CERTIFICATE NUMBER	23-2453714-PDA
EFFECTIVE DATE	13-Oct-2023
EXPIRY DATE	12-Oct-2028
ABS TECHNICAL OFFICE	Genoa Engineering Department

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

FIP - FORMATURA INIEZIONE POLIMERI S.P.A.

located at

LOCALITA PIAN DI PARATA 16015 CASELLA (GE), , CASELLA (GE), Italy, 16015

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product:	**Thermoplastic Pipe, Fittings and Joints**
Model:	**TEMPERFIP 100 PVC-C Pipes, Fittings and Valves, HTA Valves**
Endorsements:	
Tier:	**3 - Type Approved, unit certification not required**

This Product Design Assessment (PDA) Certificate remains valid until 12/Oct/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Cristina Generale,Engineer/Consultant

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Tier: 3 - Type Approved, unit certification not required

Product: **Thermoplastic Pipe, Fittings and Joints**
Model: **TEMPERFIP 100 PVC-C Pipes, Fittings and Valves, HTA Valves**
Endorsements:

Intended Service:
Class III piping systems for non-essential services such as salt and freshwater systems including bilge, ballast, deck wash, sanitary and cooling water systems, scuppers.

Description:
PVC-C pipes, valves and fittings with seals in EPDM, FKM or PTFE.

Rating:
From DN10 to DN300, PN6 to PN25.
For details refer to attachment.

Service Restriction:
1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. Production tests to be carried out as per 4-6-3/9 and 4-6-3/19 of the ABS Marine Vessels Rules.
3. Usage limited to applications where "no fire endurance test" is required by 4-6-3/ Table 1 of the ABS Marine Vessels Rules.
4. The valves are not to be used as ship side valves.
5. Detailed drawings of piping system for each application on board are to be submitted for review.
6. Acceptability of flame spread tests performed in accordance with ASTM D635 may be subject to approval by the Administration of the vessel's Registry. The piping system is tested to Low Flame Spread in accordance with IMO Resolution A.653(16) and MSC.399(95).
7. Not to be used for any installation within tanks or other locations which may be subject to a head of liquid on the outside of the pipe.
8. Not to be used to convey fluids with a conductivity of less than 1000 pico-siemens per meter, nor for installation in hazardous areas (regardless of conveyed fluid)
9. Pipes and fittings assembly is to be carried out in accordance with Manufacturer's specification.
10. The scope of type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.
11. The piping system can be supported through “ASTORE”, “GOEMA” and “ZIKM” PE/PP clips manufactured by FIP having Low Flame Spread characteristics assessed according to ASTM D635.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of asbestos in this product.

Notes/Drawing/Documentation:
Class NK_REPORT 3_fip-10052023174327
FIP_2013 low flame spread tests PE
FIP_2013 low flame spread tests PP
LLOYD'S REGISTER_table sheet tests 5-11-20 countersigned
RINA_audit report_december 2020_brown CPVC
LNE Flame spread test report HTA 3mm
LNE Flame spread test report HTA 8mm
LNE Flame spread test report HTA 11mm
A12485 - Balancing valve BOM.pdf
Balancing valve AD_A12485
Check valve - EAEB_technical catalogue 2023
ONE PIECE AD_A13222
one piece hta_OP22312

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4462T22 esp+eng (PVCC 3 mm FTP Code)
4463T22 esp+eng (PVCC 8 mm FTP Code)
4464T22 esp+eng (PVCC 11 mm FTP Code)
Class NK_REPORT 1_aliaxis-21022023121603
Class NK_REPORT 2_aliaxis1703-30032023145055
PVC-C DK0PVC-C DK - data sheet
PVC-C fittings0PVC-C fittings data sheet
PVC-C pipe0PVC-C pipe data sheet
PVC-C VM0PVC-C VM data sheet
2014CS011270-1 PVC-C pipesFire test at Rina Laboratories dated 26 Jun 2014
2014CS011270-3 PVC-C fittings-valvesFire test at Rina Laboratories dated 26 Jun 2014
LT test PVCC diaphragm valves LT18-20170Crushing test at FIP dated 12 Mar 2017
LT test PVCC diaphragm valves LT19-20170Crushing test at FIP dated 12 Mar 2017
PVCC FITTING-VALVE VICAT 02-20180Vicat Test at FIP dated 22 Feb 2018
PVCC PIPE VICAT 01-20180Vicat Test at FIP dated 21 Feb 2018
PVCC PIPE IMPACT TESTS 20170Impact test report at FIP dated 15 Dec 2017
PVCC PIPE LT TESTS 20170LT pipe PVCCtest report at FIP dated 15 Dec 2017
PVCC PIPE ST TESTS 20170ST pipe PVCC test report at FIP dated 15 Dec 2017
PVCC PIPE-FITTINGS-VALVES WATER ABSORPTION0water absorption PVCC pipe-fittings-valves test report at FIP dated 02 Apr 2014
PVCC PIPE-FITTINGS-VALVES WEATHERABILITY0wheatherability pvcc pipe fittings valves test report at FIP dated 03 Apr 2018
PVC-C_properties0pvcc properties
PVCC_PVCU PIPE-FITTINGS-VALVES TENSILE TESTS0tensile test pvcc pipe fittings valves test report at FIP dated 05 Sept 2014
PVCC PVCU PIPE EXT LOAD TESTS-1 20170PVC PVCC ext load pipe at FIP dated 19 Dec 2017

