# केन्द्रीय मुहर विभाग - III

हमारा संदर्भ- **के. मु. वि.-३/१६: भा.मा. ३१९६(भाग १) एवं भा.मा. १३२५८** **०६ दिसंबर २०२१**

**विषय: भा.मा. ३१९६(भाग १) एवं भा.मा. १३२५८ के अनुरूप लाट निरीक्षण के लिए दिशानिर्देश**

सभी शाखा कार्यालयों से आग्रह है कि संलग्न दिशानिर्देश का अनुपालन तत्काल प्रभाव से सुनिश्चित करें।
यह इस मामले में मौजूदा दिशानिर्देशों और मानक संचालन प्रक्रिया का स्थान लेता है। सभी शाखा कार्यालय उपरोक्त दिशानिर्देश अपने लाइसेंसियों को तुरंत सूचित करें ।

(राकेश कुमार)
वैज्ञानिक 'डी' (के मु वि III)

**प्रमुख (के मु वि III)**

सभी क्षेत्रीय/शाखा कार्यालय

## CENTRAL MARKS DEPARTMENT-III

Our Ref: **CMD-3/16: IS 3196 (Part 1) and IS 13258** **06 Dec 2021**

**Subject: Guidelines for Lot inspections of LPG Cylinders as per IS 3196 (Part 1) and IS 13258**

This has reference to the subject mentioned above. Guidelines on the subject are attached for implementation with immediate effect.

This supersedes the existing guidelines and Standard operating Procedure in this matter.

All BOs are advised to inform the above guidelines to the licensees under their jurisdiction immediately.

(Rakesh Kumar)
Scientist D (CMD III)

**Head (CMD - III)**

Circulated to: All ROs/BOs

CENTRAL MARKS DEPARTMENT-III

Our ref: CMD-III/16: IS 3196 (Part 1) and IS 13258 06 Dec 2021

**Subject: Guidelines for Lot inspections of LPG Cylinders**

This has reference to lot inspections of LPG Cylinders as per IS 3196 (Part 1) and IS 13258, being conducted by BIS. After lot inspections, the batches are released with a test certificate.

2. In this regard, it has now been decided that BIS would take support of BIS empanelled agencies for lot inspections also. Based on the reports of lot inspections submitted by them, BIS will be issuing the test certificates for applicable batches of cylinders.

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 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. Provisions for executing the above work flow in manakonline is being developed by ITSD/CDAC and is expected to become live from shortly. However, till the time these provisions are made live, report of lot inspections and test certificates will be submitted by agencies in hard copy and test certificates will continue to be issued by BIS Certification Officer in hard copy in the prescribed formats.

6. For the initial minimum 2 visits, 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 witnessed by BIS Certification Officer to see whether SOP is complied with. Report of competency of TA should be submitted by BIS Officer to the Head (BO) with recommendation on the need of any further shadow inspection. Head (BO) may allocate more such shadow 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.

7. The bills raised by empanelled agency for lot inspections on monthly basis will be processed centrally by CSMD for each “accepted” lot inspections. 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.

8. At present, lot inspections by agencies is being operationalized only in GZBO, FRBO and NOBO which will be extended to other BOs in due course. BOs other than the above 3 BOs (i.e. GZBO, FRBO and NOBO) will also follow the same SOP, except that the lot inspections would be carried out by BIS Certification Officers.

