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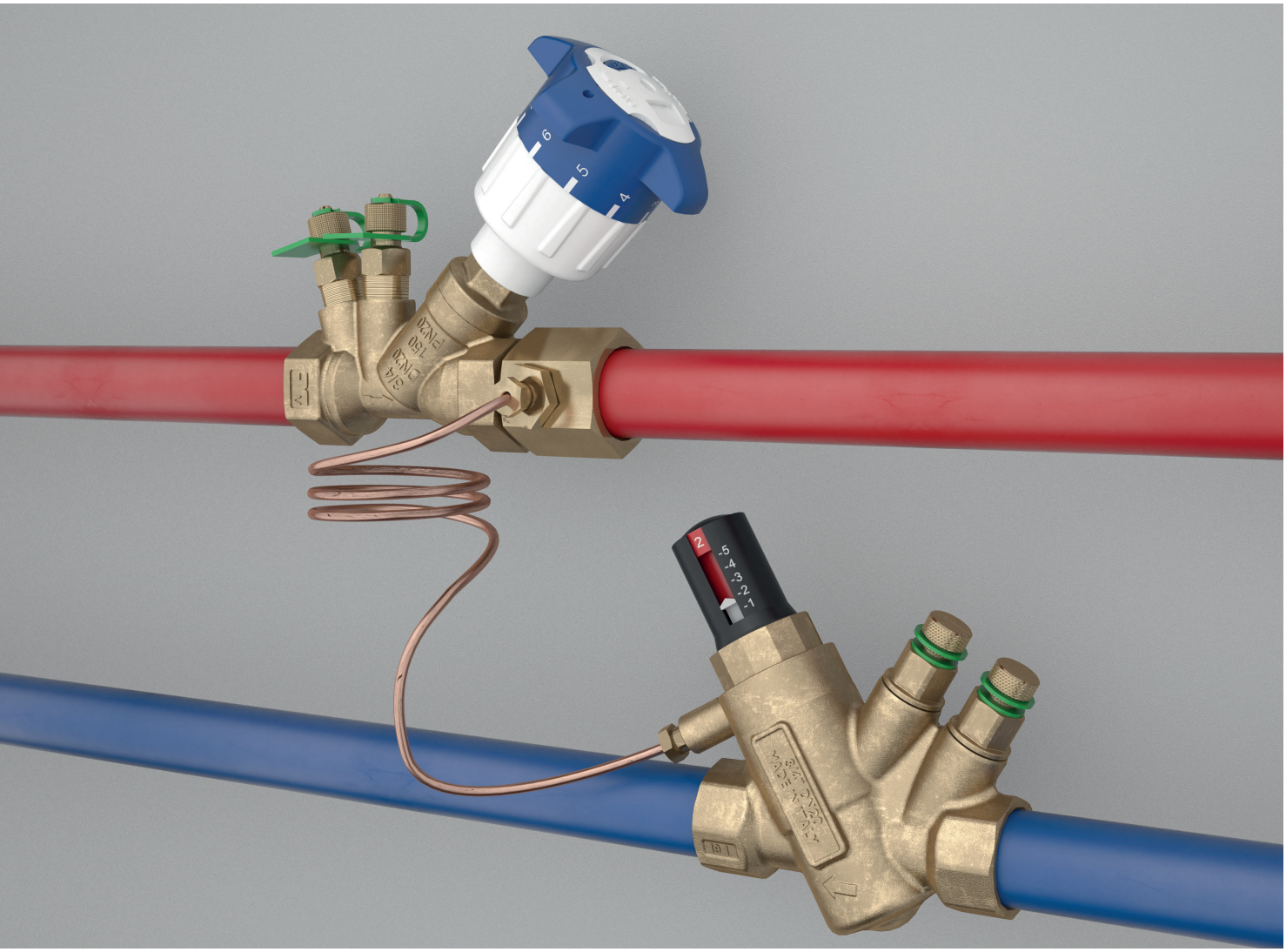


HEATING SYSTEM BALANCING

TIEMME
ORIGINAL ITALIAN TRADEMARK

THE IMPORTANCE OF SYSTEM BALANCING

The correct operation of a thermal installation is closely linked to the balance of the distribution network.
In fact, the design flow rate must be available to all delivery units, even those most at a disadvantage.

