

# Features and benefits

## ➤ Planning

- > No complex pressure loss and valve authority calculations
- > Simple, accurate product selection due wide operating range
- > No additional valve or metering requirements at terminal an all in one solution.
- > Fully pre commissioned and labelled upon delivery.
- > Instantaneous data can be taken from every valve at every second and directly exported to an excel document.
- > Flow rates are verifiable and downloadable from a calibrated instrument without the need to physically access the valve.
- > Eliminates the need for traditional hydronic balancing.
- > All settings on the valves can be restricted, meaning no changes can be made that are not traceable.
- > OPEX reduction. Fan coils sized for cooling load meaning the coil is oversized in heating mode, in turn meaning low heating flow & return temperatures can be used
- > Because the system is Glycol free it is inherently safer.
- > CAPEX & OPEX reduction due to the system being Glycol free, system power is increased and pump power required is reduced.
- > Physical space required to install is less.
- > Cabling requirements are reduced.
- > Plumbing risks are reduced to 6 connections rather than multiple found on traditional set ups.
- > System flushing can be completed through the valve without the need to physically access each valve.
- > There are no minimum differential pressure requirements in order to make the valve function as with PICV installations.
- > Site mistakes are all but eliminated and if there are any they are diagnosable remotely.
- > Proven technology, 100k installed since 2014 with a failure rate of under 0.3%
- > Room sensors, window sensor, occupational sensors, pipe sensors can all be integrated via the valve.
- > Aligns with BISRIA BG29 CPC method of flushing.



## ➤ Installation

- > Simple, accurate product selection due wide operating range
- > No additional valve or metering requirements at terminal an all in one solution.
- > Quicker installation than traditional solutions.
- > Fully pre commissioned & labelled upon delivery.
- > No internet connection or BMS required to operate the valve.
- > Flow rates are verifiable and downloadable from a calibrated instrument without the need to physically access the valve.
- > Eliminates the need for traditional hydronic balancing.
- > All settings on the valves can be restricted, meaning no changes can be made that are not traceable.
- > Twin pipe fan coils can be used meaning a CAPEX reduction.
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## ➤ Commisioning

- > No complex pressure loss and valve authority calculations
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## ➤ Operators

- > Quicker installation than traditional solutions.
- > No internet connection or BMS required to operate the valve.
- > Instantaneous data can be taken from every valve at every second and directly exported to an excel document.
- > All settings on the valves can be restricted, meaning no changes can be made that are not traceable.
- > Warranty extendable to 5 years if online testing and diagnostics are completed.
- > Every valve will constantly and automatically recommission itself to maximise savings and comfort regardless of system parameters.
- > 'Sweep' function allows set points of rooms etc to be reset daily.
- > Correct energy delivered to terminal units 100% of the time regardless of environment.
- > Twin pipe fan coils can be used meaning a CAPEX reduction.
- > OPEX reduction. Fan coils sized for cooling load meaning the coil is oversized in heating mode, in turn meaning low heating flow & return temperatures can be used.
- > Because the system is Glycol free it is inherently safer.
- > CAPEX & OPEX reduction due to the system being Glycol free, system power is increased and pump power required is reduced.
- > Proven technology, 100k installed since 2014 with a failure rate of under 0.3%.
- > Reduced call outs for FM companies as they have full visibility of the system.



The Dynamx™ 6-port control valve offers an incredible array of features & benefits. Dynamx™ is the only valve in the world that combines so many energy saving and cost reduction functions for every stakeholder. It is protected by two patents.



## Welcome to the DB family



➤ DB radiator valves with thermostatic option are equipped with an integrated cartridge to control and limit the flow rate through preset values. The preset flow rate is never exceeded, even in case of load variations within the system when other valves close or during start up. This operation is completely independent from the differential pressure when the valve is included between a minimum and maximum range.

➤ Brass, stainless & composite manifolds for HVAC systems with dynamic flow balancing and independent setting for each individual circuit. The preset flow rate is never exceeded, even in case of load variations within the system when other valves close or during start up. This operation is completely independent from the differential pressure when the value is included between a minimum and maximum range.



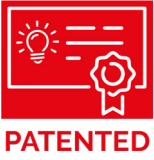
➤ The pressure independent control valve R206A (PICV), combines an automatic control of the flow rate with an optional control of the valve through an actuator. The valve is able to regulate the flow rate and keep it constant as the differential pressure conditions vary within the hydraulic circuit in which it is installed.

