


INTERPLANT STANDARD - STEEL INDUSTRY		
	SPECIFICATION FOR WIRE TOPE SLING	IPSS:1-07-037-14 (First Revision)
	BASED ON IS: 2762-2009	<i>Formerly:- IPSS:1-07-037-86</i>

0. Foreword

0.1 Interplant standardization activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). This Inter-plant Standard prepared by the Standards Committee on Paints and Portable Maintenance Equipment, IPSS 1 : 7 with the active participation of the representatives of all steel plants, reputed consultants and established manufacturers of wire rope sling was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 27 March 1986 and Revised in July, 2014 keeping in view of latest developments.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and sub-assemblies used in steel plant equipment and accessories and provide guidance in indenting stores or equipment for existing or new installations by individual steel plants. For exercising effective control on inventories, it is advisable to select a fewer number of sizes (or types) from among those mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in the technical requirements.

1. **Scope** — This Interplant Standard covers the requirements of dimensions, constructions, loading, testing and marking of one, two, three and four-leg slings for wire rope of nominal diameter 8 to 40 mm, having legs of single part spliced.

2. **Dimensions** — The dimensions of wire rope and eye hook load capacity shall be as given in Table 1, read with Fig. 1, 2, 3 and 4.

3. **Wire Rope** — The wire rope used in the manufacture of single part spliced sling, legs shall consist of six round strands over a fibre core, R. H. ordinary lay, ungalvanized or galvanized as required by the purchaser and shall conform to IPSS:1-08-003-14 'Steel wire ropes for cranes (first revision)'.

4. Construction

4.1 Three constructions : 6 x 19 (12/6/1), 6 x 37 (18/12/6/1) and 6 x 36 (14 x 3) (14/7 and 7J7/1) shall be followed for the construction of rope.

4.2 For sling legs up to 20 mm diameter, a rope in the 6 x 19 group will generally provide sufficient flexibility and will offer good weaving properties. For large sizes 6 x 37 group is generally preferred on account of its increased flexibility.

4.3 Minimum Length of Leg —To provide adequate flexibility and to allow splicing, the effective length of a single part spliced sling leg shall be not less than 70 times the diameter of the rope.

4.4 Splicing — Sling shall be made either mechanical or hand splicing. Each splice shall have at least five tucks (three tucks with a whole strand of the rope and two tucks with one half of the wires, cut out of each strand). The tucks shall be over and under against the lay of the rope. The splice shall be tightly drawn and neatly made.

4.4.1 Serving — The portion of the splice which contains the wire ends, shall be neatly and effectively served with spun yarn or sizing strand to give protection to user in handling.

4.5 Thimbles — Thimble shall be conforming to ordinary type in accordance with IPSS: 1-08-013-86 'Specifications for thimbles'.

4.6 Eye Hook — Eye hook shall be conforming to IS : 2759-1969 'Higher tensile steel point hooks for use with wire rope thimbles'.

4.7 Main Ring — The main rings of all size, slings will require thimble larger than strand size in IS : 2315-1978.

4.7.1 Material of rings – It shall be high tensile steel conforming to IS:1570-1978 `Schedule for wrought steels for general engineering purposes'.

5. **Safe Working Load** – For normal condition of service, the safe working load shall not exceed one sixth of the minimum breaking strength of 6 x 37 construction wire rope with wire of tensile designation 1770 conforming to IS:2266-2002 `Steel wire ropes for general engineering purposes (second revision)'.

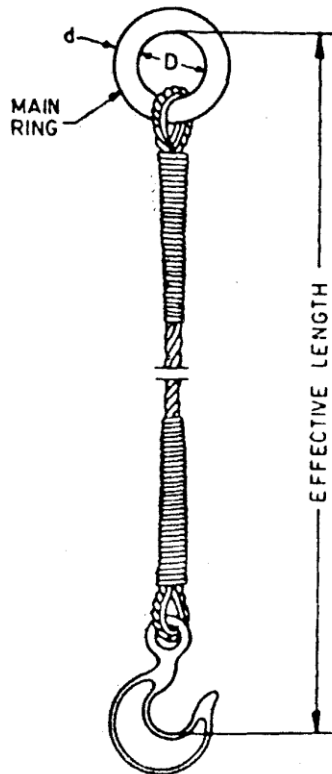
6. **Designation** – Wire rope sling shall be designated by the number of leg, nominal size of wire rope, minimum effective length and coating, for example:

A single leg wire rope sling of minimal size of steel wire rope 20 mm and minimum effective length 2 000 mm and galvanized, shall be designated as

GALVANISED WIRE ROPE SLING, SINGLE LEG
20 X 2 000 – IPSS:1-07-037-14

TABLE 1 DIMENSIONS OF WIRE ROPE, SAFE WORKING LOAD, LOAD CAPACITY OF EYE HOOK AND DIMENSIONS OF MAIN AND INTERMEDIATE RINGS
(Clause 2)

