Danfoss AVQM-WE Flow and Temperature Controller User Guide

Contents

Danfoss AVQM-WE Flow and Temperature Controller

Specifications

- **Product Models:** AVQM-WE (PN 25), AVQMT-WE (PN 25), AVQMT-WE/AVT (PN 25)
- **DN Sizes:** 15-25 (p = 0.2), 32-50 (p = 0.2)
- **Integrated control** valve for flow & temperature control
- **Maintenance:** Maintenance Free

Product Usage Instructions

Safety Notes

- Before assembly and commissioning, carefully read and observe the instructions to prevent injury or device damage.
- Assembly, start-up, and maintenance should only be done by qualified personnel.
- Before working on the controller, ensure the system is depressurised, cooled down, emptied, and cleaned following the manufacturer’s instructions.

Disposal

- Dismantle the product and sort components for recycling or disposal following local regulations.

Definition of Application

- The controller, in combination with electrical actuators AMV(E), is used for flow and temperature control of water and water glycol mixtures in heating, district heating, and cooling systems.
- AVQM(T)-WE PN 25 can be combined with electrical actuators AMV(E), and AVQMT-WE PN 25 can be combined with a temperature actuator AVT or a safety temperature monitor STM.

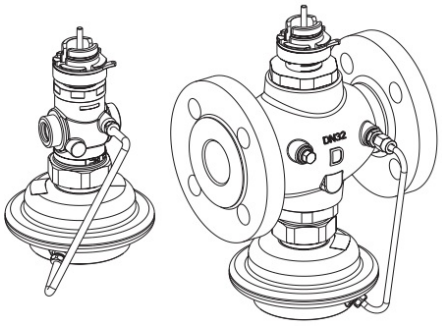
Assembly

- **Admissible Temperatures:** Control valve up Refer to the instructions for the electrical actuator AMV(E) for details.
- For the AVQMT-WE controller, refer to the instructions for the temperature actuator AVT or the safety temperature monitor STM.

MODELS

- Flow & temperature controller with integrated control valve AVQM-WE, AVQMT-WE www.danfoss.com.

AVQM-WE (PN 25)



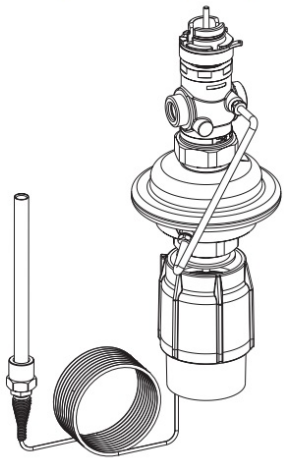
DN 15-25
Δp = 0.2

DN 32-50
Δp = 0.2

AVQMT-WE (PN 25)

DN 15-25
Δp = 0.2

AVQMT-WE/AVT (PN 25)



DN 15-25
Δp = 0.2

Precautions

Safety Notes

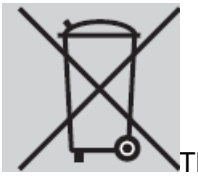
- Prior to assembly and commissioning, to avoid injury to persons and damage to the devices, it is necessary to carefully read and observe these instructions.
- Necessary assembly, start-up, and maintenance work must be performed only by qualified, trained and authorised personnel.

Before assembly and maintenance work on the controller, the system must be:

- depressurised,
- cooled down,
- emptied and

- cleaned.
- Please comply with the instructions of the system manufacturer or system operator.

Disposal

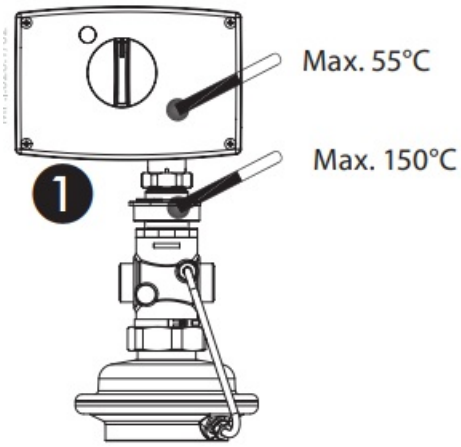
-  This product should be dismantled and its components sorted, if possible, into various groups before recycling or disposal.
- Always follow the local disposal regulations.

