

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00000Y5**  
Revision No:  
**1**

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 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 and compensators**

with type designation(s)

**PH-253 1SN EN853 /SAE 100 R1AT MSHA, PH-254 2SN EN853 /SAE 100 R2AT MSHA, PH-257 1SC EN857 MSHA, PH-258 2SC EN857 / SAE 100 R16 MSHA, PH-293 SAE 100 R17 MSHA, PH-296 WB1C HP MSHA, PH-297 WB2C HP MSHA, PH-177 R12 EN856 / SAE 100 R12 MSHA, PH-277 4SP EN856 MSHA, PH-278 4SH EN856 MSHA, PH-178 R13 EN856 / SAE 100 R13 MSHA, PH-279 SAE 100 R15 MSHA**

Issued to

**Polyhose India (Rubber) Pvt Ltd**  
**Kanchipuram, Tamil Nadu, India**

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2022/1157,

**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**

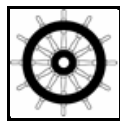
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-09-01**.

Issued at **Høvik** on **2022-09-02**

DNV local station:  
**Mumbai FIS**

Approval Engineer:  
**Andreas Hansen**



Notified Body  
No.: **0575**

for **DNV AS**

**Sverre Olav Bergli**  
**Head of Notified Body**



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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

Twelve types of hose assemblies:

1. POLYHOSE Type Designation: PH-253 1SN EN853 /SAE 100 R1AT MSHA  
 EXITFLEX Type Designation: EF-253 EN853 1SN / SAE 100 R1AT MSHA  
 FLUIDCOR Type Designation: FC-253 EN853 1SN / SAE 100 R1AT MSHA  
 ANCHOR Type Designation: 1SN EN 853 / SAE 100 R1 AT

Design: Flexible rubber hoses reinforced by brass coated one steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: One layer of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

2. POLYHOSE Type Designation: PH-254 2SN EN853 /SAE 100 R2AT MSHA  
 EXITFLEX Type Designation: EF-254 EN853 2SN / SAE 100 R2AT MSHA  
 FLUIDCOR Type Designation: FC-254 EN853 2SN / SAE 100 R2AT MSHA  
 ANCHOR Type Designation: 2SN EN 853 / SAE 100R2 AT

Design: Flexible rubber hoses reinforced by brass coated two steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: Two layers of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

3. POLYHOSE Type Designation: PH-257 1SC EN857 MSHA  
 EXITFLEX Type Designation: EF-257 EN857 1SC MSHA  
 FLUIDCOR Type Designation: FC-257 EN857 / 1SC MSHA  
 ANCHOR Type Designation: 1SC EN 857

Design: Flexible rubber hoses reinforced by brass coated one steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: One layer of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

4. POLYHOSE Type Designation: PH-258 2SC EN857 / SAE 100 R16 MSHA  
 EXITFLEX Type Designation: EF-258 EN857 2SC/ SAE 100 R16 MSHA  
 FLUIDCOR Type Designation: FC-258 EN857 2SC/ SAE 100 R16 MSHA  
 ANCHOR Type Designation: 2SC EN 857 / SAE 100 R16

Design: Flexible rubber hoses reinforced by brass coated two steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: Two layers of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

5. POLYHOSE Type Designation: PH-293 SAE 100 R17 MSHA  
 EXITFLEX Type Designation: EF-293 SAE100 R17 MSHA  
 FLUIDCOR Type Designation: FC-293 SAE 100 R17 MSHA  
 ANCHOR Type Designation: R17 SAE 100 R17

Design : Flexible rubber hoses reinforced by brass coated one or two steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: One or two layers of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

6. POLYHOSE Type Designation: PH-296 WB1C HP MSHA  
EXITFLEX Type Designation: EF-296 WB1C HP MSHA  
FLUIDCOR Type Designation: FC-296 WB1C HP MSHA

Design: Flexible rubber hoses reinforced by brass coated one steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: One layer of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

7. POLYHOSE Type Designation: PH-297 WB2C HP MSHA  
EXITFLEX Type Designation: EF-297 WB2C HP MSHA  
FLUIDCOR Type Designation: FC-297 WB2C HP MSHA

Design: Flexible rubber hoses reinforced by brass coated two steel wire braid.

Inner Tube: Oil and water resistant synthetic nitrile based rubber blend.

Reinforcement: Two layers of high tensile steel wire braid.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: One-piece Fluidcor series 1 or one-piece Anchor series 1 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

8. POLYHOSE Type Designation: PH-277 4SP EN856 MSHA  
EXITFLEX Type Designation: EF-277 EN856 4SP MSHA  
FLUIDCOR Type Designation: FC-277 EN856 4SP MSHA  
ANCHOR Type Designation: 4SP EN 856 MSHA

Design: Flexible rubber hoses reinforced by brass coated four steel wire spiral.

