

facts

Range extension combi valves VPI45.. DN40/50 with SQD..

Introduction of combi valves VPI45.., VPI45..Q DN40/50 with SQD.. actuators



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11 – Valves & Actuators

Product introduction

Products

VPI45.. DN40/50

SQD...

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1 Introduction

This facts informs you about the introduction of additional valve sizes of the combi valve family VPI45.. / VPI45..Q, based on facts no. 11X138OC released one year ago.

The VPI45.. / VPI45..Q combi valves with electromotoric SSD.. actuators for room and zone applications were introduced to the market in January 2009. The offering comprises combi valves with nominal sizes DN15...32 and volumetric flows ranging from (75) 500 to 3,000 l/h.

This product range was launched successfully and is now complemented with nominal sizes DN40 and DN50 in combination with electromotoric SQD.. actuators. Now, with volumetric flows up to 8,500 l/h, these valves are also suited for use in smaller heating, ventilation and air conditioning plants.

Thanks to this optimization of the product portfolio, we can now offer a complete range of VPI45.. / VPI45..Q combi valves with nominal sizes DN15...50 in combination with SSD.. and SQD.. actuators, which should enable us to create additional sales volume.

2 Product range overview

Internally threaded Acvatix combi valves with SSD.. and SQD.. actuators

Typ	DN	H ₁₀₀	Anschlüsse	Ṽ _{min}	Ṽ ₁₀₀	SSD..		SQD..	
		[mm]		[l/h]	[l/h]	Δp _{min} ¹⁾	Δp _{max}	Δp _{min} ¹⁾	Δp _{max}
						[kPa]	[kPa]	[kPa]	[kPa]
VPI45.15F0.5	15	5,5 (6,5)	Rp ½“	90	620	16	400		
VPI45.15F1.5				290	1730	18	400		
VPI45.20F0.9	20		Rp ¾“	160	1050	16	400		
VPI45.20F2				350	2040	22	400		
VPI45.25F1.5	25		Rp 1“	280	1720	16	400		
VPI45.25F2				350	2040	22	400		
VPI45.32F3	32		Rp 1¼“	560	3050	18	400		
VPI45.40F7	40		Rp 1½“	2355	7105			26	400
VPI45.50F8.5	50		Rp 2“	2664	8586			32	400
VPI45.15F0.5Q	15		Rp ½“	90	620	16	400		
VPI45.15F1.5Q				290	1730	18	400		
VPI45.20F0.9Q	20		Rp ¾“	160	1050	16	400		
VPI45.20F2Q				350	2040	22	400		
VPI45.25F1.5Q	25		Rp 1“	280	1720	16	400		
VPI45.25F2Q				350	2040	22	400		
VPI45.32F3Q	32		Rp 1¼“	560	3050	18	400		
VPI45.40F7Q	40		Rp 1½“	2355	7105			26	400
VPI45.50F8.5Q	50		Rp 2“	2664	8586			32	400

Grün = additional sizes

3 Product description and technical details

The basic design and operating principle of the VPI45.. / VPI45..Q combi valves remain unchanged. The new nominal sizes DN40 and DN50 are seamless additions to the existing range.

This range of combi valves with its benefits represents an alternative to the present range of short-stroke valves and is suited for use on the same or similar applications.

Since, for physical reasons, the new larger valve sizes require considerably greater positioning forces and somewhat more stroke, the proven SQS.. actuator, which has been installed a million times over, was revised and named SQD.. to clearly distinguish it. Since the way the actuators are fitted to the combi valves is also different from the way they are fitted to the standard stroke valves, it is not possible to assemble SQS.. and combi valves, or SQD.. and standard stroke valves.

The new SQD.. actuators operate on the usual voltages and deliver standard positioning signals (no spring return facility).

Fields of use are typical applications in small to medium-size heating, ventilation and air conditioning plants with closed circuits.

Features – functions – advantages

The following data and information apply to the new valve sizes DN40 and DN50. The technical data of valve sizes DN15...32 may differ. For details, refer to the relevant Data Sheet.

- Nominal pressure: PN25 to EN 1333
- Permissible operating pressure: 2,500 kPa (25 bar) to ISO 7628 / EN 1333
- According to Pressure Equipment Directive PED 97/23/EC, nominal size DN50 is certified in category I.
Other nominal sizes DN15...40 without CE certification are classified according to article 3, clause 3 (general engineering practice)
- Leakage rate: To EN 1349 class
IV 0.01% of k_{vs} value (Δp_{max} 230 kPa)
III 0.1% of k_{vs} value (Δp_{max} 350 kPa)
- Valve characteristic: Linear
- Medium temperature range: 0...120 °C
- Internal thread: To ISO 7-1
- Valve body made of de-zinkified (DR) hot-pressed brass CW602N
- Valve stroke: 6.5 mm
- Threaded valve connection: M30 x 1.5 mm
- Media: Water or water with antifreeze (>50%)
- Operating voltage: AC 230 V or AC 24 V
- Positioning signal: 3-position or DC 0...10 V
- Manual override with automatic reset to control mode
- Overload-proof
- Degree of protection of housing: IP54 (from vertical through horizontal)
- Position feedback: DC 0...10 V (SQD65)
- No tools required for manual override
- Indication of direction of rotation and position

VPI45.. combi valves unite 3 functions:

- Control valve for controlling the temperature (via room controller)
- Setting facility with scale for presetting the volumetric flow
- Differential pressure controller for offsetting pressure fluctuations in the hydraulic system or across the control valve

The series-connected mechanical differential pressure controller maintains the pressure across the valve ($p_1 - p_2$) and thus the selected volumetric flow at a constant level.

