

**TYPE APPROVAL CERTIFICATE****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 GL rules for classification – Ships****DNV GL rules for classification – Yachts****DNV GL rules for classification – Offshore units****DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints****DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems****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**This Certificate is valid until **2026-05-31**.Issued at **Hamburg** on **2021-06-01**DNV GL local station: **Magdeburg**Approval Engineer: **Christof Kotzmann-Bendrien**for **DNV GL****Olaf Drews**  
**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.

Job Id: **262.1-022857-2**  
Certificate No: **TAP00000H5**  
Revision No: **1**

## Product description

### Design:

Steel pipework with slip-in socket joints, precision steel pipes, hot dip galvanised 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 galvanised, 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.

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## Type Approval documentation

### Tests carried out

- Vacuum tests, burst test, tightness test, pull-out test, vibration and IACS fire test
- Test reports: paconsult No. 07-1665, LGA QualiTest GmbH No.: 7381218-01, WTD 71 No. WTA 72011
- Drawings: 08070050X - 08070125X
- Installation instruction: "VL Schelle Druck/1.5"
- DNV GL-Ref.-No.: 11-070664

### Marking of product

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

- Manufacturers name or trade mark
- Type designation

### Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey after 2 and 3,5 years and also before the expiry date of this certificate to verify that the conditions of the type approval are complied with.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued (see additionally DNVGL-CP-0338 – Class Program for Type Approval).

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