

## CENTRAL MARKS DEPARTMENT-III

Our ref: CMD-III/16: IS 3224

10 May 2023

### **Subject: Guidelines for Lot inspections of “Valve Fittings for Compressed Gas Cylinders excluding Liquefied Petroleum Gas (LPG) Cylinders” as per IS 3224: 2021**

This has reference to lot inspections of “Valve Fittings for Compressed Gas Cylinders excluding Liquefied Petroleum Gas (LPG) Cylinders” as per IS 3224, being conducted by BIS at present. After lot inspections, the batches are released with a test certificate.

2. In this regard, it has now been decided that on the similar lines of LPG Cylinders, valves and Regulators, BIS would take support of BIS empanelled agencies for lot inspections of valve fittings as per IS 3224 also. Based on the reports of lot inspections submitted by them, BIS will be issuing the test certificates for applicable batches of valve fittings.

3. Standard operating Procedure (SOP) to be followed in this regard is attached for implementation. BIS Certification officer shall verify that all the requirements laid down in SOP have been complied with and the results of batches enclosed are conforming to the requirements of Indian Standard and issue the test certificates.

4. Technical auditor of the empanelled agency (TA) shall carry out lot inspection on behalf of BIS and submit the inspection report in the prescribed format as enclosed with the SOP. After the lot inspection, licensee will prepare the test certificate in the prescribed format and will submit that for verification by TA. BIS Certification officer shall examine the lot inspection report submitted along with the test certificate prepared by the licensee and based on the examination of the same and the conclusion that the lot is in conformity with the requirements of relevant Indian standards and SIT, shall issue the test certificate. Test certificates shall be issued by BIS Certification Officer latest by next day of the inspection.

#### **5. Training of TAs:**

(i) **Classroom training for all TAs (both new as well as who are already engaged in lot inspections for other products)** - One day training to be organized by BOs (Half Day classroom training and half day factory visit)

#### **(ii) On job training of TAs:**

a) **Induction of a new TA who has not undergone on job training for lot inspection of any product** - For the initial minimum 1 visit, the TA of empaneled agency will accompany BIS Officer during which the TA are expected to gain adequate on-job training and competency. After this, BIS Certification Officer will accompany TA for first visit during which inspection will be done by TA and observed by BIS Certification Officer to assess competency of the TA. Report of competency of TA should be submitted by BIS Officer to the Head (BO) with recommendation on the need of any further such inspection to be carried out in presence of BIS Certification Officer, in the prescribed proforma already circulated vide e mail dated 24 May 2022. Head (BO) may allocate more such inspections till the time TA is declared competent. Induction of any new TA will follow the same procedure as above. It is to be noted that only lot inspection charges are to be levied from the licensee and no additional man-days charges are to be levied for such visits.

b) In case a TA has already been declared competent for LPG Cylinders as per IS 3196-1 or for On-board CNG Cylinders as per IS 15490 or for LPG Valve fittings as per IS 8737, then inspection can be assigned to the TA, however BIS Certification Officer shall accompany TA for first visit during which inspection will be done by TA and observed by BIS Certification Officer to assess competency of the TA for Valve fittings as per IS 3224.

6. The bills raised by empanelled agency for lot inspections on monthly basis will be processed centrally by CSMD for each “accepted” lot inspections, as being done for other lot inspections of LPG Cylinders, valves and Regulators. Till the time requisite provision in manakonline is being made, CSMD shall process the bills based on verification from BOs. Head (BO) shall provide necessary support and information to CSMD in this regard.

