

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Lifting set for Offshore containers and Portable Offshore Units**with type designation(s)
Wire rope lifting sets

Issued to

Anchor Industries (Pty) Ltd
Cape Town, South Africa

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
ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets
EN 13414-1 Wire rope slings
IMO/MSC Circular 860**Application :****1-, 2, 3 and 4 leg lifting sets, with forerunner where fitted, for lifting of:**
- offshore containers with maximum gross mass 0 to 25000 kg,
- portable offshore unitsIssued at **Aberdeen** on **2019-11-04**for **DNV GL**This Certificate is valid until **2024-11-03**.DNV GL local station: **Cape Town**Approval Engineer: **Ronald Quiballo****Elisabeth Legg**
Principal 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.



Job Id: **262.1-018499-3**
Certificate No: **TAS000024U**

Product description

This Type Approval Certificate replaces S-8682.

The Type Approval Certificate covers wire rope lifting sets from 12 mm to 77 mm assembled with Flemish eye and turnback eye by Anchor Industries (Pty) Ltd., in accordance with DNVGL-ST-E271 or DNVGL-ST-E273.

The wire rope lifting sets assembled by Anchor Industries (Pty) Ltd. consist of components from the following sub suppliers:

Component	Sub supplier (DNV GL to be informed and review new sub suppliers)	DNV GL TAC number
Master link & quad assembly	Kjættingfabriken AS Gunnebo Industrier AB Scaw South Africa (Pty) Limited - McKinnon Chain	TAS0000047 TAS00000TE TAS000013Z TAS00001BN
Wire rope ¹⁾	Kiswire Neptune Sdn Bhd Has Celik ve Halat San. Tic. ASj Jiangsu Langshan Wire Rope Co. Ltd	N/A
Shackles ²⁾	Van Beest B.V. Crosby Group LLC	TAS000011V TAS00001D0 TAS00000HA
Ferrules ³⁾	Wirop Ind. Co. Ltd.	N/A
Thimbles ⁴⁾	Qindao Power Rigging GN Rope Fittings Van Beest B.V.	N/A

- 1) Wire ropes used in fore runner 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 grades 1770 N/mm² or 1960 N/mm², in accordance to 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 should be delivered with the following certificates:

- Master Links, Quad assemblies and Shackles: Certificates based on DNV GL 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 done in accordance with Anchor Industries (Pty) Ltd procedures, to be agreed with the local DNV GL office.

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The manufacturer shall issue product certificates in accordance with DNV GL-ST-E271 Section 8.5, using the certificate Form 205 Rev. 01/2015. This certificate is only to 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 DNVGL-ST-E271.

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

Lifting sets shall be assembled in accordance with the strength requirements described in DNVGL-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 DNVGL-ST-E271 Section 8 and Appendix E, are also covered by this Type Approval. If unsymmetrical slings are to be assembled, the local DNV GL 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 DNVGL-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 DNVGL-ST-E273 Section 7.3. The Resulting Sling Force (RSF) is provided in the DNV GL Design Verification Report (DVR) for the Portable offshore unit. The DVR should be made available for the lifting set manufacturer.

Type Approval documentation

Rev./Dated	Title
2	WI-025-1902 – Manufacturing Sling Sets to DNVGL-ST-E271
1	WI-004-1801 – Swaging Flemish Steel Ferrules
1	WI-003-1801 – Swaging Aluminium Ferrules
01/2015	Form 205 – Certificate for Offshore Container Lifting Slings
--	IC-028-1901 – DNV Sling Sets Configurations
1	PM-006-1901 – Product Marking Sling Sets to DNV2.7-1
28BD	IG-003 – Lifting and Rigging Guide

In addition the following documents are used as information for the Type Approval:

- Test certificates for:
 - Wire ropes
 - Links


Checklist for Initial Audit of Manufacturers endorsed by DNV GL Cape Town, dated 2015-03-11.
Audit of Manufacturer – Type Approval of Lifting Sets 2015-03-11

Prototype Test Report of Proof Load and Breaking Load for 18mm, 36mm and 52mm witnessed by DNV GL Cape Town, dated 2014-12-02.

Prototype Test Report of Breaking Load for 18mm, 20mm 24mm and 36mm witnessed by DNV GL Cape Town, dated 2019-10-02 (Flemish Eyes).

Tests carried out

Prototype breaking load test of assembled wire rope sling leg.



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Marking of product

For lifting sets manufactured in accordance with DNVGL-ST-E271: refer to Section 8.
For lifting sets manufactured in accordance with DNVGL-ST-E273: refer to Section 7.6.

Periodical assessment

In order to maintain the validity of the type approval certificate, periodical assessments should be carried out every 12 months.

END OF CERTIFICATE