

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000003S
Revision No:
6

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)

EFG3K, EFG4K, EFG5K, EFG6K, M3K, M4K, M5K, M6K, G1, G2, M2T

Issued to

Gates UK Ltd

St. Neots, Cambridgeshire, United Kingdom

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems

DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
EFG3K	-40°C to +121°C	210 bar	-20 to -32
EFG4K	-40°C to +121°C	280 bar	-6 to -20
EFG5K	-40°C to +121°C	350 bar	-6 to -32
EFG6K	-40°C to +121°C	420 bar	-6 to -32
M3K	-40°C to +100°C	225 bar	-4 to -16
M4K	-40°C to +100°C	280 bar	-4 to -16
M5K	-40°C to +100°C	350 bar	-4 to -8
M6K	-40°C to +100°C	420 bar	-4
G1	-40°C to +100°C	41 to 225 bar	-4 to -32
G2	-40°C to +100°C	80 to 125 bar (see page 3)	-20 to -32
M2T	-40°C to +100°C	103 to 420 bar (see page 3)	-4 to -32

Issued at **Høvik** on **2023-10-16**

This Certificate is valid until **2028-06-30**.

for **DNV**

DNV local unit: **Newcastle-upon-Tyne**

Approval Engineer: **Maheshraja Venkatesan**

Zeinab Sharifi
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

12 types of flexible hoses of non-metallic materials with permanently fitted couplings

Hose designation	EFG3K	EFG4K	EFG5K	EFG6K	M3K	M4K	M2T
Tube	NBR						
Reinforcement Wires	four wires		four (six for ≥ 20) wires		1 or 2 braids		2 braids
Cover (*)	CR				NBR/PVC		

Hose designation	M5K	M6K	G1	G2
Tube	NBR			
Reinforcement Wires	2 braids		1 braid	2 braids
Cover (*)	NBR/PVC			

(*) In addition to standard covers as mentioned above, hoses can be delivered with the following covers:

- EFG3K, EFG4K, EFG5K, EFG6K, M5K, M4K, M3K and M2T: MegaTuff (MTF)
- EFG4K, EFG5K, M5K, M4K, M3K and M2T: XtraTuff (XTF)

Material of couplings: ASTM A108 Grade 1215 (20 according to GB/T 699-2015)

Coupling designations are to be according to the below tables (for each assembling location):

Gates (U.K.) Ltd., St. Neots, Cambridgeshire, United Kingdom

Size		EFG3K	EFG4K	EFG5K	EFG6K	M3K	M4K	M5K	M6K	G1	G2	M2T	M3K-MTF
Dash	DN												
-4	6	-	-	-	-	G	G	G	G	G	-	G/B-SS	G
-5	8	-	-	-	-	G	G	G	-	G	-	G/B-SS	G
-6	10	-	GS	GS	GS	G	G/GS	G	-	G	-	G/B-SS	G/GS
-8	12	-	GS	GS	GS	G	G/GS	G	-	G	-	G/B-SS	G/GS
-10	16	-	GS	GS	GS	G	G/GS	-	-	G	-	G/B-SS	G/GS
-12	19	-	GS	GS	GS	G	G/GS	-	-	G	-	G/B-SS	G/GS
-16	25	-	GS	GS	GS	G	GS	-	-	G	-	G/B-SS	G/GS
-20	31	GS	GS	GS	GS	-	-	-	-	G	G	G	-
-24	38	GSP	-	GSM	GSM	-	-	-	-	GSP	GSP	GSP	-
-32	51	GSP	-	GSM	GSM	-	-	-	-	GSP	GSP	GSP	-

Gates Fluid Power Technologies (Changzhou) Co. Limited, Changzhou, China

Size		EFG3K	EFG4K	EFG5K	EFG6K	M3K	M4K	M5K	M6K	G1	G2	M2T
Dash	DN											
-4	6	-	-	-	-	G	G	G	G	G	-	G
-5	8	-	-	-	-	G	G	G	-	G	-	G
-6	10	-	GS	GS	GS	G	G	G	-	G	-	G
-8	12	-	GS	GS	GS	G	G	G	-	G	-	G
-10	16	-	GS	GS	GS	G	G	-	-	G	-	G
-12	19	-	GS	GS	GS	G	G	-	-	G	-	G
-16	25	-	GS	GS	GS	G	-	-	-	G	-	G
-20	31	GS	GS	GS	GS	-	-	-	-	G	G	G
-24	38	GSP	-	-	GSM	-	-	-	-	GSP	GSP	-
-32	51	GSP	-	-	-	-	-	-	-	GSP	GSP	-

