

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Synthetic Fibre Ropes

with type designation(s)
DANSTRONG PLUS 8 and DANSTRONG PLUS 12 Mooring Lines

Issued to

Axiom Cordages Limited
District -Palghar, Maharashtra, India

is found to comply with

DNV class programme DNV-CP-0100 – Type approval – Synthetic fibre ropes for towing, mooring and anchoring
ISO 1346:2012 "Fibre ropes – Polypropylene split film, monofilament and multifilament (PP2) and polypropylene high-tenacity multifilament (PP3) – 3-, 4-, 8- and 12-strand ropes"
OCIMF Mooring Equipment Guidelines (MEG4), Fourth Edition 2018 [test requirements]
OCIMF Guidelines for the Purchasing and Testing of SPM Hawsers (2000)

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 **2023-04-14**

This Certificate is valid until **2028-04-13**.

DNV local unit: **India CMC MES**

for **DNV**

Approval Engineer: **Gisle Hersvik**

Thorsten Lohmann
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

DANSTRONG PLUS 8: 8-strand braided synthetic fibre rope
DANSTRONG PLUS 12: 12-strand plaited synthetic fibre rope

- Fibre material: Polypropylene fibres (100% PP)
- Specific gravity: 0.98 (floats in seawater)

Compliance with OCIMF Mooring Equipment Guidelines (MEG4)

Mooring Line Base Design Certificate - For DANSTRONG PLUS 25 mm and 120 mm

Ref No.: ACL/MEG4-DAN(P)/LBDC/23/001 Issue date: **2023-02-25**

Mooring Line Certificates will be issued with reference to Mooring Line Base Design Certificate.

Axiom Cordages Limited has performed the full test scenario as per OCIMF MEG4.

Compliance with OCIMF 2000, Guidelines for the Purchasing and Testing of SPM Hawasers

Size 6 (48 mm) to Size 15 (120 mm)

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.

Breaking load values are given for both un-spliced and spliced ropes. The LDBF (Line Design Break Force) is the value for spliced rope.

DANSTRONG PLUS 8-strand and DANSTRONG PLUS 12-strand

Size Diameter [mm]	Weight [g/m]	Weight [kg/220 m]	Breaking Load [ton]		Breaking Load [kN]	
			Un-spliced	Spliced	Un-spliced	Spliced
25	271	59.80	9.92	8.92	97.32	87.51
28	340	74.88	12.18	10.96	119.49	107.52
30	392	86.40	13.93	12.53	136.65	122.92
33	472	103.96	16.50	14.85	161.87	145.68
35	533	117.40	18.16	16.34	178.15	160.30
37	594	130.75	19.86	17.87	194.83	175.30
40	689	151.68	25.2	22.68	247.21	222.49
43	805	177.31	29.07	26.16	285.18	256.63
45	883	194.30	31.66	28.49	310.58	279.49
47	960	211.29	34.25	30.82	335.99	302.34
48	999	219.84	35.55	31.99	348.75	313.82
50	1063	234	38.9	35.01	381.61	343.45
55	1286	283	44.6	40.14	437.53	393.77
60	1545	340	59.5	53.55	583.70	525.33
65	1727	380	63.00	56.70	618.03	556.23
68	1945	428	67.50	60.75	662.18	595.96

70	2086	459	74.00	66.60	725.94	653.35
73	2181	480	78.00	70.20	765.18	688.66
75	2395	527	83.00	74.70	814.23	732.81
77	2518	554	89.00	80.10	873.09	785.78
80	2686	591	95.00	85.50	931.95	838.76
85	3072	676	106.00	95.40	1039.86	935.87
90	3450	759	113.00	101.70	1108.53	997.68
95	3836	844	130.50	117.45	1280.21	1152.19
100	4259	937	148.00	133.20	1451.88	1306.69
105	4800	1056	155.48	139.93	1525.26	1372.71
110	5280	1161.8	170.16	153.14	1669.27	1502.30
115	5640	1240.8	183.75	165.37	1802.59	1622.28
120	6281	1382.0	202.14	181.92	1983.00	1784.64

Application/Limitation

The approval range covers ropes with diameter from 25 mm to and including 120 mm.

The OCIMF MEG4 approval range covers ropes with diameter from 25 mm to and including 120 mm.

The OCIMF 2000 approval range covers ropes with diameter from 25 mm to and including 120 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].
- OCIMF 2000, Guidelines for the Purchasing and Testing of SPM Hawsers (1st Edition 2000) [testing].
- DNV-CP-0100.

The fibre ropes are manufactured in accordance with:

- Product Specification (DANSTRONG PLUS), Form No. ACL/OCIMF/DSP-001.

Marking of product

Product shall be marked with *manufacturer's name*: **Axiom Cordages 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