Terms of Validity:
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Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:
Rules for Conditions of Classification, Part I - 2023 - 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
2023 Marine Vessels Rules 4-6-3

Rules for Conditions of Classification, Part I - 2023 - Offshore Units and Structures, 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:
2023 Mobile Offshore Units Rules 4-2-2/7

National:
NA

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International:
ISO 15493:2003 Amd 1:2016
ISO 15877:2009
2010 FTP Code;
IMO Resolution MSC. 399(95)

Government:
NA

EUMED:
NA

OTHERS:
NA

FIP - FORMATURA INIEZIONE POLIMERI S.p.A
Località Pian di Parata
16015 Casella (GE)

Attachment to Product Design Assessment Certificate No. 23-2453714-PDA
issued on 13 October 2023 and expiring 12 October 2028

Type: VXE PVC-C		
easyfit 2-way ball valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	16	0÷80
15	16	0÷80
20	16	0÷80
25	16	0÷80
32	16	0÷80
40	16	0÷80
50	16	0÷80
65	16	0÷80
80	16	0÷80
100	16	0÷80

Type: VKD PVC-C - HTA		
dual block 2-way ball valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	16	0÷80
15	16	0÷80
20	16	0÷80
25	16	0÷80
32	16	0÷80
40	16	0÷80
50	16	0÷80
65	16	0÷80
80	16	0÷80
100	16	0÷80

Electronically published by ABS Genoa.
Reference T2453714, dated 13-OCT-2023.

Type: TKD PVC-C		
dual block 3-way ball valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	16	0÷80
15	16	0÷80
20	16	0÷80
25	16	0÷80
32	16	0÷80
40	16	0÷80
50	16	0÷80

Type: FK PVC-C		
butterfly valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
40	16	0÷80
50	16	0÷80
65	10	0÷80
80	10	0÷80
100	10	0÷80
125	10	0÷80
150	10	0÷80
200	10	0÷80
250	10	0÷80
300	8	0÷80

Type: one piece PVC-C - HTA		
2-way ball valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
15	25	0÷80
20	25	0÷80
25	25	0÷80
32	25	0÷80
40	25	0÷80
50	25	0÷80

Type: VHFLOWCARE20, VHFLOWCHEA20, VHFLOWCHEB20		
Balancing, Check valve PVC-C HTA		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
15	16	0÷80

Electronically published by ABS Genoa.
Reference T2453714, dated 13-OCT-2023.

Type: SSE / SXE PVC-C		
easyfit check valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	16	0÷80
15	16	0÷80
20	16	0÷80
25	16	0÷80
32	16	0÷80
40	16	0÷80
50	16	0÷80
65	16	0÷80
80	16	0÷80
100	16	0÷80

Type: DK / VM PVC-C		
Diaphragm valve / Dialock 2-way diaphragm valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	10	0÷80
15	10	0÷80
20	10	0÷80
25	10	0÷80
32	10	0÷80
40	10	0÷80
50	10	0÷80
65	10	0÷80
80	10	0÷80
100	10	0÷80

Type: CM PVC-C		
compact diaphragm valve		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
12	6	0÷80
15	6	0÷80

Type: RV PVC-C		
sediment strainer		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10	16	0÷80
15	16	0÷80
20	16	0÷80
25	16	0÷80
32	16	0÷80
40	16	0÷80
50	16	0÷80
65	10	0÷80
80	6	0÷80

100	6	0÷80

Type: PVC-C fittings		
fittings		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10÷200	16	0÷80

Type: PVC-C pipes		
pipes		
Nominal internal diameter	Max Working Pressure	Working Temperature
DN	bar	°C
10÷150 (SDR 13.6)	16	0÷80
100÷200 (SDR 21)	10	0÷80