



**PRODUCT MANUAL FOR
STAINLESS STEEL MILK CANS ACCORDING TO IS 16440 : 2016**

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 16440 : 2016
	Title	:	Stainless Milk Cans
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	05 pieces of 5cm x 5cm SS sheets of each thickness for raw material testing as per IS 5522 Round bars of Stainless steel used for handles meeting requirements of grade 304 of IS 5522 for chemical composition and Tensile properties.
b)	Grouping guidelines	:	Please refer ANNEX - A
c)	Sample Size	:	2 cans
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. Capacity ii. Shape and dimensions iii. Thickness iv. Weight v. construction vi. Pressure check for leakage/Bulging vii. Drop test at rated capacity viii. Hardness test ix. Dye penetration test		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 16440 : 2016 with the following scope:		
	Name of the product	Stainless Steel Milk Cans	
	Capacity	5L/10L/ 20L/ 30L/ 40L/ 50L	

ANNEX A
TO PRODUCT MANUAL
FOR STAINLESS STEEL MILK CANS ACCORDING TO IS 16440 : 2016

Major test equipment required to test as per Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Capacity Cl. 3 & Table 1	Steel scale (LC 1mm)
2.	Shape & Dimensions Cl 4	Steel scale (LC-1mm)/Height Calipers, inner calipers and Vernier calipers (LC 1mm).
3	Thickness of parts Cl. 5.4 & Table 2	Micrometer (LC 0.1mm).
4	Weight Cl. 5.5 & Table 3	Weighing scale (Range: 0-50kg and LC: 50gm).
5	Diameter of Handle for 5 & 10 L SS cans Cl. 5.6.4	Vernier calipers (LC: 1mm)
6	Finish Cl. 5.6.6	Vernier calipers and micrometer.
7	Pressure check for leakage/Bulging Cl. 6.1	Pressure guage, stop watch, Arrangement for immersion of can in water for pressure test.
8	Drop Test at Rated Capacity Cl. 6.2	Equipment to lift the filled can vertically, Hard concrete floor, Steel surface.
9	Hardness Test Cl. 6.3	Testing machine, capable of applying a predetermined test force or test forces within the range of 9,807 N to 29, 42 kN, Indenter, Indentation diameter measuring system.
10	Dye Penetration Test Cl. 6.4	Red dye penetrant, Solvent Remover.
11	Profuse leakage through lids Cl. 6.5	Apparatus to fill water.

ANNEX B
GROUPING GUIDELINES
FOR STAINLESS STEEL MILK CANS ACCORDING TO IS 16440 : 2016

1. Grouping of SS milk cans is carried out on the basis of method of manufacture and capacity as under:

Method of Manufacture	Capacity	Group	Remarks
Single piece construction without bottom ring	5L, 10L	1	SS cans of similar thickness of the sheet or coil used in the manufacturing of the different parts of the can (Body, Neck, Lid) shall be drawn and tested for GOL/CSoL. If the sample drawn is of higher capacity of the milk can then lower capacity of milk can may be included in the scope of license.
Two piece construction joined by circumferential welding	20L, 30L,40L, 50L	2	SS cans of similar thickness of the sheet or coil used in the manufacturing of the different parts of the can (Body, Bottom, Neck, Lid) shall be drawn and tested for GOL/CSoL. If sample drawn is of higher capacity of the milk can then lower capacities of milk cans may be included in the scope of license. Eg: If 50 L capacity SS can is drawn then capacities of 40L, 30L, 20L may be included in the scope of license.

2. It shall, however, be ensured that the applicant/licensee has got complete manufacturing capabilities as well as testing facilities for the capacities required to be covered in the licence scope.
3. During the operation of license, BO shall ensure that all capacities covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX C
SCHEME OF INSPECTION AND TESTING
FOR STAINLESS STEEL MILK CANS ACCORDING TO IS 16440 : 2016

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.

2. **TEST RECORD** - The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. **MARKING** – The Standard Mark, as given in the Schedule of the licence, shall be marked by Stamping on each Stainless Steel Milk Can, (including lid) on the outside, provided always that each Stainless Steel Milk Can to which this mark is thus applied conforms to every requirement of the Specification.

