



Mooring Bollard Products

Double Bollards (Double Bitt)

DBA1		DBA2		DBB1		DBC1	
							
Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type
20 - 30	DBA1 - 20	0 - 20	DBA2 - 20	30 - 40	DBB1 - 30	0 - 3	DBC1 - 3
30 - 50	DBA1 - 30	20 - 30	DBA2 - 30	40 - 60	DBB1 - 40	5 - 10	DBC1 - 5
50 - 75	DBA1 - 50	30 - 50	DBA2 - 50	60 - 80	DBB1 - 60	10 - 15	DBC1 - 10
75 - 100	DBA1 - 75	50 - 75	DBA2 - 75	80 - 100	DBB1 - 80	15 - 30	DBC1 - 15
100 - 125	DBA1 - 100	75 - 100	DBA2 - 100	100 - 120	DBB1 - 100	30 - 40	DBC1 - 30
125 - 150	DBA1 - 125	100 - 125	DBA2 - 125	120 - 150	DBB1 - 120	40 - 50	DBC1 - 40
150 - 175	DBA1 - 150	125 - 150	DBA2 - 150	150 - 180	DBB1 - 150		
175 - 200	DBA1 - 175	150 - 175	DBA2 - 175	180 - 200	DBB1 - 180		
200 - 300	DBA1 - 300	175 - 300	DBA2 - 300	200 - 300	DBB1 - 300		

Single Bollards

SBA1		SBA3		SBB1		SBC1	
							
Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type
10 - 15	SBA1 - 10	10 - 15	SBA3 - 10	3 - 5	SBB1 - 3	3 - 5	SBC1 - 3
20 - 30	SBA1 - 20	15 - 25	SBA3 - 15	5 - 10	SBB1 - 5	5 - 10	SBC1 - 5
30 - 50	SBA1 - 30	30 - 50	SBA3 - 30	10 - 20	SBB1 - 10	10 - 20	SBC1 - 10
50 - 75	SBA1 - 50	50 - 75	SBA3 - 50	20 - 30	SBB1 - 20	20 - 30	SBC1 - 20
75 - 100	SBA1 - 75	75 - 100	SBA3 - 75	30 - 50	SBB1 - 30	30 - 50	SBC1 - 30
100 - 125	SBA1 - 100	100 - 150	SBA3 - 100	50 - 75	SBB1 - 50	50 - 75	SBC1 - 50
125 - 150	SBA1 - 125	150 - 200	SBA3 - 150	75 - 100	SBB1 - 75	75 - 100	SBC1 - 75
150 - 200	SBA1 - 150	200 - 300	SBA3 - 300	100 - 125	SBB1 - 100	100 - 125	SBC1 - 100
200 - 300	SBA1 - 300			125 - 150	SBB1 - 125	125 - 150	SBC1 - 125
				150 - 200	SBB1 - 150	150 - 200	SBC1 - 150
				200 - 300	SBB1 - 300	200 - 300	SBC1 - 300

SBD1		SBD2		SBE1		SBF1	
							
Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type	Pull Tonnage	Type
50 - 78	SBD1 - 50	50 - 78	SBD2 - 50	3 - 5	SBE - 3	10 - 15	SBF1 - 10
80 - 100	SBD1 - 80	80 - 100	SBD2 - 80	10 - 15	SBE - 10	20 - 25	SBF1 - 20
100 - 125	SBD1 - 100	100 - 125	SBD2 - 100	30 - 50	SBE - 30	30 - 40	SBF1 - 30
125 - 150	SBD1 - 125	125 - 150	SBD2 - 125	50 - 75	SBE - 50	50 - 60	SBF1 - 50
150 - 200	SBD1 - 150	150 - 200	SBD2 - 150	75 - 100	SBE - 75	70 - 80	SBF1 - 75
200 - 225	SBD1 - 200	200 - 225	SBD2 - 200	100 - 125	SBE - 100	90 - 125	SBF1 - 100
225 - 300	SBD1 - 300	225 - 300	SBD2 - 300	125 - 150	SBE - 125	150 - 200	SBF1 - 150
				150 - 200	SBE - 150	200 - 300	SBF1 - 300
				200 - 300	SBE - 300		



Mooring Bollard Products

Notes:

- Zalda standard mooring products come in different series, each based on different computer model. Each series lists several product model numbers. Each product model number is suitable for a line pull rating range. A model number plus a specific line pull rating makes up a complete part number.
- All dimensions are in mm. All ratings are in metric ton.
- All standard models listed are in cast steel ASTM A27 65-35. Standard cast iron models available in ASTM A48 Class 30 with almost identical outer dimensions.
- All bollards and bitts are designed for rated capacity within 45 degree vertical / 180 degree horizontal angles towards waterfront at >3x safety factor against tensile. All designs are based on combinations of finite element analysis, theoretical calculations, actual product proof load and destructive pull tests, as well as actual installation experience.
- Standard surface preparation is sand blasting to SSPC-10 with >300 um DFT zinc rich primer & coal tar epoxy. Zalda Technology also provide coating for most requirements around the world.
- Anchor bolts materials and dimensions vary with dock concrete grade, thickness and rebar configurations. Provide relevant information for us to make recommendations.
- Virtually all aspects of the mooring bollards, including but not limited to shape - style, line pull rating - angle, material grade, coating type - thickness, anchor bolt dimension – grade – pattern, custom installation adaptation hardware - break off design, mooring line lock down device, etc., can be customized to meet any application requirements.
- Certifications from major classification societies such as ABS, LR, GLR, BV, DNV, are available.
- All specs and dimensions are subject to revision without notice. Please contact us to verify prior to ordering.
- Also refer to Zalda Z series quick release mooring hook, CL series mooring cleat and Zalda deck mooring product brochures for different mooring applications.

