Danfoss AIQ DN 15-50 Indirect Servo Instructions

Contents

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Safety Notes

- To avoid injury of persons and damages to the device, it is absolutely necessary to carefully read and observe these instruc-tions.
- Necessary assembly, start-up, and maintenance may be performed only by qualified and authorized personnel.
- It is absolutely necessary to depressurize system prior to any work.
- Please comply with the instructions of the system manufacturer or system operator.

Definition of Application

The flow rate controller is used for flow rate restriction of water and water-glycol-mixtures in heating, district heating and cooling systems.
The application must be limited to the rated conditions as stated on the rating plates that are mounted to each device.

Assembly

Permissible Installation Positions

Medium temperatures up to 100 °C
Any installation position medium temperature above 100 °C:
Installation is permitted only in horizontal pipelines with the actuator handing downwards.

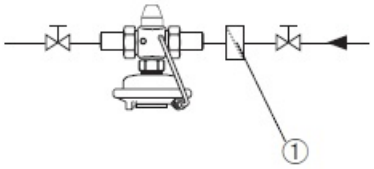
Installation Location, Installation Scheme

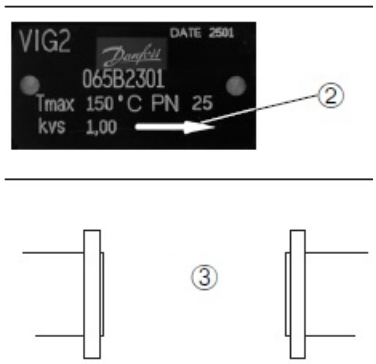
Flow or return pipe

Valve Installation

1. Install strainer ① before the controller.
2. Prior to installing the valve, rinse system.
3. Observe flow direction ② on the label.
   The flanges ③ in the pipeline must be in parallel position and the sealing surfaces must be clean and without damage.
4. Install valve.

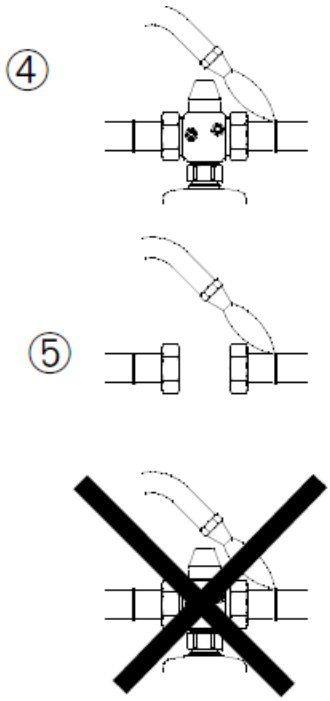
5. Tighten screws crosswise in 3 steps up to the maximum torque.





Design with welded end

- ④ pin only
- ⑤ weld

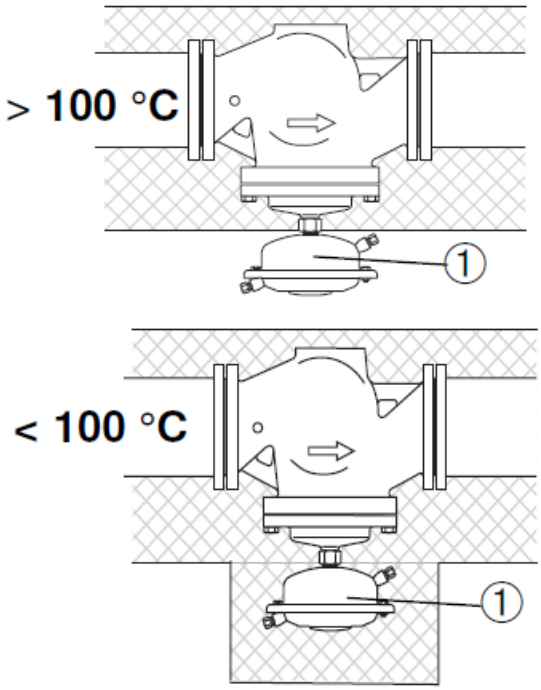


Insulation

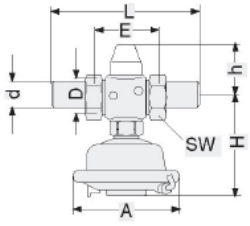
For medium temperatures up to 100 °C the pressure actuator ① may be insulated, too.

