



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-13870

This is to certify that the
Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
EF153 - 1SN and EF154 - 2 SN

Manufactured by
POLYHOSE INDIA (RUBBER) PVT. LTD.
Tamilnadu, India

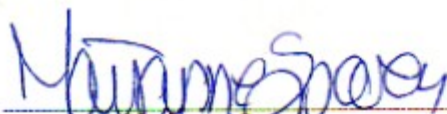
is found to comply with
Det Norske Veritas' Rules for Classification of Ships
DNV Classification of Ships & HSLC Pt.4 Ch. 6 "Piping Systems"
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.70

Application

May be used in the following systems: Hydraulic oil, fuel oil, antifreeze, compressed air, fresh water and sea water.

Temperature range: -40°C to + 100°C
Max. working press.: 40 to 415 bar size and type dependent
Sizes: DN 5 to DN 50

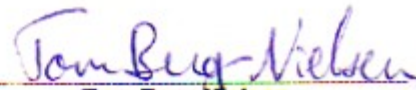
Høvik, 2011-08-01
for Det Norske Veritas AS


Marianne Spæren
Head of Section



DNV local office:
Mumbai

This Certificate is valid until
2015-12-31


Tom Berg-Nielsen
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: P-13870
File No.: 791.70
Job Id.: 262.1-010049-1

Product description

Hose types:

ExitFlex EF153-1SN: Oil and water resisitant Synthetic Rubber reinforced by a single steel wire braid, cover of black synthetic rubber

ExitFlex EF154-2SN: Oil and water resisitant Synthetic Rubber reinforced by a single steel wire braid, cover of black synthetic rubber

Couplings: Larga

Inserts types: DKOL, DKOL90 and DKOL45

Ferrules types: PF11, PF12 and PF22

Hose manufacturer: Exit SA, 2, ch.de la Crétaux, CH – 1196 Gland/Switzerland. Polyhose is the holding company of Exit SA

Application/Limitation

| Code | Dash size | DN | Hose I.D. | | Code | Dash size | DN | Hose I.D. | |
|----------|-----------|----|-----------|------|----------|-----------|----|-----------|------|
| | | | Inch | mm | | | | inch | mm |
| PH153-3 | -3 | 5 | 3/16 | 4.8 | PH154-3 | -3 | 5 | 3/16 | 4.8 |
| PH153-4 | -4 | 6 | ¼ | 6.4 | PH154-4 | -4 | 6 | ¼ | 6.4 |
| PH153-5 | -5 | 8 | 5/16 | 8.0 | PH154-5 | -5 | 8 | 5/16 | 8.0 |
| PH153-6 | -6 | 10 | 3/8 | 9.5 | PH154-6 | -6 | 10 | 3/8 | 9.5 |
| PH153-8 | -8 | 12 | ½ | 12.7 | PH154-8 | -8 | 12 | ½ | 12.7 |
| PH153-10 | -10 | 16 | 5/8 | 16.0 | PH154-10 | -10 | 16 | 5/8 | 16.0 |
| PH153-12 | -12 | 18 | ¾ | 19.0 | PH154-12 | -12 | 18 | ¾ | 19.0 |
| PH153-16 | -16 | 20 | 1 | 25.4 | PH154-16 | -16 | 20 | 1 | 25.4 |
| PH153-20 | -20 | 32 | 1 ¼ | 31.8 | PH154-20 | -20 | 32 | 1 ¼ | 31.8 |
| PH153-24 | -24 | 38 | 1 ½ | 38.1 | PH154-24 | -24 | 38 | 1 ½ | 38.1 |
| PH153-32 | -32 | 50 | 2 | 50.9 | PH154-32 | -32 | 50 | 2 | 50.9 |

Temperature range:
-40 to 100 °C continuous operation.

For air and water based fluids: Maximum 70°C

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure.

Hose assemblies delivered from the certificate holder shall be delivered with the following documentation:
- Pressure test report with reference to the type approval certificate.

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the conditions listed in DNV Type approval programme 5-791.70.

Hoses used for continuous operation at temperatures higher than 100°C will have their lifetime reduced. In such cases more frequent inspections and planned exchange should be a part of the maintenance program.

For compressed air or gases above 16 bar the cover should be pin pricked.

Flexible hoses are only to be used in lengths up to 2 meters where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hoses must only be fitted in places where they are always accessible.

TABU



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Flexible hoses of these types are not to be used in boiler fronts.

The hoses are to be mounted in accordance with the manufacturer's instructions.

It must be possible to shut off from the system all flexible hoses used in systems for compressed air, lube oil, fuel oil and petroleum base hydraulic oil.

Each hose is to be hydraulic pressure tested to 1.5 times the maximum working pressure and to be delivered with manufacturer's pressure test certificate.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized.

Type Approval documentation

Polyhose catalogue : Flexible solutions

Drawings of Larga couplings

Fire tests nos 505.0IS0110/11 dated 21/04/2011, 1406.0IS0110/10 dated 18/10/2011, 026.0IS0110/11 dated 25/01/2011 and 1407.0IS0110/10 dated 18.10.2010 from LAPI

Test reports from Polyhose dated 01.10.2007

Tests carried out

Fire, burst, change in length, dimensional check, impulse, adhesion, oil resistance, cold flex, ozone resistance.

Marking of product

For traceability to this type approval, the final products (hoses with couplings) are to be marked:
Manufacturer's name or trademark and type designation

Certificate Retention Survey

For retention of the Type Approval, DNV Surveyor shall perform a survey every second year, to verify that the conditions for the type approval are complied with and to witness the following tests on a selection of sizes:

- Dimensional check.
- Change in length
- Leakage test
- Burst test

The tests shall be performed in accordance with procedures given in Det Norske Veritas' Certification Notes no. 2.9 -5-791.70 "Type Approval of Flexible Hoses of Non-Metallic Material" or another recognised standard.

The tests are to be performed with the type of couplings fitted that are Type Approved with the hoses.

Hoses from all manufacturing plants mentioned in this certificate are to be tested.

TA 1411a