Definition of Application

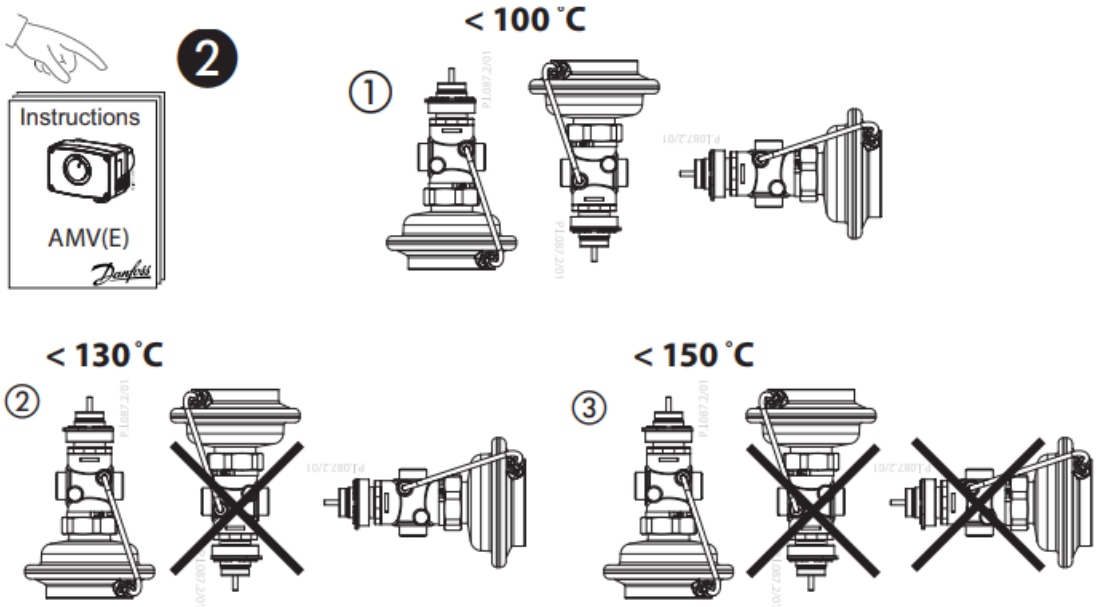
- The controller is in combination with electrical actuators AMV(E) used for flow and temperature control of water and water glycol mixtures for heating, district heating and cooling systems.
- AVQM(T)-WE PN 25 could be combined with electrical actuators AMV(E) 10/13 (DN15 only), AMV(E) 20/23, AMV 20/23 SL, AMV(E) 30/33, AMV 30, AMV 150.
- AVQMT-WE PN 25 could be combined with temperature actuator AVT or safety temperature monitor (actuator) STM.
- The technical parameters on the product labels determine the use.

Assembly

- Admissible Temperatures ❶



- Admissible Installation Positions ❷



1. **Media temperature** <100°C: Any position
2. **Media temperature** 100°C to 130°C: Horizontal and control valve up
3. **Media temperature** >130° to 150°C: Control valve up

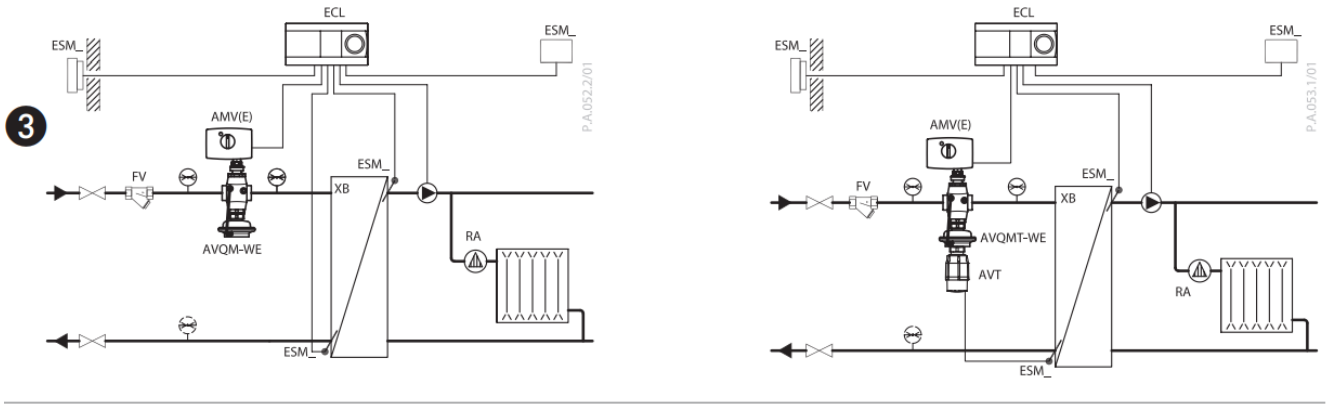
Other details:

See instructions for electrical actuator AMV(E). In case of AVQMT- WE controller, see instructions for temperature actuator AVT or safety temperature monitor (actuator) STM as well.

