

**Contact us
to find out more**

+370 46 411 911
pikasoma@garant.eu
ops@garant.eu

Head Office
Pramonės str. 8A
LT-94102 Klaipėda
Lithuania



garant.eu

ROTTERDAM

SINGAPORE

HOUSTON

BUSAN

SHANGHAI

QINGDAO

RIGA

KLAIPĖDA

ALGECIRAS

**GLOBAL PARTNER
FOR MOORING & LIFTING
SOLUTIONS**

Selecting the right mooring ropes	4
Snap back limiter (SBL) technology	5
Mooring ropes	6
Mooring accessories	10
Wire ropes	12
General guidance on rope	13
Accessories	19
Rope service	24
Steel wire rope maintenance	24
Anchor, anchor chain & accessories	25
Weight for stud link anchor chain & accessories	27
Strength for stud link anchor chain	27
Fixed deck equipment	28
Gratings	30

PIKASOMA started its journey in the port of Klaipeda in 1997 and is a part of GARANT GROUP international holding.

GARANT GROUP - family-run international group providing complete solutions for the shipping, oil & gas, coastal, and wind energy industries worldwide. For over 35 years, our group companies have been keeping fleets and equipment safe and operational — offering expert ship maintenance and repair, custom production, lifesaving and fire-fighting inspections, diving and underwater services, and quality marine supplies wherever your port may be.

For more than 25 years Pikasoma has been implementing complete mooring and towing solutions, delivering marine supplies and everything you need for shipping, fishing industries, offshore, newbuilding and ship repair yards.

In recent years we have expanded our global warehouse network and shaped our stock to meet the specific need of your fleet. Our expert sales managers quickly process your inquiry and support with a relevant technical advice. A team of dedicated logisticians secure a smooth delivery to the right location.



Selecting the right mooring ropes

Why you not should look at nominal diamter but instead to LDBF

Typically, mooring ropes are chosen by nominal diameter — but is that really correct? The actual measured diameter often differs, and ropes of similar size can vary in strength and performance. To prevent mishaps, OCIMF and IMO recommend selecting mooring ropes based on Line Design Breaking Force (LDBF) rather than diameter.

Various factors influence the measured diameter of a rope

Construction	Load
Material	Elongation
Design	

Choosing the right mooring ropes isn't simple — tides, swell, and wind all affect the required strength to ensure crew safety and meet international standards.

Ropes with the same nominal diameter can differ greatly in Line Design Breaking Force (LDBF) and performance, so diameter alone is unreliable.

To select suitable ropes, calculate the needed LDBF and share detailed vessel information, including:

- Ship type and size
- Winch design and layout
- Trading areas
- Mooring analysis results
- Potential berth arrangements

In short: choose by strength, not size — and share details to get it right.



What is line design breaking force (LDBF)?

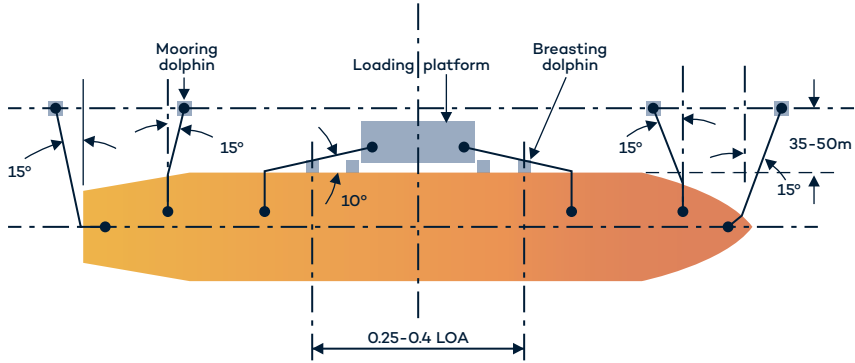
Line design breaking force or LDBF is the minimum strength of a new, dry and spliced mooring rope will break when it is tested accoring to de OCIMF MEG 4 guideliness or IMO MSC.1/Circ.1619 and IMO MSC.1/Circ.1620.

To ensure that a mooring rope is strong enough the guideliness recommend that the LDBF of the mooring rope has a minimum of 100% till 105% of the Ship Design Minimum Breaking Load (SDMBL) of the vessel.

Selecting a LDBF what is to low can cause unexpected line breaks and can bring the life threatening situations for the crew. Selecting a Mooring rope with a to large LDBF can cause severe damage to the mooring equipment and crew.

How to calculate the LDBF for your vessel?

Before you select the type of mooring ropes you want to use on your vessel , you first need to know which Line Design Breaking Force or LDBF you need.



Following MEG 4 and IMO regulations, the LDBF needs to be between 100%-105% of the vessels SDMBL. For calculating the LDBF of the mooring ropes the following formula can be used:

LDBF = SDMBL x 1,05

LDBF = Line Design Breaking Force
SDMBL = Ship Design Minimum Break Force

EXAMPLE

A Bulk carrier has a SDMBL of 56 tons (576,6 kN)

In this case the needed LDBF will be:

LDBF = 56-58,8 T (549,36 kN-576,83 kN) (100%-105% of vessels SDMBL)

Select the mooring rope

After the LDBF is calculated, you have to make a choice in the kind mooring ropes you want to use. Does your vessel needs 6-8 or 12 strand mooring ropes, what kind of fibers, does the mooring rope needs Anti Snap Back technology. For our exmple we choose our AMBER MIX S mooring ropes.

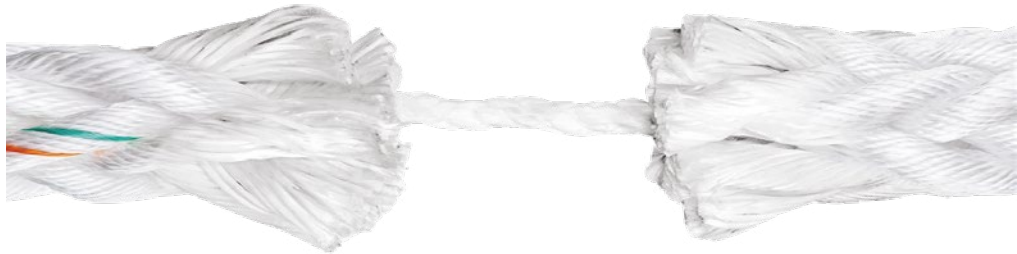
Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
34	1.3/8	4.1/4	220	129	20,3	24,6	199	242
38	1.1/2	4.3/4	220	161	24,7	30,7	243	301
40	1.5/8	5	220	165	28,1	34,0	275	334
44	1.3/4	5.1/2	220	195	34,1	40,4	334	397
48	1.7/8	6	220	226	40,5	46,7	398	457
50	2	6.1/4	220	247	46,8	50,9	458	499
52	2.1/8	6.1/2	220	269	51,0	54,3	500	532
56	2.1/4	7	220	309	54,4	62,7	533	615
60	2.1/2	7-1/2	220	350	62,8	71,4	616	700

Amber stands for longevity, reliability, and protection — qualities every seafarer values most. Drawing on this powerful symbolism, we developed AMBER ropes to meet the highest expectations of our customers and ensure that every vessel sails — and returns — safely.

AMBER is our registered brand of high quality, reliable ship ropes. We have designed and developed AMBER ropes range to offer technologically relevant and safe solutions for your fleet.

Durable AMBER mooring ropes are easy to handle which makes maneuvering of vessels extremely accurate. The range of synthetic multipurpose ropes is available in a different diameters with excellent performance indicators.

SNAP BACK LIMITER (SBL) TECHNOLOGY



One of the greatest safety risks during mooring operations is the snap back — the violent recoil of a mooring rope when it breaks. The force can be so powerful that it damages mooring equipment or, in the worst cases, endangers lives within the snap back zone.

To address this critical risk, we developed the **SNAP BACK LIMITER** — an innovation built into our AMBER MIX and AMBER ULTRA mooring ropes.

Rigorously tested and fully qualified in accordance with **DNV-RP-A203**, this technology provides an extra layer of protection where it matters most — safeguarding both crew and vessel.

AMBER Mooring ropes are available in the following series

Series	Material	Strands	Integrated SNAP BACK LIMITER	Outer cover layer	UV Resistance	Specific gravity
AMBER MIX	Polypropylene & Polyester	8	✗	✗	Excellent	0,99 floating
AMBER MIX S	Polypropylene & Polyester	12	✓	✗	Excellent	0,98 floating
AMBER PP	Polypropylene	8	✗	✗	Good	0,91 floating
AMBER ULTRA	UHMWPE, Urethan coated	12	✗	✗	Excellent	0,99 floating
AMBER ULTRA S	UHMWPE	12	✓	✗	Very Good	0,97 floating
AMBER ULTRA PLUS	UHMWPE, UHMWPE core	12	✗	✓	Excellent	0,99 floating
AMBER ULTRA PLUS	UHMWPE + Polyester core	12	✗	✓	Excellent	0,99-1,11 non floating
AMBER WINCHLINE	Nylon monofilament, nylon multifilament	6	✗	✗	Excellent	1,14 non floating
AMBER WINCHLINE PLUS	UV stabilized high tenacity polyefin	12	✗	✓	Good	0,93 floating

AMBER MIX



The Amber MIX mooring ropes are designed and fabricated with and for the crew of vessels. With high emphasis on safe mooring operations and easy handling. The AMBER MIX mooring ropes are manufactured of high quality, high tenacity Polypropylene with outer yarns alternating with polyester. Our AMBER MIX 8 strands braided rope is floating and has a superior elongation plus UV resistance.

Standard the AMBER MIX is supplied in length of 220 mtr and spliced ends at both ends.

Application

Mooring, towing, anchor line, shock line, slings, etc

Features

Approved by: IACS International Association of Classification Societies

In accordance with: OCIMF

How to calculate before ordering

Type rope diameter (mm) x length x - LDBF
AMBER MIX 50mm x 220

PRODUCTS SPECIFICATIONS

Fibers	High tenacity polypropylene with outer yarns alternating with polyester		
Construction	8 strand braided rope		
Specific gravity	0,99 (floating)		
Elongation	18-20%	UV resistance	Excellent
Melting point	165 C	Abrasion resistance	Excellent

Diameter (mm)	Diameter (inch)	Circ (inch)	Length* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
34	1.3/8	4.1/4	220	118	19,3	23,4	190	230
38	1.1/2	4.3/4	220	147	23,5	29,3	231	288
40	1.5/8	5	220	163	29,4	32,6	289	320
44	1.3/4	5.1/2	220	205	32,7	39,5	321	387
48	1.7/8	6	220	237	39,6	46,4	388	455
50	2	6.1/4	220	259	46,5	50,6	456	496
52	2.1/8	6.1/2	220	281	50,7	53,7	497	527
56	2.1/4	7	220	322	53,8	62,6	528	614
60	2.1/2	7-1/2	220	364	62,7	71,2	615	698
64	2.5/8	8	220	416	71,3	79,0	699	775
68	2.3/4	8.1/2	220	470	79,1	88,2	776	865
72	3	9	220	524	88,3	98,5	866	966
75	3.1/8	9.1/2	220	569	98,6	106,8	967	1048
80	3.1/4	10	220	650	106,9	119,5	1049	1172

*220 mtr is our standard length, other lengths available on request, other diameters are available on request

AMBER MIX S



The Amber MIX S mooring ropes are designed and fabricated with and for the crew of vessels. With high emphasis on safe mooring operations these 12 strand mooring ropes are equipped with the AMBER SNAP BACK LIMITER technology integrated in the design for safer mooring operations.

The AMBER MIX mooring ropes are manufactured of high quality, high tenacity Polypropylene and polyester fiber yarns. Our AMBER MIX S 12 strands braided rope is floating and has a superior elongation plus UV resistance

The integrated AMBER SNAP BACK LIMITER technologies makes mooring operations safer and easier.

Application

Mooring, towing, anchor line, shock

Features

Approved by: IACS International Association of Classification Societies

In accordance with: OCIMF

How to calculate before ordering

Type rope diameter (mm) x length x - LDBF
AMBER MIX S 50mm x 220

PRODUCTS SPECIFICATIONS

Fibers	Combination of polypropylene and polyester fiber yarns		
Construction	12 strand braided rope with integrated anti SNAP BACK technology		
Specific gravity	0,99 (floating)		
Elongation	18-20%	UV resistance	Excellent
Melting point	165 C	Abrasion resistance	Excellent

Diameter (mm)	Diameter (inch)	Circ (inch)	Length* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
34	1.3/8	4.1/4	220	129	20,3	24,6	199	242
38	1.1/2	4.3/4	220	161	24,7	30,7	243	301
40	1.5/8	5	220	178	30,8	34,0	302	334
44	1.3/4	5.1/2	220	216	34,1	40,4	334	397
48	1.7/8	6	220	260	40,5	46,7	398	457
50	2	6.1/4	220	282	46,8	50,9	458	499
52	2.1/8	6.1/2	220	297	51,0	54,3	500	532
56	2.1/4	7	220	354	54,4	62,7	533	615
60	2.1/2	7-1/2	220	396	62,8	71,4	616	700
64	2.5/8	8	220	447	71,5	79,8	701	782
68	2.3/4	8.1/2	220	502	79,9	89,3	783	875
72	3	9	220	561	89,4	100,0	876	980
80	3.1/8	9.1/2	220	691	100,1	121,4	981	1191
82	3.1/4	10	220	726	121,5	127,6	1192	1252

*220 mtr is our standard length, other lengths available on request, other diameters are available on request



Crafted from premium-quality PP fibers, the AMBER PP offers exceptional strengthto- weight ratio, outstanding resistance to UV, chemicals, and abrasion, and superior floatability—making it the ideal choice for marine, industrial, and general-purpose mooring applications.

Lightweight and easy to handle, this rope ensures fast deployment and secure mooring, even in the most challenging conditions. Its knot stability and low water absorption make it a long-lasting and cost-effective solution for vessels of all sizes.

Application
Mooring, towing, anchor line, shock line, slings, etc

Features
Approved by: 

In accordance with: 

How to calculate before ordering
Type rope diameter (mm) x length x - LDBF
AMBER PP 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	Polypropylene multifilament							
Construction	8-strand							
Specific gravity	0,91 (floating)							
Elongation	18-20%	UV resistance		Good				
Melting point	165 C	Abrasion resistance		Good				

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
32	1.5/16	4	220	91	13,4	16,3	132	160
36	1.1/2	4.1/2	220	114	17,0	20,6	167	202
40	1.5/8	5	220	142	21,3	25,8	209	253
44	1.3/4	5.1/2	220	175	25,9	30,8	254	302
48	1.7/8	6	220	206	30,9	36,5	303	358
52	2.1/8	6.1/2	220	242	36,6	47,4	359	465
56	2.1/4	7	220	281	47,5	49,5	466	486
60	2.1/2	7.1/2	220	323	49,6	56,9	487	558
64	2.5/8	8	220	366	57,0	64,7	559	635
68	2.3/4	8.1/2	220	414	64,8	73,4	636	720
72	3	9	220	463	73,5	84,4	721	827
80	3.1/4	10	220	574	84,5	100,1	828	981
88	3.5/8	11	220	695	100,2	121,2	982	1188
96	4	12	220	826	121,3	142,2	1189	1395

*220 mtr is our standard length, other lengths available on request, other diameters are available on request



Engineered for maximum strength, flexibility, and endurance, AMBER ULTRA combines advanced fiber technology with superior construction to deliver exceptional holding power and long-lasting performance in the toughest marine environments.

