DNV·GL

Certificate No:
TAS00002T2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Lifting set component for offshore containers

with type designation(s)
Anchor Bolt Shackles G-2130-CT
Anchor Bolt Shackles G-2140-CT

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

Application :

Shackles for use in lifting sets for offshore containers

Issued at **Aberdeen** on **2020-10-30**
This Certificate is valid until **2025-10-29** .
DNV GL local unit: **Houston**

Approval Engineer: **Elisabeth Legg**

for **DNV GL**

Alex Doig
Team Lead

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.

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Manufactured by

Manufacturing of the G-2130-CT and G-2140-CT products are undertaken at the following locations:

Place of manufacture	Activities	Local DNV GL Office
McKissick Products, Tulsa, Oklahoma	• forging of bows • forging of pins • machining of parts • assembly of parts • QC activities such as material testing and issuance of certificates.	Houston
Lebus Manufacturing, Longview, Texas		

Crosby Group LLC 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 certificate replaces S-8378.

This type approval covers shackles for use in lifting sets for offshore containers certified in accordance with DNVGL-ST-E271.

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

Application/Limitation

Design temperature: -20°C

The minimum shackle working load limit (WLL_S) shall be calculated in accordance with the strength requirements for lifting sets on offshore containers as given in DNV GL-ST-E271 section 8.

All production testing shall be carried out in accordance with DNVGL-ST-E271 and EN 13889, in agreement with the local DNV GL office. Material shall be Charpy impact tested in accordance with DNVGL-ST-E271 section 8.4.

The manufacturer shall issue product certificates in accordance with DNVGL-ST-E271 section 8.5. This certificate shall only be used for shackles certified in accordance with this type approval.

Type Approval documentation

Tests carried out
Prototypes tested in accordance with EN 13889 and DNVGL-ST-E271.

Marking of product
Marking shall be carried out in accordance with DNVGL-ST-E271 section 8, EN 13889, and Crosby Group LLC internal procedures.

Periodical assessment
For retention of the Type Approval, a DNV GL surveyor shall perform a survey every 12 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:

Anchor Bolt Shackles Type G-2130-CT

Nominal Size		Working Load Limit (WLL)	Proof Load (PL)	Breaking Load (BL)	Crosby Part Number
in	mm	tonnes	kN	kN	
3/4	19.1	4.75	93.2	251.6	1260568
7/8	222	6.5	127.5	344.3	1260577
1	25.4	8.5	166.8	450.3	1260586
1 1/8	28.6	9.5	186.4	503.3	1260595
1 1/4	31.8	12	235.4	635.7	1260604
1 3/8	34.9	13.5	264.9	715.1	1260613
1 1/2	38.1	17	333.5	900.6	1260622
1 3/4	44.5	25	490.5	1324.4	1260633

Anchor Bolt Shackles Type G-2140-CT

Nominal Size		Working Load Limit (WLL)	Proof Load (PL)	Breaking Load (BL)	Crosby Part Number
in	mm	tonnes	kN	kN	
1 1/2	38.1	30	588.6	1589.2	1260801
1 3/4	44.5	40	784.8	2119.0	1260812
2	50.8	55	1079.1	2913.6	1260823
2 1/2	63.5	85	1667.7	4502.8	1260834
3	76.2	120	2354.4	6356.9	1260843
3 1/2	88.9	150	2943.0	7946.1	1260852
4	101.6	175	3433.5	9270.5	1260861
4 3/4	120.7	200	3924.0	10594.8	1260870
5	127.0	250	4905.0	13243.5	1260889