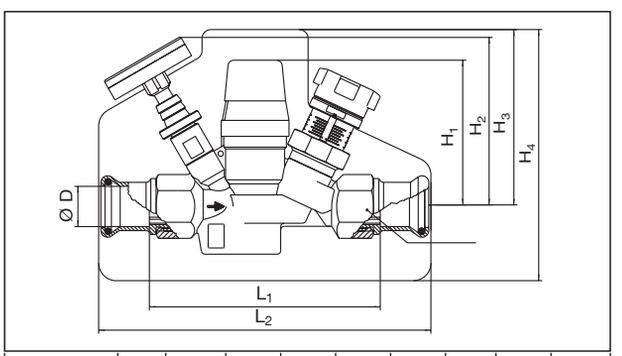
Tender specification:
Oventrop thermostatic valve “Aquastrom T plus” with presetting for circulation pipes.
Thermal control :
Recommended control range: 55 °C up to 60 °C
(Max. control range: 40 °C up to 65 °C; control accuracy: ± 1 °C).
The valve automatically supports thermal disinfection. The volume flow is increased at about 6 K above the set temperature and is reduced - irrespective of the set temperature - to the residual volume flow when exceeding a temperature of 73°C. The valve thus guarantees an optimum thermal disinfection in the circulation system.
The max. volume flow may be preset and isolated irrespective of the set control temperature. The valve is equipped with a draining valve for hose connection which allows to drain the circulation riser for maintenance.
The temperature can be monitored with the help of a thermometer or a temperature sensor. The temperature setting can be secured with the help of a lockshield cap. The set temperature can still be read off.
The temperature controller does not come into contact with the fluid; all components in contact with the fluid free from brass; body made of bronze; O-rings made of EPDM, without dead zone.

Technical data:

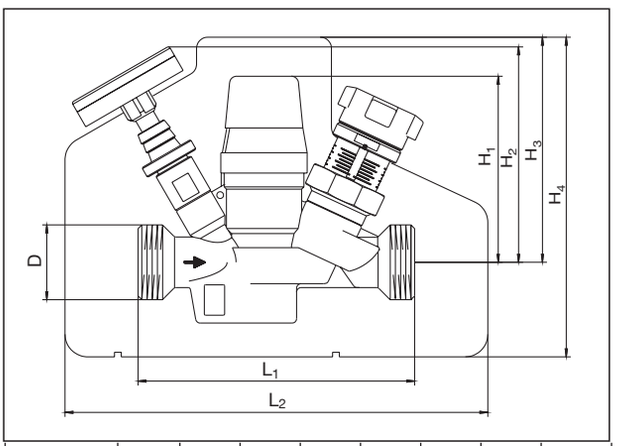
Max. operating temperature:	90 °C
Nominal pressure:	16 bar
Factory settings:	
– Temperature	57 °C
– Set volume flow	DN 15: 2.0
	DN 20: 3.0
	DN 25: 4.0

Advantages:
- automatic thermal control of the volume flow
- support of thermal disinfection
- volume flow increases at about 6 K above the set temperature, therefore disinfection temperature in the riser is reached quickly
- volume flow is limited when exceeding a temperature of 73 °C to guarantee thermal disinfection of succeeding plant components
- corrosion-resistant due to bronze material
- temperature setting can be read off even with mounted lockshield cap
- body with hole for lead sealing
- temperature monitoring with the help of a thermometer or a sensor element (accessory) via a centralised building control system
- presetting of the max. volume flow irrespective of the set control temperature and isolation for maintenance
- integrated draining valve for hose connection
- without dead zone
- DVGW, SVGW, KIWA, ACS and VA certified

