Certificate No:
TAS00003G8

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
Rosco Procom Limited
Trinidad, **Trinidad and Tobago**

is found to comply with
DNV standard DNV-ST-E271 – 2.7-1 Offshore containers, January 2021 (Amended October 2021)
DNV standard DNV-ST-E273 – 2.7-3 Portable offshore units, April 2016 (Amended October 2021)
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 :

1, 2, 3, and 4 leg lifting sets, with forerunner where fitted, for lifting of:
- offshore container, with maximum gross mass 0 to 25000 kg,
- portable offshore units

Issued at **Aberdeen** on **2022-10-05**
This Certificate is valid until **2027-10-04** .
DNV local unit: **Houston**

Approval Engineer: **Elisabeth Legg**

for **DNV**

Satya Shyamala Kuppili
Team Lead - Containers

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 covers wire rope lifting sets with wire rope diameter from 19.1 mm (3/4") to 44.5 mm (1-3/4") assembled with turnback and Flemish eyes by Rosco Procom Limited in accordance with DNV-ST-E271 and DNV-ST-E273.

The wire rope lifting sets assembled by Rosco Procom Limited consist of components from the following sub suppliers:

Component	**Sub supplier** *(DNV to be informed and review new sub suppliers)*	**DNV Type Approval reference**
Master link & quad assembly	Crosby Group LLC Haggie Chain (Pty) Ltd t/a McKinnon Chain Yoke Industrial Corp., Ltd.	TAS00002GF TAS00002KR TAS0000337 TAS00002SZ
Wire rope [1)]	Çelik Halat ve Tel Sanayi A.Ş. Elite Sales Inc. Usha Martin Limited	N/A
Shackles [2)]	Crosby Group LLC Gunnebo-Anja Industrier AS Van Beest B.V.	TAS00002GA TAS00001B8 TAS000033J
Ferrules [3)]	Crosby Group LLC Elite Sales Inc. Klifting Industrial Co.,Ltd. Muncy Industries	N/A
Thimbles [4)]	Crosby Group LLC Elite Sales Inc. Klifting Industrial Co.,Ltd. Muncy Industries	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 1770 N/mm^2 or 1960 N/mm^2, 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 Rosco Procom Limited internal procedures, to be agreed with the local DNV office.

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.

The manufacturer shall issue product certificates, in accordance with DNV-ST-E271 section 8.5, using Rosco Procom Limited document QS-F-21 Revision No.: 05. This certificate shall only be used for lifting sets certified in accordance with this type approval certificate.

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.

The manufacturer shall issue product certificates, in accordance with DNV-ST-E273 section 7.5, using Rosco Procom Limited document QS-F-21 Revision No.: 05. This certificate shall only be used for lifting sets certified in accordance with this type approval certificate.

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.
For lifting sets manufactured in accordance with DNV-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 6 months.

END OF CERTIFICATE