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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Shipbuilding and marine structures — Bearings for derrick goosenecks — Assemblies and components

*Construction navale et structures maritimes — Supports de vit de mulet pour mâts de charge —
Assemblages et éléments constitutifs*

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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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6045 was prepared by Technical Committee ISO/TC 8, *Shipbuilding and marine structures*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Shipbuilding and marine structures — Bearings for derrick goosenecks — Assemblies and components

1 Scope and field of application

This International Standard defines types of assemblies, and specifies dimensions and materials of components for derrick boom gooseneck bearings of conventional derrick design to be fitted on-board ships for cargo handling purposes.

It does not apply to special types of derricks.

2 References

ISO 286-1, *ISO system of limits and fits — Part 1: Basis of tolerances, deviations and fits.*¹⁾

ISO 630, *Structural steels.*

ISO 683-1, *Heat-treatable steels, alloy steels and free-cutting steels — Part 1: Direct hardening unalloyed and low alloyed wrought steel in form of different black products.*

ISO 8147, *Shipbuilding and marine structures — Derrick rigs and component parts — Vocabulary.*²⁾

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 8147 apply.

4 Nominal size

4.1 The nominal size of a derrick boom gooseneck bearing assembly and of a gooseneck is a numerical value without unit for reference and ordering purposes; it is derived from the maximum thrust in the boom, in kilonewtons.

4.2 The nominal size of a cargo runner lead block holder is a numerical value without unit for reference and ordering purposes; it is derived from the maximum load exerted by the lead block and calculated by the derrick assembly diagram of forces, in kilonewtons.

5 Derrick gooseneck bearing assemblies

5.1 Types

The assemblies are divided into three types as specified in table 1 and illustrated in figures 1, 2 and 3.

Table 1 — Types of assemblies

Code letter	Type Description	Range of thrust in the boom kN
A	with straight gooseneck pin	16 to 160
B	with cranked gooseneck pin	25 to 400
C	with straight gooseneck pin	200 to 1 000

1) At present at the stage of draft. (Revision, in part, of ISO/R 286 : 1962.)

2) At present at the stage of draft proposal.

Components for derrick boom gooseneck bearing assemblies are listed in table 2, where the serial number refers to the corresponding circled number in figures 1, 2 and 3. Assemblies of type A or type B may be fitted either with a cargo runner lead block holder with single eye connection or with a forked connection.

Table 2 — List of components

Serial No.	Number of components for assembly type			Denomination	Code letter	Details
	A	B	C			
1	1	—	—	Gooseneck pin	GA	see 6.1
2	—	1	—	Gooseneck pin	GB	
3	—	—	1	Gooseneck pin	GC	
4	2	2	1	Bearing eye	D	see 6.2
5	—	—	1	Bearing eye	E	
6 ¹⁾	1	—	—	Lead block holder	F	see 6.3
7 ²⁾	—	1	—	Lead block holder	H	
8	1	1	1	Retaining ring	J	see 6.4
9	1	1	1	Retaining pin	K	

- 1) Serial No. 6 for lead block with a fork connection.
- 2) Serial No. 7 for lead block with single eye connection.

