TYPE APPROVAL CERTIFICATE
No. **MAC213816XG**

This is to certify that the product identified below is in compliance with the regulations herewith specified.

Description	**Plastic pipes and fittings**
Type	**Raxofix pipes and fittings**
Applicant	**VIEGA GMBH & CO.KG** **ENNESTER WEG 9 D-57439 ATTENDORN** **GERMANY**
Manufacturer	**VIEGA GMBH & CO.KG**
Place of manufacture	**ENNESTER WEG 9 D-57439 ATTENDORN** **GERMANY**
Reference standards	**Part C, Chapter 1 Appendix 3 of RINA Rules**

Issued in **HAMBURG** on **January 10, 2017**. *This Certificate is valid until* **January 9, 2022**

RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure

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No. **MAC213816XG**
Enclosure - Page 1 of 2
Raxofix pipes and fittings

Reference Documents:

Catalogue titled Raxofix with SC-Contur and approved under RINA drawing no. HMMC-7921
Guide for Raxofix pipe installation
Test report no. 122170/16 regarding the burning rate according to ASTM D 635-06 dated 20 September 2016
Report regarding the tightness and burst pressure test of Raxofix pipes dated 25 August 2011
DVGW type examination certificate no. DW-8501BU0124
Certificate of Austrian Standards Institute no. ON-N 2010 051 dated 30 March 2010

Technical Characteristic:

Multilayer pipes PE-Xc/Al/PE-Xc:
dimensionally stable, oxygen-proof in accordance. with DIN 4726, grey
Multilayer pipes PE-Xc:
flexible, black
Press fittings and pipes dimensions:
Raxofix-PE-Xc/Al/PE-Xc: diameter 16/20/25/32/40/50/63
Raxofix PE-Xc: diameter 16/20

Working Conditions:

Drinking water installations:
Operating temperature max. 70 °C
Operating pressure max. 1.0 MPa
Heating installations:
Operating temperature max. 80 °C
Operating pressure max. 1.0 MPa

Fields of Application:

Multilayer pipes PE-Xc/Al/PE-Xc:
Non-essential systems intended for hot and cold fresh water located in accommodation space.
Multilayer pipes PE-Xc:
Non-essential systems intended for cold fresh water located in accommodation space.

Acceptance Conditions:

This product passing through hazardous areas is to be electrically conductive according to Pt C, Ch 1, App 3 [2.3.3] of RINA Rules.
This product passed the low flame spread test according to ASTM D 635, so it is suitable to be installed in places where this characteristic is required, according to Pt C, Ch 1, App 3 [2.3.2] of RINA Rules.

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Enclosure - Page 2 of 2
Raxofix pipes and fittings

Remarks:

The installation on board of the piping system is to be carried out in accordance with the instructions of the manufacturer and of the RINA Rules as applicable.
Joining techniques are to be in accordance with the manufacturer's installation guidelines.
Where pipes pass through "A" and "B" class divisions, arrangements are to be made to ensure that fire endurance is not impaired. These arrangements are to be tested in accordance with "Recommendations for Fire Test Procedures for "A" and "B" and "F" Bulkheads" (IMO Resolution A.753(18) as amended).
In case of ships flying EC flag, the bulkhead penetrations are to be Certified in accordance with 96/98/EC directive on marine equipment (as amendend) (MED).
When the piping pierces watertight bulkheads or decks, the watertight integrity of the bulkhead or deck is to be maintained. If the bulkhead or deck is also a fire division and destruction of plastic pipes in case of fire may cause the inflow of liquid from tanks, a metallic shut-off valve operable from above the freeboard deck is to be fitted at the bulkhead or deck.
For systems connected to the hull, requirements of Pt C, Ch 1, App 3 [3.7.2] of RINA Rules are to be complied with.
Pipes and fittings are to be permanently marked in compliance with Pt C, Ch 1, App 3 [2.1.2] of RINA Rules.
Before installation on board, pipes and fittings are to be tested by the manufacturer as per Pt C, Ch 1, App 3 [4.2] of RINA Rules and after installation on board, according to Pt C, Ch 1, App 3 [4.3] of RINA Rules.
The installation on board ships being built according to the RINA Rules for the Construction and Classification of High Speed Crafts" is subject to the satisfactory outcome of tests foreseen by IMO Resolution A.753(18).

HAMBURG January 10, 2017

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