

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 Sling

Issued to

LOCON LOCAÇÕES DE CONTENTORES E SERVIÇOS LTDA
Rio das Ostras, Brazil

is found to comply with

DNV 2.7-1 Offshore Containers (2013)
DNV Standard for Certification No. 2.7-3 Portable Offshore Units (2011)
EN 12079-2 Offshore containers and associated lifting sets Part 2: Lifting sets Design, manufacture and marking
EN13414-1 Wire rope slings
IMO/MSC Circular 860**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**This Certificate is valid until **2019-12-09**.Issued at **Høvik** on **2015-12-10**for **DNV GL**DNV GL local station: **Macaé**Approval Engineer: **Nina Thorvaldsen Moberg**

Inger-Helene Hals
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.

Certificate No: **S-8512**
File No: **911.53**
Job Id: **262.1-018877-1**

Product description

The Type Approval Certificate covers wire rope slings from 19 mm to 51 mm assembled with flemish eye by LOCON LOCAÇÕES DE CONTENTORES E SERVIÇOS LTDA, according to DNV 2.7-1 Offshore Containers or DNV 2.7-3 Portable Offshore Units.

The wire rope slings assembled by LOCON LOCAÇÕES DE CONTENTORES E SERVIÇOS LTDA 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	- RUD CORRENTES IND. LTDA	S-7565
Wire rope ¹⁾	- IPH DO BRASIL COM E REPRESENTACOES LTDA - BELGO BEKAERT ARAMES LTDA (CIMAF)	NA
Shackles	- VAN BEEST B.V.	S-7593
Ferrules ²⁾	- PRESSTECNICA INDUSTRIA E COMERCIO LTDA - ESPERANÇA IND E COM DE FORJADOS LTDA	NA
Thimbles ³⁾	- COFORJA CORRENTES E ACESSORIOS BRASIL LTDA	NA

1) Wire ropes used in fore runner and bottom legs of lifting slings shall be 6-stranded and of type 6x36 and may be fibre cored or steel cored, with wire rope grades 1960 N/mm², in accordance to EN12385 or equivalent.

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.

4) Thimbles: According to 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 reel 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 to be according to LOCON LOCAÇÕES DE CONTENTORES E SERVIÇOS LTDA procedure PTCI 02 and to be agreed with local DNV GL office.

The manufacturer shall issue product certificates according to Section 8.5 in DNV 2.7-1, using the certificate form No. CDNV Rev. 03.2013. 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 and LOCON LOCAÇÕES DE CONTENTORES E SERVIÇOS LTDA procedure ITCD rev 00.2014 and PFAB 01 rev. 01.2013. 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

Certificate No: **S-8512**
File No: **911.53**
Job Id: **262.1-018877-1**

to be assembled, local DNV GL office are to be contacted for reviewing in each case, unless otherwise is agreed with local DNV GL 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. Resulting sling force (RSF) can be found in the Design Verification Report (DVR) issued by DNV GL for the Portable Offshore Unit. The DVR shall be available for the sling manufacturer.

Type Approval documentation

Document No.	Rev.	Title
CDNV BR016880	03.2013 1	Certificate for Offshore Container Lifting Slings Quality Management System Certificate ISO 9001:2008 by Bureau Veritas
RDNV – Annex 3.1.1 A	07.2014	Spesification of the lifting sling
RDNV – Annex 3.1.1 B	04.2014	Assembly drawing
RDNV - Annex 1 - 3.1.1 D	01.2014	List of suppliers for the various components
ITCD	00.2014	Sling Sizing according to DNV Standard – Work Instruction
PALM	00.2013	Warehouse Procedure
PENG	06	Engineering Procedure
PFAB 01	01.2013	Manufacturing Procedure
IT	04.2013	Identification Tag
PTCI 02	00.2013	Procedure for Load Testing and Inspection

Checklist for Initial Audit of Manufacturers and Audit Report endorsed by DNV GL Rio de Janeiro, dated 2014-11-20.

Prototype Test Report of Breaking Load for 19 mm, 38 mm and 51 mm witnessed by DNV GL Rio de Janeiro, dated 2014-06-11.

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

Material documentation for sub-suppliers
MQ rev. 01.2013 – Quality Manual

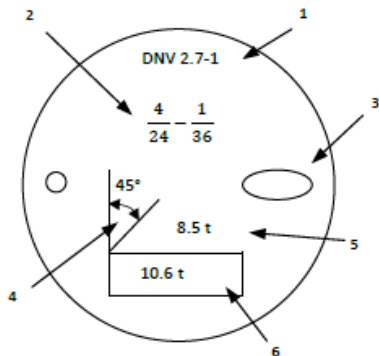
Tests carried out

Prototype test to Breaking Load of assembled wire sling leg.

Marking of product

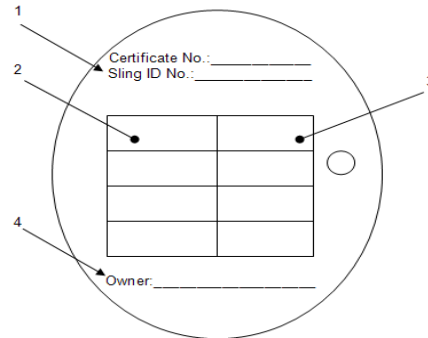
For slings manufactured according to DNV 2.7-1 Offshore Containers

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) Reference to DNV 2.7-1
- 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, Section 7.6.

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 6 months.

END OF CERTIFICATE