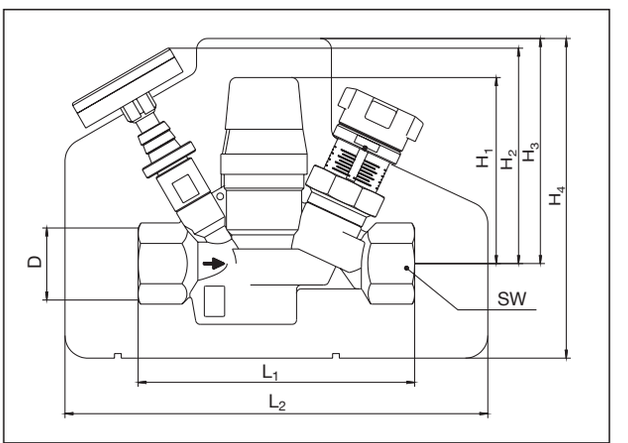


Item no.	DN	Ø D	L_1	L_2	H_1	H_2	H_3	H_4	SW*
4205552	15	15	115	188	83	96	100	142	27
4205553	15	18	115	188	83	96	100	142	27
4205554	20	22	130	188	83	96	100	142	32
4205555	25	28	140	188	83	98	100	142	41

“Aquastrom T plus”



Item no.	DN	L_1	L_2	H_1	H_2	H_3	H_4	D
4206504	15	110	188	83	96	100	142	G ¾
4206506	20	123	188	83	96	100	142	G 1
4206508	25	133	188	83	98	100	142	G 1¼



Réf.	DN	L_1	L_2	H_1	H_2	H_3	H_4	D	SW*
4205504	15	110	188	83	96	100	142	G ¾	27
4205506	20	123	188	83	96	100	142	G 1	32
4205508	25	133	188	83	98	100	142	G 1¼	41

Dimensions *SW = Spanner size

Installation advice:
The valve is to be installed in the correct direction of flow (see arrow on the body).

Setting of the nominal temperature value:

– Pull off the lockshield cap.
– Turn the handwheel of the temperature control unit until the required temperature value on the scale is in line with the marking on the valve body.
  Recommended temperature range: 55 °C - 60 °C
  Factory setting: 57 °C
– Refit the lockshield cap by pushing the slit of the lockshield cap over the marking ridge at the valve body. The set temperature value can be read off through the viewer even with mounted lockshield cap.
– The temperature setting can be secured. To do so, the lockshield cap is secured by leading the sealing wire through the hole at the valve body.

Modification of the limitation of the set maximum volume flow:

Setting is carried out at the throttling valve installed behind the control unit. The throttling valve may also be used for isolation. The required presetting values can be obtained from chart 3. All intermediate values are infinitely adjustable.

Factory setting: DN 15: 2.0
DN 20: 3.0
DN 25: 4.0

The chosen presetting can be read off two scales (basic setting = longitudinal scale, fine setting = peripheral scale, see illustr.). The limit stop of the presetting is even kept if the throttling valve is closed for maintenance.

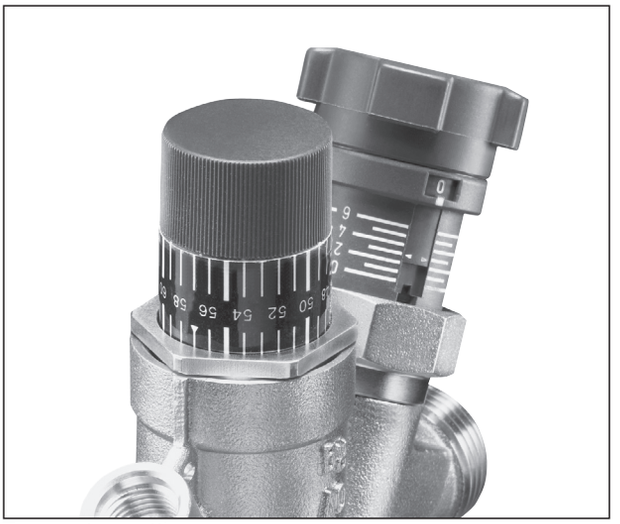
Presetting:

1. The presetting value at the throttling valve is set by turning the handwheel.
   a. The display of the basic setting is shown by the longitudinal scale together with the sliding indicator.
   b. The display of the fine setting is shown by the peripheral scale on the handwheel together with the marking. The subdivisions of the peripheral scale correspond to 1/10 th of a half turn of the handwheel.
2. Limitation of the set presetting value by turning the inner adjustment stem clockwise until it seats. This can be done by using a screwdriver with a 3 to 4 mm blade width.
3. The presetting value can be locked with the help of a locking pin (accessory).

