



Marine &amp; Offshore

Certificate number: 61262/A0 BV

File number: .

Product code: 2080H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Zhejiang Weixing New Building Materials Co., Ltd.**  
TAIZHOU - CHINA

*for the type of product*

**THERMOPLASTIC MATERIAL PIPES AND FITTINGS**  
MF-PPR & PPR Pipes and Fittings

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

IMO Resolution A.753(18) as amended by IMO Resolution MSC.313(88) & IMO Resolution MSC.399(95)

ASTM D635-18

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 28 Aug 2025**

**For Bureau Veritas Marine & Offshore,**

At BV SHANGHAI, on 28 Aug 2020,

Jennifer Zhang



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 8 page(s)

## THE SCHEDULE OF APPROVAL

### I. PRODUCT DESCRIPTION

Marine MF-PPR & PPR Pipes and Fittings (Flange, Tee, Bend, Socket)

<b>Conveyed Fluids</b>	Drinking water, cool & hot water, fresh water, drainage water, sea water, ballast water
<b>Temperature Range (°C)</b>	0°C-95°C
<b>External Pressure (MPa)</b>	0.4

#### 1.1 Technical Data

##### a) PPR Plastic pipes Design Internal Pressure (MPa)

Nominal Outside Diameter [mm]	Nominal wall Thickness [mm]			
	Nominal Pressure [MPa]	Nominal Pressure [MPa]	Nominal Pressure [MPa]	Nominal Pressure [MPa]
	<b>1.0</b>	<b>1.25</b>	<b>1.6</b>	<b>2.0</b>
20	2.0	2.3	2.8	3.4
25	2.3	2.8	3.5	4.2
32	2.9	3.6	4.4	5.4
40	3.7	4.5	5.5	6.7
50	4.6	5.6	6.9	8.3
63	5.8	7.1	8.6	10.5
75	6.8	8.4	10.3	12.5
90	8.2	10.1	12.3	15.0
110	10.0	12.3	15.1	18.3
125	11.4	14.0	17.1	20.8
140	12.7	15.7	19.2	23.3
160	14.6	17.9	21.9	26.6

*Design Internal pressure are expressed in MPa*

##### b) MF-PPR Plastic pipes Design Internal Pressure (MPa)

Nominal Outside Diameter [mm]	Nominal wall Thickness [mm]			
	Nominal Pressure [MPa]	Nominal Pressure [MPa]	Nominal Pressure [MPa]	Nominal Pressure [MPa]
	<b>1.25</b>	<b>1.6</b>	<b>2.0</b>	<b>2.5</b>
20	-	2.3	2.8	3.4
25	-	2.8	3.5	4.2
32	-	3.6	4.4	5.4
40	3.7	4.5	5.5	6.7
50	4.6	5.6	6.9	8.3
63	5.8	7.1	8.6	10.5
75	6.8	8.4	10.3	12.5
90	8.2	10.1	12.3	15.0
110	10.0	12.3	15.1	18.3
125	11.4	14.0	17.1	20.8
140	12.7	15.7	19.2	23.3
160	14.6	17.9	21.9	26.6

*Design Internal pressure are expressed in MPa*

#### 1.2 Raw Material

##### a) PPR Plastic Pipes and Fitting

<b>PPR layer</b>	Hostalen H546T supplied by Basel company
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##### b) MF-PPR Plastic pipes

<b>Inner and Outer PPR layer</b>	Hostalen H546T supplied by Basel company
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<b>Modified fiber layer</b>	ER13-2000-9 10 supplied by China Jushi
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*When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.*

**2. DOCUMENTS AND DRAWINGS**

Reference	Product	Date	Description
WXJC/MS/W-19-59	MF-PPR PPR	15/05/2019	Marine plastic pipe & fittings approval test program <i>Includes: Application range, Production Process, Product specification and dimension, Type test program, Pipe fittings dimension structure diagram</i>
WXJC/MS/W-20-16	MF-PPR PPR	05/04/2020	Introduction of MF-PPR/PPR products <i>Includes: Product specification and dimension, Advantages, Main raw material/parts list, Manufacturing process and control factors, Property of products, Guide of installation.</i>
WXJC/MS/W-19-21	MF-PPR PPR	---	Catalogue including all the different types of fittings
---	MF-PPR PPR	---	Hostalen H546T Data sheet <i>as per the document "Material 100000h" as uploaded on 27/02/2020</i>
WXJC/MS/W-19-13	MF-PPR	---	Technical datasheet of the modified fiber layer <i>as uploaded on 28/04/2020</i>

