

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000HU
Revision No:
2

This is to certify:

That the Pipe Couplings, Bite and Compression Type

with type designation(s)

Cutting ring fittings, standpipe connections, 24° swivel connectors, bulkhead couplings, straight reducers, male connectors, weld connectors, diagnostic equipment and blanking plugs

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

Application :

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

Temperature range: Up to 400°C

Max. working press.: Up to 800 bar

Sizes: Tube outer diameter from 4 mm up to 42 mm

Issued at **Hamburg** on **2021-12-13**

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

DNV local station: **Augsburg**

for **DNV**

Approval Engineer: **Andrii Pishchanskyi**

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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.

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

24° cone connectors using cutting ring and O-ring seal cone (swivel connector) as per DIN 2353 / ISO 8434-1.

Cutting rings

- SDR – metallic sealing, single edge cutting ring –24° cone end as per DIN 3861;
- PDR – metallic sealing, double edge cutting ring –24° cone end as per DIN 3861.

Fittings

This type approval includes the fittings as specified in the Volz Stainless Steel Catalogue “Tube Fittings and Accessories” edition 04/2015 A. The following connectors are excluded from the certificate:

Designation	Coupling type
ASKV	Straight weld coupling for tubes
SKA	Straight weld nipple for tubes
SKAR	Straight reducing weld nipple for tubes
GMA 3	Straight test point connector
VKA 3	Test point
EMA 3	Test point
MAV – MA 3	Test point pressure gauge connector
SMA 3	Measuring hose

Materials

Component	Material designation
Connector body, nut and cutting ring	Stainless steel grade 1.4571 as per DIN EN 10088-3

Application/Limitation

The connectors are type approved for application in pipe class I, II and III piping systems, as specified in DNVGL RU-SHIP Pt.4 Ch.6 Sec.9 §5.2.5 for compression couplings of fire resistant type.

Pipe minimum wall thickness shall be as per DNV RU-SHIP Pt.4 Ch.6 Sec. 9 §1.2.1. Requirements for pipe material are defined in Sec.2 §1.8.1.

Connectors are not approved for installation in high pressure fuel injection systems of combustion engines.

Bulkhead connections (type GSV and WSV) are not approved for penetration through tank walls, fire divisions, watertight decks and bulkheads.

Nominal working pressure (PN)^{1), 2)}

Product line	Tube OD (mm)	Pressure (bar)
LL	4 – 8	100
L	6 - 10	500
	12 – 18	400
	22 – 42	250
S	6 – 10	800
	12 – 16	630
	20 - 38	420

Notes

- 1) Individual nominal pressures of the fittings in accordance with Volz Stainless Steel Catalogue “Tube Fittings and Accessories” edition 04/2015 A shall be observed.
- 2) Max working pressure depends on pipe material and thickness.

At elevated temperatures, the maximum pressures are to be reduced according to following:

Temperature, [°C]	≥-55 and ≤20	50	100	200	300	400
Pressure reduction factor [-]	1	0,95	0,89	0,80	0,71	0,67

Temperature range depends on pressurised component and sealing ring materials:

Material	Temperature range
Stainless steel	-55°C up to 400°C
FPM	-25°C up to 200°C
NBR	-30°C up to 100°C
PTFE	-60°C up to 200°C

Selection of materials

It shall be noted that the selection of the materials considers the applicable service conditions with respect to type of media, flow velocity, media temperature, etc. 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. Refer to DNV-RU-SHIP Pt.4 Ch.6 Sec.2.

Stainless steel grade 1.4571 is not suitable for use in piping systems with stagnant seawater.

Pipe couplings with pressure-tight joint on a thread

Pipe coupling where pressure-tight joints are made on the threads with parallel or tapered threads are not approved for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur as per DNV-RU-SHIP Pt.4 Ch.6 Sec.9 §5.2.6. Pipe coupling is limited to the following applications solely:

1. CO₂ systems inside of protected spaces and CO₂ cylinder rooms;
2. Threaded joints for direct connectors of pipe lengths with tapered thread shall be allowed for:
 - a. Class I, outside diameter not more than 33.7 mm;
 - b. Class II and class III;
3. Threaded joints with parallel thread shall be allowed for class III.

An overview of threaded pipe couplings with limitations due pressure-tight joint on a thread is as follows:

Designation	Coupling type
EGV – NPT	Straight standpipe connector
GAIV – NPT	Straight female connector
GEV – R/M – keg. GEV – NPT	Male stud connector
LEV – R/M – keg. LEV – NPT	Male stud barrel tee
MAV – NPT	Pressure gauge connector
MAEV – NPT	Pressure gauge connector standpipe
TEV – R/M – keg. TEV – NPT	Male stub branch tee
WEV – R/M – keg. WEV – NPT	Male stud elbow
RI RI – BSPP – NPT – f	Straight reducer
EGVD – NPT	Swivel connector

Type Approval documentation

Tests carried out

Tightness test, Burst pressure test, Vacuum test, Pull-out test, Repeated assembly test, Combined vibration and pressure pulsation test, Fire resistance test, Oxygen shock test

Marking of product

For traceability to this type approval, each coupling is at least to be marked with:

Element	Marking scope	Example
Connector body	Manufacturer sign	▼ or V71
Nut	Manufacturer sign	▼ or V71
Sleeve	Manufacturer sign	▼ or V71

Periodical assessment



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For retention of the Type Approval, a periodical assessment as per DNV-CP-0338 Sec.4 shall be performed by a DNV Surveyor in order to verify that the conditions for the Type Approval are complied with. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>.