

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

**Acera™ Nansen,
Acera™ Amundsen,
Acera™ daGama,
Acera™ Scott,
Acera™ Barentz**

Issued to

**Wilhelmsen Ships Service AS
LYSAKER, Norway**

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
ISO 10325:2009 "Fibre ropes – High modulus polyethylene – 8-strand braided ropes, 12-
strand braided ropes and covered ropes"****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 **2018-12-31**.Issued at **Høvik** on **2016-04-01**for **DNV GL**DNV GL local station: **Station Oslo Maritime and CAP**Approval Engineer: **Gisle Hersvik**

**Arnstein Gloppen
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

Acera™ Nansen (8-strand plaited/braided), synthetic fibre ropes without cover,
Acera™ Amundsen (12-strand plaited/braided), synthetic fibre ropes without cover,
Acera™ daGama (12-strand plaited/braided), synthetic fibre rope with cover around rope,
Acera™ Scott (8-strand plaited/braided), synthetic fibre rope with cover around each strand, and
Acera™ Barentz (12-strand plaited/braided), synthetic fibre rope with cover around each strand.
UV protected for global use. Rope made of coated **Acera™** fiber - UHMWPE.

Type designation	Cover	Specific Gravity	
Acera™ Nansen	-	0,97	Floats in seawater
Acera™ Amundsen	-	0,97	Floats in seawater
Acera™ daGama	Acera	0,97	Floats in seawater
	PES	0,99	Floats in seawater
	B5	0,95	Floats in seawater
Acera™ Scott	Acera	0,97	Floats in seawater
	PES	1,10	Sinks in seawater
	B5	0,95	Floats in seawater
Acera™ Barentz	Acera	0,97	Floats in seawater
	PES	1,15	Sinks in seawater
	B5	0,95	Floats in seawater

ROPE CHARACTERISTICS				
Diameter, mm	Circ, inches	Nominal linear mass, g/1m	Minimum breaking load (MBL),	
			kN unspliced	kN with eye splice
16	2	136	260	235
18	2 ¼	171	310	283
20	2 ½	209	380	340
22	2 ¾	253	450	400
24	3	298	520	470
26	3 ¼	346	600	540
28	3 ½	401	680	610
30	3 ¾	455	770	690
32	4	518	870	780
34	4 ¼	583	960	860
36	4 ½	648	1 040	940
38	4 ¾	718	1 160	1 040
40	5	793	1 260	1 130
44	5 ½	954	1 460	1 310
48	6	1 125	1 700	1 530
52	6 ½	1 314	1 970	1 770
56	7	1 521	2 260	2 030
60	7 ½	1 737	2 530	2 280
64	8	1 980	2 840	2 560
68	8 ½	2 232	3 170	2 850
72	9	2 502	3 520	3 170
76	9 ½	2 781	3 890	3 500
80	10	3 087	4 300	3 870
88	11	3 753	5 200	4 680
96	12	4 473	6 180	5 560
104	13	5 238	7 090	6 380

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112	14	6 075	8 150	7 330
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Fibre ropes are to be delivered with a linear mass within $\pm 5\%$ of the nominal linear mass given in the table.

For all covered ropes, weights in table are for load bearing elements (Core).

Diameter, mm in table (Nominal diameter), is corresponding with ISO «reference number» (equal), and measured can be different.

Application/Limitation

The Type Approval covers ropes with diameter from 16 mm to and including 112 mm.

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

Manufactured by

Timm Slovakia, S.r.o., Nozdrkovce 37, 91104 Trenčín, Slovakia

DNV GL local office; Ostrava

Responsibility

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

Type Approval documentation

Tests carried out

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

- ISO 2307:2010

The fibre rope is manufactured in accordance with ISO 10325:2009 "Fibre ropes -- High modulus polyethylene -- 8-strand braided ropes, 12-strand braided ropes and covered ropes" and ISO 9554:2010 "Fibre ropes – General specifications".

Initial setting/cycling of ropes and testing of break strength are carried out in accordance with OCIMF Guidelines.

Marking of product

Product shall be marked with *manufacturer's name*; **Wilhelmsen Ships Service AS, Lysaker, Norway**, *production plant* and *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 two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).



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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