



Achieve System  
Balance Without  
All The Spin.





## Valve Selection Has Never Been Easier!

Simply choose the smallest PICCV that can satisfy the flow rate of your system. No other criteria is needed.

### ASK FOR IT...

A free PICCV product information package with video is now available.

Contact your Belimo representative or call 1-800-543-9038.

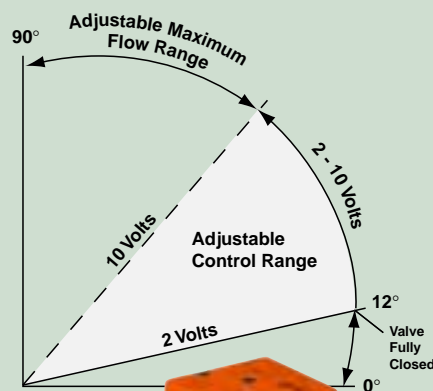
[www.piccv.com](http://www.piccv.com)

# Balancing Your System Just Got A Lot Easier.

## PICCV – Pressure Independent Characterized Control Valves

Valves + Innovation. When Belimo entered the valve market with our CCV, a new era of valve technology began. Now, Belimo has expanded our valve innovation with the PICCV. Our two-way valve combines the functionality of a control valve and a pressure regulating valve, creating ONE precise product which is unaffected by pressure variations in a system. This cost effective design provides a constant flow – at each degree of ball opening - giving unparalleled performance in your HVAC system.

- PICCV performs function of control valve + balancing valve, yielding substantial savings
- True "pressure independent" valve – not "flow limiting" functionality
- Optimized valve authority
- Increased equipment efficiency
- Predictable flow for each degree of opening
- Reduced installation costs and increased life expectancy
- Simplified valve sizing and selection - choose the PICCV that will satisfy the flow rate of your coil - no Cv calculations
- Easy installation



