



Marine & Offshore

Certificate number: 07123/E0 BV

File number: ACM 135/1317/002

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

F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a
Casella (GE) - ITALY

for the type of product

THERMOPLASTIC MATERIAL PIPES AND FITTINGS

PVC-U Pipes*, Fittings and Valves

* Note: Pipes are made by LA.RE.TER s.p.a.

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- FTP Code, Resolution MSC.61(67), IMO Resolution A.753(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: 09 Nov 2023

For Bureau Veritas Marine & Offshore,

At BV VENEZIA, on 09 Nov 2018,

Sandro BRUSEGAN



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. 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 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

PVC-U Pipes, Fittings and Valves

1.1 Technical Data

| Type | Size range (mm) | Nominal Pressure (bar) | Temperature range (°C) |
|----------------|-----------------------|--|------------------------|
| Fittings | 16 to 315 | PN 6/10/16 | 0 / +60 |
| Valves | 12 to 315 | PN 4/6/8/10/16 | 0 / +60 |
| Clamps Saddles | 32 x 1/2" to 225 x 3" | PN 16 | 0 / +60 |
| Pipes* | 16 to 315 | PN 6 / PN 10 / PN 12,5 / PN 16 / PN 20 | 0 / +60 |

- The maximum service pressure is not to exceed the value specified by the manufacturer

- Jointing: Cold (chemical) welding using solvent cement, flanging or threaded connections

* *The pipes are made by LA.RE.TER. s.p.a. at Fiesso Umbertiano - Italy and covered under BV TAC 37713/A0 BV*

1.2 Raw material specification

| | |
|----------------------------------|----------------|
| Fittings, valves, clamps saddles | PVC-U |
| Sealings depending on type | EPDM, NBR, FPM |

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- Catalogue LEVAMAV dated 03/2018 - PVC-U Manual Valves (Types CM, DK, FE, FK, RV, SXE, TKD, VA, VE, VEE, VKD, VKR, VM, VM/RM, CR, SSE, VR, VV, VXE, VX, VZ)

- Catalogue LERACCV uploaded on 28/07/2018 - PVC-U Fittings

- Catalogue LE3GSYSTEM uploaded on 28/07/2018 : Magnum system - Clamps saddles (UIFV)

- See TAC 37713/A0 BV for LA.RE.TER pipes

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

- Short-term hydrostatic test reports N° ST4/2017 dated July 2017, ST5/2017 dated June 2017, ST6/2017 dated July 2017 & ST14/2017 dated June 2017.

- Long-term hydrostatic test reports N° LT1/2017 dated June 2017, N° LT2/2017 dated May 2017 & N° LT3/2017 dated May 2017 (fittings).

- Long-term hydrostatic test reports N° LT8/2017 dated July 2017, N° LT9/2017 dated May 2017, N° LT10/2017 dated March 2017, N° LT11/2017 dated September 2017 & LT12/2017 dated June 2017 (valves).

- Axial strength test report dated 05/09/2014.

- VICAT test report N° 3/2018 dated 25/02/2018.

- Ageing test report dated 03/04/2018.

- Water absorption test report dated 02/04/2014.

- Bonding qualification test dated 29/10/2015.

- Tests not carried out: fire endurance test, flame spread test, smoke generation test, toxicity test and electrical conductivity test.

- See TAC 37713/A0 BV for LA.RE.TER pipes

4. APPLICATION / LIMITATION

4.1 PVC-U piping systems are approved for use in locations and for non-essential applications where no fire endurance test and no flame spread characteristics are required according to Pt C, Ch 1, App 3 [2.3.1] of Bureau Veritas Rules or appendix 4 of IMO Resolution A.753 (18) when the abbreviations "O or NA" are specified:

- Domestic water system (cold sea and fresh water), chilled and potable water systems, heating systems and non-essential systems.

4.2 The valves are not to be used as ship side valves.

4.3 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.

4.4 The 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.

4.5 The pipes, valves and fittings have not been type tested for fire endurance, flame spread, smoke generation, toxicity and electrical conductivity.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a** 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 **F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR 320 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. Other recognised national or international standard may be accepted for pipes and fittings not employing hand lay up techniques. Depending upon the intended application the Society may require the pressure testing of each pipe and/or fitting.

For information, **F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a** has declared to Bureau Veritas the following production sites:

- Fittings, Valves and Clamp Saddles: **F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a, Pian di Parata, I-16015 Casella (GE), ITALY**
- Pipes: **LA.RE.TER. s.p.a., Via Occhiobello, 732, 45024 Fiesso Umbertiano (RO), ITALY**

6. MARKING OF PRODUCT

The product shall be marked with at least:

- Manufacturer's name or logo
- Product description
- Size and pressure rating
- Design standard
- Raw material
- Production date

7. OTHERS

It is **F.I.P. FORMATURA INIEZIONE POLIMERI S.p.a**'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.

This certificate supersedes the Type Approval Certificate N° 07123/D0 BV issued by the Society.

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