WAYSAIL



MARINE AND AQUACULTURE EQUIPMENT SUPPLIER

Mooring System & Floating Fish Cage



WAYSAIL MAKES YOUR PROJECT SUCCESSFULLY

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COMPANY PROFILE

It started in 2005..., and today Waysail company is a major Exporter and Manufacturer of high quality Marine and Aquaculture Equipment, with Chains, Steel Anchors, Forged Products production in Qingdao City, and Injection Mold HDPE Bracket production in Taizhou City. Now, we have developed into a group company dedicated to designing and supplying Turnkey Solutions from Mooring System to Net Cages for marine and aquaculture industries.

Our Key Products:

- Chains, Anchors, Ropes, Buoys, Shackles and other Steel Welded and Forged Connection Hardware. (For your whole Mooring Systems)
- Injection HDPE Bracket, Tees, Pedal, Walkway, Elbows. (For your Aquaculture Fish Cage/Net-pen System)

Our Key Service:

- Design and Deliver The Whole Set of Components.
- Product Assembly Adaptation and Quality Verification.
- 12 Months Quality Guarantee.
- Installation Guide.

Our Quality Control:

- Professional Engineers and QC peoples with more than 20 year' experience.
- 300T Universal Test Machine, 1000T Horizontal Tension Machine, Impact Test Machine, Optical Spectrum Analyzer, Salt Spray Test Machine.

Our Market:

Our exporting markets are mainly in Australia, Europe, Southeast Asia, North America, South America, North Africa and etc.

Our Objective:

Work closely with clients to find the optimal solution in time and within budgets.

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Our Qualifications:

Our factory has been passed ISO9001-2008 Quality Management System.

The area of our factory is about 50,000 square meters, and it has more than 200 employees, factory yearly capacity is about 25,000 tons. We can manufacture Grade 1, Grade 2 and Grade 3 Studlink Anchor Chain, Open Link Chain, Steel Welding Anchors weight from 25kg to 25T, and Forged Hardware with die and free forging. Class certificate we provide: CCS, ABS, LR, BV, DNV, NK, KR, RINA, RMRS, IRS, CR.

And, our plastic injection factory is a professional deep-sea aquaculture fish cage fittings manufacturer, focus on injection molding parts production. We have 6,000 tons of injection molding machines, which means we can produce high quality and large size plastic products. Automatic manipulator operation can save workers, improve efficiency, reduce cost and improve product quality and good safety. We strictly manage production according to ISO9001 quality management system. The products cover HDPE Cage Bracket, Walkway Pedal, Tees, Elbow and Other Fittings. We have a serial of molds with 200/250/315/355/400/450/500mm. Customized is acceptable also.


ANCHOR CHAIN PRODUCTION WAREHOUSE




ANCHOR CHAIN PRODUCTION WAREHOUSE


ANCHOR CHAIN PRODUCTION WAREHOUSE


FORGED WORKSHOP


Injection Molding Machine

PROJECT



DEEP-SEA AQUACULTURE CAGE MOORING SYSTEM

End User: North America Offshore Ocean Fish Farmer

Supply Description: Three Catenary Anchor Legs to a central risher. Each mooring leg consists of 5Ton Drag Embedment Anchor, 70mm Anchor Chain, Lower Mooring Line, Upper Mooring Line, Shackles, Detal Plate and Mooring Ring.



CIRCULAR FISH CAGE BUILT

End User: South America Fish Farmer

Supply Description: 50m x 15m fish cage net pen, consisting of outer and inner floating pipes Φ450mm, Sink Pipe, double collars injection HDPE bracket 450mm, Φ160mm upright pipe, Φ160 x 140mm tees, pedals, netting, cordage, floating buoy, towing lines.



MARINE CYCLONE MOORING SYSTEM

End User: Western Australia Offshore Project Constructor

Supply Description: Generally, the anchors, mooring lines and connectors make up a mooring system. The cyclone moorings involved in the doing project were 15PCS x 5Ton High Holding Power Anchors, 150Tons of 76mm Anchor Chains and Fittings, Mooring Rings.

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CASES

OFFSHORE(MARINE) FLOATING PV

End User: South Asia Ocean Floating PV Constructor

Supply Description: Four mooring legs for each panel model, and each mooring leg consists of screw anchor, long link chains, double braided polyester ropes, mult-eyes connection plate, buoys and relative connections shackles, and other connectors.



Seaweed Farming Mooring Rig

End User: Ocean Seaweed Farmer in Western Europe

Supply Description: Braided polypropylene rope spliced with thimble and steel ring at each end, 3 ply twisted rope, 12 holes connection plate, floating buoys, plough anchors, open link chains, shackles. The whole set of mooring system for kelp farming.