5.1.1 Type A

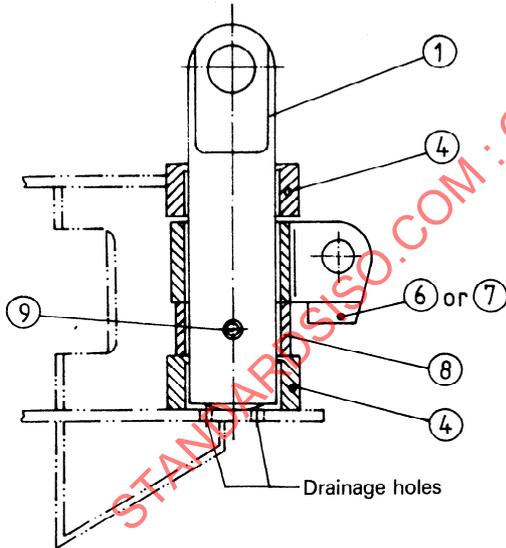


Figure 1 — Illustration of type A assembly

5.1.2 Type B

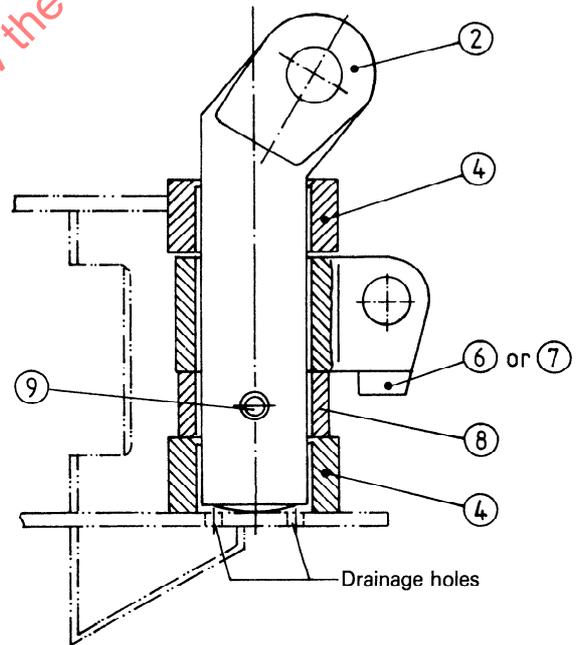


Figure 2 — Illustration of type B assembly

NOTE — Positions of lead block holder (component No. 6 or 7) and retaining ring (component No. 8) may be interchanged.

5.1.3 Type C

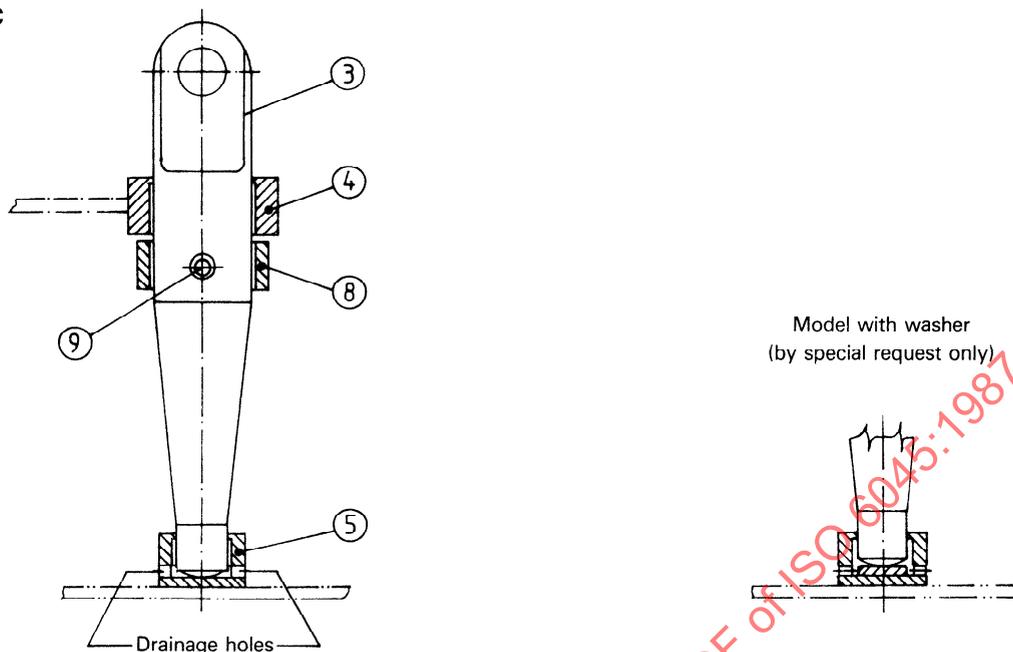


Figure 3 – Illustration of type C assembly

5.1.4 Nominal sizes and maximum loads

A summary of gooseneck bearing assemblies listed according to types, nominal sizes and maximum loads for block holders is given in table 3.

Table 3 – Correlation between assembly nominal sizes and maximum loads on the assemblies

Nominal size of assembly type			Thrust in the boom kN max.	Lead block holder for type								
				A			B					
A	B	C		Load exerted by the lead block kN max.								
1,6	—	—	16	20			—					
2	—	—	20	20			—					
2,5	2,5	—	25	20			20					
3	3	—	32	20	40		20					
4	4	—	40	20	40		20	40				
5	5	—	50	20	40	63		20	40			
6	6	—	63	40	63		20	40	63			
8	8	—	80	40	63	100		40	63			
10	10	—	100	40	63	100		40	63	100		
12	12	—	125	40	63	100	160		40	63	100	
16	16	—	160	63	100	160		40	63	100	160	
—	20	20	200	—			63	100	160			
—	25	25	250	—			63	100	160			
—	32	32	320	—			63	100	160			
—	40	40	400	—			63	100	160			
—	—	50	500	—			—		—			
—	—	63	630	—			—		—			
—	—	80	800	—			—		—			
—	—	100	1 000	—			—		—			

5.2 Installation of bearing eyes

For the disposition of bearing eyes, see figures 1 to 3 and table 2. For installation dimensions of the distance between upper and lower bearing eye, see figure 4 and table 4.