9. This issues with the approval of DG.

(Rakesh Kumar)
Sc D

**H(CMD-III)**

**DDG (Certification)**

Circulated to : All ROs/BOs

# Standard Operating Procedure (SoP) for Lot Inspection of LPG Cylinders as per IS 3196 (Part 1)

| Sl. No. | Activity | Responsibility |
|---|---|---|
| **1.** | **REQUEST FOR LOT INSPECTION** | |
| a) | • 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. (*see the guidelines on Request, Planning of inspections and fee related matters attached as* ***Annexure- A*** )<br>• The request shall include lot-wise details of LPG Cylinders i.e Batch Number, Size (Quantity), Water Capacity, Serial Numbers etc. intended to be offered for inspection (*as per* ***Annexure B***).<br>• It is to be ensured that the offered batches have undergone all the activities including Heat Treatment, Hydrostatic Test, Tare Weight Measurement, Pneumatic Leakage Test etc. before the inspection.<br>• Lot Inspection Charges shall be paid through Manakonline Portal. (*see the guidelines on Request, Planning of inspections and fee related matters attached as* ***Annexure- A )*** | Licensee |
| 2. | **ALLOTMENT OF INSPECTION AND SAMPLE SELECTION** | |
| a) | • Allotment of Lot Inspection to agency/BIS Certification Officer shall be made through Manakonline<br>• Ensure rotation of agency and certification Officer<br>• Monitoring to ensure that rotation among TAs is being followed by the agency to whom inspection has been assigned (*See* ***Annexure- A*** *attached for details*) | Head (BO) |
| b) | Assigning the lot inspection by agency in-charge to its TA ensuring rotation of TAs (*See* ***Annexure- A*** *attached for details*). It shall be ensured by the agency that TA is assigned by them on the same day or latest, by next day. | Agency in-charge |
| c) | • Identify the serial numbers of LPG Cylinders for Acceptance Tests (A/T) and Burst Test (B/T).<br>• Communicate the serial numbers of identified cylinders to the licensee through Manakonline in the prescribed format (***Annexure C***) so that the licensee gets ample time to locate and segregate these cylinders from the stock. (*See Table 0 of Lot inspection report-* ***Annexure- D***) | CO /TA<br>CO /TA |

| | | |
|---|---|---|
| | • The identified cylinders shall be offered to the Officer during visit for its verification and proper marking/identification in his presence for taking up for testing. | Licensee |
| **3.** | **VERIFICATION OF BATCHES AND LOT INSPECTION** | |
| a) | • 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 (*See Table 0 of Lot inspection report- **Annexure D**).*<br><br>• The authenticity of the information provided by the Licensee regarding completion of various activities w.r.t the batches offered for lot inspection shall be ensured at the time of inspection (*See Table 0 of Lot inspection report- **Annexure D**).*<br><br>• Check and sign the inspection and testing records of various stages (Heat treatment, Hydrostatic test, Priming, Painting, Tare weight, Internal cleaning, Pneumatic leakage) for the batches taken up for lot inspection | CO /TA |
| b) | Ensure that the cylinders offered for lot inspection are stored/stacked batch wise without mix up (*see the Guidelines on Request, Planning of inspections and fee related matters attached as **Annexure A**).* | Licensee |
| c) | • Perform physical verification of the offered batches w.r.t the Batch Numbers, Size (Quantity), Water Capacity etc (*See Table 0 of Lot inspection report- **Annexure D**).*<br><br>• Mixing up of batches shall not be permitted. Verify whether the cylinders of different batches are stored as distinctly identifiable and not mixed up (*See Table 0 of Lot inspection report- **Annexure D**).* | CO /TA |
| d) | Verify the Serial Numbers of the cylinders selected for AT and BT (*See Table 0 of Lot inspection report- **Annexure D**).* | CO /TA |
| e) | Selected serial nos. of the cylinders shall be entered in the sampling register and signed | Licensee<br>CO/TA |
| f) | • Each of the test specimens prepared for A/T shall be properly marked/ identified with indelible permanent marker.<br><br>• Proper marking/ identification of test specimens shall be verified. | Licensee<br><br>CO /TA |
| g) | • While carrying out tensile test, it shall be ensured that the UTM has provision to plot graph.<br><br>• In order to ensure proper correlation of graph with the test results, CO/TA shall sign on the graph immediately after completion of tensile test along with Batch Number, Serial Number and Type of Test Specimen. | CO /TA |

