

## Six-way zone valves

Datasheet  
0576EN 11/2019



PATENTED



R274



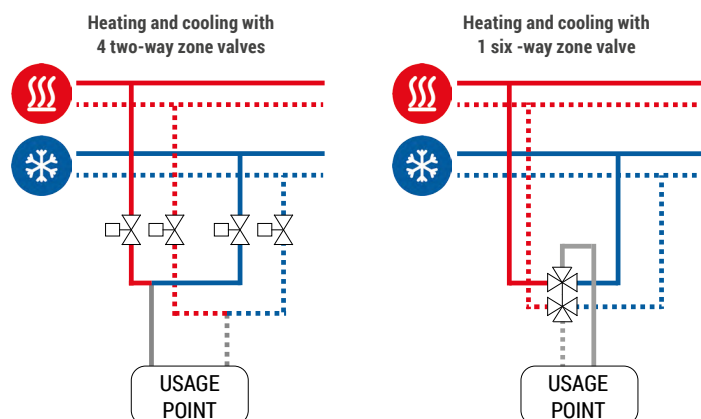
R274N

Six-way zone valves, R274 (with tail pieces) and R274N (without tail pieces), to manage the water supply to a single usage point from two different sources of thermal energy, or to easily manage 4-pipe systems (typically used in heating and cooling applications).

A single valve, motorized with its actuator, can thus substitute four motorized two-way zone valves, easily resolving any complications with synchronization for the opening/closings of the two sources.

The six-way zone valves allow the system change-over from heating to cooling (stem positions from 0° to 90°) and also the simultaneous closing of the supply from both sources (stem position at 45°).

Valves R274 and R274N are typically used in radiant ceiling systems, in particular for the service sector, where the change-over from heating to cooling can be easily managed, even when this is required during the same day, and can be carried out independently for each zone.



VIDEO

Frame the QR code with your smartphone or tablet to view the video tutorial.

## ➤ Versions and product codes

SERIES	PRODUCT CODES	VALVE CONNEC- TIONS	VALVE CON- NECTIONS WITH FLAT SEAT TAIL PIECES	VALVE BODY MATERIAL	OPTIONAL			
					CALIBRATED WASHERS P21S	ACTUATOR K274-2	INSULATION R274W	FITTINGS
R274 (with tail pieces)	R274Y023	1" M (G, ISO 228)	1/2" M (G, ISO 228)	CW617N	P21SY011 ÷ P21SY016	K274Y052	R274WY001	
	R274Y024	1" M (G, ISO 228)	3/4" M (G, ISO 228)	CW617N	P21SY011 ÷ P21SY018	K274Y052	R274WY001	-
	R274Y025	1" M (G, ISO 228)	1" M (G, ISO 228)	CW617N	P21SY011 ÷ P21SY018	K274Y052	R274WY001	
R274N (without tail pieces)	R274Y033	1/2" M (G, ISO 228)	-	CW617N	P21SY001 ÷ P21SY006	K274Y052	R274WY002	RM179Y053 (1/2" F x 16x2) RM179Y056 (1/2" F x 20x2) P15FY013 (1/2" F x 1/2" F) P15Y018 (1/2" F x 1/2" M) R254PY102 (1/2" F x 1/2" M) rossa R254PY112 (1/2" F x 1/2" M) blu
	R274Y133	1/2" M (G, ISO 228)	-	CW602N (DZR)	P21SY001 ÷ P21SY006	K274Y052	R274WY002	
	R274Y045	1" M (G, ISO 228)	-	CW617N	P21SY011 ÷ P21SY018	K274Y052	R274WY001	RM179Y073 (1" F x 26x3) RM179Y074 (1" F x 32x3) RM252Y003 (1" F x RM16x2) RM252Y004 (1" F x RM20x2) R252Y023 (1" F x 1/2" M) R252Y025 (1" F x 18) P15Y015 (1" F x 1/2" M) P15Y016 (1" F x 3/4" M) P15Y017 (1" F x 1" M) P15FY004 (1" F x 3/4" F RP, EN 10226) P15FY005 (1" F x 1" F RP, EN 10226)
	R274Y145	1" M (G, ISO 228)	-	CW602N (DZR)	P21SY011 ÷ P21SY018	K274Y052	R274WY001	