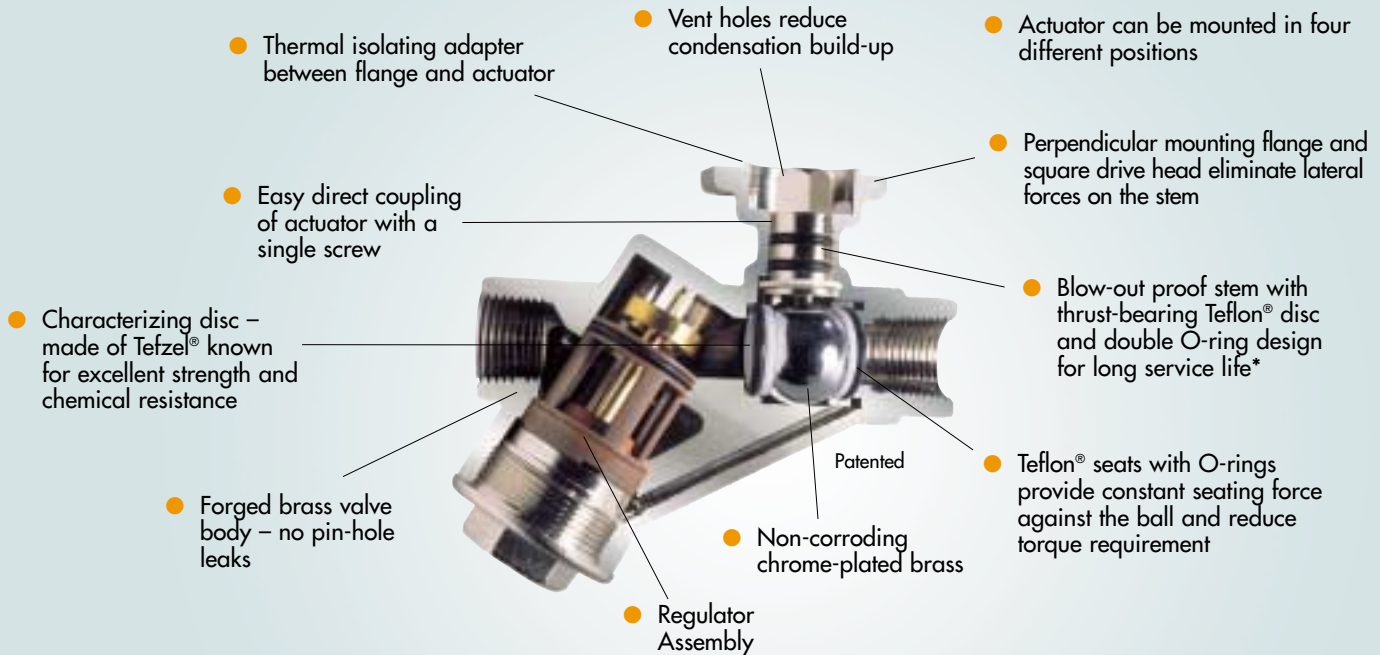
### Full Control Resolution

As with all high close-off valves that employ a ball in their design, the ball passes well into the seat when rotated to the actuator's zero-degree position. Therefore, there is an amount of travel within the first degrees of ball rotation that passes back over this seat. The FlowSetter™ eliminates this excess rotation (12°) resulting in a closed position that is offset to improve control resolution and system accuracy. This offset continues to allow the high close-off rating of 200 PSI. MFT actuators electronically adjust to and maintain the 2-10 Volt control signal at the reduced angle, as well as the 100 second running time and feedback signal.

On floating point (-3) actuators, the running time is constant but dependent on the overall angle of rotation.



# Features and Benefits



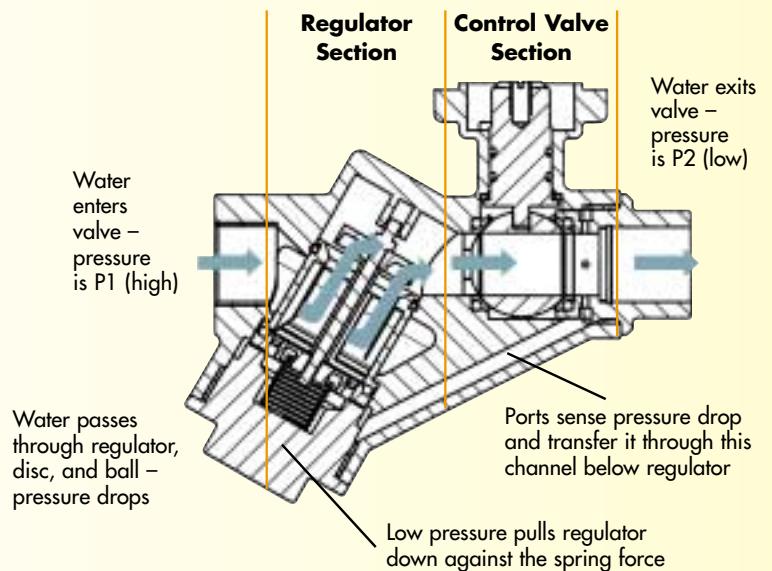
[www.piccv.com](http://www.piccv.com)

## Operation

**PICCV consists of a differential pressure regulator in series with a control valve.**

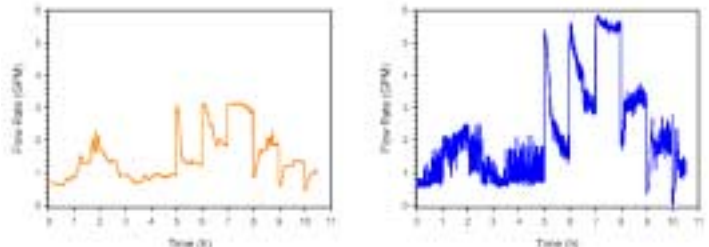
The amount of flow that passes through the valve is controlled by the use of a pressure regulator that moves according to the change in pressure above and below it.

All pressure changes are absorbed by the pressure regulator allowing the differential pressure to be held constant over the control valve section thereby giving the same flow.



### PICCV vs Globe Valve

Flow rate of a PICCV with a nominal flow of 3 GPM (PICCV 15-003) compared to a short stroke globe valve over an 11 hour period of time. The graph shows that the average flow rate of the PICCV is drastically lower, resulting in a increased delta t which saves pumping energy and optimizes chiller or condensing boiler.



