SIEMENS

4855

VPP46..

VPI46..

VPP46..Q, with pressure test points P/T

VPI46..Q, with pressure test points P/T

ACVATIX™

Combi valves, PN 25

VPP46..
VPP46..Q
VPI46..
VPI46..Q

for rooms, zones, ventilation and air-conditioning systems

- **With integrated differential pressure controller**
- **DN 10…DN 32: Valve body made of dezincification resistant hot-pressed brass (DZR)**
- **DN 40…DN 50: Housing made of spheroidal graphite iron**
- **Volumetric flow 30... 11500 l/h,**
- **Differential pressure range 15…600 kPa**
- **Internally threaded Rp conforming to ISO 7-1**
- **Externally threaded G conforming to ISO 228-1**
- **Version with pressure test points for Δp measurement (optional)**
- **Can be equipped with electro thermal or electromotive actuators**
  - **SSA.. (3-position, DC 0…10 V and KNX communication)**
  - **STA..65.. / STP..65..**
  - **SUA21/3P, SUE21P (2-position SPST)**
  - **SAY..1P03 (3-position or DC 0…10 V)**

Use

- In ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling
- In heating zones like self-contained heating systems, apartments, individual rooms, etc.
- For closed circuits

Type summary

Product no.	Stock	DN	H_{100}	Connections		Test points	$\dot{v}_{min}$	$\dot{v}_{100}$	SUA21/3P	SUE21P	STA..65.. / STP..65.. [3]	SSA..
									Δp_{max} [1]	Δp_{max} [1]	Δp_{max} [1]	Δp_{max} [1]
			[mm]	[inch]			[l/h]	[l/h]	[kPa]	[kPa]	[kPa]	[kPa]
VPP46.10L0.2	S55264-V101	10	2.5	G ½	Externally threaded	-	30	200	600	-	600	600
VPP46.10L0.4	S55264-V131		5					370	-	600		
VPP46.15L0.2	S55264-V102	15	2.5	G ¾			30	200	600	-		
VPP46.15L0.6	S55264-V103						100	575				
VPP46.20F1.4	S55264-V104	20	5	G 1			220	1330	-	600		
VPP46.25F1.8	S55264-V121	25	5	G 1¼			260	1670				-
			5.5				280	1800		-		600
VPP46.32F4	S55264-V122	32	5	G 1½			510	3700		600		-
			5.5				550	4001		-		600
VPP46.10L0.2Q	S55264-V105	10	2.5	G ½		With pressure test points P/T	30	200	600			
VPP46.10L0.4Q	S55264-V132		5				65	370	-	600		
VPP46.15L0.2Q	S55264-V106	15	2.5	G ¾			30	200	600	-		
VPP46.15L0.6Q	S55264-V107						100	575				
VPP46.20F1.4Q	S55264-V108	20	5	G 1			220	1330	-	600		
VPP46.25F1.8Q	S55264-V123	25	5	G 1¼			260	1670				-
			5.5				280	1800		-		600
VPP46.32F4Q	S55264-V124	32	5	G 1½			510	3700		600		-
			5.5				550	4001		-		600

Product no.	Stock	DN	H_{100}	Connections		Test points	$\dot{v}_{min}$	$\dot{v}_{100}$	SUA21/3P	SUE21P	STA..65.. / STP..65..	SSA..
			[mm]	[inch]			[l/h]	[l/h]	Δp_{max} [1)] [kPa]	Δp_{max} [1)] [kPa]	Δp_{max} [1)] [kPa]	Δp_{max} [1)] [kPa]
VPI46.15L0.2	S55264-V109	15	2.5	Rp ½	Internal threaded	-	30	200	600	-	600	600
VPI46.15L0.6	S55264-V110						100	575				
VPI46.20F1.4	S55264-V111	20	5	Rp ¾			220	1330	-	600		-
VPI46.25F1.8	S55264-V125	25	5	Rp 1			260	1670				600
			5.5				280	1800		-		-
VPI46.32F4	S55264-V126	32	5	Rp 1¼			510	3700		600		600
			5.5				550	4001		-		
VPI46.15L0.2Q	S55264-V112	15	2.5	Rp ½		With pressure test points P/T	30	200	600			
VPI46.15L0.6Q	S55264-V113						100	575				
VPI46.20F1.4Q	S55264-V114	20	5	Rp ¾			220	1330	-	600		
VPI46.25F1.8Q	S55264-V127	25	5	Rp 1			260	1670				-
			5.5				280	1800		-		600
VPI46.32F4Q	S55264-V128	32	5	Rp 1¼			510	3700		600		-
			5.5				550	4001		-		600

[1)] Δp_{min} value refer to page 9

Product no.	Stock no.	DN	H_{100}	Connections		Test points	$\dot{v}_{min}$	$\dot{v}_{100}$	SAY..P	
			[mm]	[Inch]			[l/h]	[l/h]	Δp_{min} [kPa]	Δp_{max} [kPa]
VPI46.40F9.5Q	S55264-V129	40	15	Rp 1½	internally threaded	with pressure test points P/T	1370	9500	25	600
VPI46.50F12Q	S55264-V130	50		Rp 2			1400	11500	36	

DN = nominal size

H_{100} = nominal stroke

$\dot{v}_{100}$ = volumetric flow through fully open valve (H_{100})

$\dot{v}_{min}$ = smallest pre-settable volumetric flow through fully open valve (H_{100})

Δp_{max} = maximum permissible differential pressure across the valves control path, valid for the entire actuating range of the motorized valve

Δp_{min} = minimum differential pressure required across the valve's control path, so that the difference pressure regulator works reliably

Fittings

Product no.	Stock no.	Description
ALG..2	**ALG..2**	Set of 2 fittings with threaded connections for 2-port valves, consisting of 2 union nuts, 2 discs and 2 flat seals
ALG..2B	**S55846-Z1..**	Brass fittings, for media temperatures up to 100 °C

Ordering

Example

Product no.	Stock no.	Designation
VPP46.15L0.2	S55264-V102	Combi valve, PN 25, externally threaded
SSA331	S55180-A105	Actuator

Delivery PICV valves, actuators and accessories are packed and supplied separately.

