



TYPE APPROVAL CERTIFICATE
No. MAC246519CS/001

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

<i>Description</i>	Plastic pipes and fittings
<i>Type</i>	Wavin TIGRIS M1-M5 Systems
<i>Applicant</i>	WAVIN ITALIA SPA VIA BOCCALARA, 24 45030 SANTA MARIA MADDALENA (RO) ITALY
<i>Manufacturer</i>	WAVIN GMBH KUNSTSTOFF-ROHRSYSTEME
<i>Place of manufacture</i>	INDUSTRIESTRASSE 20 D-49767 TWIST GERMANY
<i>Reference standards</i>	Parte C, Capitolo 1, Appendice 3 delle Norme RINA

Issued in **Genoa** on **April 21, 2020**. This Certificate is valid until **April 20, 2025**

RINA Services S.p.A.
Marco Dardano

This certificate consists of this page and 1 enclosure

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No. MAC246519CS/001

Enclosure - Page 1 of 1

Wavin TIGRIS M1-M5 Systems

Reference documentation:

Wavin Tigris M1-M5 "Listino Generale"(2019) from page no. 1 to page no. 5 and from page no.18 to page no. 40.

Test Report 25/09/2013 (Burst test) by Wavin Italia SpA

Test Report 28/02/2020 (Burst test) by Wavin Italia SpA

Test Report No. 2013CS012839 (Flame spread) by RINA Laboratory in accordance to ASTM D635.

Materials:

Pipe: Inner layer Polyethylene (PE-Xc), aluminium and outer layer of PE-RT

Fittings: Tinned brass press-fit sleeve in stainless steel.

Thermic characteristic:

Wavin Tigris M1-M5 "Listino Generale"(2019)

Dimension:

Nominal diameter (ND) and thickness are indicated in the follow table:

	M5							M1		
ND (mm)	16	20	20	25	26	32	40	40	50	63
Thickness (mm)	2	2,0	2,25	2,5	3	3	4	4	4,5	6

Design pressure

Design pressure (DP) and relevant working temperature are indicated in the follow:

Temperature [°C]	Pressione di progetto [bar]
60	8
95	6

Appllicable range:

Sanitary system, heating system and conditioning system where low flame attitude characteristic is required like indicated in para. 2.3.2 of Part C, Cap, 1, App. 3 of RINA Rules.

Marking:

Pipes and fittings are to be marked in accordance with Para. 2.1.2 of Part C, Cap, 1, App. 3 of RINA Rules 2013.

Place of manufacturing:

- *Pipe:*

"Wavin MPC Multilayer pipe Company SP.Z.O.O."

PECZ 59 - 57- 100

Strzelin

Poland

- *Fittings:*

"Ningbo Friendship Bronze Ware Co., Ltd."

No.268,Xiaolin Avenue, Xiaolin Town, Cixi

Zhejiang Province,315321,China

CERTIFICATO DI OMOLOGAZIONE DI TIPO

N. MAC246519CS/001

Allegato - Pagina 2/2

Wavin TIGRIS M1-M5 Systems

Remarks:

Installation on board is to be carried out in accordance with Manufacturer instruction.

Before installation on board, all components are to be tested by the Manufacturer in accordance with Para. 4.2 and after installation on board in accordance with Para. 4.3 of App. 3.

Installation on board of ships built in accordance with RINA "Rules for Classification of High Speed Craft" is subordinated to the full compliance to the requirement of IMO Resolution A.753(18).

Genoa April 21, 2020