Nominal Size of Wire Rope		8	10	12	14	16	20	22	24	26	28	32	36	40	
Safe working load on vertically supported single-leg, kg		500	900	1 000	1 500	2 200	3 300	3 800	4 300	5 400	6 200	8 200	11 200	12 600	
Minimum effective length, mm		550	775	880	1 000	1 200	1 340	1 450	1 660	1 800	2 000	2 450	2 660	2 900	
Load capacity of eye hook, kgf		3 000	3 000	3 000	5 000	5 000	7 500	7 500	7 500	7 500	10 000	10 000	12 500	15 000	
Main ring	Single-leg	ϕD	100	100	100	125	125	150	150	150	175	200	200	225	250
		ϕd	16	22	22	24	29	38	38	38	44	51	54	60	67
	Two-leg	ϕD	100	125	125	125	150	200	200	200	225	225	—	—	—
		ϕd	22	27	27	30	38	51	51	51	61	61	—	—	—
	Three-leg	ϕD	125	125	125	150	200	200	225	250	—	—	—	—	—
		ϕd	24	30	30	38	51	54	61	67	—	—	—	—	—
	Four-leg	ϕD	125	150	150	175	200	250	—	—	—	—	—	—	—
		ϕd	27	37	37	44	54	67	—	—	—	—	—	—	—
Inter-mediate ring	Four-leg	ϕD	63	75	75	100	125	150	—	—	—	—	—	—	—
		ϕd	17	24	24	29	37	44	—	—	—	—	—	—	—