Revision numbers See page 18

Equipment combinations DN 15…32

Actuators	Mounting set	Operating voltage	Positioning signal	Positioning force	Actuators (no power)[1)]	Spring return	Stroke	Connecting cable	Data sheet
SSA131	-	AC 24 V	3-position	100 N	-	-	6.5 mm	1.5 m	A6V11858276
SSA331		AC 230 V							
SSA161.05		AC/DC 24 V	DC 0...10 V						A6V11858278
SSA151.05HF			DC 4...20 mA						
SSA161.05HF			DC 0...10 V						
SSA161E.05HF									
SSA118.09HKN		DC 24 V	KNX S-Mode KNX PL-Link						A6V11858280
SUA21/3	AL60	AC 230V	3-wire on/off (SPST[1)])	170N	-		2.5 mm	0.8 m	A6V10446174
SUA21/3P	-	AC 230V		100N					A6V11780780
SUE21P		AC 230V					5mm		A6V11780777
STA121.65L10		AC / DC 24 V	2-Punkt	125 N	NC		6,5 mm	1 m	A6V14028280
STA121.65L20								2 m	
STA121.65H20								2 m halogen-frei	
STA121.65/00								-	
STA321.65L10		AC 230 V						1 m	
STA321.65L20								2 m	
STA321.65H20								2 m halogen-frei	
STA321.65/00								-	
STP121.65L10		AC / DC 24 V			NO			1 m	
STP121.65L20								2 m	
STP121.65/00								-	
STP321.65L10		AC 230 V						1 m	
STP321.65L20								2 m	
STP321.65/00								-	
STA161.65L10		AC 24 V	DC 0…10 V		NC			1 m	
STA162.65L10									
STP161.65L10		AC / DC 24 V			NO				
STP162.65L10									

[1)] NC = Normal Closed = VPP46../VPI46.. powerless closed
NO = Normal Open = VPP46../VPI46.. powerless open
The valve is fully opened without an actuator

Equipment combinations DN 40…50

Type	Article no.	Stroke	Pos. force	Operating voltage	Positioning signal	Spring return	Spring return direction	Pos. time	LED	Manual adjustment	Auxiliary functions
SAY31P03	**S55150-A132**	15 mm	200 N	AC 230 V	3-position	-	-	30 s	-	Press and fix in place	[1]
SAY61P03	**S55150-A133**			AC/DC 24 V	DC 0…10 V DC 4…20 mA 0…1000 Ω				✓		[2], [3]
SAY81P03	**S55150-A134**				3-position				-		[1]

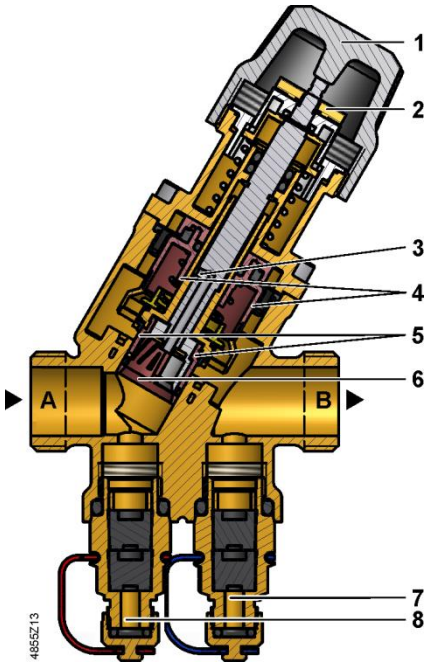
[1] Optional accessories: Auxiliary switch ASC10.51
[2] Positioning feedback, forced control, characteristic curve changeover
[3] Optional accessories: Auxiliary switch ASC10.51, sequence control, control action changeover AZX61.1

Fittings

Combi valves		Set of fittings		
Externally threaded		**Malleable cast iron**	**Brass**	
Product no.	Stock no.	Type / Stock no.	Product no.	Stock no.
VPP46.10L0.2	S55264-V101	-	ALG132 [1]	BPZ:ALG132
VPP46.10L0.4	S55264-V131	-	ALG132 [1]	BPZ:ALG132
VPP46.15L0.2	S55264-V102	-	ALG142 [1]	BPZ:ALG142
VPP46.15L0.6	S55264-V103	-	ALG142 [1]	BPZ:ALG142
VPP46.20F1.4	S55264-V104	ALG152	ALG152B [2]	S55846-Z100
VPP46.25F1.8	S55264-V121	ALG202	ALG202B[2]	S55846-Z102
VPP46.32F4	S55264-V122	ALG252	ALG252B[2]	S55846-Z104
VPP46.10L0.2Q	S55264-V105	-	ALG132 [1]	BPZ:ALG132
VPP46.10L0.4Q	S55264-V132	-	ALG132 [1]	BPZ:ALG132
VPP46.15L0.2Q	S55264-V106	-	ALG142 [1]	BPZ:ALG142
VPP46.15L0.6Q	S55264-V107	-	ALG142 [1]	BPZ:ALG142
VPP46.20F1.4Q	S55264-V108	ALG152	ALG152B [2]	S55846-Z100
VPP46.25F1.8Q	S55264-V123	ALG202	ALG202B[2]	S55846-Z102
VPP46.32F4Q	S55264-V124	ALG252	ALG252B[2]	S55846-Z104

