

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP000027X
Revision No:
1

This is to certify:

that the **Pipe Couplings, Bite and Compression Type**

with type designation(s)
VOSSRingM - Cutting Ring Couplings

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-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application:

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Temperature range: Refer to page 3 "Temperature range"
Max. working press.: 800 bar
Sizes: 6 mm to 42 mm

Issued at **Hamburg** on **2026-03-25**

This Certificate is valid until **2030-12-20**.

DNV local unit: **Essen**

Approval Engineer: **Christian Kaemmer**

for **DNV**



Digitally Signed By:
Sven Klinger
Location: DNV Hamburg,
Germany

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 USD 300 000.

Product description

The VOSSRingM cutting ring system (24° cutting ring system) consists of a pipe coupling made of carbon steel designed acc. to DIN EN ISO 8434-1. Pressure-series **L (light)** and **S (heavy)**.

The components are: Basic component (body), connecting nut and VOSSRingM-cutting ring (double edge). Metallic sealing of the cutting ring system. Corrosion protection of couplings and nuts by VOSScoat (zinc-nickel based surface coating).

The VOSS Fluid VOSSRingM cutting ring system consist of the following main components:

Component	Type designation	Material designation ¹
Double edge cutting ring	VRM	Carbon steel
Basic component (body) 24°	Acc. to "Scope of type approval"	
Connecting nut	N	
On the threaded side:		
Sealing ring	PEFLEX, OR	FKM, NBR

Notes ¹ For detailed material designation refer to "VOSS Tube coupling technology catalogue – General technical notes".

Scope of type approval

This Type approval certificate includes the following types and sizes - with all thread types:

L-Series tube O.D. 6mm up to 42mm and **S-Series** tube O.D. 6mm up to 38mm:

Component	Type designation
SDS, SDE, SDL, SDT	Male stud connectors
S, E, T, K	Unions
BHSLN, BHELN, BHSDSLN, WDBHS	Bulkhead unions, Welding bulkhead connectors
SWE, SWT, SWL, SWSDS, SWS	Adjustable couplings with tube socket
SDAE, SDAE45, SDAL, SDAT	Adjustable stud connectors with locknut
SW2OS, SWOK, SWOE, SWOE45, SWOT, SWOL, SWOSDS, SWOS	24° taper couplings (DKO)
S, PGS, SWPGS, SWOPGS	Female and gauge couplings
SD2S	Double nipple
SDS	Thread reducing couplings, Straight adapters ISO6149 / DIN3852
PLIH/PLEH, PLB, PLO/PLOC, TBS, LN	Blanking plug for ports, caps, plugs, Hexagonal nuts
RS	Reinforcing sleeves
OR, PEFLEX	Sealing rings
Type designation	Hydraulic valves
VNRO, VNROI, VNROPT, VNROTP	Non-return valves standard
VNRCO	Non-return valve plug-in cartridges
VST and with soft seat VSOT	Shuttle valves with ball seats
VNROHP, VNROPTHP, VNROTPHP	High-pressure valves
VNRIO	Internal valve part installation kits

Excluded from type approval are Banjo and rotary couplings, flange connections

Threaded pipe couplings with limitations as stated in DNV-RU-Pt.4 Ch.6 Sec.9 [5.2.6]:

Type	Name
SDS, SDE, SDL, SDT	Male stud connector sealing types tapered thread
GP-SDS	Thread reducing couplings ISO 1179-2, 4
	Straight adapter ISO 6149/DIN 3852
SWSDS	Swivel connector sealing type tapered thread

Application / Limitation

The VOSS Fluid VOSSRingM cutting ring system Series **L (light)** and Series **S (heavy)** are type approved for application in pipe class I, II and III-piping systems.

Classified as compression-coupling – “Bite type” acc. to DNV-Rules “Ships” Pt. 4, Ch. 6, Sec. 9 Table 8, 9, 10. The mechanical joints are metallic sealing.

Without elastomeric sealing-rings on the threaded side, they are classified as fire-resistant-type. Type-tested for fire endurance test condition “wet”. Type Approved for Classification of pipe system dry, wet, and dry/wet acc. to DNV-Rules “Ships” Pt. 4, Ch. 6, Sec. 9 Table 9.

