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भारतीय मानक मसौदा

**खदानों में शैफ्ट सिंकिंग प्रचालनों में प्रयोग की जाने
वाली बाल्टियों के लिए राइडर्स के लिए सामान्य अपेक्षाएं**

(आई एस 12527 का पहला पुनरीक्षण)

Draft Indian Standard

**GENERAL REQUIREMENTS FOR RIDERS FOR BUCKETS
USED IN SHAFT SINKING OPERATIONS IN MINES**

(First Revision of IS 12527)

ICS 73.100.01

**Mining Techniques and Equipment
Sectional Committee, MED 08**

**Last date for receipt of
comments is 04 November 2022**

FOREWORD

(Formal clause to be added later)

This standard was first published in 1988. This standard is being revised again to keep pace with the latest technological developments and international practices. In this revision, the following major changes have been made:

1. A reference clause has been added mentioning the latest version of all the referred standards.
2. Editorial corrections have been done.

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

Lays down requirements for one of the type of riders for buckets used in shaft sinking operations in mines.

2 REFERENCES

The standards listed below 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 the agreement 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>
2062 : 2011	Hot rolled medium and high tensile structural steel – Specification (<i>seventh revision</i>)
1875 : 1992	Carbon steel billets, blooms, slabs and bars for forgings – Specification (<i>fifth revision</i>)
808 : 2021	Hot Rolled Steel Beam Column Channel and Angle Sections - Dimensions and Properties (<i>fourth revision</i>)

3 NOMENCLATURE

Shall be as for col 1 and 2 of Table 1 read with Fig. in Table 2.

Table 1 Components (Clause 3, 5, 6.2, 7 and 8.1)				
Number in Fig. in Table 2	Nomenclature	Quantity	Reference for Dimensions	Recommended Material
(1)	(2)	(3)	(4)	(5)
1	Cross tie	4	Table 3	Grade A of IS 2062
2	Longitudinal tie	4	Table 4	Grade A of IS 2062
3	Gusset plate	2	Table 5	Grade A of IS 2062
4	Guide fork	4	Fig. 1	IS 1875
5	Splint plate	4	Fig. 2	IS 1875
6	Filler	4	Fig. 3	Grade A of IS 2062
7	Shim	8	Fig. 4	Grade A of IS 2062
8	Lock plate	8	Fig. 5	Grade A of IS 2062
9	Liner shall	4	Table 6 or 7	IS 1875
10	Hexagonal head screw	16	–	–
11	Spring washer	16	–	–
12	U-piece	16	–	–
13	Hexagonal head screws	16	–	–

14	Hexagonal head screws	16	–	–
15	Spring washers	24	–	–
16	Snap head rivets	12 to 22	–	–

4 FORMS

There shall be two forms, A and B, as shown in Fig. in Table 2.

5 QUANTITY OF COMPONENTS

Quantity in number of components required are given in col 3 of Table 1.

5.1 For cross tie, longitudinal tie, gusset plate and guide fork, the guide rope spacing, for liner shell for Form A flat rope size in mm and for liner shell for Form B round rope size in mm required by the purchaser, may be specified.

6 DIMENSIONS

6.1 Main Dimensions

Shall be as specified in Table 2.

