



Rigging Catalogue

Fourth edition



About

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Disclaimer: all measurements, general information and recommendations in this catalogue are assumed to be correct. However, Certex Norge AS disclaims any responsibility for typographical errors and technical changes.

Certex Norge AS, February 2023

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Introduction and details

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- » References
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- » QR-coding

Welcome to the TechnipFMC Rigging Catalogue, 4th edition!

The TechnipFMC Rigging Catalogue 4th edition has been developed in collaboration with our main supplier of rigging, Certex Norge AS, to aid TechnipFMC engineers in the rigging design and selection process.

“What’s new?”

The 4th edition of the catalogue has been updated to reflect the FA with Certex Norge renewed in 2015, for the supply of general rigging equipment and services, in addition to changes in requirements/standards and other important market developments.

Some of the new features of the catalogue include:

- Information regarding Certex Norge Buy-Back option and process
- QR Coding - Benefits & “how to”
- TechnipFMC Product Article Numbers

The catalogue is divided into three main sections:

1. First you will find an introduction, detailing:

- How and when to use this catalogue
- Important references, standards and & abbreviations
- Contact details
- Sourcing Process (Buy-Back Option & Equipment List)
- QR Coding - Its use & benefits.

2. In the second section you will find the TechnipFMC PREFERRED PRODUCTS, with preferred products for each product main and sub category. These specific rigging products have been selected based on a combination of technical requirements, specifications and commercial aspects, and shall be chosen in all instances, unless use is technically impossible or client has requested otherwise. This section also includes general and product specific technical information to aid when designing rigging arrangements involving the listed products.

3. Section 3, Exhibit, contains general information (technical and other) that is not covered in the previous sections, which is important to know when designing different rigging arrangements and will help ensure the selection of the right rigging equipment.

Please make yourself familiar with the catalogue and its content prior to starting the design phase and selection of rigging equipment.

When to use this catalogue?

This catalogue shall always serve as a starting point when designing new rigging. It includes all necessary technical information & specifications (including references and standards), both general and product specific, for the design of rigging.

The catalogue shall also serve as the basis for selection of rigging products on which to base your design.

Please base any rigging design on these products and their measurement/specifications unless not technically possible or specific brand/solution is requested by client.

Who to contact and when

1. General questions regarding the catalogue and its content:

- Rigging Category Responsible, TechnipFMC, Lysaker
- **Technical Questions regarding design, standards, references and rigging equipment**
 - Internal: Technical Advisor, Subsea Lifting, TechnipFMC Lysaker
Discipline Supervisor Structural and Mechanical Engineering, Stavanger
 - External: Sales Manager Kristiansund, Certex Norge AS

Questions concerning the buy-back option and process

- Internal: Rigging Category Responsible, TechnipFMC, Lysaker:
- External: Sales Manager Kristiansund, Certex Norge AS

2. QR Coding:

- Internal: Technical Advisor, subsea lifting
- External: Technical/QA Manager, Trondheim, Certex Norge AS

References

- /1/ P388 – Subsea installation – Guideline for rigging design – global (Technip internal)
- /2/ ENG-GL-TNOR-01-TNOR rigging specification (Technip internal)
- /3/ QMT-F-020 Rev No. 4 – ROV shackles: 17-85 Te release only (Technip internal)
- /4/ I.S.N No.05-09-Internal safety notice-lever hoist (Technip internal)
- /5/ MOS-CRN-009 – Steel Wire Ropes Assurance Procedure (Technip Internal)
- /6/ DNV-OS-H205 – VMO standard, Part 2-5, Lifting operations
- /7/ IMCA M179 – Guidance on the use of Cable Laid slings and Grommets (under revision)
- /8/ NORSOK R002, Edition 2 Sept. 2012– Lifting Equipment
- /9/ NORSOK R003, Rev. 2 July 2004 – Safe use of lifting equipment

The above documentation can be found on the TechnipFMC intranet web page, under Subsea Lifting.

Please check the intranet web site before starting a new rigging.

TechnipFMC in Norway > Engineering > Marine Operation and Subsea Lifting > Rigging Design

http://thelink.exnet.technip.com/sites/norway/engineering/Discipline_Pages/Studies/Pages/home.aspx

Abbreviations

CT	Constant tension
EL / EWL	Effective Length / Effective Working Length
HE	Hard Eye
HPU	Hydraulic Power Unit
IWRC	Independent Wire Rope Core
kg	kilogram
kN	Kilo Newton
MBL	Minimum Breaking Load
mm	Millimetre
RIS	Remote Intervention Services
SE	Soft Eye
SF	Safety Factor
Te	Metric Ton
WLL	Working Load Limit

TechnipFMC Internal Rigging Pool and Certex Norge Buy-Back Option (External pool)

Note: This section is for informational purposes. Equipment is not to be booked or purchased directly by engineers (unless under specific circumstances). Focus with regards to engineering is on sorting and return process to ensure cost savings.

1. TechnipFMC Stavanger Internal Rigging Pool

Strategic rigging equipment (see separate list below) is refurbished and stored at the Technip (externally rented) warehouse, located close to Technip's Stavanger's office. **When selecting Rigging equipment, check first if required equipment is available in the Internal Rigging Pool.** Strategic equipment available in the Internal Rigging Pool can be rented at 50 % of market pricing, conditioned on return of the equipment. If equipment is not returned (destroyed or lost) the project will be eligible to pay the full market price (discount lost).

For a basic list of strategic rigging equipment, consult the strategic equipment list which can be found on the intranet.

BMS - Documents - Standards - "Strategic Equipment List"

After de-mobilization, follow the strategic equipment list for used rigging equipment to ensure that relevant equipment gets returned to the Technip Warehouse for refurbishment. For further details contact SVG Rigging Pool responsible.

2. Certex Norge Buy-Back Option and External Rigging Pool

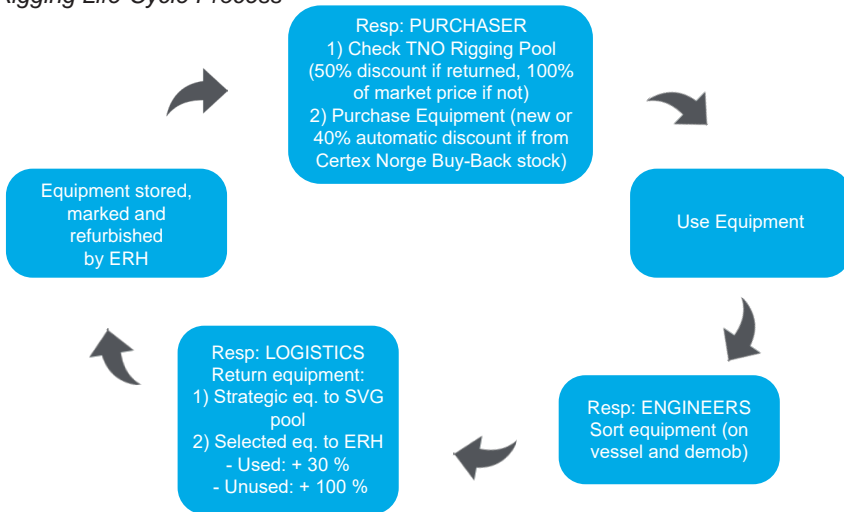
A feature of the Certex Norge Frame Agreement updated since the publishing of the 1st edition rigging catalogue is the buy-back provision. This entails that a selection of Rigging can be returned to the supplier for reimbursement, refurbishment and subsequent reduced purchase price.

Selected Rigging returned to Certex Norge will be reimbursed to the project, with the following mechanisms applying.

Used equipment deemed to be in adequate condition can be returned to Certex Norge for 30% reimbursement of original FA price. Such equipment will be refurbished at supplier cost and made available for re-purchase by Technip at 60 % of original FA price (40 % discount). Unused returned equipment is reimbursed at 100 % of original FA price. When ordering equipment, Certex Norge supplies in first order refurbished equipment by default, if available in the Certex Norge Rigging Pool. As such there is no need for any specifications or booking of refurbished equipment.

Example: If ordering 10-off 30 Te Standard Gunnebo Shackles, and Certex Norge has 4-off the described used/refurbished Shackles in their Rigging Pool, 4 of the 10 ordered shackles will be provided at a 40 % discount, while the remaining 6 will be provided at full/original FA price.

Rigging Life-Cycle Process



An important aspect of both the internal rigging pool and supplier buy-back option is the sorting of the returned equipment and the actual return process, to ensure cost-savings. It is the responsibility of the Demob engineers to ensure that equipment is clearly sorted before it is sent to the respective locations. When sending back equipment, a clear list should be made detailing the items sent, to safeguard that cost savings are achieved. The equipment list can be used for this purpose. This is applicable both for equipment sent to the internal pool and Certex Norge, and is engineer responsibility. The list must also be issued to Logistics.

Suggestion for sorting and return process of the used and unused Rigging equipment.

List example

Certex Norge will scrap the following (not eligible for reimbursement)

- Wire Ropes/Slings/Grommets
- Fiber Slings
- Slings with SWL larger than 50 tons to be sent to the Internal Rigging Pool.

Certex Norge will keep, refurbish and reimburse the following

- All Seafastening
- All Hooks + ROV Hooks
- Shackles (ex. above 12 Te)
- Master Links (ex. Above 12,9 Te)
- All Hoists
- All Blocks
- All kits
- PPE/Clothing (in good shape)

Detailed list and further details can be found in Certex Norge FA, 2015-03.01 or the appendix of this catalogue.

Rigging to be returned to Internal Rigging Pool (K+N)

- Strategically important equipment (Imenco shackles, 85 Te Shackles, special and large slings, long lead/large items)
- Non-Rigging Equipment (baskets etc.)



QR-Coding

All rigging equipment is now delivered with QR-Code labels attached. These labels ensure easy and quick identification of all our rigging equipment, which provides a myriad of benefits in QHSE issues.

The risk of misreading identification has been greatly reduced & less effort is needed to handle equipment. All this impacts positively upon the safety and efficiency of our operations.

How to use the QR Coding

- 1) Download any "QR-Reader" for iPhone or Android to your smart phone
- 2) Obtain access to "Utstyrsportalen" (contact rigging category responsible)
- 3) Scan the attached QR Coding & log into "Utstyrsportalen", if necessary (using your mail and supplied password)
- 4) Access the certificate PDF directly and review
- 5) Repeat on next item

When checking received equipment, QR tags should have the following characteristics:

- Waterproof
- Tear resistant and hard wearing
- Large enough to scan QR-Code easily

Should any of the tags not confirm to the above requirements, you experience any problems using this code, or items are delivered without it, please contact the TechnipFMC Rigging Category responsible.

IMPORTANT – RIGGING DESIGN CODE

Lift rigging is normally designed using DNV codes, except:

- Lifts performed onshore (with an onshore crane), and not intended to go subsea, of a weight below 50Te MUST be designed following NORSOK R002. This will require a higher safety factor than DNV rules.
- Lift performed on offshore platform MUST be designed following NORSOK R002 rules (material grade and safety factor restrictions).

Lifts performed onshore (with an onshore crane), of a weight above 50Te can be designed following DNV.

If on site, and mobile crane is used, and item does not go subsea, ensure that rigging in accordance with NORSOK R-002 is used (check with design report).

Contact the lifting department for more information.

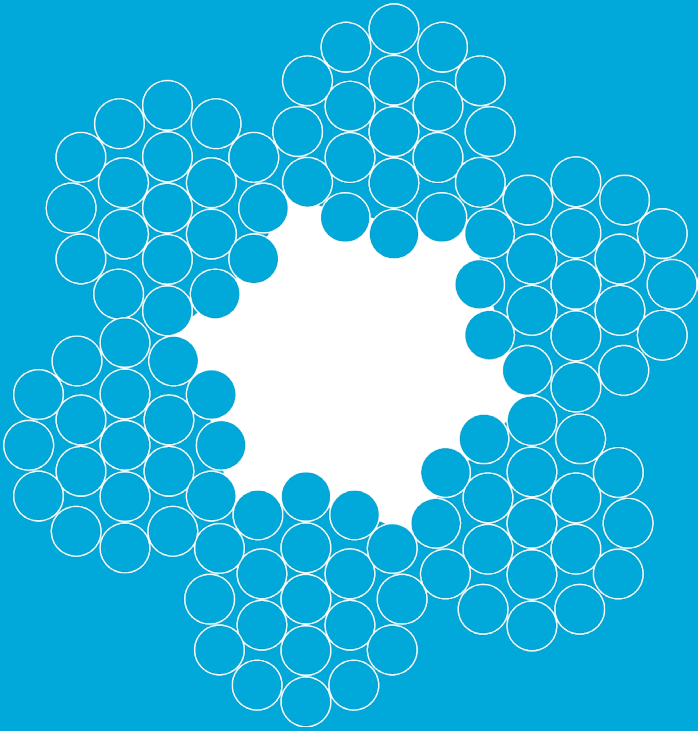
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Preferred Products

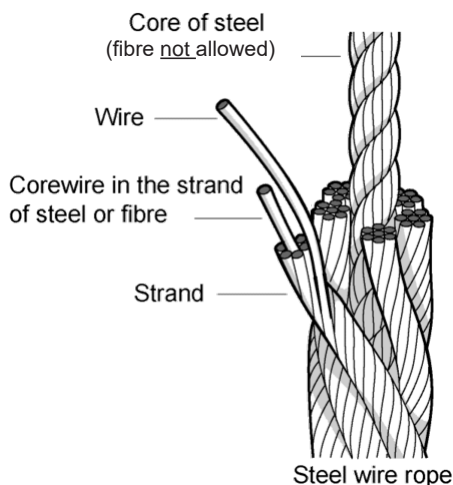
This section contains the preferred products for main and sub rigging categories. These specific rigging products shall be chosen in all instances/for all operations, unless use is technically impossible/inadequate or client has specifically requested otherwise.

- » Steel Wire Ropes
- » Fiber Slings
- » Chain Elements & Sea Fastening
- » Hooks
- » Shackles
- » Master Links
- » Hoists
- » Blocks
- » General Lifting/Other

Steel Wire Ropes



Technical Information



A steel wire rope is made up of individual steel wires spun into a strand. A number of strands are closed over a central core to make up a rope. The number and size of wires will determine the best compromise possible between large wires for maximum corrosion protection and resistance to abrasion, and smaller wires for the required flexibility and handling.

The construction of a steel wire rope is expressed according to following:

E.g. **6x36-IWRC**

6 is the number of strands in the steel wire rope

36 is the number of wires in the strand
IWRC (Independent Wire Rope Core) is the type of the core

Note: Only IWRC wire ropes shall be used for Technip operations (see also Ref./5/). Fibre core are not allowed.

For standard lifting operations, the 6x36 IWRC wire rope should be selected. Contact the lifting department if another type of rope is required.

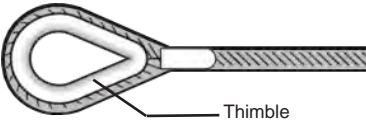
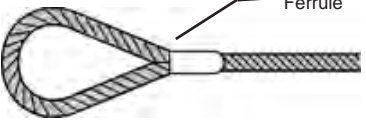

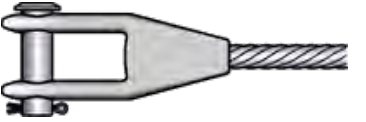
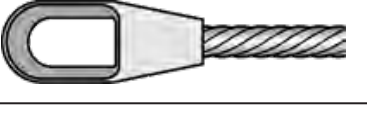
Ferrules material selection

IWRC slings and grommets can be fabricated with aluminum or steel ferrules. A general guideline is given below (taken from global rigging guidelines):

- <1 month seawater exposure: Use aluminum ferrules (steel ferrules may be used but are more expensive)
- 1-3 months seawater exposure: risk assessed for particular applications depending on corrosion environment
- > 3 months: steel ferrules

For general applications, not involving wet storage, aluminum ferrules to be selected.

Wire rope end fitting (most common)

Generally, hard eyes should be selected.	
 <p>Thimble</p>	<p>Hard eye (thimble inside) Ferrule can be either aluminum (for general use) or Steel (for long storage under water - see section "Ferrules Material Selection" for further details)</p> <p>Efficiency of termination: 90 %</p>
Soft eyes should be used if required for clearance, e.g. Fitting the eyes over a crane hook	
 <p>Ferrule</p>	<p>Soft eye with ferrule Ferrule can be either aluminum (for general use) or Steel (for long storage under water) Lengths of soft eyes are given in Ref./2/. Other length can be manufactured on request.</p> <p>Efficiency of termination: 90%</p>
	<p>Soft eye hand spliced (large diameters)</p> <p>Efficiency of termination: 80%</p>
Spelter sockets can be used to minimize the min. length of the wire rope or increase the end efficiency. Used also on winch wires.	
	<p>Open Spelter socket</p> <p>Efficiency of termination: 100%</p>
	<p>Closed Spelter socket</p> <p>Efficiency of termination: 100%</p>



Note: when ordering small slings which have to go over a crane hook, a specific eye length to be specified, to ensure it will fit over the crane hook. The α angle should not exceed 30° (see Figure).

Note: There are some restrictions on the wire grades that can be cut by ROVs. Check with ROV cutter supplier when using a grade above 1960N/mm². Always check using a part of the rope to be cut for cutting trials during mobilisation.

Wire rope length

The length shall be that measured between the bearing points of the sling (EL) or the circumference length of an endless sling (Circ. L), under a certain load and pin diameter (Ref./6/ and /7/).

Single leg and endless slings

The measured length of a ferrule-secured sling shall not differ from the nominal length by more than two rope diameters or 1 % of the nominal length, whichever is the greater. The measured length of a spliced sling shall not differ from the nominal length by more than four rope diameters or 2 % of the nominal length, whichever is the greater. Note that all the tolerances on sling length etc. are also being revisited for the IMCA M179.

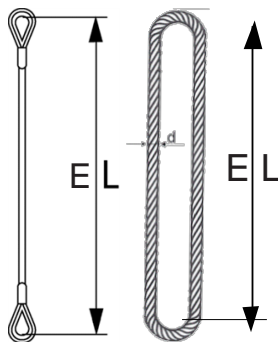
Where single leg slings are intended to be used as matched sets, the difference in length of matched sets of ferrule-secured eye slings shall not exceed the rope diameter, or 0,5 % of the nominal length, whichever is the greater.

Multi leg slings

The measured individual leg length of a ferrule-secured sling shall not differ from the nominal length of the sling by more than two rope diameters or 1 % of the nominal length, whichever is the greater.

The difference in length between the individual legs of any multi-leg sling under no load shall not exceed 1,5 times the rope diameter or 0,5 % of the nominal length, whichever is the greater.

A fabrication tolerance of +/- 0,15% can be achieved. This needs to be specifically requested.



The Table below shows the minimum effective length that can be fabricated per wire diameter (6x36 IWRC).

Wire Diameter	Min Eff Length Hard eye	Min. Effective Length Socket
mm	mm	mm
8	350	350
10	400	400
12	450	450
13	500	500
14	520	520
16	600	600
18	650	650
19	750*	680
20	810	750
22	880	810
24	920	880
26	950	950
28	1050	980
32	1150	1000
34	1250	1150
36	1410	1250
38	1500	1350
40	1660	1450
44	1750	1550
48	2000	1600
52	2100	1650
56	2200*	1800



*= ST19=680 mm

General E-module of the ropes

Type of steel wire rope	E-module MPa
6x36-IWRC (6-part assemblies with steel core)	58 800
Diepa B55 (non-rotation rope)	107 800

Note: Due to specific manufacturing factors, wire dimensions and other factors, the E-modulus varies between different wire ropes of the same construction and dimension. If the exact E-modulus value of a certain rope is necessary a specific modulus test needs to be done for that rope.

Wire rope elongation under load

See the Certex Norge web site for a complete description of the extension modes of a wire rope.

Wire rope selection and use

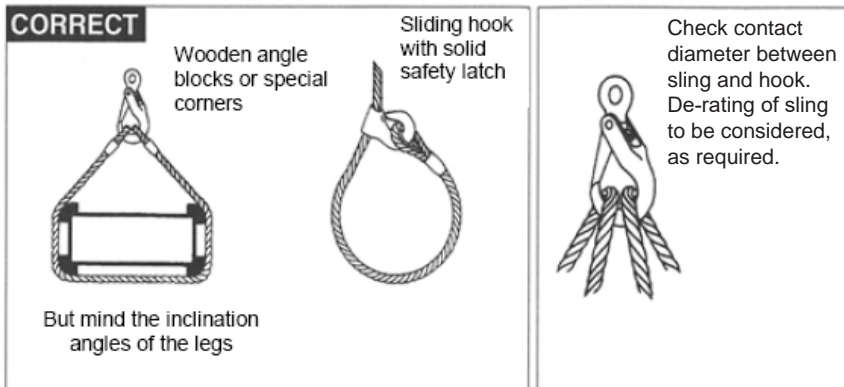
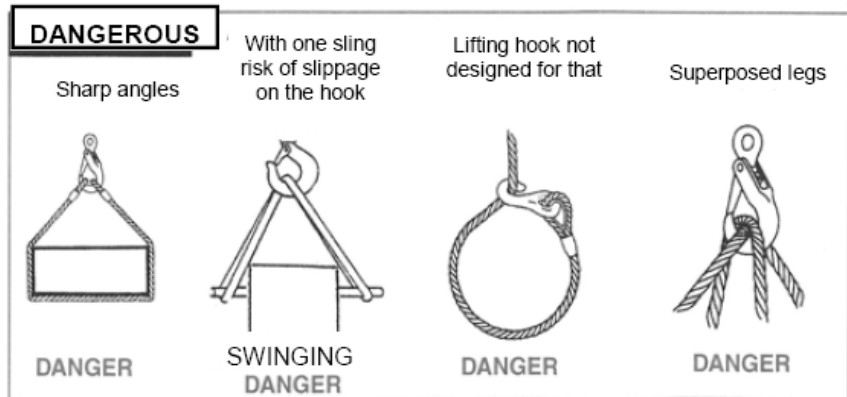
Wire MBL shall be selected based on the required safety factor determined from the rigging design.

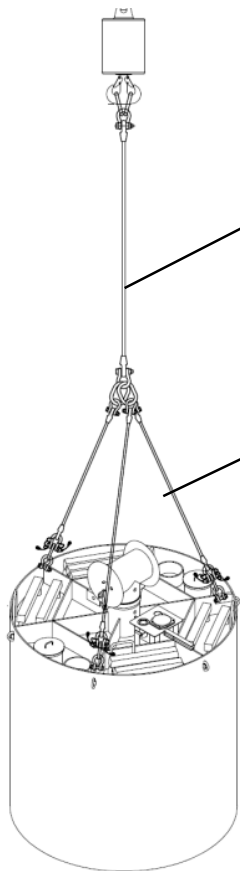
Never place slings on a sharp edge (i.e. If the bending radius is equal or under $1d$ (d = rope diameter)).

