



Confirmation of Product Type Approval

Company Name: JLLC MANULI HYDRAULICS MANUFACTURING BEL

Address: LOKOMOTIVNAYA STR. 2, ORSHA, VITEBSK REGION, Belarus, 211390

Product: Flexible Hose

Model(s): ROCKMASTER/1SN, ROCKMASTER/2SN, ROCKMASTER/2SC, ROCKMASTER/4SP, ROCKMASTER/4SH, ROCKMASTER/12, ROCKMASTER/13, ROCKMASTER/15,

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	21-2133851-PDA-DUP	17-AUG-2021	16-AUG-2026
Manufacturing Assessment (MA)	18-PB3387368	03-MAY-2018	02-MAY-2023
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Hydraulics - Sea Water ROCKMASTER/1SN, 2SN, 2SC: Mineral, Vegetable and Rape Seed Oils, Glycol and Polyglycol Based Oils, Synthetic Ester Based Oils, Oils in Aqueous Emulsion, Water.
ROCKMASTER/12, 13, 15, 4SP, 4SH: Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

Description

Oil resistant synthetic rubber hoses reinforced with one or more steel or high tensile steel wire braid or spirals, covered with a synthetic rubber sheath.

Ratings

ROCKMASTER/12 - from DN10 to DN51, pressure from 280 to 175 bar.

ROCKMASTER/13 - from DN6 to DN51, pressure from 690 to 350 bar.

ROCKMASTER/15 - from DN19 to DN 38, pressure 420 bar.

ROCKMASTER/1SN, ROCKMASTER/2SN, ROCKMASTER/2SC - From DN5 to DN76 from 420 bar to 45 bar.

ROCKMASTER/4SP, ROCKMASTER/4SH - From DN6 to DN51 and from 485 bar to 175 bar.

ROCKMASTER/1SN, 2SN, 2SC: -40°C to 100°C

For ROCKMASTER/12, 13, 15, 4SP, 4SH: -40°C to 121°C

For details refer to attached table.

Service Restrictions

- 1) Unit Certification is not required for this product. If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
- 2) Hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.
- 3) End connections are to comply with applicable requirements and limitation of Marine Vessel Rules (4-6-2/5.5.4, 4-6-2/5.5.5, 4-6-7/3.5.1, 4-6-7/5.3.2).
- 4) Hose assemblies are to be installed only where flexibility is required, in clearly visible and readily accessible locations, and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.
- 5) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.
- 6) Not to be used for installations where repeated and/or frequent flexing is expected.
- 7) Flexible hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, Date of manufacture (month/year), Designation type reference, Nominal diameter, Pressure rating, Temperature rating.

Comments

- 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- 2) Only MANULI approved ferrules and inserts are to be used for end fittings, as per the manufacturer's recommendations.
- 3) Marking for Flexible hoses are to be permanently marked by the manufacturer with the following details as per 4-6-2/5.7.6 of the Marine Vessel Rules:
 - Hose manufacturer's name or trademark.
 - Date of manufacture (month/year).
 - Designation type reference..

