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भारतीय मानक का प्रारूप
गढ़े सींगदार क्लीट – विशिष्टि
(आई एस 5220 का प्रथम पुनरीक्षण)

DRAFT *INDIAN STANDARD*
FORGED HORN CLEATS — SPECIFICATION
(First Revision of IS 5220)

(ICS no 47.020.50)

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Last date for receipt
of comments is 15 04 2024

Shipbuilding Sectional Committee, TED 17

FOREWORD

This draft Indian Standard (First Revision) will be adopted by the Bureau of Indian Standards on the recommendation of the Shipbuilding Sectional Committee and approval of the Transport Engineering Division Council.

This standard was first published in 1969. This first revision is being undertaken to update the standard and to incorporate latest technological advancement/ development that has taken place in various fields. The salient features of this first revision are:

- a) The standard has been drafted as per latest drafting guidelines.
- b) Reference to Indian Standard has been updated
- c) Clauses related to Marking, BIS Certification and sampling plan have been added.

Horn cleats form part of the rigging and mooring outfit fitted on-board ships.

The composition of the Committee responsible for the formulation of this standard is given at **Annex A (Will be added later)**.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard specifies the material and dimensions for forged horn cleats, for direct welding or for bolting.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 1365 : 2022	Slotted countersunk flat head screws Product grade A (Fifth Revision)
IS 1821 : 1987	Dimensions for clearance holes for bolts and screws (Third Revision)
IS 1875 : 1992	Carbon steel billets, blooms, slabs and bars for forgings - Specification (Fifth Revision)
IS 2102 (Part 1) : 1993	General tolerances: Part 1 tolerances for linear and angular dimensions without individual tolerance indications (Third Revision)
IS 2500 (Part 1) : 2000	Sampling procedures for inspection by attributes: Part 1 sampling schemes indexed by acceptance quality limit (AQL) for lot - By - Lot inspection (Third Revision)
IS 3406 (Part 1) : 1986	Dimensions for countersinks and counterbores: Part 1 countersinks (Second Revision)
IS 3406 (Part 2) : 2014	Dimensions for countersinks and counterbores: Part 2 counterbores (Third Revision)

3 TERMINOLOGY

For the purpose of this standard, following definition shall apply

3.1 Horn Cleat

Horn cleat is a particular type of hook fitted or welded to gunwale, masts, flagposts, davits, etc., so as to facilitate in securing halyards and load taking ropes of rigging and mooring.

4 DESCRIPTION

4.1 Horn cleats are of the following two types:

a) Type 1 — Single horn cleat

- 1) Weldable type; and
- 2) Bolted or Riveted type.

b) Type 2 — Double horn cleat

- 1) Weldable type;
- 2) Bolted or Riveted type; and
- 3) Bolted or Riveted type with oval base.

4.2 The horn cleat may be secured in place by means of countersunk screws or rivets.

5 MATERIAL

Horn cleats shall be forged out of material conforming to Class 2 of IS 1875. The tensile strength and elongation shall be 430 MPa *Min.* and 24 percent *Min.* respectively.

6 DIMENSIONS

6.1 The shape and dimensions of single horn cleats shall be as given in Fig. 1 and 2.

6.2 The shape and dimensions of double horn cleats shall be as given in Fig. 3 to 5.

6.3 The dimensions for countersinks shall be according to Type A of IS 3406 (Part 1).

6.4 Slotted countersunk head screws shall be according to IS 1365.

7 TOLERANCES

7.1 The tolerance on dimension d shall be $^{+1}_{-0}$ mm

7.2 The tolerance on other dimensions shall be according to coarse series of IS 2102 (Part 1).

7.3 The tolerance on holes for securing metric bolts shall be according to IS 1821.

8 VISUAL INSPECTION

The horn cleat shall be visually inspected and shall be free from detrimental defects. The part rubbed by ropes shall be smoothly finished.

9 DESIGNATION

Horn cleats shall be designated by its type, method of attachment, dimension d and the number of this standard.

Example:

Single horn cleat weldable type of base dimension ' d ' = 25 mm shall be designated as:

Single Horn Cleat Weldable 25 IS 5220.

10 MARKING

10.1 Each horn cleat shall be marked with the manufacturer's name, registered trade-mark or identification mark.

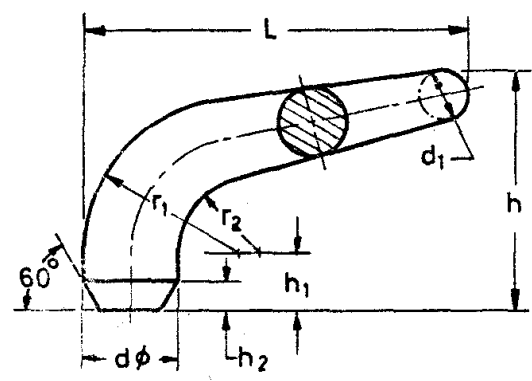
10.2 BIS Certification Marking

The horn cleat may also be marked with the Standard Mark.