Lightweight yet incredibly strong, AMBER ULTRA offers high tensile strength, low elongation, and excellent resistance to UV, abrasion, and chemicals. Its balanced design ensures smooth handling, easy splicing, and reliable performance—voyage after voyage.

Application
Mooring, towing, anchor line, shock line, slings, etc

Features
Approved by: 

In accordance with: 

How to calculate before ordering
Type rope diameter (mm) x length x - LDBF
AMBER ULTRA 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	UHMWPE							
Construction	12 strand braided rope							
Specific gravity	0,99 (floating)							
Elongation	4-5%	UV resistance		Excellent				
Melting point	150 C	Abrasion resistance		Excellent				

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
22	7/8	2.3/4	220	67	40,5	49,1	397	481
24	1	3	220	80	49,2	56,9	482	558
26	1.1/16	3.1/4	220	90	57,0	64,7	559	635
28	1.1/8	3.1/2	220	103	64,8	72,6	636	712
30	1.1/4	3.3/4	220	114	72,7	80,0	713	785
32	1.5/16	4	220	125	80,1	86,9	786	852
36	1.1/2	4.1/2	220	150	87,0	102,0	853	1001
40	1.5/8	5	220	184	102,1	124,6	1001	1222
44	1.3/4	5.1/2	220	224	124,7	149,1	1223	1462
48	1.7/8	6	220	267	149,2	175,6	1463	1722
52	2.1/8	6.1/2	220	310	175,7	202,1	1723	1982
56	2.1/4	7	220	359	202,2	231,5	1983	2270
60	2.1/2	7.1/2	220	385	231,6	247,2	2271	2424

*220 mtr is our standard length, other lengths available on request, other diameters are available on request

AMBER ULTRA S



Built with advanced synthetic fibers and precision-engineered for strength, AMBER ULTRA S delivers superior breaking load, low elongation, and outstanding abrasion resistance—even under the most demanding marine conditions.

Its lightweight construction ensures easy handling and fast deployment, while its durability and UV resistance make it ideal for long-term use in ports, offshore platforms, and heavy-duty shipping operations.

AMBER ULTRA S mooring ropes are equipped with the AMBER SNAP BACK LIMITER for safe mooring operations.

Application

Mooring, towing, anchor line, shock line, slings, etc

Features

Approved by: IACS International Association of Classification Societies

In accordance with: OCIMF

How to calculate before ordering

Type rope diameter (mm) x length x - LDBF
AMBER ULTRA S 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	UHMWPE			
Construction	12 strand braided rope with integrated anti SNAP BACK technology			
Specific gravity	0,97 (floating)			
Elongation	3,5-4%	UV resistance	Very good	
Melting point	150 C	Abrasion resistance	Very good	

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
22	7/8	2.3/4	220	70	32,1	38,9	315	382
24	1	3	220	83	39,0	46,3	383	454
26	1.1/16	3.1/4	220	97	46,4	54,3	455	532
28	1.1/8	3.1/2	220	114	54,4	63,3	533	621
30	1.1/4	3.3/4	220	131	63,4	68,9	622	676
32	1.5/16	4	220	145	69,0	74,3	677	729
36	1.1/2	4.1/2	220	176	74,4	92,9	730	911
40	1.5/8	5	220	212	93,0	113,6	912	1114
42	1.3/4	5.1/2	220	234	113,7	127,0	1115	1245
44	2	6	220	247	127,1	134,4	1246	1318

*220 mtr is our standard length, other lengths available on request, other diameters are available on request

AMBER ULTRA Plus



Designed for the most demanding marine environments, AMBER ULTRA PLUS mooring rope delivers exceptional strength, low elongation, and outstanding resistance to wear, UV, and chemicals. Made from high-performance synthetic fibers, it offers a higher breaking load and longer service life than standard ropes.

Its lightweight, torque-balanced design ensures easy handling, smooth operation, and reduced recoil for safer mooring. Perfect for large commercial vessels, offshore platforms, and port operations.

Application

Mooring, towing, anchor line, shock line, slings, etc

Features

Approved by: IACS International Association of Classification Societies

In accordance with: OCIMF

How to calculate before ordering

Type rope diameter (mm) x length x - LDBF
AMBER ULTRA PLUS 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	UHMWPE, UHMWPE core or UHMWPE, polyester core			
Construction	12 strand braided rope + outer layer cover			
Specific gravity	0.99-1.11 (non-floating)			
Elongation	4-5%	UV resistance	Excellent	
Melting point	150 C UHMWPE Jacket, 250 C Polyester Jacket	Abrasion resistance	Excellent	

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
22	7/8	2.3/4	220	68	31,2	37,8	306	371
24	1	3	220	81	37,9	45,1	372	443
26	1.1/16	3.1/4	220	96	45,2	53,0	444	519
28	1.1/8	3.1/2	220	112	53,1	61,9	520	607
30	1.1/4	3.3/4	220	129	62,0	67,4	608	661
32	1.5/16	4	220	143	67,5	72,8	662	714
36	1.1/2	4.1/2	220	174	72,9	91,2	715	895
40	1.5/8	5	220	209	91,3	111,8	896	1097
44	1.3/4	5.1/2	220	244	133,8	162,1	1312	1589
48	1.7/8	6	220	301	162,2	175,9	1590	1725
52	2.1/8	6.1/2	220	354	176,0	191,5	1726	1878
56	2.1/4	7	220	403	191,6	225,6	1879	2213
60	2.1/2	7.1/2	220	451	225,7	258,0	2214	2530

*220 mtr is our standard length, other lengths available on request, other diameters are available on request

AMBER WINCHLINE



Specifically designed for winch-assisted mooring systems, AMBER WINCHLINE offers exceptional dimensional stability, high strength, and low elongation under load. Its advanced synthetic fiber construction ensures smooth operation, longer service life, and superior grip on winch drums—even in the harshest marine environments.

Lightweight, durable, and easy to handle, it's the trusted solution for vessels that demand precision, safety, and reliability.

Application
Mooring, towing, anchor line, shock line, slings, etc

Features
Approved by:  International Association of Classification Societies
In accordance with: 

How to calculate before ordering
Type rope diameter (mm) x length x - LDBF
AMBER WINCHLINE 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	Nylon moniofilamend and high tenacity nylon multifilament							
Construction	6 strand cross lay rope							
Specific gravity	1,14 (non-floating)							
Elongation	22%	UV resistance		Excellent				
Melting point	218 C	Abrasion resistance		Excellent				

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
40	1.5/8	5	220	220	25,5	30,8	250	303
44	1.3/4	5.1/2	220	275	30,9	39,1	303	384
48	1.7/8	6	220	326	39,2	46,7	385	457
52	2.1/8	6.1/2	220	352	46,8	50,4	458	494
56	2.1/4	7	220	440	50,5	62,5	495	612
60	2.1/2	7.1/2	220	477	62,6	67,1	613	658
64	2.5/8	8	220	537	67,2	79,6	659	780
68	2.3/4	8.1/2	220	607	79,7	92,3	781	905
72	3	9	220	680	92,4	106,1	906	1040
78	3.1/16	9.1/64	220	801	106,2	117,8	1041	1156
84	3.1/2	10.1/2	220	935	117,9	137,4	1156	1348
90	3.3/4	11.1/8	220	1111	137,5	162,1	1349	1589
96	4	12	220	1287	162,2	188,6	1590	1849

*220 mtr is our standard length, other lengths available on request, other diameters are available on request

AMBER WINCHLINE Plus



Designed for high-performance winch operations, AMBER WINCHLINE PLUS combines enhanced strength, excellent abrasion resistance, and superior grip for unmatched reliability on mooring drums. Its advanced construction minimizes elongation and ensures consistent performance under heavy cyclic loads, making it ideal for demanding port and offshore applications.

With a longer service life and easy handling, this rope is built to reduce downtime and boost operational efficiency.

Application
Mooring, towing, anchor line, shock line, slings, etc

Features
Approved by:  International Association of Classification Societies
In accordance with: 

How to calculate before ordering
Type rope diameter (mm) x length x - LDBF
AMBER WINCHLINE PLUS 68mm x 220

PRODUCTS SPECIFICATIONS

Fibers	UV stabilized high tenacity polyolefin hybrid yarn							
Construction	12 strand braided core + outer cover layer							
Specific gravity	0,93 (floating)							
Elongation	approx 15%	UV resistance		Good				
Melting point	165 C	Abrasion resistance		Excellent				

Diameter (mm)	Diameter (inch)	Circ (inch)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
48	1.7/8	6	220	292	38,7	46,9	380	460
50	2	6.1/4	220	316	47,0	51,2	461	502
52	2.1/8	6.1/2	220	351	51,3	57,8	503	567
56	2.1/4	7	220	402	57,9	64,3	568	631
60	2.1/2	7.1/2	220	440	64,4	74,1	632	727
64	2.5/8	8	220	491	74,2	83,9	728	823
66	2.19/32	8.1/4	220	507	84,0	89,4	824	877
68	2.3/4	8.1/2	220	550	89,5	93,7	877	919
72	3	9	220	617	93,8	103,6	920	1015
80	3.1/4	10	220	792	103,7	127,5	1016	1251

*220 mtr is our standard length, other lengths available on request, other diameters are available on request



Mooring accessories

Mooring tails

Tails or pennants will provide additional elasticity to wire and high modulus mooring lines and reduce the dynamic loads induced in the mooring line by allowing the ship to respond more freely to various combinations of wind, wave and current, as well as to ships passing nearby.

Tails will also distribute the loadings more evenly among the various mooring lines.

According to MEG4 the Tail Design Break Force (TDBF) should be 125%-130% of the ship design MBL.

Tails are generally connected to mooring lines either through the use of mechanical connecting devices (i.e. mooring links and mooring shackles with steel wire ropes) or directly with the use of a cow hitch (with HMPE ropes).



PRODUCTS SPECIFICATIONS

Fibers	High tenacity polypropylene with outer yarns altering with polyester		
Construction	8 strand braided rope	Melting point	165 C
Specific gravity	0,99 (floating)	UV resistance	Excellent
Elongation	18-20%	Abrasion resistance	Excellent

Diameter (mm)	Lenght* (mtr)	Weight (kg)	LDBF (From) (t)	LDBF (Till) (t)	LDBF (From) (kN)	LDBF (Till) (kN)
60	11	37	59,5	72,1	584	707
64	11	42	72,2	82,5	708	809
68	11	48	82,6	91,9	810	901
72	11	54	92,0	113,1	902	1110
76	11	60	113,2	125,3	1111	1229
80	11	65	125,4	155,0	1229	1520
88	11	95	163,8	198,4	1606	1945

*11 mtr is our standard length, other lengths available on request, other diameters are available on request

Protection sleeves

In harsh marine environments, your mooring ropes are constantly exposed to abrasion, UV rays, and saltwater. Our mooring rope protection sleeves are the simple, effective, and cost-saving solution to keep your ropes performing at their best.

Crafted from high-strength, abrasion-resistant materials, these sleeves:

Shield ropes from wear and tear caused by chocks, fairleads, and sharp edges.

Resist UV degradation and saltwater corrosion for long-lasting protection.

Fit seamlessly over existing ropes with easy installation.

Whether in ports, marinas, or offshore operations, our rope protection sleeves help you avoid costly replacements and downtime—because protecting your ropes means protecting your operations.

Rope size (mm)	Lenght* (mm)	Width (mm)
20-40	3000	250
44-88	3000	450

Mooring links

When it comes to marine operations, every connection counts. Our highperformance mooring links are engineered for strength, durability, and reliability—ensuring your vessel stays secure in even the harshest conditions.

Manufactured from top-grade steel and tested to meet rigorous international standards, our mooring links offer:

Exceptional load capacity for maximum safety.
Corrosion-resistant coatings for extended service life in marine environments.
Precision-engineered design for easy integration with your existing mooring systems.

From offshore platforms to heavy-duty port applications, our mooring links are the trusted choice for shipowners, port operators, and marine contractors worldwide.