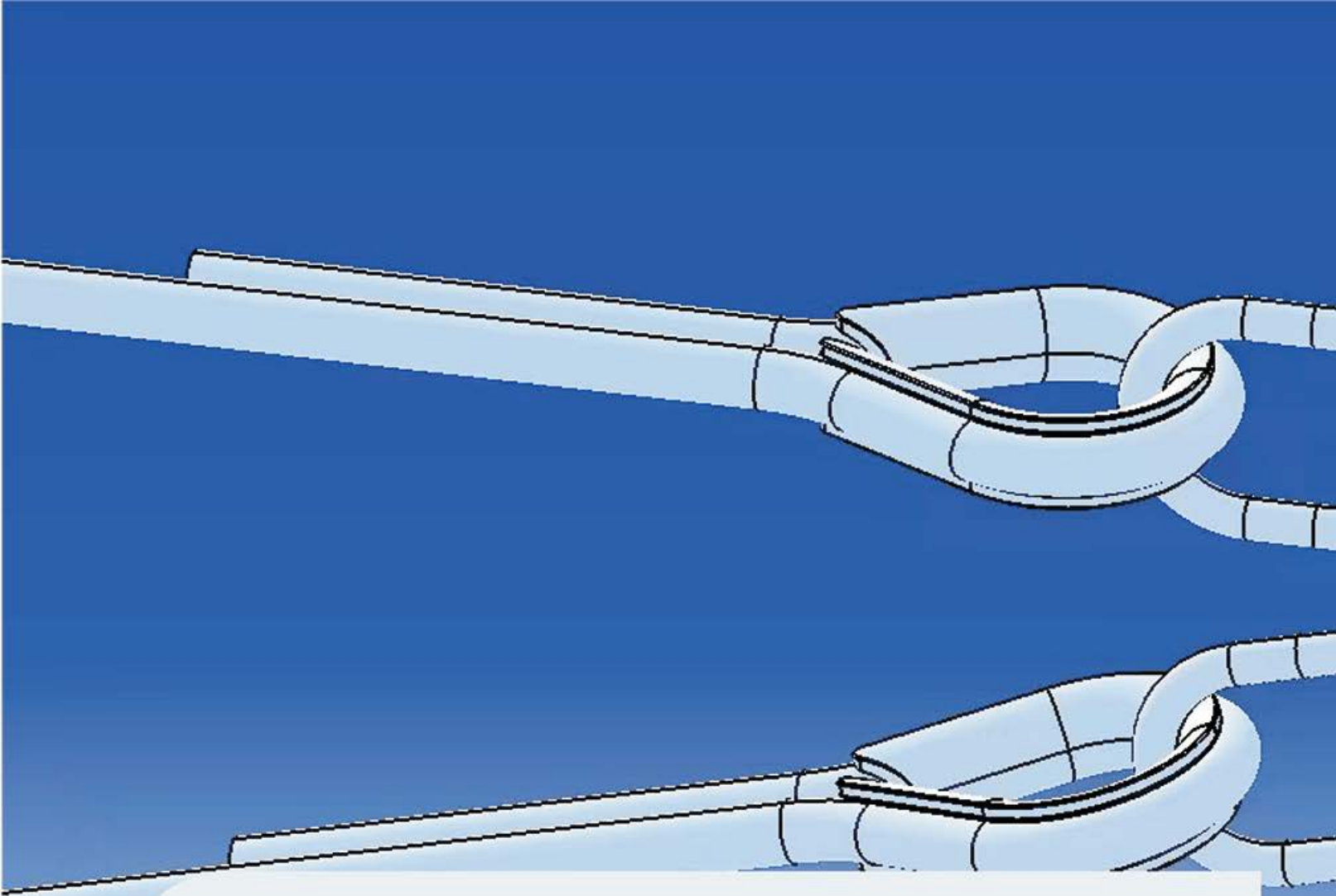


Tuna Fish Farming Mooring Line

End User: Tuna Ocean Farmer in Mediterranean Sea

Supply Description: Regularly supply plow mooring anchor, open link anchor chains, shackles, pp ropes with spliced thimbles and SS316 single collar bracket for ocean farm use.



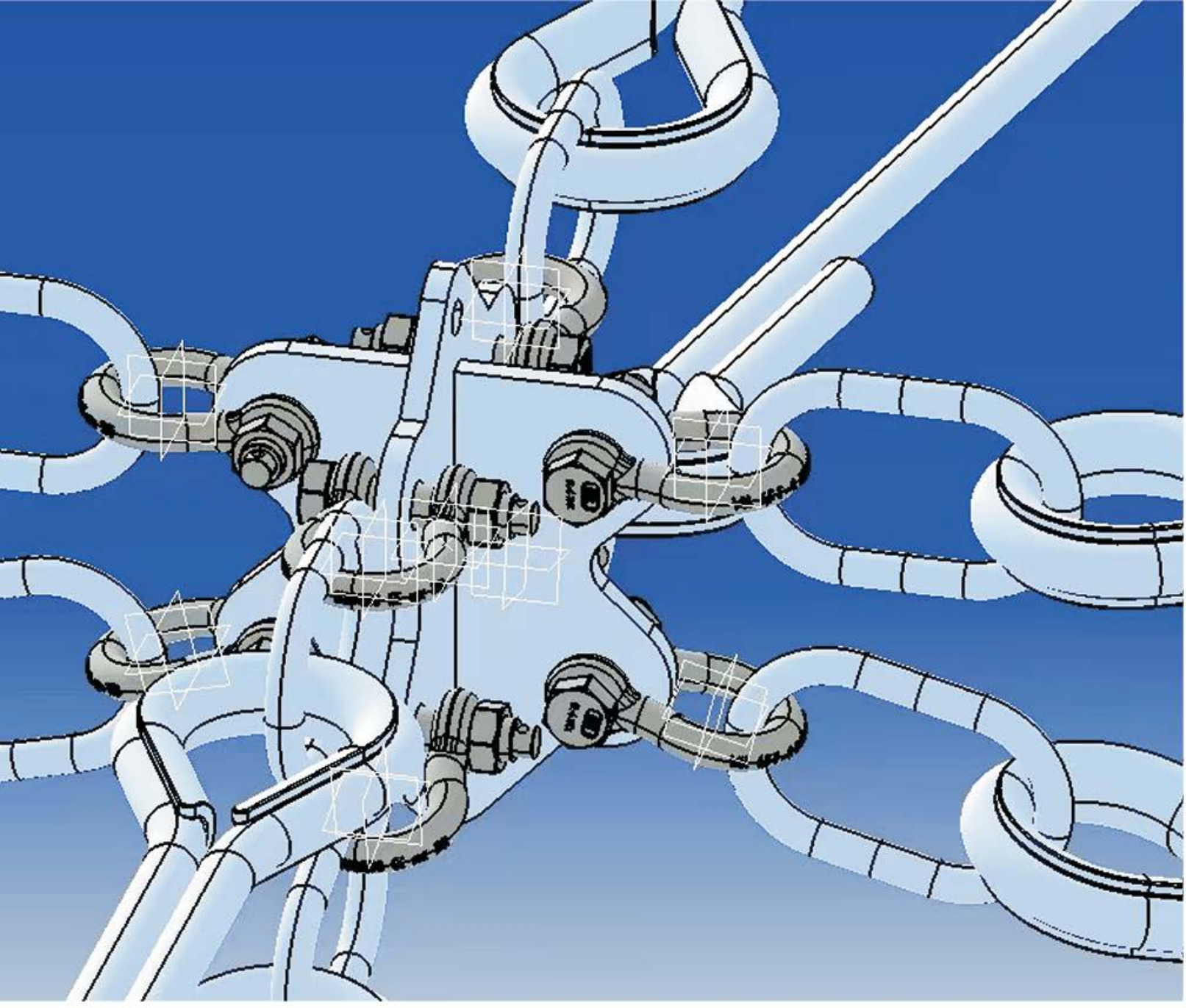


MOORING SYSTEM

Generally, the anchors, mooring lines and connectors make up a mooring system. A mooring line can be chains, fiber ropes, or wire ropes. The mooring system layout depends on the local environmental conditions and the purpose of the offshore unit.

Over the past decades, we have committed to providing the whole sets of mooring components to marine, aquaculture, and mussel/shellfish/seaweed farming industries. We are proud to have engineers with more than 20 years' industry experience to design your project and provide the best solutions for you.