➤ Balancing valve R206C is a differential pressure controller for constant differential pressure of part of the hydraulic circuit at any flow rate. The nominal differential pressure can be controlled on a constant basis from 5 to 30 kPa in "L" mode (Low) or from 25 to 60 kPa in "H" mode (High); nominal set point preset on minimum value. The valve comes with a 1 m capillary tube made of copper for connection to the delivery pipe, which is typically static balancing valve (R206B).



## Hydraulic balancing with dynamic valves

When using dynamic valves, such as those used in the Dynamx™ E-PICV, the valves do the balancing for you. There's no need for complex pressure loss and control authority calculations. Only the volumetric flow determines which valve must be used. Installation effort is also reduced as you don't need any additional flow regulating or balancing valves. On-site commissioning also becomes extremely simple thanks to easy maximum flow presetting and automatic balancing. This is possible because dynamic valves ensure balanced water flow rates under all load conditions, eliminating any impact fluctuations on the temperature of the room. Dynamic valves therefore allow energy savings of up to 30 percent without sacrificing comfort - with intelligent valves, these energy savings can reach up to 37 percent. Dynamic balancing using the Dynamx™ E-PICV is the right way to hydronic balance.



PATENTED



Energy  
Management

UK001 FEB-25



## DYNAMX™ SMART E-PICV 6-way valve

Data driven, visible flow control  
maximising comfort and efficiency in  
heating and cooling systems.



**GIACOMINI**  
WATER E-MOTION



ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

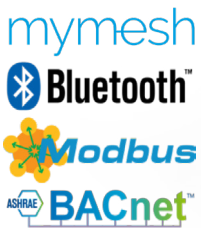
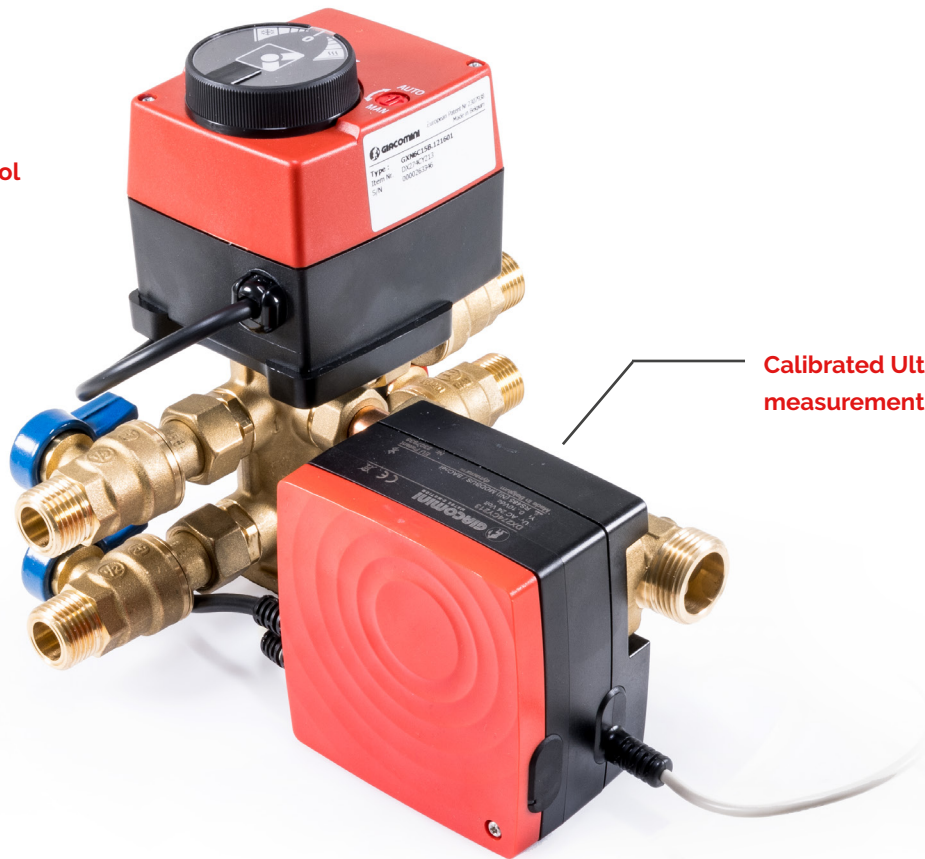


Introducing the smart E-PICV – your gateway to precision and efficiency in fluid control. This cutting-edge Electronic Pressure Independent Control Valve is designed to optimise performance, ensuring a seamless balance between energy efficiency and precise flow control in various applications.

Step actuator for 6-way control valve with integrated electronic controller.

Patented 6-way control valve body.

Calibrated Ultrasonic flow measurement device.



