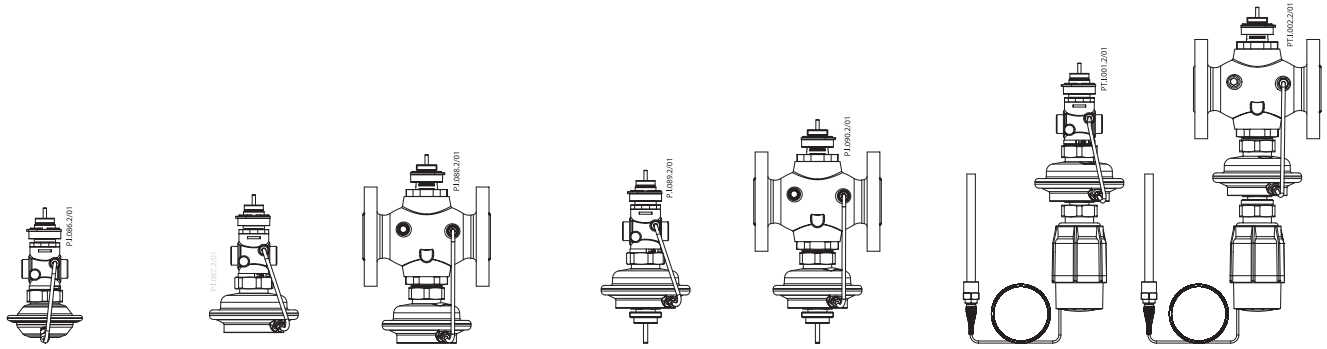
ENGINEERING
TOMORROW

Operating Guide

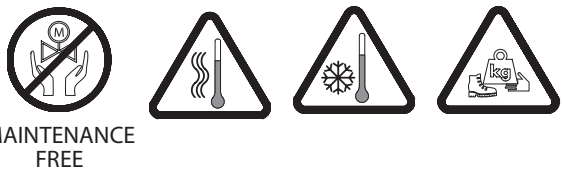
AVQM, AVQMT - / 73695110

AVQM, AVQMT – PN16 (DN 15-32) / PN25 (DN 15-50)

AVQM (PN 16) | **AVQM (PN 25)** | **AVQMT (PN 25)** | **AVQMT/AVT (PN 25)**

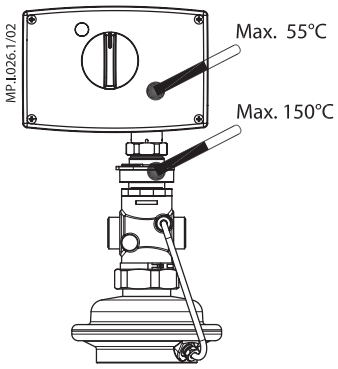


DN 15-32 Δp = 0.2 | DN 15-50 Δp = 0.2 | DN 32-50 Δp = 0.2 | DN 15-50 Δp = 0.2 | DN 32-50 Δp = 0.2 | DN 15-50 Δp = 0.2 | DN 32-50 Δp = 0.2



MAINTENANCE FREE

1



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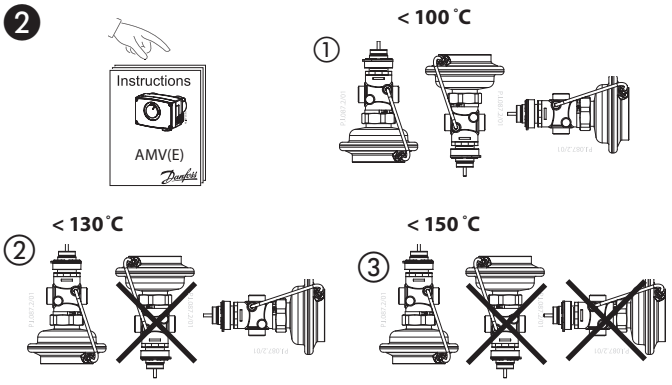

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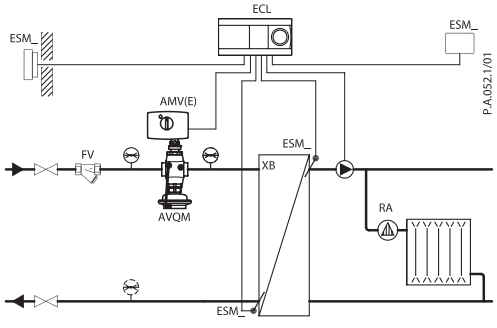