Inner Tube: Oil and water resistant synthetic neoprene based rubber blend.

Reinforcement: Four layers of high tensile steel wire spiral.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: Two-piece Anchor series 2 or one-piece Fluidcor series 3 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

9. POLYHOSE Type Designation: PH-278 4SH EN856 MSHA  
EXITFLEX Type Designation: EF-278 EN856 4SH MSHA  
FLUIDCOR Type Designation: FC-278 EN856 4SH MSHA  
ANCHOR Type Designation: 4SH EN 856 PLUS MSHA

Design: Flexible rubber hoses reinforced by brass coated four steel wire spiral.

Inner Tube: Oil and water resistant synthetic neoprene based rubber blend.

Reinforcement: Four layers of high tensile steel wire spiral.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: Two-piece Anchor series 3 or two-piece Fluidcor series 2 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

10. POLYHOSE Type Designation: PH-177 R12 EN856 / SAE 100 R12 MSHA  
EXITFLEX Type Designation: EF-177 EN856 R12/ SAE 100 R12 MSHA  
FLUIDCOR Type Designation: FC-177 EN856 R12/ SAE 100 R12 MSHA  
ANCHOR Type Designation: R12 EN 856 / SAE 100 R12 MSHA

Design: Flexible rubber hoses reinforced by brass coated four steel wire spiral.

Inner Tube: Oil and water resistant synthetic neoprene based rubber blend.

Reinforcement: Four layers of high tensile steel wire spiral.

Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.

Couplings: Two-piece Anchor series 2 or one-piece Fluidcor series 3 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

11. POLYHOSE Type Designation: PH-178 R13 EN856 / SAE 100 R13 MSHA  
EXITFLEX Type Designation: EF-178 EN856 R13/ SAE 100 R13 MSHA  
FLUIDCOR Type Designation: FC-178 EN856 R13/ SAE 100 R13 MSHA  
ANCHOR Type Designation: R13 EN 856 / SAE 100 R13 MSHA

Design: Flexible rubber hoses reinforced by brass coated four or six steel wire spiral.

Inner Tube: Oil and water resistant synthetic neoprene based rubber blend.

Reinforcement: Four or six layers of high tensile steel wire spiral.  
 Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.  
 Couplings: Two-piece Anchor series 3 or two-piece Fluidcor series 2 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

12. POLYHOSE Type Designation: PH-279 SAE100 R15 MSHA  
 EXITFLEX Type Designation: EF-279 SAE100 R15 MSHA  
 FLUIDCOR Type Designation: FC-279 SAE100 R15 MSHA  
 ANCHOR Type Designation: R15 SAE 100 MSHA

Design: Flexible rubber hoses reinforced by brass coated four or six steel wire spiral.  
 Inner Tube: Oil and water resistant synthetic neoprene based rubber blend.  
 Reinforcement: Four or six layers of high tensile steel wire spiral.  
 Cover: Neoprene Based Rubber Blend, Weather, oil, abrasion and ozone resistant.  
 Couplings: Two-piece Anchor series 3 or two-piece Fluidcor series 2 made of carbon steel - C20 / C35 / C45 (IS 1570-2), EN3B (BS 970-1), or stainless steel 304 / 316 (ASTM A479).

Hose manufacturer & hose assembling location:

- POLYHOSE INDIA (RUBBER) PVT. LTD., Tamil Nadu, India.

Coupling manufacturing locations:

- FLUIDCOR:
  - o Fluidcor (Ningbo) Co., Ltd, Jiangbei District, No.566 Jinshan Road, Ningbo 315033, China
  - o Polyhose India Pvt. Ltd., No. 1/160, Kannivakkam Village, No. 25, Chengalpattu Taluk, Kancheepuram, Tamil Nadu - 603202, India
- ANCHOR:
  - o Caterpillar Fluid Systems SRL, Via Gobetti, 2a - Palazzo C, 20063 Cernusco sul Naviglio (Milano), Italy

Testing standards conforming to:

- 1) **ISO 15540:2016** - Fire resistance of hose assemblies- Test methods
- 2) **ISO 15541:2016** - Fire resistance of hose assemblies - Requirements for the test bench

## Application/Limitation

The hose assemblies are approved to be used for conveying oil or fuel oil in temperature range of -40 °C to +100 °C (-40 °C to +120 °C for types R12 and R13) and maximum working pressures as below:

Size		PH253	PH254	PH257	PH258	PH293	PH296
DASH	DN						
-4	6	225	400	225	400	210	290
-5	8	215	350	215	350	210	250
-6	10	180	330	180	330	210	230
-8	12	160	275	160	275	210	200
-10	16	130	250	130	250	210	150
-12	19	105	215	105	215	210	125
-16	25	88	165	88	165	210	110
-20	31	63	125	-	-	-	100
-24	38	50	90	-	-	-	-
-32	51	40	80	-	-	-	-

