

SINTESI

PICV BALANCING BALL VALVES

USE

- pressure-independent flow limitation for terminal units at constant flow rate
- flow rate adjustment in variable power HVAC systems



KEY FEATURES

- actuator with fast push connection
- equal percentage sphere profile
- complete hydraulic seal during closing
- binder points for the control of Δp start-up

VERSIONS AND TECHNICAL FEATURES



DN	Connections	PN	Q MAX [l/h]	Code
15	Rp 1/2"	25	360	SCPV15A
15	Rp 1/2"	25	700	SCPV15B
15	Rp 1/2"	25	1000	SCPV15C
20	Rp 3/4"	25	780	SCPV20A
20	Rp 3/4"	25	1150	SCPV20B
25	Rp 1"	25	2200	SCPV25A
25	Rp 1"	25	2700	SCPV25B
25	Rp 1"1/4	25	3000	SCPV32A
25	Rp 1"1/4	25	4000	SCPV32B

TECHNICAL FEATURES	1/2"	3/4"	1"	1"1/4
Fluid type			Water (max 30% glycol)	
Fluid temperature			+5°C...+100°C	
Rated pressure			25 bar	
Δp max			6 bar	
Characteristic curve			Equal-percentage	
Max flow rate [l/h]	360 • 700 • 1000	780 • 1150	2200 • 2700	3000 • 4000
Max start up [kPa]	20	25	30	30
Accuracy			$\pm 5\%$	
Leakage class IEC 60534 - 4			Class IV	
Connections	Rp 1/2" EN 10226-1	Rp 3/4" EN 10226-1	Rp 1" EN 10226-1	Rp 1"1/4 EN 10226-1

BENEFITS

- Reduced installation cost, thanks to the possibility of a single balance valve to be installed directly upstream of each terminal of the system.
- Simple selection of the valve as the choice is made only on the basis of the flow rate and no authority must be calculated.
- The commissioning is easy as no costly balancing is required.
- Simple control of the system thanks to the equal-percentage characteristic (ball with special profile hole) and the authority of 1.

OPERATION

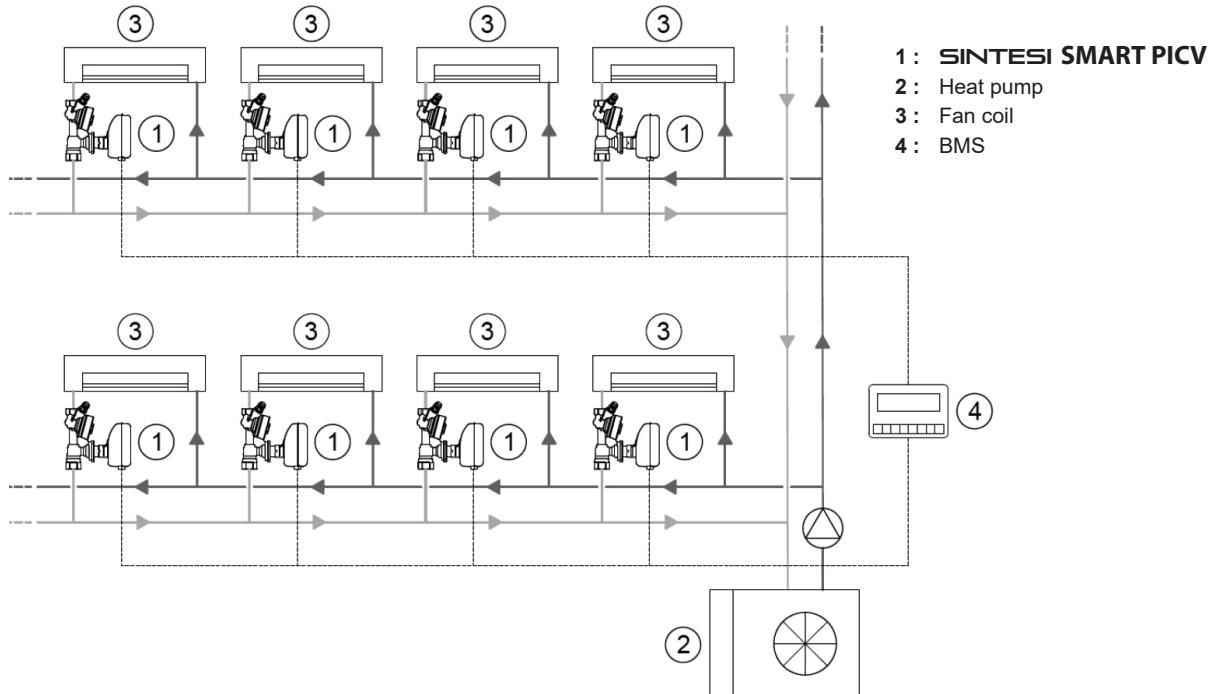
The pressure independent control motorised valve (PICV) combines the functions of a differential pressure control, a regulator valve and a two-way control valve into one product. The diaphragm inside is able to maintain a constant differential pressure through the orifice of the control valve and provide a constant flow rate to the terminal. No other balancing valve is required, since the flow is managed regardless of the differential pressure in the other circuits of the system. The flow rate supplied to the terminal unit remains constant whatever the conditions of the system, making it ideal for systems using the latest generation of pumps.



