

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies

with type designation(s)

Rockmaster 1SN, 2SN, 2SC, 4SP and 4SH - ETERNITY/2

Issued to

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

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

Regulation **(EU) 2017/306,**

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

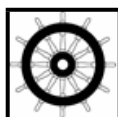
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-05-05**.

Issued at **Hamburg** on **2018-01-15**

DNV GL local station:
Shanghai CMC

Approval Engineer:
Hagen Markus



Notified Body
No.: **0098**

for **DNV GL SE**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

Hose design

Rockmaster/1SN, 2SN, 2SC and Eternity/2

Inner tube of oil-resistant synthetic rubber, one or two high tensile steel braid and high ozone, weather, abrasion and heat resistant synthetic rubber.

Rockmaster/4SP and 4SH

Inner tube of oil-resistant synthetic rubber, four high tensile steel spirals and high ozone, weather, abrasion and heat resistant synthetic rubber.

For hose design details refer to appropriate product sheets.

Hose end fittings

Hose type	Hose size		Hose end fitting ¹
	DN	dash	Types
Rockmaster/ 1SN, 2SN	6	-4	MF+M03400-04
	8	-5	MF+M03400-05
	10	-6	MF+M03400-06
	12	-8	MF+M03400-08
	16	-10	MF+M03400-10
	19	-12	MF+M03400-12
	25	-16	MF+M03400-16
	31	-20	MF+M03400-20
	38	-24	MF+M03400-24
	51	-32	MF+M03400-32
	60	-38	MF+M03400-38
Eternity/2	6	-4	MF+M00120-04
	8	-5	MF+M00120-05
	10	-6	MF+M00120-06
	12	-8	MF+M00120-08
	16	-10	MF+M00120-10
	19	-12	MF+M00120-12
	25	-16	MF+M00130-16
Rockmaster /2SC	5	-3	MF+M03300-03
	6	-4	MF+M03300-04
	8	-5	MF+M03300-05
	10	-6	MF+M03300-06
	12	-8	MF+M03300-08
	16	-10	MF+M03400-10
	19	-12	MF+M03400-12
	25	-16	MF+M03400-16
	31	-20	MF+M03400-20
	38	-24	MF+M03400-24
	51	-32	MF+M03400-32
	63	-40	MF+M03400-40
	76	-48	MF+M03400-48

Hose end fittings (continuation)

Hose type	Hose size		Hose end fitting ¹
	DN	dash	Types
Rockmaster/4SH	16	-10	IP+M01500-10
	19	-12	IP+M01500-12
	25	-16	IP+M01500-16

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Rockmaster/4SP	31	-20	IP+M01500-20
	38	-24	IP+M01500-24
	51	-32	IP+M01500-32
	6	-4	MF+M00910-04
	10	-6	MF+M00910-06
	12	-8	MF+M00910-08
	16	-10	MF+M00910-10
	19	-12	MF+M00920-12
	25	-16	MF+M00930-16
	31	-20	MF+M00920-20
	38	-24	MF+M00910-24
	51	-32	MF+M00910-32

Notes

¹ Made of carbon or stainless steel.

Maximum Allowable Working Pressure (M.A.W.P.) and Sizes

Rockmaster/1SN

HOSE SIZE			M.A.W.P. (bar)
DN	Dash	inch	
6	-4	1/4"	225
8	-5	5/16"	215
10	-6	3/8"	180
12	-8	1/2"	160
16	-10	5/8"	130
19	-12	3/4"	105
25	-16	1"	90
31	-20	1 1/4"	65
38	-24	1 1/2"	50
51	-32	2"	40
60	-38	2 3/8"	50

Rockmaster/2SN

HOSE SIZE			M.A.W.P. (bar)
DN	Dash	inch	
6	-4	1/4"	400
8	-5	5/16"	350
10	-6	3/8"	350
12	-8	1/2"	350
16	-10	5/8"	250
19	-12	3/4"	215
25	-16	1"	175
31	-20	1 1/4"	140
38	-24	1 1/2"	100
51	-32	2"	90
60	-38	2 3/8"	90

Maximum Allowable Working Pressure (M.A.W.P.) and Sizes

Eternity/2

HOSE SIZE			Maximum Working Pressure (bar)
DN	Dash	inch	

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6	-4	1/4"	450
8	-5	5/16"	400
10	-6	3/8"	365
12	-8	1/2"	350
16	-10	5/8"	300
19	-12	3/4"	300
25	-16	1"	225

Rockmaster/2SC

HOSE SIZE			M.A.W.P. (bar)
DN	Dash	inch	
5	-3	3/16"	420
6	-4	1/4"	400
8	-5	5/16"	350
10	-6	3/8"	330
12	-8	1/2"	275
16	-10	5/8"	250
19	-12	3/4"	245
25	-16	1"	210
31	-20	1 1/4"	140
38	-24	1 1/2"	100
51	-32	2"	90
63	-40	2 1/2"	70
76	-48	3"	45

Rockmaster/4SP/4SH

HOSE SIZE			M.A.W.P. (bar)	
DN	Dash	inch	R4SH	R4SP
6	-4	1/4"	-	485
10	-6	3/8"	-	450
12	-8	1/2"	-	420
16	-10	5/8"	450	380
19	-12	3/4"	420	380
25	-16	1"	385	320
31	-20	1 1/4"	350	210
38	-24	1 1/2"	300	185
51	-32	2"	250	175

Application/Limitation

Piping systems conveying oil or fuel oil.

Type Examination documentation

Tests carried out

Fire tests carried out according to ISO 15540/15541

Miscellaneous documents

- Crimping instruction OEM-P-008, Revision 2, 2015-12-25

Marking of product



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For traceability to this certificate each hose assembly is to be marked at least with:

- Manufacturer's name or trade mark
- Type designation
- M.A.W.P.
- Size
- Mark of Conformity according to Article 10 of the Council Directive (MED)

END OF CERTIFICATE