

General Catalogue

***Components and Systems for heating,
air conditioning and sanitary applications***



The strength of Watts

1



Heating



Cooling



Sanitary



Ecoenergies

“A tradition of quality and reliability, technology for the future”

The history of WATTS, dated back to 1874 in the United States, was always distinguished for its important and continuous contribute to the technological development of the market through the research and development of valves and related products that became a milestone in water and HVAC installations.

Our product range promotes the comfort and safety of people and the quality, conservation and control of water used in commercial, residential, industrial and municipal applications.

WATTS does not limit to design products technologically advanced with premium quality.

WATTS implement a wide program of research and development, strictly integrated to market demand analysis and world development policies.

This results in our research centers continuous effort to develop more efficient products and integrated solutions oriented to energy saving.

WATTS has been chosen to supply the technological leading companies operating in the market as OEM (Original Equipment Manufacturer) and as ODM (Original Design Manufacturer).

WATTS, a synergic partner for the HVAC application development since 1874.

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HIGHLIGHTS



WATTS NEW THERMOSTATIC VALVES SERIES TRV

“Performing faster with variable Kv”

WATTS is proud to announce a new range of thermostatic radiator valves and lockshields, the TRV series, made in a compact and modern design. Built to the highest quality standards as required by the market, the new TRV series offers better comfort, and enables a faster installation thanks to the variable Kv option.

[➔ CHAPTER A](#)



WATTS®Vision

“Always in Touch!”

WATTS is proud to announce the New **WATTS®Vision**, a scalable and easy to update smart home system with an expanding range of products. All Products are designed and manufactured by **WATTS** to offer innovative products and to bring value and comfort to each home. With **WATTS®Vision** you can control and monitor your home with one simple click from where ever you are, be it with an App on your smart phone (iOS and Android), a tablet, or web browser. **WATTS®Vision** allows a user friendly and intuitive operation and management of multi-zone systems, temperature settings and time schedules. The central unit is equipped with a colour touch screen of 4.3” in a choice of languages, and can control up to 50 Zones (heating, lighting, plugs).

WATTS®Vision Apps can be found in the app stores for iOS and Android.

[➔ CHAPTER D](#)

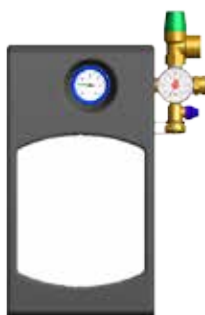


WATTMIX

Compact Solution for wall hang boiler connection

WATTS presents new compact unit for gas wall-mounting boiler connection.

[➔ CHAPTER C](#)



FLOWBOX SOLAR 8180 AND 8010SINGLE

Compact Solution for solar systems

WATTS presents new ready-to-mount compact pump unit for solar systems with 130 mm and 180 mm pumps.

[➔ CHAPTER J](#)



RT10N

Compact draught regulator for solid fuel boilers.

[➔ CHAPTER F](#)

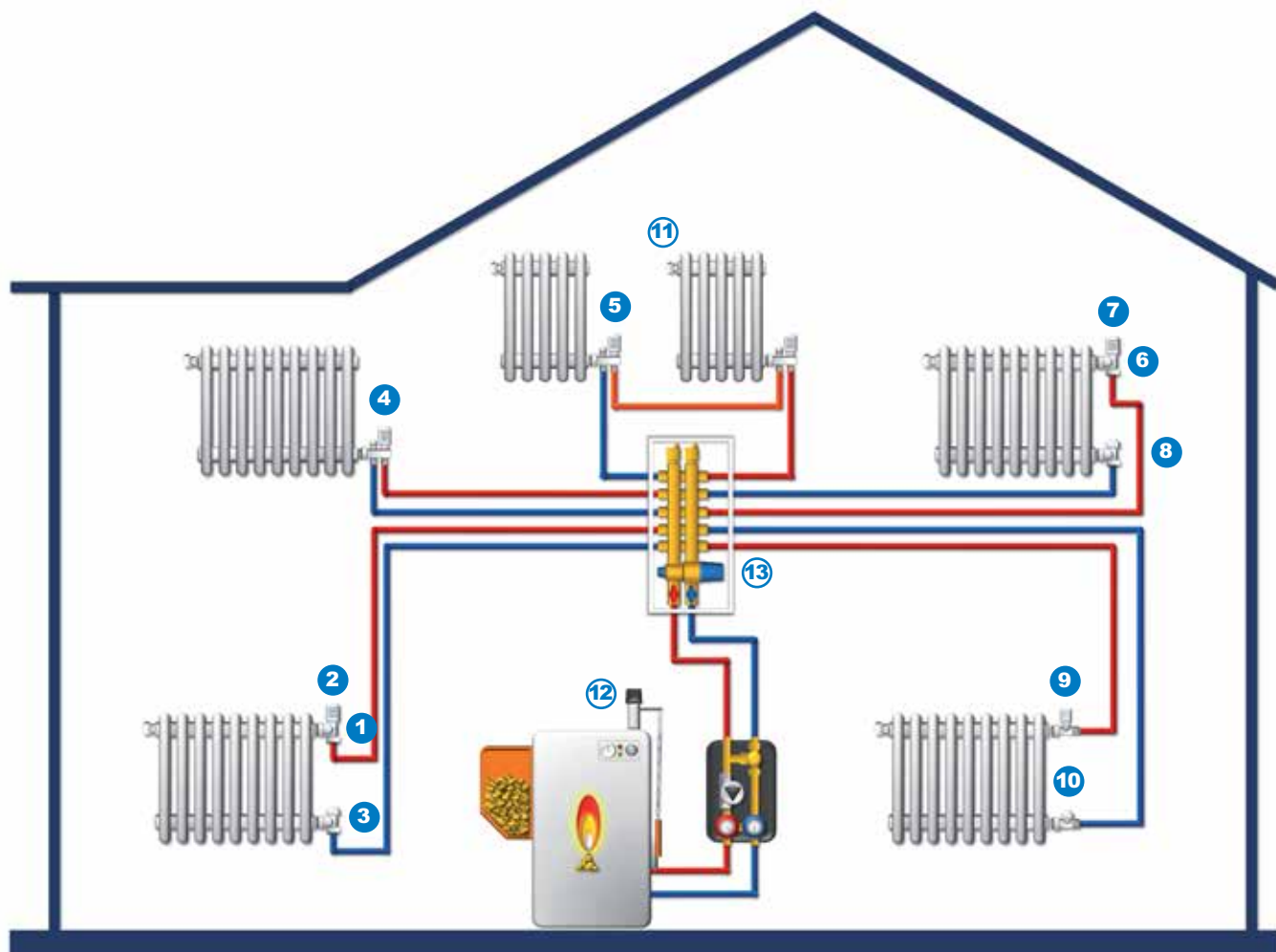
Radiator valves for heat elements
















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EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

- | | | | | |
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THERMOSTAT ADAPTABLE VALVES, CONNECTION FOR COPPER PIPE

1378TRV


Nickel-plated thermostat adaptable valve. Angle body. Connection for copper or plastic pipe, size 1/2" M. Cylinder tailpiece with sealed O-ring. ABS handwheel with movable stem. Compatible with thermostatic actuators series 148, 148A, electronic thermostatic actuator BT-TH02-RF, and electrothermic actuators series 22CX, 26LC.

Type	Part no. WII	Part no. WID	Size	Kvs
1378TRV	1378TRV38	10045345	3/8"	1,30
1378TRV	1378TRV12	10045354	1/2"	1,40


1388TRV


Nickel-plated thermostat adaptable valve as per 1378TRV **with variable Kv**.

Type	Part no. WII	Part no. WID	Size	Kvs
1388TRV	1388TRV38	10045342	3/8"	1,30
1388TRV	1388TRV12	10045341	1/2"	1,40


1379TRV


Nickel-plated thermostat adaptable valve. Straight body. Connection for copper or plastic pipe, size 1/2" M. Cylinder tailpiece with sealed O-ring. ABS handwheel with movable stem. Compatible with thermostatic actuators series 148, 148A, electronic thermostatic actuator BT-TH02-RF, and electrothermic actuators series 22CX, 26LC.

Type	Part no. WII	Part no. WID	Size	Kvs
1379TRV	1379TRV38	10045344	3/8"	1,30
1379TRV	1378TRV12	10045343	1/2"	1,40


1389TRV


Nickel-plated thermostat adaptable valve as per 1379TRV **with variable Kv**.

Type	Part no. WII	Part no. WID	Size	Kvs
1389TRV	1389TRV38	10045340	3/8"	1,30
1389TRV	1389TRV12	10045339	1/2"	1,40

THERMOSTAT ADAPTABLE VALVES, CONNECTION FOR IRON PIPE

**378TRV**

Nickel-plated thermostat adaptable valve. Angle body. Connection for iron pipe. Cylinder tailpiece with sealed O-ring. ABS handwheel with movable stem. Compatible with thermostatic actuators series 148, 148A, electronic thermostatic actuator BT-TH02-RF, and electrothermic actuators series 22CX, 26LC.

Type	Part no. WII	Part no. WID	Size	Kvs
378TRV	378TRV38	10045375	3/8"	1,30
378TRV	378TRV12	10045377	1/2"	1,40
378TRV	378TRV34	10045376	3/4"	1,45

**388TRV**

Nickel-plated thermostat adaptable valve as per 378TRV **with variable Kv**.

Type	Part no. WII	Part no. WID	Size	Kvs
388TRV	388TRV38	10045369	3/8"	1,30
388TRV	388TRV12	10045371	1/2"	1,40
388TRV	388TRV34	10045370	3/4"	1,45

**379TRV**

Nickel-plated thermostat adaptable valve. Straight body. Connection for iron pipe. Cylinder tailpiece with sealed O-ring. ABS handwheel with movable stem. Compatible with thermostatic actuators series 148, 148A, electronic thermostatic actuator BT-TH02-RF, and electrothermic actuators series 22CX, 26LC.

Type	Part no. WII	Part no. WID	Size	Kvs
379TRV	379TRV38	10045372	3/8"	1,00
379TRV	379TRV12	10045374	1/2"	1,10
379TRV	379TRV34	10045373	3/4"	1,15

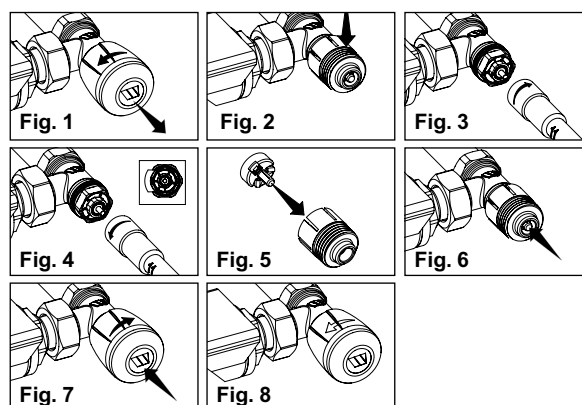
**389TRV**

Nickel-plated thermostat adaptable valve as per 379TRV **with variable Kv**.

Type	Part no. WII	Part no. WID	Size	Kvs
389TRV	389TRV38	10045355	3/8"	1,00
389TRV	389TRV12	10045368	1/2"	1,10
389TRV	389TRV34	10045367	3/4"	1,15

TECHNICAL NOTE**How to adjust series 388TRV, 389TRV, 1388TRV, 1389TRV**

- 1 - Unfasten and remove handwheel (Fig. 1)
- 2 - Remove the snap ring releasing the teeth (Fig. 2)
- 3 - Fully close the variable Kv setting ring nut (manually or through key 11) (Fig. 3)
- 4 - Open to required position by making the number to coincide with the reference notch (Fig. 4)
- 5 - Insert the transparent insert inside the snap ring (Fig. 5)
- 6 - Clip the snap ring (Fig. 6)
- 7 - Fasten the handwheel until it stops (valve closing), putting pressure on it (Fig. 7)
- 8 - Unfasten the handwheel until the desired opening (Fig. 8)



LOCKSHIELD VALVES

1395TRV

Nickel-plated micrometric lockshield with angle body for copper or polyethylene pipes.

Type	Part no. WII	Part no. WID	Dn Body	Dn Tube	Kvs
1395TRV	1395TRV38	10045882	3/8"	1/2"	1,45
1395TRV	1395TRV12	10045881	1/2"	1/2"	1,45


1396TRV

Nickel-plated micrometric lockshield with straight body for copper or polyethylene pipes.

Type	Part no. WII	Part no. WID	Dn Body	Dn Tube	Kvs
1396TRV	1396TRV38	10045884	3/8"	1/2"	1,15
1396TRV	1396TRV12	10045883	1/2"	1/2"	1,15


395TRV

Nickel-plated micrometric lockshield with angle body for iron pipes.

Type	Part no. WII	Part no. WID	Size	Kvs
395TRV	395TRV38	10045877	3/8"	1,35
395TRV	395TRV12	10045875	1/2"	1,45
395TRV	395TRV34	10045876	3/4"	1,55


396TRV

Nickel-plated micrometric lockshield with straight body for iron pipes.

Type	Part no. WII	Part no. WID	Size	Kvs
396TRV	396TRV38	10045880	3/8"	1,05
396TRV	396TRV12	10045878	1/2"	1,15
396TRV	396TRV34	10045879	3/4"	1,25

THERMOSTAT ADAPTABLE VALVES, CONNECTION FOR IRON PIPE

**TVE**

Nickel-plated thermostatic valve, angle body, **with presetting**. Connection with female thread. Suitable for the SE148 thermostatic head. Valve adjustment: M30 x 1,5.

Type	Part no. WII	Part no. WID	Size	Kvs
TVE	178D12WM	10001592	1/2"	2,6
TVE	178D34WM	10001593	3/4"	3,3

**TVD**

Nickel-plated thermostatic valve, straight-way type, **with presetting**. Connection with female thread. Suitable for the SE148 thermostatic head. Valve adjustment: M30 x 1,5.

Type	Part no. WII	Part no. WID	Size	Kvs
TVD	179D38WM	10001606	3/8"	1,1
TVD	179D12WM	10001604	1/2"	1,8
TVD	179D34WM	10001605	3/4"	2,6

**TVE-S**

Nickel-plated thermostatic valve **with presetting**. Reverse body. Suitable for the SE148 thermostatic head. Valve adjustment : M30 x 1,5.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
TVE-S	134M12WM	10001610	1/2"	1/2"	1,4

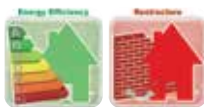
**TVE-SC**

Nickel-plated thermostatic valve **with presetting**. Reverse body, screw connection for CU pipe 15 x 1,0 mm Suitable for the SE148 thermostatic head. Valve adjustment : M30 x 1,5.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
TVE-SC	1134M1215WM	10001611	1/2"	1/2"	1,4

4-WAY THERMOSTAT ADAPTABLE VALVES FOR ONE-PIPE AND TWO-PIPES SYSTEMS

120B



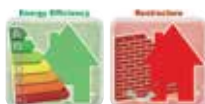
4-way nickel-plated thermostat adaptable valve for **two-pipe systems**. **With presetting**. Built-in lockshield valve. Connection for copper or plastic pipe. **O-ring sealed** straight tailpiece, complete with flow separation probe. ABS handwheel. Differential pressure (item 148): 1.5 bar. Kvn coefficient with 2K proportional band :

- DN 1/2" = 0.58
- DN 3/4" = 0.62.

Compatible with thermostatic actuators series 148, 148A and electrothermic actuators 22CX and 26LC.

Type	Part no.WII	Part no.WID	Size	Size Tube	Kvs
120B	120B12AM12	10001674	1/2"	1/2"	0,82
120B	120B12AM34	10001675	3/4"	1/2"	0,93

102M



4-way nickel-plated thermostat adaptable valve for **one-pipe systems with fixed by-pass**. **With presetting**. Built-in lockshield valve. Connection for copper or plastic pipe. **O-ring sealed** straight tailpiece, complete with flow separation probe. ABS handwheel. Differential pressure (item 148) : 1.5 bar. Kvn coefficient with 2K proportional band :

- DN 1/2" = 1.76
- DN 3/4" = 1.84

Flow rate to radiator : 50%.

Compatible with thermostatic actuators series 148, 148A and electrothermic actuators 22CX and 26LC.

Type	Part no.WII	Part no.WID	Size	Size Tube	Kvs
102M	102M12AM12	10001676	1/2"	1/2"	2,00
102M	102M12AM34	10001677	3/4"	1/2"	2,15

TECHNICAL NOTE

4-way thermostat adaptable valves

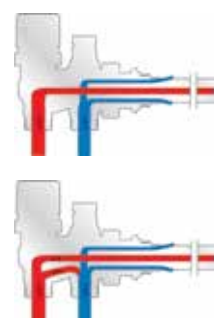
The 4-way valves incorporate, in just one piece, the different valve and lockshield functions. For the thermostat function, connect the delivery port to the connection under the head.

For two-pipe systems

Valves type 120B (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 Type 102M 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.

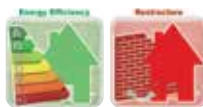


THERMOSTATIC ACTUATORS



028

148



Thermostatic actuator with oil-filled sensitive element. Temperature limiting and locking device. ABS handwheel. Graduated scale from 0 to 5. Setting range : 0°C - 28°C. Anti-freeze position : 8°C. Max. differential pressure: 1.5 bar. Valve adaption: M30 x 1.5. **CEN approved EN 215 compliant. TELL Certified Class A**

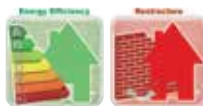
Type	Part no. WII	Part no. WID
148	148	10025869
SE148*	-	10001583

* for TVE, TVD, TVE-S and TVE-SC series.



028

148A



Thermostatic actuator **new design** with oil-filled sensitive element. Temperature limiting and locking device. ABS handwheel. Graduated scale from 0 to 5. Setting range : 0°C - 28°C. Anti-freeze position : 8°C. Max. differential pressure: 1.5 bar. Valve adaption: M30 x 1.5. **CEN Approved EN215 compliant. TELL Certified Class A**

Type	Part no. WII	Part no. WID
148A	148A	10045754



147



Thermostatic actuator chrome-plated version with oil-filled sensitive element. Other characteristics as per Item 148.

Type	Part no. WII	Part no. WID
147	147CR	10022425

TECHNICAL NOTE

Thermostatic actuators Class A

The increased consumer awareness regarding energy saving, is everyday increasing the need for clear and reliable information for a purchase decision consciously. The introduction of the European classification system **TELL (Thermostatic Efficiency Label)** for the energy efficiency of radiator valves allows to immediately identify the products of a higher category.

The Watts Industries thermostatic actuators series **148** and **148A** have been certified TELL, **in the efficiency Class A**. The **TELL** certification criteria are:

- Water temperature;
- Hysteresis;
- Response time in function of temperature variation;
- Differential pressure

The details of the classification are listed on the website www.tell-online.eu



THERMOSTATIC ACTUATORS
148SD


Thermostatic actuator with remote sensor. 2 m capillary tube. Other characteristics as per Item 148.

Type	Part no. WII	Part no. WID
148SD	148SD	10001584

148GA

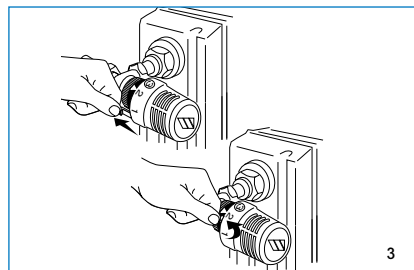
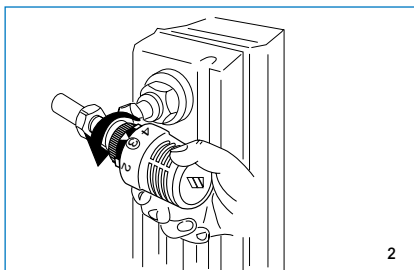
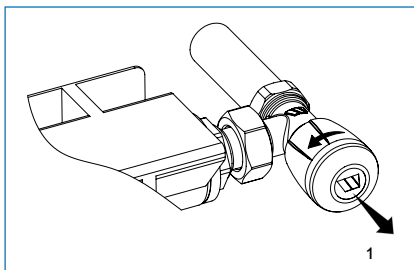

Tamper-proof cover for thermostatic actuators series 148 and 148A.
Provision for limiting and locking temperature range on rivettable closing position.
Complete with standard mounting screws and break-stem rivets.

Type	Part no. WII	Part no. WID
148GA	148GA	10001586

TECHNICAL NOTE
Installation of thermostatic actuators series 148

- 1) Unfasten and remove handwheel (Pic. 1)
- 2) Turn the thermostatic actuator fully open (position 5)
- 3) Approach the actuator to the valve body with the reference pointer clearly visible, then fully screw in the nickel-plated ring unit (Pic. 2)

Avoid vertical positions of the actuator; use the two setting blocks and position them to coincide with the required min./max. values (Pic. 3).



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

Radial slots
high sensitivity in ambient temperature measurement

Adjustment riders
Provision for adjusting or blocking the preset temperature range



5 temperature levels
Quick and easy setting of the required temperature

Threaded ring nut
Practical and quick in installation operations



In order to know which thermostatic valves Watts Industries are UNI EN 215 approved, please connect to our website www.wattsindustries.com where you will find all data useful.

ELECTRONIC THERMOSTATIC ACTUATOR

**BT-TH02-RF**

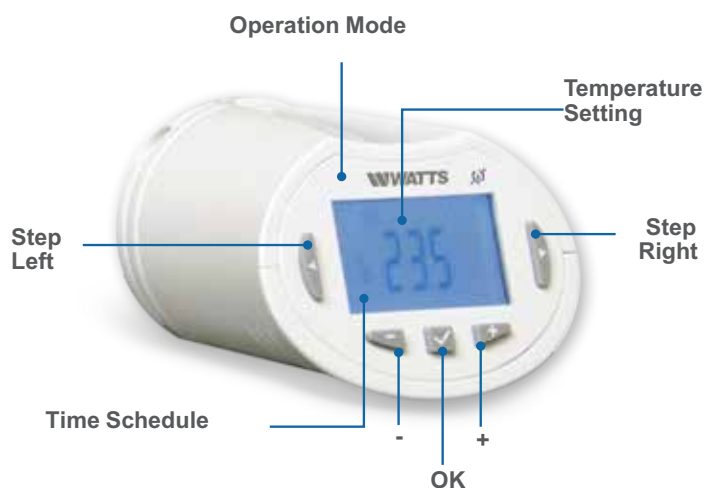
Digital programmable radio thermostatic head with LCD display.

Possible application: electronic thermostatic head as a stand-alone device or as a part of **WATTS®Vision** System in connection with other BT-02XX-RF products (for more information about **WATTS®Vision** refer to page 80).

Valve adaption: M30 x 1.5, M28 x 1.5, WATTS TRV. Actuator force 70N.

- Setting temperature range: 5°C to 30°C by 0,5°C step.
- Working modes: Comfort, Reduced, Antifreeze, Automatic, Timer
- 9 factory and 4 customized weekly programs.
- Power Supply 2 AA 1.5V Alkaline. Protection: class I, IP20.

Type	Part no. WII	Part no. WID
BT-TH02 RF	P06086	10036919

TECHNICAL NOTE

- Silent Step motor
- Precise temperature controls
- ITCS : Intelligent Temperature Control System
- Display Type : Pictogram with white backlight (30 minutes bargraph)
- Setting adjustment 0,5°C
- Key lock
- Valve exercise function
- Weekly time schedule
- Proportional regulation type on room sensor
- Automatic summer winter change over
- Open windows detection

MANUAL VALVES AND LOCKSHIELDS, CONNECTION FOR COPPER PIPE

1163R

Nickel-plated manual valve. Angle body. Plug with soft seal.
Connection for copper or plastic pipe, size 1/2" M.
Taper tailpiece knurled to facilitate the hemp sealing operations.
ABS handwheel.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
1163R	1163SN38XR	-	3/8"	1/2"	1,8
1163R	1163SN12R	10022346	1/2"	1/2"	1,9

1193R

Nickel-plated lockshield valve. Angle body. Plug with soft seal.
Connection for copper or plastic pipe, size 1/2" M.
Taper tailpiece knurled to facilitate the hemp sealing operations.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
1193R	1193SN38XR	-	3/8"	1/2"	1,8
1193R	1193SN12R	10025554	1/2"	1/2"	1,9

1164R

Nickel-plated manual valve. Straight body. Plug with soft seal.
Connection for copper or plastic pipe, size 1/2" M.
Taper tailpiece knurled to facilitate the hemp sealing operations.
ABS handwheel.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
1164R	1164SN38XR	-	3/8"	1/2"	1,2
1164R	1164SN12R	10026301	1/2"	1/2"	1,4

1194R

Nickel-plated lockshield valve. Straight body. Plug with soft seal.
Connection for copper or plastic pipe, size 1/2" M.
Taper tailpiece knurled to facilitate the hemp sealing operations.

Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
1194R	1194SN38XR	-	3/8"	1/2"	1,2
1194R	1194SN12R	10026300	1/2"	1/2"	1,4

MANUAL VALVES AND LOCKSHIELDS, CONNECTION FOR IRON PIPE

**163R**

Nickel-plated manual valve. Angle body. Plug with soft seal. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations. ABS handwheel.

Type	Part no.WII	Part no.WID	Size	Kvs
163R	163SN38R	10001562	3/8"	1,8
163R	163SN12R	10001560	1/2"	1,9

**193R**

Nickel-plated lockshield valve. Angle body. Plug with soft seal. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations.

Type	Part no.WII	Part no.WID	Size	Kvs
193R	193SN38R	10001667	3/8"	1,8
193R	193SN12R	10001665	1/2"	1,9

**164R**

Nickel-plated manual valve. Straight body. Plug with soft seal. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations. ABS cap.

Type	Part no.WII	Part no.WID	Size	Kvs
164R	164SN38R	10001563	3/8"	1,2
164R	164SN12R	10001561	1/2"	1,4

**194R**

Nickel-plated lockshield valve. Straight body. Plug with soft seal. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations.

Type	Part no.WII	Part no.WID	Size	Kvs
194R	194SN38R	10001668	3/8"	1,2
194R	194SN12R	10001663	1/2"	1,4

**190**

Nickel-plated manual valve. Angle body. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations. Polypropylene handwheel.

Type	Part no.WII	Part no.WID	Size	Kvs
190	190SN1	-	1"	9,5

**195S**

Nickel-plated balancing lockshield valve. Angle body. Connection for iron pipe. Taper tailpiece knurled to facilitate the hemp sealing operations. ABS cap.

Type	Part no.WII	Part no.WID	Size	Kvs
195S	195SN1	10001656	1"	8,9

H VALVE SETS FOR BOTTOM RADIATOR CONNECTION
DG


H radiator valve set without bypass, **straight** body for bottom radiator connection in double-pipe heating system.

- **Straight** H valve 3/4"M x 3/4"UN with ball valves
- 2 nipples 3/4"M x 1/2"M
- 2 Euro cone inserts 3/4"
- 50 mm distance, nickel plated brass CW614N.

Type	Part no. WID
DG	10001885

ECK


H radiator valve set without bypass, **angle** body for bottom radiator connection in double-pipe heating system.

- **Angle** H valve 3/4"M x 3/4"UN with ball valves
- 2 nipples 3/4"M x 1/2"M
- 2 Euro cone inserts 3/4"
- 50 mm distance, nickel plated brass CW614N.

Type	Part no. WID
ECK	10001886

AGT


Compensation fitting. Brass nickel-plated, self-sealing with double O-Ring.
Compensation line 15mm. Temperature: -10 ÷ +90 °C. Max. pressure: 10 bar. Glycol

Type	Part no. WID	Size
AGT	10026651	3/8"
AGT	10026649	1/2"
AGT	10026650	3/4"

SINGLE-PIPE SYSTEM MANUAL VALVES
119SX

Nickel-plated 4-way valve for one-pipe systems. Connection for copper or plastic pipe. Straight tailpiece complete with flow separation probe. Flow rate to radiator : 100%. ABS handwheel. 1/2" S Models suitable with ø18 mm pipes.



Type	Part no. WII	Part no. WID	Size	Size Tube	Kvs
119SX	119S1212X	10001678	1/2"	1/2"	1,6
119SX	119S3412X	10001679	3/4"	1/2"	2,0

ACCESSORIES AND SPARE PARTS

18

A

808D

White plastic single-hole rose.



Type	Part no. WII	Part no. WID	Size
808D	808D10W	-	10 mm
808D	808D12W	-	12 mm
808D	808D14W	-	14 mm
808D	808D15W	-	15 mm
808D	808D16W	-	16 mm
808D	808D18W	-	18 mm
808D	808D22W	-	22 mm
808D	808D28W	-	28 mm

128

White plastic double-hole rose.



Type	Part no. WII	Part no. WID	Size
128	12812W	-	12 mm
128	12814W	-	14 mm
128	12816W	-	16 mm
128	12818W	10022421	18 mm

234

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



Type	Part no. WII	Part no. WID	Size
234	234USN38X	-	3/8" (5/8")
234	234USN38	-	3/8"
234	234SN12	-	1/2"
234	234SN34	-	3/4"

TECHNICAL NOTE**Fittings for thermostatic valves Series 1000 and TRV****Copper pipe**

One-piece soft seal fitting RAFIT+ type 872M



One-piece soft seal compact fitting VELOFIT type 873M



3-pieces compression union type 820R

Pex pipe

3-pieces compression union type 817M



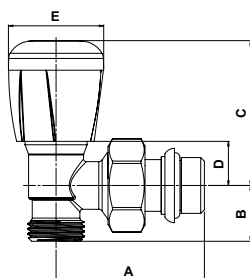
Euro-cone compression union type ECP

Multi-layer pipe

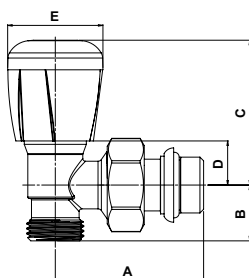
3-pieces compression union type 817MS



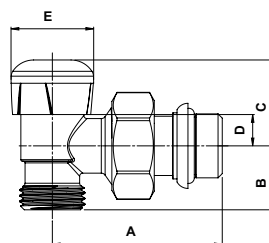
Eurocone compression union type ECM

OVERALL DIMENSIONS
1378TRV


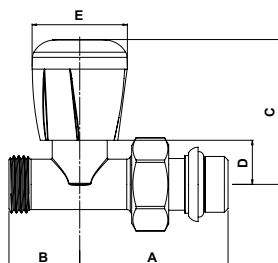
DN	A	B	C	D	E
1/2" x 3/8"	51	20,5	53	16	35
1/2" x 1/2"	55	20,5	53	16	35

1388TRV


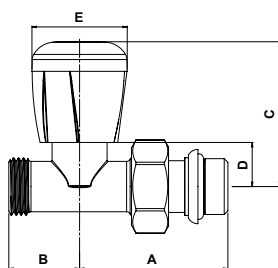
DN	A	B	C	D	E
1/2" x 3/8"	51	20,5	53	16	35
1/2" x 1/2"	55	20,5	53	16	35

1395TRV


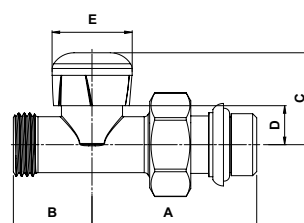
DN	A	B	C	D	E
1/2" x 3/8"	51	20,5	27	10	26,5
1/2" x 1/2"	55	20,5	27	10	26,5

1379TRV


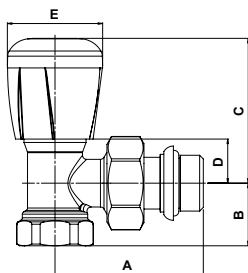
DN	A	B	C	D	E
1/2" x 3/8"	51	26	57	20	35
1/2" x 1/2"	55	26	57	20	35

1389TRV


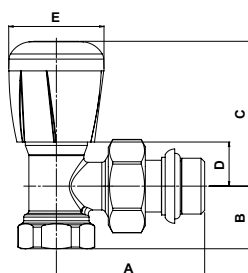
DN	A	B	C	D	E
1/2" x 3/8"	51	20,5	57	20	35
1/2" x 1/2"	55	20,5	57	20	35

1396TRV


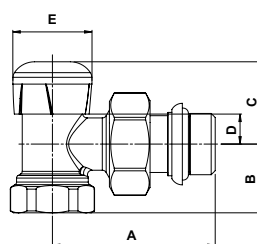
DN	A	B	C	D	E
1/2" x 3/8"	51	20,5	30	13	26,5
1/2" x 1/2"	55	20,5	30	13	26,5

378TRV


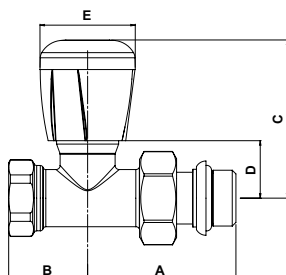
DN	A	B	C	D	E
3/8"	51	20	53	16	35
1/2"	55	23	53	16	35
3/4"	63	28	53	16	35

388TRV


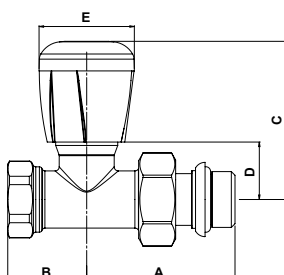
DN	A	B	C	D	E
3/8"	51	20	53	16	35
1/2"	55	23	53	16	35
3/4"	63	28	53	16	35

395TRV


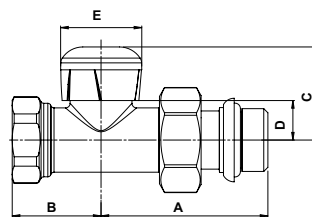
DN	A	B	C	D	E
3/8"	51	20	27	10	26,5
1/2"	55	23	27	10	26,5
3/4"	63	28	27	10	26,5

379TRV


DN	A	B	C	D	E
3/8"	51	26	57	20	35
1/2"	55	29	57	20	35
3/4"	63	34	57	20	35

389TRV


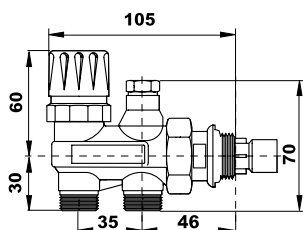
DN	A	B	C	D	E
3/8"	51	26	57	20	35
1/2"	55	29	57	20	35
3/4"	63	34	57	20	35

396TRV


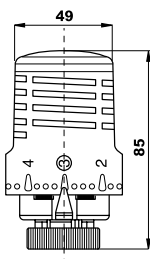
DN	A	B	C	D	E
3/8"	51	20	30	13	26,5
1/2"	55	29	30	13	26,5
3/4"	63	34	30	13	26,5

OVERALL DIMENSIONS

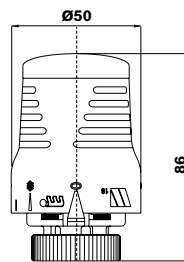
120B/102M



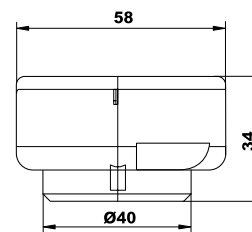
147/148



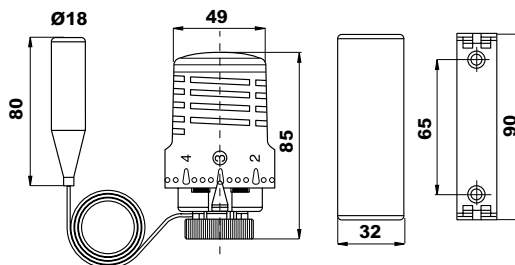
148A



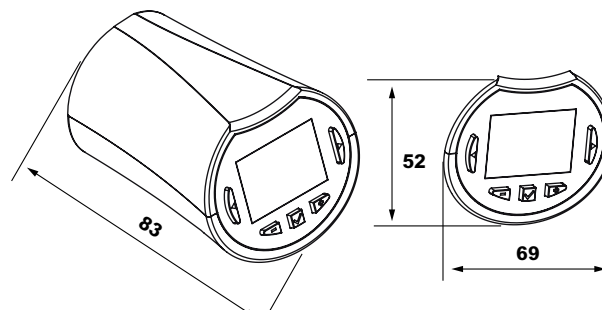
148GA



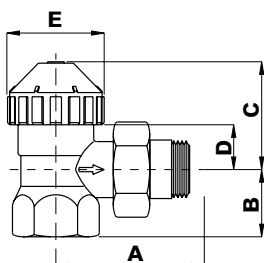
148SD



BT-TH02 RF

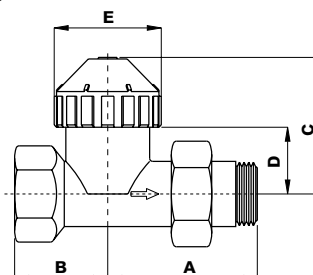


TVE



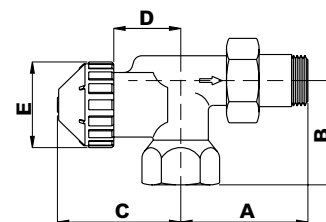
DN	A	B	C	D	E
1/2"	53	23	40	18	35
3/4"	61	28	40	18	35

