

R147N

By-pass differential pressure valve



Energy
Management

Datasheet
0126EN 02/2024



The differential pressure valve R147N can be used on various types of hydrothermal systems (radiators, fan coils, radiant systems) in which the presence of thermostatic or thermo-electric actuators, or motorized zone valves, can lead to situations of simultaneous closure of all the circuits. In these conditions, the absence of a specific differential pressure valve and/or the absence of a specific control for the pump automatic switch off, can cause annoying noises in the system and may even lead to damage of the pump itself. In fact, in the phase in which the actuators are to close the respective circuits (or zones), a progressive decrease in the flow rate occurs, with a consequent increase in pressure downstream of the pump.

By calibrating the differential pressure valve the system pressure can be maintained at a constant level even when the actually required flow rate changes.

➤ Versions and product codes

PRODUCT CODE	CONNECTIONS
R147NY004	G 3/4"F x G 3/4"F

➤ Technical data

Performance

- Fluids: water, glycol solutions (max. 50 %)
- Max. working temperature: 120 °C
- Max. working pressure: 10 bar
- Max. differential pressure: 60 kPa
- Calibration positions: from 1 to 6 m.w.c.

Materials

- Body: CW617N - UNI EN 12165 brass
- Spring: stainless steel AISI 302
- Seals: EPDM
- Knob: ABS

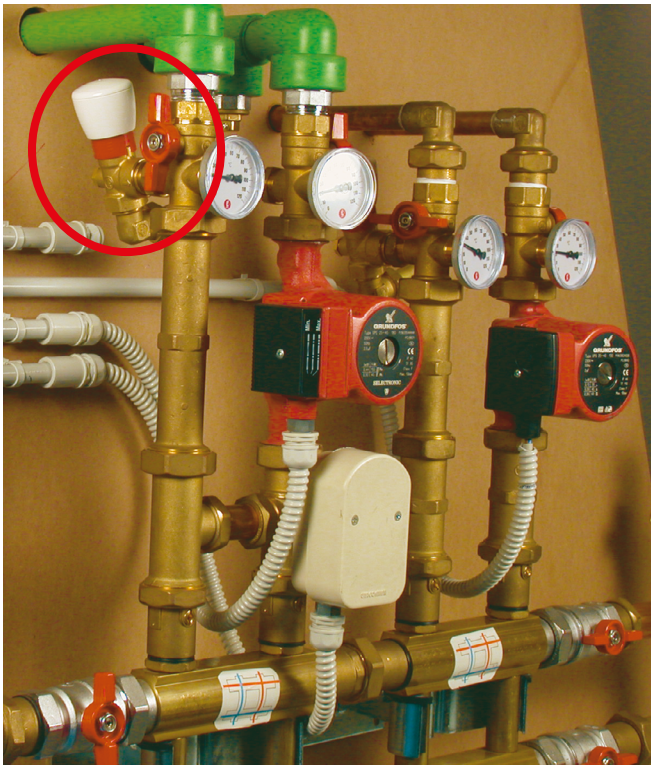
➤ Main features

Wide adjustment range for possibility of installation on systems of various capacities.

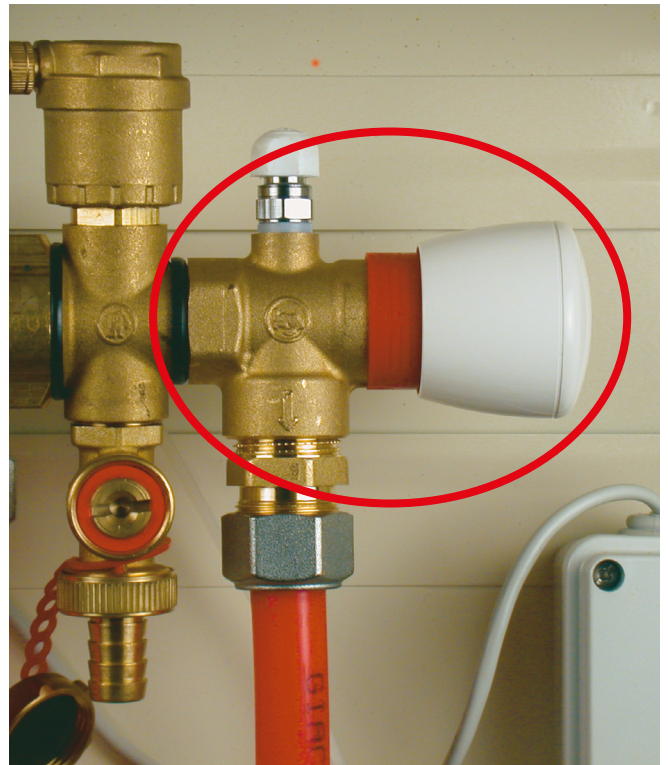
Additional 1/4" connection for possible installation of an air vent valve (to be ordered separately), which allows periodic venting of any pockets of air that, accumulating in the valve, could alter its operation.

The differential by-pass valve should be used to discharge flow rates up to 1000 L/h; if higher flow rates are to be by-passed, it is advisable to opt for the installation of several valves installed in parallel configuration.

