



Certificate no.:
TAK00002FW

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Synthetic Fibre Ropes**

with type designation(s)
X10 ULTIMA SNAP BACK Mooring Lines

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
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 **2025-03-12**

This Certificate is valid until **2030-03-11**.

DNV local unit: **India CMC MES**

for **DNV**

Approval Engineer: **Gisle Hersvik**

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.



Form code: TA 251

Revision: 2023-09

www.dnv.com

Page 1 of 5

Product description

X10 ULTIMA SNAP BACK: 8-strand plaited synthetic fibre rope

- Fibre material: Polyester / Mixed polyolefin fibres / Nylon
- Specific gravity: 0.99 (floats in seawater)

Compliance with OCIMF Mooring Equipment Guidelines (MEG4)

Mooring Line Base Design Certificate – For X10 ULTIMA SNAP BACK 28 mm and 96 mm

Ref No.: GTF/MLBDC/X10UTMSB/G1

Issue date: 2025-01-10

Mooring Line Certificate will be issued with reference to Mooring Line 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 $\pm 5\%$ 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.

X10 ULTIMA SNAP BACK: 8-strand plaited synthetic fibre ropes

Diameter [mm]	Line Linear Density (LLD) [kg/m]	Line Tenacity (LT) [T/kg/m]	BF -unspliced [ton]	LDBF -spliced [ton]
28	0.495	30.91	17.00	15.30
29	0.526	31.18	18.23	16.41
30	0.558	31.45	19.50	17.55
31	0.590	31.64	20.73	18.66
32	0.622	31.83	22.00	19.80
33	0.685	31.15	23.71	21.34
34	0.749	30.64	25.50	22.95
35	0.770	31.81	27.22	24.49
36	0.781	33.42	29.00	26.10
37	0.830	33.31	30.72	27.65
38	0.867	33.73	32.50	29.25
39	0.910	33.85	34.23	30.80
40	0.954	33.98	36.00	32.40
41	1.000	34.04	37.83	34.04
42	1.049	34.06	39.70	35.73
43	1.100	34.21	41.82	37.64
44	1.154	34.33	44.00	39.60
45	1.205	34.33	45.98	41.38
46	1.258	34.34	48.00	43.20
47	1.308	34.73	50.46	45.42
48	1.358	35.12	53.00	47.70
49	1.414	35.29	55.47	49.92
50	1.472	35.47	58.00	52.20
51	1.530	35.20	59.85	53.86
52	1.590	34.92	61.70	55.53
53	1.651	34.93	64.08	57.67
54	1.713	34.94	66.50	59.85
55	1.774	35.37	69.70	62.73
56	1.835	35.79	73.00	65.70
57	1.900	35.82	75.63	68.06
58	1.966	35.84	78.30	70.47
59	1.981	35.97	79.19	71.27
60	1.995	36.10	80.00	72.00
61	2.060	36.04	82.48	74.24
62	2.126	35.98	85.00	76.50
63	2.187	35.86	87.15	78.43
64	2.249	35.73	89.30	80.37
65	2.320	35.55	91.64	82.48

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

Diameter [mm]	Line Linear Density (LLD) [kg/m]	Line Tenacity (LT) [T/kg/m]	BF -unspliced [ton]	LDBF -spliced [ton]
66	2.390	35.40	94.00	84.60
67	2.464	35.50	97.22	87.50
68	2.540	35.61	100.50	90.45
69	2.610	35.77	103.72	93.35
70	2.681	35.92	107.00	96.30
71	2.775	35.82	110.47	99.42
72	2.872	35.73	114.00	102.60
73	2.951	35.68	116.98	105.29
74	3.031	35.63	120.00	108.00
75	3.103	35.81	123.47	111.13
76	3.176	35.99	127.00	114.30
77	3.266	35.82	129.99	116.99
78	3.358	35.65	133.00	119.70
79	3.382	35.67	134.04	120.64
80	3.404	35.70	135.00	121.50
81	3.483	35.76	138.38	124.54
82	3.563	35.82	141.80	127.62
83	3.664	35.71	145.38	130.84
84	3.767	35.60	149.00	134.10
85	3.846	35.68	152.48	137.23
86	3.926	35.76	156.00	140.40
87	4.083	35.15	159.48	143.53
88	4.245	34.56	163.00	146.70
89	4.346	34.48	166.48	149.84
90	4.449	34.39	170.00	153.00
91	4.549	34.38	173.73	156.36
92	4.649	34.36	177.50	159.75
93	4.749	34.35	181.23	163.11
94	4.849	34.34	185.00	166.50
95	4.944	34.13	187.51	168.76
96	5.040	33.93	190.00	171.00

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.

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].
- DNV-CP-0100.

The fibre ropes are manufactured in accordance with:

- Product Specification (X10 ULTIMA SNAP BACK), QAD/D/108 of 2025-01-10.

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