



Arctic Offshore Master Links

For the Toughest Conditions



GUNNEBO
Industries

Arctic Offshore Master Links

Type Approved to DNV 2.7-1



Adverse weather and rough sea conditions - sometimes in combination with extremely low temperatures - must be included in the design and safety factor of container lifting sets. The heat treatment of the components must ensure proper ductility and strength to sustain shock loads which may be imposed when the container is lifted from the deck of a vessel.

The lifting sets (chain or wire rope sling, shackles and master links) must be specially designed for the purpose to lift offshore containers. One of the main differences compared to the onshore standard or specification, is that it allows for the dynamic forces at sea by adding an extra enhancement factor to increase the level of safety. Another difference is that the requirements and testing of materials that will be used in cold environments, are more extensive.

Arctic Offshore Master Link MT



Arctic Offshore Master Link M



NEW

Design Temperature -40 °C

The Arctic Offshore Master links are highly suitable to withstand shock loads and fatigue, even in extremely cold conditions. The new master link range has a design temperature of -40 °C, making it suitable for even the harshest weather conditions such as in the North Sea.

High Visibility colour

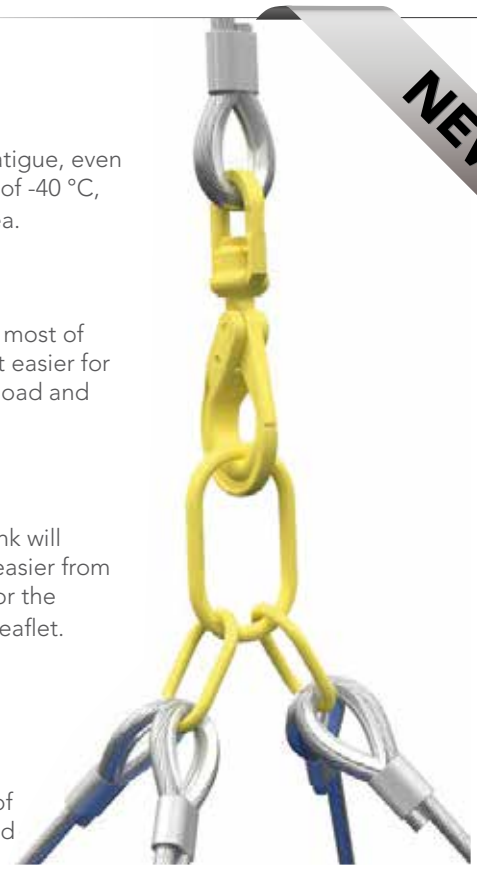
To even further increase the safety on the work site, the Arctic master links are, like most of Gunnebo Industries' offshore range, painted in a high visibility colour. This makes it easier for the operator to detect the lifting gear in severe weather conditions, keeping both load and personnel safe.

Improved Working Load Limits

The Arctic Offshore Masterlinks comes in an optimized range where each master link will have a wider and higher working load limit span than the old range. This makes it easier from a purchasing point of view, as well as decreasing the risk of incorrect use. A table for the container ratings and recommended master links can be found at the back of this leaflet.

100% Proof Loading

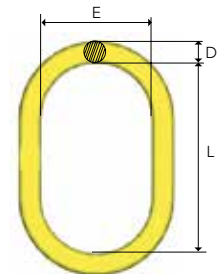
All lifts require reliable products with the highest safety to ensure a safe working environment as well as to protect the load. Gunnebo Industries perform rigorous testing in their factories before the product is released. 100 % of the components of all batches are proof loaded 2.5 times their working load limit and visually inspected by competent personnel. This is done without exception to guarantee highest quality and safety for the end user. For the Arctic master links there is also a stress relieving additional heat treatment to make the product as suitable as possible for the harsh marine environment.



Arctic Offshore Master Link M

DNV 2.7-1 and DNV 2.7-3 Type Approved

Art. no.	Code	Working Load Limits				L	E	D	Weight kgs
		DNV 2.7-1		EN-1677-4	A-952/A952M				
		(tonnes)	Max. Container rating* (kgs)	SF 5:1 (tonnes)	SF 5:1 (tonnes)				
Z101397	M-7T-10 OS	7.6	2 500	7.6	7.6	160	95	22	1.5
Z101387	M-12T-10 OS	12.5	7 500	12.5	12.5	270	140	28	3.8
Z101388	M-18T-10 OS	18.5	13 500	18.5	18.5	270	140	32	5.1
Z101389	M-29T-10 OS	29.2	25 000	29.2	29.2	270	140	40	8.2
Z101394	M-40T-10 OS	40.0	N/A	40.0	40.0	300	180	45	11.9
Z101395	M-48T-10 OS	48.0	N/A	48.0	48.0	300	200	50	15.2
Z101396	M-60T-10 OS	60.0	N/A	-	-	350	200	55	20.6

