INTERNATIONAL STANDARD 2262

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Rope thimbles

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2262 was drawn up by Technical Committee ISO/TC 111, *Round steel link chains, chain wheels, lifting hooks and accessories.*

It was approved in July 1971 by the Member Bodies of the following countries:

Chile	Israel	Romania
Egypt, Arab Rep. of	Italy	Spain
France	Japan	Sweden
India	Korea, Rep. of	Turkey
Ireland	Netherlands	United Kingdom

The Member Bodies of the following countries expressed disapproval of the document on technical grounds:

Australia	New Zealand
Austria	South Africa, Rep. of
Belgium	

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Rope thimbles

0 INTRODUCTION

The thimbles specified in this International Standard have been designed to accept the appropriate mild steel shackles and to maintain their form when point loaded to 1.75 times the load imposed by the strongest fibre-cored wire rope with a safety factor of 6 (Table 1), or by the strongest synthetic fibre rope with a safety factor of 8 (Table 2). Larger loads can be sustained without deformation when imposed by a pin of the same radius as the thimble crown.

For intermediate rope sizes, the next larger size of thimble should be used.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies requirements for thimbles suitable for use with wire ropes having diameters from 4 to 63 mm, and for use with fibre ropes, natural or synthetic, having diameters from 6 to 100 mm.

Reeving thimbles and solid thimbles are excluded.

2 REFERENCES

ISO/R 82, *Tensile testing of steel.*

ISO/R 1461, *Requirements for hot dip galvanized coatings on fabricated ferrous products.*

3 NOMINAL SIZE

The nominal size of a thimble is the nominal diameter of the rope for which it has been primarily designed.

4 MATERIAL

The material from which the thimbles are made shall be a mild steel, bearing the following characteristics when tested in accordance with ISO/R 82.

Tensile strength : 420 to 520 N/mm^2

Elongation : 20 % minimum.

5 GALVANIZING

The thimble shall be galvanized with a zinc coating complying with ISO/R 1461, unless otherwise specified by the purchaser.

6 DIMENSIONS

The dimensions of the thimble shall comply with the appropriate values given in Table 1 or 2.

The dimensions *A, C, D, F* and *R* are subject to a tolerance of $^{+\ 10}_{0}$ %. In the case of wire rope thimbles, radius *R* applies over 140° at the crown (70° on either side of the centre), and in the case of fibre rope thimbles, radius *R* applies over 120° at the crown (60° on either side of the centre). Radius *J* applies over the remaining internal contour of the thimble as a minimum without upper limit.

7 WORKMANSHIP AND FREEDOM FROM DEFECTS

The thimble shall be neatly formed, and shall be free from any flaw, defect, sharp edge or roughness, which might damage the rope.

The points of the thimble (see Figures) may either be allowed to meet freely or be welded if this is preferred. If desired, the point of the thimble can be truncated (see Figure 1) to half the depth of the groove.

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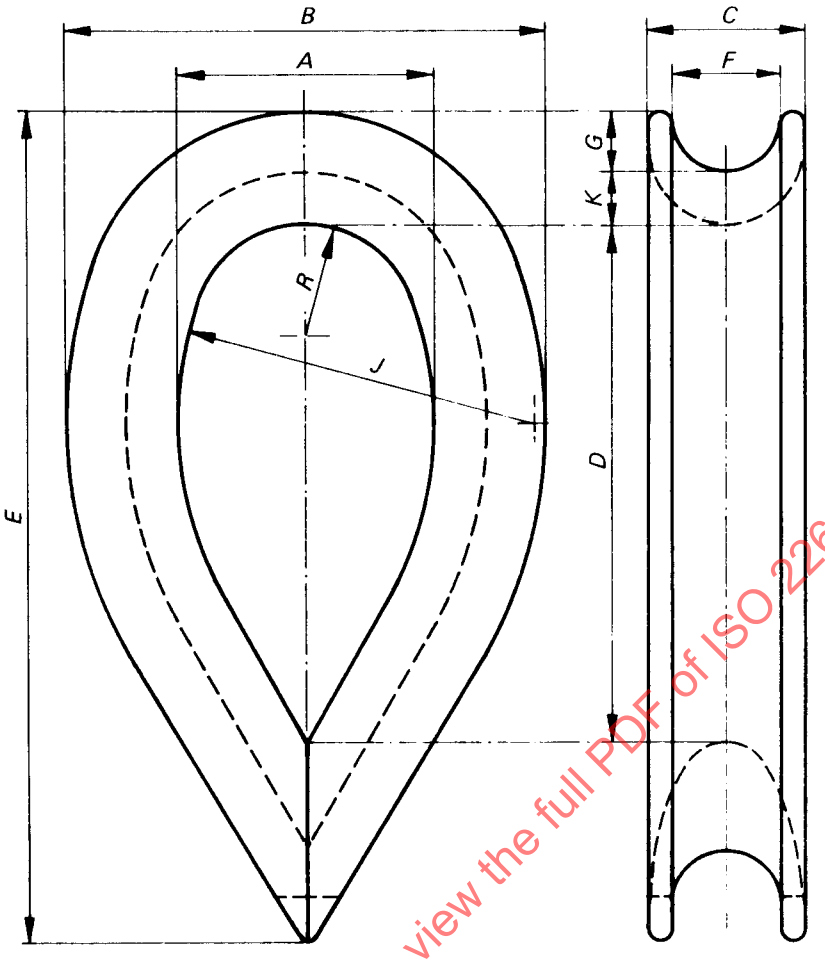

