



2W...G...K



3W...G...



4W...G...



Small valve bodies without actuators

for secondary air handling equipment and chilled ceilings

2W...G...K
3W...G...
4W...G...

- Easy to mount
- Robust, maintenance-free
- For thermic or magnetic actuators

Use

The ...W...G... straight-through or three way mixing valves are used for the control of induction and fan coil units, and for the control of reheaters and heating coils. When using the 3W...G... three-way mixing valve in straight-through applications it is necessary to seal port 'B' with the Z203/... cap. However, the characteristics, Δp_{vmax} etc. stay the same.

Type summary

Three basic versions of the small valves are available:

- 2W...G...K** Straight-through valves for applications with large pressure differentials, with Δp compensation (pressure balanced)
- 3W...G...** Three way mixing valves (as straight-through valve with Z203/... sealing cap)
- 4W...G...** Four port, three way mixing valves

Operating data

Valve type	DN [mm]	k _{VS} [m ³ /h] A → AB	Δp _{v,max}	
			[kPa] A → AB	[bar] A → AB
2W10G06K	10	0.6	300	3.0
2W10G10K	10	1.0	300	3.0
2W15G16K	15	1.6	300	3.0
2W15G25K	15	2.5	300	3.0
3W10G06	10	0.6	100 ¹⁾	1.0 ¹⁾
3W10G10	10	1.0	100 ¹⁾	1.0 ¹⁾
3W10G16	10	1.6	100 ¹⁾	1.0 ¹⁾
3W15G25	15	2.5	40 ¹⁾	0.4 ¹⁾
3W20G40	20	4.0	20 ¹⁾	0.2 ¹⁾
4W10G06	10	0.6	100	1.0
4W10G10	10	1.0	100	1.0
4W10G16	10	1.6	100	1.0
4W15G25	15	2.5	40	0.4

Δp_{v,max} = Max. admissible pressure differential

k_{VS} = Flow rate to VDI/ VDE2173, tolerance ±10 %

¹⁾ Warning

In cases where 3W...G... valves are used with the Z203 sealing cap, noise can result if the maximum admissible pressure differential Δp_{v,max} is exceeded.

Ordering

The 2W... , 3 W... , 4W... small valves and, if necessary, the AM... or STE...2 actuators and/or the accessories must be ordered separately.

When placing an order, please specify the quantity, product description and type code.

Example:

3 small valves 3W10G06, 3 actuators STE72 and 1 sealing cap Z203/10

Equipment combinations

Possible equipment combinations can be found in the following data sheets:

- Summary of valves and actuators for individual room control: sheet 4000
- Magnetic actuators AM... see sheets 4881, 4886, 4887
- Thermic actuators STE22 and STE72 see sheet 4873

Technical design

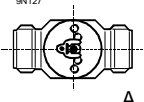
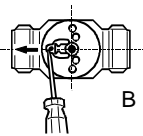


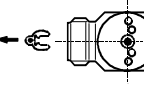


The specific flow through path B → AB (or C → AB with 4W...) is 70 % (0.7 x k_{VS}) of that through path A → AB (or B → AB with 4W...). Thus, the amount of flow remains more or less constant over the whole positioning range of the valve in case of normal valve dimensions (pressure loss over the valve = pressure loss over the heat exchanger).

An additional adjusting throttle in the bypass is not usually required.

Compensation p_{stat}

Each valve is equipped with three compensation rings. By removing these rings it is possible to compensate for the influence of the static pressure on the valve characteristic. As supplied, the valve is suitable for applications with 0 ... 4 bar.

- For applications with 4 ... 8 bar remove one ring
- For applications with 8 ...12 bar remove two rings
- For applications with 12 ...17.5 bar remove all three rings.

Compensation rings		P_{stat}		
		[MPa]	[bar]	
 A	 B		0 ... 0.4	0 ... 4
			0.4 ... 0.8	4 ... 8
 C			0.8 ... 1.2	8 ... 12
			1.2 ... 1.6	12 ... 16

Accessories

The parts listed below are available as accessories to the small valves. Any other installation material must be procured locally.