| | | |
|---|---|---|
| h) | ***It is expected that minimum of 8 hours are spent in the factory by TA during the lot inspection*** | **TA** |
| i) | • Record of photographs of BT cylinder showing the serial number on the stay plate and the burst portion shall be maintained.<br>• Preparation of the test results and uploading the testing records (of A/T & B/T of each cylinder) as per Table 3 of the format of lot inspection report) in manakonline.<br>• Preparation of test certificate in prescribed format (*attached as **Annexure- E )*** | Licensee |
| 4. | **SUBMISSION OF LOT INPECTION REPORT** | |
| a) | • Verification of details in test certificate<br>• 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.<br>*Lot inspection report shall be submitted in prescribed format (Format attached as **Annexure-D**) and shall consist of the following:*<br>*i. Verification from records for the concerned batch/inspection lots (Refer Table 1 of Report of lot inspection).*<br>*ii. Stage inspection of manufacturing process (Refer Table 2 of Report of lot inspection).*<br>*iii. Inspection & testing prior to the release of batch (Refer Table 3 of Report of lot inspection).* | TA<br>CO/ TA |
| b) | • All rejections (cylinders/shells/process rejections etc.) shall be deshaped fortnightly in the presence of CO/TA and entered in the deshaping record.<br>• The deshaping records shall be duly signed. | Licensee<br>Licensee/ CO/TA |
| c) | Page 1 of the inspection report is to be signed by licensee also and a copy of the same may be retained by the licensee | Licensee |
| 5. | **ISSUANCE OF TEST CERTIFICATE BY BIS CERTIFICATION OFFICER** | |
| 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. | **QUALITY ASSURANCE MEASURES** | |
| a) | It shall be ensured by Head (BO) that BIS Certification officer also is deputed periodically to conduct lot inspection of every cylinder unit preferably once in every 30 days or as decided by Head (BO) to ensure adequate supervision. | Head (BO) |
| b) | Head (BO) may also occasionally depute BIS officer on the day of lot inspection to check the working and performance of TA during the lot inspection | |
| c) | Head (BO) should proactively interact with the management of licensee to have a periodic feedback about 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 and fee related matters for lot inspection of LPG Cylinders as per IS 3196-1

1. A batch of LPG cylinders shall consist of finished cylinders not exceeding 3000 cylinders made consecutively by the licensee using the same manufacturing technique, to the same design, size and material specifications on the same type of automatic welding machines and subject to the same heat treatment conditions. A batch may contain material from more than one cast. For acceptance purposes, the batch shall be divided into inspection lots not exceeding 1,000 cylinders and sampling shall be done as per provisions laid down in IS 3196 (Part 1): 2013.

2. Licensees will submit the lot inspection request along with details of batches in the prescribed format, preferably a week in advance or latest 3 days before the proposed day of lot inspection. Inspecting officer/ Technical auditor shall then identify the serial numbers of LPG cylinders for Acceptance Tests (A/T) and Burst Test (B/T) and communicate it back to the licensee so that, licensee gets ample time to locate and segregate such cylinders from the stock and offer during visit to the officer for its verification and proper marking/identification in his presence for taking up for testing. Request from licensee for change in date of inspection with proper reason may be considered by Head (BO) by recording the justification.

3. For proper inspection/sampling, it should be ensured that licensee has got adequate storage/ stacking space within the factory premises so that the cylinders are stacked & 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.

4. 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 inspecting 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.

5. **Preparation of schedule and allocation of visits for lot inspections-** Monthly schedule shall be prepared by Head (BO) and Inspection agency/ BIS Inspecting officer and 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) The visits are allocated equally amongst all the available certification officers in the Branch as far as possible.

   b) Multiple visits to a single licensee are rotated amongst all the available certification officers equally as far as possible.

c) No particular certification officer is allocated unusually large number of visits in respect to a specific licensee.

d) Rotation of BIS Certification officer issuing test certificate to be ensured.

6. Normally, in one day, up to 3 batches (9000 cylinders) can be tested and released.

7. In case a manufacturer has licences for more than one product (e.g. for Cylinders as per IS 3196- 1 and IS 13258) 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.

8. The test certificate issued shall contain continuous number (serially), customer-wise. In order to have uniformity, officers may indicate ‘Certificate Number' in test certificate in the following manner: ‘BISBO/Licensee (abbreviation)/Customer (abbreviation)/Test Certificate Number’

## (Annexure B)
## FORMAT FOR COMMUNICATING DETAILS BY LICENSEE

### Lot-wise details of LPG cylinders as per IS 3196 (Part 1) offered for Lot Inspection

**Name of the Licensee** **CM/L Number:**

**Proposed date for Lot Inspection**: **Payment of Lot Inspection Charges: Paid/Not Paid**

| Sl. No | Water Capacity | Batch No. | Heat No(s) of Coils | Size (Qty) | Inspection Lot No. | Serial Number | | Date of completion of | | | | Sl. No of Rejected Cylinders (If any) | Purchaser with Purchase Order No. | Drawing No. | Previous History of Batch (in cases of earlier failure of the Batch) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | Heat Treatment | Hydrostatic test | Tare Weighing | Pneumatic test | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |

## (Annexure C)
## FORMAT FOR COMMUNICATING DETAILS BY TA/CO

### Lot-wise details of LPG cylinders as per IS 3196 (Part 1) offered for Lot Inspection

**Name of the Licensee** **CM/L Number:**

**Proposed date for Lot Inspection**:

| Sl. No | Water Capacity | Batch No. | Heat No(s) of Coils | Size (Qty) | Inspection Lot No. | Serial Number | | Serial number of cylinders for Acceptance test | Serial number of cylinders for burst test |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |

## Annexure D
## Bureau of Indian Standards
## Format for report of Lot inspection of LPG Cylinders as per IS 3196 (Part 1)

1) Name of the Unit- 2) Licence Number-

3) Date of Lot Inspection –

4) Batch Number–

5) Verification- (i) General verification as per Table 0
(ii) Verification from records as per Table 1
(iii) Stage inspection of manufacturing process as per Table 2

6) Details of lots tested:

| **Sl. No** | **Batch No.** | **Inspection Lot No.** | **Purchaser name** | **QTY** | **DOM** | **Result** | **Remarks** |
|---|---|---|---|---|---|---|---|
| | | | | | | As per Table 3 | |

7) No. of cylinders tested (A/T): , (Duly signed test results of each cylinder recorded in the register shall be attached/ Scanned and uploaded)

8) No. of cylinders tested (B/T): , (Duly signed test results of each cylinder recorded in the register shall be attached/ Scanned and uploaded)

9) Attach copy of test certificate prepared by licensee after verification:

10) Details of rejection and deshaping:

11) Remarks, if any:

Signature with date of QCI:
Name and designation

Signature with date of TA/CO:
Name and designation

## Table 0
## General verification

| Sl No. | Verification requirement | Observation |
|---|---|---|
| a) | Whether the serial numbers of identified cylinders were communicated to the licensee through Manakonline so that the licensee gets ample time to locate and segregate these cylinders from the stock | **Yes/No** |
| b) | For the lots taken up by the Officer for lot inspection on the date of visit, whether the stage records indicate that all the stages were already completed | **Yes/No** |
| c) | During stage auditing of manufacturing process on the date of visit, whether cylinders of the lots taken up by the Officer for lot inspection were still under process at any of the manufacturing stages | **Yes/No** |
| d) | Whether the Serial Numbers of the cylinders for AT and BT were verified at the time of visit before taking up specimen preparation by the licensee | **Yes/No** |
| e) | Whether the cylinders of different batches taken up for inspection are stored as distinctly identifiable and not mixed up | **Yes/No** |
| f) | Whether the physical verification of the offered batches indicate that the batches taken up for lot inspection are complete w.r.t its Size (Quantity) | **Yes/No** |
| g) | Whether the graphs are signed immediately after completion of tensile test along with Batch Number, Serial Number and Type of Test Specimen | **Yes/No** |

**Signature with date of TA/CO:**

## Table 1
## Verification from Records

| Sr. No. | Requirements | Clause Reference of IS 3196 (Part 1 | Test certificates | Observation |
|---|---|---|---|---|
| 01 | Material | | | |
| | Steel used in the manufacture of cylinders | 4.1 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| | Bung/Valve Pad | 4.2 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| | Foot Ring | 4.3 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| | Valve Protection Ring | 7.2/9 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 02 | Valves | 9.1 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 03 | Primer/Paint | 23 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 04 | Calibration of Instruments | | Calibration certificate/records Available/ Not available | Satisfactory/ Not Satisfactory |
| 05 | Record of Stage Inspection | As per SIT/ Levels of Control | Stage Inspection Record Available/ Not available | Satisfactory/ Not Satisfactory |

