केन्द्रीय मुहर विभाग 2

हमारा संदर्भ: सीएमडी 2/16: 6240 13 01 2016

विषय : परीक्षण और निरीक्षण की योजना, एसटीआई, Doc:STI/6240/ 10, January 2016 , आईएस 6240:2008 HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFLABLE GAS CYLINDERS (Fourth Revision) के लिए अन्तरगत दिशानिर्देश

सक्षम प्राधिकारी द्वारा अनुमोदित, आईएस 6240:2011 HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFLABLE GAS CYLINDERS (Fourth Revision) परीक्षण और निरीक्षण की योजना, एसटीआई Doc:STI/6240/ 10, January 2016 संलग्न है।

( वी के डिग्री )
वैज्ञानिक एफ

प्रमुख (सीएमडी 2)

सभी क्षेत्रीय/शाखा कार्यालयों को परिचालित

प्रतिलिपि : आई टी एस को बीआईएस वेबसाइट/इंटरनेट पर अपलोड करने के लिए
Subject: SCHEME OF TESTING AND INSPECTION FOR HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFLABLE GAS CYLINDERS ACCORDING TO IS 6240:2008 (Fourth Revision)

Please find enclosed herewith revised Scheme of Testing and Inspection Doc :STI/6240/10, January 2016 for HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFLABLE GAS CYLINDERS ACCORDING TO IS 6240:2008 (Fourth Revision) duly approved by Competent Authority.

(V.K. Diundi)
Scientist F

Head CMD-2

Circulated to All RO/BO/SBOs

Copy to: ITS for hosting on BIS Website/Intranet.
SCHEME OF TESTING AND INSPECTION
FOR CERTIFICATION OF
HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP
FOR THE MANUFACTURE OF
LOW PRESSURE LIQUEFLABLE GAS CYLINDERS.
ACCORDING TO IS 6240:2008
( Fourth Revision )

1. LABORATORY – A laboratory shall be maintained which shall be suitably equipped and staffed where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 All testing apparatus/measuring instruments shall be periodically checked and calibrated and records of such checks/calibration shall be maintained.

2. TEST RECORDS - All records of tests, inspection and calibration shall be kept in suitable forms approved by the Bureau.

NOTE: The existing forms etc., as being retained. These forms however, shall contain all the information required for operating this scheme of Testing and Inspection.

2.1 Copies of any records and other connected papers that may be required by the Bureau shall be made available at any time on request.

3. QUALITY CONTROL - It is recommended that, as far as possible, Statistical Quality Control (SQC) methods may be used for controlling the quality of the product during production as envisaged in this Scheme [See IS 397(Part -1) to IS 397 (Part 4)].

3.1 In addition, effort should be made to gradually introduce a Quality Management System in accordance with IS/ISO 9001.

4. STANDARD MARK – The Standard Mark, as given in column (I) of the First Schedule of the licence is specified for hot rolled steel plate, sheet and strip covered in 6240.

4.1 TEST CERTIFICATE - Each consignment of BIS certified material conforming to IS 6240 shall be accompanied by a test certificate which shall contain the standard mark, the cast number/coil number and the corresponding test result (as given in Annexure I) depending upon supply conditions (See Clause 14 of specification).

4.1.1 Steel plates and sheets shall be supplied in bundles and strips in coils. The mass of the bundle or coil shall be as agreed to between the purchaser and the manufacturer. Each plate and sheet in each bundle shall be legibly marked with the cast/coil number. The top sheet in each bundle shall also be marked with the name of the manufacturer or trade mark. Each bundle shall further carry a metal tag bearing the cast/coil number and the manufacturer’s name or trade mark or such
information may be given on the top of the steel envelope containing the sheets during packing. In case of coils, each coil shall be legibly marked with the cast/coil number and manufacturer’s name or trade-mark.

4.2 **CONDITION OF DELIVERY** – Plate sheet and strips may be supplied in hot rolled and normalized or hot rolled under controlled condition.

4.2.1 When agreed with the purchaser, the manufacturer may supply the material after pickling and leveling with a suitable protection treatment in accordance with IS 13566.

5. **LEVELS OF CONTROL** – The tests, as indicated in Table 1 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory which is covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2.0 above. All the production which conforms to the Indian Standards and covered by the licence shall be marked with certification mark not the Bureau.

5.1 **METHOD OF MANUFACTURE** – Manufacturing process(es) toward steel making and rolling shall be declared by the Manufacturer. The steel shall be of fully AI-Killed and non-ageing quality.

5.2 **CHEMICAL COMPOSITION** - Ladle analyses of plate and sheet obtained by analyzing three samples from each heat of 100 tonnes and above and two samples from each heat of less than 100 tonnes shall conform to the requirements laid down in Table 1 of the specification. Product analysis shall be carried out at the rate of one sample for every cost and the permissible Variation in the case of product analysis shall be as laid down in Table 2 of the specification. Occasional analysis for Nitrogen Content shall be carried out in the product and the record is to be maintained.

