



MARINE

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AQUACULTURE GEAR AVAILABLE FROM STOCK

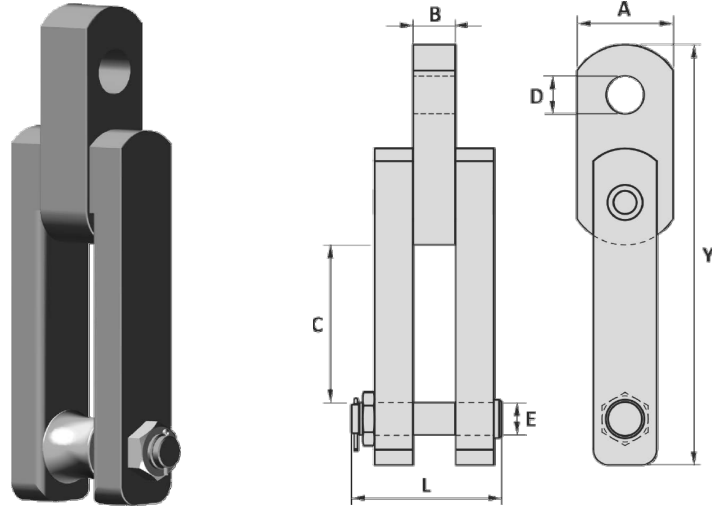


MARINE



TUNING FORK - GN®

- Material: High tensile steel
- Finish: Painted
- Design Factor: 4:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
- Rated in Metric Ton(s)



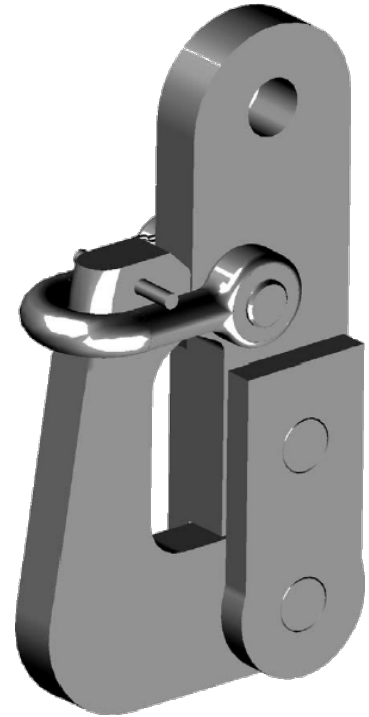
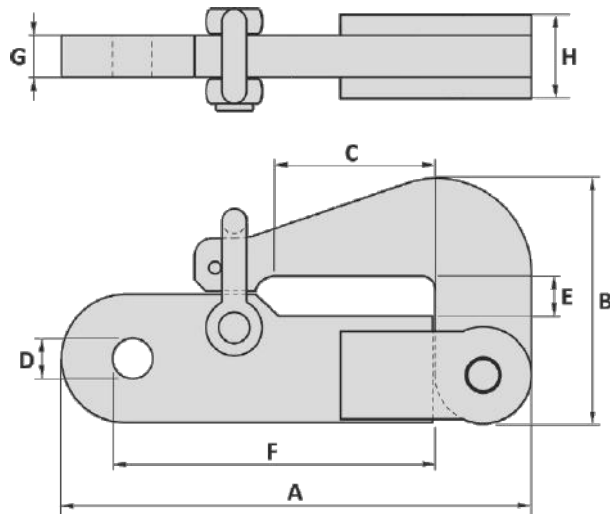
Tolerance: Forged parts $\pm 5\%$, machined parts ± 1 mm

Chain (in)	WLL (ton)	Dimensions (mm)							Weight (kg)	Price
		A	B	C	D	E	L	Y		
2 1/2	55	170	75	280	75	60	255	768	100	Pricing on Request
2 3/4	85	210	85	300	85	60	290	863	148	
3	110	240	100	330	98	70	384	927	221	
3 1/4	110	240	100	360	98	70	384	957	237	
3 1/2	120	250	110	390	98	85	391	1047	301	
3 3/4	120	250	110	410	98	85	391	1091	315	
4	150	280	120	440	115	90	421	1262	433	
4 1/4	180	320	130	470	130	95	496	1325	543	
4 1/2	200	330	140	490	130	100	510	1385	629	
4 3/4	225	350	150	520	145	105	540	1447	714	

HOOK - PELICAN SLIPHOOK, GN®



- Material: High tensile steel
- Finish: Painted
- Design Factor: 5:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
- Rated in Metric Ton(s)
- Non-standard sizes or custom products available on request.

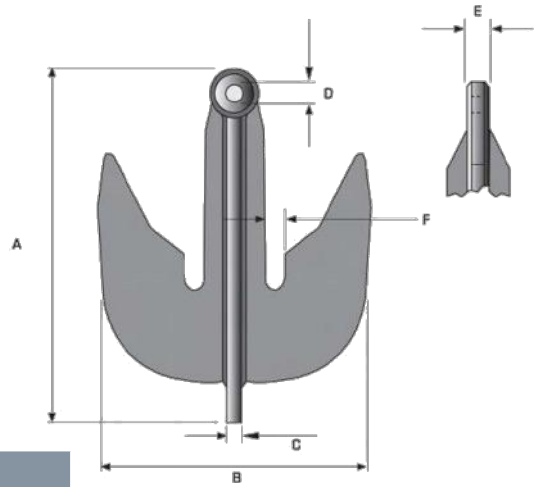


WLL (ton)	MBL (ton)	Dimensions (mm)								Wt. (kg)	Price
		A	B	C	D	E	F	G	H		
3.5	17.5	328	155	85	26	35	240	20	54	6.7	Pricing on Request
5	25	338	161	100	38	35	234	30	60	12	
8	40	415	200	150	50	55	300	30	70	17	
12.5	62.5	491	235	160	55	65	358	35	75	26	
17	85	550	265	165	55	70	390	45	95	45	
25	125	610	308	180	60	76	430	45	105	62	
35	175	670	355	200	60	85	465	50	110	100	
55	275	775	410	230	75	90	500	60	130	152	
85	425	1020	490	310	103	110	704	100	200	352	
120	600	1240	650	418	105	160	858	100	220	524	
150	750	1308	710	482	115	180	919	100	240	616	
200	1000	1477	790	550	130	200	1017	120	280	702	

Tolerance: Forged parts $\pm 5\%$, machined parts ± 1 mm

HOOK - CHAIN GRAPNEL

- Material: Forged Steel
- Finish: Painted/Self coloured
- Design Factor: 4:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
3.1 material certificate EN 10204 (on request)
- Rated in Metric Ton(s)

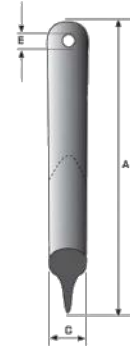
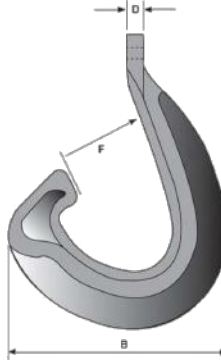


WLL (t)	PL (t)	Dimensions (mm)						Wt./ea. (kg)	Price
		A	B	C	D	E	F		
100	150	1178	1372	75	98	135	108	1351	Pricing on Request
200	270	1822	1499	90	114	130	108	1850	
250	350	2630	1994	1676	100	144	190	127	

Tolerance: ± 5%

HOOK - J, CHAIN CHASER

- Material: Mild Steel
- Finish: Painted
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
3.1 material certificate EN 10204 (on request)
- Rated in Metric Ton(s)



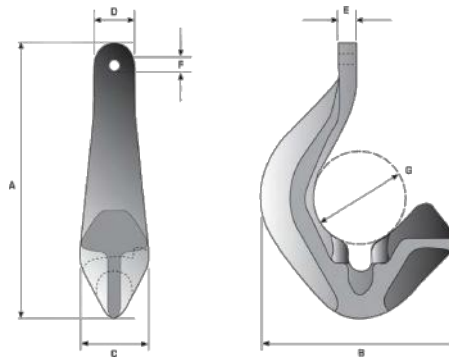
WLL (t)	PL (t)	Dimensions (mm)						Wt./ea. (kg)	Price
		A	B	C	D	E	F		
100	250	2438	1829	305	124	86	699	1886	Pricing on Request
250	400	2573	2185	457	178	144	699	3400	

Tolerance: ± 5%



HOOK - J, CHAIN CHASER

- Material: Mild Steel
- Finish: Painted
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
3.1 material certificate EN 10204 (on request)
- Rated in Matric Ton(s)

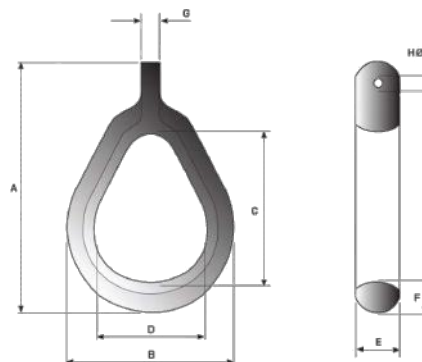


WLL (t)	PL (t)	Dimensions (mm)							Wt./ea. (kg)	Price
		A	B	C	D	E	F	G		
100	250	2083	1486	533	305	124	86	711	1752	Pricing on Request
250	400	2350	1824	533	406	178	144	711	3000	



HOOK - PERMANENT CHAIN CHASER

- Material: Mild Steel
- Finish: Painted
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
3.1 material certificate EN 10204 (on request)
- Rated in Matric Ton(s)



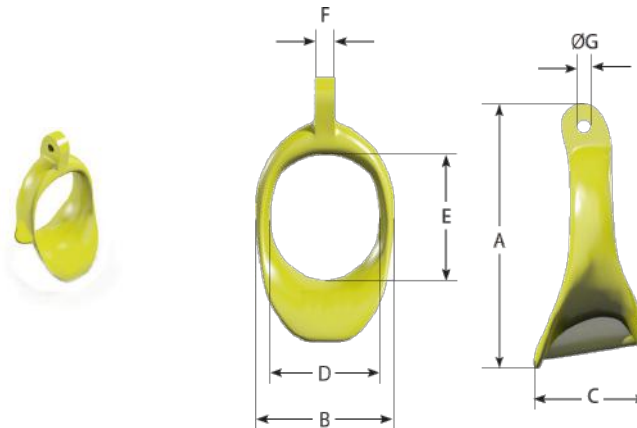
WLL (t)	PL (t)	Dimensions (mm)							Wt./ea. (kg)	Price
		A	B	C	D	E	F	G		
100	250	2083	1486	533	305	124	86	711	1752	Pricing on Request
250	400	2350	1824	533	406	178	144	711	3000	



WLL (t)	
100	Designed for use with 64 mm to 90mm chain
250	Designed for use with 95 mm to 120 mm chain

HOOK - RING CHASER

- Material: Forged Steel
- Finish: Painted/Self coloured
- Design Factor: 4:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
- 3.1 material certificate EN 10204 (on request)
- Rated in Metric Ton(s)

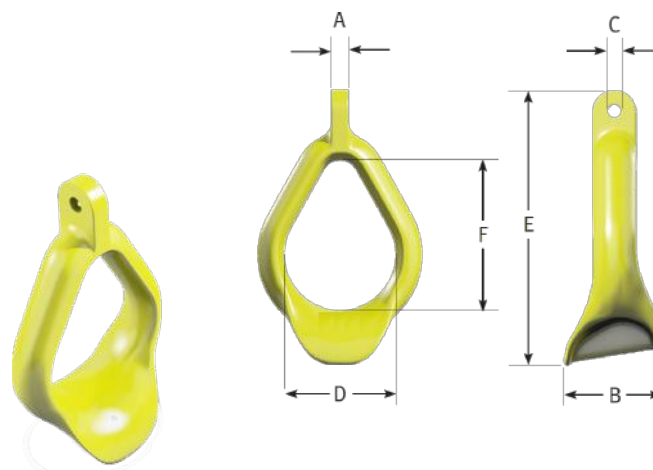


WLL (t)	PL (t)	Dimensions (mm)							Wt./ea. (kg)	Price
		A	B	C	D	E	F	G		
150	300	1700	841	720	711	801	125	100	950	Pricing on Request

Tolerance: ± 5%

HOOK - DUAL CHASER RING

- Material: Forged Steel
- Finish: Painted/Self coloured
- Design Factor: 4:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity (on request)
- 3.1 material certificate EN 10204 (on request)
- Rated in Metric Ton(s)



WLL (t)	PL (t)	Dimensions (mm)							Wt./ea. (kg)	Price
		A	B	C	D	E	F	G		
150	300	1700	841	720	711	801	125	100	950	Pricing on Request

Tolerance: ± 5%

SWIVEL - FORERUNNER, ASSEMBLY, WITH LINKS

- Material: Grade 3
- Standard: ISO 1704
- Finish: Black Bitumen
- Identification: Size/WLL, Batch Code
- Certification: Lloyd's Certificate (on request)



Chain Dia. mm	Dimensions (mm)							Weight (lb)	Proof Load (lb)	Break Load (lb)	Price / ea.	Part Number
	A	B	C	D	E	F	G					
17-19	173	76	76	66	27	19	19	5.0	47 210	67 443	1,400.15	20-19MMSFR
21-22	198	90	90	30	30	22	22	7.1	63 171	90 148	1,535.59	20-22MMSFR
24-29	258	102	102	44	44	25	25	14.3	101 164	144 327	1,570.39	20-28MMSFR
30-35	290	160	124	116	116	25	36	46.3	147 250	210 421	2,739.95	20-34MMSFR
36-42	373	202	146	145	145	32	46	87.1	182 545	260 778	3,052.92	20-38MMSFR
43-48	430	230	165	183	183	36	60	145.5	263 251	376 105	8,098.27	20-46MMSFR
49-58	516	278	200	212	212	39	65	229.2	382 625	546 286	10,377.75	20-56MMSFR
59-67	575	307	230	235	235	46	68	313.1	491 657	702 078	11,804.00	20-64MMSFR

CHAIN - OPEN LINK

- Sold in 90 ft shots
- Material: Grade 2
- Standard: ISO 1704
- Finish: Black Bitumen
- Identification: Size/WLL, Batch Code



Diameter (in)	Weight / 90 ft shot (lb)	Inside Length (in)	Inside Width (in)	Break Load (lb)	Price / ea.	Part Number
3/4	445	3	1.11	42 000	2,122.00	6-3/4G20L
1 1/8	990	4.33	1.70	91 100	3,712.00	6-1-1/8G20L
1 1/4	1256	5	1.97	128 714	4,280.00	6-1-1/4G20L

CHAIN - STUD LINK ANCHOR

- Sold in 90 ft shots
- Material: Grade 2, 3
- Standard: ISO 1704
- Finish: Black Bitumen
- Identification: Size/WLL, Batch Code
- Certification: Lloyd's Certificate (on request)



Dia. (in)	Dia. (mm)	Grade	Weight / 15 fathom (lb)	Break Load (lb)	Price / ea.	Part Number
7/8	22	2	660	64 400	3,597.00	6-7/8G2SL
1	25	2	860	83 600	4,687.00	6-1G2SL
1 1/8	28	2	1080	105 000	5,886.00	6-1-1/8G2SL
1 1/4	32	2	1350	129 000	7,357.50	6-1-1/4G2SL
1 1/2	38	3	1940	262 000	10,573.00	6-1-1/2G3SL
1 5/8	42	3	2240	306 000	12,208.00	26-42MMU3SL
2	51	3	3360	454 000	18,312.00	6-2G3SL
2 1/2	64	3	5270	692 000	28,721.50	6-2-1/2G3SL

To prevent the possibility of serious bodily harm: DO NOT EXCEED the working load limit of chain or components. NOT USE FOR OVERHEAD LIFTING OR HOISTING. DO NOT USE if the chain or components are visibly distorted or worn.

