



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

24-0170149-PDA
31-Dec-2024
30-Dec-2029
Houston ESD - Piping

CERTIFICATE OF Product Design Assessment

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

GATES CORPORATION

located at

**330 INVERNESS DRIVE SOUTH, , ENGLEWOOD, CO, United
States, 80112**

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: **Non-Metallic Flexible Hoses with End Fittings**
Model: **G1, G2; M2T; M3K-MTF, M3K, M4K, EFG3K, EFG4K, EFG5K, EFG6K**
Endorsements:
Tier: **2 - PDA Issued**

This Product Design Assessment (PDA) Certificate remains valid until 30/Dec/2029 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

Electronically Signed by:

John Vincent B. Ulep
Senior Principal Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

GATES CORPORATION

330 INVERNESS DRIVE SOUTH

ENGLEWOOD CO

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Tier: 2 - PDA Issued

Product: Non-Metallic Flexible Hoses with End Fittings**Model:** G1, G2; M2T; M3K-MTF, M3K, M4K, EFG3K, EFG4K, EFG5K, EFG6K**Endorsements:****Intended Service:**

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

Description:

G1 & G2: Tube and Cover with Black Oil Resistant Synthetic Rubber (Nitrile), Reinforcement with braided high-tensile steel wire and end fittings series MegaCrimp (Type G) and GlobalSpiral Plus (Type GSP) couplings.

M2T: MegaFlex, Tube and Cover with Black Oil Resistant Synthetic Rubber (Nitrile), Reinforcement with two layers of braided, high tensile wire and with end fitting series Stainless Steel Coupling (B-SS), MegaCrimp (Type G) and GlobalSpiral Plus (Type GSP) couplings.

M3K-MTF, M3K, M4K: Tube and Cover with Black Oil Resistant Synthetic Rubber (Nitrile), Reinforcement braided high tensile steel wire and end fittings series MegaCrimp (Type G), GlobalSpiral (Type GS), and Stainless Steel (B-SS) couplings.

EFG3K, EFG4K, EFG5K, EFG6K: Tube with Black Oil Resistant Synthetic Rubber (Nitrile), Cover with black oil resistant synthetic rubber (Neoprene), reinforced with 4 or 6 layers of spiralled high-tensile steel wire with end fitting series GlobalSpiral (Type GS), GlobalSpiral Plus (Type GSP), and GlobalSpiral Max (Type GSM) couplings.

Rating:**MODEL G1:**

Size: 1/4" to 1 1/4" (4 to 20), MAWP: 3275 psi to 925 psi; Coupling G.

Size: 1 1/2" to 2" (24 to 32), MAWP: 725 psi to 600 psi; Coupling GSP.

MODEL G2:

Size: 1 1/4" (20); MAWP: 1825 psi; Coupling G.

Size: 1 1/2" to 2" (24 to 32); MAWP: 1300 psi to 1175 psi; Coupling GSP.

MODEL M2T:

Size: 4 (1/4") - MAWP 6000 psi; Coupling G, B-SS.

Size: 6 (3/8") - MAWP 5000 psi; Coupling G, B-SS.

Size: 8 (1/2") - MAWP 4300 psi; Coupling G, B-SS.

Size: 10 (5/8") - MAWP 3800 psi; Coupling G, B-SS.

Size: 12 (3/4") - MAWP 3500 psi; Coupling G, B-SS.

Size: 16 (1") - MAWP 2500 psi; Coupling G, B-SS.

Size: 20 (1 1/4") - MAWP 2300 psi; Coupling G, B-SS.

Size: 24" (1 1/2") - MAWP 2000 psi; Coupling GSP, B-SS.

Size: 32 (2") - MAWP 1500 psi; Coupling GSP, B-SS.

MODEL M3K-MTF:

Size: 3/8" to 1" (6 to 16), MAWP: 3250 psi; Coupling G, GS, B-SS.

MODEL M3K:

Size: 1/4" to 1" (4 to 16), MAWP: 3250 psi; Coupling G.

MODEL M4K:

Size: 1/4" to 1" (4 to 16), MAWP: 4000 psi; Coupling G, GS.

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MODEL EFG3K:

Size: 1 1/4" (20), MAWP: 3000 psi; Coupling GS

Size: 1 1/2" to 2" (24 to 32), MAWP: 3000 psi; Coupling GSP.

MODEL EFG4K:

Size: 3/8" to 1" (6 to 16), MAWP: 4000 psi; Coupling GS.

Size: 3" (48), MAWP: 4000 psi; Coupling GSM.

MODEL EFG5K:

Size: 5/8" to 1 1/4" (10 to 20), MAWP: 5000 psi; Coupling GS.

Size: 1 1/2" to 2 1/2" (24 to 40), MAWP: 5000 psi; Coupling GSM.

MODEL EFG6K:

Size: 3/8" to 1 1/4" (6 to 20), MAWP: 6000 psi; Coupling GS.