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

**3. TEST REPORTS****3.1 Type tests performed by the applicant "Zhejiang Weixing New Building Materials Co., Ltd.":****a) PPR Products****Internal Pressure (Short-Term)**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1 (S5)	Top	DN 160	20200720C0029	2020-07-20
	Middle	DN75	20200706C0029	2020-07-06
	Bottom	DN20	20200706C0027	2020-07-06
1.25 (S4)	Top	DN 160	20200720C0028	2020-07-20
	Middle	DN75	20200720C0025	2020-07-20
	Bottom	DN20	20200720C0022	2020-07-20
1.6 (S3.2)	Top	DN 160	20200706C0031	2020-07-06
			20190523C0360	2019-05-29
	Middle	DN75	20190523C0359	2019-05-29
2 (S2.5)	Bottom	DN20	20200720C0021	2020-07-20
	Top	DN 160	20200706C0030	2020-07-06
	Middle	DN75	20200706C0028	2020-07-06
	Bottom	DN20	20200706C0026	2020-07-06
			20190523C0358	2019-05-29

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 1599.

**External Pressure**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1 (S5)	Top	DN 160	20200720C0029	2020-07-20
	Middle	DN75	20200720C0026	2020-07-06
	Bottom	DN20	20200720C0023	2020-07-06
1.25 (S4)	Top	DN 160	20200720C0028	2020-07-20
	Middle	DN75	20200720C0025	2020-07-20
	Bottom	DN20	20200720C0022	2020-07-20
1.6 (S3.2)	Top	DN 160	20190523C0363	2019-05-29
	Middle	DN75	20190523C0362	2019-05-29
	Bottom	DN20	20200720C0021	2020-07-20
2 (S2.5)	Top	DN 160	20200720C0027	2020-07-20
	Middle	DN75	20200720C0024	2020-07-20
		DN20	20190523C0361	2019-05-29

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2924

**Axial Strength**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1 (S5)	Top	DN 160	20200720C0029	2020-07-20
	Middle	DN75	20200706C0029	2020-07-06
	Bottom	DN20	20200706C0027	2020-07-06
1.25 (S4)	Top	DN 160	20200720C0028	2020-07-20
	Middle	DN75	20200720C0025	2020-07-20
	Bottom	DN20	20200720C0022	2020-07-20
1.6 (S3.2)	Top	DN 160	20200706C0031	2020-07-06
	Middle	DN75	20190925C0344	2019-12-05
	Bottom	DN20	20190925C0343	2019-12-05
2 (S2.5)	Top	DN 160	20200706C0030	2020-07-06
			20190925C0345	2019-12-05
	Middle	DN75	20200706C0028	2020-07-06
		DN20	20200706C0026	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ISO 6259

**Load Deformation**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1 (S5)	Top	DN 160	20200507C0052a	2020-05-07
	Middle	DN75	20200706C0029b	2020-07-06
	Bottom	DN20	20200706C0027b	2020-07-06
1.25 (S4)	Top	DN 160	20200720C0028b	2020-07-20
	Middle	DN75	20200720C0025b	2020-07-20
	Bottom	DN20	20200720C0022b	2020-07-20
1.6 (S3.2)	Top	DN 160	20200706C0031b	2020-07-06
	Middle	DN75	20190925C0344b	2019-12-05
			20200507C0051a	2020-05-07
	Bottom	DN20	20190925C0343b	2019-12-05
			20200507C0050a	2020-05-07
2 (S2.5)	Top	DN 160	20200706C0030b	2020-07-06
			20190925C0345b	2019-12-05
	Middle	DN75	20200706C0028b	2020-07-06
		DN20	20200706C0026b	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2412

b Tests performed according to the ISO 9969

**Impact Resistance**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1 (S5)	Top	DN 160	20200720C0029	2020-07-20
	Middle	DN75	20200706C0029	2020-07-06
	Bottom	DN20	20200706C0027	2020-07-06
1.25 (S4)	Top	DN 160	20200720C0028	2020-07-20
	Middle	DN75	20200720C0025	2020-07-20
	Bottom	DN20	20200720C0022	2020-07-20
1.6 (S3.2)	Top	DN 160	20200706C0031	2020-07-06
			20190523C0366	2019-05-29
	Middle	DN75	20190523C0365	2019-05-29
	Bottom	DN20	20200720C0021	2020-07-20
2 (S2.5)	Top	DN 160	20200706C0030	2020-07-06
	Middle	DN75	20200706C0028	2020-07-06
	Bottom	DN20	20200706C0026	2020-07-06
			20190523C0364	2019-05-29

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2444 & ISO 1167.