🔗 **NOTE.** The codes P15 and P15F are supplied in pairs of tail pieces

## ➤ Main features

- Possibility of using valve with flat seat tail pieces (R274 series) or without tail pieces (R274N series)
- Possibility to install the P21S calibrated washers to obtain different Kv.
- Wide range of tail pieces and fittings for a simple connection to the system.
- Easy actuator installation, with minimal space needed
- Actuator can be operated manually, which allows users to move the valve position even in the absence of electricity
- Overpressure protection system
- The valve can be secured to the supports using the threaded hole on the lower part of the valve:
  - no. 1 M6 hole for R274Y023, R274Y024, R274Y025, R274Y045, R274Y145
  - no. 2 M4 holes for R274Y033, R274Y133

## ➤ Technical data

### Six-way valves R274 and R274N

- Fluid working temperature range: 5÷90 °C
- Rated pressure (PN): 16 bar
- Maximum differential pressure: 2 bar
- Maximum glycol percentage: 50 % (the percentage of glycol must be equal for both circuits - heating and cooling)
- Leakage rate (according to EN12266-1): A, no leakage
- Connection for actuator: F04 - ISO 5211

### Materials

- Valve body: brass CW617N or CW602N (DZR) depending on version
- Gaskets: low-friction PTFE / EPDM
- Connection for actuator: PA66-GF30

### Actuator K274Y052 (optional)

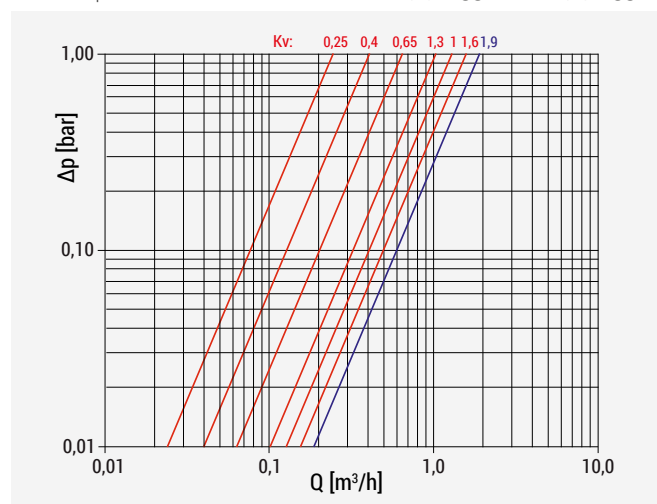
- Manual function, with operating lever
- Power supply: 24 Vac/dc
- Power absorption: 4,9 W
- Opening time: 60/120 s (adjustable)
- Protection degree: IP54
- Protection class: III
- Ambient working temperature: -10÷55 °C
- Ambient working humidity: 5÷95 % with R.H non-condensing
- Function options available: 3-point floating or ON/OFF
- 5-wire control cable: proportional control with 0÷10 V position feedback 0÷10 V

### Calibrated washers P21S (optional)

Calibrated washers with seeger ring, made of stainless steel.

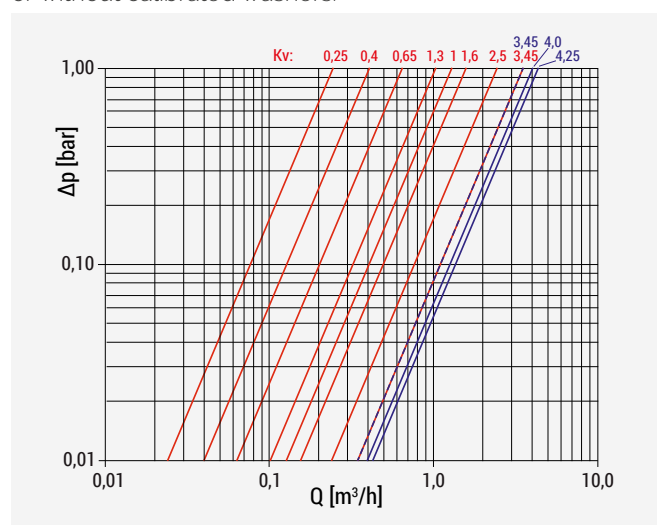
### Losses of pressure

Loss of pressure values for valves R274Y033 and R274Y133 inclusive of delivery and return, with or without calibrated washers.



