

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Triangle Plates Type NBR 13715-4**

with type designation(s)

14112705-RF rev 00**14112706-RF rev 00****14112701-RF rev 01****14112702-RF rev 01****14112703-RF rev 01****14112704-RF rev 01****14112707-RF rev 00**

Issued to

**GN Rope Fittings - Grofsmederij Nieuwkoop B.V.
Nieuwkoop, Netherlands**

is found to comply with

DNV-OS-E302 "Offshore mooring chain" October 2013**Application :****To be used for Temporary, Mobile or Permanent Mooring
as defined in Offshore Standard DNV-OS-E301 "Position Mooring" October 2013****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**This Certificate is valid until **2019-08-31**.Issued at **Høvik** on **2015-08-04**DNV GL local station: **Rotterdam**Approval Engineer: **Pierre-Eric Moulia**for **DNV GL**

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.

Product description

Geometry according to Brazilian Standard ABNT NBR 13715-4.
The triangular plate is used to combine 3 mooring lines segments.

Application/Limitation

	Max break load
Triangle plate 76 mm R4	6001 kN
Triangle plate 84 mm R4	7208 kN
Triangle plate 95 mm R4	9001 kN
Triangle plate 105 mm R4	10754 kN
Triangle plate 114 mm R4	12420 kN
Triangle plate 120 mm R4	13573 kN
Triangle plate 130 mm R4	15559 kN

The approval is conditional that the manufacturer is approved by DNVGL to make R4 grade material of designations given in the type approval drawings.

The triangular plates are to be used in connection with chains for Temporary, Mobile and Long Term Mooring as defined in Offshore Standard DNV-OS-E301 "Position Mooring" October 2013.

The triangular plates shall be manufactured and tested in accordance with Offshore Standard DNV-OS-E302 "Offshore Mooring Chain" October 2013.

The approval is conditional that manufacturer is holding an Approval of Manufacturer DNVGL Certificate.

Individual Product Certificate is to be issued for each delivery.

Type Approval documentation

Tests carried out

For every order testing shall be carried out according to DNV-OS-E302 October 2013.

Marking of product

Each triangular plate shall be marked according to Offshore Standard DNV-OS-E302 "Mooring Chain" October 2013 Ch2 Sec2 §1.4.1 & §3.9.

Periodical assessment

For retention of the Type Approval, a DNVGL surveyor shall perform a survey every 2nd year and before the expiry date of this certificate, to verify that the type approval is complied with.