5.3 **FREEDOM FROM DEFECTS** – The finished material shall be free from harmful defects such as seams, Pipe, laminations, Cracks, slivers, rolled-in-scale, blisters and pitted surface which will impair the drawability.

5.4 **DIMENSIONS AND TOLERANCES** - Unless otherwise specified, the dimensions of steel plate, sheet and strip shall conform to the dimensions as given in IS 1730.

5.4.1 Unless otherwise specified, the dimensional and shape tolerances of steel plate, sheet and strip shall conform to the requirements as given in IS/ISO 16160.

5.5 **TENSILE TEST** – Test pieces to be drawn and tested as per clause 7 or the specification.

5.5.1 Periodic calibration shall be done on the tensile testing machine. The frequency of such calibration should preferably be once in six months, and in any case, not more than once in a year.

5.6 **BEND TEST** – Test pieces to be drawn and tested as per clause 8 of the specification.
5.7 **STRAINAGE EMBRITTLEMENT TEST** - Test pieces for the test is to be drawn and tested as per clause 9 of the specification.

5.8 **ERICHSEN CUPPING TEST** - Test pieces in case of cupping test is to be drawn and tested as specified in clause 10 of the specification.

5.9 **RETEST** – If a test does not give the specified results, two additional tests shall be carried out at random on the same lot. Both retests shall conform to the requirements of this standard, otherwise, the lot shall be rejected.

5.10 In respect of all other clauses of the specification, the factory will maintain appropriate controls and checks to ensure that their product conforms to the requirements of those clauses.

6. **REJECTIONS** - A separate record shall be maintained giving information relating to the rejection of the production not conforming to the requirements of the specification and the method of its disposal. Such material shall in no circumstances be stores together with that conforming to the specification.

7. **SAMPLES** – The licensee shall supply, free of charge, the samples required in accordance with the Bureau of Indian Standards (Certification) Regulations, 1988, as subsequently amended, from the factory of godowns. The Bureau shall pay for the samples taken by it from the open market.

8. **REPLACEMENT** – Whenever a complaint is received soon after the goods with Standard Marks have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods or their components are replaced or repaired free of cost by the licensee in case the complaint is proved to be genuine and the warranty period (where applicable) has not expired. The final authority to judge the conformity of the product to the Indian Standard shall be with the Bureau. The firm shall have own complaint investigation system as per IS/ISO 10002.

8.1 In the event of any damages caused by the goods bearing the Standard Mark or Claim being filed by the Consumers against BIS Standard Mark and not “Conforming to” the relevant Indian Standard entire liability arising out of such non conforming product shall be of licensee and BIS shall not in any way be responsible in such cases.

9. **STOP MARKING** – The marking of the product shall be stopped under intimation to the Bureau if, at any time, there is some difficulty in maintaining the conformity of their product to the specification, or the testing equipment goes out of order. The marking may be resumed as soon as the defects are removed under intimation to Bureau.

9.1 The marking of the product shall be stopped immediately if directed to do so by Bureau for any reason. The marking may then be resumed only after permission by the Bureau. The information regarding resumption of markings shall also be sent to the Bureau.

5. **PRODUCTION DATA** – The licensee shall send to BIS as per the enclosed proforma-1 to be authenticated by a Charted Accountant and by the manufacturer by giving an
undertaking, a statement of quantity produced, marked and exported by him and the trade value thereof at the end of each operative year of the licence.

**PERFORMA - 1**

**PROFORMA FOR OBTAINING PRODUCTION DETAILS**

<table>
<thead>
<tr>
<th>Period covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Licensee</td>
</tr>
<tr>
<td>CM/L No.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Articles (s)</th>
<th>IS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade/Type/Size/Variety/Class/Rating</td>
<td></td>
</tr>
</tbody>
</table>

1.1 Brand/Trade/Name(s) of BIS Certification Marked Products

2.0 Total production of the articles(s) licensed for certification marking

2.1 Total production of the article(s) conforming to Indian Standard

3.0 Production covered with BIS Certification Mark and its value

   a) Quantity

   b) Value (Rs.)

3.1 Brand Name used on production covered under BIS Certification Mark

3.2 Calculation of marking fee on unit-rate basis; Marking Fee per unit

   a) Unit

   b) Quantity covered with BIS Certification Mark

   c) Marking fee rounded off in whole rupees as obtained by applying unit rates given in (a) on quantity given in (b)

Note: Incase a clause is not applicable, suitable remarks may be given against it.

