



**TYPE APPROVAL CERTIFICATE**  
No. MAC336519CS

**This is to certify** that the product identified below is in compliance with the regulations herewith specified.

<i>Description</i>	<b>Non metallic flexible hoses</b>
<i>Type</i>	<b>ROCKMASTER/1SN ROCKMASTER/2SC</b>
<i>Applicant</i>	<b>MANULI HYDRAULICS MANUFACTURING SP. Z O.O. UL. BRZEZINSKA 50 41-404 Myslowice POLAND</b>
<i>Manufacturer</i>	<b>JLLC Manuli Hydraulics Manufacturing Bel</b>
<i>Place of manufacture</i>	<b>LOKOMOTIVNAYA STREET, 2 VITEBSK REGION 211390 Orsha BELARUS</b>
<i>Reference standards</i>	<b>Part C, Chapter 1, Section 10 of RINA Rules</b>

*Issued in* **Genoa** on **March 27, 2020**. *This Certificate is valid until* **March 26, 2025**

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RINA Services S.p.A.  
Marco Dardano

This certificate consists of this page and 1 enclosure

## TYPE APPROVAL CERTIFICATE

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ROCKMASTER/1SN

ROCKMASTER/2SC

### Reference documents

Manuli catalogue.

### Materials/Components

Inner tube:	oil resistant synthetic rubber
Reinforcement:	one high tensile steel braid (Rockmaster/1SN) two high tensile steel braids (Rockmaster/2SC)
Cover:	synthetic rubber with high ozone, weather and heat resistance
Couplings:	type M03400 (Rockmaster/1SN - 2SC)

### Technical characteristics

Rockmaster/1SN:

**Applicable specifications:** EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN

**Temperatures range:** -40 °C / +100 °C

Maximum working pressure according to the following table:

nominal diameter			Maximum working pressure (bar)	Fittings
DN (mm)	dash	inch		
6	-04	1/4"	225	MF+M03400-04
8	-05	5/16"	215	MF+M03400-05
10	-06	3/8"	180	MF+M03400-06
12	-08	1/2"	160	MF+M03400-08
16	-10	5/8"	130	MF+M03400-10
19	-12	3/4"	105	MF+M03400-12
25	-16	1"	90	MF+M03400-16

Rockmaster/2SC:

**Applicable specifications:** EN 857 2SC; ISO 11237 2SC; SAE 100 R16; for DN 25 only SAE100 R17; ISO 11237 R17

**Temperatures range:** -40 °C / +100 °C

Maximum working pressure according to the following table:

nominal diameter			Maximum working pressure (bar)	Fittings
DN (mm)	dash	inch		
6	-04	1/4"	400	MF+M03400-04
8	-05	5/16"	350	MF+M03400-05
10	-06	3/8"	330	MF+M03400-06
12	-08	1/2"	275	MF+M03400-08
16	-10	5/8"	250	MF+M03400-10
19	-12	3/4"	215	MF+M03400-12
25	-16	1"	210	MF+M03400-16

**TYPE APPROVAL CERTIFICATE**No. **MAC336519CS****Enclosure - Page 2 of 2****ROCKMASTER/1SN****ROCKMASTER/2SC****Fields of application**

Petroleum base hydraulic fluids;  
 Water base fluids (-40°C to 70°C);  
 Water (0°C to 70°C).

**Tests carried out**

Burst Tests			
Hoses	Size (DN)	Report no.	Dated
1SN	6	6769/HT	22/11/2019
	12	6765/HT	
	25	6767/HT	
2SC	6	6770/HT	
	12	6766/HT	
	25	6768/HT	

Cold flexibility			
Hoses	Size (DN)	Report no.	Dated
1SN	6	LL/419/2019	12/12/2019
	12		
	25		
2SC	6		
	12		
	25		

Impulse Tests			
Hoses	Size (DN)	Report no.	Dated
1SN	6	4/LL/102/2017/A	24/04/2017
	12	2/LL/102/2017/A	18/04/2017
	25	149-2017/IT	12/12/2019
2SC	6	022-2018/IT	12/12/2019
	12	LL/048/2017/A	26/05/2017
	25	1/LL/102/2017/A	14/04/2017

Fire endurance tests			
Hoses	Size (DN)	Report no.	Dated
1SN	6	104.OIS0110/20	07/02/2020
	12	105.OIS0110/20	
	25	106.OIS0110/20	
2SC	6	107.OIS0110/20	
	12	108.OIS0110/20	
	25	109.OIS0110/20	

**Acceptance conditions**

The installation on board is to be carried out by qualified personnel in accordance with the manufacturer's instructions.

The flexible hoses are to be installed in order to satisfy the requirements of para. 2.6 and para. 5.9.3 of Part C, Chapter 1, Section 10 of RINA Rules.

The acceptance of the a.m. products on board ship and other units classed with RINA is subject to the satisfactory outcome of testing as per RINA Rules.

The product is to be marked, for traceability, with the following data: Manufacturer's name or trademark, designation type reference, date of manufacture, nominal diameter, maximum working pressure, minimum and maximum design temperature. The manufacturing place also is to be identified on the marking.

The hose assemblies must only be fitted in places where they are always accessible. Flexible hoses of these types are not to be used on boiler fronts.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

The cover of hoses for gaseous applications shall be pin-pricked.

This Type Approval Certificate is valid for hoses connected to the machinery/system with flange and/or threaded connection (in accordance with limitation in Pt. C, Ch. 1, Sec. 10, Tab. 15 of RINA Rules) only. Other fitting defined as mechanical joints (RINA Rules Pt. C, Ch. 1, Sec. 10, Para. 2.4.5 Fig. 2), could be accepted upon satisfactory result of prototype tests performed on hose/fitting assemblies.

**Genoa March 27, 2020**