



उत्पाद मैनुअल

भा. मा. IS/ISO 3077: 2001 के अनुसार

उत्पाक प्रयोजनों के लिए शार्ट लिंक चैन – संकुचित-छूट होस्ट चैन ग्रेड (टी डेट और डीटी प्रकार) के लिए

दस्तावेज संख्या-पी एम/IS/ISO 3077/1/सितम्बर 2024

भारतीय मानक ब्यूरो की स्कीम-1 (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR SHORT LINK CHAIN FOR LIFTING PURPOSES- GRADE T (TYPES T, DAT AND DT), FINE-TOLERANCE HOIST CHAIN ACCORDING to IS/ISO 3077:2001

Document No.-PM/IS/ ISO 3077/1/ September 2024

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.

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, ९, बहादुर शाह ज़फ़र मार्ग
Manak Bhawan, 9, Bahadur Shah Zafar Marg
नई दिल्ली- ११०००२
New Delhi – 110002



**PRODUCT MANUAL FOR
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1.	Product	:	IS/ISO 3077: 2001
	Title	:	Short Link Chain for Lifting Purposes- Grade T (Types T, DAT and DT), Fine-Tolerance Hoist Chain
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	As per Cl. 6.1 of IS/ISO 3077
b)	Grouping guidelines	:	Please refer ANNEX –A
c)	Sample Size	:	4 pieces of 1 meter length
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	:	All tests except fatigue resistance test (Cl. 6.4.6)
6.	Scope of the Licence:	:	Licence is granted to use Standard Mark as per IS IS/ISO 3077:2001 with the following scope:
	Name of product	:	Short Link Chain for Lifting Purposes- Grade T (Types T, DAT and DT), Fine-Tolerance Hoist Chain
	Grade Type	:	T/ DAT/ DT
	Nominal Size	:	Up to and including...mm

ANNEX B**Grouping Guidelines**

1. Short Link Chain as per IS/ISO 3077: 2001 are classified in to different varieties based on following:

- **Grade Type:** T/ DAT/ DT
- **Nominal Size, d_n**

Note: Apart from the nominal sizes given in Table 1 of IS/ISO 3077, Short link chain can be manufactured in any other nominal sizes (from 3 mm to 22 mm), as per Cl. 5.1 and Annex-A.

2. Grouping based on nominal size, d_n :

Short Link Chains are grouped in following 4 groups based on nominal sizes

Group No.	Nominal Size, d_n
Group 1	3.0 mm to 6.3 mm
Group 2	7.1 mm to 10.0 mm
Group 3	11.2 mm to 14.0 mm
Group 4	16.0 mm to 22.0 mm

3. Material of chain and Heat treatment given to chains shall be declared by the manufacturer. Any change in material or heat treatment shall be informed to BIS for records.

4. Sample of Chain of any nominal size from a group, as above may be tested to cover all sizes in that group.

5. Separate sample of each grade type shall be tested as per the above grouping to cover all grade types of chains.

6. The Firm shall declare the varieties of Short Link Chains they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

7. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX C**List of Test Equipment***Guidance list of major test equipment required to test as per the Indian Standard*

S.no.	Tests used in with Clause Reference		Test Equipment
	Cl. No.	Test	
1.	5	Dimensions, Pitch, Width, Gauge length and Weld diameter	Measuring tape, Steel scale, Vernier Calipers, Micrometer
2.	6.4.1, 6.4.2	Mechanical Properties- Manufacturing Proof Force and Breaking Force	Testing machine as per Annex-A of IS/ISO 1834
3.	6.4.3	Mechanical Properties- Bend deflection	Testing machine as per Cl. 6.4.1 of IS/ISO 1834
4.	6.4.4	Mechanical Properties- Surface hardness	Vicker Hardness tester
5.	6.4.5	Mechanical Properties- Case depth	
6.	6.4.6	Fatigue resistance	Test bench as per Cl. 7.6 of IS/ISO 3077

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

ANNEX D**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. Batch 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 below**.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

