

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 for Offshore Containers

Issued to

**IPH DO BRASIL COMERCIO E REPRESENTAÇÕES LTDA
ITAPEVI SP, Brazil**

is found to comply with

DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, August 2017**DNV GL standard DNVGL-ST-E273 – 2.7-3 Portable offshore units, December 2016****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****Application :****1-, 2-, 3- & 4-Part Lifting Sets, with Forerunner where fitted for Lifting of Offshore Containers and Portable Offshore Units**Issued at **Høvik** on **2017-12-07**for **DNV GL**This Certificate is valid until **2021-06-30**.DNV GL local station: **Rio de Janeiro**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.



Product description

This Type Approval Certificate is a revision of Type Approval Certificate S-7586, which it replaces.

The Type Approval Certificate covers wire rope slings from 19mm to 57mm assembled with flemish eye by IPH DO BRASIL COMERCIO E REPRESENTAÇÕES LTDA, according to Standard DNVGL-ST-E271 - 2.7-1 Offshore Containers or Standard DNVGL-ST-E273 - 2.7-3 Portable Offshore Units.

Those wire rope slings assembled by IPH DO BRASIL COMERCIO E REPRESENTAÇÕES LTDA consist of components from the following sub suppliers:

Component	Sub supplier (DNV GL to be informed and review new sub suppliers)	DNV GL TAC number ⁵⁾
Master link & quad assembly	- Crosby Group LLC - Scaw South Africa (Pty) Limited - Gunnebo Industrier AB - Yoke Industrial Corp.	TAS000001V TAS000013Z TAS00000TE TAS000005Z
Wire rope ¹⁾	- IPH DO BRASIL COMERCIO E REPRESENTAÇÕES LTDA	NA
Shackles ²⁾	- Crosby Group LLC - Van Beest B.V. - Fischer Industria Mecanica Ltda - Yoke Industrial Corp.	S-8357 TAS000011V S-7398 S-8059
Ferrules ³⁾	- Crosby Group Inc. - Presstécnica	NA (Steel)
Thimbles ⁴⁾	- Crosby Group Inc. - SLR - Fischer Industria Mecanica Ltda - Coforja	NA

1) Wire ropes used in fore runner and bottom legs of lifting slings 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 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.

5) Certificate number current at the time of issuance of this type approval certificate. The current certificate can be obtained at <https://approvalfinder.dnvgl.com/>. provided that the sub-supplier continues to offer suitable type approved components.

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 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 IPH DO BRASIL COMERCIO E REPRESENTAÇÕES LTDA internal procedures and to be agreed with local DNV GL office.

The manufacturer shall issue product certificate according to Section 8.5 in DNV GL 2.7-1 or Section 7.5 in DNV GL 2.7-3, using the certificate form FPR-8.5.1-07 Rev.02. This certificate form is only to be used for slings certified according to this Type Approval Certificate.

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 certified according to DNV GL 2.7-1

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

For slings certified according to DNV GL 2.7-3

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 GL 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
PV-8.2-02	0	Instruction for selection DNV 2.7-1 sling – Type Approval DNV 2.7-1 (27 sheets)
FPR-8.5.1-07	02	CERTIFICATE FOR OFFSHORE CONTAINER LIFTING SLINGS
SQ-18688		Quality Management System Certificate NBR ISO 9001:2015 by FUNDAÇÃO CARLOS ALBERTO VANZOLINI
	Dated: 2017-08-01	TYPE APPROVAL DNV 2.7-1 – For obtaining The Type Approval Certificate (4 sheets)
	Dated: 2017-08-01	TYPE APPROVAL DNV 2.7-1 - Brief description of the premises of the manufacturer and test machines
	Dated: 2017-08-01	TYPE APPROVAL DNV 2.7-1 – Brief description of the quality system including copies of certificates available
	Dated: 2017-08-01	TYPE APPROVAL DNV 2.7-1 - Description of test methods and procedures for the testing of the prototype and production tests
DNV 2.7-1-F1	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F1-AN/SA-SA/MAN OFFSHORE CONTAINERS
DNV 2.7-1-F2	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F2-AN/SA-SA/MAN OFFSHORE CONTAINERS
DNV 2.7-1-F3	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F3-AN/SA-SA/MAN OFFSHORE CONTAINERS
DNV 2.7-1-F4	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F4-AS/SA-SA/MAN OFFSHORE CONTAINERS
DNV 2.7-1- F1+F2	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODELO: F2-AN/SA-SA/MAN+EXTENSÃO
DNV 2.7-1- F1+F3	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F3-AS/SA-SA/MAN OFFSHORE CONTAINERS

DNV 2.7-1- F1+F4	2017-06-26	STANDARD DRAWING FOR SLING SET AS DNV 2.7-1 – MODEL: F4-AS/SA-SA/MAN OFFSHORE CONTAINERS
PPR-8.5.1-04	01	Specific procedure – Assembly and Control of Slings
		Proof Load Test report of 26mm and 38mm, dated 2012-09-24
		Fatigue Load Test report of 16mm, 19mm, 22mm, 26mm, 28mm, 32mm and 50.8mm, dated 2012
		Prototype Test Report of Proof Load and Breaking Load for 19mm and 26mm witnessed by DNV Rio de Janeiro, dated 2012-09-20
A0425392-01		Audit report for renewal dated 2017-07-14 by DNV GL Rio de Janeiro

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

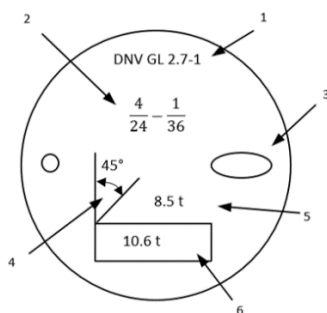
- List of suppliers of components – dated 2017-08-01
- Certificates for: Wire ropes, Links, Shackle

Tests carried out

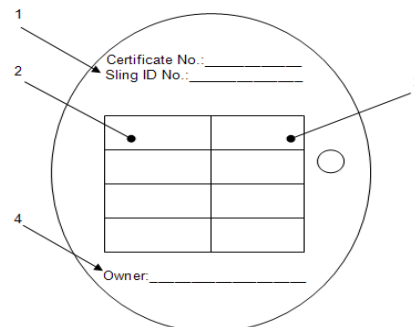
Prototype Breaking Load tested and Fatigue tested of assembled wire rope sling leg.

Marking of product

Slings are to be marked with certification tag according to DNV GL 2.7-1, Section 8, or DNV GL 2.7-3, Section 7.6 as shown below:



Example of identification tag for a wire rope sling – Front



Example of identification tag for a wire rope sling – Back

- 1) Reference to DNV GL 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

- 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

Periodical assessment

In order to maintain the validity of the type approval, periodical assessments are to be carried out according to DNV GL 2.7-1 by DNV GL surveyor. Intervals are not to exceed 6 months.

END OF CERTIFICATE