10.2.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

11 SAMPLING

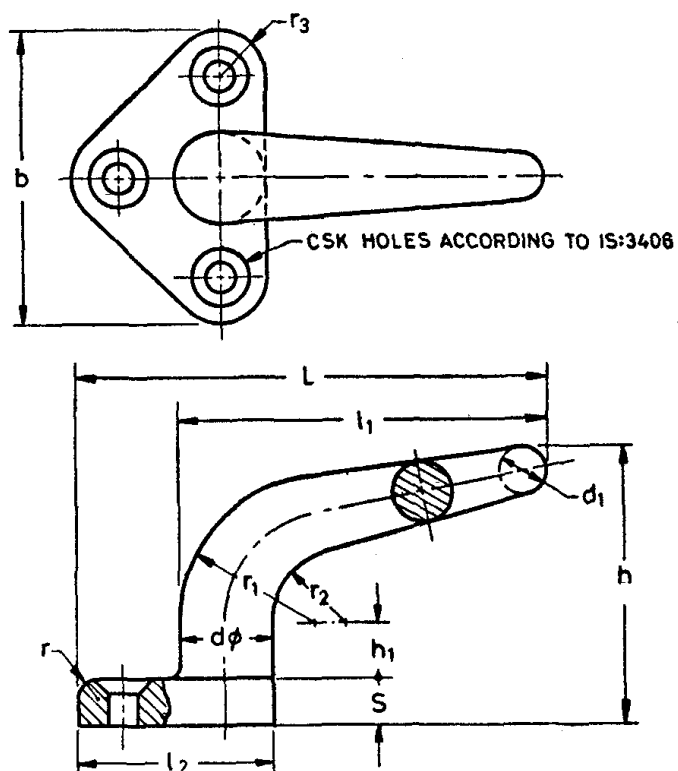
Unless otherwise agreed upon between a supplier and purchaser, the inspection sampling shall be as per IS 2500 (Part 1).



All dimensions in millimetres

Fig. 1 Single Horn Cleat — Weldable Type

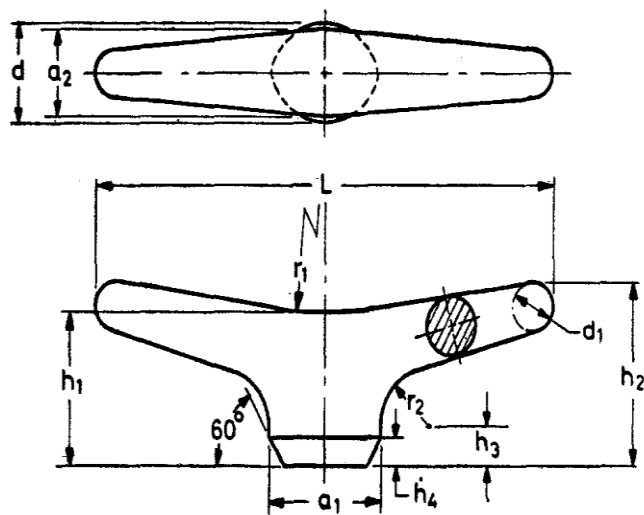
<i>d</i>	<i>d</i> ₁	<i>h</i>	<i>h</i> ₁	<i>h</i> ₂	<i>L</i>	<i>r</i> ₁	<i>r</i> ₂	Approximate Weight Kg
12	7	32	8	4	50	20	10	0.035
16	8	40	10	5	63	25	12	0.072
20	10	50	12	6	80	32	16	0.142
25	12	63	16	7	100	40	20	0.276
32	16	80	20	9	125	50	25	0.575
40	20	100	25	12	160	63	32	1.14



All dimensions in millimetres

Fig. 2 Single Horn Cleat — Bolted or Riveted Type

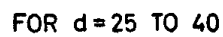
d	b	d_1	h	h_1	L	l_1	l_2	r	r_1	r_2	r_3	S	Counter-Sunk Screws	Approximate Weight Kg
12	38	7	38	8	64	50	26	2	20	10	7	6	M5	0.066
16	50	8	48	10	81	63	34	3	25	12	9	8	M5	0.142
20	64	10	60	12	102	80	42	4	32	16	10	10	M6	0.277
25	84	12	75	16	130	100	55	5	40	20	13	12	M10	0.553
32	110	16	94	20	165	125	72	5	50	25	17	14	M12	1.14
40	136	20	116	25	208	160	88	6	63	32	20	16	M12	2.12