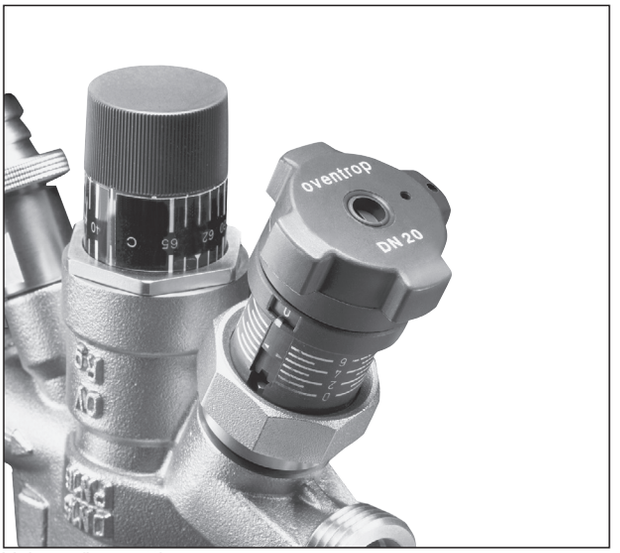
Information regarding installation of accessories:

The thermostatic valve “Aquastrom T plus” can be integrated into an existing centralised building control system with the help of a sensor element PT 1000 which may be installed subsequently. To do so, the thermometer is removed and is replaced with the sensor element “Sensor LW TQ” PT 1000 (accessory, item no. 4205592).

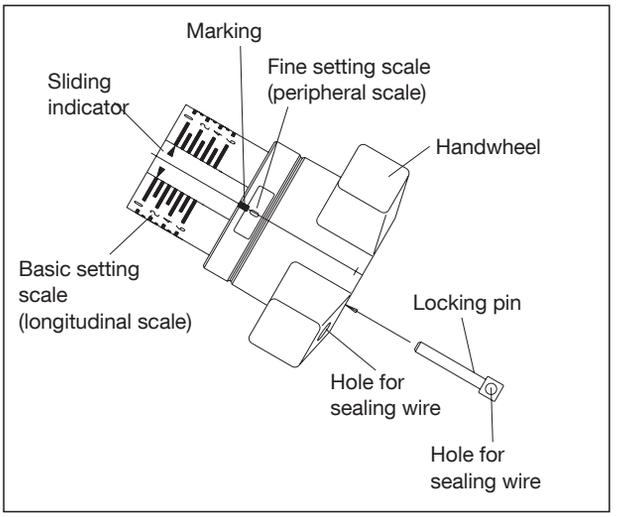
Accessory:	Item no.:
Thermometer 20 °C - 100 °C	4205591
“Sensor LW TQ” PT1000 sensor element for centralised building control system	4205592
Replacement draining valve	4205593
Insulation shell for DN 15 / DN 20	4205581
Insulation shell for DN 25	4205583
Locking pin with sealing wire for volume flow limitation	1061792
Lead sealing set	1089091



Temperature setting



Volume flow setting



Handwheel

Description of thermal regulation behaviour:

The thermal regulation behaviour of the circulation valve is described in chart 1.

During normal operation (temperature range up to 65 °C), the circulation valve limits the volume flow derived from the nominal temperature to the set residual volume flow.

