



Marine & Offshore

Certificate number: 19357/D0 BV

File number: ACM 135/1939/07

Product code: 2104I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**MANULI HYDRAULICS MANUFACTURING Sp. z o.o.**  
Myslowice - POLAND

*for the type of product*

**NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES**  
ROCKMASTER/1SN, ROCKMASTER/2SN

### Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- ISO 15540:2016 / ISO 15541:2016

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 12 Sep 2027**

**For Bureau Veritas Marine & Offshore,**

At BV KATOWICE, on 12 Sep 2022,

Wojciech Lubojanski

***This certificate was created electronically and is valid without signature***



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=grayp53kiu>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### ROCKMASTER/1SN & ROCKMASTER/2SN Wire braid reinforced hoses

##### 1.1 Technical Data

##### Hose ROCKMASTER/1SN according to EN 853 1SN

DN	6	8	10	12	16	19	25	31	38	51	60
Size (inch)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-3/8"
Maximum working pressure (bar)	225	215	180	160	130	105	90	65	50	40	50

Temperature range: - 40 °C to + 100 °C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

##### Hose ROCKMASTER/2SN according to EN 853 2SN

DN	6	8	10	12	16	19	25	31	38	51	60
Size (inch)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-3/8"
Maximum working pressure (bar)	400	350	350	350	250	215	175	140	100	90	90

Temperature range: - 40 °C to + 100 °C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

##### 1.2 Material specification

Tube	Oil resistant synthetic rubber *
Reinforcement	One high tensile steel braid (1SN) Two high tensile steel braids (2SN)
Cover	Synthetic rubber with high ozone, weather and heat resistance *

\* : According to the document "Rubber compounds for ROCKMASTER/1SN and ROCKMASTER/2SN N° RCG\_R/1SN and R/2SN Rev.0 dated 06/05/2022" as listed below.

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

##### 1.3 Fittings

Hose Type	Insert / Ferrule	Material *
ROCKMASTER/1SN	MF + M03400 / OPF, OPK	Carbon steel / Stainless steel
ROCKMASTER/2SN	MF + M03400 / OPF, OPK	Carbon steel / Stainless steel

\* According to the document "Steel materials used to manufacture hose fittings Ref CM 25/18 dated 12/10/2018" as listed below.

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

### 2. DOCUMENTS AND DRAWINGS

- Catalog Data Sheets Rockmaster/1SN Release 2 dated 2016-09-20
- Catalog Data Sheets Rockmaster/2SN Release 3 dated 2016-09-20
- Manuli Hydraulics Technical Manual - Fittings ver. 0001
- Technical Manual - reference: MRI 030974 dated April 2009
- Steel materials used to manufacture hose fittings Ref CM 25/18 dated 12/10/2018
- Rubber compounds for ROCKMASTER/1SN and ROCKMASTER/2SN N° RCG\_R/1SN and R/2SN Rev.0 dated 06/05/2022
- Rubber compound data sheet dated 12/05/2022 for NBR
- Rubber compound data sheet dated 12/05/2022 for CR

