



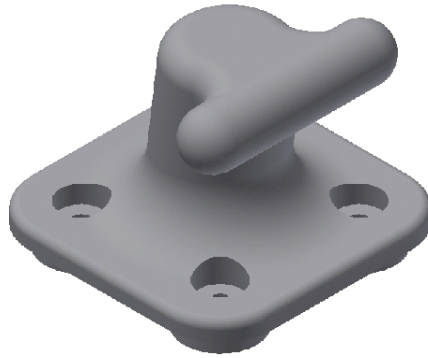
HAMMER-P BOLLARD DATA SHEET

2000.0000-Td-0201den_rev3

Rev.	Date	Description	Prepared	Checked	Approved
0	27/12/2013	First Issue	BFA	DBL	GEB
1	16/03/2015	General Revision	IME	DBL	GEB
2	25/03/2015	Weight revision	IME	DBL	GEB
3	29/04/2015	General Revision	BFA		GEB



1. BOLLARD HAMMER-P

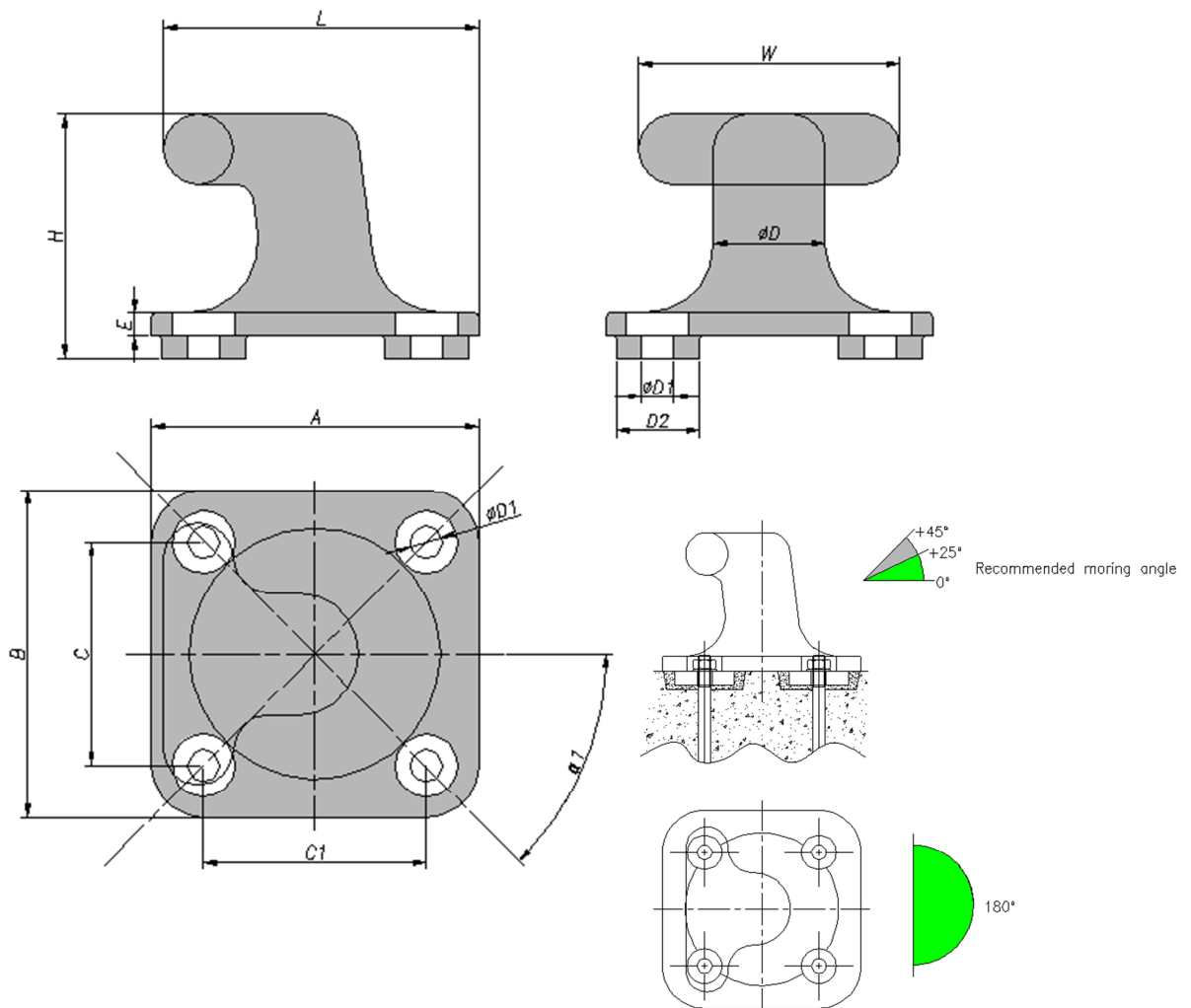


High quality casting material

Strong and durable design

Low maintenance

Large mooring range angle



Bollard summary	
Type:	HAMMER-P
Safety Work Load:	See Table Below
Mooring Range:	Vertical: 0° to +45°
	Horizontal: 180°
Material	
Type:	Cast steel
Quality:	GS 52 (DIN 1681) Gr 10552
Properties	Yield Strength : >260 MPa
	Tensile Strength: >520 MPa
	Elongation: > 18 %
Anticorrosive Treatment	
Treatment:	Painted
Scheme:	Abrasive Blasting. Degree of cleanliness Sa 2 ½ (ISO 8501.1)
	Surface roughness of 30-75µ (EN ISO 8503)
	2 Coats of epoxy polyamide HEMPADUR 45143**
Dry Film Thickness:	≥ 320 µ
Colour:	Black, RAL 9005
Quality Control	
Material Certificate:	3.1,Acc EN 10204

Anchorage summary	
Type:	New Concrete/Old Concrete/Through
Metric:	See Table Below
Material	
Type:	Steel
Quality:	C45E. EN10083**
Properties:	Yield Strength : ≥ 305 MPa
	Tensile Strength: 580 MPa
	Elongation: ≥ 17 %
Quality Control	
Material Certificate:	3.1,Acc EN 10204

** Or equivalents

Dimension (mm)		Bollard Capacity (Tn)					
		5	30	100	150	175	200
Weight(kg):		95	180	593	785	1115	1375
A:		470	600	940	1000	1150	1230
B:		470	600	940	1000	1150	1230
C:		270	400	640	700	800	850
C1:		270	400	640	700	800	850
D		170	230	320	380	410	440
D1:		82	66	91	112	112	112
D2:		140	170	240	275	260	290
E:		35	45	65	70	80	90
H:		360	500	700	860	920	975
L:		415	577	905	952	1103	1145
W:		390	560	750	940	970	1000
Anchorages							
Metric:		M.30	M.56	M.80	M.90	M.100	M.100
New concrete	Length (mm):	500	700	1000	1100	1200	1200
	Length Embedded(mm):	430	590	845	930	1010	1010
	Weight(kg):	4.6	22	60	83	114	114
Old concrete	Length (mm):	500	790	1100	1130	1250	1250
	Length Embedded(mm):	430	680	945	960	1060	1060
	Weight(kg):	3.3	17	48	64	86	86
Number of anchorages:		4	4	4	4	4	4
α1:		45°	45°	45°	45°	45°	45°
α2:		-	-	-	-	-	-
α3:		-	-	-	-	-	-
α4:		-	-	-	-	-	-