



Confirmation of Product Type Approval

Company Name: TRANSFER OIL S.P.A.

Address: VIA SACCA 64 COLORNO (PARMA) 43052 Italy

Product: Non-Metallic Flexible Hose

Model(s): 15R7

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	23-2353089-PDA	24-FEB-2023	23-FEB-2028
Manufacturing Assessment (MA)	21-4770423	12-MAY-2021	16-MAY-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Refueling hose for mobile and stationary units used to refill natural gas vehicles (NGV) tanks - CNG Transfer lines

Description

High pressure hose suitable for CNG refueling applications featuring conductive inner tube to dissipate static electric build up. Extra tough cover for abrasion water and micro biological resistance. Non metallic

lightweight design for easy handling and manipulation. Rugged construction to give kink - crush - twist and pull resistance. Twin lines available with vent hose.

Inner tube: Coextruded conductive polyamide and polyamide PA12.

Reinforcement: One or two braids of aramid fiber plus one braid of synthetic fiber.

Cover: Polyurethane - red - pinpricked - white ink jet branding.

Ratings

DN20

Maximum working pressure: 350 bar

Standard ferrule: SAF172

Ferrule A316L: SAF872

Temperature range: -40°C to +70°C

Service Restrictions

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.

Comments

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. All Flexible hose assemblies are to be burst tested to demonstrate they are able to withstand a pressure not less than four times its design pressure without indication of failure or leakage in accordance with Steel Vessels Rules 4-6-2/5.7.5 b).
3. Flexible Hoses are to be complete with Factory Assembled End Fittings or Factory Supplied Ends installed in accordance with Manufacturer's Procedure in accordance with Steel Vessels Rules 4-6-2/5.7.3(b).
4. Flexible Hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, date of manufacture (month/year), designation type reference, nominal diameter, pressure and temperature ratings in accordance with Steel Vessels Rules 4-6-2/5.7.6.

Notes, Drawings and Documentation

Drawing No. 15R CNG_5000, Compressed Natural Gas Hose, Revision: 0, Pages: 1

Drawing No. 1895-22-Rp, Rapporto di prova, Revision: 0, Pages: 1

Drawing No. 3313-02 Certification record, 3313-02 Certification record, Revision: 0, Pages: 1

Drawing No. 3313-82 Certification record, 3313-82 Certification record, Revision: 0, Pages: 1

Drawing No. 70216824 Report, Descriptive report and test results, Revision: 0, Pages: 1

Drawing No. Burst test report 15R7 ABS, Burst test report, Revision: 0, Pages: 1

Drawing No. Hoses for natural gas dispensing systems Test methods, Hoses for natural gas dispensing systems Test methods, Revision: 0, Pages: 1

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 23/Feb/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.

ABS Rules

2023 ABS Rules for Condition of Classification: 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2023 Marine Vessel Rules: 4-6-2/5.7

2020 Compressed Natural Gas Guide, Ch.6 Sec.6

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

2023 Rules for Building and Classing Facilities on Offshore Installations, appendix 2

International Standards

ISO 15540:2016

ANSI/NGV 3.1 / CSA 12.3, Part 22 for Class B and C vehicle hoses

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in black ink, appearing to read 'Joseph W. Wilson'.

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 04-May-2026 2:12

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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 prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



Confirmation of Product Type Approval

Company Name: TRANSFER OIL S.P.A.

Address: VIA SACCA 64 COLORNO (PARMA) 43052 Italy

Product: Flexible Hose

Model(s): 040 - VHP 10000 MARINER

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	26-0463654-PDA	16-APR-2026	15-APR-2031
Manufacturing Assessment (MA)	21-4770423	12-MAY-2021	16-MAY-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Marine and Offshore Applications - High Pressure Non-Flammable Hydraulic Fluid, Compressed Air, Fresh Water & Sea Water Systems.

Description

Thermoplastic polyester elastomer hoses reinforced with one or two braids of aramid fiber and one braid of steel wire reinforcement covered by thermoplastic polyurethane elastomer. Cover not pin-pricked.

For details see Manufacturer's data sheets.

Ratings

Sizes 1/4 and 3/8 inches

Working pressure 700 bar, Burst pressure 2800 bar.

Temperature Range: -40°C up to +100°C with the following exceptions:

Air: Tmax +70°C, Water based fluids: Tmax +70 °C

Service Restrictions

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) The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

3) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed

in accordance with manufacturer's specifications.