TVD



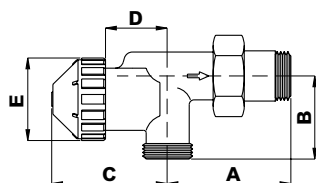
DN	A	B	C	D	E
3/8"	49	26	46.5	24.5	35
1/2"	53	29	46.5	24.5	35
3/4"	61	34	46.5	24.5	35

TVE-S



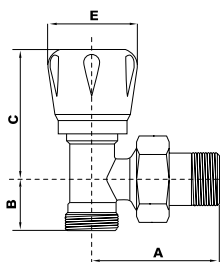
DN	A	B	C	D	E
1/2"	53	37	50	31	35

TVE-SC



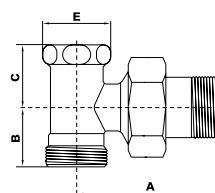
DN	A	B	C	D	E
1/2"	53	34	50	31	35

1163R

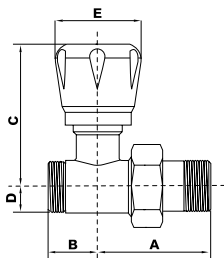


DN	A	B	C	E
3/8"	47.5	20	48.5	34.1
1/2"	51	20	48.5	34.1

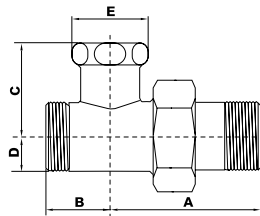
1193R



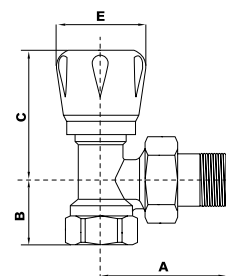
DN	A	B	C	E
3/8"	48	20	21	23
1/2"	50.5	20	21	23

OVERALL DIMENSIONS
1164R


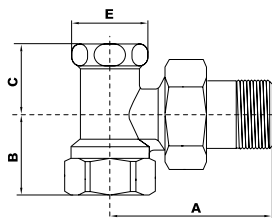
DN	A	B	C	D	E
3/8"	44	22	56	10.4	34.1
1/2"	46	20	56	10.4	34.1

1194R


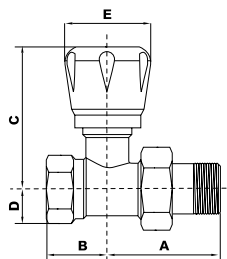
DN	A	B	C	D	E
3/8"	44	22	29	10.4	23
1/2"	46	20	29	10.4	23

163R


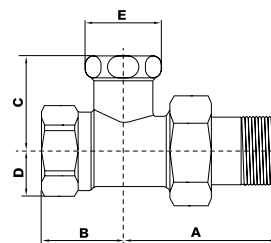
DN	A	B	C	E
3/8"	47.5	22	48.5	34.1
1/2"	51	25	48.5	34.1

193R


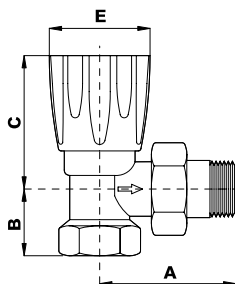
DN	A	B	C	E
3/8"	48	22	21	23
1/2"	50.5	25	21	23

164R


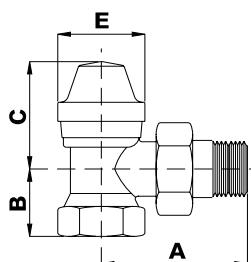
DN	A	B	C	D	E
3/8"	44	22	56	11	34.1
1/2"	46	25	56	14	34.1

194R


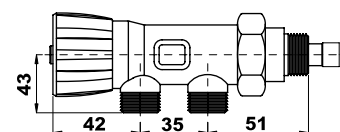
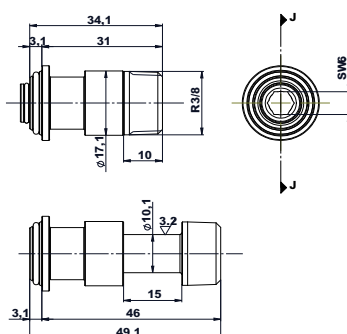
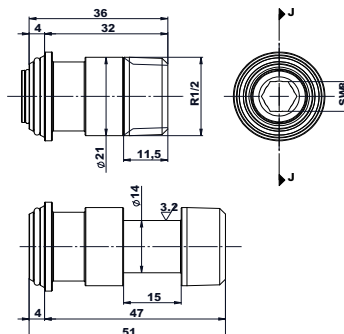
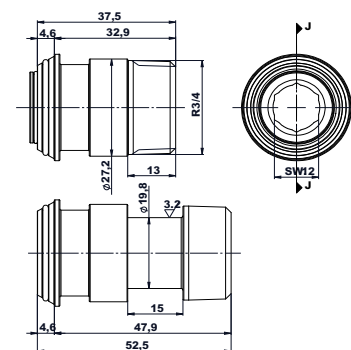
DN	A	B	C	D	E
3/8"	44	22	29	11	23
1/2"	46	25	29	14	23

190


DN	A	B	C	E
1"	70	30	62	50

195S


DN	A	B	C	E
1"	70	29	57	46

119SX

AGT 3/8"

AGT 1/2"

AGT 3/4"


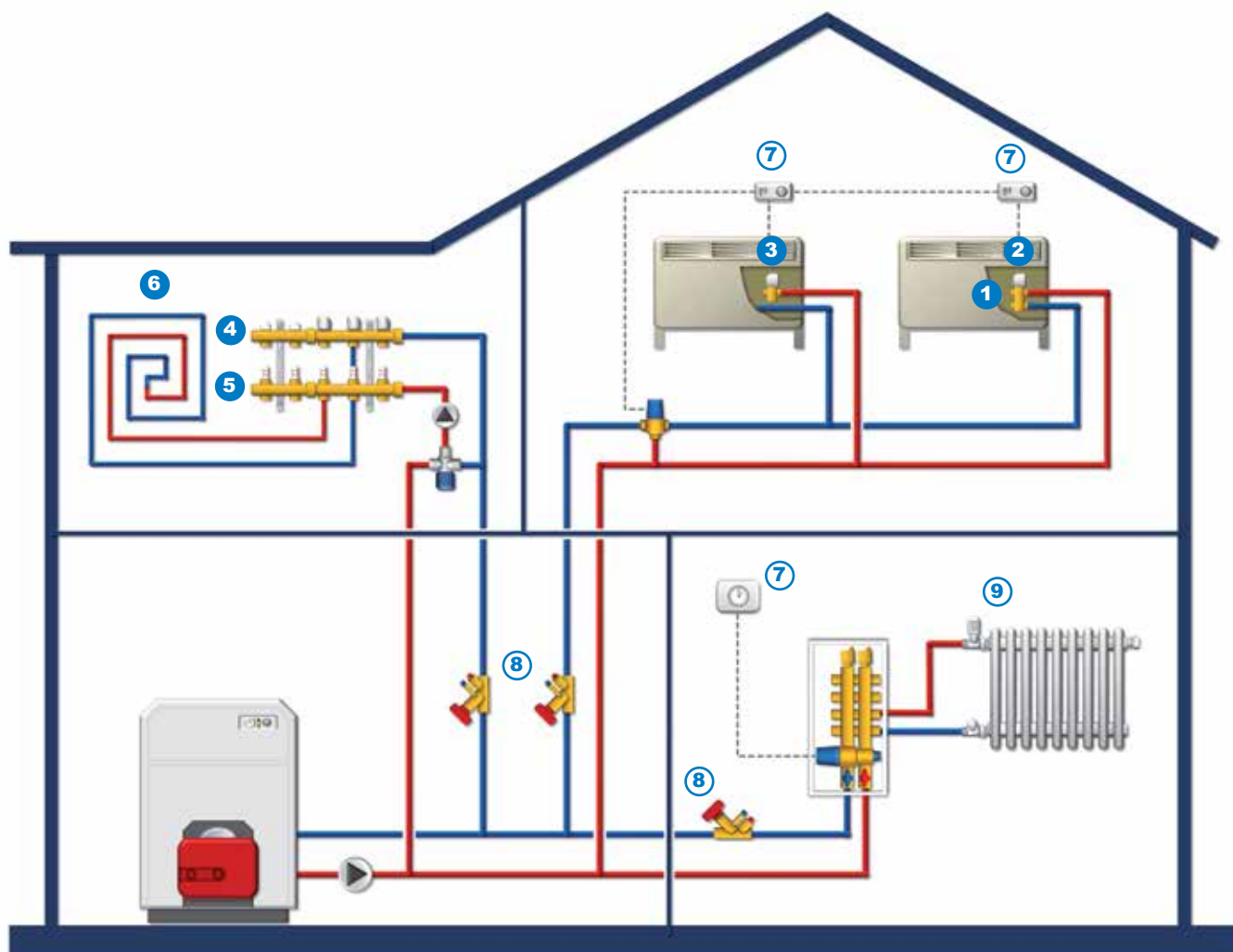
Underfloor heating system components and mixing valves












Fan-coil valves	pag. 25
Electronic, electrothermic and electro-mechanics actuators.....	pag. 27
Zones valves VU series and ETE actuator.....	pag. 28
Mixing valves V3GB-V4GB series and M60W actuator	pag. 29
Preassembled manifolds for underfloor heating	pag. 30

Manifold accessories	pag. 36
Control units for underfloor heating	pag. 40
Pump mixing units for underfloor heating	pag. 42
Thermostatic mixing valve Aquamix 63C	pag. 43
Polyethylene pipes for underfloor heating systems	pag. 43
Overall dimensions.....	pag. 46

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

- | | | | | |
|---|--|---|--|--|
| <p>1</p>  <p>4131
pag. 25</p> <p>Tree-way brass valve
with 4 connections</p> | <p>2</p>  <p>22CX
pag. 27</p> <p>Electrothermic actuator</p> | <p>3</p>  <p>26LC
pag. 27</p> <p>Electrothermic actuator</p> | <p>4</p>  <p>HKV 2013A-50 MS
pag. 32</p> <p>Brass round pipe
heating circuit manifold</p> | <p>5</p>  <p>HKV 2013A-50 VA
pag. 33</p> <p>Stainless steel round pipe
heating circuit manifold</p> |
| <p>6</p>  <p>PE-XB-DD
pag. 44</p> <p>Polyethylene pipe</p> | <p>7</p>  <p>Chapter D
pag. 67</p> <p>Regulation
and controls</p> | <p>8</p>  <p>Chapter E
pag. 87</p> <p>Balancing devices
for water distribution
network</p> | <p>9</p>  <p>Chapter A
pag. 5</p> <p>Radiator valves
for heat elements</p> | |

FAN-COIL VALVES

2131 (ZV2131)



Two-way brass valve for fan-coils. Max. operating temperature: 100°C. Disc stroke: 2.5 mm. PN 16 bar. Compatible with actuators series 22C, 22CX, 26LC and EMUJC.

Type	Part no. WII	Part no. WID	Size	Kvs
2131 1)	213112	10004128	1/2" MM	1,7
2131 1)	213134	10001544	3/4" MM	2,8
2131 1)	21311	10001545	1" MM	4,5
2131 2)	213112P	10004129	1/2" MM	1,7
2131 2)	213134P	10001577	3/4" MM	2,8
2131 2)	21311P	10007501	1" MM	4,5
2131 2)	213112P04	-	1/2" MM	0,4
2131 2)	213112P063	-	1/2" MM	0,63
2131 2)	213112P1	-	1/2" MM	1,0
2131 2)	213134P4	-	3/4" MM	4,0

1) with cone, suitable screw connection type 840

2) flat sealing

3131 (ZV3131)



Three-way brass valve for fan-coils. Compatible with actuators series 22C, 22CX, 26LC and EMUJC. Max. operating temperature: 100°C. Disc stroke: 2.5 mm. Can be used both as mixing and diverting valve. Nominal pressure: 16 bar.

The Kvs and by-pass Kvs values given in the table alongside refer to the valve used for diverting service.

Type	Part no. WII	Part no. WID	Size	Kvs	Kvs By-pass
3131 1)	313112	10001546	1/2" MM	1,7	1,3
3131 1)	313134	10001547	3/4" MM	2,8	1,8
3131 1)	31311	10001549	1" MM	4,5	3,1
3131 2)	313112P	10026459	1/2" MM	1,7	1,3
3131 2)	313134P	10001753	3/4" MM	2,8	1,8
3131 2)	31311P	10001552	1" MM	4,5	3,1
3131 2)	313112P04	-	1/2" MM	0,4	0,35
3131 2)	313112P063	-	1/2" MM	0,63	0,56
3131 2)	313112P1	-	1/2" MM	1,0	0,86
3131 2)	313134P4	-	3/4" MM	4,0	1,8

1) with cone, suitable screw connection type 840

2) flat sealing

4131 (ZV4131)



Three-way brass valve with 4 connections for fan-coils. Compatible with actuators series 22C, 22CX, 26LC and EMUJC. Max. operating temperature: 100°C. Disc stroke: 2.5 mm. Can be used both as mixing and diverting valve. Nominal pressure: 16 bar.

The Kvs and by-pass Kvs values given in the table alongside refer to the valve used for diverting service.

Type	Part no. WII	Part no. WID	Size	Kvs	Kvs By-pass
4131 1)	413112	10001557	1/2" MM	1,7	1,3
4131 1)	413134	10001558	3/4" MM	2,8	1,8
4131 2)	413112P	10022616	1/2" MM	1,7	1,3
4131 2)	413134P	10004115	3/4" MM	2,8	1,8
4131 2)	41311240P04	-	1/2" MM	0,4	0,35
4131 2)	41311240P063	-	1/2" MM	0,63	0,56
4131 2)	41311240P1	-	1/2" MM	1,0	0,86
4131 2)	41313440P4	-	3/4" MM	4,0	1,8

1) with cone, suitable screw connection type 840

2) flat sealing

FAN-COIL VALVES

**4X2**

The new series of fan coil 4x2 was developed for systems working with 4 pipe fan coil units, where the hot and cold circuit consists of two separate units, but both use the same on board coil for the heat exchanging.

Type	Part no. WII	Part no. WID	Size	Kvs	Kvs By-pass
4131 2)	41313440P42	10029656	3/4" MM	2,2	2,2

2) flat sealing

**VU**

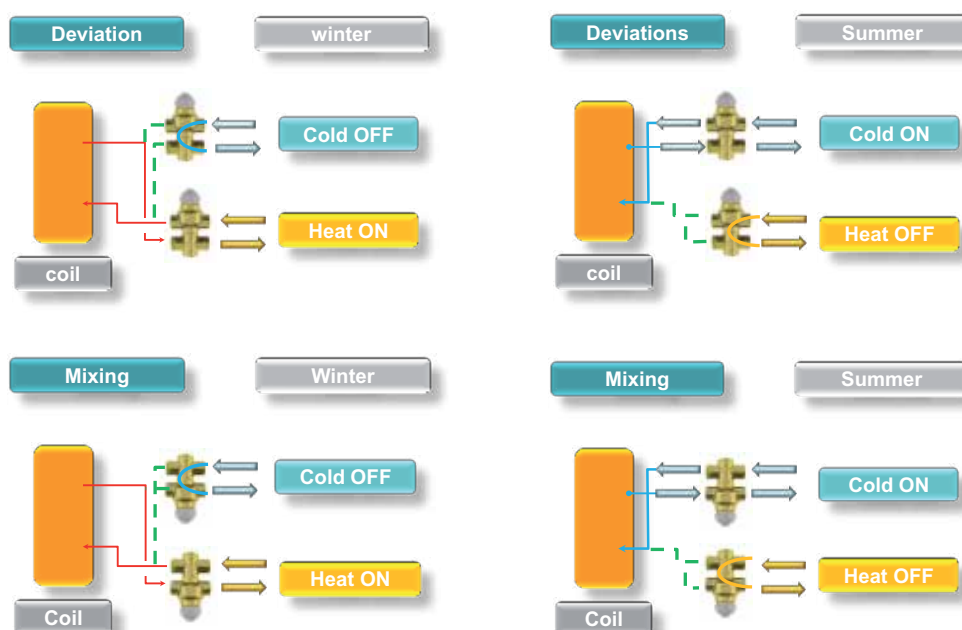
Tee fitting for creating by-pass in valves series 3131 (DN 1").

Type	Part no. WII	Part no. WID	Size
3131	VU311	10026056	1" MM For valves with the cone connection
3131	VU311P	-	1" MM For valves with flat sealing connection

**840**

Soft sealed union with nut for zone valves serie 2131, 3131, 4131.

Type	Part no. WII	Part no. WID	Size
840	8401212GAS	10004136	1/2" x 1/2"
840	8403434GAS	10004137	3/4" x 3/4"
840	84011GAS	10004138	1" x 1"

TECHNICAL NOTE**Fan coil 4x2 Functions**

ELECTRONIC, ELECTROTHERMIC AND ELECTRO-MECHANICS ACTUATORS

22CX

Electrothermic actuator, compact design with on/off action, compatible with thermostat adaptable radiator valves series TRV, 102M, 120B, valve for fan-coils series 2131, 3131, 4131 and regulation valves of Watts manifolds series HKV.

Available both in **NO** (normally open) and **NC** (normally closed) versions.

2-wire or 4-wire electrical cable (with auxiliary micro switch), 1m length.

Power consumption: 1,8W. Protection class: IP54.

Cap made of flame retardant plastic. Chrome-plated brass threaded ring nut M30 x 1.5.

Actuator stroke: 3.5 mm. Valve stroke: 2,5 mm.

Version 230V: 90 sec. (start) - 3 min. (end). Version 24V: 3 min. (start) - 5min. (end).

Compliant to the directives LVD 2006/95/EC, EMC 2004/108/EC

According to EN 60730-1, EN 60730-2-14, EN 55014, EN 55104

Approved TÜV SÜD "Safety tested and Production monitored".

Type	Part no. WII	Part no. WID	Power supply
22CX	22CX230NC2	10029671	230 VAC NC
22CX	22CX24NC2	10029673	24 VAC NC
22CX	22CX230NC4*	10050334	230 VAC NC
22CX	22CX24NC4*	-	24 VAC NC
22CX	22CX230NA2	10029674	230 VAC NO
22CX	22CX24NA2	10029672	24 VAC NO
22CX	22CX230NA4*	10050335	230 VAC NO
22CX	22CX24NA4*	-	24 VAC NO

* with auxiliary micro switch

26LC


Electrothermic actuator compact design with on/off action, compatible with thermostat adaptable radiator valves series TRV, 102M, 120B, valve for fan-coils series 2131, 3131, 4131 and regulation valves of manifolds series HKV. Available in **NC** (normally closed) version.

Easily removable 2-wire or 4-wire (with auxiliary micro switch) electrical cable with safety latch connector, 1m length. Power consumption : 1,8W. Protection class: IP64.

Cap made of flame retardant plastic. Chrome-plated brass threaded ring nut M30 x 1.5.

Actuator stroke: 3.5mm. Valve stroke: 2,5 mm.

Version 230V: 90 sec (start), 3 Min (end). Version 24V: 3 Min (start), 5 Min (end)

Plug thrust : 100N. LED indication for the status (ON/OFF) of the actuator.

According to 2006/95/CE - 2004/108/CE.

TÜV Sud approved.

Type	Part no.WII	Part no.WID	Power supply
26LC	26LC230NC2	10025872	230 VAC NC
26LC	26LC24NC2	10027343	24 VAC NC
26LC	26LC230NC4*	10027492	230 VAC NC
26LC	26LC24NC4*	-	24 VAC NC

* with auxiliary micro switch

EMUJC


Electronic modulating actuator with signal 3 points (floating) or proportional 0-10 V (0-5V and 5-10V). Compact size. Easily coupling with fan coil valves series 2131, 3131 and 4131 with threaded ring nut M30x1,5. Provided with LED that shows the function status (ON-OFF, end of stroke). Nominal force 120N. Working temperature 0 - 50 °C. Electrical protection IP43.

Cable length 2 m.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Command signal	Power supply	Power
EMUJC	EMUJC-230	10027254	3 POINTS	230VAC	6,5VA
EMUJC	EMUJC-24	10025240	3 POINTS	24VAC	2,5VA
EMUJC	EMUJC-010	10004123	0-10V (0-20V)	24VAC	2,5VA

ZONES VALVES VU SERIES AND ETE ACTUATOR

**VU02**

2-way brass zone valve, normally closed (NC). Plug and spring made of stainless steel. O-ring made of EPDM. PN16. Max. differential pressure 1,7 bar. Operating temperature 4 - 110 °C. Stroke 4mm. Suitable for water with max. glycol 50%.

Type	Part no. WII	Part no. WID	DN	Kvs
VU02	VU220	10001564	3/4" F	4,3
VU02	VU225	10001567	1" F	6,5

**VU03**

3-way brass zone valve, normally closed (NC). Plug and spring made of stainless steel. O-ring made of EPDM. PN16. Max. differential pressure 1,7 bar. Operating temperature 4 - 110 °C. Stroke 4mm. Suitable for water with max. glycol 50%.

Type	Part no. WII	Part no. WID	DN	Kvs	Kvs (by-pass)
VU03	VU320	10004124	3/4" F	4,3	2,8
VU03	VU325	10004125	1" F	6,5	3,3

**VU04**

Tee-fitting for creating the by-pass in valves for the VU3 series.

Type	Part no. WII	Part no. WID	DN
VU04	VU400	-	3/4" F
VU04	VU401	-	1" F

**ETE**

ON/OFF electrothermic actuator for zone valve series VU. Auxiliary normally open (NO) microswitch for supplementary commands (e.g. pump, metering). Bayonet coupling for fastening to valve body. Manual control device. Power consumption: 18W. Stroke: 4 mm. Plug thrust: 250N. Positioning time: 4 min.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Protection
ETE	ETE24BO	10004120	24V	IP20
ETE	ETE220BO	10001693	230V	IP20

ETM

Modulating electrothermic actuator with device for manual control. Power rating : 18W. Power consumption in operation : 3 W.

ETM24-12 to be coupled with regulators running on 24 Vac; supplied complete with cable 4 x 0.75 sq.mm, L 1 mt.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Protection
ETM	ETM24-12	10001695	24V	IP44



MIXING VALVES V3GB-V4GB SERIES AND M60W ACTUATOR
V3GB


Three-way sector mixing valve equipped with 3-point electronic bidirectional modulating actuator. Max working pressure 10 bar. Working temperature 0 °C - 110 °C. Brass body and rotor, EPDM gaskets. Threaded female connections from 1/2" to 2". Rotation angle of 90° in 140 seconds. Power supply 230 V, 50 Hz; power consumption 3 VA. Complete of 2 m length removable electrical cable with connector with safety latch. Working also as diverting valve. Suitable for water with max. glycol 50%.

Type	Part no. WII	Part no. WID	DN	Kvs
V3GB	V3GB0015M60230	10027989	1/2" F	2,5
V3GB	V3GB0204M60230	10027990	3/4" F	4
V3GB	V3GB0206M60230	10027991	3/4" F	6
V3GB	V3GB2508M60230	10027992	1" F	8
V3GB	V3GB2512M60230	10027993	1" F	12
V3GB	V3GB3215M60230	10027994	1.1/4" F	15
V3GB	V3GB3218M60230	10027995	1.1/4" F	18
V3GB	V3GB4026M60230	10027996	1.1/2" F	26
V3GB	V3GB5040M60230	10027997	2" F	40

V4GB


Four-way sector mixing valve equipped with 3-point electronic bidirectional modulating actuator. Max working pressure 10 bar. Working temperature 0 °C ÷ 110 °C. Brass body and rotor, EPDM gaskets. Threaded female connections from 1/2" to 2". Rotation angle of 90° in 140 seconds. Power supply 230 V, 50 Hz; power consumption 3 VA. Complete of 2 m length removable electrical cable with connector with safety latch. Suitable for water with max. glycol 50%.

Type	Part no. WII	Part no. WID	DN	Kvs
V4GB	V4GB0015M60230	10028000	1/2" F	2,5
V4GB	V4GB0204M60230	10028001	3/4" F	4
V4GB	V4GB0206M60230	10028002	3/4" F	6
V4GB	V4GB2508M60230	10028003	1" F	8
V4GB	V4GB2512M60230	10028004	1" F	12
V4GB	V4GB3215M60230	10028005	1 1/4" F	15
V4GB	V4GB3218M60230	10028006	1 1/4" F	18
V4GB	V4GB4026M60230	10028007	1 1/2" F	26
V4GB	V4GB5040M60230	10028008	2" F	40

M60W


3-point electronic bidirectional modulating servomotor for rotary mixing or zone valves. Rotation angle of 90° in 140 seconds, automatic or manual operating. Easily removable electrical cable with connector with safety latch. Torque: 5,5 Nm. Power supply: 230 VAC, 50 Hz. Power consumption: 3 VA. Control signal: 3 point. Electrical protection: IP41.

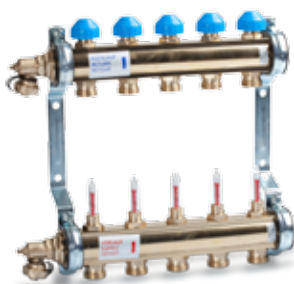
Type	Part no. WII	Part no. WID	Power supply	Protection
M60W	KITM60W-20	10028079	230 VAC	IP41

PREASSEMBLED MANIFOLDS FOR UNDERFLOOR HEATING

**HKV/A**

Brass heating circuit hollow bar manifold for radiator heating and sanitary applications. Flat sealing connections 1" F. Low installation depth. Connection nipple G 3/4" with Eurocone, distance 50 mm. 2 integrated air VENT valves and 2 endcaps. Function and pressure tested.

Type	Part no. WII	Part no. WID	Outlets
HKV/A	2120102	10004538	2
HKV/A	2120103	10004540	3
HKV/A	2120104	10004542	4
HKV/A	2120105	10004544	5
HKV/A	2120106	10004546	6
HKV/A	2120107	10004548	7
HKV/A	2120108	10004550	8
HKV/A	2120109	10004552	9
HKV/A	2120110	10004554	10
HKV/A	2120111	10004556	11
HKV/A	2120112	10004558	12

HKV/T

Brass hollow bar circuit heating manifold according to EN 1264-4. Flat sealing connections 1" F. Low installation depth. Connection nipple G 3/4" with Eurocone, 50 mm distance. Function and pressure tested. Completed with end sets.

SUPPLY: Flowmeter 0 - 6 l/min with low pressure drop and shut-off function.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV/T	2020302	10004194	2
HKV/T	2020303	10004196	3
HKV/T	2020304	10004198	4
HKV/T	2020305	10004199	5
HKV/T	2020306	10004200	6
HKV/T	2020307	10004201	7
HKV/T	2020308	10004202	8
HKV/T	2020309	10004203	9
HKV/T	2020310	10004204	10
HKV/T	2020311	10004205	11
HKV/T	2020312	10004206	12

HKV/T AS25

Manifolds HKV/T completed with ball valve sets AS25.



Type	Part no. WII	Part no. WID	Outlets
HKV-T2-AS25	10004229	10004229	2
HKV-T3-AS25	10004231	10004231	3
HKV-T4-AS25	10004233	10004233	4
HKV-T5-AS25	10004235	10004235	5
HKV-T6-AS25	10004237	10004237	6
HKV-T7-AS25	10004239	10004239	7
HKV-T8-AS25	10004241	10004241	8
HKV-T9-AS25	10004243	10004243	9
HKV-T10-AS25	10004245	10004245	10
HKV-T11-AS25	10004247	10004247	11
HKV-T12-AS25	10004249	10004249	12

PREASSEMBLED MANIFOLDS FOR UNDERFLOOR HEATING
TECHNICAL NOTE
Brass hollow bar manifolds with flow meters
Technical data

Max. operating temperature:	+80 °C
Min. operating temperature:	-10 °C *
Max. operating pressure:	5 bar

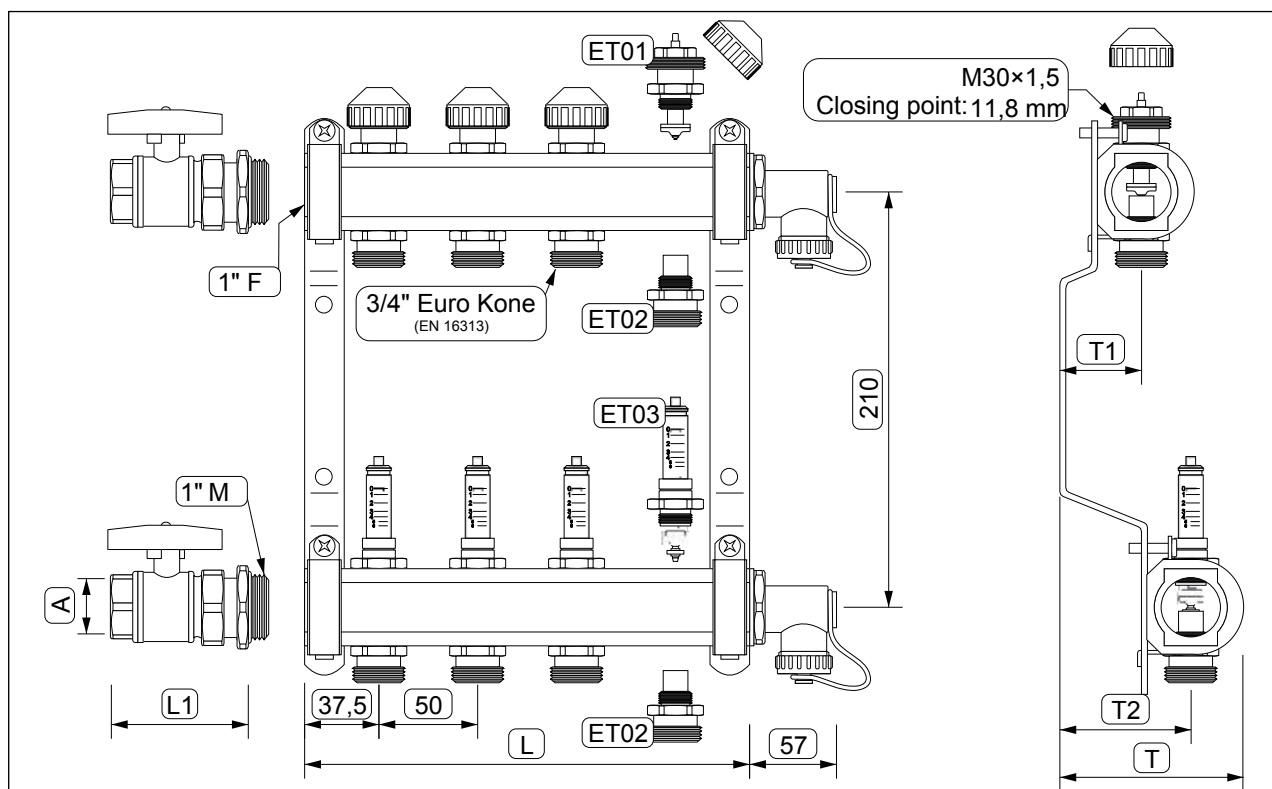
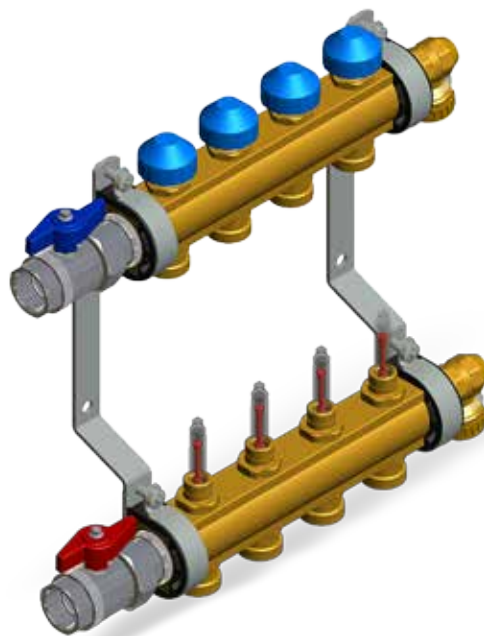
* When using appropriate antifreeze compounds! A condensation water formation has to be considered.

Materials

Fittings:	brass CW614N (MS58)
Pipe:	brass CW614N (MS58)
O-rings:	EPDM
Flat gaskets:	EPDM elastomers or AFM34
Bal seats:	PTFE
Plastic:	impact- and temperature resistant
Brackets:	steel galvanized

Spare parts

ET01:	10014049 - control valve insert
ET02:	10001227 - valve counter part
ET03:	10010892 - flow meter 0-6 l/min



	2	3	4	5	6	7	8	9	10	11	12
Length L:	125	175	225	275	325	375	425	475	525	575	625
AS20: L1 / A:	79 / 3/4" F										
AS25: L1 / A:	89 / 1" F										

PREASSEMBLED MANIFOLDS FOR UNDERFLOOR HEATING

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B

**HKV 2013A-55 MS**

Brass round pipe heating circuit manifold according to EN 1264-4. Flat sealing connections 1" M. Low installation depth. Connection nipple G3/4" with Eurocone, **55 mm distance, off-set position**. Function and pressure tested.

SUPPLY: **Flow meter 0 - 6 l/min** with low pressure drop and shut-off function.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV2013A MS02	3811402	10012366	2
HKV2013A MS03	3811403	10012367	3
HKV2013A MS04	3811404	10012368	4
HKV2013A MS05	3811405	10012369	5
HKV2013A MS06	3811406	10012370	6
HKV2013A MS07	3811407	10012371	7
HKV2013A MS08	3811408	10012372	8
HKV2013A MS09	3811409	10012373	9
HKV2013A MS10	3811410	10012374	10
HKV2013A MS11	3811411	10012375	11
HKV2013A MS12	3811412	10012376	12

**HKV 2013A-50 MS**

Brass round pipe heating circuit manifold according to EN 1264-4. Flat sealing connections 1" M. Low installation depth. Connection nipple G3/4" with Eurocone, **50 mm distance**. Function and pressure tested.

SUPPLY: **Flowmeter 0 - 4 l/min** with low pressure drop and shut-off function.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV2013A MS02	10025907	10025907	2
HKV2013A MS03	10025908	10025908	3
HKV2013A MS04	10025909	10025909	4
HKV2013A MS05	10025910	10025910	5
HKV2013A MS06	10025911	10025911	6
HKV2013A MS07	10025912	10025912	7
HKV2013A MS08	10025913	10025913	8
HKV2013A MS09	10025914	10025914	9
HKV2013A MS10	10025915	10025915	10
HKV2013A MS11	10025916	10025916	11
HKV2013A MS12	10025917	10025917	12

PREASSEMBLED MANIFOLDS FOR UNDERFLOOR HEATING
HKV 2013A-55 VA


Stainless steel round pipe heating circuit manifold according to EN 1264-4.
Flat sealing connections 1" M. Low installation depth. Connection nipple G 3/4" with Eurocone, **55 mm distance**, off-set position. Function and pressure tested.