SHACKLE - KENTER SHACKLE, JOINING LINK

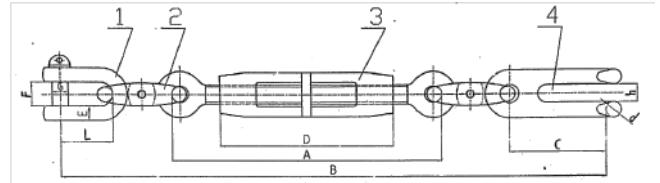
- Material: Grade 2, 3
- Standard: ISO 1704
- Certification: Lloyd's Certificate (on request)
- Identification: Size/WLL, Batch Code
- Finish: Black Bitumen



Size (in)	Grade	Price / ea.	Part Number
7/8	2	413.75	6-7/8"KS2
1	2	455.40	6-1"KS2
1-1/8	2	477.20	6-1-1/8"KS2
1-1/4	2	613.95	6-1-1/4"KS2
1-1/2	2	770.00	6-1-1/2"KS2
1-1/2	3	991.72	6-1-1/2"KS3
1-5/8	3	1,170.36	26-42MMU3KS
2	3	1,815.30	6-2"KS3
2-1/4	3	2,673.00	6-2-1/4"KS3
2-1/2	3	3,285.79	6-2-1/2"KS3

TURNBUCKLE - CHAIN STOPPER ASSEMBLY, DEVIL'S CLAW

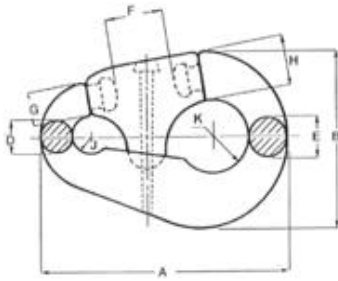
- Material: Grade 3
- Standard: ISO 1704
- Finish: Black Bitumen
- Identification: Size/WLL
- Rated in Metric Ton(s)



Chain Size		MPF (t)	MBF (t)	Dimensions (mm)											Price / ea.	Part Number
(in)	(mm)			B Min.	B Max.	A	D	C	E	F	G	h	d	L		
3/4 - 7/8	19 - 22	29.3	41.7	876	1067	438	279	134.5	25	43	34	27	26	95.5	9,266.00	20-19-22MMDCCS
15/16 - 1 1/4	24 - 32	58.6	83.6	1186	1415	589	380	229	32	52	44	37	33	117.5	11,135.60	20-24-32MMDCCS
1 5/16 - 1 5/8	33 - 41	83.3	118.9	1346	1613	604	406	264	38	60	55	46	45	142.5	12,280.00	20-33-41MMDCCS
1 11/16 - 2 3/8	43 - 60	83.3	118.9	1454	1721	612	406	355	41	73	55	65	65	150	14,331.00	20-43-60MMDCCS

LINK - CONNECTING, PEAR, ANCHOR JOINING

- See page 201 for schematics
- Material: Grade 3
- Standard: ISO 1704
- Finish: Black Bitumen
- Identification: Size/WLL, Batch Code
- Certification: ABS Certificate (on request)

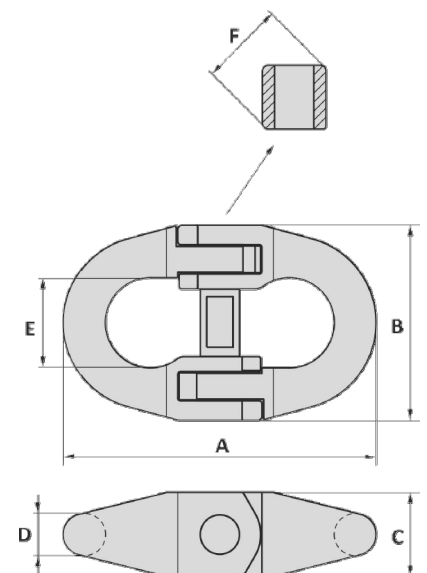


No.	Size (mm)	Weight (lb)	Proof Load (lb)	Break Load (lb)	Price / ea.	Part Number
2	19-24	7.9	74 861	107 009	3,866.80	20-#2PEARLINK
3	25-30	14.3	115 552	165 235	4,467.12	20-#3PEARLINK
4	32-40	32.0	201 654	288 879	4,771.20	20-#4PEARLINK
5	42-51	59.5	319 678	457 486	6,342.00	20-#5PEARLINK
6	52-60	108.0	436 579	621 822	10,264.80	20-#6PEARLINK

LINK - CONNECTING LINK FOR PENNANT LINES, GN®

- Material: Alloy steel
- Finish: Painted
- Design Factor: 5:1
- Temperature Range: -20°C up to +200°C
- Certification: Certificate of Conformity
3.1 material certificate EN 10204
- Rated in Metric Ton(s)

WLL (t)	PL (t)	Dimensions (mm)						Wt./ea. (kg)	Price
		A	B	C	D	E	F		
110	220	560	360	108	76	156	150	76	Pricing on Request

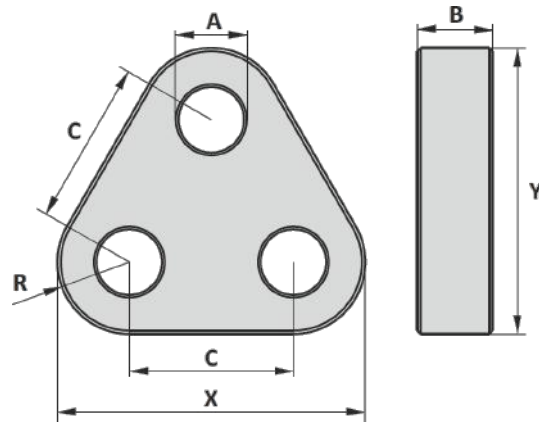


TRIANGLE PLATE - GN®



Made in Holland

- Material: High tensile steel
- Design Factor: 5:1
- Finish: Painted
- Temperature Range: -40°F up to +392°F, Polar Rated

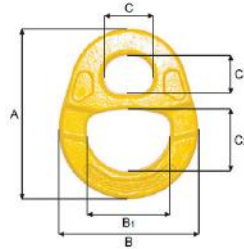


"Tolerance +/- 5%"

WLL (t)	MBL (t)	Dimensions (mm)						Wt./ea. (kg)	Price / ea.	Part Number
		A	B	C	R	X	Y			
17	85	47	35	120	65	250	234	10	Pricing on Request	-
25	125	55	40	150	80	310	290	18		-
35	175	60	50	160	90	340	319	28		-
55	275	75	70	210	105	420	392	58	4,975.00	116-TR155T
85	425	90	80	230	135	500	469	96	6,280.00	116-TR185T
120	600	105	100	280	170	620	582	188	Pricing on Request	-
150	750	115	110	320	185	690	647	256		-
175	875	115	110	320	195	710	667	274		-
200	1000	140	120	390	215	820	768	390		-
250	1250	150	140	390	240	870	818	518		-
300	1500	160	150	420	250	920	864	617		-
400	2000	185	200	490	300	1090	1024	1170		-
500	2500	200	200	550	360	1270	1196	1619		-
600	3000	220	200	600	400	1400	1320	1972	-	
700	3500	230	250	600	400	1400	1320	2452	-	

LINK - KELLY'S EYE, HIGH TENSILE STEEL, GRADE 80

- Material: Grade 80, Alloy Steel
- Standard: EN 1677-4
- Finish: Painted Yellow
- Design Factor: 5:1
- Identification: WLL
- Rated in Metric Ton(s)



Size Thickness (mm)	WLL (t)	Weight (kg)	Dimensions (mm)						Price / ea.	Part Number
			A	B	B1	C	C1	C2		
41	20.0	5.1	225	185	125	80	45	106	175.69	6-41KEHTS

LINK - RECESSED MASTER LINK, GRADE 80

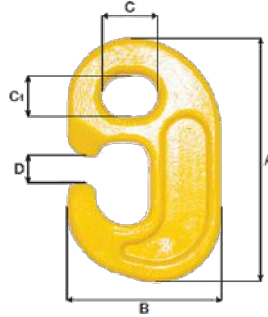
- Material: Grade 80, Alloy Steel
- Standard: EN 1677-4
- Finish: Painted Yellow
- Design Factor: 5:1
- Identification: WLL
- Rated in Metric Ton(s)



Size Thickness (mm)	WLL (t)	Weight (kg)	Dimensions (mm)			Price / ea.	Part Number
			A	B	Dia.		
30	15.0	2.8	170	75	30	87.00	6-30DRL

HOOK - G, HIGH TENSILE STEEL, GRADE 80

- Material: Grade 80, Alloy Steel
- Standard: EN 13001-3-5
- Finish: Painted Yellow
- Design Factor: 5:1
- Identification: Size/WLL
- Rated in Metric Ton(s)



Size Thickness (mm)	WLL (t)	Weight (kg)	Dimensions (mm)					Price / ea.	Part Number
			A	B	C	C1	D		
45	15.0	6.05	215	136	50	40	18	147.50	6-45GHF

HOOK - G, ALLOY, GRADE 80 / LINK - RECESSED, ALLOY, GRADE 80

- Material: Grade 80, Alloy Steel
- Standard: EN 13001-3-5, EN 1677-4
- Finish: Painted Yellow
- Design Factor: 5:1
- Identification: Size/WLL
- Rated in Metric Ton(s)



Size (in)	WLL (t)	Price / ea.	Part Number
Hook "G" Alloy Forged			
3/4	2	37.95	6-3/4"GHF
1	6	73.50	6-1"GHF
Double recessed links Alloy Forged			
3/4	2	23.30	6-3/4"DRL
1	6	52.10	6-1"DRL

LINK - SPLIT

- Material: 304 Stainless Steel
- Finish: Stainless Steel
- Design Factor: 5:1
- Identification: WLL
- Rated in Metric Ton(s)



Size (mm)	WLL (t)	Weight (kg)	Dimensions (mm)			Price / ea.	Part Number
			A	B	C		
19	0.4	0.27	79	50	24	25.71	6-19SLSS

LINK - SPLIT

- Material: 304 Stainless Steel
- Finish: Stainless Steel
- Design Factor: 5:1
- Rated in Metric Ton(s)



Size (in)	WLL (t)	Weight (kg)	Dimensions (mm)			Price / ea.	Part Number
			Dia.	A	B		
1/2	0.3	0.25	13	55	19	9.30	6-1/2SLSS
3/4	0.5	0.50	19	80	24	39.85	6-3/4SLSS

LINK - SPLIT, ALLOY, LOBSTER LINK

- Material: Alloy Mild Steel
- Finish: Galvanized



Size (in)	Qty. / Bag	Price / ea.	Part Number
3/8	300	2.08	6-10MMSL
1/2	200	3.37	6-13MMSL
5/8	60	6.30	6-16MMSL



RING - ROUND

Not Load Rated

Stainless Steel:

Size (in)	Dia. (in)	I.D. (in)	O.D. (in)	Price / ea.	Part Number
1/4 x 2	1/4	2.00	2.50	3.96	6-1/4x2SSRR
5/16 x 2	5/16	2.00	2.62	6.46	6-5/16x2SSRR
3/8 x 2-1/2	3/8	2.50	3.25	14.13	6-3/8x2 1/2SSRR
1/2 x 3	1/2	3.00	4.00	18.25	6-1/2x3SSRR



Zinc:

Size (in)	Dia. (in)	I.D. (in)	O.D. (in)	Price / ea.	Part Number
1/4 x 3	1/4	3.00	3.50	0.46	6-1/4x3RR

SWIVEL - LOBSTER

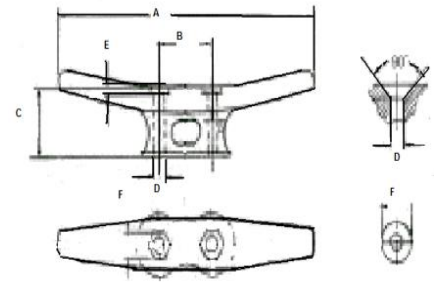
- Material: 316 Stainless Steel
- Finish: Stainless Steel

Size	Price / ea.	Part Number
Small	10.40	6-SMSWIVEL
Large	11.22	6-LGSWIVEL



CLEAT - DOCK, HEAVY DUTY

- Material: Steel
- Standard: ASTM F1074
- Finish: Galvanized, Painted
- Identification: Size



Size (in)	Dimensions (in)						Weight (lb)	Bolt	Price / ea.	Part Number
	A	B	C	D	E	F				
5	5.00	1.08	1.05	0.26	0.09	0.43	0.33	#12	3.55	6-5CLHH
6	5.88	1.25	1.09	0.31	0.19	0.45	0.38	1/4	4.90	6-6CLHH
8	8.00	1.63	1.56	0.38	0.25	0.52	1.00	5/16	14.32	6-8CLHH
10	10.25	2.38	1.93	0.44	0.28	0.58	2.00	3/8	19.22	6-10CLHH
12	12.25	3.83	2.38	0.44	0.28	0.58	3.60	3/8	29.67	6-12CLHH
14	14.31	4.25	2.63	0.57	0.36	0.77	5.88	1/2	49.02	6-14CLHH
18	18.00	5.38	3.50	0.69	0.47	0.97	11.00	5/8	128.00	6-18CLHH
20	18.50	7.00	3.50	1.00	0.75	2.25	29.00	3/4	190.00	6-20CLHH
24 (primer only) B1 Style`	24.00	6.00	6.87	1.12	2.5	4	91.00	7/8	462.50	6-24"CLHHB1
24 (primer only) B2 Style`	24.00	5.50	8.00	1.12	2.5	4	95.00	7/8	581.00	6-24"CLHHB2



18" Galvanized Cleat



20" Galvanized Cleat



24" B1 Style



24" B2 Style

PLATE - DIAMOND

- Material/Finish: 316 Stainless Steel
- Standard: ASTM F1074



Size (in)	Price / ea.	Part Number
3 1/4	12.93	6-3-1/4"SSDP
4	22.51	6-4"SSDP

HINGE - BUTT, HEAVY DUTY

- Material/Finish: 316 Stainless Steel



Length	Size (in)		Price / ea.	Part Number
	Length	Width		
1 1/2	1 1/2	1 1/2	17.32	6-1-1/2" BHSS
2	2	2	19.78	6-2" BHSS
3	3	3	40.90	6-3" BHSS
4	4	4	66.94	6-4" BHSS

HINGE - STRAP

- Material/Finish: 304 Stainless Steel



Length	Size (in)		Price / ea.	Part Number
	Width			
3 1/2	1 1/2		45.68	6-3-1/2"SH304
5	1 1/2		52.33	6-5"SH304
8	2		122.84	6-8"SH304

CLIP - INGLEFIELD, FLAG CLIPS

Price / ea.	Part Number
31.10	98-FLAGCLIP



OAR LOCK



Finish	Description	Price / ea.	Part Number
Galvanized	# 2 oar lock	14.86	6-HDGOL
Galv. Socket	Gunwale	6.68	6-HDGGS
Galv. Socket	Side Mount	6.68	6-HDGSMS

KNIFE - BAIT



Blade Length (in)	Handle Length (in)	Overall Length (in)	Price / ea.	Part Number
11.00	6.00	17.00	37.15	6-BAITKNIFE

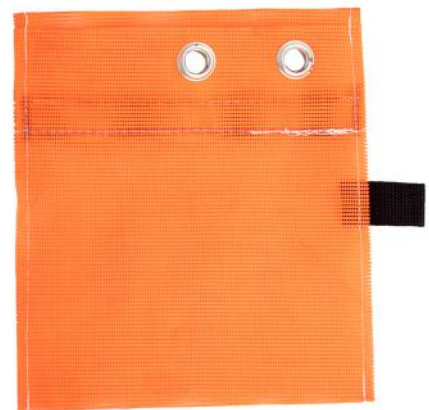
KNIFE - SCALLOP



Blade Length (in)	Handle Length (in)	Overall Length (in)	Price / ea.	Part Number
4.50	3.50	8.00	15.55	6-SCKNIFE

BAG - BAIT

- Offset Velcro Closure easy opening, stainless steel grommet, and tag on side to hang bag sideways.
- Made of high quality fine orange mesh to keep out sand flies and still allow the scent of the bait out.



Size (in)		Qty. / Box (pcs)	Price / ea.	Part Number
Length	Width			
10	8	400	4.25	6-BAITBAG

JAR - BAIT



Jar Size (in)		Qty. / Box (pcs)	Price / ea.	Part Number
Height	Width			
4.25	4.25	200	4.50	6-BAITJAR

TOGGLE CHAIN



- 10mm Yellow Chains with 14mm X 90mm Ring
- Rock Hopper Gear

Chain Dimensions (mm)		Overall Length		Price / ea.	Part Number
i.l.	i.w.	Chain (mm)	Chain & Ring (mm)		
56	17.5	876	965	43.75	6-10MM14RING

CHAIN STOPPER - ASSEMBLY

- 10mm Yellow Chains with 14mm X 90mm Ring
- Rock Hopper Gear



Assembly: (Includes: stopper & all pins)

Price / ea.	Part Number
28.66	6-CHAINSTOPPER

Spare Parts:

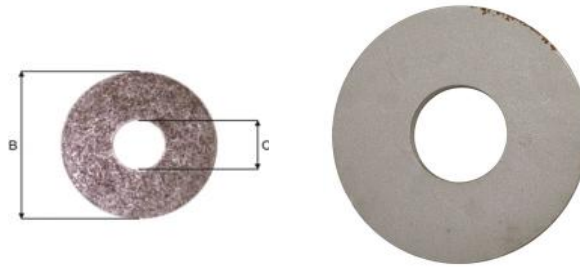
Price / ea.	Part Number
3.25	6-LOADPIN
0.85	6-ROLLPIN

WASHER - SCALLOP, BLACK

lb / Bag	Price / lb	Part Number
50	3.57	6-SWB



WASHER - ROUND HOLE



Size Thickness (mm)	For Chain (mm)	Weight / 100 pcs (kg)	Dimensions (mm)		Price / ea.	Part Number
			B	C		
12	19	135.0	150	75.0	18.85	6-12RHW
20	19	398.0	200	75.0	52.65	6-20RHW

STENHOUSE SLIP



- Material: Steel
- Finish: Hot Dip Galvanized

Size Dia. (in)	I.D. of Ring (in)	Inside Length Arm (in)	Price / ea.	Part Number
1/2	3 1/2	4 1/2	51.86	6-12MMGSS
5/8	3 1/2	4	69.50	6-16MMGSS
3/4	4 1/4	5 1/2	80.85	6-20MMGSS

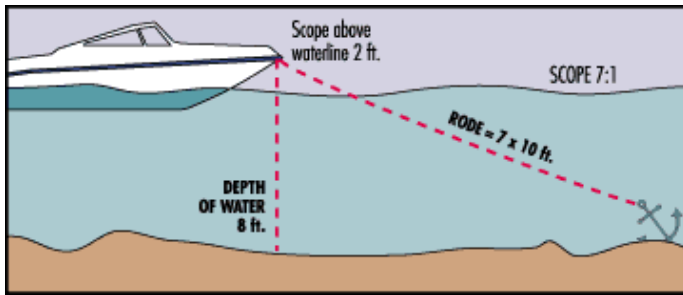
MALLET - ICE, UHMW

- Material: UHMW (Ultra-high-molecular-weight polyethylene)



Length (in)	Head Size (in)	Price / ea.	Part Number
36	4 x 8	228.00	12-RJS4X8

ANCHORS

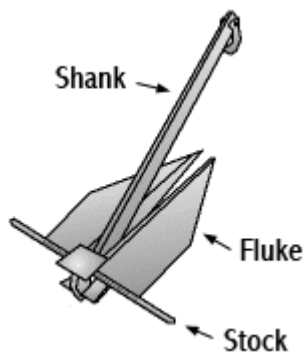


The anchor is the key to effective anchoring or mooring. It is essential to know what to expect from various anchors. Resistance of an anchor to being dragged through a soil has been considered as occurring in two stages: first, biting into the bottom due to the ploughing effects of the flukes, and secondly, maintaining a continuous resistance to drag after it is planted into the bottom.

