

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Synthetic Fibre Ropes**

with type designation(s)
**DANSTRONG 8 and DANSTRONG 12 Mooring Lines,
DANSTRONG 8 and DANSTRONG 12 Mooring Tails**

Issued to

**Axiom Cordages Limited
Boisar, District-Palghar, Maharashtra, India**

is found to comply with

**DNV GL class programme DNVGL-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 GL.**Issued at **Høvik** on **2020-06-05**This Certificate is valid until **2025-06-04**.for **DNV GL**DNV GL local station: **Mumbai NB & CMC**Approval Engineer: **Gisle Hersvik**

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**Gustav Heiberg
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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 8: 8 Strand plaited / braided synthetic fibre rope
DANSTRONG 12: 12 Strand plaited / braided 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 38 mm and 112 mm

Ref No.: ACL/MEG4-DAN/LBDC/19/001

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

Mooring Tail Base Design Certificate - For DANSTRONG 48 mm and 112 mm

Ref. No.: ACL/MEG4-DAN/TBDC/19/001

Mooring Tail Certificates will be issued with reference to Mooring Tail 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 Hawser

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.

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

Ref. Number / Size		Linear Density -rope	Mass -rope	Breaking Load (LDBF) [kN]	
Diameter [mm]	Circ. [Inch]	[g/m]	[kg/220m]	Un-spliced	Spliced
38	4-3/4	652	144	225.8	203.22
40	5	718	158	274.51	247.59
44	5-1/2	877	193	330.88	297.79
48	6	1040	229	387.25	348.52
52	6-1/2	1227	270	448.53	403.67
56	7	1418	312	509.80	458.82
60	7-1/2	1631	359	583.33	524.99
64	8	1850	407	662.25	596.02
68	8-1/2	2090	460	745.10	670.59
72	9	2340	515	828.43	745.58
76	9-1/2	2609	574	921.57	829.41
80	10	2900	638	1019.61	917.64
84	10-1/2	3195	703	1117.65	1005.88

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88	11	3509	772	1225.49	1102.94
92	12	3845	846	1333.33	1199.99
96	12	4163	916	1450.98	1305.88
100	13	4545	1000	1560.45	1404.40
104	13	4900	1078	1661.76	1495.58
112	14	5700	1254	1917.65	1725.88
116	14-1/2	5929	1304	2029.71	1826.73
120	15	6544	1440	2201.96	1981.76

Application/Limitation

The OCIMF MEG4 approval range covers ropes with diameter from 38 mm to and including 112 mm.

The OCIMF 2000 approval range covers ropes with diameter from 48 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].
- DNVGL-CP-0100.

The fibre ropes are manufactured in accordance with;

- Product Specification (DANSTRONG), Form No. ACL/OCIMF/DS-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 GL 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 and Certificate Renewal) shall be performed according to DNVGL-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.dnvgl.com>

END OF CERTIFICATE