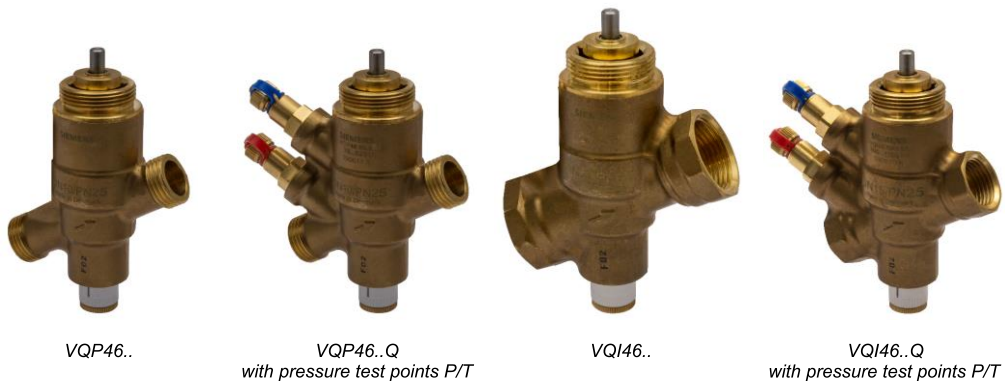


On/Off PICV, PN 25

VQP46.., VQP46..Q, VQI46.., VQI46..Q



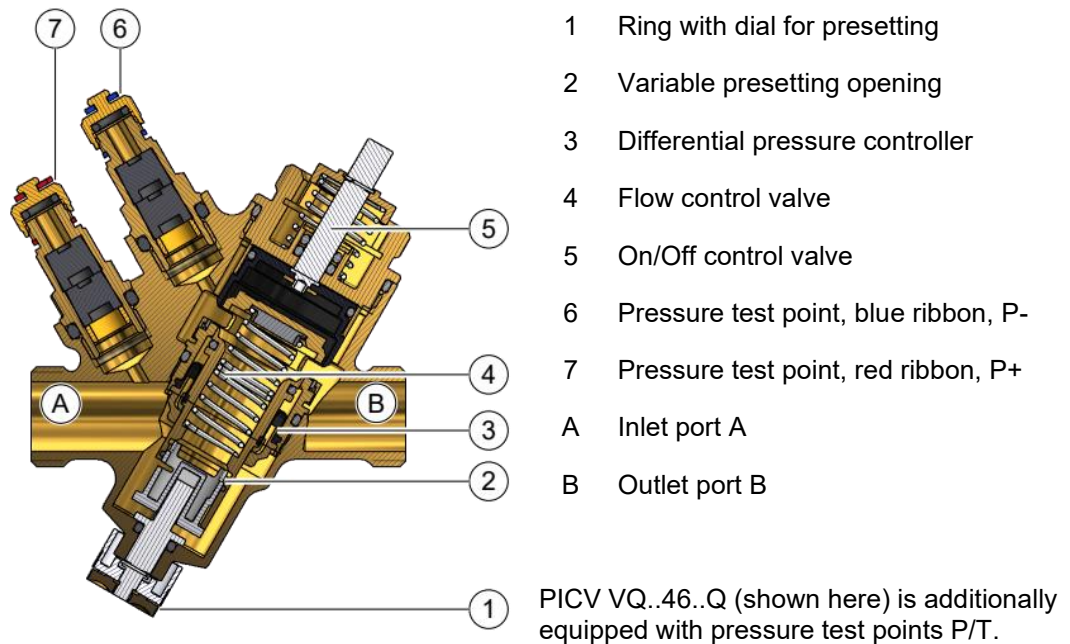
For rooms, zones, ventilation and air-conditioning systems

- Integrated differential pressure controller
- Valve body made of dezincification resistant hot-pressed brass (DZR)
- Volumetric flow 30...1800 l/h
- Differential pressure range 17...600 kPa
- Internally threaded G conforming to ISO 228-1
- Externally threaded G conforming to ISO 228-1
- Version with pressure test points for Δp measurement (optional)
- Can be equipped with electrothermal or electromotive actuators
 - STA..65.., STP..65..
 - SUE21P (2-position)
 - SSA131.00, SSA331.00 (3-position)
 - SSD131.09UT, SSD131.29UT (3-position)

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 and cooling, with 2-point control
- In heating zones, such as self-contained heating systems, apartments, individual rooms, etc.
- For closed circuits

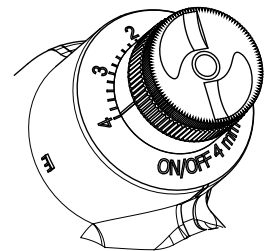
Technical design



Functional principle

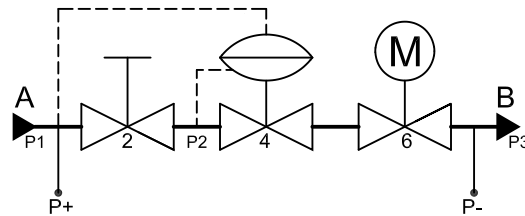
The above drawing is used as a reference for this following description.

The medium entering the valve (inlet port A) passes through the variable presetting opening [2] which is connected to the ring with the dial [1] for presetting the desired maximum volumetric flow. Then, the medium flows through the On/Off control valve [5].



The actuator opens and closes the On/Off control valve [5]. After the presetting, the medium passes through a built-in mechanical differential pressure controller [3]. This differential pressure controller is the heart of the PICV and ensures that the selected volumetric flow is maintained across the whole working range and independent of the inlet pressure P1.

The PICV VQ..46..Q are additionally equipped with 2 pressure test points (P+, P-). These pressure test points allow the measurement of the differential pressure across the PICV in order to check if Δp is sufficient to reach Δp_{min} . For that purpose, the electronic manometer ALE10 can be used.