Put protections on angles.

Practically, never wind up slings on diameters less than $5d$.

Eyes without thimbles should not be attached to elements with diameters less than $3d$, and for cable laid slings, not less than $10d$.





Pennant
 To be made of a
 - grommet
 - soft sling
 - doubled sling
 - non-rotation wire (specific cases)

 6x36 IWRC to be avoided if crane hook has a swivel or if the load can rotate freely.

Legs
 To be selected from 6x36 IWRC wire rope.

For winches or lead / lay down wires applications, always contact the Technip lifting department and the supplier before selection.

Wire rope symbols

F-faktor
 0,50

Fill factor

ZZ

Right Hand
 Lang Lay

SS

Left Hand
 Lang lay on
 request



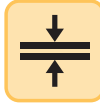
Can be used
 with a Swivel



Rotation
 resistant

SZ

Left Hand
 Ordinary Lay



Compacted
 core



Cannot be used
 with a Swivel

B

Bright on
 request

G

Galvanized on
 request

Wire Rope 6x36-IWRC

Features: Quality six strand sling and general purpose rope. High strength. Consistent bending fatigue performance.

Material: High Carbon Steel

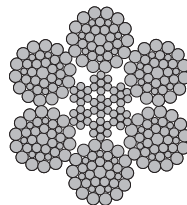
Marking: On Termination ID and CE mark

Finish: Galvanized

Standard: EN 12385-4: 2002



**TO BE USED FOR ALL
STANDARD LIFTING
OPERATIONS
Except for pennants**



Art. No	Rope Ø mm	Steel area mm ²	Minimum Breaking Force		Weight kg/ 100 m
			1960 N/mm ²	200 kp/mm ²	
			kN	kp	
01.G10265080E	8	29.1	44.7	4 556	26
01.G10265100E	10	46	69.8	7 115	41
01.G10265120E	12	66.2	100	10 246	59
01.G10265130E	13	77.7	118	12 024	69
01.G10265140E	14	90.2	137	13 946	80
01.G10265160E	16	118	179	18 215	105
01.G10265180E	18	149	226	23 053	133
01.G10265190E	19	166	252	25 685	148
01.G10265200E	20	184	279	28 460	164
01.G10265220E	22	223	338	34 437	198
01.G10265240E	24	265	402	40 983	236
01.G10265260E	26	311	472	48 098	276
01.G10265280E	28	361	547	55 782	321
01.G10265300E	30	414	631	64 348	370
01.G10265320E	32	471	715	72 858	419
01.G10265340E	34	526	824	80 700	483
01.G10265360E	36	596	904	92 211	530
01.G10265380E	38	664	1008	102 741	591
01.G10265400E	40	736	1116	113 841	654
01.G10265420E	42	817	1235	125 970	723
01.G10265440E	44	891	1351	137 748	792
01.G10265460E	46	980	1480	150 960	867
01.G10265480E	48	1060	1608	163 931	942
01.G10265500E	50	1158	1754	178 908	1024
01.G10265520E	52	1244	1887	192 391	1106
01.G10265560E	56	1443	2188	223 128	1283
01.G10265600E	60	1656	2512	223 128	1283

Equipment List Specifications:

Ø28 mm x 4 m EL wire sling, 6x36 IWRC, Gr 1960, galvanized, HE/HE, aluminum ferrule, 547kN MBL.

Terminations: Hard Eye (HE), Soft Eye (SE), Open Spelter Socket, Closed Spelter socket.

Note: for general applications, not involving wet storage, aluminum ferrules to be selected.

Wire Rope Steel Kiswire Netpune Offshore

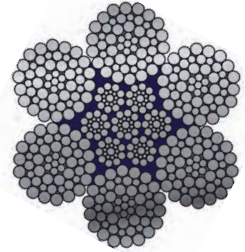
TO BE USED FOR STANDARD LIFTING OPERATIONS WHEN LARGE MBL REQUIRED

General: Large diameter outer wires makes a rope with excellent fatigue resistance, high breaking load, high abrasion resistance and high corrosion resistance. Compact strand(CMP) for increased strength, it improved contact area, reduced tread pressure and sheave wear.

Main applications: Anchor lines, towing, winch wire and mooring.
Construction: 6x36-IWRC to be used (most standard and available in stock). (6x41/6x47/6x49). 8x36 only if special demand on filling factor or slightly higher MBL.

Design: Ordinary Lay.
Finish: Galvanized (standard) or Alumar.
Standard: NS-EN 12385.

We keep up to 90 mm diameter in stock.



Art. No	Diameter		Mass kg/m		Minimum breaking force							
	mm	inch			EEIPS (1960 N/mm)		ALPHA (2060 N/mm)		DELTA (2160 N/mm)		OMEGA (>2160 N/mm)	
			6x36 kg	8x36 kg	kN	Te	kN	Te	kN	Te	kN	Te
01.G10145080	50.8	2	11.3	11.5	1 930	197	2 216	226	2 285	233	2 384	243
01.G10145400	54.0	2 1/8	12.8	13.0	2 160	220	2 363	241	2 471	252	2 578	263
01.G10145720	57.2	2 1/4	14.3	14.6	2 420	247	2 697	275	2 834	289	2 957	302
01.G10146350	63.5	2 1/2	17.8	18.1	2 950	301	3 295	336	3 462	353	3 612	369
01.G10146670	66.7	2 5/8	19.7	20.0	3 240	330	3 629	370	3 815	389	3 980	406
01.G10146990	69.9	2 3/4	21.4	21.8	3 530	360	4 011	409	4 207	429	4 394	448
01.G10147300	73.0	2 7/8	23.5	23.9	3 840	392	4 384	447	4 599	469	4 805	490
01.G10147620	76.2	3	25.4	25.9	4 170	425	4 815	491	5 060	516	5 276	538
01.G10147940	79.4	3 1/8	27.6	28.1	4 490	458	5 119	522	5 374	548	5 610	572
01.G10148260	82.6	3 1/4	29.9	30.5	4 840	494	5 462	557	5 737	585	5 992	611
01.G10148570	85.7	3 3/8	32.2	32.7	5 180	528	5 953	607	6 247	637	6 531	666
01.G10148890	88.9	3 1/2	34.8	35.4	5 520	563	6 463	659	6 786	692	7 090	723
01.G10149530	95.3	3 3/4	39.9	40.6	6 280	640	7 002	714	7 355	750	7 698	785
01.G10141020	102.0	4	45.3	46.0	7 060	720	7 806	796	8 199	836	8 554	873
01.G10141080	108.0	4 1/4	51.1	52.1	7 730	788	8 287	845	8 699	887	9 076	926
01.G10141140	114.0	4 1/2	57.4	58.4	8 590	876	9 209	939	9 670	986	10 089	1 029
01.G10141210	121.0	4 3/4	63.9	65.0	9 480	967	10160	1036	10670	1088	11 132	1 136
01.G10141270	127.0	5	70.8	72.0	10430	1064	11160	1138	11719	1195	12 226	1 248

Equipment List Specifications:

Ø54 mm x 4 m EL wire sling, 6x36 IWRC, EEIPS, galvanized, HE/HE, aluminum ferrule, 220Te MBL.
Terminations: Hard Eye (HE), Soft Eye (SE), Open Spelter Socket, Closed Spelter socket.

Wire Rope Low rotation - Diepa B 55

General: Diepa B 55 is a rotation resistant wire rope with compact outer strand and a high breaking force.

Application: Tower cranes, hoisting rope for mobile cranes, telescopic cranes, crawlers, offshore cranes, EOTs with a single fall, ship deck cranes etc.

For multi-layer coiling on the drum.

Construction: 328 (from Ø 11 mm).

Design: B55-Lang lay, B50-Ordinary Lay

B58-Lang Lay with plastic insert,

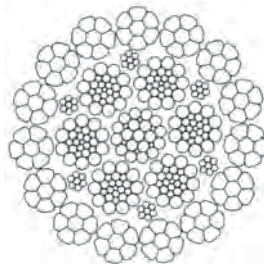
B53-Ordinary Lay with plastic insert.

Fill factor: 0,7145

Finish: Galvanized.

Standard: NS-EN 12385.

TO BE USED IN SPECIFIC CASES, WHERE ROTATION RESISTANT ROPES ARE REQUIRED. ALWAYS CONTACT SUPPLIER BEFORE SELECTION.



WARNING! Low rotation ropes have minimal rotation under load but are sensitive to applied torque which can cause a load imbalance within the rope.

Art. No	Diam. Ø mm	Metallic cross- section mm ²	Weight kg/100m	Minimum breaking force			
				1960 N/mm ²		2160 N/mm ²	
				kp	kN	kp	kN
01.G37DB5060G	6	20.2	174	3 300	33.1	3 550	35.6
01.G37DB5080G	8	35.9	31	5 950	58.8	6 400	63.2
01.G37DB5100G	10	56.2	49	9 350	91.7	10 050	98.6
01.G37DB5110G	11	68.6	59	11 450	112	12 250	120
01.G37DB5120G	12	80.7	70	13 450	132	14 450	142
01.G37DB5130G	13	95.6	83	15 950	156	17 100	168
01.G37DB5140G	14	110.4	95	18 400	181	19 750	194
01.G37DB5150G	15	126.3	109	21 050	207	22 600	222
01.G37DB5160G	16	145.5	126	24 250	238	26 050	256
01.G37DB5170G	17	163.3	141	27 250	267	29 250	287
01.G37DB5180G	18	183.7	159	30 650	301	32 900	323
01.G37DB5190G	19	203.5	176	33 950	333	36 450	258
01.G37DB5200G	20	226.7	196	37 850	371	40 600	398
01.G37DB5210G	21	251.6	218	42 000	412	45 100	442
01.G37DB5220G	22	275.6	238	46 000	451	49 400	485
01.G37DB5230G	23	300.2	260	50 100	491	53 800	528
01.G37DB5240G	24	326.2	282	54 450	534	58 450	573
01.G37DB5250G	25	347.5	301	58 000	569	62 300	611
01.G37DB5260G	26	37 509	325	62 750	616	67 350	661
01.G37DB5280G	28	442.7	383	73 900	725	79 350	778
01.G37DB5300G	30	502.0	434	83 800	822	90 000	883
01.G37DB5320G	32	572.2	495	95 550	937	102 550	1 006
01.G37DB5340G	34	645.7	559	107 800	1 058	115 750	1 136

Art. No	Diam. Ø mm	Metallic cross- section mm ²	Weight kg/100m	Minimum breaking force			
				1960 N/mm ²		2160 N/mm ²	
				kp	kN	kp	kN
01.G37DB5360G	36	727.3	629	121 450	1 191	130 400	1 279
01.G37DB5380G	38	810.3	701	135 300	1 327	145 250	1 425
01.G37DB5400G	40	897.9	777	149 900	1 471	160 950	1 579
01.G37DB5420G	42	989.9	856	165 250	1 621	177 450	1 825
01.G37DB5440G	44	1 086.4	940	181 400	1 780	194 750	1 910
01.G37DB5460G	46	1 187.4	1 027	198 250	1 945	212 850	2 088
01.G37DB5480G	48	1 292.9	118	215 850	2 117	231 750	2 273
01.G37DB5500G	50	1 402.9	1 214	234 250	2 298	251 500	2 467
01.G37DB5520G	52	1 517.4	1 313	253 350	2 485	272 000	2 668
01.G37DB5540G	54	1 636.4	1 415	273 250	2 681	293 400	2 878
01.G37DB5560G	56	1 759.8	1 522	293 850	2 883	315 500	3 095
01.G37DB5580G	58	1 887.8	1 633	315250	3 090	338 450	3 324
01.G37DB5600G	60	2 020.2	1 747	337 300	3 307	362 150	3 438
01.G37DB5620G	62	2 157.1	1 866	360 200	3 530	386 750	3 797
01.G37DB5640G	64	2 298.5	1 988	383 800	3 762	412 100	4 046
01.G37DB5660G	66	2 444.4	2 114	408 150	4 000	438 250	4 303
01.G37DB5680G	68	2 594.8	2 245	433 300	4 247	465 200	4 568
01.G37DB5700G	70	2 749.7	2 379	459 150	4 500	492 950	4 840

Diepa B55 is to be used in winch and crane operations.

Further detailed information can be found on Diepa's website www.diepa.de.

Equipment List Specifications:

Ø24mmx4m EL sling, Diepa B55/B50, Gr 1960, galvanized, Open spelter socket/closed spelter socket, 534kN MBL

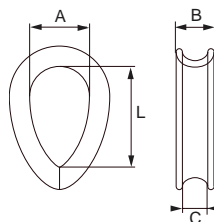
Terminations: Hard Eye (HE), Soft Eye (SE), Open Spelter Socket, Closed Spelter socket

Thimble

Thimble K2

Design: Forged.
Finish: Galvanized.

Note: For hard eye option.



Art. No	Rope Ø mm	A mm	B mm	C mm	L mm	Weight kg/100
10.2511030000	12	45	20	15	65	26
10.2511035000	14	45	20	15	65	26
10.2511040000	16	50	22	17	75	36
10.2511045000	18	53	25	19	80	50
10.2511050000	20	60	29	21	90	60
10.2511060000	24	80	38	30	140	160
10.2511080000	29-31	100	44	33	160	180
10.2511100000	37-39	120	52	41	195	440
10.2511110000	40	130	60	46	215	520
10.2511120000	46	140	65	52	240	730
10.2511140000	52	150	72	60	250	1 100
10.2511170000	56	180	82	70	310	1 700

Wire Steel Rope Slings - generic values, Safety Factor = 5 : 1

General: Working Load limits for slings, with steel core in grade 1960 N/mm² ferrule-secured, P- or PK-ferrules. IWRC (Steel core).

Rope Ø	WLL in Te for wire rope with steel core 1960 N/mm ²									
	Single			2-leg & Basket*		3-4-leg*			Endless	
mm	Straight	Choked	Basket	0°-45°	45°-60°	0°-45°	45°-60°	Straight	Choked	Basket
3	0.11	0.09	0.22	0.15	0.11	0.23	0.16	0.22	0.17	0.44
4	0.19	0.15	0.38	0.27	0.19	0.4	0.28	0.38	0.3	0.76
5	0.3	0.24	0.6	0.42	0.3	0.63	0.45	0.6	0.5	1.2
6	0.43	0.34	0.86	0.6	0.43	0.9	0.65	0.86	0.7	1.7
7	0.6	0.5	1.2	0.8	0.6	1.2	0.88	1.2	0.9	2.3
8	0.8	0.65	1.6	1.15	0.8	1.7	1.2	1.6	1.3	3.2
9	1.05	0.8	2.1	1.45	1.05	2.2	1.8	2.1	1.7	4.2
10	1.3	1	2.6	1.8	1.3	2.7	1.9	2.6	2	5.2
11	1.5	1.2	3	2.2	1.5	3.3	2.3	3	2.5	6
12	1.8	1.4	3.6	2.6	1.8	3.9	2.8	3.6	3	7.2
13	2.2	1.8	4.4	3	2.2	4.5	3.2	4.4	3.5	8.8
14	2.5	2	5	3.5	2.5	5.3	3.8	5	4	10
16	3.3	2.6	6.6	4.6	3.3	6.9	4.9	6.6	5.2	13.2
18	4.1	3.3	8.2	5.8	4.1	8.7	6.2	8.2	6.6	16.4
20	5.1	4.1	10.2	7.2	5.1	10.7	7.7	10.2	8.2	20.4
22	6.2	5	12.4	8.7	6.2	13	9.3	12.4	10	24.8
24	7.4	5.9	14.8	10.3	7.4	15.5	11.1	14.8	11.8	29.6
26	8.7	7	17.4	12.1	8.7	18.2	13	17.4	13.8	34.8
28	10	8	20	14	10	21	15	20	16	40
32	13	10.4	26	18.4	13	27.5	19.7	26	21	52
36	16.6	13.3	33	23	16.6	35	25	33	26.5	66
40	20.5	16.4	41	29	20.5	43	31	41	33	82
44	25	20	50	35	25	52	37	50	40	100
48	29.5	23.6	59	41	29.5	62	44	59	47	118
52	35	28	70	48	35	73	52	70	55	140
56	40	32	80	56	40	84	60	80	64	160
60	46	37	92	65	46	97	69	92	74	184
Factor (K _i)	1	0.8	2	1.4	1	2.1	1.5	2	1.6	4

* When using a multi-leg sling in a choker hitch - reduce the value with 20%.

Socket

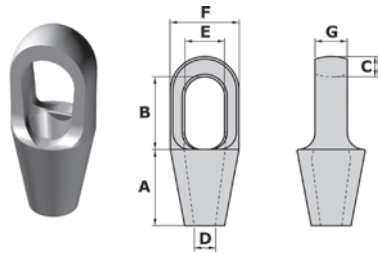
Spelter Socket closed GN SO1

Material: Cast steel

Safety factor: 5:1

Finish: Painted/galvanized

Tolerance: ± 5%



Art. No	Wire dia mm	MBL Te	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Weight kg
10.1010399131	8-10	6	51	52	14	11	24	43	16	0.4
10.1010399311	11-13	12	64	59	18	14	29	51	22	0.8
10.1010399591	14-16	24	77	65	20	18	35	67	25	1.4
10.1010399771	18-19	32	90	75	26	21	42	75	31	2.1
10.1010399951	20-22	45	101	90	33	24	47	92	38	4
10.1010400191	23-26	70	114	103	36	28	57	104	44	7
10.1010400371	27-30	100	127	116	39	32	63	114	51	8
10.1047002129	31-36	125	139	130	43	38	70	127	57	11
10.1047002159	37-39	150	152	155	51	41	79	136	63	13
10.1047002199	43-48	260	190	198	55	51	89	171	76	24
10.1047002229	49-54	280	216	224	62	57	96	193	82	37
10.1047002279	69-75	480	279	286	76	79	159	273	124	93
10.1047002289	76-80	520	305	298	83	86	171	292	133	110
10.1047002299	81-86	600	330	311	102	92	1 847	311	146	142
10.1047002309	87-93	700	356	330	102	99	197	330	159	170
10.1047002319	94-102	875	381	356	108	108	216	362	178	225
10.1047002339	108-115	1 100	450	425	120	125	235	405	190	340
10.1047002409	122-130	1 250	500	475	120	138	260	515	205	555
10.1047002509	140-155	1 400	580	550	150	160	300	550	225	850
10.1047002609	158-167	1 600	675	600	175	175	325	600	300	1 050

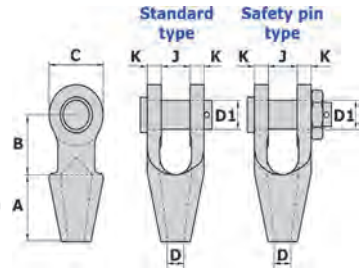
Spelter Socket open GN SO2

Material: Cast steel.

Safety factor: 5:1.

Finish: Painted/galvanized

Tolerance: ± 5%, machined parts ± 1 mm



Art. No	Wire dia mm	MBL Te	A mm	B mm	C mm	D mm	D1 mm	J mm	K mm	Weight mm
10.1047901969	11-13	12	64	51	49	14	26	25	12	1,3
10.1047901989	14-16	24	76	64	62	18	30	32	14	2
10.1047901009	18-19	32	89	76	80	21	35	38	16	3
10.1047901049	20-22	45	101	89	90	24	41	44	19	5
10.1047901089	23-26	70	114	101	120	28	51	51	22	8
10.1047901119	27-30	100	127	114	130	32	57	57	25	12
10.1047901159	31-36	125	139	127	144	38	63	63	28	17
10.1047901189	37-39	150	152	162	160	41	70	76	30	24
10.1047901209	40-42	200	165	165	176	44	76	76	33	28
10.1047000125	43-48	260	190	178	200	51	89	89	39	41
10.1047001128	49-54	280	216	228	216	57	95	101	46	61
10.104700130	55-60	360	228	250	236	63	108	113	53	90
10.104700132	61-68	450	248	273	264	73	121	127	60	122
10.1047400135	69-75	480	279	279	276	79	127	133	73	157
10.104790138	76-80	520	305	286	284	86	133	146	76	195
10.1047001409	81-86	600	330	298	296	92	140	159	79	221
10.1047001429	87-93	700	356	318	340	99	152	171	83	281
10.1047001449	94-102	875	381	343	362	108	178	191	89	397
10.1047001469	108-115	1 100	460	480	440	125	190	208	101	570
10.1047001509	122-130	1 250	500	500	560	138	250	210	120	980
10.1047001609	140-155	1 400	580	500	600	160	275	230	140	1 040
10.1047001709	158-167	1 600	675	600	650	175	290	310	175	1 175

Wire grommet

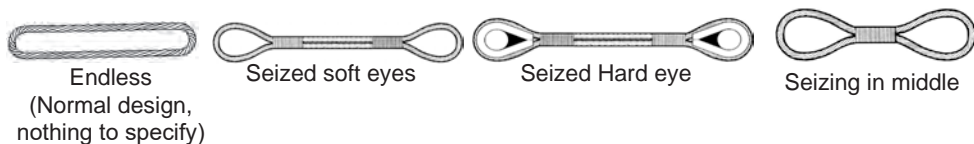
Technical Information

Cable laid grommets

This section is for Cable laid grommets only.
Grommets made of a single wire secured to itself by ferrules (swaged grommet) shall be avoided for lifting operations.

CABLE LAID GROMMETS SHALL BE DESIGNED, FABRICATED AND USED ACCORDING TO IMCA M179-GUIDANCE ON THE USE OF CABLE LAID SLINGS AND GROMMETS.

General: Cable laid grommets can be used in all types of lifting operations. They come in different lengths and designs.



Cable laid grommets: 7x6x36WS-CW EN 13414-3.

Standard: NS-EN 13414-3.

Grade: 1770 N/mm²

Diameter	Rope	Min. circ	Weight	Minimum breaking load
Ø mm	Ø mm	m	kg/m	kN
9	3	0.32	0.257	62.3
12	4	0.42	0.457	110.7
15	5	0.53	0.714	191.1
18	6	0.63	1.029	275.4
19.5	6.5	0.68	1.207	292.4
21	7	0.74	1.400	339.1
24	8	0.84	1.829	442.9
27	9	0.95	2.315	560.5
30	10	1.05	2.858	692.0

Cable laid grommets: 7x6x36WS-CW EN 13414-3.

Standard: NS-EN 13414-3.

Grade: 1960 N/mm².