#### ➤ What?

The Dynamx™ 6-port control valve, combines five functions in one: (1) a changeover valve, (2) a control valve, (3) a pressure-independent balancing valve, (4) a shut-off valve and (5) integrated room temperature control. A dynamic, data driven, six way valve that manages change over between heating and cooling circuits (4 pipes) to terminal units such as fan coils, radiant panels, chilled beams or manifolds.

#### ➤ Why?

As the world around us changes, data is being used more heavily in everything we do in order to save energy, increase comfort or inform our choices. Building Services / HVAC has traditionally lagged behind with most devices simply opening or closing to a signal. Dynamx™ now gives us a fully connected solution that allows us to use data from the environment and system in order to only ever use the energy required to heat or cool a space and always maintain a perfect hydronic balance in the building.

#### ➤ Where?

Dynamx™ can be installed in any building where a traditional 4 pipe heating and cooling system would be deployed.

#### ➤ How?

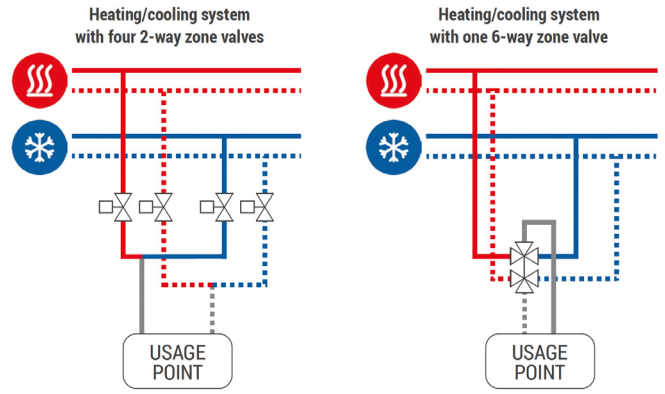
Dynamx™ E-PICV measures flow rate using an ultrasonic flow sensor connected to the actuator on the 6 way valve body. The internal flow controller of the Dynamx™ valve receives a set point from the room. Internally, this set point is converted into a flow set point, either heating or cooling. The integrated flow sensor continuously measures the actual flow rate. The internal control loop compares the actual flow rate with the required flow rate and adjusts the position of the control valve until the measured flow rate equals the required flow rate set point. The Dynamx™ will control the flow rate in the direction of the desired setpoint, independent of possible pressure fluctuations in the system, e.g. in case of partial load. The control valve automatically adapts to the system parameters and searches for the ideal set point to ensure maximum user comfort with minimum energy consumption.

The Dynamx™ compact 6-way zone valve can control the water supply from two different thermal energy sources to a single usage point; in other words it controls 4-pipe systems (typically heating and cooling) in a simple way.

One 6-way valve, motorised with its actuator, can therefore replace four motorised 2-way zone valves with no need to synchronize them to open/close the two sources. It also reduces the requirement to use 4 pipe, twin HTG & CHW FCU's & associated filling, flushing and balancing valve assemblies into a single coil FCU.

6-way zone valve enables changeover (0° and 90° stem positions) and also to simultaneously shut off both sources (45° stem position).

Dynamx™ 6-way valves are generally installed in radiant ceiling and fan coil systems where the user can easily changeover from heating to cooling also during the same day and autonomously for each zone.



## Overpressure protection system

When using the 6-way valve with heating/cooling combined usage points (radiant ceilings, fan coils), the fluid inside the usage point circuit is completely isolated when the valve is closed (with no heating or cooling).

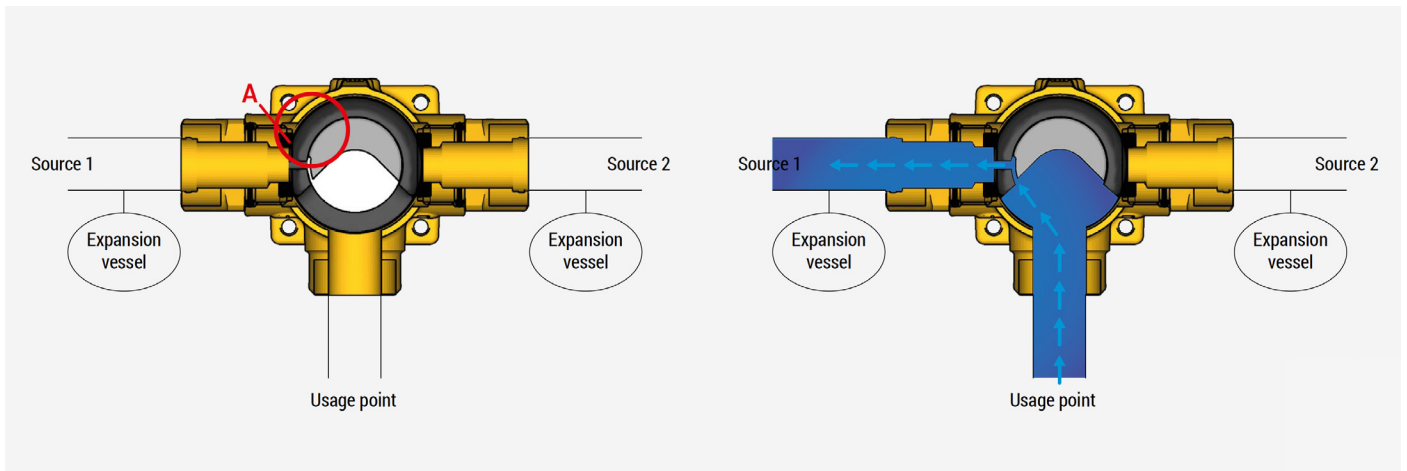
The pressure of the fluid inside the usage point circuit may therefore increase or decrease when the fluid temperature changes as a consequence of the room temperature.

