

# Pressure Independent Control Valves

Perfection for central building control systems



**The hydraulic balancing is always a relevant topic in central building control systems. With its 4006 and 4006 SMART combi valves, HERZ has created a real relief for everyday work. The combi valves enable a building control system to be set up with reduced planning effort.**

Our life today is hugely influenced by the mobile telephone, which can be used equally as a navigation system, camera, MP3 player and mini-computer. So why not have a product combining a control valve, a balancing valve, a differential pressure regulator and a shut-off valve all in one? Precisely a "pressure independent automatic control and balancing valve with simple design and operation" or just call it SMART for short.

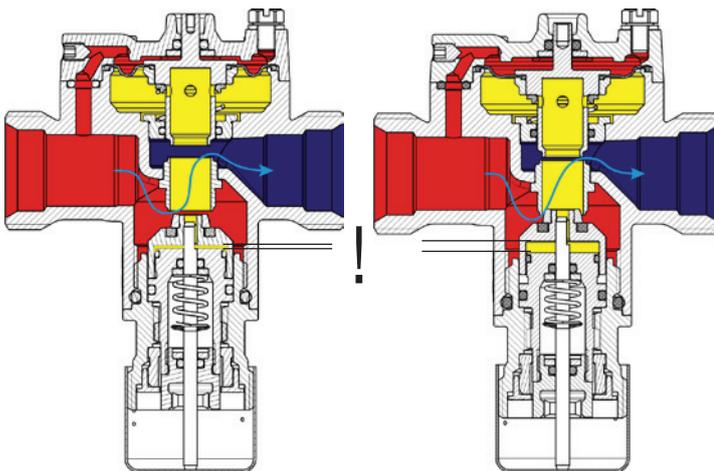
The new HERZ 4006 SMART Pressure Independent balancing Control Valves (PIBCV) is (amongst other things) the extension of the 4001 family of models (pressure relief volumetric flow controller DN 15 to DN 50), but featuring a small and compact design and suitable for the lowest flow rates.

It is also the logical complement to the zone valves of the HERZ 2117, 7217 and 7760 model series.

The 4006 SMART PIBCV enables HERZ to offer its customers and partners a precise actuator excelling under extreme application conditions with low investment and operational costs.

The 4006 SMART PIBCV is not only a combination of control and balancing valve, but is also pressure relieved.

This means that the valve, by taking into consideration a minimum differential pressure, balances the flow rate itself, whereby the required actuating forces are minimal and the regulating behaviour is of the highest standard.



HERZ 4006 SMART in fully opened position

HERZ 4006 SMART in operation; due to the pressure relief, very low actuating forces and differential pressures are sufficient

Naturally, the set nominal value = desired flow rate value, selected by valve setting. Starting at 0, one complete rotation is 100%. The setting is in percentage values and is continuously adjustable.

The flow rate adjustments required in operation are on the one hand performed by an integrated balancing valve and valve actuator, while on the other hand the so-called valve authority is constantly maintained by the integrated differential pressure regulator. The actuator (valve actuator) should preferably be a modulating (constant) working actuator in the range of 0 - 10 or 0 - 5, 5 - 10 volts. Due to the pressure relief, even the highest differential pressures only require small actuating forces of a few kg or N(ewtons).



### Temperature control made easy

Room temperature control systems are set up in commercial and public areas mostly as a combination of room heating and cooling.

Thus the consumer (fan coil, wall or ceiling systems) is subject to different flow rates or differential pressures in summer and winter operation.

For such applications, HERZ has combined control and balancing valves, whereby the flow rate in selected parts of the system is automatically limited to the preset value. Variations in pressure are compensated for by the diaphragm. The valve setting is made in the %-percentage of the maximum flow rate possible.

### HERZ 4006 combi valve

Volumetric flow controller with integrated control valve, pre-settable stroke limitation, constant or on/off control on an individual room basis in room heating and cooling systems.

### Dimensioning example:

Assume that a consumer requires a 300l/h flow rate.

The setting value is to be determined for the HERZ 4006 combi valve at 1/2". Maximum rate of flow through the 1/2" valve is 400 l/h.

This means that this 400 l/h flow rate represents 100% of the valve. Thus 300 l/h is then 75% of the maximum flow rate. So it is only necessary to set the display on the valve to 75% and meter it as a check. Please note that for proper valve operation there must be a minimum differential pressure of 10kPa.



The HERZ 4006 combi valve is operated by 2-point or modulating actuators. In this regard, however, we always recommend the continuous control. The reason for this is that a constant and energy efficient control is the critical factor for quick working systems, such as cooling systems and air heaters.

Maximum energy savings are only achieved by using modulating control valves. Under

constant control, the flow rate is continuously restricted with the least variation between the minimum and maximum room temperature.

The continuous control also enables all the other system-specific components up to the pump to be used more sparingly. The 2-point control is recommended for inert systems such as floor heating.

HERZ 4006 combi valves enjoy advantages over the conventional series connection of a flow rate controller and differential pressure controller, because the flow rate controller is constant (dependent on the flow rate of the system), while the differential pressure is variable. If the volume of water is reduced once room temperature is reached, the differential pressure will rise. The operating parameter resulting from this is completely different to that from hydraulic compensation.