Diameter	Rope	Min circ	Weight	Minimum breaking load
Ø mm	Ø mm	m	kg/m	kN
30	10	1.05	3.07	753.58
33	11	1.16	3.71	911.83
36	12	1.26	4.42	1080.00
39	13	1.37	5.18	1 273.55
42	14	1.47	6.01	1 477.01
48	16	1.68	7.85	1 929.16
54	18	1.89	9.94	2 441.60
60	20	2.10	12.27	3 014.32
66	22	2.31	14.85	3 647.33
72	24	2.52	17.67	4 340.62
78	26	2.73	20.74	5 094.20
84	28	2.94	24.05	5 908.07
90	30	3.15	27.61	6 782.22
96	32	3.36	31.41	7 716.66
102	34	3.57	35.46	8 711.39
108	36	3.78	39.76	9 766.40
114	38	3.99	44.29	10 881.70
120	40	4.20	49.08	12 057.29
126	42	4.41	54.11	13 293.16
132	44	4.62	59.39	14 589.32
138	46	4.83	64.91	15 945.77
144	48	5.04	70.68	17 362.50
150	50	5.25	76.69	18 839.52
156	52	5.46	82.95	20 376.82

Equipment List Specifications:

Ø30mmx4m EL (8m circ. L) cable laid grommet, 15,36 Te WLL constructed from Ø10mm grade 1960 IWRC, galvanized.

Note: Cable laid gromets on this catalogue are designed following NS-EN 13414-3. This give a more conservative safety factor compared to IMCA recommendations.

Fiber Slings



Technical Information

Minimum bending diameter for roundslings

More information about de-rating of Safety Factor when bending around smaller diameters is available in Exhibit.

Approx diameter of roundslings:

WLL kg	Approx. Thickness mm	Approx. Width mm	Approx. Weight (kg/m)
1000	6	40	0.17
2000	7	50	0.26
3000	8	60	0.37
4000	9	70	0.45
5000	11	75	0.64
6000	12	80	0.69
8000	13	90	0.87
10000	15	100	1.14
12000	16	110	1.43
15000	18	125	1.73
20000	20	150	2.72
25000	24	180	3.41
30000	32	200	5.40

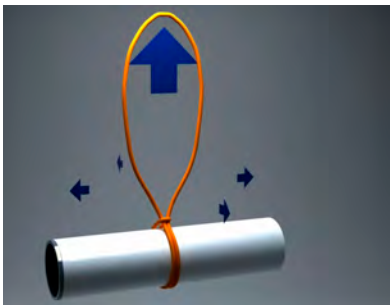
E-modulus (elongation): between 2,0-3,0 GPa.

Warning: Fiber slings are very sensitive to damage.

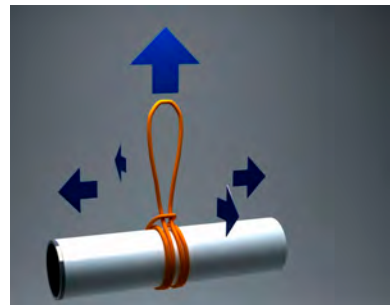
- Must never be used over a sharp edge without protection. Protection (e.g. rubber) can be used on sharp edges.
- Never make a knot on a fiber sling.
- Store dry and clean.
- Keep away from direct sunlight/sources of UV radiation.

If any sign of external damage, the sling must be removed from service.

Choking of roundslings:



Single choke



Double choke

Roundsling

Design and use: These slings should be selected by default when soft slings are required. Load carrying yarn covered with “seamless” color coded protection sleeve.

Material: Polyester. Resistant to most acids but not strong alkalizes. UV resistant.

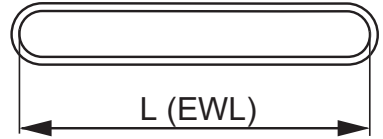
Safety factor: 7:1.

Working temp: app. -40° to +100°C.

Stretch with working load: 2-3%.




Length tolerance: Nominal length (EWL) ±2%.

Marking: The slings are provided with a blue label with manufacturer’s symbol, working load limit (WLL), length, CE marking and a label with handling instruction.



Art. No	Eff. Length	Colour	WLL	Working load limit (WLL) in Te				
	(Not circ.) m			Straight pull	Choke hitch	Basket hitch		
Te	0°	0°-45°	45°-60°					
12.20RS010005	0.5	violet	1	1	0.8	2	1.4	1
12.20RS010012	1.2	violet	1	1	0.8	2	1.4	1
12.20RS010016	1.6	violet	1	1	0.8	2	1.4	1
12.20RS010010	1.0	violet	1	1	0.8	2	1.4	1
12.20RS010015	1.5	violet	1	1	0.8	2	1.4	1
12.20RS010020	2.0	violet	1	1	0.8	2	1.4	1
12.20RS010025	2.5	violet	1	1	0.8	2	1.4	1
12.20RS010030	3.0	violet	1	1	0.8	2	1.4	1
12.20RS010040	4.0	violet	1	1	0.8	2	1.4	1
12.20RS010050	5.0	violet	1	1	0.8	2	1.4	1
12.20RS020005	0.5	green	2	2	1.6	4	2.8	2
12.20RS020010	1.0	green	2	2	1.6	4	2.8	2
12.20RS020015	1.5	green	2	2	1.6	4	2.8	2
12.20RS020020	2.0	green	2	2	1.6	4	2.8	2
12.20RS020025	2.5	green	2	2	1.6	4	2.8	2
12.20RS020030	3.0	green	2	2	1.6	4	2.8	2
12.20RS020040	4.0	green	2	2	1.6	4	2.8	2
12.20RS020050	5.0	green	2	2	1.6	4	2.8	2
12.20RS020060	6.0	green	2	2	1.6	4	2.8	2

Art. No	Eff. Length (Not circ.) m	Colour	WLL	Working load limit (WLL) in Te				
				Straight pull	Choke hitch	Basket hitch		
	Te	0°	0°-45°			45°-60°		
12.20RS030010	1.0	yellow	3	3	2.4	6	4.2	3
12.20RS030015	1.5	yellow	3	3	2.4	6	4.2	3
12.20RS030020	2.0	yellow	3	3	2.4	6	4.2	3
12.20RS030025	2.5	yellow	3	3	2.4	6	4.2	3
12.20RS030030	3.0	yellow	3	3	2.4	6	4.2	3
12.20RS030040	4.0	yellow	3	3	2.4	6	4.2	3
12.20RS030050	5.0	yellow	3	3	2.4	6	4.2	3
12.20RS030060	6.0	yellow	3	3	2.4	6	4.2	3
12.20RS050010	1.0	red	5	5	4	10	7	5
12.20RS050015	1.5	red	5	5	4	10	7	5
12.20RS050020	2.0	red	5	5	4	10	7	5
12.20RS050025	2.5	red	5	5	4	10	7	5
12.20RS050030	3.0	red	5	5	4	10	7	5
12.20RS050040	4.0	red	5	5	4	10	7	5
12.20RS050050	5.0	red	5	5	4	10	7	5
12.20RS050060	6.0	red	5	5	4	10	7	5
12.20PRS080010	1.0	blue	8	8	6.4	16	11.2	8
12.20PRS080020	2.0	blue	8	8	6.4	16	11.2	8
12.20PRS080030	3.0	blue	8	8	6.4	16	11.2	8
12.20PRS080040	4.0	blue	8	8	6.4	16	11.2	8
12.20PRS080050	5.0	blue	8	8	6.4	16	11.2	8
12.20PRS080080	8.0	blue	8	8	6.4	16	11.2	8
12.20PRS080100	10.0	blue	8	8	6.4	16	11.2	8
12.20PRS100010	1.0	orange	10	10	8	20	14	10
12.20PRS100020	2.0	orange	10	10	8	20	14	10
12.20PRS100030	3.0	orange	10	10	8	20	14	10
12.20PRS100040	4.0	orange	10	10	8	20	14	10
12.20PRS100050	5.0	orange	10	10	8	20	14	10
12.20PRS100060	6.0	orange	10	10	8	20	14	10
12.20PRS100080	8.0	orange	10	10	8	20	14	10
12.20PRS100100	10.0	orange	10	10	8	20	14	10
12.20PRS150040	4.0	orange	15	15	12	30	21	15
12.20PRS150060	6.0	orange	15	15	12	30	21	15
12.20PRS150080	8.0	orange	15	15	12	30	21	15
12.20PRS150100	10.0	orange	15	15	12	30	21	15
12.20PRS150120	12.0	orange	15	15	12	30	21	15
12.20PRS200040	4.0	orange	20	20	16	40	28	20
12.20PRS200060	6.0	orange	20	20	16	40	28	20

Art. No	Eff. Length (Not circ.) m	Colour	WLL Te	Working load limit (WLL) in Te				
								
						0°	0°-45°	45°-60°
				Straight pull	Choke hitch	Basket hitch		
12.20PRS200080	8.0	orange	20	20	16	40	28	20
12.20PRS200100	10.0	orange	20	20	16	40	28	20
Factor(M)				1	0,8	2	1,4	1

Other dimensions, WLL and special length on request

Equipment List Specifications:

5t WLLx4m effective length, Polyester round sling.

Webbing sling w/eye

Design and use: Used in specific applications only. For general use, select a roundsling. Flat woven, color coded slings with folded soft eyes.

Material: Polyester. Resistant to most acids but not to strong alkalines.

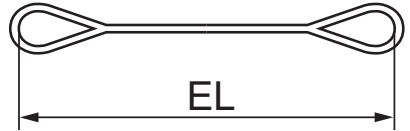
Working temp: app. -40° - +100°C.

Stretch with working load: 2-3%.

Safety factor: 7:1.






Length tolerance: Nominal length $\pm 3\%$.

Marking: The slings are provided with a blue label with manufacturer's symbol, working load limit (WLL), length, CE marking and a label with handling instructions.








Art. No	Eff. Length	Col-our	Width mm	WLL		Working load limit (WLL) in Te				
				Te	Straight pull	Choke hitch	Basket hitch			
	0°						0°-45°	45°-60°		
									(Not circ.)	m
12.20RS010005	0.5	violet	50	1	1	0.8	2	1.4	1	
12.20RS010012	1.2	violet	50	1	1	0.8	2	1.4	1	
12.20RS010016	1.6	violet	50	1	1	0.8	2	1.4	1	
12.20RS010010	1.0	violet	50	1	1	0.8	2	1.4	1	
12.20RS010015	1.5	violet	50	1	1	0.8	2	1.4	1	
12.20RS010020	2.0	violet	50	1	1	0.8	2	1.4	1	
12.20RS010025	2.5	violet	50	1	1	0.8	2	1.4	1	
12.20RS010030	3.0	violet	50	1	1	0.8	2	1.4	1	
12.20RS010040	4.0	violet	50	1	1	0.8	2	1.4	1	
12.20RS010050	5.0	violet	50	1	1	0.8	2	1.4	1	
12.20RS020005	0.5	green	60	2	2	1.6	4	2.8	2	
12.20RS020010	1.0	green	60	2	2	1.6	4	2.8	2	
12.20RS020015	1.5	green	60	2	2	1.6	4	2.8	2	
12.20RS020020	2.0	green	60	2	2	1.6	4	2.8	2	
12.20RS020025	2.5	green	60	2	2	1.6	4	2.8	2	
12.20RS020030	3.0	green	60	2	2	1.6	4	2.8	2	
12.20RS020040	4.0	green	60	2	2	1.6	4	2.8	2	
12.20RS020050	5.0	green	60	2	2	1.6	4	2.8	2	
12.20RS020060	6.0	green	60	2	2	1.6	4	2.8	2	

Other dimensions, WLL and special length on request.

Art. No	Eff. Length	Col-our	Width	WLL	Working load limit (WLL) in Te				
	(Not circ.) m		mm	Te					
					Straight pull	Choke hitch	Basket hitch		
							0°	0°-45°	45°-60°
12.20RS030010	1.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS030015	1.5	yellow	90	3	3	2.4	6	4.2	3
12.20RS030020	2.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS030025	2.5	yellow	90	3	3	2.4	6	4.2	3
12.20RS030030	3.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS030040	4.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS030050	5.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS030060	6.0	yellow	90	3	3	2.4	6	4.2	3
12.20RS050010	1.0	red	150	5	5	4	10	7	5
12.20RS050015	1.5	red	150	5	5	4	10	7	5
12.20RS050020	2.0	red	150	5	5	4	10	7	5
12.20RS050025	2.5	red	150	5	5	4	10	7	5
12.20RS050030	3.0	red	150	5	5	4	10	7	5
12.20RS050040	4.0	red	150	5	5	4	10	7	5
12.20RS050050	5.0	red	150	5	5	4	10	7	5
12.20RS050060	6.0	red	150	5	5	4	10	7	5
12.20PRS080010	1.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080020	2.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080030	3.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080040	4.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080050	5.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080080	8.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS080100	10.0	blue	240	5	8	6.4	16	11.2	8
12.20PRS100010	1.0	orange	300	10	10	8	20	14	10
12.20PRS100020	2.0	orange	300	10	10	8	20	14	10
12.20PRS100030	3.0	orange	300	10	10	8	20	14	10
12.20PRS100040	4.0	orange	300	10	10	8	20	14	10
12.20PRS100050	5.0	orange	300	10	10	8	20	14	10
12.20PRS100060	6.0	orange	300	10	10	8	20	14	10
12.20PRS100080	8.0	orange	300	10	10	8	20	14	10
12.20PRS100100	10.0	orange	300	10	10	8	20	14	10

Other dimensions, WLL and special length on request.

Art. No	Eff. Length	Colour	Width	WLL	Working load limit (WLL) in Te				
	(Not circ.) m		mm	Te					
					Straight pull	Choke hitch	Basket hitch		
							0°	0°-45°	45°-60°

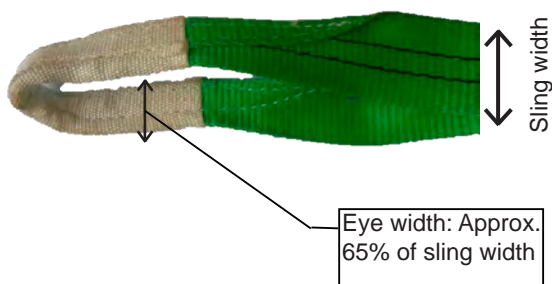
12.20PRS150040	4.0	orange	240	15	15	12	30	21	15
12.20PRS150060	6.0	orange	240	15	15	12	30	21	15
12.20PRS150080	8.0	orange	240	15	15	12	30	21	15
12.20PRS150100	10.0	orange	240	15	15	12	30	21	15
12.20PRS150120	12.0	orange	240	15	15	12	30	21	15
12.20PRS200040	4.0	orange	280	20	20	16	40	28	20
12.20PRS200060	6.0	orange	280	20	20	16	40	28	20
12.20PRS200080	8.0	orange	280	20	20	16	40	28	20
12.20PRS200100	10.0	orange	280	20	20	16	40	28	20

Factor(M)

1 0,8 2 1,4 1

Other dimensions, WLL and special length on request.

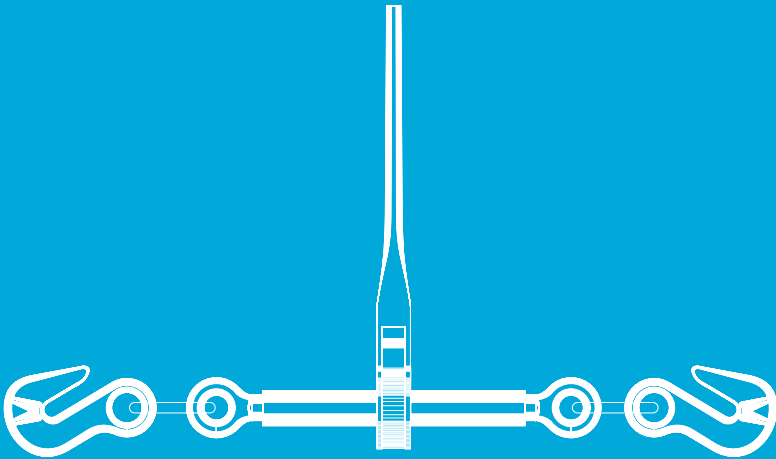
Flat webbing sling width:



Equipment List Specifications:

5t WLLx4m effective length, webbing polyester sling

Chain Elements and Sea Fastening







Chains

Technical Information

General

The table below specifies the WLL for common chain dimensions in grade 8 for use in lifting.

Chain Ø	WLL in Te for chain grade 8							
	Single			2-leg & Basket*		3-4-leg*		Endless
mm	Straight	Choked	Basket	 0°-45°	 45°-60°	 0°-45°	 45°-60°	Choked
4	0.5	0.4	1	0.71	0.5	1.06	0.75	0.8
5	0.8	0.6	1.6	1.12	0.8	1.6	1.18	1.25
6	1.12	0.9	2.24	1.6	1.12	2.36	1.7	1.8
7	1.5	1.2	3	2.12	1.5	3.15	2.24	2.5
8	2	1.6	4	2.8	2	4.25	3	3.15
10	3.15	2.5	6.3	4.25	3.15	6.7	4.75	5
13	5.3	4.2	10.6	7.5	5.3	11.2	8	8.5
16	8	6.4	16	11.2	8	17	11.8	12.5
18	10	8	20	14	10	21.2	15	16
19	11.2	9	22.4	16	11.2	23.6	17	18
20	12.5	10	25	17	12.5	26.5	19	20
22	15	12	30	21.2	15	31.5	22.4	23.6
23	16	12.8	32	23.6	16	35.5	25	26.5
25	20	16	40	28	20	40	30	31.5
26	21.2	17	42.4	30	21.2	45	31.5	33.5
28	25	20	50	33.5	25	50	37.5	40
32	31.5	25.2	63	45	31.5	67	47.5	50
36	40	32	80	56	40	85	60	63
40	50	40	100	71	50	106	75	80
45	63	50		90	63	132	95	100
Factor (K _L)	1	0,8	2	1,4	1	2,1	1,5	1,6

Note:

In this section, some lifting items are defined as “Offshore” as per DNV 2.7-1, and some others are not.

For operations on the vessel and subsea, the items don't need to be stamped “offshore”.

Equipment will be certified as per requirement in DNV VMO. All items in this catalogue can be used for lifting / subsea installation from vessel.

For operations involving a transfer of equipment between a platform and a vessel, or operations on a platform, the lifting items must be certified as per DNV 2.7-1 (stamped “offshore”).

Material/Design: In the manufacturing of chain slings, grade 8,10 or 12 short link chain should be used. In multi-leg slings the chain dimension and grade must be the same for each leg. The working load limit for assembled components must be at least the same as the working load limit for the current chain. A master link with an intermediate link should always be used for 3 and 4 leg slings.

Working temperature: See “Use and maintenance”.

Safety factor: 4:1.

Sharp edges

From DNVGL-ST-N001

11.9.2.36

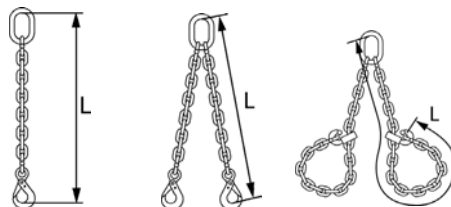
If chains are used, (and not properly documented otherwise) then:

1. Chains should not be bent around edges with diameter less than 4 times the chain diameter. 2 times the chain diameter may be acceptable for up to 90° edges.
2. The effective MBL of doubled chains that are bent more than 90° around connection points should be replaced as indicated below:

- Point with diameter equal or less than 2 times (1.5 times if bend 90° or less) the chain pitch (inside length of links): 50%
- Point with diameter equal or greater than 4 times (3 times if bend 90° or less) the chain pitch: 10% (skew load between the two legs included)
- Point with diameter greater than 2 (1.5) times and less than 4 (3) times the chain pitch: Linearly between a) and B)

Tolerance of length

The length (L) should be measured between the “bearing points”. The length on each leg should be nominal length with a tolerance of -0/+2 chain link lengths. The difference in length (usually the same for all legs) between the shortest and longest leg in a multi-leg sling, assembled with connecting links, should not exceed 10 mm if the sling is 2 m or less, for longer slings a value of 5 mm per meter should be used.



Chain Short Link Grade 8

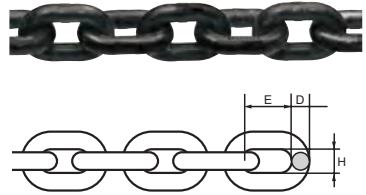
General: Chain for lifting and lashing.

Material: Alloy steel grade 8.

Marking: One link per m chain is marked with grade.

Standard: EN 818-2.

Finish: Painted.



Art. No	Code	Chain Ø D mm	WLL Te	Min breaking load kN	E mm	H mm	Weight kg/m
11.64SL07.8	KL-7-8	7	1.5	61.6	21	9.1	1.1
11.64SL08.8	KL-8-8	8	2	80.4	24	10.4	1.4
11.64SL10.8	KL-10-8	10	3.15	126	30	13	2.2
11.64SL13.8	KL-13-8	13	5.3	212	39	16.9	3.8
11.64SL16.8	KL-16-8	16	8	322	48	20.8	5.7
11.64SL20.8	KL-20-8	20	12.5	503	60	26	9
11.64SL22.8	KL-22-8	22	15	608	66	28.6	11
11.64SL26.8	KL-26-8	26	21.2	849	78	33.8	15
11.64SL32.8	KL-32-8	32	31.5	1 290	96	41.6	23

*For lifting, safety factor 4:1

Not allowed according to R-002.

Chain Short Link Grabiq Grade 10

General: Chain for lifting. Has a maximum service temperature of 200°C.

Material: Quenched and tempered alloy steel grade 10.

Marking: Code and grade.

Finish: Painted.

Standard: EN 818-2



WARNING! Not to be heat treated.

Art. No	Code	Chain Ø	WLL t*	Breaking force kN	L	E	Weight kgs
11.65Z801907	KLA-6-10	6	1.5	60	18	8	0.8
11.65Z801913	KLA-8-10	8	2.5	100	24	11	1.4
11.65Z801919	KLA-10-10	10	4	160	30	14	2.3
11.65Z801925	KLA-13-10	13	6.7	260	39	18	3.8
11.65Z801928	KLA-16-10	16	10	402	48	22	5.6
11.65Z802143	KLA-20-10	20	16	630	60	29	9.4
11.65Z802234	KLA-22-10	22	19	806	66	31	11.8
11.65Z802248	KLA-26-10	26	27	1062	78	37	14.6

*Lifting applications for safety factor 4:1

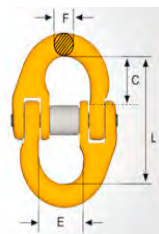
Coupling Link G

Material: Quenched and tempered alloy steel grade 8.

