DNV·GL

Certificate No:
MEDB00004ZZ

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies

with type designation(s)
1SN (EN853), 2SN (EN853), 1SC (EN857), 2SC (EN857), 2SC High Pressure, 2SCPLUS, R17 (SAE J517), 4SPMSHA (EN856), 4SHPLUS (EN856), R12MSHA (EN856), R13MSHA (EN856), R15MSHA (SAE J517), R4 SAE100R4 PLUS MSHA

Issued to
CATERPILLAR FLUID SYSTEMS SRL
Cernusco sul Naviglio, MI, Italy

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773,**
item No. MED/3.15c. SOLAS 74 as amended, Regulation II-2/4 & X/3 and 2000 HSC Code 7 & 10 and IMO MSC/Circ.1120

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-04-09**.

Issued at **Høvik** on **2019-04-10**

DNV GL local station:
Milan

Approval Engineer:
Adel Samiei

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

NORWEGIAN ACCREDITATION PROD 019

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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Product description

13 types of hose assemblies:

- 1SN, 2SN, 1SC, 2SC, 2SC High Pressure, 2SCPLUS, R17
  hoses made of oil resistant NBR rubber tube, reinforced with 1 or 2 layers of steel wire braids and with weather and oil resistant cover.
  Couplings One-piece fitting type Anchor series 1
- 4SPMSHA, 4SHPLUS, R12MSHA, R13MSHA, R15MSHA
  hoses are made of oil resistant NBR rubber tube, reinforced with 4 or 6 layers of steel wire spirals and weather and oil resistant cover
  Couplings: Anchor series 2 (for 4SPMSHA, R12MSHA)
  Anchor series 3 (4SHPLUS, R13MSHA, R15MSHA)
- R4 PLUS MSHA
  hoses made of Oil resistant NBR rubber tube; reinforced with 2 layers of textile braid; weather and oil resistant cover
  Couplings Anchor series 1 or 2

Coupling Material: 11SMnPb30, 11SMnPb37
Hose and coupling manufacturer: Caterpillar Fluid Systems srl, Via delle Industrie 30/32 - 03100 Frosinone (FR) - ITALY

Application/Limitation

Hose assemblies covered by this certificate are tested according to:

1) NS-EN ISO 15540: Fire resistance of hose assemblies- Test methods
2) NS-EN ISO 15541: Fire resistance of hose assemblies - Requirements for the test bench

Maximum working pressures are according to below tables:

Size			Max working pressure (bar)								
DN	dash	inch	1SN	2SN	1SC	2SC	2SC High Pressure	2SCPLUS	R17	4SPMSHA	R12MSHA
5	-3	3/16	250	415	-	-	-	-	-	-	-
6	-4	¼	225	400	225	400	450	450	210	450	-
8	-5	5/16	215	350	215	350	420	420	210	-	-
10	-6	3/8	180	330	180	330	370	380	210	445	280
12	-8	½	160	275	160	275	330	330	210	415	280
16	-10	5/8	130	250	130	250	280	300	210	350	280
19	-12	¾	105	215	105	215	260	280	210	350	280
25	-16	1	88	165	88	165	200	210	210	280	280
31	-20	1 ¼	63	125	-	-	-	-	-	-	210
38	-24	1 ½	-	90	-	-	-	-	-	-	175
51	-32	2	-	80	-	-	-	-	-	-	175

Hose size			Max working pressure (bar)			
inch	DN	Dash	4SHPlus	R13MSHA	R15MSHA	R4 PLUS MSHA
¾	19	-12	420	350	420	21
1	25	-16	380	-	420	-
1 ¼	31	-20	325	-	420	-
1 ½	38	-24	290	350	420	-
2	51	-32	280	-	-	-
4	102	-64	-	-	-	3

Type Examination documentation

Tests carried out

Fire testing according to ISO 15540 and ISO 15541

Marking of product

For traceability to this Type Approval, each hose is marked with:

- Manufacturer's name/trade mark
- Date of manufacture (month/year);
- Manufacturer’s Address
- Type designation
- Nominal size
- Pressure rating;
- Temperature rating.