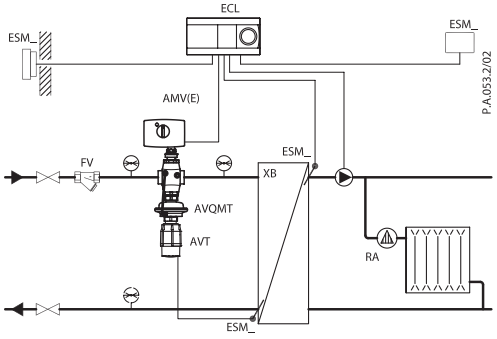

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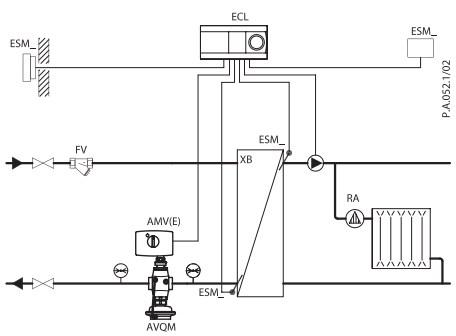

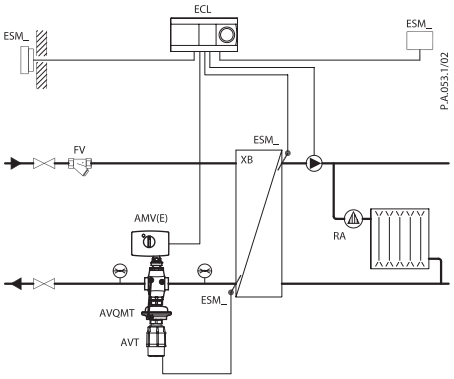

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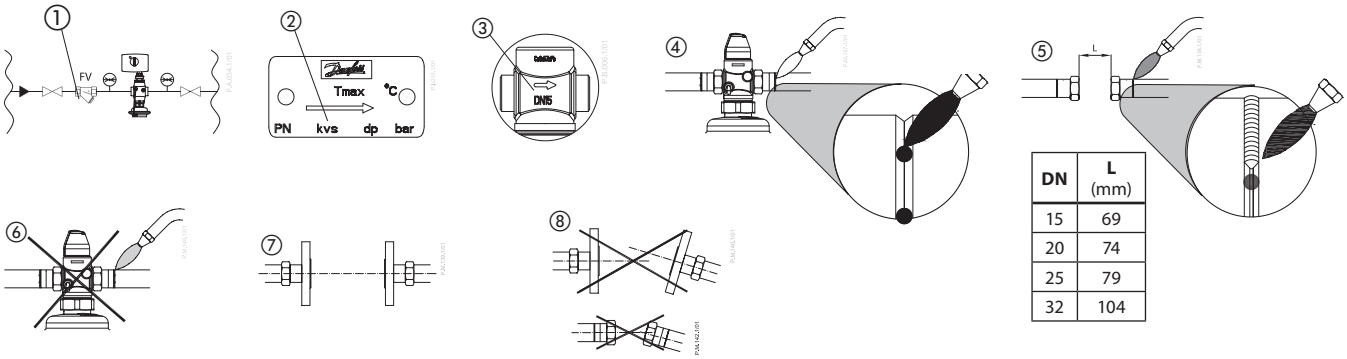
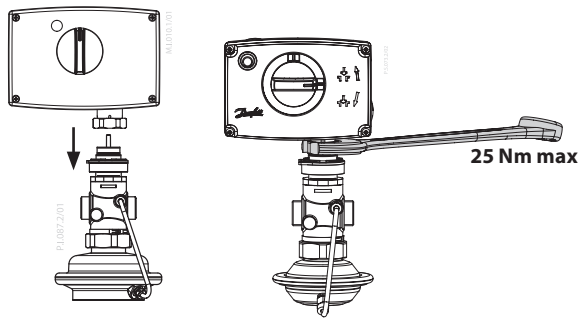


DN	L (mm)
15	69
20	74
25	79
32	104

5



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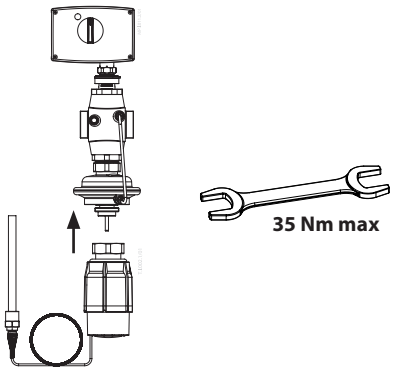

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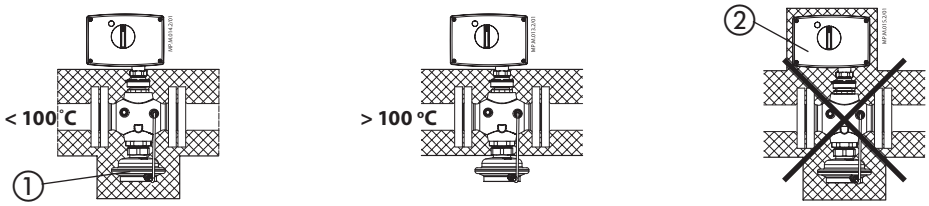