Marking: Code and grade.

Safety factor: 4:1.

Finish: Painted.



Art. No	Code	WLL Te	L mm	E mm	F mm	C mm	Weight kg
11.05Z100531	G-18/20-8 GF	12.5	125	43	22	47	1.9
11.05Z100532	G-22-8 GF	15.5	152	50	24	59	3.0
11.05Z100038	G-26-8 GF	21.6	161	58	30	61	5.2
11.05Z100039	G-32-8 GF	32	200	70	38	77	9.5

Connecting Link Grade 8

Features: Chain Connecting Link European Manufactured, Long service life.

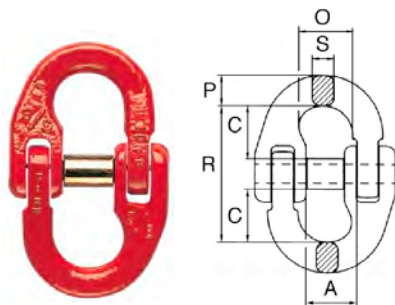
Material: Grade 80 Alloy Steel

Marking: Manufacturer's symbol and Grade

Factor of Safety: 4:1

Finish: Powder Coated

Standard: EN 1677-1



Art. No	Code	WLL ton	Chain mm	Dimensions mm						Weight kg
				A	C	O	R	P	S	
11.05V068U	V06.8U	1.12	6	14.1	18	18	44.4	7.8	7.6	0.06
11.05V078U	V07.8U	1.5	7	16.3	20	20	51	10	9	0.12
11.05V088U	V08.8U	2	8	18.35	25	23	61.5	11.5	10	0.18
11.05V108U	V10.8U	3.15	10	23	30	27	72	12.6	12.6	0.33
11.05V138U	V13.8U	5.3	13	27.6	36	34	88	19	16.7	0.7
11.05V168U	V16.8U	8	16	33	40	39	103	21	21	1.14
11.05V208U	V20.8U	12.5	18+20	41.7	48	47	115	29.5	24.5	2.1
11.05V228U	V22.8U	15	22	49	51	55	133	26.5	26.5	2.2
11.05V268U	V26.8U	21.2	26	61	68	67	164	32	30	5.1
11.05V328U	V 32.8U	31.5	32	80	80	86	194	40	32	8.5

Note: Mechanical joining devices (connecting links) of hinged type shall not be used as hang off equipment or as means of connection belonging to any kind of life saving equipment or launching/ recovery appliances for such equipment.

Connecting links are not allowed by NORSOK R002, therefore they can't be used on offshore platforms (corrosion issue).

They can be used on a single use rigging onboard an installation vessel when new and not transferred to an offshore platform.

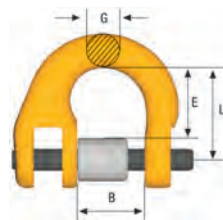
Half Link SKT Classic

Material: Quenched and tempered alloy steel grade 8.

Marking: Code and grade.

Safety factor: 4:1.

Finish: Painted.



Art. No	Code	WLL t	For chain size	L mm	B mm	G mm	E mm	Weight kg
11.05Z426286	SKT-7/8-8	2.0	7.8	28	18	9	22	0.08
11.05Z426383	SKT-10-8	3.2	10	34	25	12	26	0.181
11.05Z426480	SKT-13-8	5.4	13	44	30	15	33	0.4
11.05Z426587	SKT-16-8	8.0	16	52	36	19	40	0.64
11.05Z426684	SKT-18/20-8	12.5	19	63	43	22	48	1.1
11.05Z400225	SKT-22-8	15.5	22	76	50	24	60	1.7
11.05Z100226	SKT-26-8	21.6	26	80	58	29	61	2.6
11.05Z100227	SKT-32-8	32.0	32	100	70	36	78	4.9

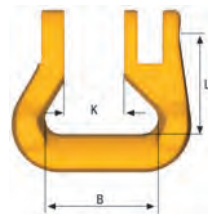
Roundsling Coupling SKR Classic

Material: Quenched and tempered alloy steel grade 8.

Marking: Code and grade.

Safety factor: 4:1.

Finish: Painted.



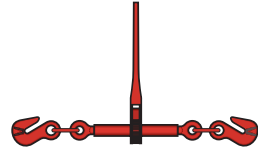
Art. No	Code	WLL t	L mm	B mm	K mm	Radius mm	Weight kg
11.05Z127840	SKR-7/8-8	2.0	35	40	18	24.0	0.21
11.05Z143143	SKR-10-8	3.2	42	47	24	29.0	0.38
11.05Z302538	SKR-13-8	5.4	50	53	29	35.0	0.65
11.05Z143240	SKR-16-8	8.0	62	67	35	43.0	1.3
11.05Z143347	SKR-18/20-8	12.5	71	80	43	52.0	1.9
11.05Z100057	SKR-22-8	15.5	111	125	50	70.0	5.3
11.05z100055	SKR-26-8	21.6	129	150	58	85.4	8.9

Load Binder

General: The load binders grab hooks can be placed on a suitable location along the chain sling.

Design: Load binders type "rigging screw" with ratchet shank, for HLL and KL chain 8-16 mm. Available with or without latch.

Finish: Painted.



Art. No	Code	For chain Ø mm	Take up mm	WLL			Breaking force		Weight kg
				Lashing Capacity			kN	kp	
14.1010901200	LB-10	8-10	200	Ø 10	63	6 400	147	15 000	5.8
14.1010901400	LB-13	10-13	200	Ø 13	100	10 200	205	20 900	6.5
14.1010901600	LB-16	13-16	200	Ø 16	127	13 000	234	23 000	7.2

Note: If load binders are used to pretension a looped chain, there shall be one load binder on each side to get correct pre-tension.

Lifting point - PLE Pewag Profilift Eta

General: Weld-able lifting point. High-tensile eyebolts for welding onto machine parts or vehicle bodies. Ideal for hanging of lifting and lashing parts. Due to the integrated spring, the ring will be kept in each requested position.

The instructions according to DIN EN ISO 14341 are valid for the welding. The welding may only be carried out by a welding operator with a valid qualification according to EN 287-1.

The lifting points will be packed individually and together with a user manual and welding instructions

Material: Alloy steel grade 8.

Safety factor: 4:1.

Marking: WLL and the load capacity is clearly marked on the welding pad.

Finish: Painted.

Standard: The weldable lifting point PLE is manufactured according to EG-Machine Directive 2006/42/EG and tested according to EN 1677-1.

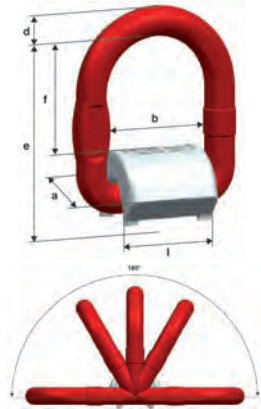
Permissible usage

Load capacity acc. to the inspection certificate respectively table of WLL in the mentioned directions of pull (see picture 1 and 2).

Non permissible usage

Make sure when choosing the assembly that improper load can not arise e.g. if:

- The direction of pull is obstructed
- Direction of pull is not in the foreseen area
- Loading ring rests against edges and load



Pic. 1



Pic. 2

pewag

Art. No	Code	WLL	a	b	d	e	f	l	Weight	Size of weld		
										Weld seam dim.	Length	Volume
		tons	mm	mm	mm	mm	mm	mm	kg/pcs		mm	cm ³
11.4295460	PLE/N 10	3.15	41	45	16.5	80	47	40	0.62	HV10+a4	2x40	5.5
11.4295461	PLE/N 13	5.3	61	55	22.0	97	53	50	1.40	HV14+a4	2x50	13.0
11.4295462	PLE/N 16	8	63	70	25	120	73	64	2.30	HV17+a5	2x64	20.0
11.4295463	PLE/N 22	15	89	97	33	163	92	90	5.50	HV24+a6	2x90	67.0

Lifting Eye VLBG

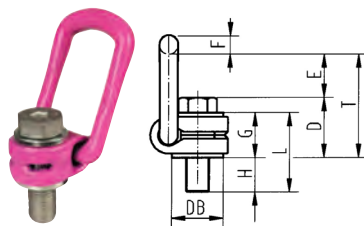
General: VLBG load ring will turn 360°, adjustable in pull direction. Load ring foldable, full WLL in any load direction.

Material: Forged of high strength steel.

Safety factor: 4:1.

Marking: WLL, CE-marking.

Finish: Striking fluorescent pink powder coating.



Art. No	Code	WLL Te	Thread	Eye Ø mm	H mm	Weight kg
11.428500821	VLBG	0.3	M8	34	11	0.3
11.428500822	VLBG	0.63	M10	34	16	0.32
11.428500823	VLBG	1	M12	34	21	0.33
11.428500824	VLBG	1.5	M16	36	24	0.55
11.428500826	VLBG	2.5	M20	54	32	1.3
11.428500827	VLBG	4	M24	54	37	1.5
11.428500828	VLBG	5	M30	65	49	3.1
11.427983553	VLBG	8	M36	82	63	5.8
11.427983554	VLBG	10	M42	82	73	6.4
11.427982966	VLBG	15	M42	100	63	11.2
11.427982967	VLBG	20	M48	100	73	11.6

Lifting Eye VLBS

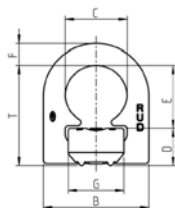
Design: Weld-on Lifting Eye

Material: Forged of high strength steel.

Safety factor: 4:1.

Marking: WLL, CE-marking, indication for the most unfavourable case.

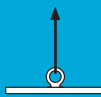

Finish: Striking fluorescent pink powder coating.



Thread

Eye

Weight

Art. No	Code	WLL Te		Ø Diam. mm	Weight kg	Weld Size (per welding block)	
						Size	Volume
11.427993115	VLBS	1.5	1.5	25	0.35	HV 5 + a3	1.2 cm ³
11.427995346	VLBS	2.5	2.5	27	0.5	HV 7 + a3	2.6 cm ³
11.427993116	VLBS	4	4	32	0.8	HV 8 + a3	3.2 cm ³
11.427993117	VLBS	6.7	6.7	44	1.9	HV 12 + a4	8.7 cm ³
11.427993118	VLBS	10	10	55	2.9	HV 16 + a4	15.5 cm ³
11.427993041	VLBS	16	16	69	6.8	HV 25 + a6	56 cm ³

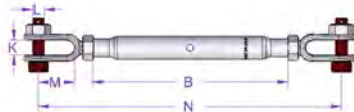
Rigging Screw Steel Gunnebo Alloy No.801

Standard: Working load acc. to U.S. Fed.spec.
FF-T-791.b. Supplied with closed body from 2,5-17
T, larger dimensions open body.

Material: Quenched and tempered alloy steel.
Grade 8.

Finish: Hot dip galvanized.

Safety factor: 5:1



Art. no	Thread M/UNC	WLL Te	Tensioning length	B mm	N mm	K mm	L mm	M mm	F mm	G mm	H mm	Weight kg
11.50A801420	M20	2.5	210	270	455	20	16	50	16	24	50	2.3
11.50A801424	M24	5	250	340	570	28	22	65	19	28	56	4.6
11.50A801432	1 1/4"	7.0	270	370	680	38	28	85	22	35	70	8
11.50A801438	1 1/2"	10	300	420	790	45	32	100	25	40	78	14
11.50A801445	1 3/4"	13	360	500	870	50	39	105	30	45	90	24
11.50A801450	2"	17	450	600	1030	58	45	120	35	45	100	38

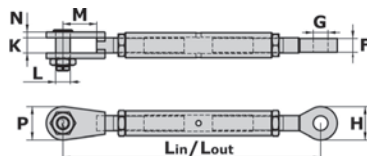
Note: Turnbuckles can be used for lifting if certified and if they have securing bolts to prevent unscrewing.

Turnbuckle T2 Heavy Duty

Material: High tensile steel

Safety: 5:1

Finish: Painted



Art. No	WLL Te	L in mm	L out mm	Thread mm	K mm	N mm	M mm	L mm	P mm	F mm	H mm	G mm	Weight kg
11.5042025002	25	1085	1415	70x8	76	30	145	70	140	70	140	72	85
11.5042030002	30	1160	1530	75x8	80	35	160	72	150	70	150	74	100
11.5042035002	35	1250	1650	80x8	90	40	175	80	170	80	170	82	140
11.5042045002	45	1300	1780	90x8	100	45	175	90	190	90	190	93	180
11.5042055002	55	1380	1890	100x8	110	50	175	100	210	100	210	103	240
11.5042070002	70	1480	2025	110x8	110	55	175	108	23	100	230	111	340
11.5042085002	85	1565	2200	120x8	130	75	175	127	270	125	270	130	420
11.5042100002	100	1630	2360	130x8	140	90	175	140	290	125	290	143	510
11.5042120002	120	1745	2340	140x8	155	90	190	152	340	140	340	155	600
11.5042160002	160	1870	2470	160x8	170	100	210	178	380	160	380	181	700
11.5042200002	200	2020	2640	180x8	190	110	250	190	400	170	400	193	960
11.5042250002	250	2170	2840	200x8	210	120	280	250	520	190	520	253	1120

Cargo straps

General: Suitable for all kinds of transport vehicle on road, rail, sea and in air. Can be supplied with various end fittings suitable for the majority of lashing points and produced with high quality polyester webbing.

Standard: EN12195-2



Endless



D-ring

Artikkel	Design	Width mm	Length mtr	Breaking force kN	Lashing capacity kN
14.0119801014	Endless lashing	25	5.0	9.8	3.8
14.0119801016	Endless lashing	50	6.0	49	20.6
14.0119801018	Endless lashing	50	5.0	49	20.6
14.0119801020	Endless lashing	50	10.0	49	20.6
14.0119801022	Endless lashing	75	10.0	98.1	44.1
14.0119801024	Endless lashing	75	20.0	98.1	44.1
14.0119803305	Split lashing D	25	4.5 + 0.5	9.8	3.8
14.0119800805	Split lashing D	35	7.5 + 0.5	24.5	9.81
14.0119803705	Split lashing D	35	5.5 + 0.5	24.5	9.81
14.0119800905	Split lashing D	50	5.5 + 0.5	49	20.6

Cargo straps not to be used for lifting. Seafastening with ENDLESS (No Hooks) cargo straps or cargo straps with D-rings may be accepted given the following:

- 1) Elasticity in the different parts of the system, i.e. length and E modulus of the various slings
- 2) The seafastening is located in such a way that re-tensioning is possible offshore and the tension is monitored on a regular basis.
- 3) Chafing is avoided
- 4) Whether that enables (2) is considered in the operational procedure
- 5) Appropriate safety factors/ material factors are used (OS-H202 & DNVGL-ST-N001)

Chain sling

Chain Sling 2-Leg TG2-GBK Grade 10

Design: Master link with c-grab duo in one end and safety hook in each leg.

Material: Quenched and tempered alloy steel.

Dimension: Ø 6-20 mm



Art. No	Dim. mm	WLL α 0°-90° Te	WLL α 90°-120° Te	Master link	Chain	Coupling	Hook	Weight kg/eff. length 2m	Chain weight kg/m	Comp. length mm
11.91B790210	6	2.1	1.5	MF-86-10	KLA-6-10	CGD-6-10	GBK-6-10	5.1	2.0	291
11.91B790350	8	3.5	2.5	MF-108-10	KLA-8-10	CGD-8-10	GBK-8-10	8.7	3.4	366
11.91B790560	10	5.6	4.0	MF-1310-10	KLA-10-10	CGD-10-10	GBK-10-10	14.0	5.4	444
11.91B790950	13	9.5	6.7	MF-1613-10	KLA-13-10	CGD-13-10	GBK-13-10	23.1	8.8	534
11.91B790140	16	14.0	10.0	MF-2016-10	KLA-16-10	CGD-16-10	GBK-16-10	40.2	13.4	671
11.91B790224	20	22.4	16.0	MF-2220-10	KLA-20-10	G/GG-20-10	BKG-20-10	77.0	18.8	615

Chain Sling 4-Leg TG4-GBK Grade 10

Design: Master link with two c-grab duo in one end and safety hook in each leg.

Material: Quenched and tempered alloy steel.

Dimension: Ø 6-20 mm



Art. No	Dim. mm	WLL α 90°-120° Te	WLL α 0°-90° Te	Master link	Chain	Coupling	Hook	Weight kg/eff. length 2m	Chain weight kg/m	Comp. length mm
11.91B790216	6	3.1	2.2	MF-108-10	KLA-6-10	CGD-6-10	GBK-6-10	10.5	4.0	311
11.91B790217	8	5.2	3.7	MF-1310-10	KLA-8-10	CGD-8-10	GBK-8-10	17.1	6.8	392
11.91B790218	10	8.4	6.0	MF-1613-10	KLA-10-10	CGD-10-10	GBK-10-10	29.6	10.8	474
11.91B790219	13	14.0	10.0	MF-2016-10	KLA-13-10	CGD-13-10	GBK-13-10	51.6	17.6	604
11.91B790220	16	21.0	15.0	MF-2220-10	KLA-16-10	CGD-16-10	GBK-16-10	78.4	26.8	680
11.91B790221	20	33.6	24.0	MTC-20-10	KLA-20-10	G/GG-20-10	BKG-20-10	175.0	37.6	665

Chain slings to be used for mobilizations only. Not allowed for platform lifts. Is allowed for engineered lifts.

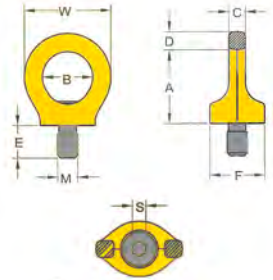
Key Eye Point YOKE

Material: Forged alloy steel, quenched and tempered.
100 % magnaflux crack detection

Design: 360° rotation

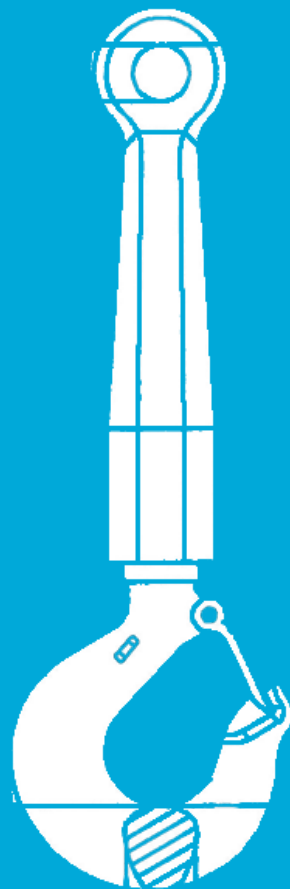
Marking: Cap screw with Batch code links to certificate sheet

Proof load: 2,5 times WLL



Art. No	WLL ton		Thread	Measurements mm								Weight kg
				A	B	C	D	E	F	S	W	
11.408291K003	1	0.3	M8	36	25	8	11	12	25	6	44	0.1
11.408291K004	1	0.4	M10	36	25	8	11	15	25	6	44	0.1
11.408291K007	2	0.75	M12	42	30	10	13	18	33	8	52	0.2
11.408291K015	4	1.5	M16	51	35	14	13	24	35	10	61	0.3
11.408291K023	6	2.3	M20	57	40	16	17	30	44	12	70	0.6
11.408291K032	8	3.2	M24	70	48	19	21	36	52	14	84	1.0
11.408291K045	12	4.5	M30	86	60	24	26	45	62	17	108	1.8
11.408291K070	16	7.0	M36	103	72	29	32	54	78	22	130	3.2
11.408291K090	24	9.0	M42	120	82	34	38	63	88	24	150	5.0
11.408291K120	32	12.0	M48	137	94	38	43	72	104	27	168	7.6

Hooks



Technical Information

General

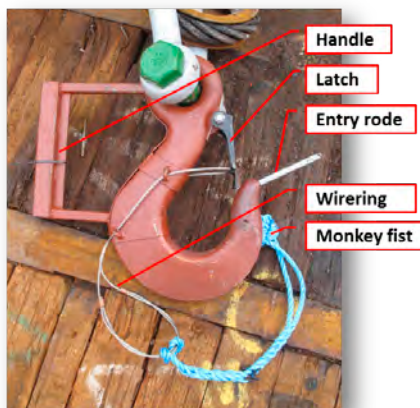
TechnipFMC Rigging Pool Supplies ROV Hooks

Check rigging pool for the availability of various sizes, brands and type before ordering new hooks.

Note 1: Don't forget to order latch repair kit for your ROV hooks if they are planned to be used extensively.

Note 2: Above 31,5Te, consider using ROV eye hooks instead of Long shank. To be assessed on case by case basis.

Note 3: Max. angle between slings in the hook: 90°



Typical eye ROV hook modifications

Equipment List specifications:

ROV hook 11,5Te WLL Crosby L562-A Long Shank, c/w ROV wiring

WARNING: The hooks in this section are not to be heat treated

ROV hooks

ROV Long Shank Hook

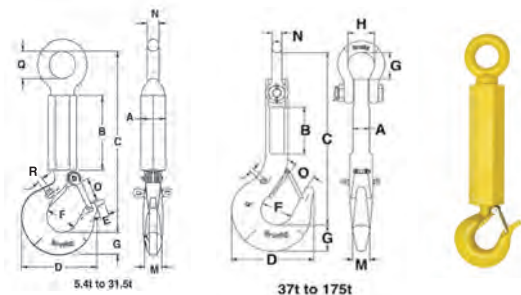
General: Pad eyes are provided on either side of hook as cable guide. The cable is passed through a hole drilled in the latch that assists in allowing the "remotely operated" cable to open latch.

Material: Alloy steel grade 8.

Marking: Code

Safety factor: 4:1.

Finish: Painted with fluorescent yellow.



