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IS 2760 (1980): Specification for Steel Chain Slings [MED

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IS: 2760 - 1980 (Reaffirmed 2010)

# *Indian Standard* SPECIFICATION FOR STEEL CHAIN SLINGS

(First Revision)

Second Reprint MAY 2002

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### BUREAU OF INDIAN STANDARDS

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002

June 1981

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### AMENDMENT NO. 2 APRIL 1995 TO IS 2760:1980 SPECIFICATION FOR STEEL CHAIN SLINGS (First Revision)

(*Page 3, clause 1.1*) — Substitute the following for the existing clause:

'1.1 This standard specifies the requirements, methods of rating and testing of single-, two-, three-, and four-leg or branch welded chain slings of Grades L (3), M (4), S (6) and T (8) using chains conforming to IS 2429 (Part 1) : 1987<sup>†</sup>, IS 3109 (Part 1) : 1982<sup>‡</sup>, IS 6217 :1982<sup>§</sup> and IS 6215 : 1982<sup>∥</sup> respectively and eye hooks conforming to IS 3822 : 1982<sup>¶</sup> together with the appropriate range of components.'

(Page 3, foot-notes) — Substitute the following for the existing foot-notes:

\*†Round steel short link chains (electric bun welded), Grade L (3): Part 1 Non-calibrated load chain for lifting purposes (*third revision*).

Short link chain Grade M (4): Part 1 Non-calibrated load chain for lifting purposes (second revision).

§Short link chain Grade 5 (6), non-calibrated for lifting purposes (first revision).

||Short link chain, Grade T(8), non-calibrated for lifting purposes (first revision).

"Eye hooks for use with chains (first revision)."

[Page 10, clause 5.6 (see page 1 of Amendment No. 1)] — Delete.

(HMD 14)

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#### AMENDMENT NO. 1 MAY 1984

#### ТО

### IS: 2760-1980 SPECIFICATION FOR STEEL CHAIN SLINGS

#### (First Revision)

#### Alterations

(*Page* 10, *clauses* **5.1** to **5.4**) Substitute the following for the existing clauses:

"5.1 Material diameters of the master link A shall be as given in Table 1.

**5.2** Material dimensions for slings with O-rings as master link shall be as given in Table 2.

**5.3** Nominal size, pitch and width of master link and O-rings shall be as given in Table 3.

**5.4** Material diameters of joining link B1 and intermediate links B2 and B3 for three and four legged slings as given in Tables 1 and 2; and nominal size, pitch and width of these links as given in Table 3 are for guidance only.

5.5 The number and internal dimensions of lower terminal, joining and intermediate links shall be such as to ensure free articulation of the links.

**5.6** The eye hooks where used for the assembly of chain slings shall be according to IS : 3822-1982 'Specification for eye hooks for use with chains".

(*Pagt* 11, *Table* 1) — Substitute the following for the existing table:

# TABLE 1MATERIALDIMENSIONS OFMASTER (OBLONG), JOININGINTERMEDIATELINKS

#### (Clauses 5.1 and 5.4)

NOMINAL SIZE dn	L WO	RKING L SING	OAD LIM LE LEO	IT ON	MA	STER LIN	JOINING LINK	G INTER- MIDIATE	
	Ĺ	M	S	T	Single Leg	Double Leg	Three and Four Legs	<i>B</i> 1 <i>d</i> <sub>2</sub>	LINK FOR THREE AND FOUR LEGS d <sub>2</sub>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
6	0.5	0.63	1.0	1.25	14	16	18	8	12
7.1	0.63	0.80	1.25	1.6	14	16	18	8	12
8.0	0.80	1.0	1.6	2.0	16	18	22	10	14
9.0	1.0	1.25	2.0	2.5	16	20	25	10	16
10.0	1.25	1.6	2.5	3.2	18	22	28	12	16
11	1.6	2.0	3.2	4.0	22	25	32	14	20
12	2.0	2.5	4.0	5.0	25	28	32	14	20
14	2.5	3.2	5.0	6.3	25	32	36	16	22
16	3.2	4.0	6.3	8.0	28	32	40	18	25
18	4.0	5.0	8.0	10.0	32	36	45	20	28
20	5.0	6.3	10.0	12.5	36	40	50	22	32
22	6.3	8.0	12.5	16.0	40	45	56	25	32
25	8.0	10.0	16.0	20.0	45	50	63	28	36
28	10.0	12.5	20.0	25.0	50	56	71	32	40
32	12.5	16.0	25.0	32.0	56	63	80	36	45
36	16.0	200.	32.0	40.0	56	71	90	40	50
40	20.0	25.0	40.0	50.0	63	80	100	45	56
45	25.0	32.0	50.0	63.0	71	90	—	50	-