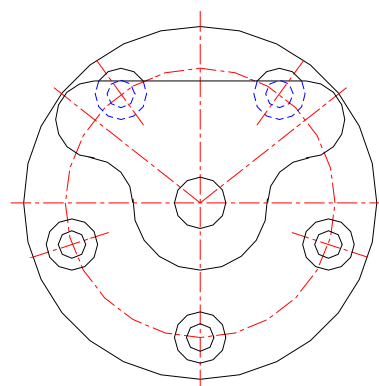
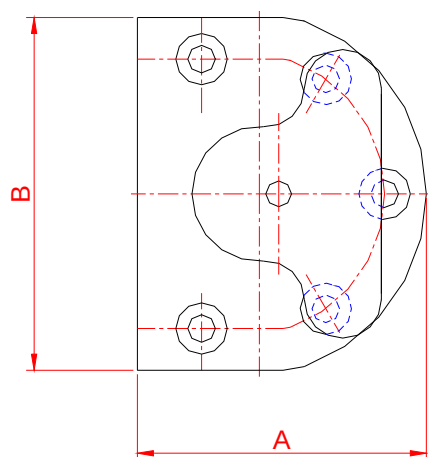
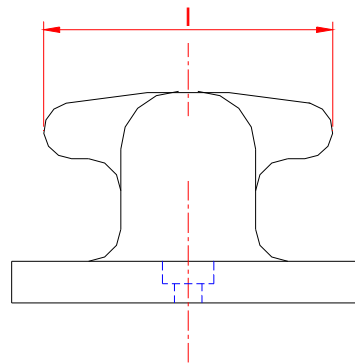
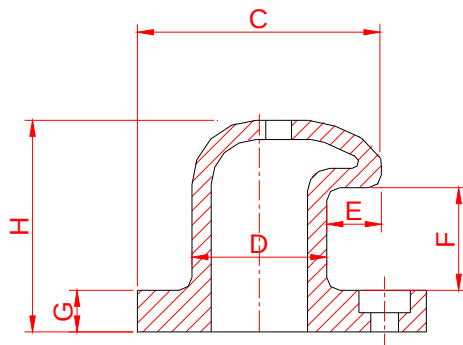


Properties	Cast Steel Specification ASTM A27 65-35	Gray Iron Specification ASTM A48 Class 30
Min. Tensile Strength	450 Mpa	200 Mpa
Min. Yield Strength	240 Mpa	
Min. Elongation	24%	
Min. Reduction of Area	35%	

SINGLE BOLLARD – SERIES A1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	I	Bolt No.
10-15	SBA1-10	350	400	330	170	80	140	50	280	300	5
20-30	SBA1-20	450	550	380	210	90	160	65	330	450	5
30-50	SBA1-30	550	650	480	260	120	200	75	410	550	5
50-75	SBA1-50	670	800	590	320	130	250	85	500	600	5
75-100	SBA1-75	730	840	630	360	140	280	100	580	700	7
100-125	SBA1-100	810	990	720	380	160	300	100	600	750	7
125-150	SBA1-125	900	1100	830	430	200	320	110	650	750	7
150-200	SBA1-150	920	1120	850	450	200	320	120	660	800	7

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



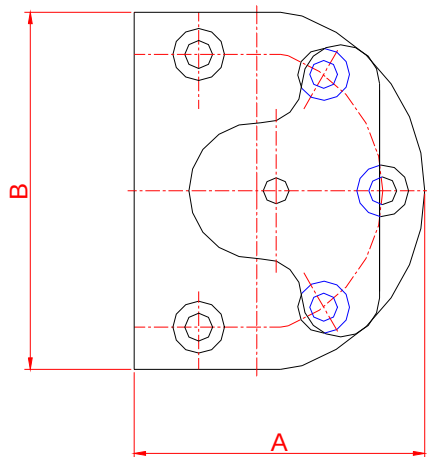
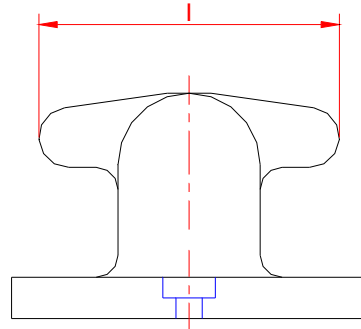
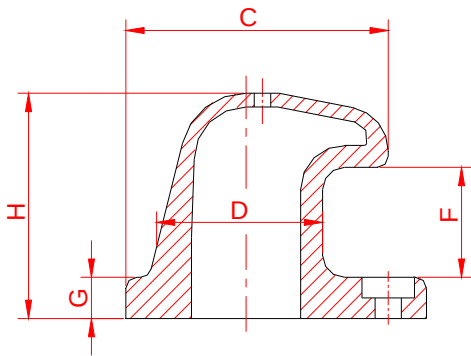
HALF ROUND BASE

ROUND BASE

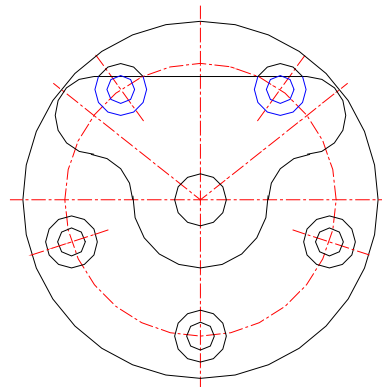
SINGLE BOLLARD –SERIES A2

Pull Tonnage	TYPE	A	B	C	D	F	G	H	I	Bolt No.
10-15	SBA2-10	305	370	285	150	130	45	248	250	5
15-25	SBA2-15	410	500	370	200	150	50	300	360	5
30-50	SBA2-30	500	570	430	220	200	55	355	400	5
50-75	SBA2-50	650	780	560	300	245	75	455	550	5
75-100	SBA2-75	700	800	590	320	240	80	460	550	7
100-150	SBA2-100	800	970	680	380	280	90	510	700	7
150-200	SBA2-150	880	1020	790	400	306	100	600	750	7