SUPPLY: **Flowmeter 0 - 6 l/min** with low pressure drop and shut-off function.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV2013A-55-1" 0-6 VA02	3811502	10012379	2
HKV2013A-55-1" 0-6 VA03	3811503	10012380	3
HKV2013A-55-1" 0-6 VA04	3811504	10012381	4
HKV2013A-55-1" 0-6 VA05	3811505	10012382	5
HKV2013A-55-1" 0-6 VA06	3811506	10012383	6
HKV2013A-55-1" 0-6 VA07	3811507	10012384	7
HKV2013A-55-1" 0-6 VA08	3811508	10012385	8
HKV2013A-55-1" 0-6 VA09	3811509	10012386	9
HKV2013A-55-1" 0-6 VA10	3811510	10012387	10
HKV2013A-55-1" 0-6 VA11	3811511	10012388	11
HKV2013A-55-1" 0-6 VA12	3811512	10012389	12

HKV 2013A-50 VA


Stainless steel round pipe heating circuit manifold according to EN 1264-4.
Flat sealing connections 1" M. Low installation depth. Connection nipple G 3/4" with Eurocone, **50 mm distance**. Function and pressure tested.

SUPPLY: **Flowmeter 0 - 6 l/min** with low pressure drop and shut-off function.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV2013A-50-1" 0-6 VA02	10012893	10012893	2
HKV2013A-50-1" 0-6 VA03	10012894	10012894	3
HKV2013A-50-1" 0-6 VA04	10012895	10012895	4
HKV2013A-50-1" 0-6 VA05	10012896	10012896	5
HKV2013A-50-1" 0-6 VA06	10012897	10012897	6
HKV2013A-50-1" 0-6 VA07	10012898	10012898	7
HKV2013A-50-1" 0-6 VA08	10012899	10012899	8
HKV2013A-50-1" 0-6 VA09	10012900	10012900	9
HKV2013A-50-1" 0-6 VA10	10012901	10012901	10
HKV2013A-50-1" 0-6 VA11	10012902	10012902	11
HKV2013A-50-1" 0-6 VA12	10012903	10012903	12

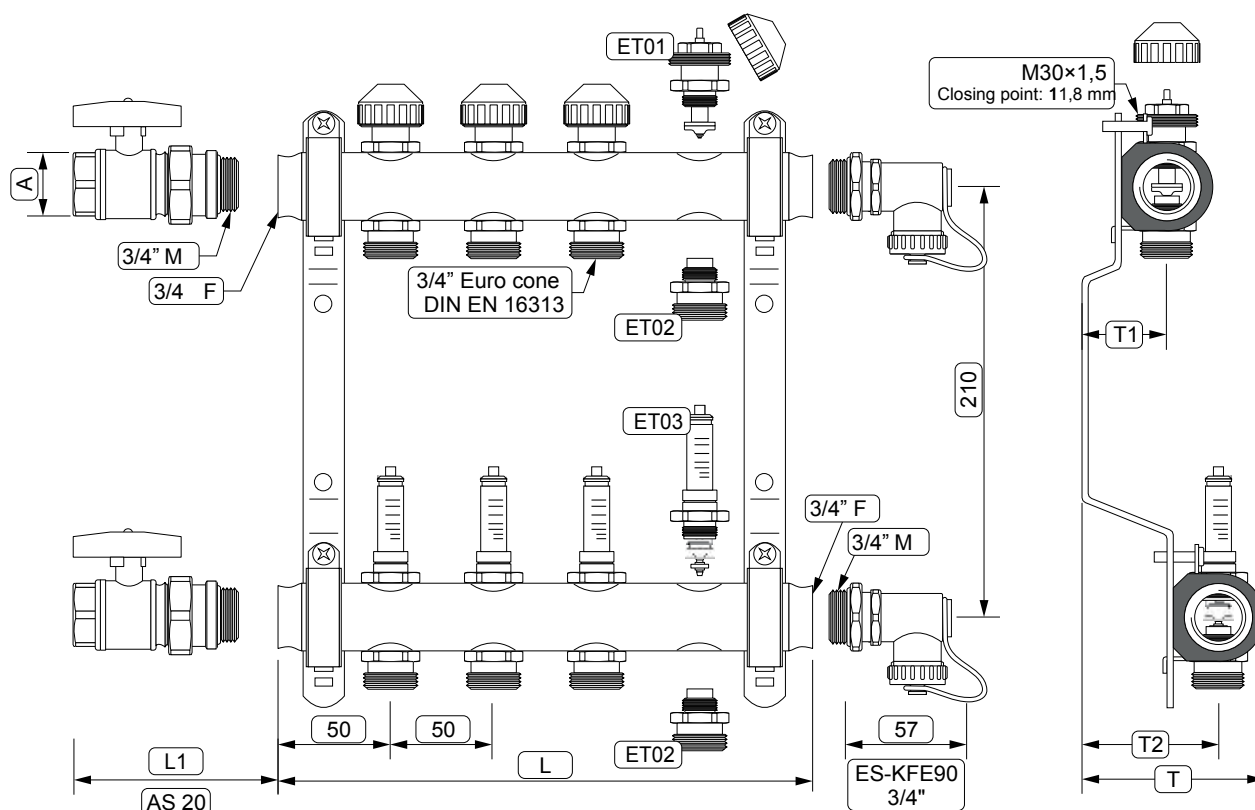
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B

Type	Part no. WII	Part no.WID	Outlets
HKVT34 0-4 AS20 VA02	10029002	10029002	2
HKVT34 0-4 AS20 VA03	10029003	10029003	3
HKVT34 0-4 AS20 VA04	10029004	10029004	4
HKVT34 0-4 AS20 VA05	10029005	10029005	5
HKVT34 0-4 AS20 VA06	10029006	10029006	6
HKVT34 0-4 AS20 VA07	10029007	10029007	7
HKVT34 0-4 AS20 VA08	10029008	10029008	8
HKVT34 0-4 AS20 VA09	10029009	10029009	9
HKVT34 0-4 AS20 VA10	10029010	10029010	10
HKVT34 0-4 AS20 VA11	10029011	10029011	11
HKVT34 0-4 AS20 VA12	10029012	10029012	12

Stainless steel manifold HKV-T34 VA

[illegible]

PREASSEMBLED MANIFOLDS FOR UNDERFLOOR HEATING
HKV


Brass heating circuit hollow bar manifold according to EN 1264-4. Flat sealing connections 1" F. Connection nipple G3/4" with Eurocone, 50 mm distance. Function and pressure tested. Completed with end sets.

SUPPLY: Fine-control and shut-off valve.

RETURN: Control and shut-off valve with adaption M30x1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV	2020102	10004172	2
HKV	2020103	10004174	3
HKV	2020104	10004176	4
HKV	2020105	10004178	5
HKV	2020106	10004180	6
HKV	2020107	10004182	7
HKV	2020108	10004184	8
HKV	2020109	10004186	9
HKV	2020110	10004188	10
HKV	2020111	10004190	11
HKV	2020112	10004192	12

HKV 2010-VA


Stainless steel round pipe heating circuit manifold according to EN 1264-4. Flat sealing connections 1" M. Low installation depth. Connection nipple G3/4" with Eurocone, 55 mm distance, off-set position. Function and pressure tested.

SUPPLY: Fine-control and shut-off valve.

RETURN: Control and shut-off valve with adaption M30 x 1,5.

Type	Part no. WII	Part no. WID	Outlets
HKV2010-VA	3811302	10012355	2
HKV2010-VA	3811303	10012356	3
HKV2010-VA	3811304	10012357	4
HKV2010-VA	3811305	10012358	5
HKV2010-VA	3811306	10012359	6
HKV2010-VA	3811307	10012360	7
HKV2010-VA	3811308	10012361	8
HKV2010-VA	3811309	10012362	9
HKV2010-VA	3811310	10012363	10
HKV2010-VA	3811311	10012364	11
HKV2010-VA	3811312	10012365	12

MANIFOLD ACCESSORIES

**HKVE**

To extend manifolds with 1" male thread with one heating circuit each.

Type	Part no. WID	Description
HKVE2010-1"	10014352	
HKVE2010-1" Ni	10023356	nickel plated
HKVE2013A-1" 0-6	10014351	flow meter 0-6l/min
HKVE2013A-1" 0-6 Ni	10023355	nickel plated, flow meter 0-6 l/min



for
HKV/T

for
HKV2013

DFM38-A

Flow meters for manifolds, 0-6l/min.

Type	Part no. WID	Description	Manifold
DFM38-A	3503687	0-6l/min 3/8"	HKV/T
DFM38-A	3503685	0-6l/min 3/8"	HKV2013-MS
DFM38-A	3503690	0-6l/min 3/8"	HKV2013-VA

AS

Manifold connection set for HKV and HKV/T.

Type	Part no. WII	Part no. WID	Size
AS-20	10004254	10004254	3/4" x 1"
AS-25	10012763	10012763	1" x 1"

KH

Ball valve set brass body 1", with union nut and gaskets. Product 10022871 is nickel plated.

Type	Part no. WII	Part no. WID	Description	Size
KH	10007141	10007141	HKV2010-MS, HKV2013-MS	1"UN x 3/4"F
KH	10022872	10022872	HKV2010-VA, HKV2013-VA	1"UN x 3/4"F, Ni
KH	10007137	10007137	HKV2010-MS, HKV2013-MS	1"UN x 1"F
KH	10022871	10022871	HKV2010-VA, HKV2013-VA	1"UN x 1"F, Ni

UN - union nut, Ni - nickel plated

KHT-SET

Ball valve set with thermometer brass body, with union nut and gaskets. Thermometer NG 34.

Type	Part no. WII	Part no. WID	Description	Size
KHT-SET	10007402	10007402	without thermometer	1"UN x 1"M
KHT-SET	10007144	10007144	with thermometers 0-60 °C	1" UN x 1"F

KH-SET WMZ

Ball valve set G 1" with connection M10 x 1 for short direct sensors for heat meters according to EN 1434. Brass body, with union nut and gasket.

Type	Part no. WII	Part no. WID	Size
KHT-SET WMZ	10028597	10028597	1"UN x 1"F, M10 x 1, Ni
KHT-SET WMZ	10029160	10029160	1"UN x 3/4"F, M10x1, Ni

UN - union nut, Ni - nickel plated

MANIFOLD ACCESSORIES

ES-QS

Brass body, with union and gaskets. Ball valve with handle for easy filling, rinsing and draining. 1" G. For HKV2010 and HKV 2013A.

Type	Part no. WII	Part no. WID	Description
ES-QS	3036115	10006114	Manual air vent
ES-QS	3036120N	10022835	Manual air vent, nickel-plated
ES-QS-MV	-	10006120	1 automatic air vent
ES-QS-MV	-	10022837	1 automatic air vent, nickel-plated


MINI-KH

Ball valve for shutting off individual circuits. Brass body. For connection to 3/4" male thread with Eurocone.

Type	Part no. WID	Description
Mini-KH	10007161	Length 44 mm, blue handle


CAP

Made of brass with gasket.

Type	Part no. WII	Part no. WID	Size
CAP MS	2160700	10004697	3/4"
CAP MS	060364	10018326	1"
CAP Ni *	063064N	10022148	1"

*nickel plated.


AS-MSP

For flat sealing connection of control units and accessories for pipe manifolds to hollow bar manifolds with 1" female thread.

Type	Part no. WII	Part no. WID
AS-MSP	5261426	10016710


HKV-ISO

Manifold insulation

Snap-fit EPP heat insulation for manifolds with 1" male thread and 55 mm distance of connection nipples, suitable for manifolds with 6 zones. Excess modules can be cut off when used for smaller manifolds. Use 2 insulations for larger manifolds. Delivery includes one insulation each for supply and return pipe as well as a knife to adapt the insulation to different manifold sizes.

Type	Part no. WII	Part no. WID	Size
HKV-ISO	5250371	10016550	55 mm
HKV-ISO	-	10023474	50 mm

CRT

Pipe guiding arc 90°. Galvanized sheet steel, for PE-X pipe.



Type	Part no. WII	Part no. WID	Size
CRT	1040018	10000390	16 mm
CRT	1040018	10000391	17 - 20 mm

MANIFOLD ACCESSORIES

**USVSET**

Ready-to-mount, compact design, differential pressure overflow valve for differential pressure compensation between supply and return manifold HKV1" series. Union nut for flat-sealing connection with the manifold pipe including seal, pressure-tested, packed in a box, suitable for manifold with 1" M thread. Adjustment range 0,03 - 0,5 bar.

Type	Part no. WII	Part no. WID
USVSET	4402050	10014970

**RVC-C**

Clamping screw 3/4". Soft-sealing, for copper and mild steel pipes, DN 15 also suitable for stainless steel pipes, with nickel-plated coupling nut 3/4". Packed in pairs.

Type	Part no. WID	Size
RVC-C	10001004	12 x 1
RVC-C	10001005	15 x 1
RVC-C	10001006	18 x 1

**RVP-C**

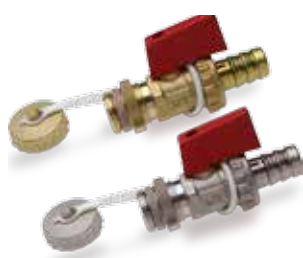
Clamping screw 3/4". With **Eurocone**, for PE-X pipes and multilayer composite pipes. DVGW-tested in dimensions 16 x 2 and 20 x 2. Suitable for Manifolds HKV/T, HKV, HKV-A, radiator elbow connectors, bodies for screw connections, comprising: nickel-plated coupling nut 3/4", support sleeve with O-ring, with molded Eurocone, with separator plate for galvanic separation. Packed in pairs.

Type	Part no. WID	Pipe diameter
RVP-C	10000984	12 x 2
RVP-C	10000985	14 x 2
RVP-C	10000986	16 x 2
RVP-C	10000987	17 x 2
RVP-C	10000988	18 x 2
RVP-C	10000989	20 x 2

**290**

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

Type	Part no. WII	Size
290	29038	3/8"
290	29012	1/2"
290	29034	3/4"

**KFE15SD**

1/2" self-sealing fill and drain-cock. Brass, full bore, PN 16, red handle, with threaded hose coupling. Connection 1/2" - DN 15, max. operating temperature 110 °C. Product 10017310 is nickel plated.

Type	Part no. WII	Part no. WID
KFE15SD	553115	10017306
KFE15SD		10017310
KFE15SD BOX		10017307 20 pcs of KFE15-SD

MANIFOLD ACCESSORIES
VSU

Heating circuit manifold unit, in-wall design. Stable housing made from electro-galvanized steel, height and depth adjustment, removable frame and front door, pre-punched inlets in the sides, wall anchor, C-rails for securing the manifold, frame and door painted white. Height: 665 mm, feet 80 mm telescoping Depth: 115 / 170 mm.

Type	Part no. WII	Part no. WID	l x h (mm)
VSU-1	2040301	10004267	445 x 500
VSU-2	2040302	10004268	545 x 600
VSU-3	2040303	10004269	695 x 750
VSU-4	2040304	10004270	845 x 900
VSU-5	2040305	10004271	1045 x 1100
VSU-6	2040306	10004272	1145 x 1200

VSA

Heating circuit manifold unit, on-wall design. Stable housing made from electro-galvanized steel, removable front door, reinforced front section, securing of the heating circuit manifold on C-rails. The unit is painted white. Height: 665 mm, depth: 130 mm.

Type	Part no. WII	Part no. WID	l x h (mm)
VSA-1	2040411	10004327	400
VSA-2	2040412	10017160	600
VSA-3	2040413	10004329	750
VSA-4	2040414	10004330	900
VSA-5	2040415	10004331	1100
VSA-6	2040416	10004332	1200

CONTROL UNITS FOR UNDERFLOOR HEATING

FWR

Constant supply temperature module. Ready-to-mount, compact control unit for floor heating. Suitable for 8 - 10 kW heat capacity. Supply temperature setting range 20 - 50 °C. The thermometer displays current supply temperature. Pump and temperature limiter cabling ex works. All joints are 1" flat sealing. For installation of left or right side of manifolds.

Type	Part no. WID	Temperature range	Pump
FWR	10026389	20 - 50 °C	Wilo Yonos PARA 15/6
FWR	10026721	20 - 50 °C	Grundfos Alpha2L 25-60
FWR	10004260	20 - 50 °C	Wilo RS25/6 noErP *

* (noErP) = according to ErP Directive not for use in EU countries

TECHNICAL NOTE

Technical data

Max. operating temperature:	+90 °C
Min. operating temperature:	2 °C *
Max. operating pressure:	6 bar

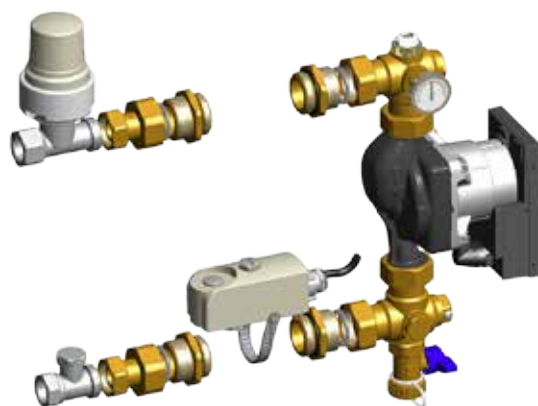
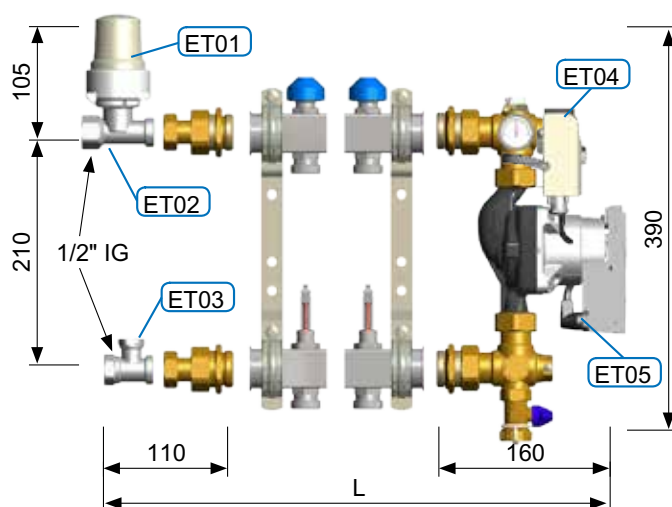
* Possibility of condensate formation at media temperature below 20°C. In addition, suitable cooling agents must be used if the media temperature falls below the freezing point of water.

Materials

Fittings:	Brass CW614N (MS58)
O-Rings:	EPDM elastomers
Flat gaskets:	AFM
Ball seats:	PTFE
Plastic:	impact- and temperature resistant

Ersatzteile

ET01:	10001589 - Thermostatic head 148SD2070WM
ET02:	10001604 - Thermostatic valve TVD12-1/2"
ET03:	10001663 - regulating valve RLD/K15-I
ET04:	10013410 - Temperature limiter WTC-IS
ET05:	10025821 - Wilo Yonos PARA 15/6-RKA 130mm 10020723 - Grundfos Alpha2L 15-60, 130mm



Function

Compact unit FWR25 is designed to control supply of hot water from the heating unit into the heating circuit manifold keeping the flow temperature constant within a narrow range. The target flow temperature is set on the header of the thermostat valve between 20 and 50°C. An additional temperature limiter with a trigger temperature several degrees higher than the target temperature on the thermostat header switches the pump off in the event of over-temperature (e.g. defective thermostat valve), thus preventing damage to the underfloor heating system.

Number of outlets	2	3	4	5	6	7	8	9	10	11	12
L for HKV and HKV-T:	395	445	495	545	595	645	695	745	795	845	895
L for HKV-T VA:	420	470	520	570	620	670	720	770	820	870	920

CONTROL UNITS FOR UNDERFLOOR HEATING
FRG 3005F


Ready-to-mount, compact control unit to control the supply temperature for small heating surfaces of up to approx. 50m² and 5 kW heat capacity demand. Can be expanded with 3 - 4 heating circuits of identical length, adjustment range of supply temperature 20 - 70 °C with maximum limitation, pump cabling ex works, wall brackets included.

Type	Part no. WID	Temperature range	Pump
FRG3005F	10026287	20 - 70 °C	Wilo Yonos PARA 15/6
FRG3005F	10014996	20 - 70 °C	Grundfos Alpha2L 15-60
FRG3005F	10014993	20 - 70 °C	Wilo RS 15/4-3 *

* (noErP) = according to ErP Directive not for use in EU countries

FRG 3015F


Ready-to-mount and compact control unit for constant supply temperature control for radiant panel heating. Suitable for heat output requirements up to approx. 14 kW. Supply temperature range 20 - 70°C. Thermometer displays actual supply temperature. Pump and temperature limiter cabling ex-works. Mounting either on the left or right side of the manifold. Fits to all WATTS manifolds 1". All connections with flat seals throughout. Pressure-tested, packed in a box.

Type	Part no. WID	Temperature range	Pump
FRG3015F	10026286	20 - 70 °C	Wilo Yonos PARA/6
FRG3015F	10015009	20 - 70 °C	Grundfos Alpha2L 15-60
FRG3015F	10015001	20 - 70 °C	Wilo RS 15/4-3 *
FRG3015F	10015002	20 - 70 °C	Wilo RS 15/6-3*

* (noErP) = according to ErP Directive not for use in EU countries

FRG 3015W2


Ready-to-mount compact unit suited for variable water temperature control in conjunction with the outside temperature for panel heating with a heat capacity demand of about 14 kW. Flat-sealing installation on the left or right side of the manifold with 1" male thread. Pump, valve drive, temperature limiter 20 - 90 °C and heating controller with water sensor pre-mounted and wired ex-works. Outside temperature sensor. Heating controller Climatic Control with 7-day-program, frost protection and screed warming function. Pressure-tested, packed in a box.

Type	Part no. WID	Pump
FRG3015W2	10015028	Grundfos Alpha 2L 15-60

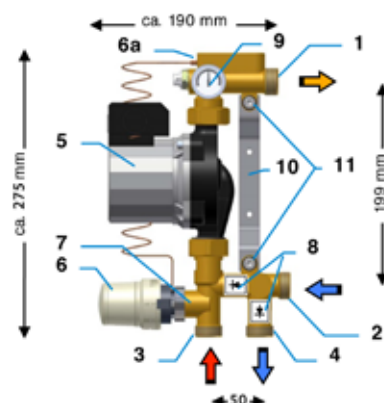
TCS-H


Set for upgrade of the units FWR 25 and FRG 3015F to weather control pump units. The set includes heating and cooling controller **Climatic Control CC-HC (page 46)**, 3-point actuator EMUJC-230 (page 59) and mounting set for the supply line sensor.

Type	Part no. WID
TCS-H	10014335

TECHNICAL NOTE
FRG 3005F Assembly

- | | |
|--------------------------------------|----------------------------------|
| 1 Floor heating supply (3/4" M EUKO) | 7 Injection/mixing valve |
| 2 Floor heating return (3/4" M EUKO) | 8 Check valve (RV); 2x |
| 3 Boiler supply (3/4" M EUKO) | 9 Supply temperature thermometer |
| 4 Boiler return (3/4" M EUKO) | 10 Wall holder |
| 5 Circulation pump | 11 Screw M6; 2x |
| 6 Thermostatic head | |
| 6a Supply temperature remote sensor | |



PUMP MIXING UNITS FOR UNDERFLOOR HEATING

ISOTHERM

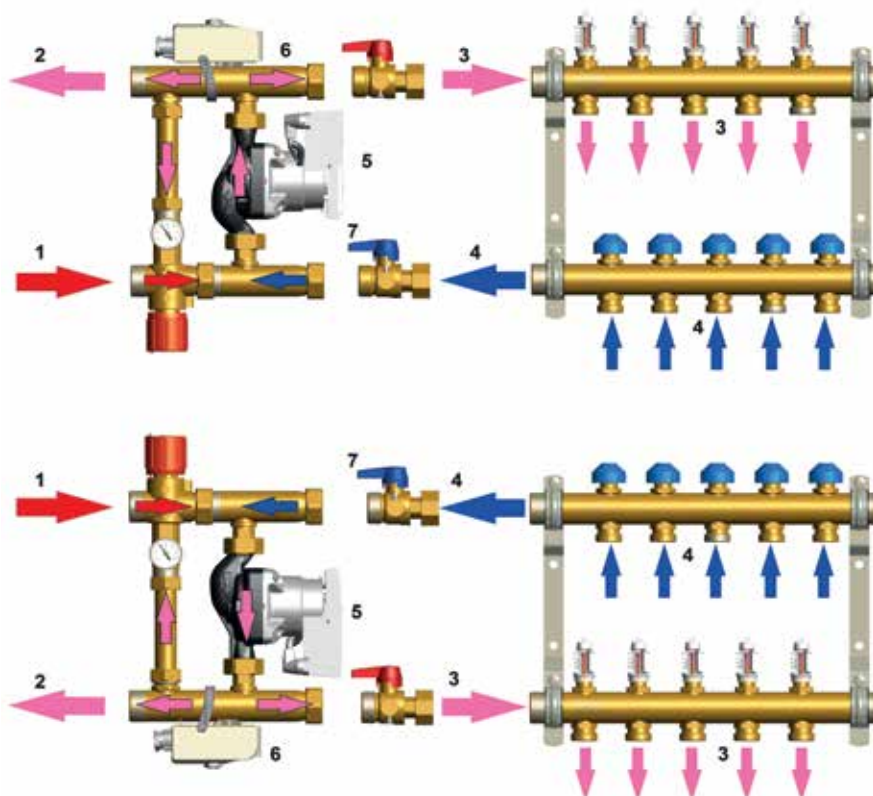


Ready-to-mount, compact control unit for panel heatings with a maximum heat capacity demand up to 15 kW. Flat-sealing installation on the left or right side of the manifold with 1" male thread. Set-point value for supply temperature can be adjusted via thermostatic injection valve. Pump and temperature limiters 20 - 90 °C, cabling ex works. Pressure-tested. Packed in a box.

Type	Part no. WII	Part no. WID	Temperature range	Pump
ISOTHERM	4402070	10023372	30 - 50 °C	Wilo RS 25/6-3 *
ISOTHERM	-	10026289	30 - 50 °C	Wilo Yonos PARA 15/6
ISOTHERM	-	10026439	45 - 60 °C	Grundfos Alpha 2L 15-60
ISOTHERM	-	10026869	45 - 60 °C	Wilo Yonos PARA 15/6

* (noErP) = according to ErP Directive not for use in EU countries

TECHNICAL NOTE



- | | |
|--|------------------------------|
| 1. Supply primary circle (from the boiler) | 6. Temperature limiter |
| 2. Return primary circle (to the boiler) | 7. Ball valves (option) |
| 3. Supply underfloor heating | 8. Thermometer |
| 4. Return underfloor heating | 9. Thermostatic mixing valve |
| 5. Circulation pump | |

Type	Part no. WID	Temperature range
F+R810 TBC 33MM 0-60°C	10018005	30 - 60 °C
REPAIR KIT MIXING VALVE	10009880	30 - 50 °C

THERMOSTATIC MIXING VALVE AQUAMIX 63C

43

B


63C

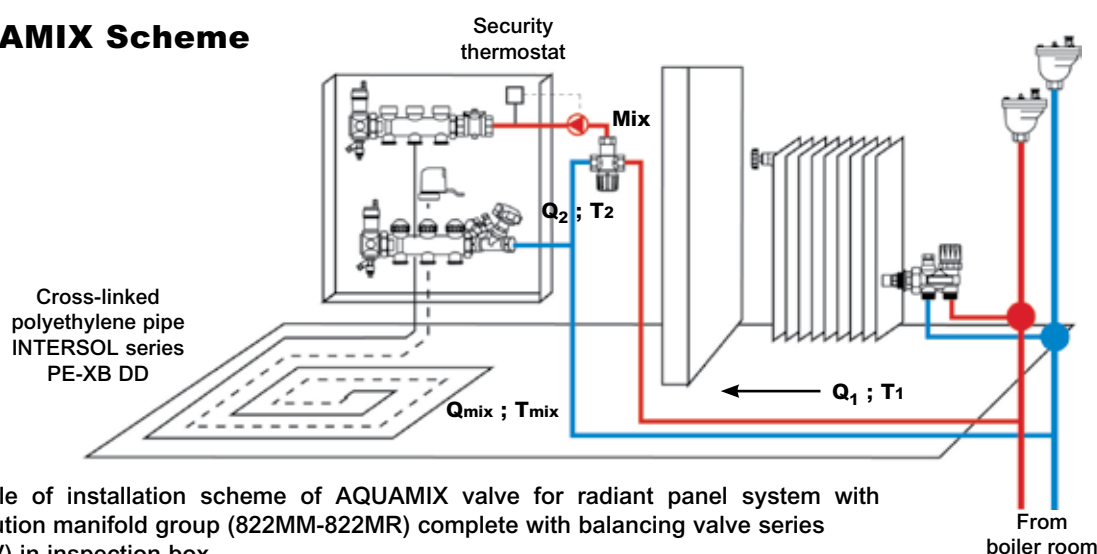
AQUAMIX.

Thermostatic mixing valve **for radiant panel systems**.

With 10 setting positions and fixed by-pass against over temperature.

Setting range: 25 °C / 50 °C. Max. differential pressure: 2 bar.

Type	Part no. WII	Part no. WID	Size
63C	6310C34	10017420	3/4" FF
63C	6311C1	10017421	1" FF

TECHNICAL NOTE
AQUAMIX Scheme

POLYETHYLENE PIPES FOR UNDERFLOOR HEATING SYSTEMS
PE-XB DD

Cross-linked polyethylene pipe with **anti-oxidant barrier** (Evoh) to prevent oxygen in the air from penetrating inside the water circuit.

Suitable for installation of radiant panel systems. Other characteristics like PE-XB.

Other size on request.
According to UNI EN ISO 15875-2, DIN 4726. Approved SKZ.


Type	Part no. WII	Part no. WID	Dimensions	Roll
PE-XB DD	1001146	10000017	14 X 2,0	200 M
PE-XB DD	1001148	10000018	14 X 2,0	600 M
PE-XB DD	1001165	10000021	16 X 2,0	120 M
PE-XB DD	1001166	10000022	16 X 2,0	200 M
PE-XB DD	1001169	10000023	16 X 2,0	600 M
PE-XB DD	1001175	10000026	17 X 2,0	120 M
PE-XB DD	1001176	10000027	17 X 2,0	200 M
PE-XB DD	1001267	10000038	17 X 2,0	600 M
PE-XB DD	1001185	-	18 X 2,0	120 M
PE-XB DD	1001186	10000032	18 X 2,0	200 M
PE-XB DD	1001186	10000032	18 X 2,0	600 M
PE-XB DD	1001206	10000036	20 X 2,0	200 M
PE-XB DD	1001225	-	25 X 2,3	120 M

POLYETHYLENE PIPES FOR UNDERFLOOR HEATING SYSTEMS

PE-XB-DD

Polyethylene pipe, increased resistance, obtained without use of sylanic, **with anti-oxidant barrier** (Evoh). **Suitable for installation of underfloor heating systems.** According to IIP UNI 206, EN ISO 22391.



Type	Part no. WII	Part no. WID	Dimensions	Roll
PE-XB DD	1001146	10000017	12 X 2,0 200 M	
PE-XB DD	1001148	10000018	14 X 2,0 600 M	
PE-XB DD	1001165	10000021	16 X 2,0 120 M	
PE-XB DD	1001166	10000022	16 X 2,0 200 M	
PE-XB DD	1001175	10000026	17 X 2,0 120 M	
PE-XB DD	1001176	10000027	17 X 2,0 200 M	
PE-XB DD	1001267	10000038	17 X 2,0 600 M	
PE-XB DD	1001185	-	18 X 2,0 120 M	
PE-XB DD	1001186	10000032	18 X 2,0 200 M	
PE-XB DD	1001205	10000035	20 X 2,0 120 M	
PE-XB DD	1001206	10000036	20 X 2,0 200 M	
PE-XB DD	1001225	-	25 X 2,3 120 M	

PE-RT

Polyethylene pipe, increased resistance. Suitable for installation of underfloor heating systems. According to UNI EN ISO 22391. Approved IIP UNI 206



Type	Part no. WII	Dimensions	Roll
PE-RT	4001112	12 X 2,0	100 m
PE-RT	4001115	15 X 2,5	100 m
PE-RT	4001118	18 X 2,5	100 m
PE-RT	4001120	20 X 2,0	100 m
PE-RT	4001122	22 X 3,0	100 m
PE-RT	4001128	28 X 3,0	50 m
PE-RT	4001132	32 X 3,0	50 m

PE-XB

Cross-linked polyethylene pipe. Can be used instead of conventional piping (copper - steel - iron). **Suitable for heating and sanitary systems** as it is non toxic. Easy to install. Low pressure drops. Age and corrosion resistant. Max. temperature: 95°C (as per EN 15875 tests).

Other size on request.

According to UNI EN ISO 15875-2, IIP UNI 20. Approved SKZ.



Type	Part no. WII	Part no. WID	Dimensions	Roll
PE-XB	1001160	-	16 x 2,0	120 m
PE-XB	1001161	10000020	16 x 2,0	200 m
PE-XB	1001170	-	17 x 2,0	120 m
PE-XB	1001171	-	17 x 2,0	200 m
PE-XB	1001180	-	18 x 2,0	120 m
PE-XB	1001181	-	18 x 2,0	200 m
PE-XB	1001200	-	20 x 2,0	120 m
PE-XB	1001201	-	20 x 2,0	200 m
PE-XB	1001112	-	12 x 2,0	100 m
PE-XB	1001115	-	15 x 2,5	100 m
PE-XB	1001118	-	18 x 2,5	100 m
PE-XB	1001120	-	20 x 2,0	120 m
PE-XB	1001202	-	20 x 2,0	400 m
PE-XB	1001122	-	22 x 3,0	100 m
PE-XB	1001128	-	28 x 3,0	50 m
PE-XB	1001132	-	32 x 3,0	50 m

POLYETHYLENE PIPES FOR UNDERFLOOR HEATING SYSTEMS
VPESR

Cross-linked polyethylene pipe enclosed in corrugated polyethylene sheath. Characteristics like Pe-xb. Black sheath.

Other size on request.

According to UNI en iso 15875-2, IIP UNI 206 but only pipe, does not comprehend the corrugate.

Type	Part no. WII	Dimensions	Ø Sheath	Roll
VPESR	1001905	15 x 2,5	19 mm	50 m
VPESR	1001909	18 x 2,5	23 mm	50 m

TPRUV

Cross-linked polyethylene pipe resistant to ageing action of UV rays. Characteristics like Pe-xb, but suitable above all for outdoor sections exposed to sunlight.

Other size on request.

According to UNI EN ISO 15875-2

Type	Part no. WII	Dimensions	Roll
TPRUV	1001512	12 x 2,0	100 m
TPRUV	1001515	15 x 2,5	100 m
TPRUV	1001518	18 x 2,5	100 m
TPRUV	1001522	22 x 3,0	100 m
TPRUV	1001528	28 x 3,0	50 m
TPRUV	1001532	32 x 3,0	50 m

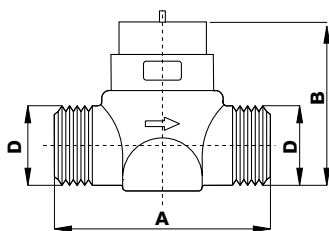
CALC

Composite pipe type: CALC. Plastic-metal composite pipe with PE-RT inliner. The (blunt-welded longitudinally) aluminum pipe is between 0,2 and 0,5 mm thick, depending on its dimensions and wall thickness. This aluminum insert ensures that the pipe is 100% oxygen-tight. External pipe made from UV-resistant HDPE. The pipe is DVGW/SVGW/ÖVGW-tested and certified, max. operating pressure: 10 bar, max. operating temperature: 95 °C, min. bending radius with inner spring: 3xd.