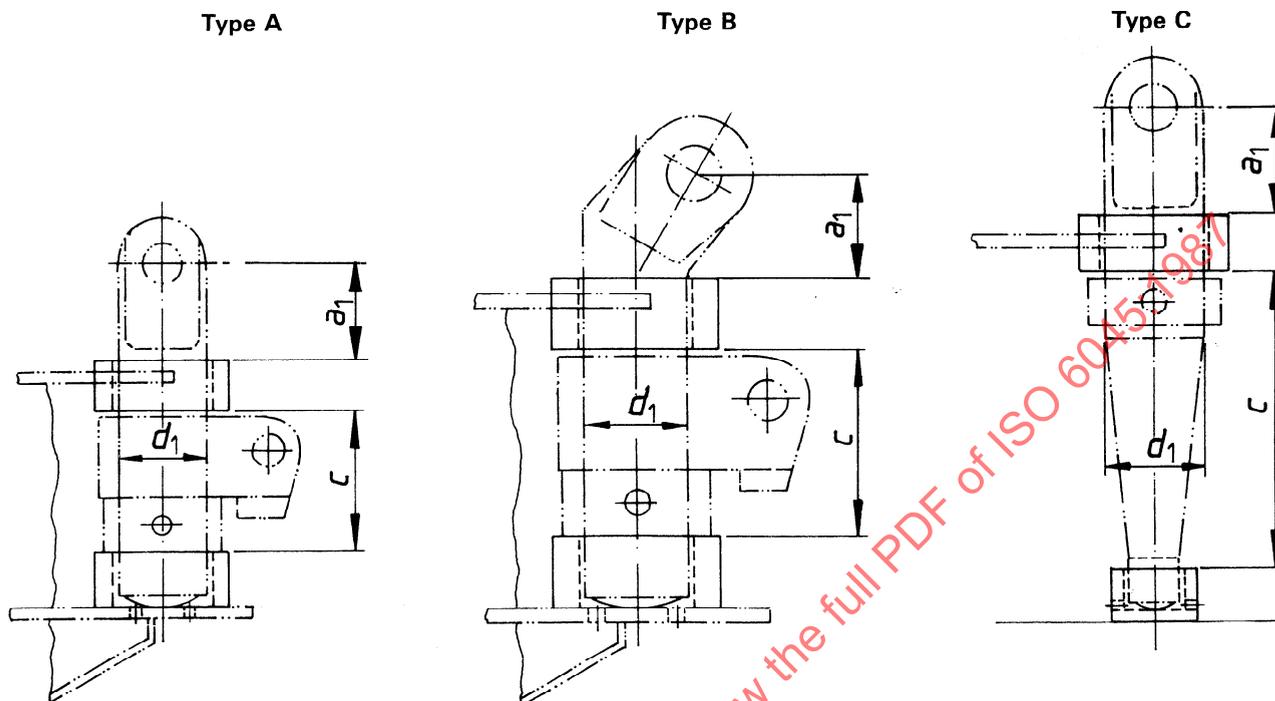


Figure 4 — Positioning of bearing eyes

Table 4 — Bearing eye installation dimensions

Dimensions in millimetres

Nominal size	Gooseneck bearing assembly								
	Type A			Type B			Type C		
	a_1	c	d_1	a_1	c	d_1	a_1	c	d_1
1,6	60	95	50	—	—	—	—	—	—
2	50	95	50	—	—	—	—	—	—
2,5	60	95	60	60	95	55	—	—	—
3	85	120	70	65	95	60	—	—	—
4	70	120	70	70	120	65	—	—	—
5	85	140	80	80	120	70	—	—	—
6	100	140	90	85	140	80	—	—	—
8	105	175	100	90	140	90	—	—	—
10	120	175	110	100	175	100	—	—	—
12	125	215	120	105	175	110	—	—	—
16	150	215	140	110	215	120	—	—	—
20	—	—	—	115	215	130	170	480	155
25	—	—	—	125	215	140	200	540	170
32	—	—	—	140	235	155	210	570	190
40	—	—	—	155	235	170	220	570	190
50	—	—	—	—	—	—	220	600	200
63	—	—	—	—	—	—	245	675	225
80	—	—	—	—	—	—	275	750	250
100	—	—	—	—	—	—	290	825	275

6 Dimensions

For components listed in table 2, main dimensions only are given in tables 5 to 13. For dimensional tolerances, see 6.5.