A properly balanced system ensures:
energy saving, system efficiency, comfortable surroundings, lower servicing and support costs, fewer complaints.

TYPES OF BALANCING: GUIDE TO CHOOSING

Three different types of balancing systems can be recognised in heating systems:

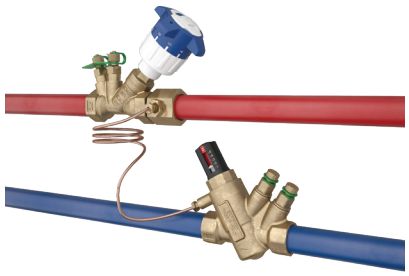
1. Manual static flow rate balancing

Device used:	**Operation:**	**Field of application - installation:**
Static balancing valves. (SBV: Static Balancing Valve) 	**They maintain the flow rate constant to design conditions.** The position of the shutter is adjusted by operating the calibration knob to create a load loss and thus stabilize the flow rate of a branch of the circuit.	Heating systems with **constant flow rate**. They are installed on the return circuit of the hydraulic branch to be balanced.

2. Automatic dynamic flow rate balancing

Device used:	**Operation:**	**Field of application - installation:**
Dynamic balancing valves, commonly called flow rate stabilizers. (PICV: Pressure Independent Control Valve) 	**These keep the flow rate of the system constant when the differential pressure (ΔP) varies due to the intervention of the regulating elements (e.g. servomotors, thermostatic heads, etc.).** The desired flow rate value is set by adjusting the flow rate cartridge.	Heating systems with **variable flow rate**. For installation on the return circuit of the hydraulic branch to be balanced, or of each individual terminal element (e.g. fan convector).

3. Adjustment of differential pressure

Device used:	**Operation:**	**Field of application - installation:**
Balancing valves with differential pressure control. (DPCV: Differential Pressure Control Valve) 	**They control and maintain a constant differential pressure value (ΔP) between two specific points of the system (e.g. on risers) as the flow required by the system changes.** Some types of differential pressure control valves intrinsically allow for adjusting the maximum flow rate (PIBCV: Pressure Independent Balancing and Control Valve).	Heating systems with **variable flow rate**. In centralized systems, equipped with thermostatic valves or motorized valves, they perform the vital role of **preventing noise issues** from the regulating elements, which occur when the differential pressure is too high. The hydraulic system is regulated by the combined action of two devices connected together by means of a copper capillary tube: • The ΔP control valve installed on the system return line. • the control/calibration device (commonly called "partner valve") installed on the supply line.

The wide range of products offered by Tiemme always makes it possible to choose the most suitable device to meet every system requirement.