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Turnkey Solutions

We design and deliver the whole set of packaged components for your doing project, with product assembly adaptation work in our workshop before delivery, no need to worry about the connection problem during assembly on site.

Quality Verification

Each batch of products will be inspected by QC person. Manufacturer certificate and the relative test reports are provided when the goods delivery. We promise 12 Months Quality Guarantee.

Installation Guide

Product assembly drawing with each component details will be submitted before delivery. Written product installation instructions or operation videos or remotely video can be offered to help your on site construction. 7*24 after sales service.

Ultimate Holding Power Double Fluke Stingray Anchor

Stingray mooring anchor has its advantage of ultimate holding power, easy assembly and strong environmental adaptability, it is commonly used in marine and aquaculture mooring projects.

Design	Double Flukes, Ultimate Holding Power
Steel Material	Q345B/Q355B
Available Size	10kg-5000kg
Inspection	NDT For Welding Seam, Proof Load
Delivery	Bundled and Piled Up For Anchor Head, Individually For Anchor Shank



Economic Type Sandy Plough Anchor

A solid construction to withstand holding power, with economical price. Bolted type to make it easy piled up, loading and unloading, reducing the storage and transport cost.

Design	"Plow" Type With A sharp Tip
Steel Material	Q235B
Available Size	300kg-3000kg
Inspection	NDT For Welding Seam, Proof Load
Delivery	Disassembled, Bundled and Piled Up



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High Holding Power Flipper Delta Anchor

Flipper Delta HHP Anchor gets it's name from the triangular shape of the anchor head, with a wide fluke area to maximize its load carrying capacity and increase its ability to resist lateral forces. It's widely used in marine and offshore mooring project.

Design	Anchor Head Is "Triangular Shaped", High Holding Power
Steel Material	Q345B
Available Size	300kg-25000KG
Inspection	NDT For Welding Seam, Proof Load
Delivery	Disassembled Shipped



Super High Holding Power Offshore MK5 Anchor

Mk5 anchor is SHHP anchor, and its holding power factor can reach the anchor's dead weight 33-55 times. The anchor is at two angles, 32 degrees for sand, gravel and clay. 50 degrees for soft scale. It is suitable for long-term, semi-long-term fastening of working ships at sea.

Design	Super High Holding Power
Steel Material	Q345B
Available Size	1000kg-30000KG
Inspection	NDT For Welding Seam, Proof Load
Delivery	Disassembled Shipped



U2/U3 Grade Studlink Anchor Chain

Chain provides a strong and economical solution for many seabed mooring applications. It is the main element that distributes tension and holds the structure in place. The chain is laid in a catenary form on the seafloor, allowing it to absorb the dynamics and tension caused by wind, waves and currents.

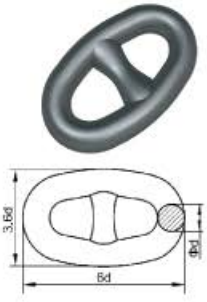


Test Load of Stud Link Anchor Chain and Fittings

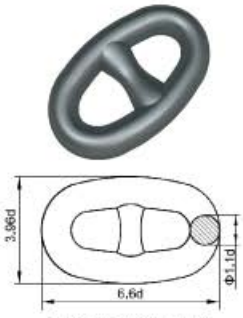
Nominal Diameter (mm)	Proof Test Load (kN)		Breaking Test Load (kN)		Theoretical Weight (kg/27.5m)
	Grade 2	Grade 3	Grade 2	Grade 3	
17.5	127	179	179	256	194
19	150	211	211	301	236
20.5	175	244	244	349	269
22	200	280	280	401	322
24	237	332	332	476	370
26	278	389	389	556	431
28	321	449	449	642	496
30	368	514	514	735	564
32	417	583	583	833	635
34	468	655	655	937	712
36	523	732	732	1050	800
38	581	812	812	1160	887
40	640	896	896	1280	1032
42	703	981	981	1400	1084
44	769	1080	1080	1540	1197
46	837	1170	1170	1680	1310
48	908	1270	1270	1810	1438
50	981	1370	1370	1960	1546
52	1060	1480	1480	2110	1661
54	1140	1590	1590	2270	1791
56	1220	1710	1710	2430	1926
58	1290	1810	1810	2600	2086
60	1380	1940	1940	2770	2249
62	1470	2060	2060	2940	2361
64	1560	2190	2190	3130	2516
66	1660	2310	2312	3300	2676
68	1750	2450	2450	3500	2885
70	1840	2580	2580	3690	3010
73	1990	2790	2790	3990	3274
76	2150	3010	3010	4300	3548
78	2260	3160	3160	4500	3737

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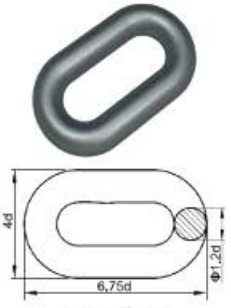
Anchor Chain Fittings



Common Link (C)



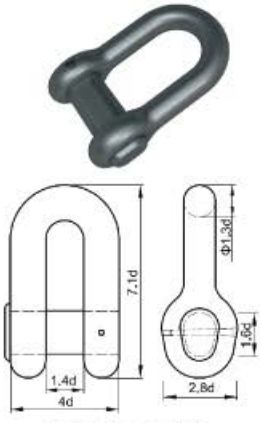
Enlarged Link (EL)



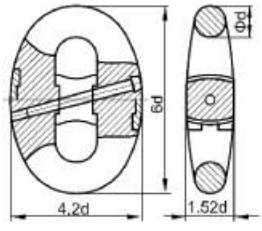
End Link (E)



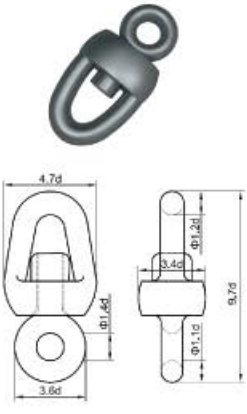
End Shackle (ES)



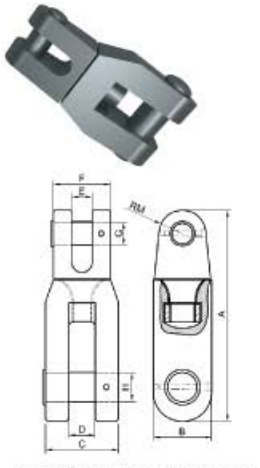
Joining Shackle (JS)



