

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 or Portable Offshore Units

Issued to

IntegriCert, LLC**New Iberia LA, Houma LA, Houston TX, United States**

is found to comply with

DNV 2.7-1 Offshore Containers (2013)**EN 12079-2 Offshore containers and associated lifting sets – Part 2: Lifting sets Design, manufacture and marking****EN 13414-1 Wire rope slings****IMO/MSC Circular 860****DNV Standard for Certification No. 2.7-3 Portable Offshore Units (2011)****Application :****1-, 2-, 3- & 4- Part Lifting Sets, with Forerunner where fitted for Lifting of offshore Containers with Maximum Gross Mass 0 - 25.000 kg or Portable Offshore Units****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2019-06-30**.Issued at **Houston** on **2017-10-25**for **DNV GL**DNV GL local station: **Houston**Approval Engineer: **Ronald Quiballo****Nick Prokopuk**
Head of Section

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: **262.1-019615-2**
 Certificate No: **TAS00000CA**
 Revision No: **4**

Product description

This certificate is a revision of Type Approval certificate S-8692, with an additional location and components.

The Type Approval Certificate covers wire rope slings described in appendix 1, assembled by IntegriCert LLC, according to DNV 2.7-1 Offshore Containers.

Those wire rope slings assembled by IntegriCert LLC, consist of components from the following sub suppliers:

Component	Sub supplier (DNV GL to be informed and review new sub suppliers)	DNV GL TA Cert. number
Master Link/Quad Assembly	Crosby Group William Hackett Gunnebo Johnson	S-8016 & S-8355 S-7732 S-7154
Wire Rope (1960 Grade)	Kiswire Manho Wire Rope Chung Woo Young Heung Usha Martin Ltd.	N/A N/A N/A N/A N/A
Shackles	Crosby Group Van Beest Gunnebo Johnson Columbus McKinnon Corp	S-8357& S-8378 (G-2130CT) S-7593 & S-7649 S-7601 S-6969
Ferrules/Sleeves	Muncy Machine Crosby Wirop	N/A N/A N/A
Thimbles (Heavy Duty)	Van Beest Kulkoni	N/A N/A

- 1) Wire ropes used in bottom legs of lifting slings to be 6 x 19 or 6 x 36, Fibre Core (FC) or IWRC (Independent Wire Rope Core) 6 x 19 or 6 x 36 with wire rope grades 1960 N/mm² or EIPS, in accordance with EN 12385-4, API 9A or FS-RR-W-410F
- 2) Shackles are only considered part of sling if captive (i.e. can not be removed after assembly of sling).
- 3) Ferrules / sleeves: According to EN 13411-3 or equivalent used with Flemish eye wire rope splicing.
- 4) Thimbles: Federal Specification FF-T-276b, Type III, 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 product certificates according to EN 10204, inspection certificate, type 3.1.
- Thimbles and ferrules: To be supplied with a material certificate to 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 to 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 according IntegriCert LLC Ltd's internal procedures and to be agreed with local DNV GL office.

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The manufacturer shall issue product certificate according to Sec. 8.5 in DNV 2.7-1, using the IntegriCert LLC Product Certificate for wire rope slings, Form No. R-536 Revision C.
This certificate form is only to be used for slings certified according to this Type Approval Certificate.

For slings manufactured according to DNV 2.7-1 Offshore Containers

Lifting sets shall be assembled according to the strength requirements for lifting sets on Offshore Containers as described in DNV 2.7-1 Offshore Containers, 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 can be used.

Special slings, assembled according to the principles described in DNV 2.7-1 Offshore Containers, Section 8 and Appendix E, are also covered by this Type Approval. However, if unsymmetrical slings are to be assembled, local DNV GL office has to be contacted for reviewing in each case, unless otherwise is agreed with local DNV office.

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

The WLL to be used in certificates and marked on lifting sets shall be the maximum rating of an offshore container on which the sling can be used, at the given sling leg angle.

For slings manufactured according to DNV 2.7-3 Portable Offshore Units

Prior to selection of sling set the minimum required working load limit (WLL) shall be decided according to the strength requirements for lifting sets on portable offshore units as given in DNV 2.7-3, Section 7.3.2 and must be approved by DNV GL. The resulting sling force (RSF) can be found in the Design Verification Report (DVR) issued by DNV for the Portable Offshore Unit. The DVR shall be available for the sling manufacturer.