Art. No	WLL Te	A mm	O mm	N mm	D mm	C mm	E mm	Q mm	R mm	M mm	G mm	F mm	Weight kg
11.101297722	5.4	65	35	22	123	421	250	51	6.4	29	38	51	9.5
11.101297792	11.5	65	53	32	192	518	250	76	9.7	41	57	76	15
11.101297806	16	65	58	35	212	550	250	79	9.7	49	66	83	18
11.101297862	22	85	77	40	263	608	250	91	19	60	76	108	31
11.101298042	31.5	85	106	48	346	660	250	92	19	76	92	127	44
11.101298049	37*	80	95	47	357	828	235	134	19	76	116	137	44
11.101298057	45*	80	108	47	392	865	235	134	19	83	129	152	90
11.101298087	60*	90	130	53	470	941	215	150	19	99	152	178	131
11.101298109	100*	140	124	69	584	1185	300	190	19	140	218	173	303
11.101298117	150*	150	127	92	619	1233	230	309	19	152	232	171	395
11.101298130	175*	170	-	102	678	1326	255	300	19	178	248	191	515

* Shape changes from 37Te

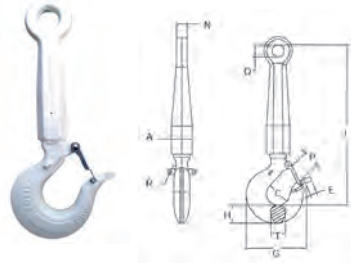
ROV Shank Hook YOKE

Material: High quality steel

Marking: Working load limit

Proof testing: Two times WLL

Finish: Painted in white to ensure ease of sight in water



Art. No	WLL ton	A mm	N mm	C mm	T mm	P mm	G mm	R mm	E mm	H mm	Q mm	L mm	Weight kg
11.10893105	5.4	55	28	38	33	31	130	8	20	37	32	404	6.0
11.10893108	8.0	55	28	49	42	39	166	8	20	46	32	427	7.6
11.10893111	11.5	65	40	62	45	57	196	8	30	58	50	569	13.7
11.10913116	16.0	65	40	65	56	62	221	8	30	66	50	586	16.2
11.10893122	22.0	85	52	71	68	81	277	10	50	77	65	685	31.5
11.10893132	31.5	85	52	87	76	83	353	10	50	92	65	728	44.6

Minimum Ultimate Load is 4 times the Working Load Limit. Maximum Proof Load is 2 times the WLL.

Note: Yoke long shank ROV hooks can be considered as an alternative to Crosby ROV Hooks. TechnipFMC has very little field experience with them.

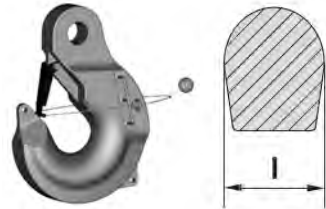
ROV Hook GN HK14

General: Softslings friendly ROV hook

Material: Forged steel

Safety: 4:1

Finish: Painted



Art. No	WLL ton	MBL ton	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Weight kg
11.1073000050	50	200	103	120	140	125	392	49	73	60	90	66
11.1073000063	63	250	109	130	160	140	423	53	85	70	100	90
11.1073000080	80	320	119	140	180	160	465	60	90	80	120	133
11.1073000100	100	400	142	160	190	165	530	65	110	100	140	187
11.1073000150	150	600	157	180	230	200	590	70	120	120	180	314
11.1073000200	200	800	180	210	260	230	675	80	130	150	200	467
11.1073000250	250	1000	218	250	290	260	750	90	150	170	230	656
11.1073000300	300	1200	259	300	320	290	865	100	160	180	260	915
11.1073000400	400	1600	280	320	350	320	910	105	180	200	300	1218
11.1073000500	500	2000	294	340	390	340	985	110	190	220	320	1541
11.1073000600	600	2400	304	350	420	370	1035	120	210	250	340	1883
11.1073000700	700	2800	317	360	450	390	1060	125	220	280	380	2290
11.1073000800	800	3200	327	380	500	440	1180	140	240	300	400	2994

Tolerance: machined parts +/- 1 mm

Eye hooks

ROV Eye Hook Crosby L-320R

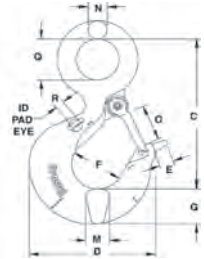
General: Should not be selected for loads under 31,5 Te (not so ROV friendly compared to long shank). Pad eyes are provided on either side of hook as cable guide. The cable is passed through a hole drilled in the latch that assists in allowing the "remotely operated" cable to open latch.

Material: Alloy steel grade 8.

Marking: Code

Safety factor: 4:1.

Finish: Painted with fluorescent yellow.



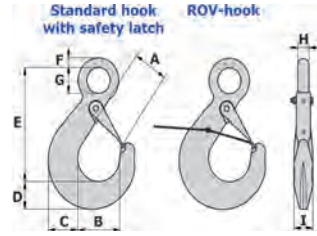
Art. No	WLL Te	O mm	N mm	D mm	C mm	E mm	Q mm	F mm	M mm	G mm	R mm	Weight kg
11.101298427	3.2	28	15	101	119	25	32	41	24	29	6	1.01
11.101298497	5.4	35	18	122	147	25	40	51	33	37	6	2.04
11.101298567	8	41	23	159	187	35	51	64	42	46	10	3.92
11.101298637	11.5	53	28	189	230	35	62	76	41	57	10	7.02
11.101298707	16	58	32	211	256	35	72	83	49	66	10	10.1
11.101298777	22	77	40	262	318	45	89	108	60	76	19	18.4
11.101298847	31.5	86	44	346	357	-	89	127	76	92	19	28.1
11.101298857	37	95	51	357	462	-	114	137	81	116	19	48.5
11.101298867	45	125	55	392	511	-	125	152	82	129	19	62.1
11.101298877	60	130	64	470	602	-	145	178	99	152	19	102

Eye Hook ROV GN HK2

Material: Grade 80

Safety Factor: 4:1

Finish: Painted



Art. No	WLL Te	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Weight kg
11.1051000041	40	93	140	116	103	444	40	100	40	70	23
11.1051000051	50	106	158	135	116	488	50	130	50	89	49
11.1051000064	63	119	176	151	130	554	56	150	56	99	63
11.1051000081	80	131	198	168	145	678	63	170	63	110	99
11.1051000101	100	151	225	195	172	712	74	175	74	125	160
11.1051000151	150	173	250	225	199	765	86	130	86	160	260
11.1051000201	200	200	275	260	237	850	102	150	102	180	417
11.1051000251	250	233	310	290	269	928	120	170	120	200	576
11.1051000301	300	264	350	330	310	1 052	140	190	140	220	820
11.1051000501	400	303	400	380	344	1 195	170	210	170	240	1 125

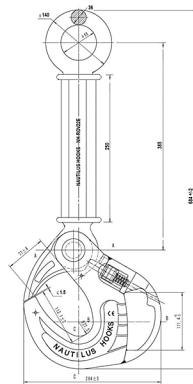
ROV Hook Long Shank Nautilus

General:

- Unique “positive locking” function eliminates risk of self release
- Outward opening locking arm eliminates “slings” fouling behind latch
- Self locking under load, the load remains securely locked until released by ROV

Safety factor: 4:1

Standard: BS/EN 1677-1+A1/2008



Art. No	Model	WLL ton	Weight kg	L mm	W mm	T mm
11.10NHROV22E	NH-ROV22E	22	21.0	684	264	62

Green Pin ROV Release Polar

General: Use these shackles for ROV disconnection, where there may be side loads on the shackle. Wiring to be done as per RSU recommendation.

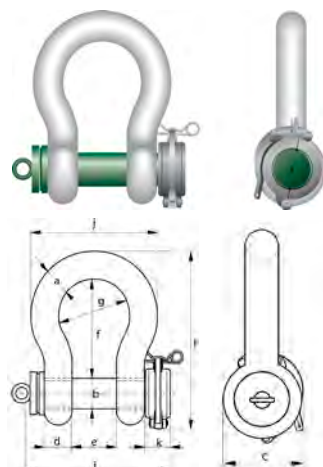
Material: Bow and pin alloy steel, Grade 8, quenched and tempered.

Safety Factor: MBL equals 6 x WLL

Finish: Body white painted, pin green painted.

Temperature: -60°C up to +200°C

Note: There is an “free” insert inside the clamp which may be lost during disconnection.



Art. No	WLL	Dia bow	Dia pin	Dia eye	Width eye	Width inside	Length inside	Width bow	Length	Length	Width	Width locking clamp	Weight
11.31P5365650	6.5	22	25	52	22	36	83	58	164	140	102	45	2.27
11.31P5365950	9.5	28	32	66	28	47	108	75	200	172	131	48	4.25
11.31P5365120	12	32	35	72	32	51	115	83	213	184	147	48	5.36
11.31P5365170	17	38	42	88	38	60	146	99	266	209	175	48	9.27
11.31P5365250	25	45	50	103	45	74	178	126	309	243	216	48	14.62
11.31P5365350	35	50	57	116	50	83	197	138	350	269	238	48	20.75
11.31P5365550	55	65	70	145	65	105	260	180	440	329	310	48	41.00
11.31P5365850	85	75	83	162	75	127	329	190	527	375	340	48	61.00

ROV Retrieve Shackle Gunnebo no 861

Material: High tensile steel, quenched and tempered

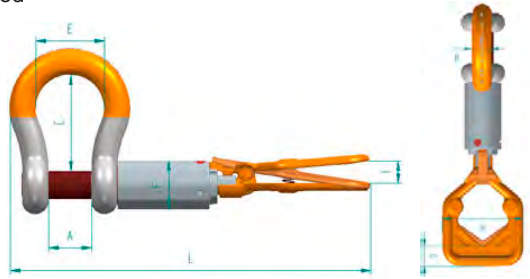
Finish: All load bearing parts hot dip galvanized

Safety factor: 6:1

Temperature:

Sizes 12 - 25 tones: -40 °C to 200 °C

Sizes 35 - 55 tones: -20 °C to 200 °C



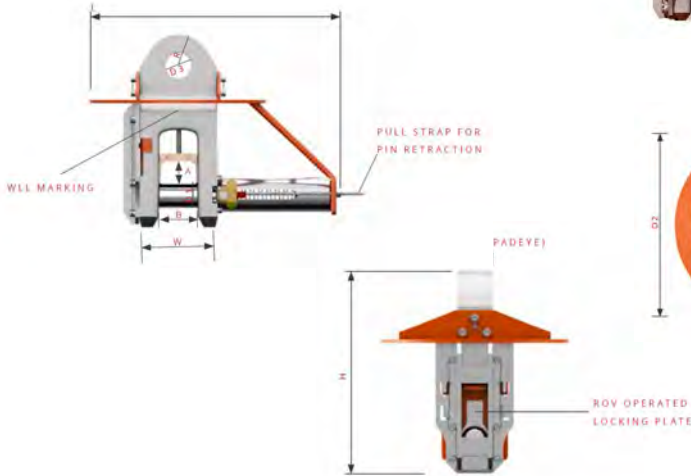
Art. No	WLL tons	d1	d	A	C	E	F	L	I	H	G	Weight kgs
11.30A06132	12	35	32	52	119	83	60	460	31	132	33	8.0
11.30A06138	17	42	38	60	146	98	63.5	501	31	132	33	10.5
11.30A06145	25	50	45	74	178	127	70	565	31	132	33	16.5
11.30A06152	35	57	50	83	197	138	76	604	31	132	33	20.5
11.30A06164	55	70	65	105	255	185	88	712	31	132	33	42.0

ROV Shackle Imenco Standard

Material: The shackle body are made from high tensile stainless steel; S165M and the shackle pin is made of forged high tensile 34CrNi steel.

Marking: WLL

Safety factor: 5:1



Art. No	Shackle Size WLL	Pin Dia. D1 mm	Inside height A mm	Inside width B mm	Grab Ring Dia. D2 mm	Body Dim.			Top Padeye			O/A Length L mm	Dry Weight kg
						W	T1	H	T2	D3	R		
												mm	
11.39IM0650	6,5	25	34-38	36	270	75	60	230	32	27	40	321	9
11.39IM0120	12	35.1	41-58	51	300	102	80	300	45	36	50	375	16
11.39IM0170	17	42	47-69	60,5	340	125	90	350	52	44	55	444	27
11.39IM0250	25	51	52-82	73	380	156	110	415	65	53	65	502	44
11.39IM0350	35	57	52-86	83	380	172	115	428	70	59	71	556	52
11.39IM0550	55	70	65-95	105	420	205	135	485	95	72	85	644	84
11.39IM0850	85	83	75-113,5	127	550	250	170	565	115	85	105	794	145
11.39IM0120	120	95.5	121-170	145	839	310	200	745	145	98	130	1050	380
11.39IM0150	150	108	75-141	165	839	325	210	755	150	110	130	1080	404

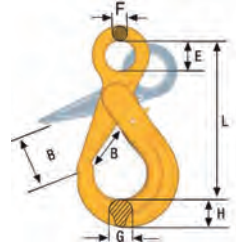
Safety Hook BK Classic

Material: Quenched and tempered alloy steel grade 8.

Marking: Code and grade.

Safety factor: 4:1.

Finish: Painted.



Art. No	Code	WLL t	For chain size	L	B	E	F	G	H	Weight kg
11.15Z100222	BK-26-8	21,6	26	345	100	80	25	50	68	14,6
11.15Z700960	BK-28-8	25.0	32	400	120	90	27	62	81	23

Safety Hook OBK

Material: Quenched and tempered alloy steel grade 10.

Marking: Code and grade.

Safety factor: 4:1.

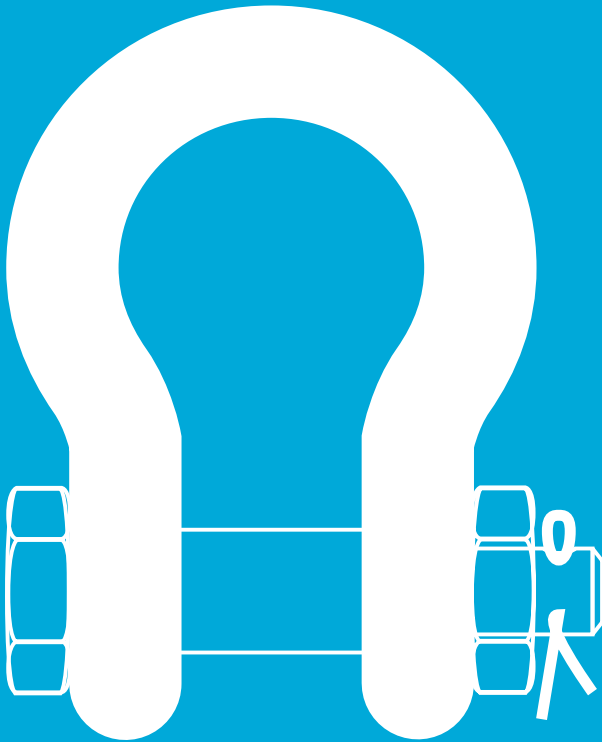
Finish: Painted.



WARNING! Not to be heat treated

Art. No	Code	WLL t	L mm	B mm	E mm	F mm	G mm	H mm	Weight kgs
11.16Z101048	OBK-6-10	1,5	103	26	22	9	15	17	0.4
11.16Z101143	OBK-8-10	2,5	139	37	28	10	20	22	0.8
11.16Z101145	OBK-10-10	4	170	47	34	13	22	29	1.3
11.16Z101147	OBK-13-10	6,7	206	53	44	15	28	38	2.6
11.16Z101141	OBK-16-10	10	251	62	56	19	29	45	4.4

Shackles



Technical Information




TechnipFMC Rigging Pool Supplies all sizes of shackles with WLL > 25Te

Equipment List specifications:

25t WLL *Gunnebo* shackle No855, bow shackle, bolt type

Note:

- Shackles under 4,75Te are not allowed for offshore use.
- Shackles are designed and load rated to support centre line loading of the shackle. Other load conditions should normally be avoided. Eccentric loading may be acceptable if the shackle capacity is de-rated according to the manufacturer guidelines and/or calculations. Ref. Exhibit for *Gunnebo* specification.
- Shackle dimensions should be selected with regard to the bending radius of slings and grommets.
- It is not recommended to connect shackles together. However, shackles connected bow to bow is normally acceptable without de-rating of the capacity. Pin to pin connections should always be avoided. Pin to bow connections may be accepted. It shall be ensured, by e.g. spacer plates, that the shackles will be correctly loaded.
- Shackles symmetrically loaded with two leg slings having a maximum included angle of 120° can be utilized to full WLL, up to 120Te. For larger shackles, the max included angle is 90°.
- Proof load: DNV requirement is: 2 X WLL for WLL ≤ 25Te
1,22 x WLL + 20Te for WLL > 25Te

Shackle Matrix		<i>Gunnebo Industrier</i>	<i>Crosby</i>	<i>Van Beest</i>
	Anchor (Bow) Shackle Safety or Bolt & Nut	855	G-2130	G4163
	Anchor (bow) Shackle Safety or Bolt & Nut Arctic or Polar	856	G-2130CT	G-5163
	Anchor Shackle Safety or Bolt & Nut Super Strong	858	G2140	G-5263

Standard shackle

Bow Shackle Gunnebo No 855 - Safety Bolt

Material: High tensile steel. Quenched and tempered. Grade 6.

Finish: All parts hot dip galvanized.

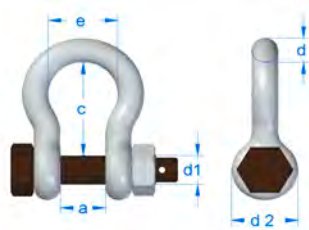
Brown painted bolts/pins on top of galv.

Temperature: - 40°C to 200°C.

Safety factor: 6:1

Standard: U.S. Fed.spec.RR-C-271 - EN13889.

Forging tolerances: +5% on inside width/length.



Art. no	WLL Te	d mm	d1 mm	a mm	c mm	d2 mm	e mm	Weight kg
11.30A085506	0.5	6 - 6.35	8	12	29	16	20	0.07
11.30A085508	0.75	7.94 - 8	10	13	32	20	21	0.13
11.30A085509	1.0	9 - 9.53	11	16	36	22	26	0.17
11.30A085511	1.5	11 - 11.11	13	18	43	26	29	0.25
11.30A085513	2.0	12.7 - 13	16	21	47	33	33	0.42
11.30A085516	3.25	15.88 - 16	19	27	60	40	42	0.715
11.30A085519	4.75	19 - 19.05	22	31	71	47	51	1.13
11.30A085522	6.5	22 - 22.23	25	37	84	52	58	1.71
11.30A085525	8.5	25 - 25.4	28	43	95	58	68	2.5
11.30A085528	9.5	28 - 28.58	32	46	108	64	74	3.145
11.30A085532	12.0	31.75 - 32	35	52	119	72	83	5.13
11.30A085535	13.5	34.93 - 35	38	57	132	74	89	6.05
11.30A085538	17.0	38 - 38.1	42	60	146	84	98	7.96
11.30A085545	25.0	44.45 - 45	50	74	178	105	127	14.17
11.30A085552	35.0	50 - 50.80	57	83	197	119	138	20
11.31A085556	42.5	57- 63.50	65	95	222	135	160	29
11.30A085564	55.0	63.50 - 65	70	106	255	145	185	41
11.30A085576	85.0	75 - 76.2	83	127	330	165	190	62

*Above 85t use GN H10 shackle

Wide body shackle

Shackle Crosby G-2160 - Wide Body

Design: Wide body shackle with improved bow radius that greatly improves life of wire rope slings. Can be used to connect wire rope slings, high strength synthetic web slings or high strengths synthetic round slings.

Material: Forged alloy steel from 7 -300 Te. Cast alloy steel from 400 -1550 Te.

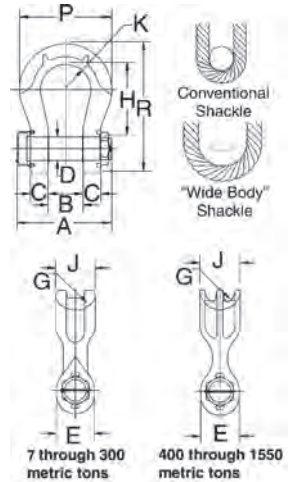
Marking: WLL. Shackles, 30 Te and larger, are RFID EQUIPPED.

Proof load: All 2160 shackles are individually proof

tested and magnetic particle inspected. Sizes 300 Te and smaller are proof tested to 2 times the Working Load Limit, sizes 400 Te and larger are tested to 1.33 times Working Load Limit.

Safety factor: 7-300 Te, 5:1. 400 Te and larger, 4,5:1.

Finish: 7-55 Te are galvanized w/ painted pin. 75 Te and larger, bows are furnished Dimetcoted, and pins are Dimetcoted, painted.



Art. No	WLL Te	*Pin Ø	A mm	**B mm	C mm	D mm	E mm	G mm	H mm	J mm	K mm	P mm	R mm	Effective body Ø	Weight kg
11.331021256	7	22.4	105	32	17.5	22.4	46	32	90	41	32	104	149	53	1.81
11.331021265	12.5	28.7	137	43	23	28.7	61	35	118	54	41	140	194	61	4.54
11.331021274	18	35.1	170	52	30	35.1	68	38	148	64	51	172	238	71	6.8
11.331021283	30	41.4	195	60	35	41.4	89	45	176	80	64	216	289	104	11.3
11.331021285	40	50.8	236	73	43	50.8	102	59	205	95	76	270	346	91	15.9
11.331021287	55	57.2	263	83	51	57.2	118	67	238	114	89	311	397	109	32.2
11.331021290	75	69.9	365	105	54	69.9	127	64	293	121	93	312	468	150	45
11.331021307	125	80.0	419	130	65		145	80	365	150	110	380	575	173	73
11.331021320	200	105	525	150	85	180	185	110	480	205	137	495	757	226	227
11.331021330	300	133	615	187	102	200	235	137	600	264	160	594	946	300	379
11.331021334	400	160	769	220	131	215	300	160	575	320	185	690	985	363	500
11.331021343	500	180	847	250	146	230	340	170	630	340	225	790	1085	376	650
11.331021352	600	200	915	275	158	250	394	185	700	370	247	865	1200	516	860
11.331021361	700	215	988	300	167	270	376	200	735	400	270	940	1275	422	1109
11.331021254	800	230	1058	325	185	300	420	210	750	420	277	975	1323	457	1368
11.331021389	900	250	1 111	350	198	320	430	220	757	440	293	1025	1373	569	1559
11.331021370	1000	270	1 168	380	212		450	230	760	460	308	1075	1405	490	1824
11.331021272	1250	300	1 266	430	232		533	265	930	530	323	1175	1660	620	2588

* Easy-Loc ** Tolerance +/- 0,5 mm

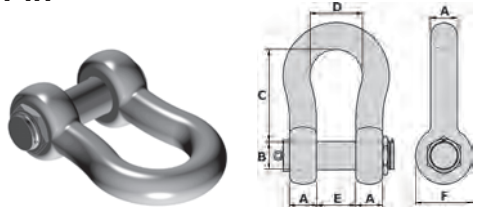
Heavy duty shackle

Bow Shackle GN H10 - Safety Pin

Material: Forged alloy steel quenched and tempered.

Safety factor: 5:1.

Finish: Painted/galvanized.