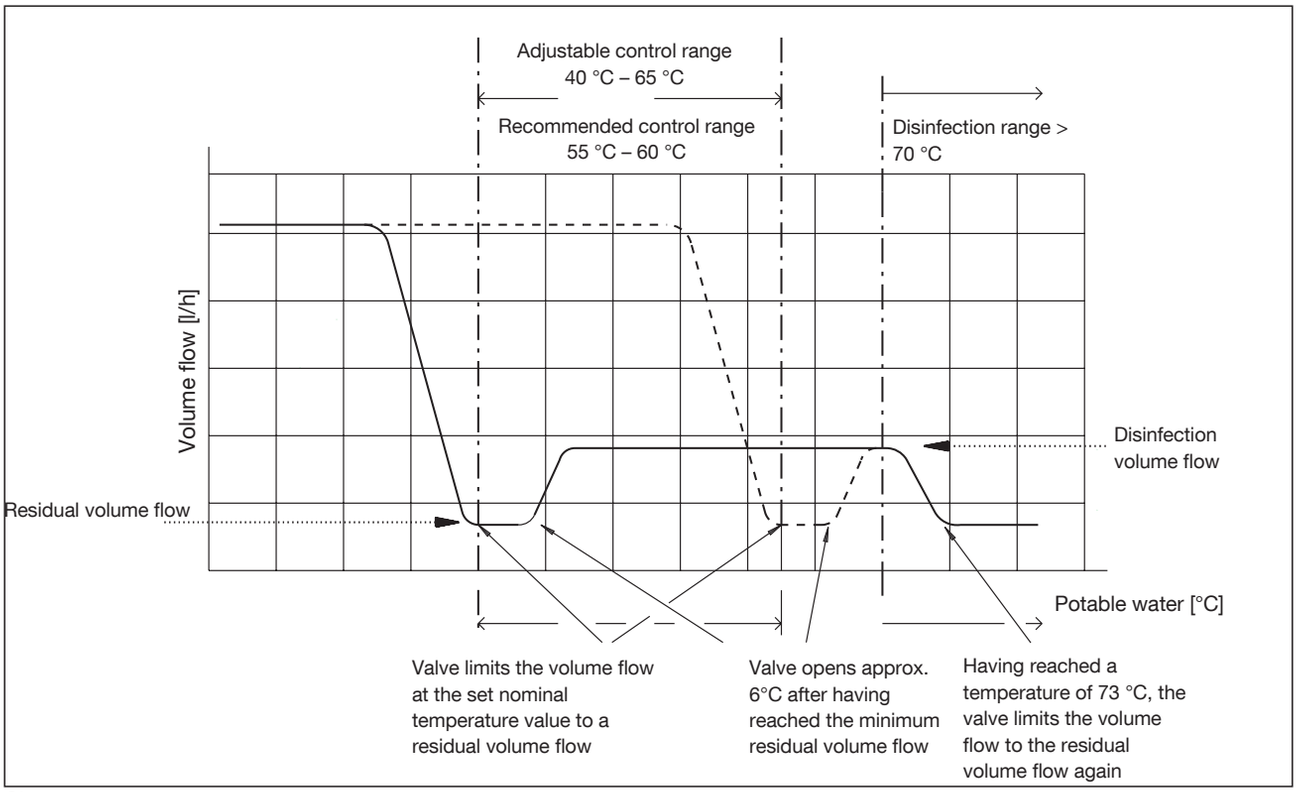


Chart 1

With the temperature rising during the disinfection process, the Oventrop valve “Aquastrom T plus” allows for a higher volume flow when the set control temperature is exceeded by approx. 6 K. When reaching a temperature of approx. 73 °C, the volume flow is decreased to the minimum volume flow. As a result, a higher differential pressure is reached in the corresponding riser and thermal disinfection in the succeeding risers is accelerated. This way, the disinfection temperature within these pipes is reached faster than within pipes which are not hydraulically supported during the disinfection process. As a result, significant energy savings can be made. Once the disinfection process has been completed, the water temperature drops, the “Aquastrom T plus” returns to normal operation and the temperature returns to the set nominal value.