No dimensions are given for lubrication devices, for the securing pin at both ends of the retaining pin, nor for the washer which may be positioned under the gooseneck pin of assembly type C. These details are left to the manufacturer's option.

6.1 Gooseneck pins

6.1.1 Form GA: Straight gooseneck pin for assembly type A

See figure 5 and table 5.

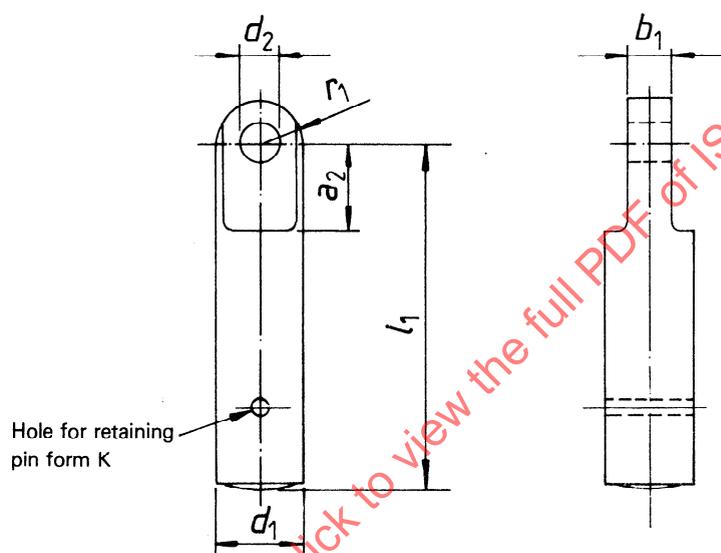


Figure 5 — Shape of gooseneck pin, form GA

Table 5 — Dimensions of gooseneck pin, form GA

Dimensions in millimetres

Nominal size	a_2	b_1	d_1	d_2	l_1	r_1
1,6	55	26	50	24	245	25
2	45	28	50	26	235	25
2,5	54	30	60	29	255	30
3	79	33	70	32	325	35
4	64	36	70	35	310	35
5	77	40	80	41	345	40
6	92	45	90	44	380	45
8	97	50	100	47	420	50
10	110	57	110	54	455	55
12	115	64	120	58	500	60
16	138	73	140	67	545	70

6.1.2 Form GB: Cranked gooseneck pin for assembly type B

See figure 6 and table 6.