Art. No	WLL Te	A mm	B mm	C mm	D mm	E mm	F mm	Weight kg
11.3137001209	120	89	95	381	238	150	200	110
11.3137001409	150	102	108	400	275	170	230	160
11.3137002009	200	120	125	500	290	180	260	235
11.3137002508	250	125	140	540	305	200	260	285
11.3137003009	300	135	150	600	305	200	305	340
11.3137004009	400	165	175	650	325	225	350	560
11.3137005009	500	175	185	700	350	250	370	685
11.3137006009	600	195	205	700	375	275	405	880
11.3137007009	700	205	215	700	400	300	435	980
11.3137008009	800	210	220	700	400	300	435	1 100
11.3137009009	900	220	230	700	420	320	465	1 280
11.3137010009	1000	230	240	700	420	340	480	1 460

Super/Polar Shackle

Arctic Shackle Gunnebo No 856 - Safety Bolt (offshore)

Material: High tensile steel. Quenched and tempered.
Grade 8.

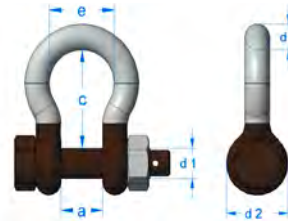
Finish: All parts hot dip galvanized. Brown painted bolts/
pins on top of galv.

Temperature: -20°C to 200°C.

Safety factor: 6:1

Standard: U.S. Fed.spec.RR-C-271 - EN13889.

Forging tolerances: +-5% on inside width/length.



Art. No	WLL Te	d mm	d1 mm	a mm	c mm	d2 mm	e mm	Weight kg
11.31A085613	2.0	12.7 - 13	16	21	47	33	33	0.42
11.31A085614	3.25	15.88 - 16	19	27	60	40	42	0.7
11.31A085615	4.75	19-19.05	22	31	71	47	51	1.13
11.31A085616	6.5	22 - 22.23	25	37	84	50	58	1.69
11.31A085617	8.5	25 - 25.40	28	43	95	58	68	2.5
11.31A085618	9.5	28 - 28.58	32	46	108	64	74	3.4
11.31A085619	12.0	31.75 - 32	35	52	119	72	83	5
11.31A085620	13.5	34.93-35	38	57	132	74	89	6.05
11.31A085621	17.0	38 - 38.10	42	60	146	84	98	8.12
11.31A085622	25.0	44.45-45	50	74	178	105	127	14
11.31A085623	35.0	50 - 50.80	57	83	197	127	138	20
11.31A085624	55.0	63.50 - 65	70	105	255	152	185	41
11.31A085625	85.0	75 - 76.2	83	127	330	164	190	62

Super Shackle Gunnebo No 858

General: Grade 8 shackle for higher working load with smaller dimensions compared to regular grade 6 shackles.

Material: High tensile steel.

Quenched and tempered.

Finish: All parts hot dip galvanized.

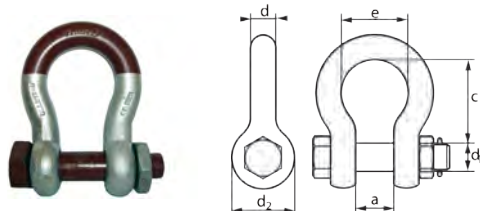
Brown painted bolts/pins on top of galv.

Temperature: -20°C to 200°C

Except 150 Te = 0°C to 200°C

Standard: US Spec. RR-C-271

Safety factor: 5:1



Art. No	WLL	Pin Ø						Weight
	Te	d1 mm	A mm	C mm	D mm	d2 mm	E mm	Kg
11.31A085813	3.3	16	21	51	12.70 - 13	33	33	0.42
11.31A085816	5.0	19	27	60	15.88 - 16	40	42	0.7
11.31A085819	7.0	22	31	71	19-19.05	47	51	1.1
11.31A085822	9.5	25	37	84	22 - 22.22	50	58	1.7
11.31A085825	12.5	28	43	95	25 - 25.4	58	68	2.5
11.31A085828	15	32	46	108	28- 28.58	64	74	3.4
11.31A085832	18	35	52	119	31.75 - 32	72	83	5
11.31A085835	21	38	57	132	34.93 - 35	74	89	6.1
11.31A085838	30	42	60	146	38 - 38.1	89	99	9
11.31A085845	40	50	74	178	44.45 - 45	104	126	14
11.31A085857	55	57	83	197	50.80 - 57	133	138	24
11.31A085870	85	70	105	260	63.5 - 70	159	180	38
11.31A085883	120	83	127	330	82.55 - 83	171	190	71
11.31A085895	150	95	144	381	95 - 101.6	215	238	110



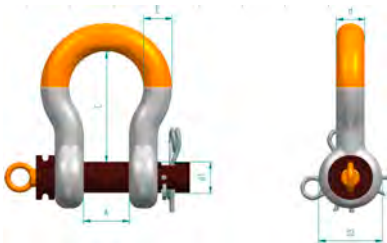
ROV Release Shackle Gunnebo no 863

Material: High tensile steel, quenched and tempered

Finish: All load bearing parts hot dip galvanized

Safety factor: 5:1

Temperature: -20°C to 200°C



Art. No	WLL tons	d1	d	a	c	d2	e	Weight kgs
11.30A086322	6.5	25	22	37	84	52	58	1.5
11.30A086325	12	35	32	52	119	72	83	4.5
11.30A086332	9.5	32	28	46	108	64	74	3.2
11.30A086338	17	42	38	60	146	84	98	7.8
11.30A086345	25	50	45	74	178	105	127	13.9
11.30A086352	35	57	50	83	197	127	138	19.04
11.30A086364	55	70	65	105	255	152	185	39.59

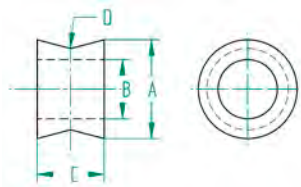
Note: 85Te ROV Release shackle with spring pins exists from Green Pin (model G-5363).

Note: These ROV shackles are recommended by Technip (RSU) and should be preferred. Wiring to be done as per RSU internal memorandum, Ref./3/ (available on the Subsea Lifting intranet page). Shackles with spring pins to be used when IN-LINE loads only. Otherwise, use the shackle w/ Locking Clamp P-5365.

Centralizer for shackles

General: Centralizer to be used when connecting a master link or an other shackle to the pin of a shackle.

Material: ST 52-3 Standard steel

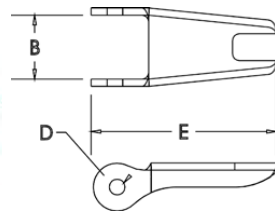


Art No.	Shackle Te	Bolt dim mm	Ext. A mm	Int. B mm	Slot D mm	Length C mm	Label
A9X100165	25	50	75	52	62	72	25 T mth/yr
A9X100166	35	57	82	59	69	81	35 T mth/yr
A9X100167	55	70	100	72	82	103	55 T mth/yr

ROV Latch Kit for L-562A

General:

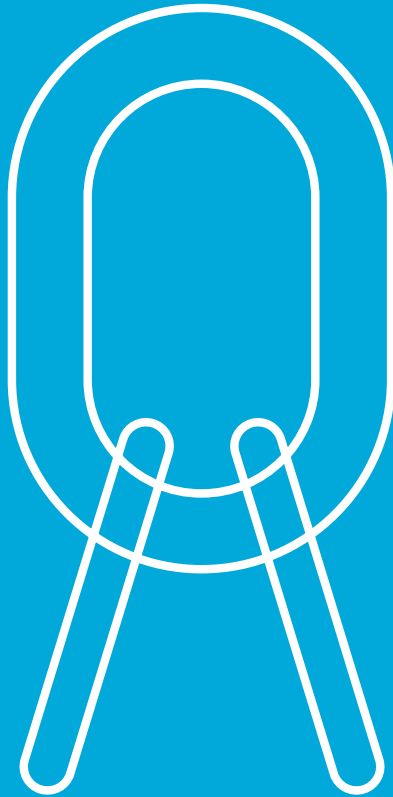
- Heavy duty stamped latch interlocks with the hook tip
- High cycle, long life spring
- Can be made into a "positive locking" hook when proper cotter pin is utilized
- Latch kits shipped unassembled and individually packaged with instructions



S-4320 Stock No.	SS-4320 Stock No.*	Hook Size (t)			Hook ID Code	Weight Each kg	Dimensions mm		
		Carbon	Alloy	Bronze			B	D	E
1096325	1097100	.75	1.25	.5	D	.01	12.7	3.80	36.6
1096374	1097109	1	1.6	.6	F	.02	13.7	4.30	39.6
1096421	1097118	1.6	2	1	G	.02	16.0	4.30	42.2
1096468	1097127	2	3.2	1.4	H	.03	16.8	4.30	48.5
1096515	1097136	3.2	5.4	2	I	.05	21.1	5.10	58.5
1096562	1097145	5	8	3.5	J	.07	26.4	5.10	73.2
1096609	1097154	7.5	11.5	5	K	.13	31.8	6.85	90.5
1096657	1097163	10	16	6.5	L	.15	34.3	6.85	97.0
109704	1097172	15	22	10	N	.38	42.2	9.90	132

*SS-4320 is Stainless Steel construction with cad plated steel nuts.

Master Links



Technical Information

General

TechnipFMC Rigging Pool Supplies Master Links and Master Link Assembly > 20 Te
Check rigging pool for the availability of various sizes, brands and type before ordering new masterlinks.

Equipment List specifications:

28,1 Te WLL *Gunnebo* master link 38.B.6

Note: DNV 2.7-1 certified «offshore» rigging is only required when used on a platform or for a transfer between a vessel and a platform.

Master Link FRAM

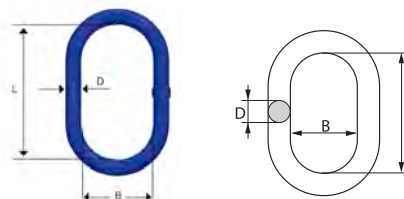
General: For 1-and 2 leg slings, leg angle from 0° to 60° with vertical

Material: Quenched and tempered alloy steel Grade 8.

Marking: Code and Grade

Safety factor: 4:1

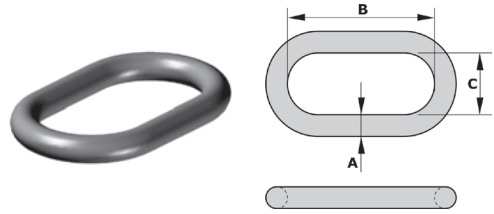
Finish: Painted



Art. No	Dim./Type	WLL 4:1 Te	D mm	B mm	L mm	Weight kg
11.010301008	22.B.6	8.2	22	90	170	1.6
11.010301009	22.B.7	7.2	22	110	210	1.9
11.010301010	25.B.6	10.7	25	103	190	2.3
11.010301011	28.B.6	12.9	28	113	209	3.2
11.010301013	32.B.6	17.1	32	140	270	5.3
11.010301014	38.B.6	28.1	38	140	270	7.5
11.010301015	38.B.7	19.1	38	220	420	11.0
11.010301016	45.B.6	38.3	45	170	320	12.5
11.010301017	45.B.7	27.6	45	250	470	17.5
11.010301018	50.B.6	45.0	50	200	380	18.0
11.010301019	60.B.6	65.3	60	220	430	30.0
11.010301020	70.B.6	84.4	75	250	500	44.0

Master Link GN SC1

Material: Forged alloy steel
Safety factor: 5:1
Temperature: - 20 °C up to + 200 °C
Finish: Painted
Tolerance: Forged parts + -5%

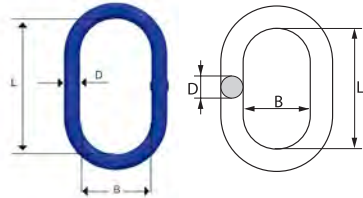


Art. No	WLL (ton)	MBL (ton)	A mm	B mm	C mm	Weight kg
11.0112720000	84	420	72	460	250	45
11.0112800000	105	525	80	450	250	56
11.0112900000	131	655	90	460	300	77
11.0112910000	157	785	100	500	300	101
11.0112912500	250	1250	115	600	400	163
11.0112912510	300	1500	115	600	300	154
11.0112913500	400	2000	115	700	250	166
11.0112914000	400	2000	115	490	250	132
11.0112916000	400*	1600	155	800	400	480
11.0112917000	500*	2000	175	800	400	603
11.0112918000	600*	2400	195	800	400	732

*Safety factor 4:1, temperature: -40 °C up to +200 °C; Polar rated

Master Link Grade 8, DNV 2.7-1 Offshore FRAM

General: leg angle from 0° to 60° with vertical.
Material: Alloy steel grade 8.
Marking: Code and grade.
Safety factor: 4:1
Finish: Painted.



Art. No	Code	WLL Te	B mm	D mm	L mm	Weight kg
11.01301056	20.6.OF	6.7	82	20	150	1.1
11.01301058	22.6.OF	8.2	90	22	170	1.6
11.01301060	25.6.OF	10.7	103	25	190	2.3
11.01301061	28.6.OF	12.9	113	28	209	3.2
11.01301062	28.7.OF	11.8	140	28	270	4.0
11.01301063	32.6.OF	17.1	140	32	270	5.3
11.01301064	38.6.OF	28.1	140	38	270	7.5
11.01301066	45.6.OF	38.3	170	45	320	12.5
11.01301068	50.6.OF	45.0	200	50	380	18.0
11.01301069	60.6.OF	65.3	220	60	430	30.0

Master Link Assembly FRAM

General: For 3-and 4 leg slings, leg angle from 0° to 45° with vertical.

Material: Quenched and tempered alloy steel grade 8.

Marking: Code and grade

Safety factor: 5:1

Finish: Painted.



Art.nr	Code	WLL (ton)	Strength of sublinks BF kN	B	D	L	b	d	l	Vekt
				mm	mm	mm	mm	mm	mm	kg
11.010301503	Q.22.B	8.2	328.6	90	22	170	80	20	134	3.8
11.010301504	Q.25.B	10.7	328.6	100	25	190	80	20	134	4.5
11.010301505	Q.28.B	12.9	402.2	110	28	210	90	22	170	6.4
11.010301506	Q.32.B	17.1	524.8	140	32	270	100	25	190	9.9
11.010301507	Q.38.B	28.1	838.8	140	38	270	140	32	270	18.2
11.010301508	Q.45.B	38.3	1378.3	170	45	320	140	38	270	27.7
11.010301509	Q.50.B	45	1378.3	200	50	380	140	38	270	33.2
11.010301510	Q.60.B	65.3	2207.3	220	60	430	200	50	380	66

Master Link Assembly GN SC5

Material: Forged alloy steel quenched and tempered

Safety factor: ≤ 300 ton 5:1

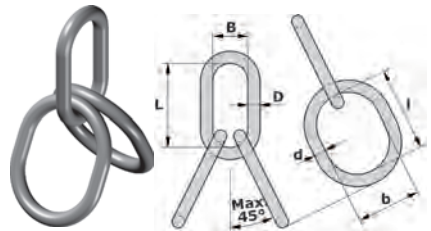
> 300 ton 4 times

Temperature: -20 °C up to +200 °C

Finish: Painted

Tolerance: Forged parts ± 5%

Strength of sublinks: 70% of WLL. (250t can be rated to 100% of WLL)



Art. No	WLL (ton)	MBL (ton)	D mm	L mm	B mm	d mm	l mm	b mm	Weight kg
11.0158000070	70	350	68	460	220	68	430	300	119
11.0158000100	100	500	80	500	250	80	460	330	182
11.0158000125	125	625	90	560	270	90	500	330	250
11.0158000175	175	875	100	600	270	100	560	330	334
11.0158000250	250	1250	115	600	400	115	600	400	490
11.0158000350	300	1500	115	600	300	115	600	400	481
11.0158000350	350	1750	115	600	250	115	600	400	480
11.0158000400	400	1600	115	600	270	115	600	300	460

Master Link Assembly Grade 8 DNV 2.7-1 Offshore FRAM

General: For 3 and 4-legs slings.

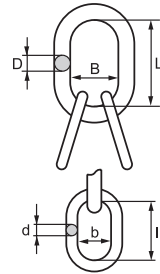
Led angle from 0° to 45° with vertical.

Material: Alloy steel grade 8.

Marking: Code and grade.

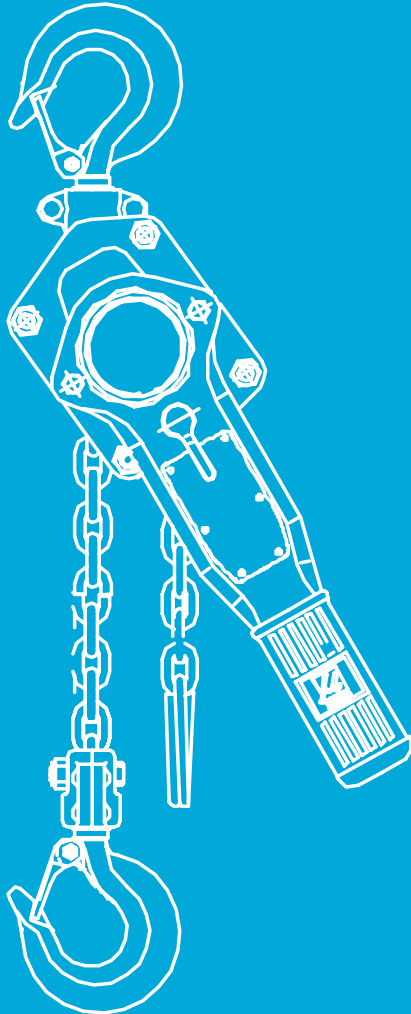
Safety factor: 5:1

Finish: Painted.



Art. No	Code	WLL Te	MPF kN	Strenght of sub- links		B mm	D mm	L mm	b mm	d mm	l mm	Weight kg
				BF kN								
11.01301524	MA25 OF	10.7	262.9	328.6		100	25	190	80	20	134	4.5
11.01301525	MA28 OF	12.9	316.9	402.2		110	28	210	90	22	170	6.4
11.01301526	MA32 OF	17.1	419.9	524.8		140	32	270	100	25	190	9.9
11.01301527	MA38 OF	28.1	689.6	838.8		140	38	270	140	32	270	18.2
11.01301528	MA45 OF	38.3	939.8	1378.3		170	45	320	140	38	270	27.7
11.01301529	MA50 OF	45.0	1103.6	1378.3		200	50	380	140	38	270	33.2
11.01301530	MA60 OF	65.3	1602.0	2207.3		220	60	430	200	50	380	66.0

Hoists



General

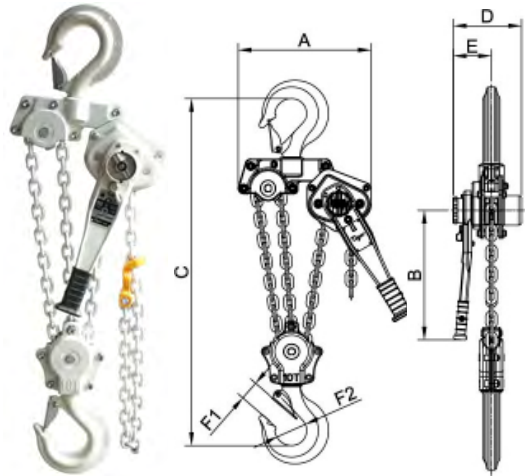
Tiger shark Lever Hoist to be selected for Offshore and Subsea use. See also Technip internal safety notice I.S.N 05.09 from 02.07.09
 See also IMCA D0028: The use of Chain Lever Hoist in the Offshore Subsea Environment

Lever hoist

Lever Hoist Subsea Tiger SS11

Main Features:

- Range from 800kg-20000 kg
- DNV GL Verification tested according to NORSOK R-002
- Double switch break mechanism
- Marine specific friction discs
- Light load protection at 2% of the rated capacity
- Anti-corrosive protection to ensure reliable long term use
- Fully corrosion protected body and components to ensure reliable long term use
- Adaptable to use both inverted and horizontally
- Brake chamber protection from outside contamination
- High performance premium grease
- Stainless steel fixings and fasteners
- -40°C to +50°C operating temperature range



Art. No	Capac-	Effort	A	B	C	D	E	F1	F2	Load Chain	Load Chain	Standard	Mass
	ity												
16.20SS0080	0.8	23	128	243	295	158	99	28	45	6.3	1	3	9.1
16.20SS0150	1.5	26	154	370	320	172	104	34	51	7.1	1	3	12.6
16.20SS0300	3.0	38	182	370	400	195	108	36	56	10.0	1	3	22.0
16.20SS0600	6.0	40	242	370	570	195	108	49	70	10.0	2	3	34.6
16.20SS1000	10.0	47	379	370	630	195	108	54	87	10.0	3	3	55.0
16.20SS1500	15.0	44	566	370	840	195	108	59	81	10.0	5	3	128.0
16.20SS2000	20.0	43	470	370	1050	250	160	81	110	10.0	6	3	174.0

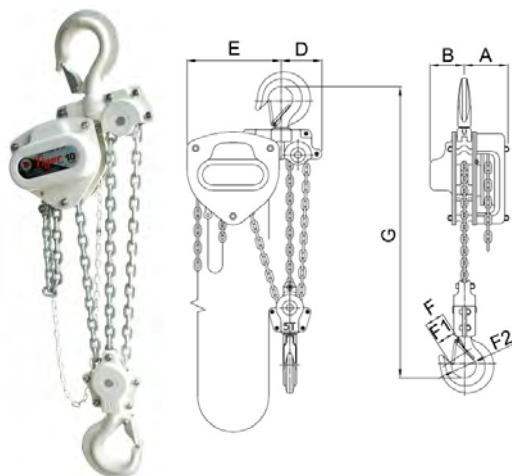
Chain hoist

For other use than offshore and subsea applications.