Limitation of the volume flow:

The maximum volume flow (which is situated in front of the set nominal temperature value in chart 2) can be limited with the help of the circulation valve “Aquastrom T plus”. This allows for the hydronic balancing of the circulation pipes especially in case of a strong temperature drop, for instance in case of a boiler breakdown or an excessive water consumption.
The volume flow is limited within the set flow range by the temperature regulation according to the regulation characteristics shown in chart 2. The flow values and the corresponding presetting values can be obtained from chart 3.

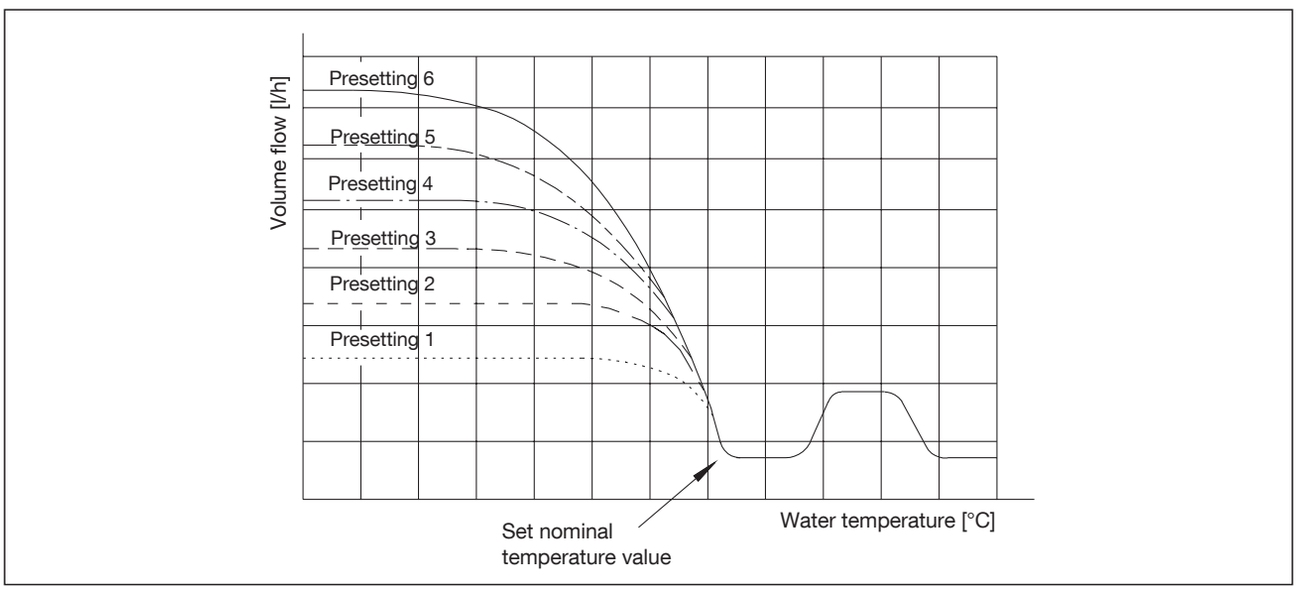


Chart 2

Description:

The immediate supply of hot water to the draw off points of a potable water network is realised by the distribution of the hot water from the potable water heater to one or several circulation risers. Each circulation riser feeds the hot water to the draw off points via a supply pipe which is connected to the main riser and the water is fed back to the potable water heater via a return pipe. The contractor is responsible for the design of such water networks. He has to observe the hydronic conditions within these pipe networks in order to ensure that a sufficient temperature is maintained in all circulation risers. The pipework conditions must guarantee that a noxious concentration of pathogenic germs (especially legionella) is avoided.
On the one hand, the hydronic conditions are determined by the flow loss in the pipework of the circulation risers and on the other hand by the heat loss of hot water when flowing through the circulation pipes. This heat loss depends on different parameters (pipe length and dimension, insulation, ambient and pipe temperature) and has to be considered individually for each system.
To compensate the heat loss and to keep the temperature high enough, a certain volume flow, or strictly speaking, a certain heat flow has to pass through the circulation pipe. For this reason, a larger hot water quantity has to flow through the circulation risers which are located far away for the potable water heater than through the risers at a nearer location. This is achieved by a limitation of the volume flow in the nearer circulation pipes by building up a corresponding differential pressure with the help of regulating valves.
The calculation of a circulation pipe within a domestic water installation can only be made approximately for stationary operating (without draining hot water). As the withdrawal quantities vary at the different draw off points (bathroom, kitchen etc.) during normal operation, the water quantity required to maintain the circulation pipe is also varying continuously. An optimum adaptation to these changing hydronic conditions is guaranteed by the automatic thermostatic regulating valves “Aquastrom T plus”.

The following models of the “Aquastrom T plus” valve are also available:

With isolation facility, presettable, but **without** draining valve for hose connection, **without** thermometer and **without** insulation.

Models:		**Item no.:**
both ports male thread, flat sealing, according to DIN ISO 228		
 DN 15	G ¾ x G ¾	4206604
DN 20	G 1 x G 1	4206606
DN 25	G 1¼ x G 1¼	4206608
both ports female thread according to EN 10226		
 DN 15	Rp ½ x Rp ½	4205604
DN 20	Rp ¾ x Rp ¾	4205606
DN 25	Rp 1 x Rp 1	4205608

Draining orifice G ¼ in front of the thermal control unit closed with a plug.

Dimensions as item no. 42055/65 (page 1).

Note:

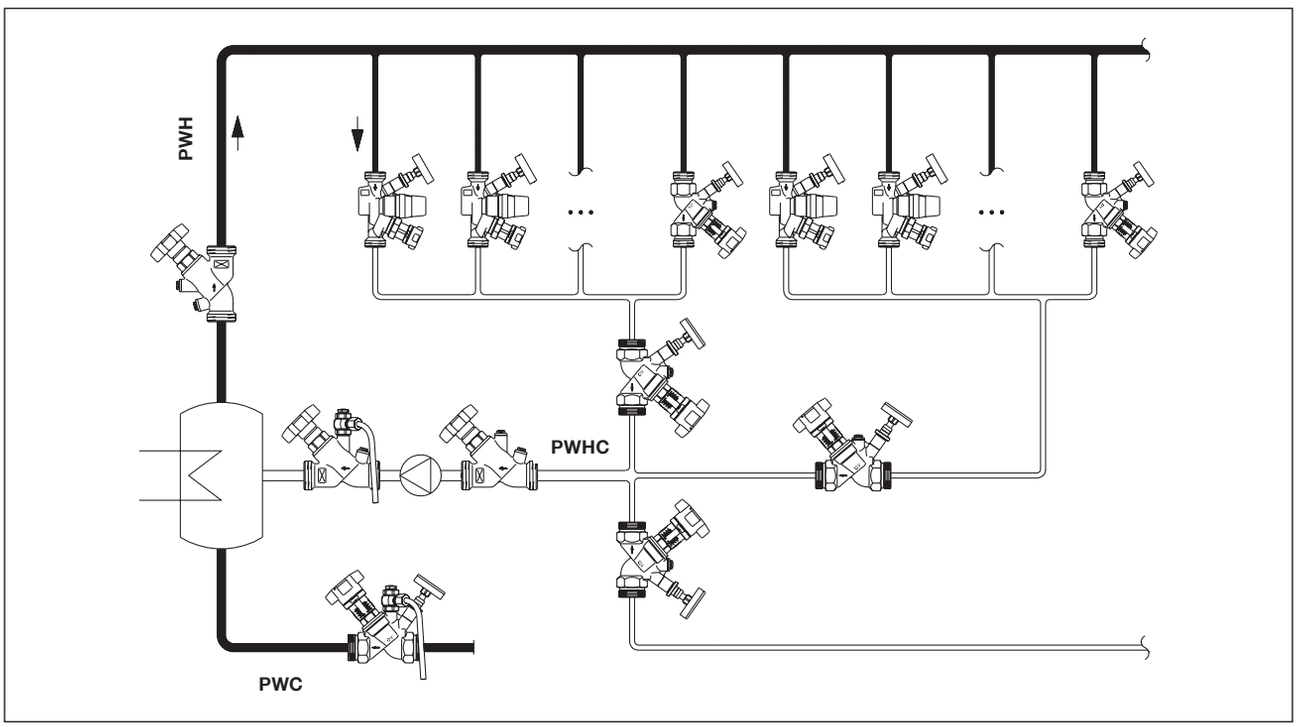
To guarantee hydronic balancing according to DVGW W553 in a circulation system, the required volume flows for the individual risers should be determined by calculation.