4) End connections are to comply with applicable requirements and limitations of the Rules for the intended service (e.g. Rules for Building and Classing Marine Vessels 4-6-7/3.5.1)

5) Not to be used in piping systems for flammable media (regardless of flash point) and sea water systems where failure may result in flooding as per Rules for Building and Classing Marine Vessels 4-6-2/5.7.3(c).

6) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.

7) Not to be installed in applications where large amount of repeated flexing is expected in combination with pressure pulses.

8) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.

9) Flexible hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, Date of manufacture (month/year), Designation type reference, Nominal diameter, Pressure rating, Temperature rating.

Comments

1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2) Manufacturer recommended fittings: see attached Table

3) Any fluid, regardless of its flash point, liable to support a flame is to be treated as a flammable fluid. Aviation fuel, diesel fuel, heavy fuel oil, lubricating oil and hydraulic oil (unless the hydraulic oil is specifically specified as non-flammable) are all to be considered flammable fluids as per Rules for Building and Classing Marine Vessel 4-6-1/3.23.

Notes, Drawings and Documentation

Drawing No. 0402, 1/4 VHP 10000 MARINER

Drawing No. 0404, 3/8 VHP 10000 MARINER

Drawing No. 0402 CR, 0402 CROSS SECTION

Drawing No. 0404 CR, 0404 CROSS SECTION

BURST TEST REPORT 0402 (Parma, Italy, 09-oct-2014)

BURST TEST REPORT 0404 (Parma, Italy, 09-oct-2014)

Impulse test report CQ14045 - 0402 (Parma, Italy, 09-oct-2014)

Impulse test report CQ14045 - 0404 (Parma, Italy, 09-oct-2014)

Drawing No. TO Hydraulic Impulse test procedures

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 15/Apr/2031 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.

ABS Rules

2026 Rules for Conditions of Classification, 1A-1-4/7.7 & 1-1 Appendix 3 and 4, which covers the following:

2026 Rules for Building and Classing Marine Vessels, 4-6-2/5.7

2025 Rules for Conditions of Classification - Offshore, 1B-1-4/9.7 & 1-1 Appendix 2 and 3, which covers the following:

2026 Offshore Rules, 4-2-1/11.29

2026 Rules for Conditions of Classification - High-Speed Crafts, 1C-1-4/11.9, 1-1 Appendix 2 & 3, which covers the following:

2026 Rules for Conditions of Classification - High-Speed Crafts, 4-4-1/9.19 except 9.19.3 (c)

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in dark ink, appearing to read "Joseph W. Wilson".

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 04-May-2026 1:53

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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 prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations

regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



Confirmation of Product Type Approval

Company Name: TRANSFER OIL S.P.A.

Address: VIA SACCA 64 COLORNO (PARMA) 43052 Italy

Product: Flexible Hose

Model(s): 054-R8 MARINER

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	26-0463591-PDA	16-APR-2026	15-APR-2031
Manufacturing Assessment (MA)	21-4770423	12-MAY-2021	16-MAY-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Marine and Offshore Applications - High Pressure Non-Flammable Hydraulic Fluid, Compressed Air, Fresh Water & Sea Water Systems.

Description

Thermoplastic polyester elastomer hoses reinforced with one braid of aramid fiber covered by thermoplastic polyurethane elastomer.

For details see Manufacturer's data sheets.

Ratings

Temperature Range: -40°C up to +100°C with the following exceptions

Air or Water based fluids: Tmax +70 °C

See attached Table

Service Restrictions

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) The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

3) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

- 4) End connections are to comply with applicable requirements and limitations of the Rules for the intended service (e.g. Rules for Building and Classing Marine Vessels 4-6-7/3.5.1)
- 5) Not to be used in piping systems for flammable media (regardless of flash point) and sea water systems where failure may result in flooding as per Rules for Building and Classing Marine Vessels 4-6-2/5.7.3(c)
- 6) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.
- 7) Not to be installed in applications where large amount of repeated flexing is expected in combination with pressure pulses.
- 8) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.
- 9) For air services the hose cover must be pin pricked as per Manufacturer's recommendations.
- 10) Flexible hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, Date of manufacture (month/year), Designation type reference, Nominal diameter, Pressure rating, Temperature rating.