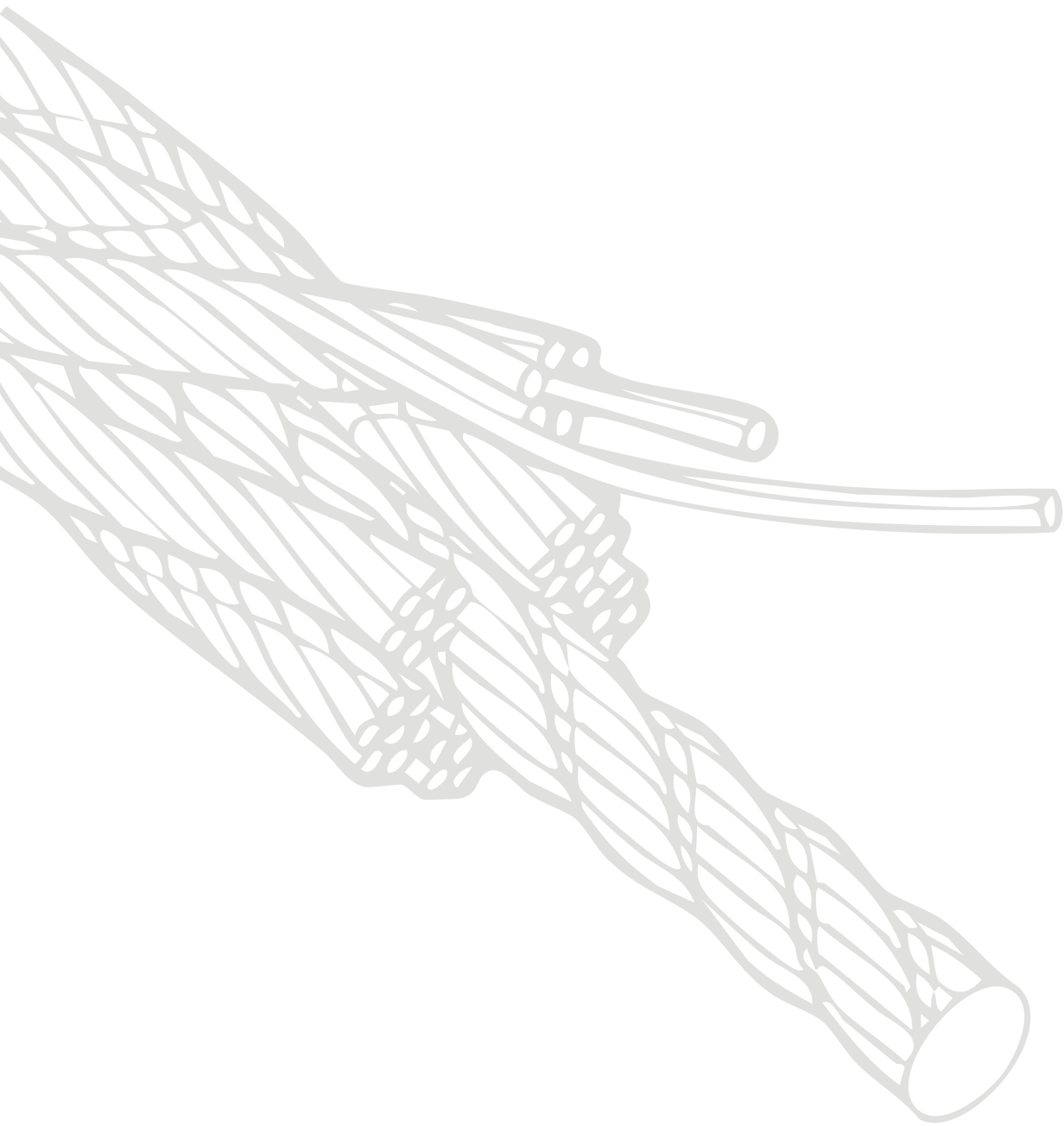
PRODUCTS SPECIFICATIONS

Material	Durable Velcro lining
UV resistance	Excellent
Heat resistance	Excellent



PRODUCTS SPECIFICATIONS

Material		Galvanized steel		
Type	Tail size	Weight (kg)	Proof load (ton)	LDBF (Till) (t)
LINK 90T	56-68	11,2	45	90
LINK 120T	72-80	16,9	60	120
LINK 180T	88-112	25	80	180
LINK 300T	88-112	52	100	300



Wire ropes

Construction of wire rope

The design of a rope is determined by:

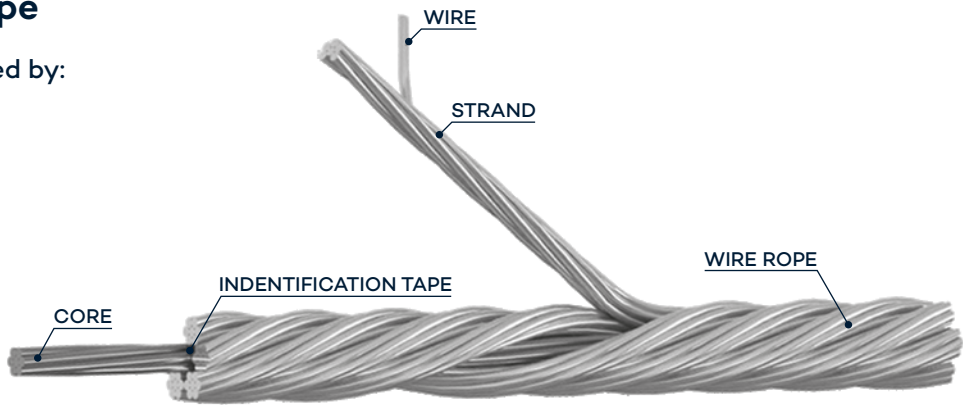
Strand construction

The number and arrangement of wires in each strand

Rope construction

The number and arrangement of strands in each rope

The core



Grades of rope wire

Steel wires rope are classified into following tensile strength grades to meet various requirements according to the applications.

Grade 135 kg/mm²: Special grade to meet requirement of hoisting ropes on traction elevators.

Grade 150/160 kg/mm²: Galvanized wires coated with zinc through hot dip process for protection against corrosion.

Grade 165 kg/mm²: Ungalvanized and drawn galvanized wires for general purpose wire ropes.

Grade 180 kg/mm²: Ungalvanized high tensile grade wires for general purpose wire ropes.

Grade 195 kg/mm²: Extra high tensile grade is used in the manufacture of the wire rope where ultimate breaking strength is required.

* Other higher grades are also available.

Wire rope lay



Right hand regular lay



Left hand regular lay



Right hand lang's lay



Left hand lang's lay

Cores for wire ropes

Steel

IWRC (Independent Wire Rope Core): The main core is an independent wire rope, normally having the construction 7 × 7.

IWSC (Independent Wire Strand Core): The main core is an independent wire strand, normally having the same construction as the outer strands of the rope.

Fibre

Fibre cores are stranded and comprise either:

Natural fibres such as **sisal hemp, jute, and cotton.**

Synthetic fibres such as **polyamide, polyethylene, and polypropylene.**

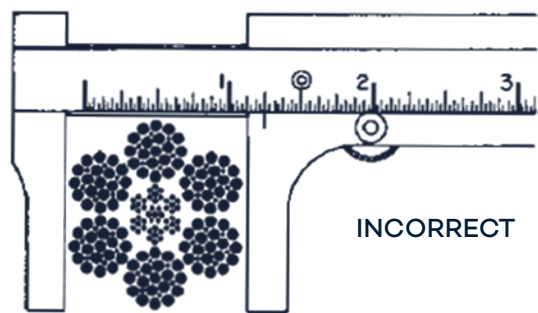
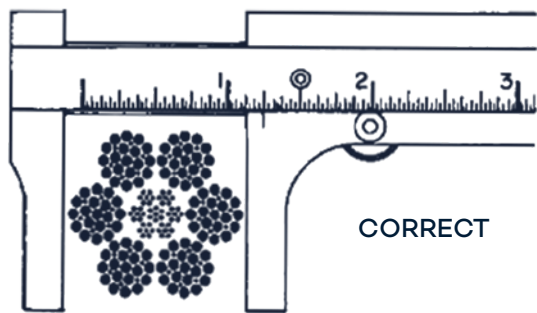
Asbestos fibres (heat resistant).

Diameter of wire rope

The diameter of a wire rope is the diameter of the circle which encloses all of the wires.

When measuring wire rope it is important to take the greatest distance of the outer limits of the “**Crown**” of two opposite strands.

A measurement across the valleys will result in incorrect lower readings.



Sheave and drum

When a rope is bent around the sheave or drum, individual wires in the strand are subjected to bending stress and repeated bending fatigue.

To obtain a smooth operation and longer life for the wire line, it is necessary to keep the diameter of sheave and drum above the recommended figures of the table and to keep the surface of the grooves sharp and smooth.

Minimum diameter of sheave and drum (D=wire rope dia.)

Construction	Min. dia.	Recommended dia.
6 x 7	45 x D	70 x D
6 x 19	30 x D	45 x D
6 x 37	20 x D	30 x D
6 x S(19)	33 x D	50 x D
6 x Fi(25)	26 x D	39 x D
6 x Fi(29)	24 x D	35 x D
8 x S(19)	27 x D	40 x D
18 x 7	35 x D	50 x D

Safety factor of wire rope

It is difficult to fix the safety factor for each type of wire rope to be used for various equipments, as this factor depends not only on the load carried, but also on the speed of rope working, the kinds of fitting used for rope ends, the acceleration and deceleration, length of rope, the number, size and arrangements of sheave and drums etc.

The following safety factors are minimum requirements for safety and economy in the common installation.

Safety factor of wire rope

Purpose	Min. S. F.
Elevator	10
Crane, hoist derrick, sling	5
Guy or stay, horizontal pull or traction	4
Main wire of aerial rope way	3

Rope maintenance

Avoid:

- Twist, loop, or kink on wire rope.
- Moisture, dust, and acid or sulphuric fume gas.
- Overload.
- Severe or reverse bending (S-Bending).
- Too small sheaves, drums, and guide rollers.
- Hard rolling of sheaves and rollers.
- Worn groove, broken or soft sheaves and rollers.
- No lubrication.
- Heat influence.
- Wrong fitting and spooling on the drum.
- Excessive fleet angle.
- Vibration.
- Obstacles, sand and grit on the surface of operation line.
- Shock – too fast start or stop.

Lubrication

Lubrication reduces internal friction of the wires and strands and protects against corrosion. Grease is applied to all ropes. If special lubricants are required, this must be specifically stated at time of ordering.

Type of lubrication	Lubricating method	Suitable on wire rope	Appearance (Type of grease)	Note
A-2	Closing: no lubrication Stranding: light application, loose wipe Core: heavier than on strand, no wipe	Galv/ungalv wire rope	Yellowish-brown (Petro-chem grease)	For general application of galvanized wire rope. Slightly oily to the touch.
A-3	Closing: no lubrication Stranding: applied during stranding by running it through a bath of lubricant, tight wipe Core: heavy application, no wipe	Galv/ungalv wire rope	Yellowish-brown (Petro-chem grease)	For general application of ungalvanized wire rope. Lightly tacky to hand touch.
B	Closing: no lubrication Stranding: applied during stranding by running through a bath of lubricant Core: heavier than on strand, loose wipe	Ungalv wire rope	Black (Asphaltum grease)	For special usage and long term storage where maximum protection against corrosion.
C	Closing: no lubrication Stranding: applied during stranding by running it through a bath of lubricant, loose wipe Core: heavy application, no wipe	Ungalv wire rope	Black (Asphaltum grease)	Lubrication sets up to a medium hard consistency. Ideal for oilfield, construction equipment and logging use. Lightly tacky to hand touch.
D	Closing: heavy application, loose wipe after the 'bath' application Stranding: applied during stranding by running it through a bath of lubricant, tight wipe Core: heavy application, no wipe	Ungalv wire rope	Black (Asphaltum grease)	Wire rope valley is filled with lubrication. For special purpose lubrication of ungalv wire rope where maximum protection against corrosion is desired.

Pictures of wire rope end terminations



Wedge socket



Loop or thimble splice - hand tucked



Clips (number of clips varies with rope size and construction)



Mechanical splice - loop thimble



Wire rope socket - swaged

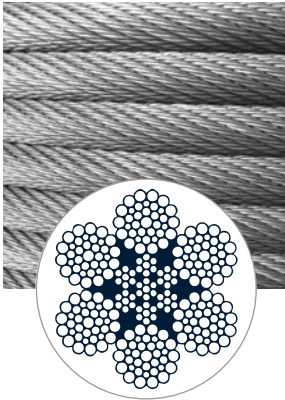


Wire rope socket - poured spelter or resin

6x36 WS IWRC

Features

Designed for mooring, hedry derrick hoist ropes
Towing and general engineering application strong resistance to abrasion
Independent wire rope core
6 strand with 36 wires per strand configuration



No Swivel

Tolerance

Lubricate

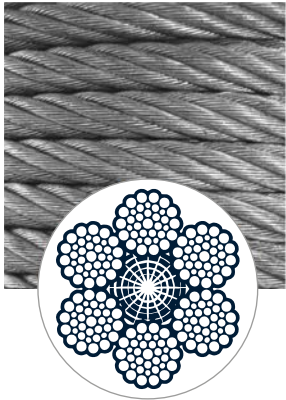
Preformed

Diameter (mm)	Weight (kg/m)	1770 (N/mm²)		1960 (N/mm²)	
		kN	Ton (metric)	kN	Ton (metric)
8	0,262	40,3	4,1	44,7	4,6
9	0,332	51	5,2	56,5	5,8
10	0,409	63	6,4	69,8	7,1
11	0,495	76,2	7,8	84,4	8,6
12	0,59	90,7	9,2	100	10,2
13	0,692	106	10,8	118	12
14	0,802	124	12,6	137	14
15	0,921	142	14,5	157	16
16	1,048	161	16,4	179	18,3
17	1,183	182	18,6	202	20,6
18	1,326	204	20,8	226	23
19	1,478	227	23,1	252	25,7
20	1,638	252	25,7	279	28,5
21	1,805	278	28,3	308	31,4
22	1,981	305	31,1	338	34,5
23	2,166	333	34	369	37,6
24	2,358	363	37	402	41
25	2,559	394	40,2	436	44,5
26	2,767	426	43,4	472	48,1
27	2,984	459	46,8	509	51,9
28	3,21	494	50,4	547	55,8
29	3,443	530	54	587	59,9
30	3,684	567	57,8	628	64
31	3,934	606	61,8	671	68,4
33	4,458	686	70	760	77,5
34	4,732	728	74,2	807	82,3
36	5,306	817	83,3	904	92,2
37	5,604	863	88	955	97,4
38	5,911	910	92,8	1.010	103
39	6,227	958	97,7	1.060	108,1
40	6,55	1.010	103	1.120	114,2
41	6,882	1.060	108,1	1.170	119,3
42	7,221	1.110	113,2	1.230	125,4

6x36 WS FC

Features

Designed for crane, hoist, construction and general engineering application
Strong resistance to abrasion
Fiber core
6 strands with 36 wires per strand configuration



No Swivel

Tolerance

Lubricate

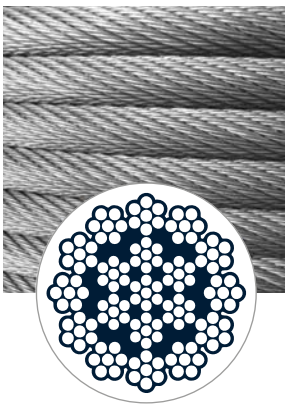
Preformed

Diameter (mm)	Weight (kg/m)	1770 (N/mm²)		1960 (N/mm²)	
		kN	Ton (metric)	kN	Ton (metric)
8	0.235	37,4	3,8	41,4	4,2
9	0.297	47,3	4,8	52,4	5,3
10	0.367	58,4	6,0	64,7	6,6
11	0.444	70,7	7,2	78,3	8,0
12	0.529	84,1	8,6	93,1	9,5
13	0.621	98,7	10,1	109	11,1
14	0.720	114	11,6	127	13,0
15	0.826	131	13,4	146	14,9
16	0.940	150	15,3	166	16,9
17	1,061	169	17,2	187	19,1
18	1,19	189	19,3	210	21,4
19	1,326	211	21,5	233	23,8
20	1,469	234	23,9	259	26,4
21	1,619	258	26,3	285	29,1
22	1,777	283	28,9	313	31,9
24	2,115	336	34,3	373	38,0
26	2,482	395	40,3	437	44,6
28	2,879	458	46,7	507	51,7
30	3,305	526	53,7	582	59,4
32	3,76	598	61,0	662	67,5
34	4,245	675	68,9	748	76,3
36	4,759	757	77,2	838	85,5
40	5,875	935	95,4	1035	105,6
44	7,109	1131	115,4	1252	127,7

19x7 ROTATION RESISTANT

Features

Designed to minimize rotation of ropes when hanging loads
Cross lay construction
Strands laid in opposite directions



