केंद्रीय मुहर विभाग - III

हमारा संदर्भ- **केन्द्रीय मुहर विभाग-3/16: IS 15660** **07 06 2018**

विषय: IS 15660 : 2017 के अनुपालन हेतु एस टी आई

1. इस उपरोक्त विषय का संदर्भ प्राप्त है।
2. सक्षम प्राधिकारी ने उपरोक्त **एस टी आई** को अनुमोदित कर दिया है।
3. सभी शाखा कार्यालय से आग्रह है कि उपरोक्त **एस टी आई** का अनुपालन सुनिश्चित करें।

(अमित कुमार)
वैज्ञानिक 'सी' (सी एम डी-III)

प्रमुख (सी एम डी-III)
सभी क्षेत्रीय/शाखा कार्यालय
आई टी एस विभाग — बीआईएस इंट्रानेट पर अपलोड करने हेतू

CENTRAL MARKS DEPARTMENT-III

Our Ref: **CMD-3/16: IS 15660** **07 06 2018**

Subject: STI for implementation of Revised IS 15660: 2017

1. This has reference to the subject stated above.
2. The above STI have been approved by the Competent Authority.
3. All ROs/BOs are requested to ensure the implementation of the above STI.

Amit Kumar
Sc. C (CMD III)

Head (CMD III)

Circulated to: All ROs/BOs
Copy to: ITS for hosting on Intranet

SCHEME OF TESTING AND INSPECTION FOR CERTIFICATION OF REFILLABLE TRANPORTABLE SEAMLESS ALUMINIUM ALLOY GAS CYLINDERS ACCORDING TO IS 15660 (*First Revision*)

1. LABORATORY

1.0 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 Indian Standard.

1.1 All testing instruments/equipments shall be periodically checked and calibrated. Records of such checks/calibration shall be maintained.

1.1.1 Tensile testing machines shall be calibrated once in a year. Izod impact testing machine shall be calibrated at least once in three years.

1.1.2 Various pressure gauges used shall be calibrated at least once in a month.

1.1.3 The firm shall procure a set of certified gauges for inspection of different components and get them calibrated at the periodicity decided by the BIS. Master gauge against which inspection gauge are checked periodically shall be sent for rechecking in an independent laboratory once in three years.

1.1.4 The pyrometer used for heat treatment furnace shall be calibrated once in every six months.

2. TEST RECORDS

2.1 All records of tests as per this Scheme of Testing and Inspection shall be kept in suitable forms.

2.2 Copies of any such records that may be required by BIS shall be made available at any time on request.

3. QUALITY CONTROL

3.1 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(various parts).

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

4. STANDARD MARK

4.1 The Standard Mark, as given in Column (1) of the First Schedule of the licence shall be marked on each cylinder provided always that the cylinder to which the Standard Mark is applied conforms to every requirement of the specification.

5. OTHER MARKING

5.1 In addition to the Standard Mark, information as per *clause* **10.6** of IS 15660 shall be permanently and legibly stamped on each cylinder in a manner as prescribed in IS 15660.

6.1 CONTROL UNIT: For the purpose of this scheme, Batch shall be as under:

Batch –Quantity of up to 200 cylinders plus cylinders for destructive testing of the same nominal diameter, wall thickness, length and design, made successively from the same cast of aluminium alloy and subjected to the same heat treatment on the same equipment for the same duration of time.

6.2 The identity of each batch shall be maintained.

6.3 The tests as indicated in Table 1 and at the levels of control specified therein shall be carried out on the whole production of the factory covered by this Scheme and appropriate records maintained in accordance with *clause* **2** above and charts may be maintained as per *clause* **3** above. All the production which conforms to the Indian Standard and covered by this licence shall be marked with Standard Mark.

6.4 Each Batch of gas cylinders conforming to all the requirements of IS 15660 shall be covered by a certificate in accordance with *clause* **11** of IS 15660.

6.5 In respect of all other clauses of the Specification and at all stages of manufacture, the factory shall maintain appropriate control and checks to ensure that the product conforms to various requirements of the Specification.

6.6 DESIGN, CONSTRUCTION AND WORKMANSHIP – The cylinder shall conform to all the requirements given in *clauses* **6 & 7** of IS 15660.

6.6.1 Type approval of cylinder shall be given as mentioned in *clause* **8** of IS 15660 and a type approval certificate shall be issued in prescribed format as per *clause* **8.3** of IS 15660.

7 MATERIAL:

The manufacturer shall declare in their scheme of manufacture/drawing the relevant specification/chemical composition of the raw material (Aluminium Alloy) used for cylinder and shall meet the requirement as given in *clause* **5** of IS 15660.

7.1 One sample from each consignment of raw material received in the factory shall be analysed for chemical composition. The composition shall be such that the material is compatible under the conditions of service with gas intended to be filled. If the material is accompanied by a test certificate, further testing is not required. The manufacturer of the cylinder shall establish means to identify the cylinder with the raw material certificate. Material with seams, cracks, lamination or other injurious defects shall not be used.

7.2 The relevant specification for the raw material for other components shall also be declared by the manufacturer and clearly indicated in their drawings and scheme of manufacture.

7.3 In respect of all other clauses of the specification and at all stages of manufacture, the factory shall maintain appropriate control and checks to ensure that their products conform to various requirements of the specification.

7.4 Wherever the raw material used is under the Mandatory Certification of BIS, the raw material shall be necessarily ISI marked and no further testing is required. Wherever the raw material used is not under the Mandatory Certification of BIS, no further testing is required if accompanied with the Test Certificate or ISI marked.