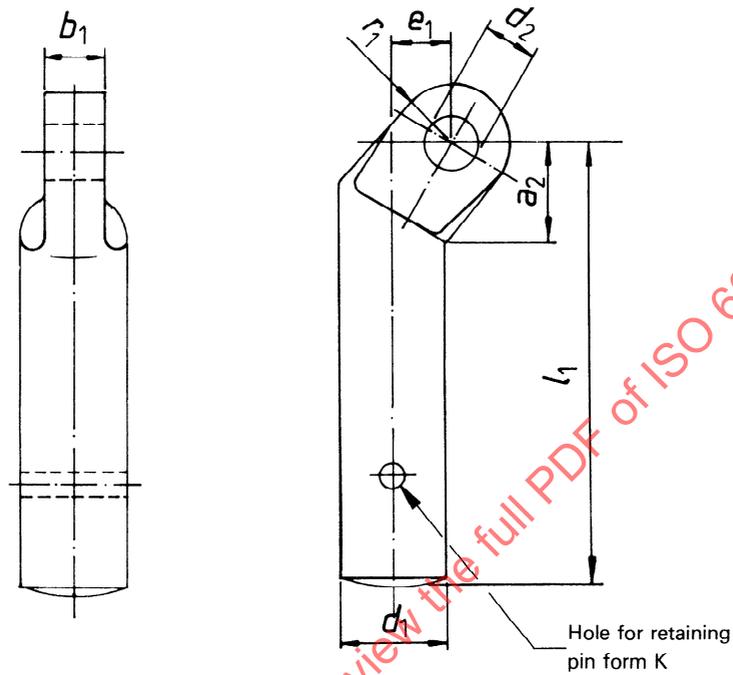


Figure 6 – Shape of gooseneck pin, form GB

Table 6 – Dimensions of gooseneck pin, form GB

Dimensions in millimetres

Nominal size	a_2	b_1	d_1	d_2	e_1	l_1	r_1
2,5	55	30	55	29	35	245	30
3	60	33	60	32	38	260	32
4	65	36	65	35	40	290	35
5	75	40	70	41	46	320	42
6	80	45	80	44	49	345	45
8	85	50	90	47	52	370	48
10	95	57	100	54	58	415	55
12	100	64	110	58	61	440	60
16	105	73	120	67	64	485	68
20	110	82	130	75	67	510	75
25	115	92	140	79	72	520	80
32	125	102	155	83	78	575	85
40	140	112	170	93	85	590	95

6.1.3 Form GC: Straight gooseneck pin for assembly type C

See figure 7 and table 7.

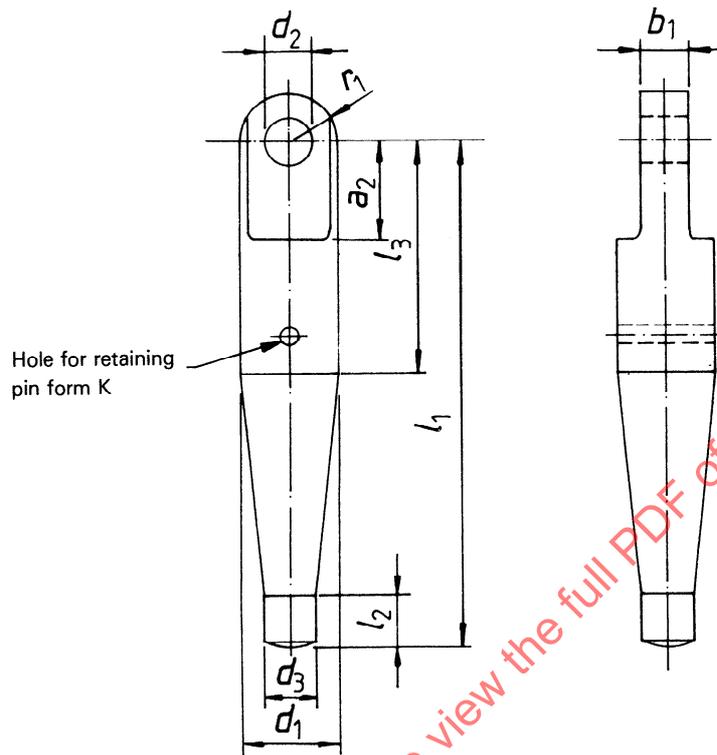


Figure 7 – Shape of gooseneck pin, form GC

Table 7 – Dimensions of gooseneck pin, form GC

Dimensions in millimetres

Nominal size	a_2	b_1	d_1	d_2	d_3	l_1^*	l_2	l_3	r_1
20	158	82	155	75	90	820	80	375	78
25	185	92	170	79	90	910	80	407	85
32	195	102	190	83	100	950	80	417	95
40	205	112	190	93	100	960	80	427	95
50	200	124	200	103	110	1 010	90	442	100
63	225	140	225	113	110	1 120	90	477	113
80	250	150	250	129	120	1 235	95	522	125
100	265	160	275	144	120	1 335	95	547	138

* If a washer is used (see 5.1.3), the length l_1 shall be adjusted accordingly.

6.2 Bearing eyes

6.2.1 Form D: Open eye

See figure 8 and table 8.

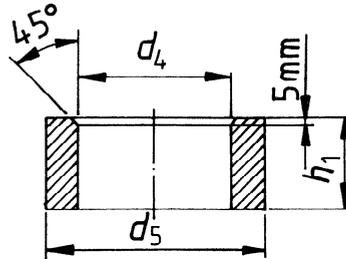


Figure 8 – Shape of bearing eye, form D

Table 8 – Dimensions of bearing eye, form D

Dimensions in millimetres

Gooseneck diameter d_1	d_4	d_5	h_1	Nominal size of bearing assembly		
				A	Type B	C
50	52	85	45	1,6 and 2	—	—
55	57	90	45	—	2,5	—
60	62	100	50	2,5	3	—
65	68	110	50	—	4	—
70	73	120	60	3 and 4	5	—
80	83	130	60	5	6	—
90	93	140	70	6	8	—
100	103	160	70	8	10	—
110	113	170	80	10	12	—
120	123	190	80	12	16	—
130	134	200	90	—	20	—
140	144	210	90	16	25	—
155	159	230	100	—	32	20
170	174	250	100	—	40	25
190	194	270	100	—	—	32 and 40
200	204	285	110	—	—	50
225	230	315	120	—	—	63
250	255	350	130	—	—	80
275	280	380	140	—	—	100

