

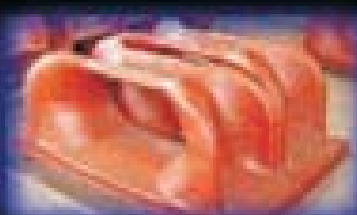
Bollards

Marine Systems



Kind Casting-forged Co., LTD





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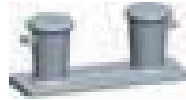
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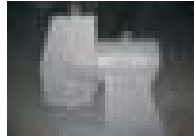
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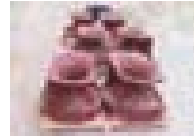
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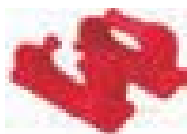
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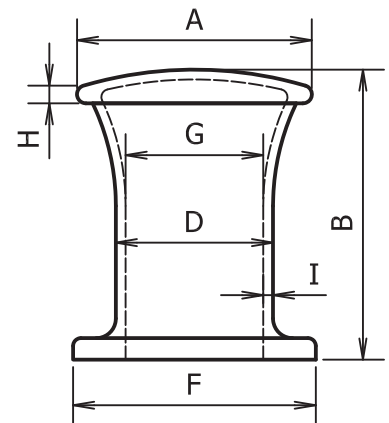
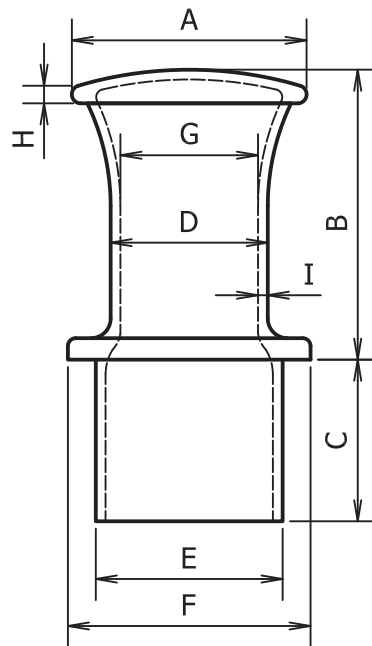


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Deck Fittings And Equipment

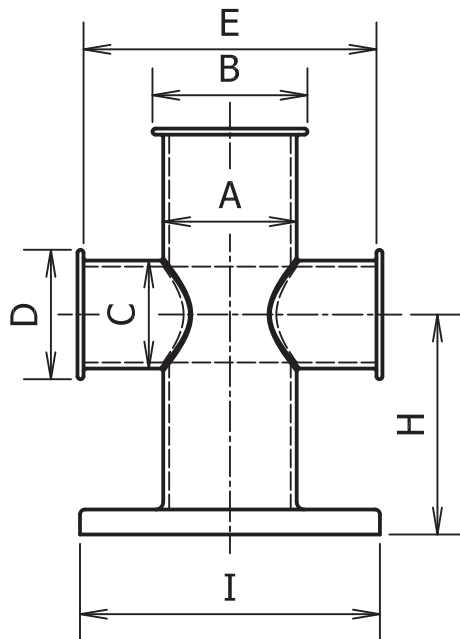
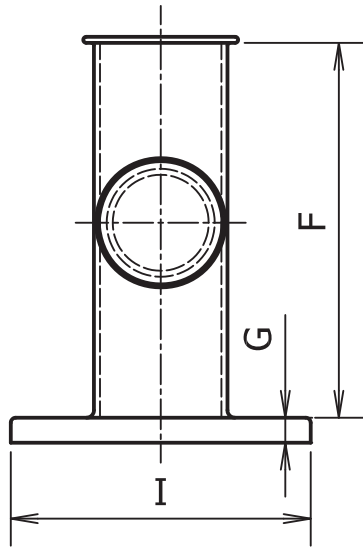


Single Bitts



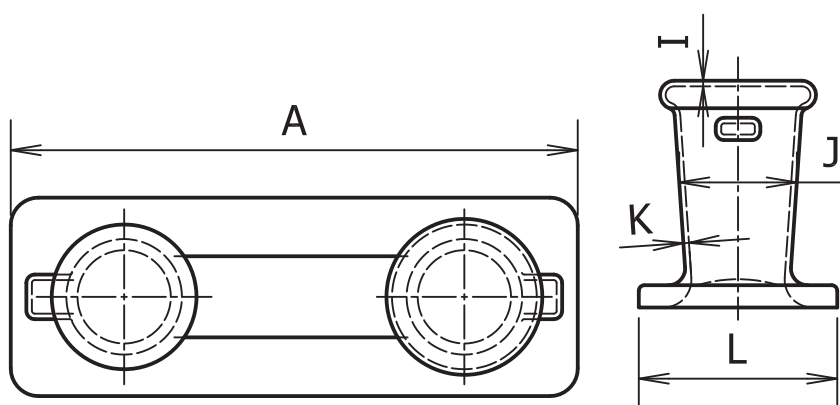
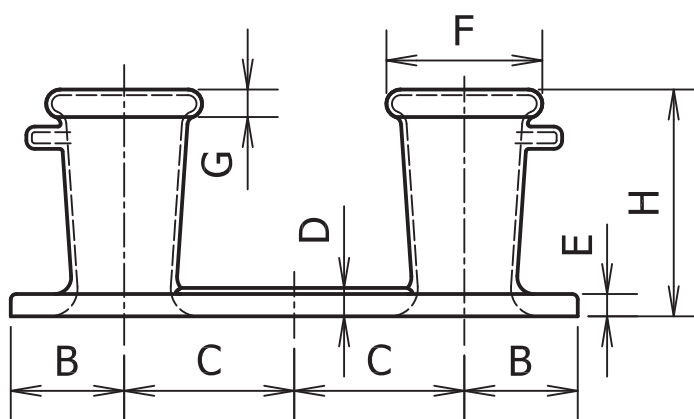
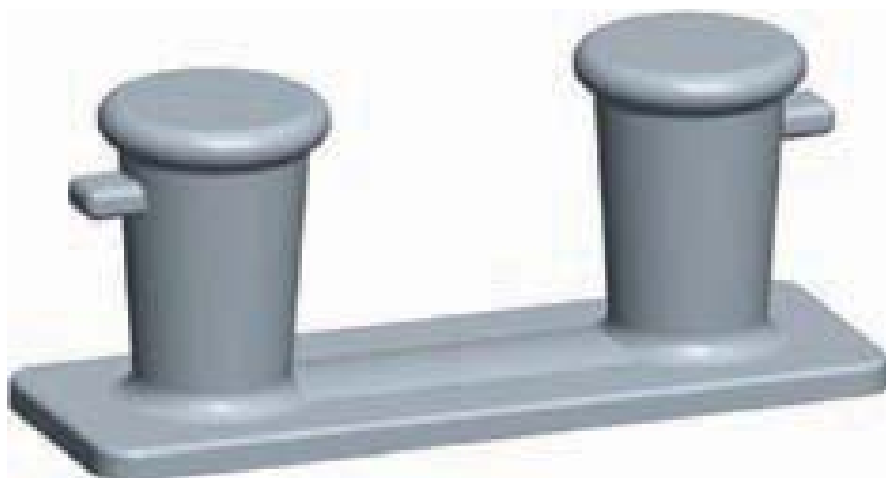
MODEL	DESCRIPTION	STYLE	PART#	DIMENSIONS IN INCHES(MM)									LBS (KGS)
				A	B	C	D	E	F	G	H	I	
DFA-01	SINGLE BITT 8" SQUARE BASE	THRU DECK HEAVY DUTY	03720-30A	8"φ (203)	21" (533)	12" (305)	12"φ (305)	9.63"φ (245)	14"φ (356)	5"φ (127)	1" (25)	1.5" (38)	370 (168)
DFA-02	SINGLE BITT 8" ROUND BASE	THRU DECK	08000-301B	8"φ (203)	16" (406)	11" (279)	12"φ (305)	10.25"φ (260)	14"φ (356)	6" (152)	1" (25)	1" (25)	260 (117)
DFA-03	SINGLE BITT 10" ROUND BASE	THRU DECK	01142-301A	10"φ (254)	18" (457)	12" (305)	13.5"φ (343)	10"φ (254)	14"φ (356)	8" (203)	1.46" (37)	1" (25)	293 (132)
DFA-04	SINGLE BITT 10" ROUND BASE	FLUSH WLD	01140-301A	10"φ (254)	18" (457)	N/A	13.5"φ (343)	N/A	14"φ (356)	8"φ (203)	1.46" (37)	1" (25)	190 (86)

Single Bitts B Type



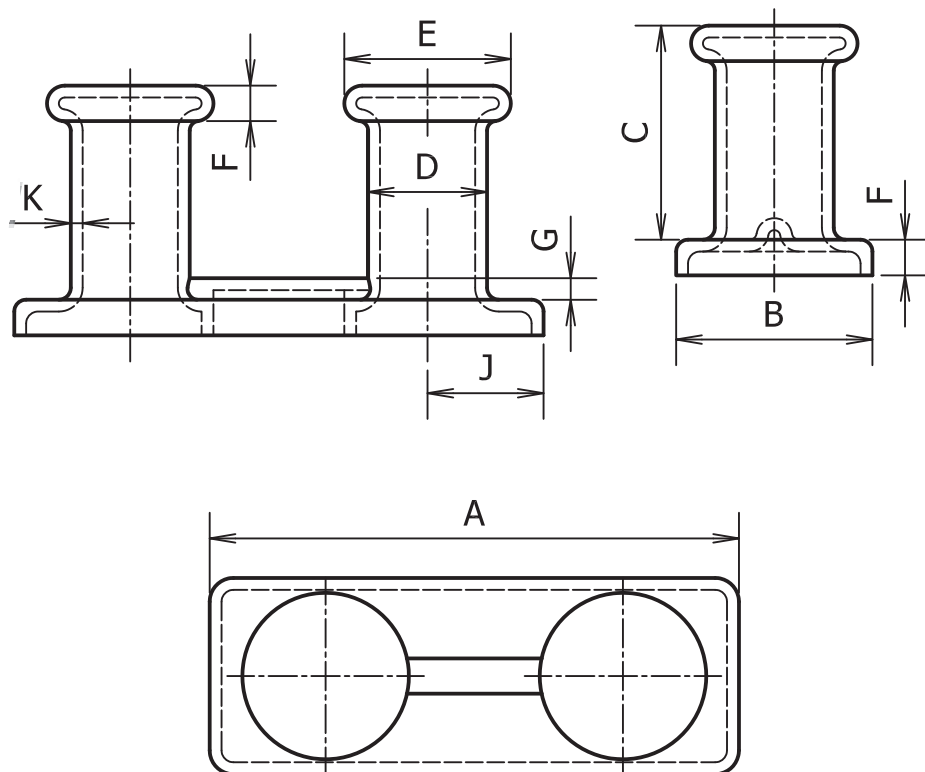
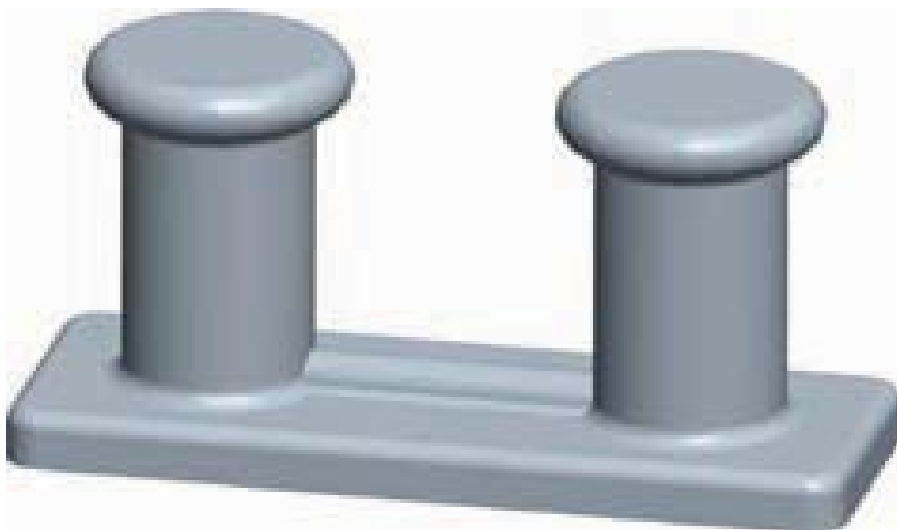
MODEL	Nominal Size Bollard	SWL	Bitt Diameter A	B	C	D	E	F	G	H	I
		Tonne	mm	mm	mm	mm	mm	mm	mm	mm	mm
DFB-01	250	25	273	325	140	190	580	520	125	385	500
DFB-02	315	40	324	400	168	200	725	660	150	480	630