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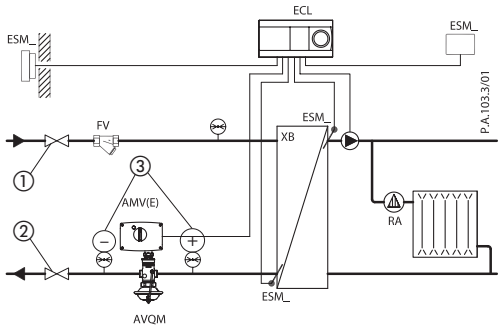
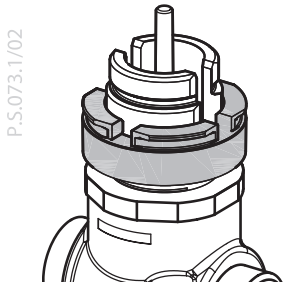
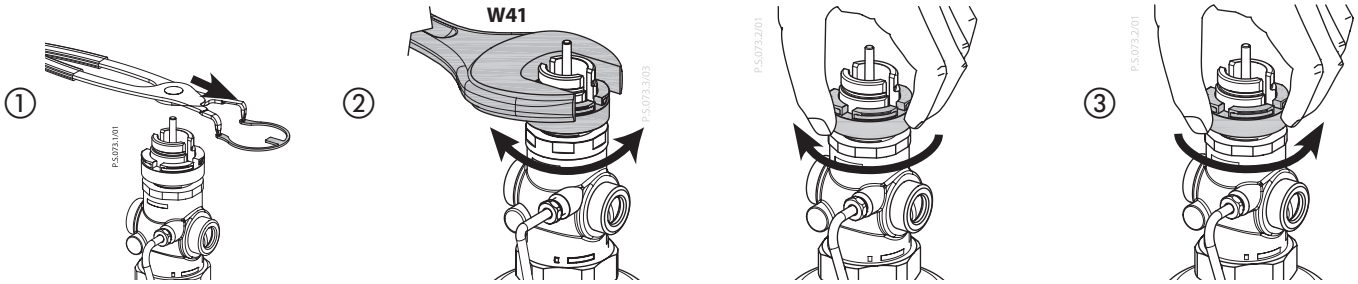

