Certificate No:
TAS00003J4

TYPE APPROVAL CERTIFICATE

This is to certify:

That the lifting set component for offshore containers and portable offshore units

with type designation(s)
Master link (Zinc Tough)
Intermediate link (Zinc Tough)
Quad assembly (Zinc Tough)

Issued to
WILLIAM HACKETT LIFTING PRODUCTS LIMITED
ALNWICK, United Kingdom

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 1677-4 Components for slings – Safety – Part 4: Links, Grade 8

Application :

Grade 8 links with corrosion protection for lifting sets for offshore containers and portable offshore units

Issued at **Aberdeen** on **2022-09-21**
This Certificate is valid until **2026-06-30** .
DNV local unit: **Newcastle**

Approval Engineer: **Elisabeth Legg**

for **DNV**

Brendan Ward
Senior 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.

Manufactured by

DNV Id No.: 10698797

Responsibility

William Hackett Lifting Products Limited takes responsibility that both design and production at all places of manufacture are in compliance with the Rules, Standards and/or Regulations listed on page 1 of this type approval certificate.

Product description

This approval covers master links, intermediate links and master link assemblies for use in lifting sets for units certified in accordance with DNV-ST-E271 or DNV-ST-E273.

Detailed product information of certified products covered by this type approval are listed in Appendix 1 of this type approval certificate.

DNV has accepted some components with internal dimensions smaller than those specified in EN 1677-4 Table 2. These are marked with * in Appendix 1.

Application/Limitation

Design temperature: - 40°C

- Master links: 330.160.ZT+ (16 mm) to 330.500.ZT+ (50 mm)
- Sub-assemblies: 350.160.ZT+ (16 mm / 14.5 mm) to 350.500.ZT+ (50 mm / 45 mm)

Design temperature: - 20°C

- Master links: 300.600.ZT+ (65 mm) to 300.700.ZT+ (75 mm)
- Intermediate links: 360.145IML (14.5 mm) to 360.360IML (36 mm)
- Sub-assemblies: 350.600.ZT+ (65 mm / 50 mm) to 350.700.ZT+ (75 mm / 65 mm)

Selection of the correct dimensions of lifting sets and/or lifting set components shall be carried out in accordance with the requirements for lifting sets of offshore containers in DNV-ST-E271 section 8.

Tests to be carried out:

- Production testing: in accordance with DNV-ST-E271 and EN 1677-4, in agreement with the DNV surveyor.
- Material to be impact tested by Charpy impact method in accordance with DNV-ST-E271 section 8.4.

William Hackett Lifting Products Limited shall issue product certificates in accordance with DNV-ST-E271 section 8.5, using the certificate form WH112 issue 1. This certificate form shall only be used for links certified in accordance with this type approval.

For links manufactured in accordance with DNV-ST-E271
The required Working Load Limit (WLL) for a given container rating should be determined in accordance with DNV-ST-E271 Table 8-1 and William Hackett Lifting Products Limited procedure. In no case should an offshore container lifting set WLL be less than 7.0 tonnes.

For links manufactured in accordance with DNV-ST-E273
Prior to selection of links, the minimum required working load limit (WLL) shall be determined in accordance with the strength requirements for lifting sets on portable offshore units as given in DNV-ST-E273 section 7.3.5 and must be approved by DNV. Resultant sling force (RSF) can be found in the design verification report (DVR) issued by DNV for the portable offshore unit.

Type Approval documentation

Tests carried out
Prototype testing shall be carried out in accordance with DNV-ST-E271.

Marking of product
Components shall be marked in accordance with EN 1677-4 chapter 7.1, DNV-ST-E271 section 8 or DNV-ST-E273 section 7, as appropriate.

Periodical assessment
In order to maintain the validity of the type approval certificate, periodical assessments should be carried out by a DNV surveyor every 12 months.

END OF CERTIFICATE

Appendix 1

Product description and details:

The values of the working load limit (WLL) specified below are nominal for each component and the correct selection shall be made in accordance with DNV-ST-E271 section 8.