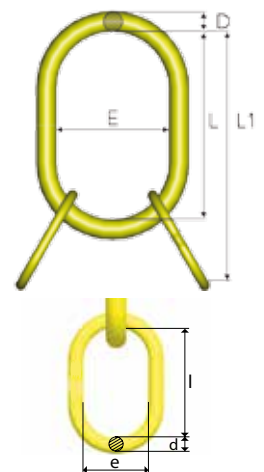


* For further information, see DNV 2.7-1

Arctic Offshore Master Link MT

DNV 2.7-1 and DNV 2.7-3 Type Approved

Art. no.	Code	Working Load Limits				L1	L	E	D	I	e	d	Weight kgs
		DNV 2.7-1		EN-1677-4	A-952/A952M								
		(tonnes)	Max. container rating* (kgs)	SF 5:1 (tonnes)	SF 5:1 (tonnes)								
Z101398	MT-7T-10 OS	7.8	3 000	7.8	7.8	340	190	110	28	150	90	19	5.0
Z101390	MT-12T-10 OS	12.5	7 500	12.5	12.5	430	270	140	28	160	95	22	6.8
Z101391	MT-18T-10 OS	18.5	13 500	18.5	18.5	460	270	140	32	190	110	28	10.8
Z101392	MT-29T-10 OS	29.2	25 000	29.2	29.2	470	270	140	40	200	120	32	16.2
Z101393	MT-40T-10 OS	40.0	N/A	40.0	40.0	570	300	180	45	270	140	40	28.2



* For further information, see DNV 2.7-1

Determination of WLL as stated in DNV 2.7-1

Container rating (kgs)	Enhancement factor	Min. required WLL (t)	Recommended Masterlink M	Recommended Masterlink MT
500	-	7		
1000	-	7		
1500	-	7	M-7T-10 OS	MT-7T-10 OS
2000	3.500	7		
2500	2.880	7.20		
3000	2.600	7.80		
3500	2.403	8.41		
4000	2.207	8.83		
4500	1.962	8.83		
5000	1.766	8.83	M-12T-10 OS	MT-12T-10 OS
5500	1.766	9.71		
6000	1.766	10.59		
6500	1.733	11.26		
7000	1.700	11.90		
7500	1.666	12.50		
8000	1.633	13.07		
8500	1.600	13.60		
9000	1.567	14.10		
9500	1.534	14.57		
10000	1.501	15.01		
10500	1.479	15.53		
11000	1.457	16.02	M-18T-10 OS	MT-18T-10 OS
11500	1.435	16.50		
12000	1.413	16.95		
12500	1.391	17.38		
13000	1.368	17.79		
13500	1.346	18.18		

Container rating (kgs)	Enhancement factor	Min. required WLL (t)	Recommended Masterlink M	Recommended Masterlink MT
14000	1.324	18.54		
14500	1.302	18.88		
15000	1.280	19.20		
15500	1.267	19.64		
16000	1.254	20.06		
16500	1.240	20.47		
17000	1.227	20.86		
17500	1.214	21.24		
18000	1.201	21.61		
18500	1.188	21.97		
19000	1.174	22.31	M-29-10 OS	MT-29-10 OS
19500	1.161	22.64		
20000	1.148	22.96		
20500	1.143	23.44		
21000	1.139	23.92		
21500	1.135	24.39		
22000	1.130	24.86		
22500	1.126	25.33		
23000	1.121	25.79		
23500	1.117	26.25		
24000	1.112	26.70		
24500	1.108	27.15		
25000	1.104	27.59		

Offshore Shackle Range

Gunnebo Lifting shackles are made from a range of steel qualities, including acid proof stainless steel and high grade alloy steel to comply with the most stringent specifications. Our workshops comprise all facilities and systems for the manufacturing and control of a top quality product, including tool design, an advanced tool shop, forging, heat treatment, machining, hot dip galvanizing and quality control.

We offer a range of DNV 2.7-1 Type approved standard lifting shackles of offshore for containers, developed for the tough conditions of the offshore industry, where safety must be of highest priority at all times. The heat treatment of these products ensures the proper ductility and strength to sustain shock loads which may be imposed when the container is lifted from the deck of a vessel.

Arctic Shackle No. 856

2 - 85 tonnes

- Standard: DNV 2.7-1, U.S. Fed. Spec. RR-C-271 and EN-13889
- Material: Special Alloy Steel, Quenched and Tempered, Grade 8
- Finish: All parts hot dip galvanized + brown colour marking
- Documentation: Test certificate and traceable raw material / inspection certificate acc. EN-10204 - 3.1 All sizes can be supplied with DNV 2.7-1 Type Approval Certification.
- Temperature: - 40 °C to 200 °C



Standard Shackle No. 855

0.33 - 120 tonnes

- Standard: DNV 2.7-1 Type-Approved, EN-13889 and U.S. Fed. Spec. RR-C-271
- Material: High Tensile Carbon Steel, Quenched and Tempered, Grade 6
- Finish: All parts hot dip galvanized, brown painted bolts on top of galv.
- Documentation: Test certificate and traceable raw material / inspection certificate acc. EN 10204 - 3.1
- Temperature: - 20 °C to 200 °C



Super Shackle No. 858

3.3 - 150 tonnes

- Standard: U.S. Fed. Spec. RR-C-271 Type IVA Class 3, Grade B
- Material: High Tensile Steel, Quenched and Tempered, Grade 8
- Finish: All parts hot dip galvanized Brown colour marking
- Safety factor: 5:1
- Documentation: Test certificate and traceable raw material / inspection certificate acc. EN 10204 - 3.1



ROV Shackle No. 861

12 - 55 tonnes

- Standard: Dim. according to EN 13889
- Material: High Tensile Steel, Quenched and Tempered
- Finish: All parts hot dip galvanized
- Safety factor: 6:1
- Documentation: Test certificate and traceable 3.1 certificate can be supplied on request
- Temperature: -40 °C to 200 °C, 42 Joule