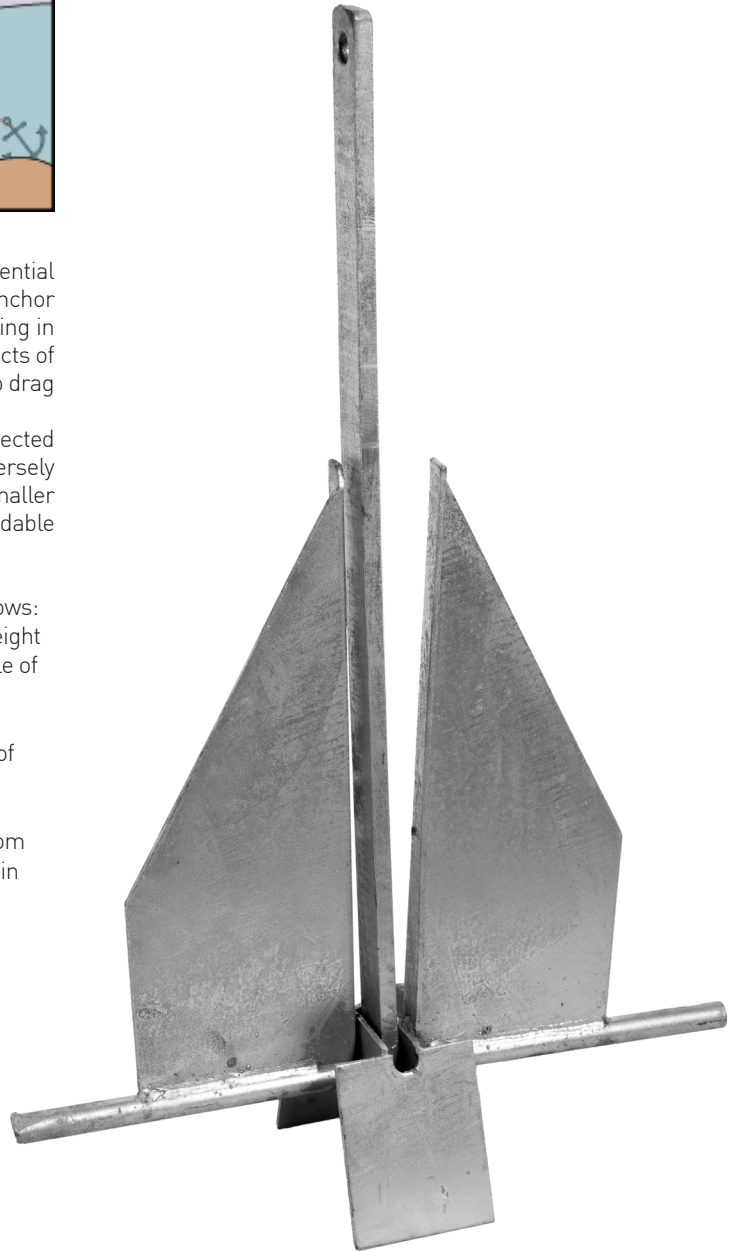
Holding power type anchors are directly proportional to projected fluke area, and shear strength of the bottom material, and inversely proportional to penetration-area resistance. In many cases a smaller anchor with favorable fluke area to weight ratio is more dependable than a heavier anchor.

Holding power for the two most widely used anchors are as follows:

- Stockless Type anchors in sand develop a holding power to weight ratio of seven to one. In mud it develops three to one. The angle of penetration in both cases is 45° .
- Lightweight Type (Danforth style) anchors in sand develop a holding power to weight ratio of twenty to one, with the angle of penetration being 30° . In mud it develops nine to one with the angle of penetration being 50° .
- The depth of penetration in all preceding cases is compiled from three to seven feet in sand, and from seventeen to twenty feet in mud. All calculations incorporate a 0° scope angle.



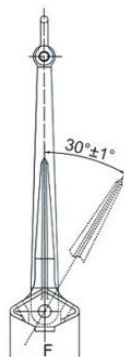
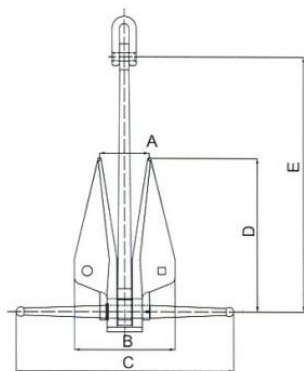
ANCHOR - DANFORTH STYLE / WORKBOAT



With the "hook" head forcing the flukes to dig in quickly, and the large fluke design providing tremendous holding power; this anchor offers terrific holding power in both sand and mud bottoms.

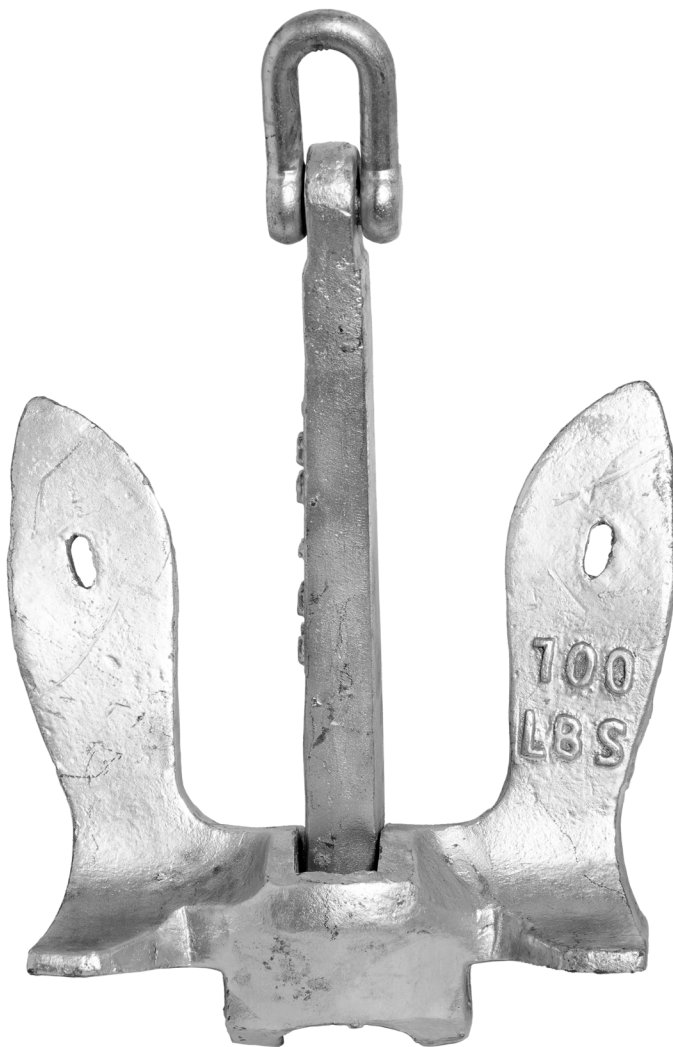
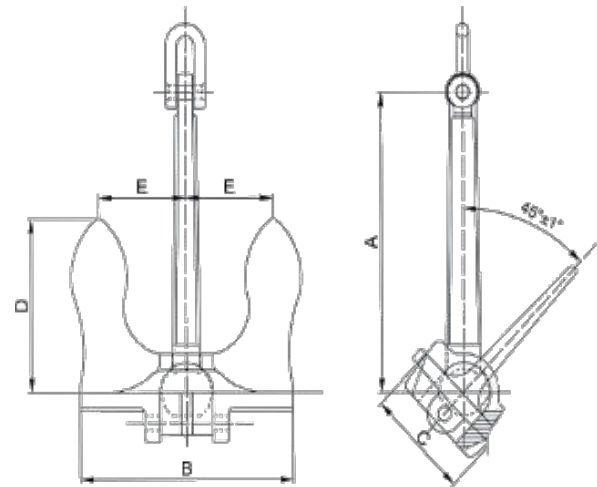
Weight (lb)	Price / ea.	Part Number
4	32.60	6-ANC4
9	73.35	6-ANC9
13	89.31	6-ANC13
18	123.75	6-ANC18
22	151.14	6-ANC22
44	302.28	6-ANC44
70	1,382.00	6-ANC70
100	1,975.00	6-ANC100
125	2,468.75	6-ANC125
150	2,962.50	6-ANC150
200	3,950.00	6-ANC200
300	5,925.00	6-ANC300
400	7,900.00	6-ANC400

Weight (kg)	Dimensions (mm)					
	A	B	C	D	E	F
60	186	408	755	535	985	240
75	200	450	830	590	1080	260
100	216	490	930	640	1180	290
120	220	505	970	670	1230	300
125	234	520	1000	690	1270	310
150	242	550	1060	732	1348	330
200	266	600	1150	810	1490	360
250	294	650	1240	870	1600	390
276	296	660	1250	885	1620	400
300	312	690	1320	925	1700	420
400	342	750	1460	1010	1810	460
500	368	800	1570	1100	2020	490
750	414	910	1800	1260	2300	560
1000	450	980	1980	1380	2540	620
1250	484	1070	2100	1490	2740	670
1500	512	1120	2220	1580	2850	700
2000	560	1130	2440	1730	2910	770
2500	605	1217	2628	1864	3070	830
3000	640	1290	2790	1980	3330	880
4000	700	1420	3070	2170	3590	970
5000	735	1482	3200	2270	3840	1020
6000	800	1620	3500	2480	4100	1100
7000	840	1696	3850	2590	4180	1150
8500	910	1936	3940	2600	4490	1240
10 000	940	2000	4150	2900	4640	1280
13 600	1046	2120	4590	3250	5378	1440
16 000	1105	2240	4845	3435	5680	1520
18 000	1150	2270	5000	3570	5680	1580
20 000	1190	2350	5175	3695	5880	1635
25 000	1280	2530	5570	3982	6330	1760



ANCHOR - STOCKLESS

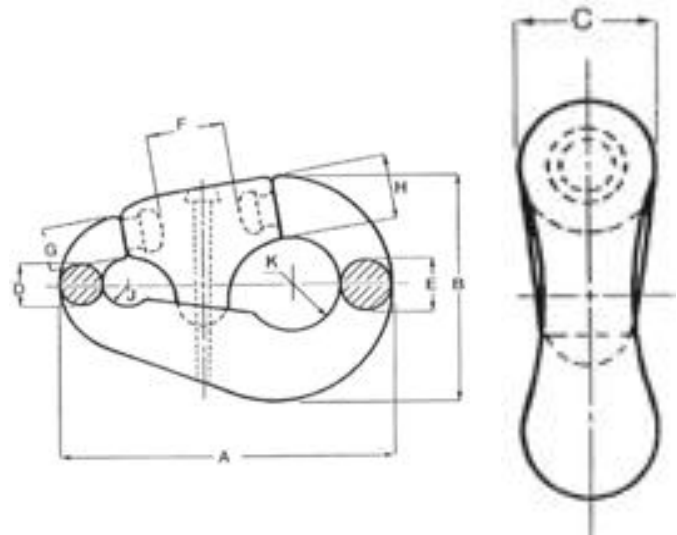
Weight (lb)	Price / ea.	Part Number
100	1,975.00	6-ANCSTK100
150	2,962.50	6-ANCSTK150
200	3,950.00	6-ANCSTK200
250	4,937.50	6-ANCSTK250
300	5,925.00	6-ANCSTK300
500	9,875.00	6-ANCSTK500



Weight (kg)	Dimensions (mm)				
	A	B	C	D	E
200	685	457	241	366	190.5
300	812	590	296	442	230
400	812	654	330	482	250
500	900	673	356	530	287.5
750	965	770	407	584	308
1000	1067	854	457	640	347.5
1250	1165	923	475	720	370
1500	1232	1005	515	748	392
2000	1370	1092	558	848	430
2100	1370	1092	558	848	436
2500	1473	1136	568	848	448
3000	1625	1194	648	912	483
3500	1625	1340	698	1003	500
4000	1734	1354	705	1054	518
4500	1794	1440	735	1066	563
5000	1930	1460	762	1130	588
6000	1930	1613	844	1194	641.5
6300	1930	1613	844	1194	641.5
7000	2082	1691	882	1263	668

LINK - CONNECTING, PEAR, ANCHOR JOINING

- Pricing on availability
- See Page 185 for in-stock Pear Links

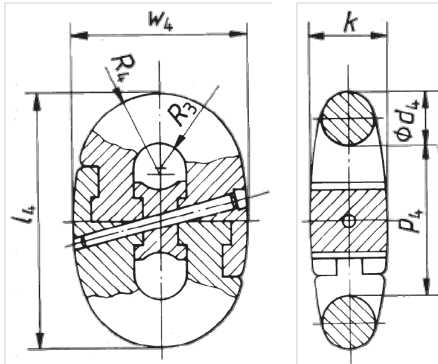
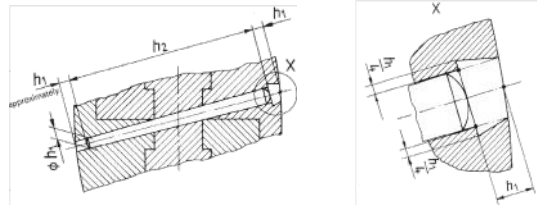


No	Size (mm)	Dimensions (mm)										Wt. (kg)	Proof (lb)	Break (lb)
		A	B	C	D	E	F	G	H	J	K			
2	19-24	194	132	38	24	32	57	24	35	17	30	3.6	74 936	106 894
3	25-30	238	167	46	30	38	66	33	45	19	35	6.5	116 812	166 843
4	32-40	299	206	59	40	48	83	40 x 4 5	56	26	43	14.5	201 446	288 724
5	42-51	378	260	76	51	64	100	51 x 60	74	32	52	27	320 462	457 771
6	52-60	454	313	92	60	76	121	62 x 73	88	37	64	49	439 918	628 581
7	62-79	562	376	121	79	95	149	86 x 79	111	48	76	92	731 948	1 045 798
8	81-92	654	419	133	92	124	149	111 x 102	130x133	54	79	149	958 299	1 369 125
9	94-95	692	435	146	98	130	159	124 x 137	141	57	83	236	1 018 909	1 454 860
10	97-102	889	572	191	121	165	191	130 x 148	181	73	108	386	1 150 708	1 644 184
11	103-108	940	610	203	127	175	203	156	200	76	111	418	1 271 708	1 818 300
12	110-114	991	648	216	133	184	216	165 x 167	210 x 200	105	114	459	1 404 609	2 007 624

A potential hazard exists when lifting or dragging heavy loads with tackle block assemblies. Failure to design and use tackle block systems properly may cause a load to slip or fall, the result could be serious injury or death. A tackle block system should be rigged by a qualified person as defined by ANSI/ASME B30.

SHACKLE - KENTER SHACKLE, JOINING LINK

- Pricing on availability
- Sizes available up to 162 mm
- See page 184 for in-stock Kenter Shackles
- Measurements are in millimeter(s)



Nominal Size (d common link = d4)	l4	p4	w4	h1	h2	k	R3	R4
12.5	75	50	53	4	45	19	8.5	23
14	84	56	59	6	45	21	9.5	26
16	96	64	67		55	24	10.5	29
17.5	105	70	74	6	60	27	12	32
19	114	76	80		65	29	13	35
20.5	123	82	86	10	70	31	14	38
22	132	88	92		75	33	15	40
24	144	96	101	10	80	36	16	44
26	156	104	109		85	40	17.5	48
28	168	112	118	10	95	43	19	51
30	180	120	126		100	46	20	55
32	192	128	134	12	110	49	21.5	59
34	204	136	143		115	52	23	62
36	216	144	151	12	120	55	24	66
38	228	152	160		130	58	25	70
40	240	160	168	16	140	61	27	73
42	252	168	176		140	64	28	77
44	264	176	185	16	150	67	29	81
46	276	184	193		160	70	31	84

Nominal Size (d common link = d4)	l4	p4	w4	h1	h2	k	R3	R4
48	288	192	202	16	160	73	32	88
50	300	200	210		170	76	34	92
52	312	208	218	20	180	79	35	95
54	324	216	227		180	82	36	99
56	336	224	235	20	190	85	38	102
58	348	232	244		200	88	39	106
60	360	240	252	20	200	91	40	110
62	372	248	260		220	94	42	113
64	384	256	269	25	220	97	43	117
66	396	264	277		220	100	44	121
68	408	272	286	25	220	103	46	124
70	420	280	294		240	106	47	128
73	438	292	307	25	260	111	49	134
76	456	304	319		260	115	51	139
78	468	312	328	30	260	119	52	143
81	486	324	340		280	123	54	148
84	504	336	353	30	280	128	57	154
87	522	348	365		300	132	58	159
90	540	360	378	35	300	137	60	165
92	552	368	386		320	140	62	168
95	570	380	399	35	320	144	64	174
97	582	388	407		340	147	65	178
100	600	400	420	35	340	152	67	183
102	612	408	428		360	155	68	187
105	630	420	441	40	360	160	70	192
107	642	428	449		360	163	72	196
111	666	444	466	40	380	169	74	203
114	684	456	479		380	173	76	207

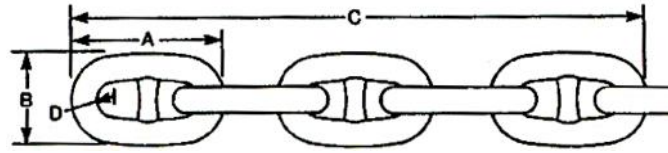
Reference Materials

CHAIN - STUD LINK ANCHOR

- Reference Chart estimate formulated values
- Sizes available up to 210 mm
- See page 183 for in-stock Stud Link Anchor Chain