All dimensions in millimetres

Fig. 3 Double Horn Cleat — Weldable Type

<i>d</i>	<i>a</i> ₁	<i>a</i> ₂	<i>d</i> ₁	<i>h</i> ₁	<i>h</i> ₂	<i>h</i> ₃	<i>h</i> ₄	<i>L</i>	<i>r</i> ₁	<i>r</i> ₂	Approximate Weight Kg
20	20	18	10	32	38	8	6	114	100	12	0.195
25	35	22	12	40	48	10	7	142	125	16	0.353
32	45	28	16	50	60	12	9	182	160	20	0.782
40	56	35	20	63	76	16	12	228	200	25	1.51
50	70	44	24	80	95	20	15	286	250	32	2.96
63	88	56	32	100	120	25	19	360	315	40	5.99

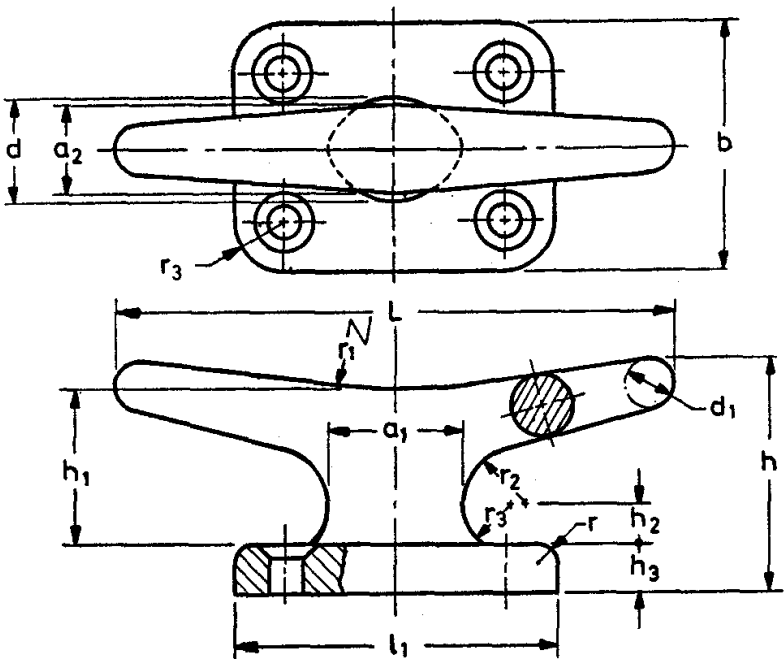


All dimensions in millimetres

Fig. 4 Double Horn Cleat — Bolted or Rived Type

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<i>d</i>	<i>b</i>	<i>d</i> ₁	<i>h</i>	<i>h</i> ₁	<i>h</i> ₂	<i>L</i>	<i>I</i> ₁	<i>l</i> ₂	<i>n</i>	<i>n</i> ₁	<i>r</i>	<i>r</i> ₁	<i>r</i> ₂	<i>r</i> ₃	Counter-Sunk Screw	Approximate Weight, Kg
12	32	7	40	8	8	140	50	64	24	10	3	¹⁶	20	10	M6	0.179
16	42	8	50	10	10	180	63	86	32	13	4	²¹	25	12	M10	0.385
20	54	10	62	12	12	230	80	110	40	17	5	²⁷	32	16	M12	0.765
25	70	12	78	16	15	280	100	130	60	13	5	—	40	20	M10	1.38
32	84	16	98	20	18	340	125	154	70	17	6	—	50	25	M12	2.57
40	100	20	122	25	22	420	160	180	80	20	6	—	63	32	M12	4.70



All dimensions in millimetres

Fig. 5 Double Horn Cleats with Oval Base — Bolted or Riveted Type

<i>d</i>	<i>a</i> ₁	<i>a</i> ₂	<i>b</i>	<i>d</i> ₁	<i>h</i>	<i>h</i> ₁	<i>h</i> ₂	<i>h</i> ₃	<i>l</i>	<i>l</i> ₁	<i>r</i>	<i>r</i> ₁	<i>r</i> ₂	<i>r</i> ₃	Counter-sunk screw	Approximate weight, kg
20	28	18	50	10	48	32	8	10	114	65	4	100	12	10	M6	0.341
25	35	22	60	12	60	40	10	12	142	80	5	125	16	13	M10	0.771
32	45	28	80	16	74	50	12	14	182	100	5	160	20	17	M12	1.61
40	56	35	100	20	92	63	16	16	228	130	6	200	25	20	M12	3.10
50	70	44	120	24	113	80	20	18	286	160	6	250	32	20	M12	5.70
63	88	56	150	32	141	100	25	21	360	200	8	315	40	25	M16	11.1

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ANNEX A
(Foreword)

COMMITTEE COMPOSITION

SHIPBUILDING SECTIONAL COMMITTEE, TED 17

(Will be added later)