



Marine & Offshore

Certificate number: 22366/C1 BV

File number: ACM 135/2682/01

Product code: 21041

*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*

**GATES (U.K.) LIMITED**

St Neots - UNITED KINGDOM

*for the type of product*

**NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES**

Flame resistant hydraulic hose assemblies

Type EFGxK, MxK and M3K-MTF, G1, G2, MegaFlex CM2T, MegaFlex M2T, MXT, MXT-XTP and MXG4K-XTP

**Requirements:**

- BUREAU VERITAS Requirements for the Classification of Steel Ships

*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: 04 Mar 2026**

**For Bureau Veritas Marine & Offshore,**

At BV LONDON, on 13 Sep 2021,

Spencer Yule



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 5 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

Flame resistant hydraulic hose assemblies

Type EFGxK, MxK and M3K-MTF, G1, G2, MegaFlex CM2T, MegaFlex M2T, MXT, MXT-XTP and MXG4K-XTP

#### 1.1 Rating

Hose Type	Dash size range	Max Pressure [MPa]	Temperature range [°C]	Couplings
G1	4 up to 32	22.5 - 4.2	-40 up to +100	G/GSP
G2	20 up to 32	12.5 - 8.0	-40 up to +100	G/GSP
M3K	4 up to 16	22.5	-40 up to +100	G
M4K	4 up to 16	28.0	-40 up to +100	G/GS
M5K	4 up to 8	35.0	-40 up to +100	G
M6K	4	42.0	-40 up to +100	G
MegaFlex CM2T	4 up to 16	40.0 - 16.5	-40 up to +100	G
EFG3K	20 up to 32	21.0	-40 up to +121	GS/GSP
EFG4K	6 up to 20	28.0	-40 up to +121	GS
EFG5K	6 up to 32	35.0	-40 up to +121	GS/GSM
EFG6K	6 up to 32	42.0	-40 up to +121	GS/GSM
MegaFlex M2T	4 up to 32	42 - 10.3	-40 up to +100	G/B-SS/GSP
M3K-MTF	6 up to 16	22.5	-40 up to +100	G/B-SS
MXT	4 up to 16	41.4 - 16.5	-40 up to +100	G
MXT-XTP	4 up to 16	41.4 - 16.5	-40 up to +100	G
MXG4K-XTP	6 up to 16	28.0	-40 up to +121	GS

#### 1.2 Materials

Type	Used	Tube	Reinforcement	Cover
G1	Medium pressure hydraulic applications	NBR	One braid of High tensile steel wire	NBR/PVC
G2	High pressure hydraulic applications	NBR	Two braids of High tensile steel wire	NBR/PVC
M3K	High pressure hydraulic applications	NBR	4/5/6/8 : one braid of high tensile steel wire 10/12/16 : two braids of high tensile steel wire	NBR/PVC
M4K	High pressure hydraulic applications	NBR	Two braids of high tensile steel wire	NBR/PVC
M5K	High pressure hydraulic applications	NBR	Two braids of high tensile steel wire	NBR/PVC
M6K	High pressure hydraulic applications	NBR	Two braids of high tensile steel wire	NBR/PVC
MegaFlex CM2T	High pressure hydraulic applications	NBR	Two braids of high tensile steel wire	SBR
EFG3K	Extremely high pressure and high impulse hydraulic applications	NBR	Four alternating layers of spiralled, high tensile wire	CR
EFG4K	Extremely high pressure and high impulse hydraulic applications	NBR	Four alternating layers of spiralled, high tensile wire	CR
EFG5K	Extremely high pressure and high impulse hydraulic applications	NBR	Four (six for 20 to 32) alternating layers of spiralled, high tensile wire	CR

EFG6K	Extremely high pressure and high impulse hydraulic applications	NBR	Four (six for 20 to 32) alternating layers of spiralled, high tensile wire	CR
MegaFlex M2T	High pressure hydraulic applications	NBR	Two braids of high tensile steel wire	NBR/PVC
M3K-MTF	High pressure hydraulic applications	NBR	6/8: one braid of high tensile steel wire 10/12/16: two braids of high tensile steel wire	CR + MegaTuff film
MXT	High pressure hydraulic applications	NBR	One or two layers of braided high-tensile steel wire	NBR/PVC
MXT-XTP	High pressure hydraulic applications	NBR	One or two layers of braided high-tensile steel wire	NBR/PVC
MXG4K-XTP	High pressure hydraulic applications	NBR	Two layers of braided high-tensile steel wire	NBR/PVC

## 2. DOCUMENTS AND DRAWINGS

- Submissions for type approval dated 2009: Flexible hoses of Non Metallic Material with permanently fitted coupling G1, G2, M3K, M4K, M5K, M6K, MegaFlex CM2T, EFG3K, EFG4K, EFG5K and EFG6K.
- Submissions for type approval dated 16/01/2015: Flexible hoses of Non Metallic Material with permanently fitted coupling MegaFlex M2T and M3K-MTF.
- Catalogue for flexible hoses type MXT dated 21/03/2019
- Catalogue for flexible hoses type MXT-XTP dated 27/01/2021
- Catalogue for flexible hoses type MXG 4K dated 14/11/2019
- Catalog of Automotive 431-2080 Industrial 35093 . Version 2019 including a manual of installation use and maintenance

*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 - Hose tests carried out: proof and burst, impulse, ozone resistance test, abrasion resistance-cover compound, abrasion resistance-hose, cold bend test, adhesion test, change in length test, oil resistance test

