

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Lifting set for Offshore containers and Portable Offshore Units**

with type designation(s)

Chain Sling Assemblies Type ENORM

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****EN 818-4 Short link chain for lifting purposes - Safety - Part 4: Chain slings - Grade 8**
IMO/MSC Circular 860**Application :****ENORM Grade 10: 1-, 2-, 3- & 4-Part Lifting Sets, with forerunner where fitted, for Lifting of Offshore Containers with Maximum Gross Mass 0 - 25.000 kg or 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.

Job Id:
Certificate No: **TAS000002A**

Product description

This Type Approval Certificate replaces Type Approval Certificate S-6503.

The Type Approval Certificate covers chain slings described in appendix 1, assembled by J.D. Theile GmbH & Co. KG, according to DNV 2.7-1 Offshore Containers or DNV 2.7-3 Portable Offshore Units.

Application/Limitation

All proof load tests during production shall be carried out in accordance with EN 818-4. All production testing to be according to J.D. Theile GmbH & Co. KGs procedure and agreed with local DNV GL office.

For slings manufactured according to DNV 2.7-1 Offshore Containers

Lifting sets shall be assembled according to the strength requirements for lifting sets on Offshore Containers as described in DNV 2.7-1 Offshore Containers, Section 8. The angle of the sling legs from vertical should be taken into account when choosing slings. This angle should normally be 45°, but smaller angles can be used.

Special slings, assembled according to the principles described in DNV 2.7-1 Offshore Containers, Section 8 and Appendix E, are also covered by this Type Approval. However, if unsymmetrical slings are to be assembled, local DNV GL office has to be contacted for reviewing in each case, unless otherwise is agreed with local DNV GL office.

Note: The sling leg is not necessarily the weakest part of the lifting set. Master link assemblies selected for slings with legs at 45° may not be suitable for slings with a smaller angle.

The manufacturer shall issue product certificate according to Sec. 8.5 in DNV 2.7-1, using the certificate form FQW 14-2. This certificate form is only to be used for slings certified according to this Type Approval Certificate.

For slings manufactured according to DNV 2.7-3 Portable Offshore Units

Prior to selection of sling set 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, Sec. 7.3.2 and must be approved by DNV GL. Resulting sling force (RSF) can be found in the Design Verification Report (DVR) issued by DNV GL for the Portable Offshore Unit. The DVR shall be available for the sling manufacturer.

Type Approval documentation

Tests carried out

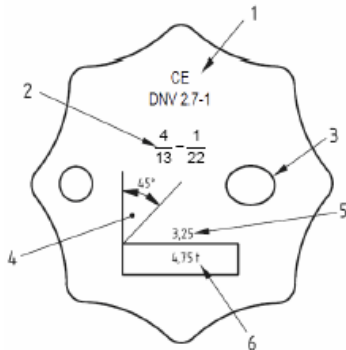
Proof load tests according to EN 818-4 was carried out for this certification.

Marking of product

For slings manufactured according to DNV 2.7-1 Offshore Containers

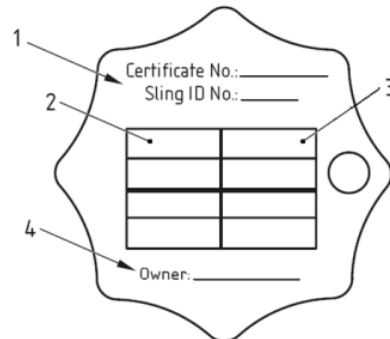
Slings are to be marked with certification tag according to DNV 2.7-1 Offshore Containers, Section 8, as shown below:

Job Id:
Certificate No: **TAS000002A**



Example of identification tag for a chain sling – Front

- 1) CE mark and Reference to DNV 2.7-1
- 2) 4 legs of 13 mm, 1 forerunner of 22 mm (example)
- 3) Manufacturer's mark
- 4) Sling angle
- 5) Shackle size
- 6) WLL



Example of identification tag for a chain sling – Back

- 1) Certificate number (and unique identification number if applicable)
- 2) Column 1: inspectors mark, inspection suffix and date of periodic inspections (shall be of format YY-MM-DD)
- 3) Column 2: shackle ID number
- 4) The owner's name may optionally be included

For slings manufactured according to DNV 2.7-3 Portable Offshore Units
Each item to be marked according to DNV 2.7-3, Section 7.6.

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

Appendix 1

Product description and details

Chain type ENORM:

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
ENORM K8 *	8	1,0	101	101
ENORM K10	10	1,3	157	157
ENORM K13	13	1,8	265	265
ENORM K16	16	2,5	402	402
ENORM K18	18	3,0	509	509
ENORM K20	20	3,6	628	628
ENORM K22	22	4,3	760	760
ENORM K26	26	5,2	1060	1060

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

Master links type ENORM A:

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
ENORM A13 *	13	2,0	49,0	78,5
ENORM A16 *	16	2,5	61,3	98,2
ENORM A18	18	4,0	98,1	157
ENORM A22	22	6,8	166	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.

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.

