



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000011D
Revision No:
4

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
1SN, 2SN, 2ST, 2SC

Issued to

Volz Gruppe GmbH
Deilingen, Germany

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.
Temperature range: -40°C up to +125°C

Issued at **Hamburg** on **2022-10-06**

This Certificate is valid until **2027-10-05**.

DNV local station: **Augsburg**

Approval Engineer: **Christian Kaemmer**

for **DNV**

Sven Klinger
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.

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

Hose Type	Hose standard	Ferrule	Hose end fittings	Material
1SN (Manuli)	Inner tube: Oil resistant synthetic rubber (Nitrile) Cover: Abrasion-, ozone- and weather resistant synthetic rubber Reinforcement: One wire braid reinforced flexible rubber hoses with permanently attached hose end fittings, per EN853.	PF3	DKO ; DKO 45° ; DKO 90° ; DKLL / DKL / DKS; DKLL / DKL / DKS 45° ; DKLL / DKL / DKS 90° ; BE ; BE 45° ; BE 90° ; BE SW ; BE SW 45° ; BE SW 90° ; DKR ; DKR 45° ;	1.4571 (316Ti)
2SN 2ST (Manuli)	Inner tube: Oil resistant synthetic rubber (Nitrile) Cover: Abrasion-, ozone- and weather resistant synthetic rubber Reinforcement: Two wire braid reinforced flexible rubber hoses with permanently attached hose end fittings, per EN853.	2SN: 3/16"-1": PF3 1.1/4"- 2": PF11 2ST: PF2	DKR 90° ; DKRF ; DKRF 45° ; DKRF 90° ; AGJ ; DKJ ; DKJ 45° ; DKJ 90° ; CE ; AGR ; AGR WD ; AGR BSPT-m ; AGN ; DSN ; SFL3 / SFS6 ; SFL3 / SFS6 45° ; SFL3 / SFS6 90° ; RGN ;	1.4571 (316Ti)
2SC (Manuli)	Inner tube: Oil resistant synthetic rubber (Nitrile) Cover: Abrasion-, ozone- and weather resistant synthetic rubber Reinforcement: Two wire braid reinforced flexible rubber hoses with permanently attached hose end fittings, per EN857.	PF3	DKO KÄ ; DKNPSM ; GADV ; ORFS-m ; ORFS-f ; ORFS-f 45° ; ORFS-f 90° ; TW ; SAE-f ; SAE 45°-f ; SAE 90°-f ; STL ; STL 45° ; STL 90°	1.4571 (316Ti)

Size and pressure range:

Inner Ø inch	Inner Ø mm	Max. Allowable Working Pressure M.A.W.P. [bar]			
		1SN	2SN	2ST	2SC
3/16	5	250	415	415	-
1/4	6	225*	400*	400*	400*
5/16	8	215	350	350	350
3/8	10	180	350	350	330
1/2	12	160*	350*	350*	275*
5/8	16	130	250	250	250
3/4	19	105	215	215	245
1	25	90*	175*	175*	210*
1 1/4	31	65	140	140	-
1 1/2	38	50*	100*	100*	-
2	51	40	90	90	-

The *marked hoses are tested as representative for the range.

Temperature range

- 40°C to +125°C

+ 75°C for air, + 85°C for water

Production places

- Volz Gruppe GmbH Deilingen, Germany
- Manuli Hydraulics (Suzhou) Co., Ltd.

Application/Limitation

Hose assemblies covered by this type approval certificate are type approved for fuel oil, lubricating oil and hydraulic oil, fresh and seawater, compressed air systems (pin prick cover is required for air applications above 17 [bar]).

Installation

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.

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, fresh water cooling applications, lube oil, fuel oil and petroleum base hydraulic oil.

The hoses are not to be used for suction. The use of hose assemblies is not permitted in permanently pressurized starting air lines of diesel engines.

Type Approval documentation

Tests carried out



Job Id: **262.1-010931-6**
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Marking of product

For traceability to this type approval the products are to be marked at least with:

- Manufacturer's name / trade-mark
- Type designation
- Dash size
- M.A.W.P

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>