ECL
ESM_
ESM_
P.A.103.3/01
FV
ESM_
XB
1
3
AMV(E)
2
RA
ESM_
AVQM

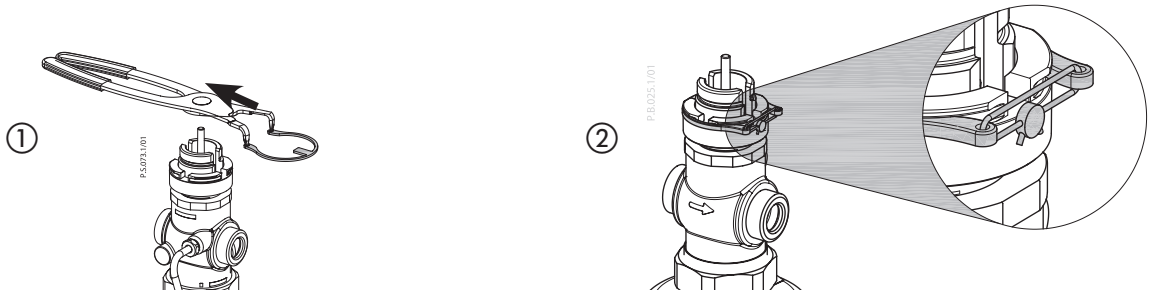
9


P.S.073.1/02

10


1
P.S.073.1/01
2
W41
P.S.073.3/03
P.S.073.2/01
3
P.S.073.2/01

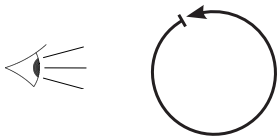
11


1
P.S.073.1/01
2
P.B.025.1/01

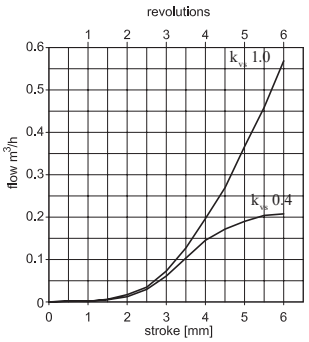
⑫

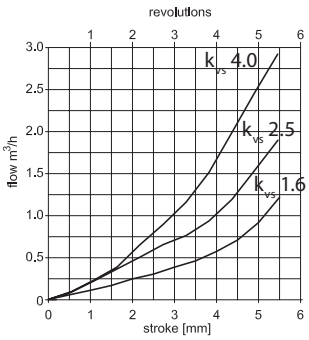
PN 16
1 = 360°

360° = 1mm



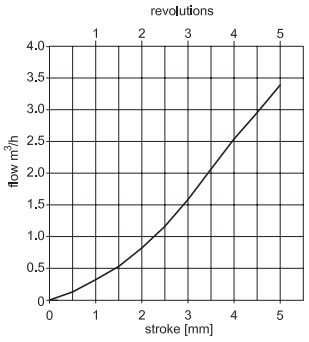
DN 15



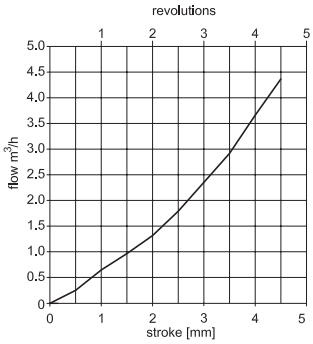


DN 20, k_{vs} 6.3

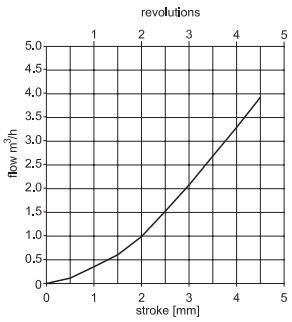
AVQM PN16 DN20 6,3 kvs - 003H6738



DN 25, k_{vs} 8.0



DN 32, k_{vs} 10

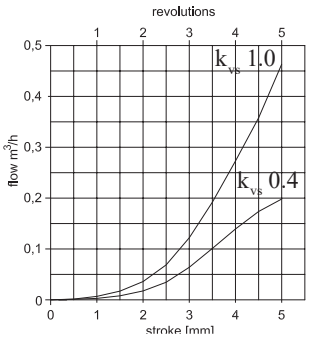


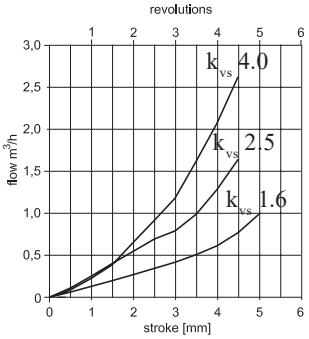
⑬

PN 25
1 = 360°

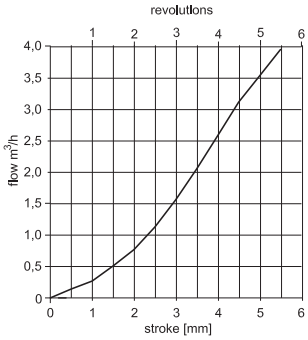
360° = 1mm

DN 15

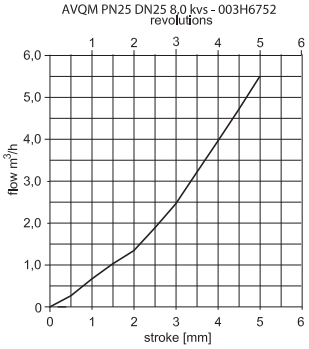




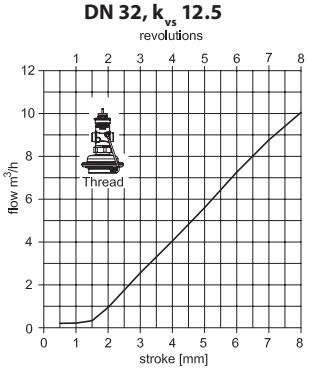
DN 20, k_{vs} 6.3



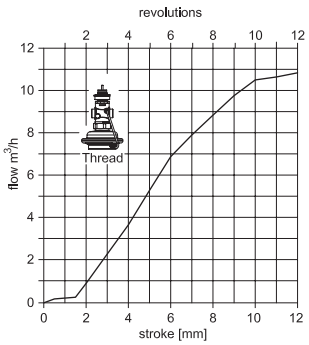
DN 25, k_{vs} 8.0



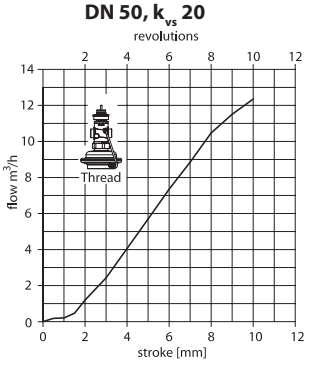
DN 32, k_{vs} 12.5



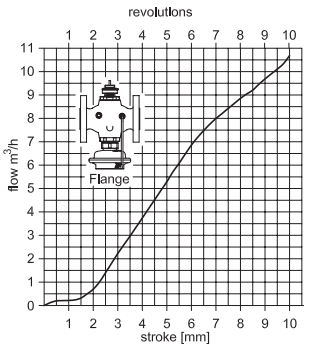
DN 40, k_{vs} 16



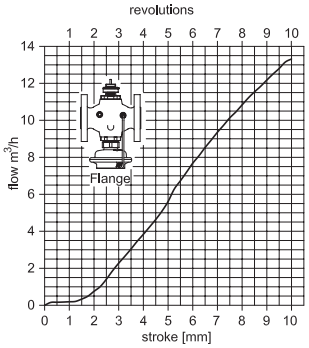
DN 50, k_{vs} 20



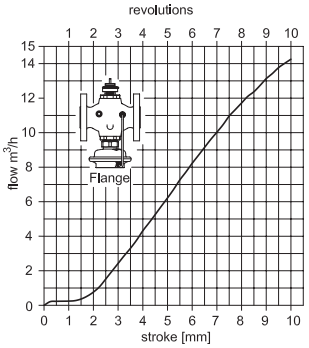
DN 32, k_{vs} 12.5



DN 40, k_{vs} 20

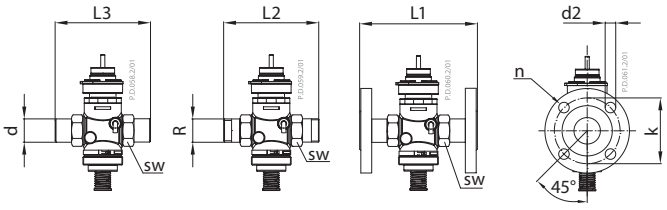


DN 50, k_{vs} 25



14

AVQM PN 16, PN 25



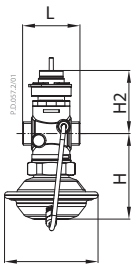
T1

DN		15	20	25	32	40	50
