



Offshore

Chain Slings - Master Links - Assemblies for Wire Ropes

DNV-ST-E271 / DNV-ST-E273

Offshore Container Lifting Operation



MORE THAN CHAIN

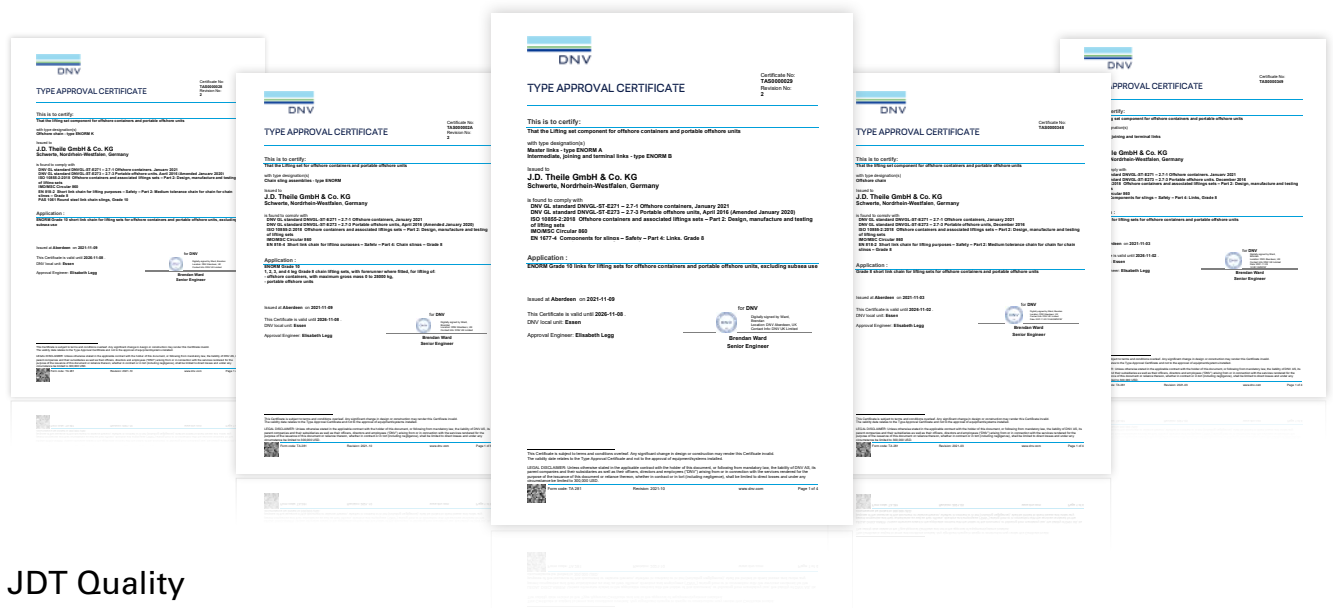
Offshore –

means special challenges for man and machine.

Bad weather conditions with heavy rain and storm, rough seas and often extreme sub-zero temperatures require strict specifications on the lifting equipment used.

Since the beginning of 1990s, JDT has imposed these requirements upon itself and its products. As such, we have more than 25 years of experience in the production of welded chain slings, master links and assemblies for offshore use.

JDT offers chain slings in Grade 80 and Grade 100, master links and assemblies for wire ropes according DNV-ST-E271 / DNV-ST-E273 for offshore container lifting operation. The periodic audits and certificates are evidence of the ever-increasing quality of JDT products.



JDT Quality

Quality is not only a promise to our customers, quality is also something we demand of ourselves. Since the company was founded over 200 years ago, this principle has shaped all manufacturing processes, right up to the completion of the actual product.

Our many years of experience have resulted in a profound knowledge of material properties and production processes. Furthermore, in order to avoid errors before they are even able to occur, we use the most modern methods and tools in our own preventive quality assurance process.