[1] Connecting thread pipe side: Internally threaded
[2] Usable up to maximum medium temperature of 100 °C

Technical / mechanical design

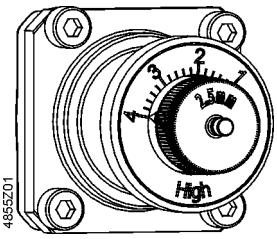


1 Manual control knob
2 Ring with dial for presetting
3 Aperture for differential pressure controller is linked with outlet port B
4 Differential pressure controller
5 Plug for presetting opening
6 Flow control valve
7 Pressure test point, blue ribbon, P-
8 Pressure test point, red ribbon, P+
A Inlet port A
B Outlet port B

Combi valves VP..46..Q (shown here) are additionally equipped with pressure test points P/T.

Functional principle

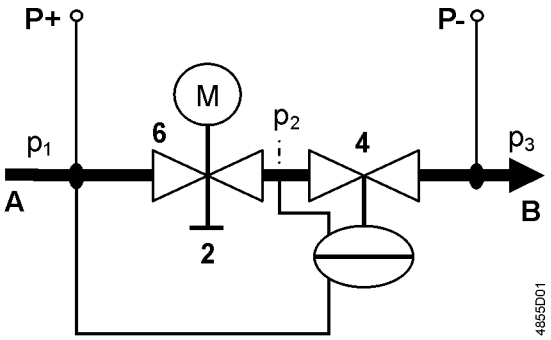
The medium entering the valve (inlet port A) passes through the variable presetting opening (5) which is connected to the ring with the dial (2) for presetting the desired maximum volumetric flow. Then, the medium flows through the flow control valve (6) with a linear characteristic and a stroke of 2.5 mm (DN 10…15) respectively 5 mm (DN 20).



Ring with dial for presetting (2)

The actuator (not shown here) opens and accurately positions the control valve (6). Before leaving the Combi valve, the medium passes through a built-in mechanical differential pressure controller (4). This differential pressure controller is the heart of the Combi valve and ensures that the selected volumetric flow is maintained across the whole working range and independent of the inlet pressure p_1.

The Combi valves VP..46..Q are additionally equipped with two pressure test points (P+, P-), which allow measurement of the differential pressure across the Combi valve. For that purpose, the electronic manometer ALE10 can be used.



A Inlet medium (inlet port)

B Outlet medium (outlet port)

2 Ring with dial for presetting

4 Differential pressure controller maintains the pressure $p_1 – p_2$ constant across the flow control valve (6) and the presetting (2)

6 Control valve with mounted actuator

P- = P/T port, pressure test point with blue ribbon (7)

P+ = P/T port, pressure test point with red ribbon (8)

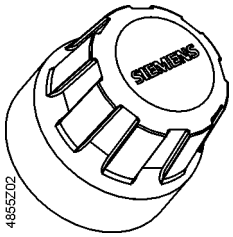
p_1 = pressure at inlet of Combi valve

p_2 = pressure at outlet of flow control valve

p_3 = pressure at outlet of Combi valve

Manual control DN 10…32

The manual control knob (1) is ready fitted to protect valve stem and pre-set mechanism and facilitates manual control of the Combi valve during commissioning.



Factory setting:

The valve is open. To close the valve, turn the manual knob clockwise.

The valve must be open to purge the system.

Accessories

Product no.	Stock no.		Description
ALE10	**ALE10**		Electronic manometer **excluding** measuring lines and measuring tips. Measuring range 0-700 kPa. A differential pressure of more than 1000 kPa will destroy the pressure sensor. For measuring the differential pressure between P+ and P- of the Combi valves (refer to diagram under "Functional principle" on page 3). Functions of the manometer: • Start/stop • Automatic zero position • Backlit display • Display: Out → outside the measuring range • Holding function
ALE11	**ALE11**		Measuring lines and straight measuring tips for use with Siemens Combi valves. Equipped with G ⅛" connection with 2 x 40 mm needles.
ALP45	**ALP45**		Spare nipples P/T port (set of 2) Set contains 1 piece each with a red and blue ribbon. Port: External threads G ⅛" to ISO 228 Connection to valve body: G ¼" to ISO 228, inclusive O-ring Length: 40 mm
ALP46	**S55264-V115**		Blanking plug for P/T ports Connection to valve body: G ¼" to ISO 228, inclusive O-ring
ALP47	**S55264-V116**		Drain ball valve inclusive O-ring Port: External threads G ½" to ISO 228 Connection to valve body: G ¼" to ISO 228, inclusive O-ring Length: 48 mm
ALP48	**S55264-V117**		Combined P/T port and drain ball valve with red ribbon Port: External threads G ⅛" to ISO 228 Connection to valve body: G ¼" to ISO 228, inclusive O-ring Length: 80 mm
ALP49	**S55264-V118**		Long P/T ports (set of 2 pieces) Set contains 1 piece each with a red and blue ribbon. Port: External threads G ⅛" to ISO 228 Connection to valve body: G ¼" to ISO 228, inclusive O-ring Length: 120 mm
ALP50	**S55264-V119**		Spare black valve protection cap