The required maximum volumetric flow is selected via the setting facility.

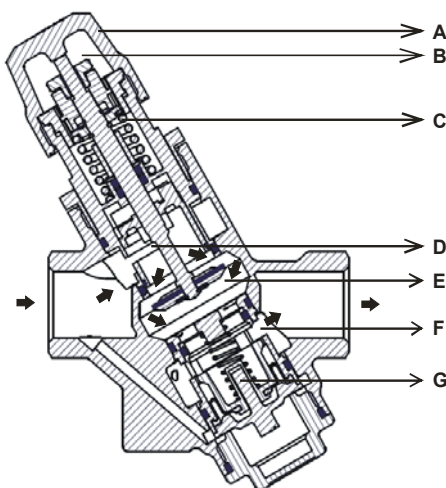
Modulating temperature control is ensured by the room controller in combination with the actuator.

The VPI45..Q combi valves feature pressure 2 test points (P+, P-) which are used for checking the differential pressure across the valve when commissioning the plant.

The main characteristic of a conventional control valve is the k_{vs} value. Combi valves are defined by their volumetric flow \dot{V}_{100} .

- Easier planning, especially when operating conditions are not clearly defined.
 - ⇒ Valve sizing simplified. The volumetric flow is constant, even if the valve closes and the differential pressure rises. Valve authority P_v is 1, even if the valve is oversized. Since there is no need to exactly calculate the valve's authority P_v , specification of components is simplified
- Installation and commissioning.
 - ⇒ Hydraulic line balancing and throttling balancing valves are no longer required, which means that costs are saved
- Energy savings and enhanced comfort.
 - ⇒ Thanks to pumps operating in optimum range
- Highest comfort level in the room.
 - ⇒ Thanks to higher control accuracy in all operating states
- SQD.. actuators are based on the proven SQS..., which have been installed a million times over.
 - ⇒ Familiar, rugged and reliable Siemens actuators ensure highest levels of customer satisfaction

Basic design



- A Knob for manual override
- B Ring for presetting
- C Closing spring
- D Throttling point (coupled with B)
- E Temperature control valve (or seat of control valve)
- F Controller's throttling point
- G Differential pressure controller
- Flow path of medium

The VPI45..Q combi valve also features 2 pressure test points (P+ and P-)

4 Technical documentation

- **Data Sheets**

Data Sheet: Combi valves, PN25, VPI45.. / VPI45..Q

CE1N4825en

Data Sheet: Electromotoric actuators SQD..

CM2N4540en

- **Mounting Instructions**

Mounting Instructions: Combi valves PN25, VPI45.. / VPI45..Q 74 319 0649 0

M4853

Mounting Instructions: Actuators SQD..

74 319 0708 0

M4540

- **Product Catalog**

Combi valves PN25, VPI45.. / VPI45..Q are already contained in catalog 2010.

Electromotoric SQD.. actuators are already contained in catalog 2010.

- **OPC**

Combi valves PN25, VPI45.. / VPI45..Q are already contained in OPC.

Electromotoric actuators SQD.. are already contained in OPC.

- **V&A product range overview**

The overview was updated in autumn 2009 (ordering number 0-92205-en)

- **HIT (HVAC Integrated Tool)**

The current version has the combi valves PN25, VPI45.. / VPI45..Q and actuators SQD.. integrated.

5 Logistics

VPI45.. / VPI45..Q combi valves and SQD.. actuators are packed as individual items and will be delivered ex Distribution Center Nuremberg.

Ordering example:

1 combi valve VPI45.50F8.5

1 actuator SQD65

Description	Type	Order quantity	Price list 2010 (€)
Combi valve PN25, DN40	VPI45.40F7	1(5)	465,44
Combi valve with pressure test points PN25, DN40	VPI45.40F7Q	1(5)	471,73
Combi valve PN25, DN50	VPI45.50F8.5	1(5)	529,54
Combi valve with pressure test points PN25, DN50	VPI45.50F8.5Q	1(5)	538,87
Electromotoric actuator, 3-Position control signal / AC 230 V	SQD35.00	1(5)	180,92
Electromotoric actuator, 3-Position control signal / AC 24 V	SQD85.03	1(5)	194,28
Electromotoric actuator, DC 0...10 control signal / AC 24 V	SQD65	1(5)	216,41

6 Contact persons

If you have any questions relating to combi valves or the Acvatix V&A range in general, please do not hesitate to contact with:

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