7. This issues with the approval of DG.

(Rakesh Kumar)  
Sc D

**H(CMD-III)**

**DDG (Certification & CSM)**

Circulated to : All ROs/BOs

**Standard Operating Procedure (SoP) for**  
**Lot Inspection of Valve Fittings for Compressed Gas Cylinders excluding Liquefied**  
**Petroleum Gas (LPG) Cylinders as per IS 3224**

Sl. No.	Activity	Responsibility
<b>1.</b>	<b>REQUEST FOR LOT INSPECTION</b>	
a)	<ul style="list-style-type: none"> <li>• Request for Lot Inspection shall be made through Manakonline Portal preferably one week in advance or latest 3 days before the day of lot inspection. <i>(see the guidelines on Request, Planning of inspections and fee related matters attached as Annexure- A )</i></li> <li>• The request shall include batch-wise details of Valve fittings i.e Batch Number, Size (Quantity), Type of gas etc. intended to be offered for inspection.</li> <li>• It is to be ensured that the offered batches are complete in all respects and have undergone all the testing as per Indian Standard and SIT and, before the inspection.</li> <li>• Lot Inspection Charges shall be paid through Manakonline Portal. <i>(see the guidelines on Request, Planning of inspections and fee related matters attached as Annexure- A )</i></li> </ul>	Licensee
<b>2.</b>	<b>ALLOTMENT OF INSPECTION</b>	
a)	<ul style="list-style-type: none"> <li>• Allotment of Lot Inspection to agency/BIS Certification Officer shall be made through Manakonline</li> <li>• Ensure rotation of agency and certification Officer</li> <li>• Monitoring to ensure that rotation among TAs is being followed by the agency to whom inspection has been assigned <i>(See Annexure- A attached for details)</i></li> </ul>	Head (BO)
b)	Assigning the lot inspection by agency in-charge to its TA ensuring rotation of TAs <i>(See Annexure- A attached for details)</i> . It shall be ensured by the agency that inspecting officer is assigned by them on the same day or latest, by next day.	Agency in-charge
<b>3.</b>	<b>VERIFICATION OF BATCHES AND LOT INSPECTION</b>	

a)	<ul style="list-style-type: none"> <li>• The authenticity of the information provided by the Licensee regarding completion of various stages w.r.t the batches offered for lot inspection shall be ensured at the time of inspection.</li> <li>• During the visit for Lot Inspection, ongoing activities at various stages shall be verified to ensure that all manufacturing and testing processes for the batches offered by the licensee have been completed.</li> <li>• Check and sign the inspection and testing records of various stages for the batches taken up for lot inspection</li> </ul>	CO /TA
b)	Ensure that the valve fittings offered for lot inspection are stored/stacked batch wise without mix up ( <i>see the guidelines on Request, Planning of inspections and fee related matters attached as Annexure A</i> ).	Licensee
c)	<ul style="list-style-type: none"> <li>• Mixing up of batches shall not be permitted. Verify whether the Valve fittings of different batches are stored as distinctly identifiable and not mixed up.</li> <li>• Perform physical verification of the offered batches w.r.t the Batch Numbers, Size (Quantity), etc.</li> <li>• Verify that the material from which the valves have been manufactured are conforming to the requirements of IS 3224 (Check the chemical composition of the material in the test certificate received for each batch)</li> <li>• Verify that the samples have been tested for mechanical properties (Tensile strength, % elongation, Izod impact strength) by the manufacturer as per the sampling plan and the results are conforming to IS 3224. Attach scanned copy of testing records of each tested sample with the lot inspection report (<b>Annexure-B</b>).</li> </ul>	CO /TA
d)	Carry out lot inspection of verified batches as per sampling plan given in <b>Annexure A</b> .	CO /TA
e)	<b><i>It is expected that minimum of 8 hours are spent in the factory by TA during the lot inspection</i></b>	<b>TA</b>
f)	Preparation of test certificate in prescribed format ( <i>attached as Annexure- C</i> )	Licensee
4.	<b>SUBMISSION OF LOT INPECTION REPORT</b>	
a)	<ul style="list-style-type: none"> <li>• Verification of details in test certificate</li> <li>• Submit the inspection report along with the test certificate in the prescribed format during the lot inspection at the factory premises for consideration by BIS.</li> </ul> <p><i>Lot inspection report shall be submitted in prescribed format (Format attached as Annexure-B)</i></p>	TA  CO/ TA