SW	mm	32 (G ¾A)	41 (G 1A)	50 (G 1¼A)	63 (G 1¾A)	70 (G 2A)	82 (G 2½A)
d		21	26	33	42	47	60
R		½	¾	1	1 ¼	1 ½	2
L1 [1]		130	150	160	-	-	-
L2 [2]		120	131	145	182	200	244
L3		139	154	159	184	204	234
k		65	75	85	100	110	125
d_2		14	14	14	18	18	18
n		4	4	4	4	4	4

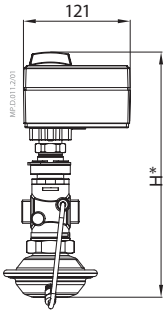
1) Conical ext. thread acc. to EN 10226-1
2) Flanges PN 25, acc. to EN 1092-2

AVQM PN 16

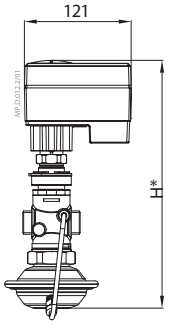
DN			15	20	25	32
L		mm	65	70	75	100
H			97	97	97	97
H*	AMV(E) 10		276	–	–	–
	AMV(E) 13		279	–	–	–
	AMV(E) 2./3.		289	289	292	293
	AMV 150		278	–	–	–
H2			72	72	75	76



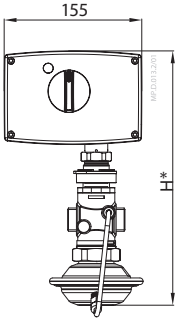
AVQM PN 16
DN 15-32



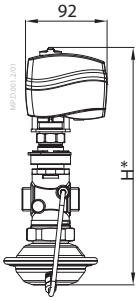
AMV(E) 10 +
AVQM (DN 15)



AMV(E) 13 +
AVQM (DN 15)



AMV(E) 2./ 3. +
AVQM (DN 15-32)

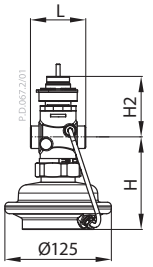


AMV 150 +
AVQM (DN 15)

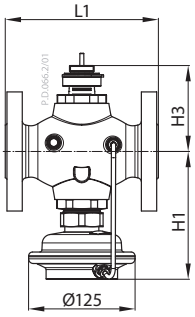
AVQM/AVQMT PN 25

DN			15	20	25	32	40	50
L		mm	65	70	75	100	110	130
L1			-	-	-	180	200	230
H			109	109	109	150	150	150
H*	AMV(E) 10		291	-	-	-	-	-
	AMV(E) 13		288	-	-	-	-	-
	AMV(E) 2./3. thread		301	301	304	371	371	371
	AMV(E) 2./3. flange		-	-	-	386	386	386
	AMV 150		289	-	-	-	-	-
H1			-	-	-	150	150	150
H2			72	72	75	101	101	101
H3			-	-	-	101	101	101
H4			131	131	131	172	172	172
H5			-	-	-	172	172	172

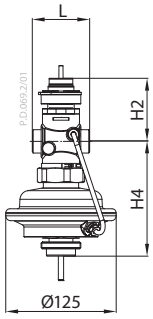
3) Other flange dimensions – see table for tailpieces.