Comments

- 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- 2) Manufacturer recommended fittings: see attached Table
- 3) Any fluid, regardless of its flash point, liable to support a flame is to be treated as a flammable fluid. Aviation fuel, diesel fuel, heavy fuel oil, lubricating oil and hydraulic oil (unless the hydraulic oil is specifically specified as non-flammable) are all to be considered flammable fluids as per Rules for Building and Classing Marine Vessel 4-6-1/3.23.

Notes, Drawings and Documentation

Drawing No. 0540, 1/8 R8 MARINER

Drawing No. 0540 CR, 0540 CROSS SECTION

Drawing No. 0541, 3/16 R8 MARINER

Drawing No. 0541 CR, 0541 CROSS SECTION

Drawing No. 0542, 1/4 R8 MARINER

Drawing No. 0542 CR, 0542 CROSS SECTION

Drawing No. 0543, 5/16 R8 MARINER

Drawing No. 0543 CR, 0543 CROSS SECTION

Drawing No. 0544, 3/8 R8 MARINER

Drawing No. 0544 CR, 0544 CROSS SECTION

Drawing No. 0545, 1/2 R8 MARINER

Drawing No. 0545 CR, 0545 CROSS SECTION

Drawing No. 0546, 5/8 R8 MARINER

Drawing No. 0546 CR, 0546 CROSS SECTION

Drawing No. 0547, 3/4 R8 MARINER

Drawing No. 0547 CR, 0547 CROSS SECTION

Drawing No. 0548, 1 R8 MARINER

Drawing No. 0548 CR, 0548 CROSS SECTION

Drawing No. BTR0540, BURST TEST REPORT 0540

Drawing No. BTR0541 , BURST TEST REPORT 0541

Drawing No. BTR0542, BURST TEST REPORT 0542

Drawing No. BTR0543, BURST TEST REPORT 0543

Drawing No. BTR0544, BURST TEST REPORT 0544

Drawing No. BTR0545, BURST TEST REPORT 0545

Drawing No. BTR0546, BURST TEST REPORT 0546

Drawing No. BTR0547, BURST TEST REPORT 0547

Drawing No. BTR0548, BURST TEST REPORT 0548

Test report Impulse test - CQ13055 - 0541

Test report Impulse test - CQ15007 - 0548, Impulse test - CQ15007 - 0548, Revision: 0, Pages: 1

Test report Impulse test - CQ15068 - 0544, Impulse test - CQ15068 - 0544, Revision: 0, Pages: 1

Test report MI3003159 ABS

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 15/Apr/2031 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.

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ABS Rules

2026 Rules for Conditions of Classification, 1A-1-4/7.7 & 1-1 Appendix 3 and 4, which covers the following:

2026 Rules for Building and Classing Marine Vessels, 4-6-2/5.7

2025 Rules for Conditions of Classification - Offshore, 1B-1-4/9.7 & 1-1 Appendix 2 and 3, which covers the following:

2026 Offshore Rules, 4-2-1/11.29

2026 Rules for Conditions of Classification - High-Speed Crafts, 1C-1-4/11.9, 1-1 Appendix 2 & 3, which covers the following:

2026 Rules for Conditions of Classification - High-Speed Crafts, 4-4-1/9.19 except 9.19.3 (c)

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in dark ink, appearing to read "Joseph W. Wilson".

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 04-May-2026 1:51

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



Confirmation of Product Type Approval

Company Name: TRANSFER OIL S.P.A.

Address: VIA SACCA 64 COLORNO (PARMA) 43052 Italy

Product: Flexible Hose

Model(s): 169 - OFFSHORE MASTER 10K, 168 - OFFSHORE MASTER 3K, 060 - OFFSHORE MASTER 5K

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	26-0463663-PDA	14-APR-2026	13-APR-2031
Manufacturing Assessment (MA)	21-4770423	12-MAY-2021	16-MAY-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Marine and Offshore Applications - High Pressure Non-Flammable Hydraulic Fluid, Compressed Air, Fresh Water & Sea Water Systems.

Description

Thermoplastic hoses reinforced with one, two or three braids of aramid fiber covered by thermoplastic polyurethane elastomer. Cover not pin-pricked.

For details see Manufacturer's data sheets.