PRODUCT CODE	TOTAL Kv (VALVE DELIVERY AND RETURN + WASHER)
Valve + P21SY001	0,25 (washer hole Ø 2,7 mm)
Valve + P21SY002	0,40 (washer hole Ø 3,5 mm)
Valve + P21SY003	0,65 (washer hole Ø 4,5 mm)
Valve + P21SY004	1,00 (washer hole Ø 6,0 mm)
Valve + P21SY005	1,30 (washer hole Ø 7,0 mm)
Valve + P21SY006	1,60 (washer hole Ø 8,0 mm)
Valve without P21S	1,90

Loss of pressure values for valves R274Y045, R274Y145, R274Y023, R274Y024 and R274Y025 inclusive of delivery and return, with or without calibrated washers.



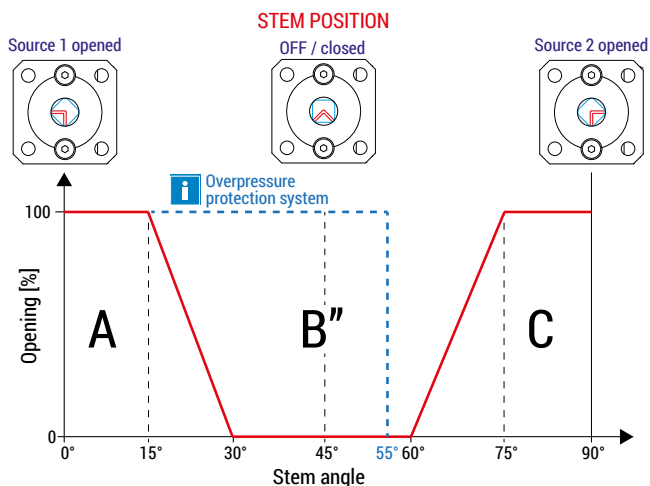
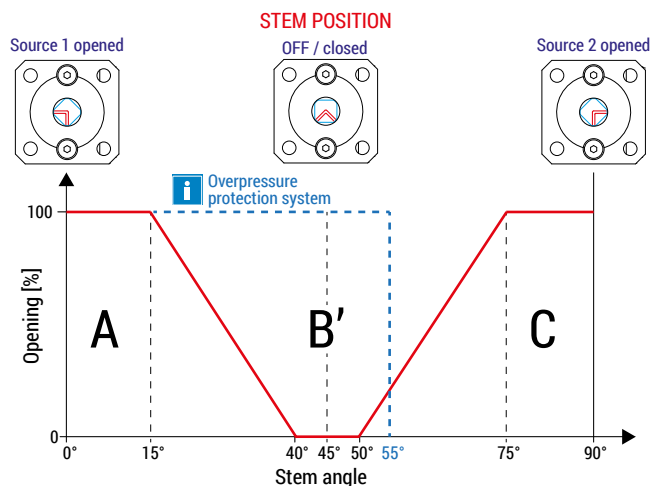
PRODUCT CODE	TOTAL Kv (VALVE DELIVERY AND RETURN + WASHER)
Valve + P21SY011	0,25 (washer hole Ø 3 mm)
Valve + P21SY012	0,40 (washer hole Ø 4 mm)
Valve + P21SY013	0,65 (washer holea Ø 4,5 mm)
Valve + P21SY014	1,00 (washer hole Ø 5,8 mm)
Valve + P21SY015	1,30 (washer hole Ø 6,7 mm)
Valve + P21SY016	1,60 (washer hole Ø 7,5 mm)
Valve + P21SY017	2,50 (washer hole Ø 9,0 mm)
Valve + P21SY018	3,45 (washer hole Ø 12,7 mm)
R274Y023 without P21S	3,45
R274Y024 without P21S	4,00
R274Y025/045/145 without P21S	4,25

**⚠ WARNING.** The valve is suitable for installation in indoor rooms and boiler rooms, and use with non-aggressive fluids (water, glycol-based water complying with VDI 2035/ÖNORM 5195).