Notes, Drawings and Documentation

Drawing No. ROCKMASTER 13 data sheet

Drawing No. ROCKMASTER 4SH data sheet

Drawing No. ABS 01-GE217368-4-PDA, ABS 01-GE217368-4-PDA

Drawing No. Burst test R12 dn10, Burst test R12 dn10 dated 21 Jul 2015

Drawing No. Burst test R12 dn12, Burst test R12 dn12 dated 16 Jul 2016

Drawing No. Burst test R12 dn16, Burst test R12 dn16 dated 12 Jun 2016

Drawing No. Burst test R12 dn19, Burst test R12 dn19 dated 05 May 2016

Drawing No. Burst test R12 dn25, Burst test R12 dn25 dated 03 Aug 2016

Drawing No. Burst test R12 dn31, Burst test R12 dn31 dated 07 Jul 2016

Drawing No. Burst test R12 dn38, Burst test R12 dn38 dated 08 Jul 2016

Drawing No. Burst test R12 dn51, Burst test R12 dn51 dated 15 Aug 2016

Drawing No. Burst test R13 dn10, Burst test R13 dn10 dated 14 Aug 2015

Drawing No. Burst test R13 dn12, Burst test R13 dn12 dated 11 Jul 2015

Drawing No. Burst test R13 dn19, Burst test R13 dn19 dated 08 Feb 2015

Drawing No. Burst test R13 dn25, Burst test R13 dn25 dated 06 Aug 2016

Drawing No. Burst test R13 dn31, Burst test R13 dn31 dated 10 Aug 2016

Drawing No. Burst test R13 dn38, Burst test R13 dn38 dated 10 Jun 2016

Drawing No. Burst test R13 dn51, Burst test R13 dn51 dated 07 May 2016

Drawing No. Burst test R13 dn6, Burst test R13 dn6 dated 31 Jan 2013

Drawing No. Burst test R15 dn19, Burst test R15 dn19 dated 23 Jul 2016

Drawing No. Burst test R15 dn25, Burst test R15 dn25 dated 23 Feb 2016

Drawing No. Burst test R15 dn31, Burst test R15 dn31 dated 15 Jul 2016

Drawing No. Burst test R15 dn38, Burst test R15 dn38 dated 24 Feb 2016

Drawing No. Certyficate for MHM, Certyficate for MHM

Drawing No. DNV_ R-13_DN19-31-51_Hydraulics Test Report_60042706, DNV_ R-13_DN19-31-51_Hydraulics Test Report_60042706 dated 19 Jan 2011

Drawing No. Data sheet R12, Data sheet R12

Drawing No. Data sheet R13, Data sheet R13

Drawing No. Data sheet R15, Data sheet R15

Drawing No. ISO 9001 MHITA_exp, ISO 9001 MHITA_exp

Drawing No. ISO9001 MHS, ISO9001 MHS

Drawing No. R-12_DN51_Hydraulics Test Report_60043523, R-12_DN51_Hydraulics Test Report_60043523 dated 13 May 2011

Drawing No. R-13_DN19-38_Hydraulics Test Report_60042631, R-13_DN19-38_Hydraulics Test Report_60042631 dated 15 Jun 2006

Drawing No. R-15_DN38_Hydraulics Test Report_60041951, R-15_DN38_Hydraulics Test Report_60041951 dated 09 May 2011

Drawing No. ROCKMASTER 12 _fluid resistance, ROCKMASTER 12 _fluid resistance dated 18 Sept 2015

Drawing No. ROCKMASTER 13 _fluid resistance, ROCKMASTER 13 _fluid resistance dated 18 Mar 2016

Drawing No. ROCKMASTER 15 _fluid resistance, ROCKMASTER 15 _fluid resistance dated 18 Mar 2016

Drawing No. cold ROCK 12 DN 10 MHS., cold ROCK 12 DN 10 MHS dated 09 Apr 2015

Drawing No. cold ROCK 12 DN 19 MHS, cold ROCK 12 DN 19 MHS dated 15 Jan 2016

Drawing No. cold ROCK 12 DN 51 MHS, cold ROCK 12 DN 51 MHS dated 21 Apr 2015

Drawing No. ozone ROCK 12 DN 10 MHS, ozone ROCK 12 DN 10 MHS dated 26 Feb 2016

Drawing No. ozone ROCK 12 DN 19 MHS, ozone ROCK 12 DN 19 MHS DATED 26 Feb 2016

Drawing No. ozone ROCK 12 DN 51 MHS, ozone ROCK 12 DN 51 MHS dated 26 Feb 2016

Drawing No. ozone ROCK 13 DN 38 MHS, ozone ROCK 13 DN 38 MHS dated 02 May 2016

Drawing No. R-13_DN19-31-51_Fire Resistance TR_60042704, R-13_DN19-31-51_Fire Resistance TR_60042704 dated 24 Oct 2003