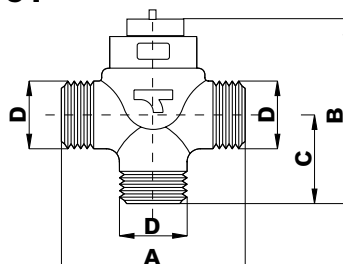
Type	Part no. WID	Dimensions	Roll
CALC	10005250	16 x 2,0	200 m
CALC	10005253	20 x 2,0	100 m
CALC	10005258	26 x 2,0	50 m
CALC	10005254	20 x 2,0	5 m
CALC	10005257	26 x 2,0	5 m
CALC	10005259	32 x 2,0	5 m

OVERALL DIMENSIONS

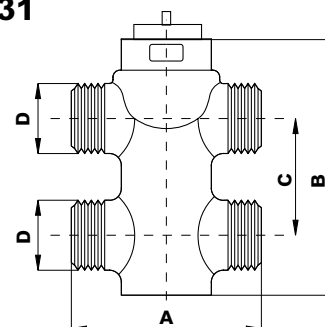
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3131



4131

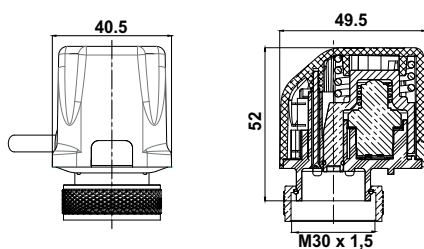


DN	A	B
1/2"	52	43
3/4"	56	43
1"	83	70

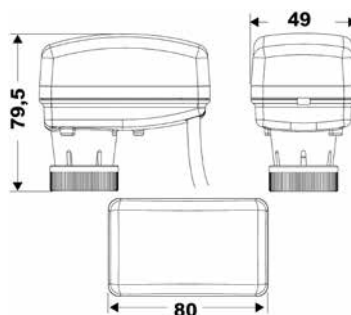
DN	A	B	C
1/2"	52	56	25
3/4"	56	58	34
1"	82	93	41

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

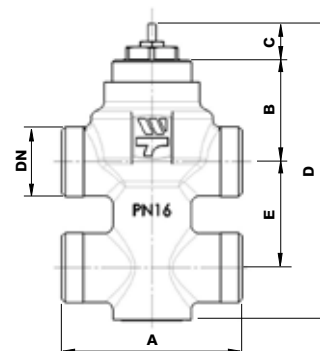
22CX



EMUJC

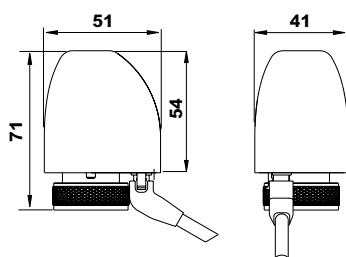


4X2

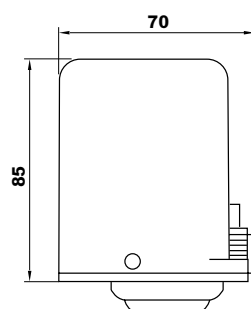


DN	A	B	C	D	E
3/4"	68	38	13,7	115	40

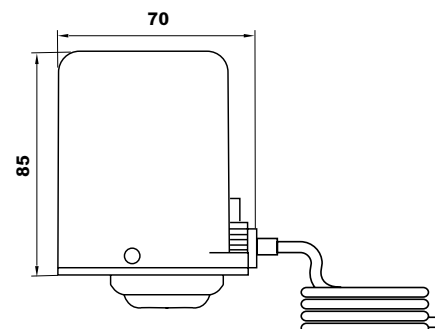
26LC



ETE

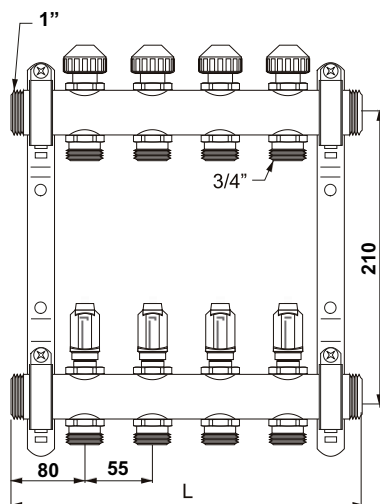


ETM



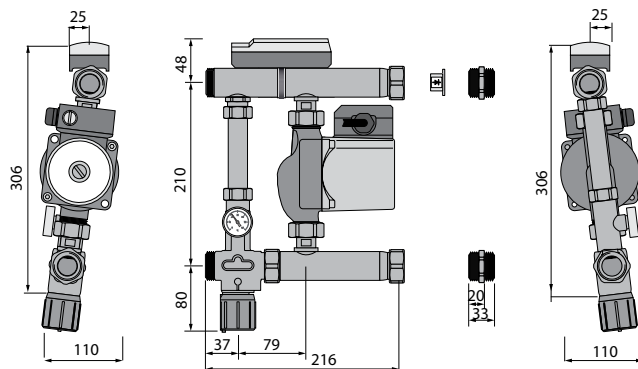
OVERALL DIMENSIONS

HKV 2010 Steel/Brass
HKV 2013A Steel/Brass

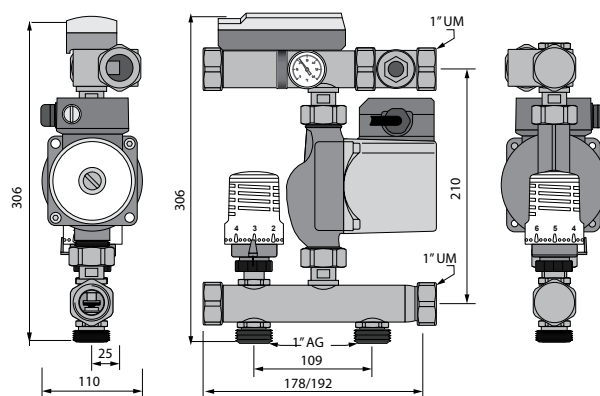


N. Outlets	L
2	190
3	245
4	300
5	355
6	410
7	465
8	520
9	575
10	630
11	685
12	740

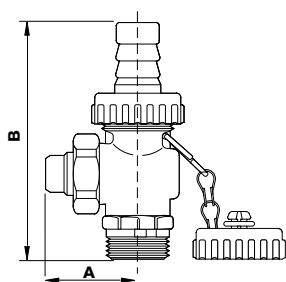
ISOTHERM



FRG 3015F

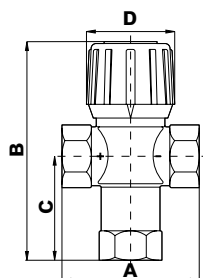


290



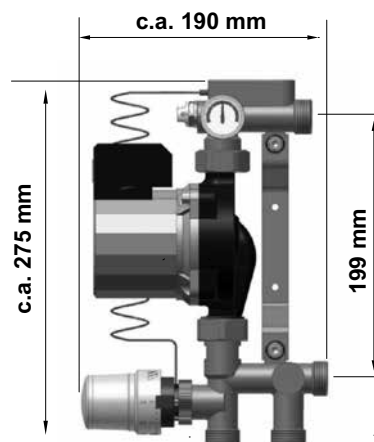
DN	A	B
1/8"	25	60
1/2"	30	75
3/4"	40	90

63C



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

FRG 3005F



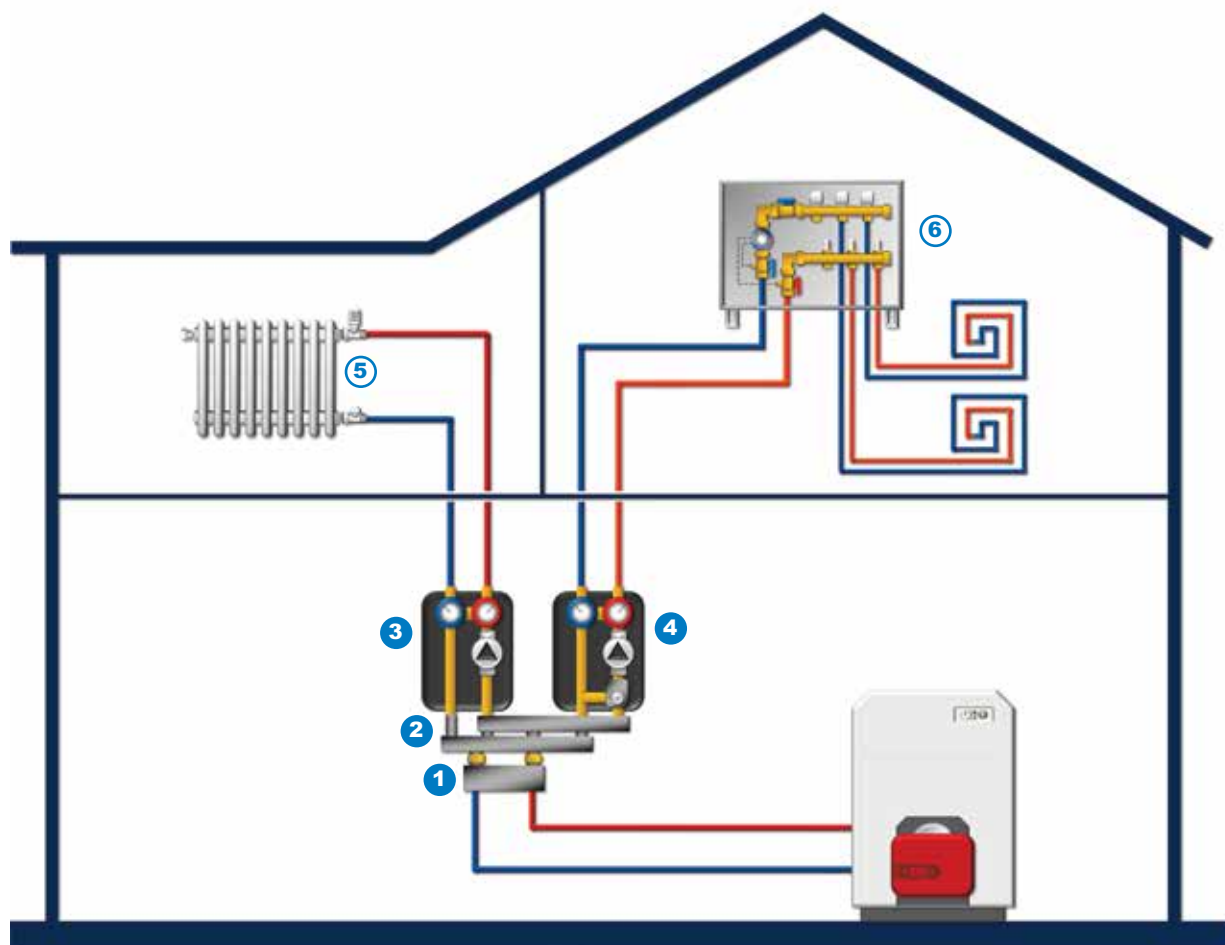
NOTES

Pump units



Pump units	pag. 51	Pump units DN40 and DN50.....	pag. 60
Pump units DN25 and DN32	pag. 52	Accessories	pag. 61
Pump units accessories	pag. 56	FRIWA	pag. 62
WATTMIX.....	pag. 57	Overall dimensions	pag. 64
Boiler control units for solid fuel boilers	pag. 58		
Hydraulic switches	pag. 59		

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

1 **HW-Q60/80**
pag. 59



Hydraulic switch

2 **VB32**
pag. 55



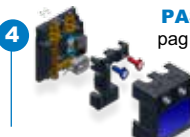
Heating circuit distribution

3 **PAS**
pag. 52



Compact pump unit

4 **PASM**
pag. 52



Compact pump
mixing valve unit

5 **Chapter A**
pag. 5



Radiator valves
for heat elements

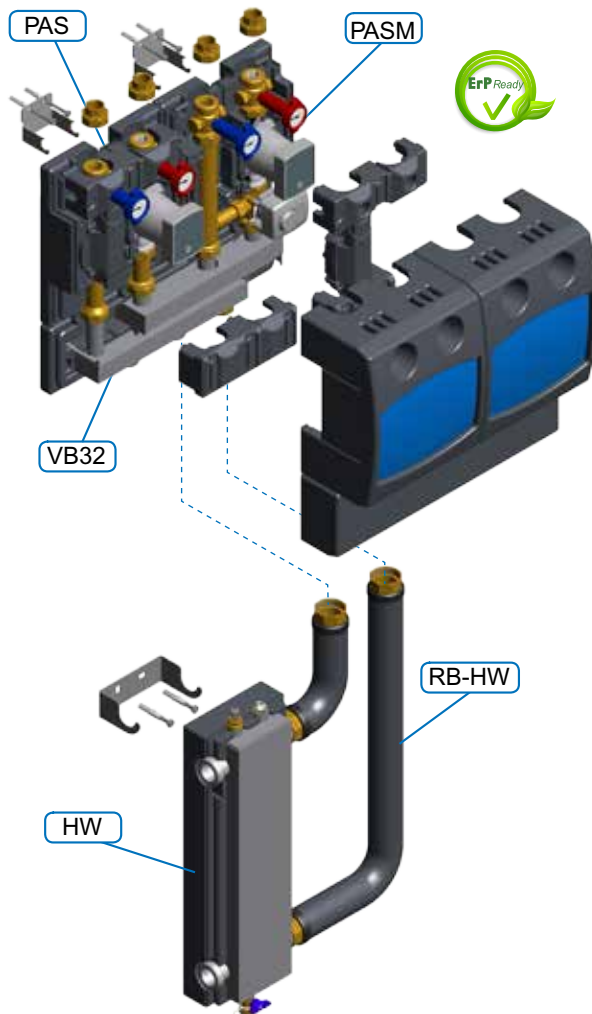
6 **Chapter B**
pag. 23



Underfloor heating
system components
and mixing valves

TECHNICAL NOTE

PUMP UNITS PAS and PASM



Overview of standard types

PAS:	Pump unit complete with wall mounting brackets and connection fittings, three-part insulation according to the requirements of EnEV ensures optimum ventilation of the pump electronics.
PASM:	Pump mixing valve unit with 3-way mixing valve and valve drive complete with wall mounting brackets and connection fitting, three-part insulation according to the requirements of EnEV ensures optimum ventilation of the pump electronics.
VB32:	Heating circuit distributor with insulation according to EnEV requirements. Available for 2-5 heating circuits.
HW:	Hydraulic switch complete with wall mounting brackets, with integrated air vent and drainage and filling cock. Insulation according to EnEV requirements.
RB-HW	Connection piping set with insulation according to the requirements of EnEV.

EnEV German Energy Saving Ordinance

Materials

Housing:	Brass MS58, CW614N/CW617N
Pipes:	Precision steel tube EN 10305-3
Plastic:	Impact- and temperature resistant
Ball seat:	PTFE
Gasket:	EPDM - elastomer; AFM 34
Insulation:	EPP

Technical data

Max. operating temperature:	+ 95°C
Min. operating temperature	+ 2°C
Max. ambient temperature:	+ 40°C
Min. ambient temperature:	- 10°C
Max. operating pressure:	6 bar
Max. test pressure: (max. 24 h at max. operating temperature < 30 °C)	10bar

PUMP UNITS DN25 AND DN32

52

C

**PAS**

Ready-to-mount, compact pump unit for radiator heating, air heaters or boiler charging.

- Pump cabling ex works
- Isolating valves with thermometer both on flow and return branches
- Gravity flow stop.
- Three part heat insulation box made of EPP
- Easy left / right conversion of flow and return branch
- All connections with flat seals throughout
- Wall mounting brackets included
- Pressure tested, packed in a box

Type	Part no. WID	DN	Description
PAS25	10026264	25	Grundfos ALPHA2L 25-60
PAS25	10026265	25	Wilo Yonos PARA 25/6
PAS25	10026450	25	Without pump
PAS25-KH	10026635	25	Without pump, two ball valves on the flow branch
PAS25	10026634	25	Wilo RS 25/6*
PAS25-KH	10026637	25	Wilo RS 25/6, two ball valves on the flow branch*
PAS32	10026879	32	Wilo Yonos PARA30/6
PAS32	10026880	32	Grundfos Alpha2L32-60
PAS32	10026881	32	Without pump

* (noErP) = according to ErP Directive not for use in EU countries

**PASM**

Ready-to-mount, compact pump mixing valve unit for radiant heating. 3-Way mixing valve, Kvs 6.3. Other Kvs values are available on request.

- Pump and 3-way mixing valve with valve drive cabling ex works
- Isolating valves with thermometer both on flow and return branches
- Gravity flow stop.
- Three part heat insulation box made of EPP
- Easy left / right conversion of flow and return branch
- All connections with flat seals throughout
- Wall mounting brackets
- Pressure tested, packed in a box

Type	Part no. WID	DN	Description
PASM25	10026263	25	Wilo Yonos PARA 25/6, Kvs 6.3, valve drive
PASM25	10026266	25	Grundfos ALPHA2L 25-60, Kvs 6.3, valve drive
PASM25	10026451	25	Without pump, Kvs 6.3, with valve drive
PASM25	10026636	25	Wilo RS 25/6, Kvs 6.3, without valve drive*
PASM25	10026633	25	Wilo RS 25/6, Kvs 6.3, valve drive*
PASM32	10026884	32	Wilo Yonos PARA30/6, Kvs 18, valve drive
PASM32	10026882	32	Grundfos Alpha2L32-60, Kvs 18, valve drive
PASM32	10026883	32	Without pump, Kvs 18, with valve drive

* (noErP) = according to ErP Directive not for use in EU countries

PUMP UNITS DN25 AND DN32

HKF8180

Ready-to-mount, compact pump mixing valve unit for radiant heating with fix-point control. Thermostatic mixing valve with Kvs 3.8, setting range **20-43°C**.

- Isolating valves with thermometer both on flow and return branches
- Gravity flow stop.
- Pump and 3-way mixing valve with valve drive cabling ex works
- Three part heat insulation box made of EPP
- Easy left / right conversion of flow and return branch
- All connections with flat seals throughout
- Wall mounting brackets included
- Pressure tested, packed in a box

Type	Part no. WID	DN	Description
HKF8180	10027335	25	Wilo Yonos PARA 25/6
HKF8180	10027564	25	Grundfos ALPHA2L 25-60
HKF8180	10027565	25	Without pump

FBC-HC8180

Ready-to-mount, compact pump mixing valve unit suited for variable water temperature control in conjunction with the outside temperature for floor heating / cooling systems.

- High efficiency pump and 3-way mixing valve with valve drive cabling ex works
- Climate controller CC-HC (for more information see page 78) with flow and return sensor, pre-mounted and wired ex works
- Isolating valves with integrated in the handle thermometer both on flow and return branches
- Gravity flow stop.
- Three part heat insulation box made of EPP
- Easy left / right conversion of flow and return branch
- All connections with flat seals throughout
- Wall mounting brackets
- Pressure tested, packed in a box

Type	Part no. WID	DN	Description
FBC-HC8180	10027304	25	Wilo Yonos PARA 25/6, Kvs 6.3
FBC-HC8180	10028232	25	Grundfos ALPHA2L 25-60, Kvs 6.3

PUMP UNITS DN25 AND DN32

TECHNICAL NOTE

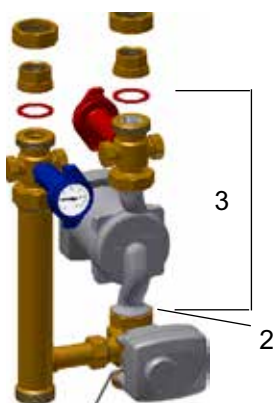


NOTE: ALL PICTURES AND TEXTS OF THIS TECHNICAL NOTE ARE FOR INFORMATION PURPOSES ONLY. FOR DETAILED INFORMATION PLEASE REFER TO THE MANUAL.

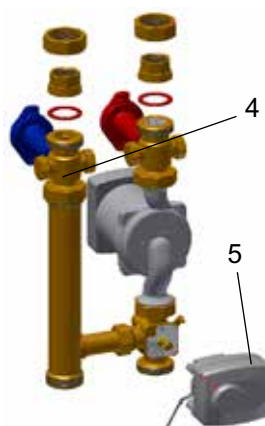
The position of supply and return flows can be changed by changing of the corresponding branches inside of the insulation.



1- remove the upper fittings and washers



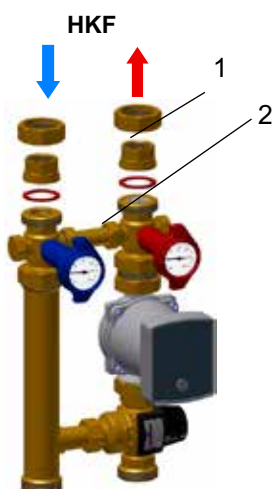
2 - loosen the lower nut on the pump connection.
3 - rotate the pump and the ball valve assembly on supply by 180 degrees.



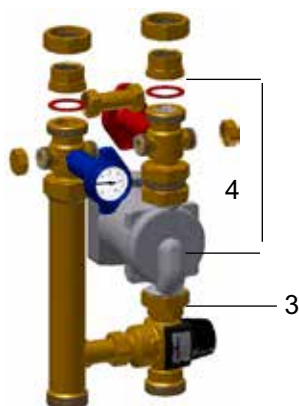
4 - loose the nut on the return ball valve and rotate the ball valve assembly by 180 degrees
5 - remove the actuator



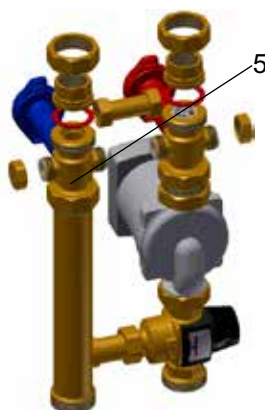
6 - rotate the pump unit by 180 degrees and tighten all connections and fittings.
7 - install the actuator.



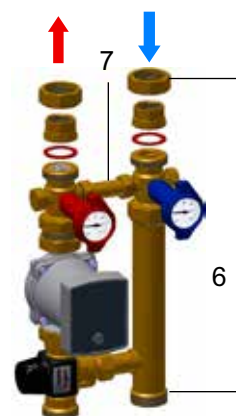
1- remove the upper fittings and washers
2 - remove the stabilizing insert



3- loosen the lower nut on the pump connection.
4 - rotate the pump and the ball valve assembly on supply by 180 degrees.



5 - loosen the nut on the return ball valve and rotate the return ball valve assembly by 180 degrees.



6 - rotate the pump unit by 180 degrees and tighten all connections and fittings.
7 - install the stabilizing insert.

PUMP UNITS DN25 AND DN32

VB32

Heating circuit distributor DN25..DN32 with thermal barrier. Ready-to-mount, compact design, flat sealing connections with union nut towards pump mixing valve units series PAS, PASM, HKF8180 both of DN25 and DN32. Boiler-sided with male thread, EPP heat insulation with intermediate insulation layer between supply and return header (thermal separation).

Flow rate: 3m³/h

Heat output capacity: 70kW ($\Delta T = 20\text{ K}$)

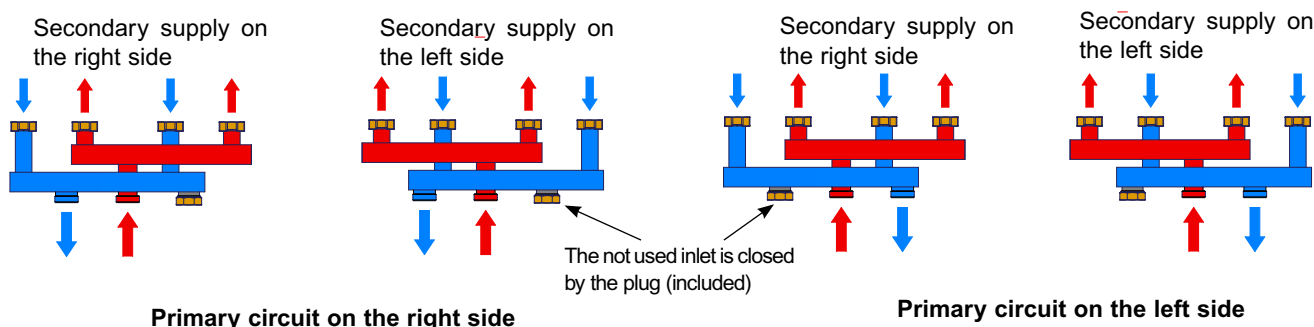


Type	Part no. WID	Description
VB32-2	10025900	For 2 pump units/heating circuits
VB32-3	10025901	For 3 pump units/heating circuits
VB32-4	10026672	For 4 pump units/heating circuits
VB32-5	10026931	For 5 pump units/heating circuits
WH-VB32	10026388	Wall bracket set

TECHNICAL NOTE

As shown in the following figure, the heating distributors VB32 series are designed according to a modular principle that allows its use with pump units modules with supply branch on the right or on the left side.

By rotating suitably the collector and plugging one of the two return paths from the primary circuit it is possible to obtain the flow of the primary left or right regardless of the fact that the secondary flow is to the right or left.



WT-BOX8180

Ready-to-mount, compact unit for system separation with stainless steel heat exchanger. EPP heat insulation. KSG safety unit with connecting pipe. Adaptation for PAS, PASM pump unit series. Max. output: 30 kW



Type	Part no. WID
WT-Box 8180	10027549

PUMP UNITS ACCESSORIES

**PFK**

Pump flange ball valve. Brass CW 617N, full passage, T-handle, PTFE seals, with 1.1/2" coupling nut.

Type	Part no. WID	Description
PFK 25	10022118	1" - DN 25

**PAV**

Pump connection fitting with integrated ball valve and 1.1/2" union nut.

Type	Part no. WID	Description
PAV/A-F25	10003679	1" F
PAV/A-L28	10003680	Compression fitting 28 mm

**AVG**

Set includes 2 union nuts 1.1/2" with threaded and gaskets. Brass CW617.

Type	Part no. WID	Description
AVG 25	10003693	1" M
AVL 28	10003695	Soldering fitting 28 mm

**USV16L**

Pressure overflow valve. Straight body with union nut. Brass CW617.
Adjustment range: 0,2 - 0,6 bar. Max. operating pressure 10 bar. Max. temperature 110 °C.
Can be build in pump units PASM, HKF8180 series.

Type	Part no. WID	Description
USV16L mittig	10006153	3/4" UN

WATTMIX

NEW

WATTMIX (1 PUMP)



Ready-to-mount, compact control unit is designed for connection of wall-mounting boiler **with 1 pump**. It can be mounted alongside or directly underneath the wall-mounted boiler. Simple gas connection through special distribution manifold design. The WattMix unit consists of: direct heating circuit (e.g. radiator heating) without pump and mixed heating circuit (e.g. floor heating) with circulation pump 130 mm, three-way mixing valve with bypass, pre-assembled actuator. Isolating valves with thermometer, EPP heat insulation, flat sealing connections.

Type	Part no. WID	Description
WATTMIX	10029357	1 x Wilo Yonos PARA15/6
WATTMIX	10036998	Without pump (1 pump mounting place)

NEW

WATTMIX (2 PUMPS)



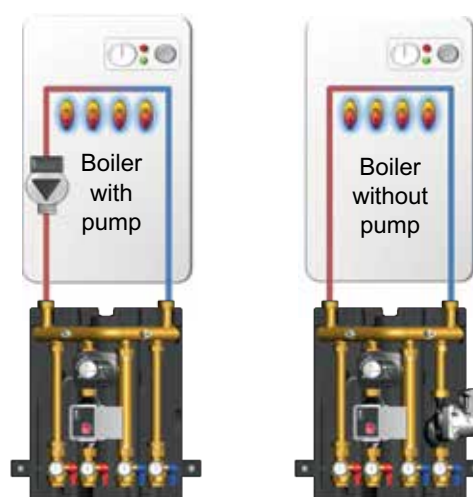
Ready-to-mount, compact control unit is designed for connection of wall-mounting boiler **without pump**. It can be mounted alongside or directly underneath the wall-mounted boiler. Simple gas connection through special distribution manifold design. The WattMix unit consists of: direct heating circuit (e.g. radiator heating) with circulation pump and mixed heating circuit (e.g. floor heating) with circulation pump 130 mm, three-way mixing valve with bypass, pre-assembled actuator. Isolating valves with thermometer, EPP heat insulation, flat sealing connections.

Type	Part no. WID	Description
WATTMIX	10028106	2 x Wilo Yonos PARA15/6

TECHNICAL NOTE

Technical data WattMix	2 circuits
Kvs	4,2
Max. capacity	28kW
Direct circuit	
Max. capacity	18,5kW
Flow	796 l/min
ΔT	20 K
Mixing circuit	
Max. capacity	16,4kW
Flow	796 l/min
ΔT	20 K

CONNECTION COMBINATIONS



APPLICATION



The channels in the insulation and special construction of distribution manifold allow compact connection of gas and domestic water pipes inside of WattMix unit.

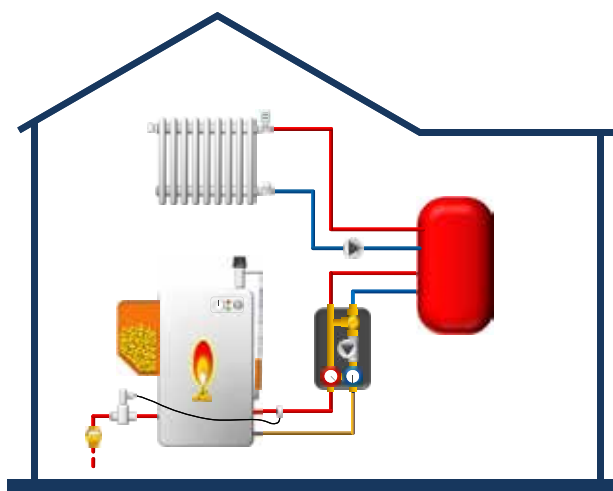


BOILER CONTROL UNITS FOR SOLID FUEL BOILERS

**KLS8180**

Ready-to-mount, compact unit to rapidly achieve the necessary operating temperature of solid-fuel fired boilers. With thermostatic mixing valve. Dynamic bypass closes reciprocally in proportion to the increasing charging temperature. Thermometer integrated into the multifunctional shut-off valve. Arrangeable flow stops. Circulating pump 180 mm. Thermostatic mixing valve temperature pre-set to 58 °C, not changeable. Up to 50 KW heat output possible. EPP insulation.

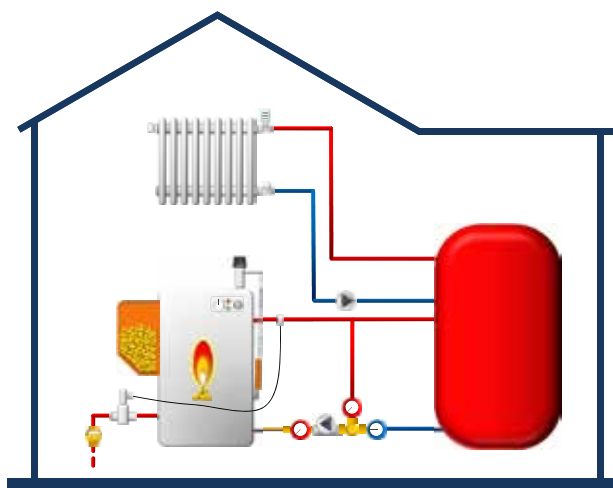
Type	Part no. WII	Part no. WID	Description
KLS	10026341	10026341	YonPARA25/6
KLS	10026343	10026343	Alpha2L25-60
KLS	10027902	10027902	Without pump

**KLE-M**

Electronically controlled. To rapidly achieve the necessary operating temperature of solid-fuel fired boilers. Inclusive three-way mixing valve and 3-point valve drive. Thermometer integrated into the multifunctional shut-off valve. Arrangeable flow stop. Wall bracket. Up to 50 KW heat output.



Type	Part no. WII	Part no. WID	Description
KLE-M	10028890	10028890	Yonos PARA25/6



HYDRAULIC SWITCHES

HW

HYDRAULIC SWITCH

Ready-to-mount, compact unit consisting of: Welded steel switch, fill and drain-cock, immersion sleeve 1/2" – Di=6,5 mm, manual air-vent, screw connections, wall bracket, EPP heat insulation.

Type	Part no. WII	Part no. WID	Description
HW80/120	3499600	10010376	4m³/h, 44 kW ($\Delta t = 10$ K)
HW140/140	3499835	10010419	10m³/h, 114 kW ($\Delta t = 10$ K)
RB-HW80/120		10010378	Connection pipes for HW80/120

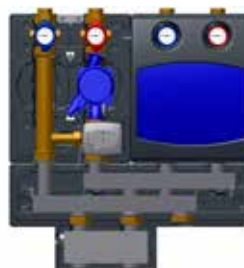
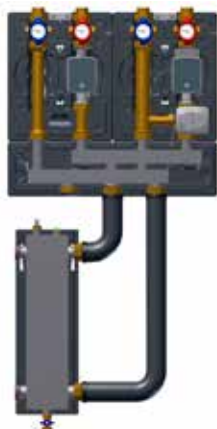
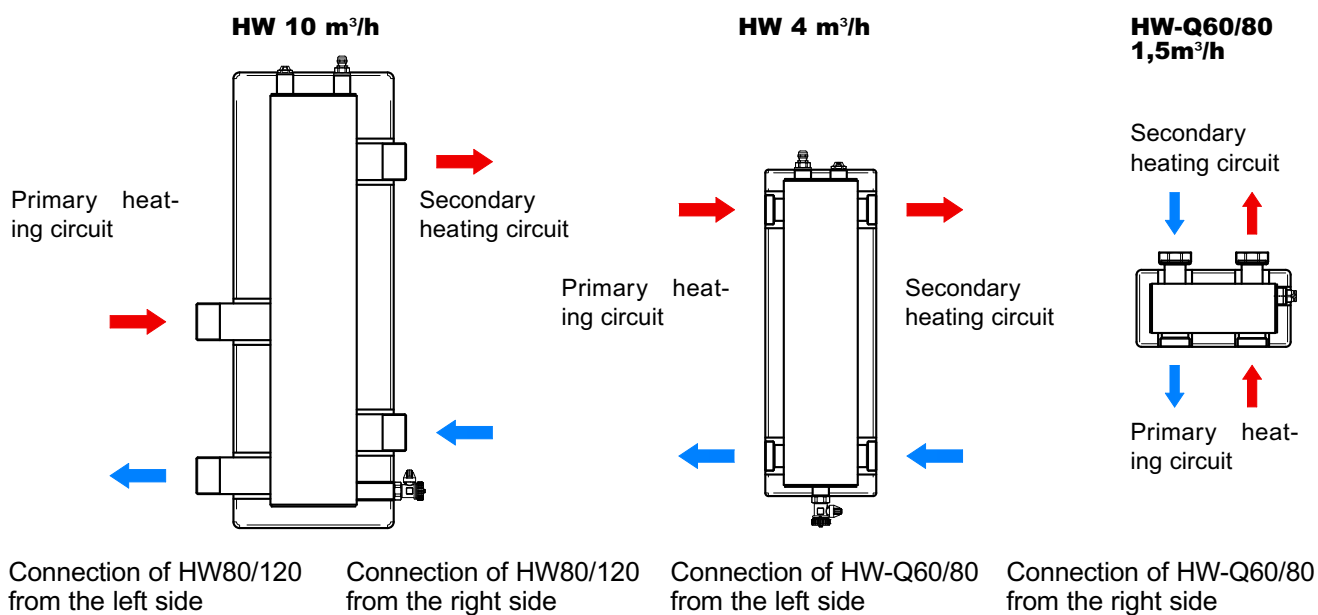
HW-Q60/80

HYDRAULIC SWITCH

Ready-to-mount, compact unit, compatible with PAS, PASM, VB32-2/3. Includes immersion sleeve 1/2", screw connections, EPP heat insulation. Flat sealing connection via union nut in horizontal position underneath the HKV distribution manifold or PAS, PASM control unit.

Type	Part no. WII	Part no. WID	Description
HW-Q60/80	3499890	10010424	1,5m³/h, 17 kW ($\Delta T = 10$ K)

TECHNICAL NOTE



PUMP UNITS DN40 AND DN50

**HK40, HK50**

Ready-to-mount, compact pump unit DN40 and DN50. Ball valve 2" F with thermometer, gravity flow stop in the supply line. Pump cabling ex works. Flat sealing connections. Up to 280 kW heat output requirements per heating circuit. EPP heat insulation.