➤ Installation



The differential pressure valve R147N must be always installed downstream of the pump in between the supply and return pipes, the same versatility allows installation in both horizontal and vertical position respecting the flow direction marked on the body itself of the valve.



The differential pressure valve R147N can be installed as an independent component both in the boiler room as well as in the distribution substations (manifold cabinets) and as a component for preassembled boiler units or distribution manifolds for radiant system.

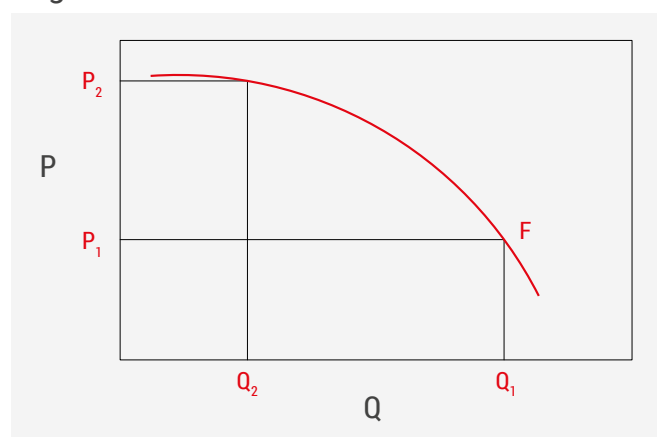
Setting

The calibration operation can be done by turning the knob. The presence of a graduated scale (1 to 6 meters of water gauge) allows the calibration to the desired value. The determination of the correct calibration position can be done in two ways: one practical and the other theoretical.

The **theoretical method** is based on two characteristics of the system. The total flow (Q_1) and pressure drop, through which we proceeded to the choice of the circulation pump. Through the characteristic curve of operation of the circulation pump is identified the prevalence value (P_2) corresponding to a flow (Q_2), equal to 15 ÷ 20% of design flow rate. The determined prevalence (P_2) corresponds to the intervention pressure of the differential pressure valve which should therefore be calibrated.

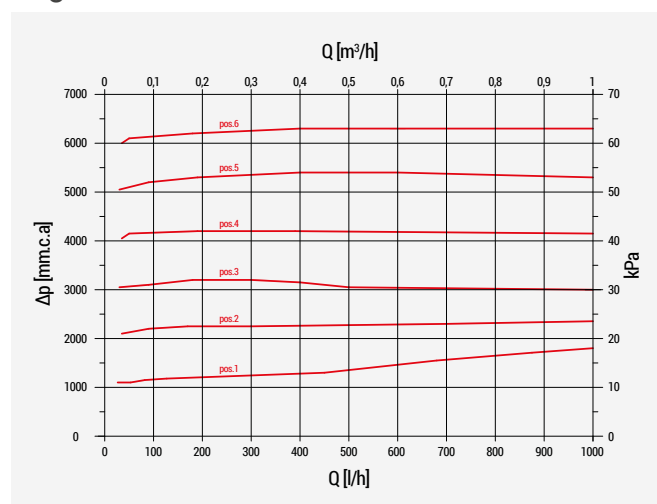
The **practical method** is brisk but not less effective. It consists of, in the case of boiler room manifolds, reducing the flow rate of the installation by using a ball valve in the middle, positioned downstream of the R147N connection part, closing it for about 80% and gradually opening up to cause the differential valve opening (this is noticeable by listening to the noise in the piping or feeling the heat of the drain pipe). After the calibration is done, it is possible to re-open the ball valve restoring the operation of the system.

Diagram 1



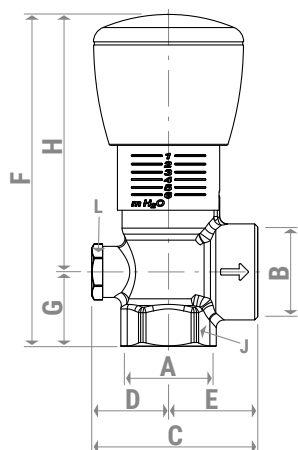
Q_1	Flow rate of the pump during normal operation
P_1	Pressure of the pump during normal operation
F	System operation point
Q_2	Flow rate equal to 15÷20% of Q_1
P_2	Opening pressure of the differential pressure valve

Diagram 2



The diagram represents the trend of the differential pressure (expressed in water gauge meters or in kPa) depending on the by-passed flow rate (expressed in l/h in m^3/h) for each of the setting positions.

➤ Dimensions



PRODUCT CODE	A x B	C [mm]	D [mm]	E [mm]	G [mm]	H [mm]	F [mm]	I [mm]	L [mm]
R147NY004	G 3/4"F x G 3/4"F	54	25	29	24	67÷84	91÷108	31	16

➤ Product specifications

R147N

By-pass differential pressure valve for HVAC systems. Connections G 3/4"F x G 3/4"F. Fluids: water, glycol solutions (max. 50 %). Max. working temperature: 120 °C. Max. working pressure: 10 bar. Max. differential pressure: 60 kPa. Calibration positions: from 1 to 6 m.w.c. Body: CW617N EN 12165 brass. Stainless steel spring AISI 302. Seals: EPDM. Knob: ABS

⚠ Safety Warning. Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

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