EXAMPLES OF INSTALLATION

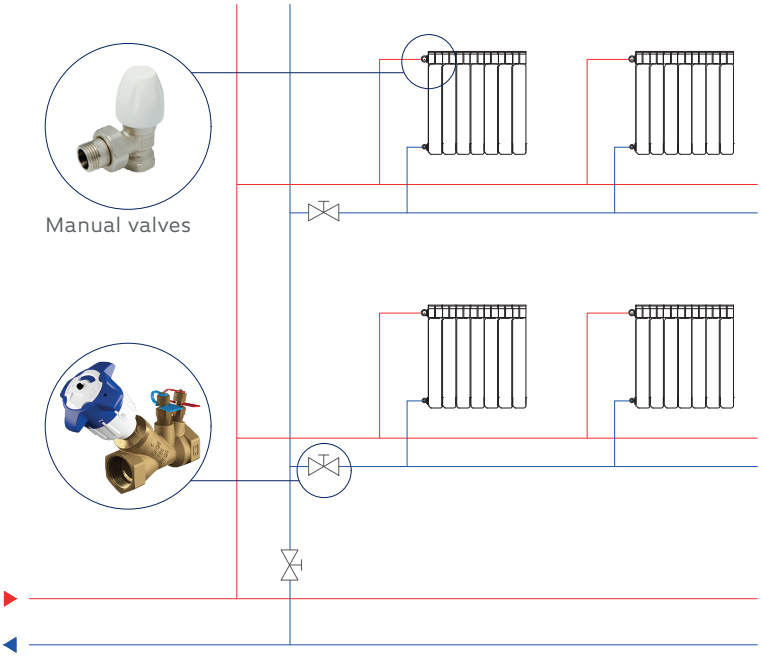
EXAMPLE 1

Type of system:

Centralised two-pipe heating system with **constant flow rate** (manual valves installed on each radiator).

Solution proposed:

Static balancing valve art. 6535G installed on the return circuit of each branch.



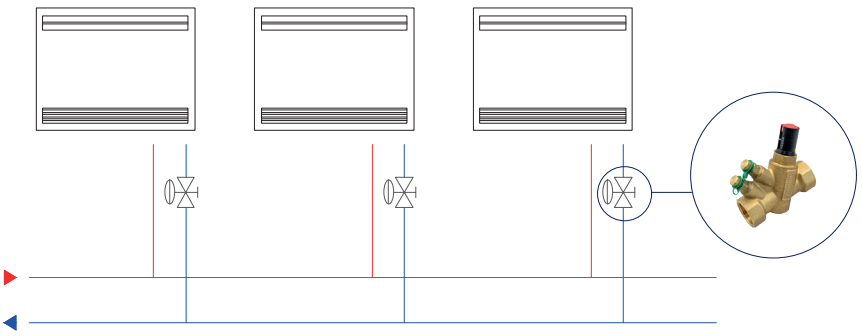
EXAMPLE 2

Type of system:

Heating system with fan coil units.

Solution proposed:

Flow rate stabilizer art. 6542CC installed on the return circuit of each terminal element.



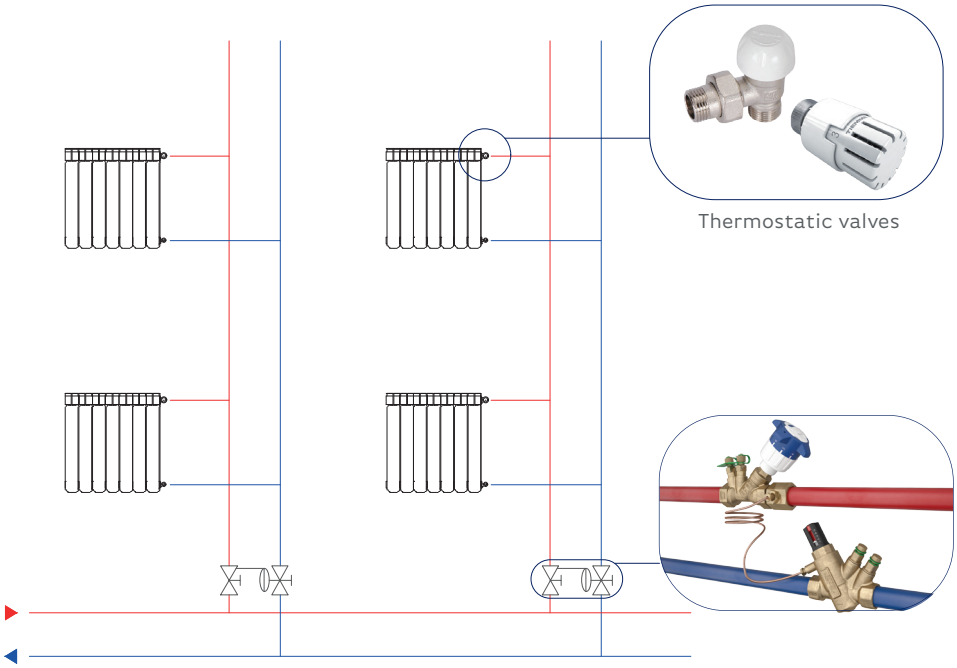
EXAMPLE 3

Type of system:

Centralised two-pipe heating system with **variable flow rate** (thermostatic valves with pre-regulation Tiemme art. 332H paired with thermostatic head art. 9553, installed on each radiator).