**Signature with date of TA/CO:**

**Table 2**

**Stage Inspection of Manufacturing Process**

| Sr. No. | Requirement / Stage | Observations |
|---|---|---|
| 1. | Fittings | Satisfactory/ Not Satisfactory |
| 2. | Cylinder portion/halves | Satisfactory/ Not Satisfactory |
| 3. | Welding (*check whether the approved welding parameters viz. Current, Voltage etc. are being maintained) | Satisfactory/ Not Satisfactory |
| 4. | Examination of cylinders before closing in operation | |
| | Circularity | Satisfactory/ Not Satisfactory |
| | Surface defects | Satisfactory/ Not Satisfactory |
| | Profile regularity | Satisfactory/ Not Satisfactory |
| | Straightness | Satisfactory/ Not Satisfactory |
| | Verticality | Satisfactory/ Not Satisfactory |
| 5. | Heat Treatment (*check whether the approved and validated parameters temperature, cycle time etc. are being maintained) | Satisfactory/ Not Satisfactory |
| 6. | Hydrostatic Test | Satisfactory/ Not Satisfactory |
| 7. | Grit Blasting | Satisfactory/ Not Satisfactory |
| 8. | Metalizing (*Coating Thickness) | Satisfactory/ Not Satisfactory |
| 9. | Primer Coating/ Paint Coating | Satisfactory/ Not Satisfactory |
| 10. | Internal cleaning | Satisfactory/ Not Satisfactory |
| 11. | Tare Weight | Satisfactory/ Not Satisfactory |
| 12. | Radiographic examination (if applicable) | Satisfactory/ Not Satisfactory |
| 13. | Checking of water capacity | Satisfactory/ Not Satisfactory |
| 14. | Bung Threads | Satisfactory/ Not Satisfactory |
| 15. | Valve Fixing | Satisfactory/ Not Satisfactory |

***TA/CO shall randomly check/witness the above requirements.***
****It is mandatory to check these requirement of welding, heat treatment and metalizing coating thickness during the visit.***

**Signature with date of TA/CO:**

**Table 3**
**Inspection & Testing prior to the release of Batch**

| Sr. No. | Tests | Clause Reference of IS 3196 (Part 1) | Number of samples | Observation |
|---|---|---|---|---|
| 1. | Valve fixing using approved jointing compound at specific torque | 9.1.1 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory |
| 2. | Pneumatic leakage test | 16 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory |
| 3. | Burst test under Hydraulic pressure | 17.2 | Sample size as per fig. 1 of IS 3196 (Part 1): 2013 | Satisfactory/ Not Satisfactory (***Test results of each cylinder recorded in the register shall be scanned and uploaded*** ) Bursting Pressure: Minimum: Maximum: |
| 4. | Total minimum combined coating thickness | 23.2 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory Coating: Minimum: Maximum: |
| 5. | Acceptance tests | 18 | Sample size as per fig. 1 of IS 3196 (Part 1): 2013 | Satisfactory/ Not Satisfactory ***(Test results of each cylinder recorded in the register shall be scanned and uploaded )*** • Y.S.: Min/Max • T.S.: Min/Max • % Elong: Min/ Max • Bend Test: Satis/Not Satis |
| 6. | Markings | 20 | 1 cylinder out of every 500 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory |

Remark:

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

Deviations if any:

Signature of QCI
Name-
Date-

Signature of Technical auditor of BIS empanelled agency/ CO -
Name & Designation -
Date-

**ANNEXURE E**

**TEST CERTIFICATE as per IS 3196 (Part 1)**

Purchaser: _____ Certificate No. :_____
Order No. : _____ Date: _____
Batch No.: _____ Inspection Lot No.:_____
Cylinder Description: _____litres water capacity. Two/three piece LPG Cylinder, working pressure_____
Test pressure _____ MPa . Manufacturer's Identification Mark
_____

This is to certify that the cylinders manufactured, inspected and tested as mentioned below during the period from _____ to _____at M/s _____ meet the requirements of specification IS 3196 (Pt.1):2013, Drawing No. _____. The cylinders have been fitted with ISI marked valves.

Method of Manufacture

1. Welding process:
1 Method of Support: : Joggling
2 Heat treatment: Normalized/Stress Relieved at _____ ºC for_____ min.