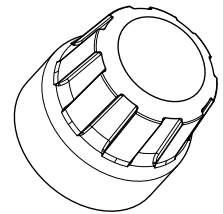


- A Inlet medium (inlet port)
- B Outlet medium (outlet port)
- 2 Ring with dial for presetting
- 4 Differential pressure controller maintains the pressure P1 – P2 constant across the presetting [5]
- 6 On/Off control valve with mounted actuator

- P1 Pressure at inlet of PICV
- P2 Pressure at outlet of presetting
- P3 Pressure at outlet of PICV
- P+ P/T port, pressure test point with red ribbon [7]
- P- P/T port, pressure test point with blue ribbon [6]

Manual control

The manual control knob can be fitted to protect the valve stem and facilitates manual control of the PICV during commissioning. The manual control knob is delivered loose in the box.



Factory setting:

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

The valve must be open to purge the system.

Sizing

Engineering example

Basis of calculation

1. Determine energy demand Q [kW]
2. Determine temperature differential (supply – return) ΔT [K]
3. Calculate volumetric flow $\dot{V} = \frac{Q[\text{kW}] \cdot 1000}{1,163 \cdot \Delta T[\text{K}]} \left[\frac{\text{l}}{\text{h}} \right]$

Hint: you can also determine the volumetric flow using the valve slide rule.

4. Select suitable PICV
 - Pipe connections (internally or externally threaded)
 - With or without P/T ports
 - Ideally, PICVs should be selected such that they operate at about 80 % of their maximum flow, enabling them to deliver spare capacity, if required.
- ⇒ Determine dial setting using volumetric flow/dial presetting table, see Volumetric flow/dial presetting [► 4]

Example

Given is a heat exchanger with:

1. Energy demand: $Q = 1.9 \text{ kW}$
2. Temperature differential: $\Delta T = 6 \text{ K}$
3. Volumetric flow $\dot{V} = \frac{1.9 \text{ kW} \cdot 1000}{1,163 \cdot 6 \text{ K}} = 272.28 \text{ l/h}$
4. The valve shall have connections with external threads to ISO 228-1 and size DN 15.
 - PICV selection:
VQP46.15L0.5 (externally threaded connections, no pressure test points P/T, nominal volumetric flow 520 l/h)
5. Volumetric flow: 270 l/h
Dial setting: 2.6

Volumetric flow/dial presetting

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

$\Delta p_{\min}$ [kPa] based on volumetric flow; interpolate missing values.

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

- Presetting range not permitted

VQP46.10L0.5, VQP46.10L0.5Q																	520 l/h nominal				
$\dot{V}$ [l/h]	-	-	-	30	45	60	76	95	116	140	167	197	231	267	305	345	385	424	460	493	520
Dial	Min.	0.2	0.4	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.
$\Delta p_{\min}$ [kPa]				17	22	26	26	27	28	29	30	30	30	30	30	30	30	30	30	30	30

VQP46.15L0.5, VQP46.15L0.5Q, VQI46.15L0.5, VQI46.15L0.5Q																	520 l/h nominal				
$\dot{V}$ [l/h]	-	-	-	30	45	60	76	95	116	140	167	197	231	267	305	345	385	424	460	493	520
Dial	Min.	0.2	0.4	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.
$\Delta p_{\min}$ [kPa]				19	23	27	27	27	27	28	28	28	28	28	28	28	28	28	28	28	28

VQP46.15F1.3, VQP46.15F1.3Q, VQI46.15F1.3, VQI46.15F1.3Q																	1300 l/h nominal				
$\dot{V}$ [l/h]	-	-	-	300	411	500	573	636	692	746	800	855	913	974	1037	1100	1161	1216	1261	1291	1300
Dial	Min.	0.2	0.4	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.
$\Delta p_{\min}$ [kPa]				27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	28	28	28

VQP46.20F1.5, VQP46.20F1.5Q, VQI46.20F1.5, VQI46.20F1.5Q																		1500 l/h nominal			
$\dot{V}$ [l/h]	-	-	-	320	411	500	586	669	749	826	900	971	1040	1106	1169	1230	1288	1344	1398	1450	1500
Dial	Min.	0.2	0.4	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.
$\Delta p_{\min}$ [kPa]				35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35

VQP46.25F1.8, VQP46.25F1.8Q, VQI46.25F1.8, VQI46.25F1.8Q																		1800 l/h nominal			
$\dot{V}$ [l/h]	-	-	-	620	731	850	971	1089	1198	1296	1380	1450	1505	1546	1577	1600	1640	1680	1720	1760	1800
Dial	Min.	0.2	0.4	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.
$\Delta p_{\min}$ [kPa]				30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	31	31	31

Note: Using a linear interpolation will cause a minor offset.

Valve characteristic

Since the VQP/VQI is an On/Off PICV, the valve characteristic is not based on a modulating function. The valve characteristic is made up of two operating points:

- The PICV is closed at stroke $H/H_{100} = 0$ and volumetric flow $V/V_{100} = 0$
- The PICV is open at stroke $H/H_{100} = 1$ and volumetric flow $V/V_{100} = 1$

Type summary

Type	Stock no.	DN	H ₁₀₀	Connections		Test points	$\dot{V}_{\min}$	$\dot{V}_{100}$		
			[mm]	[inch]		P/T-ports	[l/h]	[l/h]		
VQP46.10L0.5	S55264-V134	10	4	G ½	Externally threaded	No	30	520		
VQP46.10L0.5Q	S55264-V133					Yes				
VQP46.15L0.5	S55264-V138	15		G ¾		No	300	1300		
VQP46.15L0.5Q	S55264-V137					Yes				
VQP46.15F1.3	S55264-V142					No			320	1500
VQP46.15F1.3Q	S55264-V141					Yes				
VQP46.20F1.5	S55264-V146	20		G 1		No	620	1800		
VQP46.20F1.5Q	S55264-V145					Yes				
VQP46.25F1.8	S55264-V150	25		G 1 ¼		No	620	1800		
VQP46.25F1.8Q	S55264-V149					Yes				