Rubber hose manufacturers:

- 1) Gates Corporation, 1450 Montana Road, Iola Kansas 66749, USA (all types)
- 2) Gates India Private Limited, Ambala-Chandigarth Highway, PO Lalru 140501, Punjab, India (except M3K-MTF)
- 3) Gates de Mexico S.A de C.V., Calle 6 S/N, Parque Industrial Atlacomumco, Atlacomumo Estado De Mexico, 50450, Mexico (except M3K-MTF)
- 4) Gates Fluid Power Technologies (Changzhou) Co. Limited, 11 Kohler Road, National Hi-Tech District, 213022 Changzhou, China (except M3K-MTF)
- 5) Gates Polska Sp. z o.o. ul. Jaworzyńska 301, 59-220 Legnica, Poland (except M3K-MTF)

End fittings manufacturers:

- 1) Gates Karvina Fluid Power Plant, Karvina, Czech Republic.
- 2) Gates Corp, Versailles, MO, USA
- 3) Gates India Private Limited, Faridabad, Haryana, India
- 4) Gates Fluid Power Technologies (Changzhou) Co., Ltd., Changzhou, China

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by below assembling locations:

- Gates (U.K.) Limited, 5 Alpha Drive, Eaton Socon, St. Neots, Cambridgeshire, United Kingdom (all types)
- Gates Fluid Power Technologies (Changzhou) Co. Limited, 11 Kohler Road, National Hi-Tech District, 213022 Changzhou, China (except M3K-MTF)

Hose assemblies covered by this certificate are approved to be used in the following media and temperature range:

Hose types	EFG3K, EFG4K, EFG5K, EFG6K	M3K, M4K, M5K, M6K, G1, G2, M2T
Petroleum based hydraulic fluids	-40°C to +121°C	-40°C to +100°C
Water based hydraulic fluids and Air	-40°C to +85°C	-40°C to +70°C
Fresh Water	0°C to +85°C	0°C to +70°C

Maximum working pressure (in bar):

Size		EFG3K	EFG4K	EFG5K	EFG6K	M3K	M4K	M5K	M6K	G1	G2	M2T
Dash	DN											
-4	6	-	-	-	-	225	280	350	420	225	-	420
-5	8	-	-	-	-	225	280	350	-	215	-	380
-6	10	-	280	350	420	225	280	350	-	179	-	350
-8	12	-	280	350	420	225	280	350	-	160	-	296
-10	16	-	280	350	420	225	280	-	-	131	-	262
-12	19	-	280	350	420	225	280	-	-	105	-	241
-16	25	-	280	350	420	225	280	-	-	90	-	172
-20	31	210	280	350	420	-	-	-	-	63	125	159
-24	38	210	-	350	420	-	-	-	-	50	90	140
-32	51	210	-	350	420	-	-	-	-	41	80	103

The hoses shall not to be used where fixed piping is possible/required and must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used on boiler fronts.

Flexible hoses covered by this certificate shall not be installed in systems subject to pressure below atmospheric or vacuum conditions.

It must be possible to shut off from the system all flexible hoses used in systems for compressed air, lubrication oil, fuel oil and petroleum base hydraulic oil.

The cover on hoses for gaseous applications shall be pinpricked.

Production testing

All hose assemblies delivered under the DNV type approval scheme shall be hydrostatically tested to a pressure of 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to this type approval certificate.

Type Approval documentation

Tests carried out

Dimensional check, Impulse, Ozone resistance, Abrasion resistance, Cold bend, Adhesion, Change in length, Oil resistance, Burst, Fire Resistance.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:



Job Id: **262.1-016887-11**
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- Hose manufacturer's name or trademark;
- Date of manufacture (month/year);
- Designation type reference;
- Nominal diameter;
- Pressure rating;
- Temperature rating.

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.