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



HALF ROUND BASE

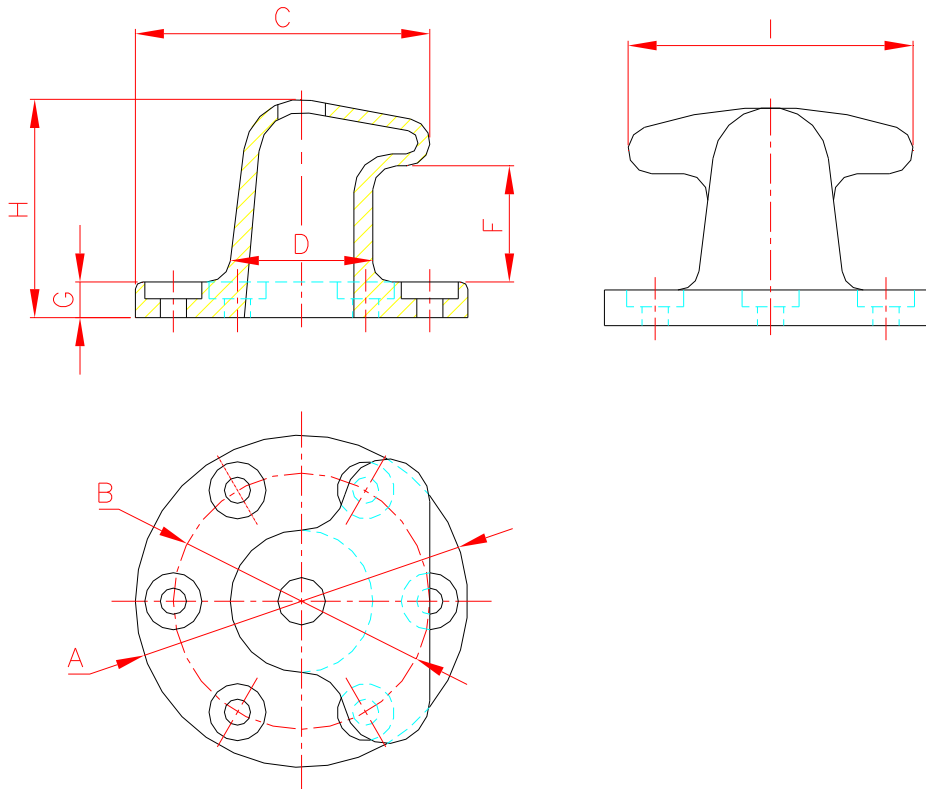


ROUND BASE

SINGLE BOLLARD – Series A2R

Pull Tonnage	Type	A	B	C	D	F	G	H	I	Bolt Size	No. Bolts
10-15	SBA2R-10	300	250	290	150	120	45	250	300	M24	4
15-25	SBA2R-15	430	300	385	200	150	50	300	350	M27	5
30-50	SBA2R-30	480	350	445	220	200	55	380	400	M36	6
50-75	SBA2R-50	700	540	620	300	245	75	460	600	M48	6
75-100	SBA2R-75	800	650	660	330	260	80	480	670	M52	6
100-150	SBA2R-100	900	710	805	380	280	90	510	750	M56	8
150-200	SBA2R-150	1000	810	905	400	306	100	600	800	M68	8

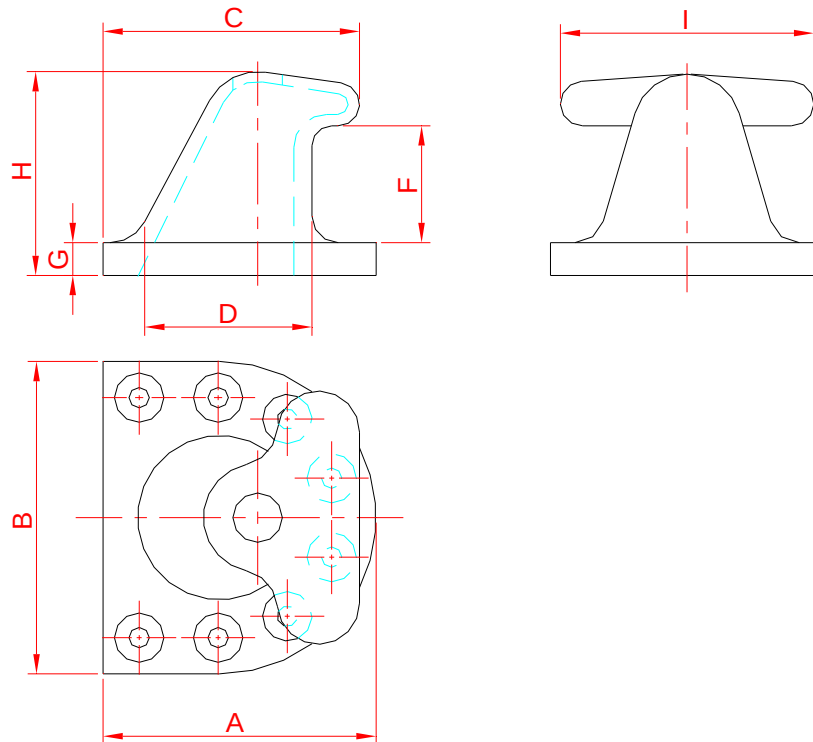
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SINGLE BOLLARD –SERIES SBA3

Pull Tonnage	Type	A	B	C	D	F	G	H	I	Bolt Size
5-10	SBA3-10	330	380	330	150	150	48	245	300	4-M24
10-15	SBA3-15	365	420	335	200	165	50	270	330	4-M30
15-20	SBA3-20	380	440	350	220	180	55	295	350	5-M33
20-30	SBA3-30	395	460	370	250	185	57	305	370	5-M39
30-50	SBA3-50	490	565	470	300	200	70	380	450	5-M48
50-75	SBA3-75	560	650	530	330	265	80	435	520	6-M52
75-100	SBA3-100	660	760	630	365	310	83	495	610	7-M56
100-125	SBA3-125	725	840	690	420	345	88	545	670	7-M64
125-150	SBA3-150	780	900	750	450	380	95	585	720	7-M68
150-200	SBA3-200	830	950	780	500	400	100	620	770	8-M72