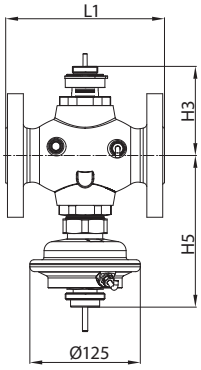
AVQM PN 25
DN 15-50



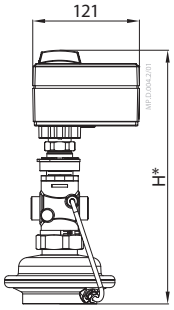
AVQM PN 25
DN 32-50



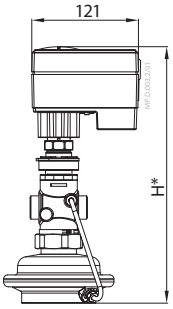
AVQMT PN 25
DN 15-50



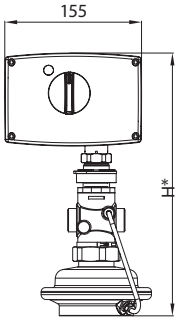
AVQMT PN 25
DN 32-50



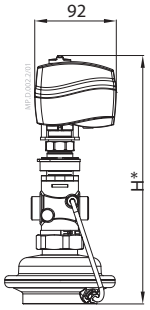
AMV(E) 10 +
AVQM (DN 15)



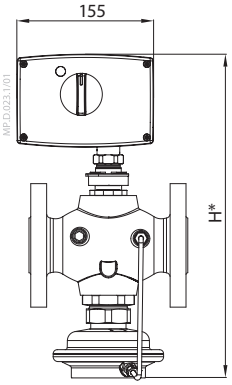
AMV(E) 13 +
AVQM (DN 15)



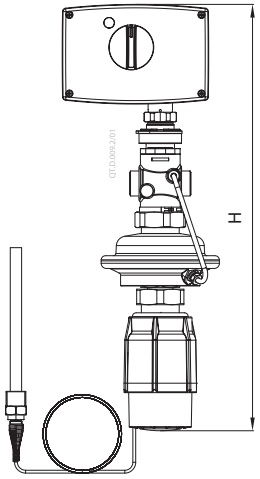
AMV(E) 2./3. +
AVQM (DN 15-50)



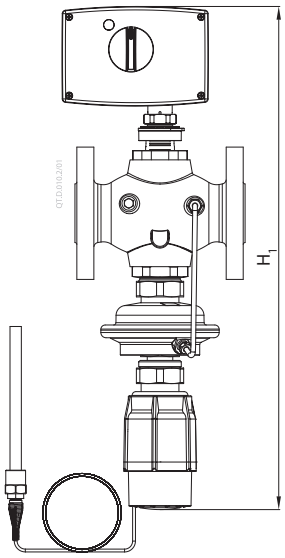
AMV 150 +
AVQM (DN 15)



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

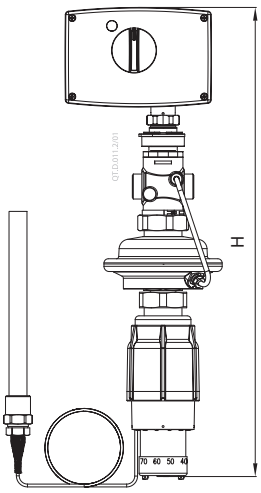


AVT / AVQMT / AMV(E) +
AVQM (DN 15-50)

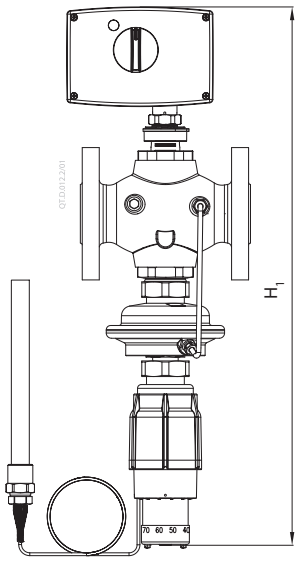


AVT / AVQMT / AMV(E) +
AVQM (DN 32-50)

