DNV·GL

Certificate No:
TAS0000241

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
Bolt Pin Anchor Shackles - Type DA-808 - Design Temperature -40°C
Bolt Pin Anchor Shackles - Type DA-838 - Design Temperature -40°C

Issued to
Yoke Industrial Corp.
Taichung, Taiwan

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 13889 Forged steel shackles for general lifting purposes - Dee shackles and Bow shackles - Grade 6 - Safety
ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets
IMO/MSC Circular 860

Application :

Shackles for Lifting Sets for Offshore Containers and Portable Offshore Units

Issued at **Høvik** on **2019-07-24**
This Certificate is valid until **2024-06-29**.
DNV GL local station: **Kaohsiung**

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 certificate S-8059.

This type approval certificate covers shackles for use in Lifting Sets certified to standard DNVGL-ST-E271 - 2.7-1 Offshore Containers (DNV GL 2.7-1) or to DNVGL-ST-E273 Standard 2.7-3 Portable Offshore Units (DNV GL 2.7-3).

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

Design temperature DA808: -40°C
Design temperature DA838: -40°C

For application of shackles the minimum shackle working load limit (WLL_s) shall be decided according to the strength requirements for lifting sets on offshore containers as given in DNV GL 2.7-1, Section 8.

All production testing to be according to DNV GL 2.7-1 and EN 13889 in agreement with the DNV GL surveyor. Material to be Charpy impact tested according to DNV GL 2.7-1, Section 8.4.

The manufacturer shall issue product certificates according to Section 8.5 in DNV GL 2.7-1, using the certificate form no QF-009-017 as listed below. This certificate form is only to be used for slings certified according to this Type approval Certificate.

For shackles manufactured according to DNVGL-ST-E273:

Prior to selection of shackles the minimum required shackle working load limit (WLL) shall be decided according to the strength requirements for lifting sets on portable offshore units as given in DNV GL 2.7-3, Section 7.3.3. 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 shackle manufacturer.

Type Approval documentation

Tests carried out

Prototypes tested according to EN 13889 and DNV GL 2.7-1.

Marking of product

Marking shall be according to DNV GL 2.7-1 Section 8, EN 13889 and Yoke Industrial Corp. internal precedures.
For shackles for Portable Offshore Units, each item has to be marked according to chapter 7.6 in DNV GL 2.7-3.

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

Type DA808

Type	Nominal Bow diameter [mm]	Pin diameter [mm]	WLL [t]	MPF[1)] [kN]	Min. BF[1)] [kN]	Min. BF[2)] [kN]
DA808-16	16	19.5	3.25	63.7	160	255
DA808-19	19	22.2	4.75	93	233	373
DA808-22	22	25.4	6.5	128	319	510
DA808-26	26	28.6	8.5	167	417	667
DA808-28	28	32	9.5	187	466	745
DA808-32	32	35	12	236	589	941
DA808-36	36	38.1	13.5	265	662	1059
DA808-38	38.1	43	17	334	834	1334
DA808-45	47	50.8	25	491	1226	1961
DA808-50	53	57.1	35	686.5	1717	2746

Type DA838

Type	Nominal Bow diameter [mm]	Pin diameter [mm]	WLL [t]	MPF[1)] [kN]	Min. BF[1)] [kN]	Min. BF[2)] [kN]
DA838-16	16	19.5	3.25	63.7	160	191
DA838-19	19	22.2	4.75	93	233	279
DA838-22	22	25.4	6.5	128	319	382
DA838-26	26	28.6	8.5	167	417	500
DA838-28	28	32	9.5	187	466	559
DA838-32	32	35	12	236	589	705
DA838-36	36	38.1	13.5	265	662	794
DA838-38	38.1	43	17	334	834	1000
DA838-45	47	50.8	25	491	1226	1491
DA838-50	53	57.1	35	686.5	1717	2059

[1)] Manufacturing Proof Force and Minimum Breaking Force according to EN 13889
[2)] Designed Minimum Breaking Force