Type	Stock no.	DN	H ₁₀₀	Connections		Test points	$\dot{V}_{\min}$	$\dot{V}_{100}$
			[mm]	[inch]		P/T-ports	[l/h]	[l/h]
VQI46.15L0.5	S55264-V136	15	4	G ½	Internally threaded	No	30	520
VQI46.15L0.5Q	S55264-V135					Yes		
VQI46.15F1.3	S55264-V140					No	300	1300
VQI46.15F1.3Q	S55264-V139					Yes		
VQI46.20F1.5	S55264-V144	20		G ¾		No	320	1500
VQI46.20F1.5Q	S55264-V143					Yes		
VQI46.25F1.8	S55264-V148	25		G 1		No	620	1800
VQI46.25F1.8Q	S55264-V147					Yes		

DN	=	Nominal size
H ₁₀₀	=	Nominal stroke
$\dot{V}_{\min}$	=	Smallest pre-settable volumetric flow through fully open valve (H ₁₀₀)
$\dot{V}_{100}$	=	Volumetric flow through fully open valve (H ₁₀₀)

Delivery

PICVs, actuators and accessories are packaged and supplied separately.

Type	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 PICVs (refer to drawing under Functional principle [► 2]). 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 PICVs. Equipped with G 1/8 " 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 1/8 " to ISO 228 Connection to valve body: G 1/4 " to ISO 228, including O-ring Length: 40 mm
ALP46	S55264-V115		Blanking plug for P/T ports. Connection to valve body: G 1/4 " to ISO 228, including O-ring
ALP47	S55264-V116		Drain ball valve including O-ring. Port: External threads G 1/2 " to ISO 228 Connection to valve body: G 1/4 " to ISO 228, including O-ring Length: 48 mm
ALP48	S55264-V117		Combined P/T port and drain ball valve with red ribbon. Port: External threads G 1/8 " to ISO 228 Connection to valve body: G 1/4 " to ISO 228, including O-ring Length: 80 mm
ALP49	S55264-V118		Long P/T ports (set of 2). Set contains 1 piece each with a red and blue ribbon. Port: External threads G 1/8 " to ISO 228 Connection to valve body: G 1/4 " to ISO 228, including O-ring Length: 120 mm
ALP54	S55264-V154		Special tool for loosening and removing the On/Off PICV bonnet in order to remove the differential pressure regulator for replacement or cleaning
ALR15L0.5	S55264-V221		Differential pressure regulator replacement for VQP46.10L0.5.., VQP46.15L0.5.. and VQI46.15L0.5..
ALR15L1.3	S55264-V222		Differential pressure regulator replacement for VQP46.15F1.3.. and VQI46.15F1.3..
ALR15L1.5	S55264-V223		Differential pressure regulator replacement for VQP46.20F1.5.. and VQI46.20F1.5..
ALR15L1.8	S55264-V224		Differential pressure regulator replacement for VQP46.25F1.8.. and VQI46.25F1.8..

Fittings

Type	Stock no.	Description
ALG132	ALG132	Set of 2 fittings with threaded connections for 2-port valves, consisting of 2 union nuts, 2 discs and 2 flat seals.
ALG142	ALG142	
ALG152	ALG152	Set of 2 fittings with threaded connections for 2-port valves, consisting of 2 union nuts, 2 discs and 2 flat seals. ALG..2B are brass fittings, for media temperatures up to 100 °C.
ALG152B	S55846-Z100	
ALG202	ALG202	
ALG202B	S55846-Z102	

Ordering (example)

Type	Stock no.	Description
VQP46.15L0.5	S55264-V138	On/Off PICV, PN 25, externally threaded
STA161.65L10	S55174-A214	Thermal Actuator, AC 24 V, NC 0..10 V

Actuators

Type	Stock number	Operating voltage	Positioning		Actuators (no power) ¹⁾	Spring return	Stroke	Connecting cable	Data sheet		
			signal	force							
SUE21P	S55176-A106	AC 230 V	2-position	100 N	NC	Yes	5 mm	0.8 m	A6V11780777		
SSA131.00	S55180-A106	AC 24 V	3-position		-	No	6.1 mm	1.5 m	A6V11858276		
SSA331.00	S55180-A105	AC 230 V						1.5 m			
SSD131.09UT	S55180-A181	AC 24 V						300 N	Yes	-	A6V15767615
SSD131.29UT	S55180-A182	AC 230 V								-	
STA121.65L10	S55174-A201	AC/DC 24 V	2-position PDM/TPI ³⁾	125 N	NC		6.5 mm	1 m	A6V14028280		
STA121.65L20	S55174-A205							2 m			
STA121.65H20 ²⁾	S55174-A208							2 m halogen free			
STA121.65/00	S55174-A211							-			
STA161.65L10	S55174-A214	AC 24 V	DC 0..10 V				1 m				
STA162.65L10	S55174-A216	AC/DC 24 V									
STA321.65L10	S55174-A200	AC 230 V	2-position					2 m			
STA321.65L20	S55174-A204							2 m halogen free			
STA321.65H20 ²⁾	S55174-A209						-				
STA321.65/00	S55174-A210										
STP121.65L10	S55174-A203	AC/DC 24 V	2-position PDM/TPI ³⁾		NO		1 m				
STP121.65L20	S55174-A207						2 m				
STP121.65/00	S55174-A213						-				
STP161.65L10	S55174-A215	AC 24 V	DC 0..10 V				1 m				
STP162.65L10	S55174-A217	AC/DC 24 V									
STP321.65L10	S55174-A202	AC 230 V	2-position				2 m				
STP321.65L20	S55174-A206						-				
STP321.65/00	S55174-A212										