Size		PH297	PH177	PH277	PH278	PH178	PH279
DASH	DN						
-4	6	450	-	-	-	-	-
-5	8	420	-	-	-	-	-
-6	10	385	280	445	-	-	-
-8	12	345	280	415	-	-	-
-10	16	290	280	350	-	-	-
-12	19	280	280	380	420	350	420
-16	25	200	280	320	380	350	420
-20	31	175	210	210	350	350	420
-24	38	-	175	185	290	350	420
-32	51	-	175	165	250	350	-

## Type Examination documentation

Manufacturer's catalogue

Fire test reports:

Size		PH253	PH254	PH257	PH258
DASH	DN				
-4	6	1033.0IS0110/16 1036.0IS0110/16	1039.0IS0110/16 1042.0IS0110/16	1045.0IS0110/16 1048.0IS0110/16	1492.0IS0110/16 1495.0IS0110/16
-10	16	1034.0IS0110/16 1037.0IS0110/16	1040.0IS0110/16 1043.0IS0110/16	1046.0IS0110/16 1490.0IS0110/16	1493.0IS0110/16 1496.0IS0110/16
-16	25	-	-	1047.0IS0110/16 1491.0IS0110/16	1494.0IS0110/16 1497.0IS0110/16
-20	31	1035.0IS0110/16 1038.0IS0110/16	1041.0IS0110/16 1044.0IS0110/16	-	-
-32	51	PHIRPL/QA/067 dated 2016-10-27	PHIRPL/QA/067 dated 2016-10-27	-	-
Fitting		One piece anchor series 1 / One piece fluidcor series 1	One piece anchor series 1 / One piece fluidcor series 1	One piece anchor series 1 / One piece fluidcor series 1	One piece anchor series 1 / One piece fluidcor series 1
Size		PH293	PH296	PH297	PH177
DASH	DN				
-4	6	1498.0IS0110/16 1501.0IS0110/16	1504.0IS0110/16 1507.0IS0110/16	1510.0IS0110/16 1513.0IS0110/16	-
-6	10	-	-	-	PHIRPL/QA/067 dated 2016-10-27
-8	12	-	-	-	1516.0IS0110/16 1519.0IS0110/16
-10	16	1499.0IS0110/16 1502.0IS0110/16	1505.0IS0110/16 1508.0IS0110/16	1511.0IS0110/16 1514.0IS0110/16	-
-16	25	1500.0IS0110/16 1503.0IS0110/16	1506.0IS0110/16 1509.0IS0110/16	1512.0IS0110/16 1515.0IS0110/16	1517.0IS0110/16 1520.0IS0110/16
-20	31	-	PHIRPL/QA/067 dated 2016-10-27	PHIRPL/QA/067 dated 2016-10-27	-
-32	51	-	-	-	1518.0IS0110/16 1521.0IS0110/16
Fitting		One piece anchor series 1 / One piece fluidcor series 1	One piece anchor series 1 / One piece fluidcor series 1	One piece anchor series 1 / One piece fluidcor series 1	Two pieces anchor series 2 & One piece Fluidcor series 3
Size		PH277	PH278	PH178	PH279
DASH	DN				
-6	10	PHIRPL/QA/067 dated 2016-10-27			
-8	12	1522.0IS0110/16 1525.0IS0110/16	-	-	-
-10	16	-	-	-	-
-12	19	-	1528.0IS0110/16 1531.0IS0110/16	1534.0IS0110/16 1537.0IS0110/16	1540.0IS0110/16 1543.0IS0110/16
-16	25	1523.0IS0110/16 1526.0IS0110/16	1529.0IS0110/16 1532.0IS0110/16	1535.0IS0110/16 1538.0IS0110/16	1541.0IS0110/16 1544.0IS0110/16
-24	38	-	-	-	1542.0IS0110/16 1545.0IS0110/16
-32	51	1524.0IS0110/16 1527.0IS0110/16	1530.0IS0110/16 1533.0IS0110/16	1536.0IS0110/16 1539.0IS0110/16	-
Fitting		Two pieces anchor series 2 & One piece Fluidcor series 3	Two pieces anchor series 3 & Two piece Fluidcor series 2	Two Piece anchor series 3 & Two Piece Fluidcor Series 2	Two Piece anchor series 3 & Two Piece Fluidcor Series 2

## Tests carried out

Fire tests carried out according to ISO 15540/15541



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### **Marking of product**

As a minimum, the final product to be marked with at least the following particulars:

- Manufacturer's name or trademark
- Manufacturer's address
- Specification or hose name
- Hose size (inside diameter in inches)
- Data code (quarterly and daily production code)
- Mark of conformity according to Article 10 of the Council Directive 2014/90/EU

Mark of Conformity may only be affixed to the product when the corresponding certification related to production-control phase module (D, E, or F) is valid.