\*Teflon® is a registered product of Dupont

**Disadvantages of Today's Systems**

- Time consuming balancing effort
- Rebalancing required when adding to system or remodeling
- Poor valve authority at average or low load
- Potential spreading of control problems can occur when one or more loops are unstable, due to interactive nature of circuits
- Low  $\Delta T$  reduces efficiency of chillers, condensing boilers, or coils
- Starving of terminals in less favored spaces results in long start-up time
- Overpumping in terminals close to the pump at start up.
- Underpumping potential in terminals close to the pump at normal condition.

**Advantages of the PICCV**

- Easy selection, no  $C_v$  calculation required
- Hydronic balancing is simplified, as the circuits are not interactive
- Flexible commissioning
- One piece installation saves 50% of labor costs, installation space, and investment for balancing valve
- Reduces pumping costs
- Maintains  $\Delta T$  for higher efficiency of chillers and condensing boilers
- Visualizes flow in a BMS system and provides accurate flow for each degree of opening
- Prevents overflow or underflow for fast start-up

# PICCV

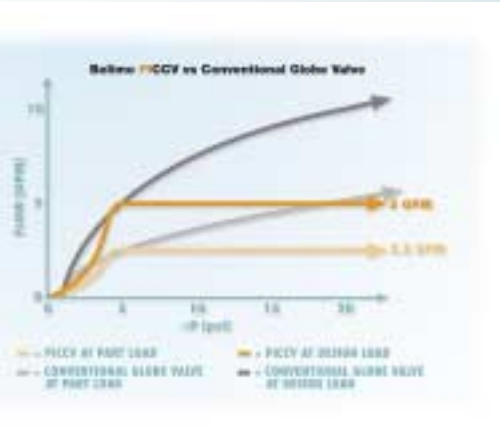
**Features**

- Automatic dynamic system balancing
- Field adjustable flow rate
- 0 – 50 PSI differential pressure operating range
- 0.5 – 40 GPM (1/2" – 2")  
1.0 – 1400 GPM (1 1/2" – 8")
- 5 year warranty

**Options**

- P/T-ports for flow or temperature measurement
- Belimo PC-Tool for commissioning
- Weather shields
- Metric threads
- LON actuators

**The Best Way to Control Flow**



**Maintain design flow independent of pressure variations**

The PICCV is a two-way valve that will supply a specific flow for each degree of ball opening regardless of pressure variations in a system.

# Pressure Independent Characterized Control Valve™ (PICCV) is available with Non-Spring Return and Spring Return Actuators

Service:	Chilled or Hot Water, 60% glycol
Flow Characteristic:	Equal percentage
Media Temp Range:	0°F to 212°F [-18°C to 100°C]
Ambient Temp Range:	-22°F to 122°F [-30°C to 50°C]
Differential Pressure Operating Range:	0 to 50 PSI



**PICCV with Non-Spring Return Actuator**

**Two-way Valve with Chrome Plated Brass Ball and Brass Stem, NPT female ends**

P2... Pressure Independent Characterized Control Valve, Chrome Plated Brass Ball and Brass Stem

Model #	Flow Rate		Valve Nominal Size		Close-Off psi	Actuator	
	GPM	Liter/sec	Inches	DN mm		Non-Spring Return Actuator	Proportional/MFT
PICCV-15-0-50	0.5	0.06	1/2"	15	200		
PICCV-15-001	1	0.13	1/2"	15	200		
PICCV-15-002	2	0.19	1/2"	15	200		
PICCV-15-003	3	0.25	1/2"	15	200		
PICCV-15-004	4	0.32	1/2"	15	200		
PICCV-15-005	5	0.38	1/2"	15	200		
PICCV-20-006	6	0.44	3/4"	20	200		
PICCV-20-007	7	0.50	3/4"	20	200		
PICCV-20-008	8	0.57	3/4"	20	200		
PICCV-20-009	9	0.63	3/4"	20	200		
PICCV-20-010	10	0.76	1"	25	200		
PICCV-25-012	12	0.88	1"	25	200		
PICCV-25-014	14	1.01	1"	25	200		
PICCV-25-016	16	1.14	1"	25	200		
PICCV-25-018	18	1.14	1"	25	200		