¹⁾ NC = Normally closed = VQP46..VQI46.. powerless closed

NO = Normally open = VQP46..VQI46.. powerless open

The valve is fully opened without an actuator

²⁾ Halogen-free as per VDE 0207-24

³⁾ PDM (Pulse Duration Modulation) / TPI (Time Proportional Integral)

Fittings

PICV		Set of fittings			
Externally threaded		Cast iron		Brass	
Type	Stock no.	Type	Stock no.	Type	Stock no.
VQP46.10L0.5	S55264-V134	-	-	ALG132 ¹⁾	ALG132
VQP46.10L0.5Q	S55264-V133			ALG142 ¹⁾	ALG142
VQP46.15L0.5	S55264-V138				
VQP46.15L0.5Q	S55264-V137				
VQP46.15F1.3	S55264-V142				
VQP46.15F1.3Q	S55264-V141				
VQP46.20F1.5	S55264-V146	ALG152	ALG152	ALG152B ²⁾	S55846-Z100
VQP46.20F1.5Q	S55264-V145				
VQP46.25F1.8	S55264-V150	ALG202	ALG202	ALG202B ²⁾	S55846-Z102
VQP46.25F1.8Q	S55264-V149				

¹⁾ Connecting thread pipe side: Internally threaded

²⁾ Max. media temperature up to 100 °C

Product documentation

Title	Content	Document ID
Mounting instructions VQP46.., VQP46..Q, VQI46.., VQI46..Q	Mounting instructions	A6V11878322
Electrothermal actuators SUA21P	Data sheet: product description	A6V11780777
Mounting instructions Actuators SUA21/3P, SUE21P	Mounting instructions	A6V11678006
Mounting instructions Actuators STA..65.., STP..65..	Mounting instructions	A6V14047515
Electrothermal actuators STA..65.., STP..65..	Data sheet: product description	A6V14028280
Mounting instructions Actuators SSA131.00, SSA331.00	Mounting instructions	A5W00074459A
Mounting instructions Actuators SSD..	Mounting instructions	A5W02110565A
Electrothermal actuators SSA131.00, SSA331.00	Data sheet: product description	A6V11858276
Electrothermal actuators SSD..	Data sheet: product description	A6V15767615

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Security

⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national regulations and comply with the appropriate safety regulations.

Engineering

Valve	Symbols / Direction of flow		Flow in control mode	Valve stem	
	VQ..46..	VQ..46..Q		retracts	extends
On/Off PICV VQP46..			constant	closes	opens
On/Off PICV VQI46..					

⚠ CAUTION

The direction of flow indicated by the 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 PICVs in diagrams.

Recommendation

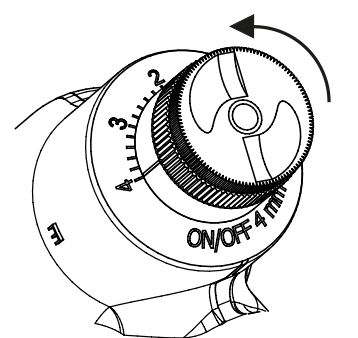
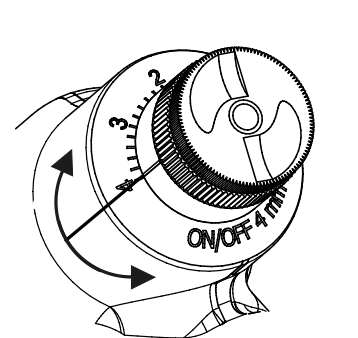
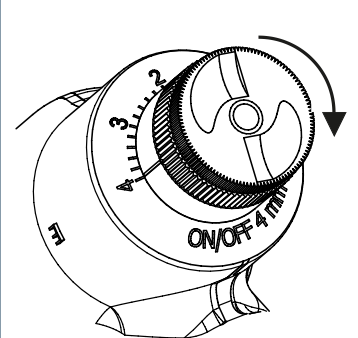
A strainer or dirt trap should be fitted upstream of the valve to enhance reliability. Remove dirt welding beads, etc. from valves and pipes.

Do not insulate the actuator bracket, as air circulation must be ensured!

Installation

Presetting

Presetting can be done with or without the actuator mounted.

