UDC 629.12

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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

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ISO RECOMMENDATION
R 347

SHIPBUILDING DETAILS

ANCHOR CHAINS

END SHACKLES

1st EDITION

October 1963

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BRIEF HISTORY

The ISO Recommendation R 347, *Anchor Chains. End Shackles*, was drawn up by Technical Committee ISO/TC 8, *Shipbuilding Details*, the Secretariat of which is held by the Stichting Nederlands Normalisatie-instituut (NNI).

Work on this question by the Technical Committee began in 1960, taking into account the studies which had been made by the former International Federation of the National Standardizing Associations (ISA), and led, in 1961, to the adoption of a Draft ISO Recommendation.

In June 1962, this Draft ISO Recommendation (No. 509) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Belgium	France	New Zealand
Burma	Germany	Poland
Chile	Greece	Spain
Czechoslovakia	Japan	Switzerland
Finland	Netherlands	Turkey
		United Kingdom

Two Member Bodies opposed the approval of the Draft:

Italy, U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in October 1963, to accept it as an ISO RECOMMENDATION.

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ISO Recommendation R 347 October 1963

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END SHACKLES

1. GENERAL REMARKS

1.1 Shape and dimensions

1.1.1 End shackles and end shackle bolts should be of the shapes and proportions shown in this ISO Recommendation, and their dimensions should be in accordance with the Table. All end shackles should be of uniform shape.

1.1.2 All dimensions specified in this ISO Recommendation apply *after* the end shackles have been subjected to the statutory proof loads.

1.2 Tolerance

The allowable manufacturing tolerance for the dimensions d_1, B, B_1, C, H and E is $\pm$ 2 per cent.

1.3 Material

The quality of the material used for the manufacture of the end shackle should not be inferior in any respect to that of the material used for the manufacture of the other parts assembled to form the anchor chain.

The design, material and tests of the complete anchor chains are subject to the legal requirements of the countries concerned and of the recognized approving authorities.

1.4 References

For other parts of the anchor chain, see:

ISO Recommendation R 39, *Anchor Chains — Lugless Joining Shackles, Kenter Type,*

ISO Recommendation R 40, *Anchor Chains — Studless Links*, and

ISO Recommendation R 170, *Anchor Chains, Stud Links (Common Links, Enlarged Links, End Links and Joining Shackles).*

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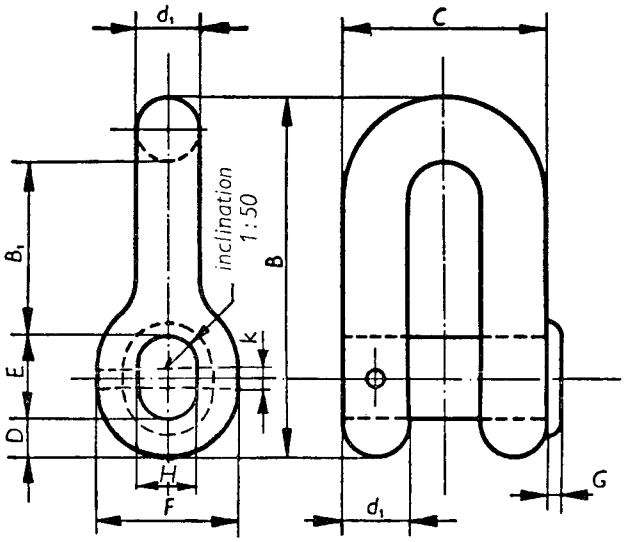
2. DIMENSIONS



A = nominal dimension of end shackle = d

d = diameter of material of common link *
2 values: d' = millimetre value of d
d'' = inch value of d, transposed into rounded off millimetre value

d_1 = diameter of material of end shackle $= 1.4 \frac{d' + d''}{2}$

$B = 8.7 \frac{d' + d''}{2}$ $\quad B_1 = B - (d_1 + D + E)$ $\quad C = 5.2 \frac{d' + d''}{2}$

$D = 0.9 \frac{d' + d''}{2}$ $\quad E = 1.8 \frac{d' + d''}{2}$ $\quad F = 3.1 \frac{d' + d''}{2}$

$G = 0.2 \frac{d' + d''}{2}$ $\quad H = 1.4 \frac{d' + d''}{2}$ $\quad K = 0.4 \frac{d' + d''}{2}$

Example for A = 20.5 mm or $^{13}/_{16}$ in:

$d_1 = 1.4 \frac{20.5 + 20.6}{2} = 29$ mm **

$B_1 = 179 - (29 + 18.5 + 37) = 94.5$ mm

$C = 5.2 \frac{20.5 + 20.6}{2} = 107$ mm **

$E = 1.8 \frac{20.5 + 20.6}{2} = 37$ mm **

$G = 0.2 \frac{20.5 + 20.6}{2} = 4$ mm **

$K = 0.4 \frac{20.5 + 20.6}{2} = 8$ mm **

$B = 8.7 \frac{20.5 + 20.6}{2} = 179$ mm **

$D = 0.9 \frac{20.5 + 20.6}{2} = 18.5$ mm **

$F = 3.1 \frac{20.5 + 20.6}{2} = 64$ mm **

$H = 1.4 \frac{20.5 + 20.6}{2} = 29$ mm **

A		d (common link)		d_1	B	B_1	C	D	E	F	G	H	K
		d'	d''										
mm	in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
11	$^{7}/_{16}$	11	11.1	15.5	96	50.5	58	10	20	34	2	15.5	4.5
12.5	$^{1}/_{2}$	12.5	12.7	17.5	110	58.5	66	11.5	22.5	39	2.5	17.5	5
14.5	$^{9}/_{16}$	14.5	14.3	20	125	66	75	13	26	45	3	20	6
16	$^{5}/_{8}$	16	15.9	22.5	139	73	83	14.5	29	49	3	22.5	6.5
17.5	$^{11}/_{16}$	17.5	17.5	24.5	152	80	91	16	31.5	54	3.5	24.5	7
19	$^{3}/_{4}$	19	19.1	26.5	166	88.5	99	17	34	59	4	26.5	7.5
20,5	$^{13}/_{16}$	20.5	20.6	29	179	94.5	107	18.5	37	64	4	29	8
22	$^{7}/_{8}$	22	22.2	31	192	101	115	20	40	69	4.5	31	9
24	$^{15}/_{16}$	24	23.8	33.5	208	110	124	21.5	43	74	5	33.5	9.5
25.5	1	25.5	25.4	36	221	116	132	23	46	79	5	36	10

* see ISO Recommendation R 170, section 2,
** Rounded off.

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