Swivel

Tolerance

Lubricate

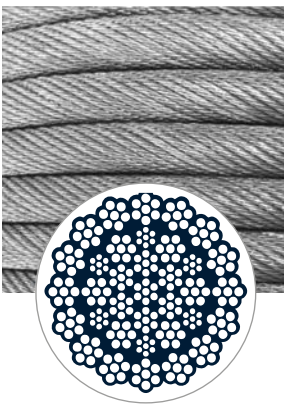
Preformed

Diameter (mm)	Weight (kg/m)	1960 (N/mm²)		2160 (N/mm²)	
		kN	Ton (metric)	kN	Ton (metric)
8	0.2560	41,1	4,19	45,3	4,62
9	0.3240	52,1	5,31	57,4	5,85
10	0.4000	64,3	6,56	70,8	7,22
11	0.4840	77,8	7,94	85,7	8,74
12	0.5760	93	9,49	102	10,40
13	0.6760	109	11,12	120	12,24
14	0.7840	126	12,85	139	14,18
15	0.9000	145	14,79	159	16,22
16	1.0240	165	16,83	181	18,46
17	1.1560	186	18,97	205	20,91
18	1.2960	208	21,22	230	23,46
19	1.4440	232	23,66	256	26,11
20	1.6000	257	26,21	283	28,87
21	1.7640	284	28,97	312	31,82
22	1.9360	311	31,72	343	34,99
23	2.1160	340	34,68	375	38,25
24	2.3040	370	37,74	408	41,62
25	2.5000	402	41,00	443	45,19
26	2.7040	435	44,37	479	48,86
27	2.9160	469	47,84	516	52,63
28	3.1360	504	51,41	555	56,61
29	3.3640	541	55,18	596	60,79
30	3.6000	579	59,06	638	65,08
36	5.1840	833	84,97	918	93,64

35x7 ROTATION RESISTANT

Features

Designed to minimize rotation of ropes when hanging loads
Cross lay construction
Strands laid in opposite directions



Swivel

Tolerance

Lubricate

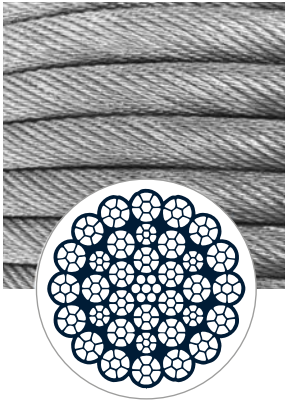
Preformed

Diameter (mm)	Weight (kg/m)	1960 (N/mm²)		2160 (N/mm²)	
		kN	Ton (metric)	kN	Ton (metric)
10	0.427	71	7,2	76	7,8
11	0.517	85	8,7	91	9,3
12	0.615	102	10,4	109	11,1
13	0.722	119	12,1	128	13,1
14	0.838	138	14,1	148	15,1
15	0.962	159	16,2	170	17,3
16	1.094	181	18,5	194	19,8
17	1.235	204	20,8	218	22,2
18	1.385	229	23,4	245	25,0
19	1.543	255	26,0	273	27,8
20	1,71	282	28,8	302	30,8
21	1,885	311	31,7	333	34,0
22	2,069	342	34,9	366	37,3
23	2,261	373	38,0	400	40,8
24	2,462	406	41,4	435	44,4
25	2,671	441	45,0	473	48,2
26	2,889	477	48,7	511	52,1
27	3,116	514	52,4	551	56,2
28	3,351	553	56,4	593	60,5
29	3,594	593	60,5	636	64,9
30	3,847	635	64,8	680	69,4
32	4,377	723	73,7	774	78,9
34	4,941	816	83,2		
36	5,539	914	93,2		

35xK7 COMPACTED ROTATION RESISTANT

Features

- Designed to minimize rotation of ropes when hanging loads
- Cross lay construction
- Strands laid in opposite directions
- Compacted strands



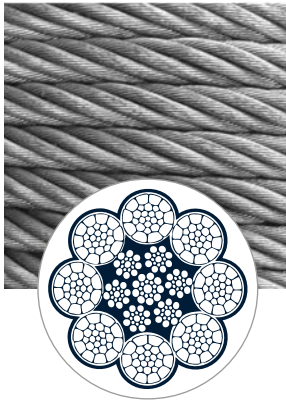
Swivel | Tolerance | Lubricate | Preformed | Compacted | Very High Breaking Force

Diameter (mm)	Weight (kg/m)	1960 (N/mm²)		2160 (N/mm²)	
		kN	Ton (metric)	kN	Ton (metric)
10	0.451	83	8,5	85	8,7
11	0.546	101	10,3	102	10,4
12	0.649	120	12,2	122	12,4
13	0.762	141	14,4	143	14,6
14	0.884	163	16,6	166	16,9
15	1.015	187	19,1	191	19,5
16	1.154	213	21,7	217	22,1
17	1.303	241	24,6	245	25,0
18	1.461	270	27,5	274	27,9
19	1.628	301	30,7	306	31,2
20	1.804	333	34,0	339	34,6
21	1.988	367	37,4	373	38,0
22	2.182	403	41,1	410	41,8
23	2.385	440	44,9	448	45,7
24	2.597	480	49,0	488	49,8
25	2.818	520	53,0	529	54,0
26	3.048	563	57,4	572	58,3
27	3.287	607	61,9	617	62,9
28	3.535	653	66,6	664	67,7
29	3.792	700	71,4	712	72,6
30	4.058	749	76,4	762	77,7
32	4.617	853	87,0	867	88,4
34	5.212	962	98,1		
36	5.844	1079	110,1		

8xKWS26+IWRC COMPACTED
PLASTIC COATED STEEL

Features

- Container crane main hoist, boom hoist, trolley
- Lattice boom crane boom hoist
- Dockside crane boom hoist
- Offshore pedestal crane boom hoist
- Unloader crane boom hoist, main hoist and trolley



Lubricate | Compacted | High Breaking Force

Diameter (mm)	Weight (kg/m)	1960 (N/mm²)	
		kN	Ton (metric)
20	1.96	345	35,2
22	2.37	417	42,5
24	2.82	497	50,7
26	3.31	583	59,5
28	3.84	676	69,0
30	4.41	776	79,2
32	5.02	883	90,1
34	5.66	997	101,7
36	6.35	1118	114,0
38	7.08	1245	127,0
40	7.84	1380	140,8
42	8.64	1521	155,1
44	9.49	1670	170,3
46	10.37	1825	186,2
48	11.29	1987	202,7
50	12.25	2156	219,9

4X39WS+FC ROUND STRAND STEEL

Features

Designed for crane, hoist and piling application
Fiber core
4 strand with 39 wires per strand configuration

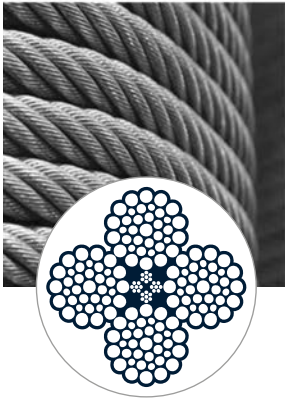
Swivel

Tolerance

Lubricate

Preformed

Diameter (mm)	Weight (kg/m)	1960 (N/mm²)	
		kN	Ton (metric)
20	1.79	278	28,4
22	1.82	335	34,2
24	2.2	385	39,3
26	2.6	467	47,6
28	2.99	543	55,4
30	3.44	624	63,6
32	3.88	709	72,3
33.5	4.16	789	80,5
34	4.45	801	81,7
36	4.85	898	91,6
38	5.5	1014	103,4



K4X36WS STEEL WIRE ROPE

Features

Designed for crane, hoist and piling application
4 strand with 36 compacted wires per strand configuration

Swivel

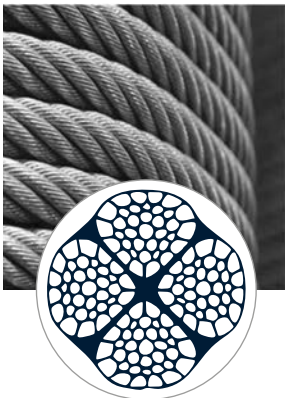
Tolerance

Lubricate

Preformed

Compacted

Diameter (mm)	Minimum breaking load (180 kg/mm² - 1770 N/mm²) (Ton)	Minimum breaking load (200 kg/mm² - 1960 N/mm²) (Ton)	Approx weight (Kg/m)
16	20,6	22,5	1,2
18	26,1	28,5	1,52
19	29,1	31,7	1,69
20	32,2	35,2	1,88
22	39	42,5	2,27
24	46,4	50,6	2,7
26	53,8	58,4	3,11
28	63,2	68,9	3,68
30	72,5	79,1	4,22
32	82,5	90	4,81
34	93,1	101,6	5,43



6x29(Fi) IWRC

Features

Designed for drilling ropes, ropeways and cable car hauling,
and vertical shaft lifting, deck \crane luffing.

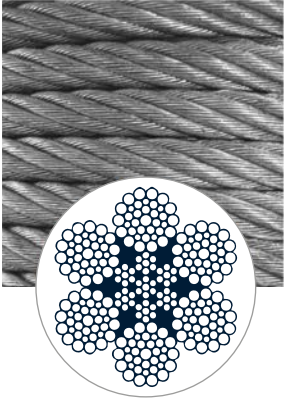
No Swivel

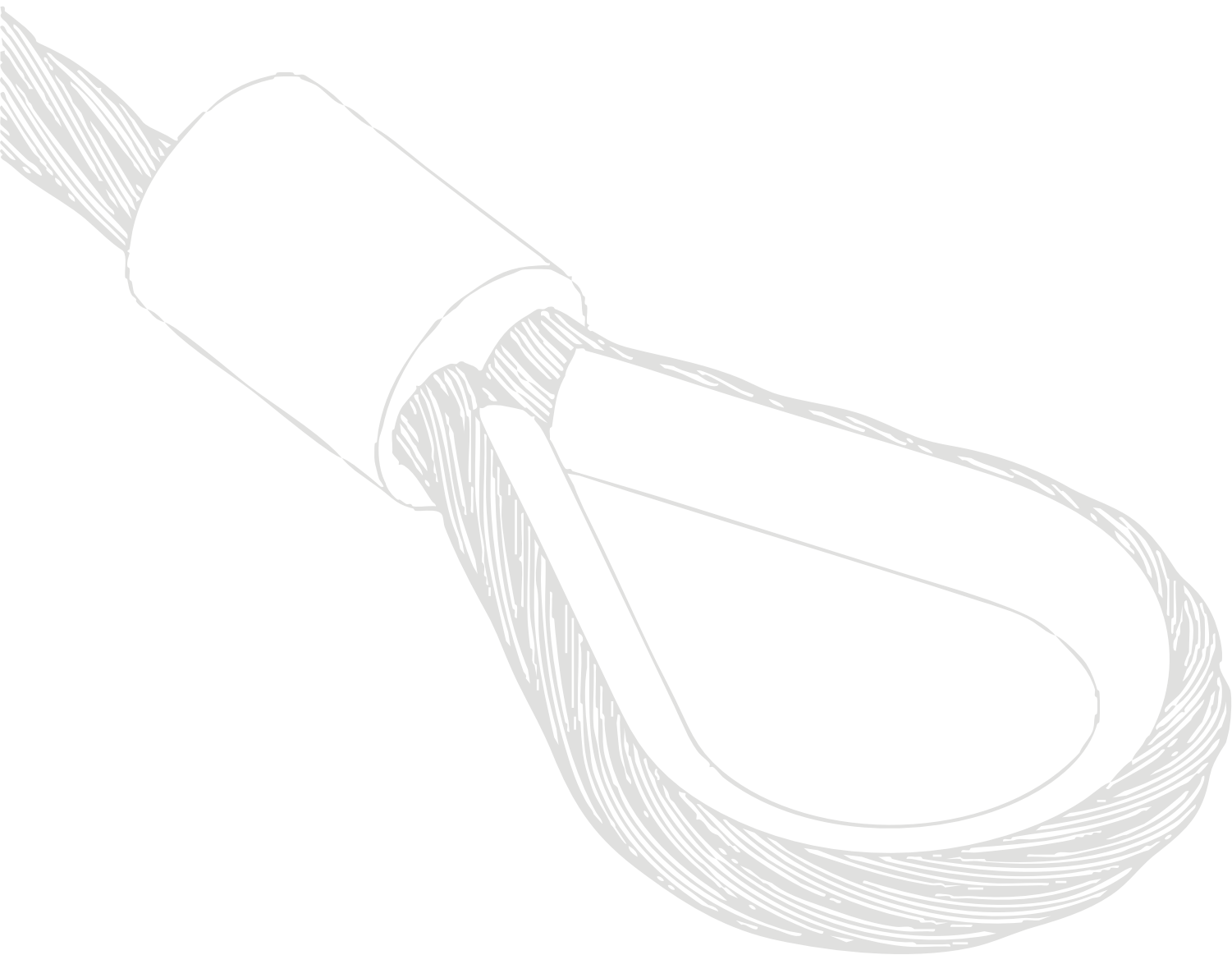
Tolerance

Lubricate

Preformed

Diameter (mm)	Breaking load Ordinary lay						Approximate unit weight (kg/m)
	1770 N/mm² (180 kgf/mm²)		1960 N/mm² (200 kgf/mm²)		2160 N/mm² (220 kgf/mm²)		
	kN	Tons	kN	Tons	kN	Tons	
10	72	7,3	84	8,6	89	9,1	0.470
14	142	14,5	163	16,6	174	17,7	0.921
16	185	18,9	212	21,6	226	23,1	1.20
18	234	23,9	268	27,3	286	29,2	1.52
20	289	29,5	331	33,8	353	36,0	1.88
22	350	35,7	401	40,9	428	43,7	2.27
25	452	46,1	518	52,8	552	56,3	2.94
28	566	57,7	650	66,3	687	70,1	3.68
30	650	66,3	742	75,7	791	80,7	4.23
36	936	95,5	1070	109,1	1140	116,3	6.09
38	1040	106,1	1190	121,4	1270	129,5	6.79