1. Loosen knurled nut.	2. Adjust the desired dial setting with the white knob.	3. Retighten knurled nut by hand.
		

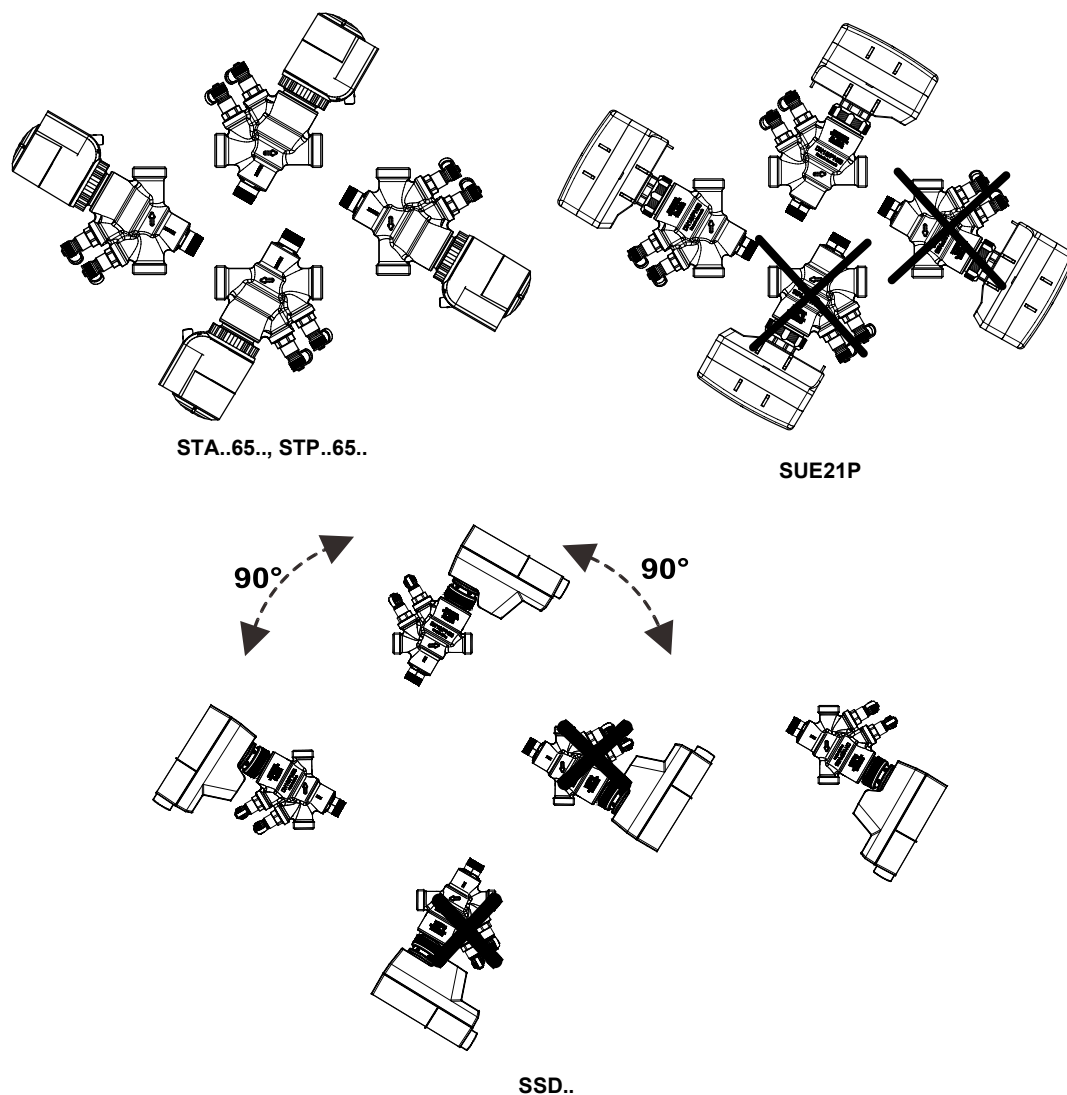
Mounting

PICV 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 (A6V11878322).

Mounting positions



Thermal actuators STA..65.., STP..65.. and SSA... may be installed in any position.

Actuator SUE21P must be installed horizontally up to 90° and not hanging.

The SSD..UT actuators cannot be installed upside down. In case the SSD..UT actuators are installed horizontally and hanging, the cable must always be installed pointing down-wards. Otherwise, the IP protection is not guaranteed, as water running down the cable might enter the actuator.



 CAUTION	
	Strong pressure impacts can damage closed PICVs. • The PICVs must be commissioned with the manual control knob or actuator correctly fitted. • The PICVs must be open when flushing or pressure testing the system. Flush only on correct flow direction. • Differential pressure $\Delta p_{\max}$ across the valves's control path is not allowed to exceed 600 kPa

Manual control

When turning the manual control knob in counterclockwise 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

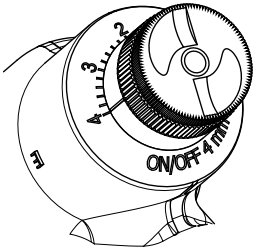
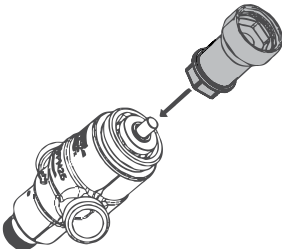
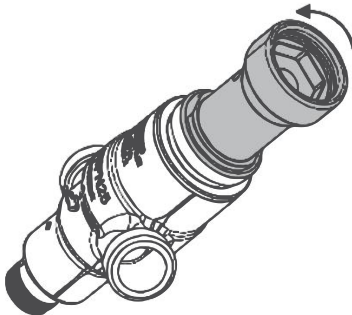
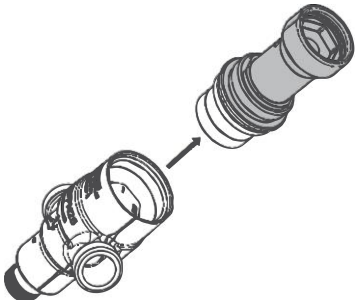
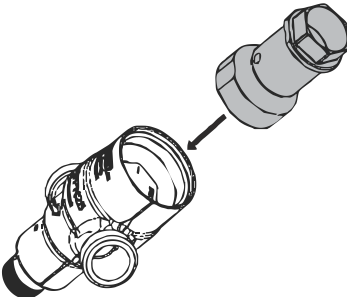
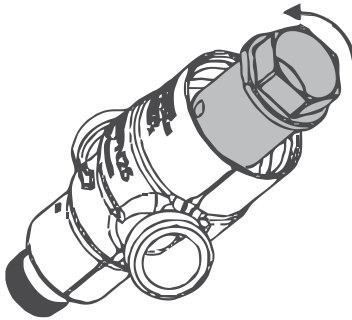
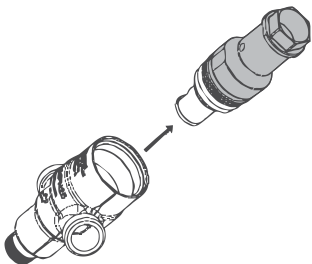
The VQP/VQI46.. PICVs are maintenance-free without differential pressure regulator. Valve plug stem, presetting, diaphragm etc. may not be disassembled.