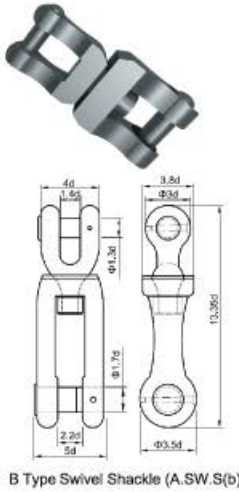
Kenter Shackle (KS)



Swivel (SW)



A Type Swivel Shackle (A.SW.S(a))



B Type Swivel Shackle (A.SW.S(b))



Pelican Hook

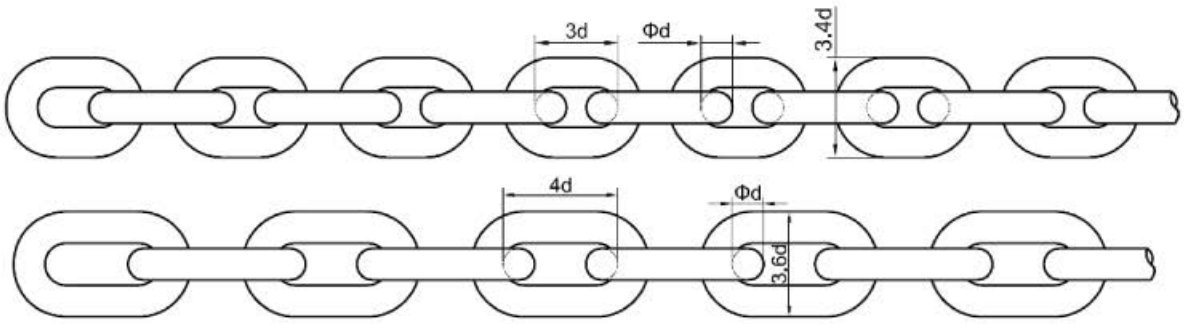


Delta Plate



Mooring Ring

Studless Anchor Chain



Test Load of Studless Chains & Fittings

Norminal Chain Diameter(mm)	Grade2		Grade3		Weight (Kg/27.5m)
	Proof Test Load(KN)	Breaking Test Load(KN)	Proof Test Load(KN)	Breaking Test Load(KN)	
10	25.80	51.60	-	-	-
11	31.20	62.40	-	-	-
12.5	41.20	82.60	56.4	112.8	85
14	51.00	101.90	70.76	141.51	107
16	66.20	132.30	92.42	184.82	139
17.5	78.89	157.78	110.55	221.10	178
19	93.60	187.20	130.32	260.64	218
20.5	108.64	217.27	151.70	303.42	229
22	125.40	250.90	174.70	349.40	265
24	149.90	298.90	207.90	415.80	344
26	175.40	350.80	244.00	488.00	401
28	203.80	406.70	283.00	566.00	460
30	234.20	457.50	324.90	649.80	523
32	265.60	531.20	369.60	739.30	589
34	299.90	599.80	417.30	834.60	660
36	336.10	672.30	467.80	935.70	742
38	374.40	748.70	521.30	1042.50	823
40	414.50	829.10	577.60	1155.20	957
42	457.70	915.30	636.80	1273.60	1005
44	502.70	999.60	698.90	1397.80	1110
46	548.80	1097.60	763.90	1527.80	1212
48	597.80	1195.60	831.70	1663.50	1334
50	648.80	1293.60	902.50	1805.00	1430
52	697.63	1395.26	976.14	1952.28	1486
54	752.33	1504.66	1052.68	2105.36	1648
56	809.09	1618.18	1132.10	2264.20	1716
58	867.91	1735.82	1214.40	2428.80	1845
60	928.80	1857.60	1299.60	2599.20	1973

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GRADE 40 HDG LONG LINK CHAIN

G40 Long Link is according to DIN763/DIN5685C, links are elongated, providing larger openings and more space between the links. This design allows for easy attachment of accessories, shackles or connectors, making it suitable for a variety of applications.

Dia.	I.L	O.W	KG/M
10MM	65MM	38MM	1.8
11MM	72MM	41MM	2.2
13MM	82MM	50MM	3
16MM	100MM	62MM	4.5
19MM	125MM	75MM	6.6
22MM	126MM	82MM	8.5
25MM	145MM	88MM	11
28MM	152MM	93MM	14
30MM	159MM	102MM	16.2
35MM	170MM	120MM	22.5



GRADE 60 HDG OPEN LINK CHAIN

Our produced G60 chain are widely used in fish cages mooring system, mussel mooring lines, seaweed long line mooring, with its high tensile strength, durability and resistance to wear and tear.

Dia.	I.L	O.W	MBL	WEIGHT
mm	mm	mm	Ton	KGS/M
9	53	14.3	7.8	1.4
11	64	18.5	11.6	2.1
13	80	21.1	16.3	2.9
16	100	28	24.7	4.6
19	100	28	34.8	6.5
22	120	32	46.6	8.7
25	140	39	60	12
28	150	39	75.3	14.9
32	170	44	98.3	19



8 Strands and 12 Strands Polypropylene Rope

Polypropylene rope is economical and practical, and widely used as mooring line. It has same strength either under wet condition or normal condition. It is easy handling, chemical corrosion resistance, drain well, keep in dark place. It applies to mooring line, anchor rope, ocean farming, sea farming, etc.

MIN Dia.	INCH CIR.	G/M	BL (Plain End) KN	BL(Spliced End) KN
24	3	260	93	84
28	3-1/2	355	123	111
32	4	460	163	147
36	4-1/2	586	198	179
40	5	718	245	221
44	5-1/2	881	292	263
45	5-5/8	924	307	276
48	6	1040	350	315
50	6-1/4	1130	371	334
52	6-1/2	1220	414	373
55	6-7/8	1380	446	401
56	7	1420	467	420
60	7-1/2	1630	525	473
64	8	1850	583	525
65	8-1/8	1924	602	542
68	8-1/2	2095	659	593
70	8-3/4	2260	698	628
72	9	2340	735	662
75	9-3/8	2585	816	734
80	10	2910	933	840
85	10-5/8	3285	1043	939
88	11	3510	1108	998
90	11-1/4	3668	1182	1064
95	11-3/4	4099	1306	1175
96	12	4160	1307	1176
100	12-1/2	4530	1429	1286
104	13	4860	1540	1386
112	14	5680	1750	1575
120	15	6510	1983	1785



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8 Strands and 12 Strands Polyester Rope

In all kinds of the chemical fiber and natural fiber ropes, it’ s with the best UV resistance. It’ s owns stable chemical performance, good abrasion and chemical corrosion resistance. It absorbs water and keeps same elongation rate and strength when it’ s under wet condition. It’ s widely used in ship mooring, pelagic fishing and sea farming.