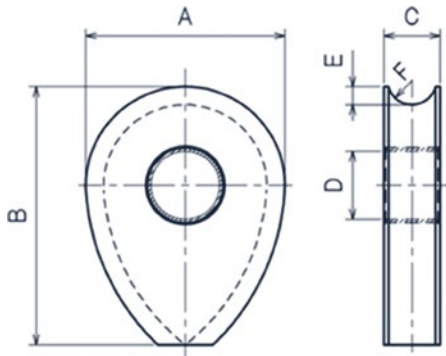


Accessories & maintenance

Solid thimble JIS B2802

Features

Material: steel
Standards: JIS B2802
Surface finish: galvanized



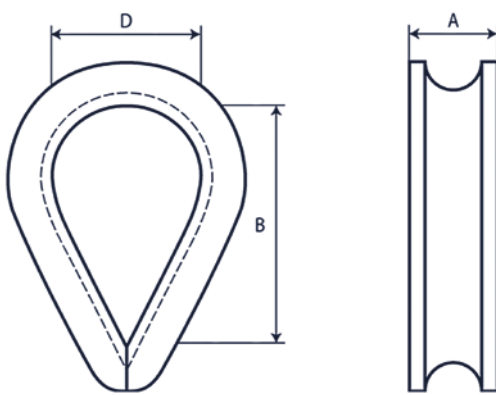
Model number	For wire Ø (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)
STD 28	24 or 25	120	156	33	45	12	15	2.6
STD 30	26	130	166	35	45	13	16	3
STD 32	28	140	180	38	45	15	17	3.8
STD 34	31.5	145	186	40	50	14	18	4.5
STD 36	32 or 33.5	150	196	42	50	14	19	5.3
STD 38	33.5	160	215	43	70	13	20	5.8
STD 45	33.5 or 40	190	242	52	70	20	23	10



Thimble DIN 3090

Features

Material: steel
Standards: EN 13411-1
Surface finish: galvanized
Certificate EN 10204 type: standard 2.1

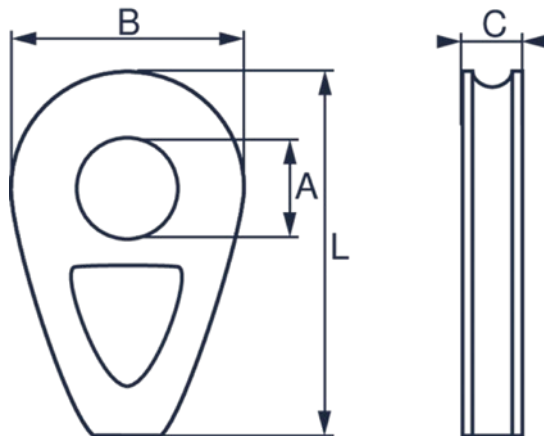


Size	For wire Ø (mm)	A (mm)	B (mm)	D (mm)	Weight (kg)
4	4-5	9	20	10	0.014
6	6-7	12	30	15	0.03
8	8-9	13	40	20	0.071
10	10-11	16	50	25	0.17
12	12-13	19	60	30	0.24
14	14-15	22	70	35	0.6
16	16-17	25	80	40	0.5
18	17-18	27	90	45	0.62
20	19-20	32	100	50	0.9
22	21-22	33	110	55	1
24	23-24	37	120	60	1.3
26	25-26	46	130	65	2.2
28	27-28	50	140	70	2.4
32	29-32	55	160	80	2.7
36	33-36	60	180	90	4.3
40	38-40	65	200	100	5.7
44	42-44	70	220	110	8.5
48	45-48	75	240	120	11.2
52	49-52	80	260	130	15.3
56	53-56	85	280	140	21.48
60	58-60	90	300	150	23
64	62-64	95	320	160	35
66	65-68	100	340	170	37
72	70-72	105	360	180	41
76	74-76	115	380	190	46
80	78-82	120	400	200	54

Solid thimble DIN 3091

Features

Material: steel
Standards: DIN3091
Surface finish: galvanized
Certificate EN 10204 type: standard 2.1

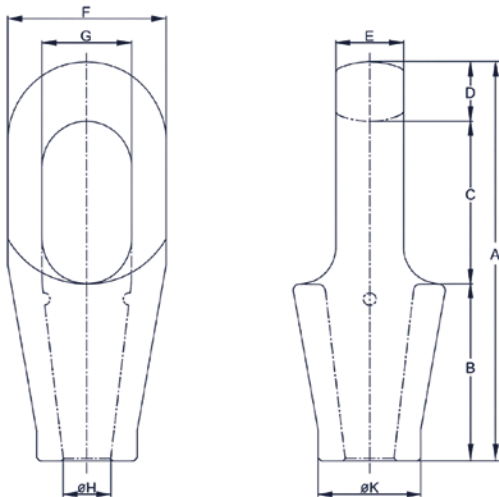


Rope Ø range (mm)	A Not worked	A Min worked	A Max worked	B (mm)	C (mm)	L (mm)	Weight kg/100pc
8	14	17	20	40	15	66	18
10	18	21	25	50	17,5	82	32
12	21	24	30	60	20	98	52
14	25	29	35	70	23,5	114	80
16	28	32	40	80	26	130	90
18	31	35	45	90	28,5	145	121
20	35	40	50	100	31	161	161
22	38	43	55	110	33,5	177	211
24	41	46	60	120	36	193	271
26	44	49	65	130	39,5	209	355
28	47	52	70	140	42	224	420
32	53	58	80	160	47	256	630
36	59	65	90	180	53	288	884
40	65	71	100	200	58	320	1100
44	70	76	110	220	63	352	1500
48	76	82	120	240	69	384	2000

Closed spelter socket (CSS)

Features

Material: steel
Standards: EN 13411-4
Surface finish: galvanized
Available for wire rope sizes from ø 6 mm to ø 128 mm

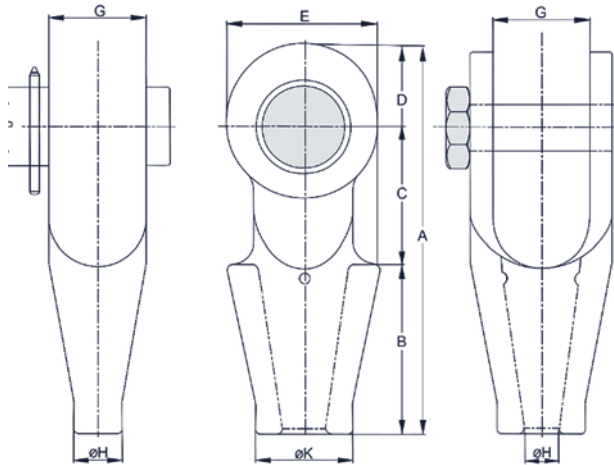


Model number	MBL (Mtons)	For wire rope Ø (mm)	Structural strand Ø (mm)	Approx. resin volume (cc)	A	B	C	D	E	F	ØH	ØK	Weight (kg)
CSS 296	8	6-7	-	10	102	46	45	11	14	38	10	20	0,3
CSS 297	12	8-10	-	22	120	59	56	14	20	50	13,5	25	0,65
CSS 298	20	11-13	-	37	140	64	59	17	26	53	16,5	30	0,65
CSS 299	25	14-16	12-13	61	172	89	72	23	37	77	22,5	35	1,9
CSS 200	40	18-19	14-16	91	194	89	78	27	42	77	22,5	36	3,2
CSS 201	50	20-22	16-18	124	200	97	84	33	50	91	25	42	3,6
CSS 204	80	23-26	20-22	172	253	114	103	40	65	101	29,5	52	4,7
CSS 207	100	28-30	24-26	232	272	123	114	45	70	121	33	62	6,4
CSS 212	130	31-34	27-28	322	312	139	130	53	77	137	39	74	9,5
CSS 215	160	35-37	30-32	463	352	152	145	59	85	152	44,5	82	13
CSS 217	200	39-42	33-36	670	404	171	161	65	100	169	49,5	93	17
CSS 219	250	43-48	36-40	932	456	194	180	72	115	189	56	106	25
CSS 222	320	49-54	40-44	1432	517	224	202	79	132	219	62,5	122	36
CSS 224	375	55-60	46-48	1589	550	229	228	93	148	219	68,5	135	47
CSS 225	470	61-65	50-52	2047	602	259	246	97	162	243	73	149	62
CSS 227	500	69-75	56-62	2338	644	279	286	79	174	273	82	160	82
CSS 228	600	76-81	62-67	3248	682	299	311	104	192	293	90	174	105
CSS 229	650	81-86	70-73	4392	736	330	315	115	205	311	102	182	126
CSS 230	750	87-93	73-80	5856	808	358	350	138	223	338	113	195	155
CSS 231	900	94-102	82-93	8122	885	381	368	158	242	366	119	215	195
CSS 233	1200	108-115	96-108	10500	965	440	400	190	255	403	128	250	315
CSS 240	1400	120-128	112-121	14000	1070	490	450	230	265	460	134	270	390

Open spelter socket (OSS)

Features

Material: steel
Standards: EN 13411-4
Surface finish: galvanized
Available for wire rope sizes from $\varnothing$ 6 mm to $\varnothing$ 128 mm

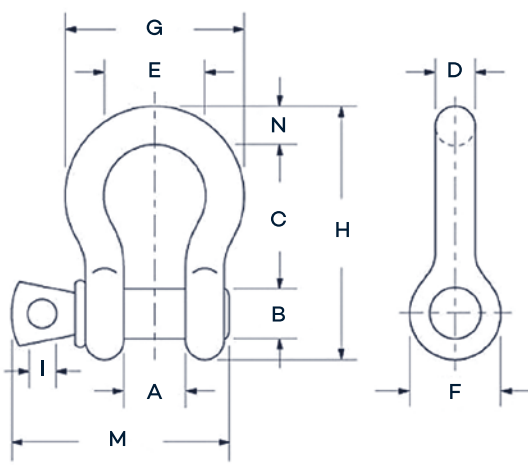


Model number	MBL (Mtons)	For wire rope $\varnothing$ (mm)	Structural strand $\varnothing$ (mm)	Approx. resin volume (cc)	A	B	C	D	E	F	G	$\varnothing$ H	$\varnothing$ K	$\varnothing$ P	Weight (kg)
OSS 196	8	6-7	-	10	105	46	40	19	34	39	18	10	20	18	0,4
OSS 197	12	8-10	-	22	123	59	56	24	39	50	24	13	25	20	0,75
OSS 198	20	11-13	-	37	142	64	51	27	48	56	30	16,5	30	26	1,1
OSS 199	25	14-16	12-13	61	174	89	74	33	59	84	40	22,5	35	35	1,75
OSS 100	40	18-19	14-16	91	205	89	87	40	68	84	48	22,5	36	45	3
OSS 101	50	20-22	16-18	124	208	97	95	44	75	95	52	25	42	46	3,5
OSS 108	80	23-26	20-22	172	273	114	103	50	90	113	65	29,5	52	57	5
OSS 112	100	28-30	24-26	232	273	114	120	58	100	124	70	33	62	57	6
OSS 115	130	31-36	27-28	370	338	139	127	72	120	145	82	39	74	69	10
OSS 120	160	37-40	30-32	464	415	165	145	78	135	165	91	44,5	82	79	15
OSS 125	200	42-45	33-36	672	452	171	165	86	150	171	100	49,5	93	86	20
OSS 130	250	45-49	36-40	936	520	194	186	99	170	190	120	56	106	101	30
OSS 135	320	50-55	40-44	1444	552	216	208	106	185	213	130	62,5	122	105	38
OSS 132	450	55-61	50-52	2004	654	249	273	120	210	243	140	68,5	135	120	51
OSS 136	500	61-68	56-62	2338	659	269	276	124	225	269	159	73	149	125	62
OSS 138	600	70-80	64-67	3428	738	305	310	145	245	305	170	90	174	150	95
OSS 142	750	87-93	76-80	5554	849	386	310	175	270	390	192	102	192	190	135
OSS 140	900	94-102	86-93	8322	940	390	375	190	300	405	210	112	205	210	205
OSS 145	1000	103-108	94-101	9200	995	440	420	200	320	420	220	118	220	215	250
OSS 146	1200	108-114	104-111	10500	1045	450	430	230	350	430	225	123	230	225	315
OSS 150	1400	120-128	112-121	14000	1185	490	440	255	430	455	243	133	270	220	680

Omega type shackle

Features

Omega type shackle without nut G209
Safety factor: 6:1
Coating: hot-dip galvanized
CE marked
For lifting use
Not suitable for heat treatment

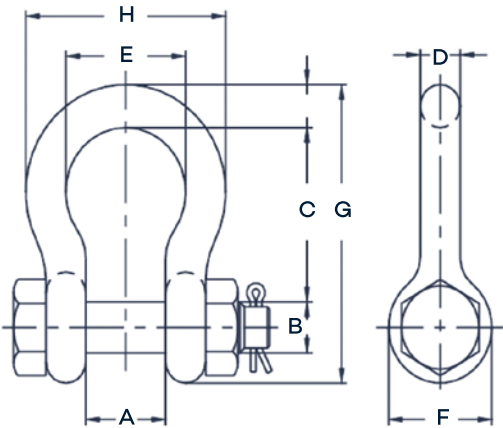


Product code	Size (inch)	WLL (tons)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	Weight (kg)
TY025003	5/16	0,75	13,5	9,65	7,85	21,3	19,1	37,3	53	5,6	42,2	7,85	0,09
TY025004	3/8	1	16,8	11,2	9,65	26,2	23,1	45,2	63	6,35	51,5	9,65	0,14
TY025005	7/16	1,5	18,3	12,7	11,2	29,5	26,9	51,5	74	7,85	60,5	11,2	0,17
TY025006	1/2	2	20,6	16	12,7	33,3	30,2	58,5	83,5	9,65	68,5	12,7	0,33
TY025007	5/8	3,25	26,9	19,1	16	42,9	38,1	74,5	106	11,2	85	17,5	0,62
TY025008	3/4	4,75	31,8	22,4	19,1	51	46	89	126	12,7	101	24,6	1,07
TY025009	7/8	6,5	36,6	25,4	22,4	58	53	102	148	12,7	114	24,6	1,64
TY025010	1	8,5	42,9	28,7	25,4	68,5	60,5	119	167	14,2	129	26,9	2,28
TY025011	1-1/8	9,5	46	31,8	29,5	74	68,5	131	190	16	142	31,8	3,36
TY025012	1-1/4	12	51	35,1	32,8	92,5	76	146	210	17,5	156	35,1	4,31
TY025013	1-3/8	13,5	57	38,1	36,1	92	84	162	233	19,1	174	38,1	6,14
TY025014	1-1/2	17	63,5	41,4	39,1	98,5	92	175	254	20,6	187	41,1	7,8
TY025015	1-3/4	25	73	51	46,7	127	106	225	313	25,4	257	57	12,6
TY025016	2	35	82,5	57	53	146	122	253	348	31	263	61	20,4
TY025017	2-1/2	55	105	70	69	184	145	327	453	35,1	330	79,5	38,9

Omega type shackle with bolt and nut

Features

Omega type shackle with nut and bolt G2130
Safety factor: 6:1
Coating: hot-dip galvanized
CE marked
For lifting use
Not suitable for heat treatment

