

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 **2021-10-04**.Issued at **Hamburg** on **2016-10-05**DNV GL local station: **Magdeburg**Approval Engineer: **Peter Gierhan**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: **262.1-022857-1**
Certificate No: **TAP00000H5**

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 consist of a body made of carbon steel, hot dip galvanised, an anchor ring made of stainless steel and 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, DNV GL Surveyor shall perform a survey every second year – and before the expiry date of this certificate – to verify that the conditions for the type approval are complied with and to witness burst testing on a selection of samples of above mentioned steel pipe elements selected at random from stock or from the running production.

END OF CERTIFICATE