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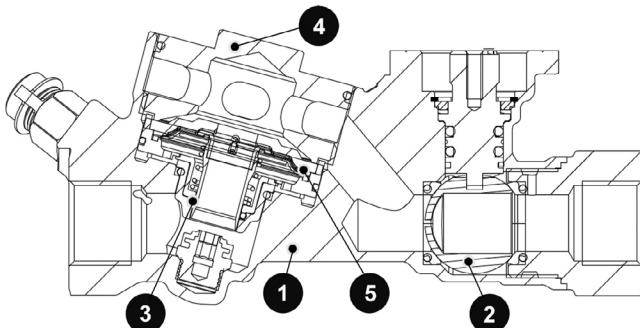
PICV BALANCING BALL VALVES

EXAMPLE OF USE



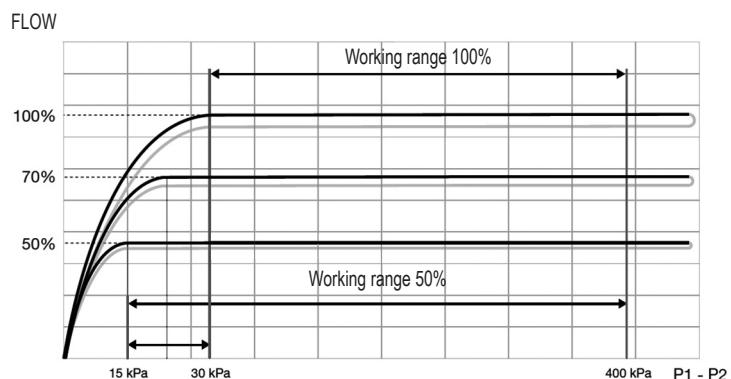
CONSTRUCTION CHARACTERISTICS AND MATERIAL USED

- High precision equal-percentage ball to ensure maximum flow control under all conditions.
- Fully sealed thanks to the built-in ball valve.



1	BODY	BRASS DRZ CW602N
2	BALL	BRASS CW617N
3	CARTRIDGE SPRING	High resistance polymer - EPDM - AISI 303
4	CARTRIDGE BODY	BRASS CW614N
5	DIAPHRAGM	EPDM

START-UP AND FLOW RATE SETTING CURVES



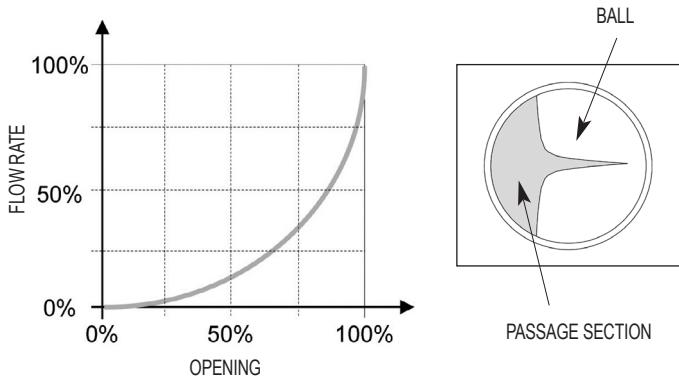
The graph shows an example of characteristic curves in which start-up pressure, hysteresis and accuracy can be measured. The use of a differential pressure gauge to measure the valve pressure drop will check whether the working point is in the correct operating range (and therefore whether the flow rate is kept constant): it simply makes sure that the measured value $P_1 - P_2$ is greater than the start-up value for the set flow rate percentage. If the measured ΔP value is less than the start-up value, the valve operates as a fixed orifice. The start-up ΔP value changes according to the valve flow rate: when the flow rate is set to 100% of the nominal flow rate, the characteristic curve remains constant after a pressure of 30 kPa; when the flow rate is set to 50% of the nominal flow rate, the characteristic curve remains constant after a pressure of 15 kPa.

