



### Technical description

**Application:**

District heating and cooling systems with variable flow.

**Functions:**

Differential pressure control over the built-in control valve and flow limitation.

KT: For on/off actuator

KTH: Linear characteristics

KTM: Equal percentage characteristics

**Pressure class:**

PN 25

**Max. differential pressure:**

1600 kPa = 16 bar

**Pressure drop in the throttle (Fc):**

20 kPa (12 kPa on request)

**Temperature:**

Max. working temperature: 140°C

Min. working temperature: -10°C

**Media:**

Water or neutral fluids, water-glycol mixtures.

**Material:**

Valve body: Ductile iron EN-GJS-400-18LT

Diaphragms and gaskets: EPDM

Valve plug:

KT: EPDM.

KTH 512: EPDM/Stainless steel.

KTM 512: EPDM/Stainless steel.

**Surface treatment:**

Electrophoretic painting.

**Marking:**

TA-Regulator, DN, PN, Fc, Kvs, GGG-40.3 and flow direction arrow.

**Flanges:**

DN 15-50: According to EN-1092-2:1997, type 16.

DN 65-80: According to EN-1092-2:1997, type 21.

**Actuators:**

The TA-Regulators can be equipped with adapters for the most common actuators - see accessories page.

The max. lift of the actuator must be checked. Max. flow can be found under "Flow table".

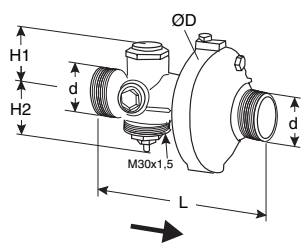
**Max. lift of the control valve:**

KT: 1.8 mm

KTH/KTM: DN 15-50, 10 mm.

KTM: DN 65-80, 20 mm

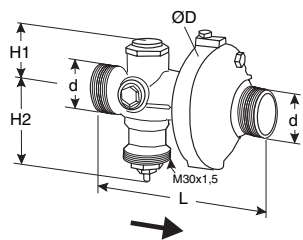
### TA-Regulator KT 512



TA No	DN	d	D	L	H1	H2	Kvs	q <sub>max</sub> m <sup>3</sup> /h	Kg
52 754-020	15/20	R1	78	110	45	40	4,1	1,1	1,0

→ = Flow direction

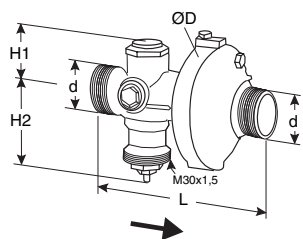
### TA-Regulator KTH 512



TA No	DN	d	D	L	H1	H2	Kvs	q <sub>max</sub> m <sup>3</sup> /h	Kg
52 755-020	15/20	R1	78	110	45	98	4,1	1,1	1,5
52 755-032	25/32	R1 1/4	97	150	53	94	16	4,0	2,0
52 755-050	40/50	R2	125	190	66	94	35	10	4,5

→ = Flow direction

### TA-Regulator KTM 512



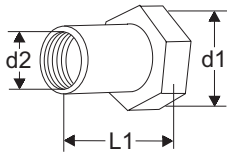
TA No	DN	d	D	L	H1	H2	Kvs	q <sub>max</sub> m <sup>3</sup> /h	Kg
52 756-020	15/20	R1	78	110	45	98	4,1	1,1	1,5
52 756-032	25/32	R1 1/4	97	150	53	94	16	4,0	2,0
52 756-050	40/50	R2	125	190	66	94	35	10	4,5
52 756-065	65	-	200	290	100	145	70	20	22
52 756-080	80	-	200	310	100	145	70	24	24

→ = Flow direction

## Connections

### Connection with female thread

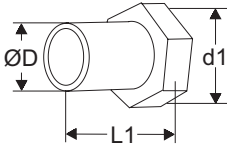
For DN 15-50



TA No	d1	d2	L1
52 759-015	G1	G1/2	26
52 759-020	G1	G3/4	32
52 759-025	G1 1/4	G1	47
52 759-032	G1 1/4	G1 1/4	52
52 759-040	G2	G1 1/2	52
52 759-050	G2	G2	64,5

### Connection for welding

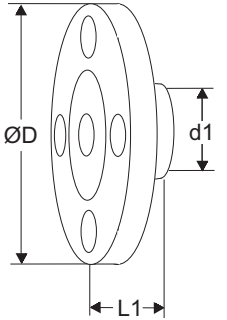
For DN 15-50



TA No	d1	D	L1
52 759-315	G1	20,8	37
52 759-320	G1	26,3	42
52 759-325	G1 1/4	33,2	47
52 759-332	G1 1/4	40,9	47
52 759-340	G2	48,0	47
52 759-350	G2	60,0	52