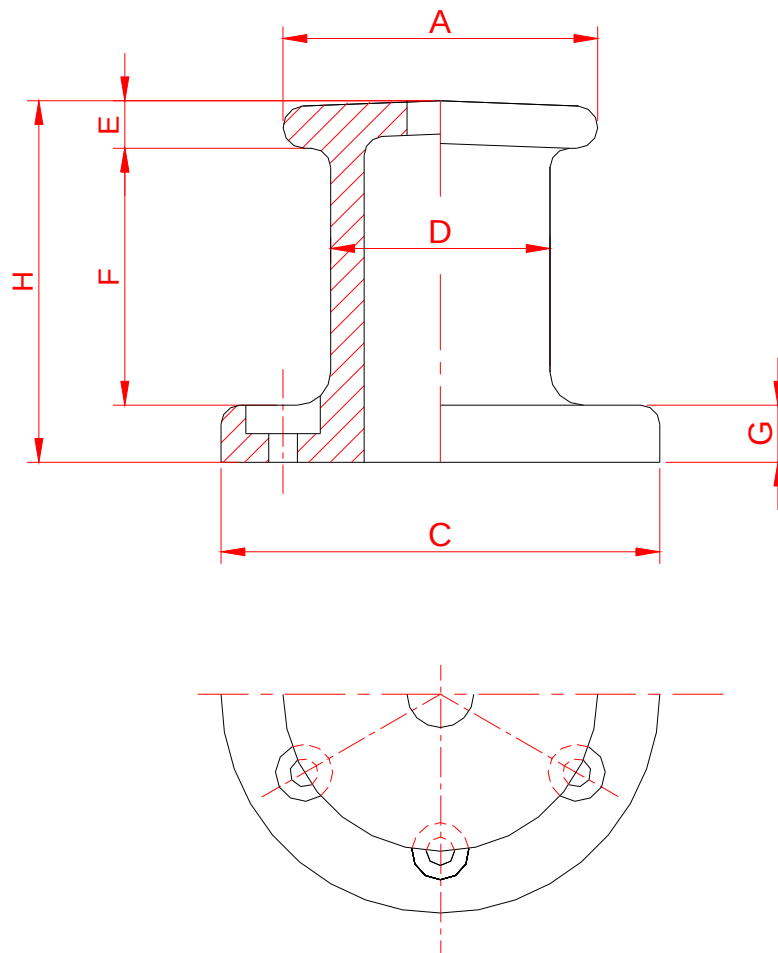
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SINGLE BOLLARD – SERIES B1

Pull Tonnage	Type	A	C	D	E	F	G	H	Bolt No.
3-5	SBB1-3	150	200	100	25	140	35	200	4
5-10	SBB1-5	200	270	125	35	150	35	220	4
10-20	SBB1-10	240	320	160	40	200	40	280	5
20-30	SBB1-20	330	460	230	50	270	60	380	6
30-50	SBB1-30	330	460	230	50	270	60	380	6
50-75	SBB1-50	500	700	340	80	340	80	500	8
75-100	SBB1-75	500	700	340	90	360	90	540	8
100-125	SBB1-100	610	900	450	100	450	100	650	8
125-150	SBB1-125	610	900	450	100	450	100	650	8
150-200	SBB1-150	740	1000	500	130	500	120	750	8

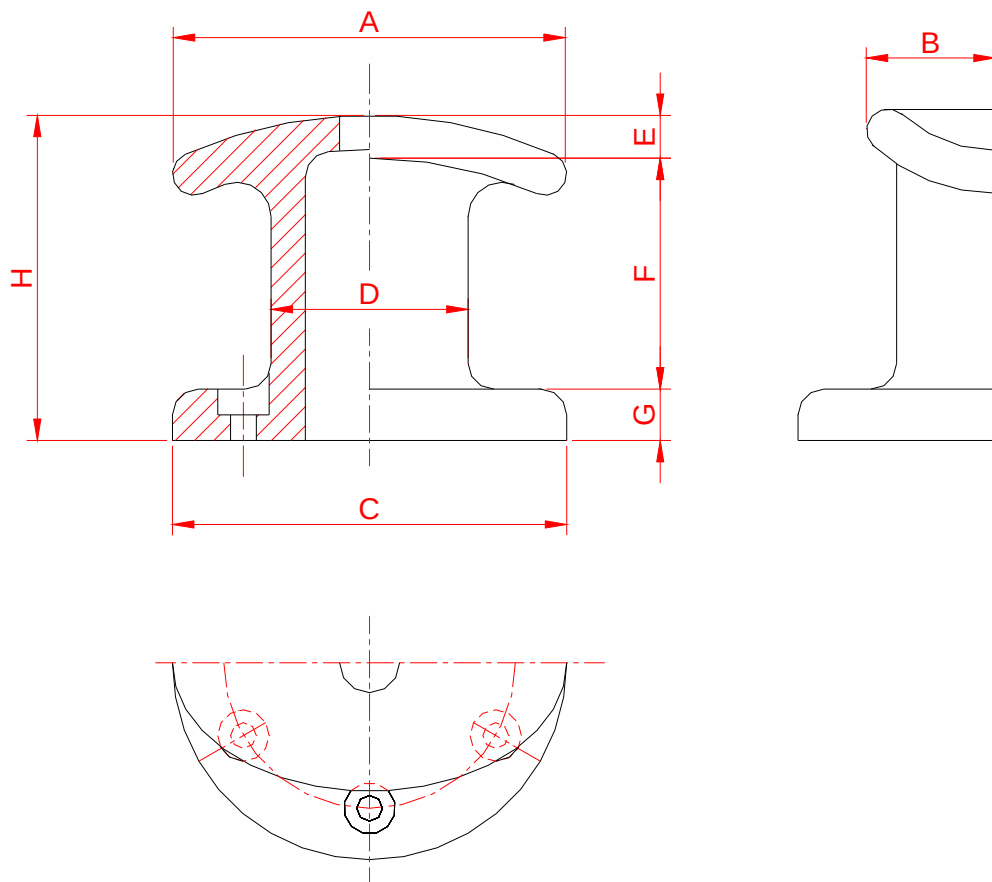
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SINGLE BOLLARD – SERIES C1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	Bolt No.
3-5	SBC1-3	200	75	200	100	25	140	35	200	4
5-10	SBC1-5	270	100	270	125	35	150	35	220	4
10-20	SBC1-10	320	110	320	160	40	200	40	280	5
20-30	SBC1-20	460	150	460	230	50	270	60	380	6
30-50	SBC1-30	460	150	460	230	50	270	60	380	6
50-75	SBC1-50	700	225	700	340	80	340	80	500	8
75-100	SBC1-75	700	225	700	340	90	360	90	540	8
100-125	SBC1-100	900	300	900	450	100	450	100	650	8
125-150	SBC1-125	900	300	900	450	100	450	100	650	8
150-200	SBC1-150	1000	380	1000	500	130	500	120	750	8