## Valve opening diagram

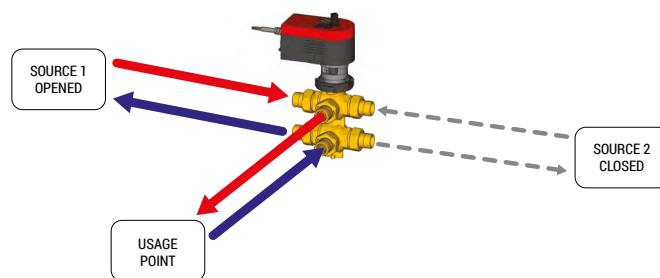
R274Y045, R274Y145, R274Y023, R274Y024, R274Y025 (1")

R274Y033, R274Y133 (1/2")

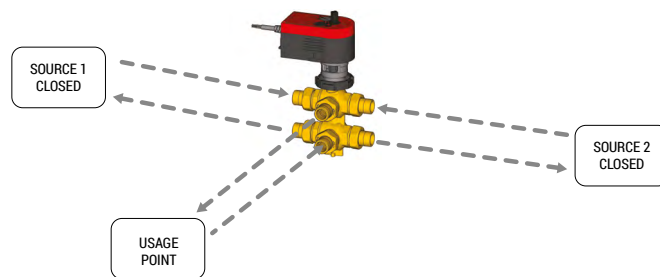


REFERENCE IN THE GRAPHIC	STEM ANGLE	OPENING PERCENTAGE	ACTION
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A 0°÷15° 100 %

