DNV·GL

Certificate No:
TAS00002GA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Lifting set for Offshore containers and Portable Offshore Units

with type designation(s)
Shackle type 2130-OC
Shackle type 2140-OC

Issued to
Crosby Group LLC
Tulsa, OK, USA

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 13889 Forged steel shackles for general lifting purposes - Dee shackles and Bow shackles - Grade 6 - Safety
ISO 10855-2:2018 Offshore containers and associated liftings sets – Part 2: Design, manufacture and testing of lifting sets
IMO/MSC Circular 860

Application :

Shackles for Lifting Sets for Offshore Containers and Portable Offshore Units

Issued at **Høvik** on **2020-07-08**
This Certificate is valid until **2025-07-07**.
DNV GL local station: **Houston**

for **DNV GL**

Approval Engineer: **Igor Antonijevic**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Manufactured by

Lebus Manufacturing, Longview, Texas, USA
McKissick Products, Tulsa, Oklahoma, USA
Crosby Europe NV, Putte (Mechelen), Belgium

The Crosby Group LLC takes responsibility that 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 type approval certificate replaces certificate S-8357.

This type approval certificate covers shackles for use in lifting sets certified according to standard DNVGL-ST-E271 Offshore Containers (DNV GL 2.7-1) or to DNVGL-ST-E271 Standard 2.7-3 Portable Offshore Units (DNV GL 2.7-3).

Detailed product information and range of certified products covered by this Type Approval are listed in Appendix 1 of this Type approval certificate.

Application/Limitation

Design temperature: -20°C

For application of shackles the minimum shackle working load limit (WLL_s) shall be decided according to the strength requirements for lifting sets on offshore containers as given in DNV GL 2.7-1, Section 8.

All production testing to be according to DNV GL 2.7-1 and EN 13889 in agreement with the DNV GL surveyor. Material to be Charpy impact tested according to DNV GL 2.7-1, Section 8.4.

The manufacturer shall issue product certificates according to Section 8.5 in DNV GL 2.7-1, using the certificate form DNV Product Certificate – Shackle Assy as listed below. This certificate form is only to be used for slings certified according to this type approval certificate.

For shackles manufactured according to DNVGL-ST-E273:

Prior to selection of shackles the minimum required shackle 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 7.3.3. 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 shackle manufacturer.

Type Approval documentation

Tests carried out

Prototypes tested according to EN 13889 and DNV GL 2.7-1.

Marking of product

Marking shall be according to DNV GL 2.7-1 Section 8, EN 13889 and Crosby Group LLC internal procedures.
For shackles for Portable Offshore Units, each item has to be marked according to chapter 7.6 in DNV GL 2.7-3.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey 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

Type 2130, omega anchor shackles secured by nut and split pin:

P/N	Nom. size	WLL_s [t]	MPF[1)]		Min. BF[1)]	
			[kN]	[lbs]	[kN]	[lbs]
1262013	5/8″	3,25	77	17200	191	43000
1262022	3/4″	4,75	112	25120	279	62800
1262031	7/8″	6,5	153	34400	383	86000
1262040	1″	8,5	200	44960	500	112400
1262059	1 1/8″	9,5	223	50240	559	125600
1262068	1 1/4″	12	282	63480	706	158700
1262077	1 3/8″	13,5	318	71400	794	178500
1262086	1 1 /2″	17	400	89920	1000	224800
1262095	1 3 /4″	25	588	132240	1471	330600

Type 2140, omega anchor shackles secured by nut and split pin:

P/N	Nom. size	WLL_s [t]	MPF[1)]		Min. BF[1)]	
			[kN]	[lbs]	[kN]	[lbs]
1262407	1 1 /2″	30	635	142800	1588	357000
1262416	1 3 /4″	40	847	190400	2117	476000
1262425	2″	55	1165	262000	2914	655000
1262434	2 1/2″	85	1797	404000	4493	1010000
1262443	3″	120	2544	572000	6631	1430000
1262452	3 1/2″	150	3185	716000	7962	1790000
1262461	4″	175	3701	832000	9252	2080000

[1)] Manufacturing Proof Force and Minimum Breaking Force to meet or exceed to EN 13889