

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Synthetic Fibre Ropes**with type designation(s)
STRONGLINE

Issued to

Lankhorst Euronete Portugal S.A.
Maia, Portugal

is found to comply with

**DNV GL class programme DNVGL-CP-0100 – Type approval – Synthetic fibre ropes for towing,
mooring and anchoring
DNV GL rules for classification – Ships
DNV GL rules for classification – High speed and light craft****Application :****Mooring and Towing of Ships and HSLCs, and anchoring of HSLCs.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**Issued at **Høvik** on **2018-12-04**This Certificate is valid until **2023-12-03**.for **DNV GL**DNV GL local station: **Lisbon**Approval Engineer: **Gisle Hersvik**

Rikard Törnqvist
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.



Product description

STRONGLINE

Fibre material: Polyester (PES)

Synthetic fibre ropes, parallel construction (3-strand subropes) (Ref. LEP Rope Supply Specification No. 262018R1):

- Specific gravity: 1,38 (sinks in seawater)
- Elongation at break: 7,5 %

ROPE CHARACTERISTICS			
Diameter, mm	Nominal linear density Ktex	Nominal linear mass, kg/m	Minimum Breaking Strength (MBS), kN
32	765	0,765	353
36	950	0,950	440
40	1310	1,310	533
44	1470	1,470	638
48	1750	1,750	750
52	1890	1,890	870
56	2270	2,270	995
60	2560	2,560	1130
64	2840	2,840	1270
68	3070	3,070	1420
72	3670	3,670	1570
76	3900	3,900	1730
80	4170	4,170	1890
84	4540	4,540	2069
88	4930	4,930	2250
92	5280	5,280	2450
96	5600	5,600	2630
100	6300	6,300	2840
104	6620	6,620	3090
112	7880	7,880	3650

Fibre ropes are to be delivered with a linear density within ± 5 % of the nominal linear density given in the table. The unspliced MBS data as provided in the LEP Rope Supply Specification No. 262018R1.

Manufactured by

Lankhorst Euronete Portugal S.A., Rua da Cerfil, 4471-909 Maia - Portugal
Lankhorst Euronete Portugal S.A., Av do Cabedelo, Darque, 4935-160 Viana do Castelo - Portugal
Lankhorst Euronete Portugal S.A., Av Padre Américo 434, 4580-147 Beire-Paredes - Portugal

DNV GL local station: Lisbon

Responsibilities

The Company (stated on the front page of this Certificate) takes the responsibility that both design and manufacture are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

The Type Approval covers ropes with diameter from 32 mm to and including 112 mm.

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

Type Approval documentation

Tests carried out

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

- ISO 2307:2010

The fibre rope is manufactured in accordance with;

- LEP Rope Supply Specification No. 262018R1.

Marking of product

Product shall be marked with *manufacturer's name*; **Lankhorst Euronete Portugal S.A.**, *place of production*, *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 Assessment to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 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 DNV GL Type Approval Certificate.

END OF CERTIFICATE