Chain Block Corrosion Resistant Tiger SS12

Main Features:

- Range from 500kg-20000kg
- Fully corrosion protected body and components
- Over 1000 hours continuous protection
- Corrosion protected load and hand chain
- Proof tested to 1.5 times rated capacity
- Marine specific friction discs
- Double cover protection for brake chamber
- Stainless steel fixings and fasteners
- Guaranteed 2% light load protection
- Rugged steel body construction
- Drop forged and heat treated alloy hook
- -40°C to +50°C operating temperature range



Art. No	Capacity		A	B	D	E	F	F1	F2	G	Load Chain	Load Chain	Standard	Mass	Mass per extra lifting height
	Te	kg													
16.10CB0050	0.5	21	89	67	50	80	29	25	36	305	6.3	1	3	10.8	1.86
16.10CB0100	1.0	25	89	67	63	87	33	28	44	340	6.3	1	3	11.8	1.86
16.10CB0150	1.5	32	93	73	75	105	38	34	48	385	7.1	1	3	16.2	2.10
16.10CB0200	2.0	34	98	77	85	115	42	35	52	420	8.0	1	3	20.0	2.39
16.10CB0300	3.0	38	109	84	98	157	40	35	54	550	10.0	1	3	30.8	3.17
16.10CB0500	5.0	37	98	77	120	210	54	50	68	575	8.0	3	3	37.8	5.17
16.10CB0800	8.0	37	78.5	102	140	230	55	51	76	745	8.0	4	3	67.0	6.56
16.10CB1000	10.0	40	109	84	153	263	60	54	90	660	10.0	3	3	65.0	7.54
16.10CB1500	15.0	41	110	84	225	374	64	57	81	840	10.0	5	3	132	11.85
16.10CB2000	20.0	43	160	90	140	347	90	70	105	1050	10.0	6	3	201	14.20

Chain Hoist Kito CB Offshore

General: KITO M3 Series Chain Hoists are built with premium grade components for long life in demanding industrial and contracting applications. M3 lever hoists feature double-reduction gearing for reduced size and weight.

Safe, reliable mechanical brake activates instantly, holds the load securely. Double reduction gearing for a smaller hoist requires minimum power to operate. Spring loaded free-wheel for fast, easy load chain free-wheeling. Open load sheave allows easy inspection and cleaning without dismantling the unit Maintenance free sealed gears and brake protected against damage from dust and water.

Material: High impact steel housing, chain Grade 10.

Marking: WLL, code and CE marking.

Safety factor: 5:1.

Finish: Painted.



Art. No	Code	WLL Te	Lift height m*	Bridge height mm	Lift chain Ø mm	No of falls pc	Hook width mm	Weight kg
16.10CB005SSH025	CB005	0.5	2.5	24	5.0	1	27.0	10.0
16.10CB010SSH025	CB010	1.0	2.5	29	6.3	1	29.0	11.5
16.10CB015SSH025	CB015	1.5	2.5	35	7.1	1	34.0	14.5
16.10CB020SSH030	CB020	2.0	3.0	36	8.0	1	36.0	20.0
16.10CB030SSH030	CB030	3.0	3.0	36	7.1	2	42.5	24.0
16.10CB050SSH030	CB050	5.0	3.0	34	9.0	2	46.2	41.0
16.10CB075SSH035	CB075	7.5	3.0	35	9.0	3	72.5	63.0
16.10CB100SSH035	CB100	10.0	3.5	36	9.0	4	72.5	83.0

* Other range of lift-height available upon request



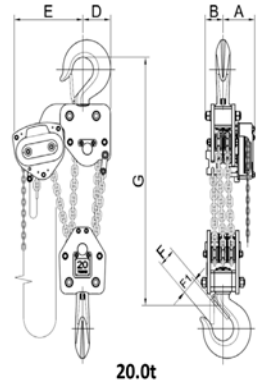
General note on chain blocks and lever hoists

Both hooks can be replaced by clevis shackle or chain coupler to improve safety.

ROV Chain Block Tiger

Main features

- From 3 t - 20 t capacity
- Full corrosion protected exclusively by NitTEC
- Stainless steel 316 framework and handle
- Proven subsea brake components
- Heavy duty flexible chain bag w/ stainless steel mounting frame
- 4 point manipulator connection points
- Compact and light weight
- Interfaces:
 - Manual Fishtail Direct Drive
 - Hydraulic Hot Stab connection type A dual port
 - Rotary Torque Receptacle Classes 1,2 & 3



Code	Capacity Te	Max Torque Nm	Revs per 300mm travel	Mass out of water kg		
				Hot Stab	Torque Tool	Fish Tail
16.10RCB0300	3.0	45	55	60.5	57.5	53.3
16.10RCB1000	10.0	50	165	90.3	87.3	83.3
16.10RCB2000	20.0	55	340	208.0	205.0	201.0

Lever Hoist LB Series Kito

General: The standard LB Lever Hoist is supplied with a freewheel safeguard and quad riveted bottom hook. The lever hoists are built with premium grade components for long life in demanding industrial and contracting applications. Its double-reduction gearing reduce size and weight and requires minimum power to operate. Sealed gears and brake are protected against damage from dust and water. Open load sheave allows easy inspection and cleaning without dismantling the unit.

Material: High impact steel housing, nickel-plated load chain grade V (G100) according to EN 818-7.

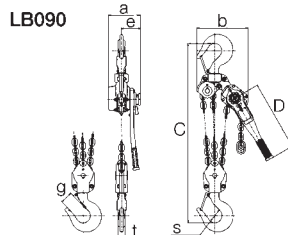
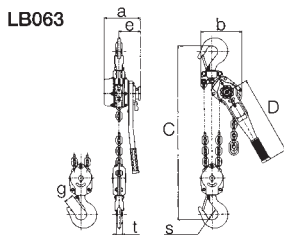
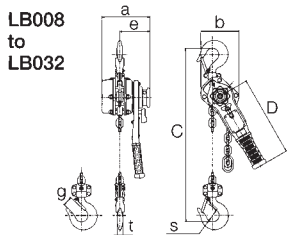
Marking: WLL, code and CE marking.

Safety factor: 4:1.

Finish: Painted.

Options:

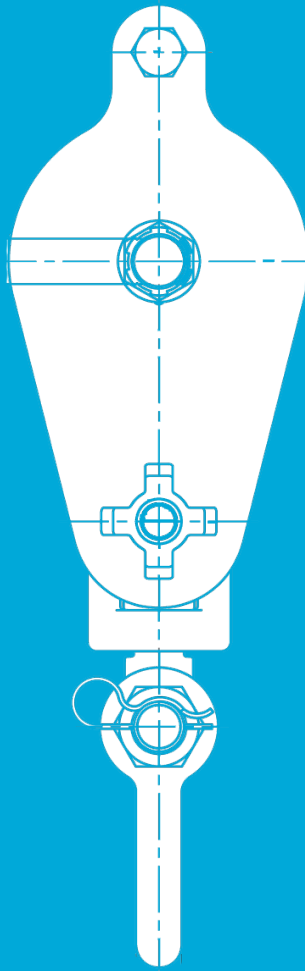
- Friction clutch
- Overload signal
- Wire rope clip
- Shipyard hook
- Without freewheel mechanism



Art. No	Code	WLL	Hand pull to lift full load	Lift chain Ø	Lifting height	Chain falls	a	b	C	D	e	g	s	t	Weight*
		ton	daN	mm	m		mm								kg
16.20LB008S030	LB008	0,8	28,4	5,6	3	1	144	119	280	245	97	23,5	35,5	14,0	5,7
16.20LB010S030	LB010	1,0	35,3	5,6	3	1	144	119	300	245	97	29,0	42,5	15,0	5,9
16.20LB016S030	LB016	1,6	33,3	7,1	3	1	159	126	335	265	100	32,0	42,5	19,0	8,0
16.20LB025S030	LB025	2,5	36,3	8,8	3	1	173	150	375	265	102	36,5	47,0	21,0	11,2
16.20LB032S030	LB032	3,2	36,3	10,0	3	1	190	159	395	415	112	39,0	50,0	24,5	15,0
16.20LB063S030	LB063	6,3	37,2	10,0	3	2	190	217	540	415	112	50,0	60,0	34,0	26,0
16.20LB090S030	LB090	9,0	38,2	10,0	3	3	190	304	680	415	112	72,5	85,0	41,5	40,0

*Weight with 1,5 m standard lifting height. The last 2 digits in the Art. No indicates the lifting height.

Blocks



General

Snatch blocks allow the wire to be attached easily by opening up the block instead of threading the wire rope through the block. Min D/d=18 for lifting.
For other applications, ask for advice.

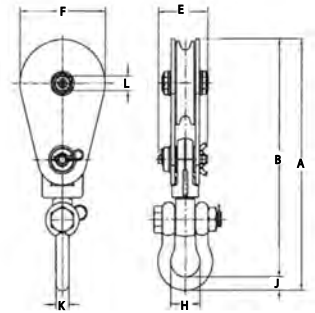
Snatch Block with Shackle Gunnebo Johnson

General: Snatch Block with shackle.

Marking: Code, WLL, wire and sheave diameter.

Safety factor: 4:1.

Finish: Red painted.



Art. No	WLL Te	Sheave Ø D	For Steel wire rope									
			appr. mm	A mm	E mm	B mm	F mm	H mm	J mm	K mm	L mm	Weight kg
16.15SB2S3BS	2	3"	8-10	275	64	262	86	33	13	13	19	4.1
16.15SB4S4BS	4	4"	10-13	365	83	343	121	57	22	22	25	6.8
16.15SB4S6BS	4	6"	10-13	419	83	397	159	57	22	22	25	8.2
16.15SB8S6BS	8	6"	16-20	489	94	464	159	65	25	25	38	13.2
16.15SB8S8BS	8	8"	16-20	540	94	514	210	65	25	25	38	14.5
16.15SB8S10BS	8	10"	16-20	591	94	565	260	65	25	25	38	18.2
16.15SB8S102BS	8	12"	16-20	641	111	610	310	65	25	25	38	23.5
16.15SB12S8BS	12	8"	20-22	591	111	559	210	79	32	32	51	27.7
16.15SB12S10BS	12	10"	20-22	641	111	610	260	79	32	32	51	30
16.15SB12S12BS	12	12"	20-22	706	111	675	310	79	32	32	51	41.0
16.15SB15S8BS	15	8"	20-22	591	111	559	210	79	32	32	51	29.0
16.15SB15S12BS	15	12"	20-22	706	111	675	310	79	32	32	51	43.0
16.15SB20S10BS	20	10"	26-30	806	135	762	264	124	44	44	57	56.8
16.15SB20S14BS	20	14"	26-30	880	149	840	360	124	44	44	57	61.0
16.15SB30S20BS	30	20"	30-32	1292	149	1235	514	165	57	57	89	123.8

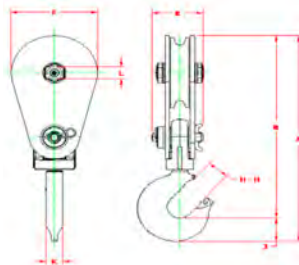
Snatch Block with Hook Gunnebo Johnson

General: Snatch Block with hook.

Marking: Code, WLL, wire and sheave diameter.

Safety factor: 4:1.

Finish: Red painted.



Art. No	WLL Te	Sheave Ø D	For Steel wire rope appr. mm	A	B	E	F	H	H1	J	K	L	Weight kg
				mm	mm	mm	mm	mm	mm	mm	mm	mm	
16.15SB2S3BH	2	3"	8-10	267	241	64	86	29	25	25	17	19	4.1
16.15SB4S4BH	4	4"	10-13	368	321	83	121	36	32	48	29	25	6.8
16.15SB8S8BH	8	8"	16-20	533	479	94	210	51	44	54	35	38	7.2
16.15SB8S12BH	8	12"	20-22	584	530	94	260	51	44	54	35	38	18.2
16.15SB12S8BH	12	8"	20-22	578	511	111	210	64	54	67	41	51	24.1
16.15SB12S12BH	12	12"	20-22	714	638	135	219	86	76	76	60	57	46.3

Note:

Other brands providing snatch blocks:

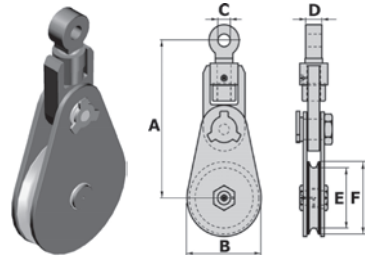
- McKissick
- Yoke
- GN rope

Snatch Block for Shackle Lifting GN BL3

Material: Mild steel

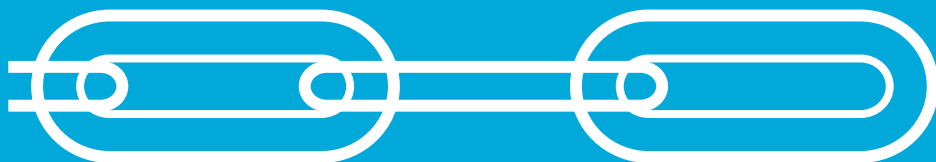
Safety Factor: 4:1

Finish: Painted



Art. No	WLL eye pull Te	WLL line pull Te	Rope size mm	A mm	B mm	C mm	D mm	E mm	F mm	Weight kg
Light Type										
16.15H41903	3.25	1.62	8-10	188	82	20	26	56	76	3
16.15H41905	4.75	2.37	11-14	250	122	24	30	86	114	8
16.15H41906	8.5	4.25	18-20	356	162	30	40	112	152	17
16.15H41908	8.5	4.25	18-20	381	216	30	40	163	203	23
16.15H41910	9.5	4.75	18-20	406	270	34	44	214	254	28
16.15H41912	9.5	4.75	18-20	446	320	34	44	265	305	34
16.15H41914	12	6	18-20	516	396	37	48	315	365	43
16.15H41916	13.5	6.75	22-25	645	430	42	54	356	406	100
16.15H41918	17	8.5	22-25	690	490	44	57	408	458	120
Heavy Type										
16.15H43106	17	8.5	22-25	490	160	44	57	110	150	49
16.15H43108	25	12.5	25-28	602	220	53	70	150	200	80
16.15H43110	25	12.5	28-32	632	270	53	70	190	250	93
16.15H43112	25	12.5	28-32	662	320	53	70	240	300	109
16.15H43114	25	12.5	28-32	692	370	53	70	290	350	116
16.15H43118	35	17.5	32-38	835	470	60	80	380	450	211
16.15H43120	35	17.5	32-38	865	520	60	80	430	500	238
16.15H43124	35	17.5	32-38	925	625	60	80	535	605	284
16.15H43224	55	27.5	38-42	1 040	325	73	100	520	605	460
16.15H43230	85	42.5	44-48	1 212	780	85	120	630	750	890
16.15H43234	120	60	50-55	1 327	880	100	140	740	860	1 200
16.15H43236	150	75	60-70	1 427	930	113	160	760	910	1 530
16.15H43242	200	100	75-85	1 630	1 080	135	170	870	1 060	2 285
16.15H43246	250	125	88-93	1 785	1 190	145	190	970	1 170	3 015

General lifting/other



Swivel

Swivel S2 - Jaw / Jaw Crosby

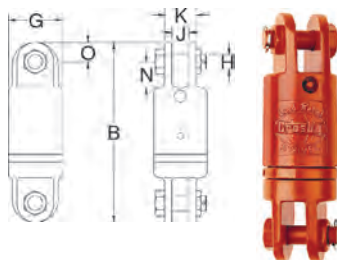
Design: Jaw and jaw swivel with tapered roller thrust bearing. Suitable for frequent rotation under load.

Marking: WLL.

Proof load: 2 x WLL.

Safety factor: 5:1.

Finish: Painted.



Art. No	WLL	Rope Ø	B	G	H	J	K	N	O	Weight
	tons	mm								
11.450297020	3	13	236	70.0	19.1	22.4	41.1	33.3	25.4	4.37
11.450297226	5	16	262	76.0	22.4	25.4	57.0	41.1	28.4	6.21
11.450297422	8.5	19	321	102	25.4	39.5	71.5	54.0	35.1	11.9
11.450297627	10	22	426	114	38.1	44.5	86.0	89.0	44.5	20.8
11.450297823	15	26	435	127	38.1	44.5	86.0	89.0	44.5	28.5
11.450298127	25	-	527	152	51.0	51.0	117	93.5	60.5	64
11.450298225	35	-	527	165	51.0	51.0	117	93.5	60.5	70
11.450298323	45	-	641	178	57.0	63.5	127	102	76.0	107

Note:

Crosby swivels exists also in Eye-Eye and Eye-Jaw configuration.



Important! Crosby swivels should only be used with the recommended wire rope. DO NOT USE WITH 6x36 IWRC.

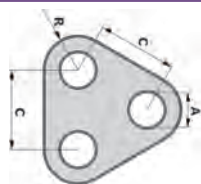


Triangle Plate GN TR1

Material: High tensile steel.

Safety factor: 5:1.

Finish: Painted.



Art. No	SWL ton	A mm	B mm	C mm	R mm	Weight kg
10.9975001700	17	47	35	120	65	10
10.9975002500	25	55	40	150	80	18
10.9975003500	35	60	50	160	90	28
10.9975005500	55	75	70	210	105	58
10.9975008500	85	90	80	230	135	96
10.9975012000	120	105	100	280	170	188
10.9975015000	150	115	110	320	185	256
10.9975017500	175	115	110	320	195	274
10.9975020000	200	140	120	390	215	390
10.9975025000	250	150	140	390	240	518

Harness P61E

General: Harness with front and dorsal anchorage point, work positioning belt, attaching point for sitting position, one regulation for legs and shoulder straps, automatic alu buckles and elastic webbing on shoulders.

Size: M-XXL.

Marking: Manufacturer, product, size/length, date of manufacture and serial number and CE marking.

Standard: EN 361/EN 358



Art. No	Model
19.02P61EM-XL	Harness P61E M-XL
19.02P61E.XXL	Harness P61E XXL

Freesafe Regatta

General:Regatta "Freesafe" is a light weighted lifejacket designed for optimal freedom of movement. Rounded shape with neoprene-lined collar gives vital comfort and support. It has solid nylon outer cover and separate lung. It automatically inflates in contact with water. Equipped with grab loop and whistle.

Buoyancy:160N.

Weight:1 kg.

Operating head:Halkey-Roberts V85000

Approved: ISO 12402-3 150N.



Art. No	Model	Size
99.NO2715701010	"Freesafe", marine	Adult over 40 kgs



3

Exhibit

- » Polyester - SF reduction due to bending
- » Gunnebo Shackles
- » Buoys
- » Winch
- » Drum - fleet angle
- » Big bags
- » Rigging angles
- » Loads induced by sheaves
- » Certex Norge Buy Back List

Polyester - SF reduction due to bending

SAMSVARERKLÆRING / BRUKSANVISNING FOR HAMAS POLYESTERSTROPPER.

Bruksanvisningen skal følge løfteredskapen som
en veiledning for riktig og sikker bruk.



DECLARATION OF CONFORMITY / INSTRUCTION FOR USE OF POLYESTERSLINGS FROM HAMAS.

The instruction must accompany the lifting slings as
a guidance for correct and safe usage.

1. FORHOLDSREGLER FOR BRUK AV POLYESTERSTROPPER

- 1.1 Bruk bare sertifiserte stropper.
- 1.2 Gyldig sertifikat skal foreligge når løftet skal foretas.
- 1.3 Vær spesielt oppmerksom på at anleggsdiametern ikke er for liten i løftepunktene, se veiledning for minste anleggsdiameter.
- 1.4 Veiledning for minste anleggsdiameter.

1. PRECAUTION FOR USE OF POLYESTER SLINGS:

- 1.1 Use only certified slings.
- 1.2 Valid certificate must be present when lifting is performed.
- 1.3 Make sure that the contact surface diameter is sufficient around corners and bolts, use table of smallest permissible contact surface diameter.
- 1.4 Table of smallest permissible contact surface diameter.

Anleggsdiameter / Contact-diameter							
Minimum anleggsdiameter for å få følgende sikkerhetsfaktor				Minimum contact-diameter to get following Safety factor			
Tonnasje	SF 7:1	SF 6:1	SF 5:1	Tonnasje	SF 7:1	SF 6:1	SF 5:1
1 tonn	16 mm	13 mm	10 mm	10 tonn	100 mm	50 mm	32 mm
2 tonn	35 mm	22 mm	16 mm	15 tonn	150 mm	75 mm	38 mm
3 tonn	38 mm	25 mm	22 mm	20 tonn	150 mm	75 mm	45 mm
5 tonn	45 mm	38 mm	25 mm	30 tonn	240 mm	120 mm	50 mm
8 tonn	100 mm	50 mm	32 mm	40 tonn	240 mm	120 mm	57 mm
				50t - 120t	240 mm		

- 1.5 Pass på løftevinkelen. Se belastningstabell.
- 1.6 Ikke slep stroppene ved flytting.
- 1.7 Lag ikke knuter
- 1.8 Vridde stropper må ikke belastes.
- 1.9 Bruk ikke stropper mot last med skarpe kanter uten mellomlegg.
HUSK anleggsdiameteren.
- 1.10 Trekk ikke stroppen frem fra lasten så lenge lasten hviler på stroppen.
- 1.11 Unngå rykk eller sjokkbelastning.
- 1.12 Unngå øyevinkler over 20°.
- 1.13 Høyester tillatte arbeidstemperatur er 100°C.
- 1.14 Løftestropper av polyester MÅ IKKE benyttes sammen med alkalier.

Løfting bør utføres slik at lasten er stabil. Hvis lastens lengde gjør det nødvendig å benytte flere stropper, bør det brukes en spredder eller en annen innretning slik at stroppene henger mest mulig loddrett og belastningen så vidt mulig er jevnt fordelt mellom stroppene.

2. VEDLIKEHOLD

- 2.1 Hold stroppene mest mulig rene for å unngå slitasje i fibre.
- 2.2 Oppbevar stroppene slik at de ikke blir utsatt for sollys eller andre kilder som gir ultrafiolett lys. Ultrafiolett lys kan bryte ned stroppene over lang tid.

Reparer ALDRI en skadd stropp, søk råd hos leverandøren.
LYKKE TIL MED RIKTIG LØFT!

SAMSVARERKLÆRING

Aktuelle produkter leveres i samsvar med
Forskrift om maskiner. Best.nr. 522 og Forskrift om bruk
av arbeidsutstyr. Best.nr. 555.

- 1.5 Mind the lifting angle, see table of tensile load.
- 1.6 Do not drag the slings when moving.
- 1.7 Make no knots.
- 1.8 Twisted slings must not be loaded.
- 1.9 Sleeves/corner pads must be used around sharp edges.
Mind the contact surface diameter.
- 1.10 Do not pull the sling from beneath the load.
- 1.11 Avoid shock loads.
- 1.12 Avoid eye-opening angles of more than 20°.
- 1.13 Highest permitted work temperature is 100° C.
- 1.14 Do not use polyester in contact with alkalis.

Lifting must be performed on stable loads. If length of load requires several slings, a tool must be used to ensure that the slings are vertical and the load is evenly distributed between the slings.

2. MAINTENANCE

- 2.1 Keep the slings clean in order to avoid wear in the fibers.
- 2.2 The slings must not be exposed to direct sunshine or other sources of ultraviolet light when stored. Ultraviolet light deteriorates the slings over time.