double Bitts



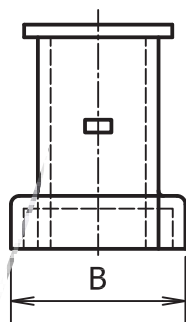
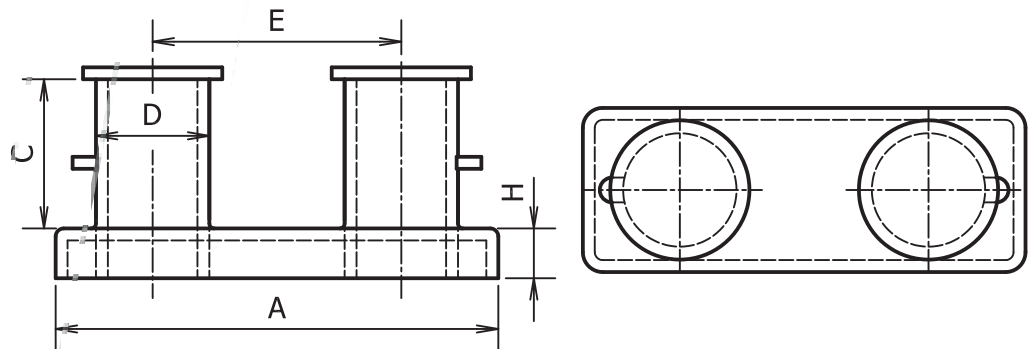
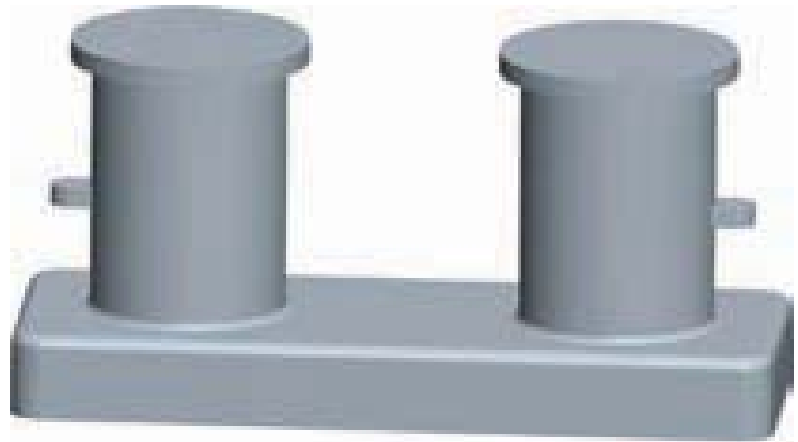
MODEL NO.	PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	WT.(lbs.)
DFC-01	7005	8	40	8	12	2	1 1/4	11	2	16	5/8	7	5/8	14	320
DFC-02	20281	w/Horn	40	8	12	2	1 1/4	11	2	16	5/8	7	5/8	14	330
DFC-03	6858	10	45	9	13 1/2	2 1/4	1 1/4	13 1/2	2	18	3/4	9	1 1/4	15	545
DFC-04	77054	w/Horn	45	9	13 1/2	2 1/4	1 1/4	13 1/2	2	18	3/4	9	1 1/4	15	560

double Bitts



MODEL NO.	PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	WT.(lbs.)
DFD-01	89362	12	60	18	22 1/2	12	15	3	2	6	1	13 1/2	1 1/4	990
DFD-02	21164	14	66	21	26 1/4	14	17 1/2	3 1/2	2	7	1	13	1 1/2	1350

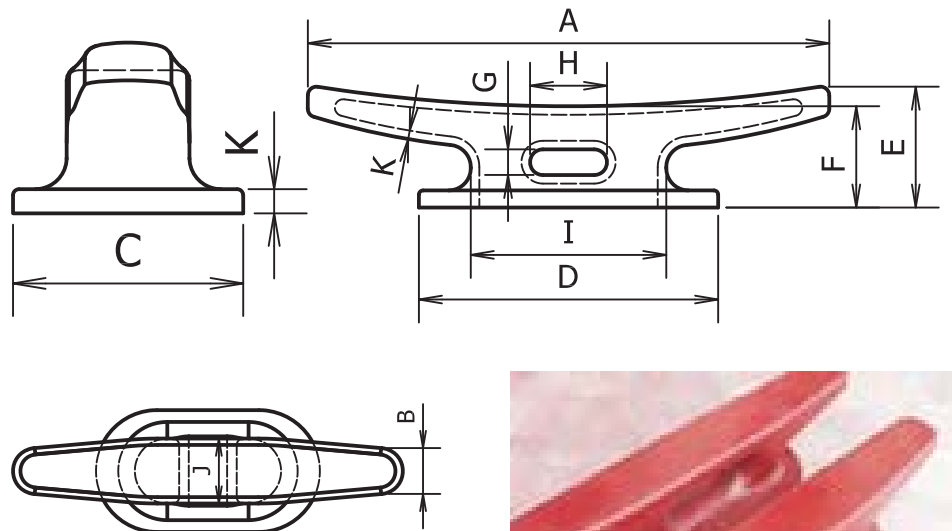
double Bitts



MODEL NO.	Nominal Dia.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	H (mm)	MAX. B.L. of Rope (ton)	Mass (kg)
DFE-01	100	445	165	150	114	250	50	3	19
DFE-02	125	540	195	190	139	315	60	4	29
DFE-03	160	670	225	250	165	400	70	5	45
DFE-04	200	860	290	300	216	500	85	8	80
DFE-05	250	1065	360	380	267	630	100	12	139
DFE-06	315	1300	430	480	318	800	125	20	261
DFE-07	355	1475	480	530	355	890	145	26	361
DFE-08	400	1630	550	600	406	1000	160	32	502
DFE-09	450	1840	620	680	457	1130	170	39	685
DFE-10	500	2040	690	750	508	1250	190	46	911
DFE-11	560	2240	750	830	558	1380	210	56	1208
DFE-12	630	2510	820	940	609	1570	225	70	1600
DFE-13	710	2840	960	1050	711	1750	260	82	2252
DFE-14	800	3240	1100	1200	812	2000	295	100	3071