8 THERMAL TREATMENT

Thermal treatment shall be done in accordance with *clause* **5.2** of IS 15660.

9 RE-TESTS

In the event of failure to meet test requirements, retesting or re- heat treatment shall be carried out in accordance with *clause* **5.4** of IS 15660.

10. REJECTIONS

10.1 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 disposal. Such material shall in no case be stored together with that conforming to the Specification.

11. SAMPLES

11.1 The licensee shall supply, free of charge, the samples required in accordance with the Bureau of Indian Standards (Certification) Regulations, 1988, as amended from time to time, from the factory or godown. BIS may draw samples from the open market, if available.

12. REPLACEMENT

12.1 Whenever a complaint is received soon after the goods with Standard Mark have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods shall be replaced free of cost by the licensee in case the complaint is found 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 BIS.

12.2 In the event of any damage caused by the goods bearing the Standard Mark, or any 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 the licensee and BIS shall not in any way be responsible in such cases.

13. STOP MARKING

13.1 The marking of the product shall be stopped under intimation to BIS 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 or due to any other reason. The marking may be resumed as soon as the defects are removed under intimation to BIS.

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

14. PRODUCTION DATA

The licensee shall send to BIS a statement of quantity produced, marked and exported by him and the value thereof at the end of each operative year of the licence as per the enclosed proforma which has to be authenticated by a Chartered Accountant.

TABLE 1 LEVELS OF CONTROL

Para 6 of the Scheme of Testing and Inspection)

TEST DETAILS				LEVELS OF CONTROL		
Cl.	**Requirement**	**Test Methods** **Clause Reference**	**No. of samples**	**Lot Size**	**Frequency**	**Remarks**
5.	**MATERIAL**					
5.1	General Requirements	5 .1 IS 15660 Annex -A As per design/ Drawing	One	Each heat	-	The cylinder manufacturer shall obtain and provide certificates of cast (heat) analysis of the material supplied for the construction of gas cylinder. In case the consignment is received with a Test Certificate showing compliance to the specification no further testing is necessary.
	Material for Neck - rings and Foot -rings		Two	Each consignment	-	
6	**DESIGN**					
6.4	Neck Design	6.4 IS 15660	-	Each cylinder		-
6.5	Foot - rings	6.5 IS 15660	-	Each cylinder		-
6.6	Neck- rings	6.6 IS 15660	-	Every Batch		-
6.8	Water Capacity	6.8 IS 15660	-	Each cylinder		-
7	**CONSTRUCTION AND WORKMANSHIP**					
7.1	General	7.1 IS 15660	-	Each cylinder		-
7.3	Neck Forming	7.3 IS 15660	-	Each cylinder		-
7.4	Wall Thickness	7.4 IS 15660	-	Each cylinder		-
7.5	Surface imperfections & defects	7.5 IS 15660 Annex -F	-	Each cylinder		-

7.6	Neck Threads	7.5 IS 15660	-	Each cylinder	-
7.7	Out - of - roundness	7.7 IS 15660	-	Each cylinder	-
7.9	Verticality	7.9 IS 15660	-	Each cylinder	-
7.10	Stability	7.10 IS 15660	-	Each cylinder	-
7.11	Straightness	7.11 IS 15660	-	Each cylinder	-
7.12	Mean Diameter	7.7 IS 15660	-	Each cylinder	-
8	**TYPE APPROVAL PROCEDURE**				
8.2.2	Intercrystalline corrosion test & Stress Corrosion Test	8.2.2 IS 15660 Annex C	One cylinder		Each new design of cylinder as per details given in *clause* 8**.1** of IS 15660 shall be subjected to prototype testing. Any change in design shall also require the prototype testing in accordance with *clause* **8** of IS 15660. If the results are satisfactory type approval certificate shall be issued as per *clause* **8.3** of IS 15660.
	Sustained Load Cracking Test	8.2.2 IS 15660 Annex D	One cylinder		
8.2.3	Pressure Cycling Test	8.2.3 IS 15660	Three cylinders		
8.2.4	Test for high strength and/or low elongation gas cylinder designs	8.2.4 IS 15660 Annex B	One cylinder		
9	**BATCH TEST**				
9.1	General Requirements	9.1 IS 15660	Each Cylinder		-
9.2	Tensile Test	9.2 IS 15660	One	Each Batch	-
9.3	Bend Test	9.3.1 IS 15660	Two	Each Batch	Either Bend Test or Flattening Test shall be carried out.
	Flattening Test	9.3.2 IS 15660	One	Each Batch	
9.4	Hydraulic Bursting Test	9.4 IS 15660	One	Each Batch	-
9.5	Test for high strength and/or low elongation gas cylinder designs	8.2.4 IS 15660 Annex B	One	Each Batch	-

10	**TEST ON EVERY CYLINDER**				
10.2	Hydraulic Test (Volumetric Expansion Test)	10.2 IS 15660	-	Each cylinder	-
10.3	Hardness Test	103 IS 15660	-	Each cylinder	-
10.4	Leakage Test	10.4 IS 15660	-	Each cylinder	-
10.5	Examination for Neck Folds	10.5 IS 15660	-	Each cylinder	-
13	Colour Identification	13 IS 15660	-	Each cylinder	-

PROFORMA – 1

PROFORMA FOR OBTAINING PRODUCTION DETAILS

Period covered		
Name of Licensee CM/L No.		
Name of Articles (s)		
Grade/Type/Size/Variety/Class/Rating		IS No.
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:** In case a clause is not applicable, suitable remarks may be given against it	
4.0	Quantity not covered with BIS Certification Mark. If any,	
	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	