



उत्पाद मैनुअल
सामान्य प्रयोजनों के लिए पीतल की ट्यूब
IS 407:1981 के अनुसार

PRODUCT MANUAL
FOR Specification for Brass Tubes for General Purposes
ACCORDING TO IS 407:1981

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.

1.	मानक संख्या IS No.	:	IS 407:1981
	शीर्षक Title	:	Specification for Brass Tubes for General Purposes
	संशोधनों की संख्या No. of amendments	:	2
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer to Annex-A

c)	नमूने का परिमाण Sample Quantity	:	For chemical tests : 5 pcs of 5 cm length For physical tests: 2 x 1.25 m or 2.5 m length Pressure tests shall be carried out, if applicable, on the tubes of full length during factory testing only. Length of tubes shall also be tested in the factory itself. Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All tests Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 407:1981 with the followingscope:		
	Name of the product	Brass Tubes for General Purposes	
	Grades	CuZn30As, CuZn37	
	Temper designation	Hard Temper (HD), Temper Annealed (TA), Annealed (O)	
	Sizes	Outside Diameter from ...xx...mm to up to and including xx... mm, Wall Thickness from xx...mm to up to and including xx...mm	
	Optional requirements	Tested for / Not Tested for Pressure tests (Hydraulic and/or Pneumatic Pressure tests)	

ANNEX-A

GROUPING GUIDELINES

The following grouping guidelines shall apply for Grant of Licence (GoL) and Change in Scope of Licence (CSoL)

- a) Samples of each grade (CuZn30As, CuZn37) and each temper designation (Hard Temper (HD), Temper Annealed (TA), Annealed (O)) intended to be covered in the scope of licence shall be tested.
- b) To cover the range of sizes (thickness and OD), one sample (of any one of the grades being covered) having the lowest wall thickness (of the range being covered) and any outer diameter to be tested to cover the entire ranges of the sizes. However, in case multiple samples are being tested to cover the grades and temper designations as above, samples of different thicknesses and ODs (preferably covering the entire range of sizes being covered) may be tested, to the extent possible.
- c) As per Cl. 9, the pressure tests (Hydraulic test or pneumatic tests) shall be applied if required by the purchaser. Therefore, in case the manufacturer intends to mention in their scope of licence that the product has been tested for the pressure tests (Hydraulic test or pneumatic tests), the samples shall also be subjected to either or both the Hydraulic test or pneumatic test and in that case it may be mentioned in the scope of licence that the product has been Tested for Pressure tests (Hydraulic and/or Pneumatic Pressure tests). Otherwise, it shall be mentioned in the scope of licence that the product is Not Tested for Pressure tests (Hydraulic and/or Pneumatic Pressure tests)
- d) Scope of licence shall be restricted based on the manufacturing and testing facilities available.
- e) During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Test/Requirement	Test Equipment
Chemical Composition (CI 5)	Spectrometer (Spark-OES, ICP-OES etc.) Or Chemicals and instruments for chemical analysis of brass as per IS 3685
Sizes (CI 8)	Micrometer, Vernier Caliper, Steel Tape, Straight Edge, Cord, Flat Table
Hydraulic Test (CI 9.1)	Hydrostatic Test Equipment, Pressure Gauge
Pneumatic Test (CI 9.2)	Pneumatic Test Equipment, Pressure Gauge
Hardness (CI 10.1)	Vickers Hardness Testing Machine with standard calibration blocks
Tensile Test (CI 10.2)	Universal Tensile Testing Machine with extensometer
Drifting Test (CI 10.3)	UTM, Conical Mandrels with angles 30-degree, 45-degree, 60-degree etc.
Flattening Test (CI 10.4)	Flattening Test Machine, Vernier Caliper, Filing or Chamfering Equipment
Double Bend Test (CI 10.5)	Flattening Test Machine
Mercurous Nitrate Test (CI 10.6)	Mercurous Nitrate Solution, Concentrated Nitric Acid, Distilled Water, Sulphuric Acid, Pickling Solution, Magnifying Equipment (10 to 18X)

ANNEX C

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Entire quantity of tubes of the same grade, temper designation and size manufactured from the same consignment of raw material in a day, shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each package containing the tubes and/or on the test certificate (see 4) provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements:** The material shall also be marked with the following additional requirement on each package containing the tubes and/or on the test certificate (see 4):

a) “For BIS certification details please visit www.bis.gov.in”

4. TEST CERTIFICATE - For each consignment of BIS Certified material conforming to this standard there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed)

5. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
4	Manufacture	4	IS 407	R	Manufacturer shall put in place adequate inspections and in process checks to ensure conformity of the product to the standard		
5	Chemical composition		IS 3685	R	One	Each control unit	
6	Freedom from defects	6	IS 407	R	Manufacturer shall put in place adequate inspections and in process checks to ensure conformity of the product to the standard		
8	Sizes and Tolerances	8	IS 407	R	Manufacturer shall put in place adequate inspections and in process checks to ensure conformity of the product as per the specified tolerances in the standard		
9	Pressure tests						
9.1	Hydraulic test		Appendix A	R*	Manufacturer shall put in place adequate inspections and in process checks to ensure conformity of the product to the standard		*if applicable
9.2	Pneumatic test	9.2	IS 407	R*	Manufacturer shall put in place adequate inspections and in process checks to ensure conformity of the product to the		*if applicable

					standard		
10	Physical test						
10.1	Hardness		IS 1501 (Part 1)	R	One	Each control unit	
10.2	Tensile test		IS 1608 (Part 1)#	R	One	Each control unit	#IS 2655 has been withdrawn and superseded by IS 1608 (Part 1)
10.3	Drifting test	10.3	IS 407	R	One	Each control unit	
10.4	Flattening test	10.4.1.1	IS 407	R	One	Each control unit	
10.5	Double bend test	10.5.1	IS 407	R	One	Each control unit	
10.6	Mercurous Nitrate Test		IS 2305	R	One	Each control unit	

ANNEXURE I
XYZ COMPANY
(Registered Office Address and works address) TEST CERTIFICATE
Specification for Brass Tubes for General Purposes as per IS 407: 1981

TEST CERTIFICATE No. Date

To M/s

We certified that the material described below fully conforms to IS 407: 1981 Chemical Composition and Mechanical properties of the product, as tested by the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence Number. CM/L- are as Indicated below against each order No.

PLEASE REFER TO IS 407: 1981 FOR DETAILS OF SPECIFICATION REQUIREMENTS
TEST RESULTS

Order r No.& Date	Siz e	Cont r ol No.	Quanti ty in tonne s	CHEMICAL COMPOSITION						Hardne ss	Tensile Streng th	% Elongati on	Flatteni ng Test	Toleranc es	Double Bend Test	Non- Destructi ve tests	Drifting Test	Mercurous Nitrate Test	Remar ks
				C u %	P b %	F e %	Ar %	Zn %	T.I. %										

REMARKS

WAGON No.

TRUCK No.

(It is suggested that size A4 paper be used for this test certificate)

FOR XYZ COMPANY