Type Approval documentation

Document #	Title:	Rev.#
WI-101	Production	G
WI-115	Layout planning and configuration hard eye and Flemish Eye slings for general lifting	C
WI-118	Pull testing manufactured and repaired sling assemblies and lower lifting terminations	E
WI-119	Procedure for Visual Inspection on lifting gear post manufacture, lifting gear sold from inventory, and bi-annual inspections.	C
WI-122	Swaging Procedure for Zinc Chromate Sleeves	A
WI-133	Design and configuration DNV 2.7-1 Type Approved wire rope lifting sets for offshore containers and portable offshore units	D
A0015332	DNV Type Approval Assessment Report	2014-06-03
A0067509	Survey Report – Witness Break Testing	2015-03-11-A
A0067509	Survey Report – Review Break Testing	2015-03-18-A
A0265309	Survey Report – Witness Break Testing	2016-02-11-A
R-536	Certificate of Sling Proof Test	C
N/A	Table of Components and Sub-suppliers	N/A
N/A	Identification Tag for Wire Rope Sling	N/A
N/A	Sling Calculator	1

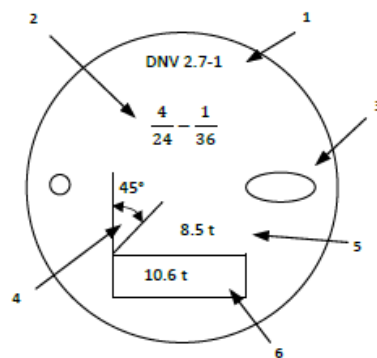
Tests carried out

Prototype test to breaking load of assembled wire sling legs at the Houma, New Iberia, and Houston locations.

Marking of product

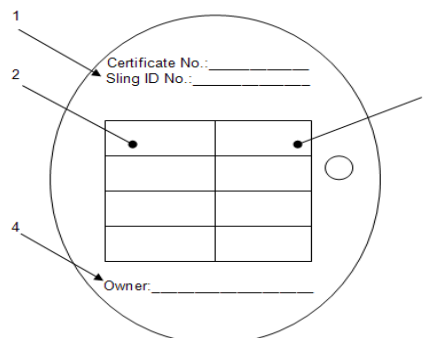
For slings manufactured according to DNV 2.7-1 Offshore Containers

Slings are to be marked with certification tag according to DNV 2.7-1 Offshore Containers, Section 8, as shown below:



Example of identification tag for a wire rope sling – Front

- 1) CE mark and Reference to DNV 2.7-1 or DNV 2.7-3
- 2) 4 legs of 24 mm, 1 forerunner of 36 mm (example)
- 3) Manufacturer's mark
- 4) Sling angle
- 5) Shackle size
- 6) WLL




Example of identification tag for a wire rope sling – Back

- 1) Certificate number (and unique identification number if applicable)
- 2) Column 1: inspectors mark, inspection suffix and date of periodic inspections (shall be of format YY-MM-DD)
- 3) Column 2: shackle ID number
- 4) The owner's name may optionally be included

For slings manufactured according to DNV 2.7-3 Portable Offshore Units

Each item to be marked according to DNV 2.7-3, Chapter 7.6.



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Periodical assessment

In order to maintain the validity of the type approval, certificate retention surveys are to be carried out according to DNV 2.7-1. Intervals are not to exceed 12 months.

END OF CERTIFICATE

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Appendix 1

Wire rope slings with Steel ferrules assembled by IntegriCert LLC, covered by this Type Approval Certificate:

Product Name	Applicable Standards	Material Grades	Parameter range – typical values			
			SIZE(Ø) [mm]	WLL [t]	PL [t]	BL [t]
Steel wire rope	EN 13414-1 ASME B30.9	1960 N/mm ² or EIPS	48 max (Forerunner) 32mm (Sling legs)	25 for assembly	~131.4 ~29.0	164 72.9
Link assemblies	EN 1677-4	Grade 8	~25/20~40/33	~28.1	~71	~112
Shackles	EN 13889	Grade 6	~35	~13.5	~27	~67.5