

# Product Guide 2020

Components and systems  
for plumbing and heating installations

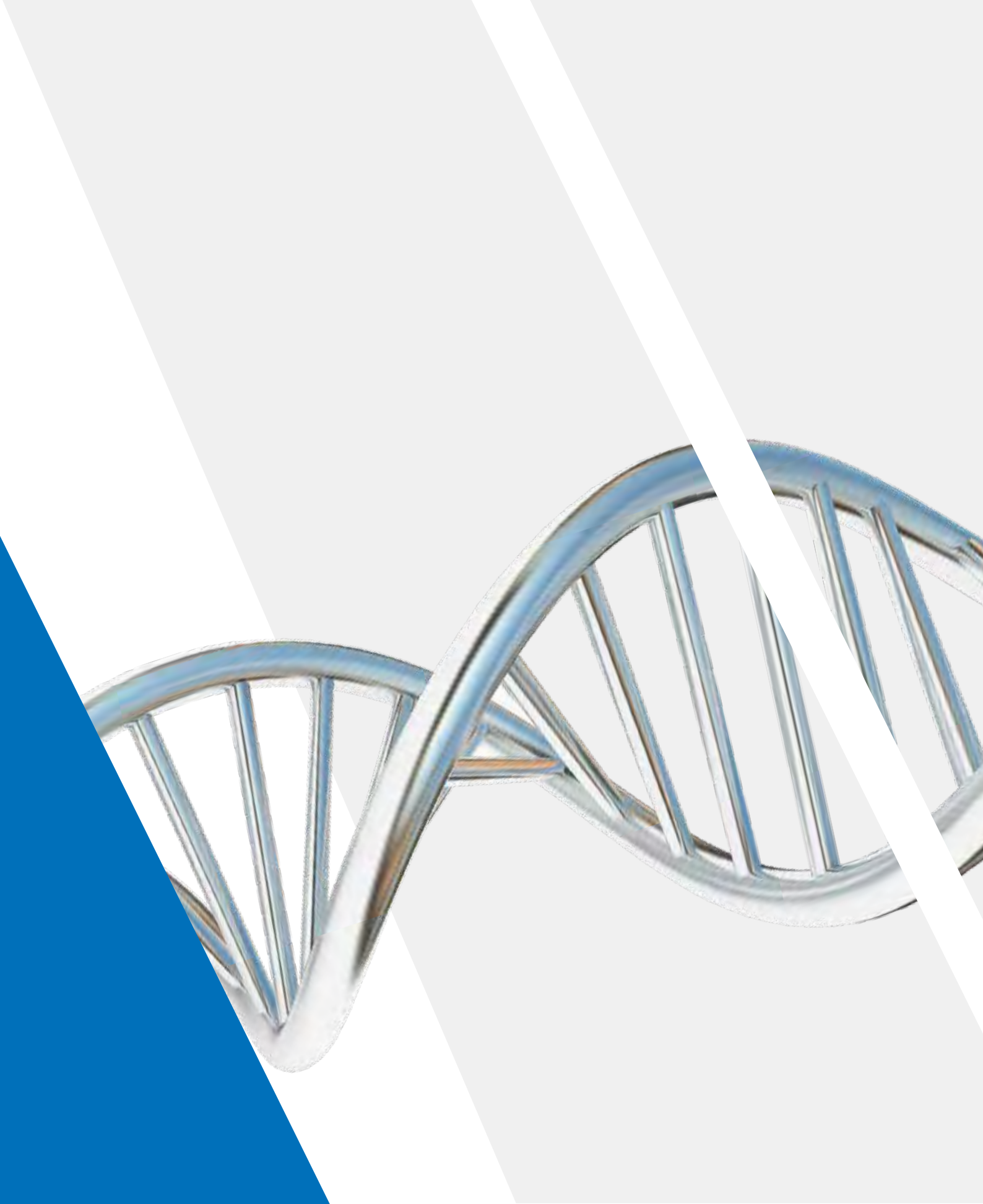


# Innovation is in our DNA

Watts has launched a Research & Development programme that's founded on market research and global development policy. It's aimed at developing more efficient solutions and geared towards energy saving.

A commitment to environmental issues, such as water quality and conservation, combined with the ambition to deliver the highest levels of comfort has prompted Watts to focus its efforts on the development and manufacture of high-efficiency products.

Thanks to its vast product range, Watts is the ideal partner for developing any type of system engineering solution that integrates different energy sources for the purpose of constructing zero-energy buildings.



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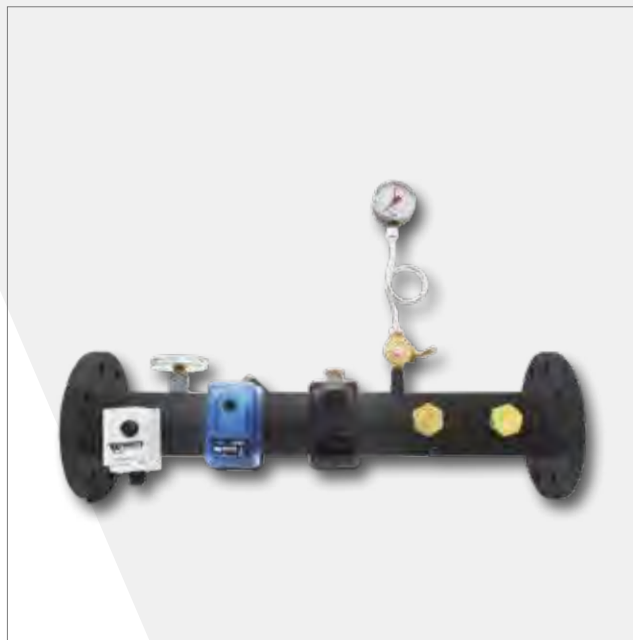
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# Chapter 1

## Boiler room components

## TRI - Instrument manifold



Quick installation  
Horizontal or vertical fitting

**WATTS®**

## Chapter 1.1

# Safety, protection and control devices

### SAFETY VALVES

#### VST

Diaphragm safety valve, fixed setting. CW617N brass body and cap. FF connections with reinforced outlet. Overpressure: 10%; Blowdown: 20%; PN 10.

Operating temperature range: -10÷120°C. Fluids: water with glycol up to 50%.

INAIL approved and set.

**Compliant with Directive: PED 2014/68/EU Identification number CE1115.**

Part Number	DN	bar	Qty/Box	Box/Carton
0212135	1/2" x 3/4"	3,5	1	20
0212145	1/2" x 3/4"	4,5	1	20
0213160	3/4" x 1"	6	1	20
0214122	1" x 1.1/4"	2,25	1	20
0214130	1" x 1.1/4"	3	1	20
0214140	1" x 1.1/4"	4	1	20

Dimensions at the end of the section.



#### TECHNICAL NOTE

##### INAIL approval certificates

The approval of individual VIC/A, VST, 464, NVFN and VTFN Series valves governs the relationship between the manufacturer and INAIL. The manufacturer is required to produce the item within the time limits covered by the approval certificate (5 years or more if renewed).

The expiry of these time limits does not preclude the use of items produced within the specified time limits, even if the approval certificate is not renewed. In view of their reliability and functionality, safety devices are not considered perishable, and there are no time limits for their use and installation. In the event of loss of the original certificate, it is possible to order a conforming copy.

For repairs or servicing of INAIL approved products, please contact our sales department.

**PT-684**

Combined temperature and pressure safety valve for protecting storage tanks. DZR brass body, steel spring, EPDM diaphragm. Models with threaded male/female connections or male/fitting connection for copper pipe. Vertical or horizontal installation (with bottom discharge only). PN 10.

Nominal temperature:  $92\pm 3^{\circ}\text{C}$ . Fluids: domestic water.

**Compliant with EN 1490, WRAS and Directive PED 2014/68/EU.**



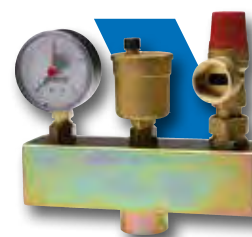
Part Number	DN	bar	Qty/Box	Box/Carton
68403	1/2"MF	7	1	1
68404	1/2"MF	10	1	1
68450	3/4"MF	3	1	1
68451	3/4"MF	4	1	1
68452	3/4"MF	6	1	1
68453	3/4"MF	7	1	1
68455	3/4"MF	10	1	1

Dimensions at the end of the section.

**KSG30**

Safety unit for closed heating systems in accordance with EN 12828, installed on a galvanised stainless steel manifold, complete with MV series air vent valve, SV series 1/2" safety valve (3 bar) and pressure gauge (4 bar) with check valve.

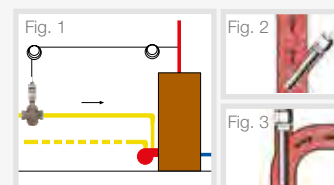
1" F safety unit connection. PN 10. Maximum temperature:  $110^{\circ}\text{C}$ .



Part Number	Connection	bar	Qty/Box	Box/Carton
0270150	1" F	PN10	1	1

**TECHNICAL NOTE - Installation notes**

- The valve must be fitted on the fuel piping, upstream of the burner (Fig. 1), observing the direction of flow shown by the arrow on the valve body.
- The flow temperature probe must be fitted on the piping within 0.5 m of the generator upstream of any shut-off valve. The fluid must flow over the probe inside its sheath, preferably against the direction of installation (Fig. 2 and 3).
- When connecting the valve to the piping, take the utmost care not to damage the capillary. For repair or servicing of the capillary with INAIL (Italian Normative) setting, contact the sales department.

**STS - SECURFLUX**

Thermal safety drain for non-atomised solid fuel boilers with double safety. Nickel-plated CW617N brass body. Functional testing device. Immersion probe with 145 mm sheath and 1/2" M connection. PN 10. Set temperature:  $97^{\circ}\text{C}$ , maximum drain capacity temperature:  $107^{\circ}\text{C}$ . Maximum drain capacity: 6500 l/h at 8 bar.

**SVGW approved.**

**Compliant with PED Directive 2014/68/EU Identification number CE1115.**

Part Number	DN	Capillary	Qty/Box	Box/Carton
0232120	3/4" F	Double safety 1300 mm	1	20
0232220	3/4" F	Double safety 2000 mm	1	20

Dimensions at the end of the section.



**STS.S**

Thermal safety drain for non-atomised solid fuel boilers with double safety and 360° adjustable capillary connection. CW617N brass body. Immersion probe with 145 mm sheath and 1/2”M connection. PN 10. Set temperature: 55°C, 85°C, 93°C, 97°C and 103°C, maximum drain capacity temperature: 107°C. Maximum drain capacity: 6500 l/h at 8 bar. DN 3/4” F.

**Compliant with PED Directive 2014/68/EU Identification number CE1115.**

Part Number	T°C	Capillary	Qty/Box	Box/Carton
0232620	97	1300 mm	1	20
0232624	103	1300 mm	1	20

Dimensions at the end of the section.

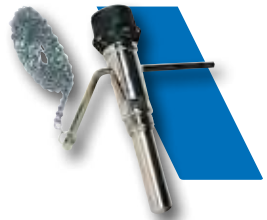


**RT - AIRSTOP**

Draught regulator for boilers running on non-atomised fuels, with single safety (Item 0234200) or double safety (Item 0234100). Connection: DN 3/4”. Wax heat-sensitive element. Operating temperature range: 40÷100°C.

Part Number	Stroke	Temperature	Qty/Box	Box/Carton
0234100	60 mm	125 cm	1	10
0234200	80 mm	125 cm	1	10

Dimensions at the end of the section.



**FILLING VALVES**

**AL - ALIMAT**

Automatic filling valve complete with check valve, manual shut-off, stainless steel filter, and vent screw. CW617N brass body. Impact-resistant plastic cap. 1/4”F pressure gauge connection. Maximum upstream pressure 10 bar. Adjustable downstream pressure 0.3÷4 bar.

Part Number	DN	Qty/Box	Box/Carton
0240100	1/2” MF	1	30

Dimensions at the end of the section.



**ALM**

Automatic filling valve complete with check valve, manual shut-off, stainless steel filter, vent screw and pressure gauge with bottom connection and 50 mm dial, bottom connection 0-4 bar. CW617N brass body. Impact-resistant plastic cap. 1/4”F pressure gauge connection. Maximum upstream pressure 10 bar. Adjustable downstream pressure 0.3÷4 bar.

Part Number	DN	Qty/Box	Box/Carton
0240200	1/2” MF	1	20

Dimensions at the end of the section.



**3110C - FILLMATIC**

Automatic filling valve complete with 0-6 bar pressure gauge, self-cleaning check valve, manual shut-off and sintered bronze filter. CW617N brass body. Maximum upstream pressure: 10 bar. Adjustable downstream pressure: 0.3÷4 bar. Set pressure: 1 bar. Setting ratio: 1 rev. = 0.4 mWG

Part Number	DN	Qty/Box	Box/Carton
3110C12	1/2” MF	1	15

Dimensions at the end of the section.





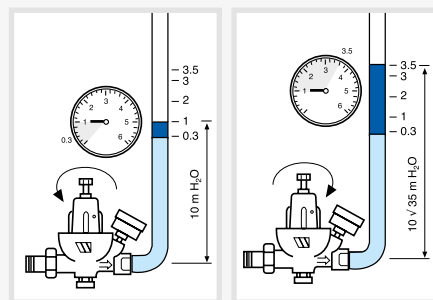
**TECHNICAL NOTE - Filling valves****Setting**

The filling valve is factory-set to a pressure of 1 bar.

To adjust to pressures other than the factory setting, simply turn the screw clockwise to increase the pressure (max 4 bar) or anticlockwise to decrease it (min 0.3 bar).

**Installation**

Install the valve according to the direction of the arrow stamped on the valve body. For quicker filling, make sure the regulating valve is fully open, although it is advisable to introduce the water slowly enough to avoid the formation of water pockets, which are difficult to expel. When filling, the device ensures that all water supplied from the mains is filtered.

**RELIEF VALVES AND CHECK VALVES****466 - THERMATIC**

Relief valve for systems with manual or automatic shut-off elements on the radiators (thermostatic valves, two-way zone valves).

CW617N brass body and ABS cap. PN 10. Overpressure: 10-15%.

Maximum operating temperature: 110°C. Fluids: water with glycol up to 50%.

Part Number	DN	bar	Qty/Box	Box/Carton
4660C12	1/2" FF	0,05 - 0,7	1	1
4662C1	1" FF	0,05 - 0,7	1	1

Dimensions at the end of the section.

**USVR**

Relief valve for systems with manual or automatic shut-off elements on the radiators (thermostatic valves, two-way zone valves). Female inlet connections, male union outlet. CW617N brass body and cap. Adjustment: Position "0" = Fully open

Part Number	DN	bar	Qty/Box	Box/Carton
0265220	3/4" FM	0,03 - 0,50	1	30
0265225	1" FM	0,03 - 0,55	1	20
0265232	1.1/4" FM	0,06 - 0,46	1	15

Dimensions at the end of the section.

**RDF**

Check valve with manual stop for systems with thermostat-controlled recirculating pump.

CW617W brass body. Impact-resistant plastic knob. Adjust by turning the knob in the direction shown by the arrow.

N= normal position with operation as check valve, eliminating natural circulation when the pump is OFF;

A= open position, for operation without check valve, allowing natural circulation in the event of pump failure;

F= closed position, if you want to shut off the heating system. This must be done with the pump OFF.

The valve can be fitted either vertically or horizontally, preceded by a straight run (>70 cm).

PN 10. Opening pressure 25-26 mbar. Operating temperature range: 105°C.

Maximum temperature: 130°C.



Part Number	DN	Connection	Qty/Box	Box/Carton
0262125	1"	FF	1	20
0262132	1.1/4"	FF	1	20

Dimensions at the end of the section.

**CONTROL AND SAFETY THERMOSTATS, AND BOILER ROOM ACCESSORIES**

**TRE TU**

Immersion control thermostat with 3 switching contacts. Shuts off the heat supply when the water temperature reaches the set-point, which is adjustable from 30÷90°C (tolerance ± 3°C). Sensitive bulb with 1/2”M sheath 100 mm long. Plastic case with external setting knob. Contact rating: 16(5) A 250V; 400V 10(1)A.

 **ENEC 03 compliant**  
**INAIL approved. Compliant with LVD 2014/35/EU**



Part Number	Protection	Qty/Box	Box/Carton
0405101TU	IP 40	1	50

Dimensions at the end of the section.

**TS TU**

Immersion shut-off thermostat with positive safety, manual resetting and fixed set-point. Shuts off the heat supply when the water temperature reaches the set-point. Set temperature: 97°C (tolerance +3÷-5°C). Sensitive bulb with 1/2” M sheath 89.7 mm long. 6.3 mm Fast-On terminals with screw fitting.

Contact rating: 16 (5)A 250V.  
**INAIL (Italian normative) approved. Compliant with LVD 2014/35/EU**



Part Number	Protection	Qty/Box	Box/Carton
0405201TU	IP 43	1	50

Dimensions at the end of the section.

**TRS TU**

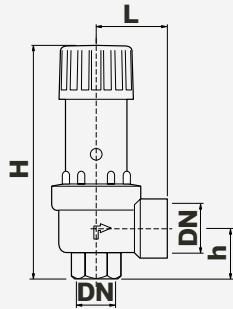
Immersion control and shut-off bi-thermostat with manual resetting. Control temperature: 30÷90°C (tolerance ± 3°C). Shut-off temperature 95°C. Sensitive bulb with 1/2” M sheath 100 mm long. Plastic case with external setting knob and manual resetting. Contact rating: 16(5) A 250V; 400V 10(1)A.

 **ENEC 03 compliant**  
**INAIL (Italian normative) approved. Compliant with LVD 2014/35/EU.**

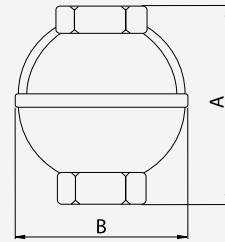


Part Number	Protection	Qty/Box	Box/Carton
0405301TU	IP 40	1	25

Dimensions at the end of the section.

**OVERALL DIMENSIONS****VST**

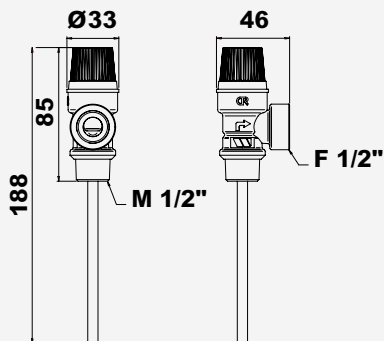
DN	L	H	h
1/2" x 3/4"	37	119	25
3/4" x 1"	48	165	29
1" x 1.1/4"	54	173	34.5

**IS**

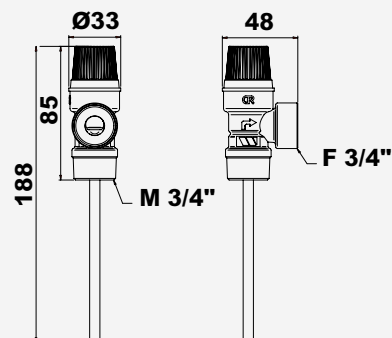
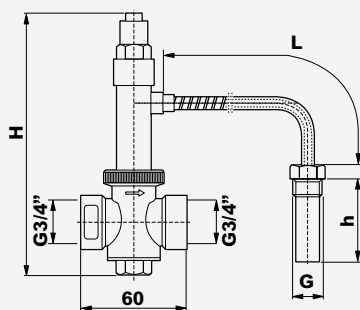
DN	A	B
1/2"	61	45
3/4"	65	57
1"	78	68
1.1/4"	113	97

**PT-684**

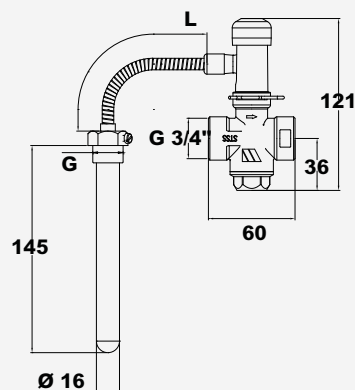
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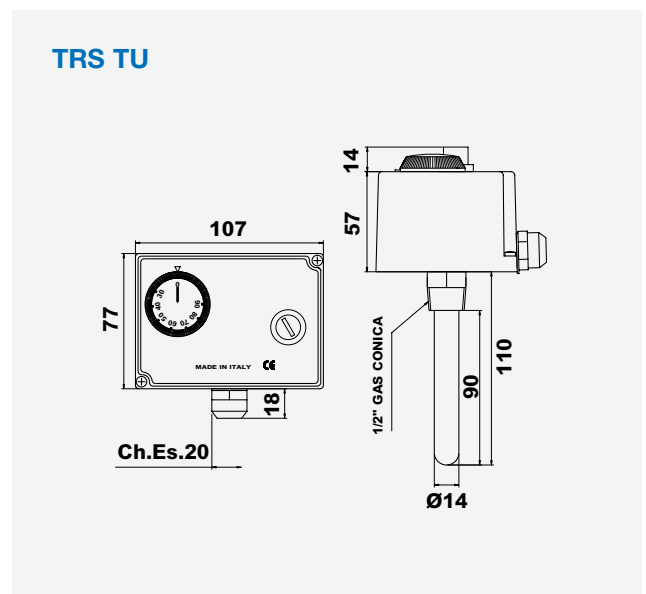
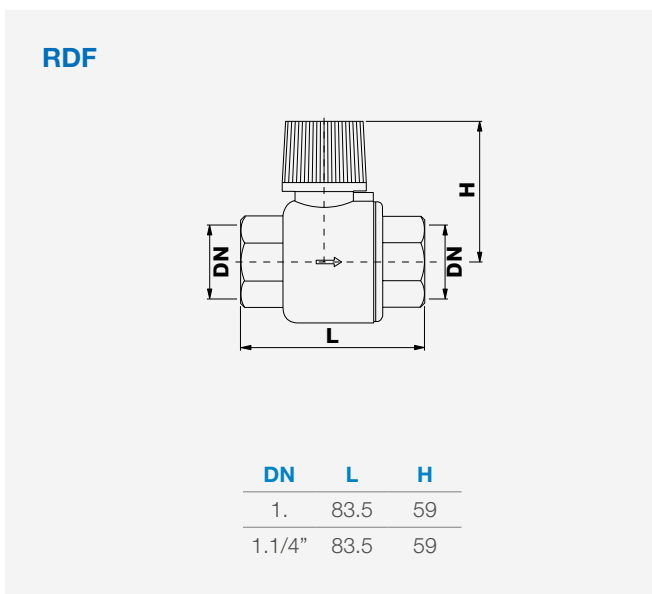
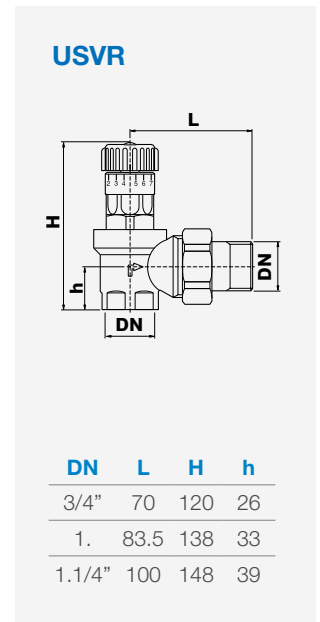
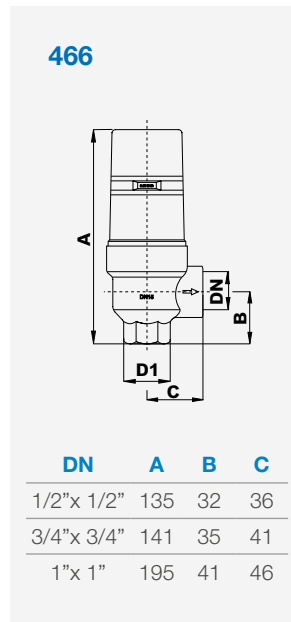
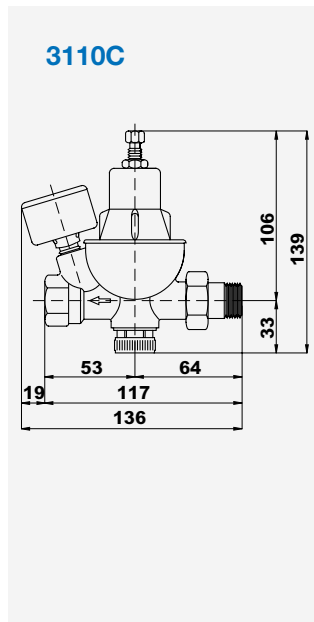
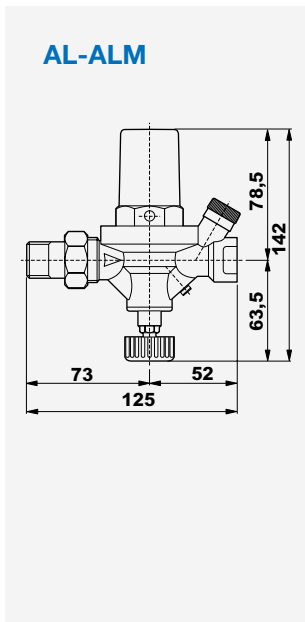
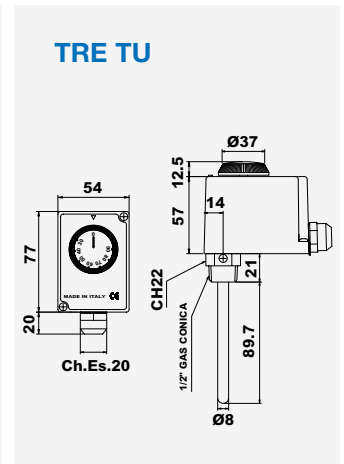
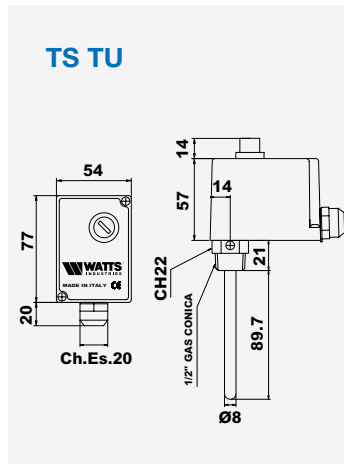
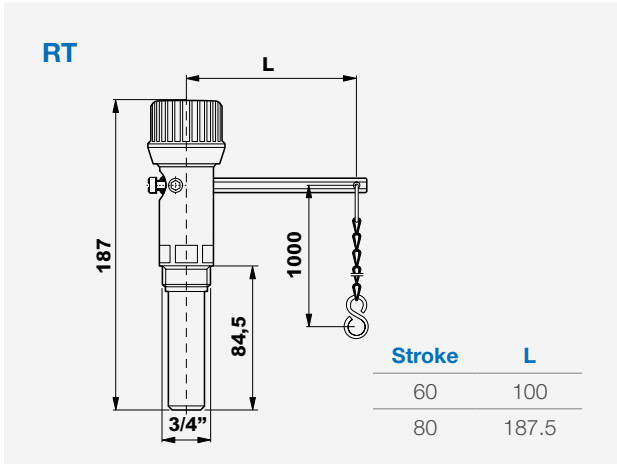
**STS/STSR**

G	h	H	L
1/2"	145	129	1300
1/2"	145	129	2000
3/8"	108	127	1300

**STS.S**

Part no.	T °C	G	L
0232620	97	1/2"	1300
0232621	85	1/2"	1300
0232622	93	1/2"	1300
0232623	55	1/2"	1300
0232624	103	1/2"	1300
0232625	97	1/2"	2000
0232626	97	1/2"	4000

OVERALL DIMENSIONS



## Chapter 1.2

# Modular distribution units

### MIXING UNITS

#### PAS

Compact, pre-assembled domestic hot water and mixing unit for DN 25 and DN 32 heating and cooling systems. Complete with shut-off valves with built-in thermometer, gravity flow stop system, EPP insulation, fittings and bracket for wall mounting. Supplied without pump, it suits all system requirements. Compatible with high-efficiency pumps (ErP ready), with different centre distances. PN 10. Operating temperature range:  $-10\div 40^{\circ}\text{C}$ . Fluid temperature:  $90^{\circ}\text{C}$ .

Part Number	DN	Description	Qty/Box	Box/Carton
10026450	25	Pumping group	1	1
10026881	32	Pumping group	1	1
PA-130	25	Pump adaptor 130 mm	1	1

Dimensions at the end of the section.



#### PASF

Compact, pre-assembled, fixed-point domestic hot water and mixing unit for DN 25 heating systems with thermostatic mixing valve adjustable from  $20$  to  $43^{\circ}\text{C}$ . Complete with shut-off valves with built-in thermometer, gravity flow stop system, EPP insulation, fittings and bracket for wall mounting. Supplied without pump, it suits all system requirements. Compatible with high-efficiency pumps (ErP ready) with centre distances of 130 and 150 mm. PN 10. Operating temperature range:  $-10\div 40^{\circ}\text{C}$ . Fluid temperature:  $90^{\circ}\text{C}$ .

Part Number	DN	Description	Qty/Box	Box/Carton
10027565	25	Pumping group and mixing	1	1

Dimensions at the end of the section.



#### PASM

Compact, pre-assembled, modulating domestic hot water and mixing unit for DN 25 and DN 32 heating and cooling systems with 3-way mixing valve and WATTS CLASSIC 230V 3-point modulating electronic actuator. Complete with shut-off valves with built-in thermometer, gravity flow stop system, EPP insulation, fittings and bracket for wall mounting. Supplied without pump, it suits all system requirements. Compatible with high-efficiency pumps (ErP ready) with centre distance of 180 mm (and 130 mm with adaptor). PN 10.

Operating temperature range:  $-10\div 40^{\circ}\text{C}$ . Fluid temperature:  $90^{\circ}\text{C}$ .

Part Number	DN	Description	Qty/Box	Box/Carton
10026451	25	Mixing valve $Kvs=6,3$	1	1
10026883	32	Mixing valve $Kvs=18$	1	1
PA-130	25	Pump adaptor 130 mm	1	1

Dimensions at the end of the section.



**HK**

Pre-assembled domestic hot water and mixing unit for DN 40 and DN 50 heating and cooling systems. Complete with 2" F shut-off valves, built-in thermometer, gravity flow stop system and EPP insulation. Supplied without pump, it suits all system requirements. Compatible with high-efficiency pumps (ErP ready).

Part Number	DN	Pump wheelbase	Qty/Box	Box/Carton
10027651	40	220 mm	1	1
10027652	50	280 mm	1	1

Dimensions at the end of the section.



**HKM**

Pre-assembled, modulating domestic hot water and mixing unit for DN 40 and DN 50 heating and cooling systems with 3-way mixing valve and 230V 3-point modulating electronic actuator. Complete with 2" F shut-off valves, built-in thermometer, gravity flow stop system and EPP insulation. Supplied without pump, it suits all system requirements. Compatible with high-efficiency pumps (ErP ready).

Part Number	DN	Pump wheelbase	Qty/Box	Box/Carton
10027653	40	220 mm	1	1
10027650	50	280 mm	1	1

Dimensions at the end of the section.



**HYDRAULIC SWITCHES AND DISTRIBUTION MANIFOLDS**

**HW-Q60/80**

Compact stainless steel hydraulic switch for PAS, PASF and PASM domestic hot water and mixing units complete with EPP insulation and predisposition for immersion temperature probe (1/2" F – Ø 6.5 mm sleeve). 1.1/2" M x 1.1/2" F flat sealing connections with union nut. Compatible with VB32 manifolds (maximum 2 circuits). PN 6.

Part Number	Flow	Notes	Qty/Box	Box/Carton
10010424	1,5 m3/h – 17 kW (ΔT = 10 K)	-	1	1

Dimensions at the end of the section.



**HW**

Steel hydraulic switch for VB32 and HKV50 distribution manifolds, complete with EPP insulation, air release valve, fill/drain cock, wall-mounting brackets and predisposition for immersion temperature probe (1/2" F – Ø 6.5 mm sleeve).

**Flat sealing connections:**

- HK80/120 1.1/2" M connections (4 m³/h)
  - HK40/140 2" M connections complete with two 2" F x 1.1/4" F union nuts (10 m³/h).
- Pre-insulated pipes are available for connecting the HK80/120 hydraulic switch to VB32 manifolds. PN 6.

Part Number	Description	Connection	Qty/Box	Box/Carton
10010376	Separator 4 m3/h – 44 kW (ΔT = 10 K)	1. 1/2"	1	1
10010419	Separator 10 m3/h – 114 kW (ΔT = 10 K)	2"	1	1
10010378	Pair of pipes to connect HK80/120 to manifolds VB32	-	1	1
10006335	Set of two swivel fittings	1.1/2"Fx1"F	1	1

Dimensions at the end of the section.



**VB32**

Steel distribution manifold for PAS, PASF and PASM DN 25 and DN 32 domestic hot water and mixing units complete with EPP insulation, compatible with systems with flow from either left or right. Equipped with 3 x 1.1/2" M flat sealing flow connections, including one with a cap, and 1.1/2" F flat sealing connections with union nut on domestic hot water and mixing units side.



Part Number	Description	Notes	Qty/Box	Box/Carton
10025900	per 2 pumping group	-	1	1
10025901	per 3 pumping group	-	1	1
10026672	per 4 pumping group	-	1	1
10026931	per 5 pumping group	-	1	1
10026388	Wall fixing kit	-	1	1

Dimensions at the end of the section.

**TECHNICAL NOTE - Selection Guide**

**Modular connection of PAS, PASF and PASM domestic hot water and mixing units**

PAS, PASF and PASM domestic hot water and mixing units are designed to allow modular installation. Quick, easy installation both with VB32 distribution manifolds and HW and HW-Q60/80 hydraulic switches makes it possible to meet a wide range of system requirements.



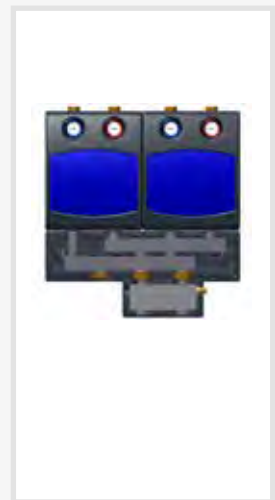
Connection with HW80/120 and primary flow on left



Connection with HW80/120 and primary flow on right



Connection with HW-Q60/80 and primary flow on left



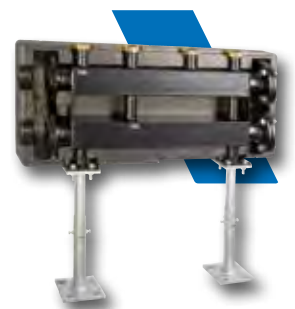
Connection with HW-Q60/80 and primary flow on right

**HKV 50**

Steel distribution manifold for HK and HKM DN 40 and DN 50 domestic hot water and mixing units complete with EPP insulation, compatible with systems with flow from either left or right. Compatible with PAS, PASF and PASM DN25 and DN32 domestic hot water and mixing units when used with REDU adaptor.

DN80 PN6 primary circuit flanged connections (2 blind flanges included). 2" F secondary circuit threaded flat sealing connections with union nut. Brackets not included.

Part Number	Description	Notes	Qty/Box	Box/Carton
10011282	2 secondary circuits	-	1	1
10011283	3 secondary circuits	-	1	1



Dimensions at the end of the section.

**VB50/80-ECK**

Angle connector kit for HKV50 distribution manifold, consisting of two pre-insulated flanged corner fittings.

Part Number	Connection	Pressure	Qty/Box	Box/Carton
10011284	Flange DN80	PN6	1	1



**HKV-FUSS**

Floor-mounting kit for HKV50 distribution manifolds, consisting of two height-adjustable pedestals and respective fasteners for connection to the manifolds.

Part Number	Height	Notes	Qty/Box	Box/Carton
10011285	Adjustable from 650 to 850mm	-	1	1

Dimensions at the end of the section.



**REDU**

Adaptor for connecting PAS, PASF and PASM DN25 and DN32 domestic hot water and mixing units to HKV50 distribution manifolds, complete with EPP insulation.

Part Number	Connection	Notes	Qty/Box	Box/Carton
10011286	2" M x 1.1/2" F	free nut	1	1



**TECHNICAL NOTE - Selection Guide**

**Modular connection of PAS, PASF and PASM domestic hot water and mixing units**

PAS, PASF and PASM domestic hot water and mixing units are designed to allow modular installation. Quick, easy installation both with VB32 distribution manifolds and HW and HW-Q60/80 hydraulic switches makes it possible to meet a wide range of system requirements.



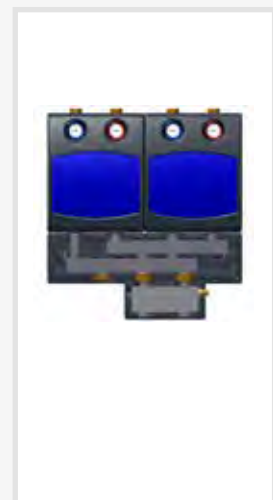
Connection with HW80/120 and primary flow on left



Connection with HW80/120 and primary flow on right



Connection with HW-Q60/80 and primary flow on left



Connection with HW-Q60/80 and primary flow on right



**BOILER ROOM ACCESSORIES**

**ERD - EUROVENT**

Automatic/manual double de-aerator with expansion vessel. Tropicalised sheet steel body. OT58 brass cover. PN 8. Maximum temperature: 115°C.

Part Number	DN	Qty/Box	Box/Carton
0253625	1"	1	20
0253640	1.1/2"	1	12

Dimensions at the end of the section.



**SA**

Air separator with 5 threaded female instrument connections (DN 3/8" ÷ 1/2"). Painted, malleable, cast iron body.

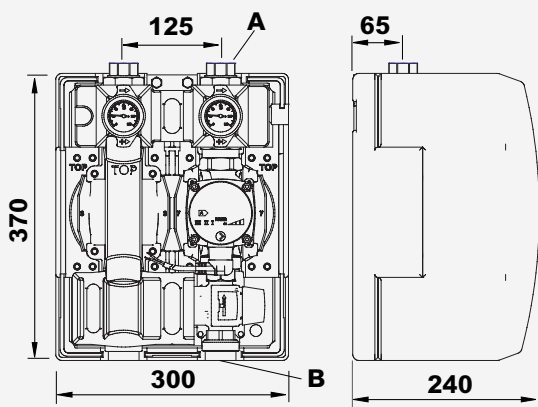
Part Number	DN	Qty/Box	Box/Carton
0260125	1"	1	1
0260132	1.1/4"	1	1
0260140	1.1/2"	1	1
0260150	2"	1	1
0260165	2.1/2"	1	1
0260180	3"	1	1

Dimensions at the end of the section.



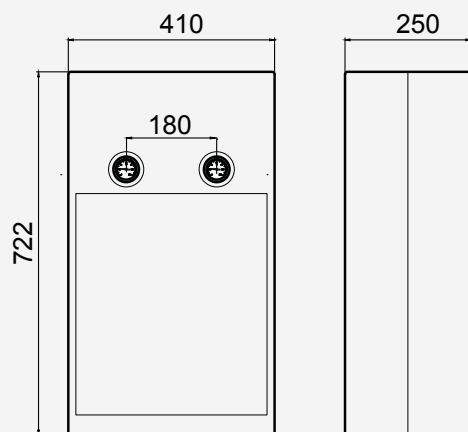
**OVERALL DIMENSIONS**

**PAS, PASF, PASM**



DN	A	B
25	1"F	1.1/2"M
35	1.1/4"F	2"M

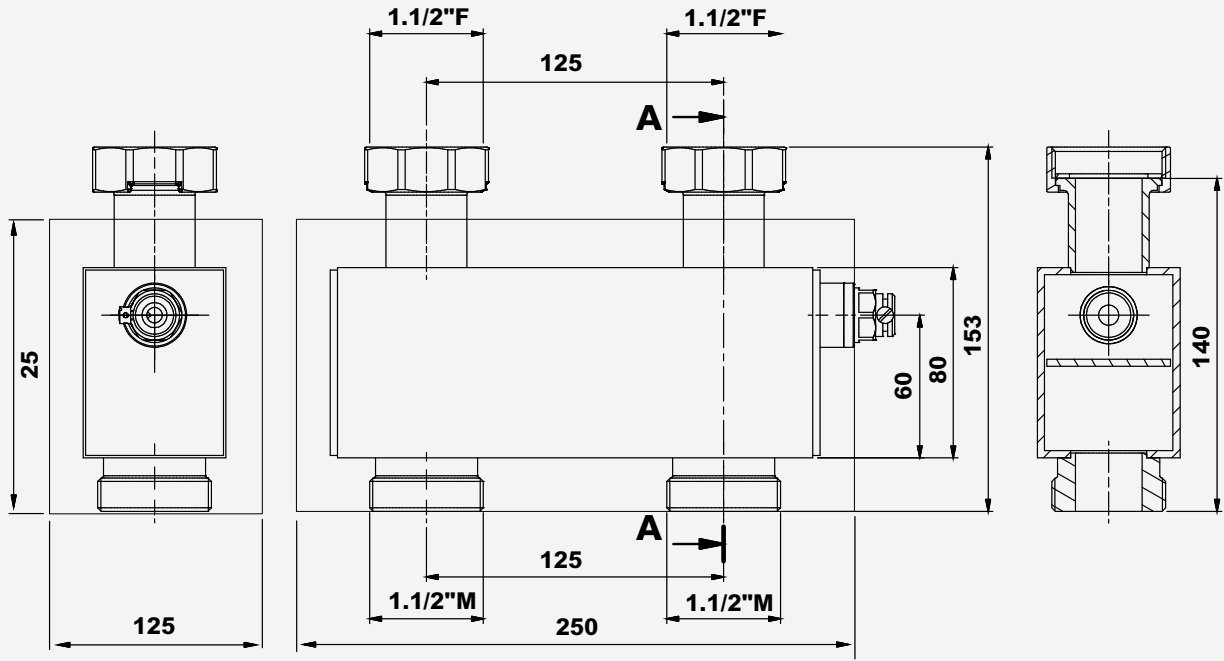
**HK, HKM**



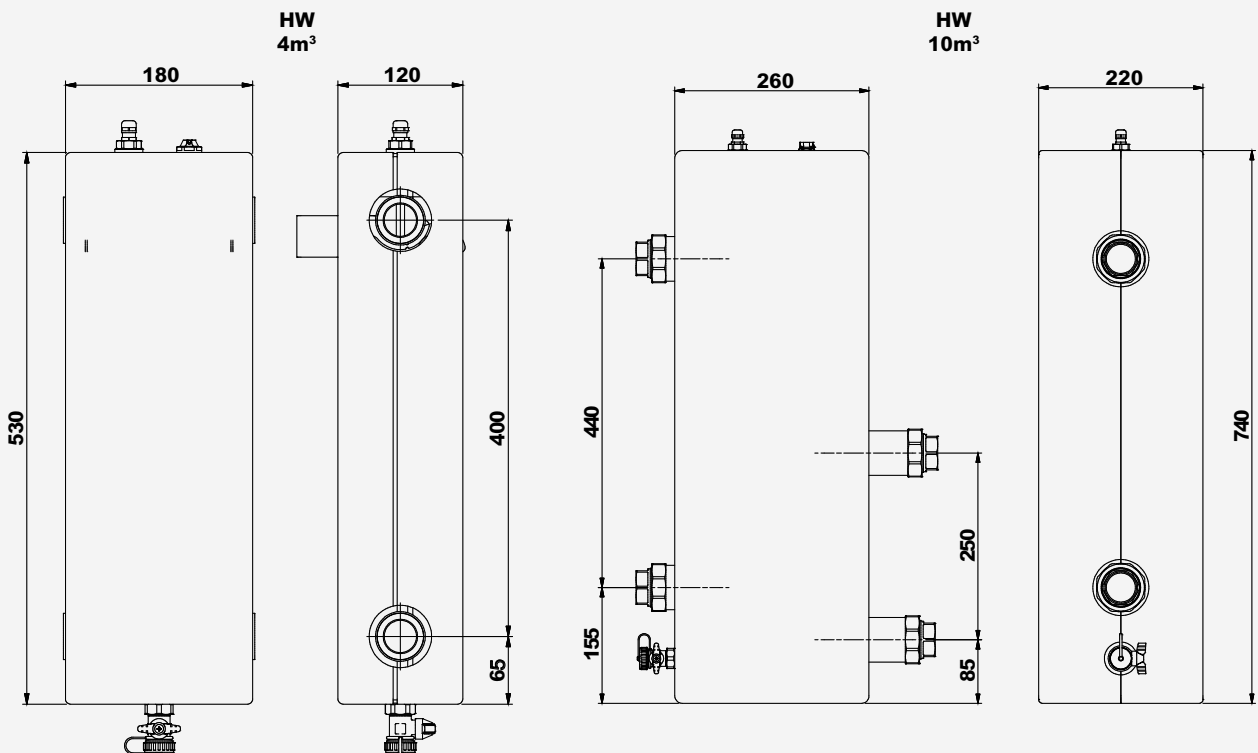
DN	A
40	528F
50	288

OVERALL DIMENSIONS

HW-Q60/80

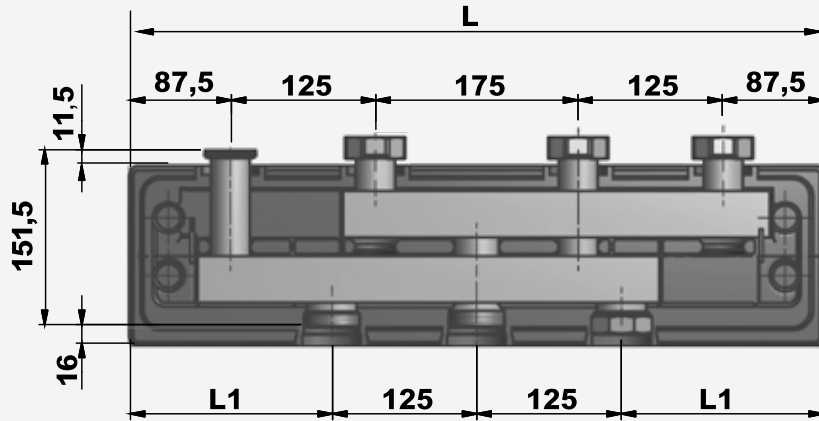


HW



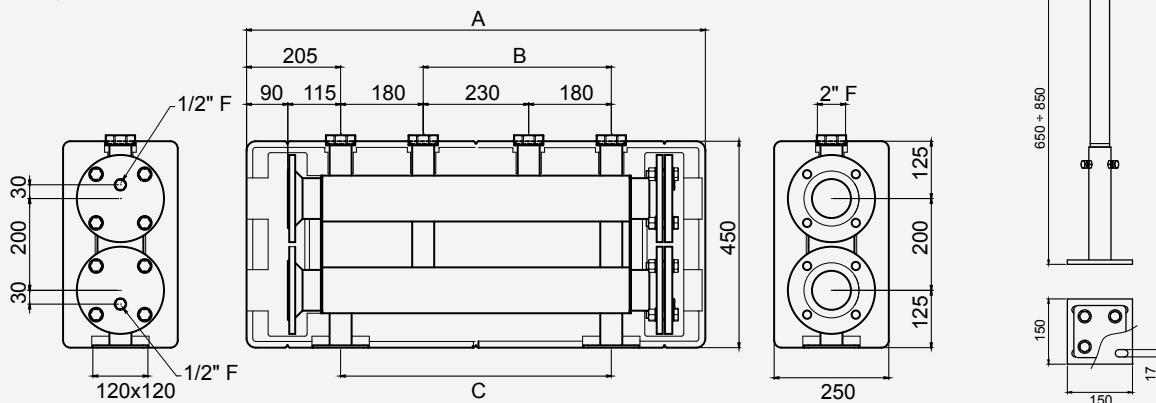
OVERALL DIMENSIONS

**VB32**



Type	Circuits	L	L1
VB32-2	2	600	175
VB32-3	3	900	325
VB32-4	4	1200	475
VB32-5	5	1500	625

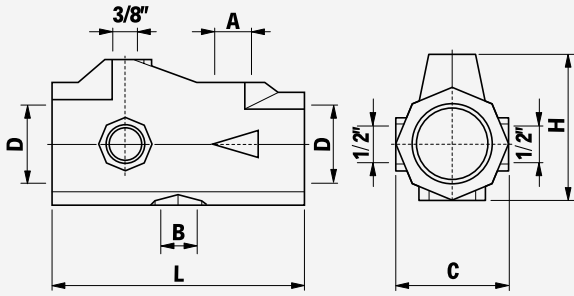
**HKV50, HKV-FUSS**



Type	Circuits	L
HKV50-2	2	1000
HKV50-3	3	1410

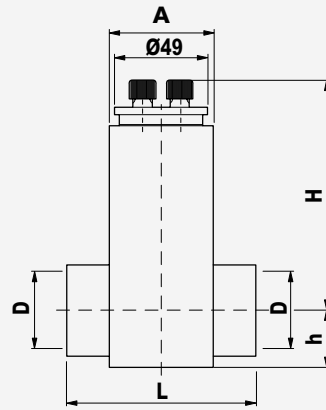
OVERALL DIMENSIONS

SA



DN	A	B	C	L	H
1.	1/2"	3/4"	70	152	87
1.1/4"	1/2"	3/4"	70	152	87
1.1/2"	1/2"	3/4"	70	152	87
2.	3/4"	1.	87	189	115
1.1/2"	1.	1.	128	300	203
3.	1.	1.	128	300	203

ERD



DN	A	L	H	I
1.	60x50	94	153	26
1.1/2"	60x50	104	191	32



## Chapter 2

Home automation  
and comfort control

## BT-CT02 RF Central control unit



Easy to install and configure  
Intuitive operation with remote  
control via an App

The system can be extended to radiant heating  
systems and electrical equipment

**WATTS**® Vision®

## Chapter 2

# Watts Vision® : comfort control and regulation

For Underfloor Heating Manifolds please see Section 5.