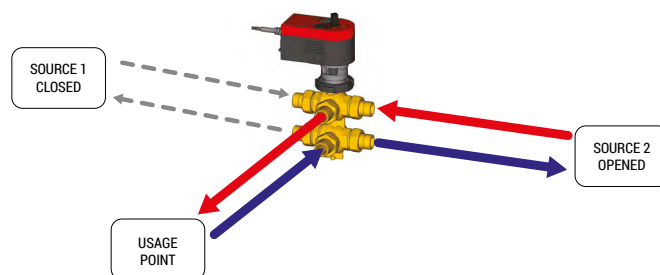


B' 40°÷50° 0 %



B'' 30°÷60° 0 %

B 75°÷90° 100 %

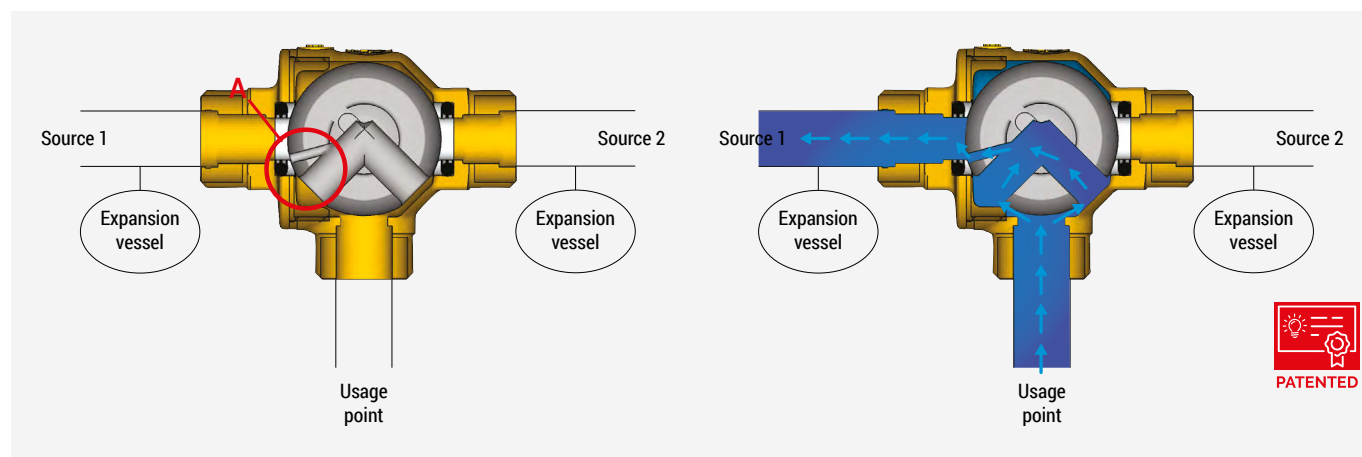


## ➤ Overpressure protection system

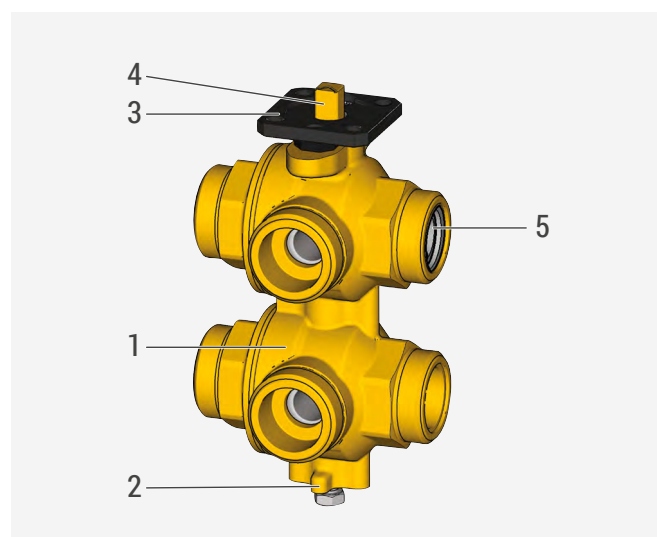
When using the six-way valve for combined heating/cooling applications (radiant ceilings, fan-coil), the fluid inside the user circuit may become completely isolated when the valve is in the closed position (no heating or cooling). The pressure of the trapped fluid inside the user circuit may then increase or decrease due to changes in temperature of the fluid caused by the room temperature.

The six-way valve is equipped with integrated protection against overpressure, and is designed to compensate for such pressure variations.

The upper ball of the valve has a small hole in its interior (ref. A) which maintains the connection of the "usage point" with the "source 1", even when the valve is closed (stem position 45°). The combined action of the two balls (upper and lower) prevents the circulation of fluid when the valve is in the closed position. The overpressure protection system does not compromise hydraulic separation between the two circuits (source 1 and source 2): the two hydraulic circuits remain separate.

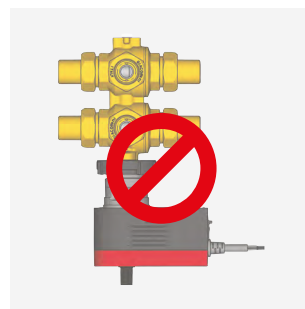
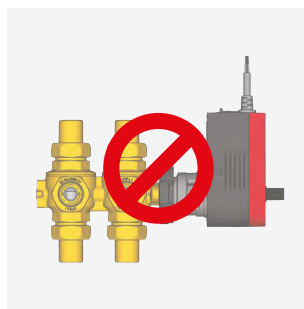
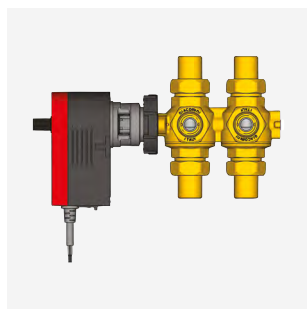
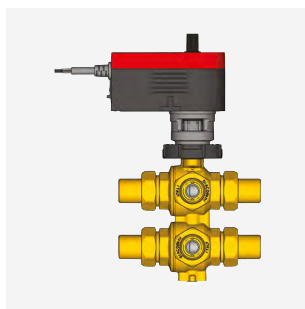


## ➤ Components



- |   |  |
|---|--|
| 1 | Valve body   |
| 2 | M4 or M6 (depending on codes) holes for valve fixing |
| 3 | F04 - ISO 5211 connection for actuator installation  |
| 4 | Command stem   |
| 5 | Calibrated washers with seeger ring                  |

## ► Installation



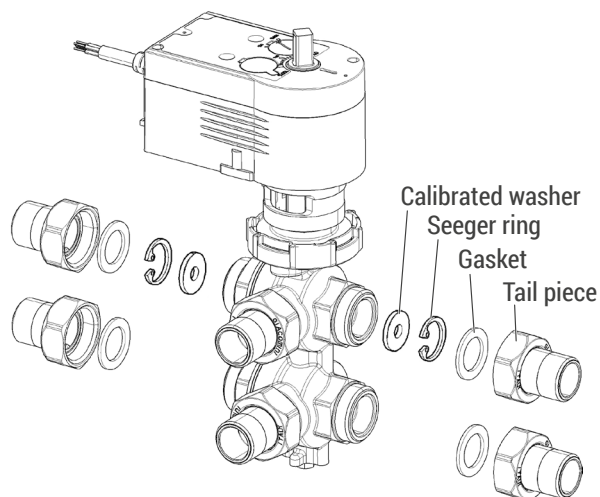
**▲ WARNING.** The valve can be installed in any position but it's important that the actuator is not in an upside-down position or with the power supply cable coming in from above (to avoid possible problems due to possible condensation).