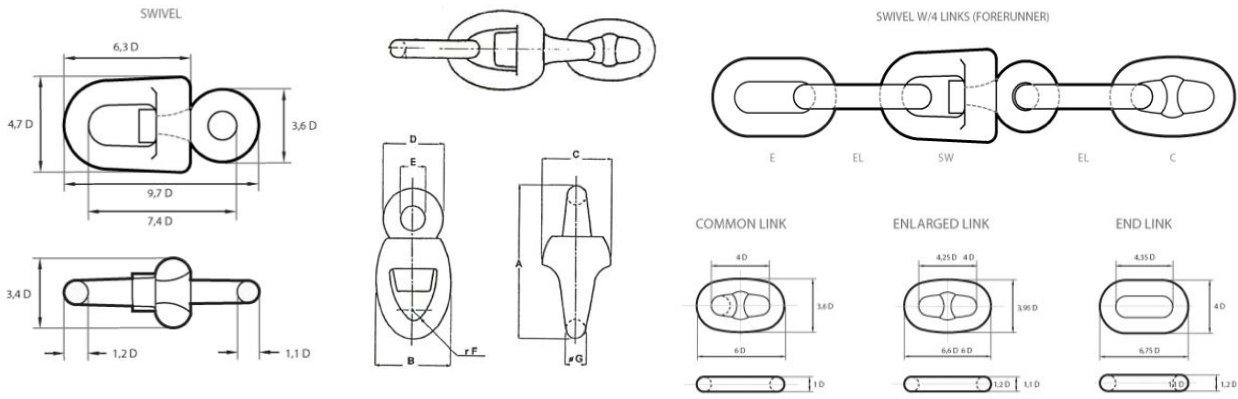


Chain size		Link Length		5 Links	Grip Radius	Weight / 15 fathom shot (approx.) (lb)	No. of links / 15 fathom shot (lb)	Grade 2		Grade 3		Grade 4	
(in)	(mm)	A (in)	B (in)					C (in)	D (in)	Proof Test (lb)	Break Test (lb)	Proof Test (lb)	Break Test (lb)
5/8	16	3-3/4	2-1/4	13-3/4	3/8	365	432	23,745	33,220	33,220	47,465	53105	67365
3/4	19	4-1/2	2-5/8	16-1/2	1/2	480	357	34,000	47,600	47,600	68,000	74466	94462
13/16	20	4-7/8	2-7/8	17-7/8	17/32	570	329	39,800	55,700	55,700	79,500	82356	104470
7/8	22	5-1/4	3-1/8	19-1/4	37/64	660	305	46,000	64,400	64,400	91,800	99274	125931
15/16	24	5-5/8	3-5/16	20-5/8	5/8	760	285	52,600	73,700	73,700	105,000	117697	149301
1	25	6	3-9/16	22	21/32	860	267	59,700	83,600	83,600	119,500	127467	161694
1-1/16	27	6-3/8	3-3/4	23-3/8	11/16	970	251	67,200	94,100	94,100	135,000	148111	187881
1-1/8	28	6-3/4	4	24-3/4	25/32	1080	237	75,000	105,000	105,000	150,000	158980	201670
1-3/16	30	7-1/8	4-1/4	26-1/8	25/32	1220	225	83,400	116,500	116,500	167,000	181804	230622
1-1/4	32	7-1/2	4-1/2	27-1/2	25/32	1350	213	92,200	129,000	129,000	184,000	206057	261387
1-5/16	33	7-7/8	4-3/4	28-7/8	7/8	1490	203	101,500	142,000	142,000	203,000	218714	277442
1-3/8	34	8-1/4	4-15/16	30-1/4	7/8	1630	195	111,000	155,000	155,000	222,000	231721	293942
1-7/16	36	8-5/8	5-3/16	31-5/8	15/16	1780	187	120,500	169,000	169,000	241,000	258777	328263
1-1/2	38	9	5-3/8	33	63/64	1940	179	131,000	183,500	183,500	262,000	287207	364327
1-9/16	40	9-3/8	5-5/8	34-3/8	1-1/32	2090	171	142,000	198,500	198,500	284,000	316991	402109
1-5/8	42	9-3/4	5-7/8	35-3/4	1-1/16	2240	165	153,000	214,000	214,000	306,000	348112	441587
1-11/16	43	10-1/8	6-1/16	37-1/8	1-3/32	2410	159	166,500	229,000	229,000	327,000	364168	461954
1-3/4	44	10-1/2	6-5/16	38-1/2	1-5/32	2590	153	176,000	247,000	247,000	352,000	380551	482736
1-13/16	46	10-7/8	6-1/2	39-7/8	1-3/16	2790	147	188,500	264,000	264,000	377,000	414289	525533
1-7/8	48	11-1/4	6-3/4	41-1/4	1-1/4	2980	143	201,000	281,000	281,000	402,000	449307	569955
1-15/16	50	11-5/8	7	42-5/8	1-9/32	3180	139	214000	299000	299000	427000	485587	615976
2	51	12	7-3/16	44	1-5/16	3360	133	227000	318000	318000	454000	504195	639580
2-1/16	52	12-3/8	7-7/16	45-3/8	1-3/8	3570	129	241000	337000	337000	482000	523110	663575
2-1/8	54	12-3/4	7-5/8	46-3/4	1-27/64	3790	125	255000	357000	357000	510000	561858	712727
2-3/16	56	13-1/8	7-7/8	48-1/8	1-15/32	4020	123	269000	377000	377000	538000	601811	763409
2-1/4	58	13-1/2	8-1/8	49-1/2	1-1/2	4250	119	284000	396000	396000	570000	642952	815596
2-5/16	59	13-7/8	8-5/16	50-7/8	1-17/32	4490	117	299000	418000	418000	598000	663961	842247
2-3/8	60	14-1/4	8-9/16	52-1/4	1-9/16	4730	113	314000	440000	440000	628000	685261	869266
2-7/16	62	14-5/8	8-3/4	53-5/8	1-5/8	4960	111	330000	462000	462000	660000	728720	924394
2-1/2	64	15	9	55	1-5/8	5270	107	346000	484000	484000	692000	773310	980958
2-9/16	66	15-3/8	9-1/4	56-3/8	1-11/16	5540	105	363000	507000	507000	726000	819012	1038932
2-5/8	67	15-3/4	9-7/16	57-3/4	1-11/16	5820	103	379000	530000	530000	758000	842275	1068442
2-11/16	68	16-1/8	9-11/16	59-1/8	1-3/4	6110	99	396000	554000	554000	792000	865809	1098295
2-3/4	70	16-1/2	9-7/8	60-1/2	1-13/16	6410	97	413000	578000	578000	826000	913681	1159021
2-13/16	71	16-7/8	10-1/8	61-7/8	1-27/32	6710	95	431000	603000	603000	861000	938014	1189889
2-7/8	73	17-1/4	10-3/8	63-1/4	1-7/8	7020	93	449000	628000	628000	897000	987464	1252617
2-15/16	75	17-5/8	10-9/16	64-5/8	1-7/8	7330	91	467000	654000	654000	934000	1037943	1316650



Chain size		Link Length		5 Links C (in)	Grip Radius D (in)	Weight / 15 fath- om shot (aprox.) (lb)	No. of links / 15 fathom shot (lb)	Grade 2		Grade 3		Grade 4	
(in)	(mm)	A (in)	B (in)					Proof Test (lb)	Break Test (lb)	Proof Test (lb)	Break Test (lb)	Proof Test (lb)	Break Test (lb)
3	76	18	10-13/16	66	2	7650	89	485000	679000	679000	970000	1063562	1349148
3-1/16	78	18-3/8	11	67-3/8	2	7980	87	504000	705000	705000	1008000	1115549	1415094
3-1/8	79	18-3/4	11-1/4	68-3/4	2-1/16	8320	85	523000	732000	732000	1046000	1141911	1448536
3-3/16	81	19-1/8	11-1/2	70-1/8	2-1/16	8660	85	542000	759000	759000	1084000	1195364	1516341
3-1/4	83	19-1/2	11-11/16	71-1/2	2-1/8	9010	83	562000	787000	787000	1124000	1249771	1585357
3-5/16	84	19-7/8	11-15/16	72-7/8	2-1/8	9360	81	582000	814000	814000	1163000	1277326	1620312
3-3/8	86	20-1/4	12-1/8	74-1/4	2-3/16	9730	79	602000	843000	843000	1204000	1333129	1691099
3-7/16	87	20-5/8	12-3/8	75-5/8	2-3/16	10100	77	622000	871000	871000	1244000	1361372	1726925
3-1/2	90	21	12-5/8	77	2-5/16	10500	77	643000	900000	900000	1285000	1447439	1836103
3-5/8	92	21-3/4	12-15/16	79-3/4	2-5/16	11300	73	685000	958000	958000	1369000	1505908	1910272
3-3/4	95	22-1/2	13-3/8	82-1/2	2-15/32	12000	71	728000	1019000	1019000	1455000	1595203	2023544
3-7/8	98	23-1/4	14	85-1/4	2-15/32	12900	69	772000	1080000	1080000	1543000	1686351	2139167
4	102	24	14-3/8	88	2-5/8	13700	67	816000	1143000	1143000	1673200	1810655	2296849
4-1/8	105	24-3/4	14-11/16	90-3/4	2-11/16	14560	65	861800	1206600	1206600	1723700	1905881	2417646
4-1/4	109	25-1/2	15-3/16	93-1/2	2-3/4	15350	63	908300	1271800	1271800	1816800	2035396	2581937
4-3/8	111	26-1/4	15-9/16	96-1/4	2-7/8	16200	61	955700	1338000	1338000	1911300	2101202	2665413
4-1/2	114	27	16	99	2-15/16	17100	59	1003700	1405300	1405300	2007500	2201169	2792224
4-5/8	117	27-3/4	16-7/16	101.75	3	18000	57	1052600	1473600	1473600	2105200	2302592	2920880
4-3/4	120	28-1/2	16-7/8	104.5	3-1/16	18900	57	1102100	1542900	1542900	2204200	2405405	3051301
4-13/16	122	28-11/16	17	105.87	3-1/8	19400	57	1127300	1578200	1578200	2254600	2474689	3139189
4-7/8	124	29-1/4	17-3/8	107.25	3-3/16	19900	55	1152500	1613400	1613400	2304900	2544546	3227803
5	127	30	17-13/16	110	3-1/4	20900	53	1203300	1684600	1684600	2406600	2650361	3362032
5-1/8	130	30-3/4	18-1/4	112.75	3-5/16	22000	52	1254700	1756600	1756600	2509400	2757359	3497761
5-3/16	132	31-1/8	18-7/16	114.12	3-3/8	22500	51	1280600	1792900	1792900	2561300	2829316	3589040
5-7/16	139	32-5/8	19-3/8	119.62	3-1/2	24500	49	1385700	1940000	1940000	2771400	3084812	3913141
5-5/8	144	33-3/4	20	123.75	3-11/16	26100	47	1465800	2052100	2052100	2931500	3270456	4148634
5-13/16	148	34-15/16	20-3/4	127.87	3-3/4	27600	46	1546800	2165500	2165500	3093600	3420635	4339139
6	152	36	21-3/8	130	3-7/8	29100	45	1628700	2280200	2280200	3257400	3572132	4531316

A potential hazard exists when lifting or dragging heavy loads with tackle block assemblies. Failure to design and use tackle block systems properly may cause a load to slip or fall, the result could be serious injury or death. A tackle block system should be rigged by a qualified person as defined by ANSI/ASME B30.

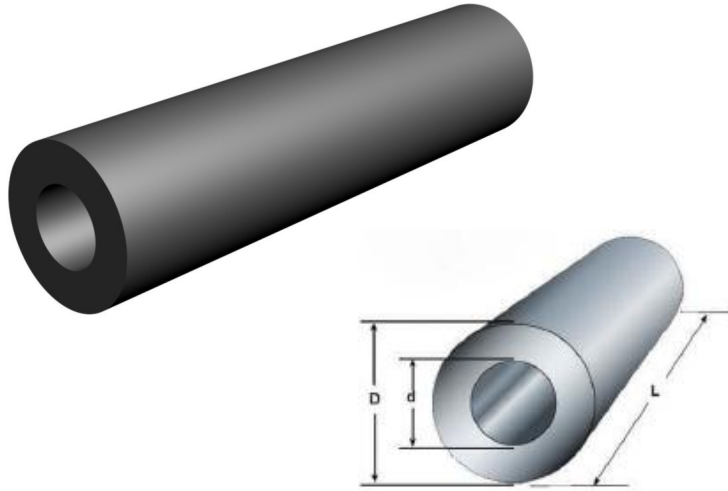


Chain size (mm)	Dimensions (mm)							Weight (kg)	Proof Load (lb)	Break Load (lb)
	A	B	C	D	E	F	G			
13-16	137	62	62	52	20	12	16	1.35	33,280	47,606
17-19	173	76	76	66	27	19	19	2.25	47,210	67,443
21-22	198	90	90	30	30	22	22	3.20	63,171	90,148
24-29	258	102	102	44	44	25	25	6.5	101,164	144,327
30-35	290	160	124	116	116	25	36	21	147,250	210,421
36-42	373	202	146	145	145	32	46	39.5	182,545	260,778
43-48	430	230	165	183	183	36	60	66	263,251	376,105
49-58	516	278	200	212	212	39	65	104	382,625	546,286
59-67	575	307	230	235	235	46	68	142	491,657	702,078
68-73	650	345	260	256	256	50	79	208	628,140	897,028
75-79	757	370	325	281	281	62	94	276	731,948	1,045,798
81-86	760	420	272	310	310	57	95	336	847,218	1,210,216
87-92	800	430	290	320	320	60	98	376	958,299	1,369,125
94-98	882	460	333	354	354	66	118	557	1,079,960	1,542,815
100-102	918	480	348	368	368	69	122	612	1,150,708	1,644,184
105-111	1000	530	378	400	400	74	133	797	1,337,828	1,911,309
114	1026	542	390	417	417	76	137	871	1,404,609	2,007,624

Reference Material

FENDER - CYLINDRICAL FENDERS

- Applicable for ships of different sizes, easy installation.
- Low reaction forces.
- Little surface pressure.

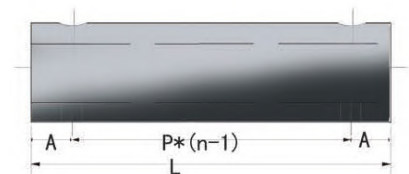
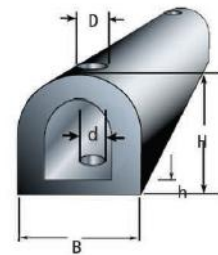


Weight (kg)	Dimensions (mm)		
	L	D	d
Y150	500-5500	150	75
Y200	500-5500	200	100
Y250	500-5500	250	125
Y300	500-5500	300	150
Y400	500-5500	400	200
Y500	500-5500	500	250
Y600	500-5500	600	300
Y700	500-5500	700	350
Y800	500-5500	800	400
Y900	500-5500	900	450
Y1000	500-5500	1000	500
Y1100	500-5500	1100	550
Y1200	500-5500	1200	600
Y1400	500-5500	1400	700
Y1600	500-5500	1600	800

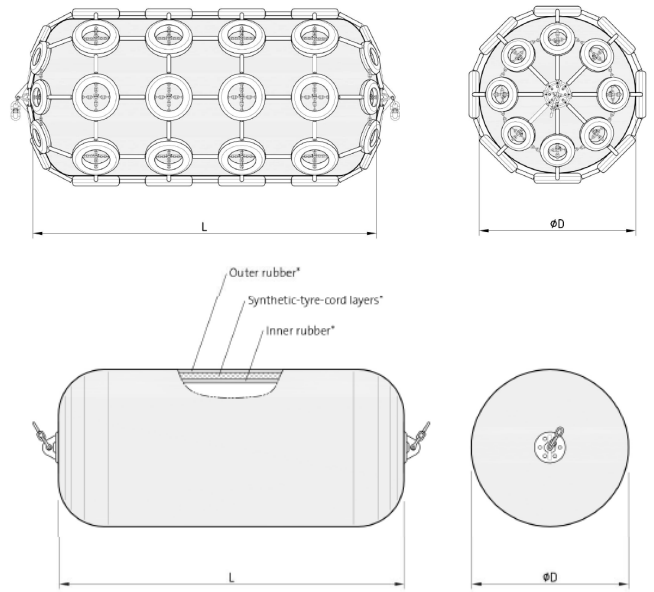
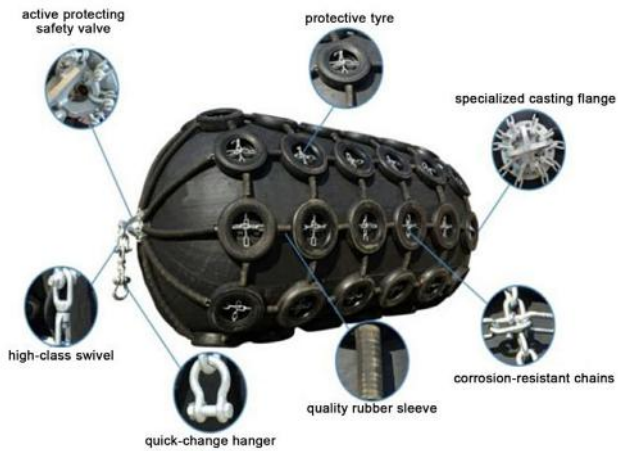
FENDER - SEMI-CIRCULAR FENDERS

Model	Dimensions (mm)								n (Fastening Points)
	L	A	D	d	B	H	h	P	
D200H	1000	200	55	28	200	200	30	600	3
D200H	1500	150	55	28	200	200	30	600	3
D200H	2000	250	55	28	200	200	30	500	4
D300H	900	150	65	32	300	300	40	600	2
D300H	1000	200	65	32	300	300	40	600	2
D300H	1500	150	65	32	300	300	40	600	3
D300H	2000	250	65	32	300	300	40	500	5
D300H	1000	200	65	32	360	300	40	600	2
D300H	1500	150	65	32	360	300	40	600	3
D400H	1500	150	65	32	400	400	55	400	4
D400H	2000	200	65	32	400	400	55	400	5
D500H	1000	150	55	28	500	500	60	350	3X2
D500H	1500	150	55	28	500	500	60	400	4X2
D500H	2000	200	55	28	500	500	60	400	5X2

- Suitable reaction force and energy absorption, low weight and easy for installation and maintenance. Applicable for frame dock due to smaller bottom width.