NOTE — For chain sizes 6, 7.1, 8.0 and 9.0 single and double leg slings intermediate links will have to be used, the intermediate link diameter being 12 mm for 6 and 7.1 chain sizes and 14 mm for 8.0 and 9.0 chain sizes.

(Page 12, Table 2) — Substitute the following for the existing table:

#### TABLE 2 DIMENSIONS OF O-RINGS AND JOINING AND INTERMEDIATE LINKS

NOMIMAL SIZE	Ĺ	WORKING LOAD LIMIT ON SINGLE LEO				USPENSI -RINO	ON d <sub>1</sub>	JOINING LINK	INTERMEDIATE LINK FOR	
	L	M		S T	Single	Double	Three	$d_2$	SLING d <sub>2</sub>	
					Ltg	Ltg	Four Legs		Double Leg	Three and Four Leg
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
6	0.5	0.63	1.0	1.25	16	18	20	8	12	12
7.1	0.63	0.80	1.25	1.6	16	18	20	8	12	12
8.0	0.8	1.0	1.6	2.0	18	20	25	10	14	16
9.0	1.0	1.25	2.0	2.5	18	25	28	10	14	16
10.0	1.25	1.6	2.5	3.2	20	25	32	12	14	20
11	1.6	2.0	3.2	4.0	25	28	36	14	16	22
12	2.0	2.5	4.0	5.0	28	32	36	14	18	22
14	2.5	3.2	5.0	6.3	28	36	40	16	22	22
16	3.2	4.0	6.3	8.0	32	36	45	18	22	25
18	4.0	5.0	8.0	10.0	36	40	50	20	25	28
20	5.0	6.3	10.0	12.5	40	50	56	22	28	32
22	6.3	8.0	12.5	16.0	45	56	63	25	32	36
25	8.0	10.0	16.0	20.0	50	56	71	28	32	40
28	10.0	12.5	20.0	25.0	56	63	80	32	36	45
32	12.5	16.0	25.0	32.0	63	71	90	36	40	50
36	16.0	20.0	32.0	40.0	63	80	100	40	45	56
40	20.0	25.0	40.0	50.0	71	90	_	45	50	_
45	25.0	32.0	50.0	63.0	80	100	—	50	56	—

#### (Clauses 5.2 and 5.4)

NOTE — For chain sizes 6, 7.1, 8.0 and 9.0 single and double leg slings, intermediate links will have to be used, the intermediate link diameter being 12 mm for 6 and 7.1 chain sizes and 14 mm for 8.0 and 9.0 chain sizes.

# TABLE 3 NOMINAL SIZE, PITCH AND WIDTH OF LINKS AND DIAMETERS OF O-RINGS

#### (Clauses 5.3 and 5.4)

All dimensions in millimetres.







Master Link A

Joining Link

Suspension O-Ring

MASTED	LINK	4	
MASIER	LINK	Α	

JOININQ OR INTERMEDIATE

*B*1

O-RING LINKS B1, B2, B3 AND B4 Inside Nominal Nominal Pitch Width Nominal Pitch Width Size Dia D d<sub>3</sub> Size  $d_1$  $l_1$  $b_1$ Size  $d_2$  $l_2$  $b_2$ (8) (3) (4)(5) (6) (7)(2) (1)

(MCPD 9)

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## Indian Standard

## SPECIFICATION FOR STEEL CHAIN SLINGS

## (First Revision)

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## Indian Standard

## SPECIFICATION FOR STEEL CHAIN SLINGS

## (First Revision)

### **0.** FOREWORD

**0.1** This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 December 1930, after the draft finalized by the Lifting Chains and Associated Fittings and Components Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

**0.2** This standard was first published in 1972. This revision is being undertaken to incorporate, along with mild steel chain slings, the requirements for the alloy steel chain slings. Further, uniform load method of rating of chain slings has been adopted in this revision.