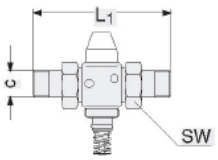
Dimensions, Weights

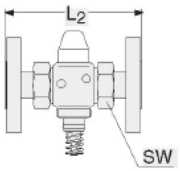
Flanges – connection dimensions acc. too
DIN 2501, seal form C

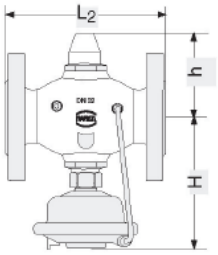


DN		15	20	25	32	40	50
c DIN 2999		R ½	R ¾	R 1	-	-	-
d	mm	21	26	33	42	48	60
SW		32	41	50	63	70	82
E		65	70	75	100	110	130
A		125	125	125	125	125	125
L		139	154	159	184	204	234
L1		125	146	169	-	-	-
L2		130	150	160	180	200	230
H		119	125	125	155	159	159
h		57	64	64	95	100	100
D DIN ISO 228/1		G ¾ A	G 1 A	G 1¼ A	G 1¾ A	G 2 A	G 2½ A









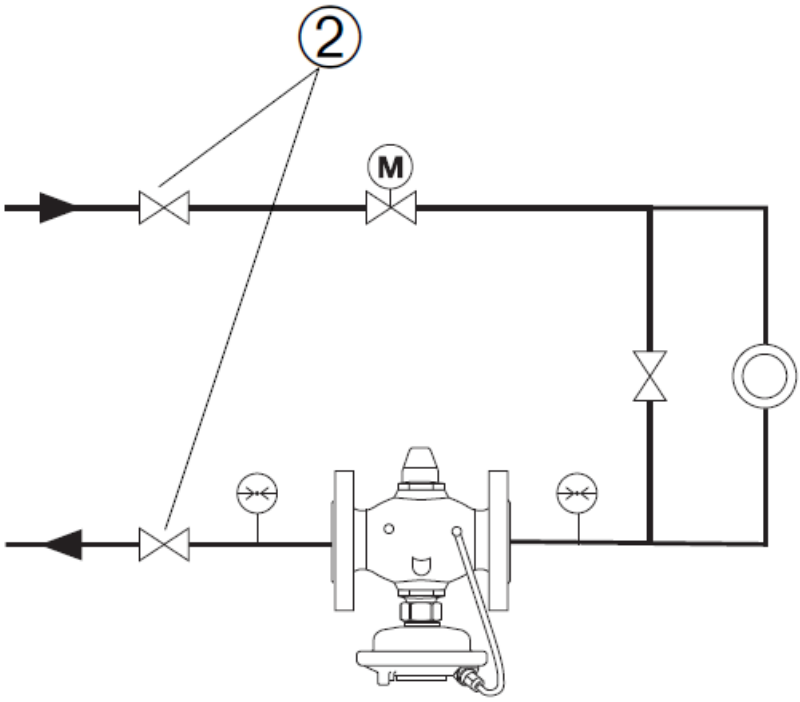
Leak and Pressure Tests

The maximum test pressure is: 1.5 x PN
PN see rating plate
Before pressure testing, open the adjusting throttle À by turning it to the left