Installation Location and Installation Scheme

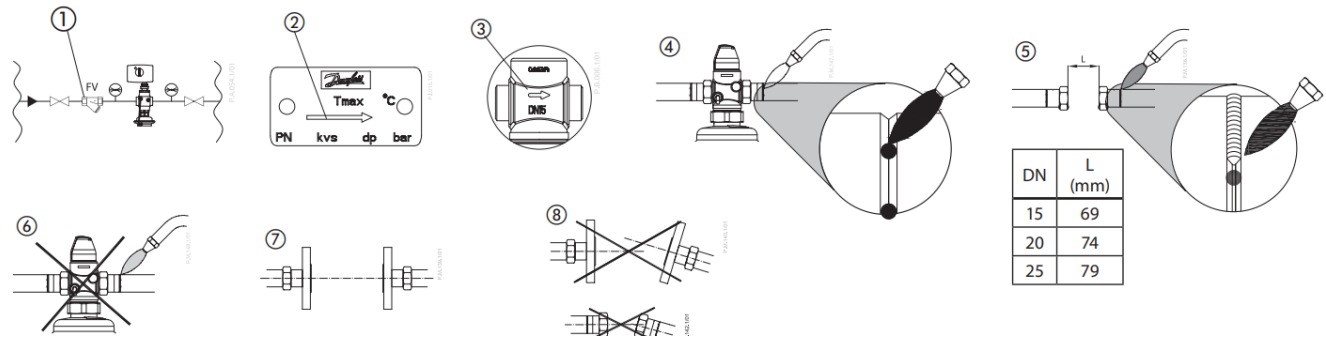
- AVQM(T) flow and return mounting ❸

❸



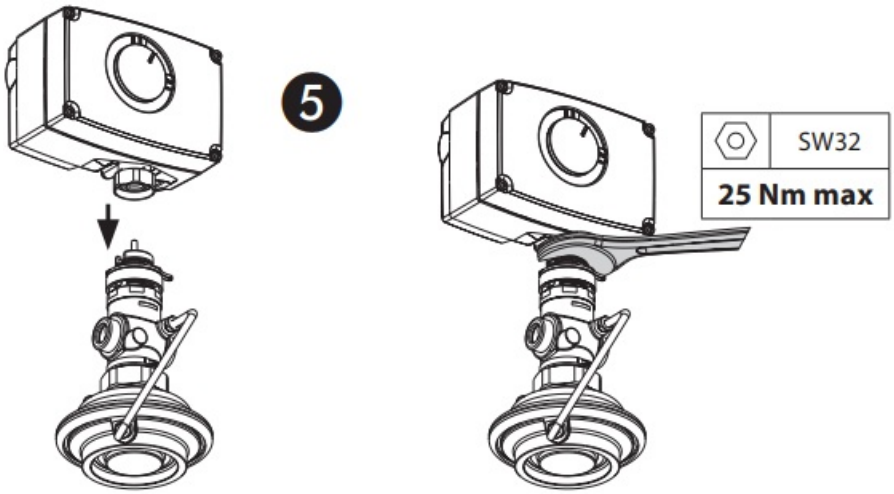
- Valve Installation ❹

❹



1. Clean the pipeline system before assembly.
2. The installation of a strainer ① in front of the controller is strongly recommended.
3. Install valve
   - The flow direction indicated on the product label ② or on the valve ③ must be observed.
   - Spot weld to the pipeline ④.
   - Remove the valve and seal before final welding. ⑤⑥
   - If the valve and seals are not removed, high welding temperatures may destroy them.
   - Flanges ⑦ in the pipeline must be in parallel position, and sealing surfaces must be clean and without any damage.
   - Tighten screws in flanges crosswise in 3 steps up to the maximum torque (50 Nm).
4. **Caution:** Mechanical loads on the valve body by the pipelines are not permitted ⑧.