### WATTS Vision® SYSTEM

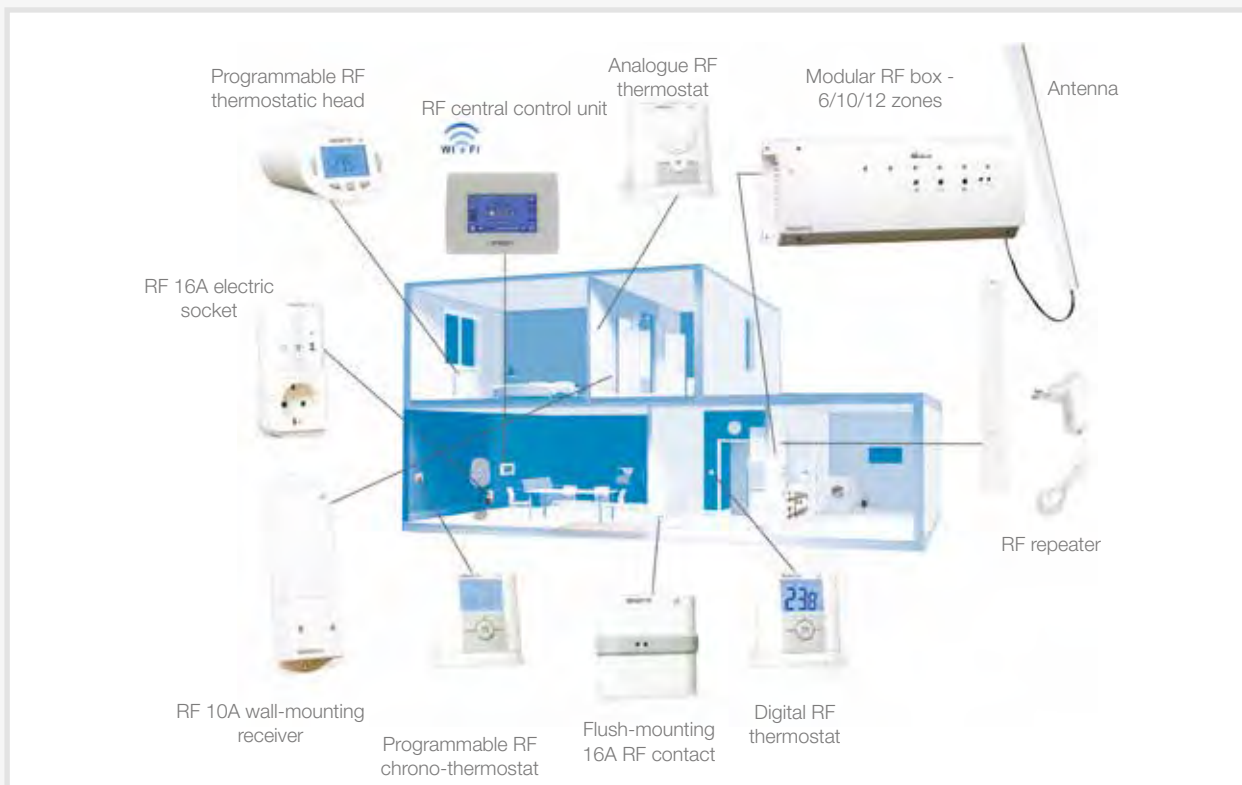
Watts has developed a new home automation system called Watts Vision® for temperature control, air conditioning, security and device management for residential applications. The system enables you to programme and view the settings of all your devices across multiple zones. It's a wireless solution for use in conjunction with Watts second-generation RF thermostats, for room-by-room temperature control.



### WATTS Vision®

- Provides full supervision of all devices using a Wi-Fi connection via pre-loaded web pages and type of browser (on PC, tablet or smartphone) or via a dedicated app (iOS, Android).
- Scalable system, easy to update with a wide range of products
- Provides individual radiator control in underfloor and conventional heating systems
- Controls various types of electrical devices

### WATTS Vision® SYSTEM OPERATION



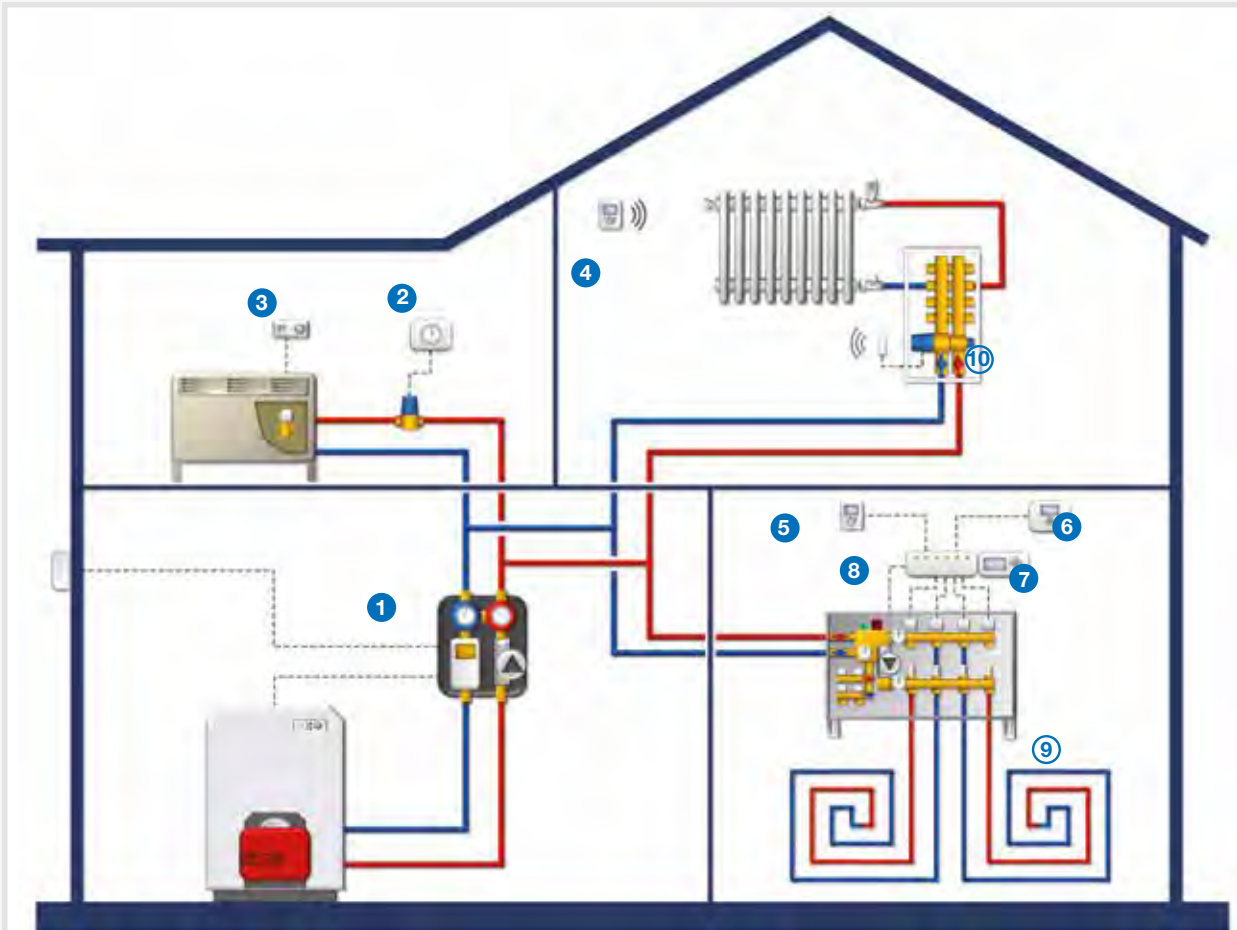


**WATTS<sup>®</sup>Vision<sup>®</sup>**











- GSM remote control
- WEB-based remote control
- Climate control
- Electronic control of radiators
- Thermal and electrical energy indication
- Underfloor heating control
- Heating/air conditioning control

**APPLICATION EXAMPLE**



**SIMPLIFIED DIAGRAM FOR THE SOLE PURPOSE OF ILLUSTRATING THE PRODUCTS COVERED IN THIS SECTION**

- |  |   |  |   |   |
|--|---|--|---|---|
| <p><b>1</b> <b>FBC-HC 8180</b></p>  <p>Compact climatic control unit for heating/air conditioning</p> | <p><b>2</b> <b>BATTERY ELECTRONIC</b></p>  <p>Electronic chrono-thermostat with analogue programming</p> | <p><b>3</b> <b>FAN CONFORT 2T</b></p>  <p>Electronic thermostat for fan-coils</p> | <p><b>4</b> <b>BTDP02-RF</b></p>  <p>Digital electronic RF thermostat</p> | <p><b>5</b> <b>BTD</b></p>  <p>Digital electronic thermostat</p> |
| <p><b>6</b> <b>MILUX 2 WEEKLY</b></p>  <p>Digital thermostat</p>                                      | <p><b>7</b> <b>WFHC-TIMER</b></p>  <p>Two-channel programming clock</p>                                  | <p><b>8</b> <b>WFHC</b></p>  <p>Modular connection box - 4/6 zones</p>            | <p><b>9</b></p> <p>Section 8.1<br/>Radiant panel systems</p>  | <p><b>10</b></p> <p>Section 8.2<br/>Modul systems</p>   |

**WATTS®VISION® SYSTEM**

**BT-TH02 RF**

Electronic chrono-thermostat for radiators. Can be used in stand-alone mode (9 pre-set and 4 custom programmes) or in conjunction with the Watts Vision® central control unit (BT-CT02 RF/WiFi) and BT02-RF Series thermostats. The central control unit is necessary for communication with the thermostats. Stroke speed 2mm-1mm/s. Protection rating IP20 Class I. Power supply 2 AA LR06 1.5V Alkaline. Actuator force 70N.

**Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Room Temp.	Temp. Setting	Qty/Box	Box/Carton
P06681	0÷50°C	5 ÷30°C	1	250

Dimensions at the end of the section.

**BT-CT02 RF**

WATTS®Vision® central control unit manages water-based and electric underfloor climate control systems, radiators, lights and other electrical devices.

Thanks to a built-in WiFi module, you can manage and monitor all the control parameters of your home via an app on your smartphone, tablet or PC.

Operating temperature (220 V): -30÷40°C. Operating temperature (battery): 0÷40°C. Installation Class II. Display precision 0.1°C. Temperature setting range: - Comfort 5÷30°C with sensitivity of 0.5°C - Reduced 5÷30°C with sensitivity of 0.5°C - Anti-freeze 5÷10°C.

Power supply (flush-mounting) 85-265VAC 50-60 Hz. USB power supply (not included).

Radio frequency 868 MHz, <10mW.

**Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Description	Protection	Qty/Box	Box/Carton
P07255	white screen	IP30	1	100

Dimensions at the end of the section.

**BT-A02 RF**

Electronic thermostat with analogue radio frequency control (868 MHz) designed to control different types of heating systems. Temperature control is based on internal sensors. An external sensor can be connected without any additional external power supply.

A LED indicates whether the heating switch-on signal is activated and can be used during configuration. Operating temperature range: 0÷50°C. Electrical protection Class II. Temperature control range: 5÷35°C. Control characteristics: proportional band (PWM 2°C for 10min/cycle). Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years.

Sensor: internal and/or external (opt.) NTC 10kW at 25°C.

Radio frequency 868 MHz, <10mW.

**Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P06670	5÷35°C	IP30	1	100

Dimensions at the end of the section.

**BT-D03 RF Series**

The Wireless digital room thermostat with back-light LCD display is designed to control different types of heating and cooling systems. Temperature control is based on internal sensors. An external sensor (SENSOR 10K - P01228) can be connected without any additional external power supply.

A logo on display indicates whether the heating switch-on signal is activated.

- Smartphone App control capability when associated to Central Unit BT-CT02 RF

- LCD display with back-light

- 3 sensitive touch buttons

- Open window detection

- Different temperature modes setting

- Anti-freeze function

- Configurable Hysteresis or PWM regulation

- Pin Code & screws lock for public area

- Wall or Desk mounting with a stand (included)

- 2 parameter menus User and Pro



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P07710	5÷37°C	IP30	1	100

Dimensions at the end of the section.

**BT-D02 RF/BT-D02 RF RH**

Electronic thermostat with radio frequency back-lit LCD display (868 MHz) designed to control different types of heating systems. Temperature control is based on internal sensors. An external sensor can be connected without any additional external power supply. A LED indicates whether the heating switch-on signal is activated. Operating temperature: 0÷50°C. Electrical protection Class II. Temperature control range: 5÷37°C. Control characteristics: proportional band (PWM 2°C for 10min/cycle). Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years. Sensor: internal and/or external (opt.) NTC 10kW at 25°C. Radio frequency 868 MHz, <10mW.

**\*Version with humidity sensor.**

**Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P06671	5÷37°C	IP30	1	100
P06773*	5÷37°C	IP30	1	100

Dimensions at the end of the section.

**BT-DP02 RF/BT-DP02 RF RH**

Digital radio frequency (868MHz) room chrono-thermostat with LCD display for controlling different types of heating system. Temperature control is based on an internal sensor. An external sensor can be connected without any additional external power supply. A red LED indicates that the heating system is ON.

Operating temperature 0÷50°C. Installation Class II. Precision 0.1°C.

Control ranges: Comfort, Reduced, Timer 5÷37°C in steps of 0.5°C.

Vacation mode. Anti-freeze: 7°C (programmable).

Control characteristics: proportional band (PWM 2°C/10min) or hysteresis of 0.5°C.

Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years.

Sensor: internal and/or external (opt.) NTC 10kW at 25°C.

Radio frequency 868 MHz, <10mW. Compatible receivers Wall, Socket, Ver.02

**\*Version with humidity sensor.**

**Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P06672	5÷37°C	IP30	1	100

Dimensions at the end of the section.

**BT-HCM02 RF**

Modular RF connection box (868 MHz) designed to control underfloor heating and cooling systems. Can be integrated with the WATTS®Vision® system only by means of RF communication (868MHz) with BT-M6Z02 RF Series boxes. The box receives requests for heating/cooling through the various inputs listed:

- free contact input from the output of a heat pump;
- free contact input from a manual switch;
- from an NTC sensor for measuring flow water temperature;
- from a BT-CT02-RF Series touch-screen panel (BT-HCM02-RF configured in slave mode, connection with module M6Z02 required).

The BT-HCM02-RF Series module has the following outputs for activating the:

- system pump;
- dehumidifier, associated with BT-D (P) 02-RF series RH thermostats);
- boiler or air conditioning unit.

Equipped with 2 LED indicators (pump status, heating/cooling management), 3 pushbuttons for user configuration and an internal DIP switch for system configuration. IP30. 1 5A/230V pump relay, 3 free contact relays.

**Compliant with: LVD 2014/35/EC - EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Voltage	Protection	Qty/Box	Box/Carton
P06066	230V	IP30	1	100

Dimensions at the end of the section.

**BT-M6Z02 RF**

Modular RF connection box (868 MHz) designed to control underfloor heating systems with C or NO ON/OFF electrothermal actuators. Easy to expand up to 12 zones with additional modules. Can be combined with BT02-RF Series thermostats and/or the WATTS®Vision®-system. Operating temperature: 0÷50°C.

Control characteristics: integral proportional control or hysteresis control depending on the type of thermostat connected to the individual channel.

Power supply: 230VAC ± 10% 50Hz; 24VAC. Pump or accessories outputs: Relay → 5A/230VAC (open contact). Actuator outputs (NC) or (NO): Relay → 5A/230VAC (L, N).

Radio frequency and signal coverage 868 MHz, <10mW (bidirectional transmission); coverage approximately 180 m (open field); coverage approximately 50 m (residential environment).

Combinations 10 Zones → 1 Master 6z+1 Slave 4 zones;

**12 Zones → 1 Master 6z+1 Slave 6 zones.**

**Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	Voltage	Protection	Qty/Box	Box/Carton
P06678	230V	IP30	1	100

Dimensions at the end of the section.

**BT-S4Z02 RF/BT-S6Z02 RF**

Expansion module (RF 868 MHz) for modular boxes for controlling underfloor systems. Extends the number of controlled zones to 12 with ease.

Can be combined with BT RF 02 Series thermostats and/or the WATTS®Vision®-system.

Operating temperature 0÷50°C. Control characteristics: integral proportional control or hysteresis control depending on the type of thermostat connected to the individual channel.

Power supply: 230VAC±10% 50Hz; 24VAC.

Pump or accessories outputs: Relay → 5A/230VAC (open contact).

Actuator outputs (NC) or (NO): Relay → 5A/230VAC (L, N).

Combinations: 10 zones → 1 Master 6z + 1 Slave 4 zones; 12 Zone → 1 Master 6z + 1 Slave 6 zones

**Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.**

Part Number	Description	Protection	Qty/Box	Box/Carton
P06679	S6Z02 RF	IP30	1	68
P06680	S4Z02 RF	IP30	1	48

Dimensions at the end of the section.



**BT-WR02 RF**

The BT-WR02 RF Series receiver is a wall-mounting RF receiver designed for controlling climatic control systems in conjunction with the 02 Series of BT-A02 RF, BT-D02 RF or BT-DP02 RF thermostats. The receiver can also be managed by means of a touch-screen central control unit (BT-CT02 RF RF/BT-CT02 RF WiFi) for complete system supervision.

Operating temperature range: 0÷40°C. Power supply 230VAC 50Hz. Electrical protection Class II. Output live/free.10A 230VAC relay. Max. load up to 10A - 230Vac 50Hz (2 wires L,N). Radio frequency and signal coverage 868 MHz <10mW (bidirectional transmission). Coverage 100 m (open field). Coverage 30 m (residential environment).

**Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.**

Part Number	RF Coverage	Protection	Qty/Box	Box/Carton
P06674	100m (external), 30m (internal)	IP20	1	120

Dimensions at the end of the section.



**BT-AA02 RF**

The antenna extends the radio reception range for the following products: BT-CT02 RF Series central control unit and BT-M6Z02 RF Series master box. 230VAC power supply with wall-socket and USB cable.

Part Number	Description	Protection	Qty/Box	Box/Carton
P06094	RF Signal repeater	IP20	1	50



**BT-WR02 HC RF**

The BT-WR02 HC RF receiver is designed to control heating/cooling systems in one zone in conjunction with 02 BT-D02 RF or BT-DP02 RF Series thermostats (dotato di DVE relays 5A, 230V), uno per gestione/consenso freddo e l'altro per caldo. The receiver can be controlled by means of the WATTS®Vision® system (BT-CT02RF/BT-CT02RF WiFi) for full control from a single point. Operating temperature range: 0÷40°C. Power supply 230VAC 50Hz. Electrical protection Class II. Output: powered/voltage-free contact. Particularly suitable for controlling boilers (switch-on permissive). Equipped with cables for relay output configuration. 2 x 5A 230VAC relays. Max. load up to 5A-230VAC 50Hz (2 wires L,N). Radio frequency and signal coverage: 868 MHz <10mW (bidirectional transmission). Coverage 100 m (open field). Coverage 30 m (residential environment).

**Compliant with: CE R&TTE 1999/5/EC-LVD 2014/35/UE-EMC 2014/30/UE-RoHS 2011/65/UE.**



Part Number	RF Coverage	Protection	Qty/Box	Box/Carton
P06402	100m (external), 30m (internal)	IP20	1	120

Dimensions at the end of the section.

**BT-FR02 RF**

The BT-FR02 RF Series receiver is a flush-wall-mounting receiver designed for controlling heating systems in conjunction with 02 Series RF thermostat models BT-A02RF, BT-D02RF or BT-DP02RF. The receiver enables you to connect a hard-wired floor sensor directly in the floor temperature monitoring and control unit. The receiver can also be managed by means of a touch-screen central control unit (BT-CT02 RF) for complete system supervision. Operating temperature: 0÷40°C. Power supply 230VAC 50Hz. Protection Class II. Optional: IP21 insulation. Output (1 powered contact) 16A 230VAC relay. Max. load: up to 16A - 230VAC 50Hz (2 wires L,N). Radio frequency and signal coverage: 868MHz <10mW (bidirectional transmission). Coverage 100m (open field). Coverage 30m (residential environment). Optional floor sensor: NTC 10kΩ at 25°C.

**Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.**



Part Number	RF Coverage	Protection	Qty/Box	Box/Carton
P06675	100m (external) 30m (internal)	IP20	1	96

Dimensions at the end of the section.

**MILUX CHRONO-THERMOSTATS****MILUX 2 WEEKLY**

Digital electronic room chrono-thermostat with minute-by-minute weekly programming, for heating and air conditioning systems. Switch between summer and winter modes directly from keypad. 5 pre-set and 2 custom programmes available. Constant display of room temperature, time and operating status on LCD display. White frame with removable front panel for access to the batteries and connections. Easy wiring: two-wire connection (three-position connector) for heating or air conditioning systems, contact rating < 5A/400V. Automatic or manual operating modes.

Complete with 2 LR3 (AAA) 1.5V batteries: life > 2 years. Batteries can be changed without losing programme settings. Temperature control range: 5÷35°C. Two temperature levels: comfort and night energy saving programmes. Anti-freeze (0.5-10°C). PWM control in 15min intervals on a band of 2°C. Power supply: 2 LR3 AAA 1.5V batteries. Protection rating IP 30, Class II.

Special functions:

- manual selector for standby and keypad lock mode;
- vacation mode to suspend operation temporarily when away from home;
- ITCS (optional): Intelligent Temperature Control System, automatic advance response to heating/cooling demand.

**Compliant with: EMC 2004/108/CE, RoHS 2011/65/EU, EU 811/2013 and 2010/30/EU, Energy class IV (2%).**



Part Number	Temp. Setting	Programs	Qty/Box	Box/Carton
P06584	5÷37°C	9 +4 Customizable	1	48

Dimensions at the end of the section.



**CHRONO-THERMOSTATS AND THERMOSTATS FOR HARD-WIRING**

**BTA**

Electronic room thermostat with analogue control for heating systems. Can be connected to a temperature probe (indoor, floor or outdoor). Temperature control range: 5÷35°C, ON/OFF switch. PWM control. NTC sensitive element. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years. Voltage-free contact rating: 3A-230 VAC. Protection rating IP 30.  
**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P05609	5÷35°C	IP30	1	100

Dimensions at the end of the section.

**BTD**

Digital electronic room thermostat for heating/cooling systems. Back-lit LCD display, 2 temperature levels (comfort and night energy saving programmes), anti-freeze function and vacation mode. Can be connected to a temperature probe (indoor, floor or outdoor). Temperature control range: 5÷35°C. NTC sensitive element. PWM control or 0.5°K differential. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years. Voltage-free contact rating: 3A-230 VAC. Protection rating IP 30.  
**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P04542	5÷35°C	IP30	1	100

Dimensions at the end of the section.

**BTDP**

Digital electronic room chrono-thermostat with weekly programming, for heating/air conditioning systems. 9 pre-set and 4 custom programmes available. Constant display of room temperature, time and operating status on back-lit LCD display. Can be connected to a temperature probe (indoor, floor or outdoor). Temperature control range: 5÷35°C. NTC sensitive element. Two temperature levels: comfort and night energy saving programmes. Anti-freeze (0.5÷10°C). PWM control or 0.5°K differential. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years. Voltage-free contact rating: 3A-230 VAC. Protection rating IP30.  
 Special functions:  
 - reset, keypad lock (to prevent accidental changes to settings);  
 - vacation mode to suspend operation temporarily when away from home;  
 - automatic or manual adjustment to/from daylight saving time.  
**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**



Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton
P04543	5÷35°C	IP30	1	100

Dimensions at the end of the section.

**BATTERY ELECTRONIC**

Electronic room chrono-thermostat with analogue programming, for heating and air conditioning systems. Protective front panel for clock and control knob. Minimum setting range: 15 min (daily) 60 min (weekly) 2 selectable temperature modes (comfort - low-energy). Timer OFF mode selector: the thermostat maintains the selected temperature level (comfort or low-energy) with minimum anti-freeze temperature (5°C). Temperature control range: 5÷35°C. Differential: 0.5K. Operating temperature: 0÷50°C. Protection class: Class II. Power supply: 2 LR6 (AA) 1.5V alkaline batteries (NOT INCLUDED). Contact rating: 8 (3) A 230V.  
**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**



Part Number	Voltage	Protection	Qty/Box	Box/Carton
P03869 (daily)	2 batteries 1,5V	IP30	1	38

Dimensions at the end of the section.

**BELUXTI**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**

**EN 6100 and EN 60730 compliant.**

Part Number	Voltage	Protection	Qty/Box	Box/Carton
0403202	230V	IP30	1	112

Dimensions at the end of the section.

**BELUXTIC**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts and summer/winter switch. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

**Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.**

**EN 6100 and EN 60730 compliant.**

Part Number	Voltage	Protection	Qty/Box	Box/Carton
0403302	230V	IP30	1	112

Dimensions at the end of the section.

**BELUXTOF**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts and ON/OFF switch and indicator light. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

**Compliant with Directives: LVD 2014/35/EU - EMC 2014/30/EU.**

**EN 6100 and EN 60730 compliant.**

Part Number	Voltage	Protection	Qty/Box	Box/Carton
0403162	230V	IP30	1	112

Dimensions at the end of the section.

**WFHC**

4- or 6-zone modular connection box. Can be connected with 4/6 thermostats. Each thermostat can control up to 4/6 actuators. Protection rating IP30. Master module with electric pump control relay. Slave module with plug-in connector for connecting to master unit.

Part Number	Description	Size (mm)	Qty/Box	Box/Carton
P2096	4 ZONE (SLAVE) NC	178 Lx88Hx58P	1	24
P2090	6 ZONE (MASTER) NC	210Lx88Hx58P	1	36
P2092	6 ZONE (SLAVE) NC	210Lx88Hx58P	1	36

**WFHC-TIMER**

Weekly programming clock for two channels, suitable for radiant panel systems, can be connected to WFHC-4 and WFHC-6 modular boxes for managing 4, 6, 8, 10 or 12 different heating zones. Has 9 pre-set programmes and 1 custom programme for configuration by the user.

Part Number	Size (mm)	Protection	Qty/Box	Box/Carton
P2101	158Lx88Hx 62P	IP30	1	24



CLIMATIC CONTROLLERS

**RCL-HC**

Digital climatic controller for heating only and heating/air conditioning systems with outdoor air temperature compensation. Recommended for flow temperature control with mixing valve with 230VAC 3-point actuator. Weekly programming, 9 pre-set programmes and 4 custom programmes, controlled on basis of outdoor temperature, outdoor temperature and water temperature display, maximum and minimum temperature limit, pump control, possible to connect a room thermostat. Predisposed for the installation of an antenna for use with RF 433 MHz thermostats and MILUX-HY (antenna Series AN433 not included) Series humidistat. Ideal for controlling radiant panel heating/cooling systems. Flow water temperature 0÷100°C. Power supply 230VAC 50 Hz. Pump control: 5A 250 VAC relay. Heating generator control: 5A 230 VAC relay. Air conditioning unit control: 5A 230 VAC relay. Mixing valve control: 3-point modulating (2 Triacs 75W Max 230 VAC).

Kit includes:

- climatic control unit;
- outdoor temperature probe with 2 m cable CTN 10 KΩ;
- flow water temperature probe CTN 10 KΩ (1/8" M straight);

Option for WSENS return water temperature probe.

Can be combined with MILUX RF WEEKLY chrono-thermostat.



Part Number	Voltage	Protection	Qty/Box	Box/Carton
P04013/02	230 Vac 50Hz	IP30	1	100

Dimensions at the end of the section.

**AN433**

Antenna for RCL-HC Series climatic control units for receiving 433 Mhz RF signals. Enables you to connect the following to RCL control units: MILUX HY thermostat/humidistat, OS-RF outdoor temperature sensor and all room thermostats and chrono-thermostats with radio frequency of 433 MHz Watts. Cable length 3m, dimensions 2cmx39cmx1.5cm, adhesive base.

Part Number	Receiving	Cable	Qty/Box	Box/Carton
P04510	433Mhz	3m	1	120



**WSENS**

Water temperature probe (flow or return) CTN 10 kΩ.

Operating temperature: -20÷100°C. Connection: 1/8 M cyl. (P04371). Cable: 2.5m.

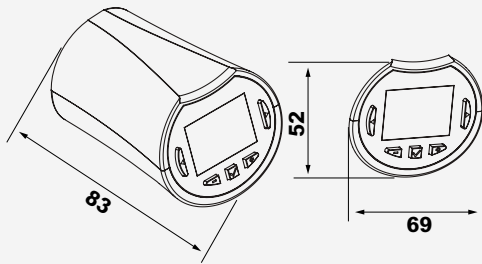
Part Number	Note	Size (mm)	Qty/Box	Box/Carton
PPLELE06019	Sensor to be used with TP pocket	4x45	1	50



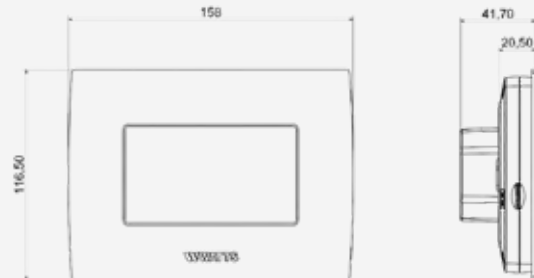


**OVERALL DIMENSIONS**

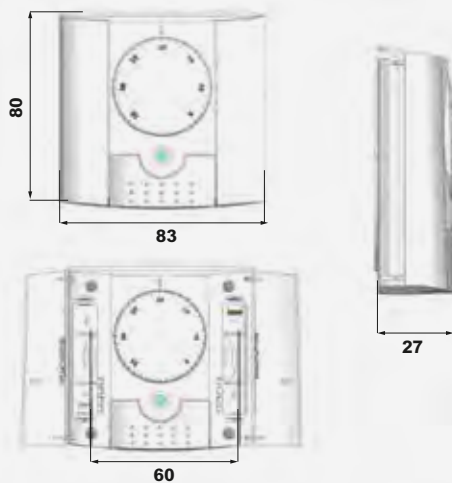
**BT-THR02 RF**



**BT-CT02 RF**



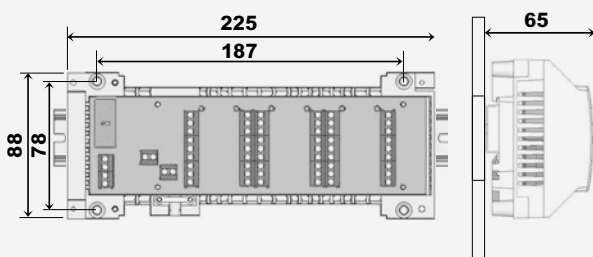
**BT-A02 RF**



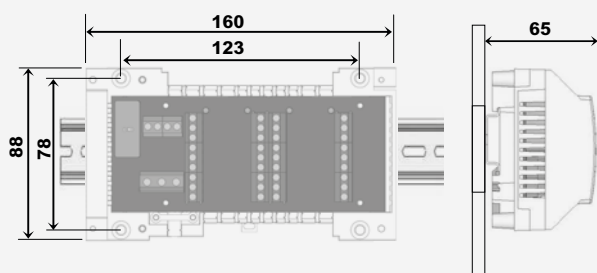
**BT-D02 RF/BT-DP02 RF  
BT-D02 RF RH/BT-DP02 RF RH**



**BT-S6Z02 RF/BT-M6Z02 RF/BT-HCM02 RF**

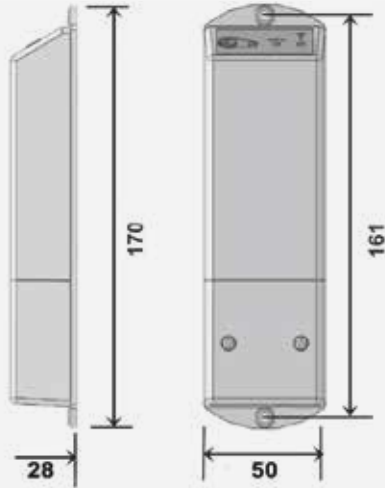


**BT-S4Z02 RF**

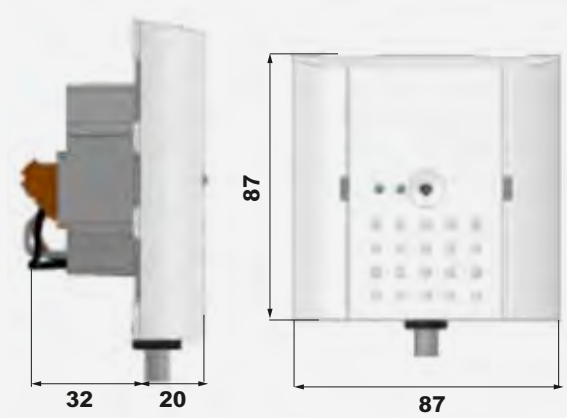


OVERALL DIMENSIONS

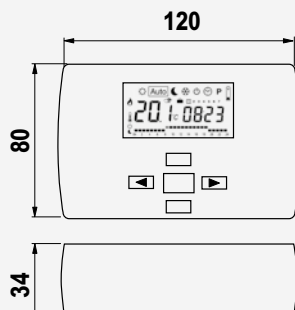
**BT-WR02 RF/BT-WR02 HC RF**



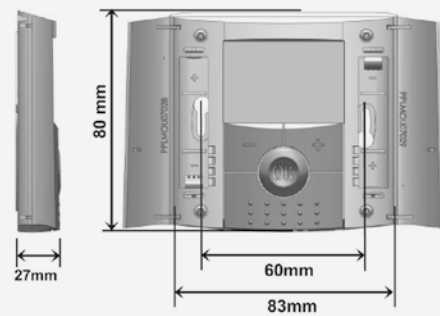
**BT-FR02 RF**



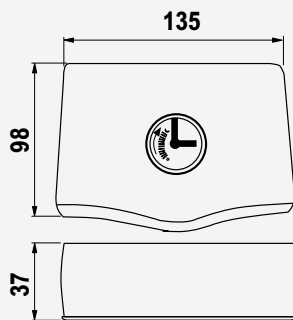
**MILUX WEEKLY - MILUX WEEKLY RF  
MILUX-HY**



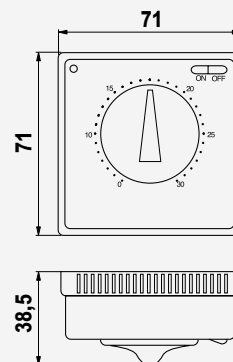
**BTA/BTD/BTDP**

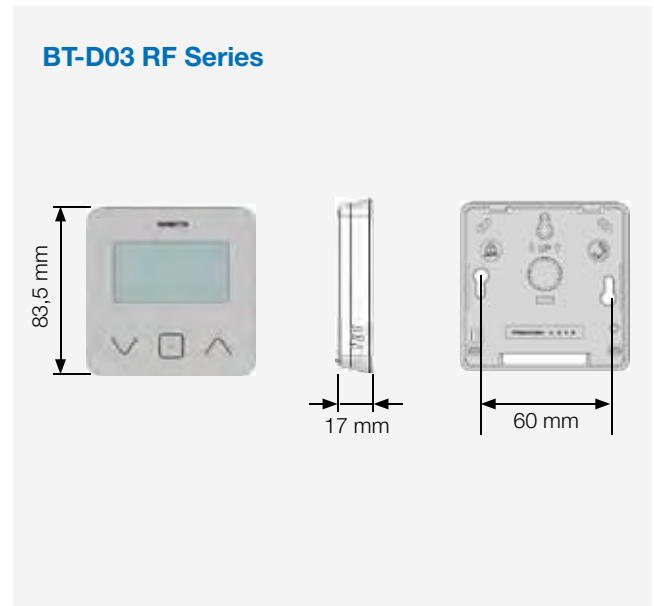
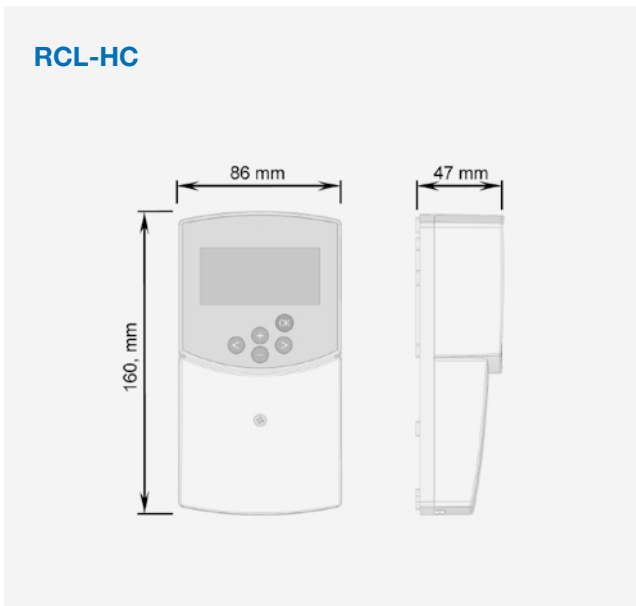


**BATTERY ELECTRONIC**



**BELUXTI/TIC/TOF**



**OVERALL DIMENSIONS**

# Chapter 3

## Pre-insulated flexible piping

## MICROFLEX



Flexible and quick to install  
Double-wall outer casing  
10-year warranty

**MICROFLEX**<sup>®</sup>  
A **WATTS** Brand

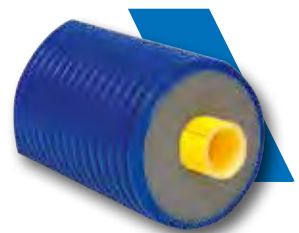
## Chapter 3

# Pre-insulated flexible piping

### MICROFLEX UNO HEATING

Microflex pre-insulated flexible piping for heating and air conditioning systems with single internal pipe in PEX-a SDR11 with oxygen diffusion barrier (DIN 4726), suitable for fluids at temperatures of **-10:-95°C** and pressures up to **6 bar, in accordance with EN ISO 15875**.

Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a external Ø thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
M7525CWI	25/2.3	20	75	0,68	20	6
M9032CWI	32/2.9	25	90	1,00	25	6
M16040CWI	40/3.7	32	160	2,32	35	6
M16050CWI	50/4.6	40	160	2,48	45	6
M16063CWI	63/5.8	50	160	2,78	55	6
M20075CWI	75/6.8	65	200	4,16	80	6
M20090CWI	90/8.2	75	200	4,73	110	6
M200110CWI	110/10	90	200	5,64	120	6
M200125CWI	125/11.4	100	200	6,00	140	6

### ACCESSORIES



Dust caps



EPDM end caps



Fitting MJ341



Fix point

Pipe	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
M7525CWI	MS7525	MG751832	MJ3413425/23	3/4"	25/2.3	MFP34
M9032CWI	MS9032	MG901840	MJ3414432/29	1"	32/2.9	MFP44
M12525CWI	MS12525	MG1251832	MJ3413425/23	3/4"	25/2.3	MFP34
M12532CWI	MS12532	MG1251832	MJ3414432/29	1"	32/2.9	MFP44
M16032CWI	MS16032	MG1603250	MJ3414432/29	1"	32/2.9	MFP44
M16040CWI	MS16040	MG1603250	MJ3415440/37	1.1/4"	40/3.7	MFP54
M16050CWI	MS16050	MG1603250	MJ3416450/46	1.1/2"	50/4.6	MFP64
M16063CWI	MS16063	MG1606390	MJ341263/58	2"	63/5.8	MFP2
M20075CWI	MS20075	MG20075125	MJ34121275/68	2.1/2"	75/6.8	MFP212
M20090CWI	MS20090	MG20075125	MJ341390/82	3"	90/8.2	MFP3
M200110CWI	MS200110	MG20075125	MJ3414110/10	4"	110/10	MFP4
M200125CWI	MS200125	MG20075125	MJ3414125/114	4"	125/11.4	MFP4

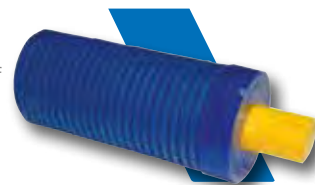
### MICROFLEX UNO PRIMO HEATING AND AIR CONDITIONING

Microflex pre-insulated flexible piping for heating and air conditioning systems with single internal pipe in PEX-a SDR11 with oxygen diffusion barrier (DIN 4726), suitable for fluids at temperatures of **-10:-95°C** and pressures up to **6 bar in accordance with EN ISO 15875**.

Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure.

Double-wall corrugated outer casing in PE-HD high-density polyethylene.

Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
M9040CWI	40/3.7	32	90	1,11	30	6
M12540CWI	40/3.7	32	125	1,72	30	6
M12550CWI	50/4.6	40	125	1,92	40	6
M12563CWI	63/5.8	50	125	2,16	50	6
M16075CWI	75/6.8	65	160	3,2	75	6
M16090CWI	90/8.2	75	160	3,85	100	6

### ACCESSORIES



Dust caps



EPDM end caps



Fitting MJ341



Fix point

Pipe	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
M9040CWI	MS9040	MG901840	MJ3415440/37	1.1/4"	40/3.7	MFP54
M12540CWI	MS12540	MG1254063	MJ3415440/37	1.1/4"	40/3.7	MFP54
M12550CWI	MS12550	MG1254063	MJ3416450/46	1.1/2"	50/4.6	MFP64
M12563CWI	MS12563	MG1254063	MJ341263/58	2"	63/5.8	MFP2
M16075CWI	MS16075	MG1606390	MJ34121275/68	2.1/2"	75/6.8	MFP212
M16090CWI	MS16090	MG1606390	MJ341390/82	3"	90/8.2	MFP3

(\*) Alternatively Shrink cap Serie MH

**MICROFLEX DUO HEATING AND AIR CONDITIONING**

Microflex pre-insulated flexible piping for heating and air conditioning systems with two internal pipes in PEX-a SDR11 with oxygen diffusion barrier (DIN 4726), suitable for fluids at temperatures of **-10÷95°C** and pressures up to **6 bar, in accordance with EN ISO 15875.**

Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MD16025CWI	25/2.3	20	160	2,21	50	6
MD16032CWI	32/2.9	25	160	2,41	50	6
MD16040CWI	40/3.7	32	160	2,63	60	6
MD20050CWI	50/4.6	40	200	4,03	80	6
MD20063CWI	63/5.8	50	200	4,64	120	6

**ACCESSORIES**



Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
MD16025CWI	MSD16025	MGD1602550	MJ3413425/23	3/4"	25/2.3	MFP34
MD16032CWI	MSD16032	MGD1602550	MJ3414432/29	1"	32/2.9	MFP44
MD16040CWI	MSD16040	MGD1602550	MJ3415440/37	1.1/4"	40/3.7	MFP54
MD20050CWI	MSD20050	MGD2004063	MJ3416450/46	1.1/2"	50/4.6	MFP64
MD20063CWI	MSD20063	MGD2004063	MJ341263/58	2"	63/5.8	MFP2

(\*) Alternatively Shrink cap Serie MH

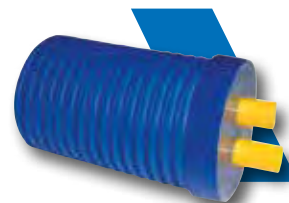
(\*\*) Needed two fix points



### MICROFLEX DUO PRIMO HEATING AND AIR CONDITIONING

Microflex pre-insulated flexible piping for heating and air conditioning systems with two internal pipes in PEX-a SDR11 with oxygen diffusion barrier (DIN 4726), suitable for fluids at temperatures of **-10÷95°C** and pressures up to **6 bar, in accordance with EN ISO 15875**.

Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MD12525CWI	25/2.3	20	125	1,57	30	6
MD12532CWI	32/2.9	25	125	1,77	30	6
MD16050CWI	50/4.6	40	160	3,55	50	6

### ACCESSORIES



Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
MD12525CWI	MSD12525	MGD1251832	MJ3413425/23	3/4"	25/2.3	MFP34
MD12532CWI	MSD12532	MGD1251832	MJ3414432/29	1"	32/2.9	MFP44
MD16050CWI	MSD16050	MGD1602550	MJ3416450/46	1.1/2"	50/4.6	MFP64

(\*) Alternatively Shrink caps Serie MH

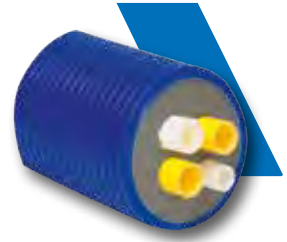
(\*\*) Needed two fix points

**MICROFLEX QUADRO FOR HEATING, AIR CONDITIONING AND DHW**

Microflex pre-insulated flexible piping for heating, air conditioning and domestic water systems, with four internal pipes in PEX-a, **in accordance with EN ISO 15875:**

- two SDR11 pipes with oxygen diffusion barrier (DIN 4726), suitable for fluids at temperatures of -10÷95°C and pressures up to 6 bar
- two SDR7,4 pipes, suitable for water up to 95°C and pressures up to 10 bar.

Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MQ16025C2520SWI	2x25/2.3	20				6
	1x25/3.5	20	160	2,40	60	10
	1x20/2.8	15				10
MQ16032C2520SWI	2x32/2.9	25				6
	1x25/3.5	20	160	2,60	60	10
	1x20/2.8	15				10
MQ16032C3225SWI	2x32/2.9	25				6
	1x32/4.4	23	160	2,70	60	10
	1x25/3.5	20				10

**ACCESSORIES**



Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
MQ16025C2520SWI	MSQ160252520	MGQ1601832	MJ3413425/23	3/4"	25/2.3	MFP34
			MJ3413425/35	3/4"	25/3.5	MFP34
			MJ3413420/28	3/4"	20/2.8	MFP34
MQ16032C2520SWI	MSQ160322520	MGQ1601832	MJ3414432/29	1"	32/2.9	MFP44
			MJ3413425/35	3/4"	25/3.5	MFP34
			MJ3413420/28	3/4"	20/2.8	MFP34
MQ16032C3225SWI	MSQ160323225	MGQ1601832	MJ3414432/29	1"	32/2.9	MFP44
			MJ3414432/44	1"	32/4.4	MFP44
			MJ3413425/35	3/4"	25/3.5	MFP34

(\*) Alternatively Shrink caps Serie MH

(\*\*) Needed two fix points

### MICROFLEX UNO FOR DOMESTIC WATER

Microflex pre-insulated flexible piping for domestic water systems with single internal pipe in PEX-a SDR7,4 suitable for water up to **95°C** and pressures up to **10 bar in accordance with EN ISO 15875**. Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure free from CFC. Double-wall corrugated outer casing in PE-HD high-density polyethylene.

Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
M7525SWI	25/3.5	20	75	0,75	20	10
M9032SWI	32/4.4	23	90	1,12	25	10
M12540SWI	40/5.5	32	125	1,89	40	10
M12550SWI	50/6.9	40	125	2,19	50	10
M12563SWI	63/8.7	50	125	2,59	55	10

### ACCESSORIES



Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
M7525SWI	MS7525	MG751832	MJ3413425/35	3/4"	25/3.5	MFP34
M9032SWI	MS9032	MG901840	MJ3414432/44	1"	32/4.4	MFP44
M12540SWI	MS12540	MG1254063	MJ3415440/55	1.1/4"	40/5.5	MFP54
M12550SWI	MS12550	MG1254063	MJ3416450/69	1.1/2"	50/6.9	MFP64
M12563SWI	MS12563	MG1254063	MJ341263/87	2"	63/8.7	MFP2

(\*) Alternatively Shrink caps Serie MH

**MICROFLEX DUO FOR DOMESTIC WATER**

Microflex pre-insulated flexible piping for domestic water systems with two internal pipes in PEX-a SDR7.4 suitable for water up to **95°C** and pressures up to **10 bar in accordance with EN ISO 15875**. Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure free from CFC.

Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MD16025SWI	2x25/3.5	20	160	2,35	50	10
MD1603225SWI	1x32/4.4 1x25/3.5	23 20	160	5,50	50	10
MD1604025SWI	1x40/5.5 1x25/3.5	32 20	160	2,71	60	10
MD1605025SWI	1x50/6.9 1x25/3.5	40 20	160	2,89	60	10
MD1605032SWI	1x50/6.9 1x32/4.4	40 23	160	3,04	60	10

**ACCESSORIES**



Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
MD16025SWI	MSD16025	MGD1602550	MJ3413425/35	3/4"	2x25/3.5	MFP34
MD1603225SWI	MSD1603225	MGD1602550	MJ3414432/44	1"	1x32/4.4	MFP44
			MJ3413425/35	3/4"	1x25/3.5	MFP34
MD1604025SWI	MSD1604025	MGD1602550	MJ3415440/55	1.1/4"	1x40/5.5	MFP54
			MJ3413425/35	3/4"	1x25/3.5	MFP34
MD1605025SWI	MSD1605025	MGD1602550	MJ3416450/69	1.1/2"	1x50/6,9	MFP64
			MJ3413425/35	3/4"	1x25/3,5	MFP34
MD1605032SWI	MSD1605032	MGD1602550	MJ3416450/69	1.1/2"	1x50/6.9	MFP64
			MJ3414432/44	1"	1x32/4.4	MFP44

(\*) Alternatively Shrink caps Serie MH

(\*\*) Needed two fix points

### MICROFLEX DUO PRIMO FOR DOMESTIC WATER

Microflex pre-insulated flexible piping for domestic water systems with two internal pipes in PEX-a SDR7.4 suitable for water up to **95°C** and pressures up to **10 bar**, in accordance with **EN ISO 15875**. Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure.

Double-wall corrugated outer casing in PE-HD high-density polyethylene.

Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MD1252520SWI	25/3.5 20/2.8	20 15	125	1,65	30	10
MD1253225SWI	32/4.4 25/3.5	23 20	125	2	30	10

### ACCESSORIES

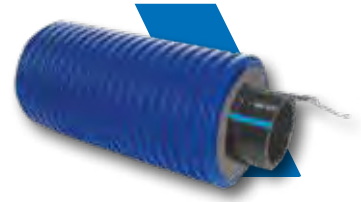


Pipe	Dust caps	EPDM end caps	Fitting MJ341		Fix point	
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm	Part Number
MD1252520SWI	MSD1252520	MGD1251832	MJ3413425/35	3/4"	25/3.5	MFP34
			MJ3413420/28	3/4"	20/2.8	MFP34
MD1253225SWI	MSD1253225	MGD1251832	MJ3414432/44	1"	32/4.4	MFP34
			MJ3413425/35	3/4"	25/3.5	MFP44

(\*) Alternatively Shrink caps Serie MH

**MICROFLEX COOL UNO WITH HEATING CABLE**

Microflex pre-insulated flexible piping **with self-regulating heating cable** (10 W/m) for domestic water systems with single internal pipe in PE-HD SDR11 suitable for potable water up to **25°C** and pressures up to **16 bar, in accordance with EN 12201**. Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
MV7532PEWI	32/2.9	25	75	0,84	20	16
MV9040PEWI	40/3.7	32	90	1,20	30	16
MV12550PEWI	50/4.6	40	125	2,00	40	16
MV12563PEWI	63/5.8	50	125	2,25	50	16
MV16075PEWI	75/6.8	65	160	3,30	75	16
MV16090PEWI	90/8.2	75	160	3,95	100	16
MV200110PEWI	110/1.0	90	200	5,84	120	16
MV200125PEWI	125/11.4	100	200	6,10	140	16

**ACCESSORIES**



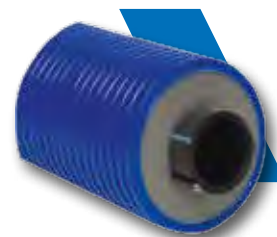
Dust caps      EPDM end caps      Fitting MJ341

Pipe	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm
M9032PEWI	MS7532	MG751832	MJ3414432/29	1"	32/2.9
M9040PEWI	MS9040	MG901840	MJ3415440/37	1.1/4"	40/3.7
M12550PEWI	MS12550	MG1254063	MJ3416450/46	1.1/2"	50/4.6
M12563PEWI	MS12563	MG1254063	MJ341263/58	2"	63/5.8
M16075PEWI	MS16075	MG1606390	MJ34121275/68	2.1/2"	75/6.8
M16090PEWI	MS16090	MG1606390	MJ341390/82	3"	90/8.2
M200110PEWI	MS200110	MG20075125	MJ3414110/10	4"	110/1.0
M200125PEWI	MS200125	MG20075125	MJ3414125/114	4"	125/11.4

(\*) Alternatively Shrink caps Serie MH

### MICROFLEX COOL UNO

Microflex pre-insulated flexible piping for domestic water systems with single internal pipe in PE-HD SDR11 suitable for potable water up to **25°C** and pressures up to **16 bar in accordance with EN ISO 12201**. Multi-layer thermal insulation in CFC-free expanded PEX cross-linked polyethylene with closed-cell structure. Double-wall corrugated outer casing in PE-HD high-density polyethylene. Supplied in lengths to customer specification. Maximum length 100m.



Part Number	Pipe PEX -a Ø external thickness mm	DN	Ø outside casing mm	Weight kg/m	Bending radius cm	PN
M9032PEWI	32/2.9	25	90	0,78	25	16
M9040PEWI	40/3.7	32	90	1	50	16
M12550PEWI	50/4.6	40	125	1,4	50	16
M12563PEWI	63/5.8	50	125	1,8	50	16
M16075PEWI	75/6.8	65	160	2,5	55	16
M16090PEWI	90/8.2	75	160	3,3	55	16
M200110PEWI	110/1.0	90	200	5,74	120	16

### ACCESSORIES



Pipe	Dust caps	EPDM end caps	Fitting MJ341		
	Part Number	Part Number	Part Number	Ø male thread	Ø external Pipe mm
M9032PEWI	MS7532	MG751832	MJ3414432/29	1"	32/2.9
M9040PEWI	MS9040	MG901840	MJ3415440/37	1.1/4"	40/3.7
M12550PEWI	MS12550	MG1254063	MJ3416450/46	1.1/2"	50/4.6
M12563PEWI	MS12563	MG1254063	MJ341263/58	2"	63/5.8
M16075PEWI	MS16075	MG1606390	MJ34121275/68	2.1/2"	75/6.8
M16090PEWI	MS16090	MG1606390	MJ341390/82	3"	90/8.2
M200110PEWI	MS200110	MG20075125	MJ3414110/10	4"	110/1.0

(\*) Alternatively Shrink caps Serie MH

**FITTINGS FOR 6 BAR HEATING AND AIR CONDITIONING PIPES AND 16 BAR COOL PIPES**

**MJ341**

DZR threaded end fitting for Microflex PN6 pipes and Microflex COOL PN 16 pipes.

Part Number	Ø Pipe / thickness mm	Ø male thread
MJ3413425/23	25/2.3	3/4"
MJ3414432/29	32/2.9	1"
MJ3415440/37	40/3.7	1.1/4"
MJ3416450/46	50/4.6	1.1/2"
MJ341263/58	63/5.8	2"
MJ34121275/68	75/6.8	2.1/2"
MJ341390/82	90/8.2	3"
MJ3414110/10	110/10	4"
MJ3414125/114	125/11.4	4"



**MJ270**

Straight fitting for PEX-a x PEX-a pipes in DZR brass for Microflex PN6 pipes and Microflex COOL PN 16 pipes.

Part Number	Ø Pipe/thickness mm
MJ27025/23	25/2.3
MJ27032/29	32/2.9
MJ27040/37	40/3.7
MJ27050/46	50/4.6
MJ27063/58	63/5.7
MJ27075/68	75/6.9
MJ27090/82	90/8.2
MJ270110/10	110/10
MJ270125/114	125/11.4



**MJ90**

Elbow fitting for PEX-a x PEX-a pipes in DZR brass for Microflex PN6 pipes and Microflex COOL PN 16 pipes.

Part Number	Ø Pipe/thickness mm
MJ9025/23	25/2.3
MJ9032/29	32/2.9
MJ9040/37	40/3.7
MJ9050/46	50/4.6
MJ9063/58	63/5.8
MJ9075/68	75/6.8
MJ9090/82	90/8.2
MJ90110/10	110/10
MJ90125/114	125/11.4



Product composed of parts to be assembled



**MJ130**

T-fitting for PEX-a x PEX-a x PEX-a pipes in DZR brass for Microflex PN6 pipes and Microflex COOL PN 16 pipes.

Part Number	Ø pipe	Ø Pipe/thickness mm
MJ13025/23	25-25-25	25/2,3
MJ13032/29	32-32-32	32/2,9
MJ1304032/37	40-32-40	40/3,7+32/2,9
MJ13040/37	40-40-40	40/3,7
MJ1305040/46	50-40-50	50/4,6+40/3,7
MJ13050/46	50-50-50	50/4,6
MJ1306350/58	63-50-63	63/5,8+50/4,6
MJ13063/58	63-63-63	63/5,8
MJ13075/68	75-75-75	75/6,8
MJ13090/82	90-90-90	90/8,2
MJ130110/110	110-110-110	110/10
MJ130125/114	125-125-125	125/11.4

Product composed of parts to be assembled

**3****SANITARY PIPE FITTINGS - 10 BAR****MJ341**

DZR brass threaded end fitting for Microflex PN10 pipes.

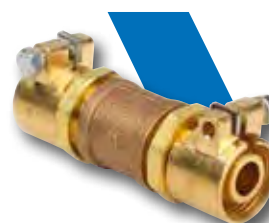
Part Number	Ø Pipe/thickness mm	Ø male thread
MJ3413420/28	20/2.8	3/4"
MJ3413425/35	25/3.5	2/4"
MJ3414432/44	32/4.4	1"
MJ3415440/55	40/5.5	1.1/4"
MJ3416450/69	50/6.9	1.1/2"
MJ341263/87	63/8.7	2.1/2"

**MJ270**

Straight fitting for PEX-a x PEX-a pipes in DZR brass for Microflex PN10 pipes.

Part Number	Ø Pipe/thickness mm
MJ27025/35	25/3.5
MJ27032/44	32/4.4
MJ27040/55	40/5.5
MJ27050/69	50/6.9
MJ27063/87	63/8.7

Product composed of parts to be assembled

**MJ90**

Elbow fitting for PEX-a x PEX-a pipes in DZR brass for Microflex PN10 pipes.

Part Number	Ø Pipe/thickness mm
MJ9025/35	25/3.5
MJ9032/44	32/4.4
MJ9040/55	40/5.5
MJ9050/69	50/6.9
MJ9063/87	63/8.7

Product composed of parts to be assembled



**MJ130**

T-fitting for PEX-a x PEX-a pipes in DZR brass for Microflex PN10 pipes.

Part Number	Ø pipe	Ø Pipe/thickness mm
MJ13025/35	25-25-25	25/3,5
MJ13032/44	32-32-32	32/4,4
MJ1304032/55	40-32-40	40/5,5+32/3,5
MJ13040/55	40-40-40	40/5,5
MJ13050/69	50-50-50	50/6,9
MJ1306350/87	63-50-63	63/8,7+50/6,9
MJ13063/87	63-63-63	63/8,7

Product composed of parts to be assembled

**ACCESSORIES**

**8065**

Copper-based anti-seize lubricant for all MJ series fittings.

Part Number	Operating temperature	Stick g
LOCTITE8065	-30÷980°C	20



**MFP**

Bronze threaded fitting for creating a fixed point for absorbing expansion forces on Microflex PN 6/10/16 pipes.

Part Number	DN
MFP34	3/4"
MFP44	1"
MFP54	1.1/4"
MFP64	1.1/2"
MFP2	2"
MFP212	2.1/2"
MFP3	3"
MFP4	4"



**VW270**

Bronze F-F threaded sleeve - PN 6/10/16.

Part Number	DN
VW27034	3/4"
VW27044	1"
VW27054	1.1/4"
VW27064	1.1/2"
VW2702	2"
VW270212	2.1/2"
VW2703	3"
VW2704	4"



**VW90**

Bronze F-F threaded elbow - PN 6/10/16.

Part Number	DN
VW9034	3/4"
VW9044	1"
VW9054	1.1/4"
VW9064	1.1/2"
VW902	2"
VW90212	2.1/2"
VW903	3"
VW904	4"



**3**

**VW130**

Bronze F-F threaded T-fitting - PN 6/10/16.

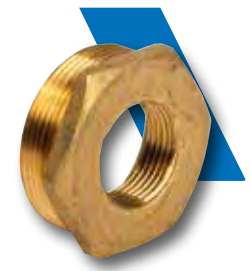
Part Number	DN
VW13034	3/4"
VW13044	1"
VW13054	1.1/4"
VW13064	1.1/2"
VW1302	2"
VW130212	2.1/2"
VW1303	3"
VW1304	4"



**VW241**

DZR brass M-F threaded reduction - PN 6/10/16.

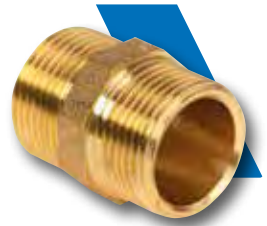
Part Number	Thread M	Thread F
VW2414434	1"	3/4"
VW2415434	1.1/4"	3/4"
VW2415444	1.1/4"	1"
VW2416434	1.1/2"	3/4"
VW2416444	1.1/2"	1"
VW2416454	1.1/2"	1.1/4"
VW241234	2"	3/4"
VW241244	2"	1"
VW241254	2"	1.1/4"
VW241264	2"	1.1/2"
VW24121254	2.1/2"	1.1/4"
VW24121264	2.1/2"	1.1/2"
VW2412122	2.1/2"	2"
VW241344	3"	1"
VW241354	3"	1.1/4"
VW241364	3"	1.1/2"
VW24132	3"	2"
VW2413212	3"	2.1/2"
VW24142	4"	2"
VW2414212	4"	2.1/2"
VW24143	4"	3"



**VW280**

DZR brass M-M threaded nipple - PN 6/10/16.

Part Number	DN
VW28034	3/4"
VW28044	1"
VW28054	1.1/4"
VW28064	1.1/2"
VW2802	2"
VW280212	2.1/2"
VW2803	3"
VW2804	4"



**VW290**

DZR brass M-M threaded stop - PN 6/10/16.

Part Number	DN
VW29034	3/4"
VW29044	1"
VW29054	1.1/4"
VW29064	1.1/2"
VW2902	2"
VW290212	2.1/2"
VW2903	3"
VW2904	4"



**MDF**

Galvanised steel threaded flange - PN 6/10.

Part Number	DN
MDF34	3/4"
MDF44	1"
MDF54	1.1/4"
MDF64	1.1/2"
MDF2	2"
MDF212	2.1/2"
MDF3	3"
MDF4	4"

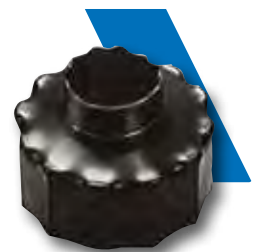


**WATERPROOFING ACCESSORIES**

**MK - UNO**

Shrink caps to prevent water from entering pipes  
Microflex UNO.

Part Number	Ø outside casing mm	Ø Pipe mm
MK2000	75	25
MK2100	75 / 90	32 o 40
MK2200	125	40 o 50
MK2400	125	63
MK2340	160	40 o 50
MK2500	160	da 63 a 90
MK2600	200	da 75 a 125



**MK - DUO**

Shrink caps to prevent water from entering pipes.  
Microflex DUO.



Part Number	Ø outside casing mm	Ø Pipe mm
MK3280	125	2 x 32
MK3350-01	160	2 x 25 o 2 x 32
MK3350-02	160	2 x 40
MK3350-01	160	1 x 32 / 1 x 25
MK3350-02	160	1 x 40 / 1 x 25
MK3360-01	160	1 x 50 / 1 x 25
MK3350-03	160	2 x 50
MK3350-03	200	2 x 50
MK3350-05	200	2 x 63

**LS**

MICRO SEAL wall feed-through sealing sleeves.

Part Number	Ø outside casing mm	length bolts included	Ø wall opening mm	Torque Nm
9LS200	75	75	100 - 102	min. 3,0 - max.3,5
7LS300	75	100	110 - 115	min. 9,0 - max.11,0
8LS300	90	100	128 - 132	min. 9,0 - max.11,0
9LS315	90	100	134 - 136	min. 10,0 - max.12,0
7LS475	125	135	194 - 210	min. 26,0 - max.32,5
6LS325	125	125	175 - 180	min. 11,8 - max.14,5
7LS325	160	125	209 - 212	min. 11,8 - max.14,5
7LS400	160	135	240 - 245	min. 30,0 - max.37,0
13LS300	160	100	200 - 202	min. 9,0 - max.11,0
9LS325	200	125	250 - 255	min. 11,8 - max.14,5
8LS400	200	135	275 - 282	min. 30,0 - max.37,0
10LS575	200	145	301 - 320	min. 47,0 - max.61,0



**TECHNICAL NOTE**



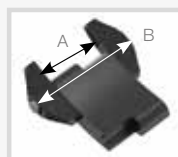
1. Drill a hole according to minimum and maximum dimensions.



2. Fit the LS sleeve around the outer casing. Make sure that there is a straight line of at least 60 cm before and after the sleeve. Bends are not allowed.



3. Slide the pipe complete with sleeve into the through-hole in the wall.

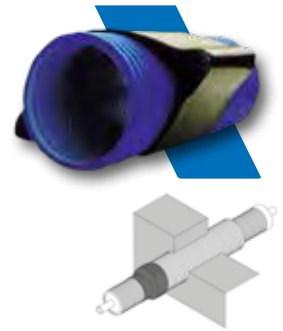


4. Tightening the bolts of the evenly spaced links uniformly compresses the pressure plates, thus filling the annular space between the pipe and the through-hole in the wall.

**MMDV**

MMDV wall feed-through sleeves.

Part Number	Ø outside casing mm	external Ø wall feed-trough pipe	ø wall opening mm
MMDV75	75	110	210
MMDV90	90	110	210
MMDV125	125	160	260
MMDV160	160	200	300
MMDV200	200	235	350



**MHM**

MHM shrink sleeve for repairing the outer casing of Microflex pipes.

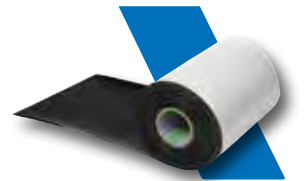
Part Number	Ø outside casing mm	ø wall opening mm
MHM75/90	75-90	220 mm
MHM125	125	220 mm
MHM160	160	220 mm
MHM200	200	220 mm
MHM235	200	220 mm



**MH**

Tape for repairing the outer casing of Microflex pipes.

Part Number	Description	Lenght m	Band width mm
MHB200	Shrink sleeve tape	10	200
MHK150	Coating tape applicable to cold	10	150



**MTR**

Warning tape to indicate the location of underground Microflex pipes during excavation work.

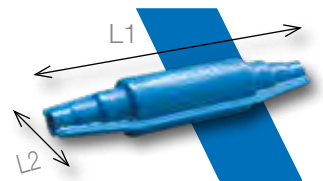
Part Number	Description	Size
MTRW	Pipe for water (red)	250 x 0,08
MTRB	Pipe for heating cable for water acqua (blue)	250 x 0,08



**MM**

Insulated I-piece kit for straight, underground joints, complete with insulation material, sealant and stainless steel fasteners.

Part Number	Ø outside casing mm	L1 mm	L2 mm
MM129075	125/90/75	960	290
MM201612	200/160/125	1170	345



**MM**

Insulation kit I-variant for straight, underground joints, complete with insulation material and shrink sleeves.

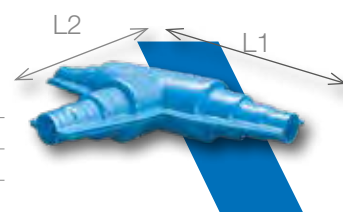
Part Number	Ø outside casing mm	Lenght mn
MM75/90	75/90	700
MM125	125	850
MM160	160	1000
MM200	200	1000



**MT**

Insulated T-piece kit for underground T-joints, complete with insulation material, sealant and stainless steel fasteners.

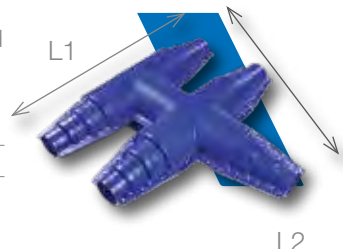
Part Number	Ø outside casing mm	L1 mm	L2 mm
MT129075	125/90/75	960	590
MT201612	200/160/125	1170	750



**MDT**

Insulated T-piece kit for underground double T-joints, complete with insulation material, sealant and stainless steel fasteners.

Part Number	Ø outside casing mm	L1 mm	L2 mm
MDT201612	200/160/125	1200	1200



**MH**

Insulated elbow kit for underground elbow-joints, complete with insulation material, sealant and stainless steel fasteners.

Part Number	Ø outside casing mm	LxWXH (mm)
MH201612	200/160/125	740x740x270



**MBR**

Insulated trouser piece kit for joining two single pipes to one double pipe, complete with insulation material, sealant and stainless steel fasteners.

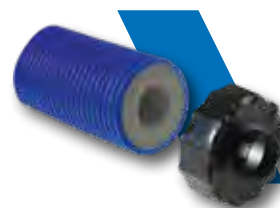
Part Number	Ø outside casing mm	LxWXH (mm)	Note
MBR201612	200/160/125	1170X460X230	IN: 200/160/125 OUT: 160/125



**MR**

Reduction for using pipes with outer casing diameter of less than 160 mm with insulated-piece kit MM201612 and insulated T-piece kit MT201612. Length 1m.

Part Number	Ø outside casing mm
MR24116075	Riduce da 160 a 75 mm



**MIS**

Inspection chamber with six connection points for creating inspectable underground branches. Complete with sealant and stainless steel fasteners.

Part Number	Ø outside casing mm	Ø Inspector chamber mm	Height mm
MIS	200/160/125	810	770



**MHM**

Shrink sleeves for inspection chambers.

Part Number	Ø outside casing mm	Length mm
MHM125	125	220
MHM160	160	220
MHM235	200	220



# Chapter 4

Balancing devices  
for water distribution  
systems



## iDROSET Series CF Innovative static balancing valve



Easy to read and adjust  
Precision calibration using patented technology  
No external devices needed  
Real-time results

**WATTS**<sup>®</sup>

## Chapter 4

# Balancing devices for water distribution systems

### AUTOMATIC BALANCING VALVES

#### MH

The MH Series patented valve is designed for dynamic balancing and flow control in underfloor heating systems. The possibility of regulating the pressure drop makes it suitable for various systems and various flow rates. The MH series valve eliminates flow and temperature fluctuations in the underfloor branches of the system, thus enhancing comfort. G1" nut inlet connection, G1" threaded outlet connection. Max. flow rate: 2500l/h. Kvs: 5.6. Capillary supplied



Part Number	Connection	Stetting range	PN	Working Temp.	Qty/Box	Box/Carton
MH001WB	inlet nut G1", outlet M G1"	15-50KPa	10 bar	5÷80°C	1	1
MH100WB	inlet M G1", outlet nut G1"	15-50KPa	10 bar	5÷80°C	1	1

Note: installation of the MH series valve requires the use of an AS fitting and respective ball-valves, according to the manifold in question.

#### MH-ACCESSORIES

- Shutoff ball valves with test point for connecting the capillary (KH-MH001034, KH-MH001100).
- 1" Fitting with test point for connecting the capillary (AS-MH00118).

Part Number	Description	Connection	Qty/Box	Box/Carton
KH-MH001100	Ball valve	1"F x 1" F rotary nut	1	1

Dimensions at the end of the section.

#### TECHNICAL NOTE - the advantages offered by the differential pressure regulation.

In systems with manifold distribution, the flow rate of the hydronic loops can change on the base of the achievement of the set temperature and the opening / closing of the branch of the circuit due to the electrothermal actuator.

However, the good performance of the variable flow system have some issues due to the dynamic adjustments of the differential pressures.

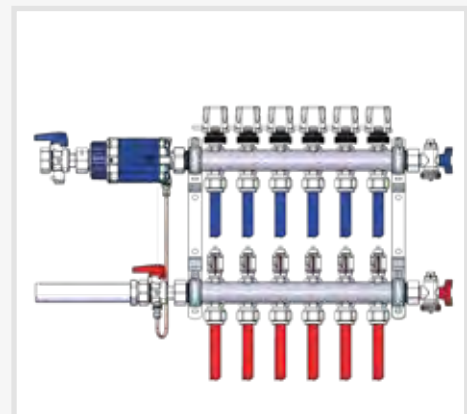
The MH valve eliminates these upstream adjustments of the distribution manifold.

Thanks to the easy installation and adjustment, acting on the adjustment knob and checking the flow level on the level indicators (flow meters) in each loop, the automatic balancing valve MH allows:

- to facilitate hydraulic balancing;
- eliminate pressure peaks by stabilizing the network;
- avoid the risks of noise due to the high speed of the fluid.

By using this valve, when a loop closes, the flow rate on the other loops remains constant.

The valve MH compensates any upstream hydraulic variations (e.g. changes in other collectors) keeping the outlet pressure constant (downstream) too.



**WATTFLOW BP**

Inclined-seat balancing valve with threaded connections for heating and cooling systems, complete with built-in flow meter for direct flow rate reading and mechanical memory of setting position. PN 10. Operating temperature range: -20÷100°C. Measuring accuracy  $\pm 10\%$  of flow rate read. Brass body, EPDM seals, impact-resistant and temperature-resistant plastic flow meter. Can be installed in any position and suitable for water with glycol. Adjust with hex wrench.



Part Number	DN	Flow	Kvs	Qty/Box	Box/Carton
10010156	1"	5-50 l/min	5,5	1	1
10049587	1.1/4"	10-80 l/min	9,0	1	1
10049588	1.1/2"	15-120 l/min	13,0	1	1
10010162	2"	20-200 l/min	18,0	1	1

Dimensions at the end of the section.

**4****STATIC BALANCING VALVES****iDROSET Series CF**

iDROSET Series CF is our brand-new static balancing and control valve with free nut connection from DN15 to DN50 for heating, cooling and domestic water distribution systems. Featuring new patented technology that allows instant setting and reading of the flow rate without special tools. The valve body is manufactured from brass and composite with an ergonomic shape that allows the valve to be deployed in a range of ways. A multi-functional hand wheel sets the flow rate. It has a nominal pressure of 16 Bar. Operating temperature range from -10°C to 110°C. Balancing turn down ratio 25:1. Fluids: water with glycol up to 50%.

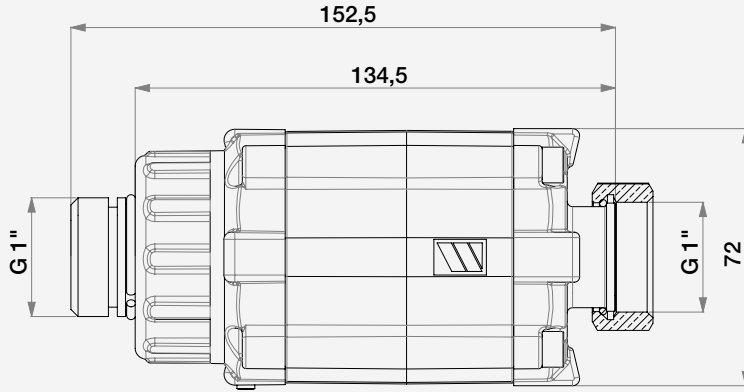


Part Number	DN	Flow	Kvs	Qty/Box	Box/Carton
PAP-S015	1/2"	35/700	1,7	1	1
PAP-S020	3/4"	35/700	1,7	1	1
PAP-M025	1"	50/1600	4,4	1	1
PAP-L032	1 1/4"	250/6000	14	1	1
PAP-L040	1 1/2"	250/6000	14	1	1
PAPXL050	2"	400/10000	25	1	1

Dimensions at the end of the section.

OVERALL DIMENSIONS

MH

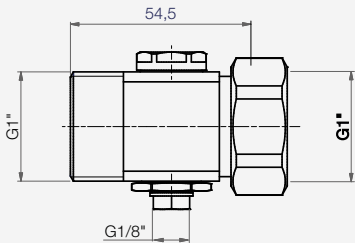


Accessories

AS-MH

Fitting

Part no. AS-MH00118

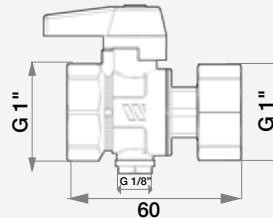


KH-MH

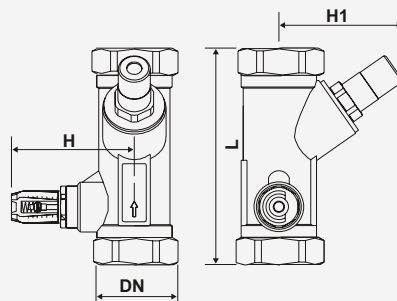
Shutoff ball valves

Part no. KH-MH001034 per 1"x3/4"

Part no. KH-MH001100 per 1"x1"



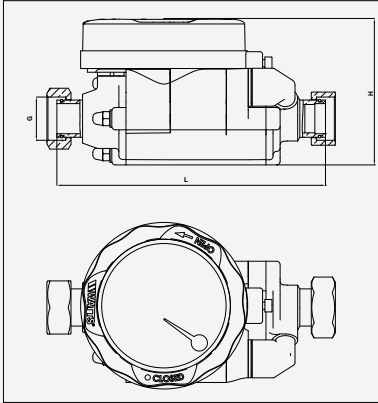
WATTFLOW BP



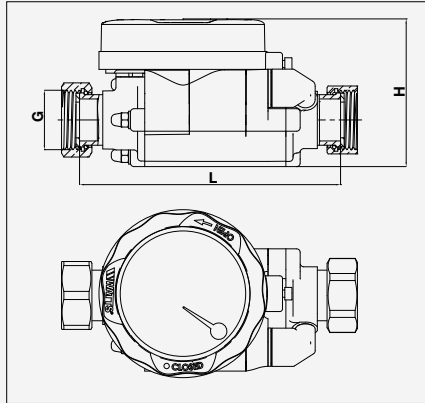
DN	L	H	H1
25	120	73	69
32	135	77	77
40	153	80	78
50	176	85	87

**OVERALL DIMENSIONS**

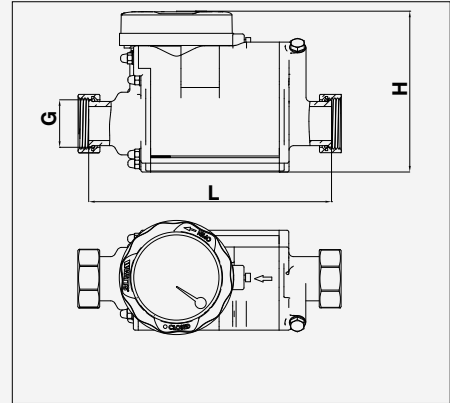
**iDROSET Series CF  
1/2, 3/4"**



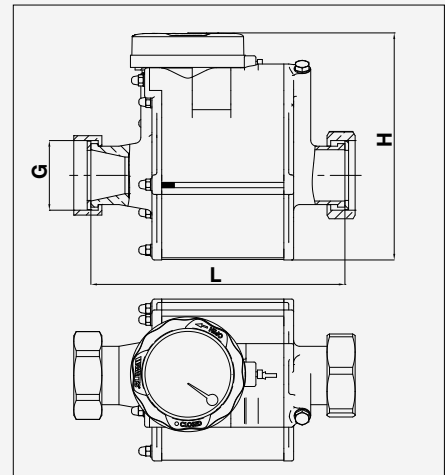
**iDROSET Series CF  
1"**



**iDROSET Series CF  
1 1/4, 1 1/2"**



**iDROSET Series CF  
2"**



<b>G</b>	<b>H</b>	<b>L</b>
1/2"	83	152
3/4"	83	145
1"	83	146
1 1/4"	132,5	200
1 1/2"	132,5	198
2"	186	208

# Chapter 5

## Distribution systems

## HKV - 2013A - VA Pre-assembled manifold



With micrometric control and flow meters  
Stainless steel: corrosion-resistant  
Easy to install: supplied pre-assembled

**WATTS®**

## Chapter 5.1

# Radiant panel systems

### PRE-ASSEMBLED MANIFOLDS

#### ISOTHERM

Mixing, pumping and fixed-point control unit for radiant panel systems. The unit is suitable for direct connection to HKV2013 series pre-assembled manifolds.

The system can be supplied at boiler temperature (70÷80°C) and have the outlets at controlled low temperature.

The unit consists of:

- 3-way thermostatic with setting range of 30÷42°C;
- Wilo Yonos para 15/6 electric circulation pump;
- adjustable safety thermostat for pump cut-out;
- panel flow precision thermometer;
- suitable for maximum power of approximately 10 kW.

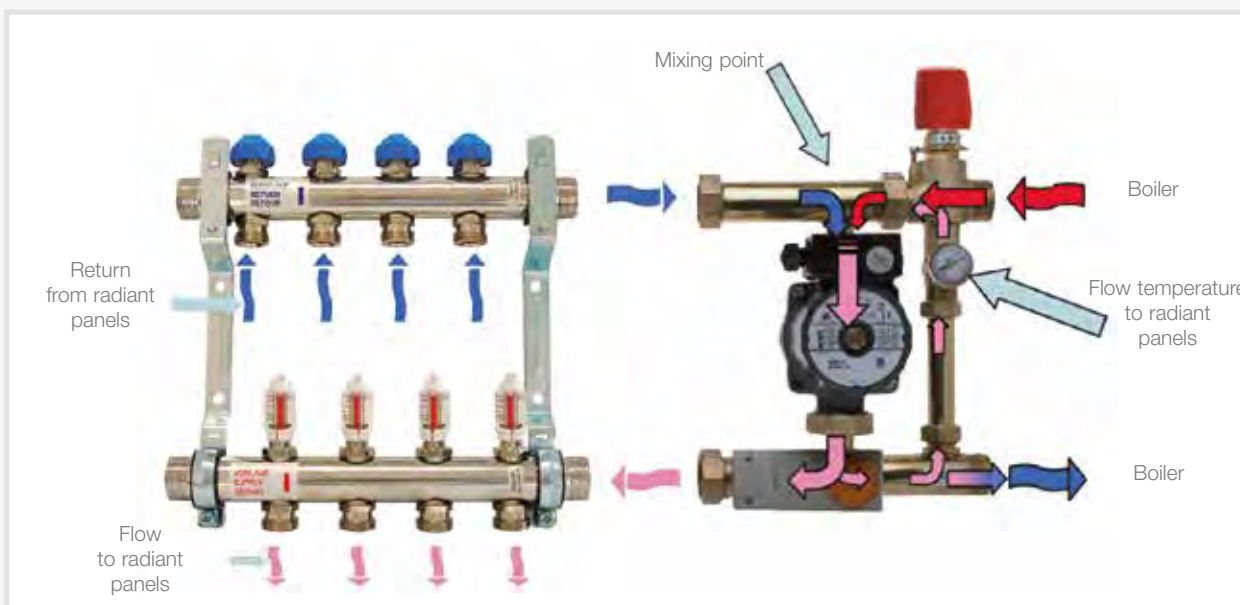
Maximum operating temperature: 90°C. PN 10.



Part Number	Operating max temp.	Qty/Box	Box/Carton
10026289	90°C	1	1

Dimensions at the end of the section.

#### TECHNICAL NOTE - ISOTHERM DIAGRAM





**MIXING VALVE AND PIPES FOR RADIANT SYSTEMS**

**63C - AQUAMIX**

Thermostatic mixing valve for radiant panel systems with 10 setting positions and fixed bypass against overtemperature. Setting range: 25÷50°C. Maximum differential pressure: 2 bar.

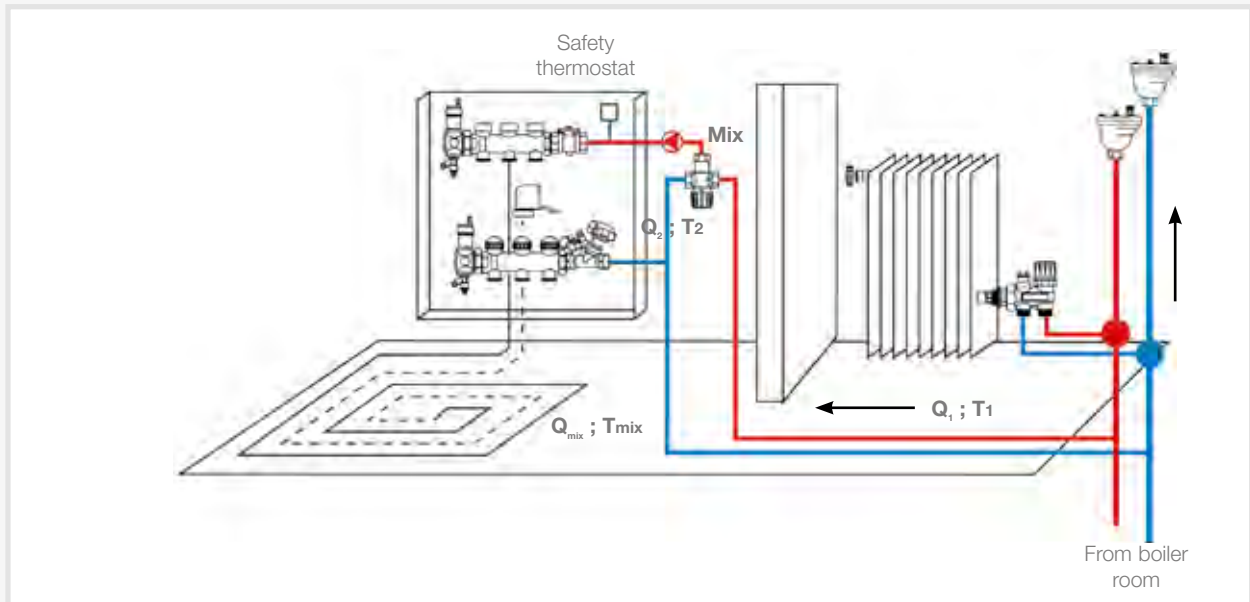


Part Number	DN	Qty/Box	Box/Carton
6310C34	3/4" FF	1	36
6311C1	1" FF	1	36

Dimensions at the end of the section.

**TECHNICAL NOTE - AQUAMIX DIAGRAM**

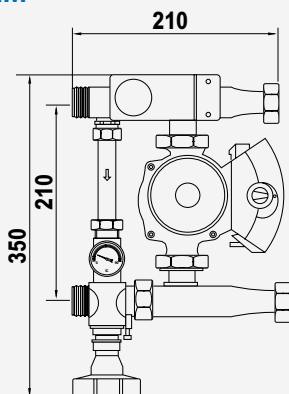
Example configuration of AQUAMIX valve for radiant panel system with distribution manifold unit (Serie 822MM-822MR) complete with balancing valve (Serie FO-BV) in housing.



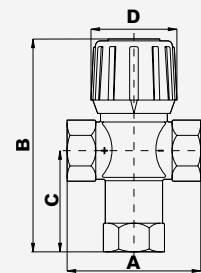
**5**

**OVERALL DIMENSIONS**

**ISOTHERM**



**63C**



DN	A	B	C	D
3/4"	70	107	52	45
1.	80	110	55	45

## Chapter 5.2

# Modul systems

### ZONE VALVES

#### 571T

Two-way bronze zone valve, normally closed (NC). ON/OFF operation with an electrothermal actuator (580T Series) with bayonet fitting for connection to body. PN 10. Maximum differential pressure (Series 580T): 1.5 bar. Operating temperature range: 4÷100°C. Disc stroke: 4mm.



Part Number	DN	Kvs	Stroke	Qty/Box	Box/Carton
571T34	3/4" FF	5,5	4mm	1	30

Dimensions at the end of the section.

#### 560T

Three-way bronze zone valve, normally closed (NC). ON/OFF operation with an electrothermal actuator (580T Series) with bayonet fitting for connection to body. PN 10. Max. differential pressure (580T Series): 1.5 bar. Operating temperature range: 4÷100°C. Disc stroke: 4mm. Predisposed for fitting a 566T series bypass setting valve. To connect the zone valve and the setting valve to the Modul coplanar manifolds, use 565T Series eccentric unions.



Part Number	DN	Kvs	Kvs By-pass	Qty/Box	Box/Carton
560T1	1" FF	6,8	3,6	1	30

Dimensions at the end of the section.

#### 561T

4-way normally closed (NC) zone valve with bronze connections and built-in bypass setting system. ON/OFF operation with an electrothermal actuator (580T Series) with bayonet fitting for connection to body. PN 10. Max. differential pressure (580T Series): 1.5 bar. Operating temperature range: 4÷100°C. Disc stroke: 4 mm. To connect the zone valve to the Modul coplanar manifolds, use 531C series eccentric unions.

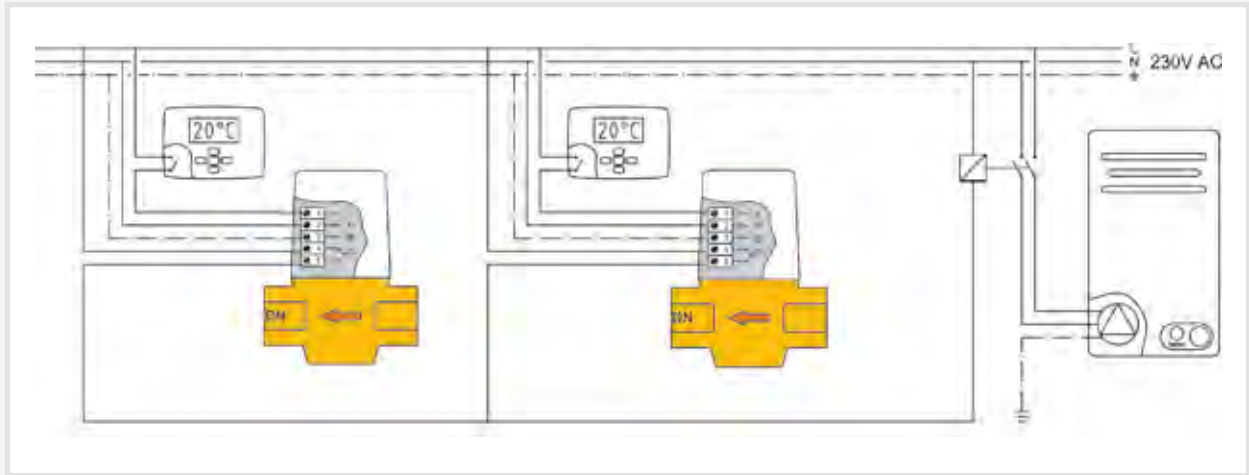


Part number	Dn	Kvs	Kvs By-pass	Qty/Box	Box/Carton
561T1	1" FF	6,8	3,6	1	16

Dimensions at the end of the section.

**TECHNICAL NOTE - Electrical connections for 571T, 560T and 561T Series zone valves for multi-zone installation**

When a heat generator supplies multiple heating zones, it is possible to use the auxiliary contacts of the 580T Series to reduce energy wastage caused by the unnecessary operation of pumps or generators. When the thermostats (and hence the heating zones) require heat, the zone valves open, and the auxiliary contacts close, thus switching the heat generator pump on. When heat is no longer required, the auxiliary contacts open and switch the pump off. The rating of the auxiliary contacts is limited, as shown in the diagram. You are advised to use an auxiliary relay to connect the pump.



**580T**

Two-position electrothermal actuator for 561T, 560T and 571T Series zone valves. Normally open (NO) auxiliary microswitch for supplementary controls (e.g. pump, metering). Anti-tamper device, can be lead-sealed.

Bayonet-fitting for connection to valve body. External manual opening control. Positioning time: 4-5 min. Power consumption: 20W (230V), 18W (24V).

**Compliant with Directives LVD 2014/35/EU and EMC 2014/30/EU.**



Part Number	Voltage	Protection	Positioning time	Qty/Box	Box/ Carton
580T220VX	230V	IP20	4-5min	1	10
580T24VX	24V	IP20	4-5min	1	10

Dimensions at the end of the section.

**VU02**

2-way brass zone valve, normally closed (NC). ON/OFF operation with ETE actuators. PN 16.

Maximum differential pressure: 1,5 bar.

Operating temperature: 4÷110°C. Disc stroke: 4mm.

Part Number	DN	Kvs	Qty/Box	Box/Carton
VU0220	3/4" FF	4,0	1	40
VU0225	1" FF	6,5	1	36



Dimensions at the end of the section.

**VU3**

3-way brass zone valve, normally closed (NC). ON/OFF operation with ETE actuators. PN 16.

Maximum differential pressure: 1,5 bar.

Operating temperature: 4÷110°C. Disc stroke: 4mm.

Part Number	DN	Kvs	Kvs By-pass	Qty/Box	Box/Carton
VU320	3/4" FF	4,0	2,8	1	40
VU325	1" FF	6,5	3,3	1	36



Dimensions at the end of the section.

**VU4**

T-fitting for creating a bypass in VU3 valves.

Part Number	DN	Qty/Box	Box/Carton
VU400	3/4" FF	1	30
VU401	1" FF	1	10



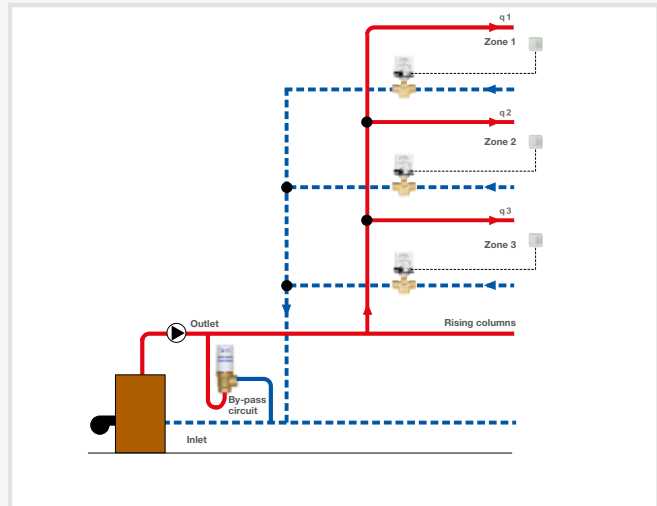
Dimensions at the end of the section.

**TECHNICAL NOTE - Brass zone valve for fan coils**

The VU zone control valves are automatic (NC) devices generally used for controlling flows of hot and cold water to heating and/or air conditioning systems in response to an ON/OFF control (also predisposed for ETM modulating actuators).

The electric actuator of the ETE thermal expansion servo-control with automatic limit switch is totally silent and reliable; simple bayonet fitting for connection to the valve body. A special device allows direct manual operation of the VU valve.

Avoid installing the valve with the servo-motor facing down (infiltration, condensation).



**FAN COIL VALVES**

**2131**

2-way brass valve for fan coils. ON/OFF operation with 22C, 22CX, 22CX5 and 26LC Series actuators. Maximum operating temperature. 110°C. Disc stroke: 2,5mm. PN 16. Fittings Series 840.

Part Number	DN	Kvs	Qty/Box	Box/Carton
213112	1/2" MM	1,7	1	100
213134	3/4" MM	2,8	1	100
21311	1" MM	4,5	1	36



Dimensions at the end of the section.

**3131**

3-way brass valve for fan coils. ON/OFF operation with 22C, 22CX, 22CX5 and 26LC Series actuators. Max. operating temperature: 110°C. Disc stroke: 2,5 mm. Can be used both as a mixing valve and diverter valve. PN 16. The Kvs and Kvs bypass values apply to use of the valve as a diverter. 840 Series fittings.

Part Number	DN	Kvs	Kvs By-pass	Qty/Box	Box/Carton
313112	1/2" MM	1,7	1,3	1	100
313134	3/4" MM	2,8	1,8	1	100
31311	1" MM	4,5	3,1	1	36



Dimensions at the end of the section.

**4131**

3-way 4-connection brass valve for fan coils. ON/OFF operation with 22C, 22CX, 22CX5 and 26LC Series actuators. Max. operating temperature: 110°C. Disc stroke: 2,5 mm. Can be used both as a mixing valve and diverter valve. PN 16.

Part Number	DN	Kvs	Kvs By-bass	Qty/Box	Box/Carton
413112	1/2" MM	1,7	1,3	1	100
413134	3/4" MM	2,8	1,8	1	36

Dimensions at the end of the section.

**840**

Soft seal connection unions with nut for 2131, 3131 and 4131 Series zone valves.

Part Number	DN	Qty/Box	Box/Carton
8401212GAS	1/2" X 1/2"	1	1

**ACTUATORS**

**148SD2**

Thermostatic actuator with remote immersion probe for flow control based on the temperature of the radiant panels or tanks or water-air heat exchangers.

Part Number	Bulb thickness	Bulb	Calibration	Qty/Box	Box/ Carton
148SD2070	12mm	66 mm	20-70 °C	1	100

Dimensions at the end of the section.

**148SD12**

Sheath for 148SD2 Series actuator sensor. With O-Ring.

Part Number	Connection	Qty/Box	Box/ Carton
148SD122050	1/2"M	1	100
148SD122070	1/2"M	1	100



**22C**

Compact electrothermal actuator with ON/OFF operation compatible with thermostat-adaptable radiator valves, valves for fan coils and manifolds. Self-extinguishing polymer cap. M30x1,5 nickel-plated threaded brass ring-nut. Normally closed (NC). Normally open (NA). Stroke: 3.5mm. Disc thrust: 100N (NC version) - 80N (NO version). Room temperature: 0÷50°C. 4-wire version (NA4 – NC4) complete with auxiliary microswitch. Auxiliary contact rating: 700mA.

**Compliant with: LVD 2014/35/EU, EMC 2014/30/EU. TÜV approved.**

With  $\varnothing = 7.2\text{mm}$  cable

Part Number	Voltage	Protection	Qty/Box	Box/Carton
22C24NC2	24V	IP44	1	10
22C230NA2	230V	IP44	1	10
22C24NA2	24V	IP44	1	10
22C230NA4	230V	IP44	1	10
22C24NA4	24V	IP44	1	10

With  $\varnothing = 5.5\text{mm}$  cable

Part Number	Voltage	Protection	Qty/Box	Box/Carton
22C230NA2-5	230V	IP44	1	10

Dimensions at the end of the section.

**22CX**

Compact electrothermal actuator with ON/OFF operation compatible with thermostat-adaptable radiator valves, valves for fan coils and manifolds. Self-extinguishing polymer cap. M30x1.5 nickel-plated threaded brass ring-nut. Normally closed (NC). Normally open (NA). Stroke: 3,5 mm. Disc thrust: 100N (NC version) - 80N (NA version). Room temperature: 0÷50°C. 4-wire version (NA4 – NC4) complete with auxiliary microswitch. Auxiliary contact rating: 700mA.

**Compliant with: LVD 2014/35/EU, EMC 2014/30/EU. TÜV approved.**

Part Number	Voltage	Protection	Qty/Box	Box/Carton
22CX230NC2	230V	IP54	1	50
22CX24NC2	24V	IP54	1	50
22CX230NC4	230V	IP54	1	50
22CX24NC4	24V	IP54	1	50
22CX230NA2	230V	IP54	1	50

Dimensions at the end of the section.



### 26LC

Compact electrothermal actuator with ON/OFF operation compatible with thermostat-adaptable radiator valves, valves for fan coils and manifolds. Self-extinguishing plastic cap. M30x1.5 nickel-plated threaded brass ring-nut. Normally closed (NC) 24VAC and 230VAC low energy consumption. Stroke: 3.5mm. Cable is easy to remove thanks to safety-latch connector.

LED operating status indicator (ON/OFF). Version with 4-pole cable (NC4) complete with auxiliary microswitch (NA contact).

**Compliant with: LVD 2014/35/EU, EMC 2014/30/EU. TÜV approved.**

Part Number	Voltage	Microswitch	Qty/Box	Box/Carton
26LC230NC2	230V a.c.	no	1	50
26LC24NC2	24V a.c.	no	1	50
26LC230NC4	230V a.c.	sì	1	50
26LC24NC4	24V a.c.	sì	1	50

Dimensions at the end of the section.



### EMUJC

Compact electronic actuator for terminal units. Three-point or proportional control signal. Connection to 2131, 3131 and 4131 Series valves by means of M30x1.5 threaded brass ring-nut. LED actuator operating status indicator: ON/OFF, travel limit reached, positioning in progress. Power cable length: 2m. Nominal thrust: 120N. Protection rating IP43. Room temperature: 0÷50°C.

Part Number	Command signal	Voltage	Power	Qty/Box	Box/ Carton
EMUJC-24	three point	24V	2,5VA	1	1
EMUJC-010	Proportional 0-10V (2-10V)	24V	2,5VA	1	1

Dimensions at the end of the section.


**5**

### ETE

Electrothermal actuator with ON/OFF operation for VU zone valves. Normally open (NO) auxiliary microswitch for supplementary controls (e.g. pump, metering). Bayonet-fitting for connection to valve body. Manual control device. Consumption: 18W. Stroke: 4mm. Disc thrust: 250N. Positioning time: 4min.

**Compliant with EN60730-1:95, EN60730-2-8:95 and subsequent additions.**

**Compliant with EMC 2014/30/EU.**

Part Number	Voltage	Protection	Qty/Box	Box/Carton
ETE24BO	24V	IP20	1	30
ETE220BO	230V	IP20	1	30

Dimensions at the end of the section.



## MODUL SINGLE MANIFOLDS

### 805M

Single modular CW617N brass manifold with pre-assembled gasket and locking nut. Side outlets: 1/2"M-3/4"M. MF head connections: 3/4"-1"-1.1/4".

Part Number	DN	Outlets	Wheelbase	Qty/Box	Box/Carton
805M34TMN2	3/4"	2-1/2" M	35 mm	10	10
805M34TMN3	3/4"	3-1/2" M	35 mm	10	10
805M34TMN4	3/4"	4-1/2" M	35 mm	10	10
805M54TMN3	1.1/4"	3-1/2" M	50 mm	10	10
805M54TMN4	1.1/4"	4-1/2" M	50 mm	10	10
805M1TN2X	1"	2-1/2" M	50 mm	10	10
805M1TN3X	1"	3-1/2" M	50 mm	10	10

Dimensions at the end of the section.





**807M**

Single modular CW617N brass manifold.

Part Number	DN	Outlets	Wheelbase	Qty/Box	Box/ Carton
807MT234	3/4" FF	2-1/2" M	35 mm	10	10
807MT334	3/4" FF	3-1/2" M	35 mm	10	10
807MT434	3/4" FF	4-1/2" M	35 mm	10	10

Dimensions at the end of the section.



**822MM**

Single modular brass return manifold with pre-assembled gasket and locking nut. Built-in thermostat-adaptable control valves with 22C, 22CX, 22CX5 and 26LC Series electrothermal actuators. Side outlets: 1/2"M-3/4"M. MF head connections: 3/4"-1"-1.1/4". Differential pressure: 1.5 bar. Kvs outlets: 2.28. Centre distance 50mm.

Part Number	DN	Outlets	Qty/Box	Box/ Carton
822MM1TMN2	1" MF	2-1/2" M	5	5
822MM1TMN3	1" MF	3-1/2" M	5	5
822MM1TMN4	1" MF	4-1/2" M	5	5
822MM1TM2	1" MF	2-3/4" M	5	5
822MM1TM3	1" MF	3-3/4" M	5	5
822MM1TM4	1" MF	4-3/4" M	5	5
822MM54TMN3	1.1/4" MF	3-1/2" M	5	5
822MM54TMN4	1.1/4" MF	4-1/2" M	5	5
822MM54TM3	1.1/4" MF	3-3/4" M	5	5
822MM54TM4	1.1/4" MF	4-3/4" M	5	5

Dimensions at the end of the section.



**822MR**

Single modular brass flow manifold with pre-assembled gasket, locking nut and built-in shut-off lockshields. Side outlets: 1/2"M - 3/4"M. MF head connections: 3/4"-1"-1.1/4". Kvs outlets: 2.61. Centre distance 50mm.

Part Number	DN	Outlets	Qty/Box	Box/ Carton
822MR1TMN2	1" MF	2-1/2" M	5	5
822MR1TMN3	1" MF	3-1/2" M	5	5
822MR1TMN4	1" MF	4-1/2" M	5	5
822MR1TM2	1" MF	2-3/4" M	5	5
822MR1TM3	1" MF	3-3/4" M	5	5
822MR1TM4	1" MF	4-3/4" M	5	5
822MR54TMN3	1.1/4" MF	3-1/2" M	5	5
822MR54TMN4	1.1/4" MF	4-1/2" M	5	5
822MR54TM3	1.1/4" MF	3-3/4" M	5	5
822MR54TM4	1.1/4" MF	4-3/4" M	5	5

Dimensions at the end of the section.



**FLMR**

Single modular brass flow manifold complete with FL flow meter for controlling and measuring the flow rate in the circuits, with pre-assembled gasket and locking nut. Side outlets: 3/4"M. MF head connections: 1"-1.1/4". Measuring range: 0-6 l/min. Differential pressure: 1,0 bar. Kvs outlets: 1,8. Centre distance 50mm.

Part Number	DN	Outlets	Qty/Box	Box/ Carton
FLMR1TM2	1"	2-3/4"	1	24
FLMR1TM3	1"	3-3/4"	1	16
FLMR1TM4	1"	4-3/4"	1	12

Dimensions at the end of the section.





**FL**

Device for controlling and measuring the flow rate in the individual circuits in FLMR manifolds. Measuring range: 0-6 l/min.

Part Number	Description	Qty/Box	Box/Carton
FLMR	Flowmeter	24	24

Dimensions at the end of the section.

**MODUL COPLANAR MANIFOLDS**

**KHT-1**

Pair of shut-off ball valves with precision thermometer (scale 0÷60°C) for HKV2013 Series manifolds. 1" Fx1" F connections, flat sealing nut.

Part Number	Description	Qty/Box	Box/Carton
3114065	Brass	1	1
3114065N	Brass nickel plated	1	1

**ES-QS**

Pair of terminal valves for HKV2013 Series manifolds with manual air vent device and 3/4" system fill/drain cock complete with safety plug. 1" F connection, flat sealing nut.

Part Number	Description	Qty/Box	Box/Carton
3036115	Brass	1	1
3036120N	Brass nickel plated	1	1

**DFM38-A**

Device for controlling and measuring the flow rate in the individual circuits in HKV2013 Series manifolds. Measuring range: 0-6 l/min. 3/8" connection.

Part Number	Description	Qty/Box	Box/Carton
10010893	Flowmeter	1	24

**ACCESSORIES**

**823MP**

Terminal fitting with pre-assembled gasket and locking nut. Equipped with: 2 x 1/2" connections for fitting the immersion thermometer.

Part Number	DN	Outlets	Connection	Qty/Box	Box/Carton
823MP13812	1"	1/2" e 3/8"	2+2	10	10

Dimensions at the end of the section.

**210**

Shut-off ball valve with three-piece union for manifold head connections. Maximum operating pressure: 25 bar up to 95°C; 16 bar up to 120°C.

Part Number	DN	Qty/Box	Box/Carton
2101212	1/2" MF	5	5
2103434	3/4" MF	5	5
21011	1" MF	5	5
210114114	1.1/4" MF	5	5

Dimensions at the end of the section.



**823MT**

Terminal for brass manifolds. Connections for air vent valve and for 3/8”F drain cock. Connection for additional outlet: 1/2”F.

Part Number	DN	Qty/Box	Box/Carton
823MT1	1” M	10	10
823MT114	1.1/4” M	10	10

Dimensions at the end of the section.



**238**

Drain cock with packing gland and hose fitting.

Part Number	DN	Qty/Box	Box/Carton
23814	1/4”	25	100
23838	3/8”	25	100

Dimensions at the end of the section.



**290**

Drain cock for boilers with hose fitting, plug and chain.

Part Number	DN connection	DN stopper	Qty/Box	Box/Carton
29038	3/8”	1/2”	10	200
29012	1/2”	3/4”	10	150
29034	3/4”	1”	10	100

Dimensions at the end of the section.



**840MR**

Universal telescopic brackets for assembling distribution units made up of 805M, 806M, 807M, E807M, 822MM, 822MR and FLMR Series modular manifolds with DN 3/4” to 1.1/4” and accessories. The brackets are equipped with plastic spacers in different sizes and colours for assembly to the U-mountings to adapt any type of manifold with height from min. 23 to max. 45.

The construction solution:

- makes it possible to have different centre distances between the flow and return manifolds according to system requirements: Min. 170 - Max. 270;
- makes the distribution unit quick and easy to install in the inspection box;
- facilitates the connection of copper, pex and multi-layer pipes to the side outlets, thanks to the inclination of the bottom bracket to be fixed to the inspection box;
- enables the distribution unit to be installed in the inspection box without rails, or to be wall-mounted, using 4 spacer feet at the ends of the brackets supplied.

These spacer feet must not be used with inspection boxes with rails.

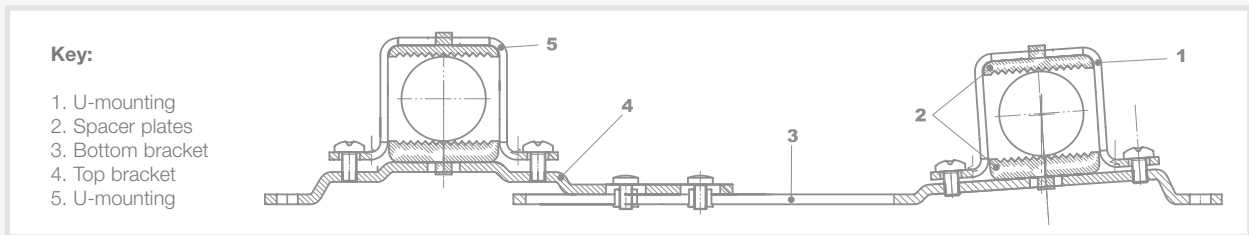
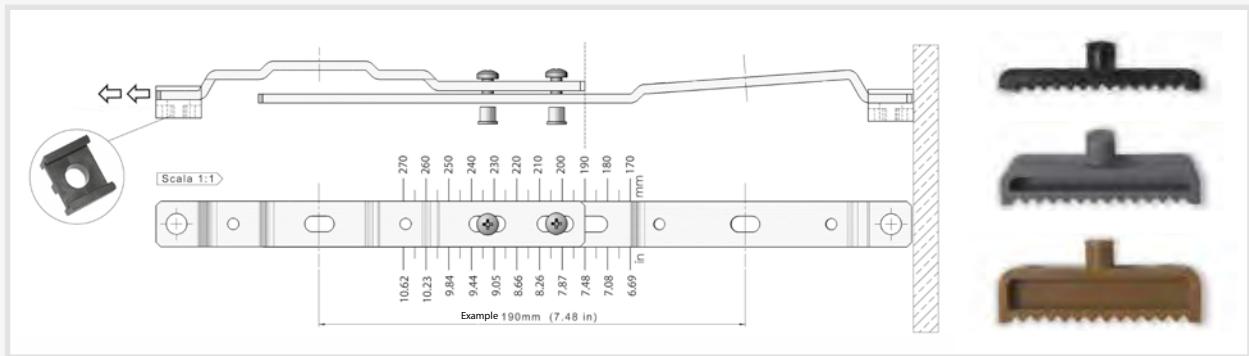
The package includes fixing screws:

- Qty. 4 M6x14
- Qty. 4 M6x164 M6x20

Part Number	Qty/Box	Box/Carton
840MR80	1	10

Dimensions at the end of the section.





**Use of spacer plates:**

Black, Grey, Beige.

Spacer plate selection table with dimensions of Watts manifold

Model	DN	Centre distance	Dimensions	Plates
805M	3/4"	35	24	BEIGE/BEIGE
805M	1.	35	30	BEIGE/BEIGE
805M	1.	50	31	BLACK/BEIGE
805M	1.1/4"	50	41	BLACK/GREY
807M	3/4"	35	30	BEIGE/BEIGE
822MM	1.	50	39	BLACK/GREY
822MR	1.	50	39	BLACK/GREY
FLMR	1.	50	39	BLACK/GREY
822MM	1.1/4"	50	45	BLACK/GREY
822MR	1.1/4"	50	45	BLACK/GREY
FLMR	1.1/4"	50	45	BLACK/GREY

**FLOAT-TYPE AIR VENT VALVES**

**MKV - MICROVENT**

Vertical automatic air vent valve. CW617N brass body and cover, with O-Ring. Maximum operating pressure: 10 bar. Maximum operating temperature: 110°C. Also suitable for water with additive (glycol up to 30%).

Model 0251310 is complete with RIA automatic shut-off valve.

Part Number	DN	Qty/Box	Box/Carton
0251210	3/8"	10	120

Dimensions at the end of the section.



**RIA**

Automatic shut-off valve for MVD, MV, MKV and MKL Series air vent valves. Complete with device for total, rapid drainage of water from the valve.

Part Number	DN	Qty/Box	Box/Carton
0259010	3/8"x3/8"	10	400
0259016	3/8"x1/2"	10	400

Dimensions at the end of the section.



**2161C - FLOATVENT**

Vertical automatic air vent valve, with O-Ring. Suitable for installation on the head connections of coplanar manifolds. CW617N brass body. Maximum pressure: 10 bar. Maximum temperature: 110°C. Suitable for water with additive (glycol up to 50%).

Part Number	DN	Qty/Box	Box/Carton
2161C38	3/8"	1	60
2161C12	1/2"	1	60
2161C34	3/4"	1	60
2161C1	1"	1	60

Dimensions at the end of the section.



**2311C - CHECKVENT**

Pre-sealed check valve for 2161C38 vertical automatic air vent valve.

Part Number	DN	Qty/Box	Box/Carton
2311C38	3/8"	50	300

Dimensions at the end of the section.



**MXV - MAXIVENT**

High-flow automatic air vent valve. Equipped with manual vent valve. Cast iron body and cover with epoxy paint finish. Maximum operating pressure: 12 bar. Maximum operating temperature: 115°C. 3/8" air outlet connection.

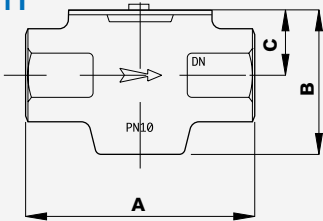
Part Number	DN	Qty/Box	Box/Carton
0253020	3/4"	1	1
0253025	1"	1	1
0253032	1.1/4"	1	1

Dimensions at the end of the section.



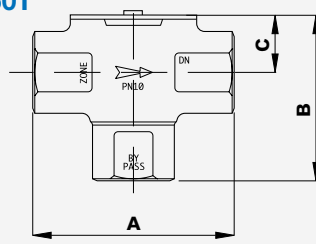
**OVERALL DIMENSIONS**

**571T**



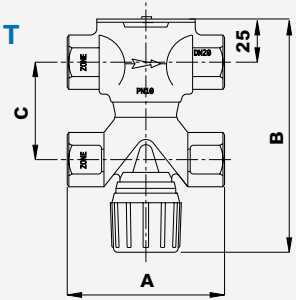
DN	A	B	C
3/4"	90	61	25
1.	100	61	25
1.1/4"	103	59	25

**560T**



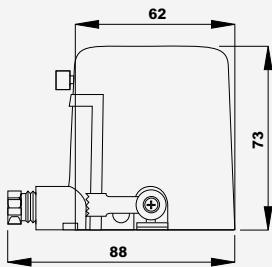
DN	A	B	C
3/4"	90	78	25
1"	100	78	25

**561T**

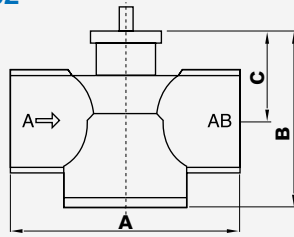


DN	A	B	C
3/4"	90	130	50
1"	100	140	60

**580T**

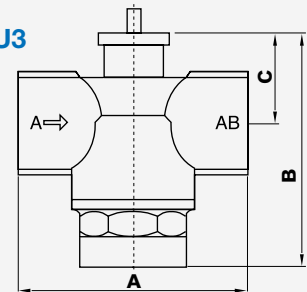


**VU02**



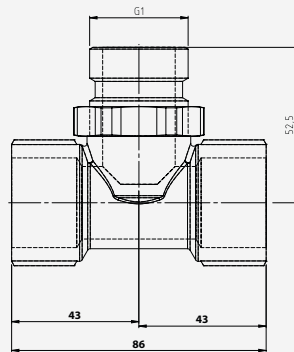
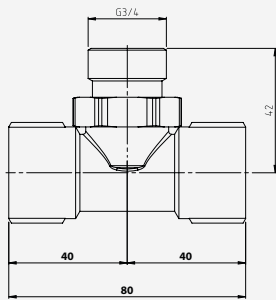
DN	A	B	C
3/4"	78	61	30
1"FF	83	61	30

**VU3**

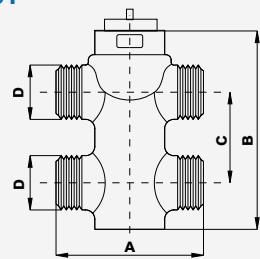


DN	A	B	C
3/4"FF	78	77	30
1"FF	83	77	30

**VU4**

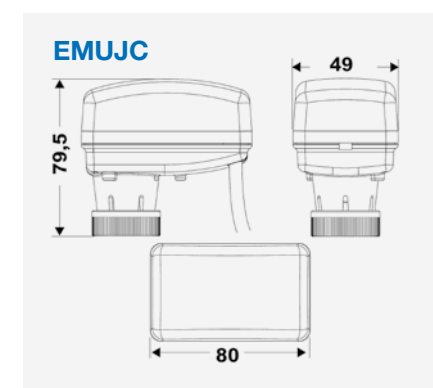
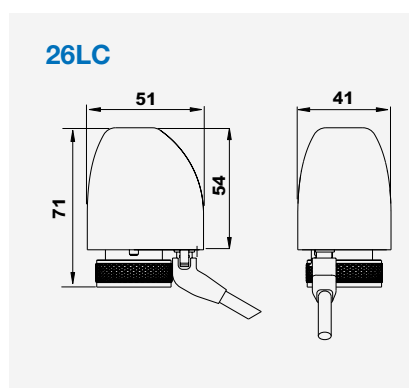
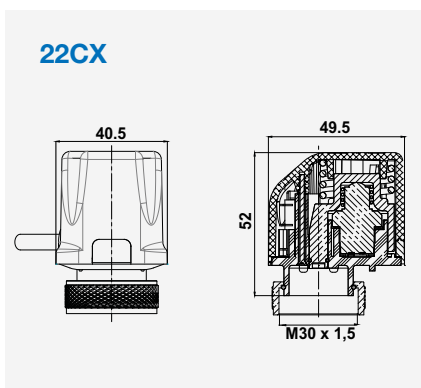
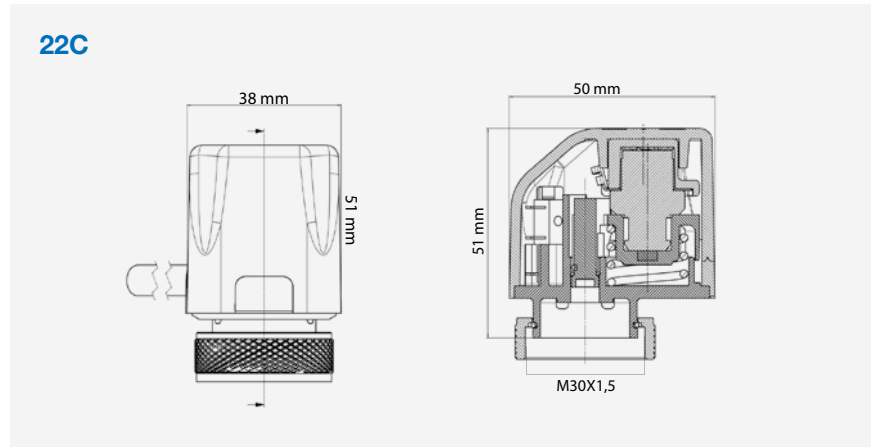
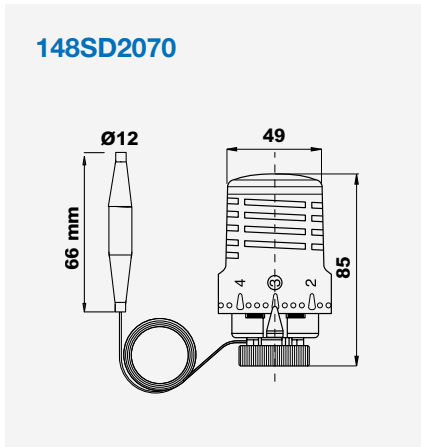
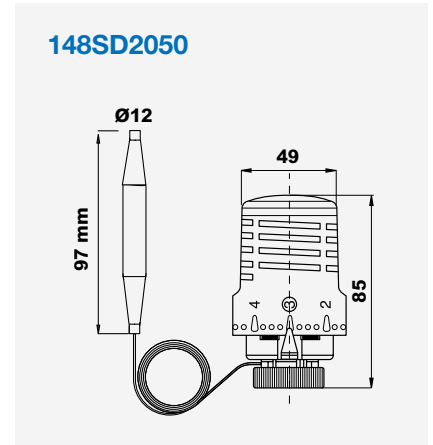
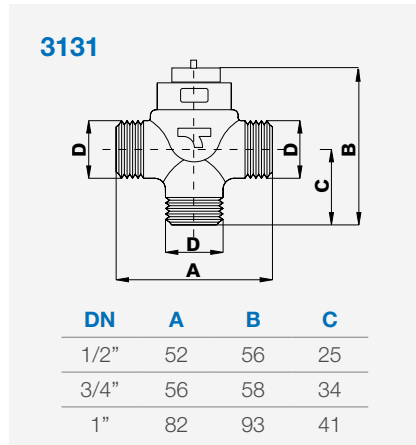
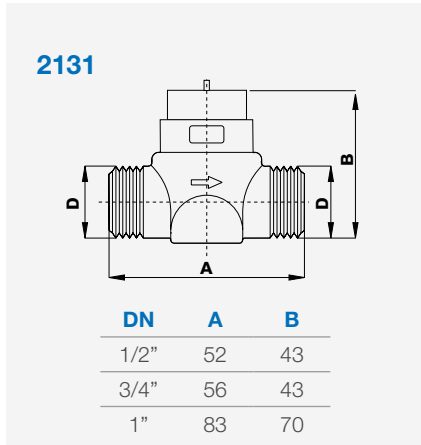


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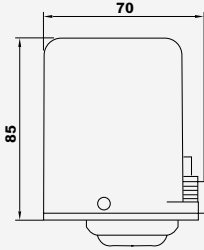
DN	A	B	C
1/2"	52	83	35
3/4"	56	96	50

OVERALL DIMENSIONS

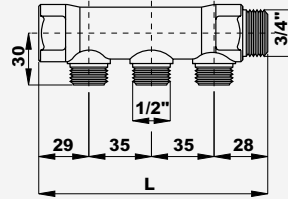


OVERALL DIMENSIONS

ETE

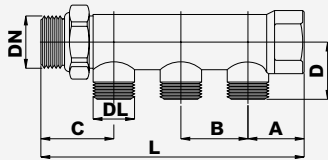


E807M



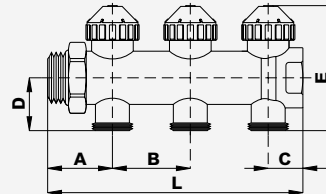
DN	Side outlets	L
3/4"	2	92
3/4"	3	127
3/4"	4	162

805M



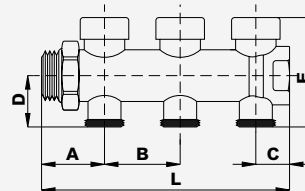
DN	DL	L	A	B	C	D
3/4"	2x1/2"	98	28.5	35	34.5	28
3/4"	3x1/2"	133	28.5	35	34.5	28
3/4"	4x1/2"	168	28.5	35	34.5	28
1"	2x1/2"	97	24	35	38	33
1"	3x1/2"	132	24	35	38	33
1"	4x1/2"	167	24	35	38	33
1"	2x1/2"	114.5	24.5	50	41	33
1"	3x1/2"	164.5	24.5	50	41	33
1"	4x1/2"	214.5	24.5	50	41	33
1"	2x3/4"	114.5	24.5	50	41	33
1"	3x3/4"	164.5	24.5	50	41	33
1"	4x3/4"	214.5	24.5	50	41	33
1.1/4"	3x1/2"	168.5	27.5	50	41	36
1.1/4"	4x1/2"	218.5	27.5	50	41	36
1.1/4"	3x3/4"	168.5	27.5	50	41	36
1.1/4"	4x3/4"	218.5	27.5	50	41	36

822MM/822MME



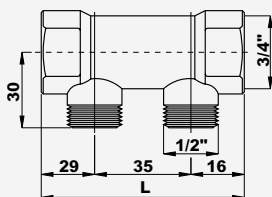
DN	L	L	L	A	B	C	D	E
	2 Outlets		3 Outlets		4 Outlets			
3/4"	115	165	215	37.5	50	27.5	29	72
1"	115	169	215	40	50	24.5	33	80
1.1/4"	-	169	219	41	50	24.5	33	86

822MR/822MRE



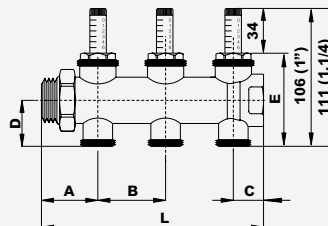
DN	L	L	L	A	B	C	D	E
	2 Outlets		3 Outlets		4 Outlets			
3/4"	115	165	215	37.5	50	27.5	29	72
1"	115	169	215	40	50	24.5	33	72
1.1/4"	-	169	219	41	50	27.5	36	77

807M



DN	Side outlets	L
3/4"	2	80
3/4"	3	115
3/4"	4	150

FLMR/FLMRE/FL



DN	L	L	L	A	B	C	D	E
	2 Outlets		3 Outlets		4 Outlets			
1"	114	164	214	40	50	24.5	33	72
1.1/4"	-	168	218	41	50	27.5	36	77

OVERALL DIMENSIONS

**210**

DN	A	B	C
1/2"	46	50	76
3/4"	46	53	94
1"	66	65	109
1.1/4"	66	70	128

**HKV 2013-VA**

No. of outlets	L
2	160
3	210
4	260
5	310
6	360
7	410
8	460
9	510
10	560
11	610
12	660

**825M**

DN	Side outlets	L	A	B	C	D	E	F
3/4"	2 x 2	125	45	35	31	50	18	28.5
3/4"	4 x 4	195	45	35	31	50	18	28.5
3/4"	6 x 6	265	45	35	31	50	18	28.5
3/4"	8 x 8	335	45	35	31	50	18	28.5
1"	4 x 4	215	55	35	34	60	21	35.5
1"	6 x 6	285	55	35	34	60	21	35.5
1"	8 x 8	355	55	35	34	60	21	35.5
1"	10 x 10	425	55	35	34	60	21	35.5

**823MT**

DN	A	B	C	D
1"	61.5	42	19.5	49
1.1/4"	63.5	42	19.5	49

**209**

**238**

DN	A	B
1/4"	28	47
3/8"	28	47

**823MP**

DN	A	B	C	D	E
1"G	69.5	40	25.5	27	27
1.1/4"G	69.5	41	28.5	27	27

**210**

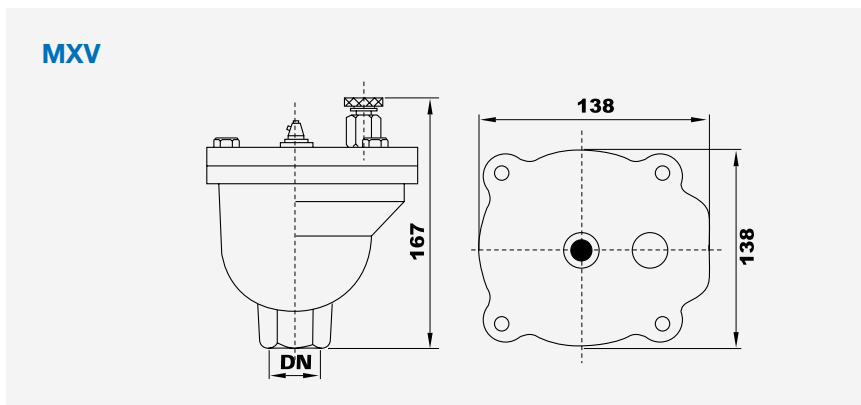
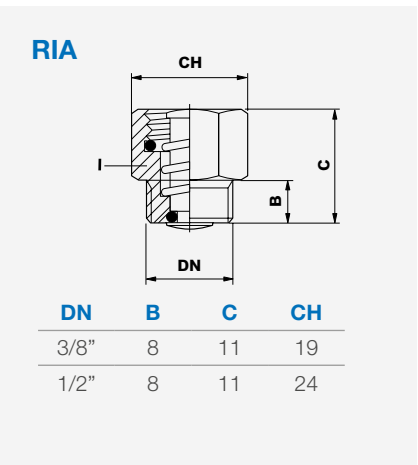
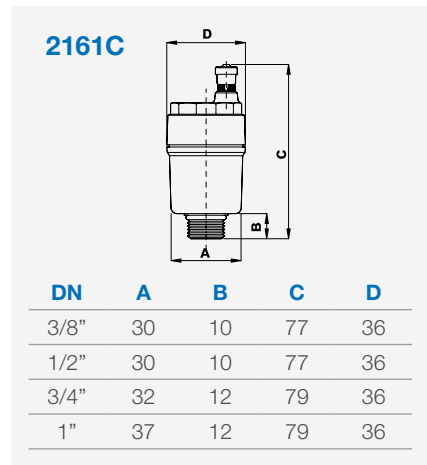
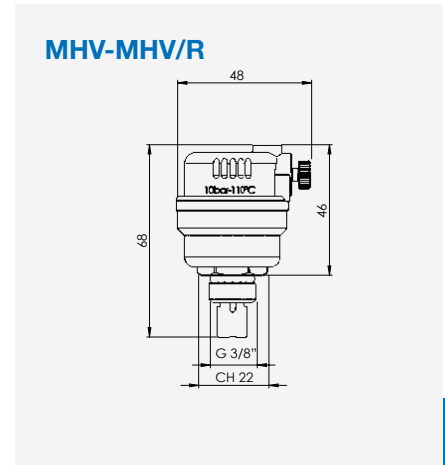
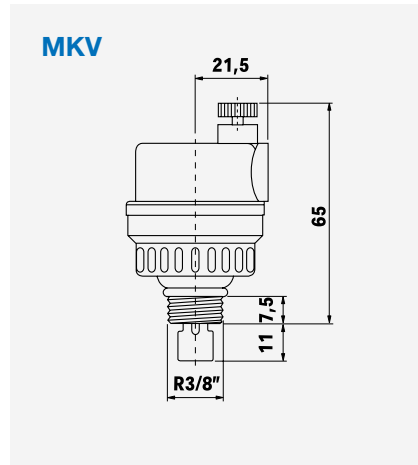
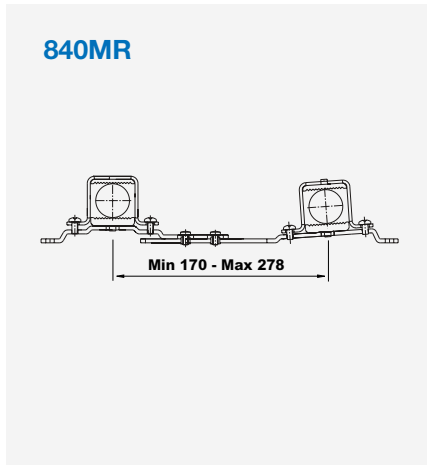
DN	A	B	C
1/2"	46	50	76
3/4"	46	53	94
1"	66	65	109
1.1/4"	66	70	128

**290**

DN	A	B
1/8"	25	60
1/2"	30	75
3/8"	40	90



OVERALL DIMENSIONS



# Chapter 6

Valves and  
accessories for  
radiators

## TRV Thermostatic valve



Easy to pre-set  
Quick to install  
Suitable for reverse flow operation

**WATTS®**

## Chapter 6

# Valves and accessories for radiators

### RIGHT-ANGLE THERMOSTAT-ADAPTABLE VALVES AND LOCKSHIELDS WITH IRON CONNECTION - EN215

#### 178UM

Nickel-plated thermostat-adaptable valve. Right-angle body. Connection for iron pipe. Straight tailpiece with O-ring. ABS handwheel with moving stem. Compatible with 148 and 148A series thermostatic actuators, BT-TH02 RF series electronic thermostatic actuators and 22C, 22CX, 22CX5 and 26LC series electrothermal actuators. **Keymark certified.**

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
178UMSN38	3/8"	3/8"	2,1	10	100

Dimensions at the end of the section.



#### 130UM

Nickel-plated body. Right-angle thermostatic valve with easy-to-remove protection cap for installation with 148 and 148A Series thermostatic actuators, BT-TH02 RF series electronic thermostatic actuators and 22C, 22CX, 22CX5 and 26LC Series electrothermal actuators. Connection for iron pipe. Straight tailpiece with O-Ring. Nine-position pre-setting device. **Keymark certified.**

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
130UMSN38	3/8"	3/8"	2,1	10	100
130UMSN12	1/2"	1/2"	2,6	10	100
130UMSN34	3/4"	3/4"	3,3	10	50

Dimensions at the end of the section.



#### 130SN

Nickel-plated body. Right-angle thermostatic valve with easy-to-remove protection cap for installation with 148 and 148A Series thermostatic actuators, BT-TH02 RF Series electronic thermostatic actuators and 22C, 22CX, 22CX5 and 26LC Series electrothermal actuators. Nine-position pre-setting device. Connection for iron pipe. Knurled tapered tailpiece to facilitate sealing with hemp. Compatible with RV178 handwheel for thermostat-adaptable valves.

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
130SN1	1"	1"	3,3	1	100
130SN12	1/2"	1/2"	2.6	1	100

Dimensions at the end of the section.



**195UM**

Nickel-plated micrometric lockshield. Right-angle body. Connection for iron pipe. Straight tailpiece with O-Ring. ABS cap.

Part Number	DN Body	DN Pipe	Kvs	Q.ty/Box	Box/Carton
195UMSN38	3/8"	3/8"	1,9	10	100
195UMSN12	1/2"	1/2"	2,1	10	100
195UMSN34	3/4"	3/4"	5,0	10	50

Dimensions at the end of the section.

**195S**

Nickel-plated micrometric lockshield. Right-angle body. Connection for iron pipe. Knurled tapered tailpiece to facilitate sealing with hemp. ABS cap.

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
195SN1	1"	1"	8,9	1	5

Dimensions at the end of the section.

**131UM**

Nickel-plated thermostatic valve with easy-to-remove protection cap for installation with 148 and 148A Series thermostatic actuators, BT-TH02 RF Series electronic thermostatic actuators and 22C, 22CX, 22CX5 and 26LC Series electrothermal actuators. Straight body. Connection for iron pipe. Straight tailpiece with O-Ring. Nine-position pre-setting device. **Keymark certified.**

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
131UMSN12	1/2"	1/2"	1,8	10	100
131UMSN34	3/4"	3/4"	2,6	10	50

Dimensions at the end of the section.

**196UM**

Nickel-plated micrometric lockshield. Straight body. Connection for iron pipe. Straight tailpiece with O-Ring. ABS cap.

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
196UMSN12	1/2"	1/2"	1,7	10	100
196UMSN34	3/4"	3/4"	3,5	10	50

Dimensions at the end of the section.

**4-WAY THERMOSTAT-ADAPTABLE VALVES FOR SINGLE-PIPE AND TWO-PIPE SYSTEMS****102M**

4-way nickel-plated thermostat-adaptable valve with nine-position pre-setting device for single-pipe systems with fixed bypass. Equipped with pre-setting device. Built-in lockshield. Connection for copper or plastic pipe. O-Ring-sealed straight tailpiece complete with flow separation probe. ABS handwheel. Differential pressure (148 and 148A): 1.5 bar.

K<sub>vn</sub> with 2K proportional band:

- DN 1/2" = 1.76

- DN 3/4" = 1.84

Flow rate to heater: 50%

Compatible with 148 and 148A Series thermostatic actuators, BT-TH02 RF Series electronic thermostatic actuators and 22C, 22CX, 22CX5 and 26LC Series electrothermal actuators.

Part Number	DN Body	DN Pipe	Kvs	Qty/Box	Box/Carton
102M12AM12	1/2"	1/2"	2	1	50
102M12AM34	3/4"	1/2"	2,15	1	50

Dimensions at the end of the section.



**TECHNICAL NOTE- Selection guide for single-fill valves**

The 4-way valves incorporate, in just one piece, the different valve and lockshield functions. For the thermostat function, connect the delivery port to the connection under the head.

**For two-pipe systems**

Valves 120B Series (without by-pass) allow building two-pipe heating systems where, for reasons of style or installation, it is preferable to keep just one connection point (at the bottom) to the radiator with consequent less masonry work and quicker installation.

**For one-pipe systems**

Valves 102M Series allow distribution of the water flow calculated for the entire ring into a part reserved for the heat exchange and into a part leading towards the next radiator. The permanently open by-pass allows constant recirculation of the heat carrier fluid when the valve is closed.



**THERMOSTATIC ACTUATORS**

**148**

Thermostatic actuator with oil-filled sensitive element. Temperature limiting and locking device. ABS handwheel. Anti-freeze position: 8°C.

**UNI EN 215 certified with Valves 130,178,179,188 Series.**

**TELL certification, class A (with 130D valve).**



Part Number	Max pressure	Graduated scale	Regulation	Qty/Box	Box/ Carton
148	1,5 bar	0-5	0-28°C	1	100

Dimensions at the end of the section.

**148SD**

Thermostatic actuator with remote sensor. Temperature limiting and locking device. ABS handwheel. Capillary length 2 metres. Anti-freeze position: 8°C. TRV-G for Valves TRV Series included in the seal pack.



Part Number	Max pressure	Graduated scale	Regulation	Qty/Box	Box/ Carton
148SD	1,5 bar	0-5	0-28°C	1	60

Dimensions at the end of the section.

**148GA**

Tamper-proof cover for 148 and 148A Series thermostatic actuators. Provision for limiting and locking temperature range on rivettable closing position. Complete with standard fixing screws and break-stem rivets.



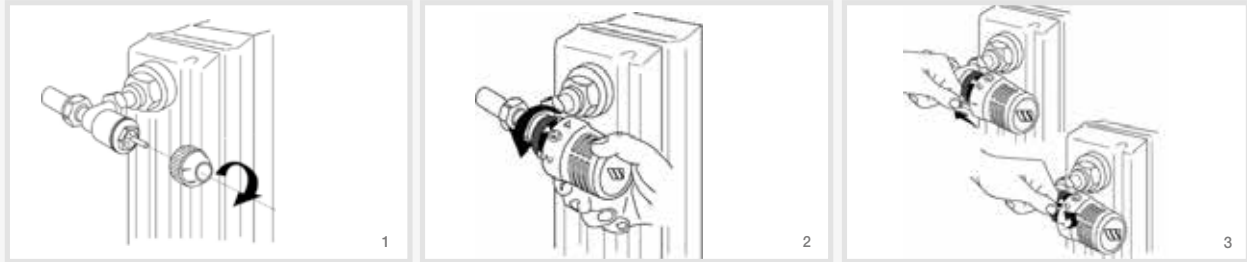
Part Number	Qty/Box	Box/ Carton
148GA	1	100

Dimensions at the end of the section.

**TECHNICAL NOTE - Concise instructions on the use of thermostatic valves**

Thermostat-adaptable valves can be connected to thermostatic actuators (148 and 148A series) in a single, simple step, and thus converted into thermostatic valves with the system still running.

- 1) Remove the manual handwheel (Fig. 1)
  - 2) Turn the thermostatic actuator to the fully open position (position 5)
  - 3) Approach the actuator to the valve body with the reference pointer clearly visible, then screw the nickel-plated ring-nut fully home (Fig. 2)
- Avoid positioning the actuator vertically; use the two setting blocks and position them to coincide with the required min./max. values (Fig. 3).



0		1	2	3	4	5
<b>Closed</b>	<b>8 °C Anti-freeze</b>	<b>12 °C</b>	<b>16 °C</b>	<b>20 °C</b>	<b>24 °C</b>	<b>28 °C</b>

**Radial slots**  
high sensitivity in room temperature measurement

**Adjustment riders:**  
Provision for adjusting or locking the pre-set temperature range

**5 temperature levels**  
Quick and easy setting of the required temperature

**Threaded ring-nut**  
Practical and quick in installation operations

To find out which Watts thermostat-adaptable valves are UNI EN 215 approved, go to [www.wattswater.eu](http://www.wattswater.eu), where you will find all the information you need.

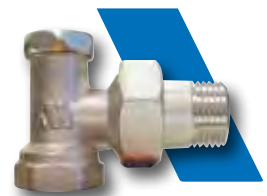
**EFFICIENCY AND ENERGY SAVING**

**MANUAL VALVES AND LOCKSHIELDS**

**193R**

Nickel-plated micrometric lockshield. Right-angle body. Soft-seal disc. Connection for iron pipe. Knurled tapered tailpiece to facilitate sealing with hemp. Nickel-plated brass cap.

Part Number	DN	DN Pipe	Kvs	Qty/Box	Box/Carton
193SN12R	1/2"	1/2"	1,9	1	80



Dimensions at the end of the section.

PARTS FOR VALVES

**234**

Straight tailpiece with nickel-plated nut for UM Series valves and lockshields with soft seal on radiator side and valve side.

Part Number	DN	Qty/ Box	Box/ Carton
234SN12	1/2" MF	10	150



**RP-30**

Disc unit for 822M Series (model 130) thermostatic valves, thermostat-adaptable valves and manifolds, TRV Series non-pre-set valves (model RP320) and TRV Series pre-set valves (RP330).

Part Number	DN	Qty/ Box	Box/ Carton
RP130	M22 x 1,5	10	100



**RV119**

Handwheel for 119SX Series single-pipe valves.

Part Number	DN	Qty/ Box	Box/ Carton
RV119B	Standard	10	100



**RV178**

White handwheel for 178UM-179UM-1178UM-1179UM,120B, 102M Series thermostat-adaptable valves.

Part Number	DN	Qty/ Box	Box/ Carton
RV178	Standard	10	100



**RV188 - RVTRV**

White handwheel for 188UM-189UM-1188UM-1189UM Series (model RV188) thermostat-adaptable valves and TRV Series valves (model RVTRV).

Part Number	DN	Qty/ Box	Box/ Carton
RV188-189W	Standard	10	50



**RV195 - RV395**

White cap for 195 - 196 - 1195 - 1196 Series (models RV195) lockshields and TRV Series lockshields (model RV395).

Part Number	DN	Qty/ Box	Box/ Carton
RV195B	3/8" - 1/2"	10	200
RV19534B	3/4"	10	100





**AIR VENTS****228C - HYGROVENT**

Automatic air vent valve with check device and discharge nozzle. Chrome-plated CW614N brass body. PN 6.

Part Number	DN	Qty/ Box	Box/ Carton
2280C18X	1/8"	25	500
2281C14X	1/4"	25	500
2282C38X	3/8"	25	500

Dimensions at the end of the section.

**238C**

Manual air vent valve with discharge nozzle. Chrome-plated CW614N brass body. PN 10.

Part Number	DN	Qty/ Box	Box/ Carton
2381C18X	1/8"	25	500
2382C14X	1/4"	25	500

Dimensions at the end of the section.

**VMM**

Manual air vent valve for radiators with adjustable discharge nozzle. Manual discharge opening with a screwdriver or coin. Chrome-plated CW617N brass body. Fibreglass-reinforced nylon handwheel and discharge nozzle body. Sealed on radiator by means of an O-Ring. PN 10.

Part Number	DN	Qty/ Box	Box/ Carton
0256208	1/4"	100	1000
0256210	3/8"	100	500

Dimensions at the end of the section.



OVERALL DIMENSIONS

**178UM**

DN	A	B	C	D	E
3/8"	49	20	56	18	35
1/2"	53	23	56	18	35
3/4"	61	28	56	18	35

**130UM**

DN	A	B	C	D	E
3/8"	49	20	40	18	35
1/2"	53	23	40	18	35
3/4"	61	28	40	18	35

**131UM**

DN	A	B	C	D	E
3/8"	49	26	46.5	24.5	35
1/2"	53	29	46.5	24.5	35
3/4"	61	34	46.5	24.5	35

**130SN**

**193R**

DN	A	B	C	E
3/8"	48	22	21	23
1/2"	50.5	25	21	23

**195UM**

DN	A	B	C	E
3/8"	48	21	36	31
1/2"	52	25	40	31
3/4"	60	29	50	41

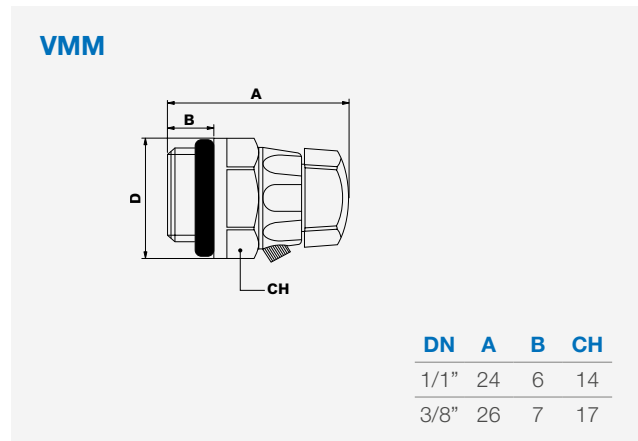
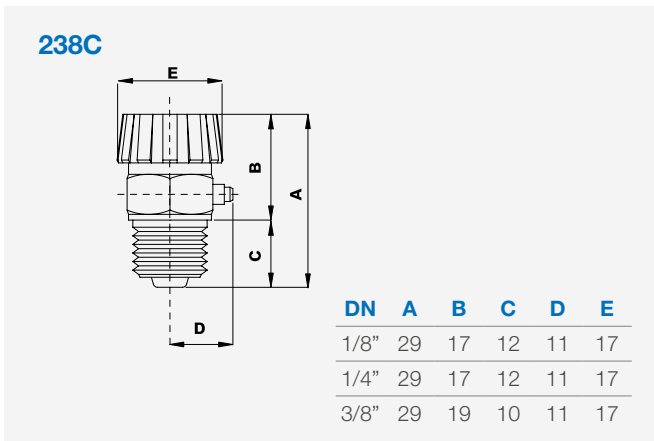
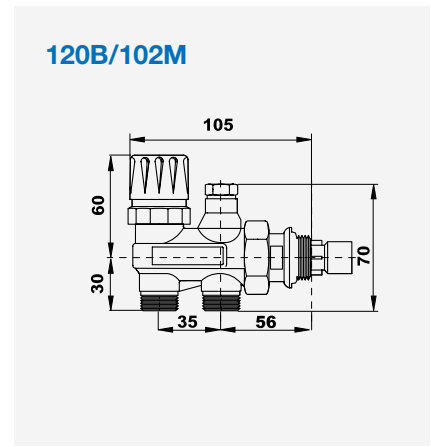
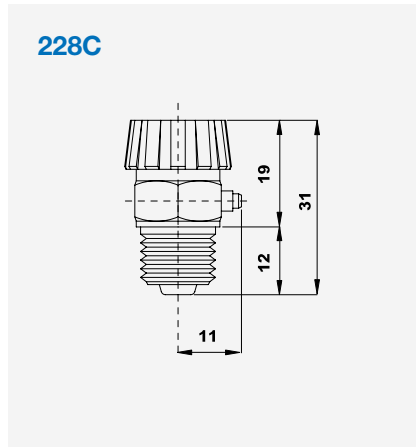
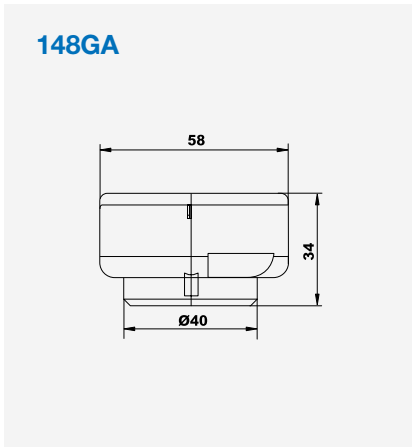
**195S**

DN	A	B	C	E
1"	70	29	57	46

**147/148**

**148SD**

**OVERALL DIMENSIONS**



# Chapter 7

Components for  
gas, diesel  
and fuel oil  
systems

## EV - Solenoid valve with manual resetting



Explosion-proof version  
Models with position indicator  
Various supply voltages

**giuliani anello**

## Chapter 7.1

# Devices for gas

### PRESSURE REGULATORS

#### FGD

Aluminium pressure regulator with built-in filter, to EN 88-1. Max. inlet pressure 200 mbar. Maximum outlet pressure 160 mbar. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -15÷60°C.



Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
FGD15	009.0020.101	1/2"	With neutral spring 10 - 30 mbar	1	1
FGD15	009.0020.102	1/2"	With green spring 5 - 15 mbar	1	1
FGD15	009.0220.103	1/2"	With violet spring 25 - 80 mbar	1	1
FGD15	009.0020.104	1/2"	With brown spring 70 - 160 mbar	1	1
FGD20	009.0021.101	3/4"	With neutral spring 10 - 30 mbar	1	1
FGD20	009.0021.102	3/4"	With green spring 5 - 15 mbar	1	1
FGD20	009.0021.103	3/4"	With violet spring 25 - 80 mbar	1	1
FGD20	009.0021.104	3/4"	With brown spring 70 - 160 mbar	1	1
FGD25	009.0022.101	1"	With neutral spring 10 - 30 mbar	1	1
FGD25	009.0022.102	1"	With green spring 5 - 15 mbar	1	1
FGD25	009.0022.103	1"	With violet spring 25 - 80 mbar	1	1
FGD25	009.0022.104	1"	With brown spring 70 - 160 mbar	1	1
FGD32	009.0023.101	1.1/4"	With neutral spring 10 - 30 mbar	1	1
FGD32	009.0023.102	1.1/4"	With green spring 5 - 15 mbar	1	1
FGD32	009.0023.103	1.1/4"	With violet spring 20 - 70 mbar	1	1
FGD32	009.0023.104	1.1/4"	With brown spring 65 - 130 mbar	1	1
FGD32	009.0023.106	1.1/4"	With white spring 120 - 160 mbar	1	1
FGD40	009.0024.101	1.1/2"	With neutral spring 10 - 30 mbar	1	1
FGD40	009.0024.102	1.1/2"	With green spring 5 - 15 mbar	1	1
FGD40	009.0024.103	1.1/2"	With violet spring 20 - 70 mbar	1	1
FGD40	009.0024.104	1.1/2"	With brown spring 65 - 130 mbar	1	1
FGD40	009.0024.106	1.1/2"	With white spring 120 - 160 mbar	1	1
FGD50	009.0025.101	2"	With neutral spring 10 - 30 mbar	1	1
FGD50	009.0025.102	2"	With green spring 5 - 15 mbar	1	1
FGD50	009.0025.103	2"	With violet spring 30 - 80 mbar	1	1
FGD50	009.0025.104	2"	With brown spring 70 - 160 mbar	1	1

Dimensions at the end of the section.

**FGDR**

Aluminium pressure regulator with built-in filter, to EN 88-1.

Maximum inlet pressure 500 mbar. Maximum outlet pressure 350 mbar.

Closure control. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -15÷60°C.



Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
FGDR15	009.0220.101	1/2"	With neutral spring 10 - 30 mbar	1	1
FGDR15	009.0220.102	1/2"	With green spring 5 - 15 mbar	1	1
FGDR15	009.0220.103	1/2"	With violet spring 25 - 80 mbar	1	1
FGDR15	009.0220.104	1/2"	With brown spring 70 - 160 mbar	1	1
FGDR15	009.0220.105	1/2"	With blue spring 150 - 280 mbar	1	1
FGDR15	009.0220.106	1/2"	With white spring 270 - 350 mbar	1	1
FGDR20	009.0221.101	3/4"	With neutral spring 10 - 30 mbar	1	1
FGDR20	009.0221.102	3/4"	With green spring 5 - 15 mbar	1	1
FGDR20	009.0221.103	3/4"	With violet spring 25 - 80 mbar	1	1
FGDR20	009.0221.104	3/4"	With brown spring 70 - 160 mbar	1	1
FGDR20	009.0221.105	3/4"	With blue spring 150 - 280 mbar	1	1
FGDR20	009.0221.106	3/4"	With white spring 270 - 350 mbar	1	1
FGDR25	009.0222.101	1"	With neutral spring 10 - 30 mbar	1	1
FGDR25	009.0222.102	1"	With green spring 5 - 15 mbar	1	1
FGDR25	009.0222.103	1"	With violet spring 25 - 80 mbar	1	1
FGDR25	009.0222.104	1"	With brown spring 70 - 160 mbar	1	1
FGDR25	009.0222.105	1"	With blue spring 150 - 280 mbar	1	1
FGDR25	009.0222.106	1"	With white spring 270 - 350 mbar	1	1
FGDR32	009.0223.101	1.1/4"	With neutral spring 10 - 25 mbar	1	1
FGDR32	009.0223.102	1.1/4"	With green spring 5 - 15 mbar	1	1
FGDR32	009.0223.103	1.1/4"	With violet spring 20 - 70 mbar	1	1
FGDR32	009.0223.104	1.1/4"	With brown spring 65 - 130 mbar	1	1
FGDR32	009.0223.106	1.1/4"	With white spring 120 - 250 mbar	1	1
FGDR32	009.0223.107	1.1/4"	With black spring 240 - 350 mbar	1	1
FGDR40	009.0224.101	1.1/2"	With neutral spring 10 - 25 mbar	1	1
FGDR40	009.0224.102	1.1/2"	With green spring 5 - 15 mbar	1	1
FGDR40	009.0224.103	1.1/2"	With violet spring 20 - 70 mbar	1	1
FGDR40	009.0224.104	1.1/2"	With brown spring 65 - 130 mbar	1	1
FGDR40	009.0224.106	1.1/2"	With white spring 120 - 250 mbar	1	1
FGDR40	009.0224.107	1.1/2"	With black spring 240 - 350 mbar	1	1
FGDR50/40	009.0234.101	2"	With neutral spring 10 - 25 mbar	1	1
FGDR50/40	009.0234.102	2"	With green spring 5 - 15 mbar	1	1
FGDR50/40	009.0234.103	2"	With violet spring 20 - 70 mbar	1	1
FGDR50/40	009.0234.104	2"	With brown spring 65 - 130 mbar	1	1
FGDR50/40	009.0234.106	2"	With white spring 120 - 250 mbar	1	1
FGDR50/40	009.0234.107	2"	With black spring 240 - 350 mbar	1	1
FGDR50	009.0225.101	2"	With neutral spring 10 - 35 mbar	1	1
FGDR50	009.0225.102	2"	With green spring 5 - 15 mbar	1	1
FGDR50	009.0225.103	2"	With violet speing 30 - 80 mbar	1	1
FGDR50	009.0225.104	2"	With brown spring 70 - 220 mbar	1	1
FGDR50	009.0225.105	2"	With blue spring 210 - 350 mbar	1	1

Dimensions at the end of the section.

**FSDR**

Flanged aluminium pressure regulator with built-in filter, to EN 88-1. Maximum inlet pressure 500 mbar. Maximum outlet pressure 350 mbar. Closure control. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -10÷60°C.



Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
FSDR65	009.0226.201	DN 65	With neutral spring 10-30 mbar	1	1
FSDR65	009.0226.203	DN 65	With red spring 25-80 mbar	1	1
FSDR65	009.0226.204	DN 65	With violet spring 60-120 mbar	1	1
FSDR65	009.0226.206	DN 65	With blue spring 100-220 mbar	1	1
FSDR65	009.0226.207	DN 65	With white spring 200- 350 mbar	1	1
FSDR80	009.0227.201	DN 80	With neutral spring 10-30 mbar	1	1
FSDR80	009.0227.203	DN 80	With red spring 25-80 mbar	1	1
FSDR80	009.0227.204	DN 80	With violet spring 60-120 mbar	1	1
FSDR80	009.0227.206	DN 80	With blue spring 100-220 mbar	1	1
FSDR80	009.0227.207	DN 80	With white spring 200- 350 mbar	1	1

Dimensions at the end of the section.

**STR**

Flanged aluminium pressure regulator to EN 88-1. Maximum inlet pressure 500 mbar. Maximum outlet pressure 350 mbar, 200 mbar for STR DN 125-150. Closure control. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -15÷60°C.



Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
STR65	009.0240.201	DN 65	With neutral spring 10-30 mbar	1	1
STR80	009.0241.201	DN 80	With neutral spring 10-30 mbar	1	1
STR100	009.0242.201	DN 100	With neutral spring 10-40 mbar	1	1
STR125	009.0243.001	DN 125	With neutral spring 10-30 mbar	1	1
STR150	009.0244.001	DN 150	With neutral spring 10-30 mbar	1	1

Dimensions at the end of the section.



## PARTS KIT

	Part Number	Governors	Description	Qty/Box	Box/carton
3235	014.0500.001	FGD, FGDR, FG1B 15 - 20 - 25	Filter element + filter's cover gasket	1	1
3236	014.0501.001	FGD, FGDR, FG1B 32 - 40 - 50/40	Filter element + filter's cover gasket	1	1
3233	014.0153.001	FGD, FGDR, FG1B 50	Filter element + filter's cover gasket	1	1
3234	014.0155.001	FSDR, FS1B 65 - 80	Filter element + filter's cover gasket	1	1






## SPRINGS








Type	Part Number	Governors	Range and Colour	Qty/Box	Box/carton
504.0037.020	014.0504.001	FGD, FGDR 15 - 20 - 25	5-15 mbar - green	1	1
504.0031.020	014.0505.001	FGD, FGDR, FG1B 15 - 20 - 25	10-30 mbar - neutral	1	1
504.0032.020	014.0506.001	FGD, FGDR, FG1B 15 - 20 - 25	25-80 mbar - violet	1	1
504.0033.020	014.0507.001	FGD, FGDR, FG1B 15 - 20 - 25	70-160 mbar - brown	1	1
E816D	014.0220.001	FGD, FGDR 32 - 40 - 50/40	5-15 mbar - green	1	1
504.0016.020	014.0221.001	FGD, FGDR, FG1B 32 - 40 - 50/40	10-25 mbar - neutral	1	1
504.0017.020	014.0222.001	FGD, FGDR, FG1B 32 - 40 - 50/40	20-70 mbar - violet	1	1
E836D	014.0223.001	FGD, FGDR, FG1B 32 - 40 - 50/40	65-130 mbar - brown	1	1
504.0018.020	014.0225.001	FGD 32 - 40	120-160 mbar - white	1	1
E405	014.0241.001	FSDR, FS1B, STR, ST1B 65 - 80	10-30 mbar - neutral	1	1
E406	014.0242.001	FSDR, FS1B, STR, ST1B 65 - 80	25-80 mbar - red	1	1
E417D	014.0243.001	FSDR, FS1B, STR, ST1B 65 - 80	60-120 mbar - violet	1	1
E473	014.0245.001	FSDR, FS1B, STR, ST1B 65 - 80	100-220 mbar - blue	1	1
504.0021.020	014.0247.001	FSDR, STR 65 - 80	200-350 mbar - white	1	1
504.0021.020	014.0247.001	FS1B, ST1B 65 - 80	200-450 mbar - white	1	1
E466D	014.0251.001	STR, ST1B 100	10-40 mbar - neutral	1	1
E535	014.0252.001	STR, ST1B 100	30-70 mbar - red	1	1
E468	014.0253.001	STR, ST1B 100	60-110 mbar - violet	1	1
E475	014.0254.001	STR, ST1B 100	100-210 mbar - brown	1	1
504.0065.000	014.0256.001	STR 100	200-350 mbar - white	1	1
504.0050.000	014.0560.000	STR, ST1B 125/150	10-30 mbar - neutral	1	1
504.0053.000	014.0561.000	STR, ST1B 125/150	25-75 mbar - red	1	1
504.0051.000	014.0562.000	STR, ST1B 125/150	70-120 mbar - violet	1	1
504.0062.000	014.0563.000	STR, ST1B 125/150	110-170 mbar - brown	1	1
504.0064.000	014.0564.000	STR, ST1B 125/150	140-200 mbar - white	1	1

## SPRINGS







Type	Part Number	Governors	Description	Qty/Box	Box/carton
E836D	014.0223.001	ST4B, ST4B..BM 20 - 25 - 32 - 40	65-120 mbar - brown	1	1
E619d	014.0232.001	ST4B, ST4B..BM 50	25-70 mbar - violet	1	1
E631d	014.0233.001	ST4B, ST4B..BM 50	65-150 mbar - brown	1	1

**SPRING SELECTION GUIDE**

Model/Colour	FGD 15 - 20 - 25	FGD 32 - 40	FGD 50
GREEN 	5-15 mbar (014.0504.001)	5-15 mbar (014.0220.001)	5-15 mbar (014.0230.001)
NEUTRAL 	10-30 mbar (014.0505.001)	10-25 mbar (014.0221.001)	10-35 mbar (014.0231.001)
PURPLE 	25-80 mbar (014.0506.001)	20-70 mbar (014.0222.001)	30-80 mbar (014.0232.001)
BROWN 	70-160 mbar (014.0507.001)	65-130 mbar (014.0223.001)	70-160 mbar (014.0233.001)
WHITE 	/	120-160 mbar (014.0225.001)	/

Model/Colour	FGDR 15 - 20 - 25	FGDR 32 - 40 -50/40	FGDR 50
GREEN 	5-15 mbar (014.0504.001)	5-15 mbar (014.0220.001)	5-15 mbar (014.0230.001)
NEUTRAL 	10-30 mbar (014.0505.001)	10-25 mbar (014.0221.001)	10-35 mbar (014.0231.001)
PURPLE 	25-80 mbar (014.0506.001)	20-70 mbar (014.0222.001)	30-80 mbar (014.0232.001)
BROWN 	70-160 mbar (014.0507.001)	65-130 mbar (014.0223.001)	70-160 mbar (014.0233.001)
BLUE 	150-280 mbar (014.0508.001)	/	210-350 mbar (014.0234.001)
WHITE 	270-350 mbar (014.0509.001)	120-250 mbar (014.0225.001)	/
BLACK 	/	240-350 mbar (014.0520.001)	/

Model/Colour	FGDR/COM 15-20
RED 	20-55 mbar (014.0202.001)
BLUE 	50-200 mbar (014.0204.001)

Model/Colour	FSDR - STR 65 - 80	STR 100
NEUTRAL 	10-30 mbar (014.0241.001)	10-40 mbar (014.0251.001)
RED 	25-80 mbar (014.0242.001)	30-70 mbar (014.0252.001)
PURPLE 	60-120 mbar (014.0243.001)	60-110 mbar (014.0253.001)
BROWN 	/	100-210 mbar (014.0254.001)
BLUE 	100-220 mbar (014.0245.001)	/
WHITE 	200-350 mbar (014.0247.001)	200-350 mbar (014.0256.001)

## SLAM SHUT-OFF AND RELIEF VALVES

### MB

Aluminium maximum pressure shut-off valve to EN 88-2.

Maximum inlet pressure 1 bar. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -10÷60°C.

Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
MB50	019.0006.001	2"	With neutral spring 80-550 mbar	1	1

Dimensions at the end of the section.



### MS

Aluminium relief valve. Maximum inlet pressure 6 bar. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air.

Operating temperature range: -10÷60°C.

Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
MS20	002.0004.001	3/4"	With blue spring 80-550 mbar	1	1
MS25	002.0005.001	1"	With blue spring 80-550 mbar	1	1

Dimensions at the end of the section.



## SPRINGS

Type	Part Number	Relief valve	Range and colour	Qty/ Box	Box/ carton
E1211D	014.0212.001	MS	30-130 mbar - red	1	1

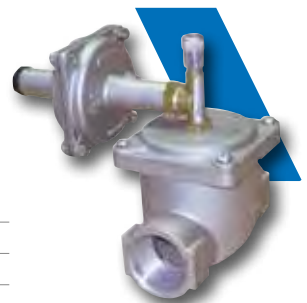
### MB/6B

Aluminium maximum pressure shut-off valve to EN 88-2. Maximum inlet pressure 6 bar. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air.

Operating temperature range: -10÷60°C.

Type	Part Number	Connection	Description	Qty/ Box	Box/ carton
MB50/6B	019.0026.001	2"	With neutral spring 80-550 mbar	1	1
MB65/6B	019.0027.101	DN65	With neutral spring 80-550 mbar	1	1
MB80/6B	019.0028.101	DN80	With neutral spring 80-550 mbar	1	1

Dimensions at the end of the section.



## SPRINGS

Type	Part Number	Shut-off valve	Range and colour	Qty/ Box	Box/ carton
E737	014.0204.001	MB, MB/6B	30-120 mbar - blue	1	1



**AIR/GAS RATIO CONTROL VALVES**

**GAVR**

Air/gas ratio control valve with max. inlet pressure of 200mbar. Maximum air inlet pressure 120mbar. Ratio 1:1. Adjustable minimum flow rate. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -10÷60°C.



Type	Part Number	Connection	Description	Qty/Box	Box/carton
GAVR15	020.0001.101	1/2"	outlet pressure 2-120 mbar	1	1
GAVR20	020.0002.101	3/4"	outlet pressure 2-120 mbar	1	1
GAVR25	020.0003.101	1"	outlet pressure 2-120 mbar	1	1
GAVR32	020.0004.101	1.1/4"	outlet pressure 2-120 mbar	1	1
GAVR40	020.0005.101	1.1/2"	outlet pressure 2-120 mbar	1	1
GAVR50	020.0006.101	2"	outlet pressure 2-120 mbar	1	1

Dimensions at the end of the section.

**VRGA**

Air/gas ratio control valve with maximum inlet pressure of 200mbar. Maximum air inlet pressure 120mbar. Ratio 1:1. Adjustable minimum flow rate. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -10÷60°C.



Type	Part Number	Connection	Description	Qty/Box	Box/carton
VRGA65	020.0007.101	DN65	outlet pressure 2-120 mbar	1	1
VRGA80	020.0008.101	DN80	outlet pressure 2-120 mbar	1	1
VRGA100	020.0009.001	DN100	outlet pressure 2-120 mbar	1	1

Dimensions at the end of the section.

**AUTOMATIC ON-OFF SOLENOID VALVES**

**GSAV-R**

Automatic ON-OFF normally closed class A gas solenoid valve with threaded connections. Quick opening and closing with adjustable flow rate. Aluminium body. Coil with IP65 connector (1/2"-3/4"-1"). Coil with IP54 electrical enclosure (1/4"1/2"-2"). Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -20÷60°C.



Type	Part Number	Connection	Description	Qty/Box	Box/carton
GSAV20R	021.0011.001	3/4"	Voltage 230 Vac Max. Press. 0,5bar	1	1

Dimensions at the end of the section.

**GHAV**

Automatic ON-OFF normally closed class A gas solenoid valve with threaded connections. Actuated by IP54 electro-hydraulic actuator. Aluminium body. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -20÷60°C.



Type	Part Number	Connection	Description	Qty/Box	Box/carton
GHAV150	021.0104.001	DN150	Voltage 230 Vac Max. Press. 1bar	1	1

**PARTS KIT**

Type	Part Number	Valve	Description	Qty/Box	Box/carton
511.0219.001	014.0306.001	GSAV20/02B - GSAV25/02B	Coil RAC 230 Vac	1	1
511.0023.990	014.0280.001	GSAV15-20-25R, AMSV205-255R	Kit Connector RAC 230 Vac + LED	1	1

**SOLENOID VALVES WITH MANUAL RESETTING**

**EV**

Normally closed gas solenoid valve with manual resetting. Aluminium body. Coil with IP65 connector. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -20-60°C. Maximum operating pressure: 0.5 bar.

Type	Part Number	Connection	Description	Qty/Box	Box/carton
EV15	010.0180.001	1/2"	Voltage 230 Vac	1	1
EV40	010.0184.001	1.1/2"	Voltage 230 Vac	1	1
EV65	010.0186.101	DN65	Voltage 230 Vac	1	1

Dimensions at the end of the section.



**7**

**EV/6B**

Normally closed gas solenoid valve with manual resetting. Aluminium body. Coil with IP65 connector. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -20-60°C. Maximum operating pressure: 6 bar.

Type	Part Number	Connection	Description	Qty/Box	Box/carton
EV150/6B	010.0230.001	DN150	Voltage 230 Vac	1	1

Dimensions at the end of the section.



**EV/6BEEXD**

Normally closed gas solenoid valve with manual resetting. Aluminium body. Coil with IP67 connector. Suitable for manufactured gas, natural gas, liquefied petroleum gas (LPG), non-aggressive gas and air. Operating temperature range: -20÷60°C. Maximum operating pressure: 6 bar. Explosion-proof version with EExd coil.



Type	Part Number	Connection	Description	Qty/Box	Box/carton
EV150/6BEEXD	010.0430.001	DN150	Voltage 230 Vac	1	1

Dimensions at the end of the section.



**PARTS KIT**

Type	Part Number	Valve	Description	Qty/Box	Box/carton
511.0219.001	014.0306.001	MSV 125 - 150	Coil RAC 230 Vac	1	1

**GAS LEAK DETECTORS**

**GSX - GAS SENTINEL**

Surface wall-mounting electronic domestic gas leak detector with acoustic and illuminating alarm, for connection to one or more normally closed solenoid valves (GSAVR, GHAV, EV, EVO series) or normally open solenoid valves (MSV, MSVO series). White, wall-mounting version.

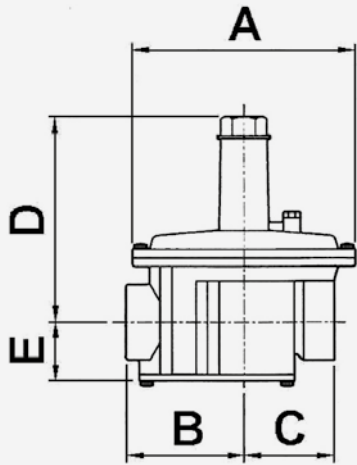


Type	Part Number	Description	Qty/Box	Box/carton
GSX	0941030	Detection of Methane and Natural gas	1	1
GSX	0941530	Detection of LPG, Propane and Butane	1	1

Dimensions at the end of the section.

**OVERALL DIMENSIONS**

**FG**



**TECHNICAL NOTE**

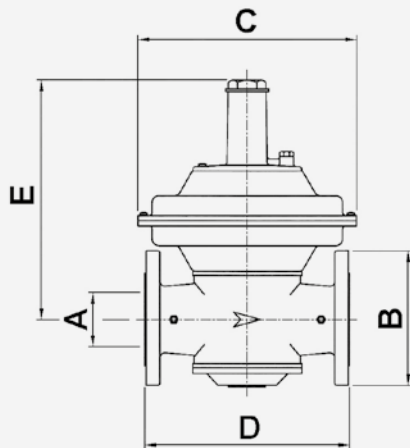
Measurement E must be increased by approximately 400 mm to facilitate filter cleaning and inspection.

FG.50/40: model with 2" threaded connections but with the overall dimensions of the 1 1/2" model (FG..40).

Model	Connections	A	B	C	D	E
FG..15	Rp 1/2" UNI-ISO 7/1					
FG..20	Rp 3/4" UNI-ISO 7/1	146	73	58	137	42
FG..25	Rp 1" UNI-ISO 7/1					
FG..32	Rp 1 1/4" UNI-ISO 7/1					
FG..40	Rp 1 1/2" UNI-ISO 7/1	194	98	80	175	52
FG..50/40	Rp 2" UNI-ISO 7/1					
FG..50	Rp 2" UNI-ISO 7/1	260	135	90	250	65



**FS1B - ST1B**



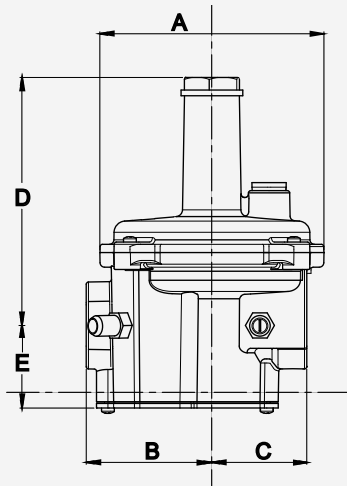
**TECHNICAL NOTE**

For the FS1B series (with built-in filter unit) the measurement "E" must be increased by approximately 400 mm to facilitate cleaning and inspection of the filter.

Model	Connections	A	B	C	D	E
FS1B65	DN 65 PN16 EN 1092-4	85	185	320	300	340
FS1B80	DN 80 PN16 EN 1092-4	85	200	320	300	340
ST1B65	DN 65 PN16 EN 1092-4	85	185	320	300	340
ST1B80	DN 80 PN16 EN 1092-4	85	200	320	300	340
ST1B100	DN100 PN16 EN 1092-4	100	220	370	360	410

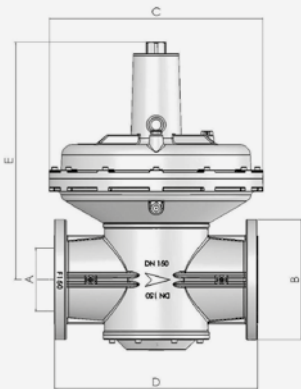
OVERALL DIMENSIONS

FGDR/COM



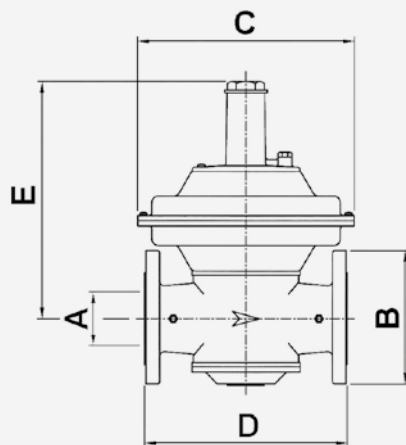
Model	Connections	A	B	C	D	E
FGDR/COM15	Rp 1/2" UNI ISO 7/1	98	55	41.5	108.5	35.5
FGDR/COM20	Rp 3/4" UNI ISO 7/1	98	55	41.5	108.5	35.5

STR - ST1B



Model	Connections	A	B	C	D	E
ST1B125-STR125	DN 125 PN16 EN 1092-4	125	250	505	480	565
ST1B150-STR150	DN 150 PN16 EN 1092-4	150	288	505	480	565

FSDR - STR



TECHNICAL NOTE

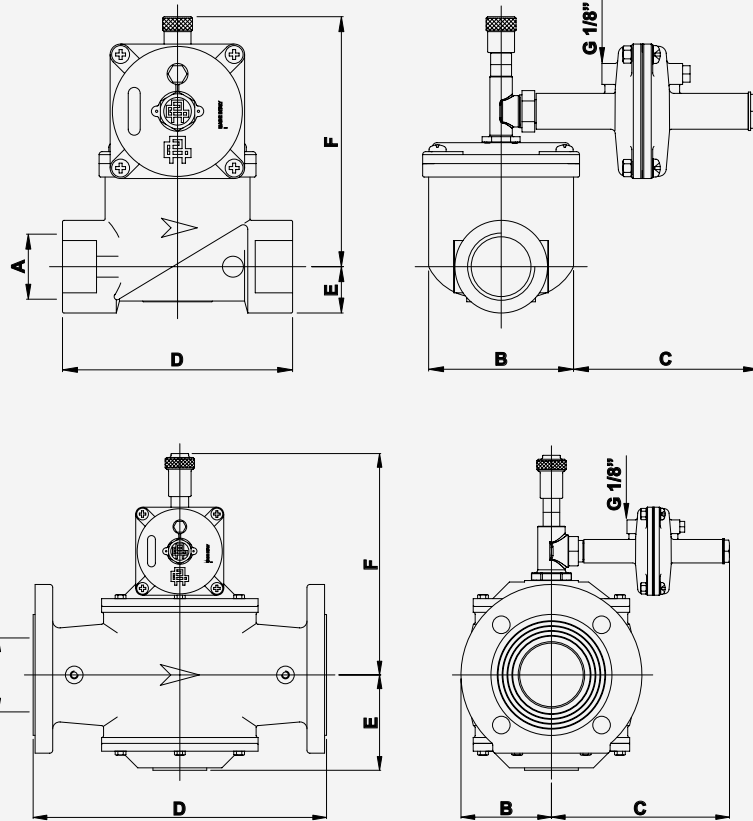
For the FSDR series (with built-in filter unit) measurement "E" must be increased by approximately 400 mm to facilitate filter cleaning and inspection.

Model	Connections	A	B	C	D	E
FSDR65	DN 65 Pn16 EN 1092-4	85	185	320	300	340
FSDR80	DN 80 Pn16 EN 1092-4	85	200	320	300	340
STR65	DN 65 Pn16 EN 1092-4	85	185	320	300	340
STR80	DN 80 Pn16 EN 1092-4	85	200	320	300	340
STR100	DN100 Pn16 En 1092-4	100	220	370	360	410



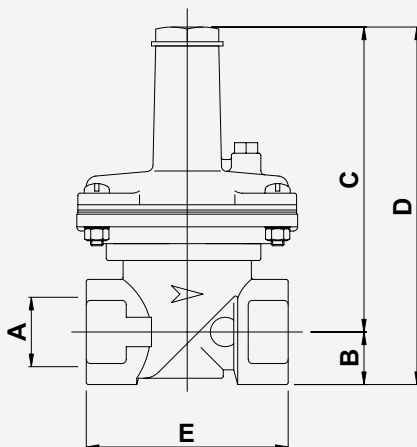
OVERALL DIMENSIONS

**MB**



Mod.	MB15	MB20	MB25	MB32	MB40	MB50	MB65	MB80	MB100	MB125	MB150
	MB15/6B	MB20/6B	MB25/6B	MB32/6B	MB40/6B	MB50/6B	MB65/6B	MB80/6B	MB100/6B	MB125/6B	MB150/6B
A	Rp 1/2"	Rp 3/4"	Rp 1"	Rp 1 1/4"	Rp 1 1/2"	Rp 2"	DN 65	DN 80	DN 100	DN 125	DN 150
B	25	35	35	52	52	64	93	100	110	125	142
C	175	175	175	175	175	175	197	197	197	180	180
D	76	96	96	154	154	173	300	300	360	480	480
E	15	25	25	31	31	39	100	100	105	170	170
F	120	140	140	170	170	170	230	230	230	370	370

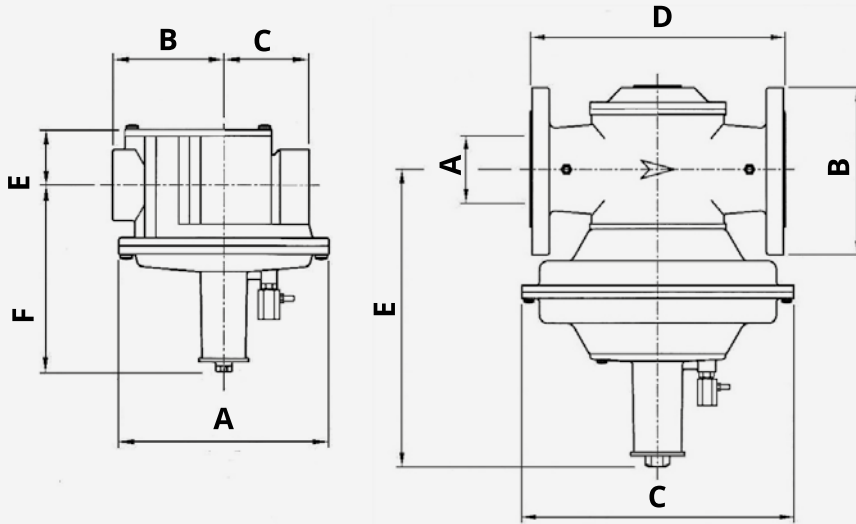
**MS**



Tipo	A	B	C	D	E
MS20	Rp 3/4"	25	145	170	96
MS25	Rp 1"	25	145	170	96

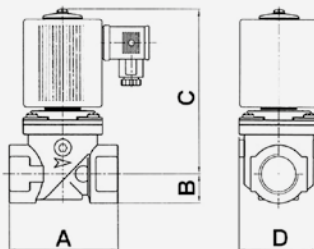
OVERALL DIMENSIONS

VRGA-GAVR



Model	Connections	A	B	C	D	E	F
GAVR 15	Rp 1/2" UNI ISO 7/1						
GAVR 20	Rp 3/4" UNI ISO 7/1	146	73	58	-	38	138
GAVR 25	Rp 1" UNI ISO 7/1						
GAVR 32	Rp 1"1/4 UNI ISO 7/1	194	98	80	-	52	179
GAVR 40	Rp 1"1/2 UNI ISO 7/1						
GAVR 50/40	Rp 2" UNI ISO 7/1	260	135	85	-	65	250
GAVR 50	Rp 2" UNI ISO 7/1						
VRGA 65	DN 65 PN 16	DN65	185	320	300	340	-
VRGA 80	DN 80 PN 16	DN80	200	320	300	340	-
VRGA 100	DN 100 PN 16	DN100	220	370	360	410	-

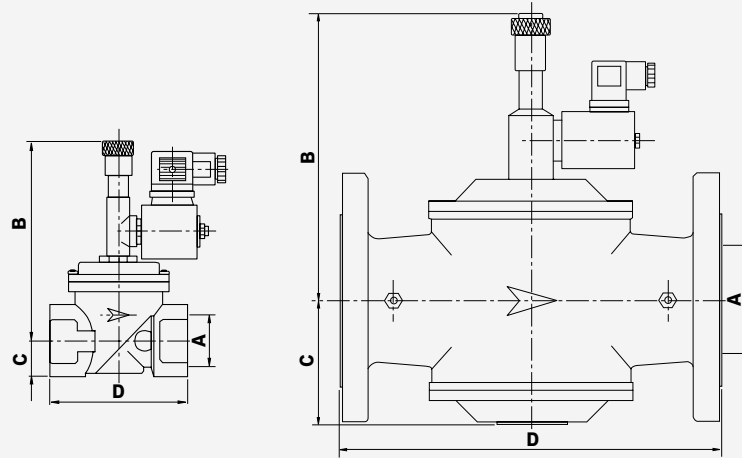
GSAV.R



Model	GSAV15R	GSAV20R	GSAV25R	GSAV32R	GSAV40R	GSAV50R
Connections	Rp 1/2"	Rp 3/4"	Rp 1"	Rp 1.1/4"	Rp 1.1/2"	Rp 2"
A	76	96	96	154	154	173
B	15	25	25	31	31	39
C	101	137	137	193	193	194
D	52	70	70	105	105	127

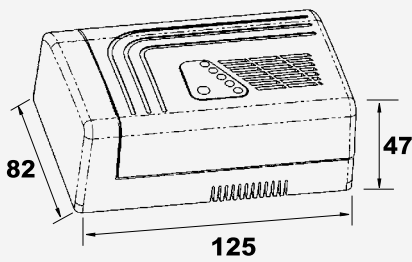
**OVERALL DIMENSIONS**

**EV - EV/6B**



Mod.	EV15 EV15/6B	EV20 - EV25 EV20/6B EV25/6B	EV32 - EV40 EV32/6B EV40/6B	EV50 EV50/6B	EV65 - EV80 EV65/6B EV80/6B	EV100 EV100/6B	EV125 - EV150 EV125/6B EV150/6B	EV200 EV200/6B	EV300 EV300/6B
A	Rp 1/2"	Rp 3/4"-1"	Rp 1.1/4"-Rp 1.1/2"	Rp 2"	DN 65-80	DN 100	DN 125-150	DN 200	DN 300
B	120	140	170	170	230	230	390	445	585
C	15	25	31	39	100	115	170	230	320
D	76	96	154	173	300	360	480	600	720

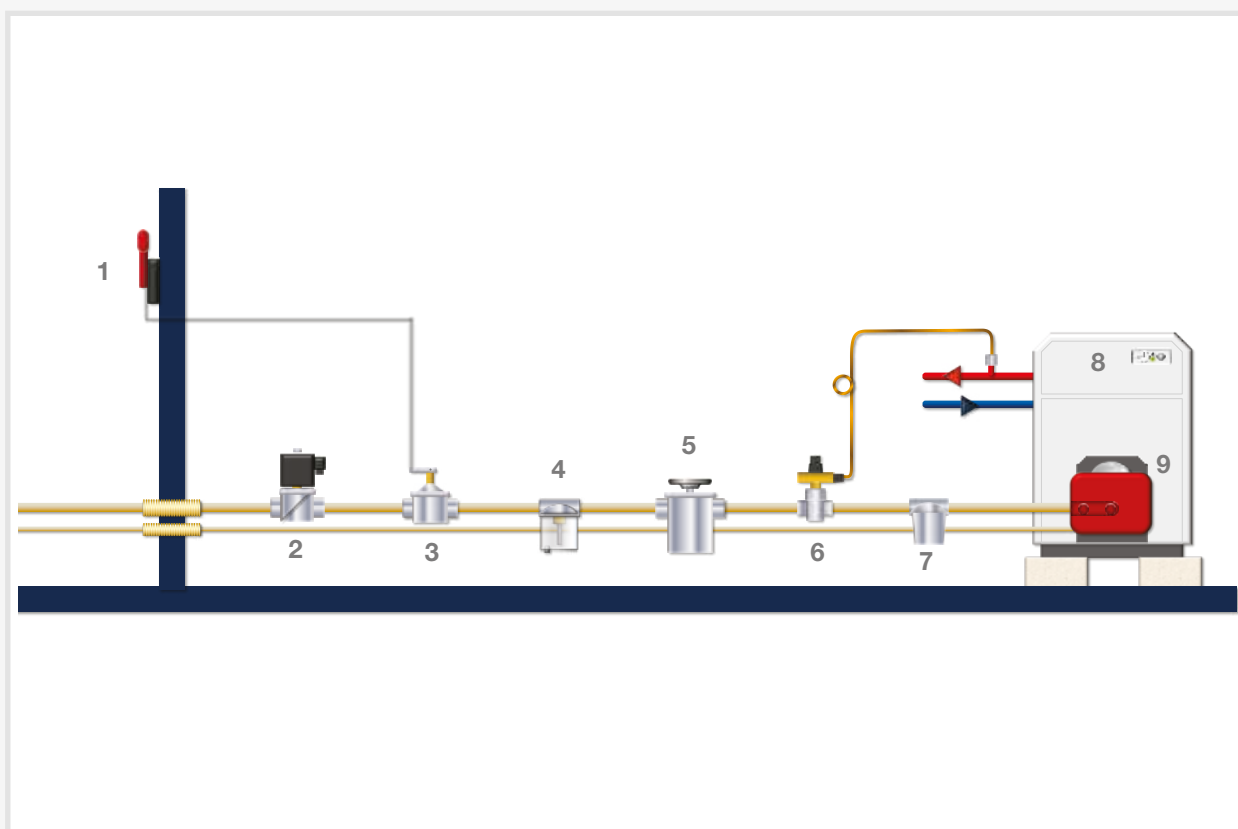
**GSX**



## Chapter 7.2

### Devices for diesel and fuel oil

#### ACCESSORIES FOR A LIQUID FUEL LINE



- |                                   |                        |
|-----------------------------------|------------------------|
| 1. Jerk-handle on/off valve lever | 6. Fuel shut-off valve |
| 2. Shut-off solenoid valve        | 7. Strainer filter     |
| 3. Jerk handle on/off valve       | 8. Boiler              |
| 4. Water separator filter         | 9. Burner              |
| 5. Self-cleaning filter           |                        |

**STRAINER FILTERS**

**SERIES 70450**

**70452A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 1/4" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70452/0015AP	001.0030.001	Paper filtering element	15 µ	50	50
70452/01AG	001.0030.005	Pleated stainless steel filtering element	100 µ	50	50

Other quantities available to order - Dimensions at the end of the section.



**70452P**

Strainer filter for diesel, fuel oil and air with aluminium cover and transparent plastic bowl.  
Maximum temperature: 50°C. PN 2. NBR gaskets. 1/4" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70452/01PL	001.0031.006	Smooth stainless steel filtering element	100 µ	50	50

Other quantities available to order - Dimensions at the end of the section.



**70451A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 3/8" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70451/0015AP	001.0032.001	Paper filtering element	15 µ	50	50
70451/01AL	001.0032.006	Smooth stainless steel filtering element	100 µ	50	50

Other quantities available to order - Dimensions at the end of the section.



**70451P**

Strainer filter for diesel, fuel oil and air with aluminium cover and transparent plastic bowl.  
Maximum temperature: 50°C. PN 2. NBR gaskets. 3/8" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70451/0015PP	001.0033.001	Paper filtering element	15 µ	50	50
70451/006PG	001.0033.003	Pleated stainless steel filtering element	60 µ	50	50

Other quantities available to order - Dimensions at the end of the section.



**ACCESSORIES**

Type	Part Number	Description	Note	Qty/Box	Box/ Carton
70410	014.0050.000	Bracket and screws	Filter Mod. 70450	1	1

**SERIES 70300**

**70301A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 3/8" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70301/006A	001.0052.003	Pleated stainless steel filtering element	60 µ	20	20

Other quantities available to order - Dimensions at the end of the section.



**70302A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 1/2" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70302/01A	001.0054.004	Pleated stainless steel filtering element	100 µ	20	20

Other quantities available to order - Dimensions at the end of the section.



**70302P**

Strainer filter for diesel, fuel oil and air with aluminium cover and transparent plastic bowl.  
Maximum temperature: 50°C. PN 2. NBR gaskets. 1/2" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70302/006P	001.0055.003	Pleated stainless steel filtering element	60 µ	20	20
70302/01P	001.0055.004	Pleated stainless steel filtering element	100 µ	20	20

Other quantities available to order - Dimensions at the end of the section.



**ACCESSORIES**

Type	Part Number	Description	Note	Qty/Box	Box/ Carton
70358	014.0051.000	Bracket and screws	Filter Mod. 70370/RE	1	1

**SERIES 70310**

**70313P**

Strainer filter for diesel, fuel oil and air with aluminium cover and transparent plastic bowl.  
Maximum temperature: 50°C. PN 2. NBR gaskets. 1/4" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70313/006P	001.0071.003	Pleated stainless steel filtering element	60 µ	10	10

Dimensions at the end of the section.



**70311A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 3/8" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70311/01A	001.0072.004	Pleated stainless steel filtering element	100 µ	10	10

Dimensions at the end of the section.



**70312A**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl.  
Maximum temperature: 90°C. PN 2. NBR gaskets. 1/2" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70312/01A	001.0074.004	Pleated stainless steel filtering element	100 µ	10	10

Dimensions at the end of the section.



**70312P**

Strainer filter for diesel, fuel oil and air with aluminium cover and transparent plastic bowl.  
Maximum temperature: 50°C. PN 2. NBR gaskets. 1/2" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70312/006P	001.0075.003	Pleated stainless steel filtering element	60 µ	10	10
70312/01P	001.0075.004	Pleated stainless steel filtering element	100 µ	10	10

Dimensions at the end of the section.



**ACCESSORIES**

Type	Part Number	Description	Note	Qty/Box	Box/ Carton
70358	014.0051.000	Bracket and screws	Filter Mod. 70300	1	1

**SERIES 70100**

**70107**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 2. NBR gaskets. 1/2" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70107/01	001.0110.003	Pleated stainless steel filtering element	100 µ	6	6

Dimensions at the end of the section.



**70104**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 2. NBR gaskets. 3/4" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70104/01	001.0112.003	Pleated stainless steel filtering element	100 µ	6	6

Dimensions at the end of the section.



**70101**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 2. NBR gaskets. 1" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70101/006	001.0111.002	Pleated stainless steel filtering element	60 µ	6	6
70101/01	001.0111.003	Pleated stainless steel filtering element	100 µ	6	6
70101/03	001.0111.004	Galvanized steel filtering element	300 µ	6	6

Dimensions at the end of the section.



**SERIES 70500**

**70501**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 4. NBR gaskets. 1" threaded connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70501/01	001.0140.003	Pleated stainless steel filtering element	100 µ	1	1
70501/03	001.0140.004	Galvanized steel filtering element	300 µ	1	1

Dimensions at the end of the section.





**70503**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 4. NBR gaskets. 1.1/2" connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70503/01	001.0142.003	Pleated stainless steel filtering element	100 µ	1	1
70503/03	001.0142.004	Galvanized steel filtering element	300 µ	1	1

Dimensions at the end of the section.



**70504**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 4. NBR gaskets. 2" connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70504/006	001.0143.002	Pleated stainless steel filtering element	60 µ	1	1

Dimensions at the end of the section.



**SERIES 70700**

**70700F**

Strainer filter for diesel, fuel oil and air with aluminium cover and bowl. Maximum temperature: 90°C. PN 4. NBR gaskets. DN50" flanged connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70700/006F	001.0161.002	Pleated stainless steel filtering element	60 µ	1	1

Dimensions at the end of the section.



**7**

**SPECIAL FILTER**

**70370**

Water separator filter for diesel, fuel oil and air with aluminium cover and transparent bowl. Maximum temperature: 50°C. PN 2. NBR gaskets. 3/8" connections.

Type	Part Number	Cartridge	Filter	Qty/Box	Box/ Carton
70370/01	001.0080.003	Stainless steel filter element	100 µ	10	10

Dimensions at the end of the section.



ACCESSORIES

Type	Part Number	Description	Note	Qty/Box	Box/ Carton
70410	014.0050.000	Bracket and screws	Filter Mod. 70450	1	1
70358	014.0051.000	Bracket and screws	Filter Mod. 70310	1	1
1543	014.0052.000	Bracket and screws	Filter Mod. 70100	1	1
1604	014.0025.00	Electronic heater NL 300W set 70°C IP65	-	1	1

PARTS FOR STRAINER FILTERS

60450

Pleated cartridges for filters 70451 - 70452 - AL, AG, PL, PG, AGE, AP, PP. Pleated cartridge only for filter 70370.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60450/006L	014.4032.001	Smooth stainless steel filtering element	60 μ	1	1
60450/01G	014.4031.003	Pleated stainless steel filtering element	100 μ	1	1
60450/01L	014.4032.002	Smooth stainless steel filtering element	100 μ	1	1



60300

Pleated cartridges for filters 70301- 70302- 70303- 70351- A, AP, P, PP. For filters 70371RE and 70372RE.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60300/0015P	014.4050.001	Paper filtering element	15 μ	1	1
60300/006	014.4051.002	Pleated stainless steel filtering element	60 μ	1	1
60300/01	014.4051.003	Pleated stainless steel filtering element	100 μ	1	1



60200

Pleated cartridges for filters 70311 - 70312- 70313- 70207- A, AP, P, PP.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60200/0015P	014.4070.001	Paper filtering element	15 μ	1	1
60200/01	014.4071.003	Pleated stainless steel filtering element	100 μ	1	1



**60100**

Pleated cartridges for filters 70101 - 70104 - 70107.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60100/006	014.4110.002	Pleated stainless steel filtering element	60 μ	1	1
60100/01	014.4110.003	Pleated stainless steel filtering element	100 μ	1	1
60100/03	014.4110.004	Galvanized steel filtering element	300 μ	1	1


**60500**

Pleated cartridges for filters 70501 - 70502 - 70503 - GL, NL, M, GLM, NLM.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60500/006	014.4140.002	Pleated stainless steel filtering element	60 μ	1	1
60500/01	014.4140.003	Pleated stainless steel filtering element	100 μ	1	1


**60700**

Pleated cartridges for filters 70700.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
60700/01	014.4160.003	Pleated stainless steel filtering element	100 μ	1	1


**7**
**SS**

Replacement cartridge for filters RG2, RV2-RV1-RZ-V1.

Type	Part Number	Description	Filter	Qty/Box	Box/ Carton
SS	0199016	Smooth filter element for RV2-RV1-RZ-V1	200 μ	1	10



**GASKET KIT**

Type	Part Number	Filter	Cartridge	Qty/Box	Box/ Carton
3198	014.0065.002	70450	Smooth and Paper NBR	1	1
3198V	014.0065.005	70450	Smooth VITON	1	1
3204V	014.0066.002	70300	Pleated. VITON	1	1
3203	014.0067.001	70310	Paper pleated. NBR	1	1
3207V	014.0070.002	70100	Pleated. VITON	1	1
3197	014.0074.001	70500	Pleated. NBR	1	1
3197V	014.0074.002	70500	Pleated. VITON	1	1

**BOWL KIT**

Type	Part Number	Filter	Note	Qty/Box	Box/ Carton
C70301	014.0352.000	70301 - 70311	-	1	1

**COVER KIT**

Type	Part Number	Filter	Note	Qty/Box	Box/ Carton
B70450P	014.0400.000	70450P	-	1	1

**SELF-CLEANING FILTERS**

**21008**

Self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. 1"x1" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
21008/01	003.0043.001	100 μ	1	1
21008/03	003.0043.002	300 μ	1	1
21008/06	003.0043.003	600 μ	1	1

Dimensions at the end of the section.



**31008**

Self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. 1"x1" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
31008/01	003.0051.001	100 μ	1	1

Dimensions at the end of the section.



**PARTS AND ACCESSORIES**

Type	Part Number	Description	Qty/Box	Box/ Carton
1604	014.0025.000	Electronic heater NL 300W 70°C IP65	1	1

**51000**

Self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. 2"x2" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
51000/075	003.0070.003	750 µ	1	1

Dimensions at the end of the section.



**51000F**

Self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. DN50 flanged connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
51000/05F	003.0071.002	500 µ	1	1

Dimensions at the end of the section.



**HIGH-PRESSURE SELF-CLEANING FILTERS**

**45000**

High-pressure self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 15. 1.1/2"x1.1/2" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
45000/03	003.0090.002	300 µ	1	1
45000/06	003.0090.003	600 µ	1	1

Dimensions at the end of the section.



**31008/RE**

Heated self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. 1"x1" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/ Carton
31008/01RE	003.0051.004	100 µ	1	1

Dimensions at the end of the section.



**PARTS AND ACCESSORIES**

Type	Part Number	Description	Qty/ Box	Box/ Carton
1328	015.0040.001	Electric motor 230 V. 50-60 Hz. for type 21000 - 31000	1	1

**41000NL**

Heated self-cleaning filter for diesel and fuel oil with aluminium cover and bowl. PN 4. 1.1/2"x1.1/2" threaded connections.

Type	Part Number	Filter	Qty/Box	Box/Carton
41000/03NL	003.0060.008	300 µ	1	1

Dimensions at the end of the section.



**PARTS FOR STRAINER FILTERS**

**U41000**

Part for self-cleaning filter, comprising cover and filter element.

Type	Part Number	Type - Filter	Qty/ Box	Box/ Carton
U41000/03	004.0060.002	41000/41000RB/41000NL - 300 µ	1	1



**U45000**

Part for self-cleaning filter, comprising cover and filter element.

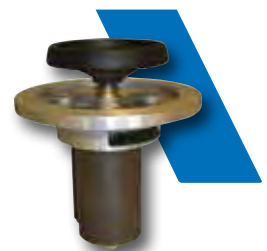
Type	Part Number	Type - Filter	Qty/Box	Box/Carton
U45000/03	004.0080.002	45000 - 300 µ	1	1
U45000/06	004.0080.003	45000 - 600 µ	1	1



**U51000**

Part for self-cleaning filter, comprising cover and filter element.

Type	Part Number	Type - Filter	Qty/ Box	Box/ Carton
U51000/05	004.0070.002	51000/51000RB/51000NL/51000F/ 51000FRB/51000FNL - 500 µ	1	1



**SYSTEM COMPONENTS**
**M10M15**

Normally closed (NC) solenoid valve for automatic diesel shut-off in burner fuel lines. For diesel and fuel oil applications with threaded filters. Brass body. Protection rating: IP65. Ambient temperature: -5÷60°C. PN 4.

Type	Part Number	Connection - Voltage	Qty/Box	Box/Carton
M10M15	0150215	1/2" - Voltage 230 Vac	1	25

Dimensions at the end of the section.


**LEVEL INDICATORS, PROBES AND ACCESSORIES**
**TLM - TELEVAR**

Universal remote pneumatic level indicator. For tanks of any shape and height between 900 and 3000 mm (item 103) and between 3000 and 5000 mm (item 105). Standard dial in percentage volume for cylindrical tanks. Tank connection suitable for pipe with external diameter of 6mm. Case with 3 external mounting slots.

Type	Part Number	Description	Qty/Box	Box/Carton
TLM	0101103	Tank height max 3m	1	10
TLM	0101105	Tank height da 3 a 5m	1	10

Dimensions at the end of the section.


**PE50**

Polythene hose for connecting TELEVAR remote indicator to G20 Series diesel probe. Hose Ø 4x6 mm. Roll length: 50 metres.

Type	Part Number	Description	Qty/Box	Box/Carton
PE50	0105150	Roll 50m	50	1


**G20**

Diesel probe. Fitted on tank for connection to TELEVAR remote indicator. 1" metal fitting with connection for 6 mm hose (external Ø). Perbunan pick-up tube with bottom spacer.

Type	Part Number	Connection - Length	Qty/Box	Box/Carton
G20	0104130	1" - 320cm	1	5
G20	0104150	1" - 520cm	1	5



**MECAV**

Universal mechanical level indicator with vertical reading, complete with seal for tight tank connection. Set by means of external screw. High-impact plastic case and cover. Measuring range: 0-2000 mm.

Type	Part Number	Connection	Qty/Box	Box/Carton
MECAV	0103100	1.1/2"	1	20

Dimensions at the end of the section.



**MECAH**

Universal mechanical level indicator with horizontal reading, complete with seal for tight tank connection. Set by means of external screw. High-impact plastic case and cover. Measuring range: 0-2000 mm.

Type	Part Number	Connection	Qty/Box	Box/Carton
MECAH	0103200	1.1/2"	1	20

Dimensions at the end of the section.



**VRU**

Check valve for diesel lines, complete with kit of fittings for connection to Ø 6x8, 8x10 and 10x12 mm pipes. CW617N brass body. Pressure drop at 50 l/h: 11 mbar. Pressure drop at 100 l/h: 18 mbar.

Type	Part Number	Connection	Qty/Box	Box/ Carton
VRU	0120140	3/8" F	1	50



**DIESEL SAFETY**

**CTS**

Cap for tank vent pipe, without thread, with fixed spacers for adaptation to press-fit pipes, with fastening screws. High-impact plastic body, metal mesh.

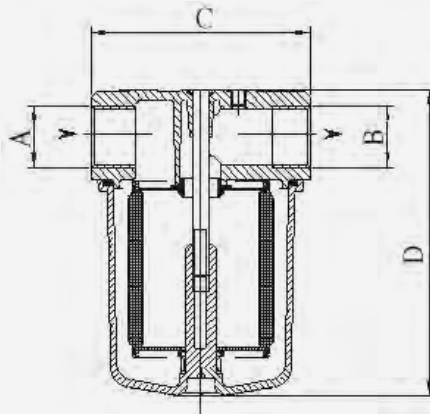
Type	Part Number	Connection	Qty/Box	Box/Carton
CTS	0160140	1.1/2" - 2"	10	10





**OVERALL DIMENSIONS**

**70450A - 70450P**



Note:  
measurement "D" in the table is divided  
for versions with aluminium bowl (Al.) and  
versions with transparent bowl (Pl.).

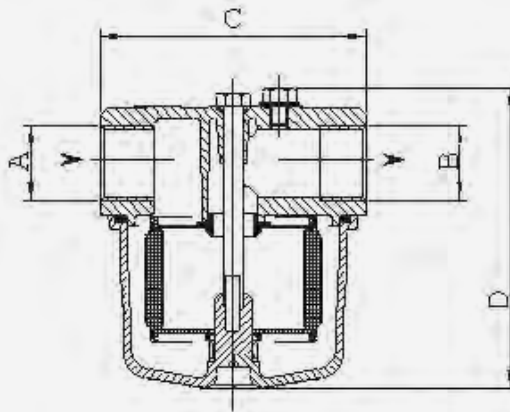
Item	Dimensions						Filtration rating	Filtration area cm <sup>2</sup>		
	A	B	C	D	D	E		P	G	L
				Al.	Pl.					
70451 *	Rp 3/8"	Rp 3/8"	61	75	75	-	15 ***			
70452 *	Rp 1/4"	Rp 1/4"	61	75	75	-	60 - 100	190	50	28

\* These models are available with transparent bowl  
\*\* Standard filtration rating (other ratings available to order)  
P - \*\*\*: paper filter

G: pleated steel cartridge  
L: smooth steel cartridge



**70300A - 70300P**



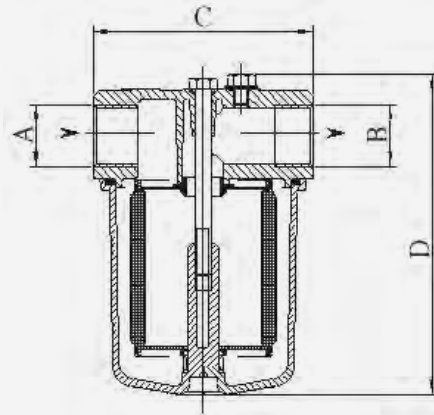
Note:  
measurement "D" in the table is divided  
for versions with aluminium bowl (Al.) and  
versions with transparent bowl (Pl.).

Item	Dimensions						Filtration rating	Filtration area cm <sup>2</sup>		
	A	B	C	D	D	E		P	G	L
				Al.	Pl.					
70301 *	Rp 3/8"	Rp 3/8"	81	85	89	-	15 ***			
70302 *	Rp 1/2"	Rp 1/2"	81	85	89	-	60 - 100	360	85	-
70303 *	Rp 1/4"	Rp 1/4"	81	85	89	-				

\* These models are available with transparent bowl  
\*\* Standard filtration rating (other ratings available to order)  
P - \*\*\*: paper filter  
G: pleated steel cartridge

OVERALL DIMENSIONS

70310A - 70310P

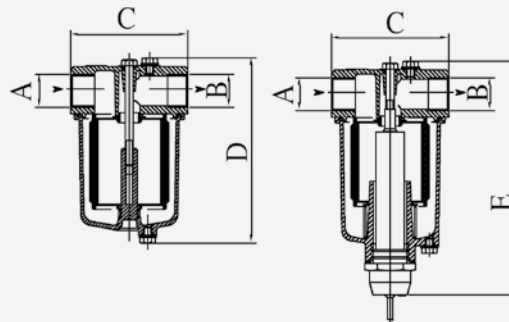


Note:  
measurement "D" in the table is divided  
for versions with aluminium bowl (Al.)  
and versions with transparent bowl (Pl.).

Item	Dimensions						Filtration rating	Filtration area cm <sup>2</sup>		
	A	B	C	D Al.	D Pl.	E		P	G	L
70311 *	Rp 3/8"	Rp 3/8"	81	117	140	-	15 *** 60 - 100 - 300	750	185	-
70312 *	Rp 1/2"	Rp 1/2"	81	117	140	-				
70313 *	Rp 1/4"	Rp 1/4"	81	117	140	-				

\* These models are available with transparent bowl  
\*\* Standard filtration rating (other ratings available to order)  
P - \*\*\*: paper filter  
G: pleated steel cartridge

70100 - 70150

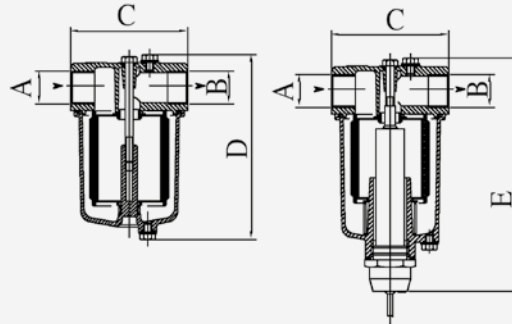


Item	Dimensions						Filtration rating	Filtration area cm <sup>2</sup>		
	A	B	C	D Al.	D Pl.	E		P	G	L
70101	Rp 1"	Rp 1"	120	175	N/A	-	60 100 - 300	-	330	-
70104	Rp 3/4"	Rp 3/4"	120	175	N/A	-				
70107	Rp 1/2"	Rp 1/2"	120	175	N/A	-				
70151 NL/GL	Rp 1"	Rp 1"	120	-	N/A	235				
70154 NL/GL	Rp 3/4"	Rp 3/4"	120	-	N/A	235				
70157 NL/GL	Rp 1/2"	Rp 1/2"	120	-	N/A	235				
70151 M	Rp 1"	Rp 1"	120	-	N/A	205				
70154 M	Rp 3/4"	Rp 3/4"	120	-	N/A	205				
70157 M	Rp 1/2"	Rp 1/2"	120	-	N/A	205				

\*\* Standard filtration rating (other ratings available to order)  
P - \*\*\*: paper filter  
G: pleated steel cartridge

**OVERALL DIMENSIONS**

**70500**

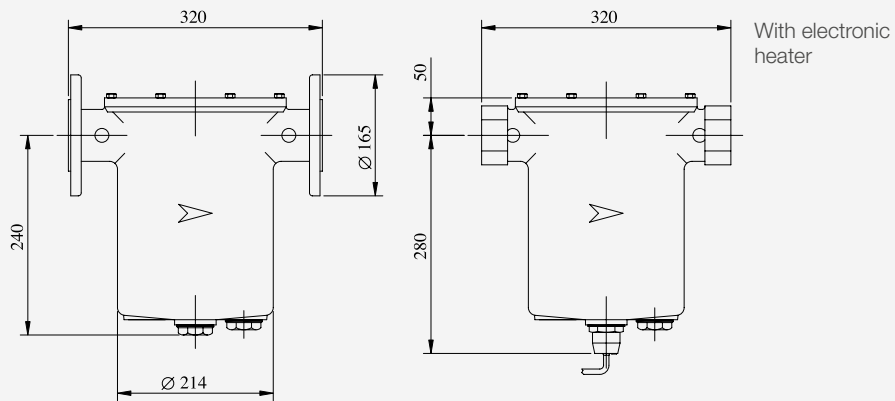


Item	Dimensions						Filtration rating	Filtration area cm <sup>2</sup>		
	A	B	C	D Al.	D Pl.	E		P	G	L
70501	Rp 1"	Rp 1"	190	255	N/A	-	60 100 - 300	-	820	-
70502	Rp 1.1/4"	Rp 1.1/4"	190	255	N/A	-				
70503	Rp 1.1/2"	Rp 1.1/2"	190	255	N/A	-				
70504	Rp 2"	Rp 2"	182	275	N/A	-				
70501 NL/GL/M/NLM/GLM	Rp 1"	Rp 1"	190	-	N/A	300				
70502 NL/GL/M/NLM/GLM	Rp 1.1/4"	Rp 1.1/4"	190	-	N/A	300				
70503 NL/GL/M/NLM/GLM	Rp 1.1/2"	Rp 1.1/2"	190	-	N/A	300				
70504 NL/GL/M/NLM/GLM	Rp 2"	Rp 2"	182	-	N/A	220				

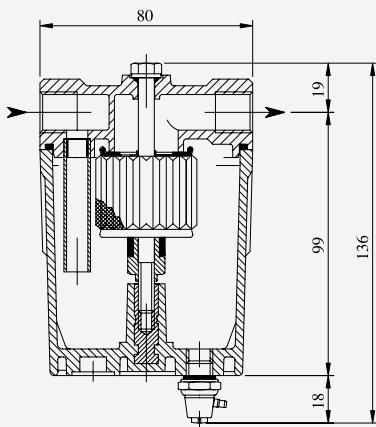
\*\* Standard filtration rating (other ratings available to order).  
G: pleated steel cartridge.



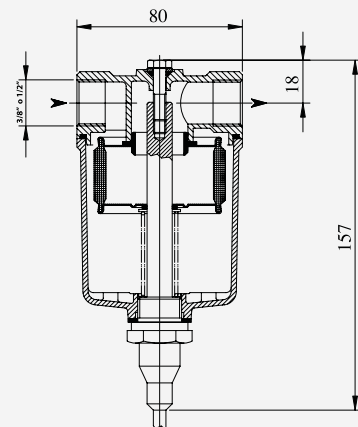
**70700F**



**70370**

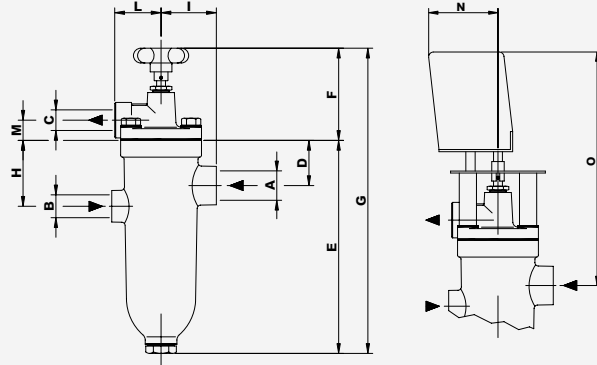


**70370RE**



OVERALL DIMENSIONS

21000 - 31000



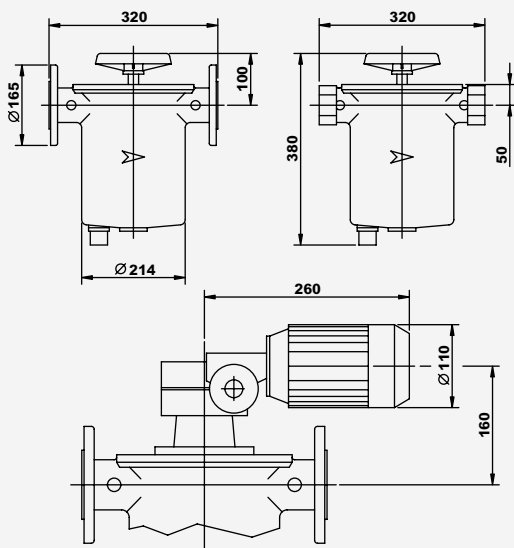
CONNECTIONS

- A - inlet
- B - return
- C - outlet

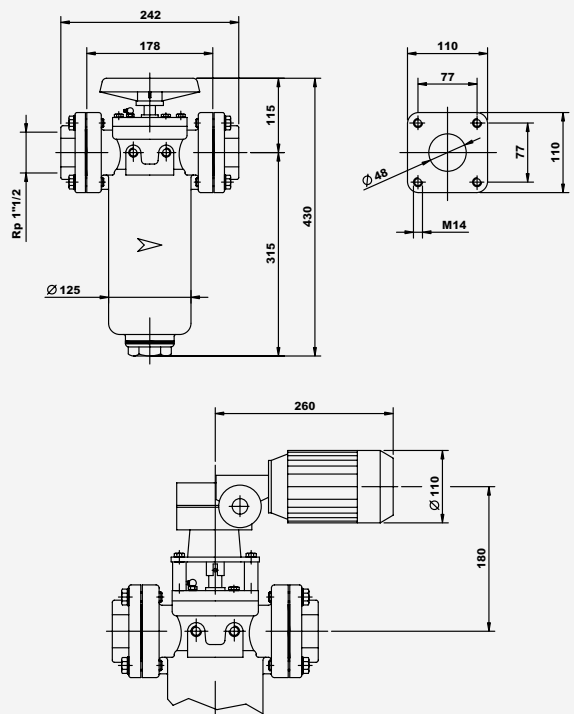
With electric motor.

Type	A	B	C	D	E	F	G	H	I	L	M	N	O
21003	Rp 1"	Rp 1/2"	Rp 1"										
21005	Rp 1/2"	-	Rp 1/2"	28	185	92	277	46	55	60	24	85	255
21008	Rp 1"	-	Rp 1"										
31003	Rp 1"	Rp 1/2"	Rp 1"	28	273	92	365	46	55	60	24	85	255
31008	Rp 1"	-	Rp 1"										

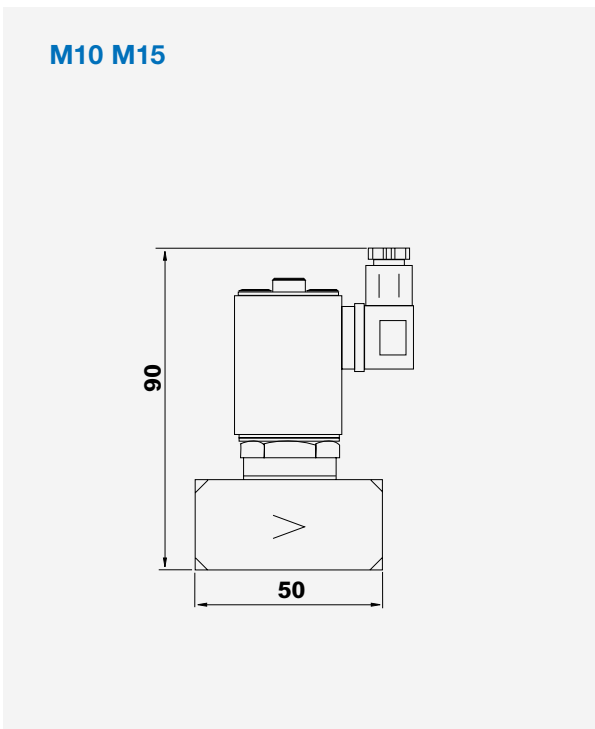
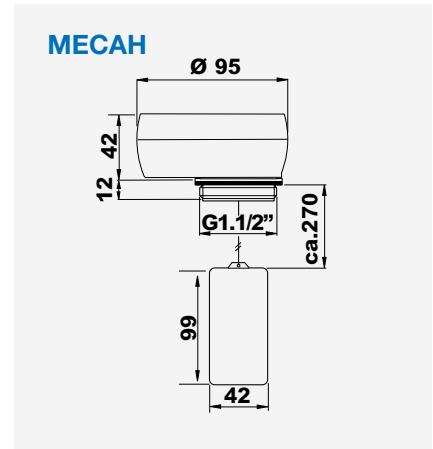
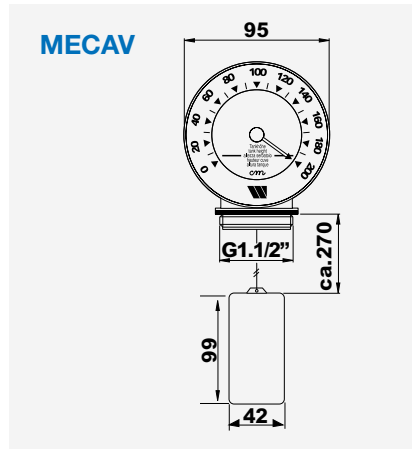
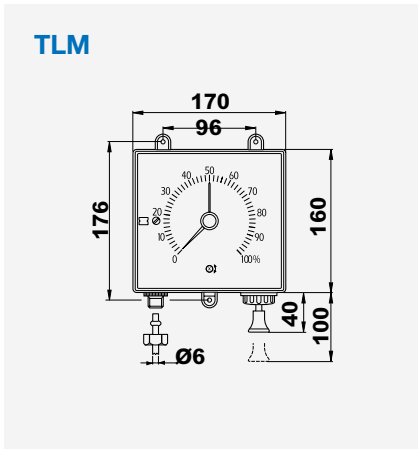
51000



45000



**OVERALL DIMENSIONS**



# Chapter 8

Control and  
protection of  
water distribution  
systems

# E-ULTRAMIX

## The new anti-legionella system



Electronic control of water temperature  
Programming of thermal disinfection cycles  
Remote control

**WATTS®**

## Chapter 8

# Control and protection of water distribution systems

### PRESSURE REDUCING VALVES WITH COMPENSATED SEAT

#### REDUBAR

Nickel-plated brass ultra-compact pressure reducing valve. PN15. Adjustable downstream pressure: 1.5÷4 bar (factory settings 3±0.5 bar). Max. operating temperature: 70°C. Available in version with 1/2" F - 3/4" M multi-thread connections on both sides and with 3/4" M connection for 3/4" F union nut.

**Compliant with: ACS (Attestation de Conformité Sanitaire)**

Part Number	Connection	Qty/Box	Box/Carton
82500	3/4" M x rotary nut 3/4" F	1	40
82501	1/2" F / 3/4" M x 1/2" F / 3/4" M	1	40

Dimensions at the end of the section.



#### REDUBLOC

Compact brass pressure reducing valve offering 3 functions in 1:

- pressure reduction;
- controllable check valve;
- shut-off valve.

PN15. Adjustable downstream pressure: 1.5÷4 bar (factory settings 3±0.5 bar).

Max. operating temperature: 70°C. 1/2" F - 3/4" M downstream connections and 3/4" M upstream connections with union nut for direct connection to flow meters.

**Check valve to French standards (NF).**

Part Number	Connection	Qty/Box	Box/Carton
82900	1/2" F / 3/4" M x rotary nut 3/4" F	1	18

Dimensions at the end of the section.





**DRV**

Diaphragm pressure reducing valve with compensated seat complete with unions. CW617N brass body and cap. Stainless steel strainer. Plastic valve seat. Interchangeable filter-regulator unit. PN25. Adjustable downstream pressure: 1.5÷6 bar. Can be used for water, compressed air and neutral gases up to 30°C. Pressure drops less than 1.3 bar at DIN characteristic flow rate. Noise < 20 dB - Class 1 in Germany.

**Compliant with DVGW, SVGW, TIN, NF (DN 1/2" and 3/4" only).**



Part Number	DN	Qty/Box	Box/Carton
0501115	1/2" MM	1	20
0501120	3/4" MM	1	20
0501125	1" MM	1	12
0501132	1.1/4" MM	1	1
0501140	1.1/2" MM	1	1
0501150	2" MM	1	1

Dimensions at the end of the section.

**TECHNICAL NOTE - Cavitation diagram for DRV series pressure reducing valves**

**CAVITATION**

The cavitation diagram shows three operating zones of the pressure reducing valve plotted against the upstream and downstream pressures:

**Zone C:** normal duty, no cavitation

**Zone B:** medium duty, risk of cavitation

**Zone A:** heavy duty, the pressure reducing valve shows cavitation.

Continuous operation in the red cavitation zone could cause rapid deterioration of the internal parts.

**SIZING**

**Example 1 (cavitation)**

Pressure reducing valve with:

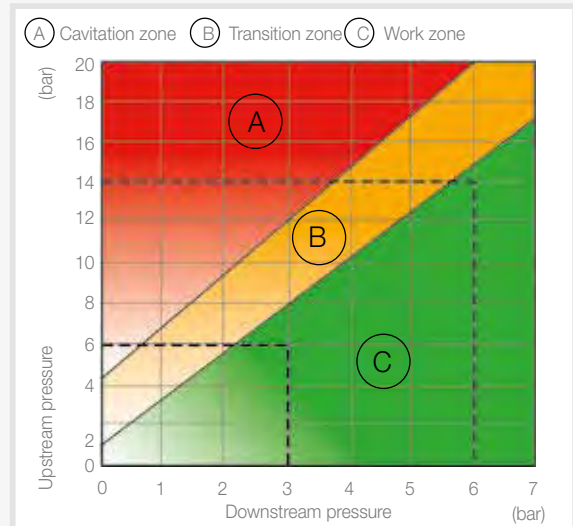
Inlet pressure P1 = 14 bar

Outlet pressure P2 = 3 bar

From the cavitation diagram it can be seen that the pressure reducing valve is constantly working in the red zone. To avoid rapid deterioration, two pressure reducing valves could be used, one connected upstream of the other.

**Upstream pressure reducing valve:** pressure drop from 14 to 6 bar (green zone).

**Downstream pressure reducing valve:** pressure drop from 6 to 3 bar (green zone).



**DRVN**

Patented diaphragm pressure reducing valve with compensated seat, outlet pressure adjuster knob and external graduated scale for easy reading of set pressure. Complete with unions. Pressed, shotblasted CW617N brass body. Stainless steel filter cartridge. Pressure gauge connection on both sides: 1/4". Materials in contact with fluids are KTW certified. PN25.

Adjustable downstream pressure: 1.5 and 6 bar. Max. operating temperature: 30°C. Can be used for water, air and neutral gases. Noise < 20 dB - Class 1 in Germany.

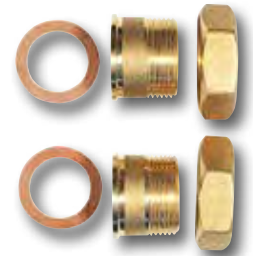


Part Number	DN	Qty/Box	Box/Carton
0502515	1/2" MM	1	20
0502520	3/4" MM	1	20
0502525	1" MM	1	15
0502532	1.1/4" MM	1	1
0502540	1.1/2" MM	1	1
0502550	2" MM	1	1

Dimensions at the end of the section.

**PARTS DRVN**

Pair of replacement unions complete with nut and gaskets for DRV series pressure reducing valves.



Part Number	DN	Qty/Box	Box/Carton
0599001	1/2" MM	1	10
0599003	1" MM	1	10
0599005	1.1/2" MM	1	10
0599006	2" MM	1	10

**DRVD16**

Flanged pressure reducing valve with single spring-compensated seat with 1/4" (DN 50-65) and 3/8" (DN 80-200) pressure gauge connections upstream and downstream. Cast iron body, cap and flanges with epoxy paint finish. PN16. Adjustable downstream pressures: standard execution: 1.5÷6 bar. Special execution: 2÷8 bar/4÷12 bar. Pressure control: turn clockwise to increase pressure, turn anticlockwise to reduce pressure. Suitable for installation on both vertical and horizontal pipes (latter preferable), observing the direction of flow. Can be used for water, air and neutral gases up to 40°C. UNI 1092-2 flanged connections.



Part Number	DN	bar	Qty/Box	Box/Carton
0504068	65	1,5 - 6	1	1
0504083	80	1,5 - 6	1	1
0504103	100	1,5 - 6	1	1

Dimensions at the end of the section.

**THERMOSTATIC MIXING VALVES**

**61C - AQUAMIX**

Thermostatic mixing valve with 4 setting positions. Anti-scald safety.

Setting range: 32÷50°C. Max. differential pressure: 2 bar. Female connections.

**Compliant with EN 1111 and EN 1287.**



Part Number	DN	Qty/Box	Box/Carton
6109C12	1/2" F	1	36
6110C34	3/4" F	1	36
6111C1	1" F	1	36

Dimensions at the end of the section.

**62C- AQUAMIX**

Thermostatic mixing valve with 4 setting positions. Anti-scald safety.  
Setting range: 42÷60°C. Max. differential pressure: 2 bar. Female connections.  
**Compliant with EN 1111 and EN 1287.**



Part Number	DN	Qty/Box	Box/Carton
6209C12	1/2" F	1	36
6210C34	3/4" F	1	36
6211C1	1" F	1	36

Dimensions at the end of the section.

**THERMOSTATIC MIXING VALVES FOR COLLECTIVE FACILITIES****e-ULTRAMIX**

Anti-legionella system with programmable thermal disinfection, consisting of:

- bimetallic strip thermostatic mixing valve with male threaded connections, brass body, anti-seize mechanism with strainers and check valves, anti-scald protection, PN 10, max. hot water inlet temperature: 85°C, dynamic operating pressure: 2-4 bar, minimum inlet/outlet temperature differential: 5°C;
- electronic control unit for programming disinfection cycles and saving data on micro SD card. CE compliant, IP30. Power supply: 230 V - 50/60 Hz. Temperature control range: 30÷70°C, disinfection temperature: 50÷70°C. With auxiliary microswitches for controlling drainage, circulation, DHW production and alarms. Remote management interface;
- mixed water flow and recirculation return probes (L=3m);
- electric actuator (5VDC, consumption 2.5W, IP30) Length of actuator/control unit cable 1.50m.



Part Number	Description	l/min	Points of use	Qty/Box	Box/ Carton
22TX94E37ELEC	e-ULTRAMIX 1 1/4"	5-175	1-21	1	1

Dimensions at the end of the section.

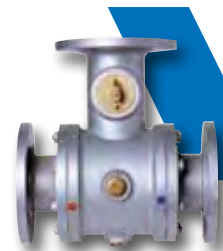
**T70**

Thermostatic mixing valve for central DHW systems with high flow rates: apartment complexes, factories, hotels, hospitals, schools, etc. Cast iron body and bronze/brass internal parts. PN16 flanged series. Adjustment range: 10÷50°C. 30÷70°C available to order. PN10. Maximum temperature: 85°C.

Flow rates guaranteed with upstream dynamic pressures: 3 bar. Max. dynamic pressure: 6 bar.

Hot water inlet on left and cold water inlet on right, mixed water outlet at the top. A strainer and check valve should be installed at the hot/cold water inlets. Adoption of this unit discharges obligation under Italian act governing domestic hot water production.

**Compliant with EN 1111/00 and UNI EN 1287/00.**



Part Number	DN	Reg. temp.	l/min	Qty/Box	Box/ Carton
T70065	65	10-50°C	10-360*	1	1
T70080	80	10-50°C	12-700*	1	1

\* As an indication, consider the coefficient of simultaneity

Dimensions at the end of the section.

**TX90 - ULTRAMIX**

Visible thermostatic mixing valves for collective facilities such as swimming pools, sports centres, schools, military bases, factories, camp sites, hospitals, spas, etc., for setting the mixed water to a constant temperature and keeping it at that temperature even in the event of pressure fluctuations (max. 1.5 bar). Brass body.

Grey epoxy cover with blue graduated knob (Code E).

Chrome-plated cover with white graduated knob (Code C).

Anti-seize mechanism with strainers and check valves.

Steel bimetallic strip coated with rilsan to protect against scale formation.

Temperature control range: 10÷50°C and 30÷70°C (only for models with epoxy cover) with locking function. Anti-scald protection: water shut off in less than two seconds in the absence of cold water.

PN10. Max. hot water temperature: 85°C.

Flow rates guaranteed with upstream dynamic pressure: 3 bar.

Hot water inlet on left, mixed water outlet at the top.

Minimum inlet/outlet temperature differential: 5°C.

Calculation software is available on [www.wattsindustries.it](http://www.wattsindustries.it) to help with sizing and selecting the right model of UltramixTX90 thermostatic mixing valve.

**Compliant with EN 1111/00 and UNI EN 1287/02.**



Part Number	DN	Reg. temp.	Points of use	l/min	Qty/ Box	Box/ Carton
TX91E	3/4"M	10-50°C	1-7	3-56 *	1	1
TX92E	3/4"M	10-50°C	1-10	3-80 *	1	1
TX93E	1"M	10-50°C	1-15	3-120 *	1	1
TX94E	1.1/4"M	10-50°C	1-21	5-175 *	1	1
TX95E	1.1/2"M	10-50°C	1-32	5-260 *	1	1
TX96E	2"M	10-50°C	1-50	6-400 *	1	1
TX91C	3/4"M	10-50°C	1-7	3-56 *	1	1
TX92C	3/4"M	10-50°C	1-10	3-80 *	1	1
TX93C	1"M	10-50°C	1-15	3-120 *	1	1
TX94C	1.1/4"M	10-50°C	1-21	5-175 *	1	1
TX95C	1.1/2"M	10-50°C	1-32	5-260 *	1	1
TX96C	2"M	10-50°C	1-50	6-400 *	1	1
TX91E37	3/4"M	30-70°C	1-7	3-56 *	1	1
TX92E37	3/4"M	30-70°C	1-10	3-80 *	1	1
TX93E37	1"M	30-70°C	1-15	3-120 *	1	1
TX94E37	1.1/4"M	30-70°C	1-21	5-175 *	1	1
TX95E37	1.1/2"M	30-70°C	1-32	5-260 *	1	1
TX96E37	2"M	30-70°C	1-50	6-400 *	1	1

\* As an indication, consider the coefficient of simultaneity

Dimensions at the end of the section.

**PARTS CAR-TX90**

Replacement cartridge for TX90 ULTRAMIX series thermostatic mixing valves.

Part Number	Versions	l/min	Qty/ Box	Box/ Carton
TX1	TX91E, TX91C	3-56	1	1
TX2	TX92E, TX92C	3-80	1	1
TX3	TX93E, TX93C	3-120	1	1
TX4	TX94E, TX94C	5-175	1	1
TX5	TX95E, TX95C	5-260	1	1



**OVERALL DIMENSIONS**

**REDUBAR**

part number 82500

part number 82501

**REDUBLOC**

**DRV/DRVM**

DN	L	L1	H	H1
1/2"	97	152	135	48
3/4"	110	171	155	58
1"	120	191	182	66
1.1/4"	140	211	227	75
1.1/2"	160	246	255	82
2"	175	261	262	88

**DRVN/DRVMN**

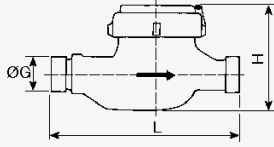
DN	L	L1	H	H1
1/2"	84	135	113	16.5
3/4"	94	151	133	20.5
1"	104	161	140	26
1.1/4"	109	175	192	29.5
1.1/2"	134	214	200	36
2"	144	224	205	42

**DRVD16 - DRVD25**

DN	L	H	H1	B (PN16)	B (PN25)
50	230	383	83	165	165
65	290	440	90	185	185
80	310	490	100	200	200
100	350	561	121	220	235
125	400	712	152	250	270
150	450	839	169	285	300
200	550	1684	234	340	360

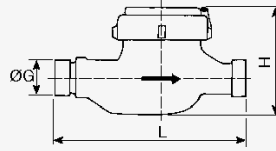
OVERALL DIMENSIONS

3499 DF-3499 RF/RC



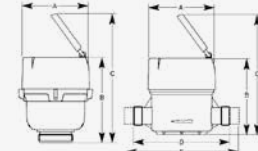
Ø G "	Ø G mm	L mm	H mm
3/4	20/27	80	69
3/4	20/27	110	69
1	26/34	130	69

499 DFB-499 DFC



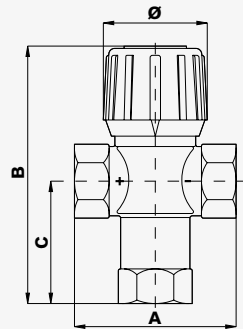
Ø mm	A mm	B mm	L mm	H mm
15	3/4	20/27	170	120
20	1	26/34	190	120
25	1 1/4	33/42	260	130
32	1 1/2	40/49	260	130
40	2	50/60	300	145
50	2 1/2	66/76	300	145

1499 DF



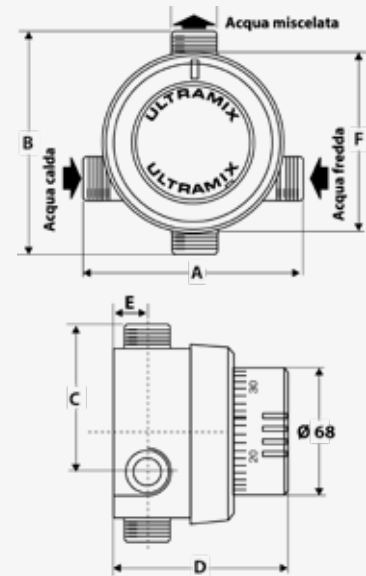
DN "	DN mm	A mm	B mm	C mm	D mm	E mm
3/4	20/27	100	125	185	105	190
3/4	20/27	100	125	185	165	267

61C/62C



DN	A	B	C	Ø
1/2"	70	107	52	45
3/4"	70	107	52	45
1"	80	110	52	45

TX90

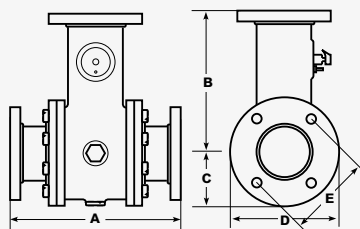


DN	A	B	C
3/4"M	117	120	81
1"M	144	142	95
1.1/4"M	182	166	107
1.1/2"M	218	199	129
2"M	242	224	144

DN	D	E	F
3/4"M	93	18	98
1"M	101	23	116
1.1/4"M	116	24	145
1.1/2"M	127	32	175
2"M	141	36	198

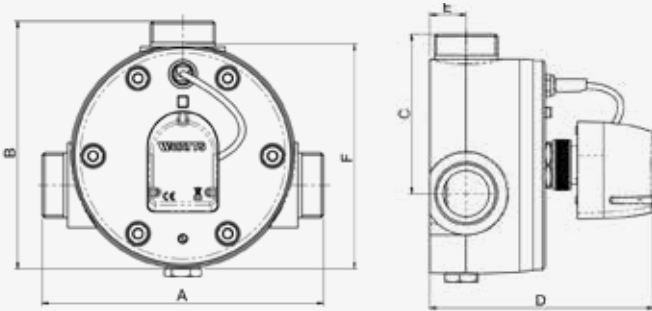
T70



DN	A	B	C	D	E
2.1/2"	294	215	90	185	145
3"	336	270	105	200	160
4"	404	270	125	220	180

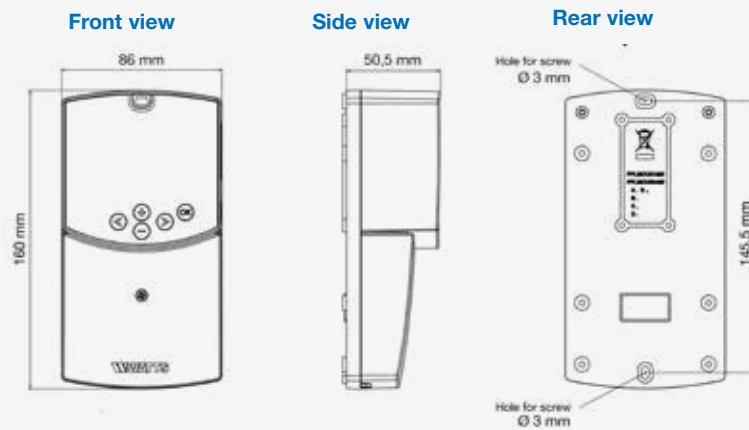
**OVERALL DIMENSIONS**

**E-ULTRAMIX THERMOSTATIC MIXING VALVE WITH ACTUATOR**



	<b>A</b> mm	<b>B</b> mm	<b>C</b> mm	<b>D</b> mm	<b>E</b> mm	<b>F</b> mm	<b>ø fitting</b> mm
3/4"	117	120	81	126	19	98	G 3/4"
1"	144	142	96	133	23	116	G 1"
1 1/4"	182	160	108	149	24	145	G 1 1/4"
1 1/2"	218	200	129	164	36	175	G 1 1/2"
2"	242	217	144	173	36	198	G 2"

**E-ULTRAMIX ELECTRONIC CONTROL UNIT**



# Chapter 9

Components for  
renewable energy  
systems



## MMV-S - Thermostatic mixing valve



Thermostatic mixing valve  
For high-temperature solar energy systems  
Anti-scald safety

**WATTS®**

## Chapter 9

# Components for renewable energy systems

### SOLAR THERMAL

#### SOLARKIT

Thermostatic unit for thermal integration of solar thermal systems and boilers, consisting of an MMV-S series mixing valve, a T-fitting and a diverter valve. CW602N DZR brass body. Setting positions: 5. Mixed water temperature:  $30-65 \pm 2^\circ\text{C}$ .

Flow rate at 3 bar: 63 l/min - Minimum flow rate: 5 l/min. PN 10. Operating pressure:  $0.2 \div 5$  bar. Mixing valve side hot water operating temperature:  $52 \div 110^\circ\text{C}$ . Mixing valve side cold water operating temperature:  $5 \div 20^\circ\text{C}$ . Diverter valve opening temperature:  $45^\circ\text{C}$ .



Part Number	DN	Setting	Qty/Box	Box/Carton
97590	1" M	5	1	1

Dimensions at the end of the section.

#### MMV-S

Thermostatic mixing valve for solar energy systems. Nickel-plated brass body.

Setting positions: 5. Mixed water temperature:  $30-65 \pm 2^\circ\text{C}$ . Flow rate at 3 bar: 63 l/min.

Minimum flow rate: 5 l/min. PN10. Operating pressure:  $0.2 \div 5$  bar.

Hot water operating temperature:  $52 \div 110^\circ\text{C}$ . Cold water operating temperature:  $5 \div 25^\circ\text{C}$ .

**Compliant with EN1111/00 and EN 1287/02.**

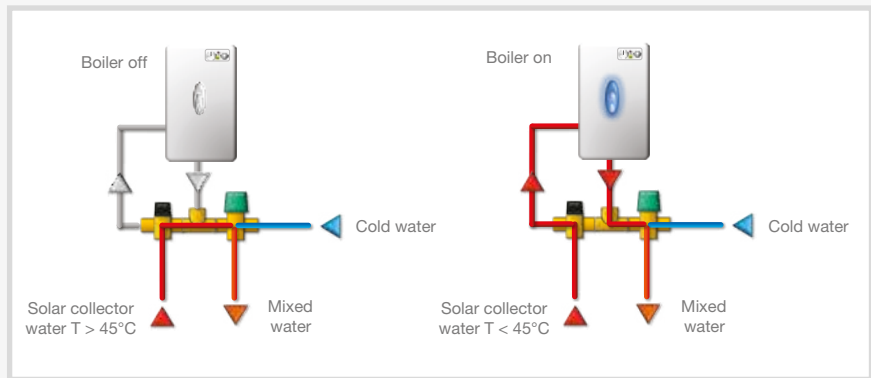


Part Number	DN	Finishing	Qty/Box	Box/Carton
97501	1" with fitting 3/4" M	Brass	1	1
97560	1" M	Brass	1	1

Dimensions at the end of the section.

**TECHNICAL NOTE**  
**SOLARKIT operation**

The SOLARKIT thermostatic unit for thermal integration of solar thermal systems and boilers is a fully automatic component for controlling solar thermal systems for domestic hot water production. Without drawing energy from any external sources, the unit uses thermostats to divert the water to a back-up boiler when there is not enough solar energy to heat the domestic hot water to the desired temperature.



**SVE-SOL**

Diaphragm safety valve for solar energy systems. CW617N brass body and cap, EN12165-99. Elastomer diaphragm. Pre-set and sealed discharge pressure.  
Max. operating temperature: -10÷160°C. Fluids: water with glycol up to 50% as per DIN 4757 Part 1.  
**TÜV SOLAR certified. Compliant with PED Directive 2014/68/EU Identification number CE1115.**



Part Number	DN	bar	Qty/Box	Box/Carton
0215835	1/2" x 3/4"	3,5	1	40
0215840	1/2" x 3/4"	4	1	40
0215860	1/2" x 3/4"	6	1	40
0215880	1/2" x 3/4"	8	1	40

Dimensions at the end of the section.

**RIA/MV-SOL**

Automatic shut-off valve for MV-SOL air vent valves. Makes it possible to change the valve with the system running. CW614N brass body, EN12164-01. Gasket: high-strength elastomer. Plug: high-strength polymer. Spring: stainless steel. MF 3/8" and 1/2" DIN - ISO 228/1 connections.



Part Number	DN	Spring	Qty/Box	Box/Carton
0259315	1/2" x 1/2"	stainless steel	10	400

Dimensions at the end of the section.

**QUICKFILL**

Brass filling valve for solar circuits, equipped with double closure valve to facilitate filling and draining the system.  
Quick to install, in any position.



Part Number	Description	Note	Qty/Box	Box/Carton
3499635	with compression fitting 22 mm	-	1	1

**ST**

Pt1000 temperature sensors:

- in silicone sheath, up to 105°C, length 3 metres (suitable for tank);
- in PVC sheath, up to 180°C, length 1.5 metres (suitable for solar collector).

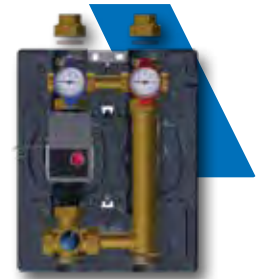


Part Number	Lenght	Max temp.	Qty/Box	Box/Carton
PPLELE00061	1,5 m	- 180 °C	1	1
PPLELE00060	3,0 m	- 105 °C	1	1

**COMPONENTS FOR BIOMASS SYSTEMS**

**KLS 8180-FLOWBOX**

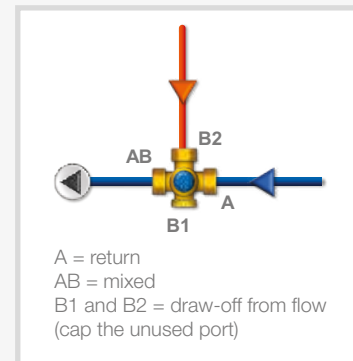
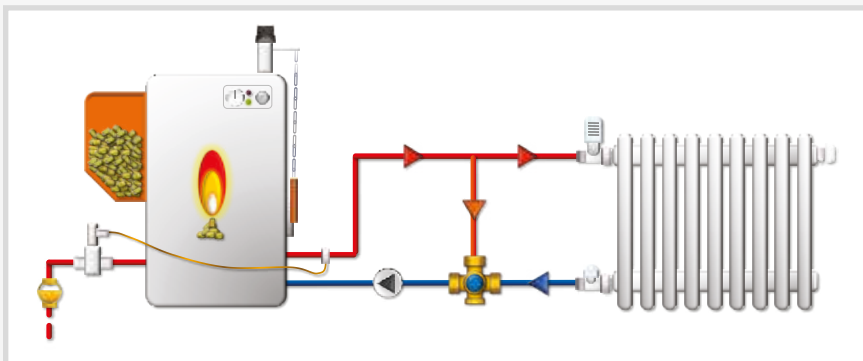
Compact circulation unit for solid-fuel-fired boilers with thermostatic anti-condensation unit. Pre-wired circulation pump (centre distance 180mm), dynamic anti-condensation bypass with boiler return temperature of 58±2°C. Shut-off valves with built-in thermometer and manual/automatic check valve. 1”M union connections and wall-mounting bracket. EPP insulation. Suitable for heat output of up to 50 KW.



Part Number	Description	Connection	Qty/Box	Box/Carton
10026343	GRUNDFOS ALPHA 2L 25-60	1”	1	1

**TECHNICAL NOTE - KLV thermostatic anti-condensation valve**

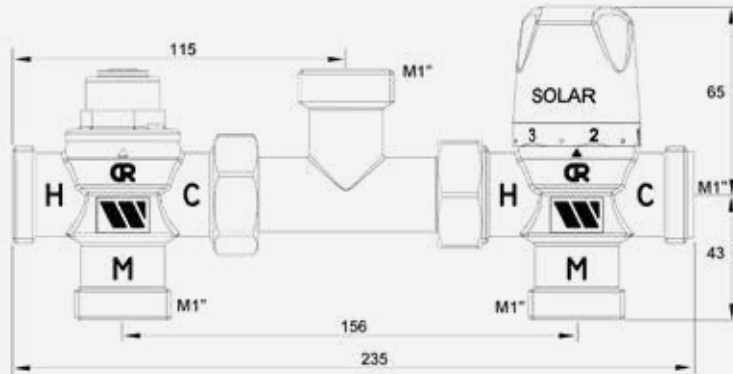
During combustion in a boiler, the moisture naturally present in biomass is released into the flue gases in the form of water vapour. If cooled at a temperature below the dew point, this vapour (which is often acidic) condenses, causing the boiler to corrode and drastically reducing its service life. When the boiler starts up, the KLV thermostatic anti-condensation valve brings the system rapidly up to temperature, and if the water in the return circuit gets too cold during normal operation, the KLV valve mixes it with flow water before it reaches the boiler.



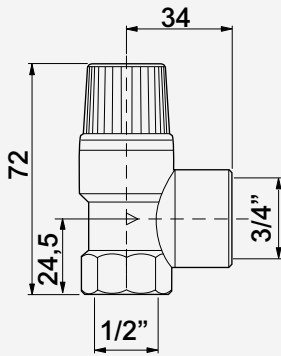
For HK Pumps see section 5.

**OVERALL DIMENSIONS**

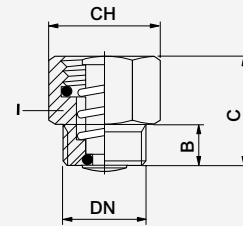
**SOLARKIT**



**SVE-SOL**

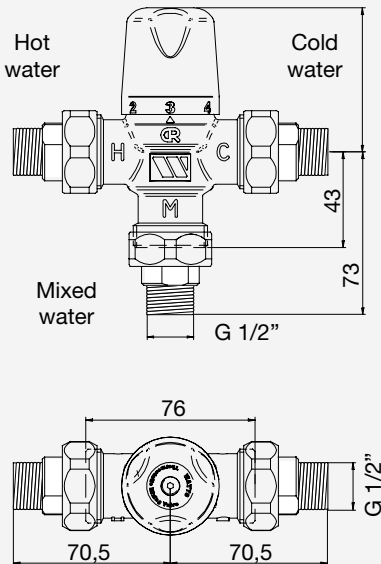


**RIA/MV-SOL**

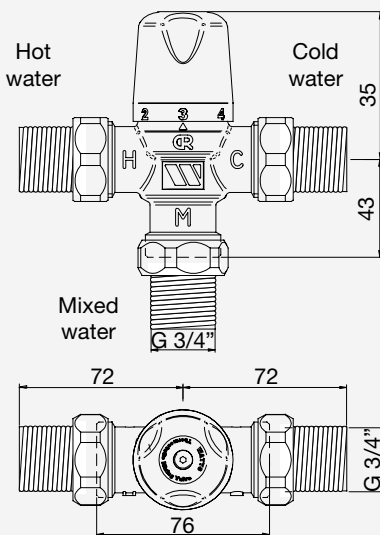


DN	B	C	CH
3/8"	8	11	19
1/2"	8	11	24

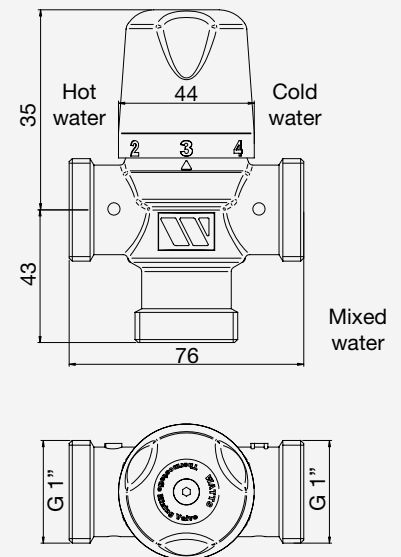
**MMV-S 1/2"**



**MMV-S 3/4"**



**MMV-S 1"**



# Chapter 10

## Fittings

## RAFIT + Soft-seal fitting



Quick installation: cuts connection  
times for copper pipe  
Cutting ring withstands high pull-out  
forces on the pipe  
Compact dimensions

**WATTS®**

## Chapter 10

# Fittings

### FITTINGS FOR COPPER

#### 872M - RAFIT+

Soft-seal one-piece fitting for quick connection of copper pipes (UNI EN 1057) to male-threaded valves, lockshields and manifolds. EPDM taper ferrule with steel reinforcement core. High pull-out strength (cutting ring).



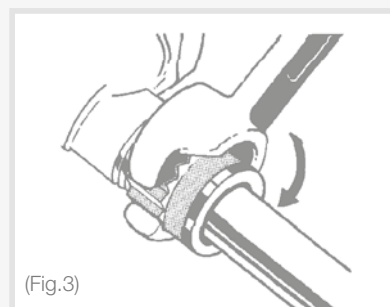
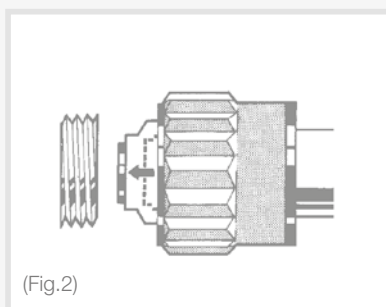
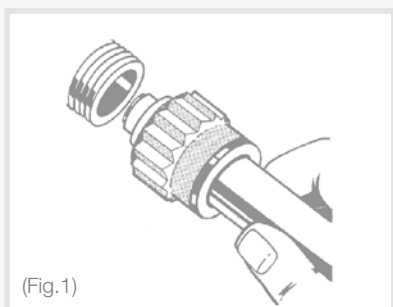
Part Number	DN	Ø Pipe	Qty/Box	Box/Carton
872M1215	1/2"	15	25	300

\* 1/2"S M24x1.5 thread (for 102S and 119SX single-pipe valves with 1/2"S pipe-side connection)

Dimensions at the end of the section.

#### TECHNICAL NOTE - Installation of RAFIT one-piece quick fittings

- 1 - When cutting the pipe, carefully deburr the ends if necessary.
- 2 - Insert the pipe in the fitting by pushing it in until it butts up against the end stop (Fig.1) and holding it still in this position during tightening; the seal will thus be thrust outwards from the fitting body (Fig.2).
- 3 - Approach the fitting to the threaded end-piece until the head of the taper ferrule engages inside it, then tighten by hand.
- 4 - Fully tighten with the respective wrench (Art. 829M), in accordance with the recommended tightening torques (Fig.3).





### 820R

Three-piece compression fitting for copper pipes (chrome-plated pipe lock nut, brass taper ferrule and reinforcement core) for connecting copper pipes to male-threaded valves, lockshields and manifolds. Metal seal.



Part Number	DN	Ø Pipe	Qty/Box	Box/Carton
820R1210	1/2"	10	10	150
820R1212	1/2"	12	10	150
820R3418	3/4"	18	10	100
820R3422	3/4"	22	10	100

\* 1/2"S M24x1.5 thread (for 102M and 119SX single-pipe valves with 1/2"S pipe-side connection)

Dimensions at the end of the section.

### 829M

Steel wrench for tightening RAFIT+ and 820R fittings.

Part Number	DN	Qty/Box	Box/Carton
829M2025	3/8" - 1/2"	1	1



## FITTINGS FOR CROSS-LINKED POLYETHYLENE AND MULTI-LAYER PIPES

### 817M

Three-piece nickel-plated compression fitting for **cross-linked polyethylene pipes** to UNI 9338. EPDM O-Ring. Not suitable for oils.

Part Number	DN	Ø Pipe	Qty/Box	Box/Carton
817MC12142	1/2"	14 x 2,0	10	200
817MC1215	1/2"	15 x 2,5	10	200
817MC341713	3/4"	17 x 2,0	10	150



\* 1/2"S M24x1.5 thread (for 102M and 119SX single-pipe valves with 1/2"S pipe-side connection)

Dimensions at the end of the section.

## NIPPLES, ELBOWS, SOLDER ALLOY

### 220

Three-piece nickel-plated elbow fitting.

Part Number	DN	Qty/Box	Box/Carton
220SN12	1/2"	10	100
220SN34	3/4"	10	65
220SN1	1"	10	35

Dimensions at the end of the section.



**221**

Three-piece nickel-plated straight fitting.

Part Number	DN	Qty/Box	Box/Carton
221SN12	1/2"	10	100
221SN34	3/4"	10	60
221SN1	1"	10	35

Dimensions at the end of the section.

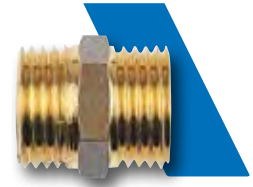


**892GL**

Nipple fitting with male threaded connections.

Part Number	DN	Qty/Box	Box/Carton
892GL12	1/2" MM	10	300
892GL34	3/4" MM	10	100

Dimensions at the end of the section.



**890GL**

Nipple fitting with male threaded connections.

Part Number	DN	Qty/Box	Box/Carton
890GL12	1/2" MM	10	150

Dimensions at the end of the section.



**833M**

Brass male/male adaptor.

Part Number	DN	Qty/Box	Box/Carton
833M1234	1/2" - 3/4"	10	150

Dimensions at the end of the section.



**821M**

Brass male/female adaptor.

Part Number	DN	Qty/Box	Box/Carton
821M12M38F	1/2" M x 3/8" F	10	300
821M12M34F	1/2" M x 3/4" F	10	150

Dimensions at the end of the section.



**834M**

Brass female plugs.

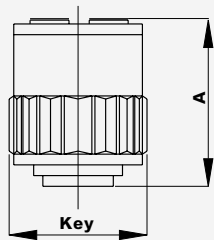
Part Number	DN	Qty/Box	Box/Carton
834M12	1/2"	10	400
834M34	3/4"	10	50
834M1	1"	10	50

Dimensions at the end of the section.



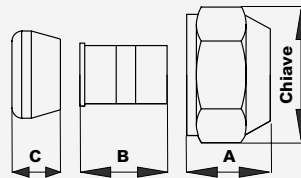
OVERALL DIMENSIONS

872M



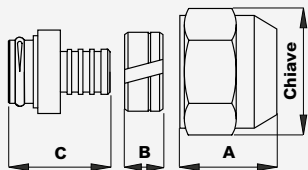
DN	A	Rafit wrench
3/8"	25	20
1/2"	27	25
1/2"S	29	27

820R



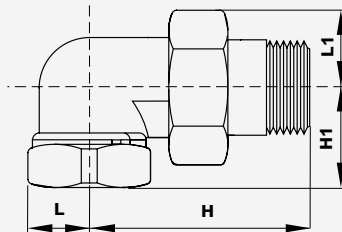
DN	A	B	C	Wrench
3/8"	17	24	9	20
1/2"	19	24	10	25
1/2"S	20	24	11	25
3/4"	20	24	11	32

817M - 817MS



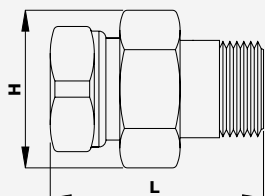
DN	A	B	C	Wrench
1/2"	23	8	21	20
1/2"S	26	8	22	25
3/4"	24	8	22	32

220



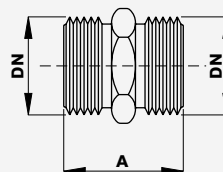
DN	H	H1	L	L1
3/8"MF	47	27	14	14
1/2"MF	53	34	16	18
3/4"MF	60	37	19	21
1"MF	77	46	23	27

221



DN	H	L
3/8"MF	28	43
1/2"MF	35	51
3/4"MF	42	58
1"MF	54	62

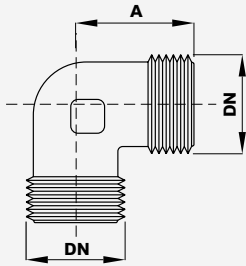
892GL



DN	A
3/8"	22
1/2"	25
3/4"	28

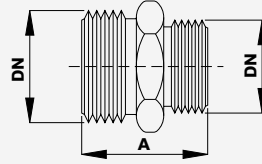
OVERALL DIMENSIONS

890GL



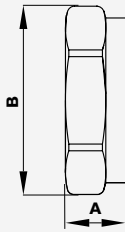
DN	A
1/2"	26

833M



DN	A	DN	A
3/8" x 1/2"	24	1/2" x 1"	34
3/8" x 3/4"	28	3/4" x 1"	35
1/2" x 3/4"	30		

834M



DN	A	B
3/8"	7	19
1/2"	9	25
3/4"	18	35
1"	18	38



10

# Chapter 11

## Water Quality Systems

## Water Quality Systems



A full range of water treatment solutions to match the unique needs of any location

**WATTS®**

## ONEFLOW® SCALE CONTROL SYSTEMS

### WATER CONDITIONING

#### OneFlow® Anti Scale System

The OneFlow® Anti-Scale System provides protection from scale formation on internal and external plumbing surfaces. The OneFlow® system is a single cartridge/media-based system that may be installed on a cold water line prior to a water-using device (water heater, hot-beverage system, appliance, steamer, etc.) that requires protection from the ill effects of hard water.

OneFlow® prevents scale by transforming dissolved hardness minerals into harmless, inactive microscopic crystal particles. These crystals stay suspended in the water and are passed to a drain, thereby having a greatly reduced ability to react negatively with plumbing surfaces, as opposed to dissolved hardness minerals. These particles make their way through plumbing systems without latching on to pipes, inside fixtures, valves, or heating elements.

The system requires very little maintenance, no backwashing, no salt and no electricity. Typical hardness problems, especially build-up of scale in pipes, water heaters, boilers are no longer a concern.

OneFlow® is not a water softener. It does not add chemicals. It is a scale prevention device with proven third party laboratory test data and years of successful Domestic and Commercial applications. OneFlow® is the intelligent scale solution and is a great alternative to water softening (ion exchange) or scale sequestering devices.

#### Features

- Chemical free scale control - converts hardness minerals to harmless, inactive microscopic crystals making OneFlow® an effective alternative technology to a water softener for the prevention of scale due to water hardness
- Virtually maintenance free - No salt bags or other chemicals to constantly add or maintain
- No control valve, no electricity and no wastewater
- Uses environmentally friendly “green” technology
- Improves efficiency of all water appliances whether heating the water or not
- Simple sizing & installation – all you need to know is pipe size and flow rate
- Inlet ball valve for easy isolation shutoff and filter changes
- OneFlow® does not remove the essential minerals in water
- OneFlow® cartridge-based systems are easily maintained; change the cartridge once per year
- Treated water is safe for human consumption

### SCALE CONTROL SYSTEMS

#### OneFlow® Cartridge System

This range of OneFlow® conditioners has the TAC media contained within easily replaceable cartridges.

The flow rates are shown on each product and are typically used for smaller domestic and point of use applications.

#### Models OF110-1, OF120-2 and OF140-4

Connection Sizes: ½" and ¾" (15 and 20mm)

Flow Rates: From 0.5 gpm to 4 gpm (1.9 lpm to 15.2 lpm)



TYPE	PRODUCT CODE	PEAK FLOW RATE	CONNECTION SIZE
OneFlow® Anti Scale	WWQ-OF110-1	1 gpm (4 lpm)	½"
OneFlow® Anti Scale	WWQ-OF120-2	2 gpm (8 lpm)	½"
OneFlow® Anti Scale	WWQ-OF140-4	4 gpm (15 lpm)	¾"



## SCALE CONTROL SYSTEMS

### Model OF220-2

Connection Sizes: 1/2"  
Flow Rate: 2 gpm

The OneFlow® Anti-Scale System with two filter housings provides protection from scale formation and reduces chlorine and other off tastes to improve overall water quality in Food Service applications. The OneFlow® system is a dual cartridge-based system that may be installed on a cold water line prior to a water-using device (coffee maker, espresso machine, post-mix system or other appliance) that requires protection from the ill effects of hard water. OneFlow® works exceptionally well where the water is being heated or brought to steam.



TYPE	PRODUCT CODE	MAXIMUM FLOW RATE	CONNECTION SIZE
OneFlow® System 2 GPM	WWQ- OF220-2	2 gpm (8 lpm)	1/2"

### Model OFTWH

Connection Sizes: 3/4"  
Flow Rates: 10 gpm (1.9 lpm to 38 lpm)

TYPE	PRODUCT CODE	PEAK FLOW RATE	CONNECTION SIZE
OneFlow® Anti Scale	WWQ-OFTWH	10 gpm (38 lpm)	3/4"



### Model OFTWH-R - For Residential Tankless Water Heaters

Connection Sizes: 3/4"  
Flow Rates: 6 gpm (22.71 lpm)

TYPE	PRODUCT CODE	PEAK FLOW RATE	CONNECTION SIZE
OneFlow® System 6 GPM	WWQ-OFTWH-R	6 gpm (23 lpm)	3/4"



### OneFlow® Media Systems

This range of OneFlow® conditioners for larger applications uses replacement TAC media. The flow rates are shown for each product and are typically used for larger domestic point of entry and commercial solutions.

## ONEFLOW REPLACEMENT CARTRIDGES

### OneFlow Replacement Cartridges

REPLACEMENT CARTRIDGE PRODUCT CODE	FOR ONEFLOW® SYSTEM	FREQUENCY
WWQ-OF110RM	WWQ-OF110RM	Cartridge should be replaced every 12 months
WWQ-OF120RM	WWQ-OF120RM	Cartridge should be replaced every 12 months
WWQ-OF140RM	WWQ-OF140RM	Cartridge should be replaced every 12 months
WWQ-OF220RC	WWQ-OF220RC	Cartridge should be replaced every 6 months
WWQ-OF-TWHRM	WWQ-OF-TWHRM	Cartridge should be replaced every 2 years
WWQ-OF-TWHRM-R	WWQ-OF-TWHRM-R	Cartridge should be replaced every 2 years

SCALE CONTROL SYSTEMS

Series OFRES - Residential

Connection Size: 1"  
Flow Rate: Up to 16 gpm (60 lpm)

OneFlow® Residential Anti-Scale Systems provide a system with protection from internal hardness related scale formation on plumbing surfaces. Water using appliances and plumbing fixtures also enjoy a longer lifespan because hardness scale build up on internal parts no longer occurs.



TYPE	PRODUCT CODE	CONN. SIZE	MINERAL TANK SIZE	MEDIA LITRES	MAXIMUM SERVICE FLOW*	PRESSURE DROP (PSI)**	FLOOR SPACE (L X W X H)
Residential OneFlow®	WWQ-OFRES-0835	1"	8"x35"	2	8 gpm (30 lpm)	<15	13"x9"x40"
Residential OneFlow®	WWQ-OFRES-0935	1"	9"x35"	3	12 gpm (45 lpm)	<15	13.5"x10"x40"
Residential OneFlow®	WWQ-OFRES-1035	1"	10"x35"	4	16 gpm (60 lpm)	<15	14"x11"x40"

Series OF

Models OF744-10, OF844-12, OF948-16, OF1054-20 and OF1252-30

Connection Sizes: 1"  
Flow Rates: 10 gpm to 30 gpm (38 lpm to 114 lpm)

TYPE	PRODUCT CODE	DESCRIPTION
OneFlow® System 10 GPM	WWQ-OF744-10-C	10 gpm (38 lpm), 1"
OneFlow® System 12 GPM	WWQ-OF844-12-C	12 gpm (45 lpm), 1"
OneFlow® System 16 GPM	WWQ-OF948-16-C	16 gpm (60 lpm), 1"
OneFlow® System 20 GPM	WWQ-OF1054-20-C	20 gpm (76 lpm), 1"
OneFlow® System 30 GPM	WWQ-OF1252-30-C	30 gpm (114 lpm), 1"



Replacement Media

REPLACEMENT CARTRIDGE PRODUCT CODE	FOR ONEFLOW® SYSTEM	FREQUENCY
WWQ-OFRES-0835RM	OFRES-0835	Cartridge should be replaced every 3 years
WWQ-OFRES-0935RM	OFRES-0935	Cartridge should be replaced every 3 years
WWQ-OFRES-1035RM	OFRES-1035	Cartridge should be replaced every 3 years
WWQ-OF744RM	OF744-10C	Cartridge should be replaced every 3 years
WWQ-OF844RM	OF844-12C	Cartridge should be replaced every 3 years
WWQ-OF948RM	OF948-16C	Cartridge should be replaced every 3 years
WWQ-OF1054RM	OF1054-20C	Cartridge should be replaced every 3 years
WWQ-OF1252RM	OF1252-30C	Cartridge should be replaced every 3 years

## FILTRATION - BIG BUBBA® FILTRATION SYSTEM

### Big Bubba® Housing 2"

The Watts Big Bubba® Filter Housing is a high capacity polypropylene filter housing designed to suit for high flow rates, the filter housing is a non-metallic made from rugged, glass-reinforced polypropylene, which will not chip, rust or dent.

The non-metallic construction makes this the perfect economical replacement for stainless steel filtration equipment and ideal for sea water applications or when chemical compatibility is an issue.

TYPE	PRODUCT CODE	PIPE FITTING	OVERALL HEIGHT
Big Bubba® Housing	WWQ-BBH-150	2"	40"



### Replacement Depth Cartridge for Big Bubba® Housing

Melt blown Polypropylene cartridges are recommended when depth filtration is necessary for gelatinous substances and when chemical resistance may be a requirement.

TYPE	PRODUCT CODE	MEDIA TYPE	MICRON RATING
Big Bubba® D1	WWQ-BBC-150-D1	PP	1
Big Bubba® D5	WWQ-BBC-150-D5	PP	5
Big Bubba® D20	WWQ-BBC-150-D20	PP	20
Big Bubba® D50	WWQ-BBC-150-D50	PP	50

### Replacement Pleated Cartridge for Big Bubba® Housing

Ideal for more critical applications, offering greater efficiency, more surface area for greater throughput and reduced cost.

TYPE	PRODUCT CODE	MEDIA TYPE	MICRON RATING
Big Bubba® P1	WWQ-BBC-150-P1	PP	1
Big Bubba® P5	WWQ-BBC-150-P5	PP	5
Big Bubba® P20	WWQ-BBC-150-P20	PE	20
Big Bubba® P50	WWQ-BBC-150-P50	PE	50
Big Bubba® PM150	WWQ-BBC-150-PM150	Mesh	150



### Carbon Filter for Big Bubba® Housing 2"

Big Bubba® filters are available in a range of different specifications, Pleated, Melt Blown and Activated Carbon. The difference between these and any of our other filter range is that they are bigger. They are able to cope with very high levels of turbidity and can withstand high flow rates up to 36m<sup>3</sup>/Hr.

TYPE	PRODUCT CODE	MAX FLOW	CAPACITY	CHLORINE REDUCTION
Big Bubba® Carbon	WWQ-BBC-150-ACP	15 GPM	140,000 Gals.	90%



**SMARTSTREAM™ DISINFECTANT SYSTEMS**

**Watts SmartStream™ B and C Series UV Systems**

Lamps, Quartz Sleeves and Sleeve Oring

TYPE	B SERIES			B SERIES PARTS		
	PRODUCT CODE	FLOW RATE (GPM)	SIZE (IN)	REPLACEMENT LAMP PRODUCT CODE	REPLACEMENT SLEEVE PRODUCT CODE	REPLACEMENT ORING SLEEVE PRODUCT CODE
Watts SmartStream™ Systems With B Series Controllers						
B Series	WWQ-WB001ABCX	1	3/8" M	WWQ-T7401024	WWQ-T7401104	WWQ-T7402102
B Series	WWQ-WB002ABCX	2	3/8" M	WWQ-T7401025	WWQ-T7401105	WWQ-T7402102
B Series	WWQ-WB006ADCX	6	3/4" M	WWQ-T7401026	WWQ-T7401106	WWQ-T7402102
B Series	WWQ-WB012BFCX	12	1" M	WWQ-T7401027	WWQ-T7401107	WWQ-T7402102
TYPE	C SERIES			C SERIES PARTS		
	PRODUCT CODE	FLOW RATE (GPM)	SIZE (IN)	REPLACEMENT LAMP PRODUCT CODE	REPLACEMENT SLEEVE PRODUCT CODE	REPLACEMENT ORING SLEEVE PRODUCT CODE
Watts SmartStream™ Systems With C Series Controllers						
C Series	WWQ-WC012BFCX	12	3/4" & 1" COMBO	WWQ-T7401029	WWQ-T7401109	WWQ-T7402102
C Series	WWQ-WC016BFCX	16	3/4" & 1" COMBO	WWQ-T7401030	WWQ-T7401110	WWQ-T7402102
C Series	WWQ-WC025BGCX	25	1" & 1 1/2" COMBO	WWQ-T7401031	WWQ-T7401111	WWQ-T7402102



B Series

**FILTER HOUSINGS**

Our comprehensive selection of plastic filter housings include products from the brands and companies of Flowmatic®, Pentair, and Watts.

**Flowmatic - 10" Plastic Filter Housings**

TYPE	MODEL NO.	SIZE	PR	SUMP	CAP	PIPE SIZE	NO./CASE
Flowmatic	WWQ-FH4200BL34PR	10"	Yes	Blue	Black	3/4"	12
Flowmatic	WWQ-FH4200CW34PR	10"	Yes	Clear	White	3/4"	12
Flowmatic	WWQ-FH4200WW12	10"	No	White	White	1/2"	12



**Watts - 10" Plastic Filter Housings**

TYPE	MODEL NO.	SIZE	DESCRIPTION	PR	SUMP	CAP	PIPE SIZE	NO./CASE
Watts	WWQ-W10CPH34CBPR	10"	Standard	Yes	Clear	Black	3/4"	12
Watts	WWQ-W10FFPH1BLPR	10"	Big Blue	Yes	Blue	Black	1"	6



**Filter Housing Accessories**

TYPE	MODEL NO.
Watts Wrench	WWQ-WW-C
Watts Bracket	WWQ-WBKT-FF-1
Watts Screws	WWQ-GAFFSCREW
FullFlow Wrench	WWQ-WW-FF
Flowmatic Wrench	WWQ-WR100

## FILTER CARTRIDGES

### Carbon Block Filters - Watts

Thick wall carbon construction for superior performance. Low cost for economy!

Top-of-the-line coconut shell carbon block filter cartridge for chlorine, taste, odour and sediment reduction.

- Competitively priced!
- Outperform GAC cartridges four ways:
  1. Superior chlorine reduction
  2. Lower pressure drop
  3. Will not channel
  4. Lower cost
- 100% Coconut shell Carbon
- >90% chlorine reduction\*
- FDA grade components & materials



TYPE	MODEL NO.	TYPE	OD	LENGTH	MICRON RATING*	CHLORINE REDUCTION*	NO. / CASE
Carbon Block Filter	WWQ-WCBFF975	Thick Wall	4 1/2"	9 3/4"	5 nominal	25,000 gal @ 3 gpm	4
Carbon Block Filter	WWQ-F109009	Thick Wall	2 1/2"	9 3/4"	5 nominal	10,000 gal @ 1 gpm	25
Carbon Block Filter	WWQ-MAXPB-975	Lead + cysts	2 7/8"	9 3/4"	1 nominal	20,000 gal @ 1 gpm	12
Carbon Block Filter	WWQ-MAXVOC-975	Water washed	2 7/8"	9 3/4"	1 nominal	20,000 gal @ 1 gpm	12

### Carbon Block Filters - Long Life and High Chlorine Reducer

TYPE	MODEL NO.	TYPE	OD	LENGTH	MICRON RATING	CHLORINE REDUCTION	NO. / CASE
Chlorine Reducer	MAXCL-975	Thick Wall	2 7/8"	9 3/4"	1 nominal	20,000 gal @ 1 gpm	12
Chlorine Reducer	MAXCL-FF975	Thick Wall	4 5/8"	9 3/4"	1 nominal	80,000 gal @ 3 gpm	4



### Carbon Block Filters - Watts

TYPE	MODEL NO.	BRANDS	OD	LENGTH	MICRON RATING	CHLORINE REDUCTION	NO. / CASE
Carbon Block Filter	WWQ-F109020	Watts	2 1/2"	20"	5 nominal	20,000 gal @ 1 gpm	25

### GAC Filters - Flowmatic

Water Washed, Coconut Shell Granular, Activated Carbon Cartridges

TYPE	MODEL NO.	TYPE	OD	LENGTH	CAPACITY (GALS.)	NO. / CASE
GAC Filter	WWQ-GAC10N	GAC	2 3/4"	9 3/4"	2,500	24
GAC Filter	WWQ-GAC-BB20	Watts	4 1/2"	20"	15,000	4

FILTER CARTRIDGES

Flow-Pro® Melt Blown Sediment Cartridges

TYPE	MODEL NO.	BRANDS	OD	LENGTH	MICRON RATING	NO. / CASE
Flow-Pro®	WWQ-FPMB1-978	FlowPro	2½"	9 <sup>7</sup> / <sub>8</sub> "	1 nominal	48
Flow-Pro®	WWQ-FPMB5-978	FlowPro	2½"	9 <sup>7</sup> / <sub>8</sub> "	5 nominal	48
Flow-Pro®	WWQ-FPMB-BB5-10	FlowPro	4½"	9 <sup>3</sup> / <sub>4</sub> "	5 nominal	24
Flow-Pro®	WWQ-FPMB1-20	FlowPro	2½"	20"	1 nominal	24
Flow-Pro®	WWQ-FPMB-BB5-20	FlowPro	4½"	20"	5 nominal	12



Watts Sediment Cartridges

TYPE	MODEL NO.	BRANDS	OD	LENGTH	MICRON RATING	NO. / CASE
Sediment Cartridge	WWQ-WPC5-975	Watts	2 <sup>3</sup> / <sub>4</sub> "	10"	5 nominal	25
FullFlow	WWQ-WPC5FF975	Watts	4½"	9 <sup>3</sup> / <sub>4</sub> "	5 nominal	18
FullFlow	WWQ-WPC1FF20	Watts	4½"	20"	1 nominal	9
FullFlow	WWQ-WPC50FF20	Watts	4½"	20"	50 nominal	9



String Wound (Standard / High temp)

TYPE	MODEL NO.	BRANDS	OD	LENGTH	MICRON RATING	NO. / CASE
String Wound	WWQ-SF1-978	Watts	2½"	10"	1 nominal	25
String Wound	WWQ-SF5-978	Watts	2½"	10"	5 nominal	25
String Wound	WWQ-SF5-10-425	Watts	4½"	10"	5 nominal	8
String Wound	WWQ-SF1-20	Watts	2½"	20"	1 nominal	25
String Wound	WWQ-SF5-20-425	Watts	4½"	20"	5 nominal	4



Watts Water Quality offer a wide range of micron ratings and cartridge sizes, please contact us for more information.

## RESIN AND MEDIA

**Micro Z - Superior Filtration Media**

Micro-Z™ granular filter media outperforms conventional multimedia materials due to its unique structure, allowing particulate to penetrate deeply into the filter bed to provide superior filtration at increased flow rates.



TYPE	MODEL NO.	DESCRIPTION	CUBIC FEET PER BAG	CONTAINER WT. (LBS)	PACKAGE	PER PALLET
Micro Z Media Bag	WWQ-A7200	Micro-Z	1	55	Bag	40

**Granular Activated Carbon (GAC)**

Granular Activated Carbon (GAC) is a natural material derived from bituminous coal, lignite, wood, coconut shell, etc, activated by steam and other means. Carbon is very popular due to its ability to correct many water quality problems.



TYPE	MODEL NO.	DESCRIPTION	TYPE	MESH	CUBIC FEET PER BAG	CONTAINER WT. (LBS)	PER PALLET
Activated Carbon Media	WWQ-A9231-AL	Coconut shell	Coconut	12 X 40	1	27.5	40

**Birm**

Birm is a black granular filter material used for removal of iron and/or manganese from water in pressure or gravity systems.

It contains an active insoluble catalyst to precipitate iron and/or manganese. Because the presence of iron is most common, iron removal is the usual application for Birm. Under suitable conditions, the iron and dissolved oxygen in water react on contact with the Birm filter bed and, as a result, the iron is precipitated in the form of hydroxide. This is a flocculent material which is filtered out in the bed of Birm. Periodic backwashing flushes out the accumulated iron and the Birm is again ready to perform its function. Birm is not consumed in the iron removal operation.

TYPE	MODEL NO.	DESCRIPTION	APPLICATION	CUBIC FEET PER BAG	CONTAINER WT. (LBS)	PER PALLET
Media BIRM Regular	WWQ-A8006	Birm (regular)	Iron, HS reduction	1	44	40

**KDF**

KDF (Kinetic Degradation Fluxion) process media are high-purity copper-zinc granules that reduce contaminants in water using an oxidation/reduction (redox) reaction. They are used in pretreatment, primary treatment and wastewater treatment applications in order to extend system life and to reduce heavy metal contamination, chlorine and hydrogen sulfide.

KDF 55 granules: designed for removing or reducing chlorine and soluble heavy metals.

TYPE	MODEL NO.	DESCRIPTION	APPLICATION	CUBIC FEET PER BAG	CONTAINER WT. (LBS)	PER PALLET
KDF55 Media	WWQ-KDF55-DRUM	KDF-55	Chlorine reduction	0.33	57	48

# Chapter 12

## Industrial & Commercial Gas Products



## Industrial & Commercial Gas Products



The Powerseat® electro-hydraulic gas shut-off valve allows the control and safety shut-off of low pressure combustible gases in pipes from 40mm to 250mm.

**WATTS®**

**GAS SAFETY VALVES**

**Powerseat® Eco Electro Hydraulic Gas Safety Shut Off Valve**

The Powerseat® electro-hydraulic gas shut-off valve allows the control and safety shut-off of low pressure combustible gases in pipes from 40mm to 250mm, whilst focusing on being energy efficient and environmentally friendly. The Powerseat® Eco shut-off valve is kept open by a hydraulic pump where hydraulic fluid is forced into a cylinder driving the valve open.

**New and improved features**

- LED to display “ON” and “Manual Re-set Required” status
- Increased environmental protection approved to IP56
- Manual re-set switch incorporated on all versions
- Screwless quick connections for installation of electrics
- Volt free contacts for BMS connection

**Power consumption**

- Uses just 6% of the power of a comparable magnetic solenoid valve
- Reduced electricity running costs: Uses just a fraction of the energy required by permanently energized magnetic solenoid valves
- Improved energy efficiency from previous model, reduced from 26VA to 10VA

**Environmental factors**

- Around 768kg less carbon emissions than with a comparable magnetic solenoid valve
- Saves equivalent carbon emissions of 3,758 miles in a car

**Quality**

- 3 year warranty as standard
- UK manufactured
- EC certified
- IP56 standard:
  - Dust protected - no harmful deposit
  - Splash protected - from any direction
- Certified to EN161, Class A Group 2 construction

**Powerseat® Eco Electro Hydraulic Gas Safety Shut Off Valve Aluminium Body - Screwed Connections**

TYPE	PRODUCT CODE	SIZE	POWER	CONNECTION
Powerseat® Eco	PE6683110V	1.1/2" BSP	110V Range	Screwed
Powerseat® Eco	PE6684110V	2" BSP	110V Range	Screwed
Powerseat® Eco	PE6685110V	2.1/2" BSP	110V Range	Screwed
Powerseat® Eco	PE6686110V	3" BSP	110V Range	Screwed
Powerseat® Eco	PE6683230V	1.1/2" BSP	230V Range	Screwed
Powerseat® Eco	PE6684230V	2" BSP	230V Range	Screwed
Powerseat® Eco	PE6685230V	2.1/2" BSP	230V Range	Screwed
Powerseat® Eco	PE6686230V	3" BSP	230V Range	Screwed



**Powerseat® Eco Electro Hydraulic Gas Safety Shut Off Valve Cast iron Body - Flanged Connections**

TYPE	PRODUCT CODE	SIZE	POWER	CONNECTION
Powerseat® Eco	PE6685FL4110V	65	110V Range	Flanged
Powerseat® Eco	PE6686FL4110V	80	110V Range	Flanged
Powerseat® Eco	PE6687FL4110V	100	110V Range	Flanged
Powerseat® Eco	PE6689FL4110V	150	110V Range	Flanged
Powerseat® Eco	PE6658FL4230V	65	230V Range	Flanged
Powerseat® Eco	PE6686FL4230V	80	230V Range	Flanged
Powerseat® Eco	PE6687FL4230V	100	230V Range	Flanged
Powerseat® Eco	PE6689FL4230V	150	230V Range	Flanged



**Powerseat® Electro Hydraulic Gas Safety Shut Off Valve Cast iron Body - Flanged Connections. 8" & 10" available in Powerseat® specifications.**

TYPE	PRODUCT CODE	SIZE	POWER	CONNECTION
Powerseat®	BC66810FL4110V	200	110V Range	Flanged
Powerseat®	BC66811FL4110V	250	110V Range	Flanged
Powerseat®	BC66810FL4230V	200	230V Range	Flanged
Powerseat®	BC66811FL4230V	250	230V Range	Flanged

## GAS SAFETY SHUT-OFF VALVES

## Powerseat® Electro-Hydraulic Valves - Spare Parts

OPTIONAL EXTRAS	DESCRIPTION	UNIT
BC668*/SW	Open Position Switch	each
	110V 50Hz AC version +	each



OPTIONAL EXTRAS	DESCRIPTION	UNIT
BC66RSR	PowerSet Manual Reset Switch (Remote)	each
BC66ETF	PowerLink Thermal Fuse	each
BC66MRF	PowerLink Resettable Thermal Fuse	each
BC66ESB	PowerSev Emergency Switch (Die-cast)	each
BC66ESB/P	PowerSev Emergency Switch (Plastic)	each
BC66ESB/K	PowerSev Emergency Switch - Key op	each
N101706000	Thermal Fuse for BC66ETF	each



Spares for series 660x, 662x and 664x are no longer available.

## Powerseat® Replacement Actuators

ACTUATOR CODE	TYPE	PRODUCT CODE	TYPE
Spare Actuator		Powerseat Eco Electro Hydraulic Gas Safety Shut Off Valves Aluminium Screwed Connections	
110V Range			
PE668S110V	6683 - 110V	PE6683110V	1½" BSP
PE668S110V	6684 - 110V	PE6684110V	2" BSP
PE668LS110V	6685 - 110V	PE6685110V	2½" BSP
PE668LS110V	6686 - 110V	PE6686110V	3" BSP
230v Range			
PE668S230V	6683 - 230V	PE6683230V	1½" BSP
PE668S230V	6684 - 230V	PE6684230V	2" BSP
PE668LS230V	6685 - 230V	PE6685230V	2½" BSP
PE668LS230V	6686 - 230V	PE6686230V	3" BSP
Spare Actuator		Powerseat Eco Electro Hydraulic Gas Safety Shut Off Valves Cast Iron Flanged Connections	
110V Range			
PE668HS110V	6685 - 110V	PE6685FL4110V	6685 FL 110V 65mm Valve
PE668HS110V	6686 - 110V	PE6686FL4110V	6686 FL 110V 80mm Valve
PE6687S110V	6687 - 110V	PE6687FL4110V	6687 FL 110V 100m Valve
PE6689S110V	6689 - 110V	PE6689FL4110V	6689 FL 110V 150m Valve
230V Range			
PE668HS230V	6685 - 230V	PE6685FL4230V	6685 FL 230V 65mm Valve
PE668HS230V	6686 - 230V	PE6686FL4230V	6686 FL 230V 80mm Valve
PE6687S230V	6687 - 230V	PE6687FL4230V	6687 FL 230V 100m Valve
PE6689S230V	6689 - 230V	PE6689FL4230V	6689 FL 230V 150m Valve
Spare Actuator		Powerseat Electro Hydraulic Gas Safety Shut Off Valves Cast Iron Flanged Connections	
110V Range			
BC66810S110V	66810 - 110V	BC66810FL4110V	66810FL 110V 200mm Valve
BC66810S230V	66810 - 230V	BC66811FL4110V	66810FL 110V 250mm Valve
230V Range			
BC66811S110V	66811 - 110V	BC66810FL4230V	66810FL 110V 200mm Valve
BC66811S230V	66811 - 230V	BC66811FL4230V	66810FL 110V 250mm Valve



# Chapter 13

Black Teknigas  
Combustion Range

## Series 2000 Solenoid Operated Valves



Class A Safety Shut Off Valves, Normally Closed.  
Gas Families 1, 2 & 3.  
Cast Aluminium Bodies.  
Closure within 1 sec. of power being removed.

**WATTS®**

## SOLENOID GAS SAFETY SHUT-OFF VALVES

### Cooksafe & Labsafe Automatic Gas Proving and Isolation System

A range of gas proving systems for use on schools, laboratories & kitchens. Used in conjunction with Gas Safety Shut-off Valves approved to BS EN 161. Essential for use in all locations where manual gas controls can cause the possibility of leakage and/or explosion, etc. See BS EN 6715 for requirements in catering establishments.



PRODUCT CODE	DESCRIPTION	UNIT
PGCS003	Provengas 'Cooksafe' Proving System	each
PGLS001	Provengas 'Labsafe' Proving System	each

### Cooksafe & Labsafe Automatic Gas Proving System - Spare Part

PRODUCT CODE	SIZE/STYLE	UNIT
PGLSPAN	Labsafe Control Panel	each
PGCSPAN	Cooksafe Control Panel	each
PGLS/CSTRAN	Pressure Transducer for Labsafe/Cooksafe	each
KEYPGSMED	Spare Key for Labsafe/Cooksafe	each

### Series 2000 Solenoid Operated Valves

Series 2000 - Class A Safety Shut Off Valves, Normally Closed. Gas Families 1, 2 & 3. Cast Aluminium Bodies. Closure within 1 sec. of power being removed.



### Fast Opening - Full Wave Rectified, with Flow Adjustment

PRODUCT CODE	SIZE/STYLE	UNIT
2005 230V	3/4" BSP	each
2006 230V	1" BSP	each
2007 230V	1 1/4" BSP	each
2008 230V	1 1/2" BSP	each
2009 230V	2" BSP	each

### Fast Opening - Full Wave Rectified, with Flow Adjustment and CPI

PRODUCT CODE	SIZE/STYLE	UNIT
2005 230VC	3/4" BSP	each
2006 230VC	1" BSP	each
2007 230VC	1 1/4" BSP	each
2008 230VC	1 1/2" BSP	each
2009 230VC	2" BSP	each

### Other Voltages and Accessories

PRODUCT CODE	SIZE/STYLE	UNIT
110V 50Hz	Change 230V to 110V - extra	each
24V 50Hz	Change 230V to 24V - extra	each
N101717100	PG11 Cable Gland for all Series 2000 Valves	each

**SOLENOID GAS SAFETY SHUT-OFF VALVES****Solenoid Operated Valves - Spare Parts**

New Series 2000.

Fast Opening.

PRODUCT CODE	SIZE/STYLE	VOLTAGE	UNIT
20056S 230V	2005/2006 + 'C' models	230V 50Hz AC	each
20056S 110V	2005/2006 + 'C' models	110V 50Hz AC	each
20056S 24V	2005/2006 + 'C' models	24V 50Hz AC	each
20078S 230V	2007/2008 + 'C' models	230V 50Hz AC	each
20078S 110V	2007/2008 + 'C' models	110V 50Hz AC	each
20078S 24V	2007/2008 + 'C' models	24V 50Hz AC	each
2009S 230V	2009 + 'C' models	230V 50Hz AC	each
2009S 110V	2009 + 'C' models	110V 50Hz AC	each
2009S 24V	2009 + 'C' models	24V 50Hz AC	each

**Tekni Solenoid Operated Valves**

Series 24 to 29 - Gas Safety Shut-off Valves, Normally Closed.

Gas Families 1, 2 &amp; 3.

Brass Bodies - 1/8" &amp; 1/4".

Aluminium Bodies - Remainder.

**Series 24 - Class "B", Half Wave Rectified (\*Class "A") - Single Bodied Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2411001-00	1/8" BSP *	each
2421001-00	1/4" BSP *	each
2431211-00	3/8" BSP	each
2441211-00	1/2" BSP	each

**Series 28 - Class 'A' - Single Bodied Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2811001-00	1/8" BSP *	each
2821001-00	1/4" BSP *	each
2831211-00	3/8" BSP	each
2841211-00	1/2" BSP	each

**Series 29 - Class 'A' - Single Bodied Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2911001-00	1/8" BSP *	each
2921001-00	1/4" BSP *	each
2931211-00	3/8" BSP	each
2941211-00	1/2" BSP	each



**SOLENOID GAS SAFETY SHUT-OFF VALVES**

**Tekni Solenoid Operated Valves**

Series 24 to 29 - Gas Safety Shut-off Valves, Normally Closed.

Gas Families 1, 2 & 3.

Brass Bodies - 1/8" & 1/4".

Aluminium Bodies - Remainder.



**Double Bodied "Multifunctional" Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2442112-00	1/2" BSP - 2 Safety Shut-off Valves	each
2443112-00	1/2" BSP - 2 Safety Shut-off Valves and Governor	each
2445112-00	1/2" BSP - 1 Safety Shut-off Valve and Governor	each

**Series 25 - Class "B", Full Wave Rectified (\* Class "A") - Single Bodied Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2511001-00	1/8" BSP *	each
2521001-00	1/4" BSP *	each
2531211-00	3/8" BSP	each
2541211-00	1/2" BSP	each

**Double Bodied "Multifunctional" Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2542000-00	1/2" BSP - 2 Safety Shut-off Valves	each
2543112-00	1/2" BSP - 2 Safety Shut-off Valves and Governor	each

**Double Bodied 'Multifunctional' Valves**

PRODUCT CODE	SIZE/STYLE	UNIT
2842112-00	1/2" BSP - 2 Safety Shut-off Valves	each
2843112-00	1/2" BSP - 2 Safety Shut-off Valves and Governor	each

**Automatic Gas Solenoid Valve N.C. GSAV-R**

PRODUCT CODE	SIZE/STYLE	UNIT
GSAV20R	3/4" Voltage. 230 Vac. Press. max 0.5bar	each



**GENERAL PURPOSE SOLENOID VALVES****Series 3000 Valves**

Series 3000 - General Purpose Valves, normally closed. (Energise to open).

For Water, Hot Water, Air, Oil, etc. Fast opening and closing.

Brass body with a choice of diaphragm material, Nitrile, EPDM or Viton.

Electrical connection by DIN socket.

**Nitrile Diaphragm**

PRODUCT CODE	SIZE/STYLE	UNIT
3001 230V-N	3/8" BSP	each
3002 230V-N	1/2" BSP	each
3003 230V-N	3/4" BSP	each
3004 230V-N	1" BSP	each
3005 230V-N	1 1/4" BSP	each
3006 230V-N	1 1/2" BSP	each
3007 230V-N	2" BSP	each

**EPDM Diaphragm**

PRODUCT CODE	SIZE/STYLE	UNIT
3001 230V-E	3/8" BSP	each
3002 230V-E	1/2" BSP	each
3003 230V-E	3/4" BSP	each
3004 230V-E	1" BSP	each
3005 230V-E	1 1/4" BSP	each
3006 230V-E	1 1/2" BSP	each
3007 230V-E	2" BSP	each

**Viton Diaphragm**

PRODUCT CODE	SIZE/STYLE	UNIT
3001 230V-V	3/8" BSP	each
3002 230V-V	1/2" BSP	each
3003 230V-V	3/4" BSP	each
3004 230V-V	1" BSP	each
3005 230V-V	1 1/4" BSP	each
3006 230V-V	1 1/2" BSP	each
3007 230V-V	2" BSP	each

**Coil Only**

PRODUCT CODE	SIZE/STYLE	UNIT
3000 A 230V	230 V 50 Hz	each
3000 A 110V	110 V 50 Hz	each
3000 A 24V	24 V 50 Hz	each

**THERMO-ELECTRIC VALVES AND ANCILLARY PRODUCTS**

**Thermocouples**

High Quality Universal, specific duty and replacement type thermocouples.  
 Normal working temp. range 400 to 600°C. Max. operating temp. 1000°C.  
 Drop out time typically 30 to 40 seconds.

**Additional Adaptor Packs for Universal Thermocouples**

PRODUCT CODE	SIZE/STYLE	UNIT
7000/04	Perl, Black 5503	each
7000/05	Perl A, B, C, D & E	each
7000/12	Evered 9189, White Rodgers, Robertshaw	each
7000/13	Teddington TJ	each
7000/15	Sperryn T582	each
7000/26	Junkers, S.I.T.	each
7000/304	M10 Split Nut	each
7000/305	M9 Split Nut	each
7000/306	11/32" Split Nut	each
7000/307	M8 Split Nut	each

**Customer Specific Series Thermocouples**

PRODUCT CODE	SIZE/STYLE	UNIT
701062	36" (900mm) 9mm Fixed Nut	each
701082	48" (1200mm) 9mm Fixed Nut	each
701092	60" (1500mm) 9mm Fixed Nut	each

**Sperryn Series T2066**

PRODUCT CODE	SIZE/STYLE	UNIT
710022	320mm	each
710042	600mm	each
710072	1000mm	each
710092	1500mm	each

**THERMO-ELECTRIC VALVES AND ANCILLARY PRODUCTS****Thermocouples**

High Quality Universal, specific duty and replacement type thermocouples.

Normal working temp. range 400 to 600°C. Max. operating temp. 1000°C.

Drop out time typically 30 to 40 seconds.

**Replacement Type Thermocouples**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
7/S38	Thorn Apollo	each
7S/39A	Burco 54561	each
703044	24" (600mm) Q309A Type	each
703064	36" (900mm) Q309A Type	each
703084	48" (1200mm) Q309A Type	each
705060	36" (900)mm ITT Type	each
705080	48" (1200mm) ITT Type	each
712044	Thorn Olympic	each
717033	Robinson Willey Bantam	each
717052	Ideal Mexico	each
721202A	Potterton 8929547	each
7220212A	Main Medway Super	each
722213	Main Medway	each
724223	Valor Dream	each
725171	Glowworm Fireblaze	each
726041	Valor Heartbeat	each
727064	Thorn M	each
728143	Cannon Carress	each
728214	Vokera Flowmatic	each

**THERMO-ELECTRIC VALVES****Thermo-Electric Valves****Series 37 and G840**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
3701/110	Push Button Assembly - 3701/3703/3705	each
3702/127	Push Button Assembly - 3702/3706	each
T3622	Push Button Assembly - G840/880 1/2"	each
T1941	Push Button Assembly - G840/880 3/4"	each
MB1/FS	Electro-mag.hood assy. - 3701/3703 and G840/880 1/2"	each
3702/140	Pilot Assembly - 3702	each
3705/100	Pilot Assembly - 3705	each
3706/104	Pilot Assembly - 3706	each

**BURNERS, PILOTS, INJECTORS, BURNER CONTROLLERS, ACCESSORIES, ETC**

**Electronic Burner Sequence Controllers**

Atmospheric and Forced Draught Burners.

Series 'Microflat' - Fully Automatic Control.

Integral Spark, Flame Rectification (Ionisation) only

PRODUCT CODE	SIZE/STYLE	UNIT
DEN12230V	2 valve, 2 probe control for atmos. burners	each
SM 11 KIT	Electrical Termination kit for above	each

**Accessories for above**

PRODUCT CODE	SIZE/STYLE	UNIT
1201/230V	Spark Generator - 230V	each
1201/110V	Spark Generator - 110V	each
ME39/FS	Electrode (probe) - 6"	each

**Pilot Burners**

Various models and Styles for Domestic, Commercial and Industrial applications.

Industrial Pilot Assemblies for Natural Gas and LPG.

**Series 1300 - for use with Flame Rectification Units, includes 2 Probes**

PRODUCT CODE	SIZE/STYLE	UNIT
1300/N	Natural Gas	each
1300/LPG	Liquified Petroleum Gas	each

**Series 1101 - for use with Tekni 7000 series Thermocouples in arduous conditions**

PRODUCT CODE	SIZE/STYLE	UNIT
1300/N	Natural Gas	each
1300/LPG	Liquified Petroleum Gas	each

**Series CTB Monogas and Universal Pilot Burners 1, 2, & 3 Flame Models**

PRODUCT CODEs consist of four elements, as follows:

First Element - 'CTB/' - i.e. series.

Second Element - either 'MV/' (Monogas or 'U' (Universal).

Third Element - '1/', '2/' or '3/' - i.e. No. of flames required".

Fourth Element - Bracket type 'STD' (Standard) or 'EXT' (Extended).

In addition orders for Monogas Pilots should indicate if pilot is for "/LPG".

PRODUCT CODE	SIZE/STYLE	UNIT
See above	See above	each
Standard connection is 6mm comp. But 4mm can be supplied to special order		

**BURNERS, PILOTS, INJECTORS, BURNER CONTROLLERS, ACCESSORIES, ETC****Accessories**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
MG18	CTB Electrode	each
MG20	Piezo Ignitor	each
MG21	H.T. Cable	metre
MG22	Flat Connector	each
MG25	Ring Connector	each

**PRESSURE, FLOW, LEVEL AND PHOTO-ELECTRIC CONTROLS****Pressure Switches - High Pressure****Series Supermin - Miniature Positive and Negative Pressure Switches**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
5600001	SM1 - 0.1 to 1.0 bar	each
5600002	SM2 - 0.4 to 2.5 bar	each
5600003	SM3 - 1.0 to 10 bar	each
5600004	SM4 - 4.0 to 25 bar	each
	Degreased Version of any above	extra

**Londex Air Flow Controls****Air and Liquid Flow Switches and Controllers**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
4831001	EAF 110, 24v, 0.6-15m/s	each
4832001	EAF 180, 24v, 0.6-15m/s, t/o	each
4880001	EAF 250, 24v, 0.3min to 2-15max	each
4880004	EAF 250 Sensor Only	each
4880006	EAF 250 Control Unit Only	each
4880003	EAF 260, 24v, 0-20m/s	each

**Londex Photo-Electric Devices****Series Minilux - Night/Day Photo Switches**

<b>PRODUCT CODE</b>	<b>SIZE/STYLE</b>	<b>UNIT</b>
7400003	41018, 240v, 2-2000lux	each
7400004	41047, 240v, on 45, off 90lux	each
7430003	36096, 200/240v, 2 - 20,000lux	each

## GENERAL CONDITIONS

### GENERAL TERMS AND CONDITIONS

1. Sales conditions applicable here included are meant to be automatically fully accepted by the customer upon submission of the order.
2. An order only constitutes a booking and does not commit the company to make total or partial delivery. The order shall only be accepted when Watts Industries Italia S.r.l. send to the client a copy of the proposed order confirmation, containing the general conditions applicable.
3. Orders for a net amount of less than 500,00 Euro cannot be fulfilled. Any delivery costs will be charged to the client for an amount of at least 15,00 Euro
4. Any amendment to the contract (Orders and Orders confirmations) shall be made in writing, dated and signed by both parties.
5. Product description and pictures included in the present document are for information purposes only. Watts Industries Italia S.r.l. reserves the right to change or modify product design, construction, specifications, or material without prior notice or without incurring in any obligation.
6. All contracts (Orders and Orders confirmations) shall be governed by the Italian law.
7. The prices shown in the trade list below are quoted net of VAT.

### DELIVERY TERMS

8. The delivery dates are purely indicative; any delay in delivery after the specified date shall not entitle the customer to any compensation. Deliveries, even if in partial, cannot be rejected by the customer and cannot give any right to cancel the order.
  9. In case of Force Majeure, strikes or lock-outs, total lack or reduced supply of raw materials, transport problems, wars, riots, interruptions in communications for any reason, malfunctions of plant or any other unforeseeable event, Watts Industries Italia S.r.l. reserves the right to suspend deliveries or to cancel duly accepted orders, in which case the customer shall not be entitled to compensation.
  10. The goods will normally be delivered ex works, unless otherwise agreed and expressly stated in the order. Euro 15,00 will be charge to the client as packaging cost.
- Our liability ceases on delivery to the customer or the carrier. The goods travel at the customer's risk, even if carriage is paid to the place of destination, and no claims for any breakage or interference can therefore be accepted. Any agreements with shipping agents, including the amount and payment of the cost of transport, shall always be deemed to be entered into on behalf of the customer, which hereby accepts and ratifies our actions. Any delivery costs will be charged to the client for an amount of at least 15,00 Euro
11. No claims are accepted for any shortage, damage or tampering in case of:
    - orders for quantities different from standard box
    - transport done directly by the customer or by a carrier appointed himself.

### PAYMENTS

12. All payments shall be disposed at our offices within the agreed period. In the event of any delay in payment Watts Industries Italia S.r.l. is entitled to take any legal action to obtain the outstanding payments.  
The customer shall pay interest from the due date according to Italian Law 231/2002. If the prices are expressed in a foreign currency invoices shall be paid in the currency indicated in the invoice. If the currency indicated in the invoice should cease to exist, payment shall be made in the currency which replaced the one indicated in the invoice.
13. In the event of failure to comply with the terms of payment, Watts Industries Italia S.r.l. shall be entitled to suspend all or part of the delivery of the goods, even if it relates to proposed order confirmations duly accepted under the terms of these general conditions of sale.

### CLAIMS AND DAMAGES

14. Any claim for defected material should be received in written within eight (8) days from the receiving of the material. The customer could return the defected material to Watts Industries Italia S.r.l. at his own cost and only after written authorization.
15. Any damage or injury caused by incorrect operation of the product shall be notified within 24 hours, giving the name of the claimant and the approximate amount of the claim. Photographs of the damage or injury, together with the product allegedly responsible, shall subsequently be sent for laboratory examination. All evidence demonstrating the extent of the damage or injury (goods, etc.) shall be held at the disposal of Watts Industries Italia until the claim has been settled.
16. Watts Industries Italia S.r.l. declines all liability for injury to persons or animals or damage to property deriving from use of equipment without observing the safety instructions, or the use of equipment installed incorrectly and/or without performing the usual checks.
17. Any claims or disputes shall not entitle the customer to refuse to pay for the goods or to delay payment thereof.

### WARRANTY

18. All Watts Industries Italia S.r.l. products are thoroughly tested; they are consequently guaranteed for two years from the date of issue of the invoice. The said guarantee covers replacement or repair, free of charge, of those components of the goods supplied which present manufacturing defects. I.I.P. brand products may be collected by I.I.P. for the conduct of tests, either directly from the market or from users, customers, retailers, sites, etc. The customer shall allow I.I.P.'s representatives access to perform tests and inspections to establish whether the products conform to the applicable standards. The warranty exclude any damage due to normal product usage or friction and do not include any modified or not authorized repairing. Excluding with this any responsibility from Watts Industries Italia S.r.l. in particular we will not accept any request for damage compensation. Any claims or disputes shall not entitle the customer to refuse to pay for the goods or to delay payment thereof

### COMPLIANCE WITH U.S. EXPORT CONTROLS AND SANCTIONS LAWS

19. Both Watts Industries Italia S.r.l. and the client shall comply with applicable export controls and sanctions laws of the United States of America, including, but not limited to, the Export Administration Regulations administered by the Department of Commerce, Bureau of Industry and Security, and the various economic sanctions programs administered by the Department of the Treasury, Office of Foreign Assets Control. The client may not undertake any activity, or cause or require Watts Industries Italia S.r.l. to undertake any activity that would be reasonably likely to result in Watts Industries Italia S.r.l. or any of its representatives as a United States person, violating U.S. export controls and/or sanction laws.

### PRIVACY

20. INFORMATION NOTICE REQUIRED BY THE LAW. For the purpose of entering into and performing contracts with you, we hold data relating to you, acquired in writing or verbally, directly or through third parties, which will be treated by us in accordance with the applicable law. Please make reference to our website [www.wattsindustries.com](http://www.wattsindustries.com) for more information.

### APPLICABLE LAW AND JURISDICTION

21. All disputes arising out of or in connection with this Agreement, including but not limited to disputes over interpretation, enforcement, termination or breach of the Agreement, shall be submitted to the exclusive jurisdiction of Italian Courts, in Milan .