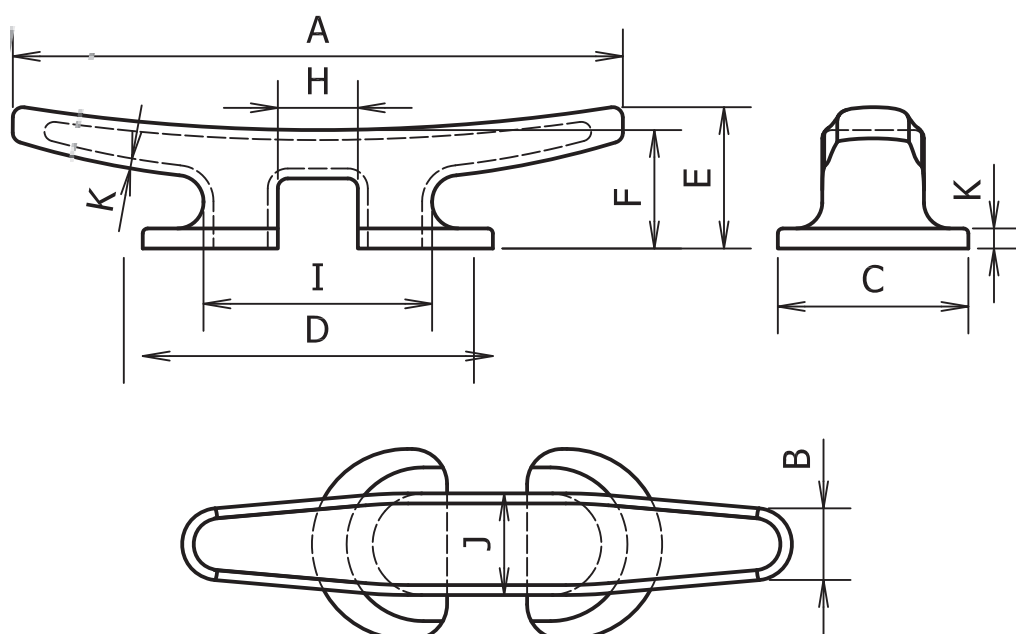


Kevels/Kevel Chocks/Cleats



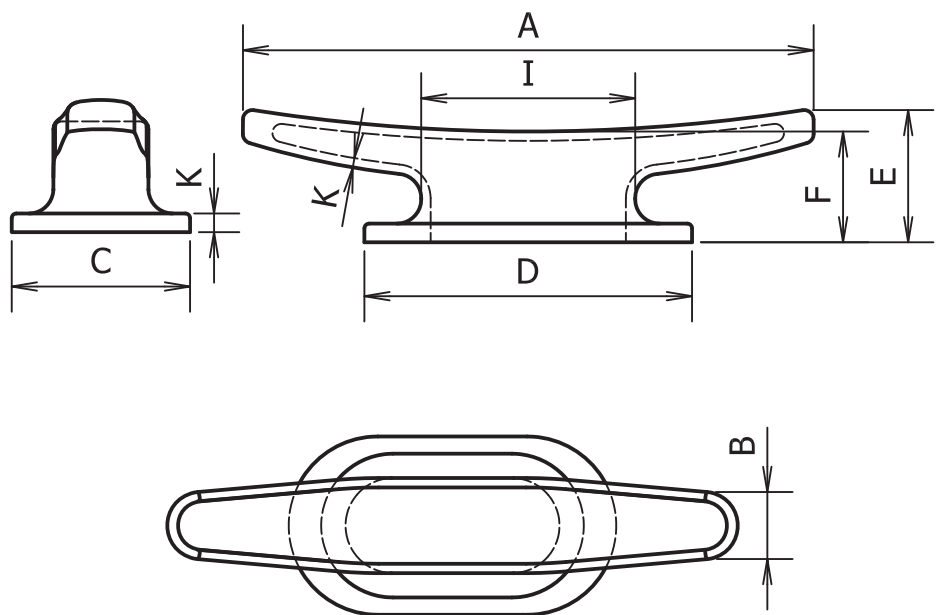
MODEL	DESCRIPTION	PART#	DIMENSIONS IN INCHES(MM)											LBS (KGS)
			A	B	C	D	E	F	G	H	I	J	k	
DFF-01	KEVEL CHOCK,24"	02990-301A	24" (610)	3" (76)	7.5" (190)	10.5" (267)	5.63" (143)	5.13" (130)	2.25" (57)	3.25" (83)	9" (229)	4" (101)	5" (13)	50 (23)
DFF-02	KEVEL CHOCK,30"	01081-301A	30" (762)	3.25" (83)	9.5" (241)	20.25" (514)	7" (178)	5.62" (143)	2.38" (60)	6.88" (175)	14" (356)	4" (101)	5" (127)	75 (34)
DFF-03	KEVEL CHOCK,36"	01080-301A	36" (914)	4" (101)	11" (279)	23.5" (572)	8" (203)	6.75" (171)	3.25" (83)	8.25" (210)	17" (432)	5" (127)	56" (127)	98 (44)
DFF-04	KEVEL CHOCK,42"	01090-301A	42" (1066)	4.75" (121)	12.5" (318)	26.75" (679)	9" (229)	7.88" (200)	4.13" (104)	9.63" (245)	20" (508)	6" (152)	53" (13)	168 (76)
DFF-05	KEVEL CHOCK,48"	01100-301A	48" (1219)	5.5" (140)	14" (356)	30" (762)	10" (254)	9" (229)	5" (127)	11" (279)	23" (584)	7" (178)	65" (17)	220 (100)

Kevels/Kevel Chocks/Cleats



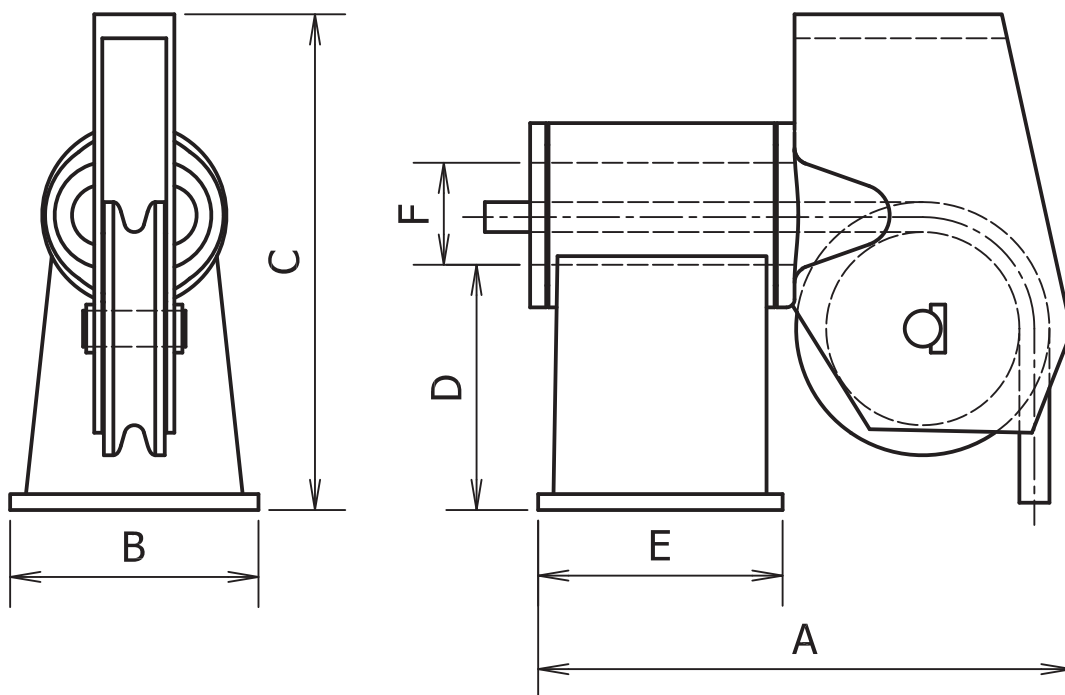
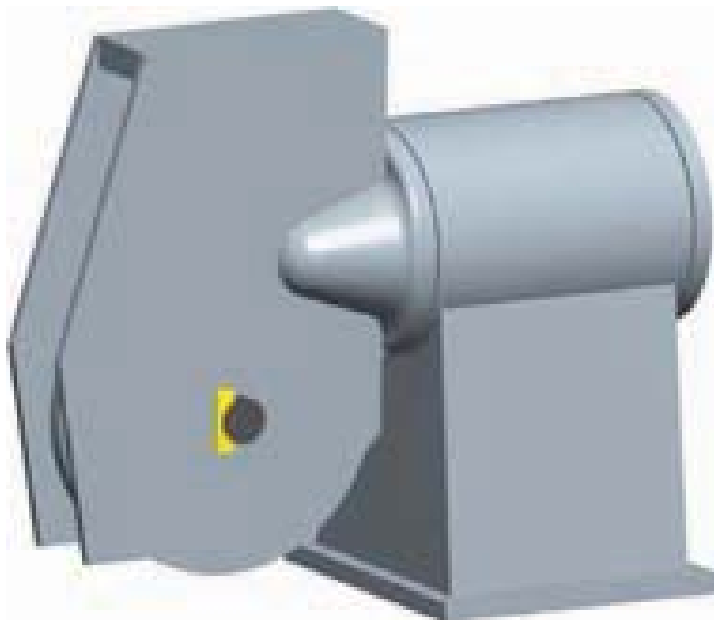
MODEL	DESCRIPTION	PART#	DIMENSIONS IN INCHES(MM)											LBS
			A	B	C	D	E	F	G	H	I	k	(KGS)	
DFF-06	KEVEL 36"	01050-301A	36" (914)	5" (127)	10" (254)	22.5" (572)	7.13" (181)	5.88" (149)	3.5" (89)	5" (127)	16.5" (419)	56 (14mm)	50 (23)	
DFF-07	KEVEL 42"	01060-301A	42" (1067)	6" (152)	11" (279)	25.5" (648)	7.5" (191)	6.5" (165)	3.25" (83)	7.5" (191)	19.5" (495)	56 (14mm)	75 (34)	
DFF-08	KEVEL 48"	01070-301A	48" (1219)	6.5" (165)	11" (279)	27" (686)	10" (222)	8.75" (222)	5" (127)	8" (203)	21" (533)	56 (14mm)	98 (44)	

Kevels/Kevel Chocks/Cleats



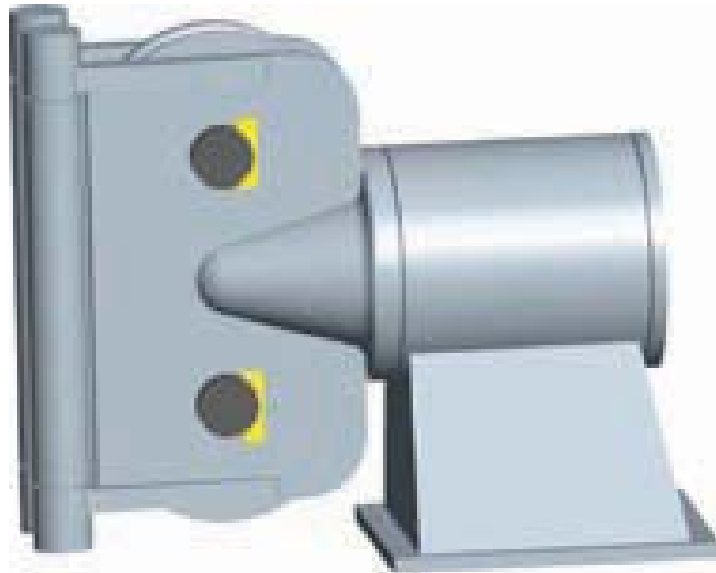
MODEL #	DESCRIPTION	PART #	DIMENSIONS IN INCHES(MM)								LBS (KGS)
			A	B	C	D	E	F	I	K	
DFF-09	KEVEL,60°	01101-301A	60" (1524)	7" (178)	11.5" (292)	38" (965)	12" (305)	9" (229)	32.5" (826)	75 (19mm)	390 (177)

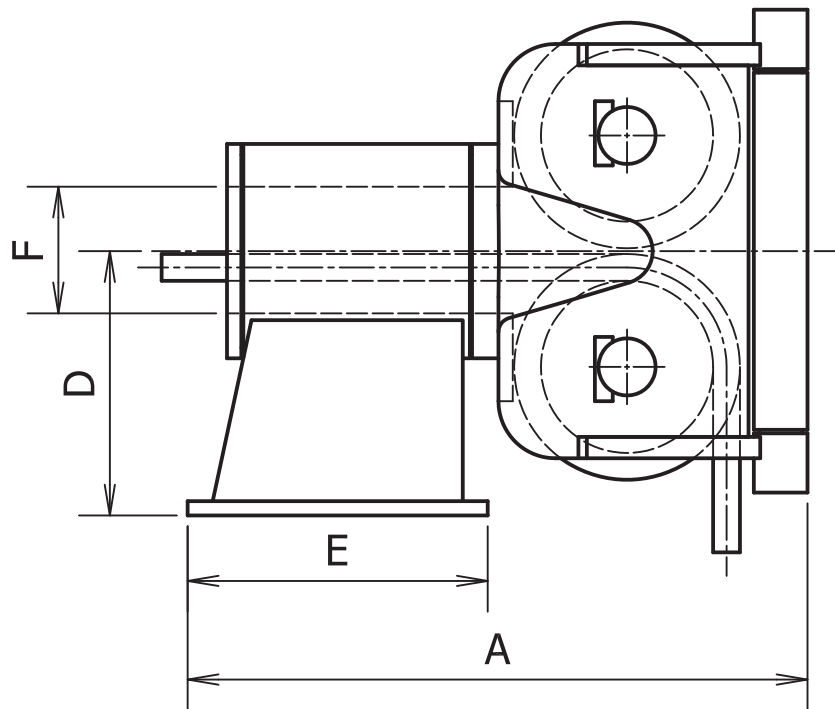
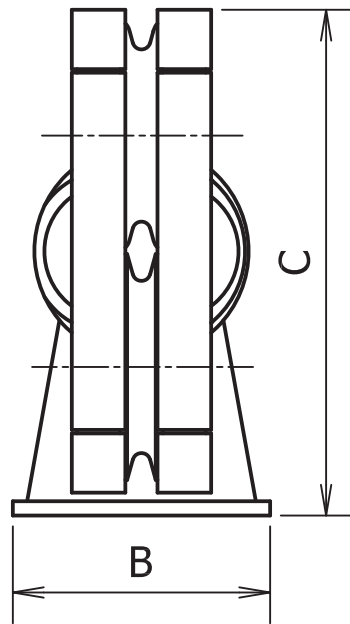
Deck Mounted Balanced Head Fairleads



Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	E	F	Weight
DFG-01	Inches	2	344000lbs.	20	50-1/8	30	44-13/16	25-1/2	27	12	2650lbs
	MM	51	1530kN	508	1273	762	1138	648	686	305	1202Kg
DFG-02	Inches	2-1/4	494000lbs.	24-7/8	56-7/8	40-1/4	60-3/4	31-1/2	27-1/2	13	4800lbs
	MM	57	2198kN	632	1445	1022	1543	800	699	330	2177Kg
DFG-03	Inches	2-1/2	524000lbs.	30	63	40	70-1/4	36-1/4	27-1/2	14-1/2	6000lbs
	MM	64	2331kN	762	1600	1016	1784	921	699	368	2722Kg
DFG-04	Inches	3	818000lbs.	44	103-1/2	52-3/8	104	34-1/2	44	26-1/2	16500lbs
	MM	76	3639kN	1118	2629	1330	2642	876	1118	673	7484Kg
DFG-05	Inches	3	818000lbs.	55-1/2	115-5/8	52-3/8	117-1/2	34-1/2	44	26-1/2	18800lbs
	MM	76	3639kN	1410	2937	1330	2985	876	1118	673	8528Kg

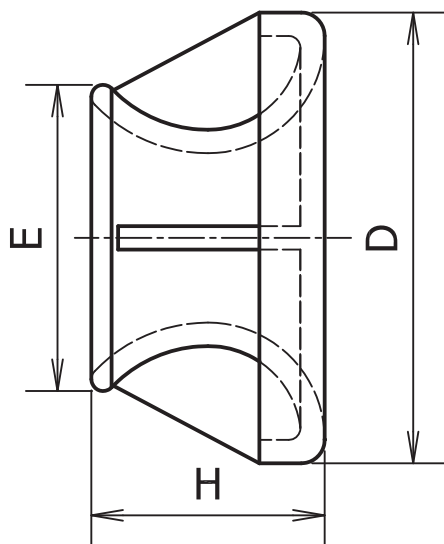
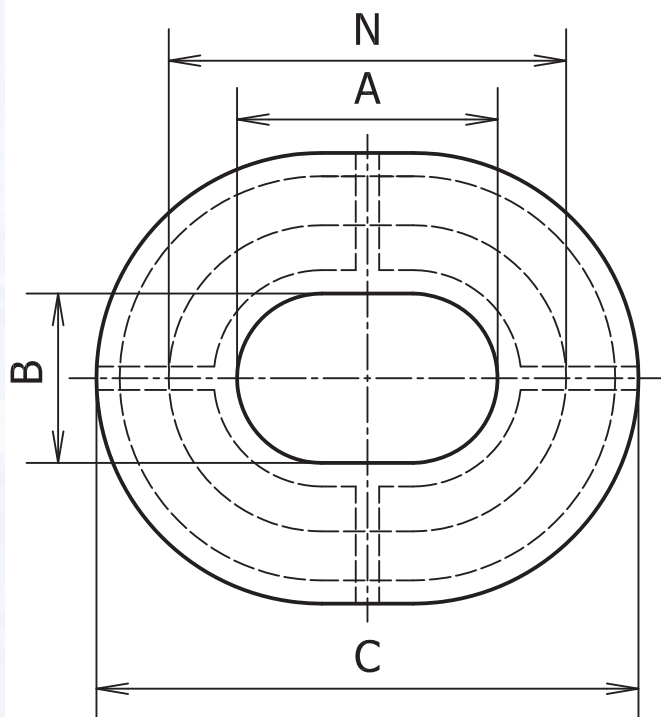
Deck Mounted Double Sheave Fairleads





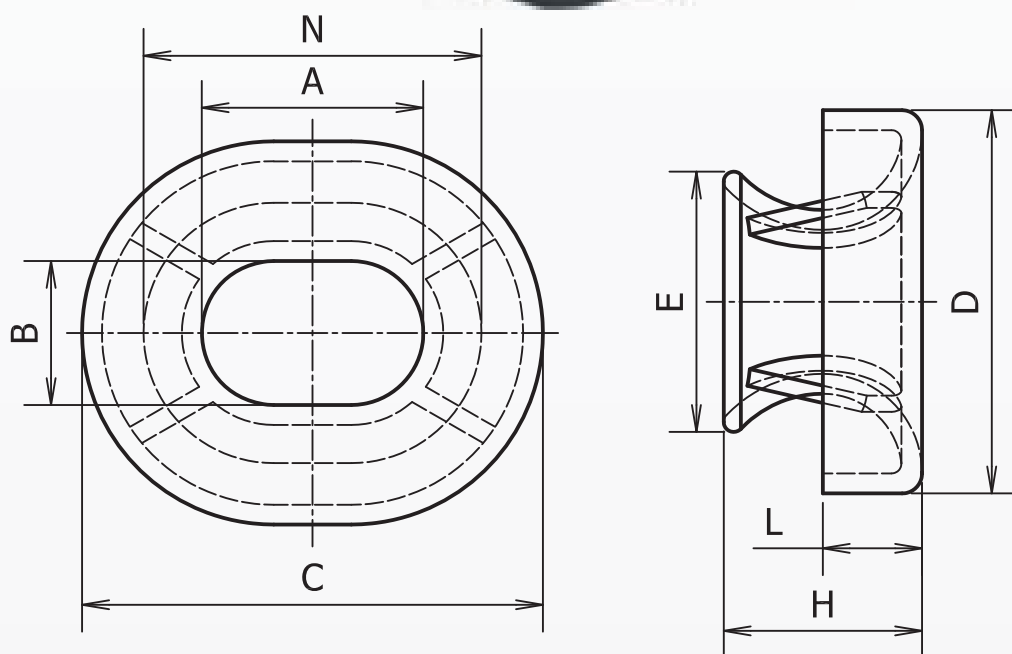
Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	E	F	Weight
DFH-01	Inches	3/4	58800lbs.	8-1/4	23-11/16	16	20-1/8	11	14-3/4	4-1/2	270lbs
	MM	19	262kN	210	602	406	511	279	375	114	122Kg
DFH-02	Inches	1	103400lbs.	9-3/4	28-3/16	19-1/4	24-5/8	13-1/2	17-3/4	5-5/8	495lbs
	MM	25	460kN	248	716	489	625	343	451	143	225Kg
DFH-03	Inches	1-1/4	159800lbs.	11-1/4	30-9/16	20	28-1/8	15-1/2	18-1/2	6-5/16	670lbs
	MM	32	711kN	286	776	508	714	394	470	160	304Kg
DFH-04	Inches	1-1/2	228000lbs.	14-1/4	38-1/8	25-1/4	36-1/4	19-1/2	21	8-1/2	1450lbs
	MM	38	1014kN	362	968	641	921	495	533	216	658Kg
DFH-05	Inches	1-3/4	266000lbs.	18-1/2	45-1/8	28-1/2	45-1/2	23-1/2	22	9-1/2	2100lbs
	MM	44	1183kN	470	1146	724	1156	597	559	241	953Kg

Chocks Panama Type Bullwark Mounted



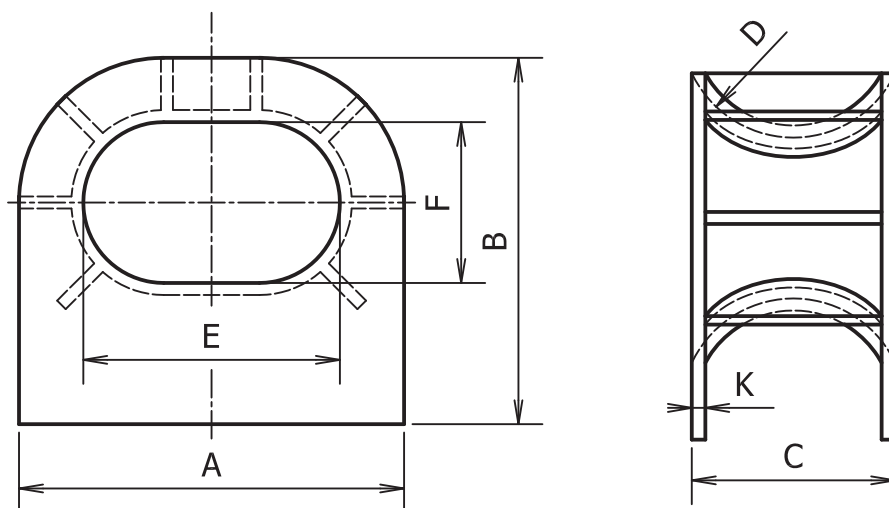
TYPE	NOMINAL SIZE	A	B	C	D	E	H	N	MASS <KG>
DFI-01	310	310	260	734	684	462	358	652	276
DFI-02	360	360	260	788	688	464	358	701	305
DFI-03	400	400	260	832	692	470	358	750	344
DFI-04	450	450	260	88	696	474	358	802	385
DFI-05	500	500	260	940	700	478	358	854	422

Chocks Panama Type Bullwark Mounted



TYPE	Dimensions(mm)									MASS (KG)
	A	B	C	D	E	H	K	L	N	
DFI-06	315	250	695	630	432	342	22	168	497	198
DFI-07	425	280	925	780	516	450	26	224	661	358
DFI-08	600	315	1160	875	571	504	30	250	866	547
DFI-09	600	450	1160	1010	706	504	30	250	866	629
DFI-10	600	450	1360	1160	1060	504	30	250	1260	813

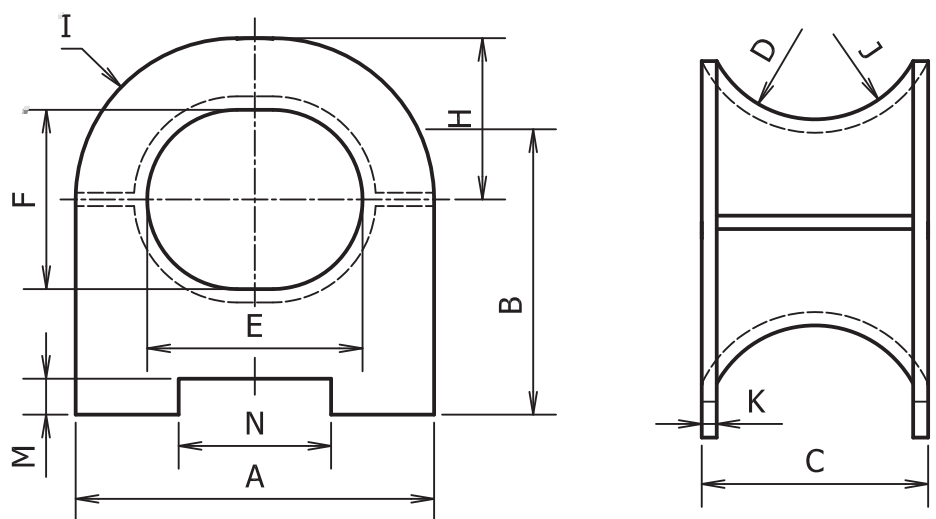
Chocks Deck Mounted



TYPE	SIZE	A	B	C	D	E	F	G	H	I	J	K	M	N
DFJ-01	10**14"	711	692	355	R140	355	254	R127	257	R267	R162	19	203	32
DFJ-02	10**12"	660	558	355	R158.5	305	254	R127	305	R305	R177.5	19	216	51