Mounting of electrical actuator ❺

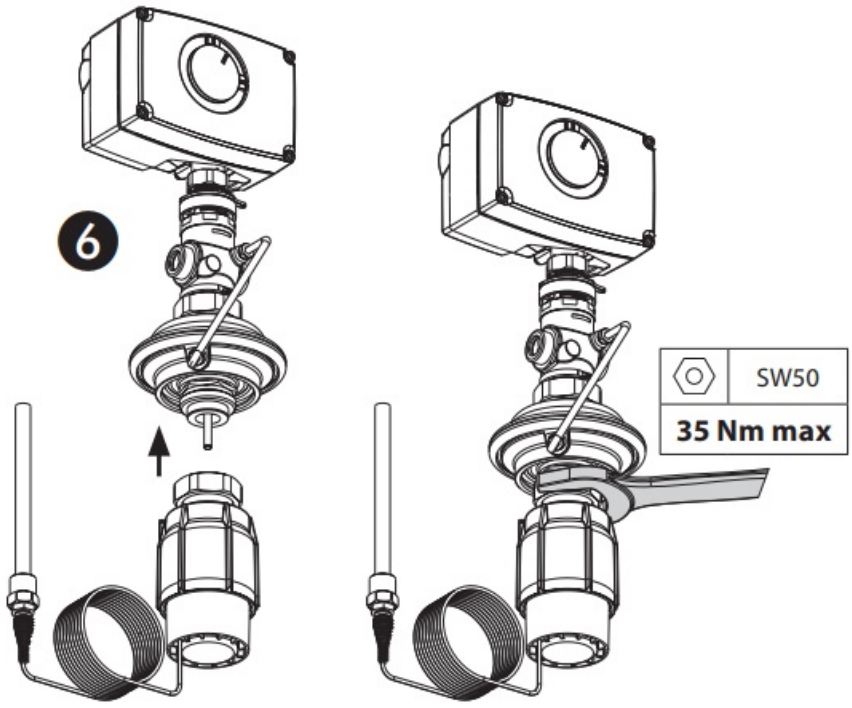


- Place the electrical actuator AMV(E) on the valve and tighten the union nut with wrench SW 32.
- Torque 25 Nm.

Other details:

- See instructions for electrical actuator AMV(E).

Mounting of temperature actuator ❻



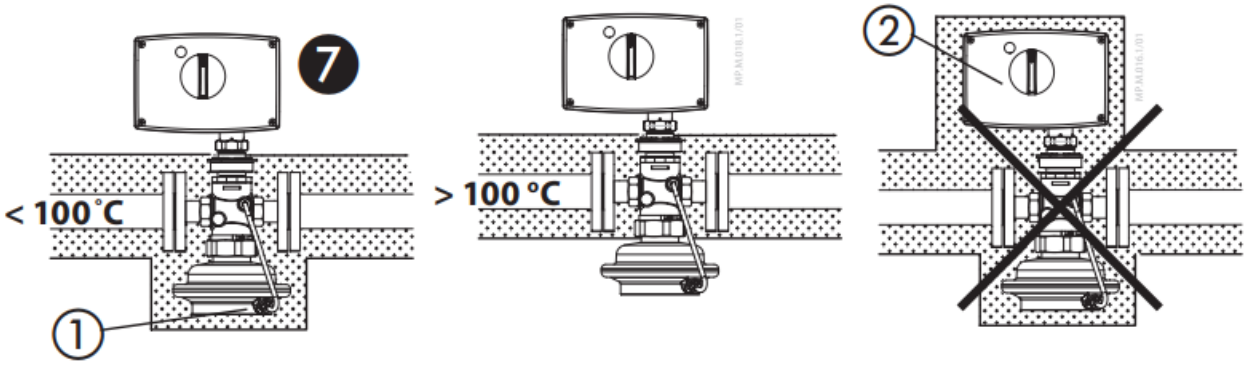
(relevant only at AVQM(T)-WE controllers)

- Place the temperature actuator AVT or STM at the diaphragm and tighten the union nut with the wrench SW 50.
- Torque 35 Nm.

Other details:

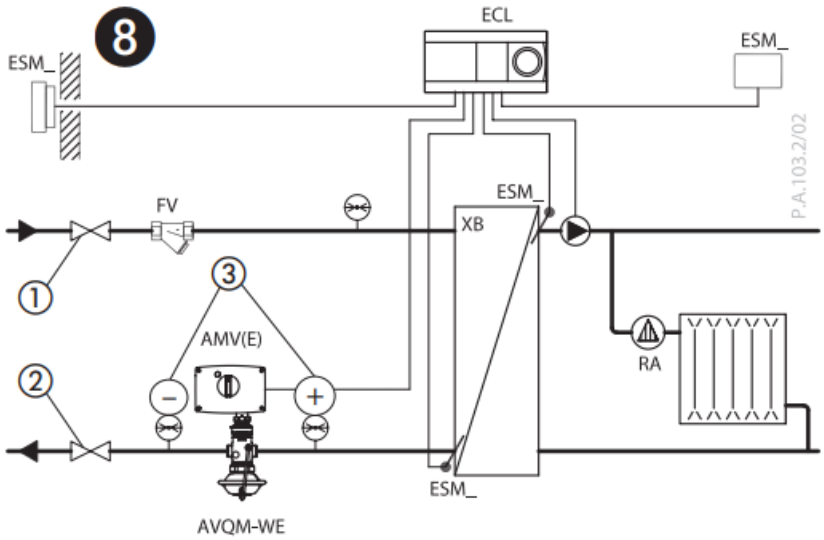
- See instructions for temperature actuator AVT or STM.

Insulation ❼



- For media temperatures up to 100 °C, the pressure actuator ① may also be insulated.
- Insulation of electrical actuator ② AMV(E) is not allowed.

Start-up ❽



Filling the system, first start-up

1. Open valves in the system.
2. Slowly open shut-off devices ① in the flow pipeline.
3. Slowly open shut-off devices ② in the return pipeline.