FIGURE 1 — **Wire rope thimble**

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TABLE 1 — **Dimensions of wire rope thimbles**

Dimensions in millimetres

Nominal size of thimble *d*	Diameter of wire rope	*A* (2.5 *d*)	*B* (≈ 4.6 *d*)	*C* (1.5 *d*)	*D* (5.0 *d*)	*E* (≈ 7.9 *d*)	*F* (1.1 *d*)	*G* (≈0.55*d*)	*J* (3.4*d* min.)	*K* (0.5*d* min.)	*R* (1.1 *d*)
4	4	10	19	6	20	32	4.4	2.5	14	2	4.4
5	5	12.5	23.5	7.5	25	40	5.5	3	17	2.5	5.5
6	6	15	28	9	30	47	6.6	3.5	20	3	6.6
8	8	20	37	12	40	63	8.8	4.5	27	4	8.8
10	9 and 10	25	46	15	50	79	11	5.5	34	5	11
12	11 and 12	30	56	18	60	95	13	7	41	6	13
14	13 and 14	35	65	21	70	111	15	8	48	7	15
16	16	40	74	24	80	126	18	9	54	8	18
18	18	45	83	27	90	142	20	10	61	9	20
20	20	50	92	30	100	158	22	11	68	10	22
22	22	55	101	33	110	174	24	12	75	11	24
25	24	62	115	38	125	198	28	14	85	12.5	28
28	26 and 28	70	129	42	140	221	31	15.5	95	14	31
32	32	80	147	48	160	253	35	17.5	109	16	35
36	36	90	166	54	180	284	40	20	122	18	40
40	40	100	184	60	200	316	44	22	136	20	44
45	44	112	207	68	225	356	50	25	153	22.5	50
50	48	125	231	75	250	395	55	28	170	25	55
56	52 and 56	140	258	84	280	442	62	31	190	28	62
63	60	158	291	94	315	498	69	35	214	31.5	69