JDT's proven, high level of quality is guaranteed by the following certificates and approvals:

Certificates and approvals



DIN EN ISO 9001



DNV



DIN EN ISO 50001



DGUV test



DEKRA

DNV Chain Slings Grade 80

Grade 80 has been a proven grade for sling chains and chain slings for decades. For offshore use in accordance with DNV-ST-E271, Grade 80 places special requirements on product quality under maritime conditions. Grade 80 products by JDT are according to DNV-ST-E271 and clearly meet or exceed the requirements significantly.

- » Hardness max 39 HRC (374 HV / 369 HB)
- » min 42J notched impact strength at -40° C in base material
- » all master links dimensionally optimized according to DNV-ST-E271 and EN 1677-4
- » all master links and intermediate links are designed with a safety factor 5:1
- » all components made of one type of steel
- » additional cathodic corrosion protection by ZD coating is possible on request
- » 100% manufacturing in Germany

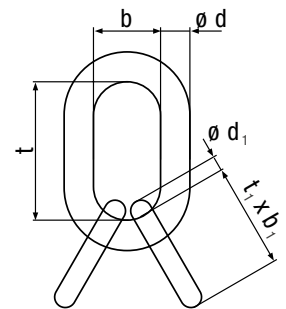


Offshore Master Link Assembly for wire ropes Grade 80

- » Certified according to DNV-ST-E271, DNV-ST-E273
- » Type Approval No. TAS0000347
- » Safety factor 5:1
- » Manufacturing according to EN 1677-4
- » Temperature use up -40° C

Metric Specifications

Code	WLL t	d mm	t mm	b mm	d ₁ mm	t ₁ mm	b ₁ mm	Weight kg	Ident no.
TOA 16*	4,10	16	150	75	14	125	60	1,57	0323416000
TOA 22*	11,0	22	162	90	22	162	90	4,62	0323422000
TOA 22-2	7,0	22	270	140	22	162	90	5,48	0323422100
TOA 26	9,3	26	270	140	22	162	90	6,58	0323426000
TOA 29*	16,5	29	200	110	22	162	90	6,28	0323429100
TOA 29-2	14,5	29	270	140	22	162	90	7,18	0323429000
TOA 32	19,0	32	270	140	29	200	110	11,50	0323432000
TOA 36	26,0	36	270	140	29	200	110	12,90	0323436000
TOA 40	28,5	40	280	155	32	270	140	18,70	0323440000
TOA 45	39,0	45	320	175	36	270	140	25,80	0323445000
TOA 52	51,0	52	350	195	45	320	175	43,60	0323452000
TOA 68	75,0	68	410	220	52	350	195	72,60	0323468000



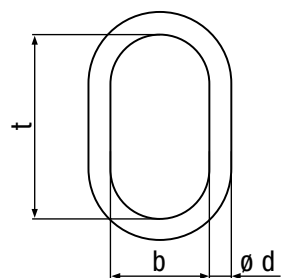
* This size shall only be used for portable offshore units

Offshore Master Links for wire ropes Grade 80

- » Certified according to DNV-ST-E271, DNV-ST-E273
- » Type Approval No. TAS0000347
- » Safety factor 5:1
- » Manufacturing according to EN 1677-4
- » Temperature use up -40° C

Metric Specifications

Code	WLL t	d mm	t mm	b mm	Weight kg	Ident no.
TOL 16*	4,1	16	150	75	0,69	0323316000
TOL 22*	11,0	22	162	90	1,54	0323322000
TOL 22-2	7,0	22	270	140	2,40	0323322100
TOL 26	9,3	26	270	140	3,50	0323326000
TOL 29*	19,5	29	200	110	3,20	0323329000
TOL 29-2	14,5	29	270	140	4,10	0323329100
TOL 32	19,0	32	270	140	5,10	0323332000
TOL 36	26,0	36	270	140	6,50	0323336000
TOL 40	30,5	40	280	155	8,50	0323340000
TOL 45	40,0	45	320	175	12,80	0323345000
TOL 52	51,0	52	350	195	18,00	0323352000
TOL 68	75,0	68	410	220	30,00	0323368000