**0.3** Safety recommendations for the use, care and maintenance of chain slings have been covered under IS :  $8324-1976^*$ .

**0.4** In the preparation of this standard considerable assistance has been derived from ISO/DIS 4778 'Chain slings of welded construction — Grades M, S and T', issued by International Organization for Standardization (ISO).

#### 1. SCOPE

**1.1** This standard specifies the requirements, methods of rating and testing of single-, two-, three- and four-leg or branch welded chain slings of Grades L (3), M (4), S (6) and T (8) using chains conforming to IS : 2429 (Part I)-1970<sup>†</sup>, IS : 3109 (Part I)-1970<sup>‡</sup>, IS : 6217-1971<sup>§</sup> and IS : 6215-1971<sup>∥</sup> respectively together with the appropriate range of components.

†Round steel short link chain (electric butt welded), grade 30: Part I Noncalibrated load chain for lifting purposes (second revision).

‡Round steel link chain (electric butt welded), grade 40: Part I Non-calibrated load chain for lifting purposes (*first revision*).

<sup>\*</sup>Code of practice for safe use and maintenance of non-calibrated round steel link lifting chains and chain slings.

<sup>§</sup>Round steel link chain ( electric butt welded ), grade 63, non-calibrated for lifting purposes.

<sup>|</sup>Round steel link chain ( electric butt welded ), grade 80, non-calibrated for lifting purposes.

**1.1.1** This standard does not apply to mechanically joined slings or welded slings having legs of unequal nominal reach.

#### 2. TERMINOLOGY

**2.0** For the purpose of this standard the following terms and definitions shall apply.

**2.1 Chain Slings** — An assembly consisting of chain or chains joined suitably to upper and lower terminal fittings according to the provisions of this standard for attaching loads to be lifted to the hook of a crane or other lifting machine (see Fig. 1 to 4).

**2.2 Master Link**— A parallel-sided link forming the upper terminal fitting of a chain sling by means of which it is attached to the hook of a crane or other lifting machine (A). In cases where the master link is a circular ring it is termed as suspension O-ring.

**2.3 Intermediate Master Link** — A single link used to connect two or more legs to a master link (B3 and B4).

**2.4 Joining Link** — A link fitted to the end of a chain to connect it either directly or through an intermediate joining link to an upper or lower terminal fitting (B1).

**2.5 Intermediate Joining Link** — A joining link used to form a connection between the terminal fitting and the joining link fitted to the chain (B2).

**2.6 Proof Load** — A load to which the chain sling shall be subjected to, in the finished condition or a load applied as a test to a section of a sling. The test is to be carried out in accordance with 11.

**2.7 Working Load Limit** — The maximum mass which a sling is designed to support in general service.

**2.8 Working Load** — The maximum mass which a sling should be used to support in a particular stated service.

**2.9 Lower Terminal** — A link, hook or other device fitted at the end of **a** branch remote from the master link or upper terminal.

**2.10 Competent Person** — The person who is approved and declared as such under the relevant statutory provisions.

**2.11 Inspector** — Representative of the purchaser.

#### **3. DESIGNATION**

**3.0** The following designations shall be used in specifying slings conforming to this standard.



FIG. 1 SINGLE-LEO SLING



FIG. 2 TWO-LEO SLING



FIG. 3 THREE-LEO SLING



Alternative Construction

FIG. 3A THREE-LEG SLING



FIG. 4 FOUR-LEO SLING

**3.1 Nominal Size** — The nominal size of a chain sling is the nominal size (dn) of the short link chain used in its manufacture.

**3.1.1** The nominal size of each individual master link, joining or intermediate link is the nominal diameter of the material from which it is made.

**3.2 Nominal Reach of Sling** (L) — The nominal reach of the finished sling is the effective length from the inside of the lower terminal fitting to the inside of the upper terminal fitting (see Fig. 4).

**3.3 The Grade of a Sling** — The grade of a sling shall be the same as the grade of the chain used, that is, L, M, S or T corresponding to Grades 30, 40, 63 and 80 chains respectively. All components used in the construction of a sling shall be made from the same grade.

