

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION

### R 38

SHIPBUILDING DETAILS FOR SEA NAVIGATION  
BOLLARDS (VERTICAL TYPE) WITH AND WITHOUT LUGS

ISO/R 38:1957

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1<sup>st</sup> EDITION - 38-1957

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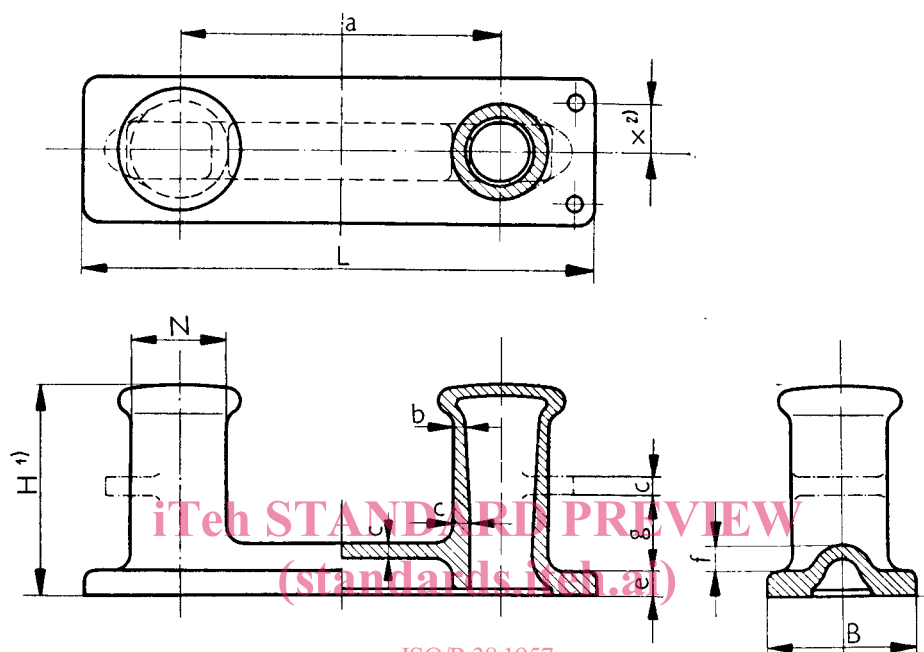
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 BOLLARDS (VERTICAL TYPE) WITH AND WITHOUT LUGS



ISO/R 38:1957

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- $N$  = nominal size of bollard = diameter of barrel.  
 $b$  = thickness of barrel at top.  
 $c$  = thickness of barrel at bottom, thickness of lug and longitudinal rib.  
 $n$  = number of bolts or rivets.  
 $d$  = diameter of bolts or rivets.  
 $P$  = maximum admissible breaking load of the corresponding rope.

## NOTES

If material other than cast iron<sup>a)</sup> is used, the thicknesses should be changed accordingly.

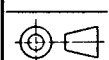
The dimensions in feet and inches are considered as the equivalents of the corresponding dimensions in millimetres.

Bollards are designated by their nominal sizes expressed either in millimetres or in inches.

Examples: *250 mm bollard* or *10 inch bollard*.

The illustrations do not define the construction.

The construction with lugs is indicated by thin long chain lines.



## Dimensions in millimetres

N	L		B		H <sup>1)</sup>		a		b <sup>3)</sup>	c <sup>3)</sup>	e = f	g	P	n <sup>4)</sup>	d	d
	mm	mm	mm	mm	mm	mm	mm	mm	min.	min.	min.				min.	mm
75	500	145	170	275	13	20	25	60	3.5	6	12	13				
100	600	170	220	350	15	22	30	80	5.0	6	16	16				
125	700	200	275	430	17	25	35	100	8.0	6	20	19				
150	800	230	330	500	19	27	40	115	12.0	6	22	22				
175	900	270	375	550	21	30	45	130	16.0	6	22	22				
200	1000	300	420	600	23	32	50	140	20.0	8	22	22				
225	1100	330	465	680	24	34	55	155	25.0	8	27	25				
250	1200	360	510	750	26	36	60	165	28.0	8	27	25				
300	1450	430	590	900	29	40	60	180	40.0	8	33	34				
350	1650	500	665	1000	31	42	65	200	55.0	10	33	34				
400	1850	560	735	1100	33	46	65	215	65.0	10	36	—				
450	2050	630	790	1200	34	49	70	235	90.0	10	39	—				
500	2250	700	840	1300	35	50	70	235	115.0	12	39	—				
560	2400	770	885	1400	35	50	75	240	140.0	12	45	—				
630	2750	900	955	1600	35	50	75	250	220.0	14	48	—				
700	2900	970	1000	1700	35	50	80	250	260.0	14	52	—				