**The 6-way valve features an integrated overpressure protection to offset such pressure variations.**

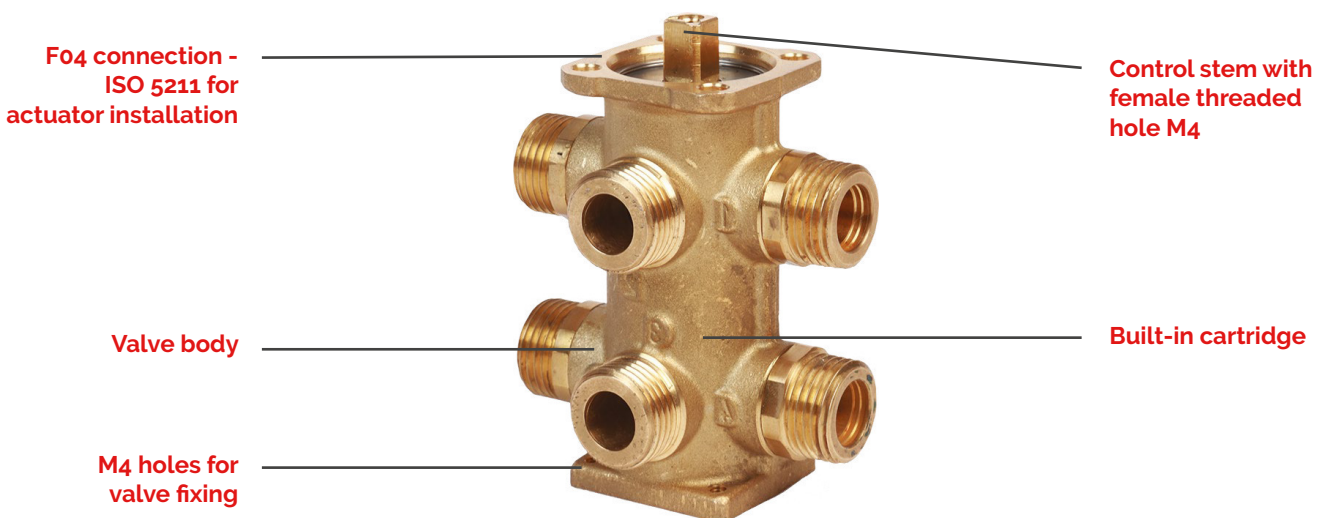
The cartridge in the top of the valve features a passage inside (ref. A) which keeps the "usage point" connected to "source 1" even when the valve is closed (45° stem position).

The combined action of these two parts (top and bottom) prevents the fluid from flowing when the valve is closed.

The overpressure protection system does not affect the hydraulic separation between the two circuits (source 1 and source 2): the two hydraulic sources are always separated.



## ➤ The Dynamx™ 6-way zone valve body

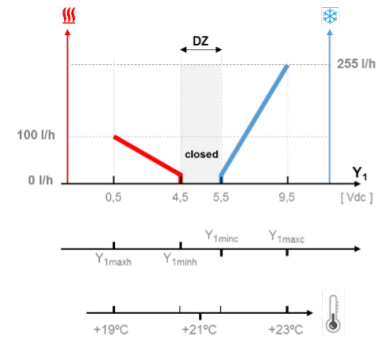


# How it works

Dynamx™ flow-control control valves are designed to accurately control flow in any consumer. To do this, Dynamx™ has 4 basic building blocks, namely a:

- > control valve
- > drive
- > flow sensor
- > flow regulator

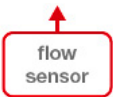
Additional functions can be added on top of these basic building blocks, such as bus communication, wireless communication or additional inputs.