3.1 Each can shall be marked legibly and permanently with at least the details mentioned under clause 7.1 of IS 16440. In addition, the following information shall be legibly and indelibly marked on each Stainless Steel Milk Can:

a) BIS Licence No. CM/L____.

b) BIS website details i.e – “For details of BIS Certification please visit www.bis.gov.in”.

4. **CONTROL UNIT** – For the purpose of this scheme, all the stainless steel milk cans of the same capacity manufactured in a day shall constitute one 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 that conforms to the Indian Standards and covered by the License shall be marked with Certification Mark of the Bureau (Standard Mark).

5.2 On the basis of tests and inspection, the decision regarding conformity or otherwise of the control unit to a given requirement shall be made.

5.3 The cans shall be tested for thickness of parts, mass of can and lid, construction of body, handle, bottom ring, lid, finish, pressure check for leakage/bulging, drop test at rated capacity, hardness, dye penetration test, leakage test as per frequency given in Table 1 of SIT. In case at any time the sample fails to conform to either and/or dimensions, thickness of parts, mass of milk can, pressure check for leakage/bulging, drop test at rated capacity, hardness, dye penetration test, leakage test, the cans produced in the control unit shall be individually checked for conformity. The milk cans for the subsequent two control units shall be subjected to these tests at double the frequency than stipulated in the Table 1 for the parameters. If these two consecutive and subsequent control units pass in the tests, only then the original frequency given for the parameters in the Table 1 is to be restored.

6. RAW MATERIAL – The cans of 5, 10 litre capacity shall be fabricated from the sheet or coil of stainless steel having thickness of 0.8 ± 0.05 mm and 1.0 ± 0.05 mm, respectively, conforming to ISS 304 grade of IS 5522. The handle shall be made from round bar of stainless steel of diameter 5 mm conforming to ISS 304 grade of IS 5522.

The cans of 20, 30, 40, 50 litre capacity shall be fabricated from the sheet or coil of stainless steel having thickness of 1.2 ± 0.05 mm conforming to ISS 304 grade of IS 5522. The handle shall be made from round bar of stainless steel of diameter 12 mm and the bottom ring shall be made from sheet or coil of stainless steel having thickness of 2 mm conforming to ISS 304 grade of IS 5522.

7. 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
LEVELS OF CONTROL

(1) Test Details				(2)	(3) Levels of control		
CI	Requirements	Test Method Cl. Ref.	Test Method IS	Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of samples	Frequency	Remarks
3	Capacity	3	IS 16440	R	One can	Each Control unit	
4 & Table 1	Shape & Dimensions	4	IS 16440	R	Each can	-do-	
5	Material (chemical composition)	5.1 & 5.2	IS 5522	S	One	Each Consignment	See Note 2
	Mechanical properties (Tensile test)			S	-do-	-do-	-do-
5.4	Thickness of parts	5.4 & Table 2	IS 16440	R	One Can	Each Control unit	
5.5	Mass of can	5.5 & Table 3	-do-	R	Five cans	-do-	
5.6	Construction						
5.6.1	Body	5.6.1	-do-	R	Each can	-do-	
5.6.2	Handle	5.6.2	-do-	R	-do-	-do-	
5.6.3	Bottom ring	5.6.3	-do-	R	-do-	-do-	
5.6.4	Lid	5.6.4	-do-	R	-do-	-do-	
5.6.6	Finish	5.6.6	-do-	R	-do-	-do-	
5.6.7	Heat treatment and Passivation	5.6.7	-do-	R	-do-	-do-	
6.1	Pressure Check for leakage / Bulging	6.1	-do-	R	Five cans	-do-	
6.2	Drop Test at Rated Capacity	6.2	-do-	R	One can	-do-	
6.3	Hardness Test	6.3	IS 1500 (Part 1)	R	Five cans	-do-	
6.4	Dye Penetration Test	6.4	IS 16440	R	-do-	-do-	
6.5	Leakage test	6.5	-do-	R	-do-	-do-	

Note-1: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control and submit his own levels of control in column 3 with proper justification for approval by BO Head.

Note-2: No testing is required in case SS sheets used are ISI Marked, SS rods/wire is accompanied by a test certificate establishing conformity to the requirements of grade 304 of IS 5522.