3.4 Rating — The rating of the chain sling shall be as specified in 10.

#### 4. CONSTRUCTION

**4.1** Some examples of chain slings conforming to this standard are shown in Fig. 1 to 4.

#### 5. DIMENSIONS

**5.1** Material diameters of the master link A, joining link B1 and intermediate links B2 and B3 for three- and four-leg slings shall be as given in Table 1.

**5.2** Material dimensions for slings with O-rings as master link shall be as given in Table 2.

**5.3** Nominal size, pitch and width of links and O-rings shall be as given in Table 3.

**5.4** The eye hooks where used for the assembly of chain slings shall be according to IS : 3822-1966\* or shall be compatible with the chain.

#### 6. TOLERANCES

**6.1 Material Diameter** — The size of the material in finished master and intermediate links shall nowhere differ from the nominal diameter up to and including 18 mm by more than +2 percent and —6 percent except at the weld and for nominal diameter above 18 mm by more than  $\pm$  5 percent except at the weld. The diameter at the weld shall be in no case less than the diameter of the steel from which the link is made or exceed it by more than the tolerances given in individual standards on chains for different grades (see 1.1).

<sup>\*</sup>Specification for eye hooks for use with chains.

#### TABLE 1 MATERIAL DIMENSIONS OP MASTER, JOINING AND INTERMEDIATE LINKS

(*Clause* 5.1)

NOMI-	wo	ORKING	LOAD L	IMIT	MA	STER LI	NK	JOIN-	INTER-		
SIZE	Î.	Ŵ	Ŝ	T	t Single	Double	Three	LINK B1	MED LINK	LINK FOR	
				Leg	Leg Leg		<i>u</i> <sub>2</sub>	Three Leg B2	Four Leg <i>B</i> 3		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
mm		t				mm		mm ′		mm	
6.3 (6)	0.5	0.63	1.0	1.25	12	16	20	7	12	12	
7.1	0.63	0.80	1.25	1.6	12	16	22	10	12	12	
8.0	0.80	1.0	1.6	2.0	16	20	22	10	12	14	
9.0	1.0	1.25	2.0	2.5	16	22	25	10	14	14	
10.0	1.25	1.6	2.5	3.2	16	22	28	12	14	16	
11.2(11)	1.6	2.0	3.2	4.0	20	25	32	14	16	18	
12.5(12)	2.0	2.5	4.0	5.0	22	28	32	14	16	20	
14	2.5	3.2	5.0	6.3	22	32	45	16	20	22	
16	3.2	4.0	6.3	8.0	25	40	45	18	22	25	
18	4.0	5.0	8.0	10.0	28	45	50	20	25	28	
20	5.0	6.3	10.0	12.5	32	45	50	22	25	32	
22.4(22)	6.3	8.0	12.5	16.0	40	50	56	25	32	36	
25	8.0	10.0	16.0	20.0	45	50	63	28	32	40	
28	10.0	12.5	20.0	25.0	45	56	80	32	40	45	
32	12.5	16.0	25.0	32.0	50	63	80	36	40	50	
36	16.0	20.0	32.0	40.0	50	80	90	40			
40	20.0	25.0	40.0	50.0	56	80		45	_	_	
45	25.0	32.0	50.0	63.0	63	90		50		—	

NOTE 1 — The dimensions of transition link  $B_1$  are critical in the case of 6.3 mm, 8 mm and 9 mm chains. It would be necessary to use an intermediate link  $(B_2)$  in addition to the transition link, in case of single leg slings also. The sizes of these intermediate links will be 10 mm for 6\*3 mm and 7 1 mm chain and 12 mm for 8 mm and 9 mm chains.

NOTE 2 — The sizes given in parentheses are not preferred sizes. They have been added as a temporary measure as an aid to chain selection until the standard sizes are in general use.