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## Dimensions in feet and inches

N	L		B		H <sup>1)</sup>		a		b <sup>3)</sup>	c <sup>3)</sup>	e = f	g	P	n <sup>4)</sup>	d	d
	in	ft in	ft in	ft in	ft in	ft in	ft in	ft in	in	in	in				in	in
3	1	7 <sup>5</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	1	2 <sup>3</sup> / <sub>8</sub>	3.5	6	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>			
4	1	11 <sup>5</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>4</sub>	8 <sup>5</sup> / <sub>8</sub>	1 1 <sup>3</sup> / <sub>4</sub>	9 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>8</sub>	1 <sup>13</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>8</sub>	5.0	6	5 <sup>5</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>			
5	2	3 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	10 <sup>7</sup> / <sub>8</sub>	1 4 <sup>7</sup> / <sub>8</sub>	11 <sup>11</sup> / <sub>16</sub>	1	1 <sup>13</sup> / <sub>8</sub>	3 <sup>15</sup> / <sub>16</sub>	8.0	6	3 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>			
6	2	7 <sup>1</sup> / <sub>2</sub>	9	1 1	1 7 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	1 <sup>11</sup> / <sub>16</sub>	1 <sup>9</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	12.0	6	7 <sup>7</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>			
7	2	11 <sup>3</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	1 2 <sup>3</sup> / <sub>4</sub>	1 9 <sup>5</sup> / <sub>8</sub>	13 <sup>13</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>8</sub>	16.0	6	7 <sup>7</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>			
8	3	3 <sup>3</sup> / <sub>8</sub>	11 <sup>3</sup> / <sub>4</sub>	1 4 <sup>1</sup> / <sub>2</sub>	1 11 <sup>5</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	1 <sup>11</sup> / <sub>4</sub>	1 <sup>15</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	20.0	8	7 <sup>7</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>			
9	3	7 <sup>1</sup> / <sub>4</sub>	1 1	1 6 <sup>1</sup> / <sub>4</sub>	2 2 <sup>3</sup> / <sub>4</sub>	15 <sup>15</sup> / <sub>16</sub>	1 <sup>15</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>8</sub>	25.0	8	1	1			
10	3	11 <sup>1</sup> / <sub>4</sub>	1 2 <sup>1</sup> / <sub>8</sub>	1 8 <sup>1</sup> / <sub>8</sub>	2 5 <sup>1</sup> / <sub>2</sub>	1	1 <sup>7</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>	28.0	8	1	1			
12	4	9 <sup>1</sup> / <sub>8</sub>	1 4 <sup>7</sup> / <sub>8</sub>	1 10 <sup>1</sup> / <sub>8</sub>	2 11 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	1 <sup>9</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	40.0	8	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>			
14	5	5	1 7 <sup>5</sup> / <sub>8</sub>	2 2 <sup>1</sup> / <sub>8</sub>	3 3 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>8</sub>	2 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>8</sub>	55.0	10	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>			
16	6	7 <sup>7</sup> / <sub>8</sub>	1 10	2 5	3 7 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	2 <sup>9</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>2</sub>	65.0	10	1 <sup>3</sup> / <sub>8</sub>	—			
18	6	8 <sup>3</sup> / <sub>4</sub>	2 3 <sup>3</sup> / <sub>4</sub>	2 7 <sup>1</sup> / <sub>8</sub>	3 11 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>16</sub>	1 <sup>15</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	90.0	10	1 <sup>1</sup> / <sub>2</sub>	—			
20	7	4 <sup>5</sup> / <sub>8</sub>	2 3 <sup>1</sup> / <sub>2</sub>	2 9 <sup>1</sup> / <sub>8</sub>	4 3 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	1 <sup>15</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	115.0	12	1 <sup>1</sup> / <sub>2</sub>	—			
22	7	10 <sup>1</sup> / <sub>2</sub>	2 6 <sup>3</sup> / <sub>8</sub>	2 10 <sup>7</sup> / <sub>8</sub>	4 7 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	1 <sup>15</sup> / <sub>16</sub>	2 <sup>15</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>	140.0	12	1 <sup>3</sup> / <sub>4</sub>	—			
25	9	1 <sup>1</sup> / <sub>4</sub>	2 11 <sup>3</sup> / <sub>8</sub>	3 1 <sup>5</sup> / <sub>8</sub>	5 3	1 <sup>3</sup> / <sub>8</sub>	1 <sup>15</sup> / <sub>16</sub>	2 <sup>15</sup> / <sub>16</sub>	9 <sup>7</sup> / <sub>8</sub>	220.0	14	1 <sup>7</sup> / <sub>8</sub>	—			
28	9	6 <sup>1</sup> / <sub>2</sub>	3 2 <sup>1</sup> / <sub>4</sub>	3 3 <sup>3</sup> / <sub>8</sub>	5 6 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	1 <sup>15</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>8</sub>	260.0	14	2	—			