Filling the System

Slowly open shut-off units **2**

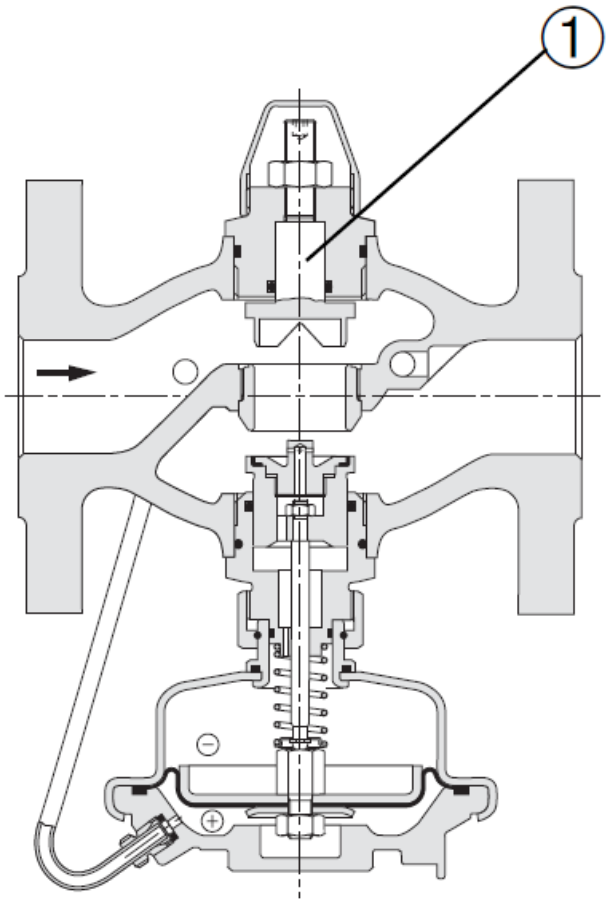
Operational shutdown
Slowly close the shut-off units ②.



Setting of Flow Rate Limitation
The flow rate is adjusted via the setting of adjusting throttle stroke ①.

There are two possibilities:

1. Adjustment via the flow adjusting curves,
2. Adjustment with heat meter, see page 11.

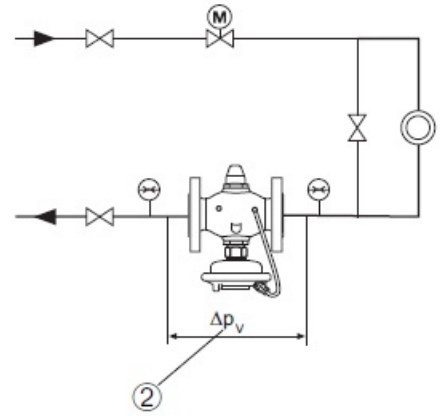


Pre-Condition
With the maximum flow rate, the pressure difference Δpv ② via the control valve must at least correspond to pmin = 0,5 barSee also section “Flow rate is too low”.

Adjustment via Flow Adjusting Curves

The system need not be active for being adjusted.

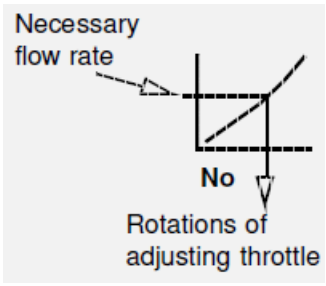
1. Unscrew cap nut, loosen counter nut ③.
2.



Screw in adjusting throttle ③ up to its stop.

Valve will be closed, no flow.

3. Select flow adjusting curve in the diagram (see next page).

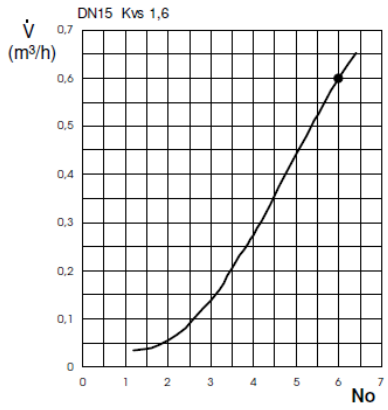


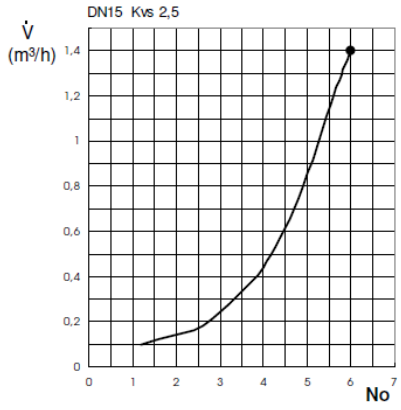
4. Unscrew adjusting throttle by this number of rotations ④

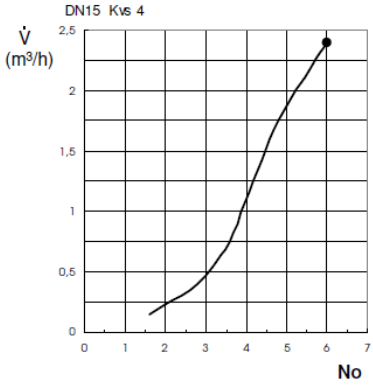
5. The setting is completed, continue with step 3., page 11.

