

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL 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

with type designation(s)

**EQUATOR/1 (BLUE), EQUATOR/2 (BLUE), ROCKMASTER/12, ROCKMASTER/13,
ROCKMASTER/15**

Issued to

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

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

Regulation **(EU) 2018/773,**

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

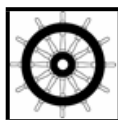
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-08-25**.

Issued at **Høvik** on **2019-08-26**

DNV GL local station:
Shanghai

Approval Engineer:
Adel Samiei



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Product description

Five types of hose assemblies:

- EQUATOR/1 (BLUE) constructed as per EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN/R1AT
Hoses are made of Oil resistant synthetic rubber with one high tensile steel braid reinforcement and synthetic rubber with high ozone, weather and heat resistance cover
- EQUATOR/2 (BLUE) constructed as per EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT
Hoses are made of Oil resistant synthetic rubber with two high tensile steel braids reinforcement and synthetic rubber with high ozone, weather and heat resistance cover
- ROCKMASTER/12 constructed as per EN 856 R12; SAE 100 R12; ISO 3862 R12
Hoses are made of Oil resistant synthetic rubber with four high tensile steel spirals reinforcement and synthetic rubber with high ozone, weather and heat resistance cover
- ROCKMASTER/13 constructed as per EN 856 R13; SAE 100 R13; ISO 3862 R13
Hoses are made of Oil resistant synthetic rubber with four high tensile steel spirals (DN6-25) and Six high tensile steel spirals (DN31-51) reinforcement and synthetic rubber with high ozone, weather and heat resistance cover
- ROCKMASTER/15 constructed as per SAE 100 R15; ISO 3862 R15
Hoses are made of Oil resistant synthetic rubber with four high tensile steel spirals (DN19-25) and Six high tensile steel spirals (DN31-38) reinforcement and synthetic rubber with high ozone, weather and heat resistance cover

Coupling designations:

Hose size			EQUATOR/1 (BLUE)	EQUATOR/2 (BLUE)	ROCKMASTER/12
inch	DN	Dash			
¼	6	-4	MF+M00120	MF+M00910	-
5/16	8	-5	MF+M00120	MF+M00910	-
3/8	10	-6	MF+M00120	MF+M00910	MF+M00910
½	12	-8	MF+M00120	MF+M00910	MF+M00910
5/8	16	-10	MF+M00120	MF+M00910	MF+M00910
¾	19	-12	MF+M00120	MF+M00920	MF+M00920
1	25	-16	MF+M00130	MF+M00930	MF+M00930
1 ¼	31	-20	MF+M00110	MF+M00920	MF+M00920
1 ½	38	-24	MF+M00110	MF+M00910	MF+M00910
2	51	-32	MF+M00110	MF+M00910	MF+M00910
2 ½	63	-40	MF+M03400	-	-

Hose size			ROCKMASTER/13	ROCKMASTER/15
inch	DN	Dash		
¾	19	-12	IP+M01500	IP+M01500
1	25	-16	IP+M01500	IP+M01500
1 ¼	31	-20	IP+M01600	IP+M01600
1 ½	38	-24	IP+M01600	IP+M01600
2	51	-32	IP+M01800	-

Coupling Material: 11SMn30/37 EN 10277-3 (Electroplated Normalised Carbon Steel)
1.4401/1.4404 from EN 10088-3 (Stainless Steel)

Hoses are made by: Manuli Hydraulics (Suzhou), Suzhou, China
couplings are made by: Manuli Hydraulics Polska S.A., Poland

Application/Limitation

Hose assemblies covered by this certificate are tested according to:

- 1) EN ISO 15540: Fire resistance of hose assemblies- Test methods
- 2) EN ISO 15541: Fire resistance of hose assemblies - Requirements for the test bench

Job Id: **344.1-009375-1**
Certificate No: **MEDB00005E3**

Maximum working Pressure (in bar)

Hose size			EQUATOR/1 (BLUE)	EQUATOR/2 (BLUE)	ROCKMASTER/12	ROCKMASTER/13	ROCKMASTER/15
inch	DN	Dash					
¼	6	-4	225	400	-	-	-
5/16	8	-5	215	350	-	-	-
3/8	10	-6	180	330	280	-	-
½	12	-8	160	275	280	-	-
5/8	16	-10	130	250	280	-	-
¾	19	-12	105	215	280	350	420
1	25	-16	88	175	280	350	420
1 ¼	31	-20	65	150	210	350	420
1 ½	38	-24	50	100	175	350	420
2	51	-32	40	90	175	350	-
2 ½	63	-40	35	-	-	-	-

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:
Hose manufacturer's name or trademark;
Date of manufacture (month/year);
Designation type reference;
Nominal diameter;
Pressure rating;
Temperature rating.