



Certificate No:
TAS00003YT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the lifting set for offshore containers and portable offshore units

with type designation(s)

Issued to

Carl Stahl Lifting Equipment Industries LLC
Dubai, United Arab Emirates

is found to comply with

DNV standard DNV-ST-E271 – 2.7-1 Offshore containers, March 2023

DNV standard DNV-ST-E273 – 2.7-3 Portable offshore units, April 2016 (Amended May 2022)

ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets

IMO/MSC Circular 860

EN 13414-1 Wire rope slings

Application :

Issued at **Aberdeen** on **2023-08-15**

This Certificate is valid until **2028-08-14** .

DNV local unit: **Abu Dhabi**

for **DNV**

Approval Engineer: **Elisabeth Legg**

Brendan Ward
Senior Engineer

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

This type approval certificate covers wire rope lifting sets from 18 mm to 52 mm diameter assembled with turn back eye or Flemish eye by Carl Stahl Lifting Equipment Industries LLC, in accordance with DNV-ST-E271 and DNV-ST-E273.

The wire rope lifting sets assembled by Carl Stahl Lifting Equipment Industries LLC consist of components from the following sub suppliers:

Component	Sub supplier (DNV to be informed and review new sub suppliers)	DNV TAC number
Master Links & Quad Assemblies	Crosby Group LLC Yoke Industrial Corp., Ltd.	TAS00002GF TAS00002KR TAS00002T3 TAS0000302 TAS00002SZ
Wire rope ¹⁾	Britx Wire Rope Industry Corp. Brunton Wolf Wire Ropes FZCO Drumet Ropes and Wires Ltd Hendrik Veder Group B.V. Ropenhagen A/S Usha Martin Limited	N/A
Shackles ²⁾	Crosby Group LLC Van Beest B.V. Yoke Industrial Corp.	TAS00002GA TAS00002SS TAS00002T2 TAS000033J TAS0000241
Ferrules ³⁾	Crosby Group LLC Sahm Splice Ltd. Talurit AB Wirop Industrial Company Limited	N/A
Thimbles ⁴⁾	Crosby Group LLC George Taylor Lifting Gear (Midlands) Ltd. Sahm Splice Ltd. Talurit AB Wirop Industrial Company Limited	N/A

1) Wire ropes used in forerunner and bottom legs of lifting sets shall be 6-stranded and of type 6x19 or 6x36 and may be fibre cored or steel cored, with wire rope grade 1960 N/mm², in accordance with EN 12385, or equivalent.

2) Shackles are only considered part of the lifting set if captive (i.e. can not be removed after assembly of lifting set).

3) Ferrules/sleeves shall be in accordance with EN 13411-3, or equivalent.

4) Thimbles shall be in accordance with EN 13411-1, or equivalent.

Components shall be delivered with the following certificates:

- | | |
|---|--|
| - Master Links, Quad assemblies and Shackles: | Certificates based on DNV Type Approval. |
| - Wire Ropes: | To be supplied with traceable material certificates in accordance with EN 10204, inspection certificate, type 3.1. |
| - Thimbles and ferrules: | To be supplied with a material certificate in accordance with EN 10204, test report, type 2.2. |

Application/Limitation

For each delivered drum of wire rope, a test leg with one eye in each end shall be prepared and tested to breaking. A reference should be made to the wire drum test report in each sling set certificate where that wire is used.

All production testing should be carried out in accordance with Carl Stahl Lifting Equipment Industries LLC procedures, to be agreed with the local DNV office.

The manufacturer shall issue product certificates, in accordance with DNV-ST-E271 Section 8.5 and DNV-ST-E273 Section 7.5, using the Carl Stahl Lifting Equipment Industries LLC certificate form CRT-CSLEI-16-1, Issue 01, Rev.: 02. These certificates shall only be used for lifting sets certified in accordance with this type approval certificate.

The WLL to be referenced in certificates and marked on lifting sets shall be the maximum working load limit (WLL) of the lifting set, as per the definition in DNV-ST-E271.

For lifting sets manufactured in accordance with DNV-ST-E271

Lifting sets shall be assembled in accordance with the strength requirements described in DNV-ST-E271 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 may be used.

Special lifting sets, assembled in accordance with the principles described in DNV-ST-E271 section 8 and appendix E, are also covered by this type approval. If unsymmetrical slings are to be assembled, the local DNV office shall be contacted to review each case, unless otherwise agreed in advance.

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

For lifting sets manufactured in accordance with DNV-ST-E273

Prior to selection of the lifting set, the minimum required working load limit (WLL) shall be calculated in accordance with the strength requirements in DNV-ST-E273 section 7.3. The resultant sling force (RSF) is provided in the DNV design verification report (DVR) for the portable offshore unit. The DVR should be made available for the lifting set manufacturer.

Type Approval documentation

Tests carried out

Prototype breaking load test of assembled wire rope sling leg.

Marking of product

For lifting sets manufactured in accordance with DNV-ST-E271: refer to section 8.7.

For lifting sets manufactured in accordance with DNV-ST-E273: refer to section 7.6.



Job Id: **262.1-040098-1**
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Periodical assessment

In order to maintain the validity of the type approval certificate, periodical assessments should be carried out every 12 months in accordance with DNV-SE-0284. Periodical assessments will, when possible, be harmonised with other surveys and audits carried out.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>