Engineering example

Basis of calculation

1. Determine energy demand Q [kW]
2. Determine temperature differential ΔT [K]
3. Calculate volumetric flow

$$\dot{v} = \frac{Q[kW] \cdot 1000}{1{,}163 \cdot \Delta T[K]} \left[\frac{l}{h}\right]$$

4. Select suitable Combi valve
   - pipe connections (internally or externally threaded)
   - with or without P/T ports
5. Determine dial setting using volumetric flow/dial presetting table, see the following page

Example

1. Given is a heat exchanger with $Q = 1.9$ kW
2. Temperature differential (supply - return) $\Delta T = 6$ K
3. Volumetric flow

$$\dot{v} = \frac{1{,}9 kW \cdot 1000}{1{,}163 \cdot 6\ K} = 272{,}28\ l/h$$

   Hint: You can also determine the volumetric flow using the valve slide rule.
4. The valve shall have connections with external threads to ISO 228-1 and size DN 15.
5. Combi valve selection:
   Ideally, Combi valves should be selected such that they operate at about 80% of their maximum flow, enabling them to deliver spare capacity, if required.
   VPP46.15L0.6 (externally threaded connections, no pressure test points P/T, nominal volumetric flow 600 l/h)
6. Determine dial setting using volumetric flow/dial presetting table below:
   Volumetric flow 270 l/h
   Dial setting 1.8

Volumetric flow/dial presetting

Tables to determine the dial setting for a desired volumetric flow.

Dp min [kPa] based on volumetric flow; interpolate missing values.

Note

The presetting tables indicate the expected nominal volumetric flow. During commissioning, check whether current pre-settings correspond to the planned design. Further adjustment of the pre-settings may be required to achieve the needed volumetric flow.

Presetting range linear to VDI/VDE 2173
Presetting range linear
Presetting range not permitted

VPP46.10L0.2, VPP46.10L0.2Q, VPP46.15L0.2, VPP46.15L0.2Q, VPI46.15L0.2, VPI46.15L0.2Q — **200 l/h nominal**

V̇ [l/h]				30	35	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]				14.3	14.3	14.3	14.5	14.6	14.6	14.7	14.8	14.9	15	15.1	15.2	15.3	15.4	15.5	15.5	15.6	15.7	15.8

VPP46.10L0.4, VPP46.10L0.4Q — **370 l/h nominal**

V̇ [l/h]					65	83	101	119	137	155	179	191	209	226	244	262	280	298	316	334	352	370
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					14.6	14.8	14.9	15.1	15.3	15.4	15.6	15.7	15.9	16	16.2	16.3	16.5	16.6	16.7	16.9	17	17.2

VPP46.15L0.6, VPP46.15L0.6Q, VPI46.15L0.6, VPI46.15L0.6Q — **600 l/h nominal**

V̇ [l/h]				100	115	130	160	180	210	240	270	300	320	350	380	410	440	460	490	520	550	575
Dial	Min.	0,2	0,4	0,5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]				14.9	15.2	15.5	15.6	15.9	16.1	16.4	16.6	16.8	17	17.2	17.5	17.6	17.8	18	18.2	18.4	18.6	18.9

VPP46.20F1.4, VPP46.20F1.4Q, VPI46.20F1.4, VPI46.20F1.4Q — **1400 l/h nominal**

V̇ [l/h]					220	290	350	420	480	550	610	680	740	810	870	940	1000	1070	1130	1200	1260	1330
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					16	16.5	17	17.5	17.9	18.4	18.8	19.2	19.5	19.9	20.2	20.4	20.7	20.9	21.1	21.3	21.4	21.6

VPP46.25F1.8, VPP46.25F1.8Q, VPI46.25F1.8, VPI46.25F1.8Q — **1800 l/h nominal**

V̇ [l/h]					280	356	430	502	574	647	722	800	881	967	1057	1151	1250	1353	1460	1571	1685	1800
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					15.3	15.8	16.1	16.4	16.7	17	17.5	18	18.7	19.7	20.9	22.3	24.2	26.4	28.9	32.0	35.4	39.4

VPP46.32F4, VPP46.32F4Q, VPI46.32F4, VPI46.32F4Q — **4000 l/h nominal**

V̇ [l/h]					550	800	910	1110	1320	1520	1720	1930	2130	2330	2530	2740	2940	3140	3350	3550	3750	4001
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					17.9	18	18.1	18.2	18.3	18.5	18.7	18.9	19.2	19.6	20.1	20.7	21.4	22.3	23.4	24.6	26	28

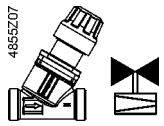
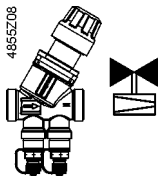
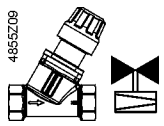
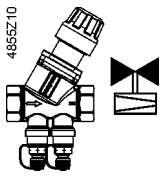
VPI46.40F9.5Q — **9500 l/h nominal**

V̇ [l/h]					1370	1600	1950	2250	2650	3000	3400	3800	4250	4750	5250	5800	6350	6950	7550	8200	8800	9500
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					10	10	10	10	10	10	10	11	11	12	13	15	16	18	20	22	24	25