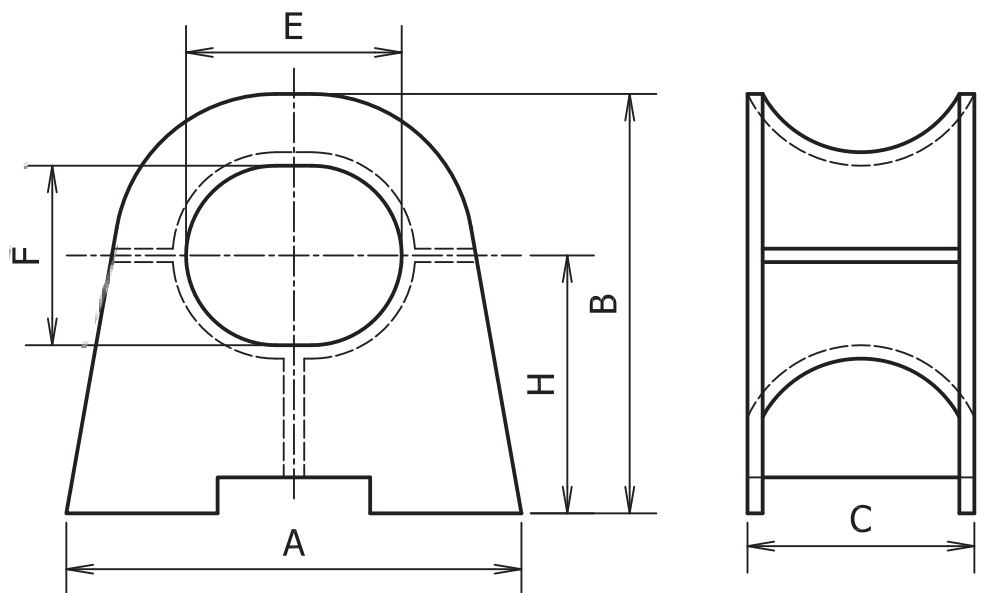


Chocks Deck Mounted



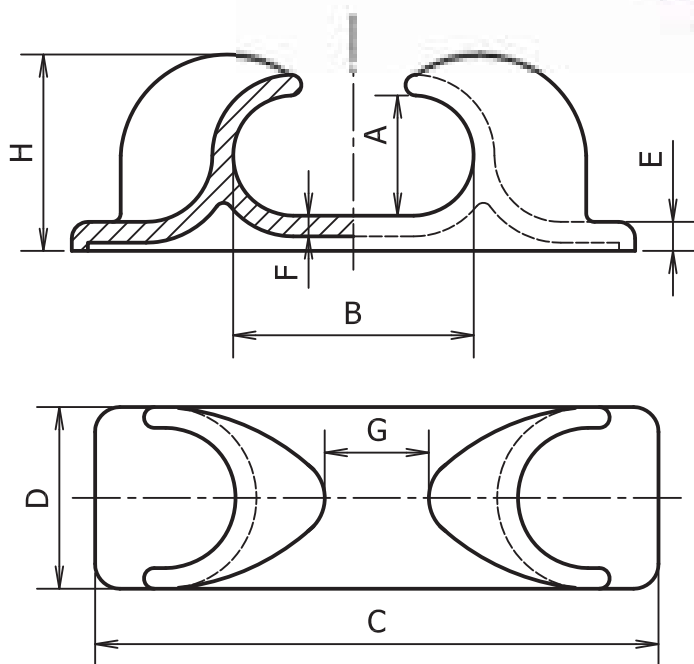
TYPE	SIZE	A	B	C	D	E	F	G
DFJ-03	12"×18"	838.2	800.1	355.6	149.3	457.2	304.8	R152.4

Chocks Deck Mounted



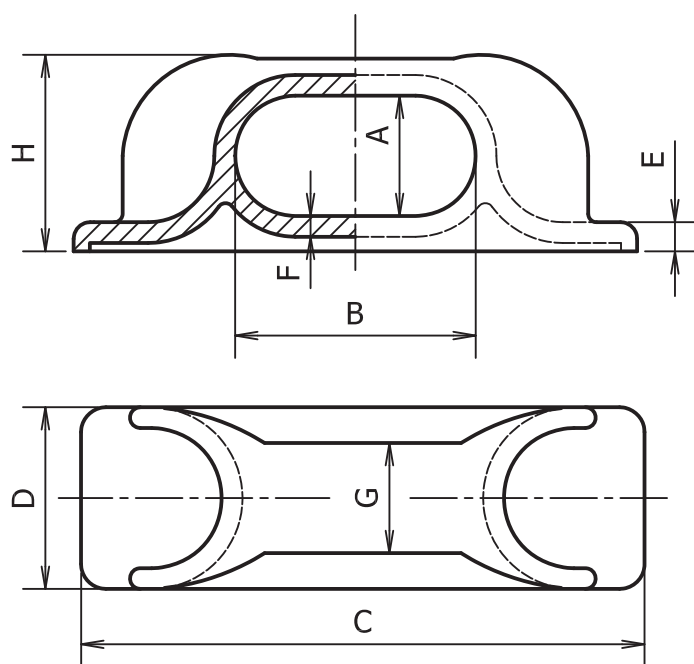
TYPE	NOMINAL SIZE	A	B	C	E	F	H	MASS <KG>
DFJ-04	315*250	815	620	380	315	250	365	230
DFJ-05	425*280	1075	785	500	425	280	450	378
DFJ-06	600*315	1360	865	560	600	315	507	598
DFJ-07	600*450	1360	1000	560	600	450	575	655
DFJ-08	600*450	1560	1200	760	600	450	675	780

Chocks open and closed



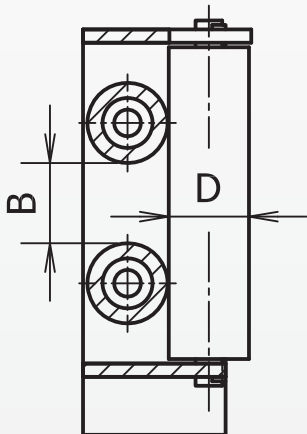
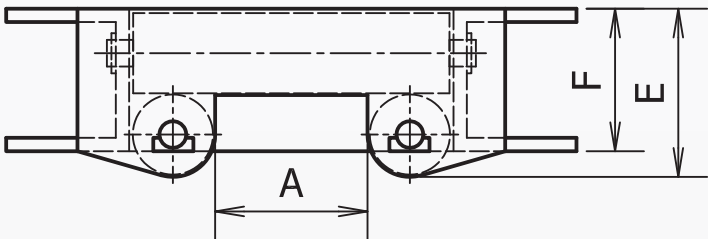
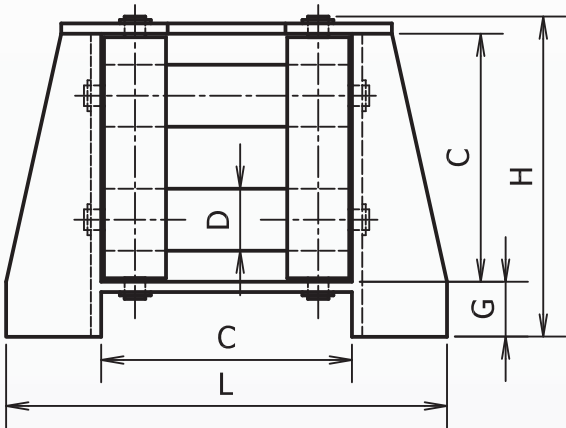
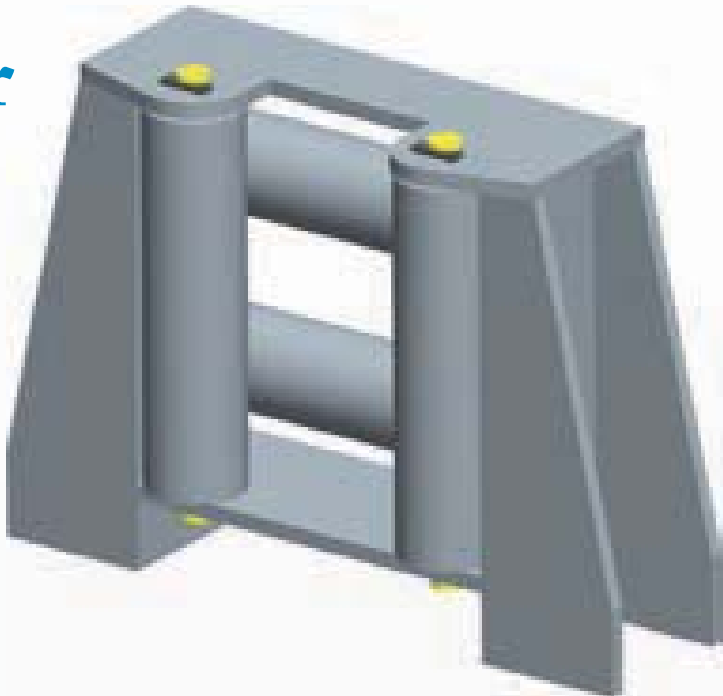
Size (IN)	Model No	Dimensions (mm)								Weight (Lbs)
		A	B	C	D	E	F	G	H	
4×8	DFK497	101	203	502	153	25	35	89	171	84
6×12	DFK480	152	305	705	229	38	52	89	257	176
	DFK485									160
7×14	/	178	356	851	292	45	61	152	312	354
8×16	DFK490	203	407	914	304	48	67	178	340	455
	DFK489									435
12×24	/	305	610	1,372	457	70	64	267	508	1,372

