



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAK0000097
Revision No:
4

This is to certify:

that the **Synthetic Fibre Ropes**

with type designation(s)

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

issued to

Wilhelmsen Ships Service AS
Lysaker, Norway

is found to comply with

DNV class programme DNV-CP-0100 – Type approval – Synthetic fibre ropes for towing, mooring and anchoring
ISO 10325:2018 "Fibre ropes – High modulus polyethylene – 8-strand braided ropes, 12-strand braided ropes and covered ropes"
OCIMF Mooring Equipment Guidelines (MEG4), Fourth Edition 2018 [test requirements]

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 **2024-07-25**

This Certificate is valid until **2029-07-08**.

for **DNV**

DNV local unit: **Oslo Maritime and CAP**

Approval Engineer: **Gisle Hersvik**

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

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.
- Rope made of coated **Acera™** fiber - UHMWPE.

Acera™ Amundsen SBA™, same as **Acera™ Amundsen**, but with SBA™.
Acera™ daGama SBA™, same as **Acera™ daGama**, but with SBA™.
Acera™ Barentz SBA™, same as **Acera™ Barentz**, but with SBA™.

- SBA™ = Snap Back Arrestor – element intended for reducing rope recoil

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	1,07	Sinks 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

Compliance with OCIMF Mooring Equipment Guidelines (MEG4)

Mooring Line Base Design Certificate – for Acera™ Amundsen 16 mm and 64 mm
 Document No.: TS CERT 7807 E (Acera™ Amundsen, Acera™ Amundsen SBA™) **Issue date:** 2024-07-09

Mooring Line Base Design Certificate – for Acera deGama 16 mm and 64 mm
 Document No.: TS CERT 7808 E (Acera™ deGama, Acera™ deGama SBA™) **Issue date:** 2024-07-09

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

Wilhelmsen Ships Service AS has performed the full test scenario as per OCIMF MEG4.

Snap Back Arrestor technology

The Snap Back Arrestor (SBA™) in Acera™ Amundsen/daGama/Barentz SBA™ is intended for reducing rope recoil (Snap Back) and is not influencing the rope's performance indicators.

The SBA™ technology is qualified by DNV in accordance with DNV-RP-A203.

Information about the SBA™ performance and qualification process can be found in the DNV Statement of qualified technology.

Rope characteristics:

The Rope Characteristics provided by Wilhelmsen Ships Service AS are tabulated on the next page observing the following:

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

All LDBF (Line Design Break Force) values are for spliced ropes. Values for unspliced ropes are 10% higher.

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

ROPE CHARACTERISTICS

ISO Ref. number	Circ. [Inches]	Linear Density load bearing -excl. SBA™ [g/m]	Linear Density load bearing -incl. SBA™ [g/m]	LDBF -spliced [kN]	LDBF -spliced [mT]	Tenacity -load bearing [kN/kg/m]
16	2	144	166	230	23	1 597
18	2¼	179	201	285	29	1 592
20	2½	214	236	340	34	1 588
22	2¾	256	278	405	41	1 580
24	3	299	321	470	48	1 572
26	3¼	350	372	540	55	1 543
28	3½	401	423	615	62	1 534
30	3¾	456	478	700	71	1 535
32	4	514	536	780	79	1 518
34	4¼	575	597	870	88	1 513
36	4½	640	662	965	98	1 508
38	4¾	707	747	1 060	108	1 506
40	5	778	817	1 155	117	1 485
44	5½	929	968	1 375	140	1 480
48	6	1 091	1 153	1 600	163	1 467
52	6½	1 266	1 328	1 840	187	1 453
56	7	1 453	1 515	2 095	213	1 442
60	7½	1 652	1 741	2 370	241	1 435
64	8	1 862	1 951	2 655	270	1 426
68	8½	2 086	2 175	2 955	301	1 417
72	9	2 328	2 417	3 270	333	1 405
76	9½	2 583	2 672	3 600	367	1 394
80	10	2 851	2 972	3 940	401	1 382
88	11	3 425	3 546	4 660	475	1 361
96	12	4 049	4 170	5 435	554	1 342
104	13	4 724	4 882	6 265	638	1 326
112	14	5 447	5 605	7 140	728	1 311

The data in the table is provided by Wilhelmsen Ships Service AS.

ROPE CHARACTERISTICS – Acera™ SBA™							
Description	Diameter [mm]	LDBF [kN] -spliced up to:	LDBF [mT] -spliced up to:	Mass -excl. SBA™ [kg/220m]	Mass -incl. SBA™ [kg/220m]	Linear Density -load bearing [kg/m]	Tenacity -load bearing [kN/kg/m]
S50	25,0	505	51,5	71	76	0,32	1 563
S60	27,2	590	60,2	84	88	0,38	1 553
S65	29,0	656	66,9	94	99	0,42	1 533
S75	31,3	765	78,0	108	113	0,49	1 552
S85	33,8	882	89,9	125	130	0,57	1 550
S100	37,0	1009	102,9	148	152	0,67	1 499
S105	37,3	1 058	107,9	150	159	0,68	1 497

S115	40,0	1155	117,7	171	179	0,77	1 484
S125	42,2	1 274	129,9	189	198	0,86	1 483
S145	45,2	1 437	146,5	215	223	0,98	1 472
S170	49,0	1 658	169,1	249	263	1,13	1 462
S190	52,5	1 872	190,9	284	297	1,29	1 452
S210	55,9	2 092	213,3	319	332	1,45	1 445
S230	59,0	2 301	234,6	352	372	1,60	1 437
S250	62,1	2 519	256,9	387	407	1,76	1 430
S270	64,3	2 678	273,1	413	433	1,88	1 426

The data in the table is provided by Wilhelmsen Ships Service AS.

Application/Limitation

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

The OCIMF MEG4 approval range covers ropes with diameter from 16 mm to and including 64 mm.

Manufactured by

Wilhelmsen Ships Service AS
Timm Slovakia, S.r.o., Nozdrkovce 37, 91104 Trenčín, Slovakia

DNV local station: Komarno

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 2307:2019, Fibre ropes -- Determination of certain physical and mechanical properties.
- ISO 9554:2019, Fibre ropes -- General specifications.
- CI 1500A-15, Test methods for fiber ropes. Physical properties.
- CI 1500B-15, Test methods for fiber ropes. Performance properties.
- OCIMF's Mooring Equipment Guidelines (MEG4) [requirements to testing].
- DNV-CP-0100.

The fibre rope is manufactured in accordance with ISO 10325:2018 "Fibre ropes -- High modulus polyethylene -- 8-strand braided ropes, 12-strand braided ropes and covered ropes" and ISO 9554.

Initial setting/cycling of ropes and testing of break strength are carried out in accordance with ISO 2307.

Marking of product

Product shall be marked with *manufacturer's name*: **Wilhelmsen Ships Service AS, 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 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