Drawing No. LAPI Fire Test Report R15 DN38 dated 27 Apr 2010

Rockmaster 1SN DN6 Fire Test dated 23/05/2011

Rockmaster 1SN DN6 Pressure test dated 03/09/2011

Rockmaster 1SN DN25 Fire Test dated 23/05/2011

Rockmaster 1SN DN25 Pressure Test dated 03/09/2011

Rockmaster 1SN DN31 Fire Test dated 23/05/2011

Rockmaster 1SN DN31 Pressure Test dated 10/03/2011

Rockmaster 1SN DN38 Pressure Test dated 11/03/2011

Rockmaster 1SN DN51 Pressure Test dated 11/03/2011

Rockmaster 1SN DN60 Fire Test dated 28/12/2010

Rockmaster 1SN DN60 Impulse Test dated 07/03/2011

Rockmaster 1SN DN60 Pressure Test dated 08/03/2011

Rockmaster 2SC DN6 Fire Test dated 13/01/2011

Rockmaster 2SC DN6 Pressure test dated 07/04/2011

Rockmaster 2SC DN25 Fire Test dated 15/11/2010

Rockmaster 2SC DN25 Pressure Test dated 14/09/2010

Rockmaster 2SC DN25 Impulse Test dated 13/08/2010

Rockmaster 2SC DN31, 51, 76 Pressure Test dated 18/01/2011

Rockmaster 2SC DN31 Fire Test dated 25/01/2011

Rockmaster 2SC DN76 Fire Test dated 05/01/2011

Rockmaster 2SC DN76 Pressure Test dated 20/01/2011

Rockmaster 2SN DN6 Fire Test dated 28/04/2011

Rockmaster 2SN DN6 Pressure Test dated 14/02/2011

Rockmaster 2SN DN25 Fire Test dated 22/11/2010

Rockmaster 2SN DN25 Pressure Test dated 11/01/2010

Rockmaster 2SN DN25 Impulse Test dated 13/08/2010

Rockmaster 2SN DN31 Fire Test dated 25/04/2011

Rockmaster 2SN DN31 Pressure Test dated 14/01/2011

Rockmaster 2SN DN38 Pressure Test dated 17/02/2011

Rockmaster 2SN DN51 Pressure Test dated 14/12/2010

Rockmaster 2SN DN60 Fire Test dated 19/04/2011

Rockmaster 2SN DN60 Pressure Test dated 07/11/2010

Rockmaster 2SN DN60 Impulse dated 28/03/2011

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 16/Aug/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

2021 Rules for Conditions of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-A2 and 1-1-A3 which covers the following:

2021 Mobile Offshore Unit Rules: 4-2-1/11.29

2021 Rules for Conditions of Classification, 1-1-4/7.7, 1-1-A3 and 1-1-A4, which covers the following:

2021 Marine Vessel Rules: 4-6-2/5.7

2021 Guide for Building and Classing Yachts: 4-4-1/9.19

2021 High Speed Craft Rules: 1-1-4/11.9, 1-1-A2 and 1-1-A3, 4-4-1/9.19

International Standards

EN 856/4SP Ed. 2016-9

EN856/4SH Ed. 2016-9

EN 856 R12, SAE 100 R12, ISO 3862 R12 Ed. 2017

EN 856 R13, SAE 100 R13, ISO 3862 R13 Ed. 2017

SAE 100 R15, ISO 3862 R15 Ed. 2017

EN 853/1SN Ed. 2015

EN853/2SN Ed. 2015

EN857/2SC Ed. 2016-9

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in blue ink, appearing to read "James W. Wilson".

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 20-Aug-2021 6:07

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

JLLC MANULI HYDRAULICS MANUFACTURING BEL
Lokomotivnaya Str. 2, Orsha, Vitebsk Region
Belarus, 211390

Attachement to PDA Certificate No. 21-2133851-PDA-DUP, issued on 17 Aug 2021 expiring 16 Aug 2026

POS	SIZE		INCH	MODEL	MAX WORK PRESS [bar]	FITTINGS	
	DN	DASH					
1	10	-6	3/8	ROCKMASTER/12	280	MF+M00910-06	OPK-06
2	12	-8	1/2	ROCKMASTER/12	280	MF+M00910-08	OPK-08
3	16	-10	5/8	ROCKMASTER/12	280	MF+M00910-10	OPK-10
4	19	-12	3/4	ROCKMASTER/12	280	MF+M00920-12	OPK-12
5	25	-16	1	ROCKMASTER/12	280	MF+M00930-16	OPK-16
6	31	-20	1 1/4	ROCKMASTER/12	210	MF+M00920-20	OPK-20
7	38	-24	1 1/2	ROCKMASTER/12	175	MF+M00910-24	OPK-24
8	51	-32	2	ROCKMASTER/12	175	MF+M00910-32	OPK-32
9	6	-4	1/4	ROCKMASTER/13	690	-	-
10	10	-6	3/8	ROCKMASTER/13	690	-	-
11	12	-8	1/2	ROCKMASTER/13	620	-	-
12	19	-12	3/4	ROCKMASTER/13	350	IP+M01500-12	SP+M05400-12
13	25	-16	1	ROCKMASTER/13	350	IP+M01500-16	SP+M05400-16
14	31	-20	1 1/4	ROCKMASTER/13	350	IP+M01600-20	SP+M05500-20
15	38	-24	1 1/2	ROCKMASTER/13	350	IP+M01600-24	SP+M05500-24
16	51	-32	2	ROCKMASTER/13	350	IP+M01800-32	SP+M05500-32
17	19	-12	3/4	ROCKMASTER/15	420	IP+M01500-12	SP+M05400-12
18	25	-16	1	ROCKMASTER/15	420	IP+M01500-16	SP+M05400-16
19	31	-20	1 1/4	ROCKMASTER/15	420	IP+M01600-20	SP+M05500-20
20	38	-24	1 1/2	ROCKMASTER/15	420	IP+M01600-24	SP+M05500-24
21	6	-4	1/4	ROCKMASTER/1SN	225	MF+M03400-04	OPF-04
22	8	-5	5/16	ROCKMASTER/1SN	215	MF+M03400-05	OPF-05
23	10	-6	3/8	ROCKMASTER/1SN	180	MF+M03400-06	OPF-06
24	12	-8	1/2	ROCKMASTER/1SN	160	MF+M03400-08	OPF-08
25	16	-10	5/8	ROCKMASTER/1SN	130	MF+M03400-10	OPF-10