### P21S calibrated washers installation

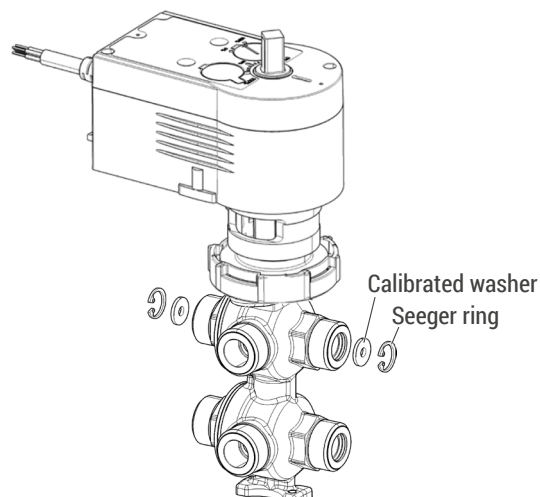
To install the washer it is necessary to manually insert the washer inside the valve fitting and then lock it by inserting the Seeger ring (supplied with the washer) using a tweezers.

**🔗 NOTE.** The two calibrated washers are used to balance the flow rate in the two circuits (from source 1 to user; from source 2 to user). The two circuits may require different Kv values, so they can be used with two different models of calibrated washer (see table of calibrated washers on page 2). Calibrated washers can be installed either on the delivery or on the return.

Calibrated washers for R274 and R274N of 1":  
R274Y045, R274Y145, R274Y023, R274Y024, R274Y025



Calibrated washers for R274N of 1/2":  
R274Y033, R274Y133

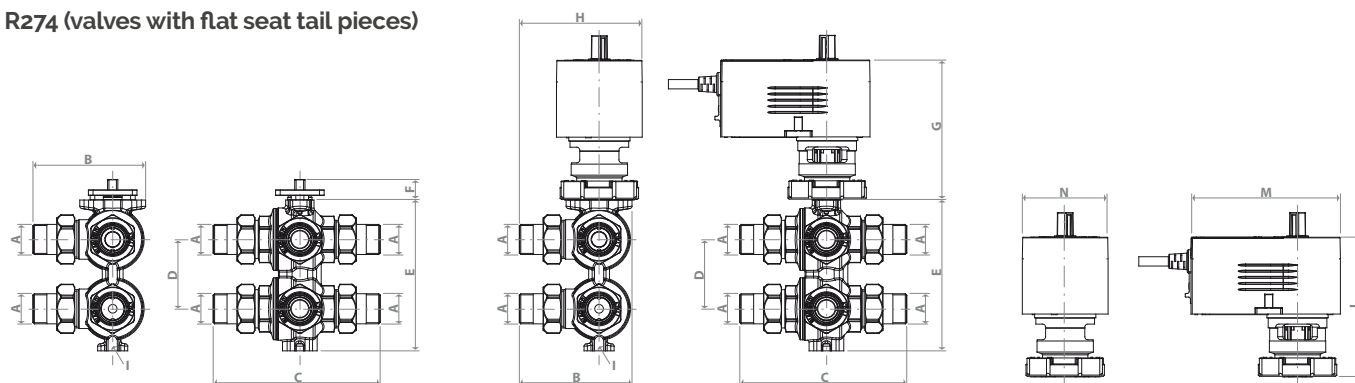


## ► Maintenance

Once installed, the valve requires no maintenance. It is however recommended to periodically check the correct operation of the actuator and check that there are no hydraulic leaks.