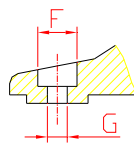
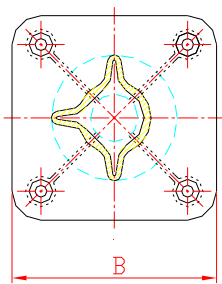
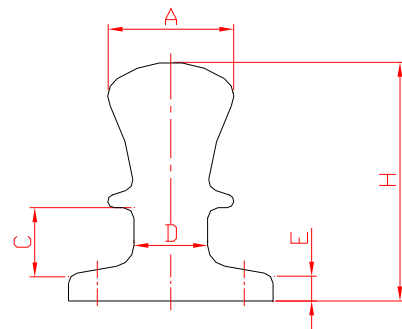
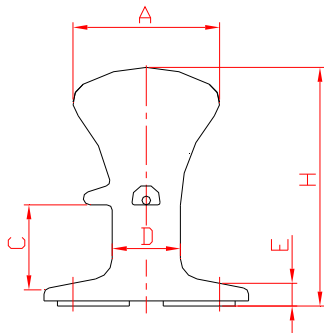
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SINGLE BOLLARD – SERIES D1

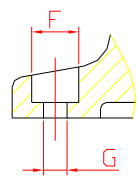
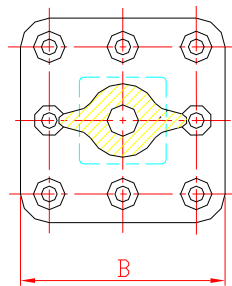
Pull Tonnage	Type	A	B	C	D	E	F	G	H	Bolt No.
50-78	SBD1-50	500	910 SQ.	305	300	75	110	φ 50	910	4
80-100	SBD1-80	500	910 SQ.	305	300	75	115	φ 56	910	4
100-125	SBD1-100	610	990 SQ.	330	360	127	150	φ 64	1155	8
125-150	SBD1-125	610	990 SQ.	330	360	127	160	φ 70	1155	8
150-200	SBD1-150	610	990 SQ.	330	360	127	165	φ 76	1155	8
200-225	SBD1-200	660	1220 SQ.	330	460	127	170	φ 76	1220	8

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



P - P

SBD1-50, 80



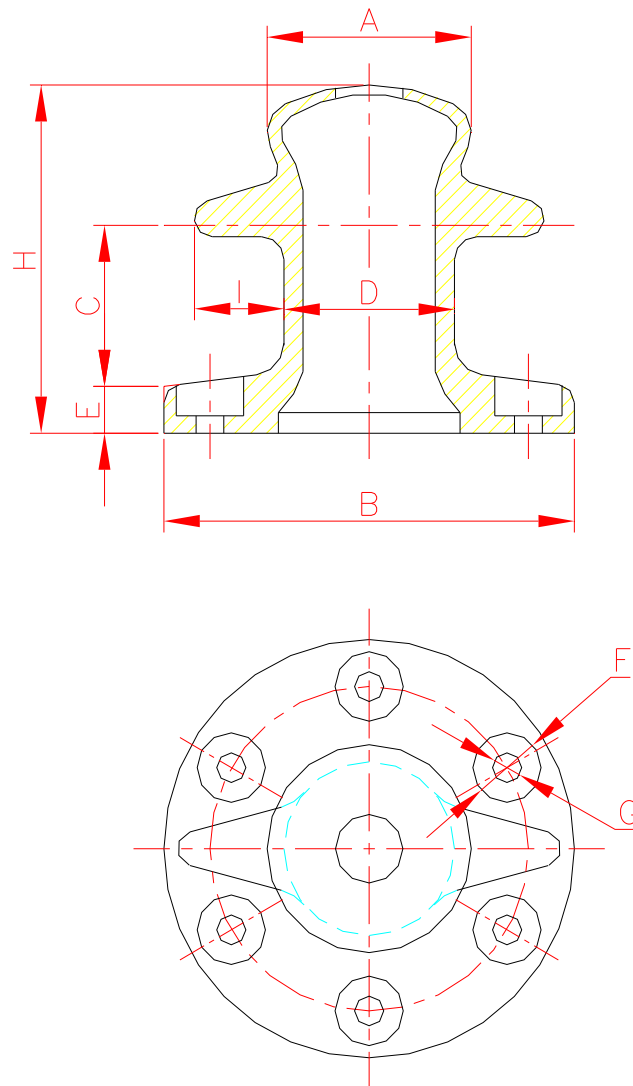
P - P

SBD1- 100, 125, 150, 200

SINGLE BOLLARD – SERIES D2

Pull Tonnage	Type	A	B	C	D	E	F	G	H	I	Bolt No.
50	SBD2-50	380	850	280	300	85	100	φ 54	700	127	6
80	SBD2-80	420	900	300	330	95	130	φ 64	750	150	6
100	SBD2-100	460	915	350	356	102	150	φ 64	760	200	6
125	SBD2-125	460	915	330	380	102	160	φ 70	760	200	6
150	SBD2-150	610	990	330	420	127	180	φ 86	840	216	6
200	SBD2-200	660	1220	360	460	127	200	φ 95	1015	230	6

