



CERTIFICATE NUMBER
16-GE1543053-PDA

DATE
23 Sep 2016

ABS TECHNICAL OFFICE
Genoa Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

OLEODINAMICA TOSCANA SRL

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Flexible Hose**

Model: **GH466-20, GH466-24, GH663-32, GH781**

This Product Design Assessment (PDA) Certificate 16-GE1543053-PDA, dated 23/Sep/2016 remains valid until 22/Sep/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING


Cristina Generale
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Tier: 2 - PDA Issued

Product: Flexible Hose
Model: GH466-20, GH466-24, GH663-32, GH781

Intended Service:

GH466: High pressure hydraulic systems with constant high working pressure for use with petroleum based fluids.
GH781: Hydraulic system service with petroleum and water-based fluids for industrial services.

Description:

GH466: Synthetic NBR rubber tube, 6 high tensile spiral wire layers reinforcement with synthetic CR rubber cover.
GH781: Synthetic rubber tube, 2 wire braided reinforcement with DURA-TUFF synthetic rubber cover.

Rating:

GH466

From DN31 to DN51.

Pressure from 420 bar to 40 bar.

Temperature -40°C/+120°C.

GH781

From DN6 to DN51.

Pressure from 448 bar to 110 bar.

Temperature -46°C/+126°C.

For details refer to attachment.

Service Restriction:

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

1) Hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

2) End connections are to comply with applicable requirements and limitations of the Rules for the intended service (e.g. 4-6-7/3.5.1) of the Steel Vessel Rules

3) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.

4) Not to be installed in applications where large amount of repeated flexing is expected.

5) 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 Steel Vessel Rules:

- Hose manufacturer's name or trademark.
- Date of manufacture (month/year).
- Designation type reference.
- Nominal diameter.
- Pressure rating
- Temperature rating.

Notes/Drawing/Documentation:

Drawing No. 1502367bt, burst test dated 16 December 2015, Revision: 0, Pages: 1

Drawing No. 1502367ds, data sheet, Revision: 0, Pages: 1

Drawing No. 1502367pda, pda, Revision: 0, Pages: 1

Drawing No. ABS Manufacturing Assessment VR2924223, ABS Manufacturing Assessment VR2924223, Revision: 0, Pages: 1

Drawing No. Binder1, binder, Revision: 0, Pages: 1

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Drawing No. Burst Test - Bend Test, Burst Test - Bend Test dated 01 April 2016, Revision: 0, Pages: 1
Drawing No. Correspondence, Asbestos free declaration, Revision: 1, Pages: 1
Drawing No. Correspondence, Declaration of Conformity, Revision: 0, Pages: 1
Drawing No. TAC ABS GH 11-GE764004-PDA, TAC ABS GH 11-GE764004-PDA, Revision: 0, Pages: 1
Drawing No. WOREvisionReport, WOREvisionReport, Revision: 0, Pages: 1
Drawing No. abs tac request 1, abs tac request 1, Revision: 1, Pages: 1
Drawing No. gh466-, gh466, Revision: 0, Pages: 1
Drawing No. gh781 1, gh781 1, Revision: 1, Pages: 1
Drawing No. tac abs gomma provv1, tac abs gomma provv, Revision: 0, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

2016 Rules for Conditions of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-Appendix 2 and 3 which covers the following:

2016 Mobile Offshore Drilling Unit Rules 4-2-1/11.29

2016 Rules for Conditions of Classification, 1-1-4/7.7, 1-1-Appendix 3 and 4, which covers the following:

2016 Steel Vessel Rules 4-6-2/5.7

2016 Steel Vessel Rules Under 90 Meters 4-4-1/9.19

2016 Offshore Supply Vessel Rules 4-6-2/5.7

2016 Guide for Building and Classing Yachts 4-4-1/9.19

2016 High Speed Craft Rules 1-1-4/11.9, 1-1-Appendix 2 and 3, 4-4-1/9.19

National:

NA

International:

SAE100 R16 Ed. 2013

EN 857 2SC, Ed. 2008

Government:

NA

EUMED:

NA



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OTHERS:
NA

A handwritten signature in black ink, consisting of several loops and a long vertical stroke, positioned to the right of the 'OTHERS:' section.

Attachment to PDA No. 16-GE1543053-PDA

POS.	BORE			REF. STAND.	O.T. REF.	TEMP. RANGE	WORK PRESS [bar]	FITTINGS
	DN	INCH	SIZE					
1	31	1 1/4	20	SAE100R15	GH466-20	-40°C/+120°C	420	STAINLESS STEEL CRIMP FITTINGS
2	38	1 1/2	24	SAE100R15	GH466-24	-40°C/+120°C	420	STAINLESS STEEL CRIMP FITTINGS
3	51	2"	32	EN853/15N	GH466-32	-40°C/+120°C	40	STAINLESS STEEL CRIMP FITTINGS
4	6	1/4"	4	EN857/25C	GH781-4	-46°C/+126°C	448	STAINLESS STEEL CRIMP FITTINGS
5	10	3/8"	6	EN857/25C	GH781-6	-46°C/+126°C	366	STAINLESS STEEL CRIMP FITTINGS
6	12	1/2"	8	EN857/25C	GH781-8	-46°C/+126°C	310	STAINLESS STEEL CRIMP FITTINGS
7	16	5/8"	10	EN857/25C	GH781-10	-46°C/+126°C	276	STAINLESS STEEL CRIMP FITTINGS
8	19	3/4"	12	EN857/25C	GH781-12	-46°C/+126°C	241	STAINLESS STEEL CRIMP FITTINGS
9	25	1"	16	EN857/25C	GH781-16	-46°C/+126°C	207	STAINLESS STEEL CRIMP FITTINGS
10	31	1 1/4	20	EN857/25C	GH781-20	-46°C/+126°C	172	STAINLESS STEEL CRIMP FITTINGS
11	38	1 1/2	24	EN857/25C	GH781-24	-46°C/+126°C	138	STAINLESS STEEL CRIMP FITTINGS
12	51	2"	32	EN857/25C	GH781-32	-46°C/+126°C	110	STAINLESS STEEL CRIMP FITTINGS