<sup>1)</sup> The height H may exceed the values in the table by 50 mm maximum.

<sup>2)</sup> The centre-lines of the bolt holes on each side should be fixed in relation to the longitudinal axis of the bollard.

<sup>3)</sup> The thicknesses refer to bollards of cast iron with a tensile strength of at least 22 kgf/mm<sup>2</sup> or 31290 lb/in<sup>2</sup>.

<sup>4)</sup> The required spacing of the holes must be specified on special order.

## BRIEF HISTORY

The ISO Recommendation R 38, *Bollards (vertical type) with and without Lugs*, was drawn up by the Technical Committee ISO/TC 8, *Shipbuilding Details for Sea Navigation*, the Secretariat of which is held by the Hoofdcommissie voor de Normalisatie in Nederland (H.C.N.N.).

At its initial meeting, held in Paris, June 1949, the Technical Committee unanimously decided to adopt as a basis for discussion the ISA Bulletin 17, item 2, published in 1938 by the former International Federation of the National Standardizing Associations (ISA). It was agreed to replace the diameters of 550 mm, 600 mm and 650 mm of the ISA Bulletin 17 by those of 560 mm and 630 mm. The height of the barrel represents a minimum value, and a special note deals with this subject more fully.

The principal object of this standardization is the replacement of a defective bollard by a new one. The standardized bollard ensures that a new bollard will have the same main dimensions as the one to be replaced. This necessitates among other things standardization of the foundation plate. In order to ensure sufficient strength of the bollard, the breaking load of the rope attached to the bollard and the strength of the material of the bollard have been fixed.

The following Member Bodies took part in the meeting:

Belgium	Netherlands	Portugal
Denmark (as observer)	New Zealand	Sweden
France	Norway	U.S.S.R.
Italy	Poland	

The draft proposal drawn up on that basis by the ISO/TC 8 Secretariat was submitted by correspondence to the members of the Technical Committee and adopted as a Draft ISO Recommendation, no objection having been raised.

The Draft was submitted in October 1953 to all the ISO Member Bodies and approved, subject to certain editorial amendments, by the following 25 (out of a total of 36) Member Bodies:

Belgium	*Greece	Mexico	Spain
Bulgaria	*Hungary	Netherlands	Sweden
Canada	India	New Zealand	*Switzerland
Chile	Ireland	*Pakistan	Union of South Africa
Denmark	Italy	Portugal	*U.S.A.
*France	Japan	Romania	*U.S.S.R.
			Yugoslavia

The United Kingdom opposed approval of the Draft, stating that B.S. 3005:1922, *Bollards*, had been in use for more than thirty years and that in some of the large sizes the thicknesses were greater than those given in the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in May 1957, to accept it as an ISO RECOMMENDATION.

\* These Member Bodies stated that they had no objection to the Draft being approved.