

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00000H5
Revision No:
2

This is to certify:

that the **Pipe System with Couplings**

with type designation(s)
LORO-X anchor clip / Slip-on joint - Grip type for LORO Piping Systems

issued to

LOROWERK K. H. Vahlbrauk GmbH & Co. KG
Bad Gandersheim, Germany

is found to comply with

DNV rules for classification – Ships
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV rules for classification – Yachts
DNV rules for classification – Offshore units
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application:

Products approved by this certificate are accepted for installation on all vessels classed by **DNV GL**.

Temperature range: 0 °C up to 95 °C
Max. pressure: 12 bar
Design: DN 50 up to DN 125

Issued at **Hamburg** on **2026-06-12**

This Certificate is valid until **2031-06-11**.

DNV local unit: **Magdeburg**

Approval Engineer: **Christof Kotzmann-Bendrien**

for **DNV**



Digitally Signed By:
Sven Klinger
Location: DNV Hamburg,
Germany

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 USD 300 000.

Product description

Design:

Steel pipework with slip-in socket joints, precision steel pipes, hot dip galvanized with additional inside coating. The ends are specially formed so that the pipe ends fit together with a rubber ring as sealing.

Sizes:

LORO-X: DN 50 – DN 125
 LORO-XCL: DN 50 – DN 125

Material:

LORO-X: Precision steel pipes acc. to DIN EN 1123 (hot dipped galvanized)
 LORO-XCL: Stainless steel no 1.4404 acc. DIN EN 1124

Sealing elements:

LORO-X: SBR/NBR/EPDM/VQM
 LORO-XCL: SBR/NBR/EPDM/VQM

Dimensions pipes:

	Loro-X	Loro-XCL
DN 50	53 x 1.5	53 x 1.0
DN 70	73 x 1.6	73 x 1.2
DN 80	89 x 1.6	88.9 x 1.2
DN 100	102 x 2.0	101.6 x 1.2
DN 125	133 x 2.5	133 x 1.5

Application/Limitation

Slip-on joint - Grip type max working pressure:

Grip type	Max working pressure
LORO-X	up to 12 bar
LORO-XCL	

The LORO-X anchor clip consists of a body made of carbon steel, hot dip galvanized, an anchor ring made of stainless steel and a supporting ring made of thermoplastic material.

The LORO-X anchor clip is type approved for the use in LORO piping systems. It is further type approved for LORO-X and XCL piping systems intended to be used in wet fire main and deck wash-, water spray-, sprinkler- and foam fire fighting systems.

The installation instruction of the manufacturer and remarks in the appropriate type approval certificate of the applicable LORO piping system are to be observed.

Type approval documentation

DNV GL-Ref.-No.: 11-070664
 Loro-X Katalog Abflussrohre für Schiff- und Offshore Technik
 Verlegeanleitung Loro-X Abflussrohre
 WTD71 Prüfprotokoll nach ISO 19921 WTA 72011 Flammtest dated 2008-01-17
 LGA Test Report No. 7381218-01 dated 2008-02-13
 Test Report No. 07-1665 eng Paconsult dated 2008-03-07
 Dwg. No. 08070050X A - Druckrohrschele DN50
 Dwg. No. 08070070X A - Druckrohrschele DN70
 Dwg. No. 08070080X A - Druckrohrschele DN80
 Dwg. No. 08070100X A - Druckrohrschele DN100
 Dwg. No. 08070125X A - Druckrohrschele DN125
 Assessment report dated 2021-05-17
 Assessment report dated 2026-06-11

Tests carried out

- Vacuum tests, burst test, tightness test, pull-out test, vibration and IACS fire test

Marking of product

For traceability of this type approval the pipe system is to be marked with:

- Manufacturers name or trademark
- Type designation

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to DNV-CP-0338, Sec.4.

The 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>

The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

END OF CERTIFICATE