In large potable water circulation systems, high volumes flows are required in the furthest sections of the system and the control valves have to be dimensioned accordingly.

If required, several risers are arranged in one group and hydronic balance amongst the various risers is carried out with the help of one double regulating and commissioning valve acting as group valve. This way, low volume flows at high differential pressures can be achieved in near risers and correspondingly high volume flows in the furthest risers.

Installation advice:

The valve is to be installed in the correct direction of flow (see arrow on the body).



System illustration

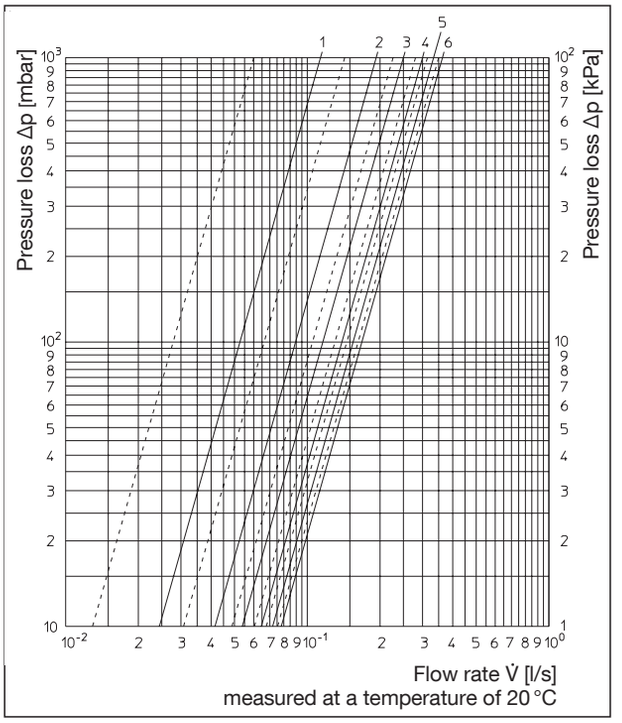
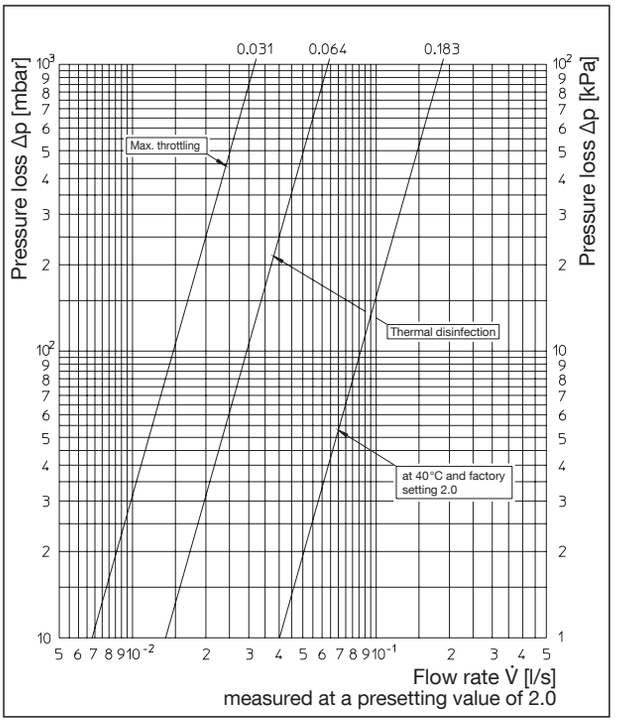
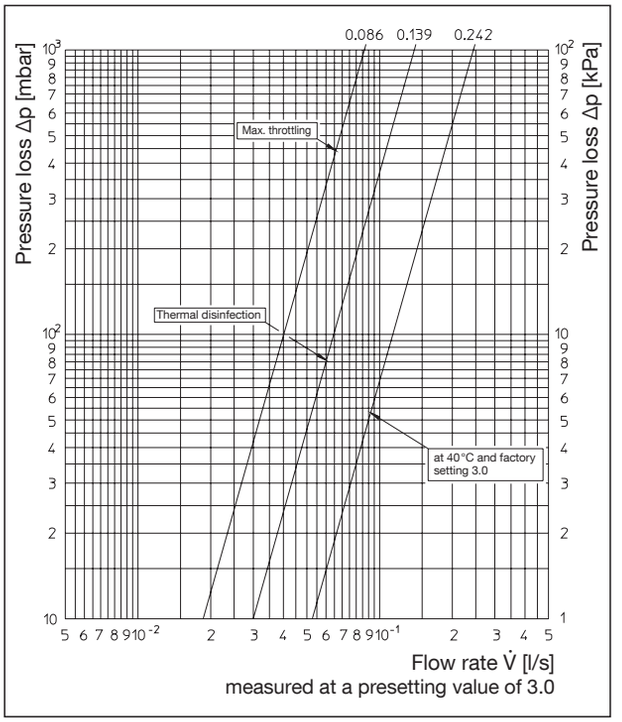