Acceptance Test

Sl. No. of Cylinders:

INSPECTION

The cylinders have been inspected and tested in accordance with Scheme of Inspection and Testing attached with BIS licence no. CM/L-_____

| | Min | Max |
|---|---|---|
| Yield stress (MPa) | | |
| Tensile Strength (MPa) | | |
| % Elongation | | |

Material for Cylinder: IS 6240/IS 15914

TESTS

**Hydrostatic Test**: Satisfactory
(Test Pressure_____Mpa )
**Pneumatic leakage test**: Satisfactory
(Test Pressure _____ Mpa )

**Bursting Test**:
Sl. No. of Cylinders:
Burst Pressure (MPa): Min. - Max. -
Cylinder bursted without fragmentation
Nominal Hoop Stress (MPa)

**Bend Test**
Face: Satisfactory
Root: Satisfactory

Macro Examination
Body: Satisfactory
Neck: Satisfactory
**Min. Thickness**: ___ mm

Cylinder Nos. _____ to_____ of _____ Batch are covered under Acceptance test cylinder no. _____ and burst test cylinder no. _____ of _____ Batch. These have been heat treated in the same manner and manufactured from steel of similar chemical composition and mechanical properties which had been produced by same steel manufacturer
_____

QUANTITY INSPECTED: Cylinders Serial No. from _____ to _____inclusive
Serial No. of REJECTED CYLINDERS _____
TOTAL No. of Cylinders Passed _____

(Signature)
Name & Designation of the firm's representative

(Signature)
Name and designation of BIS Certification officer

**Standard Operating Procedure (SoP) for**

**Lot Inspection for reconditioning and testing of used LPG Cylinders as per IS 13258**

| Sl. No. | Activity | Responsibility |
|---|---|---|
| **1.** | **REQUEST FOR LOT INSPECTION** | |
| a) | • 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.<br>• It is to be ensured that the offered batches have undergone all the activities including Heat Treatment, Hydrostatic Test, Tare Weight Measurement, Pneumatic Leakage Test etc. before the inspection.<br>• Lot Inspection Charges shall be paid through Manakonline Portal. | Licensee |
| 2. | **ALLOTMENT OF INSPECTION AND SAMPLE SELECTION** | |
| a) | • Allotment of Lot Inspection to agency and BIS Certification Officer shall be made through Manakonline<br>• Ensure rotation of agency and certification Officer<br>• Monitoring to ensure that rotation among TAs is being followed by the agency to whom inspection has been assigned (*See **Annexure-A** of SOP/Lot inspections/ IS 3196-1 for details*) | Head (BO) |
| b) | • Assigning the lot inspection by agency in-charge to its TA ensuring rotation of TAs (*See **Annexure- I** attached for details*). It shall be ensured by the agency that TA is assigned by them on the same day or latest, by next day. | Agency in-charge |
| **3.** | **VERIFICATION OF BATCHES AND LOT INSPECTION** | |
| a) | • The authenticity of the information provided by the Licensee regarding completion of various activities w.r.t the batches offered for lot inspection shall be ensured at the time of inspection (*Table 0 of Lot inspection report- **Annexure I**).*<br>• 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 (*See Table 0 of Lot inspection report- **Annexure I**).*<br>• Check and sign the inspection and testing records of various stages (Record of re-conditioning (*as per Table 14 of SIT*), Heat treatment, Hydrostatic test, Priming, Painting, Tare weight, Internal cleaning, Pneumatic leakage) for the batches taken up for lot inspection | CO /TA |

| | | |
|---|---|---|
| | Ensure that de-gassing is being done at approved station and as per the approved procedure only and maintain the records of de-gassing<br><br>Check that de-gassing is being done at approved station and as per the approved procedure only and check the records of de-gassing | Licensee<br><br>CO/TA |
| b) | Ensure that the cylinders offered for lot inspection are stored/stacked batch wise without mix up | Licensee |
| c) | • Mixing up of batches shall not be permitted. Verify whether the cylinders of different batches are stored as distinctly identifiable and not mixed up (*See Table 0 of Lot inspection report- **Annexure I**).*<br>• Perform physical verification of the offered batches w.r.t the Batch Numbers, Size (Quantity), Water Capacity etc (*See Table 0 of Lot inspection report- **Annexure I**).* | CO /TA |
| d) | ***It is expected that minimum of 8 hours are spent in the factory by TA during the lot inspection*** | **TA** |
| e) | • Preparation of the test results as per Table C of the format of lot inspection report (***Annexure-I***)<br>• Preparation of test certificate in prescribed format (*attached as **Annexure- II )*** | Licensee |
| 4. | **SUBMISSION OF LOT INPECTION REPORT** | |
| a) | • Verification of details in test certificate<br><br>• 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.<br>*Lot inspection report shall be submitted in prescribed format (Format attached as **Annexure-I**) and shall consist of the following:*<br>*i. Verification from records for the concerned batch/inspection lots (Refer Table A of Report of lot inspection).*<br>*ii. Inspection of Stages and reconditioning process (Refer Table B of Report of lot inspection).*<br>*iii. Inspection & testing prior to the release of batch (Refer Table C of Report of lot inspection).* | TA<br><br>CO/ TA |
| b) | • All rejections (unserviceable cylinders/process rejections etc.) shall be deshaped fortnightly in the presence of CO and entered in the deshaping record.<br><br>• The deshaping records shall be duly signed. | Licensee<br><br>Licensee/ CO/TA |
| c) | Page 1 of the inspection report is to be signed by licensee also and a copy of the same may be retained by the licensee | Licensee |