Type	Part no. WID	Description
HK40	10026523	Wilo Stratos PARA 40/8
HK40	10026871	Grundfos Magna3 40-100F
HK40	10027651	Without pump
HK50	10026524	Wilo Stratos PARA 50/9
HK50	10026872	Grundfos Magna3 50-100F
HK50	10027652	Without pump

**HKM40, HKM50**

Ready-to-mount, compact pump unit DN40 and DN50. Ball valve 2" F with thermometer, gravity flow stop in the supply line. Pump cabling ex works. Flat sealing connections. Up to 280 kW heat output requirements per heating circuit. EPP heat insulation.

Type	Part no. WID	Description
HKM40	10026525	Wilo Stratos PARA 40/8
HKM40	10026873	Grundfos Magna3 40-100F
HKM40	10027653	without pump
HKM50	10026526	Wilo Stratos PARA 50/9
HKM50	10026874	Grundfos Magna3 50-100F
HKM50	10027650	Without pump

**VB50****HEATING CIRCUIT DISTRIBUTOR**

Ready-to-mount, compact design. Connections to HK/HKM DN40/DN50 via union nut 2". Modular design. EPP heat insulation. Combination with HK/HKM DN20 to DN32 via reduction set. Angle-connectors as well as pedestals for safety mounting available as accessories. For boiler or boiler cascades up to 460 kW (flange DN80). Lateral blank flange

Type	Part no. WID	Description
VB50/80-2	10011282	2 heating circuits. Flange DN80-PN6
VB50/80-3	10011283	3 heating circuits. Flange DN80-PN6

**VB50/80-ECK****ANGLE-CONNECTOR SET**

Consists of 2 insulated elbow pieces for corner installation of the heating circuit distributor VB50 (HKV50). With pipe insulation.

Type	Part no. WID	Description
VB50/80-ECK	10011284	Flange DN80-PN6

ACCESSORIES

HKV-FUSS

PEDESTAL SET

Set consists of 2 pedestals, 8 bolts and nuts for connection with heating circuit distributor VB50/80 (HKV50).



Type	Part no. WID	Description
HKV-FUSS	10011285	Set contains 2 Pedestals

REDU

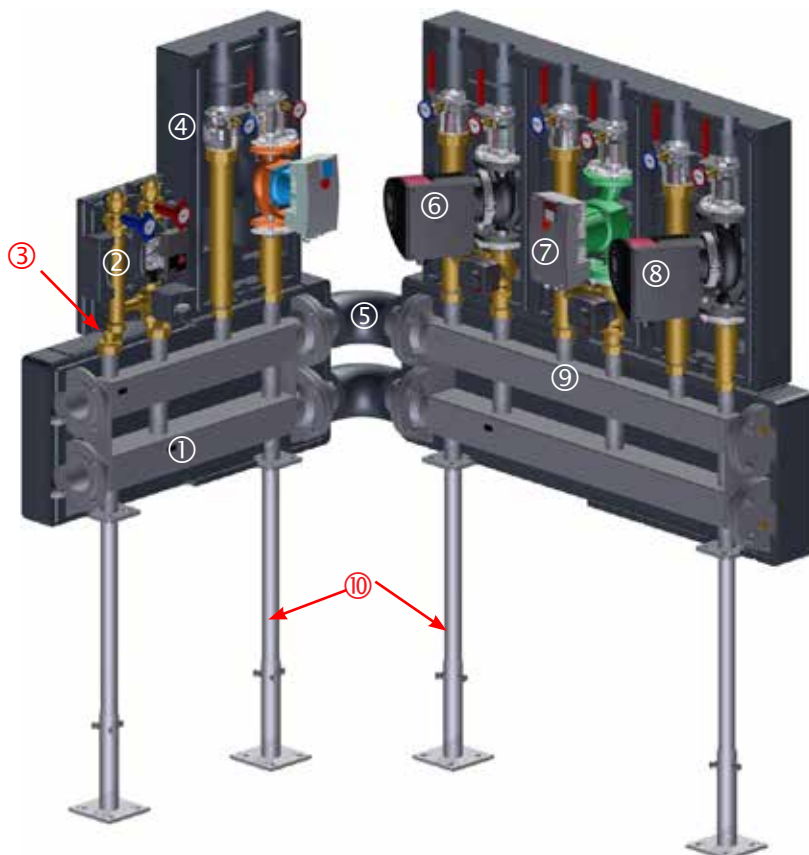
REDUCER DN40/50 TO DN20/25/32

For connection of heating circuit pump control units PAS and PASM DN20 to DN32 to heating circuit distributor VB50/80 (HKV50). EPP heat insulation



Type	Part no. WID
REDU50/32	10011286

TECHNICAL NOTE



1. Heating circuit distributor **VB50/80-2**
2. Pump mixing unit **PASM25** or **PASM32**
3. Reducer **REDU50/32**
4. Pump unit **HK50**
5. Angle-connector set **VB50/80-ECK**
6. Pump unit **HKM40**
7. Pump unit **HKM50**
8. Pump unit **HK50**
9. Heating circuit distributor **VB50/80-3**
10. Pedestal set **HKV-FUSS**



FRIWA

62

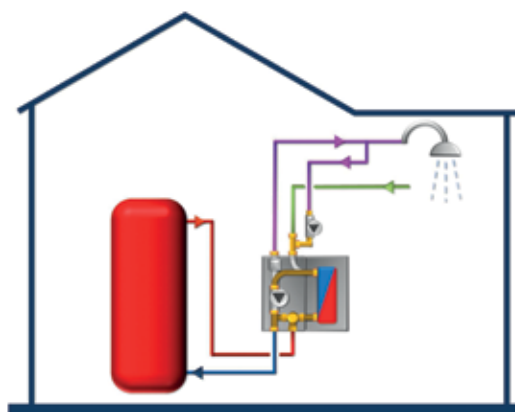
C

**FRIWA 8020**

Compact domestic hot water unit for providing hot water according to the continuous heating principle, thermally controlled by maintenance-free 3-way thermostatic valve (fixed setting on 68°C). Flow Control device shuts off the pump automatically. Thanks to this almost no calcification. Insulation box made of EPP.

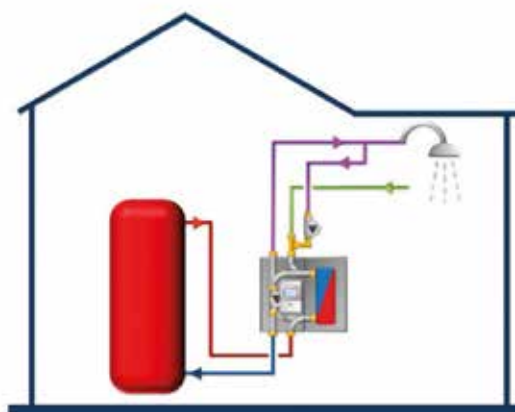
Recommended for small residential systems of 1-2 housing units.

Type	Part no. WID	Tapping capacity	Description
FRIWA8022	10027095	19 l/min	Wilo Yonos Para 25/1-6
FRIWA8023	10027096	25 l/min	Wilo Stratos Para 25/1-8
FRIWA8024	10027097	35 l/min	Wilo Stratos Para 25/1-8

**FRIWA EASY**

Heat transfer unit for the hygienic instantaneous preparation of hot water: in various power levels; constant tapping temperature electronically controlled; domestic hot water temperature freely selectable (20 °C - 90 °C); stable metallic wall mounting bracket; easy mounting and maintenance; Integrated circulation function (controlled by temperature / time / pulse); Insulation box made of EPP. Recommended for small residential systems of 1-2 housing units.

Type	Part no. WID	Tapping capacity	Description
FRIWA8022	10029118	25 l/min at 45 °C	Wilo Yonos Para 15/1-7,5
FRIWA8023	10029119	35 l/min at 45 °C	Wilo Yonos Para 15/1-7,5



FRIWA

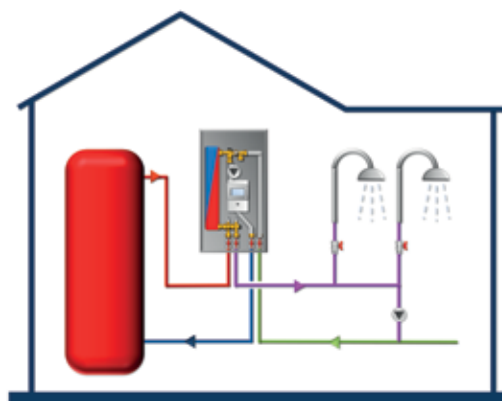
FRIWA 8030

Heat transfer unit for the instantaneous preparation of hot water, in various power levels, electronically controlled. Constant tapping temperature; drinking water temperature freely selectable; circulating pump module optional; high economy due to low return temperatures; stable metallic wall mounting bracket; easy mounting and maintenance. Insulation box made of EPP.

Integrated circulation function (controlled by temperature / time / pulse).

Recommended for big residential systems, i.e. hotels, hospitals etc.

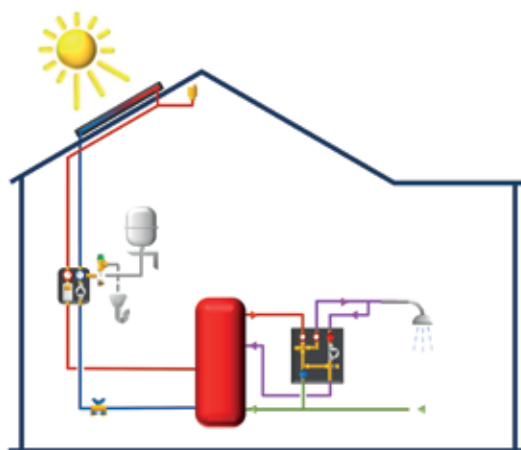
Type	Part no. WID	Tapping capacity	Description
FRIWA8032C	10028090	25 l/min at 50 °C	Wilo Yonos Para 15/1-7,5
FRIWA8033C	10028091	40 l/min at 50 °C	Wilo Yonos Para 15/1-7,5
FRIWA8035C	10028092	40 l/min at 60 °C	Wilo Yonos Para 15/1-7,5



FLOWBOX CIRCU

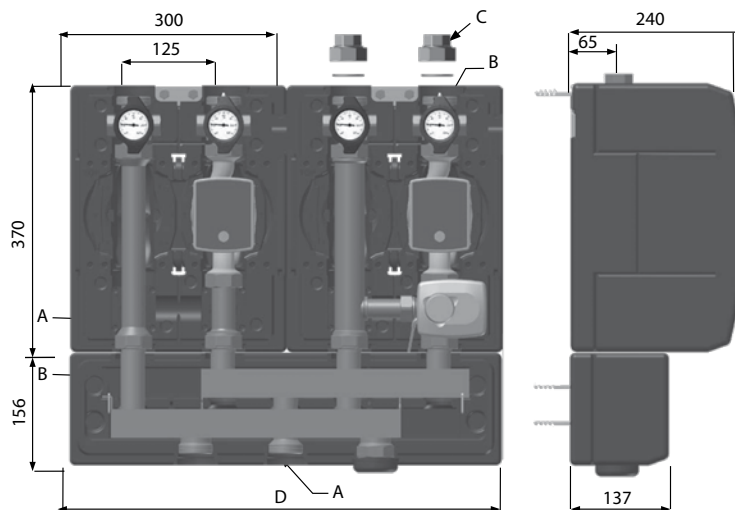
Ready-to-mount compact domestic hot water circulation unit for use in domestic hot water system with continuously high temperatures. Inclusive: Thermostatic mixing valve MMV for scald protection, check valves, back flow preventers, insulation box made of EPP, domestic hot water circulation pump.

Type	Part no. WID	Tapping capacity
FB Circu BR	10010094	Laing E1-15/700BR
FB Circu B	10027183	Laing E1-15/700B



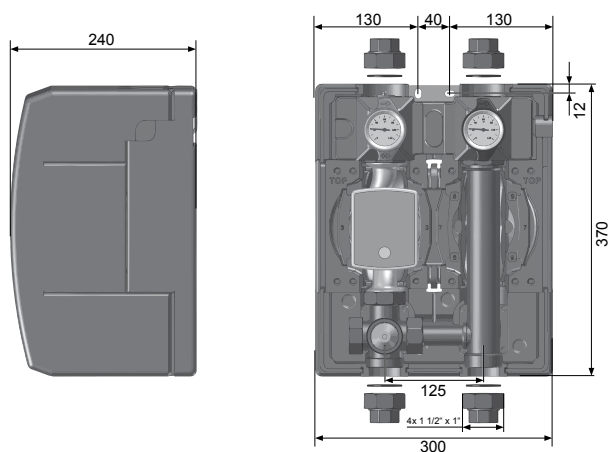
OVERALL DIMENSIONS

PAS(M) 25-32, HKF8180, VB32

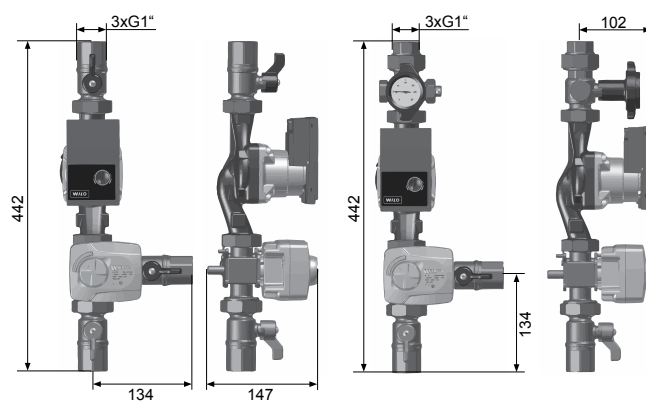


Type	DN	A	B	C	D
PAS25, PASM25, HKF	DN25	1.1/2"M	1.1/2"M	1.1/2"UN / 1" F	
PAS32, PASM32	DN32	1.1/2"M	2"M	2"UN / 1.1/4" F	
VB32-2		1.1/2"M	1.1/2"UN		600
VB32-3		1.1/2"M	1.1/2"UN		900
VB32-4		1.1/2"M	1.1/2"UN		1000
VB32-5		1.1/2"M	1.1/2"UN		1500

KLS8180

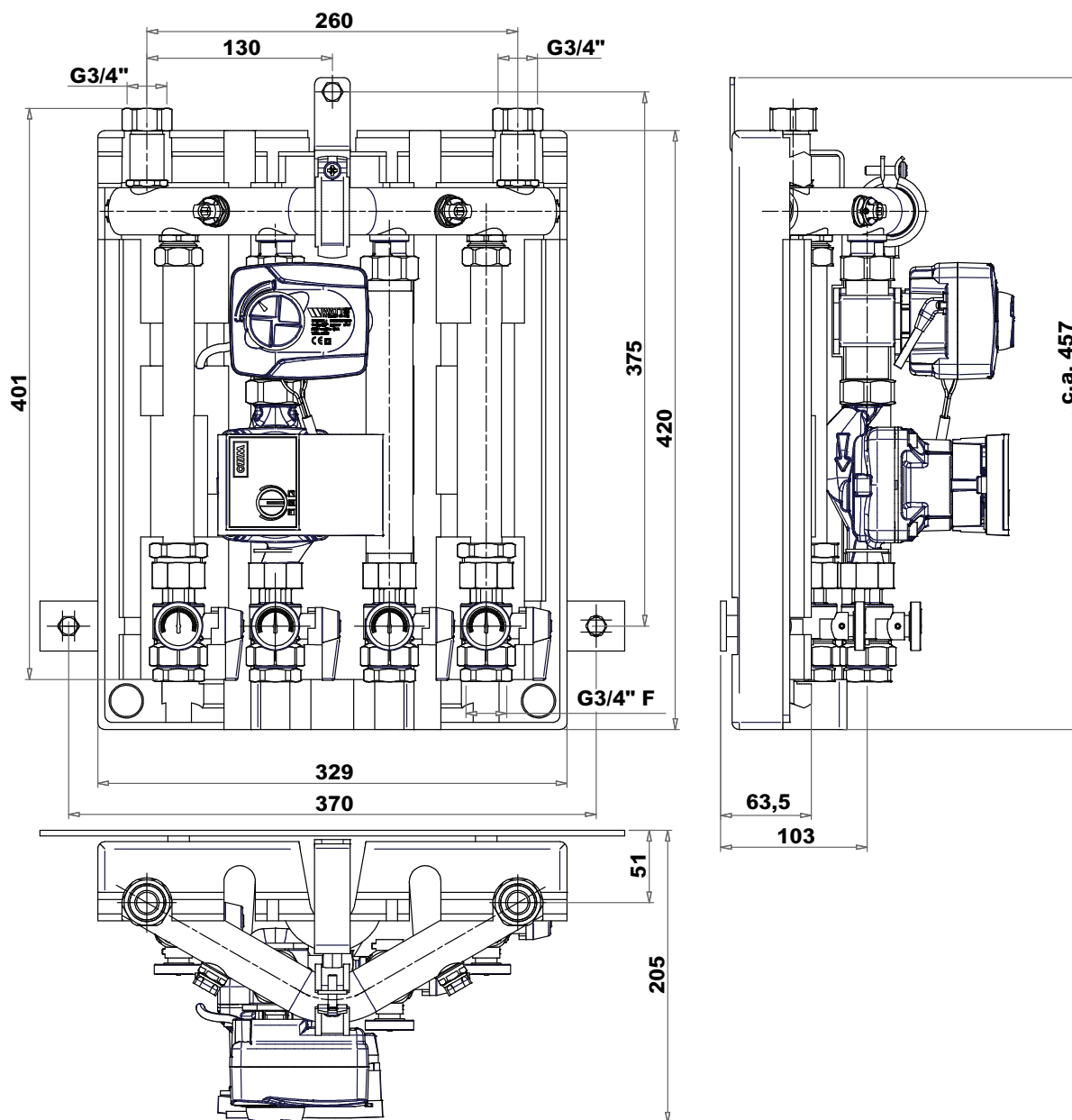


KLE



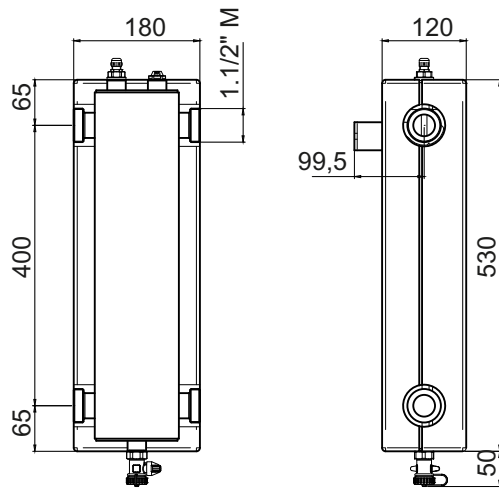
OVERALL DIMENSIONS

WATTMIX

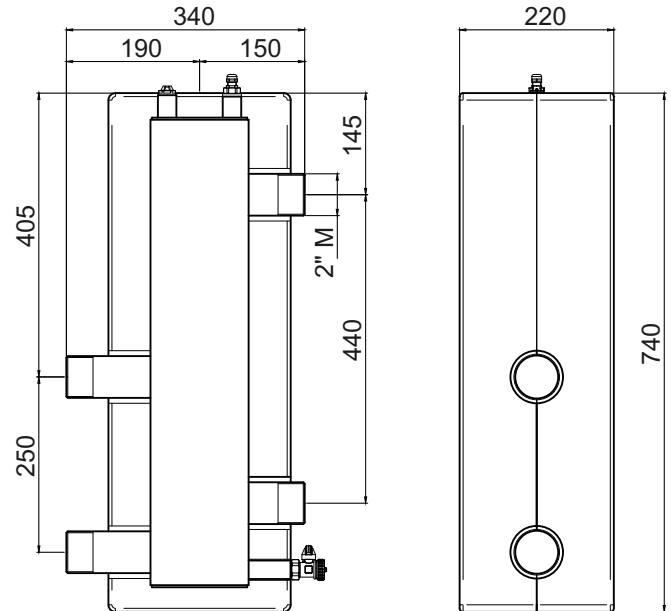


OVERALL DIMENSIONS

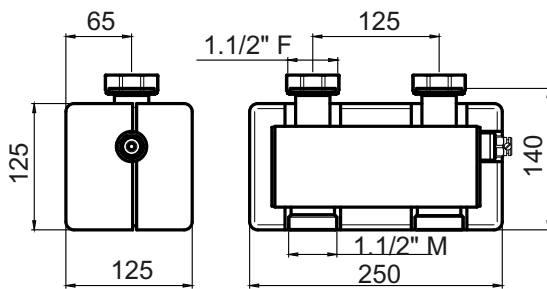
HW80-120



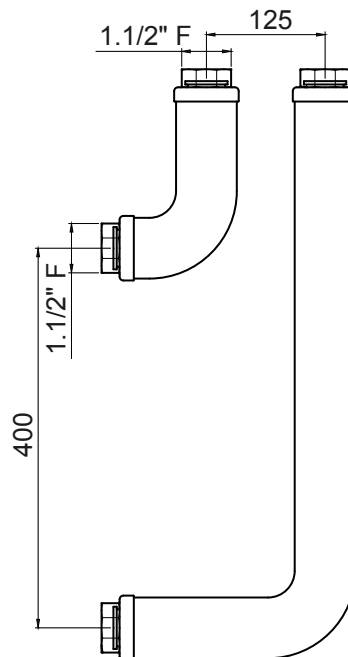
HW120-140



HW60-80



RB-HW80/120

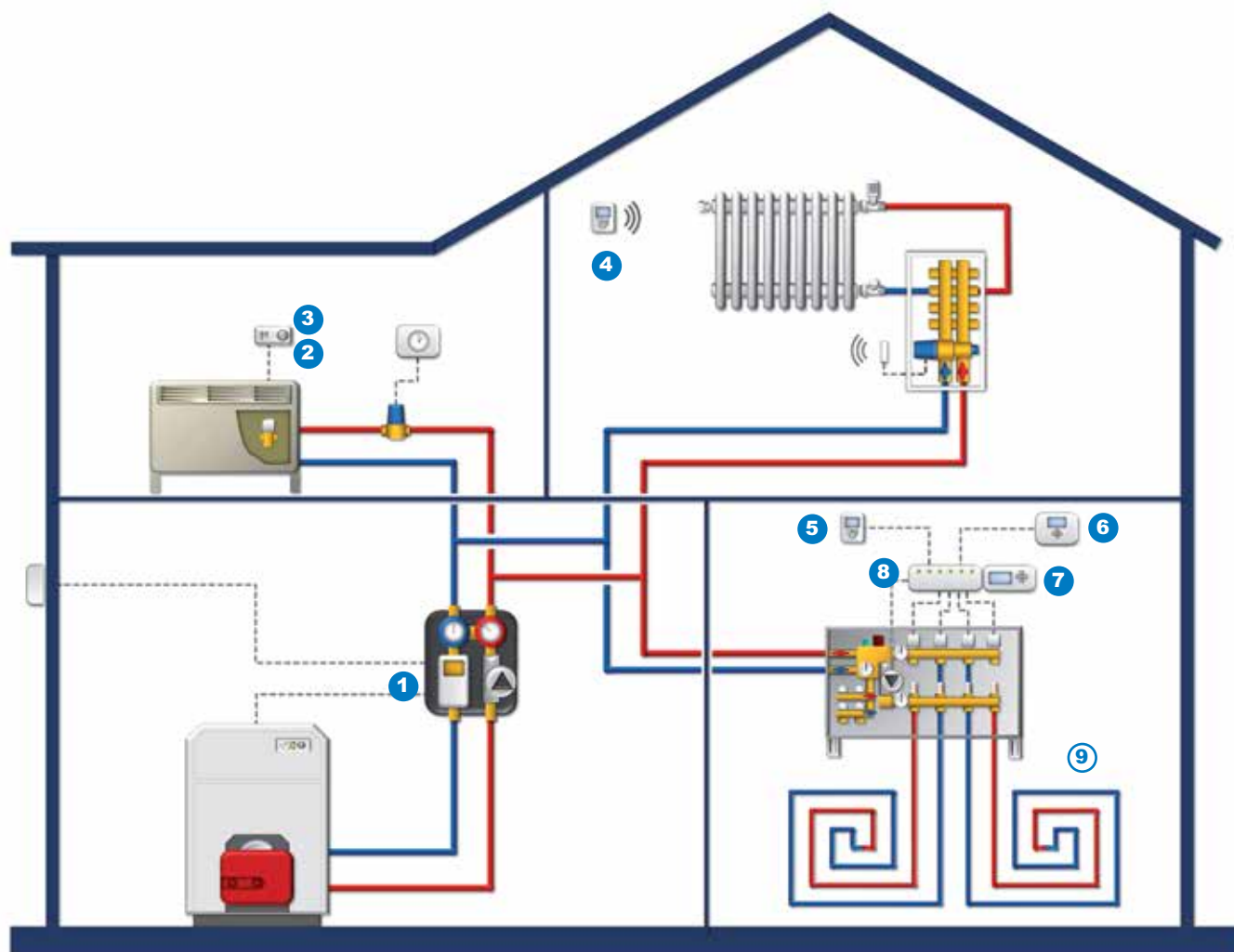


Regulation and controls



Wired room WFHT thermostats	pag. 69	Radio WFHT thermostats	pag. 76
Wired room BT thermostats	pag. 72	Climatic control	pag. 78
Wired room BELUX thermostats	pag. 74	WATTS®Vision Smart Home System	pag. 80
Wired room EFHT thermostats for electric floor heating	pag. 74	Accessories.....	pag. 84
Thermostats for fan-coils	pag. 75	Overall dimensions.....	pag. 85

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

1 CLIMATIC CONTROL
pag. 78



DGT Climatic control

2 FAN OPEN
pag. 75



Mechanical thermostat for fan-coil

3 FAN COMFORT 2T
pag. 75



Electronic thermostat for fan-coil 2 pipe type

4 BT-DP02-RF
pag. 81



Electronic room radio thermostat

5 BT-D02-RF
pag. 81



Electronic room thermostat

6 MILUX
pag. 70



Digital electronic room timing chrono thermostat with daily/weekly programming

7 WFHC-TIMER
pag. 71



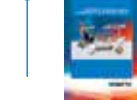
Weekly timer programmer

8 WFHC (MASTER)
pag. 77



Connecting box 4/6 zones

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Underfloor heating system components and mixing valves

WIRED ROOM WFHT THERMOSTATS

WFHT BASIC (EX WFHT)

Electronic room thermostat for radiant panel heating systems. Can be connected directly to electrothermal actuators Series 22CX, 26LC or through modules WFHC. Adjustment range 5 - 30 °C, differential gap 0,5K, operating temperature 0 - 50 °C, noiseless triac contact, NTC temperature sensor, output 15/75 W. LED indication. Protection IP 30.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Actuator
WFHT-BASIC	P2060	10021092	24 VAC	N.O.
WFHT-BASIC	P2061	10021093	24 VAC	N.C.
WFHT-BASIC	P2062	10021094	230 VAC	N.O.
WFHT-BASIC	P2063	10021095	230 VAC	N.C.

WFHT-BASIC+ (EX WFHT1)

Electronic room thermostat for radiant panel heating systems. Can be connected directly to electrothermal actuators series 22CX, 26LC or through modules WFHC. Adjustment range 5 - 30 °C, differential gap 0,5K, operating temperature 0 - 50 °C, noiseless triac contact, NTC temperature sensor, output 15/75 W. LED indication. Protection IP 30.

Mode selection: Comfort, Reduced or Pilot wire (operation controlled by WFHC-Timer).

Option: possibility to regulate on external sensor (NTC 10K, 10013372).

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Actuator
WFHT BASIC+	P2064	10021097	24 VAC	N.O.
WFHT BASIC+	P2065	10021098	24 VAC	N.C.
WFHT BASIC+	P2066	10021099	230 VAC	N.O.
WFHT BASIC+	P2067	10021100	230 VAC	N.C.

WFHT-DUAL (EX WFHT2)

Electronic room thermostat for radiant panel heating systems. Can be connected directly to electrothermal actuators series 22CX, 26LC or through modules WFHC. Adjustment range 5 - 30 °C, differential gap 0,5K, operating temperature 0 - 50 °C, noiseless triac contact, NTC temperature sensor, output 15/75 W. LED indication. Internal switch for NC/NO-actuators.

Mode selection: Comfort, Reduced or Pilot wire (operation controlled by WFHC-Timer).

Floor sensor with adjustable temperature limitation, 3m sensor cable.

3 control modes:

- 1) via internal room sensor.
- 2) via external sensor (floor sensor).
- 3) via internal room sensor and floor temperature limitation by external sensor 10 - 40 °C.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Actuator
WFHT-DUAL	P2068	10021101	24 VAC	N.O.- N.C.
WFHT-DUAL	P2070	10021102	230 VAC	N.O.- N.C.

WFHT-PUBLIC (EX WFHT3)

Like WFHT-DUAL (EX WFHT2) but particularly suitable for installation in public environments. Settings inside the casing.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Actuator
WFHT3-PUBLIC	-	10021103	24 VAC	N.O.- N.C.
WFHT3-PUBLIC	-	10021106	230 VAC	N.O.- N.C.

WIRED ROOM WFHT THERMOSTATS

WFHT-LCD



Electronic room thermostat **with LCD display** for radiant panel heating systems. Can be connected directly to electrothermal actuators series 22CX, 26LC or through modules WFHC.

Adjustment range 5 - 37 °C, differential gap 0,5 K, operating temperature 0-50°C, noiseless triac contact, NTC temperature sensor, output 15/75 W. Compatible to both NC and NO-actuators. Mode selection: Comfort, Reduced or Pilot wire (operation controlled by WFHC-Timer).

3 control modes :

- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal sensor and floor temperature limitation by external sensor (5 - 37 °C).

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Actuator
WFHT-LCD	P2076	10021109	24 VAC	N.O. - N.C.
WFHT-LCD	P2077	10021111	230 VAC	N.O. - N.C.
WFHT-LCD*	-	10021108	24 VAC	N.O. - N.C.
WFHT-LCD*	-	10021110	230 VAC	N.O. - N.C.

* with external (floor) sensor

MILUX



Electronic programmable room thermostat with LCD display.

Can be connected directly to electrothermal actuators series 22CX, 26LC or through modules WFHC. Easy wiring: two-wire connection (3-position connector) for heating and cooling systems. Temperature setting range: 5 - 35°C.

Complete with 3 alkaline batteries LR6 (AAA) 1.5V: Autonomy 2 years. Battery replacement without loss of programming.

Mode selection: Comfort, Reduced, Anti-freeze (0,5 - 10 °C), Auto.

Special functions: Reset, Key Lock,

9 preset and 4 customizable programs available.

Load capacity of 3 contacts : 8A - 250 VAC.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
MILUX (Daily)	P185800	10013382	3 batteries 1,5V
MILUX (Weekly)	P185900	10013384	3 batteries 1,5V

WFHC (MASTER)



Connecting box, master for 4 or 6 zones for connection of thermostats (e.g. WFHT-LCD, Milux, BT) with actuators (22CX, 26LC), pump relay (output 8 A), IP 20, modular design.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Description	Power	Actuator
WFHC (MASTER)	P2085	10021112	4 ZONES N.O.	24 VAC	N.O.
WFHC (MASTER)	P2086	10021113	4 ZONES N.C.	24 VAC	N.C.
WFHC (MASTER)	P2093	10021120	4 ZONES N.O.	230 VAC	N.O.
WFHC (MASTER)	P2094	10021121	4 ZONES N.C.	230 VAC	N.C.
WFHC (MASTER)	P2081	10021114	6 ZONES N.O.	24 VAC	N.O.
WFHC (MASTER)	P2082	10021115	6 ZONES N.C.	24 VAC	N.C.
WFHC (MASTER)	P2089	10021122	6 ZONES N.O.	230 VAC	N.O.
WFHC (MASTER)	P2090	10021123	6 ZONES N.C.	230 VAC	N.C.



WIRED ROOM WFHT THERMOSTATS

WFHC (SLAVE)

Extension (slave) module for 4 or 6 zones with plug-in connector for coupling to Master unit.

Type	Part no. WII	Part no. WID	Description	Power	Actuator
WFHC (SLAVE)	P2087	10021116	4 ZONES N.O.	24 VAC	N.O.
WFHC (SLAVE)	P2088	10021117	4 ZONES N.C.	24 VAC	N.C.
WFHC (SLAVE)	P2095	10021124	4 ZONES N.O.	230 VAC	N.O.
WFHC (SLAVE)	P2096	10021125	4 ZONES N.C.	230 VAC	N.C.
WFHC (SLAVE)	P2084	10021119	6 ZONES N.C.	24 VAC	N.C.
WFHC (SLAVE)	P2091	10021126	6 ZONES N.O.	230 VAC	N.O.
WFHC (SLAVE)	P2092	10021127	6 ZONES N.C.	230 VAC	N.C.

WFHC-TIMER

Weekly timer programmer for 2 heating zones (day/night) suitable for radiant panel heating systems. Can be coupled directly to the master WFHC boxes. Provided with 9 preset and 4 customizable programs available. Compatible with N.C. actuators only. Class of protection IP30.

Type	Part no. WII	Part no. WID	Power supply
WFHC-TIMER	P2101	10021129	24 - 230 VAC

WFHC-TRANSFORMER

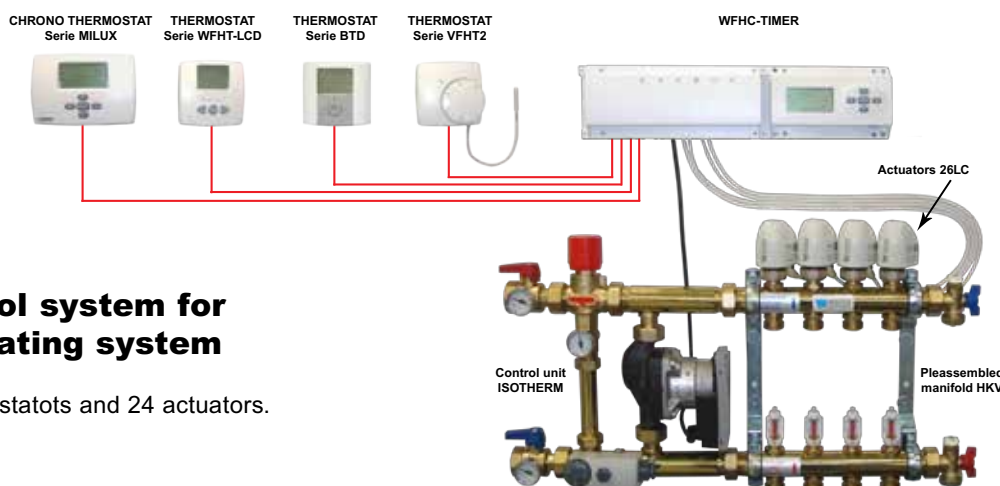
Transformer 60 VA designed for the modular boxes and actuators 24 VAC. Output power suitable for up to a max. of 18 actuators. Degree of protection IP30.

Type	Part no. WII	Part no. WID	Power supply
WFHC-TRANSFORMER	P2080	10021128	230 VAC

HIGHLIGHTS

Integrated control system for radiant panel heating system

Up to 12 zones, 12 thermostats and 24 actuators.



WIRED ROOM BT THERMOSTATS

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BT-A

Electronic analogical room thermostat specially designed to control different type of heating systems. Can be connected directly to electrothermal **NC actuators** Series 22CX, 26LC or through modules WFHC. WORKING MODE: NORMAL. Temperature setting range: 5 - 35 °C. Temperature differential 0.5 K. Regulation on the integrated temperature sensor: NTC. Option: possibility to regulate on external sensor (NTC 10K, 10013372). Protection IP30.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WID	Power supply
BT-A	10025810	2 batteries 1,5 V

BTD

Electronic room thermostat with LCD-display specially designed to control different type of heating systems. Can be connected directly to electrothermal NO/NC actuators series 22CX, 26LC or through modules WFHC.