### Connection with flange

For DN 15-50

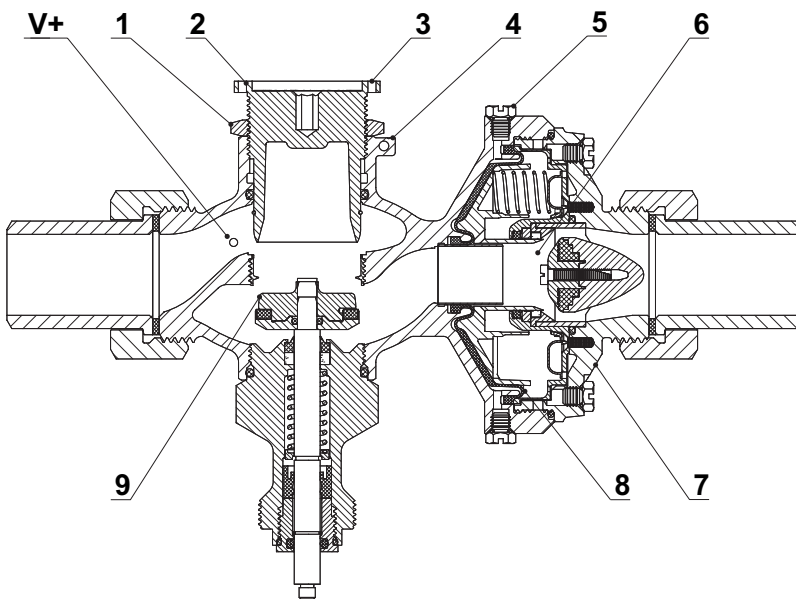


TA No	d1	D	L1
52 759-515	G1	95	10
52 759-520	G1	105	20
52 759-525	G1 1/4	115	5
52 759-532	G1 1/4	140	15
52 759-540	G2	150	5
52 759-550	G2	165	20

## Operating function

The throttle (2) for flow adjustment, valve for temperature regulation (9) and flow controller (6) are built in series in one valve body (7). Pressure upstream of the throttle acts through an internal capillary pipe (V+) to one side of the diaphragm (8) in the flow regulator.

Pressure downstream of the temperature control valve (9) acts to the other side of the diaphragm together with a spring force. Pressure drop in the temperature control valve does not exceed 20 kPa. The accuracy of flow regulation is practically independent on the pressures upstream and downstream of the controller. As the temperature control valve is pressure relieved, no additional differential pressure controller is needed and it is possible to use actuators with low force.



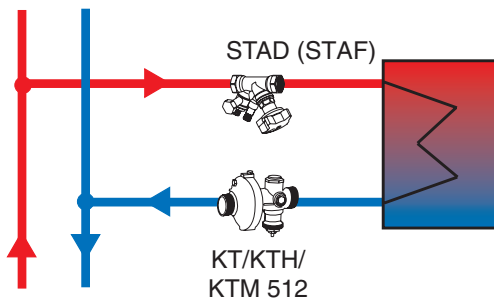
1. Fixing nut
2. Throttle
3. Holes for plumbing (throttle)
4. Holes for plumbing (valve body)
5. Venting screws
6. Flow controller
7. Valve body
8. Diaphragm
9. Control valve

## Installation

Flow direction is shown by the arrow on the valve body. Install the valve so that venting is possible and the flow adjustment scale is visible. Check allowed positions of the actuator. Installation of a strainer upstream of the valve is recommended.

When filling, vent the body by using the venting screws.

Instead of the plug R1/4 you can install drain valve or measurement nipple for pressure or temperature measurement.



## Setting

### Presetting of the maximum flow

Release the fixing nut (1). Turn the throttle (2) clockwise down to the start position of 0,0 turns. Adjust the corresponding number of scale turns according to flow chart and the pointer (4) on the valve body. Tighten the fixing nut. You can plumb the flow setting using holes (3a and 3b) on the throttle and the valve body.

- a Measure the flow on the balancing valve STAD using the balancing instrument TA-CBI or measuring instrument TA-CMI.
- b Adjust the throttle until you measure the required flow on the TA-CBI or TA-CMI.
- c Lock the fixing nut. When you lock the nut please hold the throttle in place with an allen key.

