

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Quick Closing Valve / Quick Opening Valve**with type designation(s)
AW 33..., AW 34...

Issued to

**Armaturen-Wolff Friedrich H. Wolff GmbH & Co. KG
Hamburg, 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 :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.****Max design press. 16bar, 40 bar.
Temperature range: Refer to certificate.
Sizes: DN15 up to DN250**Issued at **Hamburg** on **2019-11-15**for **DNV GL**This Certificate is valid until **2024-11-14**.DNV GL local station: **Hamburg CMC**Approval Engineer: **Hagen Markus**.....
**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

Quick-Closing Valves of type AW 33...(FSV, FSV FAB A with Bellow seal) and
 Quick – Opening Valves of type AW 34... (FSÖV with Bellow seal). Both types spring loaded.

Type designation

Quick closing: AW 33 X Y Z (TS)
 Quick opening: AW 34 X Y Z (TS)

X = Body material and valve body form

0	CuSn5Zn5Pb5-C [CC491K]	straight
1	CuSn5Zn5Pb5-C [CC491K]	angle
2	GP240GH [1.0619]	straight
3	GP240GH [1.0619]	angle
4	EN-GJS-400-18U-LT [EN-JS1049]	straight
5	EN-GJS-400-18U-LT [EN-JS1049]	angle
6	GX5CrNiMo19-11-2 [1.4408]	straight
7	GX5CrNiMo19-11-2 [1.4408]	angle

Y = Valve actuation

0	manual actuation
1	(universal) hydraulic/pneumatic
7	single solenoids
8	double solenoids

Z = Actuator design

4	compact design	Only for type AW33
6	(universal) hydraulic/pneumatic	Both types AW33, AW34
TS	solenoid with thermal link connector	Design acc. to drawing 33484000_12.7.4_TS

Technical data

Materials

Body	EN-GJS-400-18U-LT [EN-JS1049], GP240GH [1.0619], CuSn5Zn5Pb5-C [CC491K], GX5CrNiMo19-11-2 [1.4408]
Disc, stem, seat bush	X 20Cr 13 [1.4021]
Bellow seal	Stainless steel
Sealings stem (O-Rings)	FKM

Nominal pressure PN

CuSn5Zn5Pb5-C [CC491K], EN-GJS-400-18U-LT [EN-JS1049]	Up to PN16
GP240GH [1.0619], GX5CrNiMo19-11-2 [1.4408]	Up to PN40

Temperature range

EN-GJS-400-18U-LT [EN-JS1049] / GP240GH [1.0619]	- 10°C up to 300°C
CuSn5Zn5Pb5-C [CC491K]	- 55°C up to 225°C
GX5CrNiMo19-11-2 [1.4408]	- 55°C up to 300°C

Application/Limitation

The quick closing/opening valves of type AW 33 and AW 34 are type approved for application on tanks and in piping systems.

For installation and operation of the valves the following "Armaturen Wolff" instructions are to be observed:

- AN 7.4-4 "Operation Manual FSV, FSÖV, SSVF"
- AN 7.4.13 "Operating Instruction Electric Quick-Closing valve systems"

Limitation

Quick closing valves with bellow shaft seals.

For installation in piping system with pressure pulsation, e.g. fuel supply lines of diesel engines, proof of endurance strength for the bellow is to be provided for each installation.

Type Approval documentation

Actual TAP00001Z7

Drawings

- "DOCUMENTATION for TYPE APPROVAL – FSV, FSV FABA, FSÖV", 2019
- "DOCUMENTATION for TYPE APPROVAL – Electric Spring-loaded Quick-closing Valve System", 2019

Drawings of modified valves – Electric actuator (double coil)

Drawing	Designation	Issue
33484_D1	Quick closing valve/PN16/DN15-50	2018-11-14
33484_D1x		
33484_D2	Quick closing valve/PN16/DN65-150	
33484_D2x		
33484_DSA	Electric actuator, double coil	

Actuator types electric

Drawing	Valve sizes	Designation
33474000_12	DN15-50	Electric actuator DN15-50, single solenoid
33484000_12		Assembly drawing and parts list, double solenoid
33474000_14	DN65-150	Electric actuator DN65-150, single solenoid
33484000_14		Assembly drawing and parts list, double solenoid
33484000_16	DN200	Assembly drawing and parts list, double solenoid

Operating instructions

- AN 7.4-4 "Operation Manual FSV, FSÖV, SSVF", Version 7
- AN 7.4-13 "Operating Instruction Electric Quick-Closing valve systems", Version 6
- DNVGL Assessment report of production place Hamburg, 2019-09-11

Job Id: **262.1-030170-1**
Certificate No: **TAP00001Z7**

Previous legacy GL certificate 67 851 – 75 HH

Test reports

- No.: 0100.004.75 dated 13.02.1975 and No. 60/02
- Test laboratory Paconsult no.: 137-03, 2002-06-18 / 2002-03-11 and 13-0544, 17th May 2013 (Dry heat test)
- Test laboratory WTD 71, Kiel - Temperature release test

Drawings

- Quick closing valves actuator release
33404, 33504, 33414, 33514, 33214, 33314, 33474, 33484
- Quick-closing / Quick-opening valves with bellow sealing and actuator release
33406, 33506, 33416, 33516, 33206, 33306, 33216, 33316

Actuator types hydraulic / pneumatic


Drawing	Diameter	Valve sizes	Designation
33404000_12	40	DN 15-50	Actuator hydraulic/pneumatic
33404000_24	50	DN 65-150	Actuator hydraulic/pneumatic
33484000_12.7.4_TS			Thermal link connector

GL Approval reference no: 12-015066, 13-065371, 14-104762

Tests carried out

Pressure test, Vibration test with acceleration of 0.7g, Dry heat test (55°C), IP55 test acc. to DIN EN 60529, Temperature release test on thermal link connector under ISO 15540/41 test conditions.

Marking of product

Scope	Example
Manufacturers name, short sign	
Type	AW33414
Ser.Nr.	123456
Nominal size / pressure	DN50 / PN16
Body material	JS1049
Heat no. body / lit	00571/U29
Foundry marking	
Flow direction	

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNVGL-CP-0338, Sec.4.

End of certificate