification. Whenever there is a change in material or design of the valve it shall be retested and shall conform to all the requirements of IS 12300:2024. For all other gases which are not mentioned in IS/ISO 11114-1 and IS/ISO 11114-2, suitable metallic and non-metallic materials compatible with the gas shall be used with prior permission from Statutory Authority and the same shall be specified in the design and drawing submitted to them.

5.7 In respect of all clauses of the specification at all stages of production, appropriate controls and checks shall be maintained by the factory so as to ensure that the product conforms to the various requirements of the specification.

6 FORGING & MACHINING - The licensee shall possess all the requisite infrastructure for the forging and machining of the valve housing in their own premises. Under no circumstances, the forgings of valve housing (body) or machining there of shall be permitted to be sub-contracted or bought from outside.

7 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: Required (R) or Sub contracting permitted (S)	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
3	MATERIAL						
	Chemical Composition						
	Valve body	3.1	IS 12300 IS 6912	S	One	Each Consignment	No further testing is required, if accompanied with test certificate or ISI marked. The approved material as per drawing only shall be used.
	Other components	3.2	IS 12300 IS/ISO 11114-1 IS/ISO 11114-2	S	One	Each Consignment	No further testing is required, if accompanied with test certificate or ISI marked. The approved material as per drawing only shall be used. For all other gases which are not mentioned in IS/ISO 11114-1 and IS/ISO 11114-2, suitable metallic and non-metallic materials compatible with the gas may be used with prior permission from Statutory Authority and the same shall be specified in the design and drawing.

	Mechanical Properties					
	Tensile Strength and Elongation	3.3	IS 12300	R	As per Appendix A of IS 12300	--
	Impact Strength	3.4	IS 12300	R		
4	Valve Design requirements	4.1, 4.2, 4.3	IS 12300	R	Design validation requirement, to be checked at the time of initial approval or whenever there is any change in design or material.	
5	Valve Operating device	5.1, 5.2	IS 12300	R		
7	Valve dimensions	7.1, 7.2, 7.3, 7.4	IS 12300	R	Each valve	
8, 9	Screw Threading on valve stem	8, 9	IS 12300 IS 15894	R	Each valve	Thread shall be checked with calibrated gauges as applicable to types of thread.
10	Valve Outlet Connection	10	IS 12300	R	Each valve	
13	Pneumatic Test	13	IS 12300	R	Each valve	--
14	Hydraulic Strength test	14	IS 12300	R	Each valve	
5.3	Safety requirements	5.3	IS 12300	R	Each valve	Compliance shall be checked during manufacturing.
15	Type Approval Tests					
	Cycle Test	15.2	IS 12300	R	One sample out of 5000 valves of same designation and size subject to minimum of one valve in a month	--

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

Note-2: The control unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.

Table 2*(Cl. 5.1 of SIT)***INSPECTION OF FINISHED LOT**

Lot – For the purpose of lot inspection, the lot shall be the same as the Control Unit defined in Clause 4 of the Scheme of Inspection and Testing.

1. Depending upon the size of the lot, the number of samples as given below shall be drawn at random and subjected to the test for valve inlet connections (Cl. 8,9), valve outlet connections (Cl. 10), Pneumatic Test (Cl. 13) and Hydraulic strength test (Cl. 14):

Control Unit Size	Sample Size
Upto 500	13
501 to 1000	20
Over 1000	32

In case of failure of any sample in any of the requirements mentioned at Sl. No. 1 above, all the valves in the lot shall be tested by the licensee for the requirement in which failure has occurred and the segregated lot be reoffered for BIS Inspection as fresh lot. Any subsequent failure shall result in the rejection of the whole lot. Lot can be reoffered only once. All rejected valves shall be scrapped.

2. The lot may be considered as having passed the requirements of IS 12300:2024 if all the samples tested above are found to be conforming.

NOTE:

1. Tensile Strength, Elongation and Impact Strength of the material of valve body as per frequency given in Table 1 of SIT shall be carried out by the licensee. BIS officer will verify the relevant test records before carrying out lot inspection. However, such tests to be witnessed by BIS officer whenever possible.

ANNEX – I

(Para 5.2 of the Scheme of inspection and Testing)

Test Certificate for Valve Fittings for Refrigerant Cylinders - IS 12300

Manufacturer:		Certificate No.		
Purchaser:		Order No:		
Control unit No:				
Valve fittings description		Quantity offered for Inspection:		
This is to certify that the valve fittings as mentioned below were inspected at M/s _____ and meet the Requirements of IS 12300: 2024 and Drawing No. _____.				
RESULTS OF INSPECTION:				
Sr. No	Requirements	Quantity Inspected	Quantity Passed	Quantity Rejected
1	Valve inlet connection (Cl. 8,9)			
2	Valve outlet connection (Cl. 10)			
3	Pneumatic Test (Cl. 13)			
4	Hydraulic Strength Test (Cl. 14)			
5*	Tensile strength and elongation tests(Cl. 3.3)			
6*	Impact strength test(Cl. 3.4)			
7*	Cycle Test -(Cl. 15.2)			
* From manufacturer's test record.				
Quantity Passed				
Rejected valve fittings and the method of their disposal				
Signature:		Signature		
Name & Designation of manufacturer's representative		Certification Officer Bureau of Indian Standards		

ANNEX C**Scope of Licence**

“License is granted to use Standard Mark as per IS 12300: 2024 with the following scope:	
Name of the product	Gas Cylinder Valves for Small Refrigerant Cylinders
Inlet connection (Valve stem size)	
Valve outlet size (flare)	
Designation of valve size combination	
Size of Square on Spindle (mm)	
Maximum Working Pressure, Kgf/Cm ²	
Any other aspect	PESO approved drawing number and approval number