



PRODUCT MANUAL FOR
Laboratory Glassware-Graduated Measuring Cylinders
ACCORDING TO IS: 878:2008/ISO 4788:2005

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 878:2008/ISO 4788:2005
	Title	:	Laboratory Glassware-Graduated Measuring Cylinders
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	The cylinders shall be manufactured from glass of hydrolytic class not lower than HGB3 in line with ISO 719. The glass shall be as free as possible from visible defects, and steps shall be taken in manufacture to ensure that it is reasonably free from internal stress,
b)	Grouping guidelines	:	Cl. 4.1 covers three types viz. Type 1a, Type 1b, Type 2 Cl 4.2 specifies two accuracy class viz. Class A for higher grade and Class B for lower grade. To cover the entire range following guidelines to be followed: Each type of Measuring Cylinder for each accuracy class to be got tested for minimum and maximum capacity. However if accuracy class A is tested, Class B may be allowed subject to availability of complete manufacturing and testing facilities.
c)	Sample Size	:	<u>12 Nos</u>
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day :		

	(i) Maximum Permissible error (ii) Dimensions (iii) Accuracy testing (iv) Wall thickness (v) Stability (vi) Visibility of graduation lines,Numbers and inscription	
6.	Scope of the Licence :	
	“Licence is granted to use Standard Mark as per IS 878:2008with the following scope:	
	Name of the product	Laboratory Glassware-Graduated Measuring Cylinder
	Types	Tall form with spouted Neck(1a)/Tall form with Stopped Neck(1b)/Squat form with spouted Neck(2)
	Class	ClassA /Class B
	Sizes	Capacity(ies) to be mentioned

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Maximum Permissible Error Cl 7	1) Weighing balance LC-0.1 mg 2) Weighing bottles different capacities 3) Thermometer LC-0.1 C 4) Arrangement for measurement of pressure 5) AC
2	Material Cl 8	1)Hydrochloric acid 2)Methyl red indicator 3)Acetone 4)Balance (LC-5 mg or better) 5) 1 ml Burette 6)25 ml pipette 7)50 ml volumetric flask 8) conical flask 9)Boiling flask 1000 ml 10) 100 ml beaker 11) 20 ml weighing bottle 12)Desiccator 13)Hammer 0.5 kg 14)Mortar and Pestle 15)Magnet 17)Sieves A-500 μm , Sieve B-300 μm and sieve O-500 μm aperture 18)Ultra sonic cleaner 19)Drying oven 20)Thermometer Range 90-100C LC-0.2 C 21)Heating bath thermostatically controlled 22) Purified water 23) Ball Mil 24) Sieving Machine 25) Warm Plate
3	Construction and Form as per Cl 9	1)Vernier Calliper 2) Micrometre 3) Steel Scale 4) Ball ended micrometre 5) Inclined plain 15 C
4	Graduation and figuring Cl 10	Visual

5	Accuracy Testing Cl 11	<ol style="list-style-type: none">1) Weighing balance LC-0.1 mg2) Weighing bottles different capacities3) Thermometer LC-0.1 C4) Barometer5) Hygrometer6) Distilled water/De-ionized water7) Receiving vessel
6	Visibility of graduation lines, numbers and inscription Cl 12	Visual Examination

The above list is indicative only and may not be treated as exhaustive.

ANNEX B

Scheme of Inspection And Testing

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 equipment.

2. TEST RECORDS –The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING –As per the Cl 12 of IS 878:2008/ ISO 4788:2005. The following shall be marked in addition –

a) The BIS licence number

b) The phrase 'Please see www.bis.gov.in for BIS certification details'. *

*In case of space constraints, (b) may be marked only on the package

4. CONTROL UNIT – – For the purpose of this Scheme, graduated measuring cylinders of the same Nominal Capacity of each type and class manufactured in one day shall constitute a 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 which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

6. 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)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
7	Maximum permissible error	7	878:2008	R	Ten cylinders	Each Control Unit	All the cylinders shall comply with the requirement
8	Material	8	878:2008 and ISO 719	S	One	Each consignment	No testing, may be done if the material consignment is ISI marked or accompanied by a test certificate according to the requirements of ISO 719 from the supplier/ OSL.
9	Construction and Form	9.	878:2008	R	Ten cylinders	Each Control Unit	All the cylinders shall comply with the requirement
9.1	Wall thickness	9.1	-do-	R	Each cylinder	Each Control Unit	
9.2	Stability	9.2	-do-	R	-do-	Each Control Unit	
9.3	Base	9.3	-do-	R	-do-	Each Control Unit	
9.4	Rim and spout	9.4	-do-	R	-do-	Each Control Unit	
9.5	Neck and stopper	9.5	-do-	R	-do-	Each Control Unit	
9.6	Dimensions	9.6	-do-	R	-do-	Each Control Unit	
10	Graduation, and figuring	10.1 and 10.2	-do-	R	Two cylinder	Each control unit	
11	Accuracy testing	11	-do-	R	Each cylinder	Each control unit	

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12	Visibility of graduation lines, number and inscriptions	12	-do-	R	Each cylinder	Each control unit	
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Note 1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note 2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification to BO head.