Electrical Connection



**PICCV with Spring Return Actuator**

**Two-way Valve with Chrome Plated Brass Ball and Brass Stem, NPT female ends**

P2... Pressure Independent Characterized Control Valve, Chrome Plated Brass Ball and Brass Stem

Model #	Flow Rate		Valve Nominal Size		Close-Off psi	Actuator	
	GPM	Liter/sec	Inches	DN mm		Spring Return Actuator	Proportional/MFT
PICCV-15-0-50	0.5	0.06	1/2"	15	200		
PICCV-15-001	1	0.13	1/2"	15	200		
PICCV-15-002	2	0.19	1/2"	15	200		
PICCV-15-003	3	0.25	1/2"	15	200		
PICCV-15-004	4	0.32	1/2"	15	200		
PICCV-15-005	5	0.38	1/2"	15	200		
PICCV-20-006	6	0.44	3/4"	20	200		
PICCV-20-007	7	0.50	3/4"	20	200		
PICCV-20-008	8	0.57	3/4"	20	200		
PICCV-20-009	9	0.63	3/4"	20	200		
PICCV-20-010	10	0.76	1"	25	200		
PICCV-25-012	12	0.88	1"	25	200		
PICCV-25-014	14	1.01	1"	25	200		
PICCV-25-016	16	1.01	1"	25	200		
PICCV-25-018	18	1.14	1"	25	200		

Electrical Connection



**PICCV with P/T ports, Non-Spring Return Actuator**

**Two-way Valve with Chrome Plated Brass Ball and Brass Stem, with P/T ports NPT female ends**

Pressure Independent Characterized Control Valve, Chrome Plated Brass Ball and Brass Stem, P/T ports  
Non-Spring Return Actuator

Model # PICCV Valve	Flow Rate		Valve		Close-Off psi	Floating	LR24-3 US	Proportional/MFT LR24-MFT US AM24-MFT US
	GPM	Liter/sec	Inches	Nominal Size DN mm				
PICCV-15-050-PT	1	0.03	1/2"	15	200			
PICCV-15-061-PT	2	0.06	1/2"	15	200			
PICCV-15-082-PT	3	0.13	1/2"	15	200			
PICCV-15-093-PT	4	0.19	1/2"	15	200			
PICCV-15-094-PT	5	0.25	1/2"	15	200			
PICCV-15-095-PT	6	0.32	1/2"	15	200			
PICCV-20-096-PT	8	0.38	3/4"	20	200			
PICCV-20-097-PT	9	0.44	3/4"	20	200			
PICCV-20-098-PT	10	0.50	3/4"	20	200			
PICCV-20-099-PT	12	0.57	3/4"	20	200			
PICCV-20-100-PT	14	0.63	3/4"	20	200			
PICCV-25-012-PT	16	0.76	1"	25	200			
PICCV-25-013-PT	18	0.89	1"	25	200			
PICCV-25-014-PT	16	1.01	1"	25	200			
PICCV-25-016-PT	18	1.14	1-1/4"	32	200			
PICCV-25-018-PT	20	1.26	1-1/4"	32	200			
PICCV-25-019-PT	20	1.39	1-1/4"	32	200			
PICCV-32-020-PT	22	1.39	1-1/4"	32	200			
PICCV-32-022-PT	24	1.51	1-1/4"	40	200			
PICCV-32-024-PT	26	1.64	1-1/2"	40	200			
PICCV-32-026-PT	28	1.77	1-1/2"	40	200			
PICCV-32-028-PT	28	1.77	1-1/2"	40	200			
PICCV-40-030-PT	30	1.89	1-1/2"	50	200			
PICCV-40-033-PT	33	2.08	2"	50	200			
PICCV-50-037-PT	35	2.27	2"	50	200			
PICCV-50-038-PT	36	2.27	2"	50	200			
PICCV-50-040-PT	40	2.52	2"	50	200			

Electrical Connection



**PICCV with P/T ports, Spring Return Actuator**

**Two-way Valve with Chrome Plated Brass Ball and Brass Stem, with P/T ports NPT female ends**

Pressure Independent Characterized Control Valve, Chrome Plated Brass Ball and Brass Stem, P/T ports  
Spring Return Actuator