With elastomeric seals on the threaded side are type-approved for Fire endurance test condition “Fire endurance test not required” acc. to DNV-Rules “Ships” Pt. 4, Ch. 6, Sec. 9 Table 9.

The VOSS Fluid VOSSRingM cutting ring system is not approved for application in high pressure fuel injection systems of combustion engines.

Gas fueled ship installations: Fuel piping system: Accessory lines and instrumentation lines with external diameters of 25 mm or less. Pipe couplings with metallic sealing shall be used only. Refer to Pt.6 Ch.2, Sec. 5 – 11.2 (3).

Series L and S may be used for gases having an oxygen content exceeding 21% at 250 bar and 360 bar respectively.

Sizes and pressure range

Tube O.D. mm	Nominal pressure PN ¹	Tube O.D. mm	Nominal pressure PN ¹
	L Series		S Series
6, 8, 10	500	6, 8, 10	800
12, 15, 18	400	12, 14, 16	630
22, 28, 35, 42	250	20, 25, 30, 38	420

Notes

¹ Max working pressure of the piping system depend on the selected pipe material and wall thickness.

Temperature range

Material	Lowest allowable Temperature	Maximum allowable Temperature
Carbon steel ²	- 20°C ¹	+ 250°C
Sealing NBR	- 35°C	+ 100°C
Sealing FKM	- 25°C	+ 200°C

Notes

¹ Lowest medium temperature -20°C and lowest environmental temperature -40°C. Refer to DIN 3859-1.

² For service temperatures above 120°C (Carbon steel) and above 50°C (Stainless steel) the pressure reductions factors specified in “VOSS Tube coupling technology catalogue – General technical notes” are to be observed.

Selection of the tubes

For selection of the tubes the following references are to be observed:

- VOSS Tube coupling technology catalogue – General technical notes”
- DNV Rules “Ships” Pt.4, Ch.6 Section 9, Tables 2 and 3: Minimum Tube wall thickness.
Section 2, Table 3: Material certificates

Selection of materials

It shall be noted that the selection of the materials considers the applicable service condition with respect to type of media, flow velocity, media temperature and installation area of the piping system. In particular, the resistance to corrosion, erosion, oxidation and other deterioration during projected service life are to be considered.

References: DNV Rules “Ships” Pt.4 Ch.6 – Section 2 – Materials.

Type Approval documentation

VOSS Fluid test report 2020_1178/1

- Repeated Assembly, Tightness and Burst pressure tests acc. to test report,2020-12-15
- VOSS Tube coupling technology catalogue - 9177003102/201505/02/03.0/15 – English”.

Drawings - Cutting ring 1S and VOSSRingM (MSR4) L/S6, L18, L42, S16, S38 - Tube couplings

- Test reports of fire resistance tests issued by Dr. Bäumer test laboratory
- IMA Dresden test report K057/14, Order No.: 304224011
- VOSS Fluid test report 2014_466; Product catalogue 9177003102/201505/02/03.0/15
- GL Approval Ref. No.: 14-082538, 15051225; **Previous certificate GL: 13 504-14HH**

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Type Approval Assessment Report dated 2026-02-09

Test Report 2025_1376/1 dated 2025-12-08, / Reassembling, leak-and burst-pressure tests / witnessed and reviewed by DNV-Surveyor

Tests carried out

- Gas pressure test / Tightness test / Burst test /Vacuum test
- Pull-out test, Combined Vibration and Pressure pulsation test, Fire resistance test acc. to ISO 19921/22,
- Repeated assembly test

Marking of product

Component	Scope	Example
Basic component (body)	Manufacturer – Material code – Supplier code	VOSS -20 - K
Cutting ring	Manufacturer – Supplier code	VOSS 2
Nut	Manufacturer – Size – Supplier code – Country origin	VOSS-S16-95/86-DE

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, Section 4.

In addition, burst pressure testing on selected sizes to be carried out in the course of renewal of the certificate. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

Manufactured by:

VOSS Fluid GmbH, Wipperfürth, Nordrhein-Westfalen, Germany