DN			15	20	25	32	40	50
H	AMV(E) 10	mm	338	-	-	-	-	-
	AMV(E) 13		341	-	-	-	-	-
	AMV(E) 2./3.		451	451	454	521	521	521
	AMV 150		339	-	-	-	-	-
H_1	AMV(E) 2./3.		-	-	-	521	521	521



STM / AVQMT / AMV(E) +
AVQM (DN 15-50)



STM / AVQMT / AMV(E) +
AVQM (DN 32-50)

DN			15	20	25	32	40	50
H	AMV(E) 10	mm	482	-	-	-	-	-
	AMV(E) 13		485	-	-	-	-	-
	AMV(E) 2./3.		495	495	498	565	565	565
	AMV 150		483	-	-	-	-	-
H_1	AMV(E) 2./3.		-	-	-	565	565	565

ENGLISH

Safety Notes

Prior to assembly and commissioning to avoid injury of persons and damages of the devices, it is absolutely necessary to carefully read and observe these instructions.

Necessary assembly, start-up, and maintenance work must be performed only by qualified, trained and authorized personnel.

Prior to assembly and maintenance work on the controller, the system must be:
- depressurized,
- cooled down,
- emptied and
- cleaned.

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

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 PN 16 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.

AVQM(T) 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 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 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

Valve Installation ❹

1. Clean pipeline system prior to 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 selas prior 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 of the valve body by the pipelines are not permitted ⑧.

Mounting of electrical actuator ❺

Place electrical actuator AMV(E) on the valve and tighten 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 AVQMT controllers)

Place temperature actuator AVT or STM at the diaphragm and tighten union nut with 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 closed control valve with pressures of more than 16 bar. Otherwise, the valve may be damaged.

Pressure tests should be carried out prior to the installation of the electrical actuator. This guarantees that the valve is opened.

Before pressure test, open the adjustable flow restrictor by turning it in counter clock direction:

Pressure must be gradually increased at the (+/-) connection ③.

Non-compliance may cause damages at the actuator or the valve.

A pressure test of the entire system must be carried out in accordance with 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.

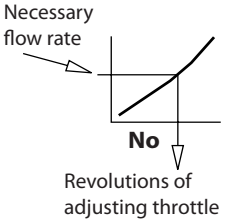
Max flow limiting ❾

The flow rate is adjusted by means of limitation of control valve stroke .
There are two possibilities:
1. Adjustment with the flow adjusting curves,
2. Adjustment with 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 don't need to be active for being adjusted.
1. Remove sealing ring ①
2. Close control valve ② by turning the adjustable flow restrictor clockwise to its stop.
3. Select flow adjusting curve in the diagram
   (see ⓬ for PN 16)
   (see ⓭ for PN 25)



4. Open control valve with the adjustable flow restrictor by determined number of revolutions counter clockwise ③.
5. Indication of setting can be seen by comparing lower end of flow restriction nut to marks on housing.
6. 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 PN 16 ⓬

Flow Adjusting Curves PN 25 ⓭

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:
1. If not yet done, install the actuator ❺① setting is completed.
2. After assambling sealing ring to the adjustable flow restrictor ⓫① setting may be sealed ⓫②.

Temperature setting

(relevant only at AVQMT controllers)

See instructions for temperature actuator AVT or safety temperature monitor (actuator) STM.

Dimensions, Weights ⓮

DANSK

Sikkerhedsoplysninger

Disse instruktioner skal læses omhyggeligt forud for montering og idriftsætning samt overholdes for at undgå skader på personer og udstyr.

Nødvendigt monterings-, opstarts- og vedligeholdelsesarbejde må kun udføres af faglært og autoriseret personale.

Forud for monterings- og vedligeholdelsesarbejde på regulatoren skal systemet være:
- trykløst
- nedkølet
- tømt
- rengjort

Følg fabrikantens eller operatørens instruktioner.

FRANÇAIS

Consignes de sécurité

Pour éviter qu'une personne se blesse et que les appareils soient endommagés, il est absolument nécessaire de lire attentivement ces instructions avant l'assemblage et la mise en service, et de les respecter.

Les travaux d'assemblage, de démarrage et de maintenance nécessaires doivent être effectués uniquement par du personnel qualifié, formé et autorisé.

Avant tout travail d'assemblage et de maintenance du régulateur, le système doit être :
- dépressurisé,
- refroidi,
- vidangé et
- nettoyé.

Suivre les instructions du concepteur ou de l'opérateur du système.

DEUTSCH

Sicherheitshinweise

Um Verletzungen von Personen und Schäden am Produkt zu vermeiden, ist diese Anleitung vor der Montage und Inbetriebnahme unbedingt zu lesen und zu befolgen.