FENDER - PNEUMATIC FENDER

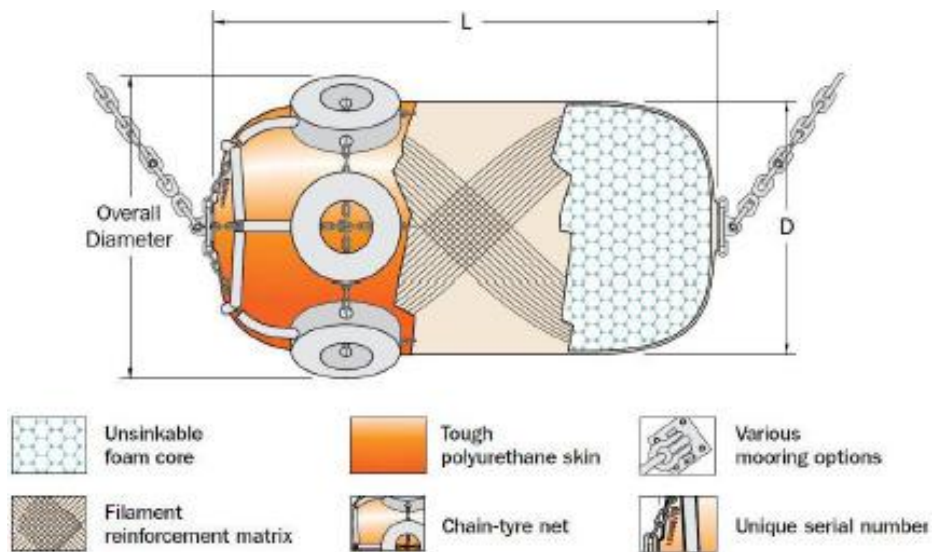


Fender Size D x L [mm]	Initial Pressure 0.5 kg/cm ²			Initial Pressure 0.8 kg/cm ²			Weight		
	Guaranteed energy absorption (GEA) [kNm]	Reaction force at GEA deflection [kN]	Hull pressure at GEA deflection [kN/m ²]	Guaranteed energy absorption (GEA) [kNm]	Reaction force at GEA deflection [kN]	Hull pressure at GEA deflection [kN/m ²]	Fender Body [kg]	Chain Net [kg]	Total [kg]
500 x 1,000	6	64	132	8	85	174	25	55	80
600 x 1,000	8	74	126	11	98	166	30	65	95
700 x 1,500	17	137	135	24	180	177	45	100	145
1,000 x 1,500	32	182	122	45	239	160	60	110	170
1,000 x 2,000	45	257	132	63	338	174	75	150	225
1,200 x 2,000	63	297	126	88	390	166	110	180	290
1,350 x 2,500	102	427	130	142	561	170	170	210	380
1,500 x 3,000	153	579	132	214	761	174	220	400	620
1,700 x 3,000	191	639	128	267	840	168	250	520	770
2,000 x 3,500	308	875	128	430	1,150	168	360	670	1,030
2,500 x 4,000	663	1,381	137	925	1,815	180	650	830	1,480
2,500 x 5,500	943	2,019	148	1,317	2,653	195	860	1,050	1,910
3,300 x 4,500	1,175	1,884	130	1,640	2,476	171	1,100	1,600	2,700
3,300 x 6,500	1,814	3,015	146	2,532	3,961	191	1,660	2,300	3,960
3,300 x 10,600	3,067	5,257	158	4,281	6,907	208	3,000	4,700	7,700
4,500 x 9,000	4,752	5,747	146	6,633	7,551	192	3,800	3,680	7,480
4,500 x 12,000	6,473	7,984	154	9,037	10,490	202	7,000	8,570	15,570

FENDER - FOAM FILLED FENDER TYPE & STRUCTURE

- Dock Protection Colorful Fender, also called EVA solid fender, is a new type of fender using light weight high elasticity foam as cushion medium, widely applied to harbor, off-shore, STS and STD operation.
- Hanger Foam Filled Solid Fender is made of environmental protection material and high elasticity polymeric material. Long service life and high economic value of this product is achieved by the high quality material with performance of high strength, high elasticity, high adhesion, anti-leakage, and aging resistance.

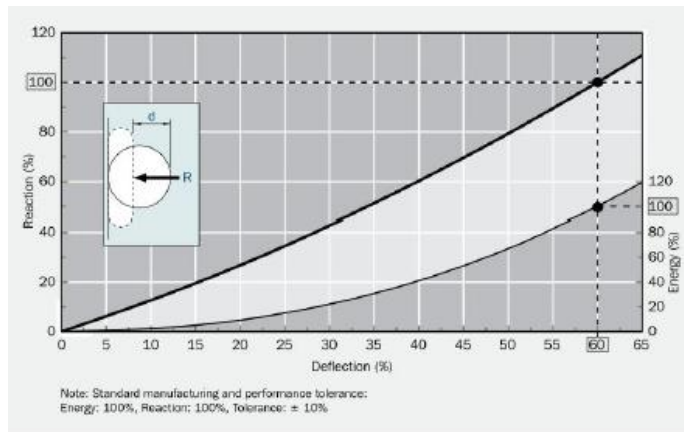
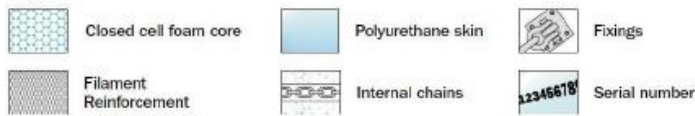
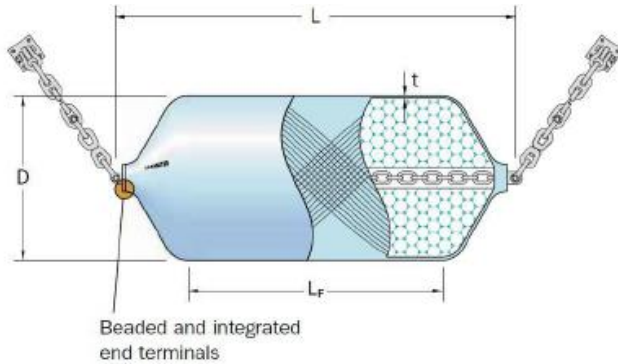
Foam Filled Fender Type & Structure



Type I fender with tire-chain protective sleeve



- Inside of Foam Filled Solid Fender is filled with environmental protection material-EVA with coating protective layer of polyurea material on outer surface. Polyurea is a new material of adjustable high-elasticity modulus. There are a galvanized flange and swivel on the fender two ends. Like pneumatic rubber fender, tire-chain net protective jacket is also optional spare part to Dock Protection Colorful Fender for better anti-collision performance.



Foam Fender Performance		
Size Diameter x Length [mm]	At 60% Deflection	
	Energy Absorption [kNm]	Force Reaction [kN]
500 x 1000	8	71
600 x 1000	12	86
700 x 1500	27	161
1000 x 1500	49	205
1000 x 2000	64	274
1200 x 2000	93	337
1200 x 2400	110	390
1350 x 2500	145	463
1500 x 3000	216	624
1700 x 3000	273	696
2000 x 3500	456	990
2000 x 4000	505	1110
2200 x 4500	697	1396
2500 x 4000	781	1386
2500 x 5000	985	1750
3000 x 5000	1410	2050
3000 x 6000	1695	2460
3300 x 6500	2245	2950
4500 x 9000	7660	19650

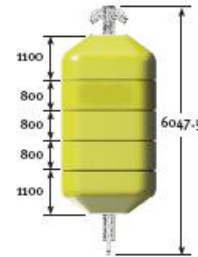
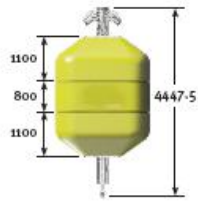
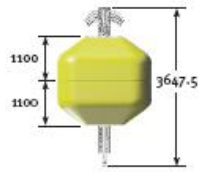
FENDER AND BUOYANCY



Anchor Pendant Buoyancy (APB)



Ancillary Buoyancy



Surface/Sub-Surface Modular Buoyancy



Dock Fenders

FENDER FOAM IONOMER, GILMAN CORPORATION



Gilman Ionomer fenders are made from continuous extruded sheets with thick walled closed cell material. This material has the unique ability to link ionically between neighboring molecular chains with the same bond as the polymer itself. The surface is tough yet smooth and flexible: solid ionomer plastic is the primary material used for the covers of golf balls and bowling pins. These fenders offer superior strength, energy absorption and compression resistance and unsurpassed functional integrity in an almost infinite variety of shapes and sizes from buoys to ski barriers.

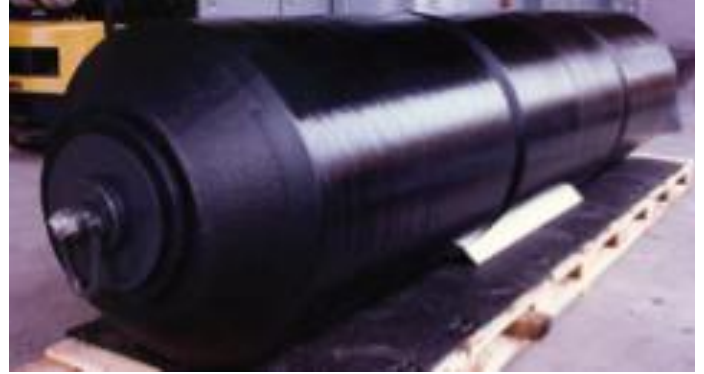
Benefits of intergral Ionomer Foam Fendering

- More Energy Absorption in smaller sizes
- Low-Hysteresis Reaction forces
- Low weight/high Buoyancy
- High-Density Skin
- Unsurpassed Functional Integrity
- Proven Effectiveness
- Impervious to Fuels and chemicals/ oil spills
- Non-toxic/Fire Safety
- Highly water repellent
- Unaffected by Cold
- No Dissimilar materials
- Easy to repair
- High Visibility
- Non Marking/non-abrasive
- Damage Control
- Fully Repairable
- Design Flexibility



FENDER FOAM IONOMER, BERTHING ENERGY AND REACTION FORCES

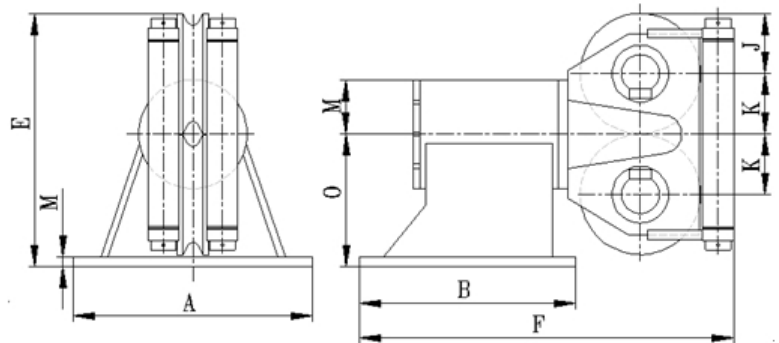
Fender Size Diameter (ft) x Length (ft)	Berthing Energy (ft-kips)	Reaction Force (kips)
2 x 3	15	35
2 x 4	20	45
2 x 6	30	70
2 x 8	40	90
3 x 6	70	105
3 x 8	90	140
3 x 10	115	175
3 x 12	140	210
3 x 14	160	245
4 x 8	165	185
4 x 10	205	235
4 x 12	250	280
4 x 14	290	325
4 x 16	330	375
4 x 20	415	465
5 x 10	325	290
5 x 12	390	350
5 x 14	450	410
5 x 16	515	465
5 x 18	580	545
5 x 20	645	585
6 x 12	560	420
6 x 14	650	490
6 x 16	745	560
6 x 18	835	630
6 x 20	930	700



Assumptions:

- Fender size is expressed as diameter (in feet) by length overall (in feet)
- Rated berthing energy and reaction force are based on fender performance at 60% compression ratio
- Berthing energy and reaction force values for the 2 x 6 fender are based on testing performed in 1993. The berthing energy and reaction forces for the other fenders in this table were scaled from the nominal tested fender results using equations (11) and (12) from ASTM F2192-02

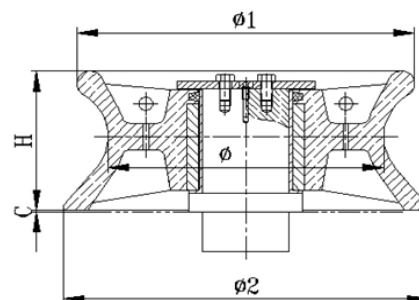
FAIRLEAD ROLLER - ANCHOR



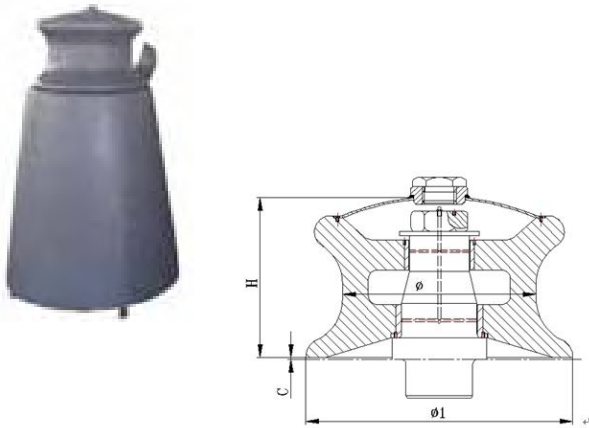
Wire Rope Dia. (mm)	Sheave Dia. (mm)	Dimensions (mm)								
		A	B	E	F	J	K	M	N	O
25	254	356	356	530	680	127	129	20	114	275
32	305	660	505	665	890	152	154	32	124	360
38	406	760	760	867	1280	203	205	38	178	460
44	508	1016	915	1070	1485	254	256	45	220	560
52	610	1220	1068	1265	1792	305	307	48	265	650
64	762	1420	1370	1565	2080	381	383	60	325	800

FAIRLEAD ROLLER - TYPE A

Nominal Dia. (mm)	Dimensions (mm)				
	Φ	Φ 1	Φ 2	H	C
150	150	216	240	137	5
200	200	280	310	157	5
250	250	350	380	177	6
300	300	400	440	197	7
350	350	460	500	217	7
400	400	520	560	237	7
450	450	590	630	257	7
500	500	660	700	277	7

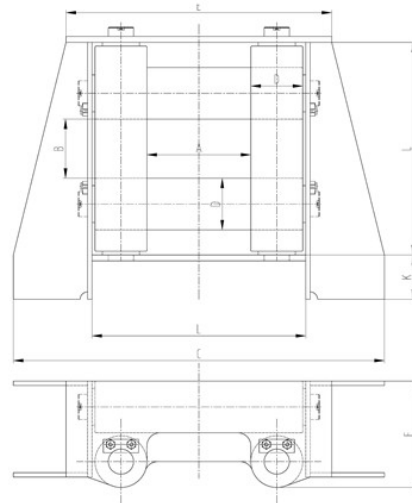


FAIRLEAD ROLLER - JIS F2014



Nominal Dia. (mm)	Weight (kg)	Dimensions (mm)			
		Φ	Φ 1	H	C
100	18	100	170	140	3
150	32.1	150	240	195	3
200	64.6	200	310	235	3
250	108	250	380	282	4
300	159	300	440	305	4
350	235	350	500	330	4
400	336	400	560	355	5

FAIRLEAD ROLLER - UNIVERSAL

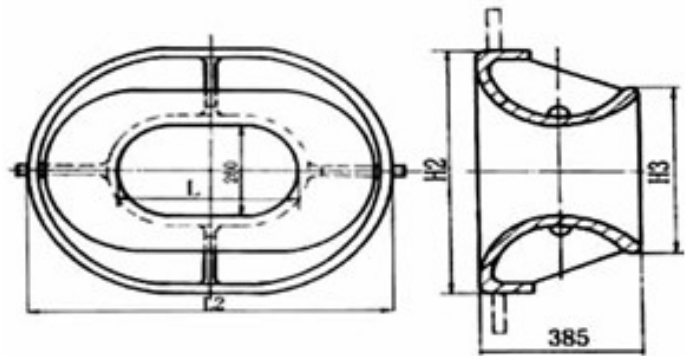


Type	Rope Dia. (mm)	Dimensions (mm)								Mass (kg)
		A	B	C	D	E	F	K	L	
FA4-12	12	180	100	650	80	446	170	80	356	75
FA4-16	16	230	130	800	100	546	210	100	446	130
FA4-20	20	250	130	900	120	626	250	120	506	220
FA4-24	24	280	160	1000	140	716	288	120	576	330
FA4-32	32	300	160	1200	180	836	366	140	676	580
FA4-40	40	320	180	1350	245	1030	500	180	830	1100
FA4-48	48	400	250	1700	300	1236	608	200	1016	2210

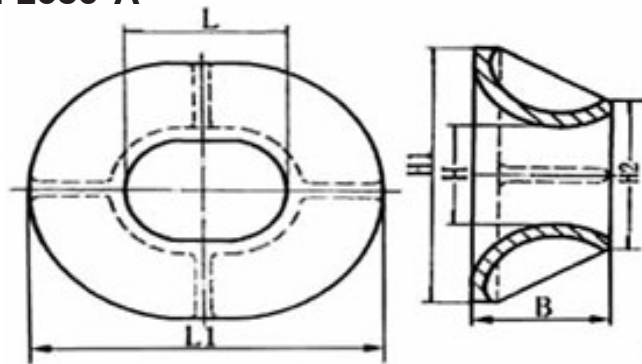
CHOCK - BULWARK MOUNTING, JIS F2017-BC



Nominal No.	Weight (kg)	Dimensions (mm)			
		L	L2	H2	H3
310	276	310	734	684	462
360	305	360	788	688	464
400	344	400	832	692	470
450	385	450	886	696	474
500	422	500	940	700	478

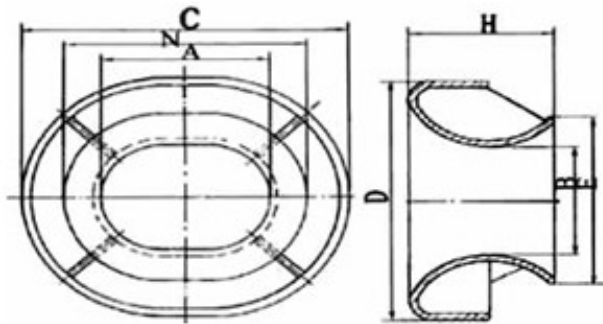


CHOCK - BULWARK MOUNTING, JIS F2030-A



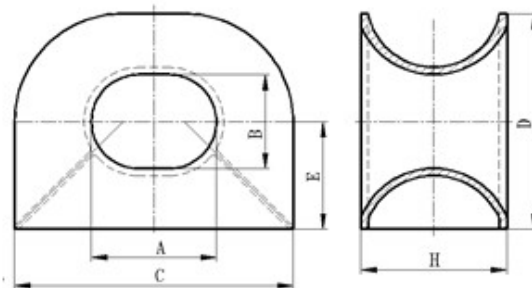
Nominal No.	Dimensions (mm)					Weight (kg)
	L	L1	H	H1	B	
400	400	780	300	680	350	210
500	500	940	400	840	400	340
600	600	1100	450	950	450	490
700	700	1260	500	1060	500	600
800	800	1420	600	1220	550	880