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

### **3. TEST REPORTS**

	ROCKMASTER/1SN	ROCKMASTER/2SN
Burst Test	Report n°032-2017/HT witnessed on 2017-04-12 Report n°012-2016/HT witnessed on 2016-01-20 Report n°130-2016/HT witnessed on 2017-04-12	Report n°131-2016/HT witnessed on 2017-03-22 Report n°040-2017/HT witnessed on 2017-04-12
Fire Resistance Test	Report n°240.0IS0110/19 dated 2019-02-15 Report n°1239.0IS0110/18 dated 2018-06-26 Report n°1240.0IS0110/18 dated 2018-06-26	Report n°2736.0IS0110/17 dated 2017-10-11 Report n°660.0IS0110/20 dated 2020-04-16 Report n°103.0IS0110/20 dated 2020-02-07
Change in length	Report n°032-2017/HMR witnessed on 2017-04-12 Report n°012-2016/HMR witnessed on 2016-01-20 Report n°130-2016/HMR witnessed on 2017-04-12	Report n°131-2016/HMR witnessed on 2017-03-22 Report n°040-2017/HMR witnessed on 2017-04-20
Fluid Resistance	Fluid Resistance test reports witnessed on 2017-06-15	Fluid Resistance test reports witnessed on 2017-06-15
Cover Adhesion	Report n°1482 witnessed on 2017-04-12 Report n°1490 witnessed on 2017-04-12	Report n°1488 witnessed on 2017-03-22 Report n°1489 witnessed on 2014-04-12
Ozone resistance	Ozone resistance test reports witnessed on 2017-06-15	Ozone resistance test reports witnessed on 2017-06-15
Impulse	Report n°130-2016/IT witnessed on 2017-04-12 Report n°032-2017/IT witnessed on 2017-04-12	Report n°131-2016/IT witnessed on 2017-03-22 Report n°040-2017/IT witnessed on 2017-04-12
Vacuum	Vacuum test reports witnessed on 2017-06-15	Vacuum test reports witnessed on 2017-06-15
Cold Flexibility	Report n°211/20 dated 2020-11-17 and Cold flexibility Laboratory report dated 2016-04-27	Report n°081/15 witnessed on 2015-06-25/26

### **4. APPLICATION / LIMITATION**

- 4.1 May be used for the following media: Sea water, fresh water, lubricating oil, hydraulic oil and water spraying fire system.
- 4.2 End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.
- 4.3 The hoses assemblies are to be installed according to manufacturer's instructions and Bureau Veritas Rules
- 4.4 The hoses are to be limited to a length necessary to provide for relative movement between fixed and flexibly mounted items of machine/equipment or systems and are only to be used in lengths up to 2 m. The hoses are to be installed in clearly visible and readily accessible locations at all times.
- 4.5 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.
- 4.6 Taper threaded end connections are not to be used for oil circuits in engine rooms nor any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.
- 4.7 Not to be used in case of high level of vibrations where fitted to engines, pumps, compressors and other sources of high vibrations

### **5. PRODUCTION SURVEY REQUIREMENTS**

- 5.1 The products are to be supplied by **MANULI HYDRAULICS MANUFACTURING Sp. z o.o.** in compliance with the type and the requirements described in this certificate.
- 5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.
- 5.3 BV product certificate is required.
- 5.4 This certificate is also valid for other companies authorised by MANULI when same specifications, tolerances, equipment and quality control procedures are used. In such case, the BV agreement is to be obtained.
- 5.5 Each hose with end fittings is to be hydraulic pressure tested to 1.5 times the maximum working pressure under witnessing of a Society's Surveyor.

5.6 For information, **MANULI HYDRAULICS MANUFACTURING Sp. z o.o.** has declared to Bureau Veritas the following production sites:

- **Manuli Hydraulics Suzhou Co., Ltd., Xin Lin Street No.85, Suzhou Industrial Park, Jiangsu Province CHINA**
- **JLLC Manuli Hydraulics Manufacturing Bel : Lokomotivnaya 2, 211390 Vitebsk, BELARUS**
- **MANULI HYDRAULICS MANUFACTURING Sp Z.o.o.: Przedsiębiorców str 5, 97-500 Radomsko, POLAND**
- **Manuli Hydraulics Polska S.A., ul. Brzezinska 50, 41-404 Myslowice, POLAND (for fittings only)**

#### **6. MARKING OF PRODUCT**

Each hose shall be marked with at least:

- Manufacturer name or logo
- Type designation
- Date of manufacture
- Nominal Diameter
- Pressure Rating
- Temperature Rating
- Society's brand as relevant

#### **7. OTHERS**

It is **MANULI HYDRAULICS MANUFACTURING Sp. z o.o.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*This certificate supersedes the Type Approval Certificate No. 19357/C3 BV issued by the Society.*

**\*\*\* END OF CERTIFICATE \*\*\***