Erforderliche Montage-, Inbetriebnahme- und Wartungsarbeiten dürfen nur von qualifizierten, geschulten und autorisierten Fachkräften durchgeführt werden.

Vor Montage- und Wartungsarbeiten am Regler muss die Anlage:
- drucklos,
- abgekühlt,
- geleert und
- gesäubert sein.

Die Vorgaben des Anlagenherstellers und Anlagenbetreibers sind zu beachten

ESPAÑOL

Notas de seguridad

A fin de evitar lesiones personales y daños a los dispositivos, se considera imprescindible leer detenidamente y respetar estas instrucciones antes de montar el componente y llevar a cabo su puesta en servicio.

Las operaciones de montaje, puesta en marcha y mantenimiento deben ser realizadas únicamente por personal cualificado, autorizado y con la debida formación.

Antes de montar el controlador o llevar a cabo labores de mantenimiento en relación con el mismo, el sistema debe:
- despresurizarse;
- enfriarse;
- vaciarse; y
- lavarse.

Respete las instrucciones del fabricante u operador del sistema.

SLOVENŠČINA

Varnostna opozorila

Izjemno pomembno je, da pred montažo in zagonom skrbno preberete navodila in jih upoštevate. S tem se izognete poškodbam pri posamezniku in okvaram na opremi.

Potrebno montažo, zagon in vzdrževalna dela lahko izvajajo samo kvalificirani, usposobljeni in pooblaščeni delavci.

Pred montažo in vzdrževalnimi deli na regulatorju morajo biti izpolnjeni naslednji pogoji:
- v sistemu ne sme biti nadtlaka,
- sistem mora biti ohlajen,
- izpraznjen in
- očiščen.

Prosimo, upoštevajte navodila proizvajalca sistema ali sistemskega operaterja.

POLSKI

Warunki bezpieczeństwa

W celu uniknięcia zranienia osób i uszkodzenia urządzeń należy bezwzględnie przed montażem i uruchomieniem zaworu zapoznać się dokładnie z niniejszą instrukcją.

Czynności związane z montażem, uruchomieniem i obsługą mogą być dokonywane wyłącznie przez osoby uprawnione i odpowiednio wykwalifikowane.

Przed przystąpieniem do montażu i czynności konserwacyjnych regulatora należy:
- zrzucić ciśnienie;
- ochłodzić układ;
- opróżnić układ;
- wyczyścić układ.

Należy stosować się do instrukcji producenta i/lub operatora układu.

MAGYAR

Biztonsági előírások

Összeszerelés és üzembe helyezés előtt feltétlenül olvassa el és tartsa be ezen útmutató utasításait a személyi sérülések és a készülék meghibásodásának elkerülése érdekében!

Az összeszerelést, üzembe helyezést és karbantartást csak szakképzett és arra feljogosított személy végezheti.

A szerelési és karbantartási munkálatok előtt a rendszert:
- nyomásmentesítse,
- hűtse le,
- ürítse le és
- tisztítsa meg.

Kérjük, tartsa be a rendszer gyártójának és üzemeltetőjének rendelkezéseit!

SRPSKI

Sigurnosne napomene

Da biste izbegli ozleđivanje osoblja i oštećenje opreme, pre sklapanja i puštanja u pogon je apsolutno neophodno pažljivo pročitati ova uputstva i pridržavati ih se.

Neophodno sklapanje, pokretanje i održavanje moraju izvoditi samo kvalifikovane, obučene i ovlašćene osobe.

Pre sklapanja i održavanja regulatora, sistem se mora:
- osloboditi pritiska,
- ohladiti,
- isprazniti i
- očistiti.

Molimo Vas da se pridržavate uputstava proizvođača sistema ili korisnika sistema.

ITALIANO

Note di sicurezza

Prima dell'assemblaggio e della messa in esercizio, le norme di sicurezza devono essere rigorosamente rispettate per evitare infortuni al personale e danni ai dispositivi.

Montaggio, avviamento e manutenzione devono essere eseguiti solo da personale autorizzato, addestrato e qualificato.

Prima degli interventi di assemblaggio e manutenzione sul regolatore, l'impianto deve essere:
- depressurizzato,
- raffreddato,
- spurgato, e
- pulito.

Seguire sempre le istruzioni del costruttore o del gestore dell'impianto.

中文

安全注意事项

为避免人员受伤和设备损坏，在安装和调试前请务必仔细阅读并遵守本说明。

安装、启动、维护必须由专业人员进行。

在安装和维护控制器之前，系统必须先进行：
- 卸压，
- 冷却，
- 排空
- 清洁。

请遵循系统安装商或系统操作员的指示。

本产品的使用场合

该控制器配合电动驱动器 AMV(E) 使用，用于供暖、区域供热和制冷系统中水以及乙二醇和水混合物的流速和温度控制。

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