Ratings

See attached Table of ratings

Temperature Range: -40°C up to +100°C with the following exceptions: air or water based fluids: Tmax +70°C

Service Restrictions

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) The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

3) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

- 4) End connections are to comply with applicable requirements and limitations of the Rules for the intended service (e.g. Rules for Building and Classing Marine Vessels 4-6-7/3.5.1)
- 5) Not to be used in piping systems for flammable media (regardless of flash point) and sea water systems where failure may result in flooding as per Rules for Building and Classing Marine Vessels 4-6-2/5.7.3(c).
- 6) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.
- 7) Not to be installed in applications where large amount of repeated flexing is expected in combination with pressure pulses.
- 8) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.
- 9) Flexible hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, Date of manufacture (month/year), Designation type reference, Nominal diameter, Pressure rating, Temperature rating.

Comments

- 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- 2) Manufacturer recommended fittings: see attached Table
- 3) Any fluid, regardless of its flash point, liable to support a flame is to be treated as a flammable fluid. Aviation fuel, diesel fuel, heavy fuel oil, lubricating oil and hydraulic oil (unless the hydraulic oil is specifically specified as non-flammable) are all to be considered flammable fluids as per Rules for Building and Classing Marine Vessels 4-6-1/3.23.

Notes, Drawings and Documentation

Drawing No. 0601, 3/16 OFF SHORE MASTER 5K, Revision: 0, Pages: 1

Drawing No. 0601 CR, 0601 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 0602, 1/4 OFF SHORE MASTER 5K, Revision: 0, Pages: 1

Drawing No. 0602 CR, 0602 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 0604, 3/8 OFF SHORE MASTER 5K, Revision: 0, Pages: 1

Drawing No. 0604 CR, 0604 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 0605, 1/2 OFF SHORE MASTER 5K, Revision: 0, Pages: 1

Drawing No. 0605 CR, 0605 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 0607, 3/4 OFF SHORE MASTER 5K, Revision: 0, Pages: 1

Drawing No. 0607 CR, 0607 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 0608, 1 OFF SHORE MASTER 5K, Revision: 1, Pages: 1

Drawing No. 0608 CR, 0608 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 1687, 3/4 OFF SHORE MASTER 3K, Revision: 1, Pages: 1

Drawing No. 1687 CR, 1687 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 1688, 1 OFF SHORE MASTER 3K, Revision: 1, Pages: 1

Drawing No. 1688 CR, 1688 CROSS SECTION, Revision: 0, Pages: 1

Drawing No. 1692, 1/4 OFF SHORE MASTER 10K, Revision: 0, Pages: 1

Drawing No. 1692 CR, 1692 CROSS SECTION, Revision: 0, Pages: 1

BURST TEST REPORT 0601 (Parma, Italy, 04-aug-2014)

BURST TEST REPORT 0602 (Parma, Italy, 09-apr-2014)

BURST TEST REPORT 0604 (Parma, Italy, 09-apr-2014)

BURST TEST REPORT 0605 (Parma, Italy, 09-apr-2014)

BURST TEST REPORT 0607 (Parma, Italy, 03-nov-2013)

BURST TEST REPORT 0608 (Parma, Italy, 17-jul-2014)

BURST TEST REPORT 1687 (Parma, Italy, 11-jun-2014)

BURST TEST REPORT 1688 (Parma, Italy, 20-jun-2013)

BURST TEST REPORT 1692 (Parma, Italy, 24-sep-2014)

Impulse test report CQ15029-0601 (Parma, Italy, 27-apr-2015)

Impulse test report CQ14062-0605 (Parma, Italy, 01-dec-2014)

Impulse test report CQ15009-0608 (Parma, Italy, 09-feb-2015)

Impulse test report CQ14043 - 1687 (Parma, Italy, 29-sep-2014)

Impulse test report CQ14038 - 1692 (Parma, Italy, 10-sep-2014)

Document No. Hydraulic Impulse test procedures

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 13/Apr/2031 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.

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ABS Rules

2026 Rules for Conditions of Classification, 1A-1-4/7.7 & 1-1 Appendix 3 and 4, which covers the following:

2026 Rules for Building and Classing Marine Vessels, 4-6-2/5.7

2026 Rules for Conditions of Classification - Offshore, 1B-1-4/9.7 & 1-1 Appendix 2 and 3, which covers the following:

2026 Offshore Rules, 4-2-1/11.29

2026 Rules for Conditions of Classification - High-Speed Crafts, 1C-1-4/11.9, 1-1 Appendix 2 & 3, which covers the following:

2026 Rules for Conditions of Classification - High-Speed Crafts, 4-4-1/9.19 except 9.19.3 (c)

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in dark ink, appearing to read 'James J. Wilk', is positioned above the printed text.

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 04-May-2026 1:52

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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 prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.