MIN Dia.	INCH CIR.	G/M	BL (Plain End) KN	BL(Spliced End) KN
24	3	437	119	109
28	3-1/2	594	161	149
32	4	778	211	195
36	4-1/2	982	267	246
40	5	1210	329	303
44	5-1/2	1470	399	368
45	5-5/8	1538	418	385
48	6	1750	476	438
50	6-1/4	1895	515	474
52	6-1/2	2050	557	513
55	6-7/8	2300	625	575
56	7	2380	647	595
60	7-1/2	2730	742	683
64	8	3110	845	778
65	8-1/8	3210	872	803
68	8-1/2	3510	954	878
70	8-3/4	3715	1010	929
72	9	3930	1068	983
75	9-3/8	4263	1158	1066
80	10	4850	1318	1213
85	10-5/8	5480	1489	1370
88	11	5870	1595	1468
90	11-1/4	6140	1668	1535
95	11-7/8	6850	1861	1713
96	12	6990	1899	1748
100	12-1/2	7580	2060	1895



8 Strands and 12 Strands UHMWPE Rope

UHMWPE Rope is produced with imported ultra molecular weight polyethylene fiber and high technology. It is high strength, light weight, low elongation.
Stronger: under the same diameter, the strength is the same as the wire rope.
Low elongation: The breaking elongation is close to the wire rope.
Lighter: Under the same strength, the weight(g/m) is only 1/8 of the wire rope, 1/4-1/5 of the nylon rope or polyester rope, 18%-20% of the polypropylene rope.

MIN Dia.	INCH CIR.	G/M	BL (Plain End) KN	BL (Spliced End) KN
6	3/4	21	39	35
8	1	40	71	64
10	1-1/4	61	106	95
12	1-1/2	83	150	135
14	1-3/4	117	211	190
16	2	151	267	240
18	2-1/4	184	322	290
20	2-1/2	227	384	346
24	3	324	533	480
28	3-1/2	444	704	634
32	4	589	918	826
36	4-1/2	720	1104	994
40	5	880	1329	1196
42	5-1/4	979	1459	1313
44	5-1/2	1078	1589	1430
46	5-3/4	1171	1698	1528
48	6	1264	1807	1626
50	6-1/4	1388	1971	1774
52	6-1/2	1512	2136	1922
54	6-3/4	1636	2300	2070
56	7	1760	2464	2218
58	7-1/4	1885	2622	2360
60	7-1/2	2010	2778	2500
62	7-3/4	2135	2936	2642
64	8	2260	3092	2783
66	8-1/4	2423	3293	2964
68	8-1/2	2585	3496	3146
70	8-3/4	2748	3697	3327
72	9	2910	3898	3508
74	9-1/4	3065	4080	3672
76	9-1/2	3220	4263	3837
78	9-3/4	3375	4444	4000
80	10	3530	4628	4165
82	10-1/4	3708	4837	4353
84	10-1/2	3885	5047	4542
86	10-3/4	4063	5256	4730
88	11	4240	5464	4918
90	11-1/4	4430	5678	5110
92	11-1/2	4615	5893	5304
94	11-3/4	4803	6108	5497
96	12	4990	6322	5690
100	12-1/2	5515	6922	6230
104	13	6040	7522	6770
120	15	7980	9856	8870



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3/4/6 Strands Twisted Rope

3/4/6 strands twisted rope is produced by PP, PE, Polyester, PP/polyester mixed or polyamide(Nylon). It's small size and commonly used in ship mooring, shipbuilding, deep sea farming, pelagic fishing, mine, water conservancy projects and etc.



Size		Polypropylene Rope		Nylon Rope		Polyethylene Rope		Polyester Rope	
MM DIA.	INCH CIR.	kg/220m weight	MBT tonf	kg/220m weight	MBT tonf	kg/220m weight	MBT tonf	kg/220m weight	MBT tonf
4	1/2	1.32	0.21	2.31	0.32	1.78	0.2	2.6	0.3
6	3/4	3.74	0.6	4.95	0.75	4	0.4	6	0.56
8	1	6.6	1.06	8.8	1.35	7.2	0.7	10.6	1.02
10	1-1/4	9.9	1.56	13.6	2.08	10.8	1.09	16.7	1.59
12	1-1/2	14.3	2.21	19.6	3	15.8	1.54	24.2	2.27
14	1-3/4	20	3.05	27	4.1	21	2.09	32.6	3.18
16	2	25.3	3.78	35	5.3	28	2.8	43	4.1
18	2-1/4	32.5	4.82	44	6.7	35	3.5	54	5.15
20	2-1/2	40	5.8	54	8.3	44.5	4.3	67	6.4
22	2-3/4	48.4	6.96	66	10	53	5.1	81	7.6
24	3	57	8.13	78	12	65	6.1	96	9.1
26	3-1/4	67	9.41	92	14	72	7	113	10.7
28	3-1/2	78	10.7	107	15.8	86	8.2	131	12.2
30	3-3/4	89	12.2	122	17.8	101	9.5	150	13.7
32	4	101	13.5	139	20	115	10.7	171	15.7
36	4-1/2	129	16.9	176	24.9	145	13.4	216	19.4
40	5	158	20.5	218	30	173	16.3	267	24
44	5-1/2	194	24.6	264	35.8	209	19.6	323	28.5
48	6	229	28.6	312	42	253	22.8	385	33.6
52	6-1/2	268	33.1	365	48.8	290	26.4	451	39.2
56	7	312.4	39.59	442.2	61.53	345.4	3.51	523.6	48.57
60	7-1/2	358.6	45.41	497.2	68.95	398.2	34.95	600.6	55.44
64	8	407	51.33	554.4	77.14	451	39.39	684.2	62.83
65	8-1/8	420.42	52.96	572	79.59	465.85	40.64	706.2	63.22
70	8-3/4	487.74	61.33	664.4	91.83	540.09	46.89	817.3	72.78
72	9	514.8	64.59	726	97.65	569.8	49.39	864.6	77
75	9-3/8	561.6	70.1	761.2	102.39	620.95	53.52	937.86	83.52
80	10	640.2	79.39	886.6	121.31	706.2	60.41	1067	98.48
85	10-5/8	722.7	89.29	979	135.32	798.33	68	1205.6	107.92
88	11	772.2	95.2	1051.6	145.35	853.6	72.55	1291.4	115
90	11-1/4	808.5	99.69	1097.8	151.74	853.6	72.55	1350.8	120.29
95	11-7/8	899.14	111.02	1223.2	167.07	997.1	84.29	1507	132.81
96	12	915.2	113.27	1251.8	173.6	1014.2	85.5	1537.8	135.52
100	12-1/2	997.7	120.92	1355.2	186.69	1100.44	92.8	1667.6	149.28

Floating Support Rotational Moulding EPS Foamed PE Buoy

Rotational moulding plastic buoy, inside filled with expanded polystyrene(EPS), outer shell is rotational polyethylene thickness 8-10mm, steel structure inserts, can be stainless steel or h.d.galvanized steel with eye rings or swivels at both end.

