

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00002BH
Revision No:
1

This is to certify:

That the Hose end fittings for non-metallic flexible hoses

with type designation(s)
VOSSPlug

Issued to
VOSS Fluid GmbH
Wipperfürth, Nordrhein-Westfalen, 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
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application :

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

Temperature range: -40°C up to +120°C
Max. working press.: up to 400bar
Sizes: 6mm up to 16mm

Issued at **Hamburg** on **2022-11-18**

for **DNV**

This Certificate is valid until **2026-12-15**.

DNV local station: **Essen**

Approval Engineer: **Hagen Markus**

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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

VOSS*Plug* Hydraulic hose connector for hydraulic applications.

Materials

Pipe system connection side / Plug connector	Material grade
Male plug, Plug and Press socket	Free-cutting steel with zinc-nickel corrosion protection
Sealing package	O-ring (HNBR) and support ring (PTFE)
Special snap ring (retaining element)	High-strength stainless steel
Two wedge slide elements	Polyamide (PA66-GF30)

Application/Limitation

The VOSS*Plug* Hydraulic hose connector is type approved in combination with DNV type approved hose types as follows:

DNV TA certificate	Hose manufacturer	Hose types / Hose standards
TAP00001V5	Semperit	1SN, 2SN, 1SN-K SEMPERPAC, 2SN-K SEMPERPAC, 1SC, 2SC, 4SP, 4SH
TAP000009S	Polimer Kaucuk	1SN, 2SN, 2SN-K1SC, 2SC, 4SP, 4SH, EN856 R13, SAE J517 100 R13/15, SAE J517 100 R16, SAE J517 100 R17, WOOD 3W ¹

Notes

¹ Acc. to manufacturers specification

Plug sizes and pressure range

The VOSS*Plug* Hydraulic hose connector system is type approved for the following nominal pressures PN.

Plug size mm	PN bar
6	400
8, 10, 12	370
16	350

Temperature range

-40°C up to +120°C

Hose assembling

Assembling (crimping) of the VOSS*Plug* Hydraulic hose connectors is to be carried at hose assembly production places listed in type approval certificates TAP00001V5 and TAP000009S or at any DNV approved hose assembly manufacturer, approved for same scope of hose types specified in the aforesaid type approval certificates.

Type Approval documentation

TAP00002BH, Rev.1

- Deleting of reference TAP00000D2
- New HNBR70 O-Ring Quality
- lower temperature range down to -40°C

Test reports

Test report name	VOSS Test Report No
VOSSPlug - Wiederholmontagen-Gasdichtheit-Berstdruck, Part 1 Gasdichtheit- und Wiederholmontageprüfung am hydraulischen Stecksystem VOSSPlug, Part 2	2022_0090
VOSSPlug - Dichtheits-/Druckprüfungen bei Max/Min-Temperature, Part 1 and 2.	2022_0091

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Type tests

- Test plan VOSS Plug, 2021-04

Test laboratory Dr. Bäumer, Herford

- Flame resistant tests acc. to ISO 15540/41 -

Test report	Test specimen	Hose type
IBB – 2510, 2021-07-06	VP/HF-PMS-06-DN06/PF22	DIN 853 2SN-DN06
IBB – 2504, 2021-06-15	VP/HF-PMS-10-DN10/PF24	DIN 853 2SN-K-DN10
IBB – 2502, 2021-06-15	VP/HF-PMS-06-DN16/PF13	DIN 856 4SP

Test laboratory VOSS Fluid, Italy

- Static pressure test/Burst test acc. to ISO1402, Impulse Pressure test acc. to ISO 6803 – no flexing

Test report	Test specimen	WP
086-20, 2020-10-05	VP/HF-PMS/E-06-DN06 HF-FER/PF24-DN06 (PF24-06 no-skive)	400bar
083-20, 2020-09-28	VP/HF-PMS/E-10-DN08 HF-FER/PF24-DN08 (PF24-08 no-skive)	370bar
081-20, 2020-09-15	VP/HF-PMS/E-10-DN10 HF-FER/PF12-DN10-OS (PF12-10 skive)	370bar
090-20, 2020-10-20	VP/HF-PMS/E-12-DN12 HF-FER/PF12-DN12-OS (PF12-12 skive)	370bar
094-20, 2020-11-06	VP/HF-PMS/E-16-DN16 HF-FER/PF13-DN16-OS (PF13-16 skive)	370bar

Testing Laboratory VOSS Automotive GmbH, Wipperfürth, Germany

- Test scope ac. To CP-0185: Repeat assembly test, Hydrostatic Tightness test, Burst pressure test

Test report	Test specimen
2021_1181/1 2021-11-22	1 x VOSSPlug quick connector 06 with Semperpac 2 SN-K hose and PF 24 (No Skive) swaged ferrule, length 500 mm
	1 x VOSSPlug quick connector 10 with Semperpac 2 SN-K hose and PF 24 (No Skive) swaged ferrule, length 500 mm
	1 x VOSSPlug quick connector 16 with 4 SP acc. DIN EN 856 hose and PF 13 (Skive) swaged ferrule, length 500 mm

Miscellaneous documents

- Präsentation "Das neue Hydraulik Schlauchstecksystem VOSS Plug", 2019-05
- Asbestos-free declaration, 2012-06-25
- ISO 9001:2015, VOSS Fluid GmbH Wipperfürth, VOSS Fluid Polska Sp. 7 o. o. issued by TÜV Rheinland, 2019-07-30.
- DNV Type Approval Assessment Report, VOSS Fluid GmbH, Wipperfürth, 2021-11-17

Tests carried out

DNV CP-0185

Repeat assembly test, Hydrostatic Tightness test, Burst pressure test, Impulse pressure test acc. to ISO 6803 (no flexing), Flame resistance ISO 15540/41:2016.

VOSS Fluid standard

Repeat assembly test (100 plug-in cycles), Tightness test acc. to ISO 19879, Tightness and pressure test at different min/max temperature ranges

Marking of product

Component	Example
Male plug	VOSS
Clipp	VOSSPlug
Ferrule	VOSS-PF24

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>

End of certificate