



TYPE APPROVAL CERTIFICATE

Certificate No:
TAS000014W
Revision No:
1

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

Holloway Houston
Houston, TX, USA

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 **2022-03-24**

for **DNV**

This Certificate is valid until **2027-03-23** .

DNV local unit: **Houston**

Approval Engineer: **Satya Shyamala Kuppili**

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.



Form code: TA 281

Revision: 2021-10

www.dnv.com

Page 1 of 4

Product description

This type approval replaces previous revisions of TAS000014W.

This type approval covers wire rope lifting sets, from 19 mm (3/4") to 51 mm (2") diameter, assembled with Flemish eyes by Holloway Houston, Inc. in accordance with DNV-ST-E271 and DNV-ST-E273, as described in Appendix 1.

The wire rope lifting sets assembled by Holloway Houston, Inc. 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 and Quad assembly	Gunnebo Industrier Aktiebolag Crosby Group LLC Nøsted & AS Scaw SA (Pty) Ltd.	TAS00002VZ TAS00002G0 TAS0000302 TAS00002YU TAS00002GF TAS00002GE TAS00002US TAS0000337
Wire rope ¹⁾	Manho Rope & Wire Ltd. DSR Wire Corp. Usha Martin Limited Kiswire Ltd. Phoenix Rope & Rigging LLC. Chung Woo Rope Co. Ltd. Washington Wire Rope	N/A
Shackles ²⁾	Van Beest B.V. Gunnebo-Anja Industrier AS Crosby Group LLC	TAS000033J TAS00001B8 TAS00002GA TAS00002T2
Ferrules ³⁾	Crosby Group LLC Muncy Industries	N/A
Thimbles ⁴⁾	Van Beest B.V. Crosby Group LLC	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 1770 N/mm² or 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 Holloway Houston, Inc. procedures, to be agreed with the local DNV office.

The manufacturer shall issue product certificates, in accordance with DNV-ST-E271 section 8.5, using Holloway Houston, Inc. Certificate of Conformance. This certificate 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.

If using wire rope manufactured in US Customary Units sizes (inch) for DNV type approved lifting sets, care should be taken to ensure that the correct minimum breaking load is applied during the selection process

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

Document No.	Rev.	Title
100000	L	Quality Manual
314007	A	Work Instruction
HHI-271-22-1110406-1-1	-	Holloway Certificate of Conformance and Test
SOP-2-9.1	D	General Testing
SOP-2.2-1	A	Manufacturing Thimble Eye Wire Rope Sling
SOP-7.2.8-1	C	Swagging

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

- Prototype break test reports.
- DNV periodic assessment reports.
- Sample calculations.
- Material certificates for wire rope.

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 12 months.

END OF CERTIFICATE

Appendix 1

Wire rope slings with Flemish eye and steel ferrules assembled by Holloway Houston, Inc. covered by this type approval:

Product Name	Applicable Standards	Material Grades	Parameter range			
			Size(Ø) [mm]	WLL [t]	PL [kN]	BL [kN]
Steel wire rope	EN 12385-4 or equivalent	1770/1960	max. 48 for forerunner	25.0	540	1350
			max. 36 for 4 leg lifting set	25.0	303	757
Link assemblies	EN 1677-4	Grade 8	22/20 to 40/32	~28.1	~689	~1103
Shackles	EN 13889	Grade 6	max. ~35 for 4 leg lifting set	~13.5	~265	~662