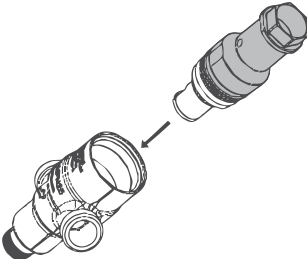
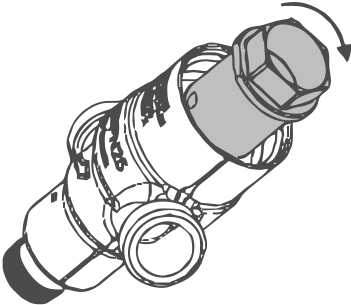
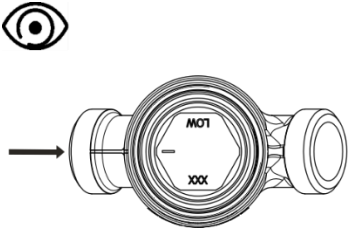
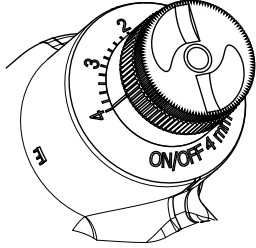
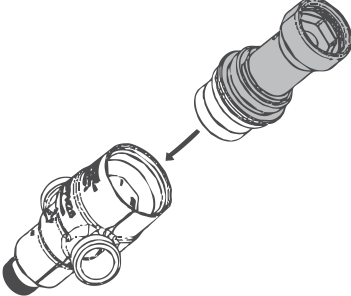
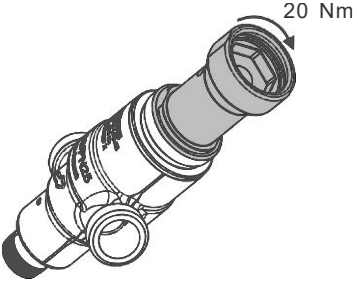
 CAUTION	
	When performing service work on the valve and/or actuator: • Switch off the pump and disconnect power supply. • Close the shut-off valves in the piping network. • Fully reduce pressure in the piping network and allow the pipes to cool down completely.

Differential pressure regulator cleaning

General notes

The valve insert with the differential pressure regulator can be removed for replacement or cleaning. The removal of the valve from the pipeline is not necessary for this operation. For the cleaning process of the differential pressure regulator, a special tool is needed (ALP54, see Accessories [► 7]).

Disassemble		
1. Loosen the knurled nut	2. Place the special tool on the On/Off bonnet	3. Loosen the On/Off bonnet
		
4. Remove the On/Off bonnet from the valve housing	5. Place the 19 mm top on the differential pressure regulator	6. Loosen the differential pressure regulator
		
7. Remove the differential pressure regulator from the valve housing		
		

Assemble		
1. Insert the differential pressure regulator.	2. Tighten the regulator to stop.	3. Loosen the differential pressure regulator until the marking on the regulator is aligned against the flow direction.
		
4. Orient the indicator in fully open position to presetting. Re-adjust Step 3 if necessary.	5. Insert the On/Off bonnet.	6. Tighten with 20 Nm.
		

Sealing gland

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

Disposal

⚠ WARNING	
	Tensioned return spring Opening the valve housing can release the highly tensioned return spring, possibly resulting in injury due to flying parts. Do not open the valve housing.

Do not dispose of the valve as part of domestic waste.

- Special treatment for individual components may be required by law or make ecological sense.
- Comply with all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are only valid together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Technical data

Functional data		
PN class		PN 25 as per EN 1333
Permissible operating pressure		2500 kPa (25 bar) as per ISO 7628 / EN 1333
Differential pressure	Max.	600 kPa
	Min.	See tables in Volumetric flow/dial presetting [► 4]
Valve characteristic		On/Off
Operating direction		Normally open (push to close)
Leakage rate in general		Class IV (0...0.01 % of volumetric flow V_{100}) to EN 1349
Average flow accuracy		$\pm 5\%$ up to $\pm 10\%$ from $\Delta p_{\min}$...600kPa
Permissible media		Low-temperature water
		Chilled water
		Water with antifreeze
	Recommendation	Water treatment to VDI 2035
Medium temperature	Valve with actuator	1...90 °C
Nominal stroke		4.0 mm

General ambient conditions		
Operation		
	Environmental conditions	
	Temperature	0...55 °C
	Humidity	5...95 % r.h.
Transport		
	Environmental conditions	
	Temperature	-30...65 °C
	Humidity	< 95 % r.h.
Storage		
	Environmental conditions	
	Temperature	-15...50 °C
	Humidity	5...95 % r.h.

Materials	
Valve body, port, seat, sealing gland, Test points and Differential pressure piston	Dezincification resistant brass (DZR), CW602N
Stem, spring	Stainless steel
Presetting element	PPO and ABS
On/off piston	PPS 40 % glass
Diaphragm	HNBR
Seals	EPDM

Dimensions / weight				
Dimensions		See Dimensions [► 20]		
Threaded connections	VQP46..	G	to ISO 228-1	(externally threaded)
	VQI46..	G	to ISO 228-1	(internally threaded)
Actuator connection	DN 10...25	M30 x 1.5 mm		
Pressure test points (P/T-ports)	Connection valve body	G ¼ "		
	Needles	2 mm x 40 mm		
Weight		See Dimensions [► 20]		

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...25	Without CE-marking as per article 4, section 3 (sound engineering practice) ¹⁾
EAC conformity		Eurasia conformity

Environmental compatibility
The product environmental declarations A5W00077471 (VQP46..) and A5W00077470 (VQI46..) ²⁾ contain data on environmentally compatible product design and assessments (RoHS compliance, material composition, packaging, environmental benefit, and disposal).