4.0 Quantity not covered with BIS Certification Mark. If any, and the reasons for such non-coverage
4.1 Brand Name under with non certified goods were sold

5.0 Quantity Exported with BIS Standard Mark and its value

5.1 Brand Name under which BIS Certified goods are exported

6.0 Authentication by Chartered Accountant or by the manufacturer by giving an affidavit/undertaking
# Table of Levels of Controls

## Table 1: Levels of Controls

<table>
<thead>
<tr>
<th>Clause</th>
<th>Requirements</th>
<th>Test Method</th>
<th>No. Of Specimen</th>
<th>Lot size</th>
<th>Frequency</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Chemical composition</td>
<td>Relevant part of IS 228 or any other established instrument/Chemical method. Alternatively the method specified in relevant ISO/IEC standard may be used</td>
<td>Clause Reference</td>
<td>6.1 and Table 1</td>
<td>IS 6240</td>
<td>3</td>
</tr>
<tr>
<td>6.1</td>
<td>Ladle Analysis*</td>
<td>6.1 and Table 1</td>
<td>IS 6240</td>
<td>3</td>
<td>One Heat</td>
<td>Each heat of less than 100 tonnes capacity</td>
</tr>
<tr>
<td>6.2</td>
<td>Product Analysis</td>
<td>6.2, Table 1 &amp; 2</td>
<td>-do-</td>
<td>1</td>
<td>One heat</td>
<td>Adequate inspection to ensure each item to be within the specified limits.</td>
</tr>
<tr>
<td>13</td>
<td>Dimensions and Tolerances</td>
<td>13.1 &amp; 13.2</td>
<td>IS 6240 IS 1730 IS/ISO 16160</td>
<td>Adequate inspection to ensure each item to be within the specified limits.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# IS 6240:2008

**HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFIABLE GAS CYLINDERS,**

**TABLE 1 LEVELS OF CONTROLS**

(Clause 5 of Scheme of Testing and Inspection)

<table>
<thead>
<tr>
<th>Clause</th>
<th>Requirements</th>
<th>Test Method</th>
<th>No. Of Specimen</th>
<th>Lot size</th>
<th>Frequency</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clause</td>
<td>Reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Freedom from defects</td>
<td>12</td>
<td>IS 6240</td>
<td></td>
<td></td>
<td>Each sheet shall be inspected for surface defect &amp; laminations and defective sheets to be segregated. In case of coils adequate inspection will be carried out and rejections to be made as per Note under the relevant Clause of the specification (Cl. 12)</td>
</tr>
<tr>
<td>7</td>
<td>Tensile Test</td>
<td>7.1 to 7.2 and Table 3</td>
<td>IS 6240 IS 1608</td>
<td>Two</td>
<td>One heat/Cast</td>
<td>Heat/Cast up to 100 tonnes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Three</td>
<td>One cast</td>
<td>Cast between 100-200 tonnes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Four</td>
<td>One cast</td>
<td>Cast over 200 tonnes</td>
</tr>
</tbody>
</table>

(See also 5.6 & 5.10)
## IS 6240:2008

**HOT ROLLED STEEL PLATE (UP TO 6MM), SHEET AND STRIP FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFIABLE GAS CYLINDERS,**

**TABLE 1 LEVELS OF CONTROLS**

(Clause 5 of Scheme of Testing and Inspection)

<table>
<thead>
<tr>
<th>TEST DETAILS</th>
<th>LEVELS OF CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clause</td>
<td>Requirements</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bend test</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Strainage Embrittlement Test</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Erichsen cupping test</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>15.1</td>
<td>Mass of the bundle of plates/Sheets or coil</td>
</tr>
</tbody>
</table>

STI/6240/10
January 2016
Annex -1  
(Para 4.1 of the Scheme of Testing and Inspection)  
XYZ Iron and steel company  

(Registered Office address and works address)  
TEST CERTIFICATE FOR HOT ROLLED STEEL PLATE  
(UP TO 6 MM), SHEET AND STRIP  
FOR THE MANUFACTURE OF LOW PRESSURE LIQUEFIABLE GAS CYLINDERS  

TEST CERTIFICATE NO……….. DATE……………..  

To M/s  

It is certified that the material described below fully conform to IS 6240:2008. Chemical and Mechanical Properties of the product, as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence CM/L……………..are indicated below against each order No. etc.  

(PLEASE REFER TO IS 6240:2008 FOR DETAILS SPECIFICATION REQUIREMENTS)  

<table>
<thead>
<tr>
<th>Order No &amp; Date</th>
<th>Size</th>
<th>Cast No.</th>
<th>Coil No/ Packet No.</th>
<th>Quantity (Tonnes)</th>
<th>Chemical Composition</th>
<th>Mechanical Properties</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C % Mn % Ni % S % P % Al %</td>
<td>Yield Stress MPa</td>
<td>Tensile Strength MPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The material supplied conforms to the specified dimensions and tolerances.

Remarks
Shipping Advice No.
WAGON/TRUCK

Signature:
Chief metallurgist
FOR XYZ IRON AND STEEL COMPANY

(It is suggested that size A-4 paper (210 x 297 mm) be used for this Test Certificate)