26	19	-12	3/4	ROCKMASTER/1SN	105	MF+M03400-12	OPF-12
27	25	-16	1	ROCKMASTER/1SN	90	MF+M03400-16	OPF-16
28	31	-20	1 1/4	ROCKMASTER/1SN	65	MF+M03400-20	OPK-20
29	38	-24	1 1/2	ROCKMASTER/1SN	50	MF+M03400-24	OPK-24
30	51	-32	2	ROCKMASTER/1SN	40	MF+M03400-32	OPK-32
31	60		2 3/8	ROCKMASTER/1SN	50	MF+M03400-38	-
32	6	-4	1/4	ROCKMASTER/2SN	400	MF+M03400-04	OPF-04
33	8	-5	5/16	ROCKMASTER/2SN	350	MF+M03400-05	OPF-05
34	10	-6	3/8	ROCKMASTER/2SN	350	MF+M03400-06	OPF-06
35	12	-8	1/2	ROCKMASTER/2SN	350	MF+M03400-08	OPF-08
36	16	-10	5/8	ROCKMASTER/2SN	250	MF+M03400-10	OPF-10
37	19	-12	3/4	ROCKMASTER/2SN	215	MF+M03400-12	OPF-12
38	25	-16	1	ROCKMASTER/2SN	175	MF+M03400-16	OPF-16
39	31	-20	1 1/4	ROCKMASTER/2SN	140	MF+M03400-20	OPK-20
40	38	-24	1 1/2	ROCKMASTER/2SN	100	MF+M03400-24	OPK-24
41	51	-32	2	ROCKMASTER/2SN	90	MF+M03400-32	OPK-32
42	60	-38	2 3/8	ROCKMASTER/2SN	90	MF+M03400-38	-
43	5	-3	3/16	ROCKMASTER/2SC	420	MF+M03300-03	OPF-03
44	6	-4	1/4	ROCKMASTER/2SC	400	MF+M03300-04	OPF-04
45	8	-5	5/16	ROCKMASTER/2SC	350	MF+M03300-05	OPF-05
46	10	-6	3/8	ROCKMASTER/2SC	330	MF+M03300-06	OPF-06
47	12	-8	1/2	ROCKMASTER/2SC	275	MF+M03300-08	OPF-08
48	16	-10	5/8	ROCKMASTER/2SC	250	MF+M03300-10	OPF-10
49	19	-12	3/4	ROCKMASTER/2SC	245	MF+M03300-12	OPF-12
50	25	-16	1	ROCKMASTER/2SC	210	MF+M03300-16	OPF-16
51	31	-20	1 1/4	ROCKMASTER/2SC	140	MF+M03300-20	OPK-20
52	38	-24	1 1/2	ROCKMASTER/2SC	100	MF+M03300-24	OPK-24
53	51	-32	2	ROCKMASTER/2SC	90	MF+M03300-32	OPK-32
54	63	-40	2 1/2	ROCKMASTER/2SC	70	MF+M03300-40	-
55	76	-48	3	ROCKMASTER/2SC	45	MF+M03300-48	-
56	6	-4	1/4	ROCKMASTER/4SP	485	MF+M00910-04	-
57	10	-6	3/8	ROCKMASTER/4SP	450	MF+M00910-06	-
58	12	-8	1/2	ROCKMASTER/4SP	420	MF+M00910-08	-
59	16	-10	5/8	ROCKMASTER/4SP	380	MF+M00910-10	-
60	19	-12	3/4	ROCKMASTER/4SP	380	MF+M00920-12	SP+M05400-12
61	25	-16	1	ROCKMASTER/4SP	320	MF+M00930-16	SP+M05400-16

62	31	-20	1 1/4	ROCKMASTER/4SP	210	MF+M00920-20	SP+M05500-20
63	38	-24	1 1/2	ROCKMASTER/4SP	185	MF+M00920-24	SP+M05500-24
64	51	-32	2	ROCKMASTER/4SP	175	MF+M00910-32	SP+M05400-32
65	16	-10	5/8	ROCKMASTER/4SH	450	IP+M01500-10	-
66	19	-12	3/4	ROCKMASTER/4SH	420	IP+M01500-12	SP+M05400-12
67	25	-16	1	ROCKMASTER/4SH	385	IP+M01500-16	SP+M05400-16
68	31	-20	1 1/4	ROCKMASTER/4SH	350	IP+M01500-20	SP+M05400-20
69	38	-24	1 1/2	ROCKMASTER/4SH	300	IP+M01500-24	SP+M05400-24
70	51	-32	2	ROCKMASTER/4SH	250	IP+M01500-32	SP+M05400-32