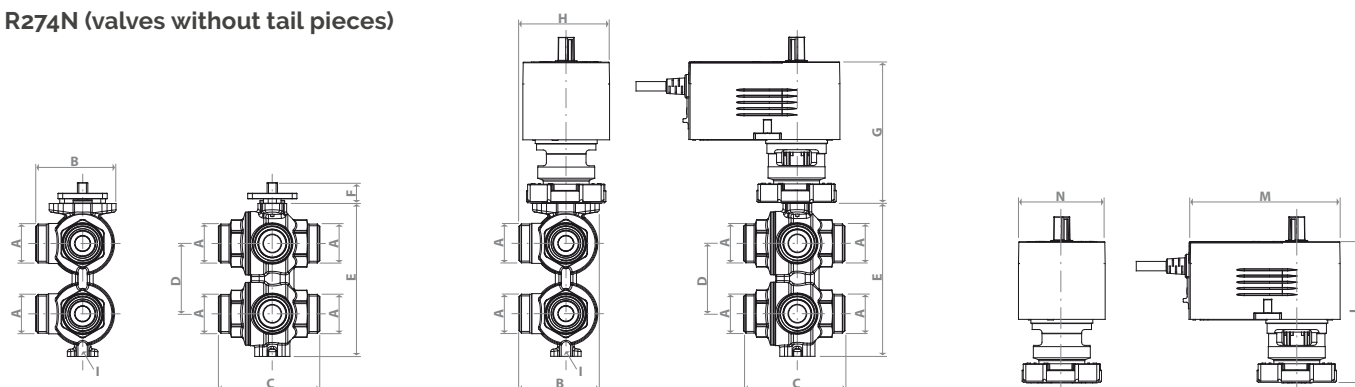
## ➤ Dimensions

### R274 (valves with flat seat tail pieces)



PRODUCT CODE	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I	L [mm]	M [mm]	N [mm]
R274Y023	1/2"M	97	147	60	131	18	114	105	1 foro M6	114	122	70
R274Y024	3/4"M	96	145	60	131	18	114	104	1 foro M6	114	122	70
R274Y025	1"M	104	161	60	131	18	114	112	1 foro M6	114	122	70

### R274N (valves without tail pieces)

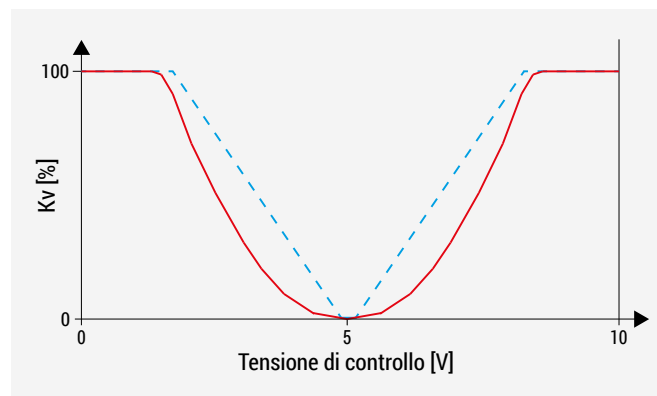


PRODUCT CODE	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I	L [mm]	M [mm]	N [mm]
R274Y033	1/2"M	51	68	45	100	18	114	70	2 fori M4	114	122	70
R274Y133	1/2"M	51	68	45	100	18	114	70	2 fori M4	114	122	70
R274Y045	1"M	67	87	60	131	18	114	75	1 foro M6	114	122	70
R274Y145	1"M	67	87	60	131	18	114	75	1 foro M6	114	122	70



## ▶ Valve operation with K274Y052 actuator

### Characteristic curves of the valve with actuator K274Y052



DIP SWITCHES SETTING	VALVE CHARACTERISTIC CURVE	SPEED
1) ———	1) ———	120 s ± 4 (factory setting)
1) ———	1) ———	60 s ± 2
2) - - - - -	2) - - - - -	120 s ± 4
2) - - - - -	2) - - - - -	60 s ± 2

**▲ WARNING.** Any other possible combination of DIP SWITCHES settings is considered incorrect.

## ▶ Product specifications

### R274

Six-way zone valve, ideal for managing the water supply to a single usage point from two different sources of thermal energy. Body in brass CW617N. Gaskets in PTFE. Male threaded connections ISO 228 with flat seat tail pieces. Calibrated washers can be installed for controlling losses of pressure. Fluid working temperature range: 5÷90 °C. Rated pressure: 16 bar. Maximum glycol percentage: 50 %. Can be motorized by installing the K274 -2 series actuator.

### R274N

Six-way zone valve, ideal for managing the water supply to a single usage point from two different sources of thermal energy. Body in brass CW617N or CW602N (DZR) depending on versions. Gaskets in PTFE. Male threaded connections ISO 228 with optional fittings installation. Calibrated washers can be installed for controlling losses of pressure. Fluid working temperature range: 5÷90 °C. Rated pressure: 16 bar. Maximum glycol percentage: 50 %. Can be motorized by installing the K274 -2 series actuator.

### UNIT OF MEASURE.

1 bar = 100 kPa

1 m³/h = 1000 l/h = 16,7 l/min = 0,28 l/s

**▲ 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.

**♻️ Package Disposal.** Carton boxes: paper recycling. Plastic bags and bubble wrap: plastic recycling.

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