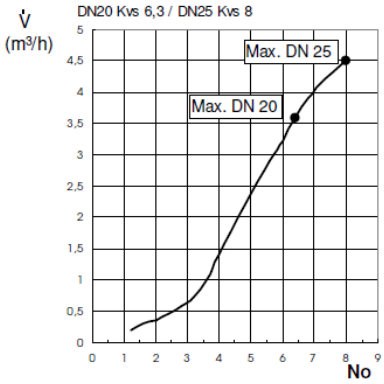
Note
The setting may be verified utilizing a heat meter if the system is in operation, see next section.

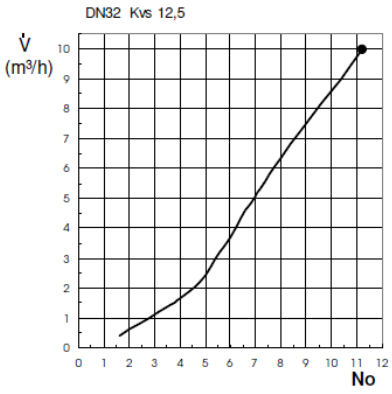
Flow Adjusting Curves

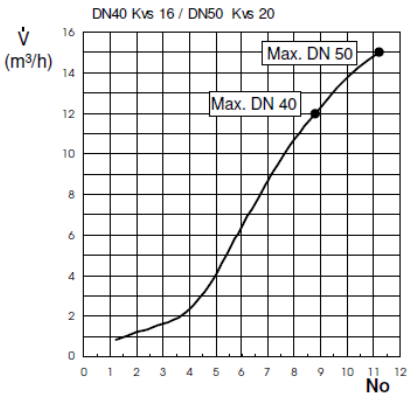








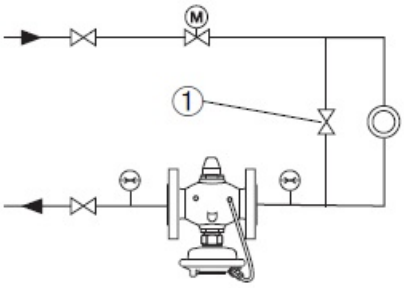




Adjust via Heat Meter

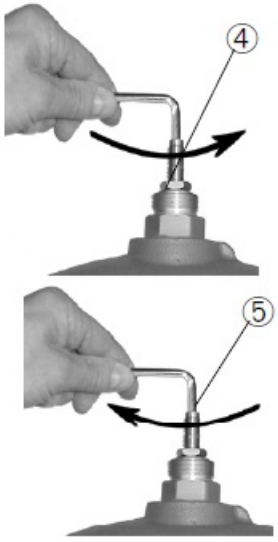
Pre-condition:
The system must be in operation. All units in the system or a bypass ① must be completely open.

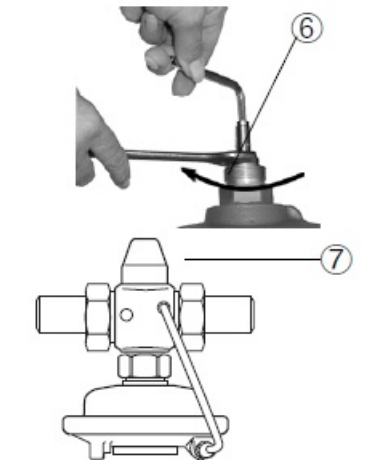
1. Unscrew cap nut ③, loosen counter nut.
2. Observe heat meter indicator.
   Turning to the left ④ increases the flow rate.
   Turning to the right ⑤ reduces the flow rate.
   After the adjustment has been completed:
3.



Tighten counter nut ⑥.