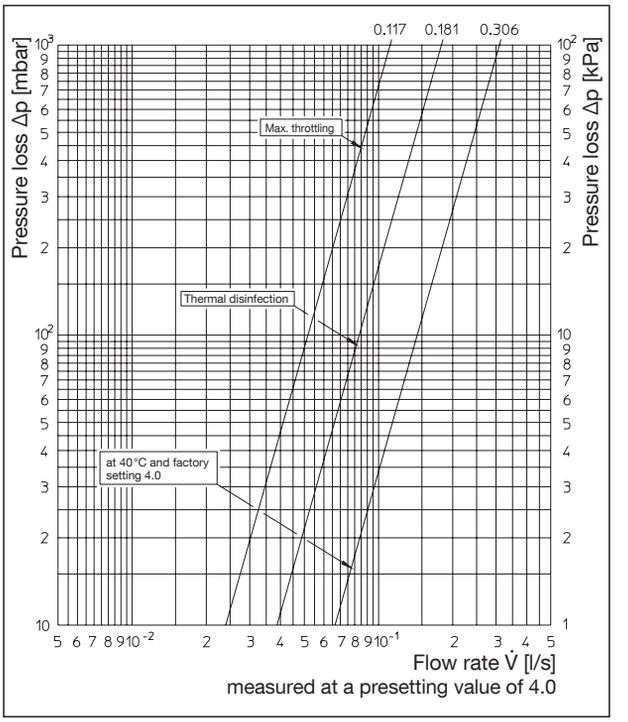
Chart 3



“Aquastrom T plus” DN 15



“Aquastrom T plus” DN 20



“Aquastrom T plus” DN 25

Residual volume flow at presetting:

	Presetting	k_V	k_V at 2 K P-deviation
DN 15	2.0	0.11	0.31
DN 20	3.0	0.31	0.44
DN 25	4.0	0.42	0.60

Subject to technical modifications without notice.

Product range 12
ti 130-EN/5/MW
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