

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
Polyamide Multi-Filament Ropes

Issued to

Zhejiang Four Brothers Rope Co., Ltd
Linhai, China

is found to comply with

DNV GL class programme DNVGL-CP-0100 – Type approval – Synthetic fibre ropes for towing, mooring and anchoring

ISO 1140:2012 "Fibre ropes – Polyamide – 3-, 4-, 8- and 12-strand ropes"

ISO 10554:2009 "Polyamide fibre ropes – Double braid construction"

DNV GL rules for classification – Ships

DNV GL rules for classification – High speed and light 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.

Issued at **Høvik** on **2018-03-18**

This Certificate is valid until **2023-03-17**.

DNV GL local station: **Ningbo**

for **DNV GL**

Approval Engineer: **Gisle Hersvik**

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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

Polyamide Multi-Filament Ropes

8- and 12-strand braided synthetic fibre ropes (Ref. ISO 1140:2012):

- Specific gravity: 1,14 (sinks in seawater)

ROPE CHARACTERISTICS			
Diameter, mm	Nominal linear mass, kg/m	Minimum Breaking Load (MBL), kN	
		(8-strand Type-L)	(12-strand Type-T)
12	0,090	27,0	28,4
16	0,160	47,7	50,4
20	0,250	72,0	76,5
24	0,360	101	106
28	0,490	135	144
30	0,560	153	162
32	0,640	180	191
36	0,810	225	239
40	1,000	270	284
44	1,210	320	338
48	1,440	383	405
52	1,700	450	477
56	1,970	504	540
60	2,260	567	603
64	2,570	639	675
72	3,250	810	855
80	4,010	1 008	1 062
88	4,860	1 188	1 260
96	5,780	1 440	1 530
104	6,780	1 620	1 710
112	7,870	1 908	2 016
120	9,030	2 124	2 250

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

Polyamide double braid fibre ropes (Ref. ISO 10554:2009):

- Specific gravity: 1,14 (sinks in seawater)

ROPE CHARACTERISTICS		
Diameter, mm	Nominal linear mass, kg/m	Minimum Breaking Load (MBL), kN
		(Type-C)
6	0,0224	7,10
8	0,0398	12,6
10	0,0622	19,6
12	0,0896	28,2
14	0,122	38,3
16	0,159	49,8

18	0,202	62,9
20	0,249	77,6
22	0,301	94
24	0,358	112
26	0,420	131
28	0,488	151
30	0,560	174
32	0,637	197
36	0,806	249
40	0,995	307
44	1,200	371
48	1,430	441
52	1,680	517
56	1,950	598
60	2,240	686
64	2,550	780
72	3,220	990
80	3,980	1 220
88	4,820	1 470
96	5,730	1 750
104	6,730	2 040
112	7,800	2 370
120	8,960	2 720

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

Application/Limitation

The Type Approval covers ropes with diameter from 12 mm to and including 120 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

Initial setting/cycling of ropes has not been carried out prior to break testing.

The fibre rope is manufactured in accordance with;

- ISO 1140:2012 "Fibre ropes - Polyester - 3-, 4-, 8- and 12-strand ropes", and
- ISO 10554:2009 "Polyamide fibre ropes -- Double braid construction".

Marking of product

Product shall be marked with *manufacturer's name*; **Zhejiang Four Brothers Rope Co., Ltd., China**, *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.

Job Id: **262.1-012302-4**
Certificate No: **TAK000016B**

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