

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
PL EFESTO SD 25

Issued to

Ivg Colbachini S.P.A.
Cervarese Santa Croce, PD, Italy

is found to comply with

DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****Temperature range:** -20°C to 82°C**Max. working press.:** 25 bar(g)**Sizes:** 3/4", 1", 2", 3", 4", 6" & 8"Issued at **Høvik** on **2020-03-12**This Certificate is valid until **2025-03-11**.for **DNV GL**DNV GL local station: **Venice**Approval Engineer: **Maheshraja Venkatesan**

Zeinab Sharifi
Head of Section

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.



Product description

Flexible hose assemblies with the following construction:-

Tube : Black, smooth NBR rubber
Reinforcement : high strength synthetic cord with embedded steel helix wire
Cover : red, smooth (wrapped finish), flame retardant, weather, abrasion, oil and sea water resistant CR rubber

End fittings comprising of:

Ferrule & Nipple : 11SMnPb37 EN 10277, ASTM A333 Gr. 6, API 5L Gr. B, E355, AISI 304 & AISI 316L
Fire resistant sheet : Knitted high bulk glass fiber tape, coated with compound of iron oxide and silicone rubber
Clamping ring for : 11SMnPb37 EN 10277, ASTM A333 Gr. 6, API 5L Gr. B, E355, AISI 304 & AISI 316L
fire resistant sheet 316L

Both hoses and fittings are manufactured by the Type Approval holder viz., IVG Colbachini S.P.A., Italy.

Application/Limitation

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.

Hose assemblies covered by this certificate are approved for transfer of the following media: sea water, oil, mud and petroleum products with maximum aromatic content up to 30%.

Hoses covered by this certificate are not to be used in DNV GL classed drilling units (applications covered by DNVGL-OS-E101).

Flexible hoses are only to be used in short lengths 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 hose assemblies must only be fitted in places where they are always accessible. Flexible hoses of these types are not to be used on boiler fronts.

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions.

The scope of approval does not cover external loads acting on the hoses during operation.

Hose assemblies covered by this certificate shall not be installed on systems subject to pressure pulsation.

Production testing

All hose assemblies delivered under the DNV GL type approval scheme shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to this type approval certificate.

Type Approval documentation

Tests carried out

Dimensional check, Oil resistance, Vacuum test, Temporary and Permanent elongation, Ozone resistance test, Adhesion test (wet & dry), Proof pressure test, Bending test, Twist at max. working pressure test, Abrasion resistance test, Electrical test, Burst test and Fire test

Marking of product

Each hose assembly shall be at least permanently marked on the hose end fitting as follows:

Job Id: **262.1-028593-1**
Certificate No: **TAP00001E2**

- manufacturer's name or trade mark
- type and designation
- size
- maximum working pressure
- quarter and year of manufacturer
- serial number of the hose assembly

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.