WORKING MODE: NORMAL, REDUCED, ANTIFREEZE, TIMER.

Display with back-light, key lock function.

Temperature setting range: 5 - 37°C. Temperature differential 0.5 K or proportional band (PWM). Regulation on the integrated temperature sensor: NTC.

Option: possibility to regulate on external sensor (NTC 10K, 10013372). Protection IP30.

3 control modes :

- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal room sensor and floor temperature limitation by external sensor.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
BTD	P04542	10025806	2 batteries 1,5

BTDP

Programmable electronic room thermostat with LCD-display specially designed to control different type of heating systems. Can be connected directly to electrothermal NO/NC actuators series 22CX, 26LC or through modules WFHC.

WORKING MODE: COMFORT, REDUCED, ANTIFREEZE, AUTO, TIMER, HOLIDAY.

Display with back-light, key lock function. Temperature setting range:

5 - 37°C. 9 standard and 4 customizable programs available. Temperature differential 0.5 K or proportional band (PWM). Regulation on the integrated temperature sensor: NTC.

Option: possibility to regulate on external sensor (NTC 10K, 10013372). Protection IP30.

3 control modes :

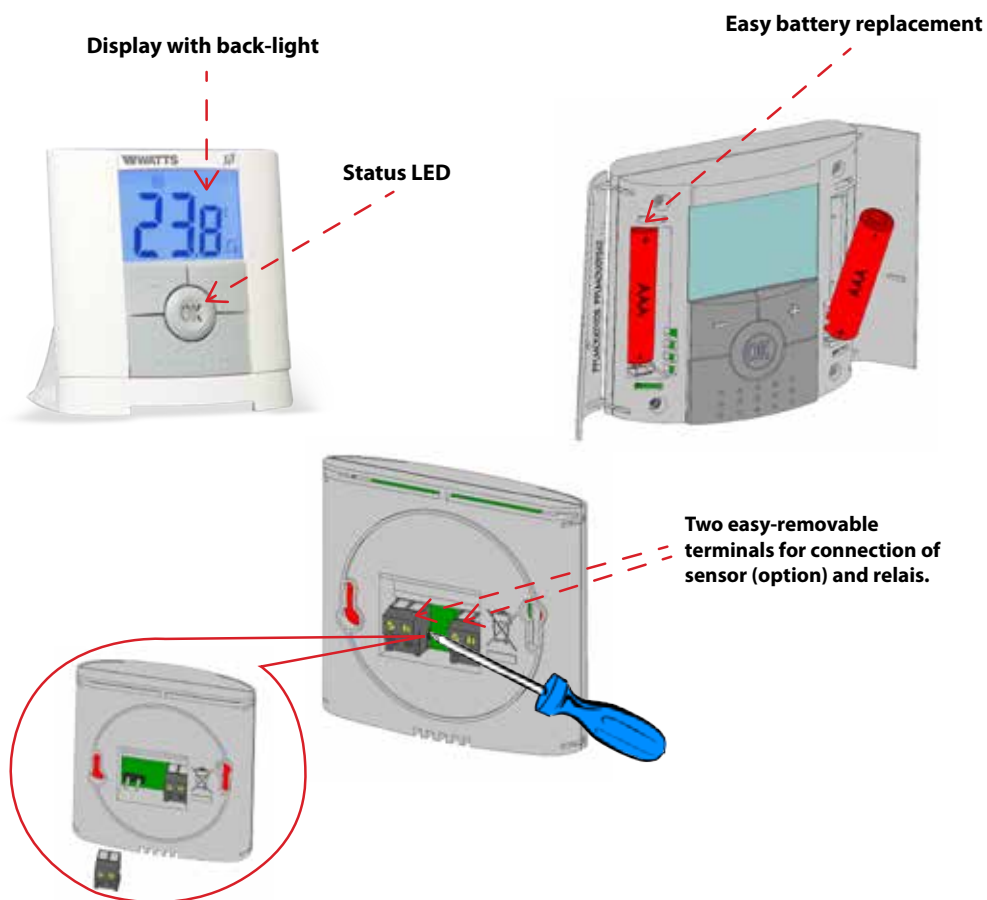
- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal room sensor and floor temperature limitation by external sensor.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
BTDP	P04543	10025807	2 batteries 1,5 V

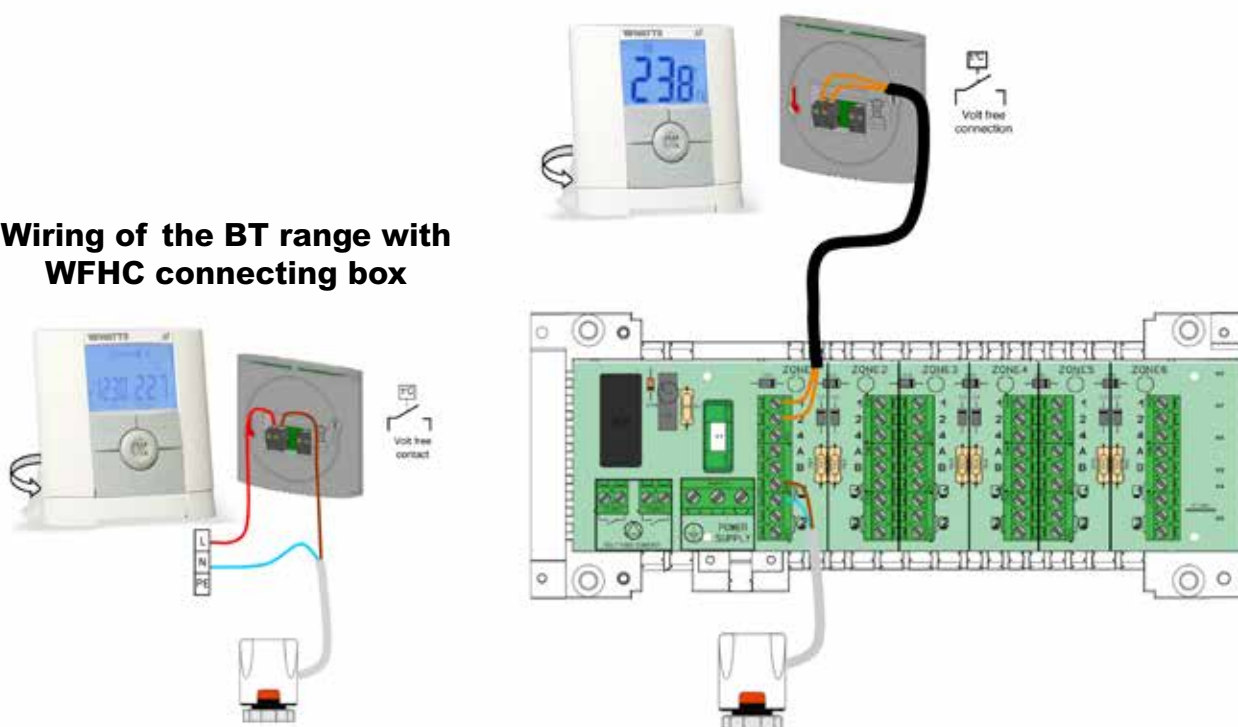
WIRED ROOM BT THERMOSTATS

TECHNICAL NOTE



Wiring of the BT thermostat with a WFHC connecting box (2 wires)

Wiring of the BT range with WFHC connecting box



WIRED ROOM BELUX THERMOSTATS

BELUX TI-NL

Room thermostat with heat sensitive element of steam expansion diaphragm type, with 3 contacts. Stainless steel diaphragm. Temperature locking device at back of knob. Setting range: 5 - 30°C. Differential at 20°C: 0.8K. Contact load rating: 10 (2.5) A/250V. Class of protection IP30. **Silver contacts 1000/1000.**

According to 2006/95/CE - 2004/108/CE.

Type	Part no.WII	Part no. WID	Power supply
BELUX TI-NL	0403202	10013363	230 VAC

BELUX DIGITAL

Digital room thermostat, with NTC element. The two buttons under the LCD display serve for displaying room temperature, operating mode (heating/air conditioning), operating status (on/off), battery charge. Complete with 2 alkaline batteries LR03 (AAA) 1.5V. Temperature setting range: 5 - 37°C. Differential at 20°C: 0.5K. Class of protection IP30. Contact Load rating: 8 A-250VAC. On/Off function. Easy connection via two wires.

According to 2006/95/CE - 2004/108/CE.

Type	Part no.WII	Part no. WID	Power supply
BELUX Digital	185000	10013373	230 VAC

BELUX EFH-AP

Electronic room thermostat, adjustment range 5 - 30 °C, differential gap 0,5 K, output 15 A-230 V, protection class IP 30, ON/OFF switch, connection of external sensor possible.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WID	Power supply
BELUX EFH-AP	10013371	230 VAC

WIRED ROOM EFHT THERMOSTATS FOR ELECTRIC FLOOR HEATING

EFHT-BASIC

Flush mounting thermostat designed for electrical floor heating. Also suitable for water floor heating systems. Adjustment range 5 - 35 °C in steps of 0,5 K. Output 250 VAC / 10 A, protection class IP 21, ON/OFF switch, LED-Indicator. External sensor 10 K, 3 m cable. Pilot wire input for reduced temperature (4 K). Front frame round and square type fits to installation system ELKO RS/B&J JUSSI and ELJO TREND.

According to 2006/95/CE - 2004/108/CE.

Type	Part no.WII	Part no. WID	Power supply
EFHT-BASIC	-	10013393	230 VAC

EFHT-LCD

Flush mounting thermostat with LCD display with back-light. Specially designed for electrical floor heating. Also suitable for water floor heating systems. Adjustment range 5 - 37 °C in steps of 0,5 K. Output 250 VAC / 10 A, protection class IP 21, ON/OFF switch, LED-Indicator. External sensor 10 K, 3 m cable. Pilot wire input for reduced temperature (4 K). Front frame round and square type fits to installation system ELKO RS/B&J JUSSI and ELJO TREND.

According to 2006/95/CE - 2004/108/CE.

Type	Part no.WII	Part no. WID	Power supply
EFHT-LCD	-	10013391	230 VAC
EFHT-LCD (Weekly)	-	10013392	230 VAC

THERMOSTATS FOR FAN-COILS
FAN OPEN


Mechanical thermostat for fan-coils. ON/OFF switch (excludes thermostat). 3-position switch for setting fan speed. Temperature locking device at back of knob. Class of protection IP30. Setting range: 5 - 30°C. Temperature differential: 0.6°C. Contact load rating: 6 (2) A/250V.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
FAN OPEN	0407605	10013536	230V

FAN COMFORT2T


Electronic thermostat for fan-coils. ON/OFF switch (excludes thermostat). 3-position switch for setting fan speed. Summer/Winter switch. Setting range: 5 - 35°C. Class of protection IP30. Temperature differential: 0.6°C. Temperature locking device at back of knob. Contact power rating: 6 (2) A/250V. 1 output for control of one valve.

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
FAN COMFORT2T	P2374	10013532	230V

FAN COMFORT4T


Electronic thermostat for fan-coils 4-pipe type. ON/OFF switch (excludes thermostat). 3-position switch for setting fan speed. Summer/Winter switch. Setting range: 5 - 30°C. Temperature differential: 0.2°C. Contact power rating: 6 (2) A/250V. Class of protection IP30. Dead zone adjustment from 1°C to 10°C. 2 independent outputs for control of valve governing hot/cold. Connection for external probe. Led's : Red = hot - Green = cold

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply
FANCOMFORT4T	0407614	10013533	230V

RADIO WFHT THERMOSTATS

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WFHT-RF BASIC (EX WFHT1-RF)

Electronic room thermostat with RF control.
 Temperature setting range: 5 - 30 °C. Temperature differential 0,3 K.
 Mode selection: Comfort, Reduced (set-point - 4K). LED indication.
 Supply: 2 lithium batteries, autonomy 2 years.
 Frequency 868MHz. Distance 100m with free range of action.
 Class of protection IP 30.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power supply
WFHT1-RF	-	10021131	2 batteries

WFHT-LCD-RF

Electronic room RF-thermostat with LCD display for radiant panel heating and cooling systems.
 Setting range: 5 - 37 °C.
 Mode selection: Comfort, Reduced. PWM or differential: 0.3 K.
 Power supply: 2 lithium batteries, life 2 years.
 Frequency 868 MHz. Range of action: in open field: 100 m, in close field 30m.
 Class of protection: IP30. Option: external (floor) sensor.

3 control modes :

- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal sensor and floor temperature limitation by external sensor (5 - 37 °C).

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power supply
WFHT-LCD-RF	-	10021133	2 batteries

MILUX-RF

Electronic programmable room RF-thermostat with LCD display for heating and cooling systems.
 Temperature setting range: 5 - 35 °C.
 Mode selection: Comfort, Reduced, Anti-freeze (0,5 - 10 °C), Auto.
 Special functions: Reset, Key Lock, Holiday
 9 preset and 4 customizable programs available with optional **ITCS function** (Intelligent Temperature Control System).
 3 batteries with 1,5 V (AA), batteries weak display, protection class IP 30.
 Frequency 868 MHz. Range of action: in open field: 100 m, in close field 30 m.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power Supply
MILUX-RF	-	10013388	3 batteries AA

EHRFR 001

One zone receiver for WFHT/MILUX RF-Thermostats.
 Using one RF-Thermostat as transmitter, multiple receivers can be operated.
 Switch for automatic/manual mode and radio configuration.
 Frequency 868 MHz. Output 12 A, protection class IP 44. Compatible with NC actuators only.
 Distance 100 m with free range of action.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power Supply
EHRFR 001	-	10013390	230 VAC

RADIO WFHT THERMOSTATS

WFHC-RF MASTER (PACK-RF)



Radio frequency connection module for WFHT-RF thermostats with LCD display and external antenna 1.5m. Pump relay (2 outputs, each 8 A). Compatible to both normally open (N.O.) or normally closed (N.C.) actuators.

Modes selection: Comfort, Reduced, Auto, Holiday

9 integrated standard programs and 12 variable user programs.

ITCS (Intelligent Temperature Control System), reset function.

Bicoloured LEDs facilitate radio configuration and programming. 3 hours power reserve, non-volatile program memory. Protection class IP 30

Antenna, reception in open field up to 100 metres, frequency 868 MHz.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Zones	Power supply
WFHC.RF	-	10021139	4 ZONES	230 VAC
WFHC.RF	-	10021137	4 ZONES	24 VAC
WFHC.RF	-	10021143	6 ZONES	230 VAC
WFHC.RF	-	10021141	6 ZONES	24 VAC

WFHC-RF EXT (SLAVE)



Extension module 4 and 6 zones with plug-in connector for coupling to PACK-RF unit.

Operating temperature 0 - 50 °C, IP 30, for normally open (NO) or normally closed (NC) actuators. Operation only when used with RF-Connecting box.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Zones	Power Supply
WFHC-RF EXT	-	10021134	4 ZONES	24/230 VAC
WFHC-RF EXT	-	10021135	6 ZONES	24/230 VAC

HIGHLIGHTS

CHRONO THERMOSTAT
Serie MILUX-RF



THERMOSTAT
Serie WFHT-LCD



THERMOSTAT
Serie VFHT1-RF



WFHC-TIMER



Actuators 26LC



Integrated control system for radiant panel heating systems with wireless controls

Up to 12 zones, 12 thermostats and 24 actuators.

CLIMATIC CONTROL

CLIMATIC CONTROL



Climatic Control is developed for variable flow temperature control in heating (CC-H) and heating/cooling (CC-HC) systems particular in low-temperature installations like floor heating and cooling systems. The flow temperature is controlled depending of the outside temperature following a curve. Complete with controller Climatic Control, wired outside temperature sensor (CTN 10 KOhm at 25 °C), water temperature supply sensor (CTN 10 KOhm at 25 °C). Flow temperature control range: 0 -100°C. Operating temperature: 0 - 50°C. Modes selection: Comfort, Reduced, Auto. 9 factory and 4 customized weekly programs. Special functions: Automatic key lock, Reset, Screed preheating and dehydration function. Relay output 250V, 5 A for pump, (2 triacs, max. 75 W) for 3-point actuator, 2 volt-free outputs for boiler or chiller (CC-HC). Inputs: outside temperature sensor, water temperature supply sensor, water temperature return sensor (option). Power supply: 230V, 50Hz. Protection: IP30.

Type	Part no. WII	Part no. WID	Power supply	Description
CC-H	P03654/03	10021170	230 VAC	Heating
CC-HC	P04013/03	10021172	230 VAC	Heating & Cooling



WSENS

Water temperature sensor (supply or return) CTN10 kOhms. Working temperature -20÷100 °C. Connection 1/8" M.

Type	Part no. WII	Part no. WID
WSENS	P04371	10021547



MILUX-HY

Radio frequency room chrono-thermo-hygrostat with week programming for heating cooling systems. **9 preset and 12 customizable programs available.**

LCD display visualizing room temperature and humidity or hour. White body with frontal panel removable to change batteries. Radio frequency 433 MHz.

Complete of 3 alkaline batteries 1,5V AA (LR6). Autonomy 2 years

Temperature setting range 5÷37 °C. two temperature levels: comfort and night (energy saving) automatic or manual operation. Anti-freeze (0,5÷10 °C).

Special functions:

- max. desired humidity settable
- Locking of the keys to prevent accidental modification of the parameters.
- Temporary suspension of the operation during periods of absence like holidays.

To be used with climatic control series RCL-H and RCL-HC.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID
MILUX-HY	P04367	10021274

OTS-RF



Wireless outside temperature sensor for climatic control series RCL-H and RCL-HC.

Working temperature -10÷55 °C. Electric protection IP45.

Power supply: 2 alkaline batteries 1,5V AAA (LR03) – autonomy 5 years.

One sensor can be used with several climatic controls.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

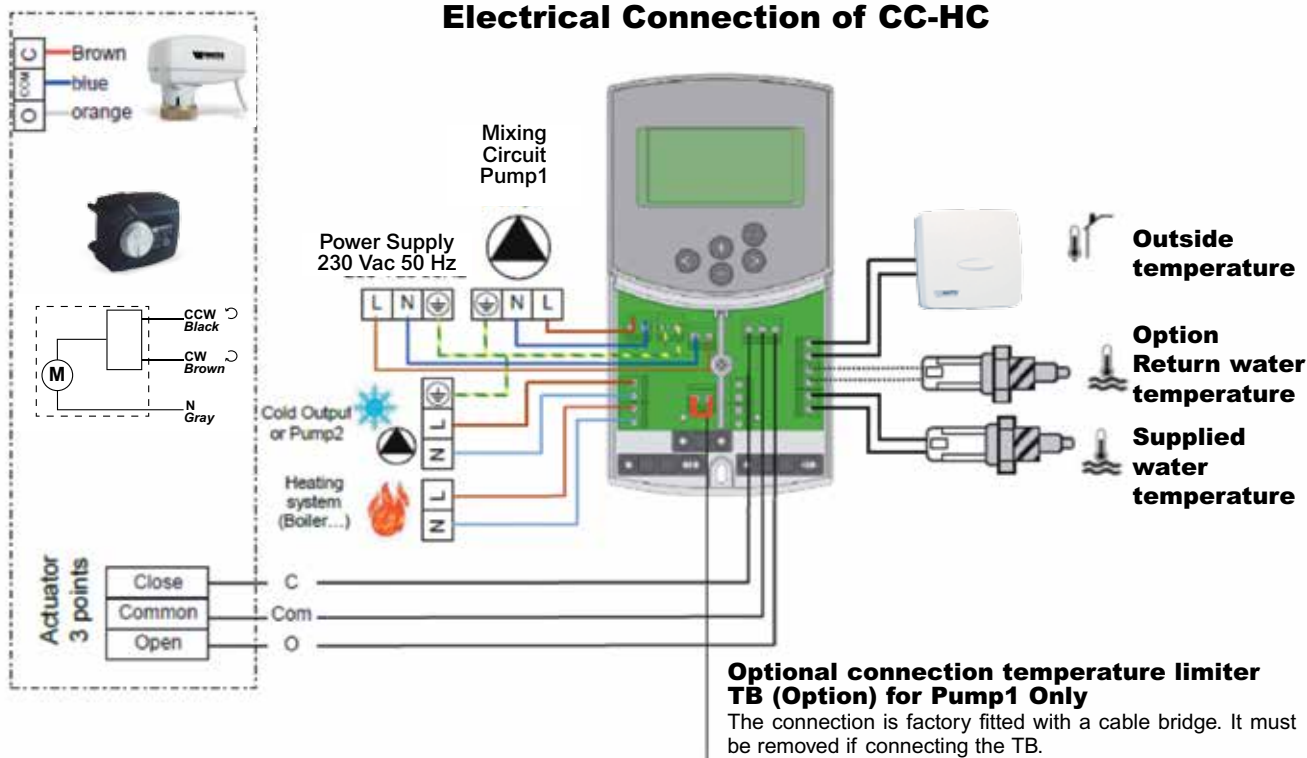
Type	Part no. WII	Part no. WID
OTS-RF	P04644	10027169

CLIMATIC CONTROL

**AN433**

Antenna for climatic control series CC-H and CC-HC for receiving 433 MHz signals. It allows the climatic controls to connect the chrono-thermo- hygrostats MILUX-HY, the outside temperature sensor OS-RF and the others RF thermostats 433 MHz. Cable length 3m. Dimensions 2x39x1,5 cm with adhesive base.

Type	Part no. WII	Part no. WID
AN433	P04510	10021537

TECHNICAL NOTE**Electrical Connection of CC-HC****Delivery scope: wired temperature sensor**

Option: wireless outside temperature sensor **OS-RF** can communicate with several Climatic Control units with connected antennas **AN433**.



WATTS®Vision SMART HOME SYSTEM

WATTS®Vision smart home system allows a user friendly and intuitive operation and management of multi-zone systems, temperature settings and time schedules and can control up to 50 zones (heating, lighting, plugs).

Multi device controls is available for a wide range of applications : Electrical Floor Heating Control, Electrical Panel Heater Control, Electrical light and plug control, Energy Metering for electrical devices, Heating and Hydraulic Control for boilers, electronic thermostatic heads and underfloor heating. **WATTS®Vision** offers a wide product portfolio consisting of analogue and digital room thermostats, wall mounted receivers, flush mounted receivers and plug receivers, electronic thermostatic heads, master device for hydraulic underfloor heating.

The parameter adjustment will be synchronised automatically on all connected devices, including the central unit, thermostats, electronic thermostatic heads, Apps and web page portal.

**BT-CT02-RF**

The central unit is equipped with a colour touch screen of 4.3" in a choice of languages, and can control up to 50 Zones:

50 heating master devices (thermostats) and 50 heating slave devices (receivers).

25 plugs with weekly program with 15 min steps.

50 lighting devices (ON/OFF).

Individual time programming for each room. Bidirectional communication. RF frequency 868MHz. External access via Internet, WiFi integrated in the touch central.

Power Supply 230V/50Hz or USB (cable optional).

Micro SD card slot for software update.

Type	Part no. WII	Part no. WID	Description
BT-CT02-RF WIFI	P06080	10036869	With integrated WIFI
BT-CT02-RF	P06079	10036868	

TECHNICAL NOTE

WATTS®Vision SMART HOME SYSTEM

BT-A02-RF

Electronic analogical room radio thermostat 868 MHz specially designed to control different types of heating systems. Temperature setting range: 5 - 35°C. LED indication. Bidirectional communication. Proportional band. Regulation on the integrated temperature sensor: NTC. Option: possibility to regulate on external sensor (NTC 10K, 10013372). Class of protection: IP30.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WID	Power supply
BT-A02-RF	10036867	2 AAA LR03 1.5V batteries


BT-D02-RF

Electronic room RF thermostat with LCD-display specially designed to control different types of heating systems. Radio frequency 868 MHz. Bidirectional communication. Temperature setting range: 5 - 37 °C. Working mode: Comfort, Reduced, Antifreeze, Timer. Display with back-light. Special functions: keyboard lock function, open window function. Temperature differential 0.5 K or proportional band (PWM). Regulation on the integrated temperature sensor: NTC. Option: possibility to regulate on external sensor (NTC 10K, 10013372). Class of protection: IP30.

3 control modes :

- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal sensor and floor temperature limitation by external sensor.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power supply
BT-D02-RF	P04879	10036870	2 AAA LR03 1.5V batteries


BT-DP02-RF

Programmable electronic room RF thermostat with LCD-display specially designed to control different types of heating systems. Radio frequency 868 MHz. Bidirectional communication. Temperature setting range: 5 - 37 °C. Working mode: Comfort, Reduced, Auto, Antifreeze, Timer, Holiday. 9 preset and 4 customizable programs available.

Display with back-light. Special functions: keyboard lock function, open window function.

Temperature differential 0.5 K or proportional band (PWM). Regulation on the integrated temperature sensor: NTC. Option: possibility to regulate on external sensor (NTC 10K, 10013372).

Class of protection: IP30.

3 control modes :

- 1) via internal sensor.
- 2) via external sensor (floor sensor).
- 3) via internal sensor and floor temperature limitation by external sensor.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power supply
BT-DP02-RF	P04880	10036878	2 AAA LR03 1.5V batteries


BT-WR02-RF

Receiver for all BT-xx02-RF thermostats. Using one RF-Thermostat as transmitter, multiple receivers can be operated. Switch for automatic/manual mode and radio configuration. Output 10 A, protection class IP20. RF 868MHz.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Power supply	Description
BT-WR02-RF	P04891	10036926	230 VAC	Live contact

WATTS®Vision SMART HOME SYSTEM

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**BT-M6Z02-RF**

Radio frequency connection box, 868 MHz. Basic unit for 6 zones. Compatible with BT-xx02-RF thermostats. Bidirectional communication. Compatible to both NO and NC actuators (internal switch).

LED for indication of zones status, power supply and pump activity.

Special functions: Pump delay, Valves exercise, Reset.

Outputs for pump and boiler: 5A, 250VAC (live contact), 5A, 230VAC (free contact).

According to R&TTE 1999/5/EC-LVD 2006/95/EC- EMC 2004/108/EC-RoHS 2011/65/EU.

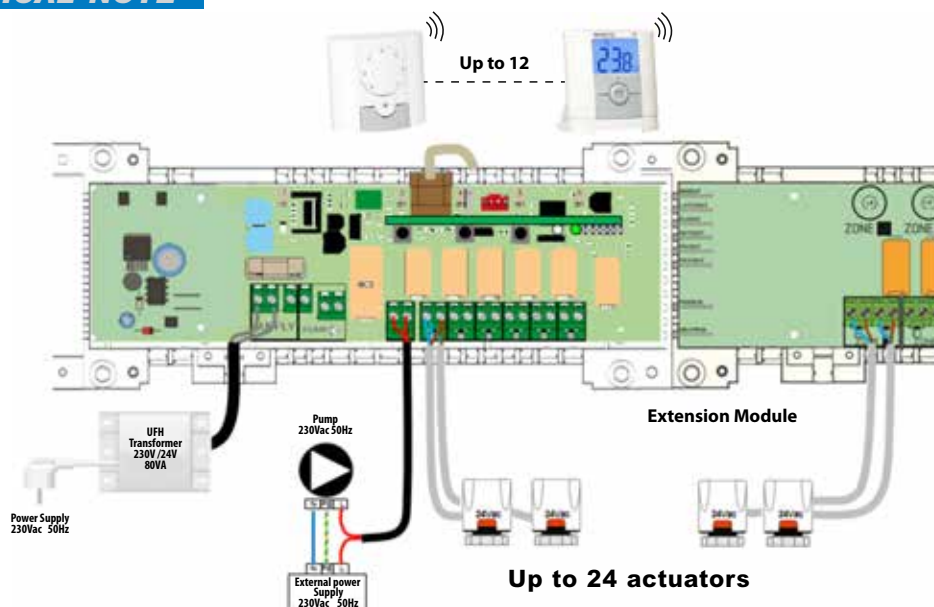
Type	Part no. WII	Part no. WID	Zones	Power Supply
BT-M6Z02-RF	P06680	10036894	6 Zones	230 VAC, 50Hz
BT-M6Z02-RF	P06434	10036893	6 Zones	24 VAC, 50Hz

**BT-S4Z02-RF and BT-S6Z02-RF**

Extension module 4 and 6 zones with plug-in connector for coupling to BT-M6Z02-RF.

According to 2006/95/CE - 2004/108/CE - 1999/5/CE.

Type	Part no. WII	Part no. WID	Zones	Power Supply
BT-S4Z02-RF	P06680	10036915	4 Zones	24/230VAC
BT-S6Z02-RF	P06679	10036917	6 Zones	24/230VAC

TECHNICAL NOTE**Operation as an independant UFH control system**

BT-DP02-RF

BT-M67Z02-RF



BT-A02-RF

Operation in connection with the central unit BT-CT02-RF

BT-DP02-RF

BT-M67Z02-RF



BT-A02-RF



WATTS®Vision SMART HOME SYSTEM

**BT-TH02-RF**

Digital programmable radio thermostatic head with LCD display. Possible application: electronic thermostatic head as a stand-alone device (for more information refer to page 14) or as a part of **WATTS®Vision** System in connection with other BT-02XX-RF products (see Technical Note below). Valve adaption: M30 x 1.5, M28 x 1.5, Watts TRV. Actuator force 70N. Setting temperature range: 5 °C to 30°C by 0,5 °C step. Working modes: Comfort, Reduced, Antifreeze, Automatic, Timer, 9 factory and 4 customized weekly programs. Power Supply 2 AA 1.5V Alkaline. Protection: class I, IP20.

Type	Part no. WII	Part no. WID	Power Supply
BT-TH02-RF	P06086	10036919	2 AA LR03 1.5V batteries

TECHNICAL NOTE**BT-TH02-RF possible combinations****Combination 1: Stand Alone****Combination 2: BT-TH02-RF + BT-CT02-RF****Combination 3: BT-TH02-RF (up to 49 units) + BT-XX02-RF + BT-CT02-RF**

①
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⑤
Sequence of pairing

BT-xx02-RF serves as an external sensor and a setting device.
All BT-TH02-RF assigned to the same room have the same settings and work synchronically.

**BT-FR02-RF**

Radio Frequency flush receiver, 868MHz, to control electrical floor heating and other electrical heating devices. LIVE contact. Relay up to 16A - 250Vac 50Hz. Possibility to connect a floor sensor directly to the unit (for regulation or floor temperature limitation). Only in combination with other **WATTS®Vision** products.

According to R&TTE 1999/5/EC - LVD 2006/95/EC - EMC 2004/108/EC - RoHS 2011/65/EU.

Type	Part no. WII	Part no. WID	Power Supply
BT-FR02-RF	P06675	10036881	230 VAC

TECHNICAL NOTE**BT-FR02-RF possible combinations****Combination 1: BT-FR02-RF + BT-xx02-RF**

BT-xx02-RF serves as an external sensor and a setting device

Combination 2: BT-FR02-RF + BT-CT02-RF

BT-FR02-RF operates as a heating device. Floor sensor (10013372) is necessary in this combination.

Combination 3: BT-FR02-RF + BT-CT02-RF

BT-FR02-RF is paired as a plug or a lighting device. ON/OFF operation.

Combination 4: BT-FR02-RF (up to 49 units) + BT-xx02-RF + BT-CT02-RF

①
②
③
④
⑤
Sequence of pairing

WATTS®Vision SMART HOME SYSTEM

**BT-PR02-RF**

Radio frequency plug receiver, 868 MHz to control electrical heating devices in combination with BT-xx02-RF room thermostats. As ON /OFF switch for lighting and electrical appliances. Timer function in combination with the Central Touch unit BT-CT02-RF.

Type	Part no. WII	Part no. WID	Power Supply
BT-PR02-RF	P06676	10036895	230 VAC

TECHNICAL NOTE**BT-PR02-RF possible combinations**

Combination 1: BT-PR02-RF + BT-xx02-RF
Heating device control



Combination 2 : BT-PR02-RF + BT-CT02-RF
Control of lighting devices or ON/OFF



Combination 3: BT-PR02-RF (up to 49 units)+ BT-XX02-RF + BT-CT02-RF
Heating device control

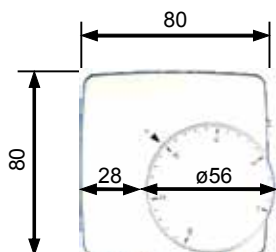
**ACCESSORIES****SENSOR 10K**

External sensor / floor sensor. Sensor class II to be used with all our BT, BT-RF, WFHT and EFHT thermostats for floor regulation or floor limitation. R25 : 10 K.

