

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Needle Valves**

with type designation(s)

Shut-off valve type series: D-K; D-S; D-W; D-M; D-F; D-H; E-K; E-S; E-W; MAV

Issued to

**Armaturen- und Metallwerke Zöblitz GmbH
Marienberg, Germany**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves****Application :****Products approved by this certificate are accepted for installation on all vessels classed by
DNV GL.****Temperature range: see certificate
Max. working press.: up to PN 400
Sizes: DN 4 to DN 15**Issued at **Hamburg** on **2019-10-30**for **DNV GL**This Certificate is valid until **2024-10-29**.DNV GL local station: **Essen**Approval Engineer: **Ana Cristina Do Carmo Insfran**.....
**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.



Product description

Shut-off valves with or without test connection and with or without separate shut-off test connection according to recognized standards and according to WS 32024/96.

Nominal sizes: DN 4 to DN 15

Materials

Materials Valve body ¹	Valve type	Temperature Range (°C)	Nominal Pressure (bar)
1.0460	D-K;D-H;E-K;MAV	-10 to 480	up to PN 400
1.4571	D-S;D-F;E-S;MAV	-10 to 550	up to PN 400
1.4539	D-S;E-S;MAV	up to 400	up to PN 400
1.4462	D-S;E-S;MAV	-10 to 280	up to PN 400
2.4360	D-S;E-S;MAV	-10 to 550	up to PN 400
1.5415	D-W;E-W;MAV	-20 to 530	up to PN 400
2.0402	D-M;E-M;MAV	-10 to 250	up to PN 250

Note¹: or of equivalent material quality

Gaskets: Graphite, PTFE, Toroidal Ring

Pressure reduction factors at elevated temperatures

Temperature (°C)	C-Steel Unalloyed	Low Alloyed Steels	Stainless Steels
20	1.00	1.00	1.00
50	1.00	1.00	0.95
100	1.00	1.00	0.85
150	0.89	0.93	0.77
200	0.81	0.87	0.71
250	0.72	0.81	0.67
300	0.65	0.75	0.63
350	0.59	0.69	0.60
400	0.54	0.63	0.58
450	0.50	0.57	0.57
500	N/A	0.52	0.56
550	N/A	N/A	0.55
600	N/A	N/A	0.50

Appication

The Shut-off valves are approved for installation of pressure gauges in ship piping and machinery systems

Operating media²: Non flammable gases, sea water, water, air, oil.

Note²:

Fuel oil, lubrication oil, hydraulic oil and thermal oil are in this context regarded as "Flammable liquids". See DNV GL Rules, Pt. 4 Ch. 1, Section 3 – Design principles

Limitation

Shut-off valves may not be used for cryogenic fluids with an operating temperature $< -55^{\circ}\text{C}$, flammable gases and flowing media specified as dangerous and toxic fluids.

Tests carried out /Production Testing

The shut-off valves have been tested in accordance with the following standards:

Test standard: EN 12266-1 / DNVGL Pt.4 Ch.6 DNV GL CP 0186	Purpose
Title	Test reference
Shell strength	P10 and P11
Seat tightness	P12

To confirm the pressure containing capability of the shell against internal pressure
Test pressure = 1,5 times the design pressure

To confirm the capability of the seat(s) to comply with the specified leakage rate.

- at the time of manufacture
- In the direction(s) for which the valve is designed

Test pressure = 1,1 times the design pressure or 6 ± 1 bar.
Minimum test duration according to EN 12266-1
The lower value applies in each case.

Marking of product

For traceability to this type approval the products are to be marked with:

- Manufacturers name or trade mark
- Valve type designation and body material grade
- Size
- Maximum design pressure and temperature
- Arrow to indicate direction of flow on one way flow valves

Type Approval documentation

Qualitäts-Werkstandard WS 32-024/96 – R3-19, dated 2019-10-01
Qualitäts-Werkstandard WS 25-0009/96, rev. 3, 2017-07-01
ISO 9001- Auditbericht, dated 2019-09-28
Type Approval Assessment Report, dated 2019-09-26
Type approval: 82402-92 HH
DB-Mappe_AV_17_10_2019, dated 2019-09-05
Manufacture over ... sheet valve types
Manufacture spec. no. VA K-024/5/02 rev. 5, 2017-07-01



Job Id: **262.1-032111-1**
Certificate No: **TAP00001WZ**

Periodical assessment

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out.

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered.

The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

END OF CERTIFICATE