

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 set for offshore containers and portable offshore units

Issued to

First Integrated Solutions Limited
Aberdeen, United Kingdom

is found to comply with

DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, January 2021

DNV GL standard DNVGL-ST-E273 – 2.7-3 Portable offshore units, December 2016

ISO 10855:2018 Offshore containers and associated liftings sets – Design, manufacture, testing, inspection and marking

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 containers, with maximum gross mass 0 to 25000 kg,**
- portable offshore units**

Issued at **Aberdeen** on **2021-03-10**

for **DNV**

This Certificate is valid until **2026-03-09** .

DNV local unit: **Aberdeen**

Approval Engineer: **Alex Doig**

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.

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.



Manufactured by

Location	DNV local office	Range of wire sizes
First Integrated House, Broadfold Road, Aberdeen AB23 8EE, United Kingdom	Aberdeen	18 to 48 mm

Responsibility

First Integrated Solutions Limited takes responsibility that both design and production are in compliance with the Rules, Standards and/or regulations listed on page 1 of this type approval certificate.

Product description

This type approval replaces TAS00000W3.

This type approval covers wire rope lifting sets assembled with turn back and Flemish eyes by First Integrated Solutions Limited, in accordance with DNVGL-ST-E271 and DNVGL-ST-E273.

The wire rope lifting sets assembled by First Integrated Solutions Limited, consist of components from the following sub suppliers:

Component	Sub supplier (DNV to be informed and review new sub suppliers)	DNV TAC No.
Master Link and Quad assembly	Crosby Group LLC Scaw South Africa (Pty) Limited – McKinnon Chain Gunnebo Industrier Aktiebolag Nøsted & AS	TAS00002GF TAS00002T3 TAS000013Z TAS00002VZ TAS00002US
Wire rope ¹⁾	Usha Martin Limited Hendrik Veder Group Ropenhagen A/S Bridon-Bekaert Ropes Group Interkabel, Internationale Seil- und Kabel-Handels GmbH	N/A
Shackles ²⁾	Crosby Group LLC Van Beest B.V. Gunnebo-Anja Industrier AS Yoke Industrial Corp.	TAS00002SS TAS00002GA TAS000011V TAS00001D0 TAS00001B8 TAS0000241
Ferrules/Sleeves ³⁾	SAHM SPLICE Ltd. Talurit	N/A
Thimbles ⁴⁾	SAHM SPLICE Ltd. Talurit	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 grades 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 First Integrated Solutions Limited procedures, to be agreed with the local DNV office.

The manufacturer shall issue product certificates in accordance with DNVGL-ST-E271 section 8.5, using the certificate First Integrated Solutions Limited form QAF 124 Revision 0, these certificates shall only be used for lifting sets certified in accordance with this type approval certificate.

For slings designed and manufactured in accordance with DNVGL-ST-E273, Form No. QAF 125 Revision 0 should be used.

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 D, 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 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 design verification report (DVR) for the portable offshore unit. The DVR should be made available for the lifting set manufacturer.

Type Approval documentation

Document No.	Revision	Title
QP 8.01	12	Product Identification and Traceability
WI 9.1.1	5	Destruction Test of Wire Rope
WI 9.1.2	9	Manufacture of Talurit Wire Rope Slings
WI 9.1.4	4	Operating 200 tonne Horizontal Testing Machine
WI 9.1.5	4	Proof Load Testing Wire Rope Sling
WI 9.1.10	6	Verification of Wire Rope Slings to DNV2.7-1:2013
WI 9.1.11a	10	Manufacture of Flemish Wire Rope Slings
WI 9.2.13	4	Inspection of Wire Rope and Wire Rope Slings
WI 9.8.1	5	Quality Control Inspections
QAF 124	0	Product Certificate for Wire Rope Slings (2.7-1)
QAF 125	0	Product Certificate for Wire Rope Slings (2.7-3)
Q05146	0	Quality System – BSI Certificate of Registration
		DNVGL-ST-E273 Type Approval Proposal dated 2017-01-26

In addition, the following documents are also used as information:

- Prototype break test reports
- DNV GL periodic assessment reports and check lists
- Break tests witnessed by DNV GL
- Sample calculations.
- Test certificates for:
 - Wire ropes
 - Ferrules
 - Shackles
 - Links



Job Id: 262.1-014775-6
Certificate No: TAS00002V3

Tests carried out

Prototype breaking load test of assembled wire rope sling legs.

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