We promise that 100% of our products use original raw materials, all the waste materials produced in the production process will be destroyed through formal channels or resold to the recycling middleman.













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Deep Water Floats Sea Submersible ABS Plastic Buoy

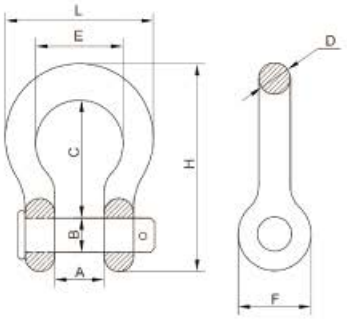
Acrylonitrile Butadiene Styrene (ABS) is a tough, rigid thermoplastic used for fishing floats and buoys in fisheries all over the world. Very High Impact Strength, Extremely rugged and tough, Depending on the construction, some floats and buoys have a working depth of over 1,000 meters (3,280 feet) deep.

Product Name	Diameter	Diameter	Hole Dia.	Buoyancy	CBM/100PCS	Photo
Center Hole Series	5.5"	135	16	1.3	0.246	
	6"	150	19	1.6	0.337	
	7"	175	19	2	0.535	
	8"	200	20	4	0.8	
	9"	225	23	6	1.139	
	10"	250	25	8	1.562	
	11"	280	25	10	2.192	
	12"	300	25	12	2.7	
Two End Eyes Series	11"	280	16	10	2.192	
	13"	330	26	16.5	3.593	
	14''	360	30	22	4.665	
Four Eyes Series	12"	300	22	12	2.7	
	13"	330	24	16.5	3.593	
	18''	450	26	44	9.112	

Drop Forged G2130 Safety Bolted Bow Shackle

G2130 shackle features an omega design that provides greater clearance for attaching ropes, chains, or slings. Bolt type shackles are preferably used for long terms or permanent applications and in circumstances where the pin of shackle may rotate during loading.





Size	Load	Weight	A	B	C	D	E	F	L	H
(in)	(T)	kg	mm	mm	(mm)	mm	mm	mm	mm	mm
3/16	1/3	0.03	9.7	6.4	22.4	4.9	15.2	14.2	24.9	37.3
1/4	1/2	0.05	11.9	7.9	28.7	6.4	19.8	15.5	32.5	46.7
5/16	3/4	0.1	13.5	9.7	31	7.9	21.3	19.1	37.3	53
3/8	1	0.15	16.8	112.2	36.6	9.7	26.2	23.1	45.2	63
7/16	1-1/2	0.22	19.1	12.7	42.9	11.2	29.5	26.9	51.5	74
1/2	2	0.36	20.6	16	47.8	12.7	33.3	30.2	58.5	83.5
5/8	3-1/4	0.62	26.9	19.1	60.5	16	42.9	38.1	74.5	106
3/4	4-3/4	1.23	31.8	22.4	71.5	19.1	51	46	89	126
7/8	6-1/2	1.79	36.6	25.4	84	22.4	58	53	102	148
1	8-1/2	2.28	42.9	28.7	95.5	25.4	68.5	60.5	119	167
1-1/8	9-1/2	3.75	46	31.8	108	28.7	74	68.5	131	190
1-1/4	12	5.31	51.5	35.1	119	31.8	82.5	76	146	210
1-3/8	13-1/2	7.18	57	38.1	133	35.1	92	84	162	233
1-1/2	17	8.62	60.5	41.4	146	38.1	98.5	92	175	254
1-3/4	25	15.4	73	51	178	44.5	127	106	225	313
2	35	23.7	82.5	57	197	51	146	122	253	348
2-1/2	55	44.6	105	70	267	66.5	184	145	327	453
3	85	70	127	82.5	330	76	200	165	365	546
3-1/2	120	120	133	95.5	372	92	229	203	419	626
4	150	153	140	108	368	104	254	229	468	653

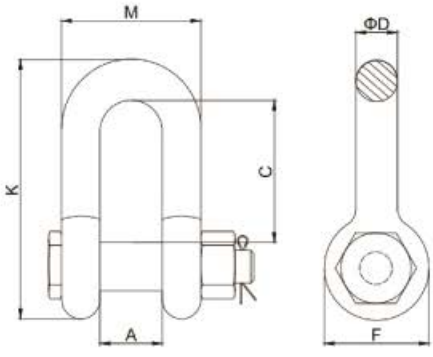
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Drop Forged G2150 Safety Bolted D Shackle

The entrance of the G2150 D Shackle is the same as the entire body, which makes D Shackle an ideal choice for standard rigging, connecting chains and suitable for confined spaces that require smaller dimensions.

Size	SWL	Weight	A	D	F	C	K	M
(in)	(T)	kg	mm	mm	mm	mm	mm	mm
1/4	1/2	0.06	11.94	6.35	15.75	19.1	40.39	14.6
5/16	3/4	0.1	13.46	7.87	19.05	25.4	48.51	29.5
3/8	1	0.15	16.76	9.65	23.37	31	58.67	35.8
7/16	1-1/2	0.22	19.05	11.18	26.92	36.1	67.82	41.1
1/2	2	0.34	20.57	12.7	29.97	41.4	76.96	46
5/8	3-1/4	0.67	26.92	16	38.1	51	95.5	58.5
3/4	4-3/4	1.14	31.75	19.05	45.97	60.5	115.06	70
7/8	6-1/2	1.74	36.58	22.35	53.34	71.5	135.38	81
1	8-1/2	5.52	42.93	25.4	60.45	81	150.88	935.5
1-1/8	9-1/2	3.45	45.97	28.7	68.07	91	172.21	103
1-1/4	12	4.9	51.56	31.75	76.2	100	190.5	115
1-3/8	13-1/2	6.24	57.15	35.05	84.07	111	210.31	127
1-1/2	17	8.39	60.45	38.1	91.95	122	229.87	137
1-3/4	25	14.2	73.15	44.45	106.43	146	278.64	162
2	35	21.2	82.55	53.34	127	172	323.6	184
2-1/2	55	38.6	104.65	66.8	144.27	203	377.19	238
3	85	56	127	76.2	165.1	216	428.5	279





Offshore Wide Mouth Mooring Shackle

Wide Mouth Mooring shackles have a wide gap opening, extended inner height and width. The bolt is oversized with a nut with an oversized hole in the bolt to enable easy assembling of the split pin or bolt. It is commonly used in mooring lines, in combination with chains, fiber ropes and hawsers.