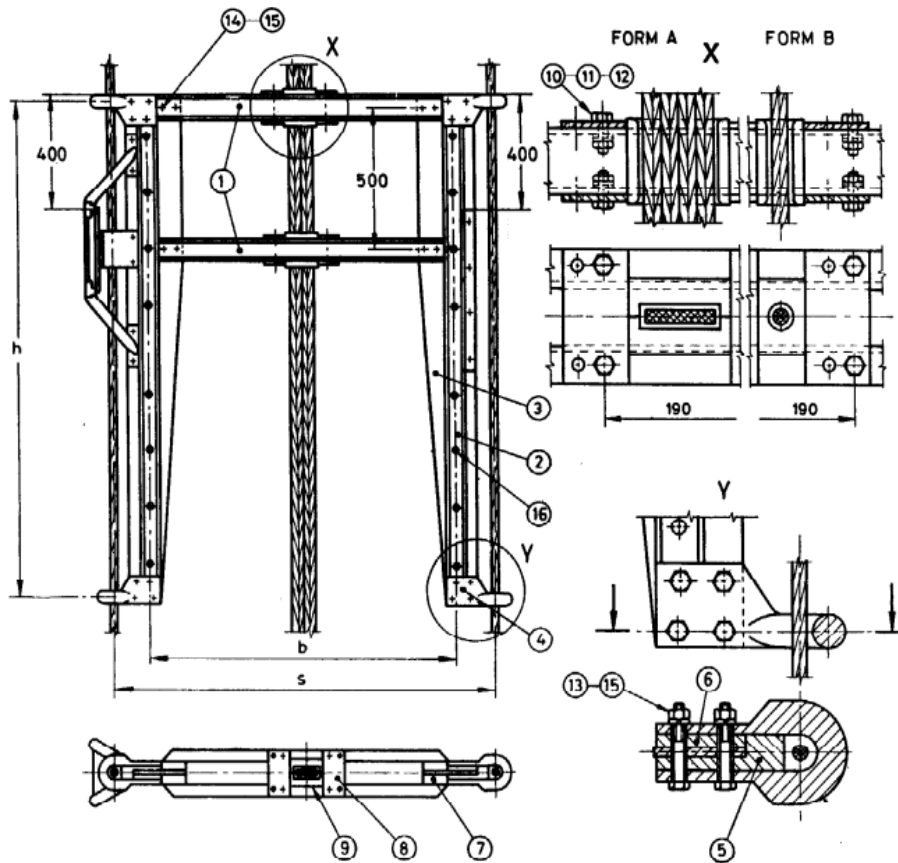
6.2 Dimensions of Components

Shall be as given in Tables 3 to 7 and Fig. 1 to 5 (*see* col 4 of Table 1).

6.2.1 It is recommended that for cross tie channel section MC 100 or MCP 100. and for longitudinal tie channel section MC 75 or MCP 75 in accordance with IS 808, may be used.

Table 2 Main Dimensions for Riders for Shaft Sinking Buckets
(*Clause 6.1*)

All dimensions in millimeters.



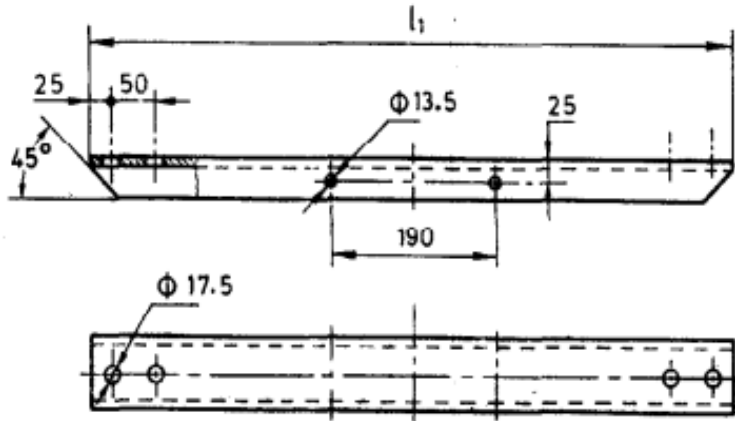
<i>s</i>	<i>b</i>	<i>h</i>	Mass *kg
1 100	800	1 300	129
1 200	900	1 400	136
1 300	1 000	1 500	143
1 400	1 100	1 650	151
1 500	1 200	1 750	158
1 600	1 300	1 850	165
1 700	1 400	2 000	173
1 800	1 500	2 100	180
1 900	1 600	2 200	188
2 000	1 700	2 300	195

* Without liner shell halves, magnet and holder and also without counter weight.

Table 3 Dimensions for Cross Tie

(Clause 6.2)

All Dimensions in millimetres.

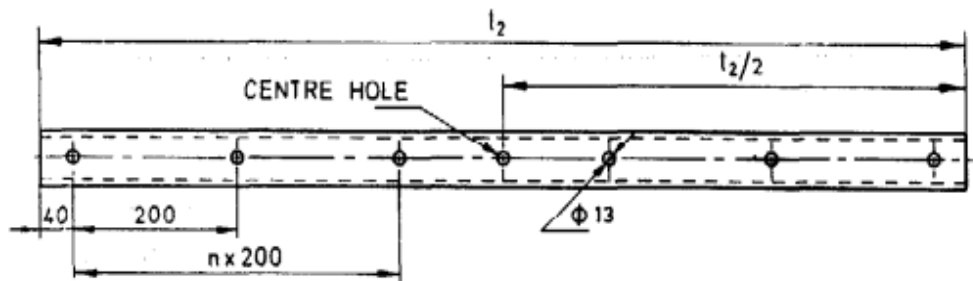


s	f_1
1 100	735
1 200	835
1 300	935
1 400	1 035
1 500	1 135
1 600	1 235
1 700	1 335
1 800	1 435
1 900	1 535
2 000	1 635