**Internal Pressure- Long term / Vicat Softening Temperature / Ageing Test / Fatigue Test**

Range (Nominal Pressure)	Nominal Diameter	Test Report N°	Date
1.6 (S3.2)	DN75	20190925C0344	2019-12-05
	DN20	20190925C0343	2019-12-05
2 (S2.5)	DN 160	20190925C0345	2019-12-05

a Internal Pressure- Long term according to the ISO 1167.

b Vicat Softening Temperature according to the ISO 306.

c Ageing Test according to the ISO 75-2.

d Fatigue Test according to the ISO 75-2.

**b) MF-PPR Products****Internal Pressure (Short-Term)**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1.25 (S5)	Top	DN 160	20200706C0025	2020-07-06
	Middle	DN75	20200706C0023	2020-07-06
	Bottom	DN20	-	-
1.6 (S4)	Top	DN 160	20190523C0345	2019-05-29
	Middle	DN75	20190523C0344	2019-05-29
	Bottom	DN20	20200706C0021	2020-07-06
2.0 (S3.2)	Top	DN 160	20200720C0019	2020-07-20
	Middle	DN75	20200720C0016	2020-07-20
	Bottom	DN20	20190523C0343	2019-05-29
2.5 (S2.5)	Top	DN 160	20200706C0024	2020-07-06
	Middle	DN75	20200706C0022	2020-07-06
	Bottom	DN20	20200706C0020	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 1599.

**External Pressure**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1.25 (S5)	Top	DN 160	20200720C0020	2020-07-20
	Middle	DN75	20200808C0011	2020-08-10
	Bottom	DN20	-	-
1.6 (S4)	Top	DN 160	20190523C0348	2019-05-28
	Middle	DN75	20190523C0347	2019-05-28
	Bottom	DN20	20200720C0014	2020-07-20
2.0 (S3.2)	Top	DN 160	20200720C0019	2020-07-20
	Middle	DN75	20200720C0016	2020-07-20
	Bottom	DN20	20190523C0346	2019-05-28
2.5 (S2.5)	Top	DN 160	20200720C0018	2020-07-20
	Middle	DN75	20200720C0015	2020-07-20
		DN20	20200720C0013	2020-07-20

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2924

**Axial Strength**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1.25 (S5)	Top	DN 160	20200706C0025	2020-07-06
	Middle	DN75	20200706C0023	2020-07-06
	Bottom	DN20	-	-
1.6 (S4)	Top	DN 160	20190523C0342	2019-05-29
	Middle	DN75	20190523C0341	2019-05-29
	Bottom	DN20	20200706C0021	2020-07-06
2.0 (S3.2)	Top	DN 160	20200720C0019	2020-07-20
	Middle	DN75	20200720C0016	2020-07-20
	Bottom	DN20	20190925C0340	2019-12-05
2.5 (S2.5)	Top	DN 160	20200706C0024	2020-07-06
	Middle	DN75	20200706C0022	2020-07-06
	Bottom	DN20	20200706C0020	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ISO 6259

**Load Deformation**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1.25 (S5)	Top	DN 160	20200706C0025b	2020-07-06
	Middle	DN75	20200706C0023 b	2020-07-06
	Bottom	DN20	-	-
1.6 (S4)	Top	DN 160	20190925C0342b	2019-12-05
			20200507C0049a	2020-05-07
	Middle	DN75	20190925C0341b	2019-12-05
			20200507C0048a	2020-05-07
	Bottom	DN20	20200706C0021b	2020-07-06
2.0 (S3.2)	Top	DN 160	20200720C0019b	2020-07-20
	Middle	DN75	20200720C0016b	2020-07-20
	Bottom	DN20	20190925C0340b	2019-12-05
			20200507C0047a	2020-05-07
2.5 (S2.5)	Top	DN 160	20200706C0024b	2020-07-06
	Middle	DN75	20200706C0022b	2020-07-06
	Bottom	DN20	20200706C0020b	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2412

