

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 Master Links, Joining Links & Terminal Links, Types A & B, Quad Assembly

Issued to

THIELE GmbH & Co. KG
Iserlohn, Nordrhein-Westfalen, Germany

is found to comply with

DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, August 2017**DNV GL standard DNVGL-ST-E273 – 2.7-3 Portable offshore units, December 2016****EN 1677-4 Components for slings – Safety – Part 4: Links, Grade 8****ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets****IMO/MSC Circular 860****Application :****Grade 8 Links for Lifting Sets for Offshore Containers and Portable Offshore Units**Issued at **Høvik** on **2018-07-17**This Certificate is valid until **2022-12-30**.for **DNV GL**DNV GL local station: **Essen**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.



Product description

This Type Approval Certificate replaces Type Approval Certificate S-8069.

Links for use in Lifting Sets for Offshore Containers certified to standard DNVGL-ST-E271 - 2.7-1 Offshore Containers (DNV GL 2.7-1) or standard DNVGL-ST-E273 - 2.7-3 Portable Offshore Units (DNV GL 2.7-3) according to EN 1677-4 Components for slings - Safety - Part 4: Links, Grade 8 and relevant parts from DIN 5688-3.

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

All production testing to be according to Thiele's procedure TA DNV 2.7-1 Aug. 2017 App. H.3.1 S8067, 8069, 7302, 7304 v 11.07, DNV GL 2.7-1 and EN 1677-4. Material to be impact tested by Charpy impact method according to DNV GL 2.7-1, 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 GL 2.7-1, Section 8 or DNV GL 2.7-3 section 7 and Thiele's internal procedure.

The manufacturer shall issue product certificates according to Section 8.5 in DNV GL 2.7-1 or Section 7.5 in DNV GL 2.7-3, using the certificate form TVA-U1.4-FB3-002 Rev. 03. This certificate form is only to be used for links certified according to this Type Approval.

For links certified in accordance with DNV GL 2.7-3

Prior to selection of links and quad assembly the minimum required working load limit (WLL) shall be decided according to the strength requirements for master links on portable offshore units as given in DNV GL 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. The DVR shall be available for the link manufacturer.

Type Approval documentation

Tests carried out

Prototype strength tested according to standards listed on the front page of this type approval certificate.

Marking of product

Marking should be according to DNV GL 2.7-1, Section 8 or DNV GL 2.7-3, Section 7, and EN 1677-4 Section 7.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform an assessment 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

Master link Type A (dwg TWN 0803):

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
F0803208	20	4,75	116	186
F0803228	22	5,6	137	220
F0803268	26	8	196	314
F0803328	32	12,5	306	490
F0803368	36	16	392	628
F0803408	40	19	466	745
F0803458	45	25	613	981
F0803508	50	31,5	772	1240
F0803568	56	40	981	1570
F0803638	63	50	1230	1960
F0803708	70	63	1540	2470
F0803808	80	80	1960	3140

Intermediate links type B (dwg TWN 0804):

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
F0804138	13	3,35	82,1	131
F0804168	16	5,6	137	220
F0804208	20	8,5	208	333
F0804228	22	10	245	392
F0804268	26	14	343	549
F0804288	28	16	392	628
F0804328	32	22,4	549	879
F0804368	36	28	686	1100
F0804408	40	33,5	821	1310
F0804458	45	42,5	1040	1670
F0804508	50	53	1300	2080

Quad Assembly (dwg TWN 0797):

Type	Nominal size [mm]	Dia. top link [mm]	Dia. joining link [mm]	WLL [t] 45°
F0797268	26 / 22	26	22	7,9
F0797328	32 / 26	32	26	11,3
F0797368	36 / 32	36	32	16
F0797458	45 / 36	45	36	22,6
F0797508	50 / 45	50	45	26,8
F0797568	56 / 50	56	50	40
F0797638	63 / 56	63	56	50