



Certificate no.:
TAS0000563

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
G2140CT shackles

issued to

The Crosby Group LLC
Tulsa, OK, USA

is found to comply with

DNV standard DNV-ST-E271 – 2.7-1 Offshore containers, March 2023 (Amended December 2024)
DNV standard DNV-ST-E273 – 2.7-3 Portable offshore units, April 2016 (Amended May 2022)
ISO 10855-2:2024 Offshore containers and associated lifting sets – Part 2: Design, manufacture and marking of lifting sets
IMO/MSC Circular 860
Federal Specification Chains and Attachments, Carbon and Alloy Steel, RR-C-271H

Application:

Shackles for offshore container and portable offshore unit lifting sets

Issued at **Aberdeen** on **2026-01-28**

This Certificate is valid until **2031-01-27**.

for **DNV**

DNV local unit: **Houston**

Approval Engineer: **Elisabeth Legg**

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

Manufacturing of the products is undertaken at the following locations:

Place of manufacture	Activities	Local DNV office
The Crosby Group LLC McKissick Manufacturing division Tulsa, Oklahoma USA	• forging of shackle bows • forging of shackle pins • machining of parts • quenching and tempering shackle bows and pins • coating the parts • assembly of parts • QC activities: inspection, testing and issuance of product certificates.	Houston
The Crosby Group LLC Lebus Manufacturing division Longview, Texas USA		

Responsibility

The 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 type approval covers shackles for use in lifting sets for offshore containers certified in accordance with DNV-ST-E271 or portable offshore units certified in accordance with DNV-ST-E273.

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

Type IVA Anchor shackles Grade B Class 3 in accordance with RR-C-271H.

Application/Limitation

Minimum design temperature: -20°C

The shackles are approved for use in lifting sets that comply with DNV-ST-E271 or DNV-ST-E273. The company performing the assembly of the lifting sets is considered to be the lifting set manufacturer.

The minimum shackle working load limit (WLL_s) 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 RR-C-271H, in agreement with the local DNV office.
- Material to be impact tested by Charpy impact method in accordance with DNV-ST-E271 section 8.4.

The manufacturer shall issue product certificates in accordance with DNV-ST-E271 section 8.5 and DNV-ST-E273 section 7.5, using the certificate form "DNV Product Certificate – Shackle Assy.". This certificate shall only be used for shackles certified in accordance with this type approval.

Application of shackles certified 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. In no case should an offshore container lifting set WLL be less than 7.0 tonnes.

Application of shackles certified in accordance with DNV-ST-E273

Prior to selection of shackles, 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 7.3.2 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.

Shackles that will experience significant out-of-plane loading, shall be de-rated in accordance with the guidance provided in DNV-ST-E273 section 7.3.3.



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Type Approval documentation

Tests carried out

Prototype testing shall be carried out in accordance with DNV-ST-E271, Crosby procedures and RR-C-271H.

Marking of product

Components shall be marked in accordance with DNV-ST-E271, Crosby procedures and RR-C-271H.

Periodical assessment

In order to maintain the validity of the type approval certificate, periodical assessments should be carried out at all manufacturing locations every **12 months** in accordance with DNV-SE-0284. Periodical assessments will, when possible, be harmonised with other surveys and audits carried out.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

Appendix 1

Product description and details:

Type G2140CT

Crosby Part Number	Nominal Size		Working Load Limit* (WLL)		Proof Load (PL)		Minimum Breaking Strength (MBS)	
	[in]	[mm]	[t]	[lbf]	[kN]	[lbf]	[kN]	[lbf]
1260801	1 1/2	38.1	30	66139	588	132,280	1589	357,156
1260812	1 3/4	44.5	40	88185	784	176,360	2118	476,172
1260823	2	50.8	55	121254	1079	242,500	2912	654,750
1260834	2 1/2	63.5	85	187393	1667	374,780	4501	1,011,906
1260843	3	76.2	120	264554	2354	529,100	6355	1,428,570
1260852	3 1/2	88.9	150	330693	2942	661,380	7943	1,785,726
1260861	4	101.6	175	385809	3432	771,620	9267	2,083,374
1260870**	4 3/4	120.7	200	440924	3923	881,840	7845 ³⁾	1,763,680
1260889**	5	127.0	250 ¹⁾	551155	4903	1,102,300	9807 ³⁾	2,204,600

*) Exceeds requirements for Grade B class 3 type IVA anchor shackles stated in RR-C-271H

**) Size is above range specified in RR-C-271H, safety factor to breaking 4 WLL