- Proof and burst tests report witnessed by a Society's surveyor dated 21/01/2010
- Test report N° 61/00, 62/00, 63/00, 64/00, 67/00, 68/00, 69/00, 70/00, 71/00, 75/00, 76/00, 85/00, 86/00, 87/00, 90/00, 101/00 and 106/00 dated 21/07/2000
- Test report N° 85/01, 88/01 dated 24/10/2001
- Test report N° 59/04, 60/04, 61/04, 62/04, 63/04 and 64/04 dated 14/09/2004
- Test report N° 32/07, 33/07 and 35/07 dated 17/10/2007
- Test report N° 33/10, 37/10, 101/10 and 102/10 dated 15/09/2010

3.2 - MegaFlex M2T test data and test reports witnessed and reviewed by a Class Society Surveyor dated 18-19/02/2015:

Volume swell, burst and change in length test, impulse testing, cold flexibility test, adhesion test, and ozone resistance test (conducted by Southwest Research Institute, test reports N° 01.16919.01.102 dated 22/03/2012 and N° 01.20535.01.001y dated 27/08/2014 and N° 01.20535.01.001k dated 22/08/2014)

3.3 - M3K-MTF test data and test reports witnessed and reviewed by a Class Society Surveyor dated 18-19/02/2015:

Volume swell, burst test and change in length, cold flexibility test, adhesion test, ozone resistance test and impulse testing (conducted by Southwest Research Institute, test reports N° 01.20535.03.001k, 01.20535.03.001p, 01.20535.03.001c, 01.20535.03.001j and 01.20535.03.001i dated 05/11/2014, N° 01.20535.03.001m dated 13/11/2014 and N° 01.20535.04.001i, 01.20535.04.001d[1] and 01.20535.04.001h dated 19/02/2015)

3.4 - Type tests including burst test at 4 times the design pressure, change in length, cover adhesion, impulse, ozone resistance, liquid resistance, and cold flexibility test dated the 08/06/2021 for Flexible hoses type MXT, MXT-XTP and MXG4K XTP

3.5 - Fire resistance test according to ISO 15540 and ISO 15541:1999

- Test report N°WTD71
- Test report dated 19/02/2015 for flexible hoses type M2T
- Test report dated 19/02/2015 for flexible hoses type M3K-MTF
- Test report dated 31/07/2019 for flexible hoses type MXT
- Test report dated 12/03/2021 for flexible hoses type MXT-XTP

3.6 - Vacuum test not performed

#### **4. APPLICATION / LIMITATION**

4.1 - May be used on the following services: Lubricating oil, hydraulic oil.

4.2 - End fittings as per manufacturer's specification. The hoses are to be entirely assembled in the manufacturer's workshop

4.3 - The installation of hose assemblies is to be in accordance with the manufacturer's instructions to take into consideration forces due to vibration. The hoses are not to be used on services when vibration test is required in BUREAU VERITAS Rules.

4.4 - The hoses are to be limited to a length necessary to provide for relative movement between fixed and flexibly mounted items of machine/equipment or systems and are only to be used in lengths up to 2 m. The hoses are to be installed in clearly visible and readily accessible locations at all times.

4.5 - Taper threaded end connections are not to be used for liquid fuel or oil circuits in engine rooms nor any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.

4.6 - Not to be used in case of high level of vibrations where fitted to engines, pumps, compressors and other sources of high vibrations

#### **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 - The products are to be supplied by **GATES (U.K.) LIMITED** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.3 - Each hose with end fittings is to be hydraulically pressure tested to 1.5 times the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.

5.4 - BV product certificate is required.

5.5 - For information, **GATES (U.K.) LIMITED** has declared to Bureau Veritas the following production sites:

<b>Production site</b>	<b>Location</b>	<b>Hose manufacture</b>	<b>Coupling manufacture</b>	<b>Hose/Coupling assembly</b>
Gates DeMexico, S.A de C.V.	Calle 6 S/N Parque Industrial Atlacomulco, Atlacomulco, Estado de Mexico 50450	x	x	
Gates Corporation	1450 Montana Road, lola Kansas 66749, United States of America	x		
Gates Fluid Power Technologies (Changzhou) Co.,Ltd	11 Kohler Road, National Hi-Tech District, Changzhou 213022 China	x	x	x
Gates India Private Limited	Ambala-Chandigarh Highway, P.O. Lalru 140501 Punjab India	x		
GATES (U.K.) LIMITED	5 Alpha drive, EATON SOCON, PE19 8JJ St Neots, Cambridgeshire, UNITED KINGDOM			x
Gates Industrial Corporation	1001 PETTY DRIVE 65084 VERSAILLES, MO UNITED STATES OF AMERICA		x	
GATES POLSKA SP. ZO.O.	ul. Jaworzyńska 301, 59-220 Legnica, Poland	x		
Gates Hydraulics s.r.o.	Ditmarovická 409/1 733 01 Karviná - Staré Místo, Czech Republic		x	

**6. MARKING OF PRODUCT**

Each flexible hose shall at least clearly and indelibly marked with:

- Manufacturer name or logo
- Date of manufacture (month/year)
- Type designation
- Nominal Diameter
- Pressure rating
- Temperature rating
- Society's brand as relevant

**7. OTHERS**

It is **GATES (U.K.) LIMITED**'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° 22366/C0 BV issued by the Society.*

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