Leak and Pressure Tests

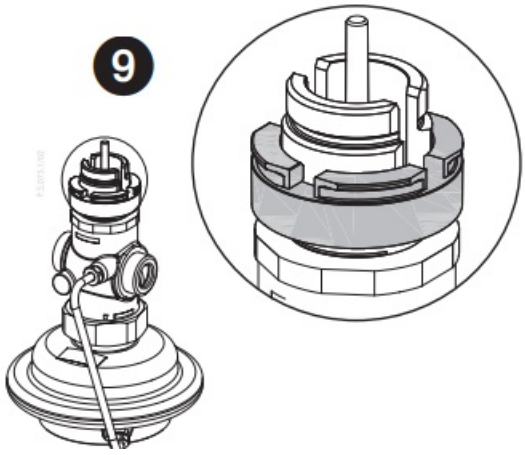
- Do not test the closed control valve with pressures of more than 16 bar. Otherwise, the valve may be damaged.
- Pressure tests should be carried out before the installation of the electrical actuator. This guarantees that the valve is opened.
- Before the pressure test, open the adjustable flow restrictor by turning it counterclockwise.
- Pressure must be gradually increased at the (+/-) connection ③.

- Non-compliance may cause damage to the actuator or the valve.
- A pressure test of the entire system must be carried out according to the manufacturer’s instructions.
- The maximum test pressure is: 1.5 × PN PN – see product label!

Putting out of operation

1. Slowly close shut-off devices ① in the flow pipeline.
2. Slowly close shut-off devices ② in the return pipeline.

Max flow limiting ❾



- The flow rate is adjusted using the limiting of the control valve stroke.

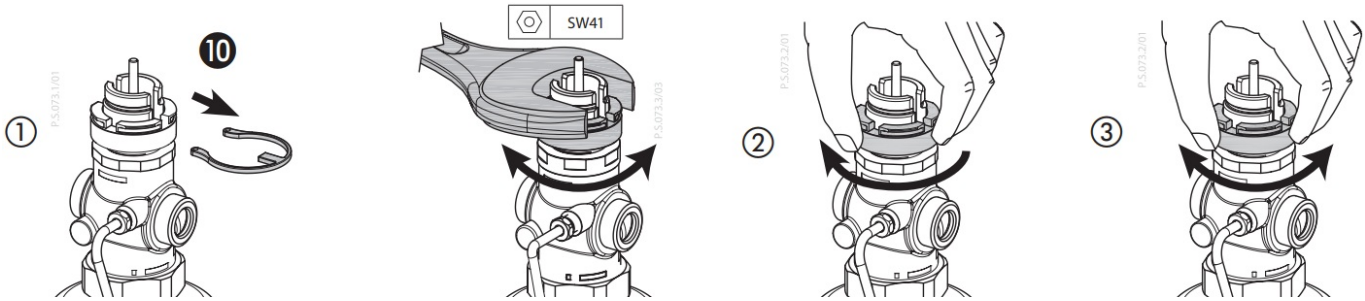
There are two possibilities:

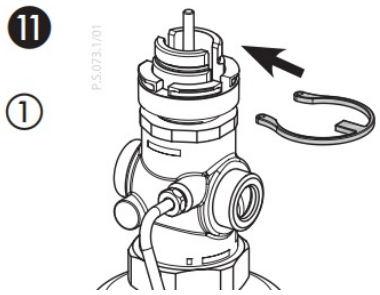
1. Adjustment with the flow adjusting curves,
2. Adjustment with the heat meter.

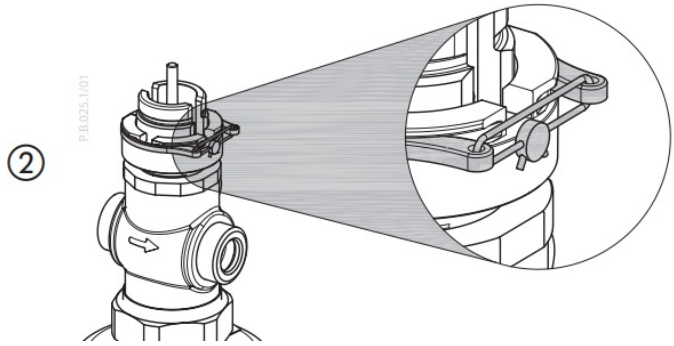
Pre-condition

- The setting should be carried out when the electrical actuator AMV(E) is dismounted.
- If the electrical actuator is mounted, the stem of the actuator must be retracted.