Solution proposed:

Balancing valve with differential pressure control art. 6538 installed on the return circuit column of each branch, paired with “partner valve” art. 6539 installed on the delivery column.



PRODUCTION RANGE

1. STATIC BALANCING VALVES (SBV)

Model	 **6535G**	 **6535DN**
Range	1/2” ÷ 2”	DN65 ÷ DN200
Fittings	Threaded	Flanged
Adjustment	Calibration knob with “memory stop” function. Calibration with the system running.	Calibration knob with “memory stop” function. Calibration with the system running.
Accessories	6535ISOL (insulation)	6535DNISOL (insulation)
Pressure plugs	Standard	Standard

2. DYNAMIC BALANCING VALVES OR FLOW RATE STABILISERS (PICV)

Model	 **6541CC** (Tiemme-Basic)	 **6542CC** (Tiemme-Easy)	 **6542CCS** (Tiemme-Auto)	 **6541DN** (Tiemme-Easy high flow rates)	 **6544DN** (Tiemme-Auto high flow rates)
Range	1/2” ÷ 1”	1/2” ÷ 2”	1/2” ÷ 2”	DN65 ÷ DN250	DN65 ÷ DN250
Fittings	Threaded	Threaded	Threaded	Flanged	Flanged
Adjustment	Internally-adjustable cartridge. Calibration during installation before filling the system.	Cartridge externally adjustable via key. Calibration when the system is running.	Cartridge externally adjustable via key. Calibration when the system is running.	Cartridge externally adjustable via key. Calibration when the system is running.	Touchscreen display. Calibration when the system is running.
Accessories	6452PP (pressure plugs)	6543CH (key)	6542SERV 6542SERV2 6542ATT (servomotor) 6543CH (key) 6545CH (key)	6543CH (key)	-
Pressure plugs	Accessory	Standard	Standard	Standard	Standard

PRODUCTION RANGE

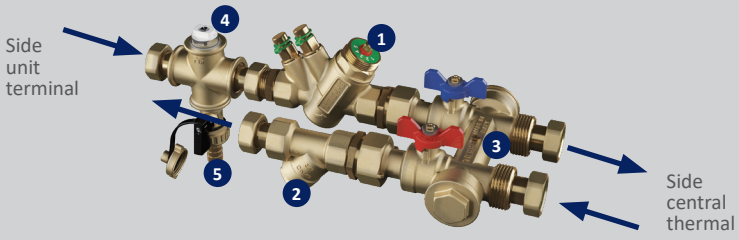
3. BALANCING VALVES WITH DIFFERENTIAL PRESSURE CONTROL (DPCV - PIBCV)

Model	 **6538**	 **6539** ("partner valve")	 **6540**
Range	1/2" ÷ 2"	1/2" ÷ 2"	1/2" ÷ 1"
Fittings	Threaded	Threaded	Threaded
Calibratation	Cartridge externally adjustable via key. Calibration when the system is running.	Calibration knob with "memory stop" function. Calibration when the system is running.	Cartridge externally adjustable via key. Calibration when the system is running.
Accessories	6539 ("partner valve") 6543CH (key)	-	6542ATT (servomotor) 6543CH (key) 1570 + 1581 (fitting)
Pressure plugs	Standard	Standard	Standard

SOLUTIONS FOR AIR TERMINAL UNITS BALANCING

Multipurpose kit art. 3162 is the ideal solution to allow adjustment, commissioning and washing / maintenance operations of the terminal units (fan coil units...) within a heating, ventilation and air conditioning system.

The kit must be installed upstream of the terminal unit and includes the necessary main components for a correct operation.



1. Dynamic balancing valve (PICV)
2. Strainer(filtration grade 350 µm)
3. Bypass assembly
4. Manual air vent valve
5. Drain cock

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