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FLOW RATE REGULATION

The valve Kvs and therefore the flow rate are changed using the valve control rod, by means of an actuator of the **SINTESI SMART** series with proportional control. The relation between the rotation of the ball (opening) and the flow rate is an equal-percentage thanks to the particular laser-cut hole of the ball.



The following tables show the flow rates corresponding to different valve opening percentage values, for the various versions available:

PRESETTING %	SCPV15A - 1/2"		SCPV15B - 1/2"		SCPV15C - 1/2"		SCPV20A - 3/4"		SCPV20B - 3/4"	
	I/h	I/s								
100	360	0,100	700	0,194	1000	0,278	780	0,217	1150	0,319
90	210	0,060	563	0,156	960	0,267	626	0,174	1122	0,312
80	114	0,032	341	0,095	845	0,235	386	0,107	1032	0,287
70	75	0,020	207	0,058	737	0,205	215	0,060	805	0,224
60	53	0,014	153	0,043	570	0,158	153	0,042	561	0,156
50	36	0,010	98	0,027	380	0,106	129	0,036	323	0,090
40	15	0,004	74	0,021	232	0,064	93	0,026	141	0,039
30	4	0,001	39	0,011	132	0,037	53	0,015	9	0,003
20	-	-	-	-	23	0,006	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-

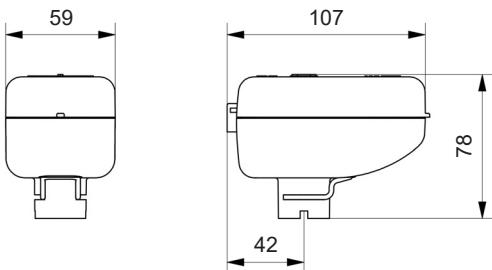
PRESETTING %	SCPV25A - 1"		SCPV25B - 1"		SCPV32A - 1"1/4		SCPV32B - 1"1/4	
	I/h	I/s	I/h	I/s	I/h	I/s	I/h	I/s
100	2200	0,611	2700	0,750	3000	0,833	4000	1,111
90	1615	0,449	1978	0,549	2383	0,662	3621	1,006
80	1015	0,282	1237	0,344	1654	0,460	3220	0,895
70	647	0,180	795	0,221	1017	0,282	2594	0,721
60	508	0,141	623	0,173	642	0,178	1853	0,515
50	372	0,103	456	0,127	445	0,124	1088	0,302
40	213	0,059	257	0,071	288	0,080	510	0,142
30	121	0,034	144	0,040	162	0,045	147	0,041
20	44	0,012	54	0,015	76	0,021	47	0,013
10	-	-	-	-	-	-	-	-

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OVERALL SIZE

ACTUATOR



FUNCTION	PROPORTIONAL SINTESI SMART	MODBUS SINTESI SMART
Flow rate limitation	✓	✓
Flow rate regulation	✓	✓

BALL VALVE

MODEL	CODE	DN	Ø	A	B	C	D	E	F
	SCPV15A	15	Rp 1/2"	62	60	20	142	158	97
	SCPV15B	15	Rp 1/2"	62	60	20	142	158	97
	SCPV15C	15	Rp 1/2"	62	60	20	142	158	97
	SCPV20A	20	Rp 3/4"	62	60	20	142	158	97
	SCPV20B	20	Rp 3/4"	62	60	20	142	158	97

B: to be taken into account when coupling the actuator to the ball valve

MODEL	CODE	DN	Ø	A	B	C	D	E	F
	SCPV25A	25	Rp 1"	80	68	30	244	195	115
	SCPV25B	25	Rp 1"	80	68	30	244	195	115
	SCPV32A	25	Rp 1 1/4"	80	68	30	269	195	115
	SCPV32B	25	Rp 1 1/4"	80	68	30	269	195	115

B: to be taken into account when coupling the actuator to the ball valve

EXAMPLE OF SPECIFICATIONS

PRESSURE INDEPENDENT CONTROL MOTORISED VALVE (PICV) • balancing ball valve with differential pressure control, CW602N UNI EN12167 brass case, EPDM membrane, PN25, connections G3/4" F EN10226-1. Operating temperature +5°C...+100°C. Fluid type: water with glycol max. 30%. Equal-percentage characteristic curve, accuracy ±5%, loss class (IEC 60534-4) IV. Connection to the actuator with Sintesi fast push connection. Version: PICV DN20 - Rp 3/4" - maximum flow rate 780 l/h.

Brand: **COMPARATO**

Code: **SCPV20A**

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com

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