### Alternative:

- a Take the presetting value from the table which is packed with the valve.
- b Open the throttle anti-clockwise. The preset value (e.g. 3,4) means that you open the valve three complete turns. After that turn until the figure 4 fits the red mark on the valve body.
- c Lock the fixing nut. When you lock the nut hold the throttle in place with an allen key.

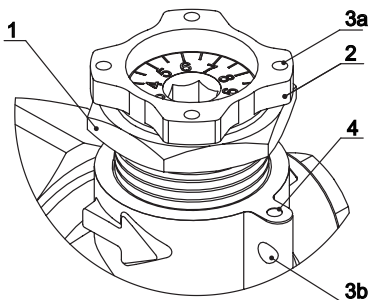


Table - Example

Presetting				
	0,0	1,0	2,0	3,0
,0	0	162	634	911
,1	16	209	669	915
,2	32	256	705	920
,3	48	304	740	925
,4	64	346	772	930
,5	80	399	811	935
,6	96	446	831	939
,7	112	493	851	943
,8	128	540	871	947
,9	144	582	889	951

Flow (l/h)

## Flow table

Max. flow (l/h) depending on actuator stroke.  
(Fc = 20)

### DN 15-50

Lift (mm)	KTH 512			KTM 512		
	DN 15/20	DN 25/32	DN 40/50	DN 15/20	DN 25/32	DN 40/50
0	0	0	2	0	0	0
0.5	53	210	1033	8	74	119
1	359	953	2433	20	75	128
1.5	655	1612	3733	44	82	138
2	897	2002	4862	107	122	206
2.5	1012	2417	6161	203	226	331
3	1055	2825	7390	322	340	512
3.5	1084	3382	8869	462	497	706
4	1072	3809	9973	600	655	954
4.5	1113	4175	10901	740	907	1388
5	1107	4329	11522	860	1387	2035
5.5	1123	4481	11953	939	2061	2985
6	1089	4589	12322	979	2611	3965
6.5	1100	4662	12573	1028	3095	5479
7	1087	4632	12759	1049	3443	6908
7.5	1077	4689	12790	1074	3709	8255
8	1083	4731	12830	1134	3820	9515
8.5	1109	4793	12818	1122	4360	10555
9	1123	4808	12862	1113	4448	11838
9.5	1100	4737	12954	1130	4434	11838
10	1099	4793	12983	1125	4424	12311