This means that valves connected in series hamper each other.

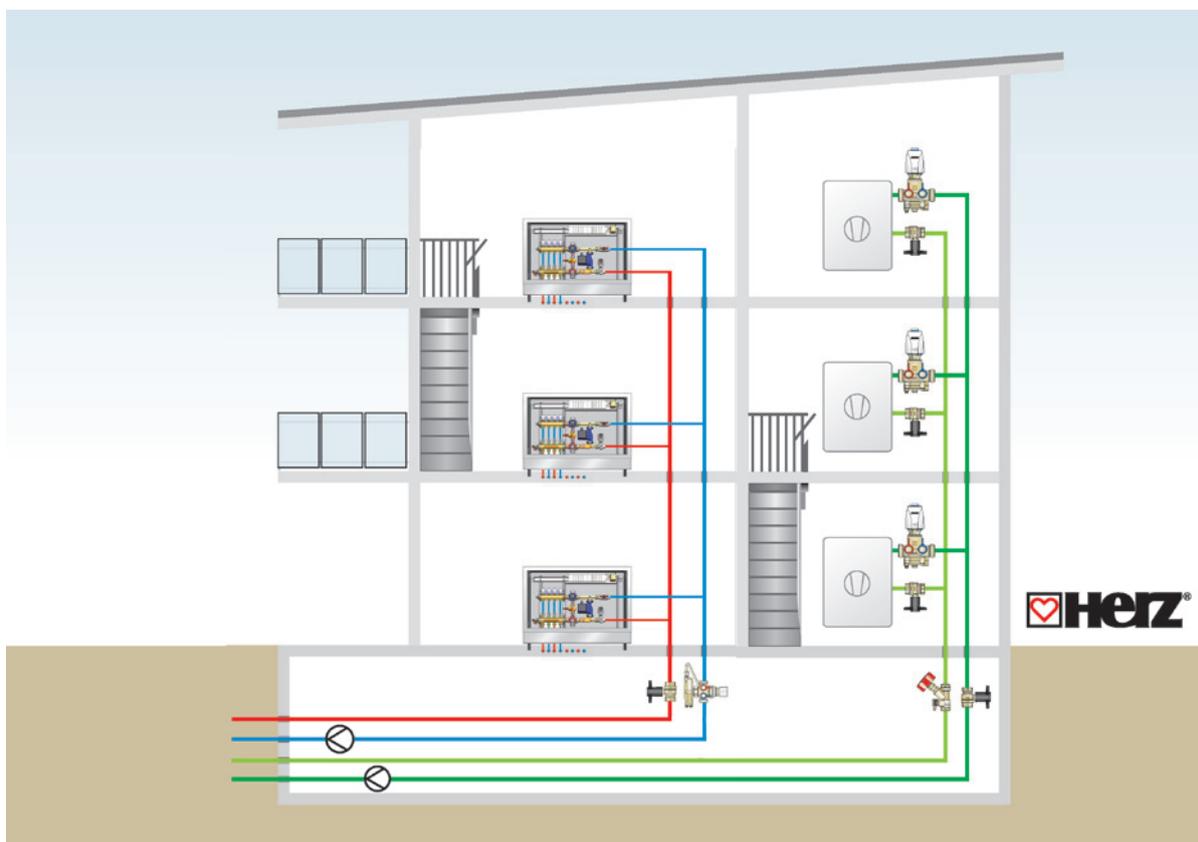
For the HERZ combi valve, the valve authority is ideally 1. A valve authority under 0.3 is equivalent to an ON/OFF control. To ensure the efficiency of your system as well as proper operation, however, a modular control with an authority greater than 0.5 should be aimed at. As the HERZ 4006 valve compensates for the different differential pressures, the flow rate to the consumer is maintained at a constant value. In this manner, an under- or oversupply to the individual consumer is excluded.

Possible accessories:

- HERZ actuator for 2-point or pulse control,
- HERZ actuator for continuous control,
- HERZ metering valve with draining,
- HERZ room temperature controller for heating, cooling or both combined.

You will also find diverse installation accessories for, as an example, soft steel or copper pipes or plastic composite pipes (pipe fix) in the range of products on offer by HERZ.

The installation is made in the return flow, in any orientation. The direction of flow is specified by the direction of the arrow on the housing. The installation of an isolation valve is recommended before and after the combi valve. The combi valve is preset using the HERZ adjusting tool, or alternatively, it is also possible to shut off the valve with a spanner.





**HERZ Valves UK**

Progress House, Moorfield Point  
Moorfield Road, Slyfield Industrial Estate  
Guildford, Surrey GU1 1RU  
Telephone: +44 (0)1483 502211, Fax: +44 (0)1483 502025  
E-Mail: [sales@herzvalves.com](mailto:sales@herzvalves.com)  
[www.herzvalves.com](http://www.herzvalves.com)

**HERZ Armaturen GmbH**

Richard-Strauss-Str. 22, A-1230 Vienna  
Tel.: +43 (0)1 616 26 31-0, Fax: +43 (0)1 616 26 31-27  
E-Mail: [office@herz.eu](mailto:office@herz.eu)

[www.herz.eu](http://www.herz.eu)