- Z203/...** ¹⁾ Sealing cap for 3W... valves
for DN10 = Z203/10, for DN15 = Z203/15, for DN20 = Z203/20
- Z223...** Couplings with NPT thread
Z2233/8 for 3/8" , Z2231/2 for 1/2" or Z2233/4 for 3/4"
- Z224...** Couplings for solder connections to copper pipe (USA):
Z2241/2 for 1/2 x G1/2" , Z2243/4 for 3/4 x G3/4" or Z2247/8 for 7/8 x G1"

¹⁾ Warning

In cases where 3W...G... valves are used with the Z203 sealing cap, noise can result if the maximum admissible pressure differential $\Delta p_{v,max}$ is exceeded.

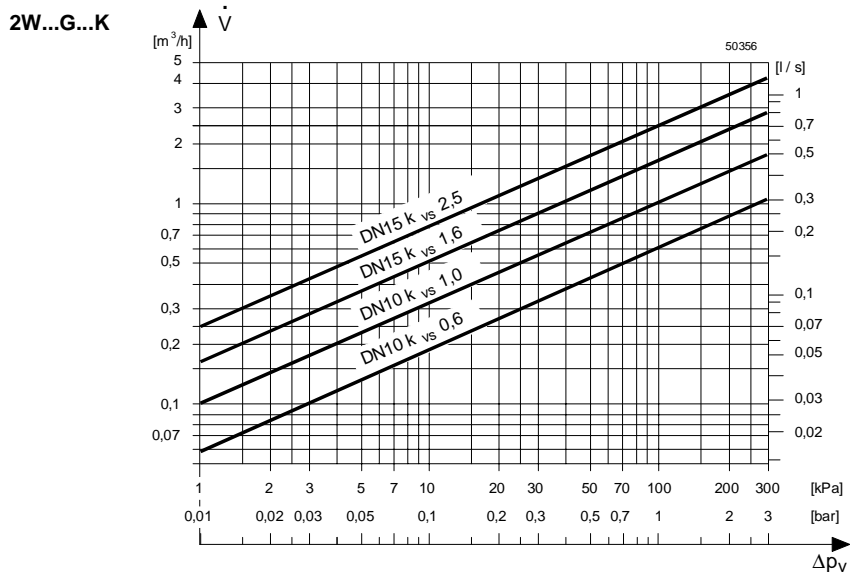
Sizing

Water flow chart

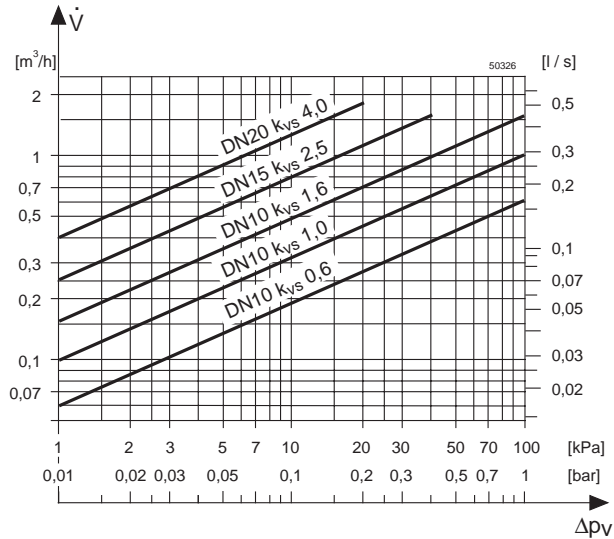
Flow / pressure differential relationship:

k_{VS} signifies the volume of water \dot{V} in m^3/h , which flows through the open valve at a pressure differential Δp_v of 100 kPa (1 bar).

For notes on calculating the k_{VS} value, refer to sheet 4023.



3W...G...
4W...G...



Mounting notes

Mounting instructions (Nr. 35379) are enclosed with the valve.

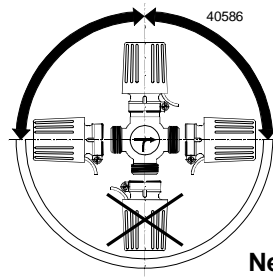
The actuator and valve body are supplied separately. They are simple to assemble on site. There is a rotary protection cap on the valve body which protects the inner valve before and during mounting and keeps the stroke of passages A \rightarrow AB approximately 50 % open.

