

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008TJ
Revision no.:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the **Materials other than steel for pipes conveying oil or fuel oil: — flexible pipe assemblies and compensators**

with type designation(s)

H3000D/S, H4000D/S, H5000D/S, H6000D/S, RTH1

issued to

Manuli Hydraulics (Suzhou) Co., Ltd.
Suzhou, China

is found to comply with the Implementing Regulation **(EU) 2025/1533** for

Item no. **MED/3.15c** (Row 1 of 1)

according to the following requirements:

SOLAS 74 Reg. II-2/4, IMO Res. MSC.36(63)-(1994 HSC Code) 7, IMO Res. MSC.36(63)-(1994 HSC Code) 10, IMO Res. MSC.97(73)-(2000 HSC Code) 7, IMO Res. MSC.97(73)-(2000 HSC Code) 10, IMO MSC/Circ.1120, SOLAS 74 Reg. X/3

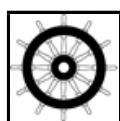
Further details of the equipment and conditions for certification are given overleaf.

Date of issue: **2025-11-26**

Expiry date: **2029-12-15**

DNV local unit:
Shanghai

Approval Engineer:
Andreas Hansen



for DNV AS

Notified Body
no.: **0575**

Christine Mydlak-Röder
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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 USD 300 000.

Product description

Please see Appendix: Product Description

Application/Limitation

Please see Appendix: Application/Limitation

Type Examination documentation

Tests carried out

Fire testing according to ISO 15540 and ISO 15541

Marking of product

For traceability to this certificate, each hose is marked with:

- Manufacturer's name or trademark
- Specification or hose name
- Hose size and type designation
- Date of manufacture
- Mark of conformity according to Article 10 of the Council Directive 2014/90/EU

Mark of Conformity may only be affixed to the product when the corresponding certification related to production-control phase module (D, E, or F) is valid.

APPENDIX

Application/Limitation

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Hose assemblies covered by this certificate are suitable for systems conveying oil or fuel oil with the following maximum allowable working pressures:

Size			Maximum working pressure (bar)				
in	DN	DASH	H3000	H4000	H5000	H6000	RTH1
1/4"	6	-04	-	-	-	-	170
5/16"	8	-05	-	-	-	-	-
3/8"	10	-06	-	280	350	420	165
1/2"	12	-08	-	280	350	420	120
5/8"	16	-10	-	280	350	420	105
3/4"	19	-12	-	280	350	420	85
1"	25	-16	-	280	350	420	55
1 1/4"	31	-20	215	280	350	420	-
1 1/2"	38	-24	215	280	350	420	-
2"	51	-32	215	280	350	420	-

APPENDIX

Product Description

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5 types of non-metallic hoses with permanently fitted couplings tested according to:

- ISO 15540:2016 – Fire resistance of non-metallic hose assemblies and non-metallic compensators – Test methods
- ISO 15541:2016 – Fire resistance of non-metallic hose assemblies and non-metallic compensators – Requirements for the test bench

Scope of approval covers only the fire resistance capability of the hoses while the review of assembling of the approved hoses and end fittings for DNV Class approval are not covered under this certification.

1) **H3000 D/S**

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four alternating layers of spiraled high tensile steel wires
Cover :

- a) Type D (DIEHARD): Oil and extra abrasion resistant synthetic rubber (or)
- b) Type S (SLIDER): Synthetic rubber sheathed with a layer of extremely abrasion resistant polyethylene

Couplings : T7000 series

2) **H4000 D/S**

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four or six alternating layers of spiraled high tensile steel wires
Cover :

- a) Type D (DIEHARD): Oil and extra abrasion resistant synthetic rubber (or)
- b) Type S (SLIDER): Synthetic rubber sheathed with a layer of extremely abrasion resistant polyethylene

Couplings : T7000 series

3) **H5000 D/S**

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four or six alternating layers of spiraled high tensile steel wires
Cover :

- a) Type D (DIEHARD): Oil and extra abrasion resistant synthetic rubber (or)
- b) Type S (SLIDER): Synthetic rubber sheathed with a layer of extremely abrasion resistant polyethylene

Couplings : T7000 series for all sizes up to -24; T9000 series for size -32

4) **H6000 D/S**

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four or six or eight alternating layers of spiraled high tensile steel wires
Cover :

- a) Type D (DIEHARD): Oil and extra abrasion resistant synthetic rubber (or)
- b) Type S (SLIDER): Synthetic rubber sheathed with a layer of extremely abrasion resistant polyethylene

Couplings : T7000 series

5) **RTH1**

Inner tube : Teflon (PTFE)
Reinforcement : One braid of high tensile grade 304 stainless steel wire
Flame protection : Type FS1072
Couplings : TT000 series

Hoses manufacturing location

Hose types	Location
1) H3000, H4000, H5000, H6000	1) MANULI RYCO Hydraulics Sdn. Bhd., Malaysia
2) H4000D (DN19 and DN25) and H5000D (DN12 to DN38)	2) Manuli Hydraulics (Suzhou) Co., Ltd., China
RTH1	Kongsberg Automotive, West Yorkshire, U.K.

Couplings manufacturing location

Manuli Ryco Hydraulics (Dalian) Co., Ltd., China

Hose assembling location

Manuli Hydraulics (Suzhou) Co., Ltd., Suzhou, Jiangsu, China