Do not repair a damaged sling, contact the supplier for advice.
CONGRATULATION WITH CORRECT LIFTING!

DECLARATION OF CONFORMITY

The products are in conformity with Machinery Directive
2006/42/EC and Norwegian User Regulation no.555.

Gunnebo Shackles - Technical information

Instruction for safe use can be found on our website: gunnebolifting.com



Definitions

Working Load Limit (WLL) = The maximum load a component or lifting assembly is authorized to take in general use under straight pull. The WLL is often known as Safe Working Load (WLL).

Proofload (PL) = The maximum load applies when prooftesting a component or lifting assembly. The tested item may not show visible permanent deformation after proof-loading.

Minimum Breaking Load (MBL) = The minimum load under straight pull at which the component or lifting assembly may break.

Safety factor (S.F.) = The ratio between the MBL divided by WLL, for instance 6.0

Shockload = A resulting load from impact or jerk of a static load. A shockload is generally much larger than the static load and great care should be taken to avoid such hazardous loads.

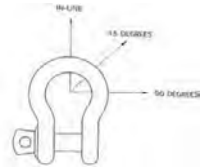
Within the lifting tackle industry onshore and offshore there is a growing awareness and concern about product safety and reliability. In Europe this is also expressed in The Machinery Directive 89/392/EEC and later amendments which further highlights the responsibility of the manufacturer, distributor and end user of lifting gear.

Gunnebo Lifting shackles are specified, monitored and documented in compliance with the most stringent requirements for the product concerned. A certified ISO 9001-2008 system is an evidence of our quality standard. We appreciate the trust shown us when specifying, ordering and using Gunnebo Lifting shackles.

Side loads should be avoided as the products are not designed for this purpose. If side loads cannot be avoided, the following reduction factors must be taken into account:

Reduction for side loading

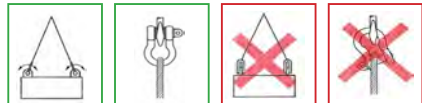
Load angle	New Working Load Limit
0°	100% of original WLL
45°	70% of original WLL
90°	50% of original WLL



Avoid applications where due to movement the shackle pin can rotate.



Shackle must be loaded in straight direction.



Temperature

If extreme temperature situations are applicable, the following load reduction must be taken into account

Reduction for elevated temperatures

Temperature:	New Working Load Limit	
-20 - 200 °C *	100% of original Working Load Limit	*-40 - 200 °C for Arctic Shackles
200 - 300 °C	90% of original Working Load Limit	
300 - 400 °C	75% of original Working Load Limit	
> 400 °C	not allowed	

Buoys

Please log on to Technip's intranet for complete information regarding buoys (technical data, preferred suppliers, etc...). Buoys are also available at Technip's rigging pool. Please check the pool first. All engineers are also required to check with Project Purchaser before making a final decision on product selection.

The main criteria for buoy specification are:

- Rated depth (and buoyancy at the depth it is used)
- Size and shape
- Weight in air
- Size / strength of lift points



In installation, buoys may be used for the following applications:

- Subsea marking (10-15kg buoys)
- Release of weight of rigging/tools for ROV operation (25-75kg buoys)
- Guide wire application (150-300kg buoys)
- Pipeline installation (1-40Te)
- Other applications

Winch

See OED Winch Guidelines.

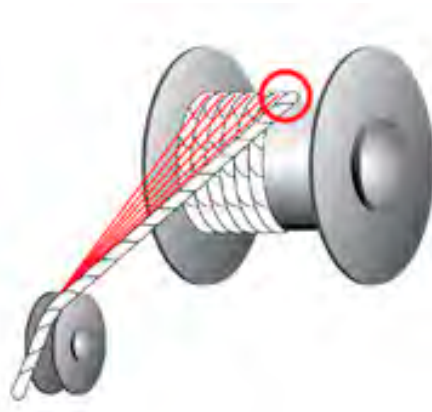
Drum - Fleet angle

Too large a fleet angle can cause excessive wear of the rope against the adjacent wrap on the drum. This can also lead to torsional problems.

Note 1: The fleet angle should be larger than 0,5° and less than 1.5° for flat winch drum and grooved drums (i.e. included angle flange to flange 3°).

Note 2: The fleet angle can be increased by using a spooling device on the winch, until 5°. See also the winch selection section in Exhibits. Going outside the recommended fleet angle will quickly lead to spooling issues.

Note 3: check if the sheaves leading to the winch can handle the side load of 5° (both geometry and strength-wise). Not all sheaves can handle more than 3°.

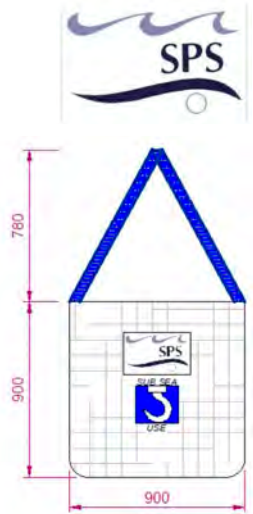


Big bags

Technip has developed big bags adapted for subsea operations and quick release. Contact purchasing department for ordering them. More info on the intranet: Engineering > Marine Operations and Subsea Lifting > Guidelines

SPS: Offshore Bulk Bags/FIBCs

- Purpose developed bags for offshore subsea use made for safe handling and deployment of grout bags or aggregates.
- Drop bags with full bottom opening discharge for safe and accurate placement of materials. These can be diver or ROV released.
- Bulk bag/FIBSCs are constructed from 250 gsm WPP woven polypropylene fabric, 4 x 78 cm lifting loops, sewn Polypropylene yarn overlock and safety stitch, skirt top with tie (70+30 gsm fabric), 2 x recovery loops to opposite bottom corners.
- Drop bags, same construction as Bulk Bag/FIBCs with 70 cm dia drop discharge (from 200+30 gsm WPP fabric) with 2 off discharge deployment loop connected to adjacent corner side seam lifting loops with fabric sleeve, excluding the diver recovery loops.



Lift Capacity	Dimensions (cm)			Lift Safety Factor
	L	W	H	
1 tone	90	90	90	10:1
2 tone	90	90	180	5:1



Computer weighed batching of factory produced dry materials means guaranteed accuracy of mix proportions and accurate weights of SPS FIBC bags. All raw material and end products are subject to regular quality control procedures and testing. Manufacturing and materials comply with the following standards

- BS EN ISO 9001:2008 Quality system
- BS EN 13139:2002 aggregates & or mortar
- BS EN 197-1:2011 Cement

Supplied in 25 kg bags, waterproof lined "subsea use" 1000 kg EIFBCA bags with safety factor of 10:1, 2 Te safety factor of 5:1.



Sack size 35 x 80cm long, sewn, L seam made from 200gsm uncoated fabric with UV protection up to 150KLhs direct sunlight before 20% reduction in strength.

HD tie tape sewn into seam 15cm from the top mouth of the sack to facilitate tying off.



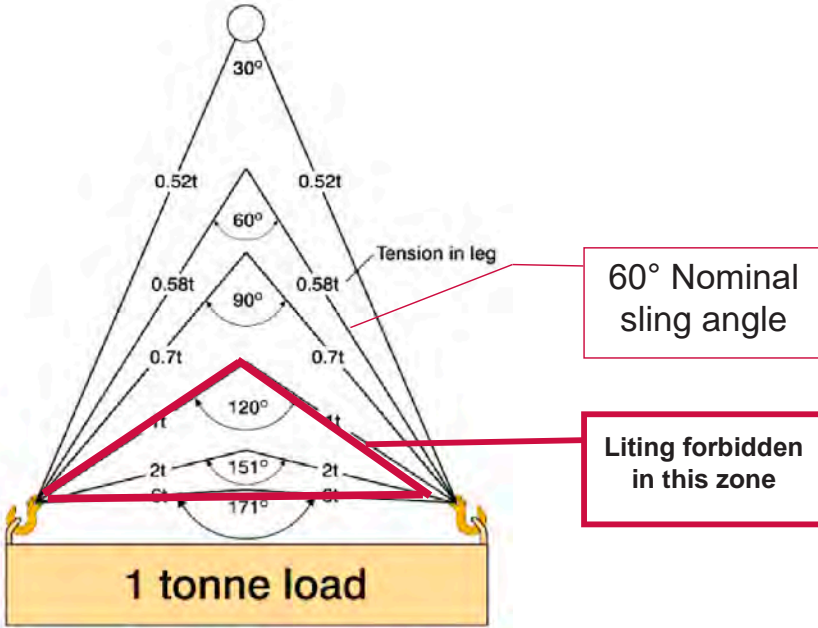
SUBSEA PROTECTION SYSTEMS LIMITED
 Tel.: +44 (0) 1 493 600700
 Fax.: +44 (0) 1 493 651327
 Web.: www.sps.gb.com



Rigging angles

Angular effect on loads:

The load in the rigging components shall be calculated taking the load path and rigging angles into account.



Rigging:

For given weight, all multi-leg slings have horizontal component (on each leg) increasing when the angle to the vertical axis increase.

For multipart rigging arrangements the optimum angle between opposing rigging components at the lifting apex is 60°. The angle may vary between 45-90° but should never exceed 90° for container lift rigging and 120° for specific loads designed to withstand the resultant compressive force.

Design factors:

The following factors may affect the selection of appropriate rigging angle:

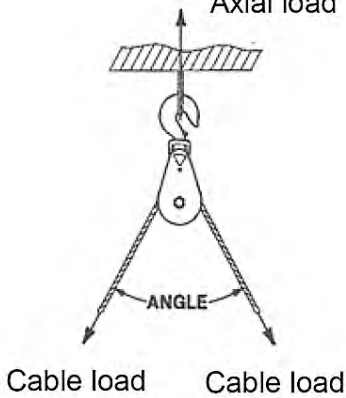
- Lift clearances over obstacles on deck and available hook height at the relevant crane radius
- Clashing of rigging with component being lifted or external objects
- Maximum resultant compressive load transferred into the lifted object
- Functional requirements

Loads induced by sheaves

Axial load:

Axial load

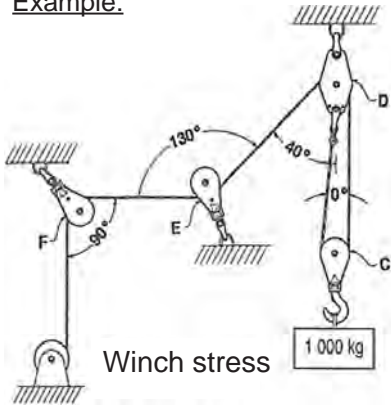
The axial load depends on load in the cable and angle formed by the wire



$$\text{Axial load} = \text{Cable load} \times \text{Coefficient (angle)}$$

Angle	Coeff	Angle	Coeff	Angle	Coeff
0°	2,00	60°	1,73	130°	0,84
10°	1,99	70°	1,64	135°	0,76
20°	1,97	80°	1,53	140°	0,68
30°	1,93	90°	1,41	150°	0,52
40°	1,87	100°	1,29	160°	0,35
45°	1,84	110°	1,15	170°	0,17
50°	1,81	120°	1,00	180°	0,00

Example:



Lifting loads system

Cable load: $1 \text{ Te} / 2 \text{ legs} = 500 \text{ kg}$

Axial load:

$$C = 500\text{kg} \times 2 = 1000 \text{ kg}$$

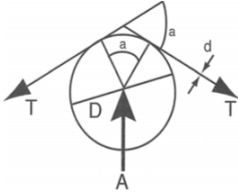
$$D = 500\text{kg} \times 1,87 + 500\text{kg (for deadleg)} = 1435 \text{ kg}$$

$$E = 500\text{kg} \times 0,84 = 420 \text{ kg}$$

$$F = 500\text{kg} \times 1,41 = 705 \text{ kg}$$

Coefficient calculation:

It depends on the cable load in kg T and the angle of the contact arc.



$$A = T + T \sin(a/2)$$

Note : A is independent of diameter D

Common ratio:

For sheaves the ratio D/d is fixed around **22** (with D diam. sheave and d diam. rope).

Capstan Effect:

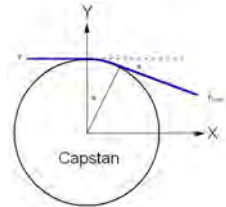
The capstan friction effect when pulling a load around or over an arch / deflector shall be included in the friction calculation.

The capstan effect is equivalent to:

$$F = F_{load} * e^{f\alpha}$$

Where

- F = load supported by lifting / pulling rigging
- F_{load} = load being moved
- f = friction factor between the product and chute
- α = arc angle of the rigging / product with the chute (radians)
- e = natural logarithm base (2.718)



Equipment eligible for Certex Norge Buy-Back, as per FA2015-03-01

See section 5.7 (Exhibit 2, Compensation) in the FA document for additional information.

All unused & certified rigging hardware returned to Subcontractor shall be reimbursed 100% of original invoiced price to the project.

Used rigging hardware returned to Subcontractor shall be reimbursed 30% of original invoiced value. Such used rigging hardware shall then be refurbished, re-certified, and marked according to Technip requirements as described in Exhibit 1 - Scope of Services, and stored such that it is made available for re-purchase at 60% of original product price*.

Equipment deemed to be scrapped shall not be eligible to the 30% reimbursement, shall be disposed by Subcontractor at no cost to Technip.

*Original product price shall be the net price of the equivalent new equipment as set-out in the Exhibit 2 - in particular. Sections 5.2 and 5.3 -or the net price which was invoiced to the project that purchased the equipment, whichever is lower.

The following table shall describe the equipment eligible for the Equipment Pool for used equipment:

Item #	Product	Buy-back Range (W/L)
	Wire Ropes	
1	Wire Rope Sling – Hard/Soft Eye Termination – Thimble K2	Scrap Scrap
2	Wire Rope Sling – Socket Termination – GN SO1 Closed Spelter Socket – GN SO2 Open Spelter Sockets	Scrap Scrap Scrap
3	Wire Grommet	Scrap
	Fibre Slings	
4	Round Slings	Scrap
5	Webbing Slings	Scrap
	Seafastening	
6	Chain - Grade 80	Scrap
7	Chain - Gromet	Scrap
8	Chain Connector - Grade 80	All
9	Eye Type Self Locking Hook – Grade 80	All
10	Load Binders - Grade 80	All
11	Weld On D-Ring - Grade 80 – Pinrig	All
12	Load Ring - RUD - VLBS - whspring	All
13	Load Ring - RUD - VLBS - No Spring	All
14	Load Ring - RUD - VRBS	All
15	Eye Nut - RUD-RM	All
16	Eye Nut - RUD-RS	All
17	Key Eye Bolt - Yoke	All

18	Coupling Link - Grabig	All
19	Coupling Link - Classic	All
20	Half Link - SKT - Classic	All
21	Round Sling Coupling - SKR - Classic	All
22	Turnbuckle - EyeEye - Crosby - HG225	All
24	Cargo Straps - Endless	All
26	Cargo Straps with Ratchet & Hook - Grade 80	All
27	Lead Lashing - Handy 1000 - Spill Lashing	All
28	Lead Lashing - Lorry - Spill Lashing	All
	Hooks	
29	Hook - Safety - Swivel/recessed Trigger - BKLK - Offshore	All
30	Hook - Safety - Recessed Trigger - BK - Offshore	All
31	Hook - Safety - BK - Grabig	All
32	Hook - Safety - OBRK - Grabig	All
33	Crosby - Hook - L320CM - Safety Latch	All
34	Clevis grab hook - GG	All
	ROV Hooks	
	<i>Long Shank</i>	
35	Hook - ROV - Long Shank - Eye - Crosby - L562A	All
36	Hook - ROV - Long Shank - Eye - Yoke	All
37	Hook - ROV - Long Shank - GN Rope - HK3	All
38	Hook - ROV - Long Shank - Triton	All
	<i>Eye Hook</i>	
39	Hook - ROV - Eye - Crosby - L320R	All
40	Hook - ROV - Eye - GN Rope - HK2	All
41	Hook - ROV - Fram - SK	All
	Shackles	
	<i>Standard</i>	
42	Shackle - Standard - Safety Bolt - Gunnebo - Red Pin - N855	≥ 12 Tc
43	Shackle - Standard - Anchor / Bolt Type - Crosby G2130/S2130	≥ 12 Tc
44	Shackle - Standard - Bow Type - Safety Pin - GN Rope - H9	≥ 12 Tc
45	Shackle - Standard - Safety Bolt - Green Pin - G4163	≥ 12 Tc
	<i>Wide Body</i>	
46	Shackle - Wide Body - Safety Bolt - Green Pin - G4263	All
47	Shackle - Wide Body - Crosby - G2160	All
48	Shackle - Wide Body - GN Rope - H14	All
	<i>Heavy Duty (≥ 20Tc)</i>	
49	Shackle - Heavy Duty - Safety Bolt - GN Rope - H10	All
50	Shackle - Heavy Duty - Bow/Safety Bolt - Green Pin - G6006	All
	<i>Super/Polar (Grade 8)</i>	
51	Shackle - Arctic/Polar - Safety Bolt - Gunnebo - N856	≥ 12 Tc
52	Shackle - Super - Safety Bolt - Red Pin - Gunnebo - N858	≥ 15 Tc
53	Shackle - Super - Safety Pin - GN Rope - H18	≥ 15 Tc

54	Shackle - Polar - Bow/Safety Bolt - Green Pin - G5163	≥ 12 Tc
<i>Dec/Conti</i>		
55	Shackle - Dec - Safety Bolt - Green Pin - G4153	≥ 13,5 Tc
56	Shackle - Dec - Safety Pin - GN Rope - D15	All
57	Shackle - Chain / Bolt - Crosby - G1150/S2150	≥ 13,5 Tc
<i>ROV</i>		
58	Shackle - ROV - Crosby - Q209R	All
59	Shackle - ROV - Release - Gambebo - 360	All
60	Shackle - ROV - Release - Gambebo - 361	All
61	Shackle - ROV - Release - Gambebo - 463	All
62	Shackle - ROV - Release - Green Pin - w/locking clamp - P5365	All
63	Shackle - ROV - Spring Release Polar - wrapping pins - Green Pin - P5363	All
64	Shackle - ROV - Release Polar - Green Pin - P5367	All
<i>Other</i>		
65	Shackles - Inertia	N/A
66	Shackle - Type H - M/MB	≥ 12 Tc
<i>Master Link</i>		
<i>Alloy Link</i>		
67	Master Link - Standard - Fram - xx B x	≥ 17,1 Tc
68	Master Link - Offshore - Fram - xx D x	≥ 13,9 Tc
69	Master Link - Crosby - A-343CT	All
70	Master Link - Allow - Crosby - A-342	≥ 16,42 Tc
71	Master Link - GN Rope - SC1	≥ 10 Tc
72	Master Link - Welded - Engineered Flat - Crosby - A344	≥ 15 Tc
<i>Other</i>		
73	Master Link MF - Grubiq	≥ 17 Tc
74	Master Link M - Offshore	≥ 12 Tc
<i>Master Link Assemblies</i>		
75	Master Link Assembly - Fram - Q xx B	≥ 8,2 Tc
76	Master Link Assembly - Offshore - Fram - MA as QF	≥ 8,2 Tc
77	Master Link Assembly - GN Rope - SC5	All
78	Master Link Assembly - Crosby - A345	All
<i>Hoists</i>		
<i>Lever</i>		
79	Hoist - Lever - Hackett - Tigerhook - SS11	All
80	Hoist - Lever - Kilo - L5	All
81	Hoist - Lever - Powertex	All
<i>Chain</i>		
82	Hoist - Chain - Kilo - Type CB	All
83	Hoist - Chain - Hackett - ROV Chain Block - Tiger - RCB - xxxx	All
<i>Other</i>		

85	Hoist - Pulling - Tirlor - T10	All
86	Hoist - Pulling - Tirlor - T500	All
	Blocks	
87	Snatch Block - Shackle - Yoke - 8-501	All
88	Snatch Block - Hook - Yoke - 8-502	All
89	Tail Board - Yoke - 8-503	All
90	Snatch Block - Swivel Eye - Yoke - 8-504	All
91	Snatch Block - Guancho & Green Pin (1/2) - Shackle	All
92	Snatch Block - Guancho & Green Pin (2/2) - Hook	All
93	Snatch Block - Shackle lifting - GN Ropes - BL3	All
94	Snatch Block - Hook - Super Champion - McKisick - 430L	All
95	Snatch Block - Shackle - Super Champion - McKisick - 431	All
96	Snatch Block - Tail Board - Super Champion - McKisick - 407	All
97	Snatch Block - Heavy Type - De Haan	All
98	Snatch Block - Light Type - De Haan	All
99	Trawl Blocks - Mullerodden - TB	All
100	Trawl Blocks - BlueLine - K-2A	All
	General Lifting/Other	
101	Triangle Plate - GN Rope - TR1	All
102	Swivel S2 - Jaw/Eye - Crosby	All
103	Swivel S3 - Jaw/Eye - Crosby	All
104	Swivel S5 - Eye/Bye - Crosby	All
105	Chain Sling 2-leg - TG2-GBK - Grade 10	All
106	Chain Sling 4-leg - TG4-GBK - Grade 10	All
107	Eagle Clamp - SBRE	All
108	Duck-Tape	In good shape / Unused
	PPE/Clothing	
109	Harness - Automatic Buckles and Prol - Powertex	In good shape / Unused
110	Energy Absorber - Powertex	In good shape / Unused
111	Self - Retracting Lifeline - Powertex	In good shape / Unused
112	Work Positioning Line - Powertex	In good shape / Unused
113	Gloves - Bulldog	In good shape / Unused
114	Wet Weather Jacket - Bulldog	In good shape / Unused
115	Wet Weather Pants - Bulldog	In good shape / Unused
116	Coverall Mud Suit - Bulldog	In good shape / Unused
117	Boots Pezsol - Red Pearl S3	In good shape / Unused
118	Protective Goggles - Bulldog	In good shape / Unused
119	Life Jacket Inflatable - Regatta - Inceatic	In good shape / Unused
120	Firmata Suit - Regatta - Active 911	In good shape / Unused
	Kits	
121	Wire Lock Kit - Millfield	All
122	ROV Latch Kit - Crosby - L562	All
	Manufacturer Catalogue	
	Fern	Note I
	Crosby	Note I
	Guancho	Note I
	Kite	Note I
	Red	Note I

	GN Ropes	Note 1
	Hooks	Note 1
	Green Pin	Note 1
	Yoke	Note 1

Note 1:

General principle to be mutually agreed, based on the likelihood of reuse:

- All items requiring refurbishment/recertification above 300,- (price of new item),
- All items which do not require refurbishment /certification,
- All items such as wires, which are tailormade are not to be kept

Developed in collaboration with

CERTEX