CHOCK - BULWARK MOUNTING, BOW, TYPE EU



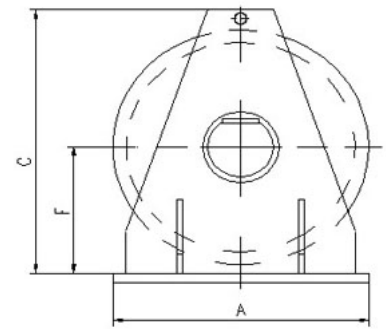
Nominal No.	Dimensions (mm)							Weight (kg)
	A	B	C	D	E	H	N	
315 x 250	315	250	695	630	432	342	497	198
425 x 280	425	280	925	780	516	450	661	358
600 x 315	600	315	1160	875	571	504	866	547
600 x 450	600	450	1160	1010	706	504	866	629
800 x 600	800	600	1360	1160	1060	504	1260	813

CHOCK - MOUNTING, TYPE EU

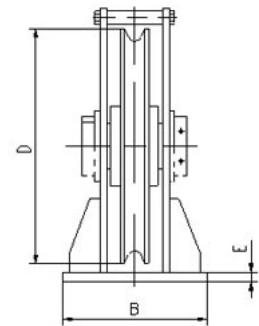


Nominal No.	Dimensions (mm)						Weight (kg)
	A	B	C	D	E	H	
315 x 250	315	250	815	620	365	380	230
425 x 280	425	280	1075	785	450	500	378
600 x 315	600	315	1360	865	507	560	598
600 x 450	600	450	1360	1000	575	560	655
600 x 450	600	450	1560	1200	675	760	780

SHEAVE - VERTICAL LEAD



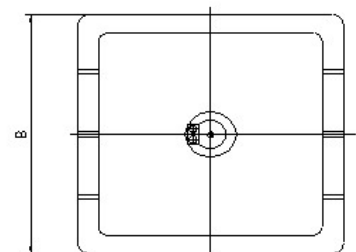
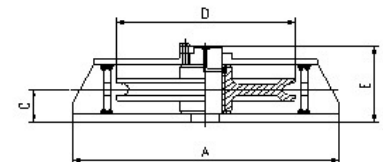
Wire Size		Sheave Dia. (mm)	Dimensions (mm)				
mm	in		D	A	B	C	E
25	1	406	485	276	520	20	220
32	1-1/4	508	603	345	610	25	275
38	1-1/2	600	711	407	700	30	330
44	1-3/4	660	782	448	770	30	390
52	2	762	903	517	900	40	410
58	2-1/4	830	870	580	980	40	440
64	2-1/2	914	1083	620	1070	40	490
76	3	1260	1320	700	1450	50	670
83	3-1/4	1330	1410	760	1560	50	720



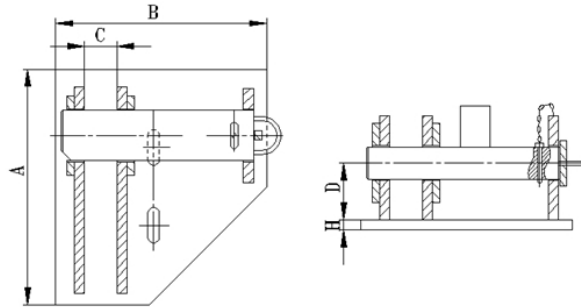
SHEAVE - HORIZONTAL LEAD



Wire Size		Sheave Dia. (mm)	Dimensions (mm)			
mm	in		D	A	B	C
25	1	406	635	635	90	190
32	1-1/4	508	787	787	102	210
38	1-1/2	610	914	914	110	230
44	1-3/4	660	1016	1016	120	250
52	2	762	1143	1143	130	270
58	2-1/4	850	1250	1250	140	280
64	2-1/2	914	1372	1372	150	310
76	3	1260	1580	1580	170	350
83	3-1/4	1330	1680	1680	190	390

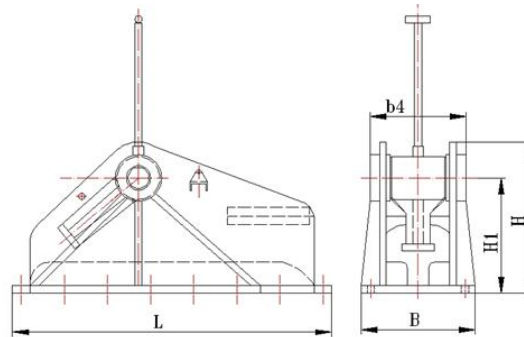


BRACKET - SMIT BRACKET



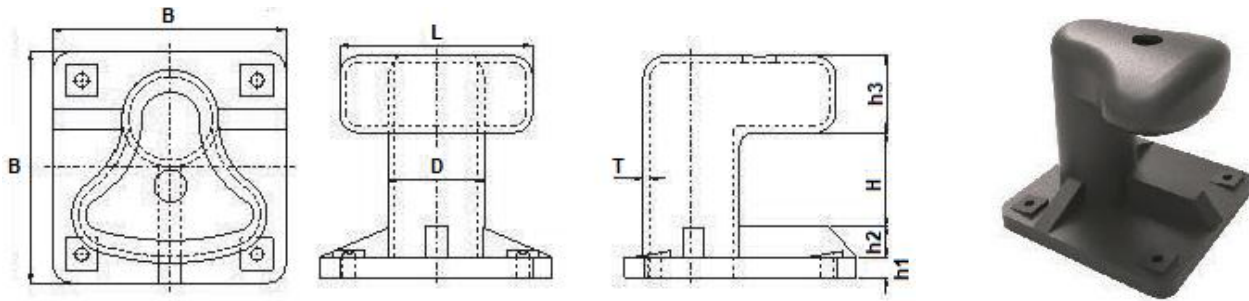
Nominal No.	Weight (kg)	Dimensions (mm)				
		A	B	C	D	H
54-56	160	500	450	75	160	25
62-64	198	625	600	100	180	35
76-78	311	800	720	110	228	35

STOPPER - CHAIN CABLE STOPPER



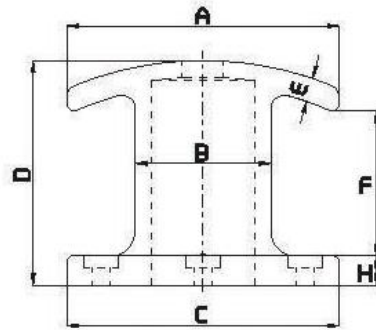
Nominal No.	Weight (kg)	Dimensions (mm)				
		L	B	H	H1	b4
54-56	488	1336	474	631	481	400
76-78	1421	1800	640	850	648	540

BOLLARD - CURVED TYPE A



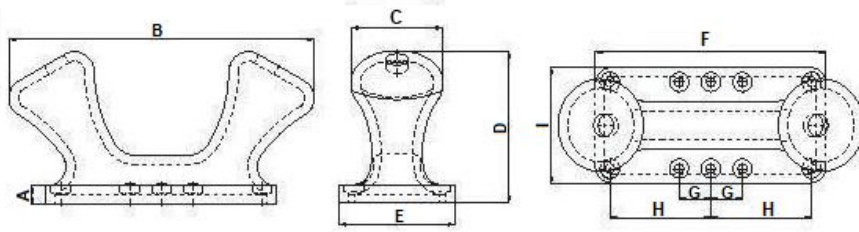
Model No.	Bolts Qty.	Dimensions (mm)							
		D	H	T	L	B	h1	h2	h3
6T	4	150	170	20	300	360	30	60	120
10T	4	200	210	20	400	460	40	70	150
15T	4	250	250	20	500	600	50	80	200
25T	4	300	200	21	600	720	65	95	240
35T	4	300	280	25	600	810	65	95	240
50T	4	350	330	29	700	945	70	100	280
75T	4	400	370	33	800	1180	90	120	320
100T	4	450	410	39	900	1365	95	125	360

BOLLARD - DOCK TYPE J



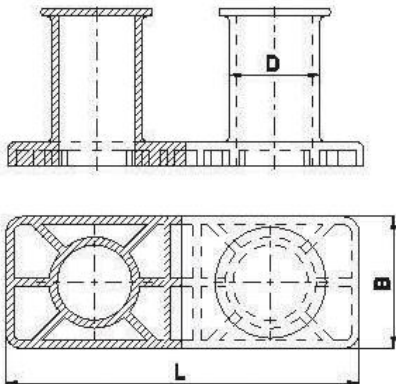
Model No.	Bolts Qty.	SWA (t)	Dimensions (mm)							
			A	B	C	D	E	F	G	H
J-01	4	10	180	120	240	190	25	140	180	25
J-02	4	16	216	150	290	220	25	160	220	35
J-03	4	20	280	200	380	260	25	200	280	35
J-04	4	16	290	150	290	220	25	160	220	35
J-05	6	50	400	230	480	380	40	244	340	60

BOLLARD - DOUBLE BITT LXY-B09



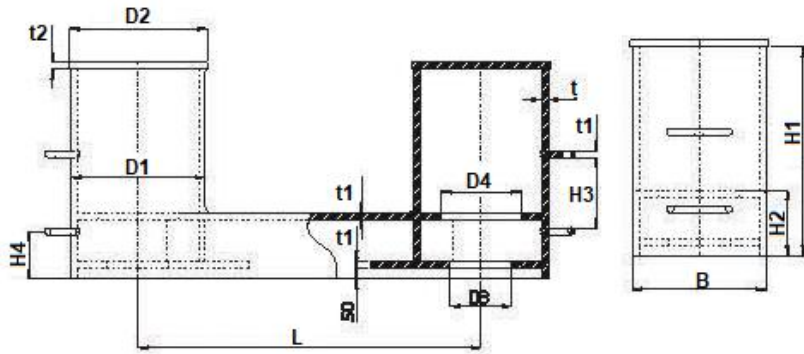
Model No.	Dimensions (mm)									Bolt Size	Bolt Length	Qty.
	A	B	C	D	E	F	G	H	I			
20T	38	678	204	204	267	533	70	222	191	M20	300	8
30T	46	781	235	389	302	604	81	258	221	M22	300	8
50T	56	942	285	469	356	711	98	311	267	M30	450	8
75T	62	1144	346	670	432	884	189	378	324	M36	450	10
100T	75	1346	407	670	508	1016	222	444	381	M42	600	10
125T	80	1548	468	771	508	1168	256	512	438	M42	600	10
150T	91	1683	509	838	635	1270	278	556	476	M48	750	10
200T	96	1886	570	936	702	1422	311	622	533	M56	915	10

BOLLARD - DOUBLE BITT LXY-B10



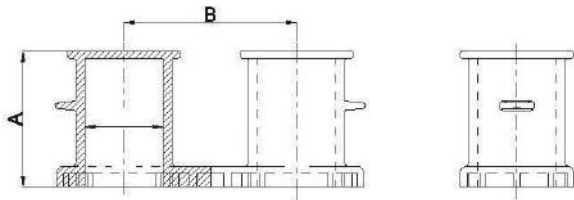
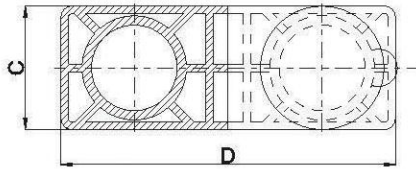
Model No.	Weight (kg)	Dimensions (mm)			
		D	L	B	H
100	19	114	445	165	196
125	29	140	540	195	246
160	45	168	670	225	316
200	80	219	860	290	378
250	141	273	1065	360	470
315	264	325	1300	430	597
355	369	351	1476	480	663
400	499	402	1630	550	749
450	680	450	1840	620	841
500	911	508	1040	690	926
560	1208	560	2240	750	1026
630	1601	610	2510	820	1152
710	2252	712	2840	960	1294
800	3071	813	3240	1100	1480

BOLLARD - DOUBLE BIT DECK MOUNT LXY-B011



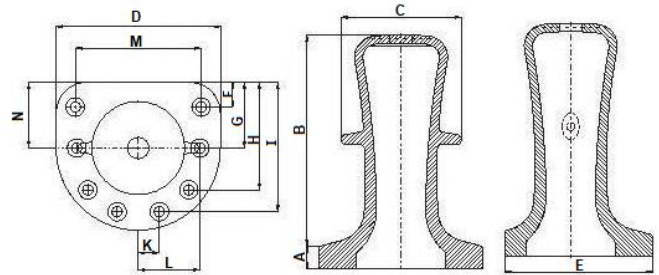
Model No.	Dimensions (mm)									SWL (t)	Weight (kg)
	D1	D2	D3	D4	H1	H2	B	L	E		
150	166.2	185	-	80	330	90	155	400	-	5T	29
200	226.3	240	-	130	395	115	205	600	-	6.7T	46
250A	257.4	290	-	160	505	135	250	630	-	14T	107
250B	257.4	290	-	160	505	135	250	630	-	11T	91
300A	328.5	340	150	185	600	150	290	600	300	31T	281
300B	328.5	340	150	185	600	150	290	600	300	16T	166
350A	355.8	380	170	200	685	175	340	890	350	43T	431
350B	355.8	380	170	200	685	175	340	890	350	22T	241
400A	406.4	430	190	230	730	185	380	1000	380	53T	570
400B	406.4	430	190	230	730	185	380	1000	380	27T	322
450A	457.2	480	210	265	770	195	425	1100	410	62T	712
450B	457.2	480	210	265	770	195	425	1100	410	30T	379
500A	508	530	235	295	830	230	480	1250	460	77T	880
500B	508	530	235	320	830	230	480	1250	460	33T	485
550A	558.8	680	255	330	900	270	520	1380	540	83T	1123
550B	558.8	680	255	350	900	270	520	1380	540	55T	787
600	609.4	830	280	365	950	300	560	1660	600	87T	1391

BOLLARD - DECK MOUNT LXY-B012



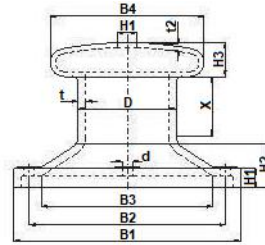
Model No.	Dimensions (mm)				Weight (kg)
	A	B	C	D	
19.8	196	250	165	445	100
29.4	248	315	195	640	125
44.7	316	400	225	670	160
79.5	378	500	290	860	200
139	470	630	360	1065	250
261	597	800	430	1300	315
362	663	890	480	1476	355
602	740	1000	550	1630	400
685	841	1130	620	1840	450
911	928	1250	690	2040	500
1208	1025	1380	750	2240	560
1601	1152	1670	820	2510	630
2252	1294	1750	900	2840	710
3071	1480	2000	1100	3240	800

BOLLARD - SINGLE BITT



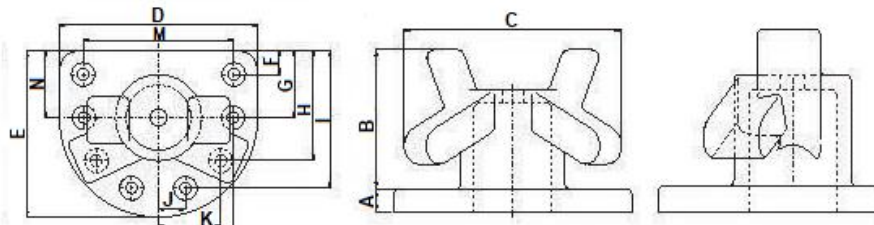
Model No.	Dimensions (mm)														Bolt Size	Bolt Length	Qty.
	A	B	C	D	E	F	G	H	I	J	K	L	M	N			
10T	44	390	224	325	284	46	-	-	205	83	-	-	234	122	M24	450	4
15T	44	429	246	358	313	50	-	-	225	91	-	-	257	184	M24	450	4
20T	54	454	263	358	322	54	-	201	281	0	124	-	275	149	M24	450	5
30T	60	540	307	419	377	63	-	236	328	0	140	-	321	189	M30	450	5
50T	70	696	391	533	480	80	-	256	394	96	200	-	409	213	M36	600	6
75T	82	829	475	648	583	97	-	311	476	117	249	-	497	259	M42	600	6
100T	89	925	559	762	688	114	330	522	607	0	195	291	584	305	M46	760	7
125T	92	1067	604	823	741	123	357	564	645	0	211	314	631	329	M48	760	7
150T	96	1153	659	899	809	135	390	616	704	0	231	343	689	360	M68	915	7
200T	111	1270	726	991	892	149	396	814	755	124	311	380	769	396	M68	915	8

BOLLARD - SINGLE-BITE TYPE JIS



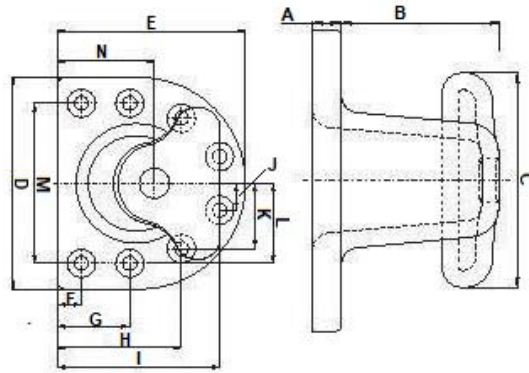
Model No.	Size (mm)												Kgs
	D	X	t	B4	H3	t2	H1	H2	B3	B1	B2	d	
15T	250	290	20	400	87	25	45	100	430	600	500	43	130
25T	300	290	20	460	106	15	50	130	510	725	600	55	220
35T	300	290	25	480	106	16	60	130	510	725	600	55	230
50T	350	330	27	550	122	16	70	160	600	810	700	66	350
70T	400	380	30	610	140	23	80	190	680	900	800	74	530
100T	450	410	35	720	157	25	90	270	680	1180	1000	74	893
150T	630	510	40	880	192	29	100	340	1010	1440	1220	91	1450
200T	750	550	43	1030	227	39	110	410	1240	1700	1440	101	2230

BOLLARD - TYPE STAG HORN



Model No.	Dimensions (mm)														Bolt Size	Bolt Length	Qty.
	A	B	C	D	E	F	G	H	I	J	K	L	M	N			
10T	41	291	348	381	330	44	-	-	243	103	-	-	291	140	M24	450	4
15T	45	320	394	419	363	49	-	-	287	114	-	-	320	154	M24	450	4
20T	49	349	430	442	391	49	-	234	335	0	159	-	349	160	M24	450	6
30T	66	392	483	497	429	51	-	263	377	0	179	-	393	180	M30	450	5
50T	69	419	616	530	457	55	-	281	402	0	191	-	419	192	M36	600	5
75T	71	469	627	645	556	67	-	287	459	120	250	-	509	233	M42	600	6
100T	81	559	717	737	636	76	292	484	559	0	195	291	532	267	M42	600	7
125T	90	616	788	810	690	84	321	532	615	0	215	320	640	293	M48	750	7
150T	99	671	880	884	762	91	351	541	671	0	235	349	698	320	M48	750	7
200T	102	699	896	921	794	95	333	543	679	119	299	365	727	333	M56	915	8