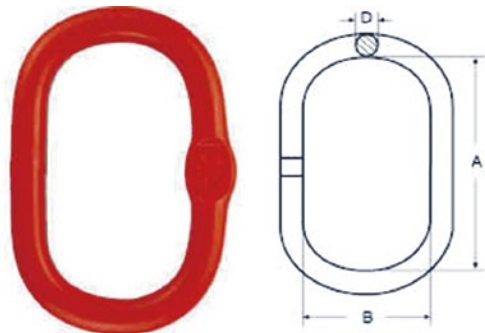


Product code	Size (inch)	WLL (tons)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Weight (kg)
TY025043	5/16	0,75	13,5	9,65	7,85	21,3	19,1	53	37,3	7,85	0,1
TY025044	3/8	1	16,8	11,2	9,65	26,2	23,1	63	45,2	9,65	0,15
TY025045	7/16	1,5	19,1	12,7	11,2	29,5	26,9	74	51,5	11,2	0,22
TY025046	1/2	2	20,6	16	12,7	33,3	30,2	83,5	58,5	12,7	0,36
TY025047	5/8	3,25	26,9	19,1	16	42,9	38,1	106	74,5	17,5	0,76
TY025048	3/4	4,75	31,8	22,4	19,1	51	46	126	80	20,6	1,23
TY025049	7/8	6,5	36,6	25,4	22,4	58	53	148	102	24,6	1,79
TY025050	1	8,5	42,9	28,7	25,4	68,5	60,5	167	119	26,9	2,57
TY025051	1-1/8	9,5	46	31,8	28,7	74	68,5	190	131	31,8	3,75
TY025052	1-1/4	12	51,5	35,1	31,8	82,5	76	210	146	35,1	5,31
TY025053	1-3/8	13,5	57	38,1	33	92	84	233	162	38,1	7,18
TY025054	1-1/2	17	63,5	41,4	38,1	98,5	92	254	175	41,1	9,48
TY025055	1-3/4	25	73	51	44,5	127	106	313	225	57	15,4
TY025056	2	35	82,5	57	51	146	122	348	253	61	23,7
TY025057	2-1/2	55	105	70	66,5	203	153	377	344	66,5	38,6
TY025058	2-1/2	55	105	70	66,5	203	145	377	327	66,5	44,6
TY025059	3	85	115	82,5	73	229	165	419	367	70	57

Master link for 1-2 leg slings

Features

Designed for use with G80 lifting chain slings and steel wire ropes
Marked with manufacturer initials "SLT"
Material: high-strength alloy steel
Construction: quenched and tempered steel
Safety factor: 4:1

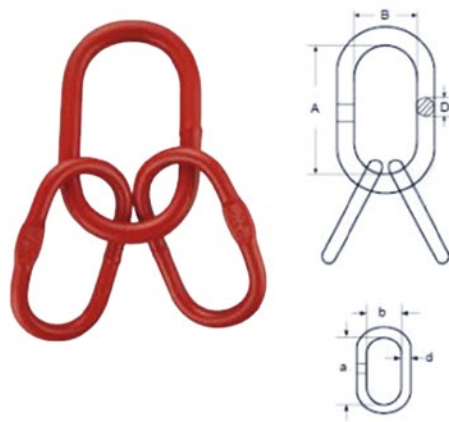


Product Code	Chain Size (mm)	WLL (tons)	A (mm)	B (mm)	C (mm)	N. W. (kg/pc)
TY022431	7	1,6	110	60	14	0,34
TY022432	8	2,12	110	60	16	0,53
TY022433	10	3,15	135	75	18	0,823
TY022434	13	5,3	160	90	22	1,5
TY022435	16	8	180	100	26	2,32
TY022436	18	11,2	200	110	32	3,95
TY022437	20	14	260	140	36	6,34
TY022438	22	17	300	160	40	8,96
TY022439	26	21,2	340	180	45	12,8
TY022440	32	31,5	350	190	50	16,55

Master link for 3-4 leg slings

Features:

Standard Master link for 3-4 leg slings
Manufactured according to EN 1677 standard
Surface coating: painted
Safety factor: 4:1
Not suitable for thermal treatment



Product code	Size (mm)	WLL (tons)	B (mm)	D (mm)	C (mm)	A (mm)	b (mm)	a (mm)	N. W. (kg/pc)
TY022581	14	2,4	60	14	100	40	12	85	0,82
TY022582	17	3,2	90	18	160	60	14	100	1,61
TY022583	20	5,3	120	20	160	60	14	100	1,95
TY022584	22	8	106	22	180	70	18	150	3,16
TY022586	32	17,4	140	32	270	100	25	180	9,31

Fitting eyes using 1000 t press



Tensile test using our own test bed



Hoisting | Luffing | Lifting | DNV certification upon request

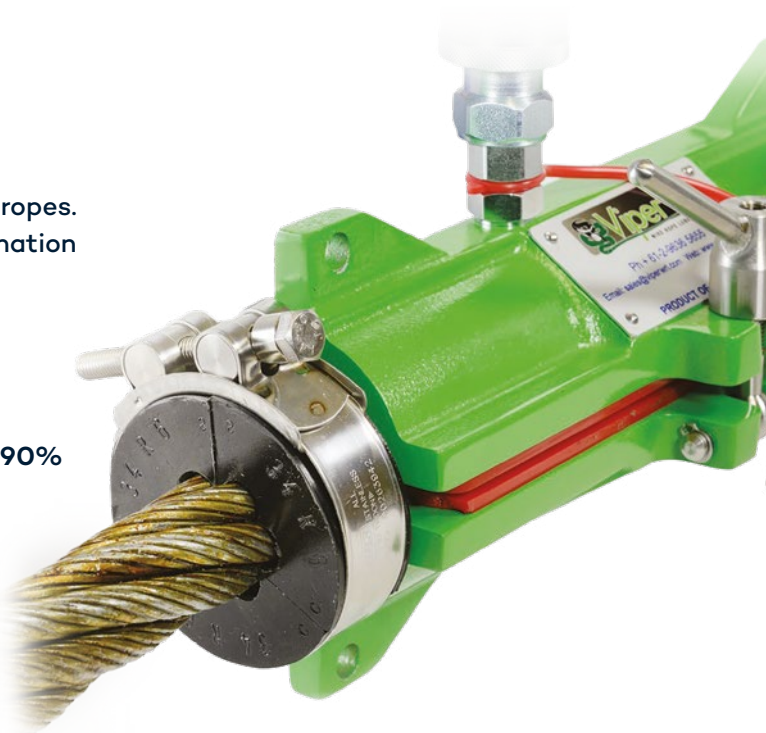
Approved by: 

VIPER wire rope lubricator

Is a safer & faster method to take care of your mooring ropes. This automatic application cleans all outer contamination and lubricates steel wire ropes in one pass.

- Requires no special skills and no tools to operate
- Single person operation with a lightweight design
- Reduce labour required to lubricate wire ropes by up to 90%
- Grease up to 2000m of rope per hour
- Increase wire rope life up to 300%
- Light weight, easy to install and operate
- Unlike the manual method, operators have no direct contact with the lubricant
- All excess lubricant is captured and may be re-used, no wastage

Sale & rental



VIPER
MAXI MK2
Lubricator

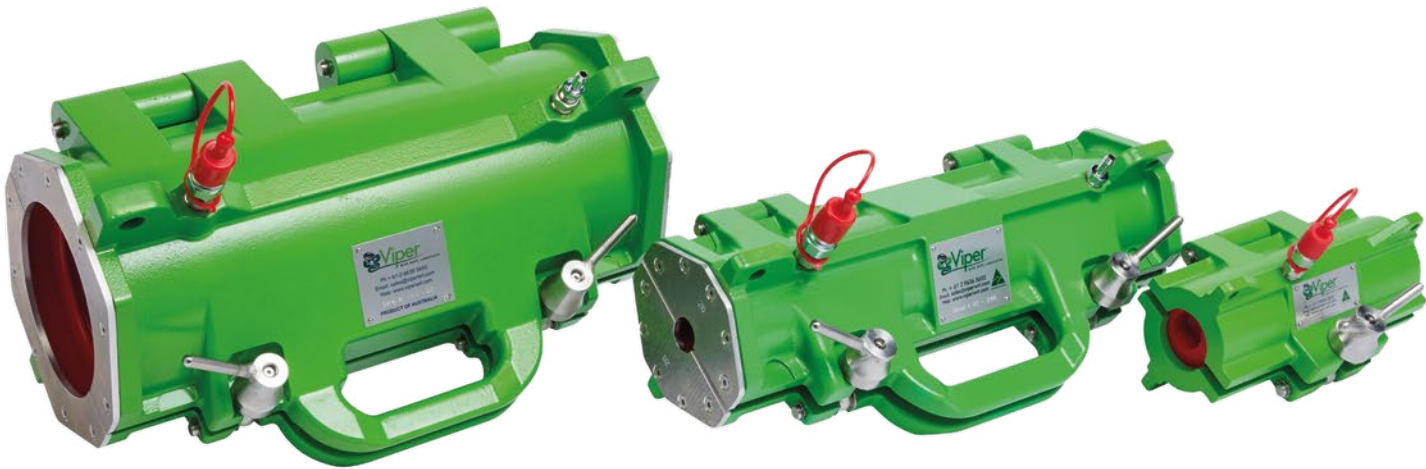
Suitable for wire ropes:
50 mm to 165 mm