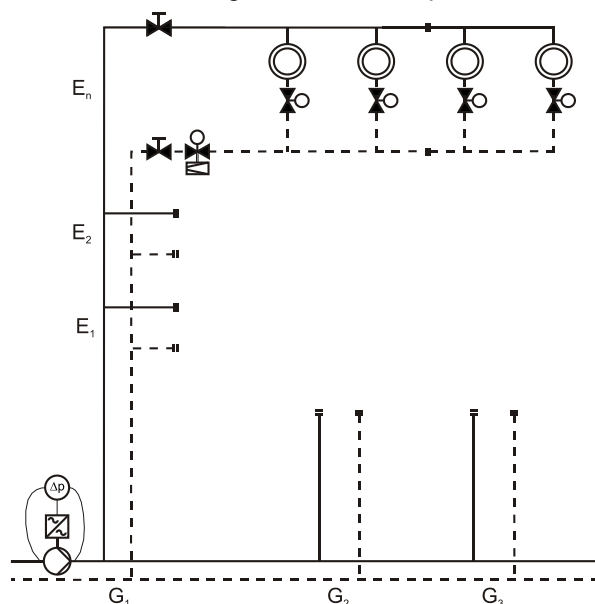
¹⁾ Valves where PS x DN < 1000 do not require special testing and cannot carry the CE label.

²⁾ The documents can be downloaded at <http://siemens.com/bt/download>.

PICVs 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 most remote from the pump – receives 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:

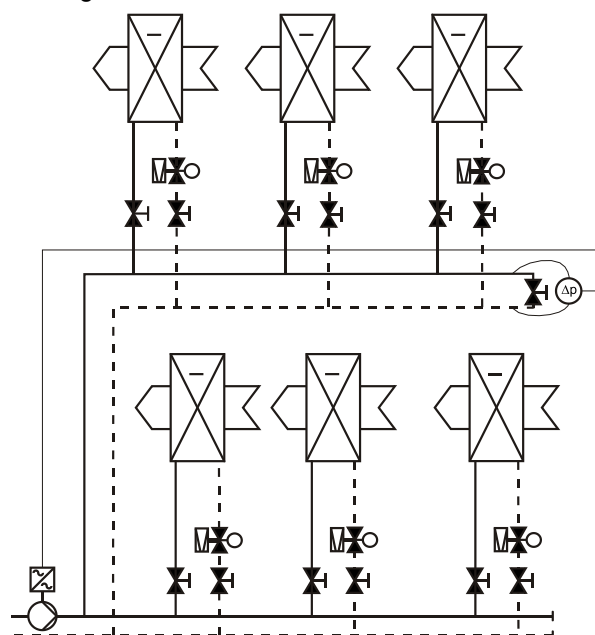


E = Floor

G = Group or zone

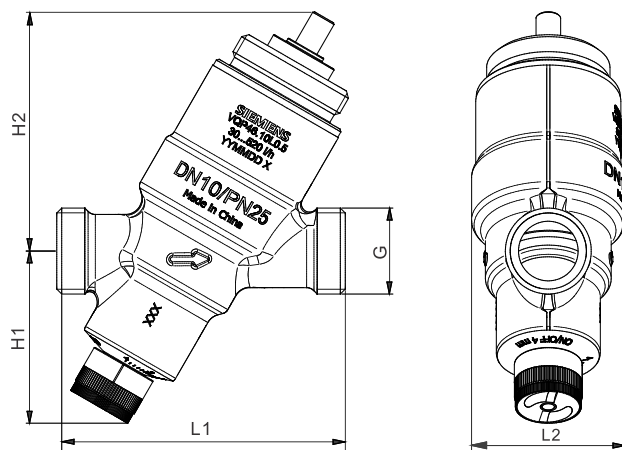
Non-Residential buildings

Commercial buildings with, for example, fan coil units or heat exchangers for heating or cooling:

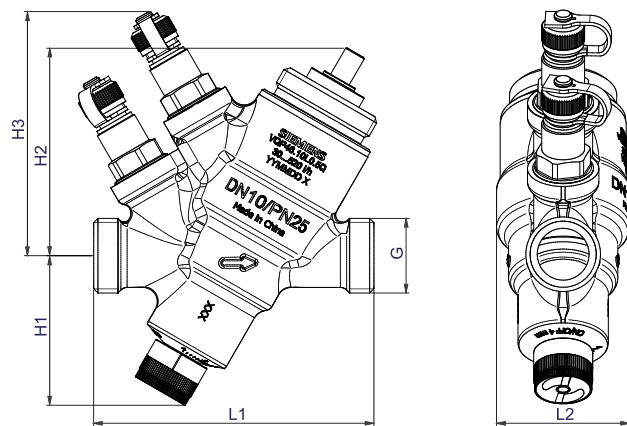


Dimensions

VQP46..

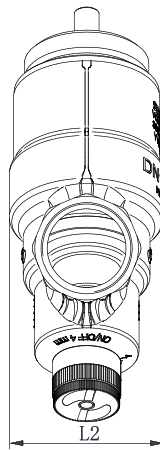
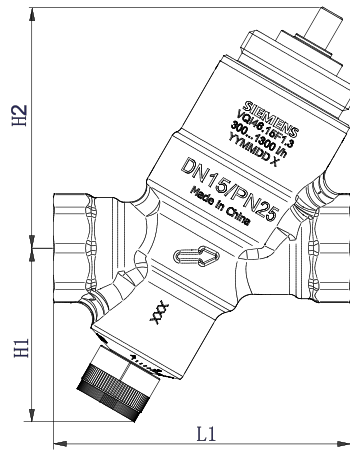