b)	<ul style="list-style-type: none"> <li>All rejections (process rejections/samples in destructive testing etc.) shall be reshaped fortnightly in the presence of CO/TA and entered in the reshaping record.</li> <li>The reshaping records shall be duly signed.</li> </ul>	Licensee  Licensee/ CO/TA
c)	The inspection report is to be signed by licensee also and a copy of the same may be retained by the licensee	Licensee
5.	<b>ISSUANCE OF TEST CERTIFICATE BY BIS CERTIFICATION OFFICER</b>	
a)	Examination of the inspection report submitted by TA and Accept/Seek Clarification/Reject inspection report	CO
b)	Provide clarification to BIS Certification Officer, when any clarification is sought	TA
c)	Provide clarification to TA, if required	Licensee
d)	Issue test certificate (s)	CO
6.	<b>QUALITY ASSURANCE MEASURES</b>	
a)	It shall be ensured by Head (BO) that BIS Certification officer conducts lot inspection of every valve fittings unit at least once in every 30 days or less; as decided by Head (BO) for adequate supervision	Head (BO)
b)	Head (BO) may also occasionally depute BIS officer on any day when lot inspection is being carried out to check the satisfactory operation of the system	
c)	Head (BO) should proactively interact with the management of licensee to have a periodic feedback on the TAs of the agencies	

Abbreviations: CO- BIS Certification officer

TA- Technical auditor of BIS empaneled agency

**Annexure- A****Guidelines on Request, Planning of inspections, Sampling and fee related matters for lot inspection of Valve Fittings for Compressed Gas Cylinders excluding Liquefied Petroleum Gas (LPG) Cylinders as per IS 3224: 2021**

1. **Definition of batch-** A Batch shall consist of forged valve blanks of the same type and size manufactured from the material of the same supplier or blanks from the same heat number, whichever is later, under similar process of production.
2. **Sampling during lot inspection:** Depending upon the size of the batch, samples shall be drawn at random and subjected to the test for valve inlet connections (Cl. 8), valve outlet connections (Cl. 9) and Internal and External tightness test (Cl. 13.3).

a) Number of samples for the above tests will be as follows:

Valve inlet connections (Cl. 8)- As per table 23 of IS 3224

Valve inlet connections (Cl. 9)- As per table 23 of IS 3224

Internal and External tightness (Cl. 13.3)- as given below

<b>Batch Size</b>	<b>Sample Size</b>
Up to 500	13
501 to 1000	20
Over 1000	32

b) In case of failure of a sample in any requirement mentioned under 1, all the valves in the batch should be tested by the licensee for the requirement where failure has occurred and segregated batch be reoffered for BIS Inspection as fresh batch. A batch can be reoffered only once. All rejected valves shall be scrapped.

- c) Bursting Pressure of Bursting disc (Cl. 13.4.2) and Yield temperature for fusible plug (Cl. 13.4.3) shall be carried out on samples selected as per Table 22 of IS 3224, from each batch.

The batch may be considered as having passed the requirements of IS 3224:2021 if all the samples tested above are found to be conforming.

NOTE: 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.

3. Licensees will submit the lot inspection request along with details of batches, preferably a week in advance or latest 3 days before the proposed day of lot inspection. Request from licensee for change in date of inspection with proper reason may be considered by Head (BO) by recording the justification.
4. For proper inspection/sampling, it should be ensured that licensee has got adequate storage/

stacking space within the factory premises so that Valve fittings are offered batch-wise to the officer for inspection/ clearance. Mixing of batches shall not take place and each batch should be distinctly identifiable to facilitate its proper inspection & sampling.