Table 4 Dimensions for Longitudinal Tie

(Clause 6.2)

All dimensions in millimetres.



s	f_1	n
1 100	1 140	2
1 200	1 240	2
1 300	1 340	2
1 400	1 490	3
1 500	1 590	3
1 600	1 690	3

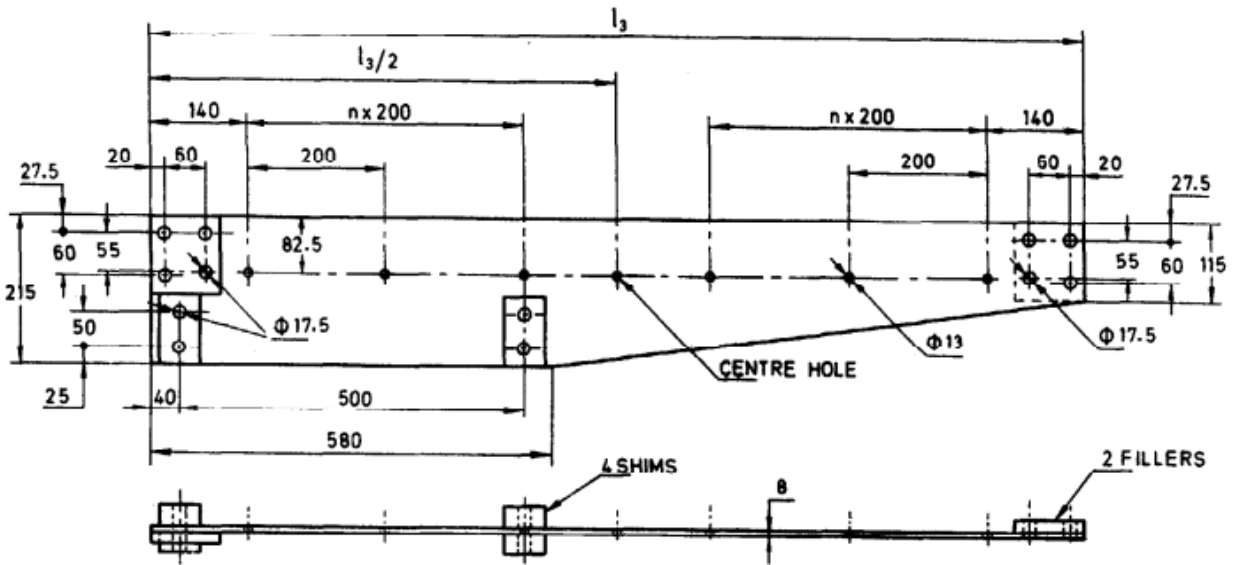
1 700	1 840	4
1 800	1 940	4
1 900	2 040	4
2 000	2 140	4

NOTE — The centre hole is omitted in case of longitudinal ties for $s = 1\ 100, 1\ 400, 1\ 500, 1\ 700$ and $1\ 800$ mm.

Table 5 Dimensions for Gusset Plate

(Clause 6.2)

All dimensions in millimeters.

