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Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

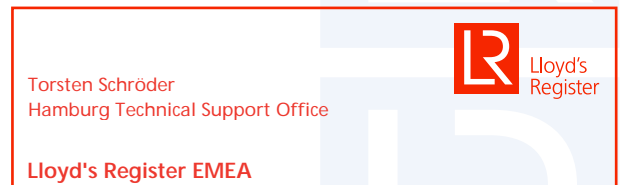
This certificate supersedes certificate number 15/20070 issued on 22.07.2015 which is hereby cancelled.

This certificate is issued to:

PRODUCER	aquatherm GmbH Biggen 5 D-57439 Attendorn Germany
DESCRIPTION	Polypropylene pipes and fitting system as single layer pipe, or multilayer composite pipe with intermediate aluminium layer or with intermediate fiber layer.
TYPES	Aquatherm green pipe SDR11S, SDR7,4S and SDR6S (old "Fusiotherm") Aquatherm green pipe SDR7,4 MS (old "Fusiotherm Stabi") Aquatherm green pipe SDR7,4 MF (old "Fusiotherm Faser") Aquatherm green pipe SDR9 MF-RP composite pipes Aquatherm red pipe SDR7,4 MF HI (old "Aquatherm Firestop") Aquatherm blue pipe SDR7,4 MF (old "Climatherm Faser SDR7,4") Aquatherm blue pipe SDR11 MF (old "Climatherm Faser SDR11") Aquatherm blue pipe SDR17,6 MF
APPLICATION	In ship and offshore installations for potable water (only Aquatherm green pipe), sanitary water and hot water heating systems. Aquatherm blue pipe can only be used when fitted on open decks and within tanks, cofferdams, void spaces, pipe tunnels and ducts.

Certificate No.	15/20070 (E1)
Issue Date	08 February 2016
Expiry Date	05 January 2021
Sheet	1 of 3

Lloyd's Register EMEA
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RATINGS

Aquatherm green pipe (old "Fusiotherm"):
PN10 (SDR11 S, old SDR11): OD 20 to OD 450 mm
PN16 (SDR7,4 S, old SDR7,4): OD 16 to OD 110 mm
PN20 (SDR6 S, old SDR6): OD 16 to OD 110 mm

Aquatherm green pipe SDR7,4 MS (old "Fusiotherm Stabi- composite SDR7,4")
PN20: OD 16 to OD 110 mm

Aquatherm green pipe SDR7,4 MF (old "Fusiotherm Faser- composite SDR7,4")
PN20: OD 20 to OD 355 mm

Aquatherm green pipe SDR9 MF-RP
PN15: OD 32 to OD 355 mm

Aquatherm red pipe SDR7,4 MF HI (old "Aquatherm Firestop SDR7,4"):
PN20: OD 20 to OD 125 mm

Aquatherm blue pipe SDR11 S (old "Climatherm SDR11"):
PN10: OD 20 to OD 160 mm

Aquatherm blue pipe SDR7,4 MF, SDR11 MF (old "Climatherm Faser SDR7,4, SDR11")
PN16 (SDR7.4) : OD 25 to OD 32 mm
PN10 (SDR11) : OD 32 to OD 450 mm

Aquatherm blue pipe SDR17,6 MF
PN8: OD 160 to OD 630 mm

STANDARDS

Lloyd's Register Rules and Regulations for the Classification of Ships 2015

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OTHER CONDITIONS For selection and installations of the pipes and fittings the producer's instructions and recommendations are to be adhered to. Furthermore the requirements of the IMO Resolution to be followed where applicable. Pipes within accommodation, service and control spaces are either not to be capable of producing excessive quantities of smoke and toxic products or are adequately insulated against fire.

The use of plastic pipes may be restricted by statutory requirements of the National Authority of the country in which the ship is to be registered.

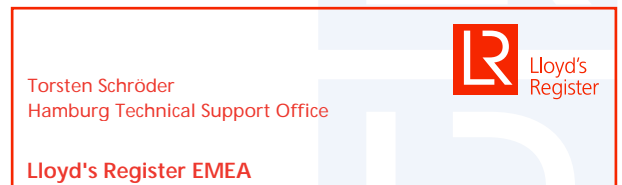
The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ENS 32995-15, issue no. 1 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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