#### TABLE 2 DIMENSIONS OF O-RINGS AND JOINING AND INTERMEDIATE LINKS

#### ( Clause 5.2 )

NOMI- NAL	WOR	KING LO	DAD LIM	ПТ 	SUSPEN	SUSPENSION O-RINO $\frac{d_1}{2}$			INTERMEDIATE LINKS FOR		
dn	L	M	S	Ť	Single	Double	e Three and Four Leg	B1	$d_2$		
					Leg	Leg		<i>d</i> <sub>2</sub>	Double Leg B2	Three Leg B3	Four Leg <i>B</i> 4
(1) mm	(2)	(3) t	(4)	(5)	(6)	(7) mm	(8)	(9) mm	(10)	(11) mm	(12)
6.3 (6)	0.5	0 63	1.0	1.25	14	20	25	08	12	14	14
7.1	0.63	0.80	1.25	1.6	16	20	25	08	12	14	14
8.0	0.8	1.0	16	2.0	20	25	28	10	14	14	16
9.0	1.0	1.25	2.0	2.5	20	25	32	10	14	16	18
10.0	1.25	1.6	2.5	3.2	20	28	36	12	16	18	20
11.2 (11)	1.6	2.0	3.2	4.0	25	32	36	14	16	18	22
12.5(12)	2.0	2.5	4.0	5.0	25	36	40	14	18	20	25
14	2.5	3.2	5.0	6.3	28	36	50	16	18	25	32
16	3.2	4.0	6.3	8.0	32	45	56	18	20	32	32
18	4.0	5.0	8.0	10.0	36	50	63	20	25	32	32
20	5.0	6.3	10.0	12.5	36	56	63	22	32	32	40
22 4 (22)	6.3	8.0	12.5	16.0	45	63	80	25	36	40	40
25	8.0	10.0	16.0	20.0	50	63	80	28	36	40	45
28	10.0	12.5	20.0	25.0	56	80	90	32	40	45	
32	12.5	16.0	25.0	32.0	63	80	_	36	40		—
36	16.0	20.0	32.0	40.0	63	90	—	40	45		—
40	20.0	25.0	40.0	50.0	80		—	45			
45	25.0	32.0	50.0	63.0	80		—	50		—	—

NOTE 1 — The dimensions of transition link  $B_1$  are critical and in the case 6.3 mm, 7.1 mm, 8 mm and 9 mm chains, it would be necessary to use an intermediate link  $B_2$  in addition to the transition link in the case of single leg slings also. The sizes of these intermediate links will be 10 mm for 6.3 and 7.1 mm chains and 12 mm for 8 and 9 mm chains.

NOTE 2 — The sizes given in parentheses are not preferred sizes. They have been added as a temporary measure as an aid to chain selection until the standard sizes are in general use.

# TABLE 3NOMINAL SIZE, PITCH AND WIDTH OF LINKS AND<br/>DIAMETERS OF O-RINGS

( Clause 5.3 )

All dimensions in millimetres.



Master Link A

Joining Link

**Suspension O-Ring** 

MASTER LINK A

JOINING OR INTERMEDIATE LINKS B1, B2, B3 AND B4

*B*1

O-RING

	·							
Nomi- nal Size d <sub>1</sub>	Pitch l <sub>1</sub>	Width b <sub>1</sub>	Nomi- nal Size d <sub>2</sub>	Pitch l <sub>2</sub>	Width b <sub>2</sub>	Nomi- nal Size d <sub>3</sub>	Inside Dia D	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
12	95	54	7	30	16	14	95	
16	95	54	10	40	20	16	95	
20	135	75	12	60	30	20	95	
22	135	75	14	70	35	25	135	
25	135	75	16	80	40	28	135	
28	160	90	18	80	40	32	135	
32	160	90	20	100	50	36	160	
40	200	110	22	110	55	40	160	
45	250	125	25	120	60	45	200	
50	250	125	28	120	60	50	250	
56	275	140	32	140	70	56	250	
63	325	165	36	160	80	63	250	
80	360	200	40	180	90	80	325	
90	380	220	45	200	100	90	365	
—		_	50	220	110		_	

**6.2** The dimensions of the master, joining and intermediate links and O-rings shall not vary from the dimensions given in Table 3 by more than  $\pm$  5 percent.

**6.3** When constructing the sling a tolerance of -0 +2 pitch links is permissible on the nominal reach ordered by the purchaser. However, after proof loading, the difference between the longest and shortest legs of a multi-leg sling when measured under a tension of 1/5 WLL, shall not exceed 6 mm for legs up to 2 metre in length. For slings in excess of 2 metre, the difference between the longest and shortest legs may be increased by 3 mm per metre.