| | | |
|---|---|---|
| | | |
| 5. | **ISSUANCE OF TEST CERTIFICATE BY BIS CERTIFICATION OFFICER** | |
| 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. | **QUALITY ASSURANCE MEASURES** | |
| a) | It shall be ensured by Head (BO) that BIS Certification officer also is deputed periodically to conduct lot inspection of every cylinder unit preferably once in every 30 days or as decided by Head (BO) to ensure adequate supervision. | Head (BO) |
| b) | Head (BO) may also occasionally depute BIS officer on the day of lot inspection to check the working and performance of TA during the lot inspection | |
| c) | Head (BO) should proactively interact with the management of licensee to have a periodic feedback about the TAs of the agencies | |

Abbreviations: CO- BIS Certification officer
TA- Technical auditor of BIS empaneled agency

## Annexure I

## Format for Lot inspection of Reconditioned LPG Cylinders according to IS 13258: 2014

1) Name of the Unit-

2) Licence Number-

3) Date of Lot Inspection –

4) Batch Number/ Control Unit –
5) Verification: (i) General verification as per Table 0
   (ii) Verification from records as per Table A
   (iii) Inspection of stages and reconditioning process as per Table B

6) Attach copy of test certificate prepared by licensee after verification:

7) Details of rejection and deshaping:

Signature with date of QCI: Signature with date of TA/CO:

## Table 0

## General Verification

| Sl No. | Verification requirement | Observation |
|---|---|---|
| a) | For the lots taken up by the Officer for lot inspection on the date of visit, whether the stage records indicate that all the stages were already completed | **Yes/No** |
| b) | During stage auditing of manufacturing process on the date of visit, whether cylinders of the lots taken up by the Officer for lot inspection were still under process at any of the manufacturing stages | **Yes/No** |
| c) | Whether the cylinders of different batches taken up for inspection are stored as distinctly identifiable and not mixed up | **Yes/No** |
| d) | Whether the physical verification of the offered batches indicate that the batches taken up for lot inspection are complete w.r.t its Size (Quantity) | **Yes/No** |

## Table – A
## Verification from Records

| Sr. No. | Requirements | Clause Reference of IS 13258: 2014 | Test certificates | Observation |
|---|---|---|---|---|
| 01 | Foot Ring | 9.1.4 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 02 | Valve Protection Ring | 9 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 03 | Valves | 15.1 | Test certificates Available/ Not available | Satisfactory/ Not Satisfactory |
| 04 | Calibration of Instruments | | Calibration certificate Available/ Not available | Satisfactory/ Not Satisfactory |
| 05 | Record of Stage Inspection | As per SIT/ Levels of Control | Stage Inspection Record Available/ Not available | Satisfactory/ Not Satisfactory |