Adjustment with flow adjusting curves ❿

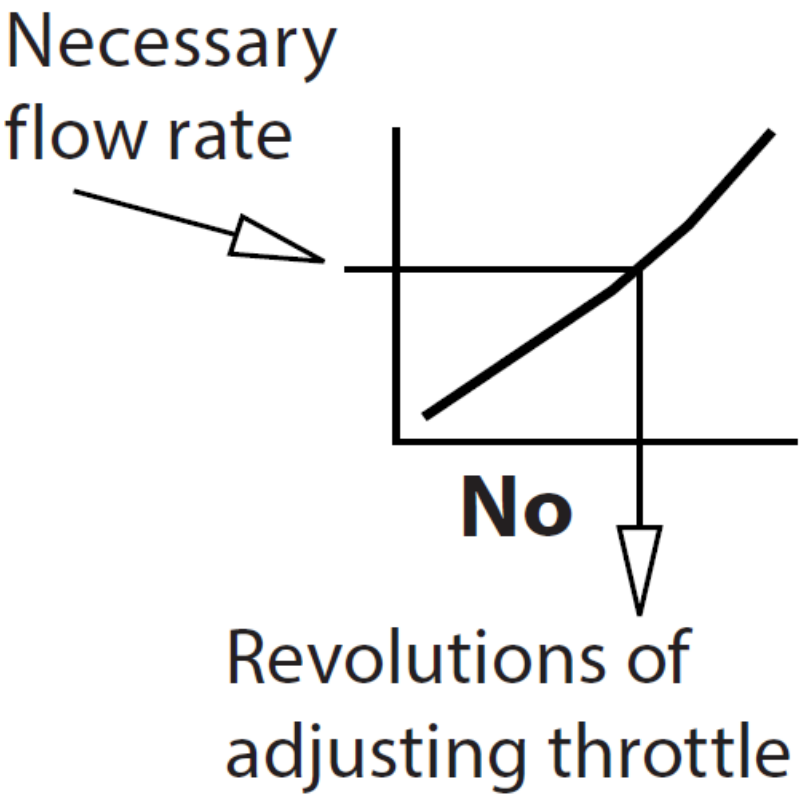






The system doesn’t need to be active to be adjusted.

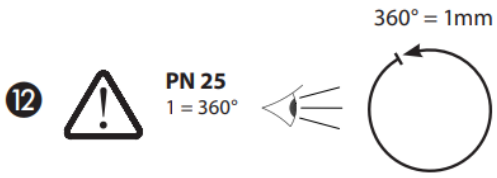
1. Remove the sealing ring ①
2. Close the control valve ② by turning the adjustable flow restrictor clockwise to its stop.
3. Select the flow adjusting curve in the diagram (see)

