



CERTIFICATE NUMBER  
16-GE1586857-PDA

DATE  
30 Nov 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: **D12**

This Product Design Assessment (PDA) Certificate 16-GE1586857-PDA, dated 30/Nov/2016 remains valid until 29/Nov/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-A/3.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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**Tier: 2 - PDA Issued**

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**Product: Flexible Hose**

**Model: D12**

**Intended Service:**

Hydraulic Oils, Fuel Oil, Water, Compressed Air, Chemicals(\*) and Gases(\*)  
(\*) Fluid compatibility is to be verified on a case by case basis.

**Description:**

Corrugated metallic (AISI 304/316/321-Aluminium and Carbon Steel) flexible hoses

**Rating:**

From DN10 to DN150 working pressures from 125 bar to 25 bar.

Temperature Range: -200°C / + 600°C

For additional 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 completed 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 Steel Vessel Rules for the intended service (e.g. 4-6-7/3.5.1)
- 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 in combination with pressure pulses.
- 5) Bend radius has been tested in accordance with ISO10380 Type 3 (pliable test only)
- 6) 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. Burst Test - Bend Test 1, Burst Test - Bend Test, Revision: 0, Pages: 1

Drawing No. D12 Rev, D12 Rev dated 01 April 2016, Revision: 0, Pages: 1

**Terms of Validity:**

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Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

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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:**

NA

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA

ATTACHEMENT TO PDACERTIFICATE No. 16-GE1586857-PDA

POSIT	BORE			O.T.REF.	TEMPER. RANGE	WORK. PRESS. [bar]	FITTINGS
	DN	INCH	SIZE				
1	10	3/8"	6	D12010	-200°C / 600°C	125	STAINLESS STEEL WELDED FITTINGS
2	12	1/2"	8	D12012	-200°C / 600°C	125	STAINLESS STEEL WELDED FITTINGS
3	20	3/4"	12	D12020	-200°C / 600°C	125	STAINLESS STEEL WELDED FITTINGS
4	25	1"	16	D12025	-200°C / 600°C	100	STAINLESS STEEL WELDED FITTINGS
5	32	1 1/4"	20	D12032	-200°C / 600°C	100	STAINLESS STEEL WELDED FITTINGS
6	40	1 1/2"	24	D12040	-200°C / 600°C	80	STAINLESS STEEL WELDED FITTINGS
7	50	2"	32	D12050	-200°C / 600°C	62	STAINLESS STEEL WELDED FITTINGS
8	65	2 1/2"	40	D12065	-200°C / 600°C	50	STAINLESS STEEL WELDED FITTINGS
9	80	3"	48	D12080	-200°C / 600°C	40	STAINLESS STEEL WELDED FITTINGS
10	100	4"	64	D12100	-200°C / 600°C	30	STAINLESS STEEL WELDED FITTINGS
11	125	5"	80	D12125	-200°C / 600°C	30	STAINLESS STEEL WELDED FITTINGS
12	150	6"	96	D12150	-200°C / 600°C	25	STAINLESS STEEL WELDED FITTINGS