4. Screw in cap nut ⑦ and tighten.
5. Cup nut may be sealed .

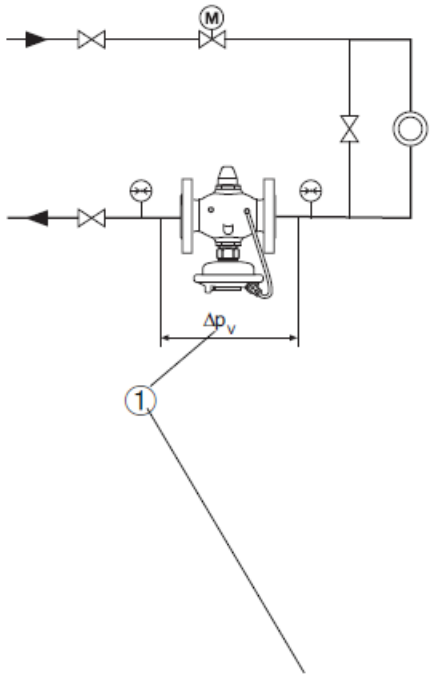


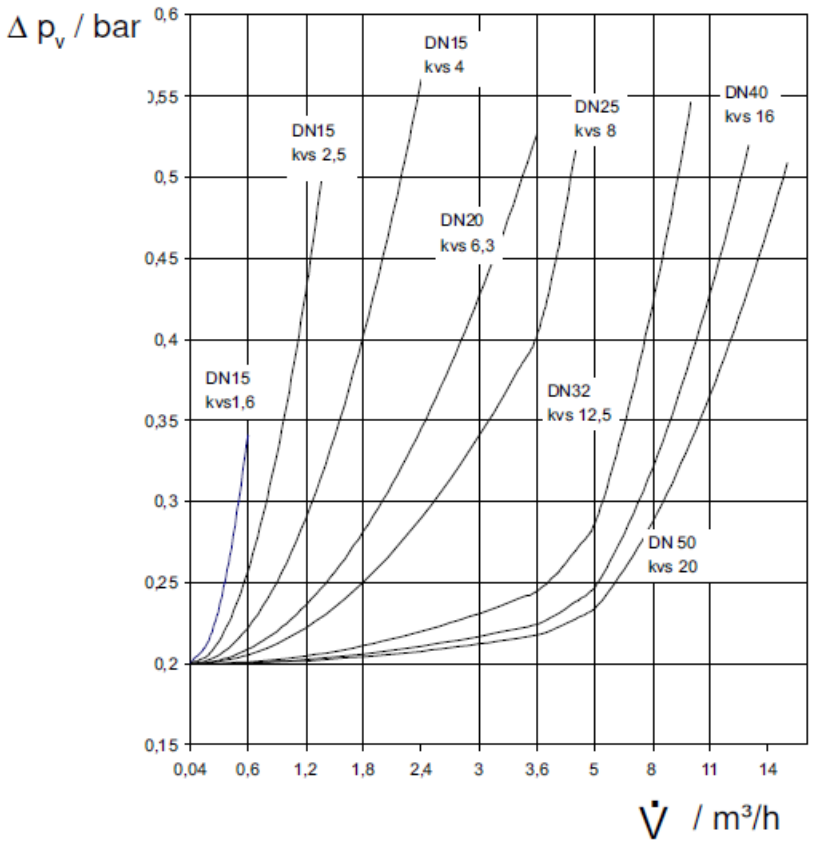


What to do when the flow rate is low?

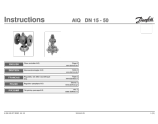
Remedy:

1. Verify adjustment, see section abvove.
2. Check differential pressure via the control valve. min. differential pressure Δ pv ①:





Documents / Resources

	Danfoss AIQ DN 15-50 Indirect Servo [pdf] Instructions AIQ DN 15 - 50, VI.DA.K2.5V, AIQ DN 15-50 Indirect Servo, AIQ DN 15-50, Indirect Servo, Servo

References

- Danfoss France - économie d'énergie et solutions innovantes | Danfoss
- Engineering Tomorrow | Danfoss
- User Manual