VPI46.50F12Q — **11500 l/h nominal**

V̇ [l/h]					1400	1650	2000	2350	2700	3150	3550	4050	4600	5150	5800	6500	7300	8150	9000	9800	10600	11500
Dial	Min.	0.2	0.4	0.5	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δpmin [kPa]					10	10	11	11	11	12	12	13	14	15	17	19	21	24	27	30	33	36

Engineering notes

Valve	Symbols / Direction of flow		Flow in control mode	Valve stem	
	VP..46..	VP..46..Q		retracts	extends
Combi valve VPP46..			variable	closes	opens
Combi valve VPI46..			variable	closes	opens

⚠ **The direction of flow indicated (arrow on the valve body) is mandatory!**

The valves should preferably be mounted in the return pipe where temperatures are lower and where the sealing gland is less affected by strain.

Symbols

Symbol used in catalogs and application descriptions	Symbol used in diagrams
	There are no standard symbols for Combi valves in diagrams.

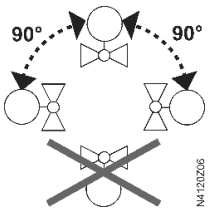
Recommendation

A strainer or dirt trap should be fitted upstream of the valve to enhance reliability.
Remove dirt, welding beads etc. from valves and pipes.
Do not insulate the actuator bracket, as air circulation must be ensured!

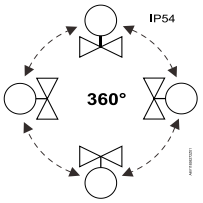
Mounting notes

Combi valve and actuator can be straightforwardly assembled on site. Special tools or adjustments are not required.
Prior to mounting the actuator, the required volumetric flow must be set.
The valve is supplied complete with Mounting Instructions (74 319 0649 0 b).

Mounting positions



SUA21/3P
SUE21P, SAY.. indoor



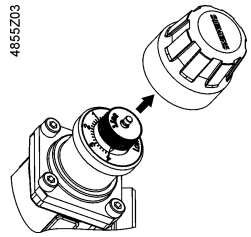
STA..65.., STP..65..,
SSA1.., SSA3..

Actuators STA..65.., STP..65.., SSA1.. and SSA3.. may be installed in any position.
Actuators SUA21/3P, SUE21P and SAY.. must be installed horizontally up to 90° and not hanging.

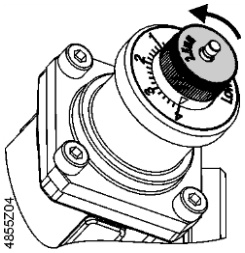
Prior to mounting the actuator, the presetting is to be made as follows:

Presetting DN 10…32:

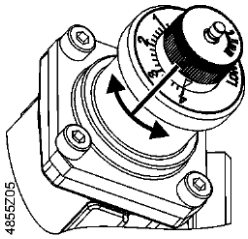
1. Remove control knob from Combi valve.



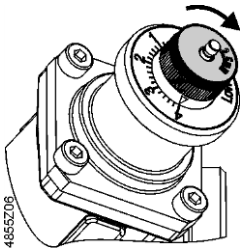
2. Loosen knurled nut.



3. Adjust the desired dial setting with the white knob.

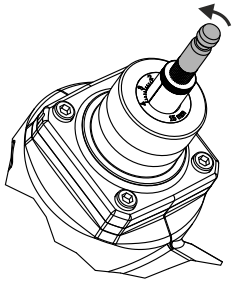


4. Retighten knurled nut by hand.

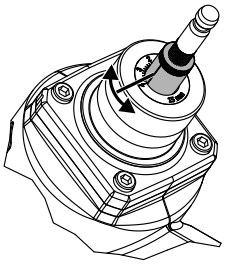


Presetting DN 40…50:

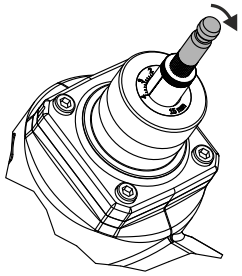
1. Loosen spindle head



2. Adjust the desired dial setting with the white knob.

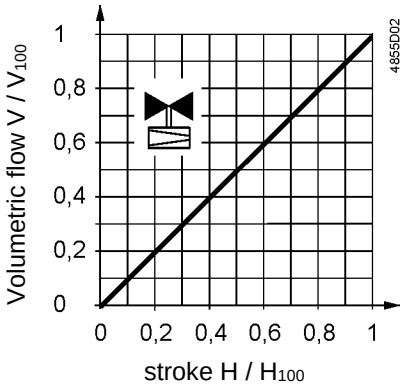


3. Retighten spindle head - by hand only



Valve characteristic

VP..46.., VP..46..Q



Commissioning notes

⚠ **The valves must be commissioned with the manual control knob or actuator correctly fitted. Strong pressure impacts can damage closed Combi valves.**

⚠ **The Combi valves have to be open when flushing or pressure testing the system. Flush only in correct flow direction. Strong pressure impacts can damage closed Combi valves.**

⚠ **Differential pressure Δp_{max} across the valve's control path is not allowed to exceed 600 kPa.**

Manual control

When turning the manual control knob in counter-clockwise direction or manually operating the actuator, the valve opens. The actuator closes the valve. The valves are supplied fully open. The manual knob is not designed for permanent manual operation.