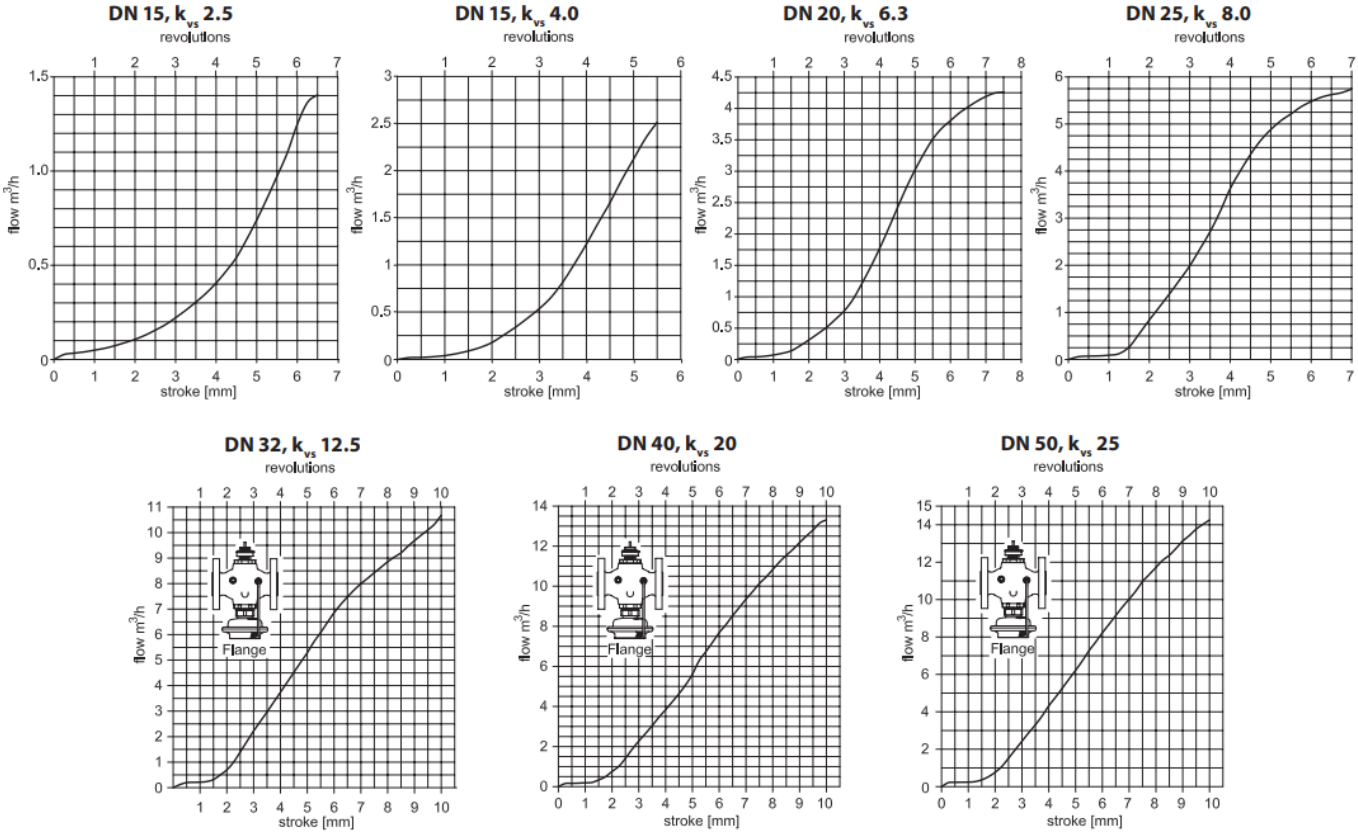


   - Open the control valve with the adjustable flow restrictor by a determined number of revolutions counterclockwise ③.
4. Indication of setting can be seen by comparing the lower end of the flow restriction nut to the marks on the housing.
5. The setting of the valve stroke is completed. Continue with step 2, Adjustment with Heat Meter.

   -  The setting may be verified with help of a heat meter if the system is in operation, see next section.

Flow Adjusting Curves





Adjustment with Heat Meter

- The system must be in operation. All units in the system ❽ must be completely open.
- turning counter clockwise ❿③ increases the flow rate
- Turning clockwise ❿③ decreases the flow rate.

After the adjustment has been completed:

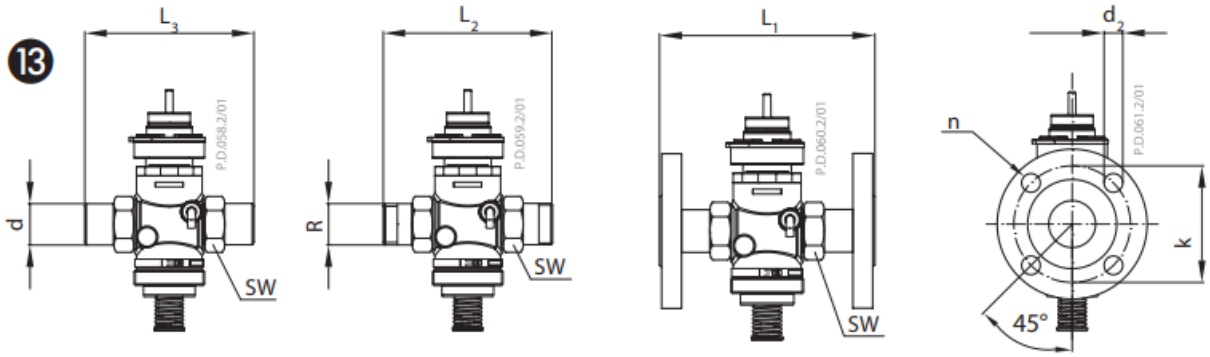
- If not yet done, install the actuator ❺① setting is completed.
- After assambling the sealing ring to the adjustable flow restrictor ① setting may be sealed ②.

Temperature setting

- (relevant only at AVQM(T)-WE controllers) See instructions for temperature actuator AVT or safety temperature monitor (actuator) STM.

Dimensions Weights

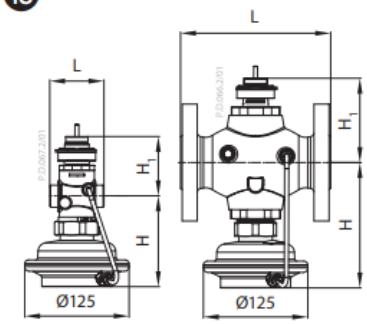
Dimensions, Weights



DN		**15**	**20**	**25**
SW	mm	32 (G ¾A)	41 (G 1A)	50 (G 1¼A)
d		21	26	33
R 1)		½	¾	1
L 2) 1		130	150	160
L2		120	131	145
L3		139	154	159
k		65	75	85
d2		14	14	14
n		4	4	4

