



**PRODUCT MANUAL FOR
DIAPHRAGM TYPE (PLASTIC BODY) FLOAT
OPERATED VALVES FOR COLD WATER SERVICES
ACCORDING TO IS 13049: 1991**

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.	Product	:	IS 13049: 1991
	Title	:	DIAPHRAGM TYPE (PLASTIC BODY) FLOAT OPERATED VALVES FOR COLD WATER SERVICES
	No. of Amendments	:	2
2.	Sampling Guidelines:		
a)	Raw material	:	As per clause 5 and Table 1 of IS 13049 : 1991
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Valves - 2 nos and Float - 1 no.
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day:		
	(i)	Manufacture and workmanship (Clause 6.1)	
	(ii)	Construction (Clause 7)	
	(iii)	Hydraulic test (Clause 8.1)	
	(iv)	Shut off test (Clause 8.2)	
	(v)	Flow test (Clause 8.4)	
	(vi)	Test for hydraulic pressure on discharge arrangement (Clause 8.6)	
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 13049: 1991 with the following scope:		
	Diaphragm type (Plastic body) float operated valves for cold water services of nominal size 15 mm, with high pressure (HP)/low pressure (LP) seat and side/ bottom entry.		

ANNEX – A

Grouping Guidelines

1. Diaphragm type (Plastic body) float operated valves for cold water services covered under IS 13049: 1991 categorised as given below:
 - a) Type of seat used based on water pressure – High pressure (HP) and
Low Pressure (LP)
 - b) Inlet entry – Side / Bottom entry
2. Considering the above, following grouping guidelines is developed for GoL/CSoL:

“Sample of Diaphragm type (Plastic body) float operated valves with any type of entry and seat pressure [Preferably high pressure (HP) seat] shall be drawn to cover all the varieties in the scope of the licence”.
3. The firm shall declare the varieties they intend to cover in the licence. The scope of the 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 varieties covered in the Licence are tested in rotation to the extent possible.

ANNEX – B**List of Test Equipment**

Sl No	Tests used in with Clause Reference	Test Equipment
1	Construction (Clause 7)	Steel Scale
		Thread Ring gauges - GO/NOGO
		Torque wrench
		Thread Plug gauges - GO/NOGO
		Float (As per clause 7.5.1 of IS 13049 :1991)
		Valve deflection test assembly as per Fig 2 of IS 13049 : 1991 with loading arrangement.
2	Hydraulic test (Clause 8.1)	Hydraulic test apparatus with pressure gauge
		Stopwatch
3	Shut off test (Clause 8.2)	Shut off test pressure apparatus with pressure gauge as per clause C-1 of IS 13049 : 1991
4	Antisiphonage test (Clause 8.3)	Anti-siphonage test apparatus as per clause D-1 of IS 13049 : 1991
5	Flow test (Clause 8.4)	Flow test apparatus as per clause E-1.1 and E- 2.1, Fig. 4 (a) and (b) of IS 13049 : 1991
		Stopwatch
		Measuring Jar
6	Endurance test (Clause 8.5)	Endurance test apparatus capable of operating the float arm or arm assemble in automatic cyclic manner with counter meter and water supply system as per clause F-1 of IS 13049 : 1991
7	Test for hydraulic pressure on discharge arrangement (clause 8.6)	Testing arrangement with pressure gauge as per clause G-1 of IS 13049 : 1991
		Stopwatch

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 equipments. However, pressure gauges shall be calibrated at least once in six months.

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 13049 : 1991

4. CONTROL UNIT – All valves of the same type manufactured from same material under similar conditions of manufacturing in a shift of maximum eight hours 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 Standard 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	Levels of Control		
CI No	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5	Materials	5.1, 5.2, 5.3, Table 1 and 6.2	IS 13049	-	One	Each consignment received	No further testing is required, if material received with manufacturers test certificate.
6	Manufacture and workmanship	6.1	IS 13049	-	Each valve	-	-
7	Construction						
	Inlet connection	7.1, Annex- A	IS 13049	R	Each valve	-	-
	Seats and Body	7.2.1, 7.2.2	IS 13049	-	Each valve	-	-
		7.2.3	IS 13049	R	Two	Each control unit	-
	Diaphragm	7.3	IS 13049	R	Each valve	-	-
	Backnuts	7.4, Annex-A	IS 13049	R	Each valve	-	-
	Floats	7.5.1	IS 13049	S	One	Each consignment received/ Each shift production	Further testing is not required if consignment received is ISI marked or received with manufacturers test certificate
		6	IS 9762				

	Float arm and Assembly	7.5.2, 7.5.3, Annex- B	IS 13049	R	One	1000 valves or part thereof manufactured from same material received in a consignment	In case of failure marking shall be stopped immediately, cause of failure investigated, and appropriate corrective action taken and verified before resuming marking.
	Discharge arrangements	7.6.1, 7.6.2, 7.6.3	IS 13049	R	Each valve	-	-
8	Performance Test						
8.1	Hydraulic test	8.1	IS 13049	R	Three	Each control unit	-
8.2	Shut-Off test	8.2, Annex- C	IS 13049	R	Three	Each control unit	-
8.3	Anti-siphonage test	8.3, Annex - D	IS 13049	S	One	Once in a month	These tests are categorized as type tests. @@
8.4	Flow test	8.4, Annex- E	IS 13049	R	Three	Each control unit	-
8.5	Endurance test	8.5, Annex- F	IS 13049	S	One	Once in a month	These tests are categorized as type tests. @@
8.6	Test for hydraulic pressure on discharge arrangement	8.6, Annex- G	IS 13049	R	Three	Each control unit	-

@@ In case of failure of sample in these tests, marking shall be stopped and corrective action shall be taken. Marking shall be resumed only if improved sample is found conforming to all requirements. These test shall also be conducted whenever there is change in material, construction or manufacturing process.

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 BO Head.