

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008TJ

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,, Jiangsu,, China

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2024/1975,**

item No. MED/3.15c. SOLAS 74 as amended, Regulation II-2/4 & X/3 and 2000 HSC Code 7 & 10 and IMO MSC/Circ.1120

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

This Certificate is valid until **2029-12-15**.

Issued at **Høvik** on **2024-12-16**

DNV local unit:
Shanghai

Approval Engineer:
Maheshraja Venkatesan



Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 300,000 USD.



Product Description

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

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
H3000, H4000, H5000, H6000,	MANULI RYCO Hydraulics Sdn. Bhd., Malaysia
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

Application/ Limitation

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	-

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.