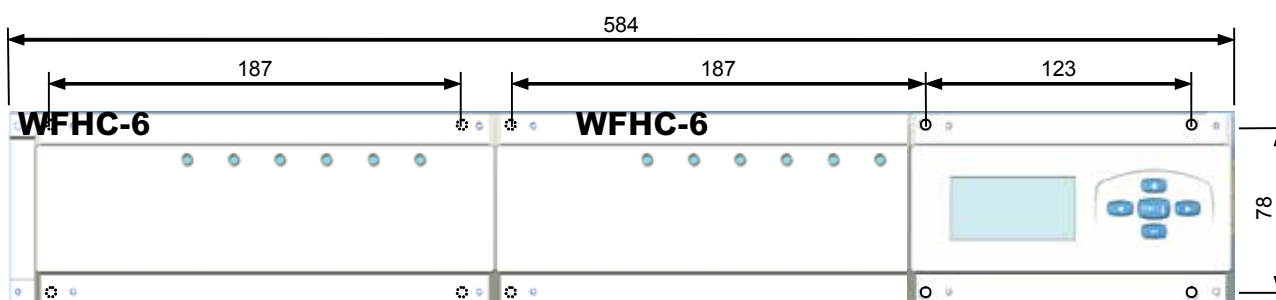
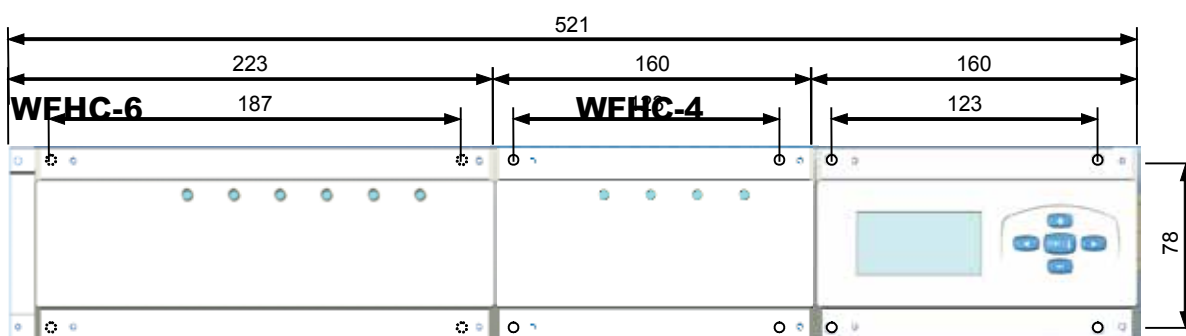
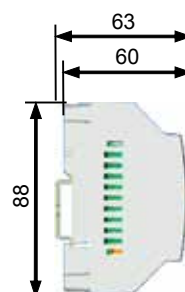
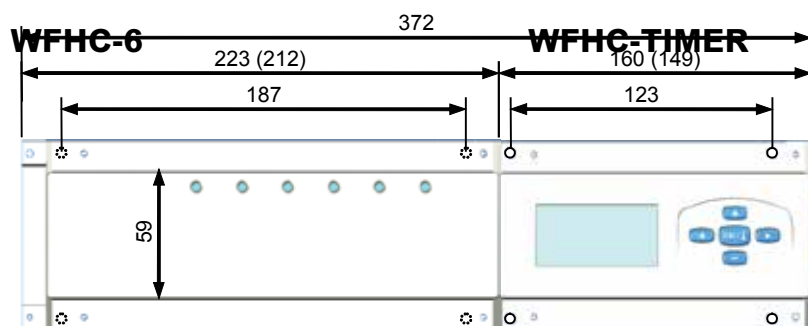
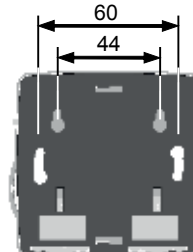
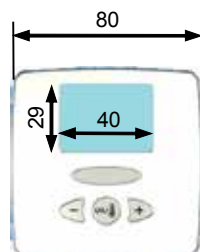
Type	Part no. WII	Part no. WID
SENSOR 10K	0403403	10013372

OVERALL DIMENSIONS

**WFHT-BASIC
WFHT-BASIC-RF**

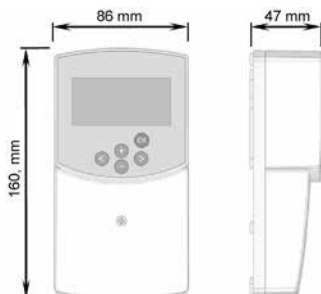


**WFHT-LCD
WFHT-LCD-RF**

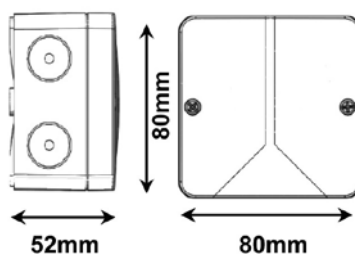


OVERALL DIMENSIONS

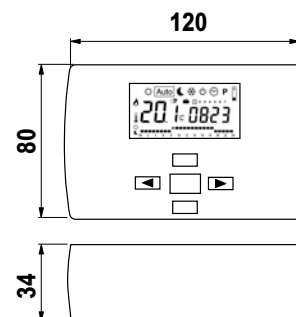
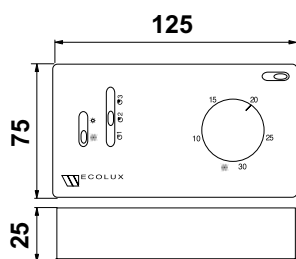
CLIMATIC CONTROL



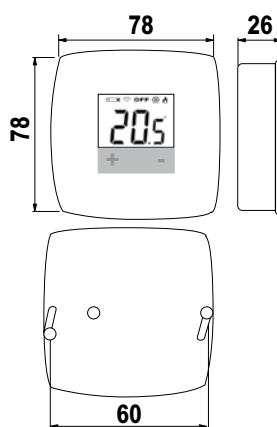
OS-RF



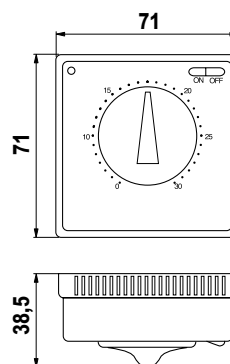
MILUX/MILUX-RF

FAN OPEN
FAN COMFORT 2T
FAN COMFORT 4T

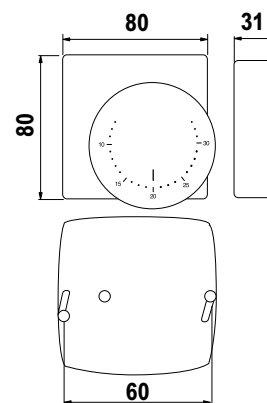
BELUX Digital



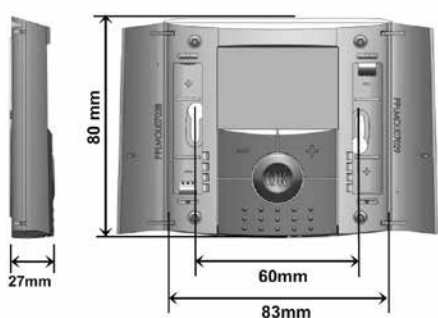
BELUXTI



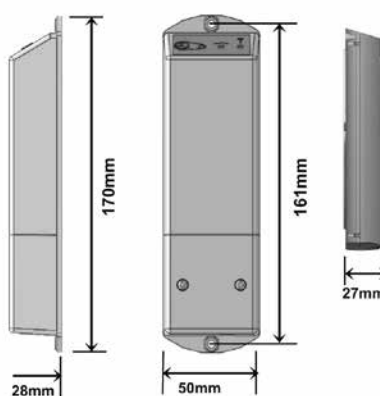
WFHT/1/2/3/LCD/RF



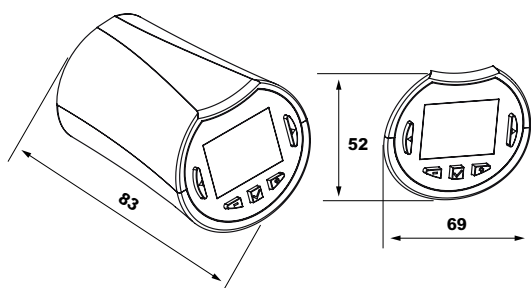
BTD / BTDP



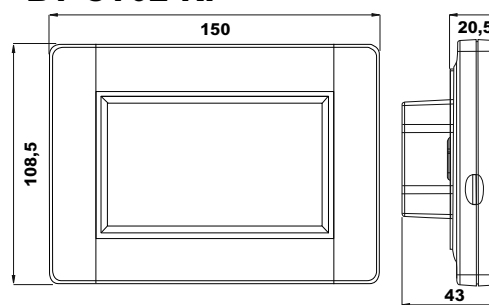
BT-D02-RF / BT-DP02-RF



BT-TH02-RF



BT-CT02-RF

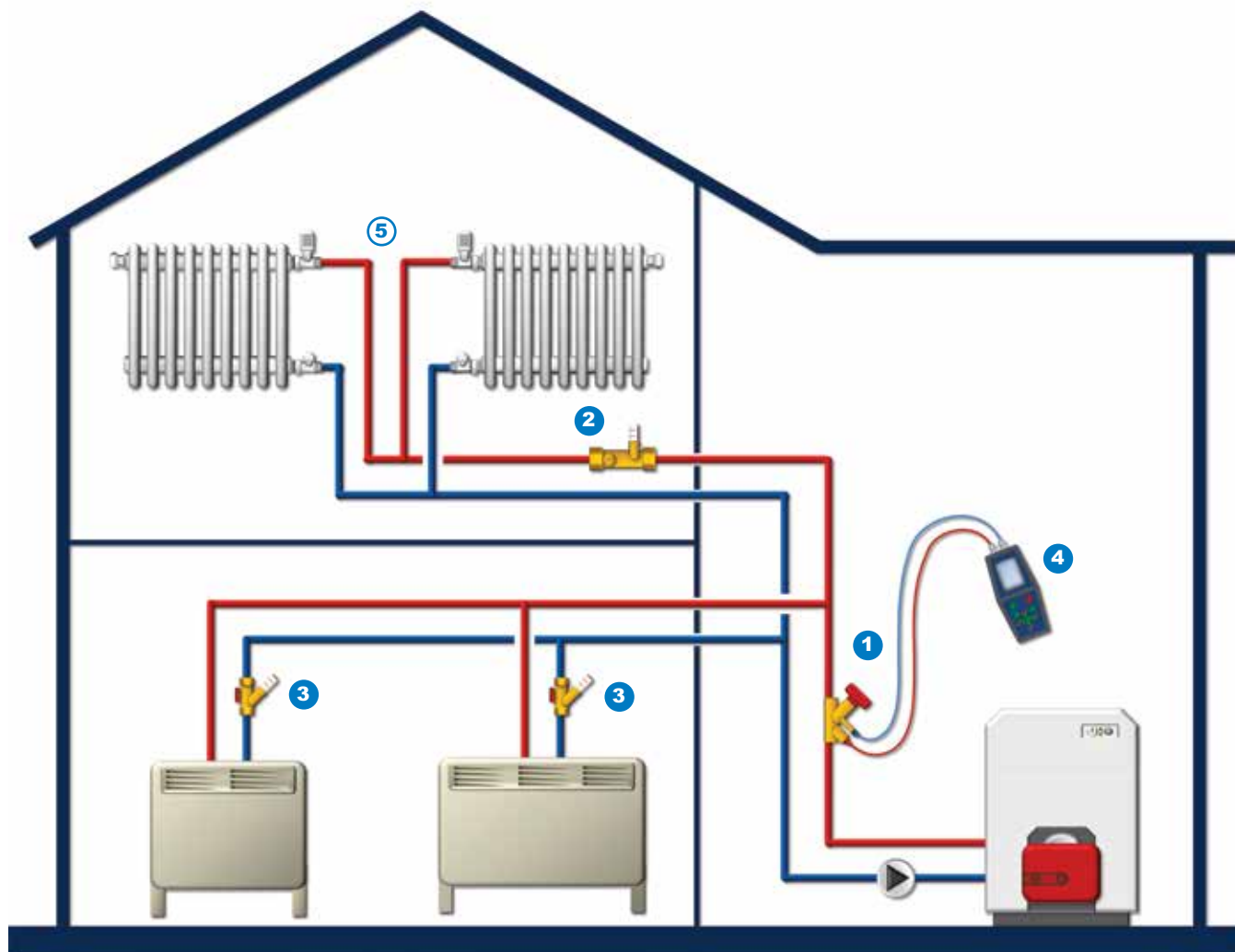


Balancing devices for water distribution network



Balancing valves	pag. 89
Overall Dimensions	pag. 92

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter



Balancing valve FO-VB

FO-BV
pag. 90



Balancing valve
WattFlow BP

SRV-IG
pag. 89



Balancing valve
WattFlow OL

SRVOL-AG
pag. 90



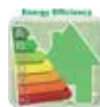
Balancing and metering
instrument

BVT-SET
pag. 91



Radiator valves
for heat elements

Chapter A
pag. 5

BALANCING VALVES
SRV-AG (WATTFLOW BP)


Balancing valve WattFlow BP.

Precise adjustment of the flow rate through Y-valve. Indication of the actual flow value on the integrated flow meter with rotatable indicator scale. The sight glass of the flow indicator is not installed directly in the medium flow and is therefore protected against soiling. No diagrams and measurement computers necessary. No correction factors for water/glycol mixtures required. Any installation position. Short installation length. Brass body, sight glass made of impact resistant plastic. Spring made of stainless steel. Seals made of EPDM.

Max. operating temperature 100 °C at max. operating pressure 10 bar (or 120 °C at 6 bar).

Type	Part no. WID	Size	Flow rate	Kvs
SRV-AG	10010138	DN 15, 1"	2-16 l/min	3.0
SRV-AG	10010140	DN 20, 1"	4-36 l/min	3.5
SRV-AG	10010152	DN 25, 1.1/4"	5-50 l/min	5.5
SRV-AG	10010154	DN 32, 1.1/2"	10-80 l/min	9.0

SRV-IG (WATTFLOW BP)


Balancing valve WattFlow BP with **Memostop to fix pre-settings through double spindle**.

Precise adjustment of the flow rate through Y-valve. Indication of the actual flow value on the integrated flow meter with rotatable indicator scale. The sight glass of the flow indicator is not installed directly in the medium flow and is therefore protected against soiling. No diagrams and measurement computers necessary. No correction factors for water/glycol mixtures required. Any installation position. Short installation length. Brass body, sight glass made of impact resistant plastic. Spring made of stainless steel. Seals made of EPDM.

Max. operating temperature 100 °C at max. operating pressure 10 bar (or 120 °C at 6 bar).

Type	Part no. WID	Size	Flow rate	Kvs
SRV-IG	10010156	DN 25, 1" F	5-50 l/min	5.5
SRV-IG	10010159	DN 32, 1.1/4"	10-80 l/min	9.0
SRV-IG	10010160	DN 40, 1.1/2"	15-120 l/min	13.0
SRV-IG	10010162	DN 50, 2"	20-200 l/min	18.0

SRV-KVSR (WATTFLOW BP)


Balancing valve WattFlow BP. **Body with double-sided compression fitting.**

Precise adjustment of the flow rate through Y-valve. Indication of the actual flow value on the integrated flow meter with rotatable indicator scale. The sight glass of the flow indicator is not installed directly in the medium flow and is therefore protected against soiling. No diagrams and measurement computers necessary. No correction factors for water/glycol mixtures required. Any installation position. Short installation length. Brass body, sight glass made of impact resistant plastic. Spring made of stainless steel. Seals made of EPDM.

Max. operating temperature 100 °C at max. operating pressure 10 bar (or 120 °C at 6 bar).

Type	Part no. WID	Size	Flow rate	Kvs
SRV-KVSR	10010142	DN 15, 15 mm	0.5-7 l/min	1.3
SRV-KVSR	10010143	DN 15, 15 mm	2-16 l/min	3.0
SRV-KVSR	10010145	DN 20, 15 mm	4-36 l/min	3.5
SRV-KVSR	10010146	DN 15, 22 mm	0.5-7 l/min	1.3
SRV-KVSR	10010148	DN 15, 22 mm	2-16 l/min	3.0
SRV-KVSR	10010150	DN 20, 22 mm	4-36 l/min	3.5
SRV-KVSR	10010131	DN 15, 15/22 mm	0.5-7 l/min	1.3
SRV-KVSR	10010133	DN 15, 15/22 mm	2-16 l/min	3.0
SRV-KVSR	10010135	DN 20, 15/22 mm	4-36 l/min	3.5

INBUS 6X8


Dual wrench allen key 6 x 8.

To shut-off and adjust WattFlow BP balancing valves with MemoStop.

Type	Part no. WID
INBUS 6 X 8	10013474

BALANCING VALVES

SRVOL-AG / SRVOL-IG (WATTFLOW OL)



Balancing valve WattFlow OL **with double-sided female/male thread.**

Precise adjustment of the flow rate through Y-valve. Indication of the actual flow value on the integrated flow meter, which is not installed directly in the medium flow and is therefore protected against soiling. No diagrams and measurement computers necessary.

Any installation position. Short installation length. Brass body, sight glass made of impact resistant plastic. Spring made of stainless steel. Gaskets made of EPDM.

Max. operating temperature 100 °C at an max. operating pressure of 6 bar (or 70°C at 10 bar).

Type	Part no. WID	Size	Flow rate	Kvs
SRVOL-AG	10010098	DN15, 3/4" M	1-8 l/min	1.7
SRVOL-IG	10010101	DN15, 1/2" F	1-8 l/min	1.7
SRVOL-AG	10010106	DN20, 1" M	2-16 l/min	2.0
SRVOL-IG	10010108	DN20, 3/4" F	2-16 l/min	2.0

SRVOL-KSVR (WATTFLOW OL)



Balancing valve WattFlow OL **with double-sided compression fitting.**

Precise adjustment of the flow rate through inclined seat valve. Indication of the actual flow value integrated flow meter, which is not installed directly in the medium flow and is therefore protected against soiling. No diagrams and measurement computers necessary.

Any installation position. Short installation length. Brass body, sight glass made of impact resistant plastic. Spring made of stainless steel. Gaskets made of EPDM.

Max. operating temperature 100 °C at an max. operating pressure of 6 bar (or 70°C at 10 bar).

Type	Part no. WID	Size	Flow rate	Kvs
SRV-IG	10010103	DN 20, 15 mm	1-8 l/min	1.7
SRV-IG	10010104	DN 20, 22 mm	1-8 l/min	1.7
SRV-IG	10010110	DN 20, 15 mm	2-16 l/min	2.0
SRV-IG	10010112	DN 20, 22 mm	2-16 l/min	2.0

FO-BV



Fixed orifice balancing valve with threaded connections and pressure sockets for heating and cooling (water added with glycol, brine) systems, domestic hot and cold water distribution systems. Suitable for shut-off, pre-setting and measurement of flow rate and differential pressure with balancing computer BVT-SET connected to the two piezometric sockets.

Design according to BS7350. Valve body made of DZR brass

Threaded F/F (ISO 228/1 for DN015/20, ISO 7/1 Rp above)

Tolerance on nominal Kvs $\pm 3\%$ (test according to BS7350)

Water temperature -10 °C to +130 °C (below 0 °C only for water with added antifreeze fluids over 100 °C only for water with added anti-boiling fluids)

PN25 (Max 25 bar up to 100 °C, max 20 bar at 130 °C).

Type	Part no. WII	Part no. WID	DN	Kvs	Kvs Δp	Flow rate [l/min]
FO-BV	FO-BV015	10028082	15	1,92	2,80	3,7 ÷ 8,9
FO-BV	FO-BV020	10028083	20	3,67	5,33	8,3 ÷ 19,5
FO-BV	FO-BV025	10028084	25	6,24	9,72	15,5 ÷ 36,2
FO-BV	FO-BV032	10028085	32	12,54	20,25	32,4 ÷ 75,0
FO-BV	FO-BV040	10028086	40	19,59	30,23	48,6 ÷ 112,8
FO-BV	FO-BV050	10028087	50	29,72	55,07	91,2 ÷ 210,6

Kvs = coefficient of volume flow rate of the valve

Kvs Δp = coefficient of volume flow rate to the pressure

BALANCING VALVES
VO-BV


Variable orifice balancing valve with flanged connections and pressure sockets for heating and cooling (water added with glycol, brine) systems, domestic hot and cold water distribution systems. Suitable for shut-off, pre-setting and measurement of flow rate and differential pressure with balancing computer BVT-SET connected to the two piezometric sockets.

Valve body made of cast iron.

Flanged PN16 according to EN1092-2

Tolerance on nominal Kvs $\pm 5\%$

Water temperature: $-10\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$ (below $0\text{ }^{\circ}\text{C}$ only for water with added antifreeze fluids over $100\text{ }^{\circ}\text{C}$ only for water with added anti-boiling fluids). PN16.

Type	Part no. WII	Part no. WID	DN	Flow rate	
VO-BV	VO-BV065	-	65	10,9 - 25,0	m ³ /h
VO-BV	VO-BV080	-	80	23,0 - 55,3	m ³ /h
VO-BV	VO-BV100	-	100	39,1 - 93,7	m ³ /h
VO-BV	VO-BV125	-	125	60,7 - 143,1	m ³ /h
VO-BV	VO-BV150	-	150	85,4 - 204,9	m ³ /h
VO-BV	VO-BV200	-	200	150,7 - 361,7	m ³ /h
VO-BV	VO-BV250	-	250	239,7 - 564,4	m ³ /h
VO-BV	VO-BV300	-	300	339,0 - 921,6	m ³ /h

BVT-SET


Balancing instrument for measuring and recording of differential pressure, and flow rate in hydronic systems.

- 2,2" LED color display.
- 1.200 predefined valves
- up to 20.000 records
- charging/communication by USB connector

Nominal pressure range: 1.000 or 2.000 kPa.

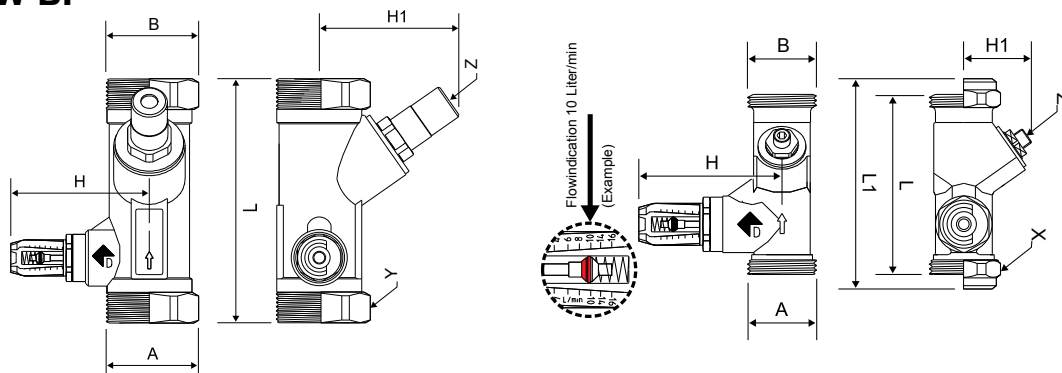
Working temperature: $-5\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$.

Liquid temperature: $-5\text{ }^{\circ}\text{C}$ to $+90\text{ }^{\circ}\text{C}$.

Type	Part no. WII	Part no. WID
BVT-SET	BVT-SET	-

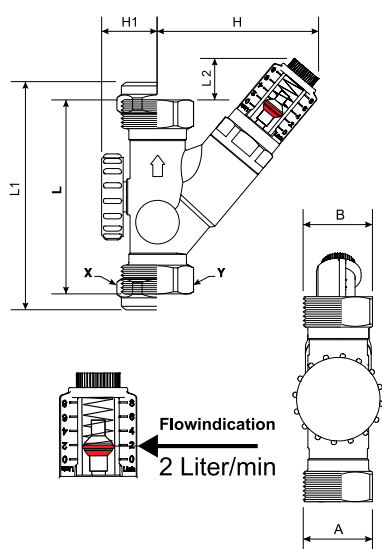
OVERALL DIMENSIONS

WATTFLOW BP



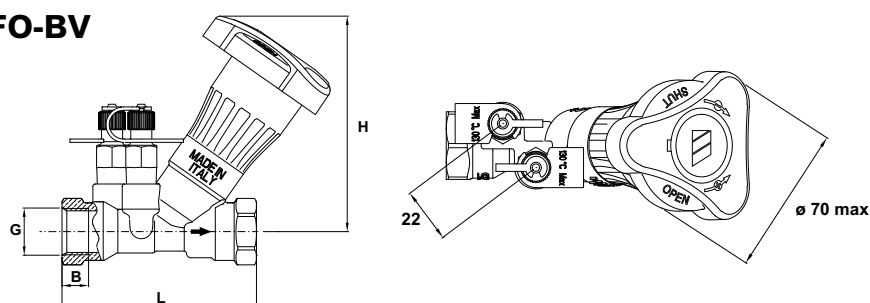
Articel-no.	Type	Dimension	A	B	L	L1	H	H1	X	Y	Z
10010138	SRV15-AG	DN 15	1" M	= A	86	---	68	37	---	---	SW 4
10010140	SRV20-AG	DN 20	1" M	= A	86	---	68	37	---	---	SW 4
10010142	SRV15-KVSR	DN 15	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010143	SRV15-KVSR	DN 15	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010145	SRV15-KVSR	DN 20	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010146	SRV15-KVSR	DN 15	22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010148	SRV15-KVSR	DN 15	22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010150	SRV20-KVSR	DN 20	22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010131	SRV15-KVSR	DN 15	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010133	SRV15-KVSR	DN 15	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010135	SRV15-KVSR	DN 20	15/22 mm	= A	86	106	68	37	SW 32	---	SW 4
10010156	SRV25-F	DN 25	1" F	= A	120	---	73	69	---	SW 43	SW 6
10010159	SRV32-F	DN 32	1.1/4" F	= A	135	---	77	77	---	SW 49	SW 6
10010160	SRV40-F	DN 40	1.1/2" F	= A	153	---	80	78	---	SW 61	SW 6
10010162	SRV50-F	DN 50	2" F	= A	176	---	85	87	---	SW 70	SW 6
10010152	SRV25-AG	DN 25	1.1/4" M	= A	120	---	73	69	---	---	SW 6
10010154	SRV32-AG	DN 32	1.1/2" M	= A	135	---	77	77	---	---	SW 6

WATTFLOW OL



Articel no.	Size	A	B	L	L1	L2	H	H1	X	Y
10010098	DN 15 3/4" M	= A	81	---	17	67	23	---	---	---
10010101	DN 15 1/2" F	= A	81	---	17	67	23	---	---	SW 27
10010103	DN 20 15 mm	= A	86	106	7	71	27	SW 32	---	---
10010104	DN 20 22 mm	= A	86	106	7	71	27	SW 32	---	---
10010106	DN 20 1" M	= A	86	---	15	71	27	---	---	---
10010108	DN 20 3/4" F	= A	86	---	15	71	27	---	---	SW 34
10010110	DN 20 15 mm	= A	86	106	5	71	27	SW 32	---	---
10010112	DN 20 22 mm	= A	86	106	5	71	27	SW 32	---	---

FO-BV

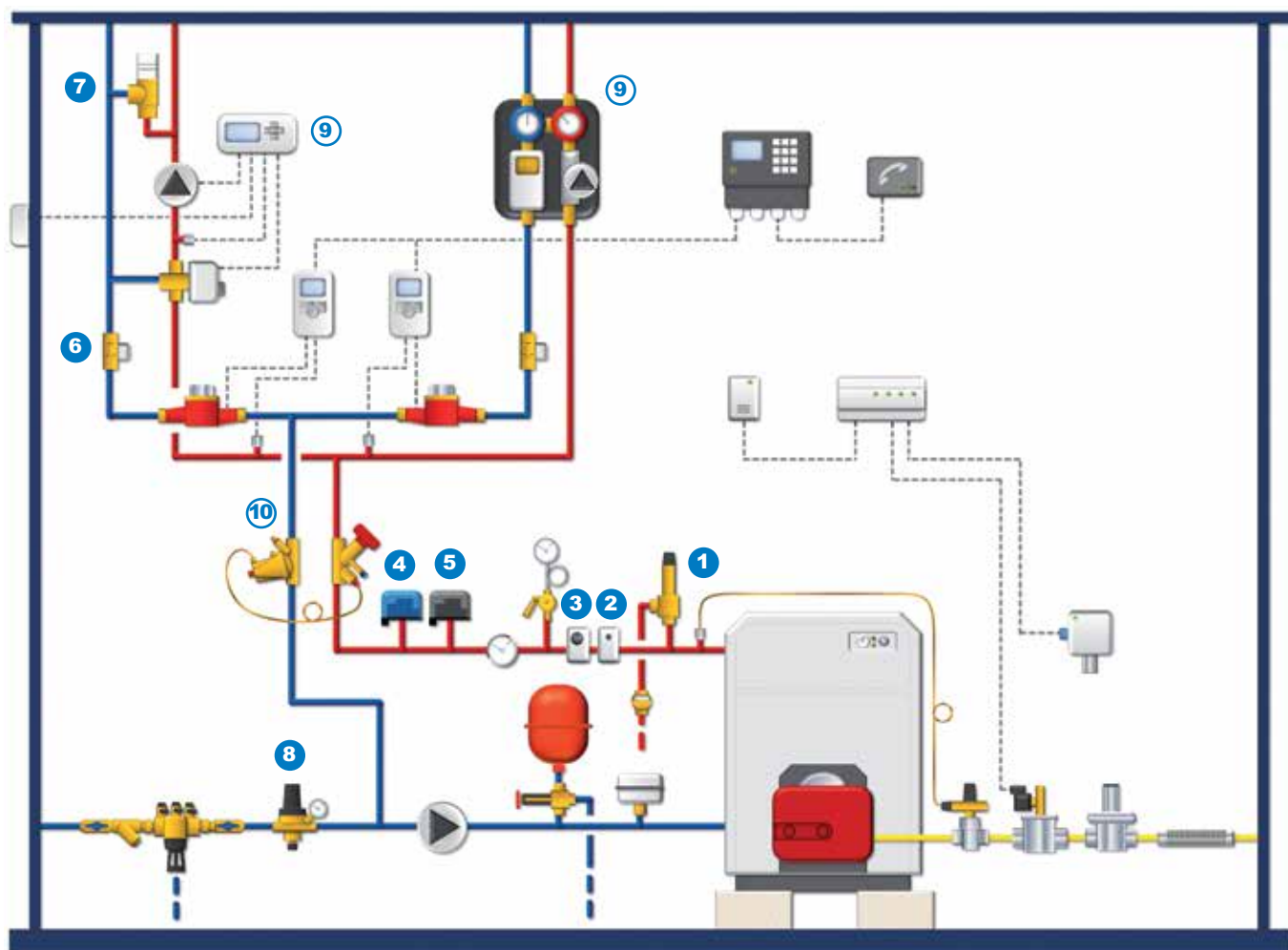


DN	G	H	L	B
15	1/2"	98	87,8	17,5
20	3/4"	98	95,9	19,0
25	1"	98	100,0	22,5
32	1.1/4"	118,3	117,5	24,8
40	1.1/2"	120,4	127,0	24,8
50	2"	130,6	145,3	29,2











F

F

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

- | | | | | |
|---|--|--|--|--|
| <p>1</p>  <p>VST
pag.95</p> <p>Safety valve</p> | <p>2</p>  <p>TC
pag. 105</p> <p>Immersion thermostat</p> | <p>3</p>  <p>TRB100
pag. 105</p> <p>Immersion thermostat</p> | <p>4</p>  <p>PRM
pag. 104</p> <p>Pressure switch</p> | <p>5</p>  <p>PRMIN
pag. 104</p> <p>Low pressure switch</p> |
| <p>6</p>  <p>RDF
pag. 102</p> <p>Check valve</p> | <p>7</p>  <p>296
pag. 103</p> <p>THERMATIC
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SAFETY VALVES
VST

Diaphragm safety valve, fixed setting. Body and cap of brass CW617N.

Nominal pressure : PN10. Overpressure : 10%. Blowdown : 20% Max. temperature : 120 °C.

Female connections with oversized outlet.

INAIL approved and calibrated. According to Directive PED 97/23/CE.

Identification number CE1115.



Type	Part no.WII	Part no.WID	Size	bar
VST	0212122	-	1/2" x 3/4"	2,25
VST	0212125	-	1/2" x 3/4"	2,5
VST	0212127	-	1/2" x 3/4"	2,7
VST	0212130	10004595	1/2" x 3/4"	3,0
VST	0212135	-	1/2" x 3/4"	3,5
VST	0212140	-	1/2" x 3/4"	4,0
VST	0212145	-	1/2" x 3/4"	4,5
VST	0212150	-	1/2" x 3/4"	5
VST	0212154	-	1/2" x 3/4"	5,4
VST	0212160	-	1/2" x 3/4"	6,0
VST	0213122	-	3/4" x 1"	2,25
VST	0213125	-	3/4" x 1"	2,5
VST	0213127	-	3/4" x 1"	2,7
VST	0213130	10004595	3/4" x 1"	3,0
VST	0213135	-	3/4" x 1"	3,5
VST	0213140	10004597	3/4" x 1"	4,0
VST	0213145	-	3/4" x 1"	4,5
VST	0213150	-	3/4" x 1"	5,0
VST	0213154	-	3/4" x 1"	5,4
VST	0213160	-	3/4" x 1"	6,0
VST	0214122	-	1" x 1.1/4"	2,25
VST	0214125	-	1" x 1.1/4"	2,5
VST	0214127	-	1" x 1.1/4"	2,7
VST	0214130	10004616	1" x 1.1/4"	3,0
VST	0214135	-	1" x 1.1/4"	3,5
VST	0214140	-	1" x 1.1/4"	4,0
VST	0214145	-	1" x 1.1/4"	4,5
VST	0214150	-	1" x 1.1/4"	5,0
VST	0214154	-	1" x 1.1/4"	5,4
VST	0214160	-	1" x 1.1/4"	6,0

Technical data and discharge flow rates for valves series VST

Model	Pressure of (bar)			Orifice Ø mm	Orifice Section cm²	Flow coefficient K	Potential	
	Setting	Discharge	Closing				Steam discharge Capacity Kg/h	Boiler kW
1/2"x3/4"	2,25	2,475	1,80				205,67	119,29
	2,50	2,75	2,00				221,40	128,41
	2,70	2,97	2,16				233,78	135,59
	3,00	3,30	2,40				253,74	147,17
	3,50	3,85	2,80	15	1,7671	0,71	284,07	164,76
	4,00	4,40	3,20				318,07	184,76
	4,50	4,95	3,60				344,78	199,97
	5,00	5,50	4,00				376,39	218,30
	5,40	5,94	4,32				399,70	231,24
	6,00	6,60	4,80				442,81	256,83

Model	Pressure of (bar)			Orifice Ø mm	Orifice Section cm²	Flow coefficient K	Potential	
	Setting	Discharge	Closing				Steam discharge Capacity Kg/h	Boiler kW
3/4"x1"	2,25	2,475	1,80				412,01	238,96
	2,50	2,75	2,00				443,52	257,24
	2,70	2,97	2,16				468,31	271,62
	3,00	3,30	2,40				508,30	294,81
	3,50	3,85	2,80	20	3,1416	0,80	569,04	330,04
	4,00	4,40	3,20				637,17	369,55
	4,50	4,95	3,60				690,67	400,58
	5,00	5,50	4,00				753,98	437,31
	5,40	5,94	4,32				804,25	466,50
	6,00	6,60	4,80				887,04	514,48

Model	Pressure of (bar)			Orifice Ø mm	Orifice Section cm²	Flow coefficient K	Potential	
	Setting	Discharge	Closing				Steam discharge Capacity Kg/h	Boiler kW
1"x1.1/4"	2,25	2,475	1,80				571,37	331,37
	2,50	2,75	2,00				615,03	356,71
	2,70	2,97	2,16				649,41	376,65
	3,00	3,30	2,40				704,86	408,82
	3,50	3,85	2,80	25	4,9087	0,71	789,09	457,67
	4,00	4,40	3,20				883,56	512,46
	4,50	4,95	3,60				957,75	555,49
	5,00	5,50	4,00				1045,55	606,42
	5,40	5,94	4,32				1120,24	649,79
	6,00	6,60	4,80				1230,06	713,43

SAFETY VALVES

**SVH**

Diaphragm safety valve.

Brass CW617N body. Plastic knob for discharge test.

Ni-Cr steel spring. Operating temperature: -10 - +110 °C.

Female connections with reinforced outlet.

According to Directive PED 97/23/CE. Identification number CE1115.

Models DN 15, 20, 25, 32 with setting pressure 2.5, 3.0, 4.0, 6.0, 8.0, and 10.0 bar are according to TRD721, VdT V Merkblatt Sicherheitsventil 100.

Type	Part no.WII	Part no.WID	Size	bar
SVH	0216115	10004636	1/2" X 3/4"	1.5
SVH	0216118	10004637	1/2" X 3/4"	1.8
SVH	0216120	10004708	1/2" X 3/4"	2.0
SVH	0215125	10004638	1/2" X 3/4"	2.5
SVH	0215130	10004639	1/2" X 3/4"	3.0
SVH	0217215	10004730	3/4" X 1"	1.5
SVH	0217618	10004738	3/4" X 1"	1.8
SVH	0217625	10004739	3/4" X 1"	2.5
SVH	0217630	10004740	3/4" X 1"	3.0
SVH	0218615	10004754	1" X 1.1/4"	1.5
SVH	0218618	10004755	1" X 1.1/4"	1.8
SVH	0218625	10004757	1" X 1.1/4"	2.5
SVH	0218630	10004760	1" X 1.1/4"	3.0
SVH	0218604	10004748	1" X 1.1/4"	4.0
SVH	0219615	10004772	1.1/4" X 1.1/2"	1.5
SVH	0219625	10004774	1.1/4" X 1.1/2"	2.5
SVH	0219630	10004775	1.1/4" X 1.1/2"	3.0

**SVM**

Approved diaphragm safety relief valve for closed heating installations in accordance with DIN EN 12828, with pressure gauge 1/4", 0 - 4 bar, glycol resistant up to 50 % mixing ratio.

Type	Part no.WII	Part no.WID	Size	bar
SVM	0215725	10004647	1/2"	2.5
SVM	0215730	10004648	1/2"	3.0

**MSL**

Diaphragm safety valve. Brass CW617N body. Plastic knob for discharge test.

Ni-Cr steel spring. Operating temperature : -10°C ÷ 110°C

Suitable for water with glycol up to 50%. 1/2" M/F connections.

According to Directive PED 97/23/CE. Identification number CE1115.

Type	Part no.WII	Part no.WID	Size	bar
MSL	0206115	10004383	1/2"	1.5
MSL	0206525	10004393	1/2"	2.5
MSL	0206530	10004384	1/2"	3.0
MSL	0206540	10004395	1/2"	4.0
MSL	0206150	-	1/2"	5.0
MSL	0206160	10004385	1/2"	6.0
MSL	0206170	-	1/2"	7.0
MSL	0206180	10026076	1/2"	8.0
MSL	0206190	-	1/2"	9.0
MSL	0206199	10004386	1/2"	10.0

SAFETY VALVES
MSV

Like MSL but with 1/2" female connections.



Type	Part no.WII	Part no.WID	Size	bar
MSV	0207110	10004706	1/2"	1.0
MSV	0207115	10004474	1/2"	1.5
MSV	0207525	10004476	1/2"	2,5
MSV	0207530	10004477	1/2"	3.0
MSV	0207540	10026079	1/2"	4.0
MSV	0207150	-	1/2"	5.0
MSV	0207160	10004478	1/2"	6.0
MSV	0207170	10004473	1/2"	7.0
MSV	0207180	-	1/2"	8.0
MSV	0207190	-	1/2"	9.0
MSV	0207199	10026078	1/2"	10.0

PT-684

Combined temperature, pressure and relief valve to protection tank build-up.

