DNV·GL

Certificate No:
TAS0000029

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
Master Links, Intermediate Links, Joining Links and Terminal Links Types ENORM A & B

Issued to

J.D. Theile GmbH & Co. KG
Schwerte Nordrhein-Westfalen, Germany

is found to comply with
DNV 2.7-1 Offshore Containers (2013)
DNV Standard for Certification No. 2.7-3 Portable Offshore Units (2011)
EN 12079-2 Offshore containers and associated lifting sets Part 2: Lifting sets Design, manufacture and marking
IMO/MSC Circular 860

Application :

ENORM Grade 10 Links for Lifting Sets for Offshore Containers and Portable Offshore Units

This Certificate is valid until **2019-08-29**.

Issued at **Høvik** on **2015-09-25**
DNV GL local station: **Essen** for **DNV GL**

Approval Engineer: **Nina Thorvaldsen Moberg**

Inger-Helene Hals
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

This Type Approval Certificate replaces Type Approval Certificate S-6501.

Links for use in Lifting Sets for Offshore Containers certified to DNV 2.7-1 Offshore Containers or DNV 2.7-3 Portable Offshore Units according to DIN 5688-3 and relevant parts from EN 1677-4 Components for slings - Safety - Part 4: Links, Grade 8.

DNV GL has accepted some components with internal dimension smaller than table 2 in EN 1677-4. These are marked in Appendix 1.

Detailed product information and range of certified products covered by this Type Approval are listed in Appendix 1 of this Type Approval Certificate.

Application/Limitation

Tests to be carried out:

- Production testing: According to DNV Standard for Certification No. 2.7-1 and EN 1677-4 "Components for slings Safety - Part 4; Links, Grade 8" in agreement with the DNV GL surveyor.
- Material to be impact tested by Charpy impact method according to DNV 2.7-1 Offshore Containers, Section 8.4.

For application of links the minimum working load limit (WLL) shall be decided according to the strength requirements for lifting sets on offshore containers as given in DNV 2.7-1 Offshore Containers, Section 8 and J.D. Theiles internal procedure. In no case should the WLL of Lifting Sets for Offshore Containers be less than 7.0 tonnes.

The manufacturer shall issue product certificates according to Sec. 8.5 in DNV 2.7-1, using the certificate form FQW 14-1. This certificate form is only to be used for links certified according to this Type Approval.

For links manufactured according to DNV 2.7-3 Portable Offshore Units
Prior to selection of links the minimum required working load limit (WLL) shall be decided according to the strength requirements for lifting sets on portable offshore units as given in DNV 2.7-3, Section 7.3.5. Resulting sling force (RSF) can be found in the Design Verification Report (DVR) issued by DNV GL for the Portable Offshore Unit.

Type Approval documentation

Tests carried out

Prototype strength tested according to standards.

Marking of product

Marking should be according to DNV 2.7-1 Offshore Containers, Section 8 or DNV 2.7-3 Portable Offshore Units Section 7 and EN 1677-4 "Components for slings Safety - Part 4; Links, Grade 8", but with "Grade 10".

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every 6 months and before the expiry date of this certificate to verify that the type approval is complied with.

END OF CERTIFICATE

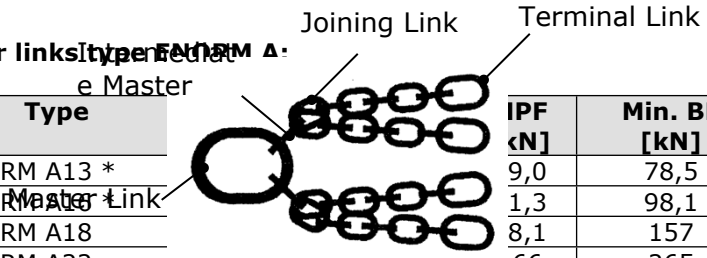
Job Id:
Certificate No: **TAS0000029**

Appendix 1

Product description and details:

The values about the working load limit specified below are nominal for each component and the correct selection shall be in accordance to DNV 2.7-1 Chapter 8.

Master links type ENORM A:



Type			MPF [kN]	Min. BF [kN]
ENORM A13 *			9,0	78,5
ENORM A16 *			1,3	98,1
ENORM A18			8,1	157
ENORM A22	[illegible]	[illegible]	66	265
ENORM A26 **	26	10,2	251	402
ENORM A32 **	32	14,3	352	563
ENORM A36 **	36	21,2	520	832
ENORM A40	40	22,4	550	880
ENORM A45	45	27,3	670	1070
ENORM A50	50	40,0	981	1570
ENORM A56	56	56,1	1370	2200
ENORM A63	63	59,2	1450	2320

*This size is only to be used for Portable Offshore Units.
**) Non-standard sizes, see comment under Product Description.

Intermediate links type ENORM B:

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
ENORM B10 *	10	2,5	61,3	98,1
ENORM B13	13	4,0	98,1	157
ENORM B16	16	6,8	166	265
ENORM B18	18	8,1	199	318
ENORM B20	20	10,7	260	418
ENORM B22	22	15,9	391	625
ENORM B26	26	20,1	493	788
ENORM B32	32	26,5	650	1040
ENORM B36	36	31,9	780	1250
ENORM B40	40	40,0	980	1570
ENORM B45	45	45,0	1100	1770

*This size is only to be used for Portable Offshore Units.