6.2.2 Form E: Closed type (lower bearing eye at assembly type C)

See figure 9 and table 9.

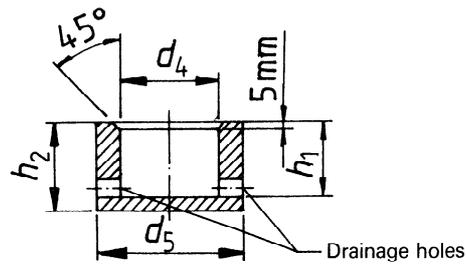


Figure 9 – Shape of bearing eye, form E

Table 9 – Dimensions of bearing eye, form E

Dimensions in millimetres

Gooseneck diameter d_3^*	d_4	d_5	h_1	h_2	Nominal size of bearing assembly Type C
90	93	140	70	85	20 and 25
100	103	160	70	85	32 and 40
110	113	170	80	100	50 and 63
120	123	190	80	100	80 and 100

* d_3 is the diameter at the lower end of the gooseneck form GC.

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6.3 Cargo runner lead block holders

6.3.1 Form F: Holder with a single eye

See figure 10 and table 10.

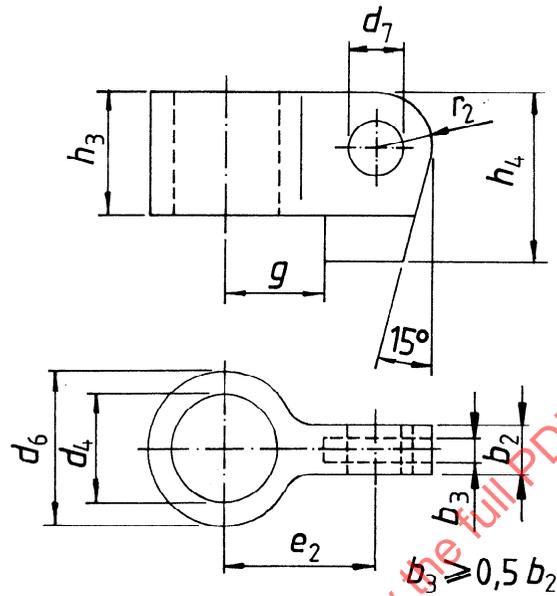


Figure 10 — Shape of lead block holder, form F

6.3.2 Form H: Holder with fork

See figure 11 and table 11.