Size: 1 1/2" to 2" (24 to 32), MAWP: 6000 psi; Coupling GSM.

Each Hose Model may only utilize End Fittings corresponding with the End Fitting Series number listed above.

Service Temperature Range: -40 °F to 212 °F (-40 °C to +100 °C) for Models: G1, G2, M2T, M3K-MTF, M3K, M4K

Service Temperature Range: -40 °F to 250 °F (-40 °C to +121 °C) for Models: EFG3K, EFG4K, EFG5K, EFG6K

Service Restriction:

- i) 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.
- ii) Flexible hose are not acceptable in high pressure fuel oil injection systems.
- iii) The types of end connections utilized (e.g. threaded, flanged, etc.) are to comply with the applicable requirements and limitations of the Marine Vessel Rules 4-6-2/5.7.3 b)
- iv) Flexible hose assemblies are not applicable to hoses intended to be used in fixed fire extinguishing systems.
- v) Fittings made of aluminum are not to be used on the hose assembly.
- vi) All Flexible Hoses Assemblies are to be burst tested to demonstrate they are able to withstand a pressure not less than four times its design pressure in accordance with Marine Vessel Rules 4-6-2/5.7.5 b)
- vii) The brass fittings are not used on hoses for flammable oils.

Comments:

- i) The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- ii) The hoses are to be complete with factory assembled end fittings or factory supplied ends installed in accordance with manufacturer's procedure in accordance with Marine Vessel Rules 4-6-2/5.7.3(b).
- iii) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions. In addition, the length of the hose is to be limited to the required for flexibility only as indicated in Marine Vessel Rules 4-6-2/5.7.4.
- iv) 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 rating in accordance with Marine Vessel Rules 4-6-2/5.7.6.

Notes/Drawing/Documentation:

Model M2T:

Drawing No. Submission for Type Approval, M2T Flex Hose with G and B-SS Coupling Approval Package,

Revision: -, Pages: 28

Drawing No. HS2076597, ABS Flexible Hose Prototype Testing dated March 26, 2012, Revision: -, Pages: 1

Drawing No. SwRI Project No. 01.16919.01.102, SWRI Final Report for Various Hose Samples dated March 22, 2012, Revision: -, Pages: 19

Models G1, G2:

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Drawing No. Engineering Report No. 25753-1, Fire Test dated April 21, 2000, Revision: -, Pages:

Drawing No. SHMR090401572, Gates Fluid Power Fire Test Report dated May 13, 2009, Revision: -, Pages: 14

Drawing No. 001, G1 and G2 Valve Design Validation Plan and Report dated May 15 2009, Revision: -, Pages: 1

Models M3K-MTF, M3K, M4K, EFG35, EFG4K, EFG5K, EFG6K:

Drawing No. SWRI Project No. 01.20535.01.001, SWRI Final Report for 16M4K Hose dated August 22, 2014, Revision: -, Pages: 6

Drawing No. SWRI Project No. 01.20535.04.001i, SWRI Final Report for 6M3K-MTF Hose dated February 9, 2015, Revision: -, Pages: 55

Drawing No. 2014B211, Gates Trading 40EFG5k Hose Fire Test dated December 2, 2014, Revision: -, Pages: 6

Drawing No. 2014B212, Gates Trading 48EFG4K Hose Fire Test dated December 2, 2014, Revision: -, Pages: 6

Drawing No. SWRI Project No. 01.19099.01.002c, SWRI Final Report for 32EFG6K Hose dated October 1, 2013, Revision: -, Pages: 5

Drawing No. IO24EFG6K, Hose Testing Requirements, Revision: -, Pages: 4

Drawing No. LO-19477, Hydraulic Hose Test Summary 32EFG6K, Revision: -, Pages: 1

Drawing No. -, Submission for Type Approval 24GEF6K and 32EFG6K, Revision: -, Pages: 7

Drawing No. LO-19375, Hydraulic Hose Test Summary 32EFG6K-MTF, Revision: -, Pages: 1

Drawing No. IO090913, Hose Testing Requirements, Revision: -, Pages: 1

Drawing No. IO051113, Hose Testing Requirements, Revision: -, Pages: 1

Drawing No. IO110613, Hose Testing Requirements, Revision: -, Pages: 1

Terms of Validity:

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STANDARDS**ABS Rules:**

2024 Rules for Conditions of Classification: 1A-1-4/7.7, 1A-1-A3, 1A-1-A4, which covers the following:

2024 Rules for Building and Classing Marine Vessels: 4-6-2/5.7;

2024 Rules for Conditions of Classification - Offshore Units and Structures: 1B-1-4/9.7, 1B-1-A2, 1B-1-A3, which covers the following:

2024 Rules for Building and Classing Mobile Offshore Units: 4-2-1/11.29

National:

SAE J517 - 2020

International:

ISO 15540:2016

ISO 15541:2016

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Government:

NA

EUMED:

NA

OTHERS:

NA