



Lloyd's  
Register

## Type Approval Certificate Extension

*This is to certify* that Certificate No. 98/20072 (E3) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

<b>PRODUCER</b>	LOROWERK K.H. Vahlbrauk GmbH & Co. KG Kriegerweg 1 37581 Bad Gandersheim Germany
<b>DESCRIPTION</b>	Precision pipes, form pieces, deck and bulkhead penetrations from material galvanised steel, stainless steel or CuNiFe with sealing elements from either SBR, NBR, EPM, VMQ or LORO-X/VAC and LORO-XC/VAC with sealing element EPDM.
<b>TYPES</b>	LORO-X, LORO-X/VAC LORO-XC, LORO-XCL, LORO-XC/VAC LORO-VAC-CuNiFe
<b>APPLICATION</b>	On ships and offshore installations classed or intended for Classification with Lloyd's Register as scuppers above freeboard deck and below in enclosed spaces and machinery compartments without direct overboard connection, as sanitary drain pipes for grey and black water also through critical areas, e.g. kitchens, food stores, pantries and accommodation areas. Connections through Type A-bulkheads by LORO pipe penetrations.

<b>Certificate No.</b>	98/20072 (E4)
<b>Issue Date</b>	10 February 2014
<b>Expiry Date</b>	17 November 2018
<b>Sheet</b>	1 of 2

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**RATINGS**

LORO-XCL	DN 40 to DN 150
LORO-X, LORO- XC	DN 40 to DN 200
LORO-X/VAC and LORO-XC/VAC	DN 40 to DN 70
LORO-VAC CuNiFe	DN 40 to DN 50

All sizes DN 40 to DN 70 will be equipped with sealing element EPDM, Art. No. 918 X.  
LORO-X Anchor Clips for pressure pipes DN 50 – DN 125 up to 12 bar

**OTHER CONDITIONS**

At pressure exceeding 0.5 bar LORO securing / retaining clips are to be used against axial thrust. For penetrations through watertight bulk-heads valves with control from above WT bulkhead deck are to be fitted or for closed systems the additional LORO-X pressure clamp may be acceptable.

*"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."*

*The attached Design Appraisal Document No. HMD 11552-03, Issue Number 3, dated 10.02.2014 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous Certificate No. 98/20072 (E3) to which this extension should be attached.

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