

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

with type designation(s)

Rockmaster 1SN, 2SN, 2SC, R12, R13, R15, 4SH, 4SP; Eternity 2

Issued to

**Manuli Hydraulics Manufacturing Sp. z o.o.
Myslowice, Poland**

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 **2023-08-28.**

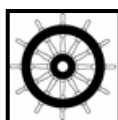
Issued at **Høvik** on **2018-08-29**

DNV GL local station:

Katowice

Approval Engineer:

Maheshraja Venkatesan



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

9 types of flexible rubber hose assemblies:

1. ROCKMASTER/1SN constructed as per type 1SN from EN 853; SAE 100R1AT; ISO 1436 1SN/R1AT
Tube : oil resistant synthetic rubber
Reinforcement : one high tensile steel braid
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
2. ROCKMASTER/2SN constructed as per type 2SN from EN 853; SAE 100R2AT; ISO 1436 2SN/R2AT
Tube : oil resistant synthetic rubber
Reinforcement : two high tensile steel braids
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
3. ROCKMASTER/2SC constructed as per type 2SC from EN 857; SAE 100R16; ISO 11237/2SC
Tube : oil resistant synthetic rubber
Reinforcement : two high tensile steel braids
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
4. ROCKMASTER/12 constructed as per type R12 from EN 856; SAE 100 R12; ISO 3862 R12
Tube : oil resistant synthetic rubber
Reinforcement : four high tensile steel spirals
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
5. ROCKMASTER/15 constructed as per type SAE100R15 from SAE J517; ISO 3862 R15
Tube : oil resistant synthetic rubber
Reinforcement : four high tensile steel spirals (DN19 to DN25);
six high tensile steel spirals (DN31 to DN38)
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Interlock Plus (IP) type
6. ROCKMASTER/4SH constructed as per type 4SH from EN 856; ISO 3862 4SH
Tube : oil resistant synthetic rubber
Reinforcement : four high tensile steel spirals
Cover : ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Interlock Plus (IP) type
7. ROCKMASTER/4SP constructed as per type 4SP from EN 856; ISO 3862 4SP
Tube : oil resistant synthetic rubber
Reinforcement : four high tensile steel spirals
Cover : Ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
8. ETERNITY/2 constructed as per type 2SC from EN 857; SAE 100 R16; ISO 11237 2SC
Tube : Oil resistant synthetic rubber
Reinforcement : two high tensile steel braids
Cover : ozone, abrasion and weather & heat resistant synthetic rubber
Couplings : MF2000 – Multifit(MF) type
9. ROCKMASTER/R13 constructed as per type R13 from EN 856; SAE 100 R13; ISO 3862 R13
Tube : oil resistant synthetic rubber
Reinforcement : six high tensile steel spirals
Cover : Ozone, weather & heat resistant synthetic rubber
Couplings : MF2000 – Interlock Plus (IP) type

Job Id: **344.1-005654-1**
Certificate No: **MEDB0000195**

Material of construction for Couplings:

Carbon steel : 11SMn30/37 from EN 10277-3
Stainless steel : 1.4401/1.4404 from EN 10088-3

Application/Limitation

Hose assemblies covered by this certificate are tested according to the following standards for use in piping systems conveying oil or fuel oil:

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

Size			ROCKMASTER/1SN		ROCKMASTER/2SN	
inch	DN	DASH	Max. working pressure (bar)	Fittings type	Max. working pressure (bar)	Fittings type
¼"	6	-04	-	MF+M03400-04	400	MF+M03400-04
5/16"	8	-05	-	MF+M03400-05	350	MF+M03400-05
⅜"	10	-06	-	MF+M03400-06	350	MF+M03400-06
½"	12	-08	160	MF+M03400-08	350	MF+M03400-08
⅝"	16	-10	130	MF+M03400-10	250	MF+M03400-10
¾"	19	-12	105	MF+M03400-12	215	MF+M03400-12
1"	25	-16	90	MF+M03400-16	175	MF+M03400-16
1 ¼"	31	-20	65	MF+M03400-20	140	MF+M03400-20
1 ½"	38	-24	50	MF+M03400-24	100	MF+M03400-24
2"	51	-32	40	MF+M03400-32	90	MF+M03400-32

Size			ROCKMASTER/2SC		ROCKMASTER/12	
inch	DN	DASH	Max. working pressure (bar)	Fittings type	Max. working pressure (bar)	Fittings type
¼"	6	-04	400	MF+M03400-04	-	-
5/16"	8	-05	350	MF+M03400-05	-	-
⅜"	10	-06	330	MF+M03400-06	-	-
½"	12	-08	275	MF+M03400-08	-	-
⅝"	16	-10	250	MF+M03400-10	-	-
¾"	19	-12	245	MF+M03400-12	-	-
1"	25	-16	210	MF+M03400-16	280	MF+M00930-16
1 ¼"	31	-20	140	MF+M03400-20	210	MF+M00920-20
1 ½"	38	-24	100	MF+M03400-24	175	MF+M00910-24
2"	51	-32	90	MF+M03400-32	175	MF+M00910-32

Size			ROCKMASTER/13		ROCKMASTER/15	
inch	DN	DASH	Max. working pressure (bar)	Fittings type	Max. working pressure (bar)	Fittings type
¾"	19	-12	-	-	420	IP+M01500-12
1"	25	-16	-	-	420	IP+M01500-16
1 ¼"	31	-20	350	IP+M01600-20	420	IP+M01600-20
1 ½"	38	-24	350	IP+M01600-24	420	IP+M01600-24
2"	51	-32	350	IP+M01800-32	-	-

Job Id: **344.1-005654-1**
Certificate No: **MEDB0000195**

Size			ROCKMASTER/4SH		ROCKMASTER/4SP	
inch	DN	DASH	Max. working pressure (bar)	Fittings type	Max. working pressure (bar)	Fittings type
1/4"	6	-04	-	-	485	MF+M00910-04
3/8"	10	-06	-	-	450	MF+M00910-06
1/2"	12	-08	-	-	420	MF+M00910-08
5/8"	16	-10	-	-	380	MF+M00910-10
3/4"	19	-12	420	IP+M01500-12	380	MF+M00920-12
1"	25	-16	385	IP+M01500-16	320	MF+M00930-16
1 1/4"	31	-20	350	IP+M01500-20	210	MF+M00920-20
1 1/2"	38	-24	300	IP+M01500-24	185	MF+M00910-24
2"	51	-32	250	IP+M01500-32	175	MF+M00910-32

Size			ETERNITY/2	
inch	DN	DASH	Max. working pressure (bar)	Fittings type
1/4"	6	-04	450	MF+M00120-04
5/16"	8	-05	400	MF+M00120-05
3/8"	10	-06	365	MF+M00120-06
1/2"	12	-08	350	MF+M00120-08
5/8"	16	-10	300	MF+M00120-10
3/4"	19	-12	300	MF+M00120-12
1"	25	-16	225	MF+M00130-16

Type Examination documentation

Tests carried out

Fire testing according to ISO 15540 and ISO 15541



Job Id: **344.1-005654-1**
Certificate No: **MEDB0000195**

Marking of product

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

- Manufacturer's name/trade mark
- Type designation
- Nominal size
- Maximum working pressure