Maintenance notes

The V..P46.. PICV valves are maintenance-free without cartridge.
Valve plug, stem, presetting, diaphragm etc. may not be disassembled

⚠ When performing service work on the valve and / or actuator:

- Switch off the pump and disconnect power supply.
- Close the shut-off valves in the piping network.
- Fully reduce pressure in the piping network and allow the pipes to cool down completely.

Remove the electrical connections only if necessary.

Sealing gland

The stem sealing gland cannot be exchanged. Should leakage occur, the whole valve must be replaced.

Disposal

Do not dispose of the device as household waste.

⚠ **Warning**
Due to the tensioned spring return, valve disassembly may result in flying parts causing possible injury.

Only authorized staff may disassemble valves with tensioned spring return!

Disposal

- Special handling of individual components may be mandated by law or make ecological sense.
- Observe all local and currently applicable laws and regulations.

Warranty

Application-related technical data are guaranteed only when the valves are used in connection with the Siemens actuators listed under "Equipment combinations" on page 4. When used with actuators of other manufacture, any warranty by Siemens becomes void.

Technical data

Functional data	PN class		PN 25 as per EN 1333
	Permissible operating pressure		2.500 kPa (25 bar) as per ISO 7628 / EN 1333
	Max. differential pressure		600 kPa
	Min. differential pressure		See tables volumetric flow/dial presetting
	Valve characteristic		Linear as per VDI/VDE 2173
	Leakage rate in general		Class IV (0…0.01% of volumetric flow V_{100}) to EN 1349
	DN 25…32 with STA..3..		Class III (0…0,1% of volumetric flow V_{100}) per EN 1349
	Average flow accuracy		+/-10% from ΔPmin - to 2.5 x ΔPmin
			+/- 5% from 2.5 x ΔPmin – to 600kPa
	Permissible media		Low-temperature hot water, chilled water, water with antifreeze Recommendation: Water treatment to VDI 2035
	Medium temperature:		
	Valve with actuator		1...120 °C
			1…110°C with SUA21/3[3)], SUA21/3P, SUE21P
	Permissible ambient temperature		1…50 °C
	Nominal stroke	DN 10L0.2 DN 15L0.2 DN 15L0.6	2.5 mm
		DN 10L0.4 / DN 20	5 mm
		DN 25…32	5.5 mm
		DN 40…50	15 mm
Materials	Valve body, port, seat, sealing gland and test points		Dezincification resistant hot-pressed brass (DZR), CW602N
	Valve body DN 40…50		Nodular cast iron
	Stem, spring		Stainless steel
	Presetting element		PTFE, PPO, POM C and ABS
	Regulator		PPS
	Seals		EPDM 281 (O-ring)
Dimensions / weight	Dimensions		Refer to "Dimensions" on page 16
	Threaded connections	VPP46..	G to ISO 228-1 (externally threaded)
		VPI46..	Rp to ISO 7-1 (internally threaded)
	Actuator connection	DN 10…32	M30 x 1.5 mm
		DN 40…50	Siemens large stroke connector
	Pressure test points (P/T-ports)		G ¼" (connection valve body)
			2 mm x 40 mm (needles)
	Weight		Refer to "Dimensions" on page 16

Standards, directives and approvals	Pressure Equipment Directive Pressure-carrying accessories		PED 2014/68/EU Scope: Article 1, section 1 Definitions: Article 2, section 5
	Fluid group 2	DN 10…40	Without CE-marking as per article 4, section 3 (sound engineering practice) [1]
		DN 50	Category I, Modul A, with CE-marking as per article 14, section 2
	EU conformity (CE)	DN 50	A5W00022837, CE1T4855xx [2]
	EAC conformity		Eurasia conformity
Environmental compatibility	The product environmental declaration CE1E4855en [2] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).		

[1] Valves where PS x DN < 1000, do not require special testing and cannot carry the CE label.

[2] Documents are available at http://www.siemens.com/bt/download

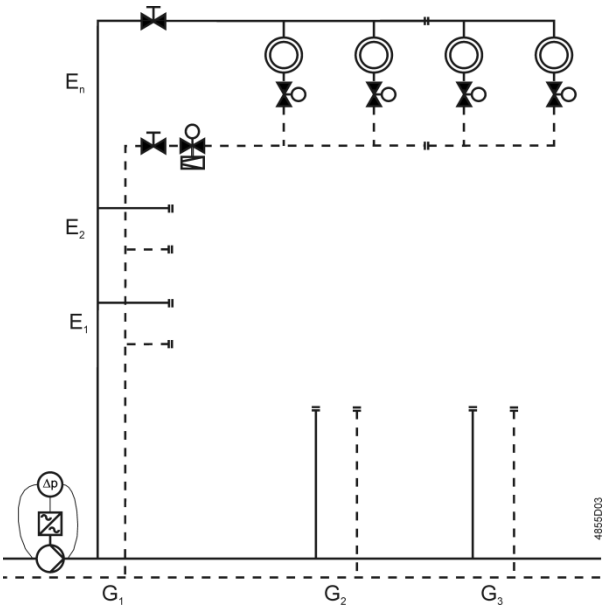
[3] Only with mounting AL60 accessory, the SUA21/3 can drive the VPI46.. or VPP46..valve

Application examples

Combi valves in HVAC systems combined with variable speed pumps provide even higher energy efficiency. When sizing the pump, it must be made certain that the most critical branch or consumer in the system – usually the remotest from the pump – gets enough pressure (pump head). Thus, it is recommended to use a variable speed pump in constant-pressure mode with end-point feedback, to maintain a minimum differential pressure across the critical valve.