VQP46..Q

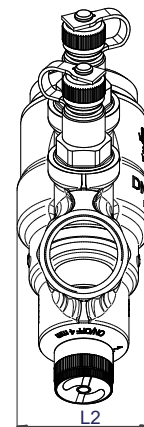
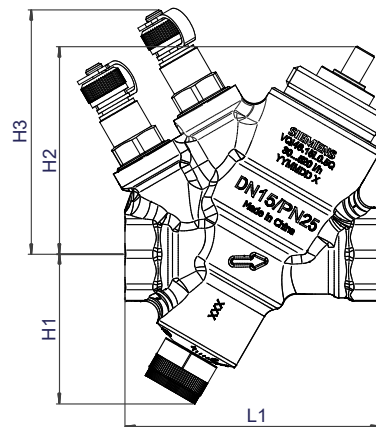


Type	DN	G [inch]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	 kg [kg]
VQP46.10L0.5	10	½	70	37	42	59	-	0.339
VQP46.10L0.5Q			79				69	0.442
VQP46.15L0.5	15	¾	75				-	0.362
VQP46.15L0.5Q			84				69	0.465
VQP46.15F1.3			75				-	0.362
VQP46.15F1.3Q			84				69	0.465
VQP46.20F1.5	20	1	80				-	0.396
VQP46.20F1.5Q			90				69	0.518
VQP46.25F1.8	25	1 ¼	87				-	0.478
VQP46.25F1.8Q			98				69	0.594

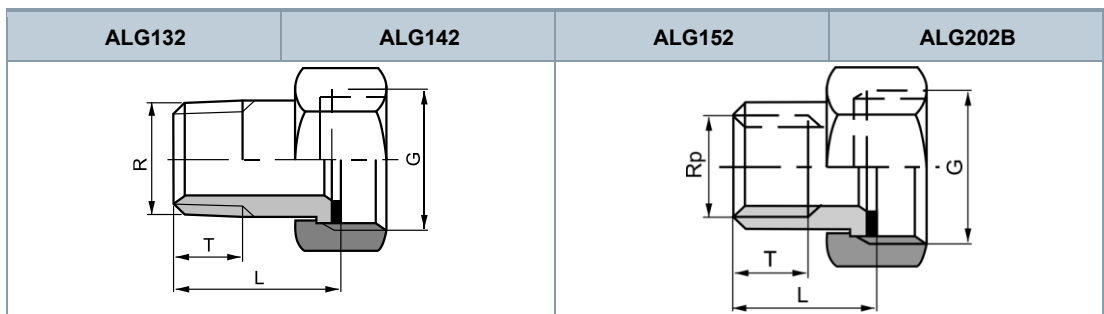
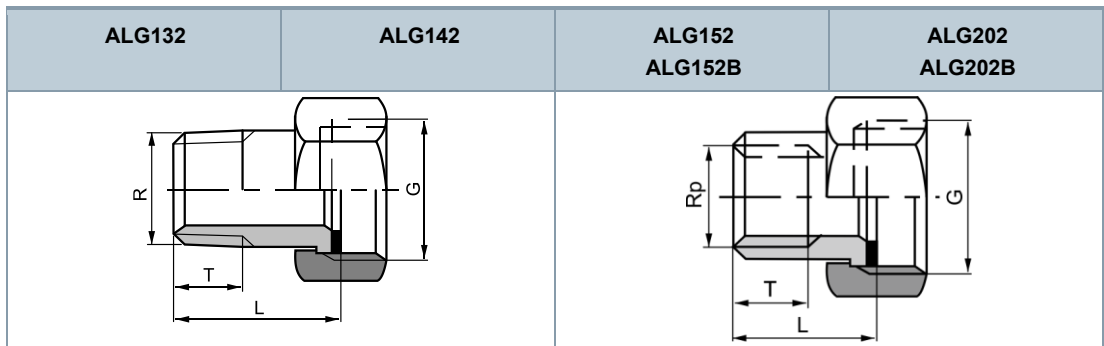
VQI46..



VQI46..Q



Type	DN	G [inch]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	 [kg]
VQI46.15L0.5	15	½	72	37	42	59	-	0.360
VQI46.15L0.5Q							69	0.458
VQI46.15F1.3							-	0.360
VQI46.15F1.3Q							69	0.458
VQI46.20F1.5	20	¾	78				-	0.387
VQI46.20F1.5Q							69	0.488
VQI46.25F1.8	25	1	86				-	0.465
VQI46.25F1.8Q							69	0.566



	Valve type	DN	G [inch]	R [inch]	Rp [inch]	L [mm]	T [mm]
ALG132 ¹⁾	VQP46.10..	10	G ½	R ¾	-	≈ 24	≈ 9
ALG142 ¹⁾	VQP46.15..	15	G ¾	R ½		≈ 29.5	≈ 12
ALG152	VQP46.20..	20	G 1	-	Rp ½	≈ 23	≈ 13
ALG152B ¹⁾							
ALG202	VQP46.25..	25	G 1¼		Rp ¾	-	
ALG202B ¹⁾							

¹⁾ ≤ 100 °C

Revision numbers

Type	Valid from rev. no.	Type	Valid from rev. no.
VQP46.10L0.5	..B	VQI46.15L0.5	..B
VQP46.10L0.5Q	..B	VQI46.15L0.5Q	..B
VQP46.15L0.5	..B	VQI46.15F1.3	..B
VQP46.15L0.5Q	..B	VQI46.15F1.3Q	..B
VQP46.15F1.3	..B	VQI46.20F1.5	..B
VQP46.15F1.3Q	..B	VQI46.20F1.5Q	..B
VQP46.20F1.5	..B	VQI46.25F1.8	..B
VQP46.20F1.5Q	..B	VQI46.25F1.8Q	..B
VQP46.25F1.8	..B		
VQP46.25F1.8Q	..B		

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