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DNV Chain Slings Grade 100

Through consistent material development, JDT has succeeded in developing a steel grade that has gained worldwide recognition under the name „ENORM 10“. Our ENORM 10 sling chains also show their advantages in offshore applications:

- » Grade 100 with fulfilled measuring and tempering conditions according to EN818-4.
- » All components made of one type of steel
- » min. 42J notched impact strength at -20° C
- » Temperature range -20° C to 400° C
- » Higher load compared to Grade 80
- » Use of smaller chain sizes is possible
- » High wear resistance
- » Master links and intermediate links are designed with safety factor 4:1
- » Resistance to stress corrosion test according to PAS 1061 and DNV-ST-E271
- » Additional cathodic corrosion protection by ZD coating is possible on request
- » low sensitivity to hydrogen embrittlement



ENORM 10 products meet the requirements of PAS 1061, which was developed with significant participation of JDT.

The ENORM 10 product range was introduced to the market in 1995. It was accompanied by testing and certification institutes BG-PRÜFZERT and other international classification societies, e.g. by DNV, which confirmed the properties and values of ENORM 10 products. JDT is the only manufacturer to offer the true Grade 100 - the ENORM 10 product range - which meets the requirements of EN 818.

DNV's stringent requirements for Grade 100 use in offshore maritime conditions have been achieved through modifications to JDT's manufacturing process. These measures meet the required specifications - corrosion resistance and hardness - for approval according to DNV-ST-E271.

The material used by JDT for Grade 100 provides the same corrosion resistance as the materials generally used for Grade 80, while maintaining a higher strength. This has been proven by a stress corrosion test and therefore meets the requirement according to DNV-ST E271.

The higher strength of Grade 100 results in an increased load capacity compared to Grade 80, which has a positive effect on the weight of the chains used. This means that the next smaller chain size can be used in most applications.

A clear advantage for the user in daily application.

Offshore Master links in Grade 100 for wire ropes on request

- » Certified according to DNV-ST-E271, DNV-ST-E273
- » Type Approval No. TAS0000029
- » Safety factor 4:1
- » Manufacturing according to EN 1677-4
- » Temperature use up -20° C





Zink diffusion layer (ZD)

JDT stands for quality and durability of its products. Due for our many years of experience in the offshore sector, we know exactly what is important in our products. In order for our products to withstand the bad weather conditions in the offshore area, we offer our customers the zinc diffusion process, ZD, as an excellent suitable corrosion protection without risk of hydrogen embrittlement.

What is hydrogen embrittlement?

Hydrogen embrittlement is the process by which metals become brittle and break under stress. The cause is the introduction of hydrogen and the subsequent diffusion of hydrogen into the metal.

Causes of hydrogen embrittlement

Hydrogen embrittlement is favored when three factors coincide: existing hydrogen sources, increased strength or hardness of the material, and stress conditions for the component.

Benefits of zink diffusion layer (ZD):

- » High corrosion protection
- » Crack testing possible (<math><50\mu\text{m}</math> layer)
- » No risk of hydrogen embrittlement
- » High strength of the coating
- » Wear resistant
- » Environmentally friendly process



Without ZD
(non corrosion protection)

With ZD
(cathodic corrosion protection)



As a company that is proud to offer products that are Made in Germany, we at JDT have been passionately offering top quality products, innovation, performance, availability and customer-oriented service in all areas since 1819. For two hundred years, JDT has been improving production processes and products with new ideas and groundbreaking inventions – always to the customer's benefit. Today, with around 200 qualified staff, JDT is a leading global manufacturer of complete chain systems and accessories for mining and industry, as well as a system integrator of robots in the field of industrial automation.

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J. D. Theile GmbH & Co. KG
Letmather Straße 26-45
58239 Schwerte | Germany

Telefon: +49 2304 757 0
Telefax: +49 2304 757 177
www.jdt.de

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