Residential buildings

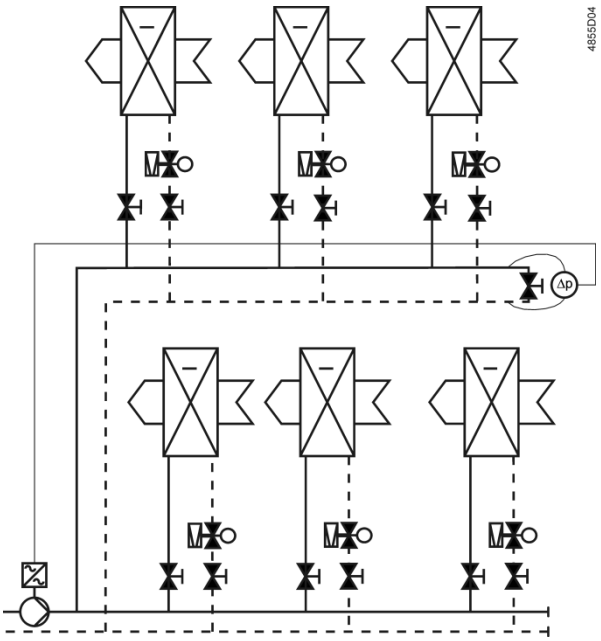
Residential buildings with for example self-contained flat heating systems:



E = Floor
G = Group or zone

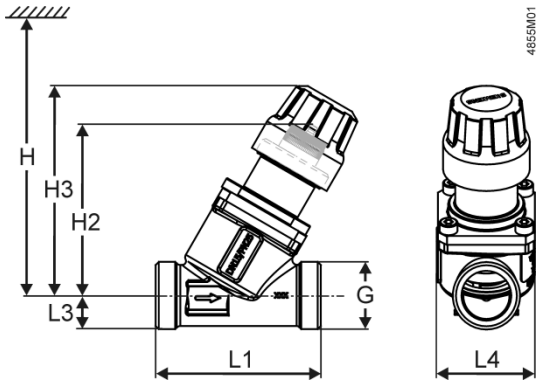
Non-residential buildings

Commercial buildings with for example Fan Coil Units or heat exchangers for heating or cooling:

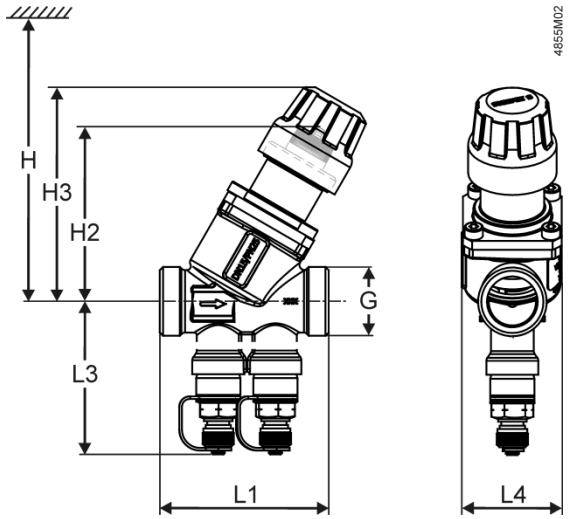


Dimensions

VPP46..

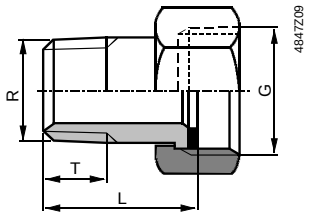
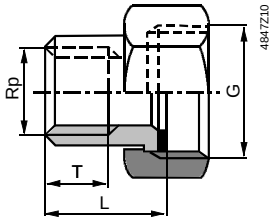


VPP46..Q



Valves	DN	G	L1	L3	L4	H2	H3	H [1]		Weight
								SSA..	STA..65.. / STP..65..	
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
VPP46.10L0.2	10	½	65	10.5	38	68.5	83.5	170	160	0.314
VPP46.10L0.4										
VPP46.15L0.2	15	¾		13.2		67.3	82.2			0.333
VPP46.15L0.6										
VPP46.20F1.4	20	1	70	13.6		67.5	82.5			0.371
VPP46.25F1.8	25	1¼	78	22		70	85			0.497
VPP46.32F4	32	1½	104	26	63	85	100	185	175	1.22
VPP46.10L0.2Q	10	½	65	54.8	38	68.5	83.5	170	160	0.402
VPP46.10L0.4Q										0.302
VPP46.15L0.2Q	15	¾		55.5		67.3	82.2			0.422
VPP46.15L0.6Q										
VPP46.20F1.4Q	20	1	70	57.3		67.5	82.5			0.459
VPP46.25F1.8Q	25	1¼	78	59		70	85			0.59
VPP46.32F4Q	32	1½	104	68	63	85	100	185	175	1.317