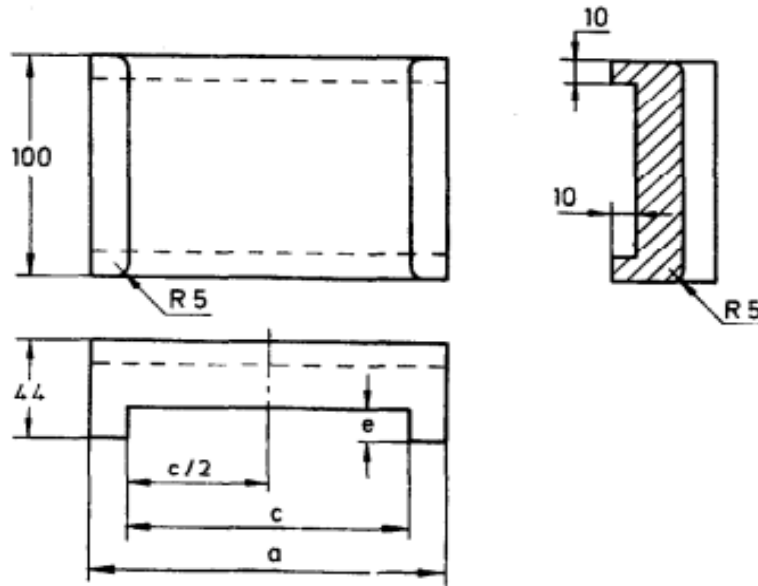


s	b	h	Mass kg =
1 100	1 340	2	15.6
1 200	1 440	2	16.6
1 300	1 540	2	17.6
1 400	1 690	3	19.2
1 500	1 790	3	20.2
1 600	1 890	3	21.3
1 700	2 040	4	22.4
1 800	2 140	4	23.8
1 900	2 240	4	24.8
2 000	2 340	4	25.9

NOTE — The centre hole is omitted in case of longitudinal gusset plates for $s = 1\ 100, 1\ 400, 1\ 500, 1\ 700$ and $1\ 800$ mm.

TABLE 6 DIMENSIONS FOR LINER SHELL (FOR FLAT ROPE)
 (Clause 6.2)

All dimensions in millimetres.



For Flat Wire Rope of Size $b \times t$	a	c	e	Mass kg ≈
60 × 12	130	70	11	3.3
70 × 10	130	80	10	3.3
80 × 12	130	90	11	3.1
92 × 15	130	102	12.5	2.9
98 × 16	130	108	13	2.8
104 × 17	150	114	13.5	3.3
110 × 18	150	120	14	3.2
116 × 19	150	126	14.5	3.0
122 × 20	150	132	15	2.9

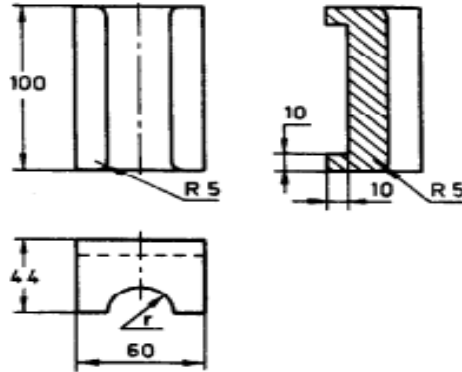
NOTE — If flat wire rope of width b and thickness t other than those given above are used, the dimensions c and e shall be obtained with the following formulae:

$$c = b + 10$$

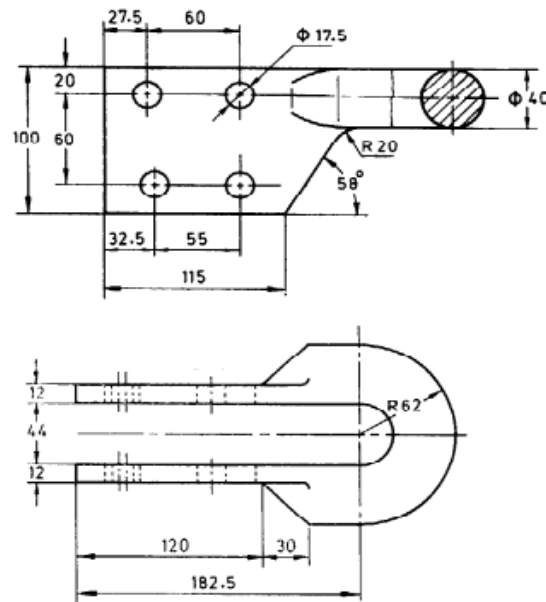
$$e = \frac{t+10}{2}$$

Table 7 Dimensions for Liner Shell (For Round Rope)
(Clause 6.2)

All dimensions in millimetres.

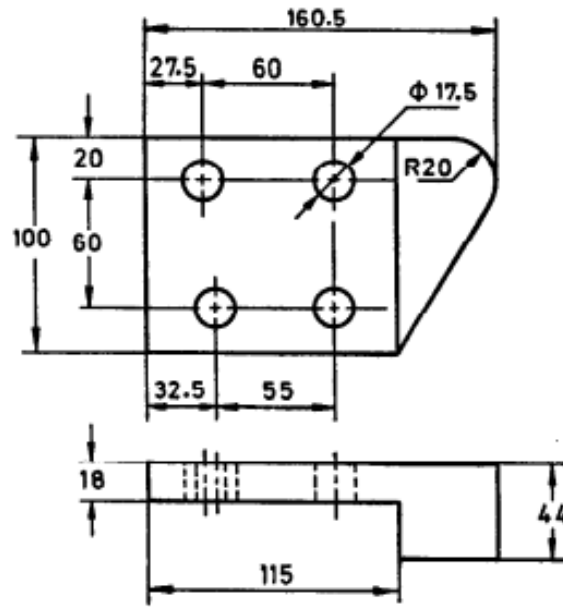


For Round Rope of Nominal Size	r	Mass kg \approx
20	15	1.54
22	16	1.5
24	17	1.45
26	18	1.4
28	19	1.38
30	20	1.31