Master links:

Product Code	Description	Diameter [mm]	Working Load Limit (WLL) [t]	Manufacturing Proof Force (MPF) [kN]	Minimum Breaking Force (BF) [kN]
330.160.ZT+ **	HA16 ML 8 OS+ ZT	16	4.1	101	201
330.220.ZT+	HA22 ML 8 OS+ ZT	22	7.0	172	343
330.22S.ZT+ *	HA22 MLS 8 OS+ ZT	22	11	270	540
330.250.ZT+	HA25 ML 8 OS+ ZT	25.5	9.3	229	456
330.280.ZT+	HA28 ML 8 OS+ ZT	28	14.5	356	711
330.28S.ZT+ *	HA28 MLS 8 OS+ ZT	28	19.5	479	956
330.320.ZT+	HA32 ML 8 OS+ ZT	32	19.0	466	932
330.360.ZT+	HA36 ML 8 OS+ ZT	36	26.0	638	1275
330.400.ZT+	HA40 ML 8 OS+ ZT	40	30.5	749	1496
330.450.ZT+	HA45 ML 8 OS+ ZT	45	40.0	981	1962
330.460.ZT+	HA45 MLL 8 OS+ ZT	45	24.7	606	1211
330.500.ZT+	HA50 ML 8 OS+ ZT	50	51.0	1251	2502
330.600.ZT+	HA65 ML 8 OS+ ZT	65	75.0	1840	3679
330.700.ZT+	HA75 ML 8 OS+ ZT	75	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:

Product Code	Description	Diameter [mm]	Working Load Limit (WLL) [t]	Manufacturing Proof Force (MPF) [kN]	Minimum Breaking Force (BF) [kN]
360.145IML	HA-145IL 8 OS ZT	14.5	3.7	91	146
360.160IML	HA-16IL 8 OS ZT	16	5.3	130	208
360.200IML	HA-20IL 8 OS ZT	20	8.6	212	339
360.220IML	HA-22IL 8 OS ZT	22	11.0	269	432
360.260IML	HA-26IL 8 OS ZT	26	15.7	384	615
360.320IML	HA-32IL 8 OS ZT	32	24.8	610	976
360.360IML	HA-36IL 8 OS ZT	36	31.8	780	1249

Sub assemblies:

Product Code	Description	Diameter [mm]	Working Load Limit (WLL) [t]	Manufacturing Proof Force (MPF) [kN]	Minimum Breaking Force (BF) [kN]
350.160.ZT+	HA-16 QA 8 OS+ ZT	16 / 14.5	4.1	101	201
350.220.ZT+	HA-22 QAS 8 OS+ ZT	22 / 22	11	270	540
350.230.ZT+	HA-23 QA 8 OS+ ZT	22 / 22	7.0	172	343
350.250.ZT+	HA-25 QA 8 OS+ ZT	25.5 / 22	9.3	229	456
350.280.ZT+	-28 QAS 8 OS+ ZT	28 / 22	14.5	356	711
350.260.ZT+	-26 QA 8 OS+ ZT	28 / 22	14.5	356	711
350.320.ZT+	-32 QA 8 OS+ ZT	32 / 28	19.0	466	932
350.360.ZT+	-36 QA 8 OS+ ZT	36 / 28	26.0	638	1275
350.400.ZT+	-40 QA 8 OS+ ZT	40 / 32	30.5	749	1496
350.450.ZT+	-45 QA 8 OS+ ZT	45 / 36	40.0	981	1962
350.460.ZT+	-45 QAL 8 OS+ ZT	45 / 30	24.7	606	1211
350.500.ZT+	-50 QA 8 OS+ ZT	50 / 45	51.0	1251	2502
350.650.ZT+	-65 QA 8 OS+ ZT	65 / 50	75.0	1840	3679
350.750.ZT+	-75 QA 8 OS+ ZT	75 / 65	100.0	2453	4905

*) Non-standard sizes, see comment under Product description.