1. Conical ext. thread acc. to EN 10226-1
2. Flanges PN 25, acc. to EN 1092-2

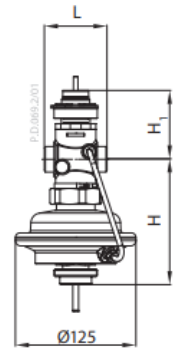
13



AVQM-WE PN 25 DN 15-25 | AVQM-WE PN 25 DN 32-50

AVQM-WE

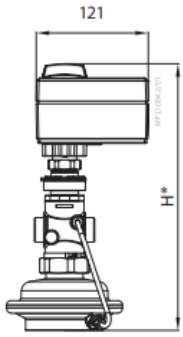
DN		15	20	25	32	40	50
L	mm	65	70	75	180	200	230
H	mm	109	109	109	150	150	150
H1	mm	76	76	79	101	101	101
Valve weight	kg	3.0	3.0	3.2	10.3	11.8	13.9



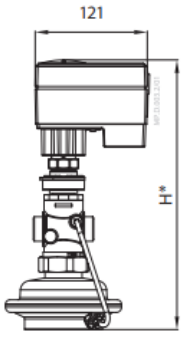
AVQMT-WE PN 25 DN 15-25

AVQMT-WE

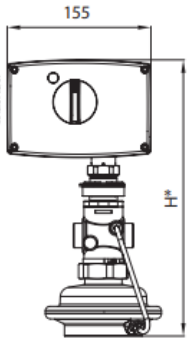
DN		15	20	25
L	mm	65	70	75
H	mm	131	131	131
H_1	mm	76	76	79



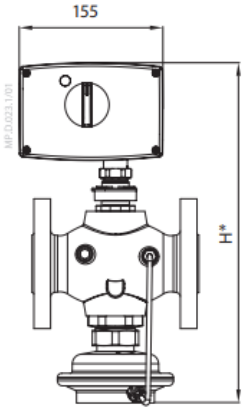
AMV(E) 10 + AVQM-WE (DN 15)



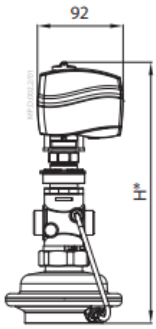
AMV(E) 13 + AVQM-WE (DN 15)



AMV(E) 2./3. + AVQM-WE (DN 15-25)

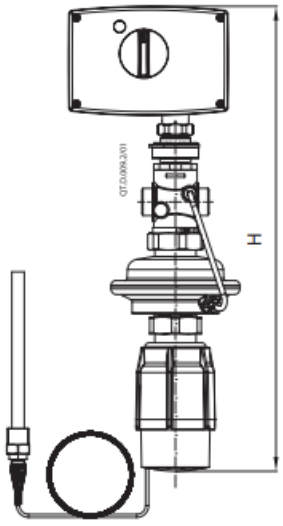


AMV(E) 2./3. + AVQM (DN 32-50)



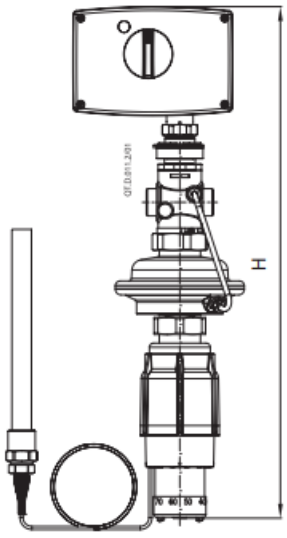
AMV 150 + AVQM-WE (DN 15)

DN			15	20	25	32	40	50
H*	AMV(E) 10	mm	295	-	-	-	-	-
	AMV(E) 13		292	-	-	-	-	-
	AMV(E) 2./3.		305	305	308	386	386	386
	AMV 150		293	-	-	-	-	-



AVT / AVQMT-WE / AMV(E)

DN			15	20	25
H	AMV/E 10	mm	442	-	-
	AMV/E 13	mm	445	-	-
	AMV/E 2.,/3.	mm	455	455	458



STM / AVQMT-WE / AMV(E)

DN			15	20	25
H	AMV/E 10	mm	486	-	-
	AMV/E 13	mm	489	-	-
	AMV/E 2.,/3.	mm	499	499	502

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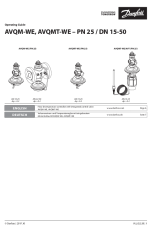
FAQ

- **Q: Can I use the product with other types of actuators?**
  - **A:** The product is designed to work with specific electrical actuators, as mentioned in the manual. Using other actuators may not be compatible.
- **Q: What are the recommended maintenance intervals?**
  - **A:** The product is labelled as maintenance-free, but periodic checks for proper functioning are recommended.

Documents / Resources

	Danfoss AVQM-WE Flow and Temperature Controller [pdf] User Guide AVQM-WE, AVQMT-WE new neck, AVQM-WE PN 25, AVQMT-WE PN 25, AVQMT-WE-AVT PN 25, AVQM-WE Flow and Temperature Controller, AVQM-WE, Flow and Temperature Controller, Temperature Controller, Controller

References

- User Manual