Hoop Dia.	Bolt Dia.	Gap	Inner Width	Inner Length	MBL
mm	mm	mm	mm	mm	Tons
19	22	42	63	97	30
22	25	52	68	125	40
25	28	62	78	135	50
28	32	70	92	144	60
32	35	82	120	184	90
38	42	94	146	219	140



Circular Central Connection Mooring Plate

Mooring plate is the main connecting points of the whole grid structure where all components come together and are locked with shackles, the grid system, the mooring lines, the buoy chains and the cage bridles. It is usually round shaped, with sufficient holes for the shackle pins to be inserted, and widely used in aquaculture cage mooring system, kelp cultivation mooring grid and other mooring system with multi mooring legs.



TYPE	Diameter	Thickness	Number of Holes X Dia.mm	Load Per Hole	Weight
	mm	mm	mm	Ton	KG
50T	500	26	12 x 37	50	45
50T	600	26	16 x 37	50	59
90T	700	30	16 x 39	90	96
125T	700	32	16 x 42	125	105
140T	700	35	16 x 46	140	111

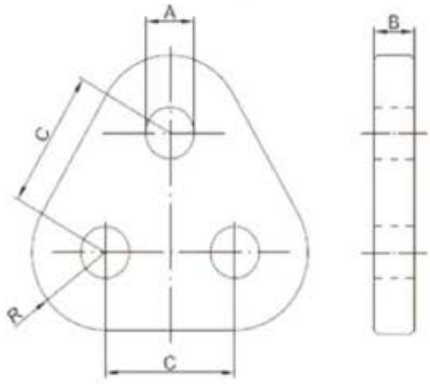
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Delta Plate/Triangle Plate

Delta Plates are generally used as central connection parts for marine mooring systems, connected by mooring shackles.

WLL	MBL	A	B	C	R	Weight
(ton)	(ton)	(mm)	(mm)	(mm)	(mm)	(kg)
17	85	47	35	120	65	10
25	125	55	40	150	80	18
35	175	60	50	160	90	28
55	275	75	70	210	105	58
85	425	90	80	230	135	96
120	600	105	100	280	170	188
150	750	11	110	320	185	256
175	875	115	110	320	195	274
200	1000	140	120	390	215	390
250	1250	150	140	390	240	518
300	1500	160	150	420	250	617
400	2000	185	200	490	300	1170
500	2500	200	200	550	360	1619
600	3000	200	200	600	400	1972





Ground Mooring Ring

Mooring Ring is a kind of anchor chain fittings, it is generally used as central joining points for marine mooring systems, connected by mooring shackles.

Nominal Chain Size	Diameter	Overall Diameter	Weight per	Breaking Load	Proof Load
(mm)	(d mm)	(mm)	Piece	KN	KN
19	30.4	152	2.18	211	150
25	40	200	4.96	372	285
32	51.2	256	10.39	583	417
40	64	320	20.31	896	640
50	80	400	39.67	1370	981
56	89.6	448	55.77	1710	1220
64	102.4	512	83.2	2190	1560
76	121.6	608	139.3	3010	2150



Tubular Thimble

Tubular thimble is the protector of fibre ropes and hawsers in a connection point of a mooring line. By inserting a rope or wire rope through the open end of the thimble, the load is evenly distributed, reducing wear and damage.

Max Rope Dia.	Total Length	Reel Height	Inner Width(mm)	Material Thickness	Weight (kg)
20mm	180mm	25mm	45mm	6mm	1.4
24mm	195mm	30mm	47mm	7mm	2
28mm	215mm	35mm	60mm	7mm	2.4
32mm	240mm	40mm	65mm	7mm	3.1
36mm	280mm	50mm	75mm	7mm	4.06
40mm	298mm	55mm	85mm	7mm	5.95
44mm	308mm	60mm	86mm	7mm	6.85
48mm	312mm	65mm	88mm	7mm	7.2
56mm	332mm	70mm	90mm	7mm	7.6
64mm	342mm	75mm	94mm	7mm	8.3
72mm	450mm	88mm	130mm	10mm	20.11
80mm	500mm	94mm	150mm	10mm	24.85
92mm	550mm	107mm	190mm	10mm	30.43
96mm	600mm	112mm	200mm	14mm	50.4
104mm	650mm	120mm	220mm	16mm	68.8
115mm	750mm	140mm	240mm	20mm	110











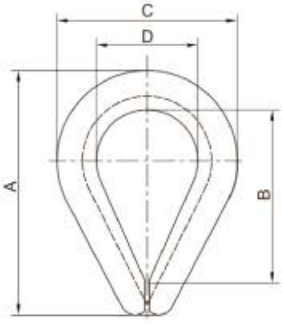
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Heavy Duty Type G414 Rope Thimble

G414 heavy duty rope thimbles provide a long service life and protect against wear and deformation of the fiber of wire rope eye. It’ s widely used in marine and aquaculture mooring lines.

SPECIFICATION	A mm	B mm	C mm	D mm	E mm	F mm
1/4	56	41	38	22	10	7
5/16	64	48	46	27	12	8
3/8	73	54	54	28	17	10
7/16	83	60	60	32	18	12
1/2	92	70	70	38	21	13.4
9/16	92	70	68	38	23	15
5/8	103	83	78	44	24	16.8
3/4	127	95	97	51	31	19.8
7/8	140	108	108	57	36	24
1”	156	114	125	63	39	27
1-1/8-1- 1/4	178	130	148	73	46	34
1-3/8	228	158	173	89	56	36
1-1/2	228	165	181	89	63	39
1-5/8	285	203	206	101	66	42
1-3/4	309	228	216	114	69	45
2”	380	305	250	152	78	54
2-1/4	435	356	301	178	92	60
2-1/2	465	360	310	178	110	70
2-3/4	485	370	315	180	115	75
3”	540	410	330	180	125	85









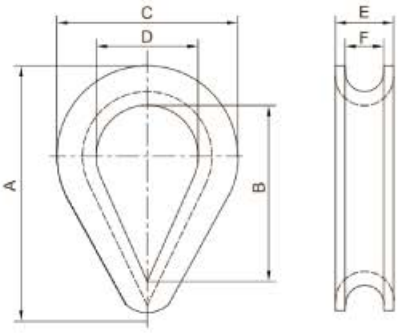


Light Type Rope Thimble DIN6899B

DIN6899B thimble is european type, it is widely used in lifting and mooring line with more economic price.

