Certificate no.:
TAK00002DY

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Synthetic Fibre Ropes

with type designation(s)
MGFLEX Mooring Lines, MGFLEX Mooring Tails

issued to
Garware Technical Fibres Limited
Pune, Maharashtra, **India**

is found to comply with
DNV class programme DNV-CP-0100 – Type approval – Synthetic fibre ropes for towing, mooring and anchoring
ISO 10556:2009 "Fibre ropes of polyester/polyolefin dual fibres"
OCIMF Mooring Equipment Guidelines (MEG4), Fourth Edition 2018 [test requirements]

Application:

Mooring and Towing of Ships and HSLCs.

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

Issued at **Hamburg** on **2024-08-23**
This Certificate is valid until **2029-08-22**.
DNV local unit: **India CMC MES**

for **DNV**

Approval Engineer: **Gisle Hersvik**

Product description

MGFLEX: 8-strand plaited synthetic fibre rope

- Fibre material: Polyester/polyolefin dual fibre
- Specific gravity: 0.99 (floats in seawater)

Compliance with OCIMF Mooring Equipment Guidelines (MEG4)

Mooring Line Base Design Certificate – For MGFLEX 28 mm and 96 mm
Ref No.: GTF/MLBDC/MGFLEX/24/A1 **Issue date**: 2024-05-08
Mooring Line Certificate will be issued with reference to Mooring Line Base Design Certificate.

Mooring Tail Base Design Certificate – For MGFLEX 48 mm and 96 mm
Ref No.: GTF/MTBDC/MGFLEX/24/A1 **Issue date**: 2024-05-08
Mooring Tail Certificate will be issued with reference to Mooring Tail Base Design Certificate.

Garware Technical Fibres Limited has performed the full test scenario as per OCIMF MEG4.

Rope Characteristics

The Rope characteristics are tabulated on the next page observing the following:

Fibre ropes are to be delivered with a linear mass ±5% of the nominal linear mass given in the table.

All BF (Break Force) values are given for the un-spliced ropes.
All LDBF (Line Design Break Force) values are given for the spliced ropes.

MGFLEX: 8-strand plaited synthetic fibre ropes

Diameter [mm]	Line Linear Density (LLD) [kg/m]	Line Tenacity (LT) [kg/m]	BF -unspliced [ton]	LDBF -spliced [ton]
28	0.455	33.63	17.0	15.3
30	0.518	33.88	19.5	17.6
32	0.582	34.02	22.0	19.8
34	0.709	32.37	25.5	23.0
36	0.741	35.22	29.0	26.1
38	0.827	35.37	32.5	29.3
40	0.914	35.45	36.0	32.4
42	1.009	35.41	39.7	35.7
44	1.114	35.55	44.0	39.6
46	1.218	35.62	48.2	43.4
48	1.318	36.19	53.0	47.7
50	1.432	36.45	58.0	52.2
52	1.550	35.83	61.7	55.5
54	1.676	35.87	66.8	60.1
56	1.795	36.60	73.0	65.7
57	1.803	37.44	75.0	67.5
58	1.926	42.06	90.0	81.0
60	1.955	36.83	80.0	72.0
62	2.086	36.67	85.0	76.5
64	2.209	36.38	89.3	80.4
66	2.350	36.00	94.0	84.6
68	2.500	36.18	100.5	90.5
70	2.641	36.46	107.0	96.3
72	2.832	36.23	114.0	102.6
74	2.991	36.11	120.0	108.0
76	3.136	36.45	127.0	114.3
78	3.318	36.08	133.0	119.7
80	3.364	36.12	135.0	121.5
82	3.523	36.22	141.8	127.6
84	3.727	35.98	149.0	134.1
85	3.810	35.67	151.0	135.9
86	3.886	36.13	156.0	140.4
88	4.205	34.89	163.0	146.7
90	4.409	34.70	170.0	153.0
92	4.609	34.66	177.5	159.8
94	4.809	34.62	185.0	166.5
96	5.000	34.20	190.0	171.0

The data in the table is provided by Garware Technical Fibres Limited.

Application/Limitation

The OCIMF MEG4 approval range covers ropes with diameter from 28 mm to and including 96 mm.
Mooring lines: 28 to 96 mm
Mooring tails: 48 to 96 mm

Type Approval documentation

Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, and according to:

- OCIMF's Mooring Equipment Guidelines (MEG4) [requirements to testing].
- ISO 10556: 2009, Fibre ropes of polyester/polyolefin dual fibres.
- DNV-CP-0100.

The fibre ropes are manufactured in accordance with:

- Product Specification (MGFLEX), QAD/D/83 of 2024-05-08.

Marking of product

Product shall be marked with *manufacturer's name*: **Garware Technical Fibres Limited, India**, *type designation* and *diameter*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END OF CERTIFICATE