VIPER
MID MK2
Lubricator

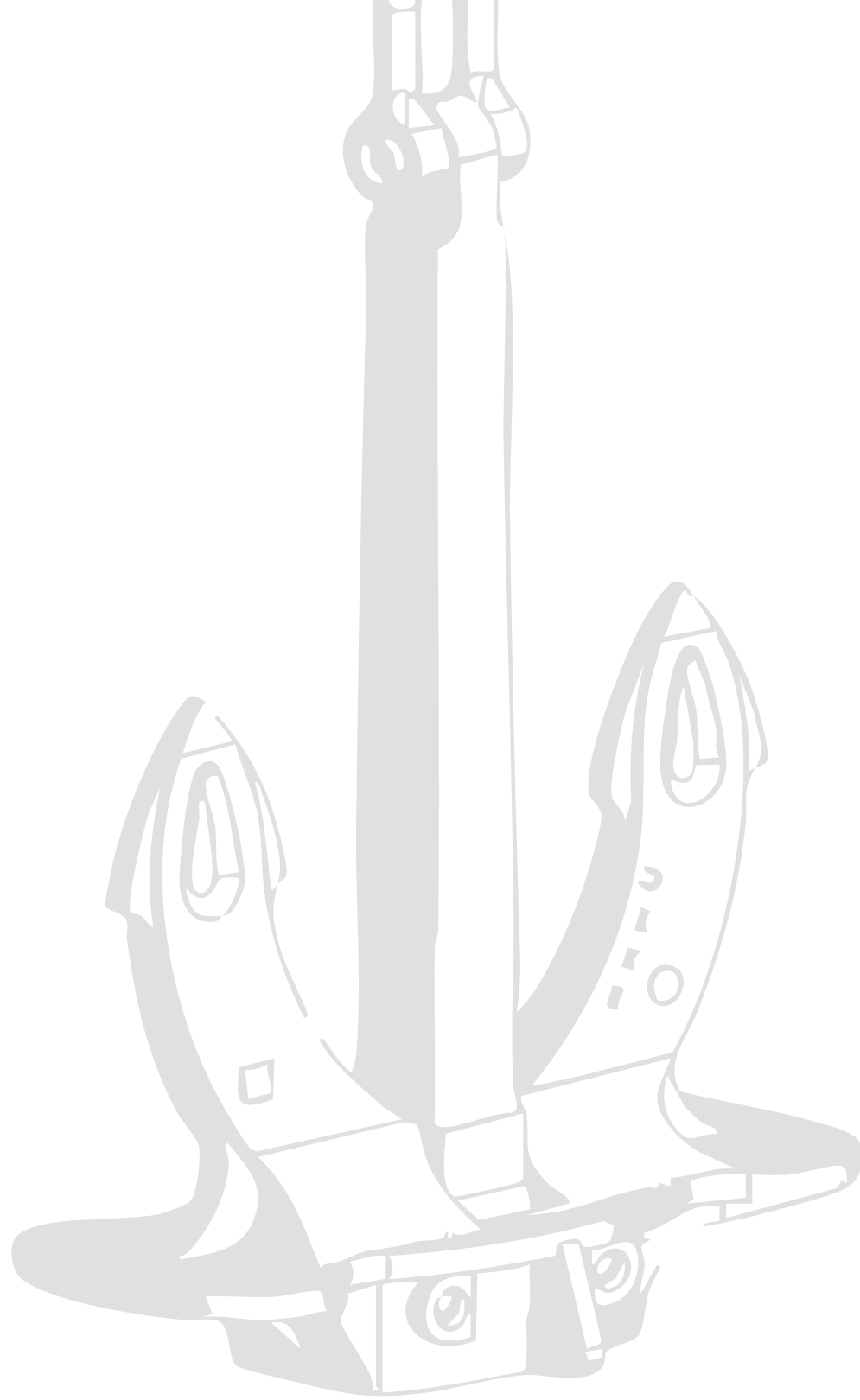
Suitable for wire ropes:
6 mm to 67 mm

VIPER
MINI MK3
Lubricator

Suitable for wire ropes:
6 mm to 44 mm

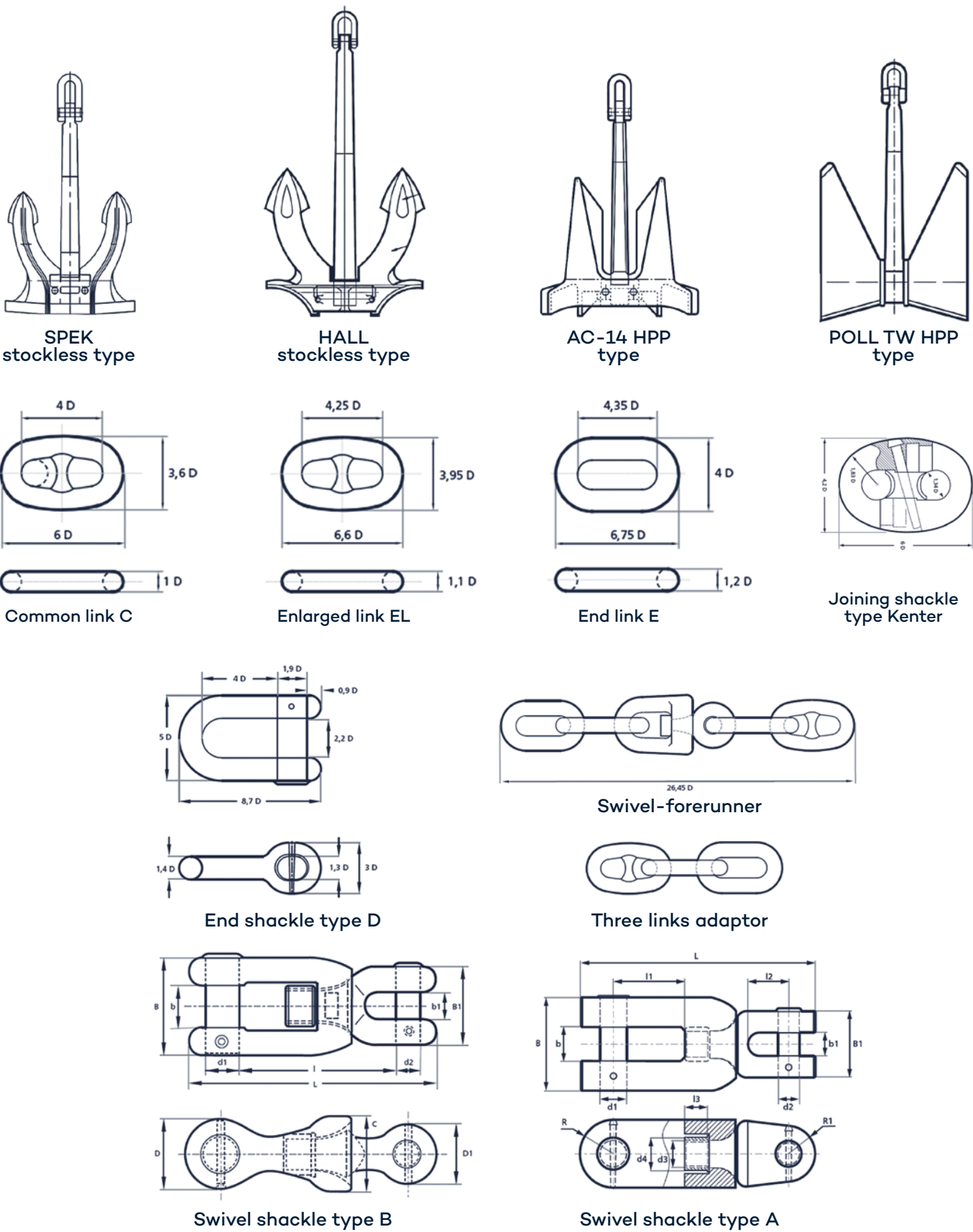


An official distributor:  WIRE ROPE LUBRICATOR



Anchor, anchor chain & accessories

Materials: black steel, hot deep galvanized (HDG), stainless steel



Equipment number	Equipment letter			Weight per anchor (Kgs)	H.H.P (Kgs)	Total length of chain (mtr)	Diameter		
	LR	ABS	DNVGL				Grade 1	Grade 2	Grade 3
50 – 69	A	U1	A	180	135	220	14	12.5	-
70 – 89	B	U2	B	240	180	220	16	14	-
90 – 109	C	U3	C	300	225	247.5	17.5	16	-
110 – 129	D	U4	D	360	270	247.5	19	17.5	-
130 – 149	E	U5	E	420	315	275	20.5	17.5	-
150 – 174	F	U6	F	480	360	275	22	19	-
175 – 204	G	U7	G	570	430	302.5	24	20.5	-
205 – 239	H	U8	H	660	495	302.5	26	22	20.5
240 – 279	I	U9	I	780	585	330	28	24	22
280 – 319	J	U10	J	900	675	357.5	30	26	24
320 – 359	K	U11	K	1020	765	357.5	32	28	24
360 – 399	L	U12	L	1140	855	385	34	30	26
400 – 449	M	U13	M	1290	970	385	36	32	28
450 – 499	N	U14	N	1440	1080	412.5	38	34	30
500 – 549	O	U15	O	1590	1195	412.5	40	34	30
550 – 599	P	U16	P	1740	1305	440	42	36	32
600 – 659	Q	U17	Q	1920	1440	440	44	38	34
660 – 719	R	U18	R	2100	1575	440	46	40	36
720 – 779	S	U19	S	2280	1710	467.5	48	42	36
780 – 839	T	U20	T	2460	1845	467.5	50	44	38
840 – 909	U	U21	U	2640	1980	467.5	52	46	40
910 – 979	V	U22	V	2850	2140	495	54	48	42
980 – 1059	W	U23	W	3060	2295	495	56	50	44
1060 – 1139	X	U24	X	3300	2475	495	58	50	46
1140 – 1219	Y	U25	Y	3540	2655	522.5	60	52	46
1220 – 1299	Z	U26	Z	3780	2835	522.5	62	54	48
1300 – 1389	A+	U27	A+	4050	3040	522.5	64	56	50
1390 – 1479	B+	U28	B+	4320	3240	550	66	58	50
1480 – 1569	C+	U29	C+	4590	3445	550	68	60	52
1570 – 1669	D+	U30	D+	4890	3670	550	70	62	54
1670 – 1789	E+	U31	E+	5250	3940	577.5	73	64	56
1790 – 1929	F+	U32	F+	5610	4210	577.5	76	66	58
1930 – 2079	G+	U33	G+	6000	4500	577.5	78	68	60
2080 – 2229	H+	U34	H+	6450	4840	605	81	70	62
2230 – 2379	I+	U35	I+	6900	5175	605	84	73	64
2380 – 2529	J+	U36	J+	7350	5515	605	87	76	66
2530 – 2699	K+	U37	K+	7800	5850	632.5	90	78	68
2700 – 2869	L+	U38	L+	8300	6225	632.5	92	81	70
2870 – 3039	M+	U39	M+	8700	6525	632.5	95	84	73
3040 – 3209	N+	U40	N+	9300	6975	660	97	84	76
3210 – 3399	O+	U41	O+	9900	7425	660	100	87	78
3400 – 3599	P+	U42	P+	10500	7875	660	102	90	78
3600 – 3799	Q+	U43	Q+	11100	8325	687.5	105	92	81
3800 – 3999	R+	U44	R+	11700	8775	687.5	107	95	84
4000 – 4199	S+	U45	S+	12300	9225	687.5	111	97	87
4200 – 4399	T+	U46	T+	12900	9675	715	114	100	87
4400 – 4599	U+	U47	U+	13500	10125	715	117	102	90
4600 – 4799	V+	U48	V+	14100	10575	715	120	105	92
4800 – 4999	W+	U49	W+	14700	11025	742.5	122	107	95
5000 – 5199	X+	U50	X+	15400	11550	742.5	124	111	97
5200 – 5499	Y+	U51	Y+	16100	12075	742.5	127	111	97
5500 – 5799	Z+	U52	Z+	16900	12675	742.5	130	114	100
5800 – 6099	A*	U53	A*	17800	13350	742.5	132	117	102
6100 – 6499	B*	U54	B*	18800	14100	742.5	137	120	107
6500 – 6899	C*	U55	C*	20000	15000	770	-	124	111
6900 – 7399	D*	U56	D*	21500	16125	770	-	127	114
7400 – 7899	E*	U57	E*	23000	17250	770	-	132	117
7900 – 8399	F*	U58	F*	24500	18375	770	-	137	122
8400 – 8899	G*	U59	G*	26000	19500	770	-	142	127
8900 – 9399	H*	U60	H*	27500	20625	770	-	147	132
9400 – 10000	I*	U61	I*	29000	21750	770	-	152	132

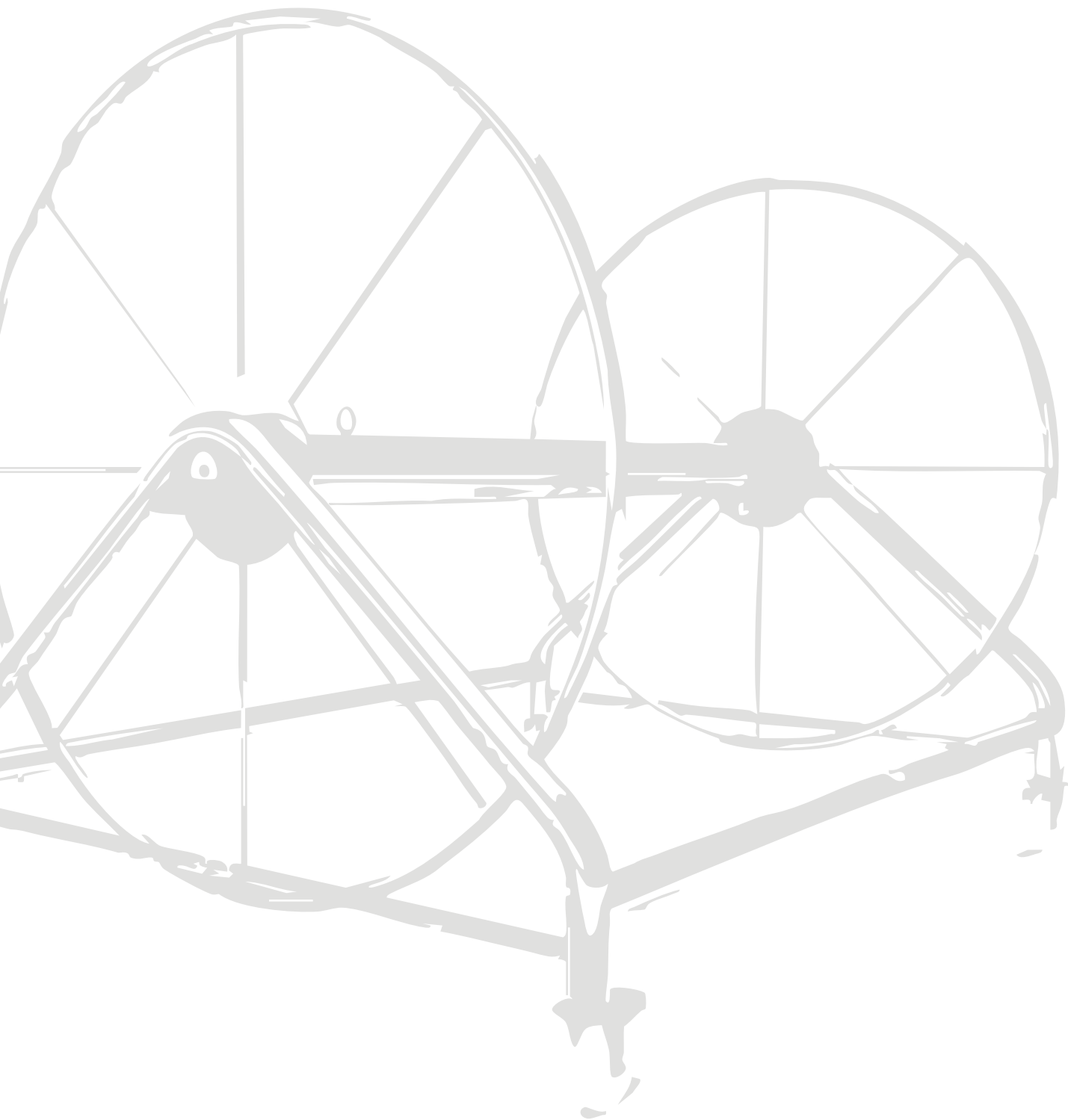
Weight for stud link anchor chain & accessories

Diam	Stud link chain weights		Common link	Enlarged link	End link	Joining shackle Kenter	Anchor shackle type D	Swivel	Swivel shackle type A	Complete swivel-forerunner
	mm	Kgs/mtr	Kgs/27,5 mtr	Kgs	Kgs	Kgs	Kgs	Kgs	Kgs	Kgs
12.5	3.5	96	0.17	0.23	0.23	0.39	1.1	0.9	–	1.76
14	4.4	121	0.24	0.32	0.36	0.51	1.3	1.3	–	2.52
16	5.8	160	0.36	0.50	0.51	0.62	1.6	1.7	–	3.57
17.5	7.0	193	0.47	0.74	0.68	0.82	2.0	2.1	–	4.73
19	8.1	223	0.60	0.88	0.89	1.00	2.5	2.5	9.0	5.75
20.5	10.0	275	0.75	1.10	1.13	1.35	3.3	3.1	11.3	7.18
22	11.1	305	0.93	1.25	1.28	1.6	4.0	3.5	13.9	8.21
24	13.3	366	1.21	1.70	1.77	2.0	5.0	5.0	18.1	11.38
26	15.7	432	1.55	2.15	2.20	2.7	6.0	6.0	23.9	14.05
28	18.3	503	1.9	2.8	2.9	3.3	8.0	7.5	29.6	17.90
30	21.0	578	2.4	3.2	3.3	3.9	9.5	9.0	35.4	21.1
32	23.9	657	2.9	3.9	4.0	4.6	12.0	11.0	44.6	25.7
34	27.0	743	3.4	4.7	5.0	5.8	14.0	13.5	53.7	31.3
36	30.2	831	4.0	5.5	5.9	6.6	17.0	16.0	62.9	36.9
38	33.7	927	4.7	6.1	6.8	7.8	20.0	19.0	71.9	42.7
40	37.1	1020	5.5	7.1	8.0	9.1	23.0	23.0	85.9	50.7
42	40.5	1114	6.4	8.4	9.6	10.5	26.0	27.0	100.0	59.8
44	44.3	1218	7.4	10.0	11.2	12.2	29.0	32.0	114.0	70.6
46	48.5	1334	8.5	11.5	13.0	14.0	33	37.0	128.0	81.5
48	52.8	1452	9.8	13.1	15.0	16.0	37	44.0	147.5	95.0
50	57	1568	11	15	17	18	41	57	167.0	115
52	62	1705	13	17	20	20	45	57	186.5	124
54	66	1815	14	19	22	20	50	67	206.0	141
56	71	1953	16	21	23	24	54	67	232.5	148
58	77	2118	17	23	25	28	65	80	259.0	168
60	83	2283	19	25	27	28	70	95	285.5	191
62	88	2420	21	28	30	33	76	95	312.0	202
64	94	2585	23	31	34	38	82	112	345.0	231
66	100	2750	25	34	38	38	94	130	378.7	261
68	107	2943	27	37	42	44	101	130	412.0	273
70	114	3135	30	40	45	44	108	152	451.2	307
73	124	3410	34	45	52	51	124	172	510.0	348
76	135	3713	39	50	59	58	141	194	575.0	392
78	142	3905	42	55	63	65	150	194	623.4	409
81	154	4235	46	61	70	74	171	220	696.0	458
84	166	4565	52	68	78	84	193	242	776.0	508
87	178	4895	58	75	86	94	218	270	867.5	564
90	189	5198	64	82	95	105	243	300	959.0	623
92	199	5473	68	88	100	105	256	325	1020.0	669
95	211	5803	75	98	112	115	290	350	1123.0	733
97	220	6050	80	102	120	135	305	350	1196.0	754
100	234	6435	88	112	130	150	335	385	1310.0	827
102	243	6683	93	120	138	150	350	420	1397.3	891
107	266	7315	109	140	158	175	410	495	1615.5	1042
111	287	7893	120	160	175	200	445	535	1792.0	1150
114	304	8360	130	173	193	225	475	570	1959.1	1239
117	317	8718	142	185	210	225	505	610	2126.1	1332
122	345	9488	160	210	235	267	550	650	2404.6	1465
127	375	10313	182	235	260	315	600	720	2683.0	1632
132	400	11000	205	260	305	370	675	760	3095.4	1790
137	436	11990	230	285	330	390	750	900	3507.9	2030
142	467	12843	255	325	375	450	900	1100	3920.3	2380
147	489	13723	280	395	410	505	1055	1200	4332.7	2680
152	535	14713	310	410	460	545	1200	1400	4745.1	2990
157	570	15675	345	455	510	605	1340	1550	5157.6	3315
162	610	16775	375	500	560	660	1450	1700	5570.0	3635