SIZE MM	A	B	C	D	E	F
3	28	19	18.5	12	6	3
4	30	21	20.5	13	7	4
5	33	23	22.5	14	8	5
6	39	25	27	16	10	6
8	48	32	33	20	12	8
10	58	38	39	24	14	10
12	69	45	47	28	17	12
14	77	51	53	32	19	14
16	88	58	60	36	22	16
18	100	64	68	40	26	18
20	113	72	75	45	28	20
22	123	80	82	50	30	22
24	135	90	92	56	34	24
26	145	99	100	62	36	26
28	162	112	110	70	38	28
30	175	120	120	75	42	30
32	185	128	127	80	44	32
34	212	152	145	95	46	34
36	224	160	152	100	48	36
38	242	176	165	110	50	38
40	258	184	176	115	56	40
42	270	192	182	120	58	42
45	320	240	217	150	61	45











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Oval Connection Rings Forged Master Link A342

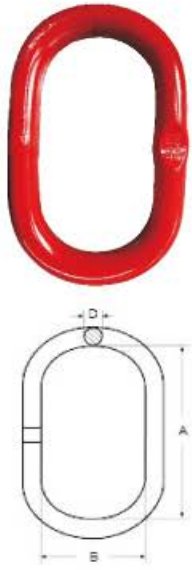
Oval connection rings are stamped with the ID code and MBL. Proof load is 2.5 times of workload limit, Ultimate load is 5 times of working load.

SIZE(in)	WEIGHT(kg)	WLL(T)	DIMENSION(mm)		
			A	B	D
1/2"	0.45	2	127	63.5	14
5/8"	0.7	3	152	76	16
3/4"	1.04	4.7	140	70	20
7/8"	1.47	6.4	160	90	22
7/8"	1.57	8	178	89	22
1"	2.1	11	178	89	25
1-1/4"	4.2	16	220	110	32
1-1/2"	7.25	21.7	270	140	38
1-3/4"	11.5	28.4	305	152	45
2"	16.56	35	355	178	50
2-1/4"	24.5	45	350	190	50
2-1/2"	32.1	50	430	220	63
2-3/4"	42.5	60	450	250	70
3"	50.12	70	450	270	75
3-1/4"	59.11	80	480	250	80
3-1/2"	79.41	90	500	270	90
4"	115	100	600	300	100



European Type Welded Master Link EN1677-4

CHAIN SIZE (mm)	WEIGHT (kg)	WLL(T)	DIMENSION(mm)		
			A	B	D
7 6-8	0.41	1.6	110	60	14
8 7-8	0.54	2.12	110	60	16
10 8-8	0.83	3.15	135	75	18
13 10-8	1.5	5.3	160	90	22
16 13-8	2.32	8	180	100	26
18 16-8	3.96	11.2	200	110	32
20 18-8	6.34	14	260	140	36
22 20-8	8.97	17	300	160	40
26 22-8	12.83	21.2	340	180	45
32 26-8	16.57	31.5	350	190	50
36 32-8	23.3	45	400	200	56
40 36-8	32.1	56	430	220	63



Circular Plastic Fish Cage



HDPE Floating Fish Cage is suitable for semi-open sea area or less influenced by seasonal typhoons farming sea. The circumference is from 40m to 200m, net depth from 5m-30m, effective farming up to 30000m^3. The working principle of cage farming is simple, a cage with rigid structure, floating on the surface, and flexible.

Anti-windstorm Capacity: Max. Grade 11.

Anti-wave Ability: Max. Wave Height 5m In the Water.

Anti-Flow Capacity: Max. Flow Rate of 1.5m/s.

Circumference	Floating Pipe Dia.	Handrail Pipe Dia.	Upright Pipe and Tee Dia.	Bracket Hole Dia.	Distance of the Bracket
m	mm	mm	mm	mm	m
40-60	250	110	125, 125*110	257	1.5-2
60-80	315	110/125	125/140, 125*110/140*125	323	1.5-2
80-120	400	125/140	140/160, 140*125/160*140	410	1.5-2
90-180	450	125/140	140/160, 140*125/160*140	460	1.5-2

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250mm Double Holes HDPE Cage Bracket

Bracket Size(L*H*W)	907*477*189mm, 100%HDPE
Floating Pipe	2 x Ø250 mm HDPE, SDR 13.6/17.0
Handrial	Ø110 mm HDPE, SDR 11
Tees	125mm x 110mm
Waklway	470 x 650mm
Cage Circumference	40 – 60m
Square Cage Size	3m*3m-7m*7m



315mm Double Holes HDPE Cage Bracket

Bracket Size(L*H*W)	1020*560*200mm, 100% HDPE
Floating Pipe	2 x Ø315 mm HDPE, SDR 13.6/17.0
Handrial	Ø110 mm HDPE, SDR 11 or Ø125 mm HDPE, SDR11
Tees	125 x 110mm or 140 x 125mm
Walkway	470 x 650mm
Cage Circumference	60 – 80m
Square Cage Size	6m*6m-10m*10m



400mm Double Holes HDPE Cage Bracket

Bracket Size(L*H*W)	1197*693*216mm, 100% HDPE
Floating Pipe	2 x Ø400 mm HDPE, SDR 13.6/17.0
Handrial	Ø125 mm HDPE, SDR 9 or Ø140 mm HDPE, SDR 9
Tees	140 x 125mm or 160 x 140mm
Walkway	495 x 1106mm
Cage Circumference	80 – 120m
Square Cage Size	10*10m-20*20m



450mm Double Holes HDPE Cage Bracket

Bracket Size(L*H*W)	1469*750*240mm, 100% HDPE
Floating Pipe	2 x Ø450 mm HDPE, SDR 13.6/17.0
Handrial	Ø125 mm HDPE, SDR 9 or Ø140 mm HDPE, SDR 9
Tees	140 x 125mm or 160 x 140mm
Walkway	495 x 1106mm
Cage Circumference	90m – 180m
Square Cage Size	15*15m-30*30m



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PINS



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