Model # PICCV Valve	Flow Rate		Valve		Close-Off psi	Floating	LF24-3 US	Proportional/MFT LF24-MFT US NF24-MFT US
	GPM	Liter/sec	Inches	Nominal Size DN mm				
PICCV-15-050-PT	1	0.03	1/2"	15	200			
PICCV-15-061-PT	2	0.06	1/2"	15	200			
PICCV-15-082-PT	3	0.13	1/2"	15	200			
PICCV-15-093-PT	4	0.19	1/2"	15	200			
PICCV-15-094-PT	5	0.25	1/2"	15	200			
PICCV-15-095-PT	6	0.32	1/2"	15	200			
PICCV-20-096-PT	8	0.38	3/4"	20	200			
PICCV-20-097-PT	9	0.44	3/4"	20	200			
PICCV-20-098-PT	10	0.50	3/4"	20	200			
PICCV-20-099-PT	12	0.57	3/4"	20	200			
PICCV-20-100-PT	14	0.63	3/4"	20	200			
PICCV-25-012-PT	16	0.76	1"	25	200			
PICCV-25-013-PT	18	0.89	1"	25	200			
PICCV-25-014-PT	16	1.01	1"	25	200			
PICCV-25-016-PT	18	1.14	1-1/4"	32	200			
PICCV-25-018-PT	20	1.26	1-1/4"	32	200			
PICCV-25-019-PT	20	1.39	1-1/4"	32	200			
PICCV-32-020-PT	22	1.39	1-1/4"	32	200			
PICCV-32-022-PT	24	1.51	1-1/4"	40	200			
PICCV-32-024-PT	26	1.64	1-1/2"	40	200			
PICCV-32-026-PT	28	1.77	1-1/2"	40	200			
PICCV-32-028-PT	28	1.77	1-1/2"	40	200			
PICCV-40-030-PT	30	1.89	1-1/2"	50	200			
PICCV-40-033-PT	33	2.08	2"	50	200			
PICCV-50-037-PT	35	2.27	2"	50	200			
PICCV-50-038-PT	36	2.27	2"	50	200			
PICCV-50-040-PT	40	2.52	2"	50	200			

Electrical Connection

# PICCV – The Whole is Greater Than The Sum of Its Parts

[www.piccv.com](http://www.piccv.com)



The World Standard  
In Actuators

New  
Dynamic  
Pressure  
Regulator

**PI**

Proven Characterized  
Control Valve

**CCV**



Belimo's new Pressure Independent Characterized Control Valve combines the proven Characterized Control Valve plus a dynamic pressure regulator. PICCV reacts to pressure variations, performing a continual balancing function, to maintain optimum system performance at varying loads. Equal percentage flow provided by the PICCV is constant, the entire system more stable.

[www.belimo.com](http://www.belimo.com)

#### **Belimo Aircontrols (USA), Inc. - 1-800-543-9038**

43 Old Ridgebury Rd.  
Danbury, CT 06810  
(800) 543-9038  
(203) 791-9915  
Fax: (800) 228-8283  
(800-ACTUATE)  
(203) 791-9919

1675 East Prater Way  
Suite 101  
Sparks, NV 89434  
(800) 987-9042  
(775) 857-4243  
Fax: (775) 857-4255  
(800) 987-8875

3151 E. Thomas Street  
Inverness, FL 34453  
(888) 829-3166  
(352) 637-9280  
Fax: (888) 829-3412  
(352) 637-9634

651 South Roselle Rd.  
Schaumburg, IL 60193  
(877) 833-1647  
(847) 352-0528  
Fax: (877) 833-1663  
(847) 352-1442

#### **Belimo Aircontrols (CAN), Inc.**

14/16 – 5716 Coopers Ave.  
Mississauga, Ontario L4Z 2E8  
(866) 805-7089  
(905) 712-3118  
Fax: (905) 712-3124

#### **Belimo Servomoteur, Inc.**

2790 Chemin du Lac  
Longueuil, Québec J4N 1B8  
(866) 928-1440  
(450) 928-1440  
Fax: (450) 928-0050

#### **Belimo Latin America**

1250 E. Hallandale Beach Blvd  
Suite 802  
Hallandale Beach, FL 33009  
(954) 456-8077  
Fax: (954) 456-8092

**BELIMO**