DNV·GL

Certificate No:
TAK0000043

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Synthetic Fibre Ropes

with type designation(s)
Plasma® 12 Strand and Plasma® 12x12 Strand

Issued to
Cortland
Anacortes, United States

is found to comply with
Det Norske Veritas' Type Approval Programme 1-504.1, 2012, Synthetic Fibre Ropes for Towing, Mooring and Anchoring of Ships and High Speed and Light Craft
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft

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.

This Certificate is valid until **2020-11-02**.

Issued at **Høvik** on **2015-11-03**

for **DNV GL**

DNV GL local station: **Seattle**

Approval Engineer: **Gisle Hersvik**

Martin Strande
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.

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Job Id: **262.1-020656-1**
Certificate No: **TAK0000043**

Product description

Plasma® 12 Strand and **Plasma® 12x12 Strand** Fibre Ropes.
- Specific gravity : 0,98 (floats in seawater)

ROPE CHARACTERISTICS		
	Plasma® 12 Strand and Plasma® 12x12 Strand	
Diameter, mm	**Nominal Linear Mass, g/m**	**Minimum Breaking Load (MBL), kN**
11	63	93,4
12	95	139,2
14	118	168,6
16	158	228,6
18	198	304,7
20	237	329,2
22	292	411,9
24	348	489,3
26	409	574,7
28	475	653,9
30	539	734,0
32	621	871,9
36	769	983,1
40	978	1 294,4
44	1 167	1 396,7
48	1 360	1 579,1
52	1 622	1 903,8
56	1 816	2 139,6
60	2 202	2 357,7
64	2 485	2 651,1
68	2 783	2 935,8
72	3 185	3 469,6
76	3 497	3 780,8
80	3 884	4 181,3
88	4 822	5 560,3
96	5 864	6 761,3

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

Application/Limitation

The approval covers ropes with diameter from 11 mm to and including 96 mm, as per above table.
- Plasma® 12 Strand: 11 to 36 mm
- Plasma® 12x12 Strand: 40 to 96 mm

Scope of assessment is limited to evaluation of net mass per metre, type of lay and of static strength.

Type Approval documentation
Tests carried out

Type Testing carried out according to **Type Approval documentation** and Cortland's testing procedure, which is a compilation of:
- OCIMF Prototype Rope Testing Standard, and
- Cordage Institute CI-1500 Rope Testing Standard.

Marking of product

Product shall be marked with *manufacturer's name*: **Cortland Company, USA**, *type designation, weight* and *length*.

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 Assessment to be performed after two (2) years (Certificate Retention) and at renewal after five (5) years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE