

# 2131, 3131, 4131 Series

Fan coil valves

## Technical Data Sheet



## Description

**2131, 3131 and 4131 Series** fan coil control valves are used for controlling the flow of hot or cold water in heating and air conditioning systems. They are operated by actuators with effective stroke of 2.5 mm, such as the **22C, 22CX, 22CX5** and **26LC Series** electrothermal actuators.

As standard, the valves are available in the following configurations with male thread: **2131 Series** 2-way; **3131 Series** 3-way; **4131 Series** 3-way 4-port with built-in bypass.

The valve disc is operated by **22C, 22CX, 22CX5** and **26LC Series** electrothermal actuators, which are available in the following versions:

- NO (normally open), 2 wires (standard) or 4 wires (with auxiliary microswitch contact);
- NC (normally closed), 2 wires (standard) or 4 wires (with auxiliary microswitch contact).

All the actuators are easy to fix to the valve body by means of a threaded ring-nut (M30x1.5).



### 2131

2-way brass fan coil valve. ON/OFF operation with **22C, 22CX, 22CX5** and **26LC Series** actuators. Maximum operating temperature: 110°C. Disc stroke: 2.5mm. PN 16 bar

Type	Part No.	DN	Kvs	Weight (g)
2131	213112	1/2" M	1.7	200
2131	213134	3/4" M	2.8	200
2131	21311	1" M	4.5	500



### 3131

3-way brass fan coil valve. ON/OFF operation with **22C, 22CX, 22CX5** and **26LC Series** actuators. Max. operating temperature: 110°C. Disc stroke: 2.5mm. Can be used both as a mixing valve and diverter valve. PN 16 bar

*The Kvs and Kvs bypass values apply to use of the valve as a diverter.*

Type	Part No.	DN	Kvs	Kvs bypass	Weight (g)
3131	313112	1/2" M	1.7	1.3	200
3131	313134	3/4" M	2.8	1.8	250
3131	31311	1" M	4.5	3.1	550



### VU

T-fitting for creating a bypass in **3131 Series** valves (DN 1").

Type	Part No.	DN	Kvs	Weight (g)
VU	VU311	1" M	1.7	250

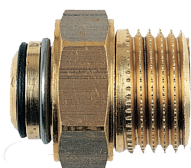


### 4131

3-way 4-port brass fan coil valve. ON/OFF operation with **22C, 22CX, 22CX5** and **26LC Series** actuators. Max. operating temperature: 110°C. Disc stroke: 2.5mm. Can be used both as a mixing valve and diverter valve. PN 16 bar.

*The Kvs and Kvs bypass values apply to use of the valve as a diverter.*

Type	Part No.	DN	Kvs	Kvs bypass	Weight (g)
4131	413112	1/2" M	1.7	1.3	350
4131	413134	3/4" M	2.8	1.8	400



### 840

Soft seal fittings with nut for **2131, 3131 and 4131 Series** zone valves.

Type	Part No.	DN	Weight (g)
840	8401212GAS	1/2" x 1/2"	50
840	8403434GAS	3/4" x 3/4"	50
840	84011GAS	1" x 1"	50

### Technical features

Maximum pressure, constant Kv models	16 bar
Maximum pressure, variable Kv models	10 bar
Minimum fluid temperature	4°C
Maximum fluid temperature	110°C
Usable fluids	water (with glycol ≤ 50%)
Disc stroke	2.5 mm
Bypass leakage	< 0.02 % Kvs
Actuator connection	M30x1.5

### Features

Body	CW617N brass
Stem	chemical nickel-plated brass
Spring	stainless steel
Disc rubber	EPDM

### Hydraulic characteristics

Valve part No.	DN	DN mm	Max. operating pressure PN [bar]	Kvs	Kvs bypass	ΔPmax Max. operating pressure differential (noise < 38 dBA) [bar]	ΔPs Closure with 22CX-EMUJC actuator [bar]	Kvs	Kvs bypass	ΔPmax Max. operating pressure differential (noise < 38 dBA) [bar]	ΔPs Closure with 22CX-EMUJC actuator [bar]
<b>2-way valve</b>											
<b>213112</b>	1/2"	15	16	1.7	-	0.8	2.5	-	-	-	-
213112P	1/2"	15	16	1.7	-	0.8	2.5	-	-	-	-
213112DP	1/2"	15	16	1.7	-	0.8	5	-	-	-	-
21311012	1/2"	15	10	1.7	-	0.8	2.5	-	-	-	-
213112P04	1/2"	15	16	0.4	-	0.8	2.5	-	-	-	-
213112P063	1/2"	15	16	0.63	-	0.8	2.5	-	-	-	-
213112P1	1/2"	15	16	1	-	0.8	2.5	-	-	-	-
<b>213134</b>	3/4"	20	16	2.8	-	0.7	1.5	-	-	-	-
213134P	3/4"	20	16	2.8	-	0.7	1.5	-	-	-	-
213134P4	3/4"	20	16	4	-	0.7	1	-	-	-	-
213134DP	3/4"	20	16	2.8	-	0.7	5	-	-	-	-
21311034	3/4"	20	10	2.8	-	0.7	1.5	-	-	-	-
<b>21311</b>	1"	25	16	4.5	-	0.6	0.7	-	-	-	-
21311P	1"	25	16	4.5	-	0.6	0.7	-	-	-	-
21311DP	1"	25	16	4	-	0.6	5	-	-	-	-
2131101	1"	25	10	4.5	-	0.6	0.7	-	-	-	-
<b>3-way valve</b>											
						<b>Used as DIVERTER VALVE</b>			<b>Used as MIXING VALVE</b>		
<b>313112</b>	1/2"	15	16	1.7	1.3	0.8	2.5	1.7	1.2	0.7	2
313112P	1/2"	15	16	1.7	1.3	0.8	2.5	1.7	1.2	0.7	2
313112P04	1/2"	15	16	0.4	0.35	0.8	2.5	0.4	0.35	0.7	2
313112P063	1/2"	15	16	0.63	0.56	0.8	2.5	0.63	0.56	0.7	2
313112P1	1/2"	15	16	1	0.86	0.8	2.5	1	0.86	0.7	2
<b>313134</b>	3/4"	20	16	2.8	1.8	0.7	1.5	2.5	1.6	0.5	1
313134P	3/4"	20	16	2.8	1.8	0.7	1.5	2.5	1.6	0.5	1
313134P4	3/4"	20	16	4	1.8	0.7	1	4	1.6	0.5	0.8
<b>31311</b>	1"	25	16	4.5	3.1	0.6	0.7	4.5	3.1	0.4	0.7
31311P	1"	25	16	4.5	3.1	0.6	0.7	4.5	3.1	0.4	0.7
<b>3-way 4-port valve</b>											
						<b>Used as DIVERTER VALVE</b>			<b>Used as MIXING VALVE</b>		
<b>413112</b>	1/2"	15	16	1.7	1.3	0.8	2.5	1.7	1.2	0.7	2
413112P	1/2"	15	16	1.7	1.3	0.8	2.5	1.7	1.2	0.7	2
41311240P	1/2"	15	16	1.7	1.3	0.8	2.5	1.7	1.2	0.7	2
41311240P04	1/2"	15	16	0.4	0.35	0.8	2.5	0.4	0.35	0.7	2
41311240P063	1/2"	15	16	0.63	0.56	0.8	2.5	0.63	0.56	0.7	2
41311240P1	1/2"	15	16	1	0.86	0.8	2.5	1	0.86	0.7	2
<b>413134</b>	3/4"	20	16	2.8	1.8	0.7	1.5	2.5	1.6	0.5	1
413134P	3/4"	20	16	2.8	1.8	0.7	1.5	2.5	1.6	0.5	1
41313440P4	3/4"	20	16	4	1.8	0.7	1	4	1.6	0.5	0.8
41313440P	3/4"	20	16	2.8	1.8	0.7	1.5	2.5	1.6	0.5	1

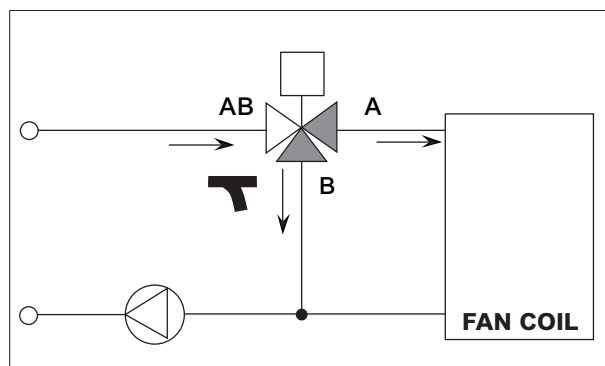
• **The part numbers in red are standard versions**

- KVs = nominal flow rate of the main way of the valve in m<sup>3</sup>/h with the valve fully open at a pressure of 1 bar and water temperature of 20°C.
- ΔPmax = maximum dynamic differential pressure at the ends of the fully open valve, without risk of noise (< 38 dBA).
- ΔPs = maximum static differential pressure at the ends of the valve against which the valve can open (by means of its internal spring in 3-way versions; by means of the actuator in 2-way versions)

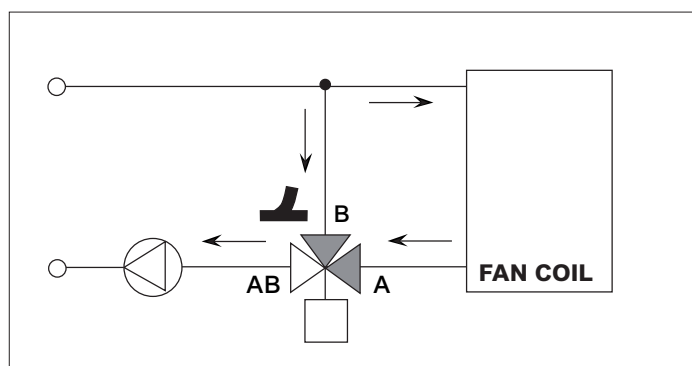
## Application

The valves are used for shutting off (**2131 Series**, 2-way) or diverting/mixing (**3131 and 4131 Series**, 3-way 4-port in sizes 1/2" and 3/4") the heat carrier fluid to a heating or air conditioning system as required by the room thermostat (or programmable thermostat). Thanks to their compact size, **2131, 3131 and 4131 Series** control valves are particularly suitable for installation on groups of individual terminal units (fan coils, fan units). Due to the special configuration of the disc controlling the bypass flow, **3131 Series** 3-way fan coil valves and **4131 Series** 3-way 4-port fan coil valves, can be used as either diverter or mixing valves (thus optimising the various plumbing requirements in assembly).

### Diverter valve



### Mixing valve

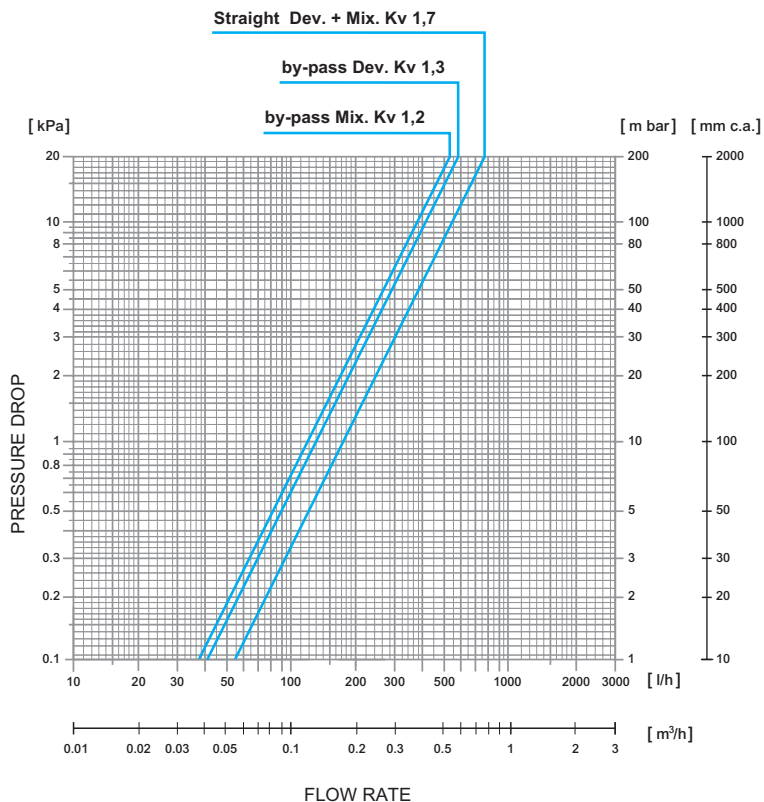


## Operation

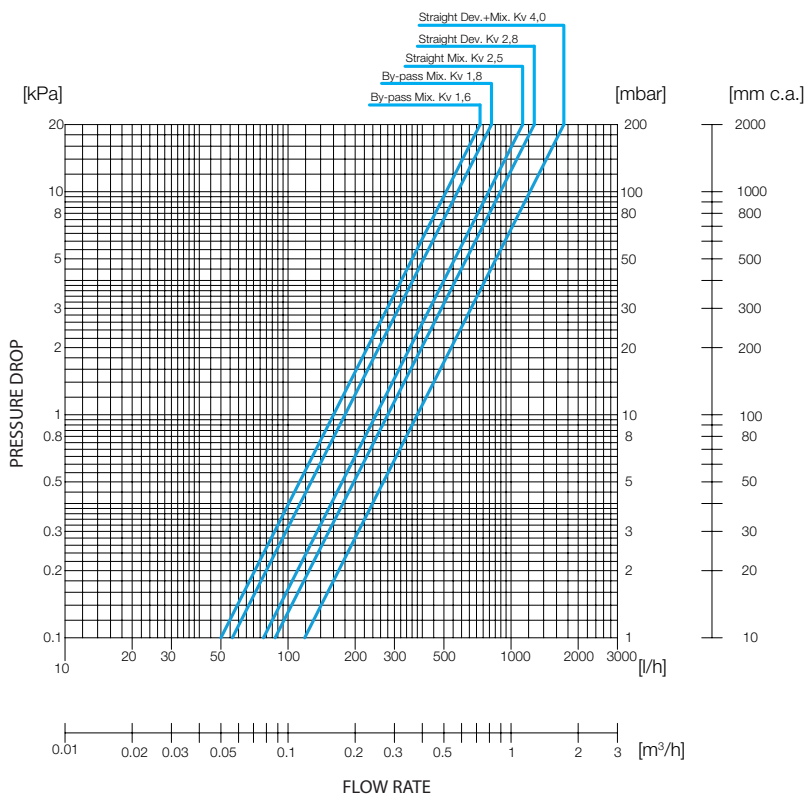
The valves are of Normally Open type and can be adjusted or fully closed by manually turning the threaded plastic cap, which controls the valve stem. When used in conjunction with **22C, 22CX, 22CX5 and 26LC Series NC** actuators, in rest conditions (actuator not energised), the valve becomes normally closed (NC) (straight way closed and bypass open if 3-way type): if the actuator is energised, the valve opens. When used in conjunction with **22C, 22CX, 22CX5 and 26LC Series NO** actuators, in rest conditions (actuator not energised), the valve remains normally open (NO) (straight way open and bypass closed if 3-way type): if the actuator is energised, the valve closes. The fluid flow rate and pressure drop of the valves can be determined from the flow curves. In conjunction with ON/OFF actuators, however, they assume the characteristics of the device in question. The 3-way (or 3-way 4-port) valves are designed and manufactured for use as either diverter valves (one inlet and two outlets) or mixing valves (two inlets and one outlet). Observe the maximum operating pressure shown in the table to avoid possible malfunctions and/or noise. The reliability of the **2131, 3131 and 4131 Series** fan coil control valves is guaranteed by the fact that every single product is tested to ensure the outward pressure tightness of the valve body and its components, and the pressure tightness of the disc when it shuts off the flow.

# Charts

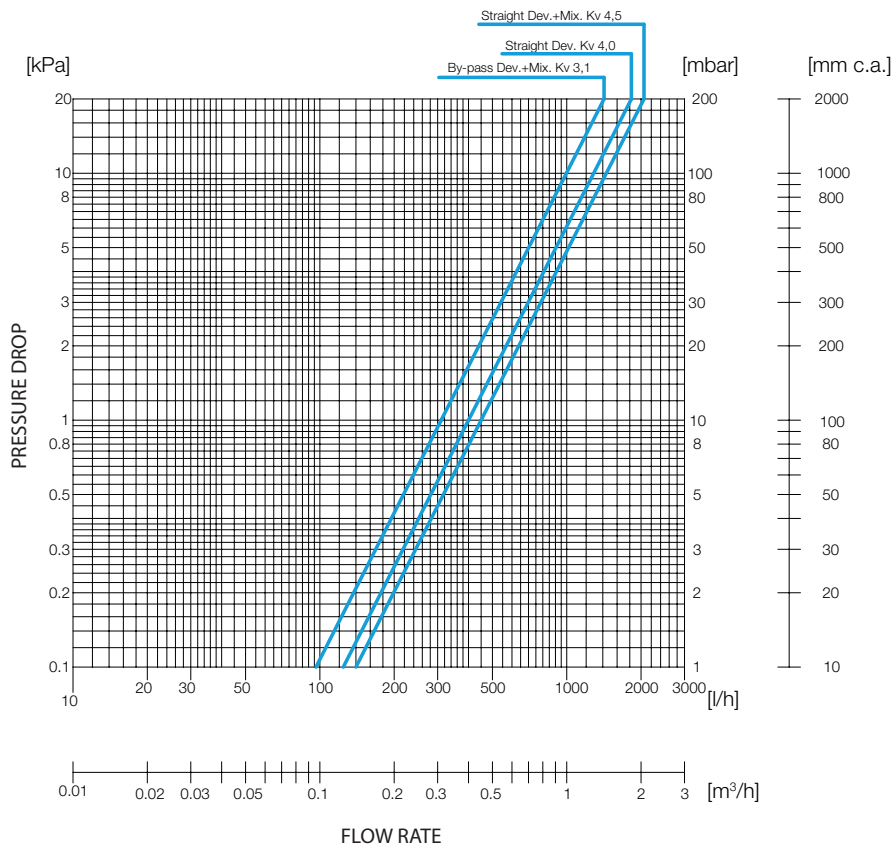
2131, 3131, 4131  
DN 1/2"



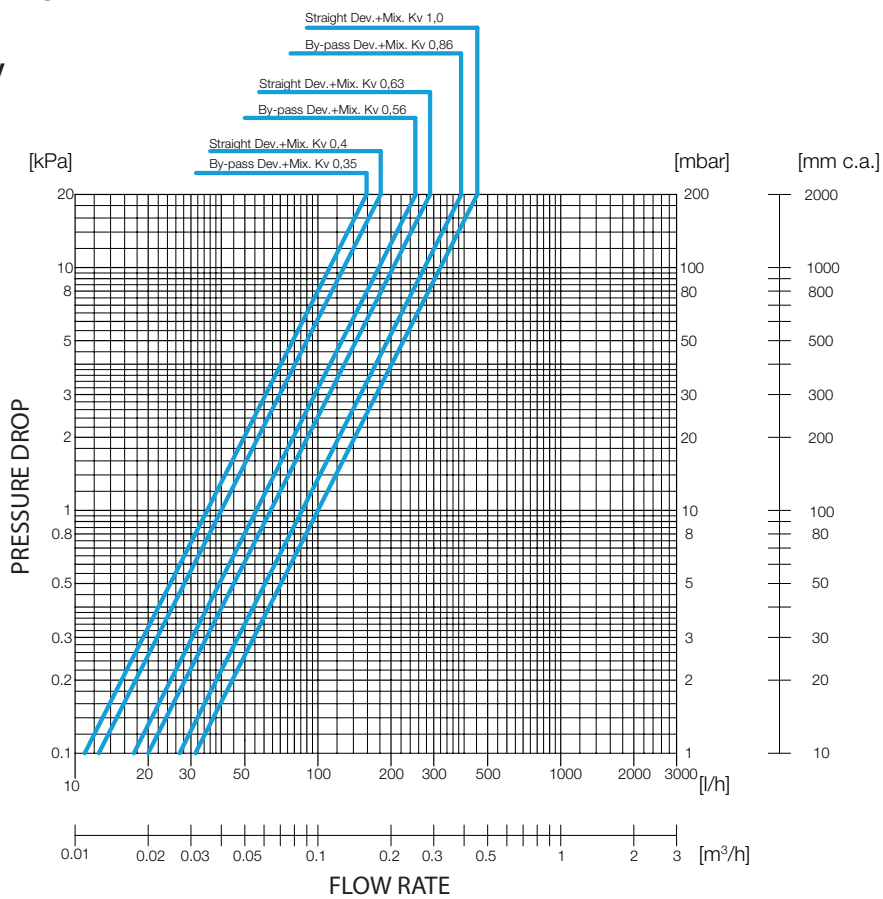
2131, 3131, 4131  
DN 3/4"



## 2131, 3131 DN 1"



## 2131, 3131, 4131 DN 1/2" Reduced Kv

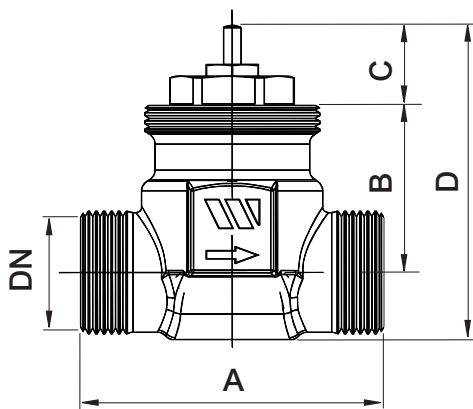


## Installation

Fan coil control valve selection is based on system type and desired flow rate and pressure drop. In systems with 2-way control valves it is advisable to fit **466 Series** relief valves to ensure minimum fluid recirculation. Before fitting the valves, make sure the pipes are clean and free from welding slag or other foreign matter. Do not install the valve with actuator **22C, 22CX, 22CX5** or **26LC Series** facing down. The valves can be connected using **840 Series** soft seal fittings with the range of 1-piece or 3-piece fittings. 1" 3-way valves can be used with T-fitting VU311(DN 1") to create the bypass.

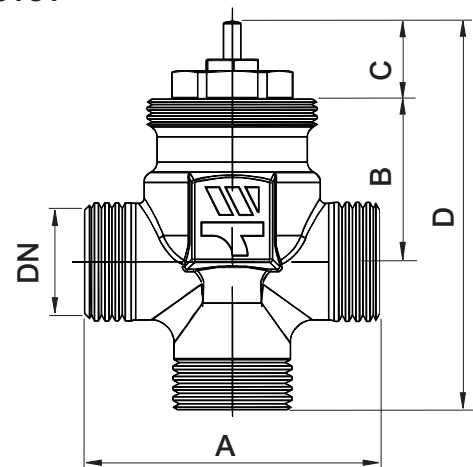
## Overall dimensions (mm)

### 2131



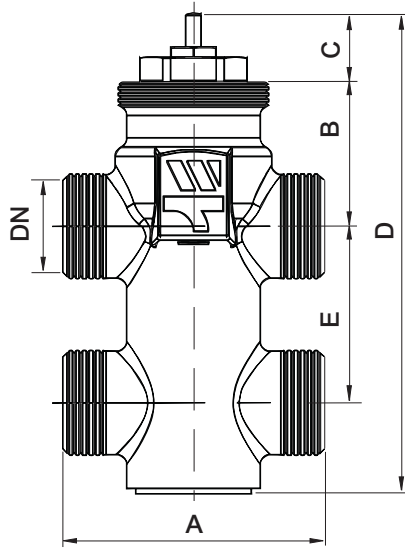
PART NO.	DN	A	B	C	D
213112	1/2"	52	29	13.5	51
213112P	1/2"	52	29	13.5	51
213112DP	1/2"	52	45	13.5	70
21311012	1/2"	52	29	13.5	51
213112P04	1/2"	52	29	13.5	51
213112P063	1/2"	52	29	13.5	51
213112P01	1/2"	52	29	13.5	51
213134	3/4"	56	28	13.5	56
213134P	3/4"	56	28	13.5	56
213134P4	3/4"	68	38	13.5	72
213134DP	3/4"	56	44	13.5	72
21311034	3/4"	56	28	13.5	56
21311	1"	82	38	13.5	70
21311P	1"	82	38	13.5	70
21311DP	1"	82	46	13.5	77.5
2131101	1"	82	30.5	13.5	77.5

### 3131



PART NO.	DN	A	B	C	D
313112	1/2"	52	29	13.5	68.5
313112P	1/2"	52	29	13.5	68.5
313112P04	1/2"	52	29	13.5	68.5
313112P063	1/2"	52	29	13.5	68.5
313112P1	1/2"	52	29	13.5	68.5
313134	3/4"	56	28	13.5	69.5
313134P	3/4"	56	28	13.5	69.5
313134P4	3/4"	68	38	13.5	92.5
31311	1"	82	38	13.5	92.5
31311P	1"	82	38	13.5	92.5

## 4131



PART NO.	DN	A	B	C	D	E
413112	1/2"	52	29	13.5	95.5	35
413112P	1/2"	52	29	13.5	95.5	35
41311240P	1/2"	52	29	13.5	100.5	40
41311240P04	1/2"	52	29	13.5	100.5	40
41311240P063	1/2"	52	29	13.5	100.5	40
41311240P1	1/2"	52	29	13.5	100.5	40
413134	3/4"	56	28	13.5	112.5	50
413134P	3/4"	56	28	13.5	112.5	50
41313440P	3/4"	56	28	13.5	102.5	40
41313440P4	3/4"	68	38	13.5	100.5	40

## Specification text

### 2131 Series

2-way brass fan coil valve **2131 Series** WATTS brand. ON/OFF operation by means of electrothermal actuators. Maximum operating temperature: 110°C. Disc stroke: 2.5mm. PN16 bar.

### 3131 Series

3-way brass fan coil valve **3131 Series** WATTS brand. ON/OFF operation by means of electrothermal actuators. Maximum operating temperature: 110°C. Disc stroke: 2.5mm. PN16 bar.

### VU Series

T-fitting **VU Series** WATTS brand for creating the bypass (DN 1").

### 4131 Series

3-way 4-port brass fan coil valve **4131 Series** WATTS brand. ON/OFF operation by means of Watts electrothermal actuators or equivalent. Maximum operating temperature: 110°C. Disc stroke: 2.5 mm. PN16 bar.

### 840 Series

Soft seal fittings **840 Series** WATTS brand with nut for **2131**, **3131** and **4131 Series** zone valves or equivalent.

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