

USE

- pressure-independent flow limitation for constant flow systems
- balancing and regulation of flow rate in variable flow systems

MAIN FEATURES

- v-ball profile
- max valve authority = 1
- perfect control of flow rate
- pressure intakes for Δp start-up control

VERSIONS AND TECHNICAL FEATURES

PICV ball valves	DN	Connections	PN	Q max [l/h]	Code
	40	1"1/2	16	6.000	DCPV40A
	40	1"1/2	16	9.000	DCPV40B
VALEINITO	50	2"	16	12.000	DCPV50A
	50	2"	16	18.000	DCPV50B



TECHNICAL FEATURES	DCPV40A	DCPV40B	DCPV50A	DCPV50B		
Type of fluid	Water (max glycol 30%)					
Fluid temperature	-10 ÷ 120 °C					
Nominal pressure	16 bar					
Max Δp	6 bar					
Characteristic curve	Equal percentage					
Max flow rate	6.000 l/h	9.000 l/h	12.000 l/h	18.000 l/h		
Max start up pressure	30 kPa	35 kPa	35 kPa	35 kPa		
Accuracy	± 5%					
Valve leakage	Class: IV IEC 60534 - 4					
Connections	Rc 1"1/2 F	Rc 1"1/2 F	Rc 2" F	Rc 2" F		
Connections	EN 10226-1	EN 10226-1	EN 10226-1	EN 10226-1		
Weight	8,3 kg	8,3 kg	15,5 kg	15,5 kg		

BENEFITS

- Reduced installation costs as only a single balancing valve is installed directly upwards each plant's terminal.
- Easy selection of the valve as the choice is made only on the basis of the flow rate and does not need to be calculated by any authority.
- Easy commissioning as no balancing operation is required.
- Easy control of the system thanks to the equal percentage feature (ball with a special profile hole) and authority of 1.





FUNCTIONING

Pressure indipendent control motorised valve (PICV) combines the functions of a differential pressure control, of a regulating valve and of a 2way control valve in a single product. The diaphragm inside the valve keeps the flow rate constant thanks to the orifice of the regulating valve and provides a constant flow rate to the terminal. As it manages the flow rate whatever differential pressure in other circuits of the plant, no additional balancing valve is required. The flow rate to the terminal is constant whatever plant's condition: therefore, this is a perfect solution for systems using new generation pumps.

EXAMPLE OF USE



- 1: Diamant PILOT PICV
- 2: Chiller
- 3: Boiler
- 4: Outdoor electrical box
- 5: A.H.U.

DESIGN FEATURES



А	CONNECTION KIT	REINFORCED GLASS FIBER POLYAMIDE - BRASS
В	BALL	BRASS CW 617N - P.T.F.E. SEALS
С	BODY VALVE	CAST IRON
D	DIAPHRAGM	BRASS CW 614N - EPDM
		STAINLESS STEEL 303
Е	ADDITIONAL MANUAL CLOSING DEVICE	BRASS CW614N
-	SEALS	EPDM





START-UP CURVES AND FLOW RATE SETTING



The graph above shows an example of the characteristic curve, where it is possible to see the start-up pressure, the hysteresis and the precision. The use of a differential manometer for measuring the pressure drop of the valve allows to check whether the working point is in the correct functioning range (and whether the flow rate is kept constant) by simply ensuring that the detected P1-P2 value is higher than the start-up value.

If ΔP value is lower than the start-up value, the valve works as a fixed orifice valve. ΔP and start-up values vary according to the valve's presetting, as shown below:

FLOW RATE



When the valve flow rate is at 100% of the nominal flow rate, the characteristic curve remains constant after a pressure of 30 kPa is reached. The operating range of the valve is 30 - 400 kPa.





REGULATION OF THE FLOW RATE

By acting on the control rod of the valve with a **Diamant SMART PRO** actuator or **Diamant PILOT** proportional actuator, it is possible to adjust the valve's Kvs and consequently also the flow rate. The relationship between the rotation of the ball (opening) and the flow rate is equal percentage, thanks to the special laser cut hole of the ball.



Please see below the control features of the different version.





- 1. Linear curve
- 2. Theoretical equal percentage curve
- 3. Characteristic curve of the valve

1. Linear curve

- 2. Theoretical equal percentage curve
- 3. Characteristic curve of the valve





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Tables below show the flow rates for the different percentage values of the opening of the valve for all versions available.

	DCP DN40	V40A - 1"1/2	DCP DN40	V40B - 1"1/2	DN5	V50A 0 - 2"	DCP DN5	V50B 0 - 2"
	FLOW	/ RATE	FLOW	/ RATE	FLOW	RATE	FLOW	/ RATE
	l/h	l/s	l/h	l/s	l/h	l/s	l/h	l/s
100	6000	1,667	9000	2,500	12000	3,333	18000	5,000
90	5400	1,500	8100	2,250	10800	3,000	16200	4,500
80	4800	1,333	7200	2,000	9600	2,667	14400	4,000
70	4200	1,167	6300	1,750	8400	2,333	12600	3,500
60	3600	1,000	5400	1,500	7200	2,000	10800	3,000
50	3000	0,833	4500	1,250	6000	1,667	9000	2,500
40	2400	0,667	3600	1,000	4800	1,333	7200	2,000
30	1800	0,500	2700	0,750	3600	1,000	5400	1,500
20	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-





OVERALL SIZE

BALL VALVE



ACTUATOR



DIAMANT	PROPORTIONAL CONTROL	Wi-Fi COMMUNICATION	MODBUS CONTROL
SMART PRO	\checkmark	\checkmark	\checkmark
PILOT	\checkmark		

* dimensions to consider while coupling the actuator to the ball valve

EXAMPLE OF SPECIFICATIONS

PICV Ball Valve • Balancing ball ball valve with differential pressure control (PICV) Cast iron body, PN16, 2"F EN 10226-1 connections. Operating temperature -10°C ÷ +120°C. Pressure fittings for Δ P start-up control. Fluid type: water with glycol max. 30%. Equal percentage characteristic curve, accuracy ±5%, loss class (IEC 60534-4) IV.

Comparato connection to the actuator.

Version: PICV DN50 - 2" - Max flow rate 18.000 l/h

Brand: COMPARATO Code: DCPV50B

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com





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