5. Normally not more than two visits per licence may be planned every week. However, more visits may also be permitted by Head (BO) depending upon the need and availability of manpower. For lot inspections, licensee shall submit ₹ 10,000/- + GST per man day as special inspection charges. Licensee shall also make arrangement for travel and stay of the BIS Certification officer, as applicable. Otherwise, the payment towards travel and stay (for boarding and lodging per night stay) on actual basis shall be charged in addition to inspection charges (₹ 10,000/-) as specified in Scheme - I of BIS (Conformity Assessment) Regulations. All these charges are over & above the marking fees. However, for visits paid by TA of empanelled agency, travel and stay expenses are not to be paid by the licensee.
6. Preparation of schedule and allocation of visits for lot inspections- Monthly schedule shall be prepared by Head (BO) and Inspection agency/ BIS Certifying Officer shall be assigned for each visit requested by the licensee. BIS Certification officer shall issue the test certificate based on the examination of lot inspection report submitted along with the test certificate by TA. In addition to adherence to principle of rotation given below, Head BOs shall rotate the visits for consequent production week equally amongst all the available certification officers (or agents, if applicable) in the Branch as far as possible in line with guidelines circulated vide CMD-I/2:12:6 dated 25 Jan 2021:
  - a. Rotation of BIS Certification officer issuing test certificate to be ensured.
  - b. Multiple visits to a single licensee are rotated amongst all the available certification officers/Technical Auditors of agencies equitably as far as possible.
  - c. No particular certification officer/Technical Auditors of agencies is allocated unusually large number of visits in respect to a specific licensee.
6. In case a manufacturer has licences for more than one product at the same premises and quantum of work is less on the day of visit, the remaining period may be utilized by the officer for lot inspection of other licence(s) held by the licensee against one man-day charge already paid by the licensee to BIS.

**Annexure- B****FORMAT FOR LOT INSPECTION OF Valve Fittings for Compressed Gas Cylinders excluding Liquefied Petroleum Gas (LPG) Cylinders as per IS 3224: 2021**

- 1) Name of the Unit:-
- 2) License Number:-
- 3) Date of Lot Inspection:-
- 4) Batch Number:-
- 5) Description of Valve fittings, batch wise:

**6) Inspection & Testing prior to the release of Batch**

Sl. No.	Parameters		No. of Valves		
			Inspected	Passed	Rejected
1.	Material*	Chemical composition			
		Tensile Strength Test & Elongation Test			
		Izod Impact Strength Test			
2.	Dimensional Check of Assembled Valve				
3.	Valve Inlet Outlet connection (Cl. 8 & 9)				
4.	Internal and External tightness test (Cl. 13.3)				
5.	Bursting Pressure of Bursting disc (Cl. 13.4.2)				
6.	Yield temperature for fusible plug (Cl. 13.4.3)				
7.	*Tensile strength and elongation tests (Cl. 13.1)				
8.	*Impact strength test (Cl. 13.1)				
*From manufacturer's test record					

Remark, any other information:

1. Batch – Accepted / Not Accepted
2. Test Certificate – Enclosed

Deviations, if any:

Signature:

Name & Designation of the Officer representing the company

Signature

Name and designation of CO/TA

**Annexure- C**

Test Certificate for Valve Fittings for Compressed Gas Cylinders excluding Liquefied  
Petroleum Gas (LPG) Cylinders - IS 3224

Manufacturer:		Certificate No. Date of issue:		
Purchaser:		Order No:		
Batch No:				
<b>Valve fittings description:</b> Inlet Size: Outlet Size: Outlet No. Working pressure:		Quantity offered for Inspection :		
This is to certify that the valve fittings as mentioned below were inspected at M/s _____ and _____ these meet the Requirements of IS 3224:2021 and Drawing No. _____.				
<b>RESULTS OF INSPECTION :</b>				
Sr. No	Requirements	Quantity Inspected	Quantity Passed	Quantity Rejected
1	Valve inlet Connection (Cl. 8)			
2	Valve outlet Connection (Cl. 9)			
3	Internal and External tightness test (Cl. 13.3)			
4	Bursting Pressure of Bursting disc (Cl. 13.4.2)			
5	Yield temperature for fusible plug (Cl. 13.4.3)			
6*	Tensile strength and elongation tests (Cl. 13.1)			
7*	Impact strength test (Cl. 13.1)			
* From manufacturer's test record.				
Quantity Passed				
Rejected valve fittings and the method of their disposal				
Signature:  Name & Designation of the Officer representing the company		Signature  Certification Officer Bureau of Indian Standards		