Recommendation:

- Assemble shortly before commissioning
- Remove the protective cover from the valve body
- Position the actuator and tighten the clip

Water systems should be cleaned, flushed and treated in accordance with current good practice, as described, for example, in BSRIA Application Guides AG 8/91 and AG 2/93. For other relevant information, see also CIBSE Guide B (Section 7).

Mounting position



The actuators are not protected against leakage from the valve. They must therefore be installed in a position from upright to horizontal (the range marked in black on the diagram). The actuator must *not* be suspended below the horizontal.

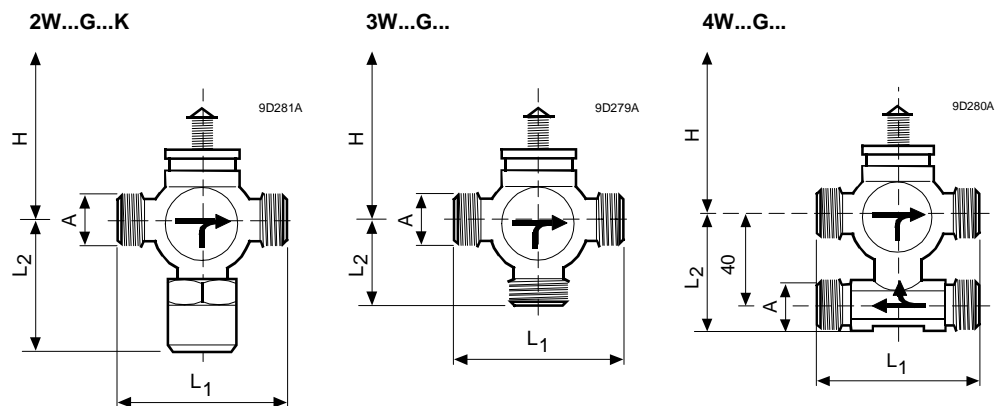
Never mount this way up!

Technical data

Max admissible operating pressure $p_{e,max}$	1.75 MPa (17.5 bar)
Leakage at $\Delta p = 0.1$ MPa (1 bar):	
A → AB	Max. 0.05 % k_{vS} (to VDI/ VDE2174)
B → AB (3W...), C → AB (4W...)	Approx. 2 % k_{vS} (depends on application data)
Admissible water temperature	2 ...120 °C
Valve characteristic (stroke, k_v)	Linear, optimised in closing range
Position when de-energised	A → AB closed
Materials:	
Valve body	Bronze (Rg5)
Seat 3W..., 4W...	Brass (CuZn39Pb3)
Seat 2W...K	Chrome nickel steel
Disc	Chrome nickel steel
Dimensions	See table under «Dimensions»
Weight (incl. packaging)	See table under «Dimensions»
Mounting position	Upright to horizontal

Dimensions

All Dimensions in mm



Valve type	A [inches]	L ₁	L ₂	H				W [kg]
				AM1S	AM1S/E	AM1S/H	STE...2	
2W10G06K	G½	60	49	111.5	123	129.5	103	0.39
2W10G10K	G½	60	49	111.5	123	129.5	103	0.39
2W15G16K	G¾	65	51.5	112.5	124	130.5	104	0.49
2W15G25K	G¾	65	51.5	112.5	124	130.5	104	0.49
3W10G06	G½	60	30	111.5	123	129.5	103	0.29
3W10G10	G½	60	30	111.5	123	129.5	103	0.29
3W10G16	G½	60	30	111.5	123	129.5	103	0.29
3W15G25	G¾	65	32.5	112.5	124	130.5	104	0.35
3W20G40	G1	80	40	115.5	127	133.5	107	0.50
4W10G06	G½	68	51	111.5	123	129.5	103	0.43
4W10G10	G½	68	51	111.5	123	129.5	103	0.41
4W10G16	G½	68	51	111.5	123	129.5	103	0.41
4W15G25	G¾	74	54	112.5	124	130.5	104	0.52

H Dimension 'H' refers to the overall installation height, including valve actuator

W Weight (incl. packaging)

A External thread G to ISO228/1

