



**TYPE APPROVAL CERTIFICATE**  
**No. MAC009320CS/001**

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

<i>Description</i>	<b>Plastic pipes and fittings- joints</b>
<i>Type</i>	<b>Fuseal®/ SeaDrain® White Piping System</b>
<i>Applicant</i>	<b>GEORG FISCHER HARVEL LLC - Georg Fischer Harvel LLC 7777 Sloane Drive 72206 Little Rock (Arkansas) U.S.A.</b>
<i>Manufacturer</i>	<b>GEORG FISCHER HARVEL LLC - Georg Fischer Harvel LLC</b>
<i>Place of manufacture</i>	<b>7777 Sloane Drive 72206 Little Rock (Arkansas) U.S.A.</b>
<i>Reference standards</i>	<b>Part C, Chapter 1 Appendix 3 of RINA Rules</b>

*Issued in* **Genoa** on **July 3, 2020**. *This Certificate is valid until* **July 2, 2025**

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RINA Services S.p.A.  
**Marco Dardano**

This certificate consists of this page and 1 enclosure

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No. **MAC009320CS/001**  
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**Fuseal®/ SeaDrain® White Piping System**

**Type**

PIPES: Fuseal ® or Seadrain® White  
FITTINGS: Fuseal ® or Seadrain® White

**Reference documents**

Georg Fischer +GF+ Fuseal Technical Catalogue Item#1280 (05/2012) "Fuseal Corrosive Waste Piping System" Technical data of pipes and fittings. Seadrain® White 2020 Technical Product guide. External pressure tests ASTM D2924-12 No. 18.18288.01.001 - 04/2020

**Materials**

Thermoplastic pipes and fitting (PPFR)

**Technical characteristics**

Non-pressure system

Size Range : 1 1/2in up to 6in (DN40 up to DN150)

Maximum Allowable Temperature: 80°C, for short intervals up to 100°C

Pipes: Schedule 40, Group 1, Flame-Retardant Polypropylene (PPFR), Bluish or white color.

Fittings: Fuseal, Flame-Retardant Polypropylene (PPFR) (bends, reducers, wyes, adapters couplings, caps, bushings, expansion joints, flanges, fusion collars)

**Range of application**

Non essential and non pressure systems for fresh and sea water, including black & grey water sanitary drains internal systems located above freeboard deck or below freeboard deck in enclosed spaces and machinery compartments without direct overboard connection.

The a.m. products are accepted on those systems subject to external pressure.

The a.m. products are acceptable on those locations where low flame spread characteristic is required according to Par 2.3.2, Appendix 3, Chapter 1, Part C of RINA Rules.

**Acceptance conditions**

The arrangement and installation of the plastic pipes on board is to made in compliance with Pt. C, Ch. 1, Appendix 3 of RINA Rules and with Manufacturer's instructions.

Plastic pipes and fittings are to be permanently marked with identification in compliance with Par 2.1.2 of a.m. Appendix 3.

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**Fuseal SeaDrain® Piping System**

At watertight bulkhead or deck penetrations a shut-off valve operated from above the freeboard deck has to be installed.

Where plastic pipes pass through "A" or "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 Procedure for "A", "B" and "F" Bulkheads" (IMO Resolution A754 (18) as amended).

All pipes shall be retained by clamps or clips against movements in all directions. In particular, in the case of installation in areas where any possible leakage is to be avoided, is to be foreseen further precautions by the Manufacturer.

The workshop tests and testing after installation on board are to be carried out in compliance with Par 4.2 and 4.3 of a.m. Appendix 3.

**Remarks**

For the use on passenger vessels other national regulations may have to be observed.

The installation on board ships built according to the "Rules for the construction and classification of high speed crafts" of RINA is subject to the satisfactory outcome of the tests foreseen by IMO Resolution A.753(18).

This certificate annuls and replaces the previous one MAC291418CS dated 28/09/2018.

**Genoa 02/07/2020**