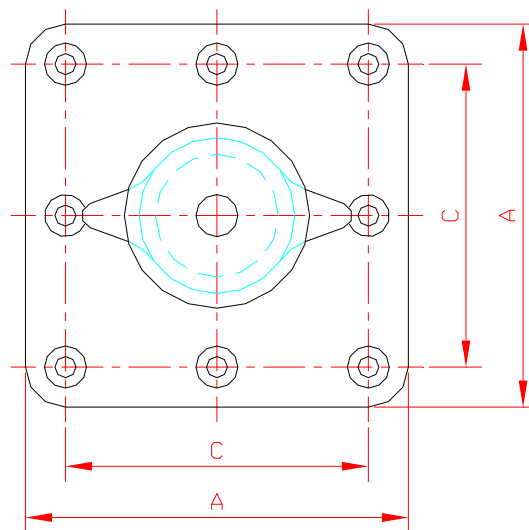
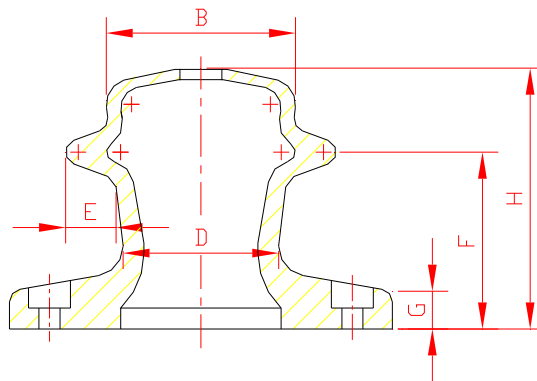
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SINGLE BOLLARD – SERIES E1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	Bolt No.
3-5	SBE 3	260	113	183	90	34	110	30	180	4
10-15	SBE 10	300	132	230	110	40	140	40	230	4
30-50	SBE 30	680	300	530	240	75	320	70	480	4
50-75	SBE 50	750	360	600	280	100	340	76	500	8
75-100	SBE 75	910	440	720	380	150	420	100	620	8
100-125	SBE 100	990	450	760	380	170	440	100	750	8
125-150	SBE 125	990	480	760	400	190	450	110	800	8
150-200	SBE 150	1100	530	850	440	200	480	127	838	8

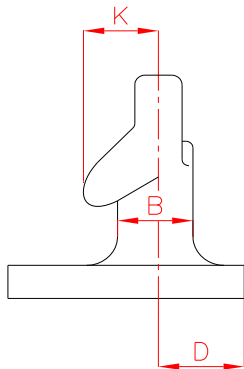
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



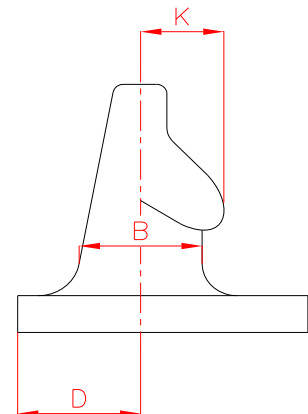
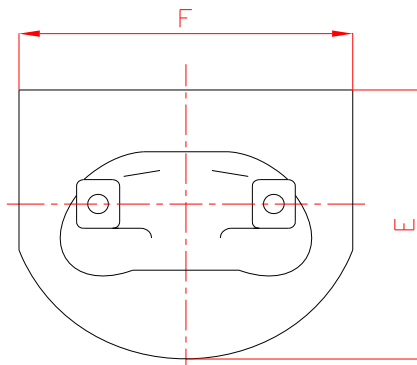
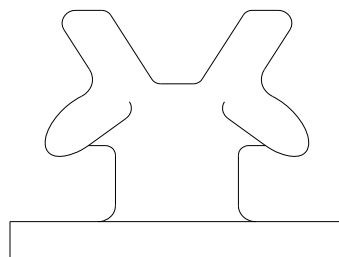
SINGLE BEAN BOLLARD – SERIES F1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	J	K	Bolts	
												No	Dia
10 -15	SBF1-10	180	140	110	102	305	350	60	305	380	115	5	30
20-25	SBF1-20	205	205	140	165	410	480	60	405	420	165	5	36
30-40	SBF1-30	255	255	150	270	570	600	60	460	510	185	6	39
50-60	SBF1-50	320	320	150	280	660	760	75	500	600	220	6	48
70-80	SBF1-75	340	340	180	305	760	870	95	620	720	230	7	56
90-125	SBF1-100	360	360	205	360	840	970	115	660	760	240	7	64
150-200	SBF1-150	440	440	250	380	970	1100	115	740	845	280	8	72

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available



SIDE ELEVATION
10 – 15 TON

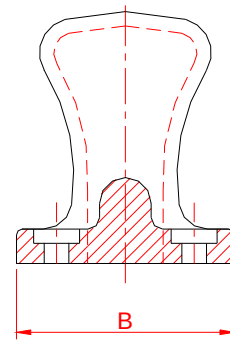
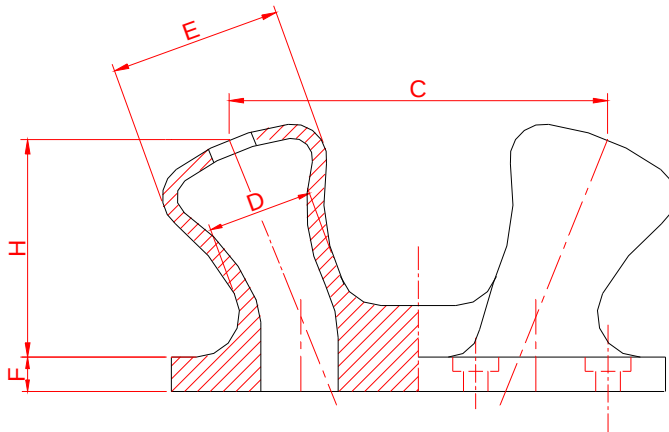