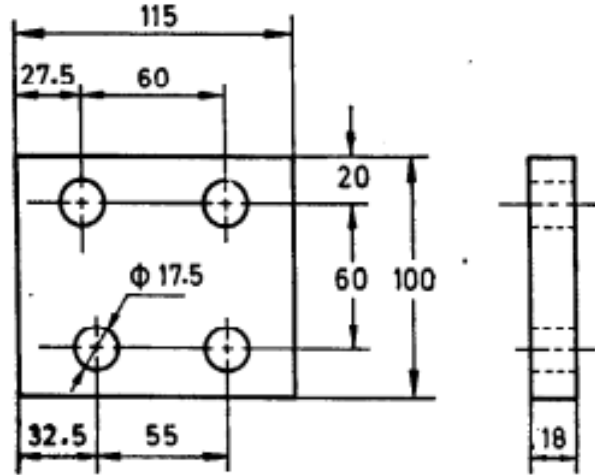
All Dimensions in millimetres.

FIG. 1 DIMENSIONS FOR GUIDE FORK



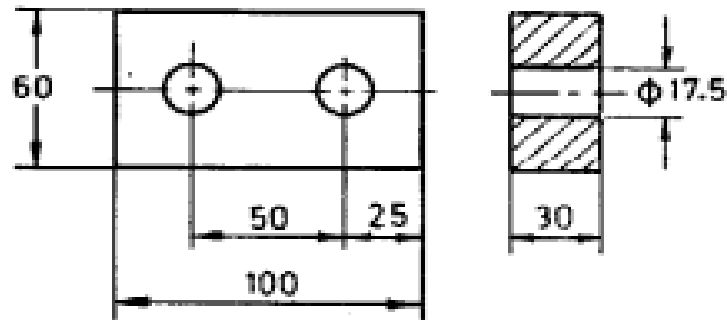
All Dimensions in mililimeres.

FIG. 2 DIMENSIONS FOR SPLINT PLATE



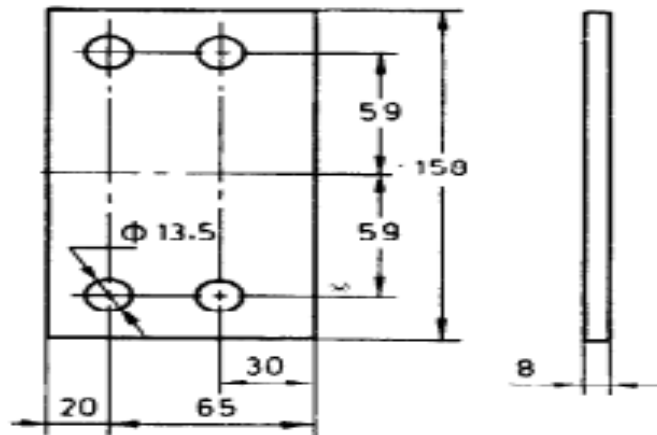
All dimensions in millimetres.

FIG. 3 DIMENSIONS FOR FILLERS



All dimensions in millimetres.

FIG. 4 DIMENSIONS FOR SHIM



All dimensions in millimetres.

FIG. 5 DIMENSIONS FOR LOCK PLATE

7 MATERIAL

Materials recommended for various components are given in col 5 of Table 1.

8 DESIGNATION

A rider for bucket for sinking operations in mines suitable for use with fiat rope (Form A) with a guide rope spacing of 1 500 mm shall be designated as follows:

Rider for Sinking Bucket 1 500 A IS 12527

8.1 Components of riders shall be designated as per their nomenclature given in col 2 of Table 1.

9 OTHER REQUIREMENTS

9.1 A suitable limit switch shall be fixed to a bracket attached to the rider if required by the purchaser.

9.2 A suitable protective cover shall be provided with the rider if required by the purchaser.

10 BIS Certification Marking.

The rider may also be marked with the Standard Mark.

10.1 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.