

TYPE APPROVAL CERTIFICATE

This is to certify:**That the CRX-P 2", CRX-P 2½", CRX-P 3", CRX-P 3½" and CRX-P 4" Swivels**

with type designation(s)

014-0041, 014-0024, 014-0025, 014-0026 and 014-0027

Issued to

**De Haan Special Equipment B.V.
Stadskanaal, Groningen, Netherlands**

is found to comply with

DNVGL-OS-E302 – Offshore mooring chain, Edition July 2018**Application :****To be used for Temporary and Mobile Mooring as defined in DNVGL-OS-E301 "Position Mooring" July 2018**Issued at **Høvik** on **2019-11-08**This Certificate is valid until **2024-11-07**.for **DNV GL**DNV GL local station: **Rotterdam**Approval Engineer: **Pierre-Eric Moulia**

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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.



Certificate TAS000023U replaces expired S-8542.

Product description

Swivel CRX-P 2": Material grade R3, R4 and R5 swivels, to used for nominal diameter chain 52 mm of equal grade.

Swivel CRX-P 2½": Material grade R3, R4 and R5 swivels, to used for nominal diameter chain 64 mm of equal grade.

Swivel CRX-P 3": Material grade R3, R4 and R5 swivels, to used for nominal diameter chain 76 mm of equal grade.

Swivel CRX-P 3½": Material grade R3, R4 and R5 swivels, to used for nominal diameter chain 89 mm of equal grade.

Swivel CRX-P 4": Material grade R3, R4 and R5 swivels, to used for nominal diameter chain 102 mm of equal grade.

	R3		R4		R5	
	MBL (kN)	PL (kN)	MBL (kN)	PL (kN)	MBL (kN)	PL (kN)
CRX-P 2"	2402	1681	2952	2327	3447	2704
CRX-P 2½"	3551	2484	4364	3440	5096	3997
CRX-P 3"	4884	3417	6001	4731	7009	5498
CRX-P 3½"	6514	4557	8004	6310	9348	7332
CRX-P 4"	8315	5817	10217	8054	11932	9359

Load bearing materials are to be R grade

Application/Limitation

The swivels are to be used as torque built up absorber in chains for Temporary and Mobile Mooring as defined in Offshore Standard DNVGL-OS-E301 'Position Mooring' July 2018. The chain shall be of equal grade and size as the swivel.

The swivels are not permitted in long term mooring systems that are designed according to DNVGL-OS-E301 'Position Mooring'. Ref DNVGL-OS-E301 July 2018 Ch2 sec 4 §8.1.7.

The swivels shall be manufactured and tested in accordance with Offshore Standard DNVGL-OS-E302 'Mooring Chain' July 2018.

The approval is conditional that manufacturer is holding an Approval of Manufacturer Certificate, and is approved by DNVGL for making R3, R4 and R5 grade material of designation given the type approval drawings.

Individual Product Certificate is to be issued for each size/delivery.

Type Approval documentation

Tests carried out

Fatigue prototype testing was carried out in May and June 2014.

Tests are to be carried out for each delivery/order, as described in Offshore Standard DNVGL-OS-E302 'Mooring Chain' July 2018.

Marking of product

Each swivel shall be marked according to Offshore Standard DNVGL-OS-E302 'Mooring Chain' July 2018 Ch2 Sec2 §1.4 & §3.9

Periodical assessment

For retention of this Type Approval, a DNVGL surveyor shall perform a periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days). The objective of the periodical assessment is to



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Certificate No: **TAS000023U**

verify that the conditions for the Type Approval have not been altered. (Ref DNVGL-CP-0338 Type approval scheme).