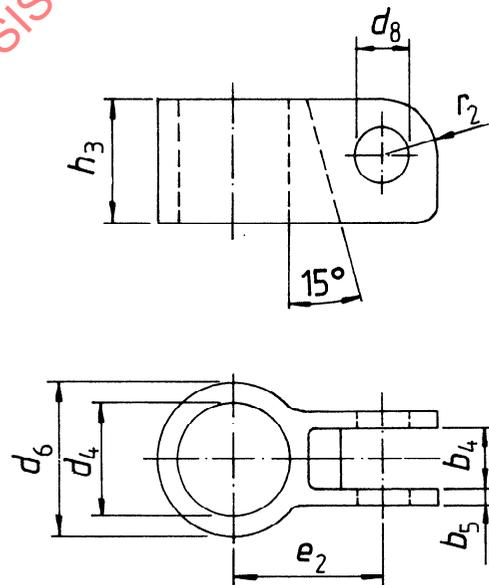


Figure 11 — Shape of lead block holder, form H

Table 10 — Dimensions of lead block holder, form F

Dimensions in millimetres

Gooseneck diameter d_1	Lead block holder		b_2	d_4	d_6	d_7	e_2	g	h_3	h_4	r_2	Nominal size of bearing assembly	
	Nominal size	Load exerted by the block kN max.										Type	
												A	B
50	2	20	22	52	80	24	75	55	50	75	25	1,6 and 2	—
55				57	85		78	60				—	2,5
60				62	90		80	62				2,5	3
65	2	20	22	68	95	24	83	65	65	75	25	—	4
	4	40	30		100	33	95			100	32,5		
70	2	20	22	73	100	24	85	70	65	75	25	3 and 4	5
	4	40	30		105	33	98			100	32,5		
80	2	20	22	83	110	24	90	75	85	85	25	5	6
	4	40	30		115	33	102			100	32,5		
	6	63	40		120	42	115			130	42,5		
90	4	40	30	93	125	33	108	80	85	100	32,5	6	8
	6	63	40		130	42	120			130	42,5		
100	4	40	30	103	135	33	112	95	110	—	32,5	8	10
	6	63	40		140	42	130			130	42,5		
	10	100	50		148	52	145			165	55		
110	4	40	30	113	145	33	118	100	110	—	32,5	10	12
	6	63	40		150	42	135			130	42,5		
	10	100	50		158	52	150			165	55		
120	4	40	30	123	155	33	122	110	130	—	32,5	12	16
	6	63	40		160	42	140			—	42,5		
	10	100	50		170	52	155			165	55		
	16	160	60		180	66	175			195	65		
130	6	63	40	134	170	42	145	115	130	—	42,5	—	20
	10	100	50		180	52	165			165	55		
	16	160	60		190	66	185			195	65		
140	6	63	40	144	180	42	150	120	130	—	42,5	16	25
	10	100	50		190	52	170			165	55		
	16	160	60		200	66	190			195	65		
155	6	63	40	159	195	42	160	130	150	—	42,5	—	32
	10	100	50		205	52	178			165	55		
	16	160	60		215	66	198			195	65		
170	6	63	40	174	210	42	170	145	150	—	42,5	—	40
	10	100	50		220	52	185			165	55		
	16	160	60		230	66	205			195	65		

NOTE — The values for the dimensions b_2 , d_7 and r_2 are in agreement with ISO 6043, *Shipbuilding and marine structures — Eye and fork assemblies under tension load — Main dimensions*.

Table 11 — Dimensions of lead block holder, form H

Dimensions in millimetres

Gooseneck diameter d_1	Lead block holder		b_4	b_5	d_4	d_6	d_8	e_2	h_3	r_2	Nominal size of bearing assembly	
	Nominal size	Load exerted by the block kN max.									Type	
											A	B
50	2	20	26	12	52	80	23	75	50	25	1,6 and 2	—
55					57	85		78			—	2,5
60					62	90		80			2,5	3
65	2	20	26	12	68	95	23	83	65	25	—	4
	4	40	35	15		100	31	95		32,5	3 and 4	4
70	2	20	26	12	73	100	23	85	65	25	3 and 4	5
	4	40	35	15		105	31	98		32,5		
80	2	20	26	12	83	110	23	90	85	25	5	6
	4	40	35	15		115	31	102		32,5		
	6	63	45	20		120	40	115		42,5		
90	4	40	35	15	93	125	31	108	85	32,5	6	8
	6	63	45	20		130	40	120		42,5		
100	4	40	35	15	103	135	31	112	110	32,5	8	10
	6	63	45	20		140	40	130		42,5		
	10	100	58	26		148	50	145		55		
110	4	40	35	15	113	145	31	118	110	32,5	10	12
	6	63	45	20		150	40	135		42,5		
	10	100	58	26		158	50	150		55		
120	4	40	35	15	123	155	31	122	130	32,5	12	16
	6	63	45	20		160	40	140		42,5		
	10	100	58	26		170	50	155		55		
	16	160	70	30		180	62	175		65		
130	6	63	45	20	134	170	40	145	130	42,5	—	20
	10	100	58	26		180	50	165		55		
	16	160	70	30		190	62	185		65		
140	6	63	45	20	144	180	40	150	130	42,5	16	25
	10	100	58	26		190	50	170		55		
	16	160	70	30		200	62	190		65		
155	6	63	45	20	159	195	40	160	150	42,5	—	32
	10	100	58	26		205	50	178		55		
	16	160	70	30		215	62	198		65		
170	6	63	45	20	174	210	40	170	150	42,5	—	40
	10	100	58	26		220	50	185		55		
	16	160	70	30		230	62	205		65		

NOTE — The values for the dimensions b_4 , b_5 , d_8 and r_2 are in agreement with ISO 6043.