

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Metallic Material with permanently fitted couplings**with type designation(s)
NA\43880 (VI 3C U0)

Issued to

**Senior Flexonics GmbH
KASSEL, Germany**

is found to comply with

**Det Norske Veritas' Rules for Classification of Ships Pt.4, Ch.6 "Piping Systems"
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.80****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Temperature range: -10°C to 220°C
Max. working press.: atmospheric pressure
Sizes: DN25**This Certificate is valid until **2019-06-30**.Issued at **Høvik** on **2015-11-10**DNV GL local station: **Magdeburg**Approval Engineer: **Adel Samiei**for **DNV GL**

Marianne Spæren Marveng
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 hoses with corrugated metal hose (1.4301) and pipe socket made of 1.4571.

Application/Limitation

The hoses may be used in lubricating and cooling oil systems.

Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting of the machinery and is not meant to replace permanent piping.

Minimum bending radius is to be according to manufacturer's instructions/specifications.

The hoses are not to be used in systems where pressure impulses may occur.

Type Approval documentation

Tests carried out

Static bend test, fatigue test, Burst pressure test, pulsation test.

Marking of product

For traceability to this type approval, the hose assemblies are to be marked with:

- Manufacturer's name or trade mark
- Type designation

Periodical assessment

For retention of the Type Approval, DNV GL Surveyor shall perform a periodical assessment every second year, to verify that the conditions for the type approval are complied with and to witness a burst test on a selection of sizes. Hose assemblies shall be tested in the form of construction in which they are to be supplied.

The main elements of the certificate retention survey are:

- Review of Type Approval documentation
- Review of possible changes in design, materials and performance
- Ensure traceability between manufacturer's product type marking and Type Approval Certificate.