BOLLARD - T-HEAD



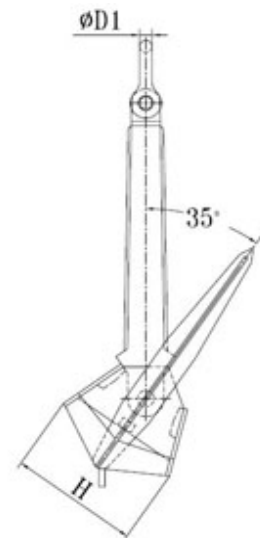
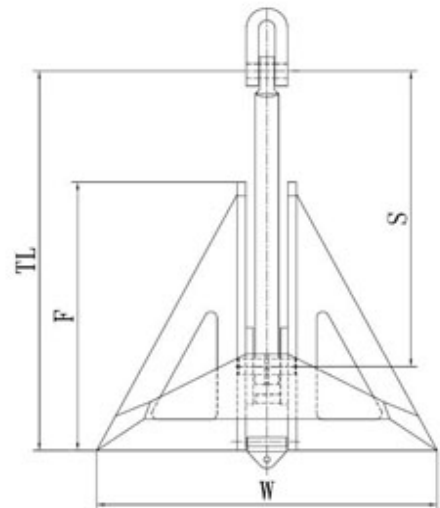
Model No.	Dimensions (mm)														Bolt Size	Bolt Length	Qty.
	A	B	C	D	E	F	G	H	I	J	K	L	M	N			
MT10	47	199	305	381	330	44	-	-	243	103	-	-	292	169	M24	460	4
MT15	52	219	335	419	363	49	-	-	307	114	-	-	321	208	M24	460	4
MT20	54	240	351	435	380	51	-	232	329	0	152	-	336	217	M24	460	5
MT30	57	250	366	457	396	53	-	242	343	0	159	-	351	225	M30	460	5
MT60	70	308	451	564	489	65	-	266	423	0	196	-	432	279	M36	600	5
MT75	80	354	518	648	561	76	-	298	463	105	241	-	497	321	M42	600	6
MT100	80	419	610	762	660	89	305	406	572	0	195	291	584	377	M42	600	7
MT125	87	458	671	838	726	98	335	546	629	0	215	320	643	415	M48	750	7
MT150	87	492	719	899	779	105	360	566	674	0	231	343	689	445	M48	750	7
MT200	97	521	762	952	826	111	349	559	684	119	299	365	730	472	M56	915	8



ANCHOR - DELTA HHP



Weight (kg)	Dimensions (mm)						P.L. (kN)
	TL	W	F	H	S	D1	
300	1380	1200	960	465	1080	45	98
500	1725	1500	1200	570	1350	48	143
750	1950	1700	1360	650	1530	50	198
1000	2150	1870	1500	710	1680	62	250
1500	2460	2140	1710	815	1920	70	350
2000	2715	2360	1890	900	2125	75	435
2500	2925	2540	2035	970	2290	80	510
3000	3105	2700	2160	1030	2430	90	576
3500	3240	2845	2280	1087	2565	90	635
4000	3375	2953	2315	1140	2650	100	686
5000	3658	3200	2560	1225	2900	110	776
6000	3935	3405	2720	1310	3125	110	875
7000	4120	3580	2860	1360	3220	117	968
7500	4215	3666	2925	1390	3295	124	1005
8000	4315	3750	3000	1425	3380	130	1048
9000	4490	3874	3120	1480	3512	135	1108
10000	4725	4100	3280	1560	3690	140	1172
11000	4868	4140	3310	1600	3750	145	1238
12000	4960	4275	3420	1640	3860	150	1300
13500	5120	4450	3560	1700	4000	155	1408
15000	5345	4600	3685	1735	4160	160	1520
18000	5678	4890	3919	1840	4418	170	1710
20000	5880	5065	4050	1900	4570	175	1840

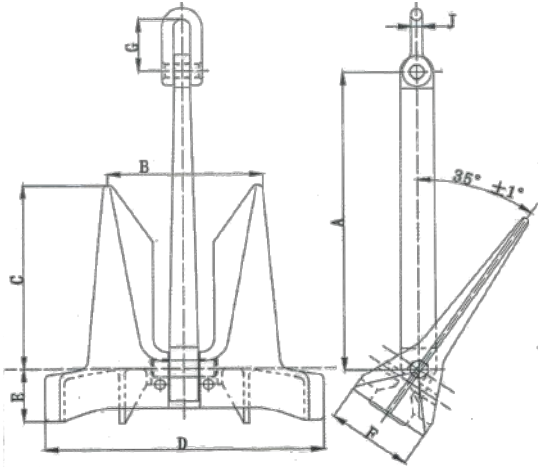


ANCHOR - AC-14

Weight (kg)	Dimensions (mm)							
	A	B	C	D	E	F	G	H
56	612	298	376	555	109	170	115	24
100	745	364	458	675	130	200	130	28
180	909	442	558	822	162	252	160	36
300	1075	524	660	975	194	298	192	45
428	1213	590	745	1098	216	336	215	48
675	1410	690	868	1278	250	390	255	60
750	1450	700	878	1315	256	396	255	60
910	1560	760	957	1410	273	430	255	60
970	1592	775	978	1445	284	440	280	62
1080	1650	805	1014	1495	294	455	280	62
1305	1760	858	1082	1595	313	485	310	68
1440	1818	885	1118	1645	324	505	310	68
1710	1925	940	1184	1745	343	532	340	74
1845	1975	965	1215	1785	347	546	340	74
2100	2065	1005	1268	1865	354	570	380	82
2475	2175	1062	1340	1970	385	570	380	82
2835	2265	1105	1393	2055	399	625	410	90
3550	2455	1198	1508	2225	438	680	415	100
3940	2540	1240	1562	2300	453	705	450	100
4500	2655	1295	1632	2405	473	735	450	100
4840	2720	1330	1670	2465	490	755	480	110
5610	2858	1396	1758	2590	509	790	500	110

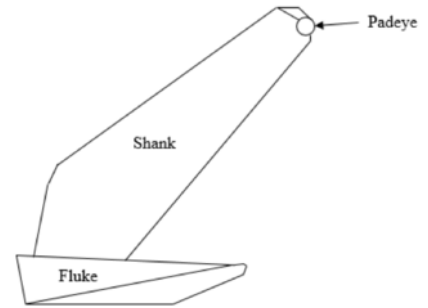


ANCHOR - AC-14

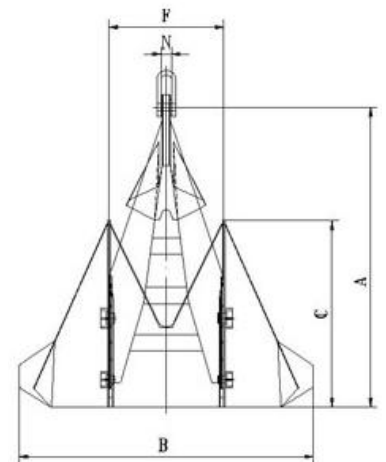
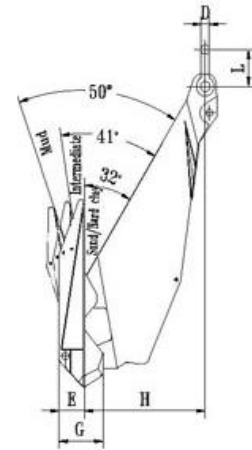


Weight (kg)	Dimensions (mm)							
	A	B	C	D	E	F	G	H
6000	2922	1426	1796	2646	515	810	500	110
6900	3062	1496	1884	2775	545	848	540	117
7800	3190	1558	1962	2890	569	884	600	130
8300	3256	1590	2002	2950	574	902	600	130
9300	3382	1652	2080	3064	603	936	630	135
9900	3452	1686	2124	3128	616	956	640	140
10575	3523	1720	2166	3192	628	976	660	145
11100	3589	1720	2166	3192	628	976	660	145
11700	3650	1782	2245	3308	648	1010	680	150
12300	3683	1794	2260	3330	655	1018	700	155
12900	3772	1842	2320	3418	670	1044	700	155
13500	3830	1870	2355	3470	682	1060	730	160
14100	3885	1896	2389	3520	689	1076	730	160
14700	3940	1924	2423	3570	700	1090	730	160
15400	4002	1954	2461	3626	710	1108	730	160
16100	4062	1982	2498	3680	721	1125	770	170
16900	4128	2016	2538	3740	721	1144	770	170
17800	4200	2050	2583	3806	725	1162	800	180
18800	4277	2088	2630	3875	729	1185	800	180
20000	4350	2101	2694	3945	729	1185	820	199
25000	5046	2437	3125	4577	846	1375	848	230

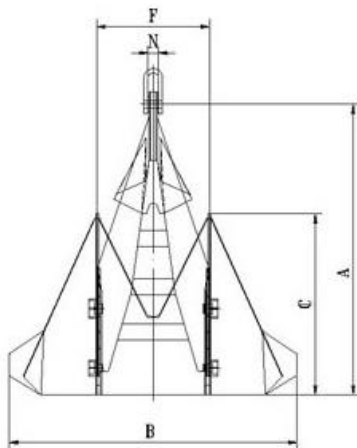
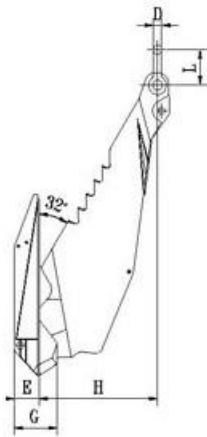
ANCHOR - ST OFFSHORE



Weight (kg)	Dimensions (mm)									
	A	B	C	D	E	F	G	H	L	N
500	2050	2191	1242	48	187	859	323	1002	215	64
1000	2580	2755	1563	59	236	1081	407	1261	271	78
1500	2957	3160	1792	68	270	1240	467	1446	310	94
2000	3253	3477	1970	74	297	1364	513	1591	340	106
3000	3722	3979	2256	90	340	1561	586	1820	385	120
4000	4096	4378	2483	100	374	1717	645	2003	415	124
5000	4415	4718	2678	110	403	1853	696	2161	480	136
6000	4691	5013	2845	110	428	1968	739	2296	500	144
7000	4939	5277	2994	115	451	2071	778	2416	540	156
7500	5053	5399	3063	124	461	2119	796	2472	580	156
8000	5166	5519	3134	130	471	2169	816	2530	600	156
9000	5372	5739	3239	135	490	2255	848	2631	620	170
10000	5563	5943	3375	140	508	2335	878	2725	640	170
11000	5742	6134	3483	145	524	2410	906	2812	660	184
12000	5914	6318	3588	150	539	2483	935	2897	680	184
13500	6150	6570	3731	155	561	2582	972	3012	700	188
15000	6369	6804	3864	160	581	2674	1006	3119	730	198
18000	6767	7229	4105	175	618	2841	1065	3313	790	212
20000	7011	7490	4255	180	640	2946	1107	3435	800	216
22000	7237	7731	4391	190	660	3040	1142	3545	850	226
25000	7551	8066	4581	195	689	3171	1191	3699	860	230
30000	8023	8570	4866	210	733	3282	1264	3929	940	244

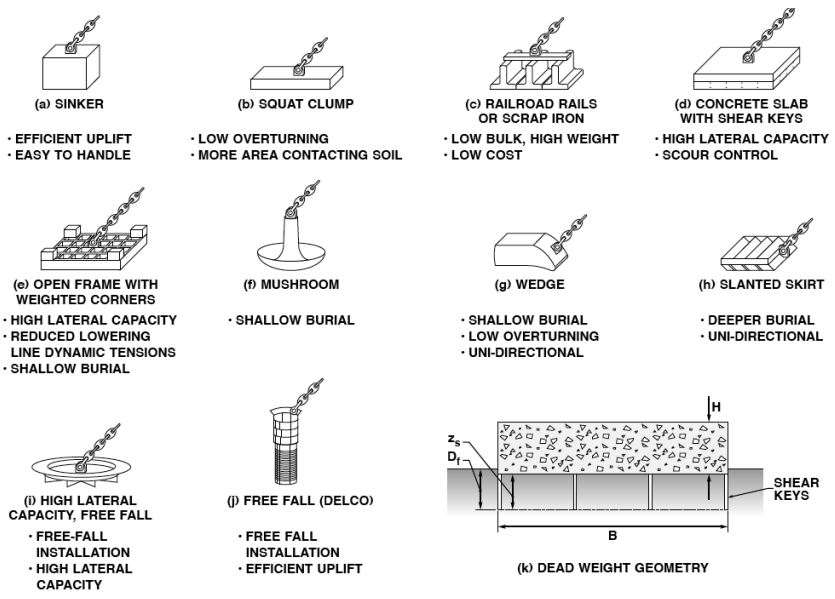


ANCHOR - STS OFFSHORE



Weight (kg)	Dimensions (mm)									
	A	B	C	D	E	F	G	H	L	N
500	2034	2175	1232	48	187	849	317	992	215	64
1000	2564	2742	1553	59	236	1071	401	1251	271	78
1500	2933	3136	1776	68	270	1224	457	1430	310	94
2000	3229	3453	1955	74	297	1348	503	1575	340	106
3000	3698	3955	2240	90	340	1545	576	1804	385	120
4000	4072	4354	2467	100	374	1701	635	1987	415	124
5000	4385	4688	2654	110	403	1829	684	2137	480	136
6000	4661	4983	2821	110	428	1944	727	2272	500	144
7000	4909	5247	2970	115	451	2047	766	2392	540	156
7500	5023	5369	3039	124	461	2095	784	2448	580	156
8000	5130	5483	3104	130	471	2139	800	2500	600	156
9000	5336	5703	3209	135	490	2225	832	2601	620	170
10000	5527	5907	3345	140	508	2305	862	2695	640	170
11000	5706	6098	3453	145	524	2380	890	2782	660	184
12000	5870	6274	3552	150	539	2447	913	2861	680	184
13500	6106	6526	3695	155	561	2546	950	2976	700	188
15000	6325	6760	3828	160	581	2638	984	3083	730	198
18000	6723	7185	4069	175	618	2805	1043	3277	790	212
20000	6961	7440	4211	180	640	2902	1077	3391	800	216
22000	7187	7681	4347	190	660	2996	1112	3501	850	226
25000	7501	8016	4537	195	689	3127	1161	3655	860	230
30000	7973	8520	4822	210	733	3238	1234	3885	940	244

ANCHOR - DEAD WEIGHTS



Flipper Delta



Bruce Mk4 Twin Shank



AC 14



Hall



Stockless



Danforth

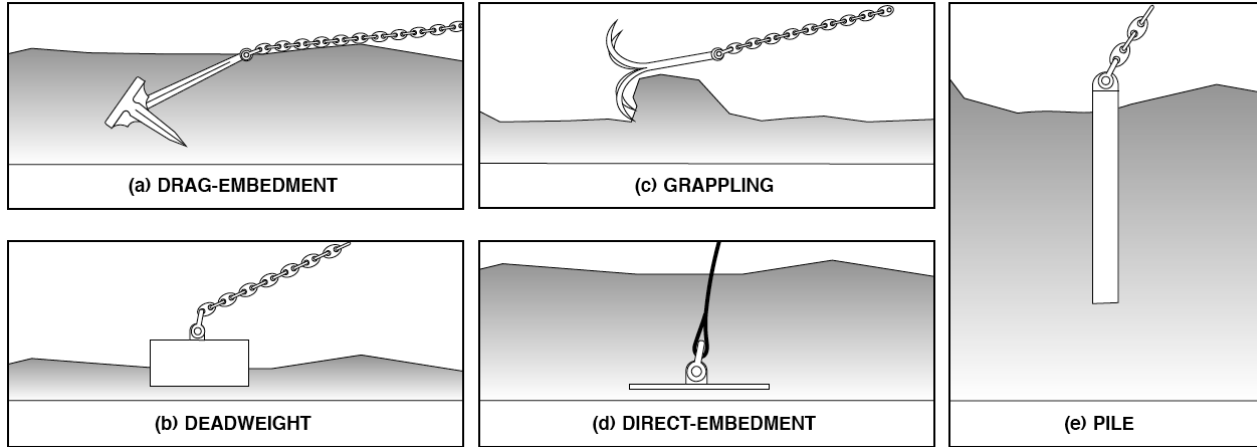


Suction type anchors.