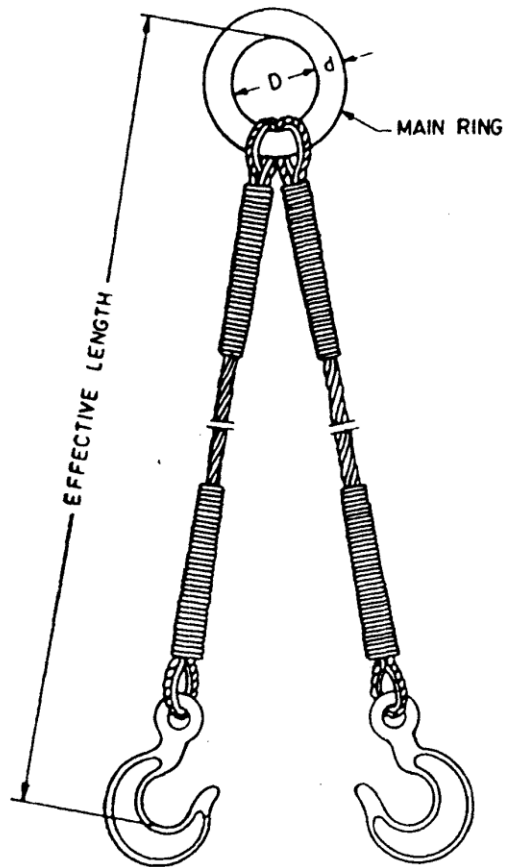


FIG. 2 TWO-LEG WIRE ROPE SLING

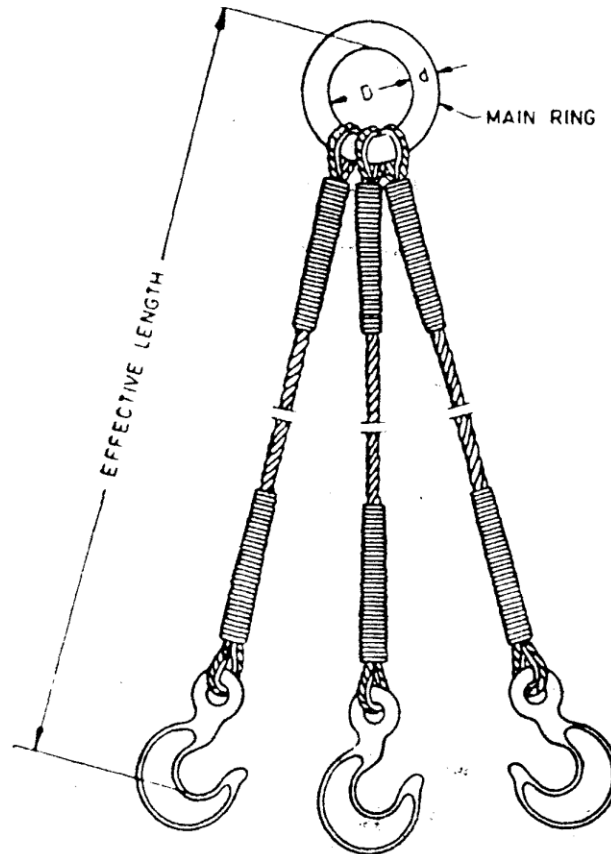


FIG. 3. THREE-LEG WIRE ROPE SLING

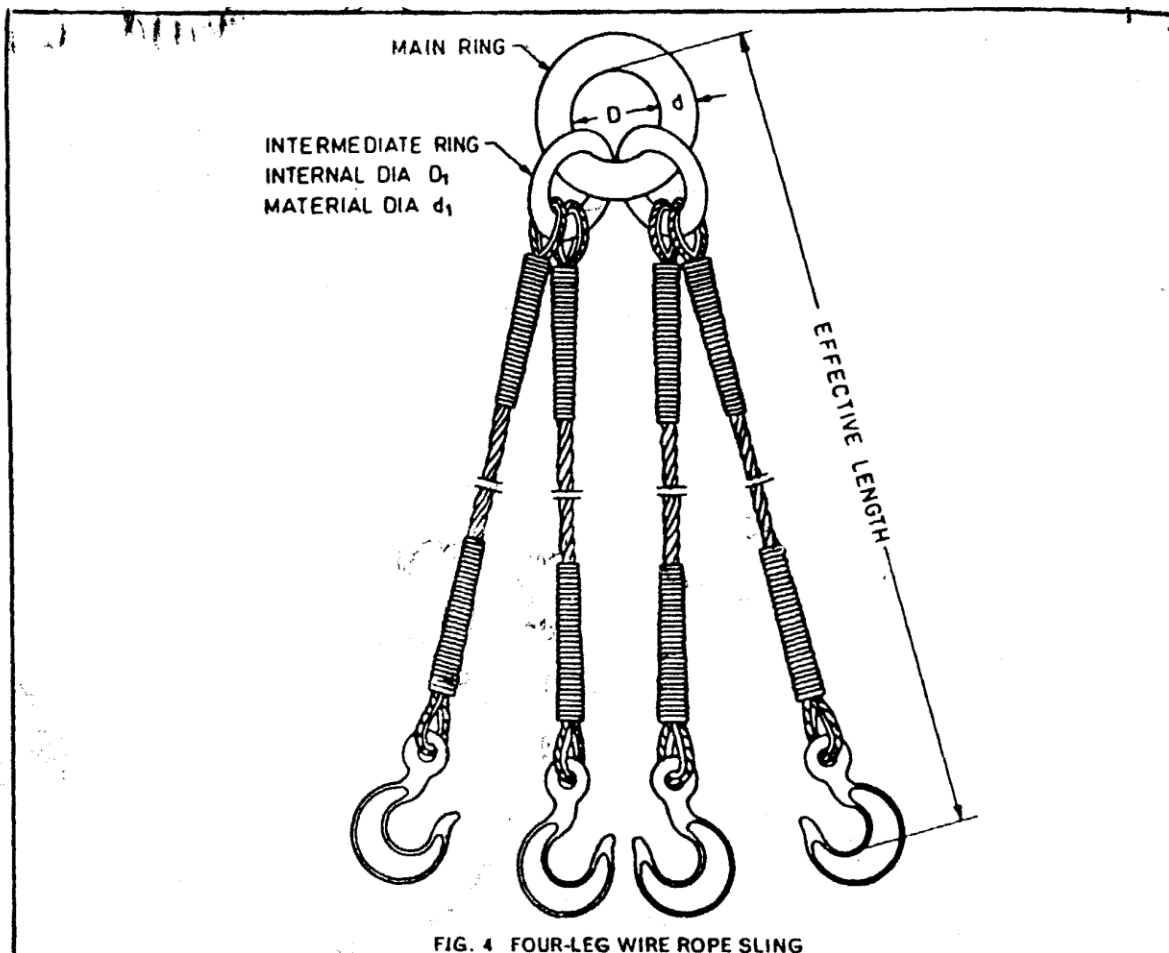


FIG. 4 FOUR-LEG WIRE ROPE SLING

7. **Tests** – Each sling shall be accompanied by a test certificate issued by any recognized test house, stating size, number of leg, effective length, material of hook and ring, permissible working load, proof load and identification mark on the sling.

8. Marking

8.1 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:

- a) For single branch slings:
 - i) Working load limit in kg or, t;
 - ii) Individual identification number;
 - iii) Manufacturer's name or symbol;
 - iv) Year of manufacture;
 - v) Size of chain (optional);
 - vi) Reach of the sling; and

- vii) Other information as agreed to between the user and the manufacturer.
- b) For multibranch slings rated uniformity for use with angles 0 to 90o between legs:
 - i) Working load limit in kg or, t;
 - ii) Individual identification number;
 - iii) Manufacturer's name or symbol;
 - iv) Year of manufacture;
 - v) Size of chain (optional);
 - vi) Reach of the sling; and
 - vii) Other information as agreed to between the user and the manufacturer.

8.2 If a tag or label described above 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.