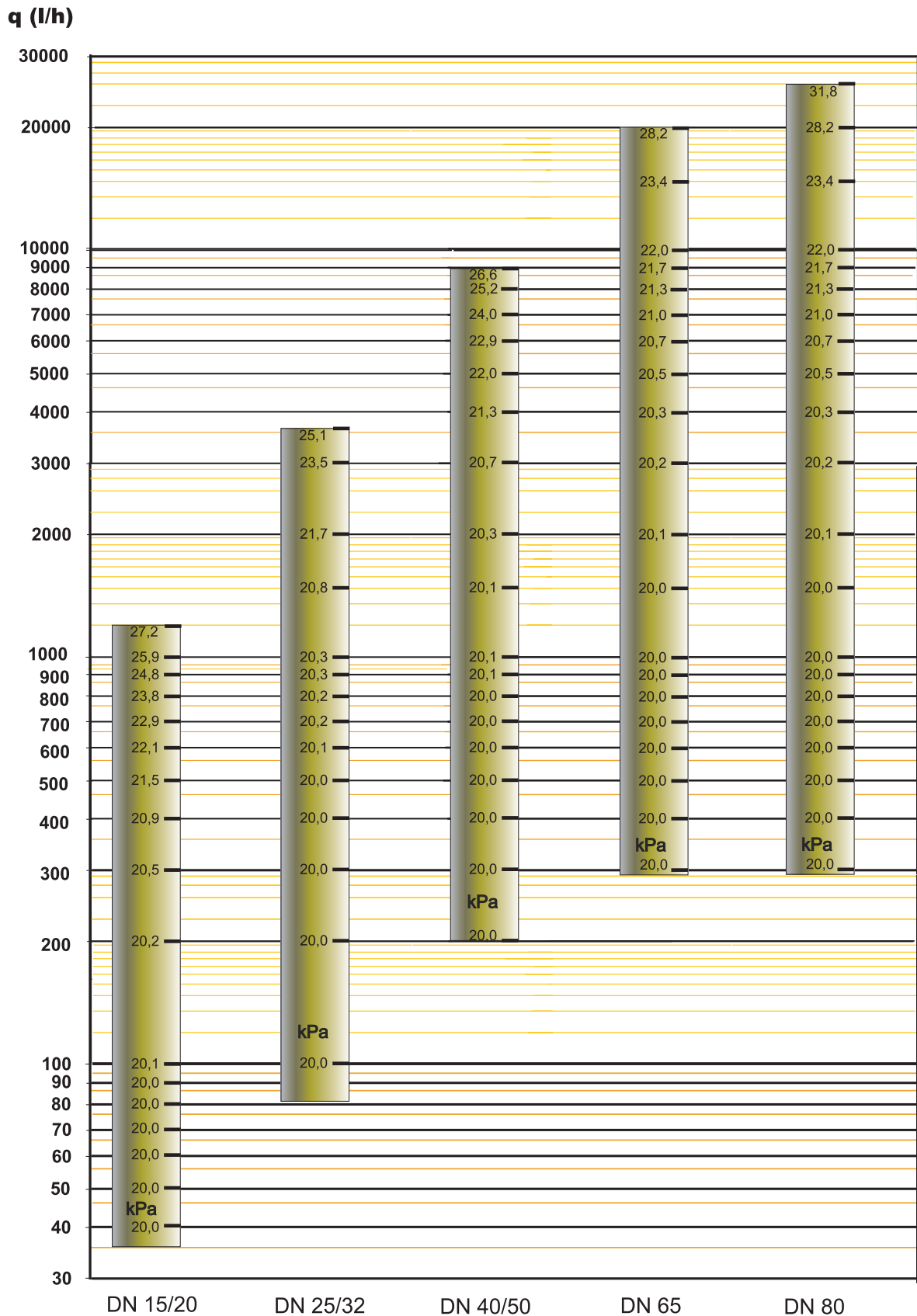
### DN 65-80

Lift (mm)	KTM 512	
	DN 65	DN 80
0	0	0
1	174	208
2	339	406
3	563	676
4	787	945
5	1132	1359
6	1478	1774
7	2012	2414
8	2545	3054
9	3313	3976
10	4085	4902
11	5351	6422
12	6624	7949
13	8312	9975
14	10003	12004
15	11898	14278
16	13794	16552
17	15817	18980
18	17841	21410
19	18949	22739
20	20000	24000

## Sizing

1. Select the smallest size for the flow you need in the diagram.
2. Check that the available  $\Delta p$  is bigger than the sum of the pressure drops calculated with the formula or use the diagram:

$$\Delta p = \left( \frac{q}{100 \times Kvs} \right)^2 + FC \quad (\text{kPa, l/h})$$



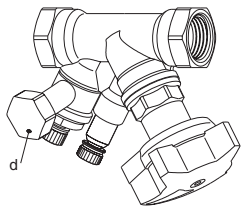
## Accessories

### Balancing valve STAD (PN 20)

For flow measuring

Max 120°C

See catalogue leaflet STAD, STADA,... for complete details.



TA No	TA No
<b>d = G1/2</b>	<b>d = G3/4</b>
52 151-209*	52 151-609*
52 151-214*	52 151-614*
52 151-220*	52 151-620*
52 151-225	52 151-625
52 151-232	52 151-632
52 151-240	52 151-640
52 151-250	52 151-650

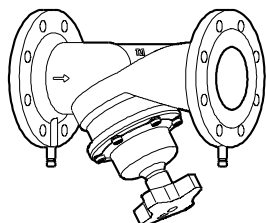
\*) Can be connected to smooth pipes by KOMBI compression coupling. See catalogue leaflet KOMBI under section Couplings.

### Balancing valve STAF, STAF-SG

For flow measuring

Max 120°C

See catalogue leaflet STAF, STAF-SG,... for complete details.

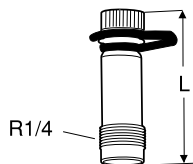


TA No	TA No	DN
<b>PN 16</b>	<b>PN 25</b>	
-	52 182-040**	40
-	52 182-050**	50
52 181-065	52 182-065	65
52 181-080	52 182-080	80

\*\*) Fit PN 16 flanges.

### Measuring point

Max 120°C (Intermittent 150°C)



TA No	L
52 179-009	39
52 179-609	103

Products for higher temperatures - contact TA.

Other products, see TA Product catalogue section "Balancing valves".

## Adapters for actuators

TA No	For actuator
52 757-001	Siemens SQS
52 757-002	Johnson Control V7420
52 757-003	Sauter AVM, AVF, SR25, L4
52 757-004	TAC Forta
52 757-005	Hora Mc60
52 757-006	Heimeier EMO-3
52 757-007	Lineg
52 757-008	Danfoss AMV
52 757-009	Belimo NRDVX
52 757-010	Honeywell ML
52 757-011	Samson 5825

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