

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Synthetic Fibre Ropes

with type designation(s)
**NYLOTUF PLUS 8 and NYLOTUF PLUS 12 Mooring Lines,
NYLOTUF PLUS 8 and NYLOTUF PLUS 12 Mooring Tails**

Issued to

INDIA NETS

Pithampur, Madhya Pradesh, India

is found to comply with

DNV class programme DNV-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"

OCIMF Mooring Equipment Guidelines (MEG4), Fourth Edition 2018 [test requirements]

OCIMF Guidelines for the Purchasing and Testing of SPM Hawsers (2000)

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 **Høvik** on **2022-04-04**

This Certificate is valid until **2027-04-03**.

DNV local station: **Mumbai NB & CMC**

for **DNV**

Approval Engineer: **Gisle Hersvik**

.....
Gustav Heiberg
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.

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

NYLOTUF PLUS 8: 8 Strand plaited / braided synthetic rope

NYLOTUF PLUS 12: 8 Strand plaited / braided synthetic rope

- Fibre material: Polyamide (Nylon) Yarn
- Specific gravity: 1.14 (Sinks in sea water)
- Elongation at break: 28 % $\pm$ 2%
- With or without marine finish.
- UV-stabilized.
- Single construction: Polyamide (Nylon) Yarn.

Compliance with OCIMF Mooring Equipment Guidelines (MEG4)

Mooring Line Base Design Certificate – for NYLOTUF PLUS 32 mm and 112 mm

Ref No.: - **IN/MEG4/MLBDC/NTPLUS/21/001**

Mooring Line Certificate will be issued with reference to mooring line base design certificate.

Mooring Tail Base Design Certificate – for NYLOTUF PLUS 32 mm and 112 mm

Ref No.: - **IN/MEG4/MTBDC/NTPLUS/21/002**

Mooring Tail Certificate will be issued with reference to mooring tail base design certificate.

INDIA NETS has performed the full test scenario as per OCIMF MEG4.

Compliance with OCIMF 2000, Guidelines for the Purchasing and Testing of SPM Hawsers

Tested: Size 6 (48 mm) and Size 14 (112 mm)

Rope Characteristics

The Rope characteristics are tabulated on the next page observing the following:

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

Linear Density are tabulated on the following pages.

All LDBF/TDBF (Line/Tail Design Break Force) values are given for both dry and wet, un-spliced and spliced ropes.

NYLOTUF PLUS 8 - NYLOTUF PLUS 12:

Size	Linear Density	Mass - rope		Breaking Load [kgf. - ton]							
				Dry				Wet			
Dia.				Un-spliced		Spliced -LDBF/TDBF		Un-spliced		Spliced -LDBF/TDBF	
mm	kg/m	kg/100m	kg/220m	kgf.	Ton	kgf.	Ton	kgf.	Ton	kgf.	Ton
32	0.632	63.18	139.00	27300	27.30	25000	25.00	23300	23.30	21000	21.00
36	0.800	80.00	176.00	34000	34.00	31000	31.00	28800	28.80	26000	26.00
40	0.991	99.09	218.00	41600	41.60	37000	37.00	35500	35.50	32000	32.00
44	1.200	120.00	264.00	49700	49.70	45000	45.00	42200	42.20	38000	38.00
48	1.418	141.82	312.00	58700	58.70	53000	53.00	50000	50.00	45000	45.00
50	1.659	165.91	365.00	68300	68.30	61000	61.00	57800	57.80	52000	52.00
52	1.686	168.64	371.00	70000	70.00	63000	63.00	60000	60.00	54000	54.00
54	1.827	182.73	402.00	75000	75.00	68000	68.00	63300	63.30	57000	57.00
55	1.898	189.77	417.50	78000	78.00	70000	70.00	66700	66.70	60000	60.00
56	1.932	193.18	425.00	79500	79.50	72000	72.00	67800	67.80	61000	61.00
57	2.034	203.41	447.50	83000	83.00	75000	75.00	70000	70.00	63000	63.00
58	2.068	206.82	455.00	85000	85.00	77000	77.00	72200	72.20	65000	65.00
59	2.191	219.09	482.00	90000	90.00	81000	81.00	76700	76.70	69000	69.00
60	2.218	221.82	488.00	91200	91.20	82000	82.00	77800	77.80	70000	70.00
61	2.295	229.55	505.00	95000	95.00	86000	86.00	81000	81.00	73000	73.00
62	2.359	235.91	519.00	98000	98.00	88000	88.00	83300	83.30	75000	75.00
63	2.480	247.95	545.50	103000	103.00	93000	93.00	87800	87.80	79000	79.00
64	2.518	251.82	554.00	105500	105.50	95000	95.00	90000	90.00	81000	81.00
65	2.600	260.00	572.00	108000	108.00	97000	97.00	92200	92.20	83000	83.00
66	2.723	272.27	599.00	114000	114.00	103000	103.00	96700	96.70	87000	87.00
68	2.850	285.00	627.00	119000	119.00	107000	107.00	101100	101.10	91000	91.00
70	3.014	301.36	663.00	125000	125.00	113000	113.00	106700	106.70	96000	96.00
72	3.191	319.09	702.00	130600	130.60	118000	118.00	111100	111.10	100000	100.00
73	3.236	323.64	712.00	132000	132.00	119000	119.00	112200	112.20	101000	101.00
74	3.409	340.91	750.00	138000	138.00	124000	124.00	117800	117.80	106000	106.00
76	3.555	355.45	782.00	145000	145.00	131000	131.00	123300	123.30	111000	111.00
78	3.745	374.55	824.00	152000	152.00	137000	137.00	129000	129.00	116000	116.00
80	3.941	394.09	867.00	160000	160.00	144000	144.00	135500	135.50	122000	122.00
82	4.141	414.09	911.00	167000	167.00	150000	150.00	142200	142.20	128000	128.00
84	4.345	434.55	956.00	175000	175.00	158000	158.00	149000	149.00	134000	134.00
86	4.555	455.45	1002.00	183000	183.00	165000	165.00	155600	155.60	140000	140.00
88	4.714	471.36	1037.00	192000	192.00	173000	173.00	163300	163.30	147000	147.00
90	5.045	504.55	1110.00	200000	200.00	180000	180.00	170000	170.00	153000	153.00
94	5.445	544.55	1198.00	209000	209.00	188000	188.00	177800	177.80	160000	160.00
96	5.741	574.09	1263.00	218000	218.00	196000	196.00	185600	185.60	167000	167.00
98	5.982	598.18	1316.00	227000	227.00	204000	204.00	193300	193.30	174000	174.00
102	6.282	628.18	1382.00	238000	238.00	214000	214.00	202200	202.20	182000	182.00
104	6.532	653.18	1437.00	248000	248.00	223000	223.00	211100	211.10	190000	190.00
106	6.855	685.45	1508.00	260000	260.00	234000	234.00	221100	221.10	199000	199.00
108	7.177	717.73	1579.00	272000	272.00	245000	245.00	231200	231.20	208000	208.00
110	7.482	748.18	1646.00	284000	284.00	256000	256.00	241200	241.20	217000	217.00
112	7.795	779.55	1715.00	296000	296.00	266000	266.00	251000	251.00	226000	226.00

Application/Limitation

The OCIMF MEG4 approval range covers ropes with diameter from 32 mm to and including 112 mm.

The OCIMF 2000 approval range covers ropes with diameter from 32 mm to and including 112 mm.

Manufactured by

INDIA NETS Unit 1, Indore SEZ Phase-I, Sector-III, Plot No D-1 to 12, B-1, 2 & F-3 to 5, Pithampur-454775, Dist.-Dhar-454775, Madhya Pradesh, India

INDIA NETS Unit 2, Indore SEZ Phase-I, Sector-III, F-1 & F-2, Pithampur-454775, Dist.-Dhar-454775, Madhya Pradesh, India

DNV local station: Mumbai

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 according to:

- OCIMF's Mooring Equipment Guidelines (MEG4) [requirements to testing].
- OCIMF Guidelines for the Purchasing and Testing of SPM Hawsers (2000)
- DNV-CP-0100.

The fibre ropes are manufactured in accordance with:

- Design Specification (NYLOTUF PLUS) - Ref No - IN/MEG4/DS/NTPLUS/005 of 2020-12-01
- ISO 1140:2012 "Fibre ropes — Polyamide — 3-, 4-, 8- and 12-strand ropes"
- IS 4572:1992 "Fibre ropes of polyamide fibres"

Marking of product

Product shall be marked with *manufacturer's name*; **INDIA NETS**, *place of production* and *type designation, diameter, product code* and *strength*.

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