## Table- B

## Inspection of Stages and Reconditioning Process

**Date of Lot Inspection :**

| Sr. No. | Requirement / Stage | Observations |
|---|---|---|
| 1. | Degassing | Satisfactory/Not Satisfactory |
| 2. | External Cleaning | Satisfactory/Not Satisfactory |
| 3. | Internal Cleaning | Satisfactory/ Not Satisfactory |
| 4. | Tare weight Verification | Satisfactory/ Not Satisfactory |
| 5. | External Inspection | Satisfactory/ Not Satisfactory |
| 6. | Internal Inspection | Satisfactory/ Not Satisfactory |
| 7. | Removal of Footring and Valve Protection | Satisfactory/ Not Satisfactory |
| 8. | Fixing new Footring and Valve Protecting Ring/Shroud | Satisfactory/ Not Satisfactory |
| 9. | Heat Treatment (*check whether the approved and validated parameters temperature, cycle time etc. are being maintained) | Satisfactory/ Not Satisfactory |
| 10. | Hydrostatic Test | Satisfactory/ Not Satisfactory |
| 11. | Grit Blasting | Satisfactory/ Not Satisfactory |
| 12. | Metalizing (*Coating Thickness) | Satisfactory/ Not Satisfactory |
| 13. | Primer Coating/ Paint Coating | Satisfactory/ Not Satisfactory |
| 14. | Tare Weight | Satisfactory/ Not Satisfactory |
| 15. | Valve Fixing | Satisfactory/ Not Satisfactory |
| 16. | Pneumatic Test | Satisfactory/ Not Satisfactory |
| 17. | Deshaping | Satisfactory/ Not Satisfactory |

***TA/CO shall randomly check/witness the above requirements.***
****It is mandatory to check these requirement of heat treatment and metalizing coating thickness during the visit.***

**Signature with date of TA/CO:**

## Table- C

## Inspection & Testing prior to the release of Batch

| Sr. No. | Tests | Clause Reference of IS 13258 | Number of samples | Observation |
|---|---|---|---|---|
| 1. | Valve fixing using approved jointing compound at specific torque | 15.1 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/Not Satisfactory |
| 2. | Pneumatic leakage test | 16 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory |
| 3. | Total minimum combined coating thickness | 18.2 | 1 cylinder out of every 250 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory<br>Coating:<br>Minimum:<br>Maximum: |
| 4. | Markings | 20 | 1 cylinder out of every 500 cylinders or part thereof an inspection lot | Satisfactory/ Not Satisfactory |

Remark:

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

Deviations if any:

Signature of QCI
Name:
Date:

Signature of BIS CO/Technical auditor of BIS empanelled agency
Name & Designation:
Date:

## Annexure II

## TEST CERTIFICATE

(Reconditioning and Testing of Used LPG Cylinders)

Name and address of repairer:

Certificate No.:
Date :

CM/L No.:

Owner (Name of the customer) :
Order No. :
Batch Number :

Cylinder description: _____ litres water capacity, _____ piece welded LPG cylinders, working pressure: _____Kgf/cm$^2$/ MPa.

This is to certify that the LPG cylinders as per the details given above have been repaired as per details given in Appendix 1, re-inspected and tested at M/s._____

These cylinders have passed all the requisite tests as specified in IS 13258:2014 and are declared fit for use.

Appendix 2 gives the list of cylinders segregated as unserviceable, rejected and scrapped.

Total Quantity passed:

Total Quantity rejected:

**Details of Inspection and Testing:**

i) Visual examination (External & Internal)
ii) Stress relieving at _____$^o$C maximum for _____minutes
iii) Hydraulic pressure test at _____ MPa.
iv) Surface preparation, Metalizing and Painting.
v) Checking of Bung threads and valve fixing
vi) Pneumatic Test at _____ MPa.
vii) New Tare weight of the cylinder punched.

QUALITY CONTROL INCHARGE
OF THE FIRM

CERTIFICATION OFFICER
BUREAU OF INDIAN STANDARDS

## APPENDIX 1

### (LIST OF CYLINDERS ACCEPTED)

Repairer's Name : Certificate number :
Owner : Order number :
Batch number : Date :

| Sl. No. of cylinder | Original Manufacturer's name/Identity | Date of manufacture/Test | Date of repair/Test | Details of repairs carried out |
|---|---|---|---|---|
| | | | | |

QUALITY CONTROL INCHARGE
OF THE FIRM

INSPECTING OFFICER
BUREAU OF INDIAN STANDARDS

## APPENDIX 2

### (LIST OF CYLINDERS UNSERVCEABLE)

Repairer's Name : Certificate number :
Owner : Order number :
Batch number : Date :

| Sl. No. of cylinder | Original Manufacturer's name/Identity | Date of manufacture. | Date of rejection | Reasons for rejection |
|---|---|---|---|---|
| | | | | |

QUALITY CONTROL INCHARGE
OF THE FIRM

CERTIFICATION OFFICER
BUREAU OF INDIAN STANDARDS