SIDE ELEVATION
20 – 200 TON

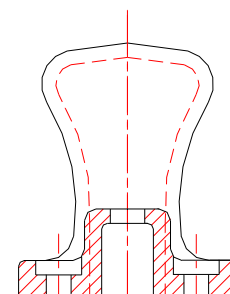
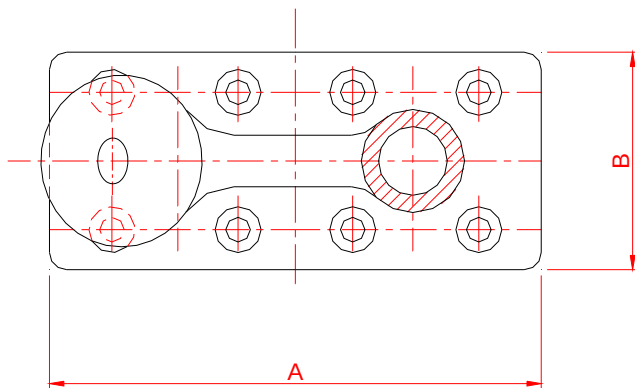
DOUBLE BOLLARD – SERIES A1

Pull Tonnage	Type	A	B	C	D	E	F	H	Bolt No.
20-30	DBA1-20	860	380	660	180	300	60	380	6
30-50	DBA1-30	980	430	700	200	330	60	390	8
50-75	DBA1-50	1060	430	760	230	365	70	400	8
75-100	DBA1-75	1520	460	1220	255	380	76	410	10
100-125	DBA1-100	1560	540	1220	305	455	86	550	10
125-150	DBA1-125	1650	640	1250	380	530	100	570	10
150-175	DBA1-150	1650	650	1250	400	550	100	570	10
175-200	DBA1-175	1720	700	1250	420	570	100	600	10

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available / Pull Rating Based on 2 Posts Combined



SIDE VIEW
20-50 Ton

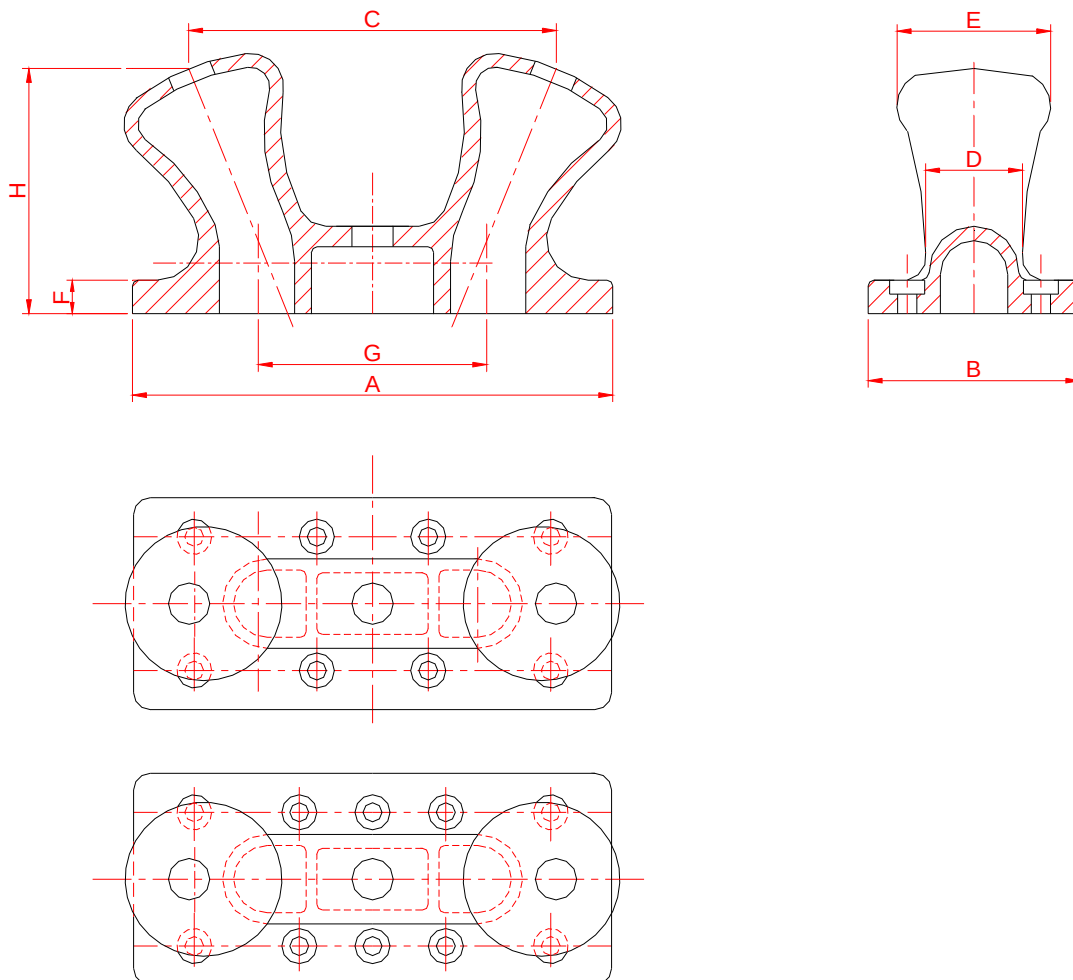


SIDE VIEW
75-200 Ton

DOUBLE BOLLARD – SERIES A2

Pull Tonnage	Type	A	B	C	D	E	F	G	H	Bolt No.
5-20	DBA2-20	686	368	610	152	254	51	368	394	8
20-30	DBA2-30	825	420	724	178	292	57	445	451	8
30-50	DBA2-50	940	457	825	203	330	64	510	508	8
50-75	DBA2-75	1208	522	1040	254	406	76	652	622	10
75-100	DBA2-100	1390	635	1200	305	457	83	761	698	10
100-125	DBA2-125	1524	674	1320	330	500	85	840	752	10
125-150	DBA2-150	1650	718	1420	355	533	90	910	797	10
150-175	DBA2-175	1878	838	1650	406	610	102	1067	909	10
175-200	DBA2-200	2032	864	1750	432	660	114	1131	987	10

