

# 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**

for **DNV GL**

This Certificate is valid until **2024-06-20**.

DNV GL local station: **Augsburg**

Approval Engineer: **Andrii Pishchanskyi**

**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.



Job Id: **262.1-007783-5**  
Certificate No: **TAP00001V5**

## 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

Hose 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.  
Vitkovská 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

1. Semperit's test reports dated 12.08.85, Ing. FX/wh. and 19.08.86, 19.08.86, 06.10.97, 21.12.98, 11.02.99, 30.04.04;
2. WTD 71 fire test reports 29/96, 31/98, 30/98, 18/04, 19/04, 31/04, 32/04, 38/04, 39/04, 10/04, 11/04, 12/04, 13/04, 14/04, 15/04, 16/04, 17/04, 20/04, 21/04, 22/04, 23/04, 25/04, 26/04, 27/04, 28/04, 29/04, 30/04, 33/04, 34/04, 35/04, 36/04, 40/04, 42/04, 46/04, 47/04;
3. SEMPERIT Hydraulic and Pressure Washer Hoses, publication date April 2017;
4. VOSS Fluid LARGA "Hydraulisch steel tube fittings and hose couplings", edition 18, dated 10/2016;
5. Crimping data sheet VOSS / Semperit No. QP C HG 5306A1 Version 1 dated 12-2018;
6. Certificates of compliance with the order EN 10204 - 2.2 dated 2017-09-15.

## 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.

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### Marking of product

Each hose assembly 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.