DNV·GL

Certificate No:
TAP00001V5

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
1SN, 1SC, 1SN-K Semperpac, 2SN, 2SC, 2SN-K Semperpac, 4SP, 4SH

Issued to
Semperit Technische Produkte Gesellschaft m.b.H.
Wimpassing, Austria

is found to comply with
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
1SN	-40 °C up to +100 °C	40 bar up to 225 bar	DN 6 up to DN 51
1SC	-40 °C up to +100 °C	88 bar up to 225 bar	DN 6 up to DN 25
1SN-K Semperpac	-40 °C up to +100 °C	100 bar up to 290 bar	DN 6 up to DN 25
2SN	-40 °C up to +100 °C	80 bar up to 400 bar	DN 6 up to DN 51
2SC	-40 °C up to +100 °C	165 bar up to 400 bar	DN 6 up to DN 25
2SN-K Semperpac	-40 °C up to +100 °C	175 bar up to 450 bar	DN 6 up to DN 31
4SP	-40 °C up to +100 °C	165 bar up to 445 bar	DN 10 up to DN 51
4SH	-40 °C up to +100 °C	250 bar up to 420 bar	DN 19 up to DN 51

Issued at **Hamburg** on **2019-06-21**
This Certificate is valid until **2024-06-20**.
DNV GL local station: **Augsburg**

Approval Engineer: **Andrii Pishchanskyi**

for **DNV GL**

Olaf Drews
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.

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Product description

Type	Description
1SN	Synthetic rubber hose with one internal steel wire braid according to DIN 853 1SN.
2SN	Synthetic rubber hose with two internal steel wire braids according to DIN 853 2SN.
1SN-K SEMPERPAC	Synthetic rubber hose with one internal steel wire braid.
2SN-K SEMPERPAC	Synthetic rubber hose with two internal steel wire braids.
1SC	Synthetic rubber hose with one internal steel wire braid according to DIN 857 1SC.
2SC	Synthetic rubber hose with two internal steel wire braids according to DIN 857 2SC.
4SP	Synthetic rubber hose reinforced with 4 spirally wrapped steel plies according to EN 856 4SP.
4SH	Synthetic rubber hose reinforced with 4 spirally wrapped steel plies according to EN 856 4SH.

Hoses
Hoses are produced by Semperit Technische Produkte Gesellschaft m.b.H. at Wimpassing, Austria.

Hose end fittings
Hse end fittings are made of carbon steel and produced by VOSS Fluid S.r.l. at Osnago LC, Italy.

The following assembling locations are approved:

1 Semperit Technische Produkte Gesellschaft m.b.H.
Triesterbundesstraße 26
A-2632 Wimpassing

2 Semperflex Shanghai Ltd.
1255 Cang Gong Road
Shanghai Chemical Industrial Park
CN-Shanghai 201417

3 Semperflex Optimit s.r.o.
Vitkovskä c.p. 391/29
CZ-74235 Odry

4 Semperflex Asia Corporation Ltd.
Sri Trang Building No. 10 Soi 10
Phetkasem Rd.,
Hatyai,
TH-Songkhla 90110

5 VOSS Fluid S.r.l.
Via A. Stoppani, 13,
23875, Osnago (LC)

Responsibility
Semperit Technische Produkte Gesellschaft m.b.H. takes the responsibility that the design and production of the hoses, hose end fittings and manufacturing of hose assemblies are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

Hose assemblies are approved for use with petroleum base hydraulic fluids, water glycol and water emulsion hydraulic fluids, fuel oil, lubrication oil, compressed air, fresh water and sanitary.

Maximum working pressure [bar] is as follows:

Type \ DN	**6**	**8**	**10**	**12**	**16**	**19**	**25**	**31**	**38**	**51**
1SN	225	215	180	160	130	105	88	63	50	40
2SN	400	350	330	275	250	215	165	125	90	80
1SN-K	290	250	230	200	150	125	110	N/A	N/A	N/A
2SN-K	450	420	385	350	290	280	200	175	N/A	N/A
1SC	225	215	180	160	130	105	88	N/A	N/A	N/A
2SC	400	350	330	275	250	215	165	N/A	N/A	N/A
4SP	N/A	N/A	445	425	350	350	320	210	185	165
4SH	N/A	N/A	N/A	N/A	N/A	420	380	350	290	250

Hoses assemblies are not approved for application under pressure below atmospheric or vacuum.

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

Installation
Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting on 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.

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

Each hose assembly 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 the type approval certificate.

Type Approval documentation

Tests carried out

1. Change in length;
2. Cold flexibility test;
3. Resistance against liquid;
4. Cover adhesion test;
5. Ozone resistance test;
6. Fire resistance test;
7. Impulse test;
8. Burst test.

Marking of product

Each hose asembly shall be permanently marked on the hose end fitting as follows:

Content	Example
Manufacturer's name and trade name	VOSS, L
Type designation	1SN
Hose size	12
Date code	2Q19

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 Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4.