Chocks open and closed



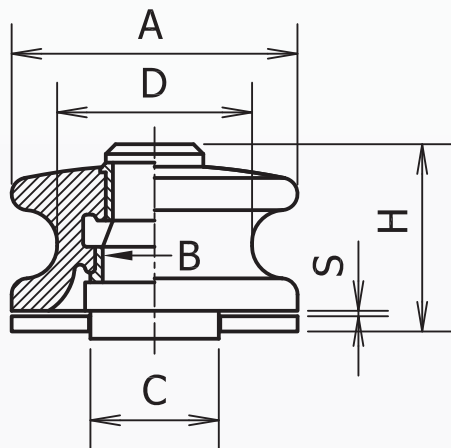
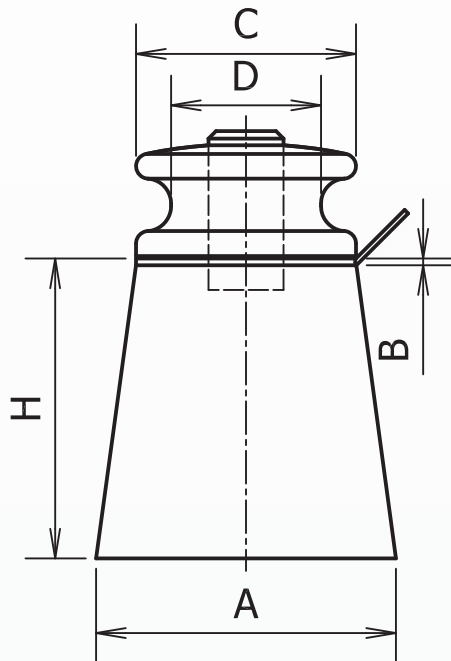
Size (IN)	Model No	Dimensions (mm)								Weight (Lbs)
		A	B	C	D	E	F	G	H	
4×8	DFK497	101	203	502	153	25	35	89	171	84
6×12	DFK480	152	305	705	229	38	52	89	257	176
	DFK485									160
7×14	/	178	356	851	292	45	61	152	312	354
8×16	DFK490	203	407	914	304	48	67	178	340	455
	DFK489									435
12×24	/	305	610	1,372	457	70	64	267	508	1,372

fairleads Four Roller type



type	nom towing pul(kn)	rope o (mm)	Weight (kg)	dmensions (mm)									
				A	B	C	D	E	F	G	H	I	L
DFL-01	10	-10	-10	120	80	260	260	130	120	70	375	160	460
DFL-02	20	-12	-12	180	100	364	364	174	160	60	490	212	640
DFL-03	30	-16	-16	230	120	454	454	214	180	100	610	267	800
DFL-04	50	-20	-20	250	140	524	524	264	240	120	715	312	900
DFL-05	80	-24	-24	280	150	580	580	290	260	140	800	355	1000
DFL-06	120	-32	-32	300	160	680	680	368	320	150	915	410	1200
DFL-07	160	-36	-36	320	170	732	732	400	350	170	1005	451	1300
DFL-08	200	-40	-40	340	180	856	856	500	450	180	1145	518	1350
DFL-09	320	-48	-48	400	250	1026	1026	608	660	220	1355	608	1700

Fairleads Pedestal Type



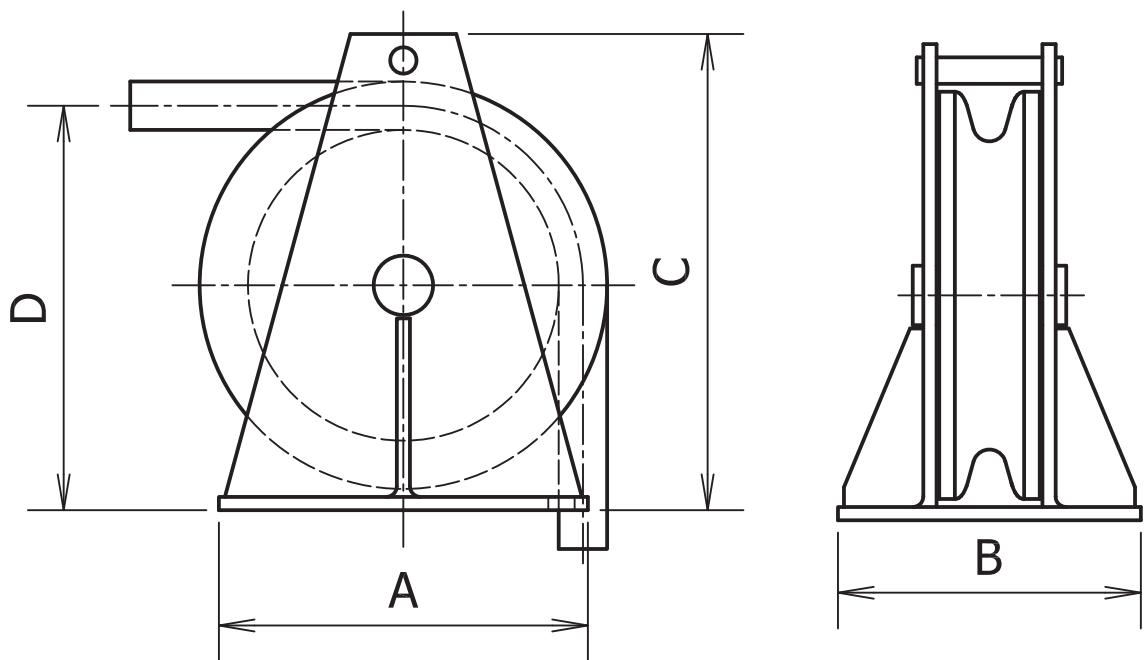
TYPE	HEIGHT:H	800	1000	1200	1400			
	ROLLER DOA:D	A	A	A	A	B	C	WALL THICKNESS
DFM-01	300	715	800	900	1000	25	440	12
DFM-02	350	800	825	950	1120	30	500	12
DFM-03	400	1000	1020	1020	1150	35	560	16
DFM-04	450	1020	1022	1120	1180	35	630	16
DFM-05	500	1020	1120	1180	1250	40	710	16
DFM-06	560	1120	1180	1250	1380	40	800	16

TYPE	ROLLER SIZE D	A	B	C	H	S	WEIGHT KG	BREAKING LOAD TON	DIA OF MOORING LINE			
									WIRE POPE 6 x 24	POPE 6 x 37	P.P POPE	HEMP ROPE
DFM-07	150	240	79	90	154	5	25	13	17	15	32	45
DFM-08	200	310	99	115	186	5	50	21	22	20	40	55
DFM-09	250	380	119	135	230	6	92	28	24	24	45	65
DFM-10	300	440	129	155	255	7	127	42	30	28	50	70
DFM-11	350	500	149	175	271	7	168	61	38	34	55	75
DFM-12	400	560	159	195	307	7	252	74	42	40	65	80
DFM-13	450	630	179	210	316	7	310	90	44	42	80	



Vertical Guide Sheaves

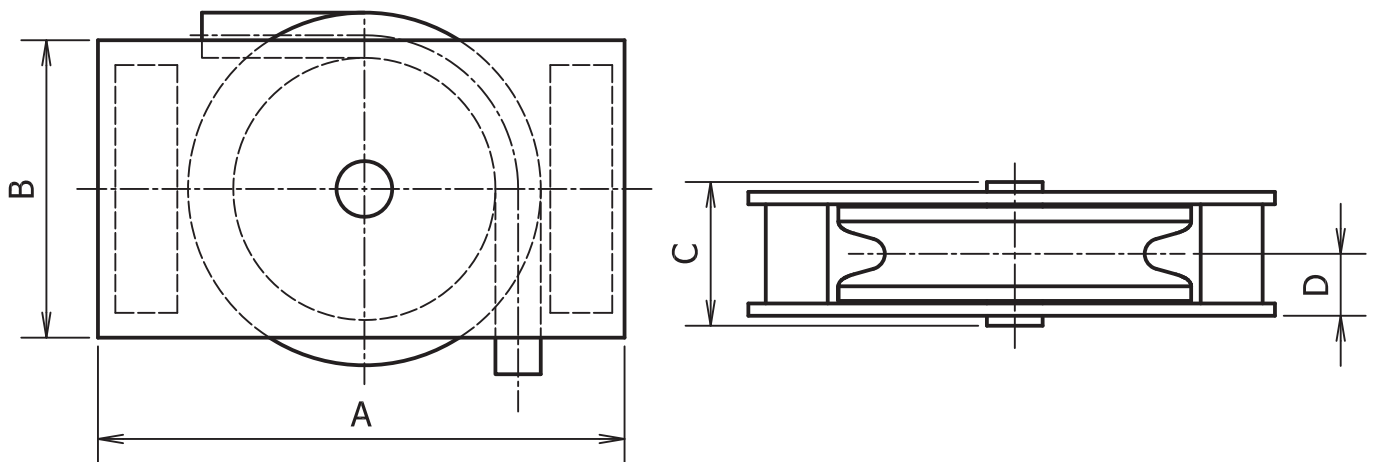




Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	E	Weight
DFN-01	Inches	3/4	58800lbs.	8-1/4	11	9	20-1/8	10-1/4	4-1/2	65lbs
	MM	19	262kN	210	279	229	511	260	114	29Kg
DFN-02	Inches	1	103400lbs.	9-3/4	13	11-1/2	14-3/4	12-1/4	5-3/8	105lbs
	MM	25	460kN	248	330	292	375	311	137	48Kg
DFN-03	Inches	1-1/4	159800lbs.	11-1/4	16	12	17-1/2	14-1/2	6-1/4	185lbs
	MM	32	711kN	286	406	305	445	368	159	84Kg
DFN-04	Inches	1-1/2	228000lbs.	14-1/4	18	13-5/8	21-3/8	18-3/8	7-7/8	340lbs
	MM	38	1014kN	362	457	346	543	467	200	154Kg
DFN-05	Inches	1-3/4	266000lbs.	18-1/2	22	16	26	22-7/8	10-1/8	550lbs
	MM	44	1183kN	470	559	406	660	581	257	249Kg

Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	E	Weight
DFN-06	Inches	2	344000lbs.	20	24	18	29	25-1/4	11	625lbs
	MM	51	1530 kN	508	610	457	373	641	279	283Kg
DFN-07	Inches	2-1/4	494000lbs.	24-7/8	30	23	35-3/8	31-1/16	30-15/16	1250lbs
	MM	57	2198 kN	632	762	584	899	789	786	567Kg
DFN-08	Inches	2-1/2	524000lbs.	30	36	27	43-1/2	37-3/4	16-1/4	3100lbs
	MM	64	2331 kN	762	914	686	1105	959	413	1406Kg
DFN-09	Inches	3	818000lbs.	44	52	39	60	53	23-1/2	4900lbs
	MM	76	3639 kN	1118	1321	991	1524	1346	597	2223Kg
DFN-10	Inches	3-1/4	1223775lbs.	59-1/16	78-1/16	46	73-5/8	70-3/8	31-1/16	6020lbs
	MM	83	5444 kN	1500	1983	1168	1870	1788	789	2731Kg