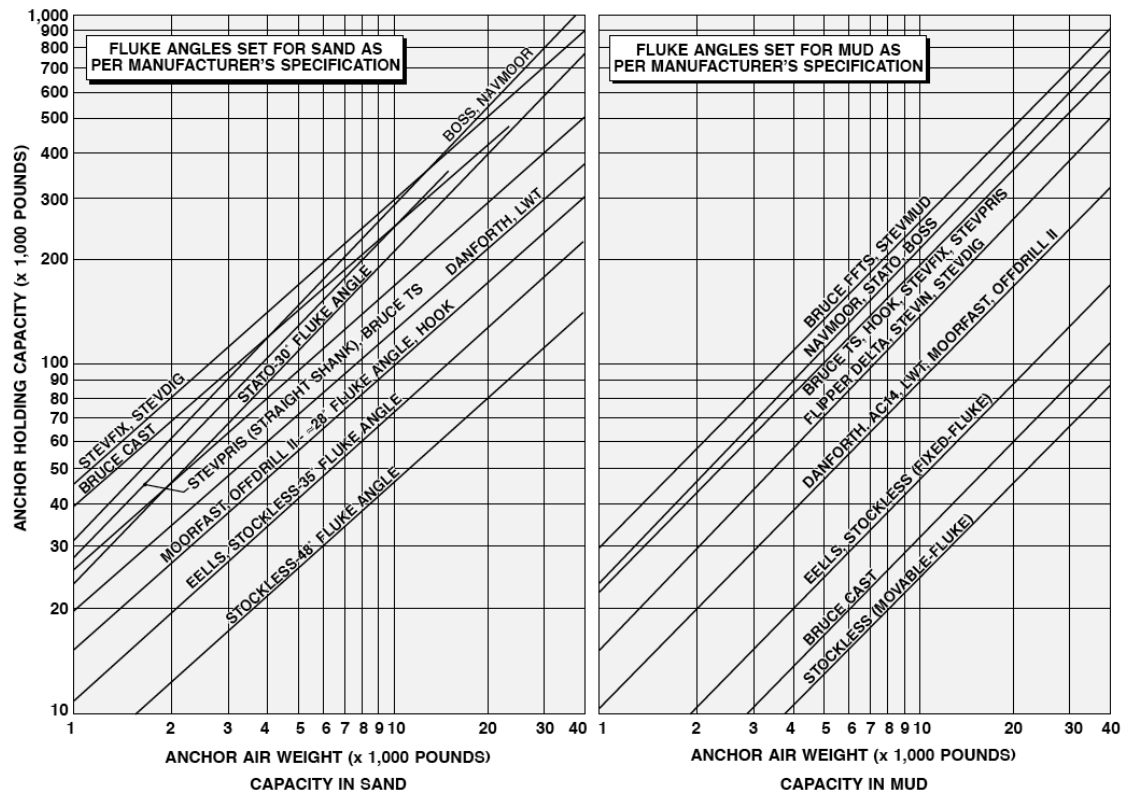
ANCHORS

Anchors are available to 65,000 kg in weight. Measurements are holding capacity charts can be supplied. Selecting the correct anchor is dependent on the application. The water depth, soil

conditions, holding power line ratios, distance to penetration/burial and installation methods all have to be considered when selecting the style and weight to be used.



Below are a list of the most common drag embedment type anchors used, they are usually used for temporary moorings or as an anchoring point for pulling systems.



MOORING CONNECTOR - H-LINKS

H-Links - Forged and Plate Styles

Oceanside Equipment is the world leader in the design and manufacture of mooring H-links. With many high-profile projects Oceanside has worked closely with its client to complete and innovate connecting components for deep water moorings. Many of these project span over several years from concept to installation. The experience we have acquired is used in the design and customization of the Links to improve the installation and in-service requirements of our clients. The deep-water industry has evolved over the years with new standards and class requirements. Many of these moorings have a service life of 20 years to 40 years.

Oceanside has worked with clients and Class with engineering studies and full size testing to confirm the inner workings of the design and features of our links. The traceability of our components begins at the ladle steel pour, followed and tested at many stages throughout production. Project specific ITP and MPS are prepared for full compliance to client and class requirements. The final load testing is done with our 3000 te purpose built test bed.

Project – Reference List



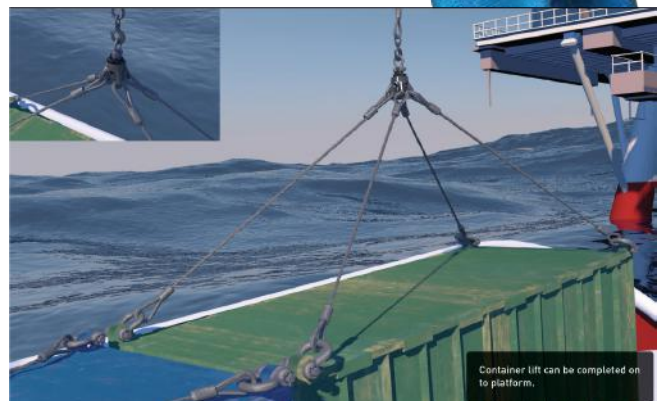
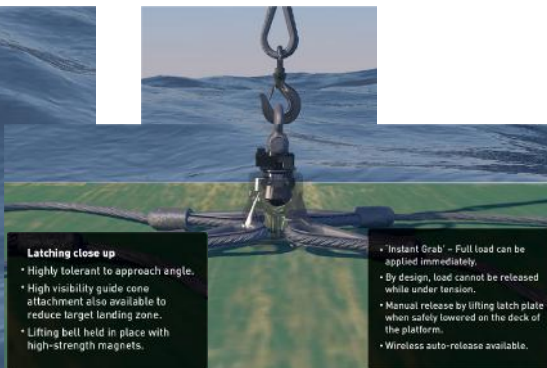
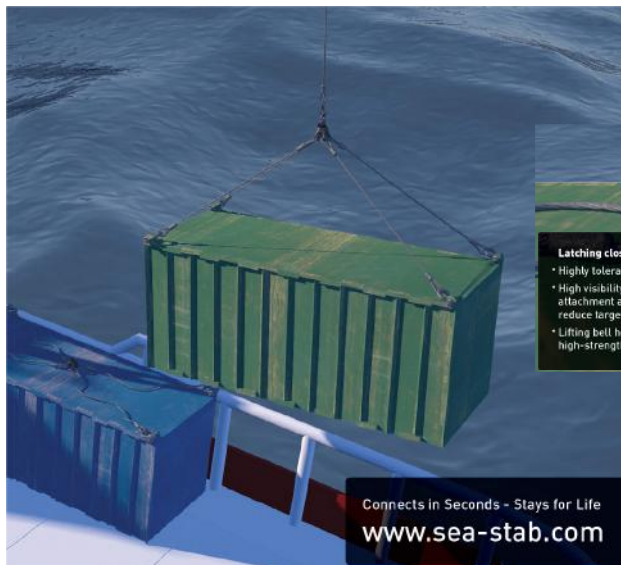
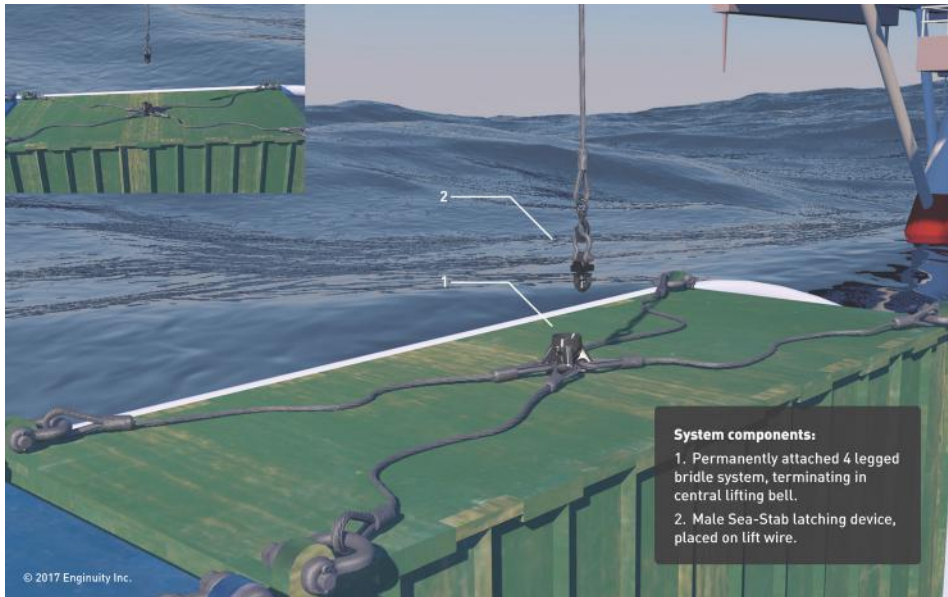
•Ocean Confidence	730 te
•MadDog	1,895 te
•Red Hawk	1,246 te
•ATP Rowan Midland	602 te
•Thunderhorse	1,386 te
•Independence Hub	1,527 te
•Tahiti	1,875 te
•BlindFaith	1,665 te
•Balmoral FPSO	
•Triton FPSO	
•Kikeh	1,441 te
•Mirage	1,501 te
•ThunderHawk	1,964 te
•West Berani at Tombua Landana	
•Anasuria FPSO	
•Exxon Balder	
•Oxy Petroleum FPSO	
•Technip Lucius	2,131 te
•Chervon Jack St Malo	2,558 te
•GulfStar 1	1,501 te
•Heidelberg	2,131 te
•Asta Hansteen	2,437 te
•Appomattox	2,632 te

602 to 2632te MBL

CONTAINER LIFTING - SEA-STAB

Introducing Sea-Stab

A rapidly deployed, preset, re-usable, high-load connector, container latching and lifting system. Innovative, 'hands free' cargo lifting connection in a dynamic environment.



PERMANENT MOORING CONNECTIONS MADE SIMPLE

SEAoStab™



Connects in Seconds.
Stays for Life.

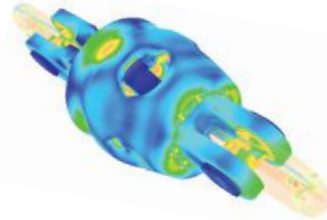


A new subsea mooring connector that's lighter, simpler, stronger and more cost effective than traditional 'ball and taper' technology

Whether you're installing a pre-lay for a MODU, a new spread for an offloading system or replacing a line on an FPSO, SEA-Stab™ from Engenuity offers simple, cost-effective and rapid connection. Designed to be stronger than any equivalent sized chain, with a fully scalable design allowing for working loads up to 30,000kN.

SEA-Stab™ outperforms traditional permanent or re-connectable technologies.

- Zero deformation at full chain MBL, ensuring connector remains 'Truly' reconnectable
- Cost effective design reduces capital cost
- Self-centers during deployment with wide approach angles, reducing installation costs
- Fully inspectable during installation and throughout life, ensuring 'fitness for purpose'
- Only 5 Moving parts with no dissimilar materials reducing corrosion risk
- Configurable coupling reduces need for additional components during hook-up



Finite Element Analysis showing connector at chain break load



Female and male components with optional padeye



Design Approved by:



Patent No. US 9,488,203 B2 • © Copyright 2017 Engenuity Inc. • www.sea-stab.com • +1.902.431.7931

WINCHES



- Rigmarine's hydraulic and electric powered winch building capabilities are at the forefront of industry requirements. From specialist constant tension, deck utility and mooring winches, Rigmarine not only have the ability to provide our clients with an excellent product but also to deliver a complete package including service, recertification and skilled operators.
- Our facility – 4000 sq mtr, with 150 state of the art machining and CNC machines. Our R&D – Over 50 specialist engineers covering every aspect of winching technology. Our Quality – operating to a full ISO 9001-2000 QMS with accreditations from all major Class societies including DNV, ABS and LROS.
- The range and quality of our products have so far been of service to our clients in the following industries: Oil and Gas, Engineering, Marine, Shipbuilding, Subsea, Tele communication, Lifting and Mining.
- A selection of our most recent projects include: 40t Hydraulic constant tension lifting winches for subsea deployment, Compact 32t hydraulic lifting winches with planetary gear boxes, 35t Temporary barge mooring winches for quay side load out and a 10t Back tensioned wire spooling machine for crane wire installation.

Contact Oceanside Equipment to find a winch that will suit your customers' needs



WINCH - HYDRAULIC UTILITY

- Rated in Metric Ton(s)

Model	1" Layer Line Pull (t)	Brake Capacity (t)	Gear Type	Overall Dim. mm (W/L/H)	Drum Dim. mm (Core/W/Flange)	Wire Capacity Length / diam	Line Speed (m/min)	Weight (kg)
HU4	4	6	Planetary	810/605/550	310/405/500	180/16	16	600
HU7	7	10	Planetary	958/700/660	400/512/640	250/19	13	750
HU15	15	22.5	Planetary	1356/960/1256	600/780/942	380/28	13	1600
HU32	32	48	Planetary	1682/1258/1514	720/980/1188	420/40	13	2500
HU40	40	60	Planetary	1802/1410/1635	810/1410/1635	700/44	13	4200
HU52	52	75	Planetary	2000/1505/1750	810/1100/1700	700/52	13	5100



WINCH - HYDRAULIC MOORING, COMPACT



- Rated in Metric Ton(s)

Model	1" Layer Line Pull (t)	Brake Capacity (t)	Gear Type	Overall Dim. mm (W/L/H)	Drum Dim. mm (Core/W/Flange)	Wire Capacity Length / diam	Line Speed (m/min)	Weight (kg)
HM15C	15	30	Planetary	1880/1858/1164	480/850/840	350/28	30	2000
HM25C	25	50	Planetary	1530/2457/1660	600/1100/1200	650/36	30	3100
HM32C	32	64	Planetary	1990/2940/2080	850/1258/1650	1200/40	20	4200
HM40C	40	80	Planetary	1990/2940/2080	850/1258/1650	1000/44	20	4200
HM50C	50	100	Planetary	1990/2940/2080	850/1258/1650	700/52	20	4200



WINCH - HYDRAULIC MOORING, STANDARD

- Rated in Metric Ton(s)

Model	1" Layer Line Pull (t)	Brake Capacity (t)	Gear Type	Overall Dim. mm (W/L/H)	Drum Dim. mm (Core/W/Flange)	Wire Capacity Length / diam	Line Speed (m/min)	Weight (kg)
HM10	10	15	Spur Gear	1800/1800/1500	320/420/900	150/28	12	3000
HM18	18	27	Spur Gear	1800/2252/1450	320/790/900	450/28	10	4000
HM20	20	60	Spur Gear	2350/2640/1900	400/1310/1400	1000/36	10	5500
HM25	25	90	Spur Gear	2180/2930/1860	400/1220/1450	700/44	10	6500
HM35	35	90	Spur Gear	2580/3075/1885	440/1320/1600	1000/44	10	9500
HM45	45	120	Spur Gear	3000/3230/2040	500/1550/1520	1000/44	7/21	11000
HM60	60	130	Spur Gear	3050/2900/2350	500/1344/1960	1000/50	10/20	15400
HM80	80	140	Spur Gear	3200/3840/2660	600/1700/1900	1000/52	10/20	16000
HM100	100	150	Spur Gear	3200/3840/2660	600/1700/1900	100/52	6	22500

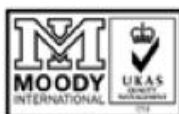


WINCH - HYDRAULIC MOORING, DOUBLE DRUM



• Rated in Metric Ton(s)

Model	Config.	1" Layer Line Pull (t)	Brake Capacity (t)	Gear Type	Overall Dim. mm (W/L/H)	Drum Dim. mm (Core/W/Flange)	Wire Capacity Length / diam	Line Speed (m/min)	Weight (kg)
HM10	HM10	10	15	Spur Gear	1800/1800/1500	320/420/900	150/28	12	3000
HM18	HM18	18	27	Spur Gear	1800/2252/1450	320/790/900	450/28	10	4000
HM20	HM20	20	60	Spur Gear	2350/2640/1900	400/1310/1400	1000/36	10	5500
HM25	HM25	25	90	Spur Gear	2180/2930/1860	400/1220/1450	700/44	10	6500
HM35	HM35	35	90	Spur Gear	2580/3075/1885	440/1320/1600	1000/44	10	9500





WINCH - HYDRAULIC SPOOLING MACHINE



- Rated in Metric Ton(s)

Model	Max. Reel Weight (t)	Max Reel Dimension	Shaft Diameter (mm)	Back Tension Capabilities	Overall Shipping Dimensions (W/L/H)	Weight (kg)
HSM10	10	2000x2000	50	5	1400/3850/1100	2000
HSM25	25	2500x2500	50 & 75	10	2000/4200/2200	3500
HMS50	50	3500x3500	125 & 150	15	2400/5000/2400	6500
HMS100	100	4000x4000	150 & 225	25	2400/6000/2400	10500
HMS200	200	5500x5500	225 & 300	40	2400/8000/2400	14800



WINCH - STANDARD AIR

- Rated in Metric Ton(s)

Model	1" Layer Line Pull (t)	Break Type	Overall Dim. mm (W/L/H)	Wire Capacity Length / diam	Line Speed (m/min)	Weight (kg)
HM10	10	Spur Gear	1800/1800/1500	150/28	12	3000
HM18	18	Spur Gear	1800/2252/1450	450/28	10	4000
HM20	20	Spur Gear	2350/2640/1900	1000/36	10	5500
HM25	25	Spur Gear	2180/2930/1860	700/44	10	6500
HM35	35	Spur Gear	2580/3075/1885	1000/44	10	9500
HM45	45	Spur Gear	3000/3230/2040	1000/44	7/21	11000



WINCH - POWER PACK - DIESEL HYDRAULIC

- Rated in Metric Ton(s)

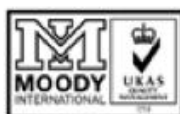
Model	Power (Kw)	Engine Type	Flow Rate ltr/min	Max. Pressure Bar	Frame Size (L/H/W) mm	Weight (kg)
HM10	10	Spur Gear	1800/1800/1500	150/28	12	3000
HM18	18	Spur Gear	1800/2252/1450	450/28	10	4000
HM20	20	Spur Gear	2350/2640/1900	1000/36	10	5500
HM25	25	Spur Gear	2180/2930/1860	700/44	10	6500
HM35	35	Spur Gear	2580/3075/1885	1000/44	10	9500



WINCH - POWER PACK - ELECTRIC HYDRAULIC

- Rated in Metric Ton(s)

Model	Power (Kw)	Tank Capacity (l)	Flow Rate ltr/min	Max. Pressure Bar	Frame Size (L/H/W) mm	Weight (kg)
HPU26E	26	950	80	350	1770/1760/1100	2200
HPU54E	54	950	140	350	1770/1863/1100	2500
HPU84E	84	950	250	350	1770/1863/1100	3000
HPU150E	150	1250	350	350	2400/2365/1330	4300
HPU300E	300	1875	700	350	2500/2200/1950	7000





Tough winches for the really tough jobs.

Heavy-duty Thern winches deliver the power and durability to do the tough jobs year after year. With a large number of standard configurations and the ability to quickly build-to-order, you can turn to Thern with confidence.

If you need to lift it, lower it, move it or pull it around we have the perfect Thern product for you. At this moment, there are thousands of our cranes, davits, and winches working smoothly and efficiently in plants of every description. These range from hand winches as small as 500 lb capacity up to power winches rated at up to 100,000 lb. And cranes - portable or fixed - with capacities from 500 to 2200 lb.

When you have to move on the move...

Construction, manufacturing and process sites have plenty of general pulling and lifting jobs where overhead hoists or fixed installations are impractical. Atlas compact power winches lift or pull with 2,000 lb of force and are easily moved from place to place around your work site. Among its many performance features: machine cut gears, enclosed oil bath, rugged cast aluminium construction, and internal mechanical brakes.