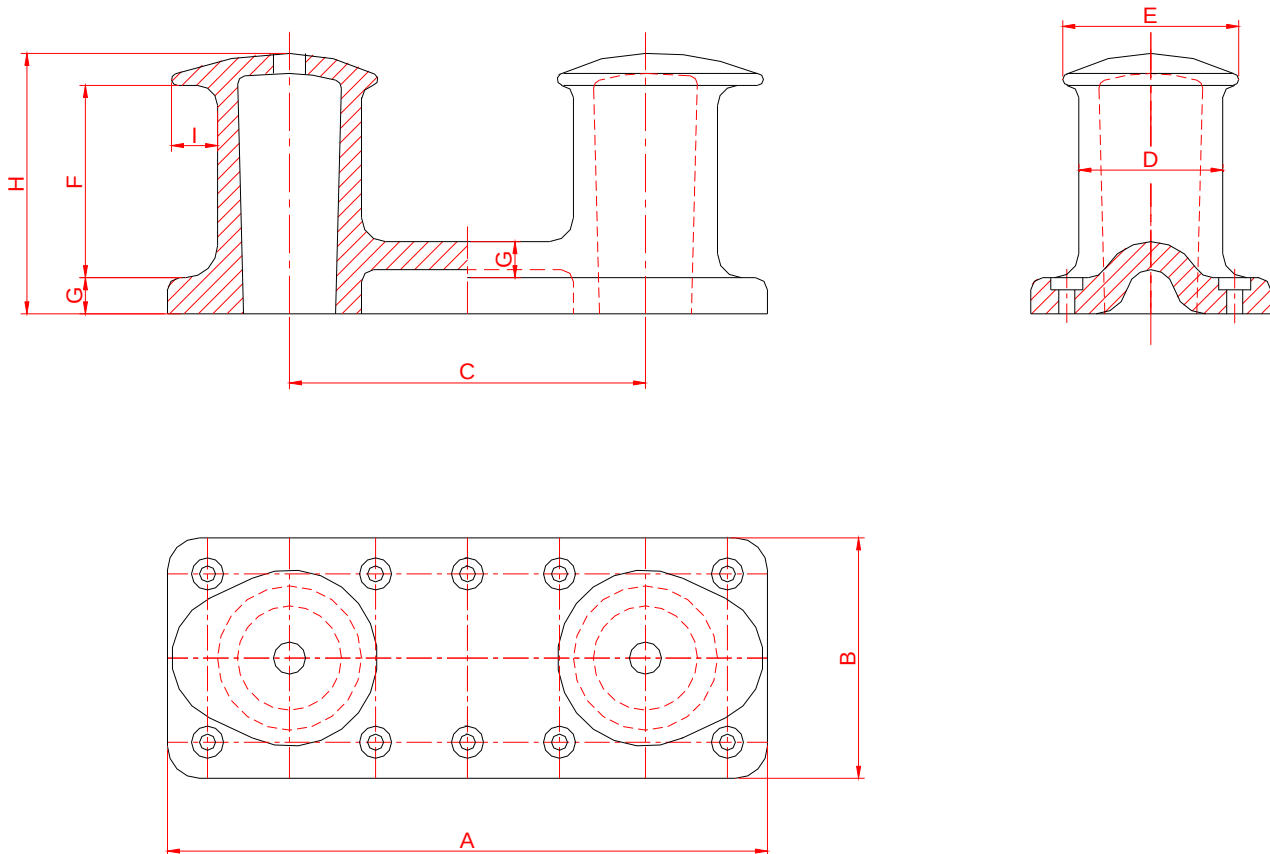
✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available / Pull Rating Based on 2 Posts Combined



DOUBLE BOLLARD – SERIES B1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	I	Bolt No.
30-40	DBB1-30	680	320	400	160	205	230	50	320	55	6
40-60	DBB1-40	870	400	500	200	250	270	60	380	65	8
60-80	DBB1-60	1060	450	630	250	310	340	70	470	85	8
80-100	DBB1-80	1330	520	800	320	390	450	80	600	100	8
100-120	DBB1-100	1500	600	890	360	440	480	90	650	115	10
120-150	DBB1-120	1680	650	1000	400	490	560	90	730	130	10
150-180	DBB1-150	1890	720	1130	450	540	640	100	830	140	10
180-200	DBB1-180	2110	780	1250	500	600	700	100	900	160	10

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available / Pull Rating Based on 2 Posts Combined



DOUBLE BOLLARD – SERIES C1

Pull Tonnage	Type	A	B	C	D	E	F	G	H	Bolt No.
3	DBC1-3	310	140	170	50	75	90	35	215	6
5-10	DBC1-5	450	180	270	75	110	140	35	315	6
10-15	DBC1-10	550	220	330	100	140	170	40	380	6
15-30	DBC1-15	660	260	400	125	160	200	50	450	6
30-40	DBC1-30	770	300	470	150	190	240	60	540	8
40-50	DBC1-40	920	400	520	200	250	300	70	670	8

✧ All Dimensions in mm / All Ratings in Metric Ton / Customization Available / Pull Rating Based on 2 Posts Combined

