



Marine & Offshore  
Division

Certificate number: 22091/B0 BV

File number: ACM 135/1939/08

Product code: 21041

*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**  
Radomsko - POLAND

*for the type of product*

**NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES**  
ROCKMASTER wire spiralled reinforced hoses type 4SP and 4SH

**Requirements:**

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units

*This certificate is issued to attest that BUREAU VERITAS 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: 16 Sep 2020**

For BUREAU VERITAS,  
At BV GENOA, on 16 Sep 2015,  
Carlo Bozzetti



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. 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 Division available on the internet site 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 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 SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### **ROCKMASTER wire spiralled reinforced hoses type 4SP and 4SH**

##### 1.1 Ratings

##### **Hose ROCKMASTER 4SP according to EN 856 4SP - ISO 3862-1 4SP**

DN (mm)	6	10	12	16	19	25	31	38	51
Size (inch)	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
Max working pressure (bar)	485	450	420	380	380	320	210	185	175

Temperature range: - 40°C up to + 121°C, max operating temperature (intermittent) + 125°C

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

##### **Hose ROCKMASTER 4SH according to EN 856 4SH - ISO 3862-1 4SH**

DN (mm)	16	19	25	31	38	51
Size (inch)	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
Max working pressure (bar)	450	420	385	350	300	250

Temperature range: - 40°C up to + 121°C, max operating temperature (intermittent) + 125°C

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

##### 1.2 Materials

Part Name	Material
Tube	Oil resistant synthetic rubber
Reinforcement	Four high tensile steel spirals
Cover	Synthetic rubber with high ozone, weather and heat resistance

*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 4SP	MF2000 - Multifit Type	Carbon steel
ROCKMASTER 4SH	MF2000 - Interlock Plus Type	Carbon steel

\* Grade : Free Cutting Steel

### 2. DOCUMENTS AND DRAWINGS

- MANULI hydraulics hoses and fittings catalogue submitted June 2015
- Brochure ROCKMASTER 4SP and 4SH submitted June 2015
- User manual submitted June 2015

*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

- Tests carried out: dimensional check, proof pressure test, change in length, burst test, oil and ozone resistance test, impulse test, cold flexible test and fire resistance test according to ISO 15540:1999 and ISO 15541:1999.
- Test reports **ROCKMASTER 4SP** : N° 253/05, 253/05-A, 254/05, 255/05, 256/05, 256/05-A, 257/05, 257/05-A, 258/05, 259/05, 260/05, 260/05-A and 261/05 and N° 20100818002/3 (Impulse test) and N° 843.0IS0110/05, 862.0IS0110/05 and 844.0IS0110/05 (Flame resistance test).
- Test reports **ROCKMASTER 4SH** : dimensional check report dated 16/10/2010, proof pressure test report dated 13/01/2011, burst test report at 4 times the working pressure dated 13/01/2011, oil resistance test report dated 12/01/2011, ozone resistance test report dated 23/02/2011, impulse test reports N° 20100901001 dated 18/09/2010 and N° 20100818003 dated 01/09/2010, cold flexible test report dated 22/02/2011 and fire resistance test reports for DN16, DN25 and DN51 according to ISO 15540:1999 and ISO 15541:1999 witnessed by DNVsurveyor dated 07/12/2010, 10/12/2010 and 13/01/2011.



**4. APPLICATION / LIMITATION**

4.1 May be used on the following services:

- Sea water and fresh water, lubricating and hydraulic oil, 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 installation of hose assemblies is to be in accordance with the manufacturer's instructions to take into consideration forces due to vibration. The hoses are not to be used on services when vibration test is required in the Society's 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 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.

**5. PRODUCTION SURVEY REQUIREMENTS**

5.1 The products are to be supplied by **Manuli Hydraulics Manufacturing Sp** in compliance with the type and the requirements described in this certificate. This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.2 The manufacturer has declared to Bureau Veritas that the products detailed in this certificate are manufactured at the following production sites:

- **Manuli Rubber Industries S.p.A at Ascoli Piceno (Italia)**. Approved Wire spiralled reinforced hoses from size DN 19 up to the largest size of the range.

- **Manuli Hydraulics (Suzhou) Co., Ltd at Suzhou (China)**.

- **Manuli Hydraulics Manufacturing Sp zoo at Radomsko (Poland)**.

- The fittings are made by **Manuli Hydraulics Polska S.A. at Myslowice - Poland**.

5.3 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 will be obtained.

5.4 Each hose with end fittings is to be hydraulically pressure tested to twice the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.

5.5 BV product certificate is required.

**Places of production**

**MANULI HYDRAULICS (Suzhou) Co.,Ltd.**  
**Xin Lin Street No.85,**  
**Suzhou Industrial Park,**  
**Suzhou, Jiangsu Province**  
**CHINA**

**MANULI HYDRAULICS MANUFACTURING Sp Z.o.o.**  
**Przedsiębiorców str 5**  
**97-510 Radomsko**  
**POLAND**

**MANULI RUBBER INDUSTRIES S.p.A**  
**Zona Industriale Campolungo**  
**63100 Ascoli Piceno (AP)**  
**ITALY**

**6. MARKING OF PRODUCT**

Each hose is to be clearly and indelibly marked with at least:

- Manufacturer name or logo
- Type designation
- Date of manufacture
- Society's brand as relevant

**7. OTHERS**

This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the products and of the conditions of this approval.

*This certificate supersedes the Type Approval Certificate N° 22091/A1 BV issued on 02/07/2012 by the Society.*

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

