



# TYPE APPROVAL CERTIFICATE

Certificate no.:  
**TAP00000HU**  
Revision No:  
**4**

## This is to certify:

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

with type designation(s)  
**Tube Fittings and Accessories according to DIN 2353 / ISO 8434-1**

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:** See certificate  
**Max. working press.:** up to 800 bar. See certificate.  
**Sizes:** Tube outer diameter from 4 mm up to 42 mm

Issued at **Hamburg** on **2024-06-13**

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

for **DNV**

DNV local unit: **Augsburg**

Approval Engineer: **Hagen Markus**

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

Metallic tube couplings made of stainless steel according to DIN 2353 / ISO 8434-1.  
 Reference: VOLZ Stainless Steel Catalogue (316Ti) Tube Fittings and Accessories

## Joining methods

1. Cutting rings 24° cone end as per DIN 3861  
 SDR – metallic sealing, single edge, PDR – metallic sealing, double edge
2. Pre-formed 24° Tube ends according to VOLZ Installation guidelines: MA-SS/CS 01.0-en  
 with soft seal made of FKM

## Fittings

This type approval includes Tube Fittings as specified in the Volz Carbon Steel Catalogue “Tube Fittings and Accessories”. The following couplings 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

## Tube fittings with limitation as specified in the DNV RU SHIP Pt.4 Ch.6

### Bulkhead and deck fittings

#### Application tank walls, watertight decks and bulkhead

Bulkhead coupling types screwed types GSV and WSV are not approved through tank walls, watertight decks and bulkheads. For the aforesaid application type ESV shall be used.

#### Application A – class bulkheads and decks (fire divisions)

For application through fire divisions a separate type approval is required for type GSV and WSV.  
 Bulkhead coupling types ESV may be used on the condition that the wall thickness of the connected tube shall be at least 3mm. (Refer to SOLAS Chapter II-2, Regulation 9.3)

**Pipe connectors where pressure -tight joints are made on the threads** are limited in the application as follows:

Pipe connector design	Range of application <sup>1</sup>	
..with tapered or parallel thread	not approved for toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur	
..with parallel thread	approved for pipe class III	up to outside diameter 60.3mm
..with tapered thread	approved for pipe class I	up to outside diameter 33.7mm
	approved for pipe class II, III	up to outside diameter 60.3mm

**Note**

<sup>1</sup> Refer to DNV Rules Pt.4 Ch.6 – Section 9 – 5.2.6.

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 – WD	Straight reducer

All other tube fittings with thread connection not listed in the above table may be used without limitations.

## Materials

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

### 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.

### Sea water application

The term sea water application includes piping systems conveying sea water and piping systems installed on the open deck.

The stainless-steel materials 1.4571 (AISI 316Ti) are approved for sea water systems.

Even the stainless-steel grade 1.4571 cannot be considered immune to attack under all situations, avoidance of stagnant seawater conditions and removal of welding oxides after welding are some of the important factors to the successful use in piping systems for sea water and installation on open deck.

### References

- DNV Rules Pt.4 Ch.6 – Section 2 – Materials

### Tubes

Tubes according to EN 10216-5 or equivalent are to be used.

Volz Assembly instruction: MA-SS 02.2 “Tube Assembly” to be observed.

In addition the following DNV RU SHIP Rules are to be observed

- Pt.2 Ch.2 Metallic material, Sec. 5 Steel pipes and fittings, Para. 2 Pipes for pressure systems
- Pt.4 Ch.6 Piping systems, Sec. 9, Minimum wall thickness - Table 2 (carbon steel)
- Sec. 2, Materials - Table 3 Material certificates

### Application/Limitation

The Volz Tube Fittings according to DIN 2353 / ISO 8434-1 are type approved for application in pipe systems of pipe class I, II and III.

The connectors are classified as “Compression couplings, Bite type” according to DNV RU SHIP Pt. 4 Ch. 6, Sec. 9 - Table 8 Examples of mechanical joints.

Approved applications according to Table 9 Application of mechanical joints. Connectors with elastomeric seals are approved for pipe systems classified “wet” or “fire endurance test not required.”

For installation in pipe systems classified “dry” or Dry/wet” limitation according to “Footnotes – Fire resistance capability” of table 9 are to be observed.

The connector systems are not approved for application in high pressure fuel injection systems of combustion engines.

### Size range and nominal working pressure PN<sup>1, 2</sup>

Product line	Tube OD (mm)	PN (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

<sup>1</sup> Individual nominal pressures of the fittings in accordance with Volz Carbon Steel Catalogue “Tube Fittings and Accessories” is to be observed.

<sup>2</sup> Max working pressure depends on tube material and wall thickness.

### Service pressure at elevated temperatures

The nominal pressure PN are to be reduced as follows:

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

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

### Temperature range example

Tube fittings with FPM sealing	Media: -25°C up to +200°C
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### 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

#### Assembling

Tube connections are to be made by using tube fittings manufactured by VOLZ solely.

#### Cutting ring joining

For assembly of the fittings the VOLZ Assembly instructions: MA-CS 02.1,2, and 3 are to be observed. In addition, the general instructions MA-SS-02.1.

#### Pre-formed 24° Tube ends

Tube end forming machine and tools according to VOLZ Installation guidelines: MA-SS/CS 01.0-de/en are to be used.

#### 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

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 during renewal of the certificate.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

#### End of certificate