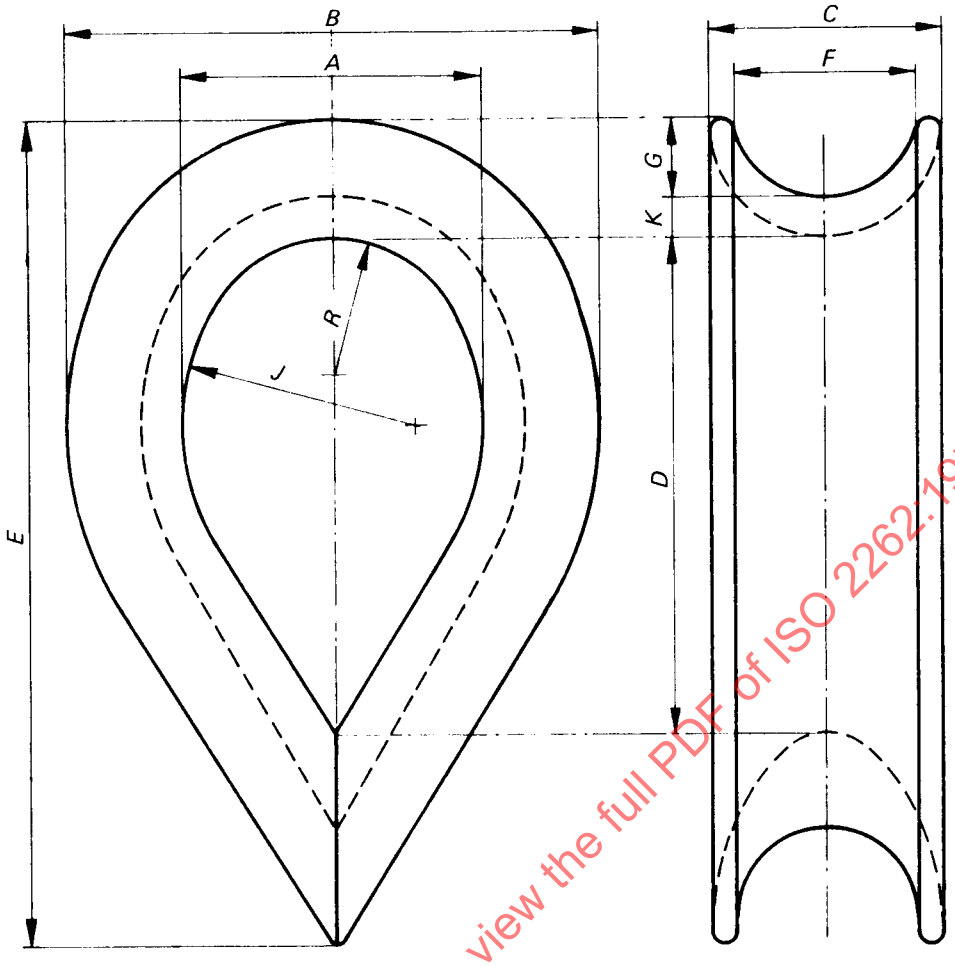

FIGURE 2 – **Fibre rope thimble**

TABLE 2 – **Dimensions of fibre rope thimbles**

Dimensions in millimetres

Nominal size of thimble *d*	Diameter of fibre rope	*A* (1.8 *d*)	*B* (3.2 *d*)	*C* (1.4 *d*)	*D* (3.0 *d*)	*E* (≈5.0 *d*)	*F* (1.1 *d*)	*G* (0.45 *d*)	*J* (1.4 *d* min.)	*K* (0.25 *d* min.)	*R* (0.8 *d*)
6	6	11	21	8.4	18	30	6.6	3	8.4	2	4.8
8	7 and 8	14	26	11	24	40	8.8	4	11	2	6.4
10	9 and 10	18	32	14	30	50	11	4.5	14	2.5	8
12	11 and 12	22	39	17	36	60	13	5.5	17	3	9.6
14	13 and 14	25	45	20	42	70	15	6.5	20	3.5	11.2
16	16	29	51	22	48	80	18	7	22	4	12.8
18	18	32	57	25	54	90	20	8	25	4.5	14.4
20	20	36	64	28	60	100	22	9	28	5	16
22	22	40	71	31	66	110	24	10	31	5.5	18
25	24	45	79	35	75	125	28	11	35	6	20
28	26 and 28	50	90	39	84	140	31	13	39	7	23
32	30 and 32	58	102	45	96	160	35	14	45	8	26
36	34 and 36	65	115	50	108	180	40	16	50	9	29
40	38 and 40	72	128	56	120	200	44	18	56	10	32
45	44	81	143	63	135	225	50	20	63	11	36
50	48	90	159	70	150	250	55	22	70	12.5	40
56	52 and 56	101	179	78	168	280	62	25	78	14	45
63	60	113	201	88	189	315	69	28	88	16	51
70	64 and 68	126	225	98	210	350	77	32	98	17.5	56
80	72, 76 and 80	144	256	112	240	400	88	36	112	20	64
90	88	162	287	126	270	450	99	40	126	22.5	72
100	96	180	320	140	300	500	110	45	140	25	80

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APPENDIX

WORKING LOADS OF THIMBLES

The table below gives the static point loads which an eye made with a thimble can normally carry. The thimbles are designed to maintain their forms when point loaded to 1.75 times the values in the table.

The loads correspond with the strongest fibre-cored wire ropes assuming a safety factor of 6, and the strongest synthetic fibre ropes assuming a safety factor of 8.

WIRE ROPE THIMBLES		FIBRE ROPE THIMBLES	
Nominal size (Diameter of wire rope) *d*	Approximate static point working load	Nominal size (Diameter of fibre rope) *d*	Approximate static point working load
mm	tonnes	mm	tonnes
		6	0.08
		8	0.14
		10	0.21
4	0.17	12	0.30
5	0.25	14	0.40
6	0.35	16	0.50
8	0.64	18	0.65
10	1.0	20	0.80
12	1.5	22	1.0
14	2.0	25	1.2
16	2.7	28	1.5
18	3.4	32	1.9
20	4.1	36	2.5
22	5.0	40	3.2
25	6.5	45	3.9
28	8.2	50	4.8
32	10.7	56	6.0
36	13.5	63	7.5
40	17	71	9.0
45	21	80	11
50	27	90	14
56	33	100	18
63	40		

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