



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP000018E
Revision No:
3

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-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
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: up to +250°C. Refer to certificate.
Max. working press.: up to 800bar. Refer to certificate.
Sizes: Pipe outer diameter 4mm up to 42mm

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

This Certificate is valid until **2029-04-29**.

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 carbon steel according to DIN 2353 / ISO 8434-1.
 Reference: VOLZ Carbon Steel Catalogue Tube Fittings and Accessories

Joining methods

- Cutting rings 24° cone end as per DIN 3861
 SDR – metallic sealing, single edge, PDR – metallic sealing, double edge
- 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
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 ¹	
..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

¹ 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 non alloy steel	Component	Standard/Specification
Pipe coupling, nut and cutting ring	C15 (1.0401)	pipe coupling	DIN EN 10277-2, DIN 3859, DIN EN 10277-3
	C22 (1.0402)		
	C35 (1.0501)		
	C45 (1.0503)	pipe coupling and nut	
	11SMnPb30 (1.0718)	cutting ring	
	C10C (1.0214)	nut	

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.

Reference: DNV Rules Pt.4 Ch.6 – Section 2 – Materials

Tubes

Tubes according to EN 10305-4 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^{1,2}

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

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

² 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]	≥-20 and ≤120	150	200	250
Pressure reduction factor	1	0.89	0.81	0.72

Temperature range

Material	Temperature range
Non-alloy steel	-20°C ¹ up to +250°C
FPM	-25°C up to +200°C
NBR	-30°C up to +100°C
PTFE	-60°C up to +100°C

Note

¹ Environmental temperature -40°C.

Temperature range example

Tube fittings with NBR sealing	Media: -20°C up to +100°C Ambient: -40°C up to +100°C
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Type Approval documentation

Tests carried out

Repeated Assembly Test, Tightness test, Burst Pressure Test, Pull-out test, Vacuum test, Combined Impulse and Vibration Test, Fire resistance tests (wet condition).

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-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
Coupling	Manufacturer sign	 and/or MF
Nut	Manufacturer sign	 or MF or neutral
Cutting ring	Manufacturer sign	JS or  or MF or neutral

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