Horizontal Guide Sheaves

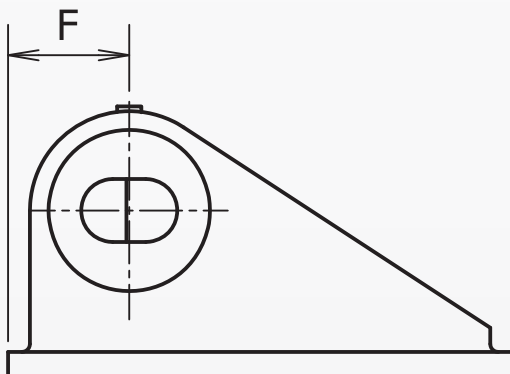
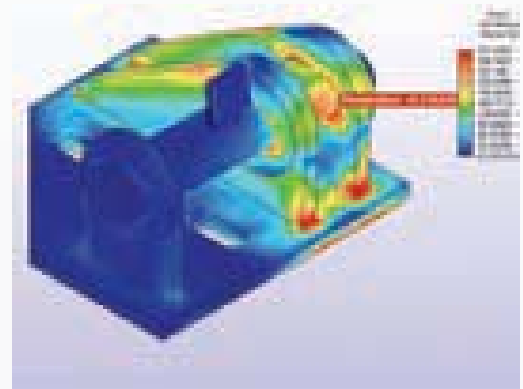
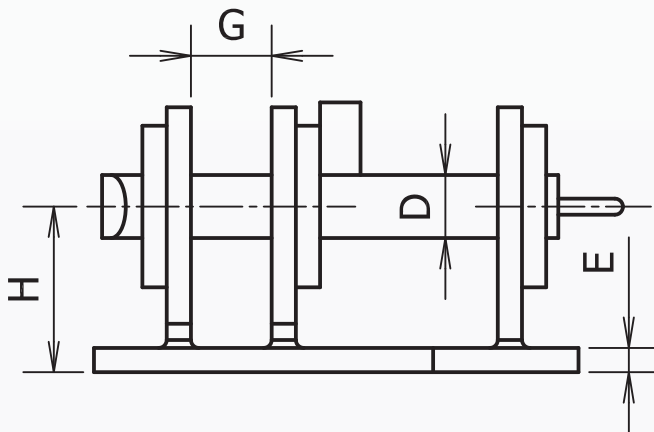
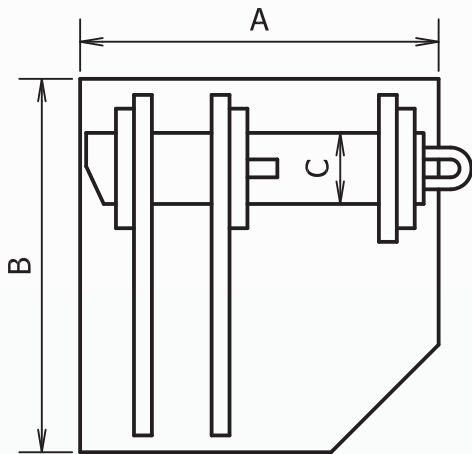


Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	Weight
DFO-01	Inches	3/4	58800lbs.	8-1/4	17	11	5-1/2	2-3/16	85lbs
	MM	19	262kN	216	432	279	140	56	39Kg
DFO-02	Inches	1	89800lbs.	10	19	12	6-1/2	2-3/4	150lbs
	MM	25	399kN	254	483	305	165	70	68Kg
DFO-03	Inches	1-1/4	159800lbs.	11-7/16	21	14	7	2-3/4	200lbs
	MM	32	711kN	291	533	356	178	70	91Kg
DFO-03	Inches	1-1/2	228000lbs.	14-1/4	31-1/2	18	8	3-5/16	450lbs
	MM	38	1014kN	362	800	457	203	84	204Kg
DFO-04	Inches	1-3/4	266000lbs.	18-1/2	41	22	8-1/2	3-1/2	880lbs
	MM	44	1183kN	470	1041	559	216	89	399Kg

Model Number	Units of Measure	Maximum Wire size	Wire Breaking Strength	Sheave Tread Diameter	A	B	C	D	Weight
DFO-05	Inches	2	344000lbs.	20	43	25	8-1/2	3-5/8	975lbs
	MM	51	1530kN	508	1092	635	216	92	442Kg
DFO-06	Inches	2-1/4	494000lbs.	24-7/8	45	30-5/8	11-1/2	4-1/8	1500lbs
	MM	57	2198kN	632	1143	778	292	105	680Kg
DFO-07	Inches	2-1/2	524000lbs.	30	55	37	13	5-3/4	2800lbs
	MM	64	2331kN	762	1397	940	330	146	1270Kg
DFO-08	Inches	3	818000lbs.	44	83-1/2	53	14	6-1/4	6000bs
	MM	76	3639kN	1118	2121	1346	356	159	2722Kg
DFO-09	Inches	3-1/4	1223775lbs.	59-1/16	100	70	17	7	8000lbs
	MM	83	5444kN	1500	2540	1778	432	178	3629Kg



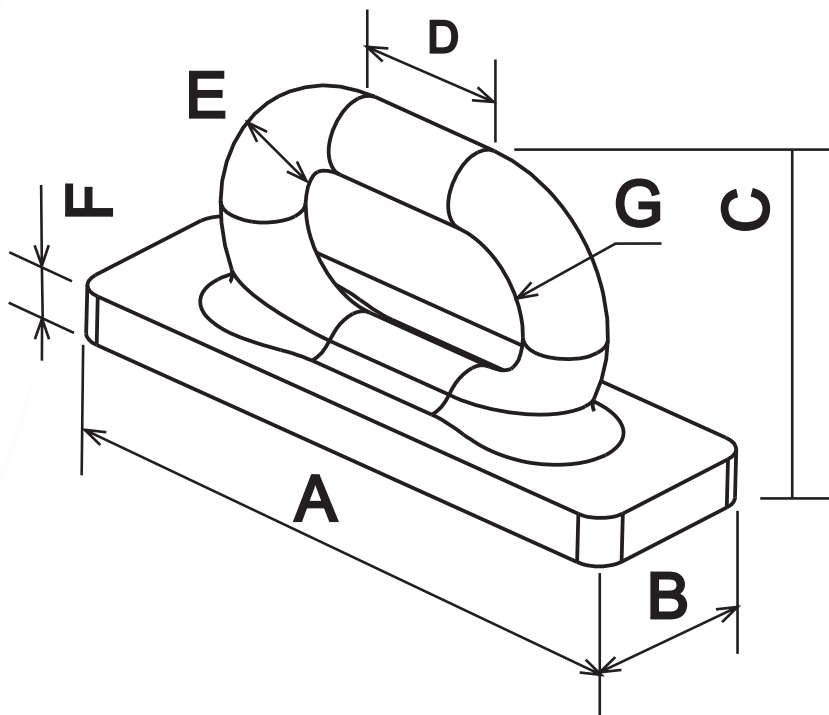
Smit Brackets



TYPE	Nominal Cable Dia	Dimensions(mm)								Mass (kg)	Proof Load (KN)
		A	B	C	D	E	F	G	H		
TSB-01	64	600	625	125	80	30	123	100	175	184	1000
TSB-02	76	720	800	170	110	30	175	110	200	276	2000

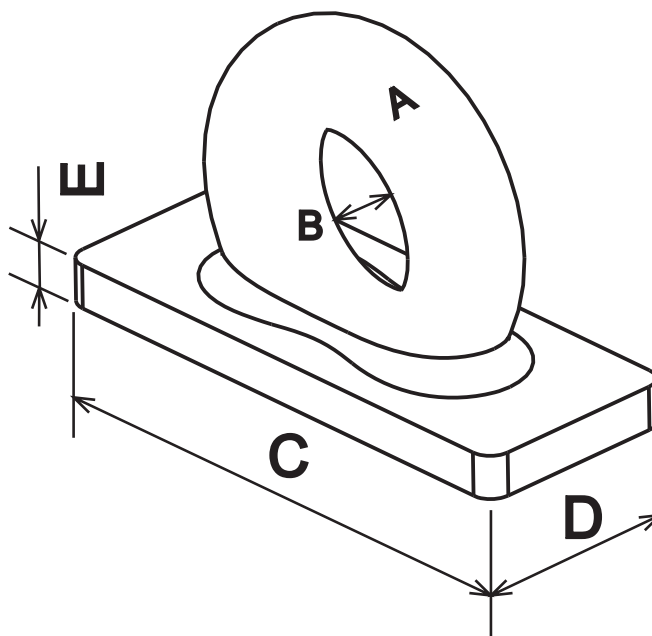


D Rings



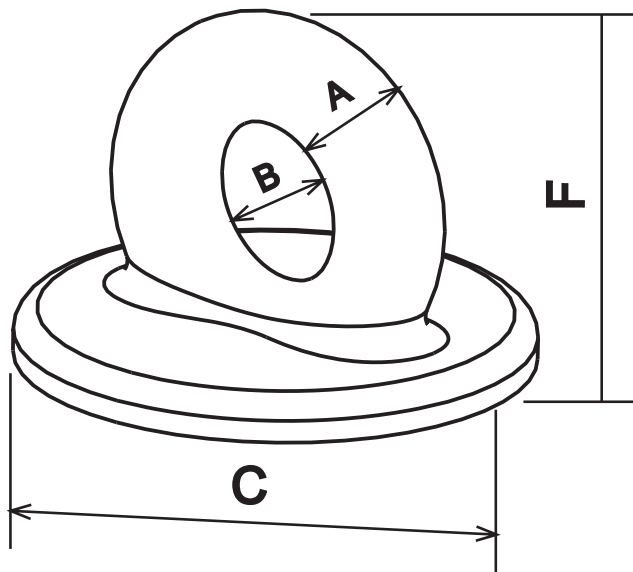
MODEL	DESCRIPTION	RART#	DIMENSIONS IN INCHES(MM)							LBS (KGS)
			A	B	C	D	E	F	G	
MRA-01	D-RING	01190-301A	20" (508)	6" (152)	7.63" (194)	4" (102)	2.13" ϕ (54)	1" ϕ (25)	2"R (51)	60 (27)

Eye Plates Rectangular Base Admiralty Pattern



Part No.	Pattern Number	A	B	D	E	F	Proof Test Tons kg	N.A.T.O Number
MRB-01	4000	$\frac{25}{64}$ 10	$\frac{3}{4}$ 19	$\frac{231}{64}$ 63	$\frac{15}{64}$ 6	$\frac{11}{2}$ 38	1778	5130
MRB-02	4001	$\frac{33}{64}$ 13	$\frac{63}{64}$ 25	$\frac{37}{64}$ 79	$\frac{5}{16}$ 8	$\frac{21}{64}$ 51	3175	5131
MRB-03	4002	$\frac{41}{64}$ 16	$\frac{117}{64}$ 32	$\frac{33}{4}$ 95	$\frac{13}{32}$ 10	$\frac{231}{64}$ 63	4953	5132
MRB-04	4003	$\frac{3}{4}$ 19	$\frac{11}{2}$ 38	$\frac{431}{64}$ 114	$\frac{7}{16}$ 11	$\frac{3}{2}$ 76	7112	5133
MRB-05	4004	$\frac{7}{8}$ 22	$\frac{147}{64}$ 44	$\frac{515}{64}$ 133	$\frac{33}{64}$ 13	$\frac{31}{2}$ 89	9716	5134
MRB-06	4005	$\frac{63}{64}$ 25	$\frac{21}{64}$ 51	$\frac{617}{64}$ 152	$\frac{41}{64}$ 16	$\frac{4}{1}$ 102	12700	5135