b Tests performed according to the ISO 9969

**Impact Resistance**

Range (Nominal Pressure)	Sampling	Nominal Diameter	Test Report N°	Date
1.25 (S5)	Top	DN 160	20200706C0025	2020-07-06
	Middle	DN75	20200706C0023	2020-07-06
	Bottom	DN20	-	-
1.6 (S4)	Top	DN 160	20190523C0351	2019-05-28
	Middle	DN75	20190523C0350	2019-05-28
	Bottom	DN20	20200706C0021	2020-07-06
2.0 (S3.2)	Top	DN 160	20200720C0019	2020-07-20
	Middle	DN75	20200720C0016	2020-07-20
	Bottom	DN20	20190523C0349	2019-05-28
2.5 (S2.5)	Top	DN 160	20200706C0024	2020-07-06
	Middle	DN75	20200706C0022	2020-07-06
	Bottom	DN20	20200706C0020	2020-07-06

All test reports have been issued by the applicant "Zhejiang Weixing New Building Materials Co., Ltd."

a Tests performed according to the ASTM D 2444 & ISO 1167.

**Internal Pressure- Long term / Vicat Softening Temperature / Ageing Test / Fatigue Test**

Range (Nominal Pressure)	Nominal Diameter	Test Report N°	Date
1.6 (S4)	DN160	20190925C0342	2019-12-05
	DN75	20190925C0341	2019-12-05
2.0 (S3.2)	DN 20	20190925C0340	2019-12-05

a Internal Pressure- Long term according to the ISO 1167.

b Vicat Softening Temperature according to the ISO 306.

c Ageing Test according to the ISO 75-2.

d Fatigue Test according to the ISO 75-2.

**3.2 Type tests performed at a testing Laboratory:**

Test Report	Date	Description
SHIN190601836CCM	16/10/2019	PPR products Corrosion Resistance, Water absorption and Horizontal combustibility as per ASTM D635-18 <i>performed at SGS, Shanghai, China</i>
SHIN190601835CCM	16/10/2019	MF-PPR products Corrosion Resistance, Water absorption and Horizontal combustibility as per ASTM D635-18 <i>performed at SGS, Shanghai, China</i>

**3.3 Tests not carried out:**

Fire endurance test and Smoke Generation Test and toxicity

**4. APPLICATION / LIMITATION**

4.1 - Approved for use in locations and for non-essential applications where no fire endurance test is required according to NR467 Pt C, Ch 1, App 3 [2.5.1] of Bureau Veritas Rules or appendix 4 of IMO Resolution A.753 (18) when the abbreviations "O or NA" are specified. For inst. domestic water system (hot/cold, sea and fresh water), chilled and potable water systems, sanitary systems, heating systems and non-essential systems. Further these products are not to be installed in hazardous areas.

4.2 - Detailed drawings of piping system for each application on board ships are to be submitted for review of compliance with the BUREAU VERITAS Rules and the applicable regulations.

4.3 - Pipes and fittings assembly is to be carried out in accordance with the manufacturer's instructions and the person performing these tasks is to be qualified to the satisfaction of the Society Surveyor.

4.4 - Behaviour in case of fire (smoke generation and toxicity) is to be deemed satisfactory by the flag authorities of the vessel on board which the piping system is fitted.

4.5 - The pipes and fittings have not been type tested for fire endurance test and smoke generation and toxicity.

**5. PRODUCTION SURVEY REQUIREMENTS**

5.1 - Pipes and Fittings are to be supplied by **Zhejiang Weixing New Building Materials Co., Ltd.** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **Zhejiang Weixing New Building Materials Co., Ltd.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - Each pipe and fitting is to be tested by the manufacturer at a hydrostatic pressure not less than 1.5 times the nominal pressure.

5.5 - For information **Zhejiang Weixing New Building Materials Co., Ltd.** has declared to BUREAU VERITAS the following production site:

**Zhejiang Weixing New Building Materials Co., Ltd.**

229 Baiye Middle Rd,  
Economic Development Zone, Linhai,  
6 Qianjiang South Street,  
Economic Development Zone, Linhai,  
TAIZHOU  
CHINA

**6. MARKING OF PRODUCT**

Pipes and fittings shall be marked with at least:

- Manufacturer's name or logo
- Type and size of the product
- Pressure rating
- Design standard
- Raw material

The permanent label for the product shall remain legible under normal handling and installation practices.

**7. OTHERS**

It is **Zhejiang Weixing New Building Materials Co., Ltd.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

\*\*\* END OF CERTIFICATE \*\*\*