Strength for stud link anchor chain



Chain diameter		Grade 1		Grade 2		Grade 3		Number of links per 27.5 mtr
inches	mm	Proof load kN	Break load kN	Proof load kN	Break load kN	Proof load kN	Break load kN	
1/2	12.5	46	66	66	92	-	-	549
9/16	14	58	82	82	116	-	-	491
5/8	16	76	107	107	150	-	-	429
11/16	17.5	89	127	127	179	-	-	391
3/4	19	105	150	150	211	-	-	357
13/16	20.5	123	175	175	244	244	349	331
7/8	22	140	200	200	280	280	401	309
15/16	24	167	237	237	332	332	476	283
1	26	194	278	278	389	389	556	261
1 1/8	28	225	321	321	449	449	642	243
1 3/16	30	257	368	368	514	514	735	225
1 1/4	32	291	417	417	583	583	833	211
1 5/16	34	328	468	468	655	655	937	199
1 7/16	36	366	523	523	732	732	1050	189
1 1/2	38	406	581	581	812	812	1160	179
1 9/16	40	448	640	640	896	896	1280	169
1 5/8	42	492	703	703	981	981	1400	161
1 3/4	44	538	769	769	1080	1080	1540	155
1 13/16	46	585	837	837	1170	1170	1680	147
1 7/8	48	635	908	908	1270	1270	1810	141
2	50	686	981	981	1370	1370	1960	135
2 1/16	52	739	1060	1060	1480	1480	2110	131
2 1/8	54	794	1140	1140	1590	1590	2270	125
2 3/16	56	851	1220	1220	1710	1710	2430	121
2 5/16	58	909	1290	1290	1810	1810	2600	117
2 3/8	60	969	1380	1380	1940	1940	2770	113
2 7/16	62	1030	1470	1470	2060	2060	2940	109
2 1/2	64	1100	1560	1560	2190	2190	3130	105
2 5/8	66	1160	1660	1660	2310	2310	3300	103
2 11/16	68	1230	1750	1750	2450	2450	3500	99
2 3/4	70	1290	1840	1840	2580	2580	3690	97
2 7/8	73	1390	1990	1990	2790	2790	3990	93
3	76	1500	2150	2150	3010	3010	4300	89
3 1/16	78	1580	2260	2260	3160	3160	4500	87
3 3/16	81	1690	2410	2410	3380	3380	4820	83
3 5/16	84	1800	2580	2580	3610	3610	5160	81
3 7/16	87	1920	2750	2750	3850	3850	5500	77
3 9/16	90	2050	2920	2920	4090	4090	5840	75
3 5/8	92	2130	3040	3040	4260	4260	6080	73
3 3/4	95	2260	3230	3230	4510	4510	6440	71
3 13/16	97	2340	3340	3340	4680	4680	6690	71
3 15/16	100	2470	3530	3530	4940	4940	7060	67
4	102	2560	3660	3660	5120	5120	7320	67
4 1/8	105	2700	3850	3850	5390	5390	7700	65
4 3/16	107	2790	3980	3980	5570	5570	7960	63
4 3/8	111	2970	4250	4250	5940	5940	8480	61
4 1/2	114	3110	4440	4440	6230	6230	8890	59
4 5/8	117	3260	4650	4650	6510	6510	9300	57
4 3/4	120	3400	4850	4850	6810	6810	9720	57
4 13/16	122	3500	5000	5000	7000	7000	9990	55
4 7/8	124	3600	5140	5140	7200	7200	10280	55
5	127	3750	5350	5350	7490	7490	10710	53
5 1/8	130	3900	5570	5570	7800	7800	11140	53
5 3/16	132	4000	5720	5720	8000	8000	11420	51
5 3/8	137	4260	6080	6080	8510	8510	12160	49



Fixed deck equipment

CHOCK, DECK &
BULWARK MOUNTED TYPE

ISO13728	NS 2587	JIS F2017
ISO13729	NS 2588	JIS F2005
ISO13713	NS 2589	JIS F2007
DIN 81915	NS 2590	



DOUBLE BOLLARD &
SINGLE CROSSING BOLLARD

ISO13795	JIS F2001
ISO3913	JIS F2804
DIN82607	BSMA 12
DIN82603	IMO1175
NS2584	GB/T 554



FAIRLEADS, 4-ROLLERS, 5-ROLLERS,
6-ROLLERS, 7-ROLLERS TYPE, ETC

DIN81902	ISO13742	CB3062
ISO13733	JIS F2026	



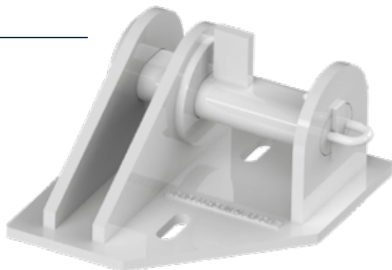
WRAPPING/GUIDE ROLLERS,
INCLUDING PEDESTALS

ISO 13776	DIN81907	JIS F2014
DIN81906	NS2585	



SMIT BRACKET, OCIMF TYPE

SWL 500kN	SWL 2250kN
SWL 1000kN	SWL 2500kN
SWL 1500kN	SWL 3200kN
SWL 2000kN	SWL 3800kN



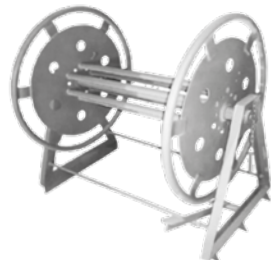
TOWING FITTINGS, SHACKLES,
TRIANGLE PLATES, SOCKETS

DIFFERENT STANDARDS & TYPES



MOORING ROPE STORAGE REEL

ISO 3730	NS2627	CB/T 3468
ISO3828	CB/T 498	



HATCH COVER

NS6028	NS2742
NS2737	NS2743



MANHOLES

ISO5894	S6263
NS6261	CB/T 19
NS6262	



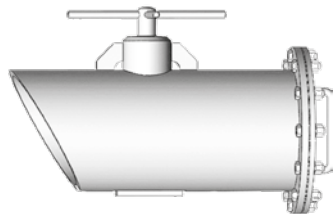
BOTTOM PLUG

ISO5483	JIS F3005	CB/T254
---------	-----------	---------



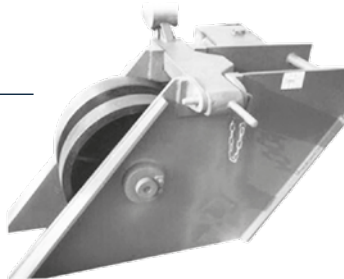
ANCHOR CHAIN END RELEASER

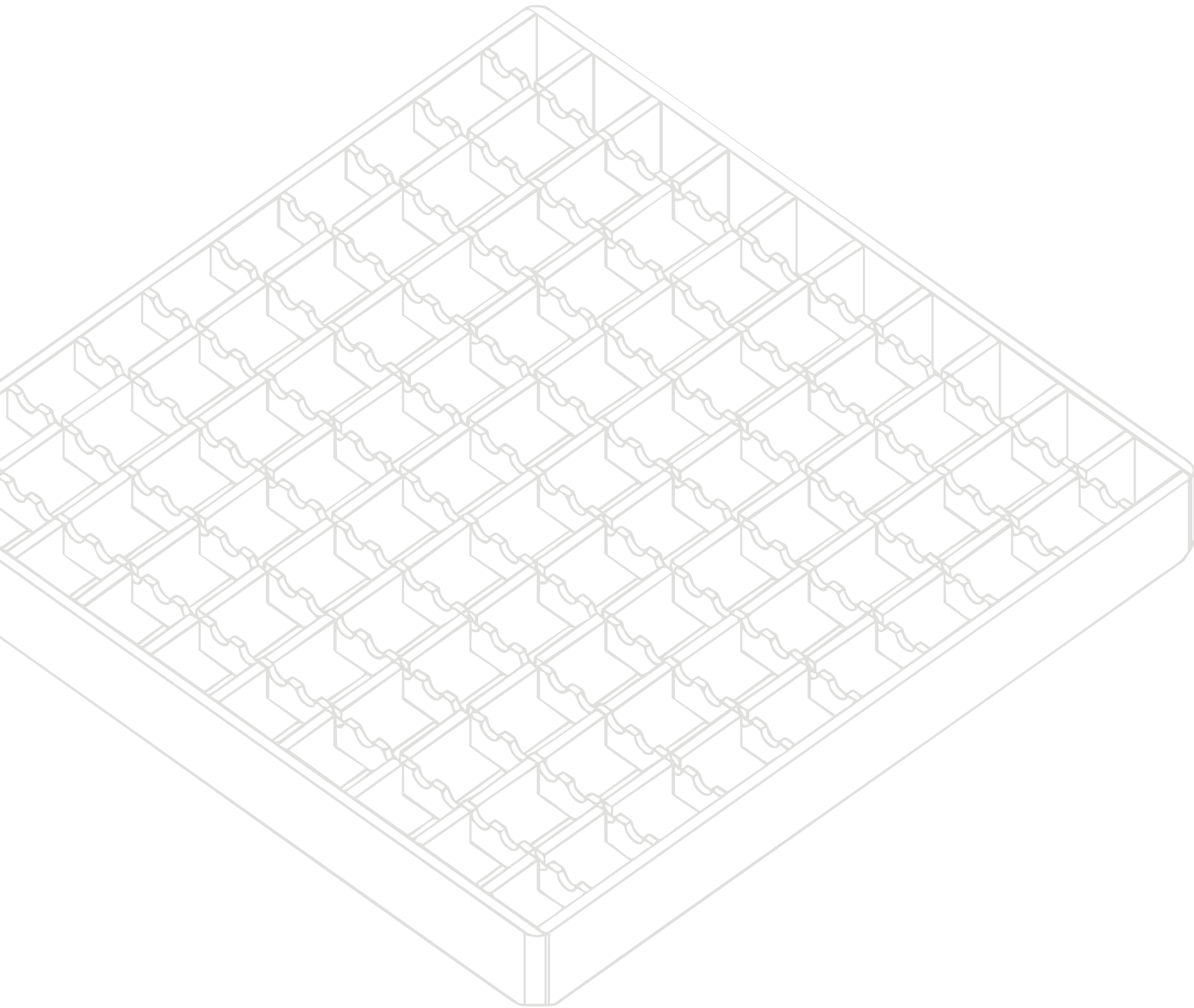
DIN81860



ANCHOR CHAIN STOPPERS

ISO 1706	ISO 13795
----------	-----------





Gratings

Isophthalic FRP gratings for marine vessels

High-performance fiberglass gratings are designed for safety, strength, and durability in harsh marine environments.

Panel thickness (mm)	Panel size (mm)	Mesh size (mm)
25	Standard: 1000x2000	25x100
30	Panels can be cut to any size	38x38
38	according to requirements	

Key benefits

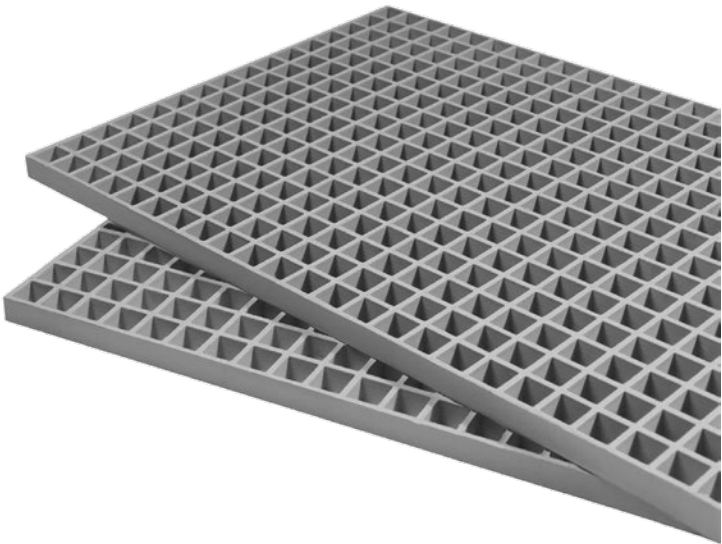
- Corrosion resistant:** excellent resistance to **acids, salts, and solvents** — ideal for marine, wastewater, and industrial use.
- UV resistant:** performs well in **outdoor** environments with exposure to sun and weather.
- Cost-effective:** more affordable than vinyl ester or phenolic gratings while still offering strong chemical protection.
- Slip resistant:** molded-in gritted surface enhances safety in wet or oily conditions.
- High strength-to-weight ratio:** easy to install and handle; supports pedestrian and equipment loads.
- Non-conductive:** safe for electrical environments.

Isophthalic grating applications on vessels

- Exterior walkways & weather decks
- Non-critical machinery platforms
- Storage & utility rooms
- Water treatment & ballast areas
- Catwalks and open-access platforms

Vessel types that commonly use isophthalic gratings

- Cargo vessels
- Bulk carriers
- Container vessels
- General cargo vessels
- RoRo vessels



M - Type



J - Type

Phenolic gratings for marine vessels

Panel thickness (mm)	Panel size (mm)	Mesh size (mm)
38	Standard: 1000x2000	38x152
	Panels can be cut to any size according to requirements	

Key benefits

- Low smoke & toxicity:** ideal for enclosed vessel spaces—ensures safer evacuation in fires.
- Corrosion resistant:** withstands saltwater, chemicals, and marine conditions—won't rust.
- Lightweight & strong:** ~75% lighter than steel; easy to install, reduces vessel weight.
- Slip resistant:** molded gritted surface provides superior traction in wet/oily areas.
- Low maintenance:** no painting or coating required; long service life.

Phenolic grating applications on vessels

- Escape routes & stairways
- Engine rooms & machinery spaces
- Lifeboat embarkation areas
- Offshore platform walkways
- Fire-rated corridors and platforms

Why choose phenolic gratings over steel?

- No rust or corrosion
- Lighter = better fuel efficiency
- Safer in fire and emergency situations
- Lower life-cycle cost

Vessel types that commonly use isophthalic gratings

- Tankers
- Chemical tankers
- Gas carriers
- Chemical carriers



M - Type



J - Type