**6.4** It is important that the manufacturer ensures that all mating parts move freely into each other.

#### 7. MATERIALS

7.1 The material used in the manufacture of different components shall meet the condition laid down in the respective Indian Standard on chains.

#### 8. HEAT TREATMENT

**8.1** The master, joining and intermediate links and O-rings shall be heat-treated in a manner so as to have similar properties as the chains used in the sling, before being subjected to the proof load test.

**8.2** Details of heat treatment given to the chain sling shall be endorsed on the makers' test certificate.

#### 9. WORKMANSHIP

**9.1** The master, joining and intermediate links shall be welded by any one of the following methods:

- a) Electric resistance butt welding;
- b) Electric flash butt welding;
- c) Atomic hydrogen welding;
- d) Gas shielded arc welding ( using argon and/or carbon dioxide as shielding gas ); and
- e) Electric arc welding may also be used for sizes above 50 mm only. Where used, the weld shall be radiographically examined to ensure penetration and fusion throughout.

#### **10. RATING**

**10.1 Single Branch Sling** — Single branch slings shall have a working load limit equal to that of the Chain used in their construction.

**10.2 Multi-Branch Slings** — Multi-branch slings shall be rated at a uniform working load limit for any angle between branches of  $0-90^{\circ}$  (  $0-45^{\circ}$  to the vertical ) or additionally at a uniform working load limit for any angle between branches of  $90-120^{\circ}$  (  $45-60^{\circ}$  to the vertical ).



FIG. 5 INCLINATION OF SLING LEGS

#### 10.2.1 Uniform Load Method

a) Double branch slings:

For all angles between branches from 0-90° (  $0\text{-}45^\circ$  to the vertical )

 $WLL = 1.4 \times WLL$  of a single branch made from similar chain. When additionally marked for angles between branches of 90-120° (45-60° to the vertical )

 $WLL = 1 \times WLL$  of a single branch made from similar chain.

b) Three and four branch slings:

For all angles between branches from 0-90° (  $0\text{-}45^\circ$  to the vertical )

 $WLL = 2.1 \times WLL$  of a single branch made from similar chain. When additionally marked for angles between branches of 90-120° (45-60° to the vertical)

 $WLL = 1.5 \times WLL$  of a single branch made from similar chain.

NOTE — In the case of a three branch sling the angle between branches shall be taken as twice the angle to the vertical, that is,  $2\times$ .

In the case of a four branch sling the angle between branches shall be that between diagonally opposite branches.

10.3 Nominal Rating — The nominal rating of any multi-branch sling whether rated by the uniform load method shall be the *WLL* for that sling when used at an angle of 90° between the branches ( $45^{\circ}$  to the vertical).

#### **11. PROOF LOAD TESTING**

**11.1** After final heat treatment slings with accessories shall be tested as an assembly; multi-leg chain slings shall be tested in sections. Individual sections of the chain slings shall be subjected to 2.0 times the load to which the section will be subjected when the assembly is subjected to its working load limit in accordance with the following plan:



NOTE — For working load limits over 25t, it is permissible to apply proof loads to the links  $PL_2$  and  $PL_3$  reduced in accordance with ILO recommendations.

**11.2** The testing machine shall conform to the requirements of IS : 1828-1975\*.

#### **12. OTHER TESTS**

**12.1** The chains and hooks used in the manufacture of slings covered by this standard shall have been separately tested to show strict compliance to their respective standards. Manufacturer's test certificate on an appropriate proforma shall be made available if so required by the purchaser. If any further destructive test on samples of chains and hooks or connecting links are required, it will be a matter of special agreement between the purchaser and the manufacturer, and shall be mentioned in enquiry and order.

#### 13. MARKING

**13.1** The identification number and working load limit of the sling shall be marked on the master link. In addition, the following information shall be marked on a metal tag or label (*see* Fig. 6) permanently attached to the master link or a link immediately adjacent to it:

- a) For Single Branch Slings
  - i) Working load limit in kg or tonne;
  - ii) Individual identification numbers;
  - iii) Grade L, M, S or T;
  - iv) Manufacturer's name or symbol;
  - v) Year of Manufacture;
  - vi) Size of chain (optional);
  - vii) Reach of the sling; and
- viii) Other information as agreed to between the user and the manufacturer.
- b) For Multi-Branch Slings Rated Uniformly for Use with Angles 0 to 90° Between the Legs
  - i) Working load limit in kg or tonne;
  - ii) Individual identification number or symbols;
  - iii) Grade L, M, S or T;
  - iv) Manufacturer's name or symbol;
  - v) Year of manufacture;
  - vi) Size of chain (optional);

<sup>\*</sup>Method for load verification of tensile testing machines (first revision).