Eye Plates Round Base Admiralty Pattern



Part No.	Pattern Number	A	B	C	D	E	F	Proof Test Tons kg	N.A.T.O Number
MRC-01	4014	²⁵ / ₆₄ 10	³ / ₄ 19	²³¹ / ₆₄ 25	¹⁴⁷ / ₆₄ 44	¹⁵ / ₆₄ 6	¹¹ / ₂ 38	1778	5140
MRC-02	4015	³³ / ₆₄ 13	⁶³ / ₆₄ 25	¹³ / ₈ 35	² / ₁₄ 57	⁵ / ₁₆ 8	²¹ / ₆₄ 51	3175	5141
MRC-03	4016	⁴¹ / ₆₄ 16	¹¹⁷ / ₆₄ 32	¹⁴⁷ / ₆₄ 44	²⁷ / ₈ 73	¹³ / ₃₂ 10	²³¹ / ₆₄ 63	4953	5142
MRC-04	4017	³ / ₄ 19	¹¹ / ₂ 38	² 51	³²⁵ / ₆₄ 86	⁷ / ₁₆ 11	³ 76	7112	-
MRC-05	4018	⁷ / ₈ 22	¹⁴⁷ / ₆₄ 44	²²³ / ₆₄ 60	⁴ 102	³³ / ₆₄ 13	³¹ / ₂ 89	9716	5134
MRC-06	4019	⁶³ / ₆₄ 25	²¹ / ₆₄ 51	²³ / ₄ 70	⁴³¹ / ₆₄ 114	⁴¹ / ₆₄ 16	⁴ 102	12700	5144

Kenter Joining Shackle



TYPE	NOMINAL	DIAMETER	A	B	C	WEIGHT		PROOF TEST KGF	BREAK TEST KGF
	mm	inches				kg	lbs		
MRD-01	16	5/8	24	67	96	.57	1.25	1.25	21600
MRD-02	19	3/4	30.5	84	120	1.09	2.40	2.40	30900
MRD-03	22	7/8	33	93	134	1.75	3.8	3.8	41700
MRD-04	24	15/16	36	101	144	2.1	4.6	4.6	48500
MRD-05	25	1	38	107	152	2.5	4.8	4.8	54300
MRD-06	29	1-1/8	44	122	174	4.8	5.0	5.0	70400
MRD-07	32	1-1/4	49	134	192	5.0	5.7	5.7	84900
MRD-08	34	1-3/8	54	146	210	6.6	14.3	14.3	100900
MRD-09	36	1-7/16	55	151	216	8.0	17.6	17.6	109400
MRD-10	38	1-1/2	48	160	228	9.0	19.8	19.8	118900
MRD-11	42	1-5/8	64	176	252	12.0	26.5	26.5	143400
MRD-12	44	1-3/4	67	185	264	14.0	30.9	30.9	159900
MRD-13	46	1-13/16	70	193	276	15.0	33.1	33.1	171100
MRD-14	48	1-7/8	73	202	288	18.0	39.7	39.7	185100
MRD-15	51	2	78	214	306	21.0	46.3	46.3	207700
MRD-16	54	2-1/8	82	227	324	24.0	52.9	52.9	231500
MRD-17	56	2-3/16	85	235	336	26.0	57.3	57.3	248000
MRD-18	58	2-1/4	88	244	348	31.0	38.3	38.3	265000
MRD-19	60	2-3/8	91	252	360	34.0	75	75	285200
MRD-20	62	2-7/16	94	260	372	36.0	79.4	79.4	300000
MRD-21	64	2-1/2	97	269	384	38.0	83.8	83.8	319000
MRD-22	67	2-5/8	102	281	402	41.0	90.4	90.4	347000
MRD-23	70	2-3/4	106	294	420	52.4	115.7	115.7	376400
MRD-24	73	2-7/8	111	307	438	60.0	132.3	132.3	407000
MRD-25	76	3	116	319	456	70.0	154.3	154.3	440200
MRD-26	78	3-1/16	119	328	468	71.0	156.5	156.5	459000
MRD-27	84	3-5/16	128	353	504	92.0	202.8	202.8	527600
MRD-28	87	3-7/16	132	365	522	103.0	227.1	227.1	564300
MRD-29	89	3-1/2	135	374	534	113.0	249.1	249.1	584300
MRD-30	92	3-5/8	140	386	552	115.0	253.5	253.5	621200
MRD-31	95	3-3/4	144	399	570	132.0	291.0	291.0	660100
MRD-32	102	4	155	428	612	163.0	359.4	359.4	746000
MRD-33	108	4-1/4	164	454	648	196.0	432.1	432.1	825000
MRD-34	111	4-3/8	169	466	666	213.0	469.6	469.6	867200
MRD-01	114	4-1/2	173	479	684	233.0	513.7	513.7	910900

Swivel With Links

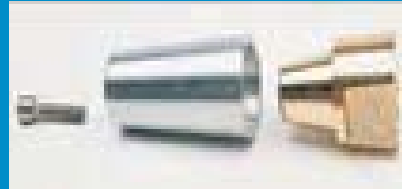


TYPE	CHAIN SIZE		A	B	C	D	E	F	G	WEIGHT		PROOF TEST KGF	BREAK TEST KGF
	mm	inches	mm	mm	mm	mm	mm	mm	mm	kg	lbs		
MRE-01	13-16	1/2-5/8	62	62	137	20	52	12	16	1.35	3	15100	21600
MRE-02	17-19	11/16-3/4	76	76	173	27	66	19	19	2.25	5	21600	30900
MRE-03	21-22	13/16-7/8	90	90	198	30	75	22	22	3.20	7	29300	41700
MRE-04	24-29	15/16-7/8	102	102	258	44	94	25	25	6.5	14	49200	70400
MRE-05	30-35	1-3/16-1-1/8	124	160	290	116	46	25	36	21.0	46.3	70700	101300
MRE-06	36-42	1-7/16-1-5/8	146	202	373	145	63	32	46	39.5	87.1	102000	143400
MRE-07	43-48	1-11/16-1-7/8	165	230	430	183	73	36	50	66	145.5	130000	185100
MRE-08	49-58	1-15/16-2-1/4	200	278	516	212	84	39	65	104.0	229.3	185400	265000
MRE-09	59-67	2-5/16-2-5/8	230	307	575	235	93	46	68	142.0	313.1	242900	347000
MRE-10	68-73	2-11/16-2-7/8	260	345	650	256	102	50	79	208.0	458.6	285000	407000
MRE-11	75-79	2-15/16-3-1/8	325	370	757	281	109	62	94	276.0	608.5	332100	474500
MRE-12	81-86	3-3/16-3-3/8	272	420	760	310	122	57	95	336.0	740.8	384400	549100
MRE-13	87-92	3-7/16-3/58	290	430	800	320	130	60	98	376.0	828.9	434800	621200
MRE-14	94-98	3-11/16-3-7/8	333	460	882	354	152	66	118	557.0	1228.0	490000	700000
MRE-15	100-102	3-15/16-4	348	480	918	368	148	69	122	612.0	1349	522100	746000
MRE-16	105-111	4-1/8-4-3/8	378	530	1000	400	160	74	133	797.0	1757.0	607000	867200
MRE-17	114	4-1/2	390	542	1026	417	165	76	137	871.0	1920.0	637300	910900

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1.Axe Propeller/ Schraubenmutter Anode



2.Ogive Axe Propeller



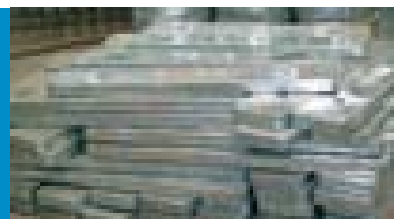
3.Anodes For Bolt Mounting



4.Zinc Spelter

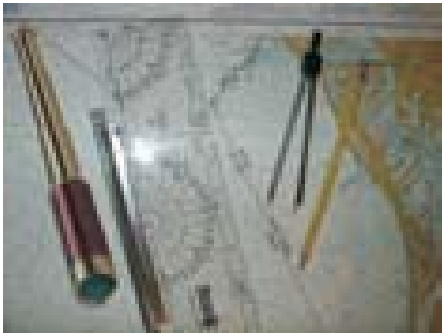


5.Aluminium Anode



6.Magnesium Anode





We are a professional manufacture of Dock Equipment、 Deck Fittings And Equipment、 Marine Door and Hatches Bollard especially in casting, metal plate, welding which we have many years producing experience. the full inspection equipment provides the material inspection, mechanical property inspection, metallographic examination inspection, paint film thickness test in our factory.

The products could provide the certification of China Classification society (C.C.S). If the customer requests to provide other authentication, such as A.B.S, L.R, D.N.V can also assist with.





All carbon steel anchors and associated nuts and plate washers are supplied hot dip galvanized to ASTM A₁₂₃ or A₁₅₃

standards as required

Item	Standard	Grades	ISO	Grades
Anchors Bolts	ASTM F1554 ASTM A325	Gr.105	ISO 898 BS 3692	Gr.8.8 Gr.8.8
Nuts	ASTM A563	Gr.DH	ISO	Gr.8
Washers	ASTM F436		ISO	887
Plate Washers	ASTM A36		ISO	630

Bollard Selection

Design

Specification to operate the order, the client have to provide confirmation drawing, our company didn't offer the design certification of drawing.

The pictures and information of samples are referenced to our customers. It proofs that we have many years mature experience to produce similar production.

Material

bollards are typically manufactured using the sand casting method with the materials of choice

being either cast steel or ductile iron.

Some valid technical characteristics that may influence the choice of steel versus iron follow.

The material of bollard : 1.Cast Steel 2. Ductile Cast Iron.

The following chart is the advantages and disadvantages.

	advantages	disadvantages
Ductile cast iron (spheroidal graphite)	Lowest service life cost High strength Good impact resistance High corrosion resistance	Foundry technique parameters should be required strict control
Cast steel	High strength Good impact resistance Good cost per weight	Regular maintenance to prevent corrosion

Material Specifications

Cast Steel ASTM Specifications

ASTM Grade	Tensile Strength Min Ksi(MPa)	Yield Strength Min Ksi(MPa)	Elongation In 2 in.or50mm,Min%	Reduction of Area Min.%
A27Gr.65-35	65(450)	35(240)	24	35
A27Gr.70-36	70(485)	36(250)	22	30
A148Gr.80-40	80(550)	40(275)	22	35

Cast Steel ISO Specifications

ISO Grade	Tensile Strength Min Ksi(MPa)	Yield Strength Min Ksi(MPa)	Elongation In 2 in.or50mm,Min%	Reduction of Area Min.%
3755Gr.230-450	65(450)	33(230)	22	31
3755Gr.270-480	70(480)	39(270)	18	25
3755Gr.340-550	80(550)	40(275)	15	21

Ductile Iron ASTM Specifications

ASTM Grade	Tensile Strength Min Ksi(MPa)	Yield Strength Min Ksi(MPa)	Elongation In 2 in.or50mm,Min%	Reduction of Area Min.%
A536Gr.65-45-12	65(450)	45(310)	12	N/A
A536Gr.80-55-06	80(550)	55(379)	6	N/A

ISO Grade	Tensile Strength Min Ksi(MPa)	Yield Strength Min Ksi(MPa)	Elongation In 2 in.or50mm,Min%	Reduction of Area Min.%
1083Gr.450-310	65(450)	45(310)	10	N/A
1083Gr.550-350	80(550)	51(350)	5	N/A

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Manufacturing Facility



1. Impact Test
2. tensile testing machine
3. paint density meter
4. chemistry analyzer
5. chemistry analyzer
6. tapping analysis.
7. analytical balance
8. metallographic test
9. Rockwell hardness
10. Spectrometer purchased



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