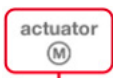
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In analog mode, the internal flow controller of the Dynamx™ valve receives a set point from the room T° controller via a split-range Y1 : 0..10Vdc control signal (heating: 0.5..4.5Vdc and cooling: 5.5..9.5Vdc). Internally, this set point is converted into a flow set point, either heating or cooling.



The integrated flow sensor continuously measures the actual flow rate. The internal control loop compares the actual flow rate with the required flow rate and adjusts the position of the control valve until the measured flow rate equals the required flow rate set point.



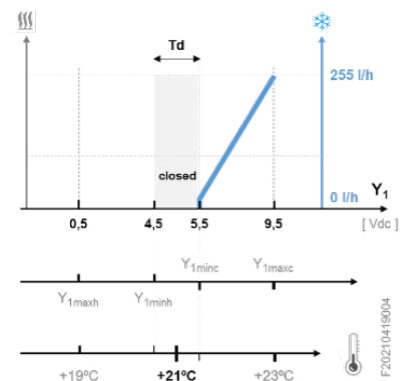
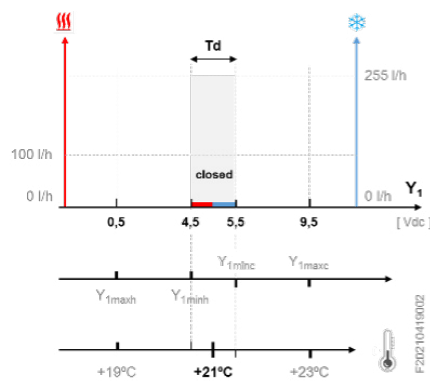
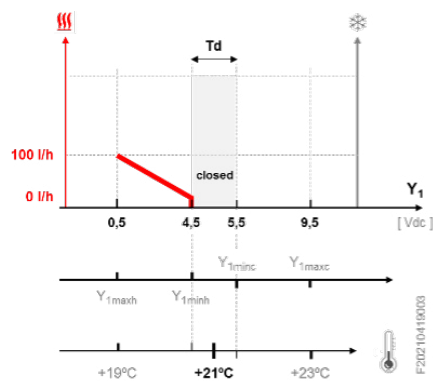
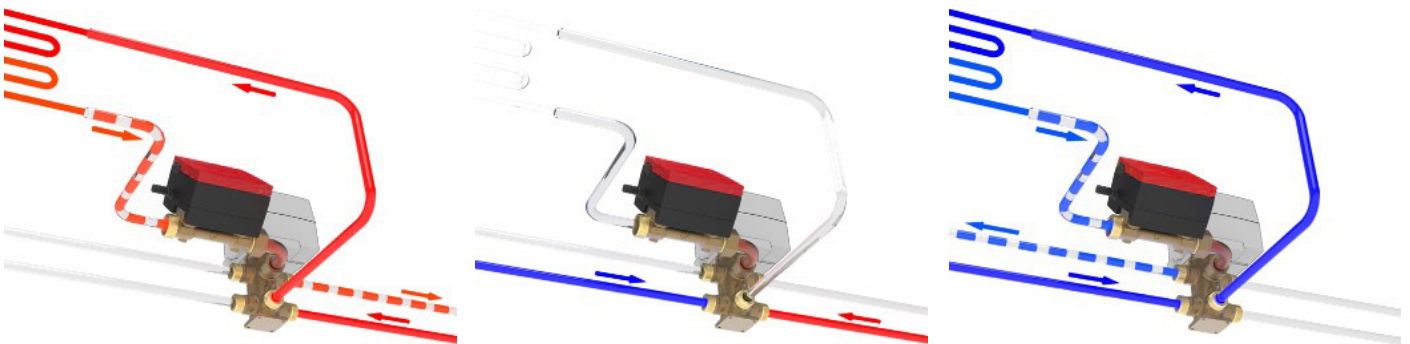
Thus, the Dynamx™ will control the flow rate in the direction of the desired setpoint, independent of possible pressure fluctuations in the system, e.g. in case of partial load. The control valve automatically adapts to the system parameters and searches for the ideal set point to ensure maximum user comfort with minimum energy consumption.



The output signal X1 : 0..10Vdc representing the measured flow can be used to monitor the actual flow rate.



Thanks to this innovative technology, Dynamx™ control valves can be used in a much larger flow range than conventional control valves.



The Dynamx™ control valves operate as a switch between heating and cooling, where the set design flow rate can be infinitely controlled between 0..Vmaxh (heating) or 0..Vmaxc (cooling).