[1] Total height including actuator

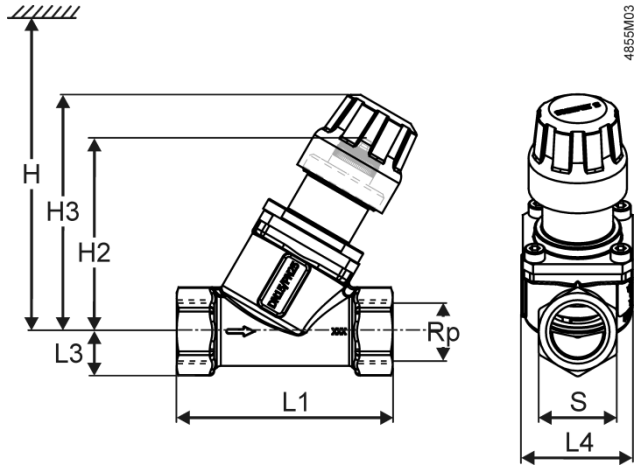
Sets of threaded fittings with flat seal ALG…2: set of 2 threaded fittings	ALG132 ALG142	pipe side with external R threads	
	ALG152 ALG152B ALG202 ALG202B ALG252 ALG252B	pipe side with internal Rp threads	

Type ALG..		for valve type	DN	G	R	Rp	L	T
Malleable cast iron	Brass [1]			[Inch]	[Inch]	[Inch]	[mm]	[mm]
	ALG132	VPP46.10..	10	G ½	R ⅜		≈ 24	≈ 9
	ALG142	VPP46.15..	15	G ¾	R ½		≈ 29.5	≈ 12
ALG152	**ALG152B**	VPP46.20..	20	G 1		Rp ½	≈ 23	≈ 13
ALG202	**ALG202B**	VPP46.25..	25	G 1¼		Rp ¾		
ALG252	**ALG252B**	VPP46.32..	32	G 1½		Rp 1		

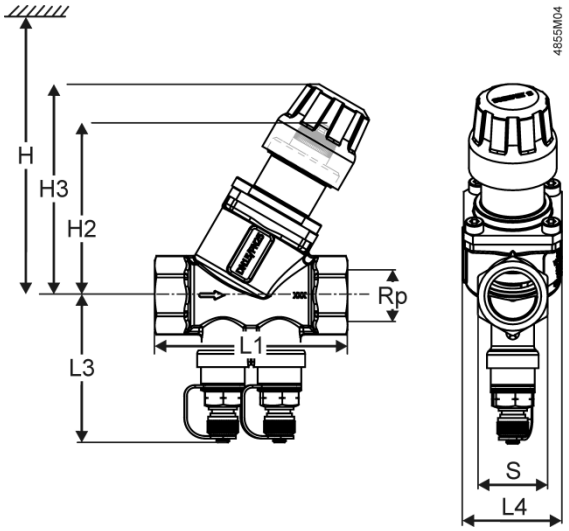
[1] Maximum medium temperature 100 °C

- On valve side: cylindrical thread to ISO 228-1, on pipe side: with cylindrical thread to ISO 7-1

VPI46..



VPI46..Q



Valves	DN	Rp	S	L1	L3	L4	H2	H3	H [1]			Weight
									SSA..	STA..65.. / STP..65..	SAY..	
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
VPI46.15L0.2	15	½	27	75	15.2	38	67.3	82.4	170	160	-	0.377
VPI46.15L0.6												
VPI46.20F1.4	20	¾	32	79	17.9		67.5	82.5				0.418
VPI46.25F1.8	25	1	39	83	22		70	85				0.533
VPI46.32F4	32	1¼	46	104	26	63	85	100	185	175		1.219
VPI46.15L0.2 Q	15	½	27	75	60.2	38	67.3	82.4	170	160		0.477
VPI46.15L0.6 Q												
VPI46.20F1.4 Q	20	¾	32	79	62.9		67.5	82.5				0.506
VPI46.25F1.8 Q	25	1	39	83	59		70	85				0.625
VPI46.32F4Q	32	1¼	46	104	68	63	85	100	185	175		1.316
VPI46.40F9.5 Q	40	1½	56	138	71	90	161	-	-	-	500	3.253
VPI46.50F12 Q	50	2	70		77							3.683

[1] Total height including actuator

Revision Numbers

Product number	Valid from rev. no.	Product number	Valid from rev. no.
VPP46.10L0.2	**..A**	**VPP46.10L0.2Q**	**..A**
VPP46.10L0.4	**..B**	**VPP46.10L0.4Q**	**..B**
VPP46.15L0.2	**..A**	**VPP46.15L0.2Q**	**..A**
VPP46.15L0.6	**..A**	**VPP46.15L0.6Q**	**..A**
VPP46.20F1.4	**..A**	**VPP46.20F1.4Q**	**..A**
VPP46.25F1.8	**..A**	**VPP46.25F1.8Q**	**..A**
VPP46.32F4	**..A**	**VPP46.32F4Q**	**..A**
VPI46.15L0.2	**..A**	**VPI46.15L0.2Q**	**..A**
VPI46.15L0.6	**..A**	**VPI46.15L0.6Q**	**..A**
VPI46.20F1.4	**..A**	**VPI46.20F1.4Q**	**..A**
VPI46.25F1.8	**..A**	**VPI46.25F1.8Q**	**..A**
VPI46.32F4	**..A**	**VPI46.32F4Q**	**..A**
		VPI46.40F9.5Q	**..A**
		VPI46.50F12Q	**..A**

Documentation form

Installed location	Valve type	Actuator Type	Valve Size	Planned Pre-setting	Required ∆pmin (kPa)	Verified ∆p (kPa)	Flow[1] (l/h)

[1)] Flow = if Verified Δp_{min} > Required Δp_{min}, then Flow is as per presetting in datasheet, otherwise check.

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