FIG. 6 EXAMPLES OF MARKING TAGS

- vii) Number of legs;
- viii) Reach of the sling; and
  - ix) Other information as agreed to between the user and the manufacturer.

**13.2** If a tag or label described in **13.1** becomes detached, the chain slings may be used only in accordance with the rating shown on a remaining tag or label. If no tag or label remains, the chain slings shall be taken out of service.

**13.3** The product may also be marked with Standard mark.

**13.3.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

#### **14. CERTIFICATION**

**14.1** Every sling shall be provided with a dated test certificate in the form shown in Appendix A with every supply of chain sling.

**14.1.1** For the purpose of this standard, the test certificate in Form V of the *Indian Dock Labourers Regulation, 1948,* is acceptable provided that it is endorsed in col 2 by the maker or supplier, that the slings or sling components comply, in all respects, with this Indian Standard, that it states the material of which the components (other than common links) are made, the heat treatment to which the common links and components have been subjected.

## APPENDIX A

(*Clause* 14.1)

# PROFORMA FOR THE CERTIFICATE OF TEST AND EXAMINATION

DISTINGUISHING MASK	DESCRIPTION*	NUMBER	TESTED	PROOF LOAD APPLIED, kN	SALS WORKING LOAD, t

The materials of which the components of the sling (other than the common links) are made, comply with the following specification (s);

\*\*\* \*\*\*

Particulars of heat treatment to which the common links and sling components have been subjected stating temperatures and method of cooling, are as follows:

\*\*\* \*\*\*

We hereby certify that the slings and sling components described above comply in all respects with IS : 2760-1972 'Specification for mild steel chain slings' and that they were subjected to the appropriate proof load at.....and subsequently examined by a competent person.

NOTE — For normal conditions of use the maximum permissible load (safe working load) of any component shall not exceed one half its proof load.

Signature,....

Dated .....

<sup>\*</sup>State type, size and length of sling, or type and size of components.

### **BUREAU OF INDIAN STANDARDS**

Headquarters:	
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	
Telephones: 323 0131, 323 3375, 323 9402 Fax: +91 011 3234062, 3239399	9, 3239382
E-mail:bis@vsnl.com website: http://www.bis.org.in	
Central Laboratory:	Telephone
Plot No. 20/9, Site IV, Sahibabad Industrial Area, SAHIBABAD 201010	477 00 32
Regional Offices:	
Central: Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	323 76 17
*Eastern: 1/14 CIT Scheme VII M, V.I.P. Road, Kankurgachi, KOLKATA 700054	337 86 62
Northern: SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43
Southern: C.I.T. Campus, IV Cross Road, CHENNAI 600113	254 19 84
<sup>†</sup> Western: Manakalaya, E9, MIDC, Behind Marol Telephone Exchange,	832 92 95
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5th Floor Kovai Towers 14 Bala Sundaram Road COIMBATORE 641018	21 88 35
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Savitri Complex 116 G T Road, GHAZIABAD 201001	471 19 98
53/5 Ward No. 29 R.G. Barua Road. 5th by-lane. Apurba Sinha Path	54 11 37
GUWAHATI 781003	
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001	320 10 84
E-52, Chitranjan Marg, C-Scheme, JAIPUR 302001	37 38 79
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Patliputra Industrial Estate, PATNA 800013	26 28 08
First Floor, Plot Nos. 657-660, Market Yard, Gultekdi, PUNE 411037	426 86 59
'Sahajanand House' 3rd Floor, Bhaktinagar Circle, 80 Feet Road,	37 82 51
RAJKOT 360002	
T.C. No. 14/1421, University P.O. Palayam, THIRUVANANTHAPURAM 695034	32 21 04
*Salas Office is at 5 Chauringhas Approach D.O. Dringen Street	227 10 95
KOLKATA 700072	23/ 10 83

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007

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