DNV·GL

Certificate No:
TAS00001RH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
Chain sling assemblies (Zinc Tough) - OSWDNVxxxxxxxxZT

Issued to
Scaw South Africa (Pty) Limited - McKinnon Chain
Gauteng, South Africa

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 818-4 Short link chain for lifting purposes – Safety – Part 4: Chain slings – Grade 8
ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets
IMO/MSC Circular 860

Application :

1-, 2-, 3- & 4-Part Lifting Sets, with forerunner where fitted, for Lifting of Offshore Containers or Portable Offshore Units

Issued at **Høvik** on **2018-10-02**
This Certificate is valid until **2023-09-24**.
DNV GL local station: **Cape Town**

Approval Engineer: **Nina Thorvaldsen Moberg**

for **DNV GL**

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.

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Product description

The Type Approval Certificate covers chain slings assembled by McKinnon Chain, according to DNV GL standard DNVGL-ST-E271 - 2.7-1 Offshore Containers (DNV GL 2.7-1) or DNV GL standard DNVGL-ST-E273 - 2.7-3 Portable Offshore Units (DNV GL 2.7-3).

The Chain Sling Assemblies consist of components covered by McKinnon Chains respective DNV GL Type Approval Certificates; details are listed in Appendix 1 of this Type Approval Certificate.

DNV GL has accepted some components with internal dimension smaller than table 2 in EN 1677-4. These are marked in Appendix 1.

Application/Limitation

All proof load tests during production to be carried out in accordance with EN 818-4. All production testing should be done according internal procedure DOCUMENTATION FOR LIFTING SETS TYPE APPROVAL – Acc to DNV 2.7-1 Annex 1 and to be agreed with local DNV GL office, according to DNV GL 2.7-1 Section 8 and Appendix H.

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 GEN-TST-001-F-01-00. 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.

Application 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.

For application of chain sling set the minimum working load limit (WLL) shall be decided according to the strength requirements for lifting sets on offshore containers as given in DNV GL 2.7-1 Offshore Containers, Section 8 and internal procedure DOCUMENTATION FOR LIFTING SETS TYPE APPROVAL – Acc to DNV 2.7-1 Annex 1, section 2 and figure 1. In no case should the WLL of Lifting Sets for Offshore Containers be less than 7.0 tonnes.

Special slings, assembled according to the principles described in DNV GL 2.7-1 Section 8 and Appendix E, are also coverd by this Type Approval. However, if unsymmetrical slings are 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.*

Application 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. 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.

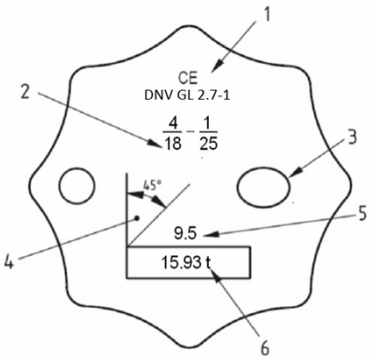
Type Approval documentation

Tests carried out

Prototype tests performed according to test DNV GL 2.7-1 and EN 818-4.

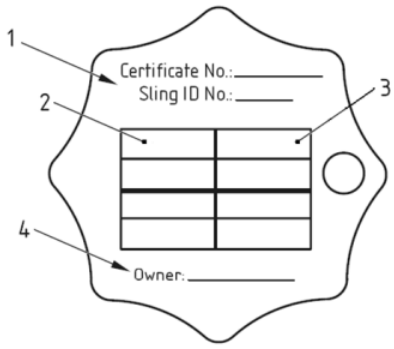
Marking of product

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, example shown below:



Example of identification tag for a chain sling – Front

1) CE mark and Reference to DNV GL 2.7-1 or DNV GL 2.7-3
2) 4 legs of 18 mm, 1 forerunner of 25 mm (example)
3) Manufacturer's mark
4) Sling angle
5) Shackle size
6) WLL



Example of identification tag for a chain 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

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform an assesment every 6 months and before the expiry date of this certificate to verify that the type approval is complied with.

END OF CERTIFICATE

Appendix 1

Product description and details

Master links:

Type	Description	WLL [t]	MPF [kN]	Min. BF [kN]
OML160DNVZT **	HA-16 ML ZT	4.1	101	201
OML220SDNVZT *	HA-22 MLS ZT	11	270	540
OML220DNVZT	HA-22 ML ZT	7.0	172	343
OML250DNVZT	HA-25 ML ZT	9.3	229	456
OML280SDNVZT *	HA-28 MLS ZT	19.5	479	956
OML280DNVZT	HA-28 ML ZT	14.5	356	711
OML320DNVZT	HA-32 ML ZT	19.0	466	932
OML360DNVZT	HA-36 ML ZT	26.0	638	1275
OML400DNVZT	HA-40 ML ZT	30.5	749	1496
OML450DNVZT	HA-45 ML ZT	40.0	981	1962
OML450LDNVZT	HA-45 MLL ZT	24.7	606	1211
OML500DNVZT	HA-50 ML ZT	51.0	1251	2502
OML600DNVZT	HA-65 ML ZT	75.0	1840	3679
OML700DNVZT	HA-75 ML ZT	100.0	2453	4905

*) Non-standard sizes, see comment under Product Description.
**) This size is only to be used for Portable Offshore Units.

Intermediate links:

Type	WLL [t]	MPF [kN]	Min. BF [kN]
IML145DNVZT	3.7	91	146
IML160DNVZT	5.3	130	208
IML200DNVZT	8.6	212	339
IML220DNVZT	11.0	269	432
IML260DNVZT	15.6	384	615
IML320DNVZT	24.8	610	976
IML360DNVZT	31.8	780	1249

Chain:

Type	Dia. [mm]	WLL [t]	MPF [kN]	Min. BF [kN]
C8A 130 SLSZT	13.0	5.3	133	212
C8A 160 SLSZT	16.0	8.0	201	322
C8A 200 SLSZT	20.0	12.5	315	503
C8A 220 SLSZT	22.0	15.0	380	608
C8A 260 SLSZT	26.0	21.2	531	849
C8A 320 SLSZT	32.0	31.5	804	1290