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

1.3.2 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 sub-contracted 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) also is 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. LABELLING AND MARKING – As per the requirement of IS IS/ISO 3077:2001. The Standard mark as given in the schedule of the Licence shall be incorporated legibly and indelibly on the TOP of each Drum/Bag of package of Short Link Chains or on the TAG attached to one end of each LENGTH/ LOT. In addition, the licence no. CM/L-_____ and details of BIS website shall be marked at an appropriate place on product or package as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. TEST CERTIFICATE – Each consignment of BIS certified Short Link Chains for lifting purpose conforming to IS/ISO 3077:2001 shall be accompanied by a TEST CERTIFICATE issued by the manufacturer in accordance with Cl. 8 of IS/ISO 1834: 1999. Template of certificate is given in *Annex-1*.

5. REJECTION - All the production which conforms to the Indian Standard and covered under scope of the licence shall be marked with 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

Clause No.	TEST DETAILS				LEVEL OF CONTROL		Remarks	
	Requirement	Clause	Reference	Equipment R: Required or S: Subcontracting permitted	No. of Samples	Frequency		
5	Dimensions							
	Nominal size	5.1	IS/ISO 3077	S	One	Each Consignment	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained	
	Material diameter	5.2		R				
	Pitch	5.3						
	Width	5.3						
	Weld Diameter	5.4						
	Length dimensionally affected by welding	5.5						
6	Material and Manufacture							
	Chemical Composition	6.1.4	IS/ISO 3077	S	One	Each batch	No further testing is required, if the material is ISI marked or received with test certificate	
	Heat Treatment	6.2	IS/ISO 3077	R	All Chains			

	Workmanship and Finish	4 5.3, 5.4	IS/ISO 3077 IS/ISO 1834	R	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained		
6.4	Mechanical Properties						
	Manufacturing Proof Force	6.4.1, 7.2.2.1	IS/ISO 3077	R	All chains		
	Breaking Force (BF) and Total Ultimate elongation	6.4.2 (7.2.2.2)	IS/ISO 3077	R	As per Cl. 7.1 of IS/ISO 3077, read in conjunction with Cl. 6.2 of IS/ISO 1834		
	Bend Deflection	6.4.3 (7.3)	IS/ISO 3077	R			
	Surface Hardness	6.4.4 (7.4)	IS/ISO 3077	R	As per Cl. 7.1 of IS/ISO 3077, read in conjunction with IS/ISO 1834		
	Case Depth	6.4.5 (7.5)	IS/ISO 3077	R	As per Cl. 7.5 of IS/ISO 3077		
	Fatigue Resistance	6.4.6 (7.6)	IS/ISO 3077	S	One	Once in 3 years	Applicable to Grade - DT and Grade - DAT only

ANNEX -1



(Para 4 of the Scheme of Inspection and Testing)

TEST CERTIFICATE FOR SHORT LINK CHAIN as per IS/ISO 3077: 2001**XYZ COMPANY LIMITED****(Registered Office Address and works address)**

TEST CERTIFICATE NO. _____

DATE _____

To M/s _____

We certify that the material described below fully conforms to IS/ISO 3077: 2001. Chemical composition and mechanical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No.CM/L XXXX_are as indicated below against each order no. (Mention quantity against each order and supply)

Name of material: Short Link chain as per IS/ISO 3077: 2001*Grade Type:**Nominal Size:***TEST RESULTS**

{PLEASE REFER TO IS/ISO 3077: 2001 FOR DETAILS OF SPECIFICATION REQUIREMENTS}

Chemical Properties:

Type of Steel (Cl. 6.1.2):

Deoxidation (Cl. 6.1.3):

Chemical Composition (Cl. 6.1.4):

Chemical element	Ni	Cr	Mo	Al	P	S
Specified Value						
Observed value						

Mechanical Properties:

Manufacturing Proof Force:

Breaking Force:

Total ultimate elongation at fracture:

Invoice No.,Wagon/truck No.

For XYZ COMPANY LIMITED