Nominal temperature 92 ± 3 °C.

Nominal pressure 10 bar.

Models with threaded male/female connections or male/fitting connection for copper pipes.

Body: CW617N.

Spring: stainless steel.

Diaphragm EPDM; suitable for plumbing water.

Designed for vertical and horizontal installation (only with bottom discharge).

Conforme EN 1490. According to Directive PED 97/23/CE



Type	Part no.WII	Part no.WID	Size	bar
PT-684	68403	10027171	1/2"MF	7.0
PT-684	68404	10027334	1/2"MF	10.0
PT-684	68450	10004625	3/4"MF	3.0
PT-684	68451	-	3/4"MF	4.0
PT-684	68452	10025984	3/4"MF	6.0
PT-684	68453	10027172	3/4"MF	7.0
PT-684	68455	10025985	3/4"MF	10.0

MSL/PT

Combined temperature and pressure valve to protection tank build up.

Models with threaded male/female connection or male/fitting connection for copper pipes.

Nominal temperature: 92 °C. Nominal pressure: 10 bar.

Body CW617N, stainless steel spring, diaphragm EPDM; suitable for plumbing water.

According to EN 1490



Type	Part no.WII	Part no.WID	Size	bar
MSL/PT	0206930	-	3/4"	3.0
MSL/PT	0206940	-	3/4"	4.0
MSL/PT	0206960	-	3/4"	6.0
MSL/PT	0206970	-	3/4"	7.0
MSL/PT	0206999	-	3/4"	10.0

BOILER SAFETY GROUPS

**KSG-MS**

Assembly unit for closed heating installations in accordance with DIN EN 12828 up to 50 kW. Brass body, 1" female thread connection, ready for use with automatic air vent MKV 10 R, pressure gauge MHR 63/4 - 3/8" with automatic shut-off valve, safety relief valve 3.0 bar.

Type	Part no.WII	Part no. WID
KSG-MS/VM1530/ISO	0273330	10005311

**KSG 30**

Assembly unit for closed heating installations in accordance with DIN EN 12828. Galvanized steel body, 1" female thread connection, ready for use with automatic air vent MV 10 R, pressure gauge MHR 63/4 - 3/8" with automatic shut-off valve and safety relief valve 3.0 bar.

Type	Part no.WII	Part no. WID	Description
KSG 30	0270130	10005198	SV 1/2", 50 KW

**KSG 30/ISO**

Assembly unit for closed heating installations in accordance with DIN EN 12828. Galvanized steel body, 1" female thread connection, ready for use with automatic air vent MV 10 R, pressure gauge MHR 63/4 - 3/8" with automatic shut-off valve and safety relief valve 3.0 bar. With insulation in accordance with DIN 4102-B2 (fire protection class 2), CFC-free.

Type	Part no.WII	Part no. WID	T.max	Description
KSG 30/ISO 2	0271130	10005227	60° C	SV 1/2", 50 KW
KSG 30/20M-ISO	0270136	10005204	60° C	SV 3/4", 100 KW
KSG 30/25M-ISO80	0270137	10005205	90° C	SV 1", 200 KW

**KSG 30 N**

Compact installation unit for closed heating installations in accordance with DIN EN 12828 up to 50 kW. Brass body, 1" connection. Integrated air vent and safety relief valve 3.0 bar, pressure gauge MHA 63/4 - 1/4", CFC-free insulation, fire protection class 2.

Type	Part no.WII	Part no. WID
KSG 30 N	0272030	10005232

BOILER SAFETY GROUPS

KSG 30 G

Assembly unit for closed heating installations in accordance with DIN EN 12828 up to 50 kW. 1" female thread connection, ready for use with automatic air vent MKV 10 R, pressure gauge MHR 63/4 - 3/8" with automatic shut-off valve, safety relief valve 1/2" 3.0 bar.

Type	Part no. WII	Part no. WID
KSG 30 G	0270230	10005216


KSG30G/ISO1

Similar to KSG 30/G with insulation. Fire protection class 1.

Type	Part no. WII	Part no. WID
KSG30G/ISO1	-	10005229


ISO 1

Insulation box for KSG/G and KSG. PU, CFC-free foam system. Fire protection class B1.

Type	Part no. WII	Part no. WID
ISO1	-	10005221


ISO 2

Insulation box for KSG30. PS, CFC-free foam system. Fire protection class B2.

Type	Part no. WII	Part no. WID
ISO 2	-	10005222

DRAUGHT REGULATORS

RT

AIRSTOP

Draught regulator for boilers running on non atomized fuels, with single safety (Item 0234200) or double safety (Item 0234100).
Setting range : 40 °C to 100 °C. Connection DN 3/4". Wax heat sensitive element.



Type	Part no. WII	Part no. WID	Stroke	Chain lenght
RT	0234100	10004852	60 mm	125 cm
RT	0234200	10004855	80 mm	125 cm

RT10N

Draught regulator for boilers running on non atomized fuels, with single safety.
Setting range : 30°C to 100°C. Max. water temperature 120°C.
Connection DN 3/4". Wax heat sensitive element.
Vertical and horizontal mounting.



Type	Part no. WII	Part no. WID	Stroke	Chain lenght
RT10N	0234300	10030719	60 - 80 mm	125 cm

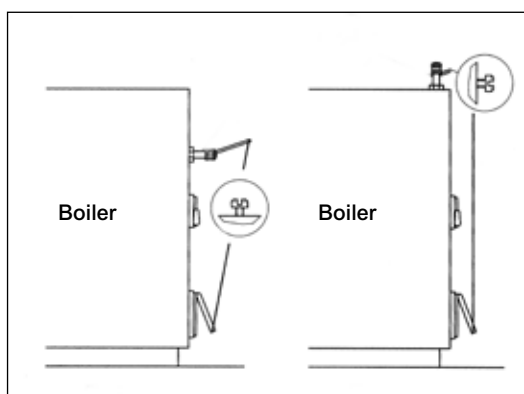
TECHNICAL NOTE



- Compact and Ergonomic design.
- Force 0,75Kg with 80mm lever, 1kg with 60mm lever.
- Easy temperature setting and reading by means of two indication windows.
- Vertical and horizontal mounting (see picture below)

Design features

Sheath	Brass
Adjustment knob + body	Reinforced plastic
Chain and lever	Tropicalized steel
Connection	UNI-ISO228/1 - G3/4" M
Sheath	3/4" x 71,0 mm
Heat sensitive element	One, with wax expansion



SAFETY DRAIN VALVES FOR SOLID FUEL BOILERS

STS

SECURFLUX

Thermal safety drain for non atomized, solid fuel boilers with double safety.
Nickel-plated brass CW617N body. Immersion probe with 145 mm sheath and 1/2" M connection.
Max. drain capacity: 6500 litres/h at 8 bar. Max. operating pressure: 10 bar.
Set temperature : 97 °C. Max. drain capacity temperature : 107 °C.

According to TÜV/SGW.

According to Directive PED 97/23/CE. Identification number CE1115.

Type	Part no.WII	Part no.WID	Connection	Capillary
STS20	0232120	10004842	3/4" F	1.300 mm
STS20/200	0232220	10004849	3/4" F	2.000 mm

STS20.S

Thermal safety drain valve for non atomized, solid fuel boilers with double safety and capillary with 360° swivel connection. Brass CW617N body.
Immersion probe with 145 mm sheath and 1/2" M connection.
Max. drain capacity: 6500 l/h at 8 bar. Max. operating pressure: 10 bar.

DK/KTS: repair kit for valves STS and STS20.S consisting of valve plug and valve plug spring.

Compliant to the Directive 97/23/EC (PED). Identification number CE1115.

According to DIN – TÜV approval.

Type	Part no.WII	Part no.WID	Connection	Temperature	Capillary
STS20.S	0232623	10027613	3/4" F	55 °C	1.300 mm
STS20.S	0232621	10027614	3/4" F	85 °C	1.300 mm
STS20.S	0232622	10027616	3/4" F	93 °C	1.300 mm
STS20.S	0232620	10027617	3/4" F	97 °C	1.300 mm
STS20.S	0232625	10027618	3/4" F	97 °C	2.000 mm
STS20.S	0232626	10027619	3/4" F	97 °C	4.000 mm
STS20.S	0232624	10027615	3/4" F	103 °C	1.300 mm
DK/STS	0299018	10005461	REPAIR KIT		

TH

Spare sheath for valves STS and STS20.S series.

Type	Part no.WII	Part no.WID	Size
TH	0299014	10005460	1/2"

AUTOMATIC FILLING VALVES

**ALIMAT (AL, ALM)**

ALIMAT.

Automatic filling valve complete with check valve, manual shut-off, stainless steel filter, vent screw. Brass CW617N body. High impact plastic cap. Pressure gauge connection 1/4" F. Max. upstream pressure: 10 bar. Adjustable downstream pressure: 0.3 to 4 bar.

Type	Part no. WII	Part no. WID	Connection	Description
AL	0240100	10004866	1/2" MF	without manometer
ALM	0240200	10025851	1/2" MF	with manometer

**ALD**

Filling unit to fill closed heating installations in combination with backflow preventer according to EN 1717. Brass body, plastic cap, with integrated check and shut-off valve, pressure gauge connection 1/4", hose nozzle, adjustment range 0,3 - 4,0 bar, connection 1/2".

Type	Part no. WII	Part no. WID	Connection	Description
ALD	0240105	10004877	1/2" MF	without manometer
ALMD	0240205	10004889	1/2" MF	with manometer

**ALOD**

Filling unit to fill closed heating installations in combination with backflow preventer according to EN 1717. Brass body and spring cap, with integrated check and shut-off valve, pressure gauge connection 1/4", hose nozzle, adjustment range 0,3 - 4,0 bar, connection 1/2".

Type	Part no. WII	Part no. WID	Connection	Description
ALOD	0240115	10004884	1/2" MF	without manometer
ALOMD	0240215	10004890	1/2" MF	with manometer

**RDF**

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

Brass CW617N body. High impact plastic knob. Max. pressure : 10 bar.

Opening pressure : 25 - 26 mbar. Operating temperature : 105°C. Max. temperature : 130°C.

Type	Part no. WII	Part no. WID	Size
RDF	0262125	10027214	1" FF
RDF	0262132	10027215	1.1/4" FF

RELIEF VALVES

466

THERMATIC.

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

Brass CW617N body and ABS cap.

Nominal pressure : PN 10. Overpressure : 10 - 15%. Max operating temperature : 110°C.

Type	Part no. WII	Part no. WID	Size	bar
466	4660C12	-	1/2" FF	0,05 - 0,7
466	4661C34	-	3/4" FF	0,05 - 0,7
466	4662C1	-	1" FF	0,05 - 0,7


USVR 16

Differential pressure overflow valve. With adjustable scale, low overall height, max. operating pressure 10 bar, max. temperature 110° C, adjustment range 0,06 - 0,36 bar, glycol resistant up to 50% mixing ratio.

Type	Part no. WII	Part no. WID	Size
USVR 16	0265216	10005171	3/4"


USVR

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

Body and cap of brass CW617N.

Adjustment : Position "0" = Fully open - Position "7" = Close to closing $\Delta p = 0.5$ bar

Plastic knob. Max operating pressure : 6 bar.

Overpressure : 10 - 15%. Max operating temperature : 110°C.

Type	Part no. WII	Part no. WID	Size	bar
USVR	0265220	10005172	3/4" FM	0,03 - 0,50
USVR	0265225	10005174	1" FM	0,03 - 0,55
USVR	0265232	10005175	1.1/4" FM	0,06 - 0,46


USVL

Differential pressure overflow valve. Adjustment range: 0,03-0,5bar. Max. operating pressure: 10bar. Max. operating temperature: 110°C.

Type	Part no. WII	Part no. WID	Size
USVL 16	265118	10005170	3/4"

TECHNICAL NOTE
Selection

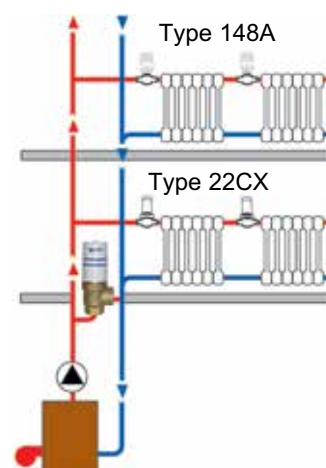
Valve selection is normally based on a by-pass flow rate equal to 25-30% of the total flow rate of the mains water to be protected and at an overpressure of 10-15% of the head expected at that point (check curve of the motor-driven pump if necessary).

To select the right model, if there are no precise data, it has to consider the TOTAL capacity of the circuit that has to be protected referring the following values:

Till 1750 l/h	DN 1/2"
3500 l/h	DN 3/4"
7000 l/h	DN 1"
Till 12000 l/h	DN 1.1/4"

Installation

Install the relief valve downstream to the pump pressure port, connecting the delivery piping to the return piping. Observe the direction of flow indicated on the valve body.



FLOW AND PRESSURE SWITCHES

**FLU25PL**

Flow switch for piping DN 1" to DN 8". Plastic body. Brass pipe fitting.
 3-contact microswitch: 10 (5) A-250V.
 Max. fluid operating pressure: 10 bar.
 Max. fluid operating temperature: 110°C.
 Max. room temperature : 60°C.
 Provided with setting screw of max. and min. pressure.

LVD 2006/95/CE.

Type	Part no. WII	Part no. WID	Size	Protection
FLU25PL	0401225	10022079	1"	IP64

**PRM**

Pressure switch with manual resetting for heating systems. Setting range: 1- 5 bar.
 Contact rating : 16A (10) -250V. Protection class : IP40.
 Max. fluid temperature : 90 °C.

INAIL approved. According to Directive PED 97/23.

Identification number CE0100. According to 2006/95/EC, 2004/108/EC.

Type	Part no. WII	Part no. WID	Size	Protection
PRM	0402101	10013335	1/4" F	3

**PRMIN**

Pressure switch with manual resetting for heating systems. Setting range: 1- 5 bar.
 Contact rating : 16A (10) -250V. Protection class : IP44. Max. fluid temperature : 110 °C.

INAIL approved. According to Directive PED 97/23.

Identification number CE0100. According to 2006/95/CE - 2004/10/CE.

Type	Part no. WII	Part no. WID	Size	bar
PRMIN	0402103	-	1/4" F	5

**WTC**

Compact contact thermostat with spring for holding on pipes up to 2".
 Setting range: 30 - 90°C. Differential temperature: 5K. Contact load rating: 16 (4) A/250V.
 Spring clip L = 230 mm

According to 2006/95/CE - 2004/108/CE.

Type	Part no. WII	Part no. WID	Power supply	Protection
WTC-ES	P04075	10013409	250V	IP30
WTC-IS	-	10013410	250V	IP30
WTC-IS	-	10025518	230V	IP40

REGULATING AND BLOCKING THERMOSTATS AND ACCESSORIES

TC

Immersion thermostat. Automatic temperature control of boilers and hot water tanks, change-over switch 16 A - 250 V, immersion sleeve 1/2" nickel-plated. Temperature range 30 - 90 °C, differential gap 6 K, protection class IP 30.

Type	Part no. WII	Part no. WID	Description
TC100/IN	-	10013479	Internal setting, immersion sleeve 100 mm
TC100/AN	0405101TU	10013482	External setting, immersion sleeve 100 mm
TC150/AN	-	10013483	External setting, immersion sleeve 150 mm
TC200/IN	-	10013484	Internal setting, immersion sleeve 200 mm
TC200/AN	-	10013485	External setting, immersion sleeve 200 mm
TS TU	0405101TU	-	Fix setting 97 °C, immersion sleeve 100 mm

TRB100

Boiler double thermostat. Temperature adjustment 30 - 90 °C, change-over switch 16 A - 250V, safety temperature limiter 100 °C, nickel-plated immersion sleeve 1/2", differential gap 6 K, protection class IP 30.

Type	Part no. WII	Part no. WID	Description
TRB100	0405301TU	10013509	Immersion sleeve 100 mm
TRB150	-	10013511	Immersion sleeve 150 mm

TRR100

Boiler double thermostat. 2 controllers, external adjustment 30 - 90 °C, internal adjustment 30 - 100 °C, immersion sleeve 1/2" nickel-plated, change-over switch 16 A - 250 V. Differential gap 6 K, IP 30.

Type	Part no. WII	Part no. WID	Description
TRR100	-	10013512	Immersion sleeve 100 mm

STB100

Safety temperature limiter. Presetting: 100 ± 6 °C. Manual reset. Immersion sleeve 1/2" nickelplated. Change-over switch 10A - 250V. IP30.

Type	Part no. WII	Part no. WID	Description
STB100	-	10013504	Immersion sleeve 100 mm

KTC100

Capillary thermostat. Installation controller 0 - 90 °C, switch 10A - 220V. Capillary tube 1500 mm, sensor Ø 6,5 x 95 mm, VDE-tested.

Type	Part no. WII	Part no. WID	Description
KTC100	-	10013544	
DK/KTC100	-	10013546	Immersion sleeve 1/2", 100 mm
ZR/KTC100	-	10013547	Revolving head 0 - 90 °C
TH/KTC100	-	10013545	Trim ring

TH/TC

Remote thermometer Installation thermometer, mounted with detents, 0 - 120°C.

Type	Part no. WII	Part no. WID	Description
TH/TC	-	10013520	100 mm
TH/TC	-	10013521	150 mm
TH/TC	-	10013522	200 mm
TH/TRB	-	10013523	100 mm
TH/TRB	-	10013524	150 mm

EXPANSIONS VESSELS AND ACCESSORIES

MAG-H

Diaphragm type expansion vessel for closed heating installations in accordance with EN12828. Max. operating pressure 8 bar. Operating temperature -10 - +110 °C. Factory pre-set pressure 1,5 bar (less than 500l), 4 bar (over 500l) Vessels 35 and 50 l are with wall mounting brackets . Beginning with 80 l with pedestal.

Type	Part no.WII	Part no.WID	Volume	Connection
MAG-H	-	10017987	8 L	3/4" M
MAG-H	-	10017988	12 L	3/4" M
MAG-H	-	10017989	18 L	3/4" M
MAG-H	-	10017990	24 L	3/4" M
MAG-H	-	10017991	35 L	3/4" M
MAG-H	-	10017992	50 L	3/4" M
MAG-H	-	10017993	80 L	1" M
MAG-H	-	10017994	100 L	1" M
MAG-H	-	10017995	150 L	1" M
MAG-H	-	10017996	200 L	1" M
MAG-H	-	10017997	250 L	1" M
MAG-H	-	10017998	300 L	1" M
MAG-H	-	10017999	500 L	1.1/4" M
MAG-H	-	10018000	750 L	2" M
MAG-H	-	10018001	1000 L	2" M
WH 25/SG	-	10017932	Wall mounting brackets for MAG-H 8-24l	

KAV

Cap valve in accordance with DIN EN 12828 (DIN 4751). To test diaphragm type expansion vessels without draining of the system or disassembly of the vessel, brass MS 58, with draining valve and lead seal, nominal pressure PN 10, max. operating temperature 130 °C.

Type	Part no. WII	Part no. WID	Size
KAV	0608120	10017947	DN20
KAV	0608125	10017948	DN25

FIXFLEX SK20

Automatic quick coupling 3/4". To test and replace expansion vessels without draining of the system.

Type	Part no. WII	Part no. WID
FIXFLEX SK20	0608100	10017945

GAG/KAV

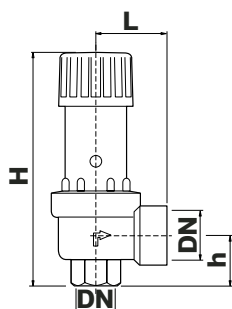
Vessel connection set with cap valve. Identical to type GAG/MR 20 except: Cap valve KAV 20 to maintain the expansion vessel without draining the system or disassembling the vessel.

Type	Part no. WII	Part no. WID
GAG/KAV	0606210	10017890

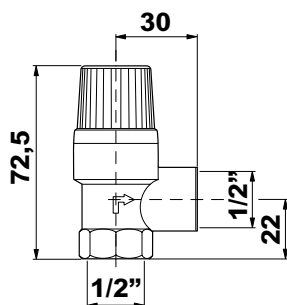
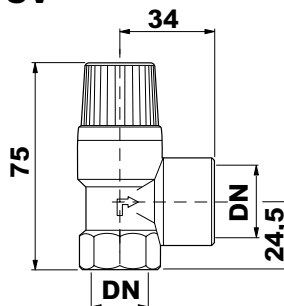
GAG/MR20

Installation unit to connect expansion vessels for closed heating installations, ready for use with automatic air vent MV 10 R, safety relief valve 3 bar, pressure gauge MHR 63/4 - 3/8" with automatic shut-off valve. With automatic quick coupling Fixflex SK 20.

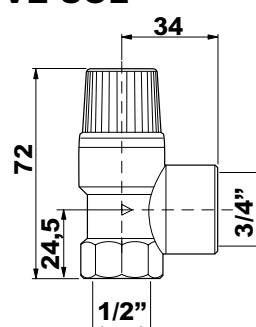
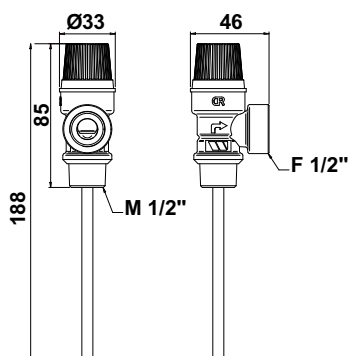
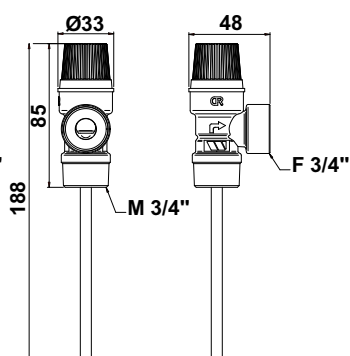
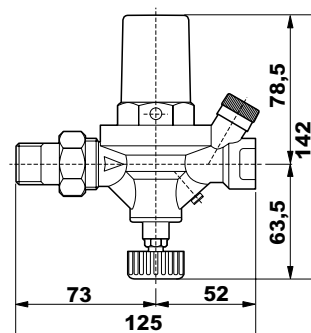
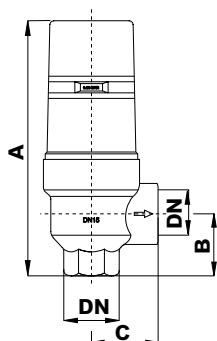
Type	Part no. WII	Part no. WID
GAG/MR20	0606112	10017885

OVERALL DIMENSIONS
VST


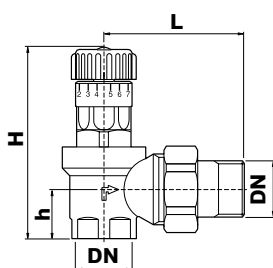
DN	L	H	h
1/2" x 3/4"	37	119	25
3/4" x 1"	48	165	29
1" x 1.1/4"	54	173	34.5

MSL/MSV

SV


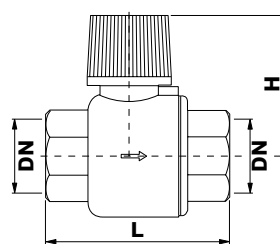
DN	L	H	h
1/2" x 3/4"	34	75	24.5
3/4" x 1"	37	86.5	34
1" x 1.1/4"	55	189	40
1" x 1.1/4"	60	204	43

SVE-SOL

PT-684
68403

68450-68451-68452-68453-68455

AL-ALM

466


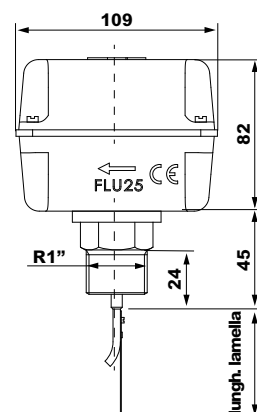
DN	A	B	C
1/2" x 1/2"	135	32	36
3/4" x 3/4"	141	35	41
1" x 1"	195	41	46

USVR


DN	L	H	h
3/4"	70	120	26
1"	83.5	138	33
1.1/4"	100	148	39

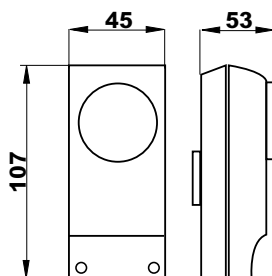
RDF


DN	L	H
1"	83.5	59
1.1/4"	83.5	59

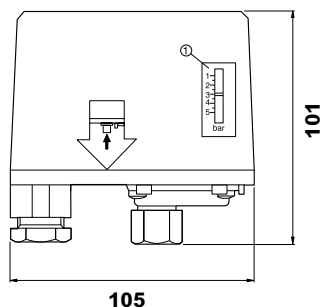
FLU25PL


OVERALL DIMENSIONS

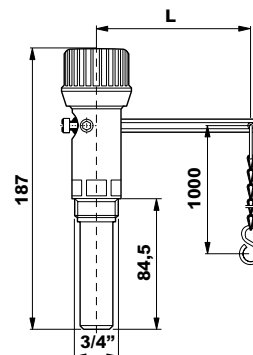
WTC



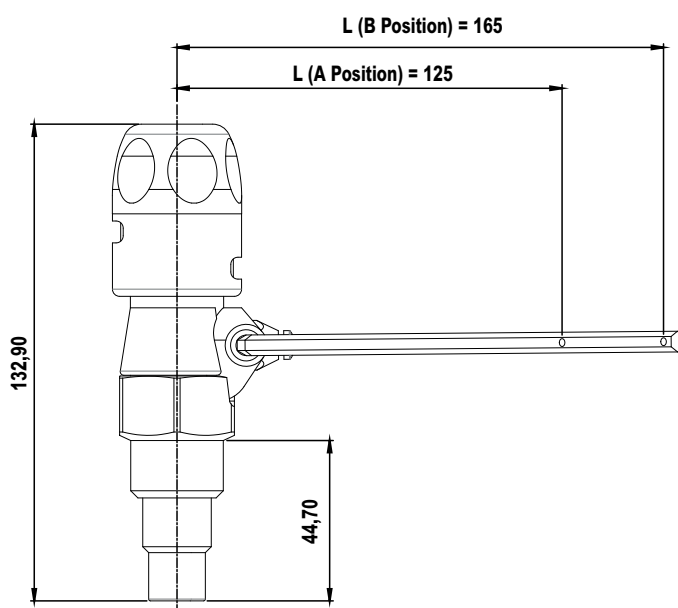
PRM/PRMIN



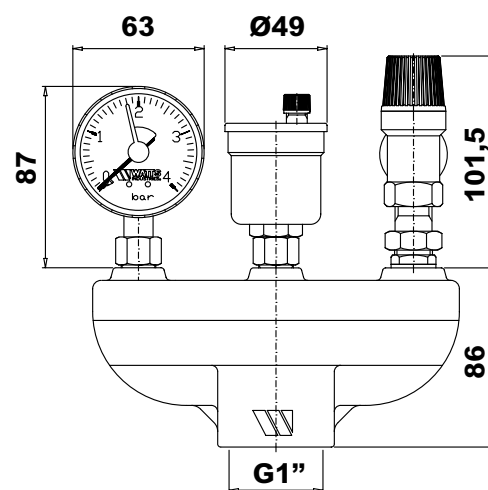
RT



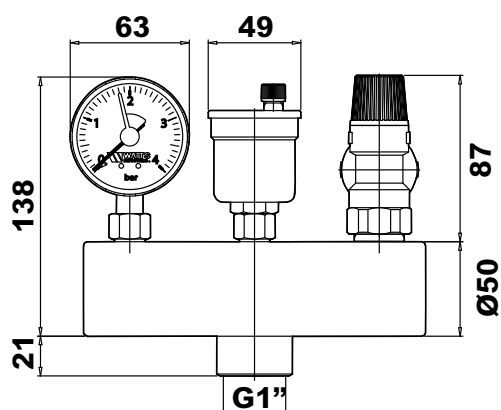
RT10N



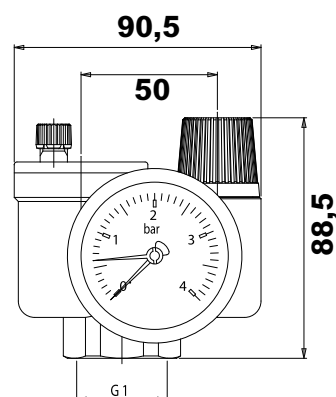
KSG 30 G



KSG 30



KSG 30 N

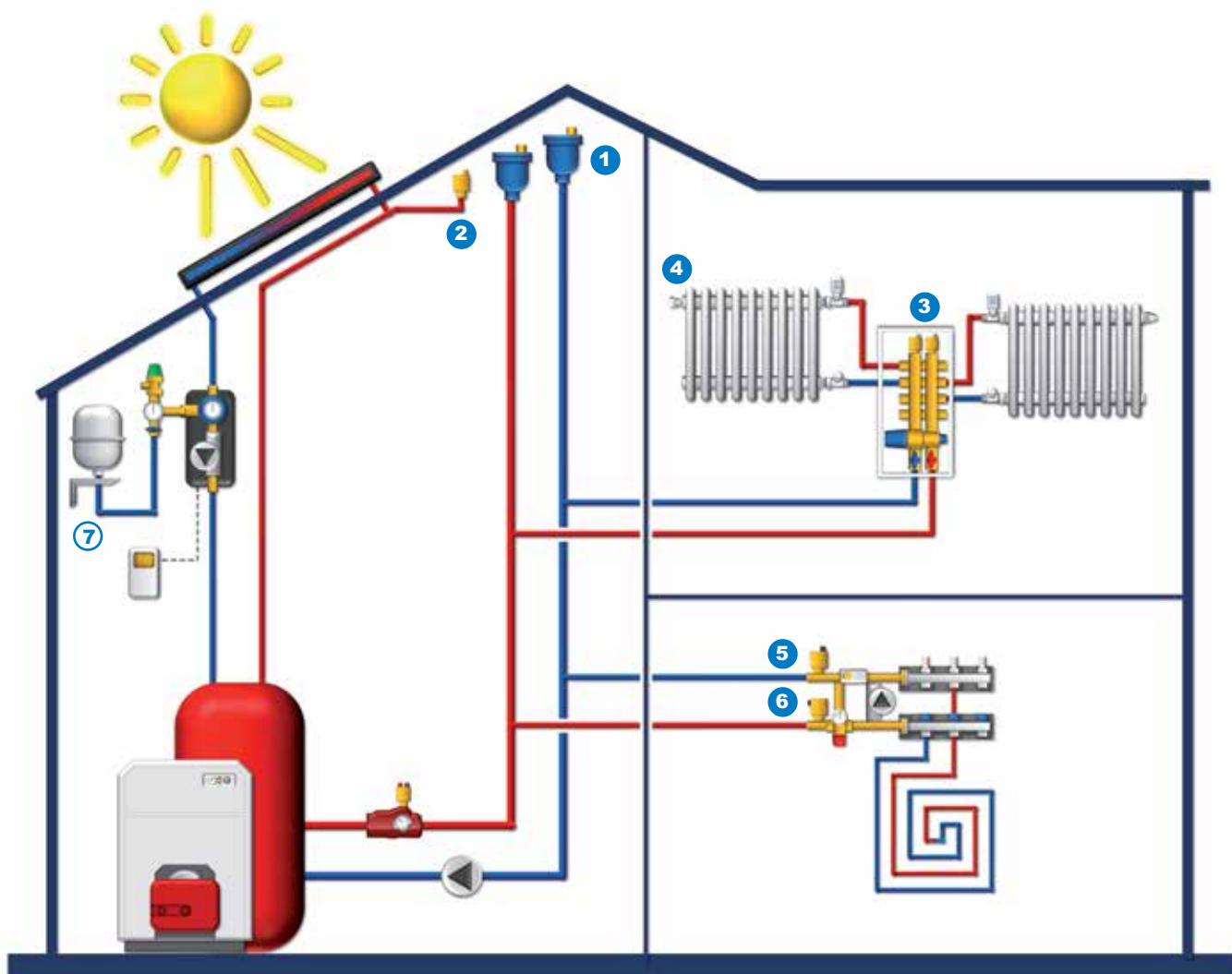


Air vents










Automatic, manual and with adjustable discharge air vent valves	pag. 111
Float air vents	pag. 114
Float air vents for solar systems	pag. 116
Air separators	Pag. 116
Overall dimensions	pag. 117

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

- | | | | | |
|--|--|--|---|--|
| <p>1</p>  <p>MXV
pag. 115</p> <p>MAXIVENT - Automatic high capacity air separator</p> | <p>2</p>  <p>MV-SOL
pag. 116</p> <p>Automatic air vent valve for solar system</p> | <p>3</p>  <p>2161C
pag. 115</p> <p>FLOATVENT Automatic air vent valve</p> | <p>4</p>  <p>228C
pag. 111</p> <p>HYGROVENT Automatic air vent valve</p> | <p>5</p>  <p>MV
pag. 113</p> <p>MINIVENT Automatic air vent valve</p> |
| <p>6</p>  <p>MKL
pag. 114</p> <p>MINIVENT Automatic side air vent valve.</p> | <p>7</p>  <p>Chapter J
pag.137</p> <p>Components for solar heating systems</p> | | | |

AUTOMATIC, MANUAL AND WITH ADJUSTABLE DISCHARGE AIR VENT VALVES

**228C**

HYGROVENT

Automatic air vent valve, with check device and discharge nozzle.

Nickel-plated brass body CW617N. Max. pressure: 6 bar.

Type	Part no. WII	Part no. WID	Size
228C	2280C18X	-	1/8"
228C	2281C14X	10001468	1/4"
228C	2282C38X	10001467	3/8"

**238C**

Manual air vent valve, with discharge nozzle. Nickel-plated brass body CW617N.

Max. pressure: 10 bar.

Type	Part no. WII	Part no. WID	Size
238C	2381C18X	10045783	1/8"
238C	2382C14X	-	1/4"
238C	2383C38X	-	3/8"

**RDT/K**

Manual air vent valve. Rotating plastic nose, brass body nickel-plated, self-sealing.

Max. temperature: 110C. Working pressure: 4 bar. Peak pressure: 10bar.

Type	Part no. WII	Part no. WID	Size
RDT/K	1203106	10001503	1/8"
RDT/K	1203108	10001504	1/4"
RDT/K	1203110	10001505	3/8"
RDT/K	1203115	10001506	1/2"

**RDT**

Manual air vent valve. Rotating nose, brass body nickel-plated, self-sealing through O-ring, can be operated via key SS/RDT or coin.

Type	Part no. WII	Part no. WID	Size
RDT	1200006	10001463	1/8"
RDT	1200008	10001464	1/4"
RDT	1200010	10001465	3/8"
RDT	1200015	10001466	1/2"

SELECTION GUIDE**How to tackle the presence of air in the systems**

For optimization of thermal performance of the individual terminal units, elimination of noise caused by air circulation, reduction of rust and corrosion as well as ensuring correct flow of the heat carrier fluid it is necessary to install an appropriate number of air vent devices along the network.

The following devices are available for the various points where air pockets are easier to form:

- air vent valves with automatic operation for heat emitters (Type 228C) or for manifold units (Type MV)
- high capacity air separators (Type MXV) to be placed at the top of the vertical columns
- air separators (Type ERD) for sections in the boiler room

The declarations of conformity of the product are available on our website :

www.wattsindustries.com



AUTOMATIC, MANUAL AND WITH ADJUSTABLE DISCHARGE AIR VENT VALVES

LS

Air vent screw. Brass body nickel-plated with knurl.

Type	Part no. WII	Part no. WID	Size
LS	1204006	10001511	1/8"
LS	1204008	10001512	1/4"
LS	1204010	10001513	3/8"

SS/RDT

Plastic Key, for manual air vent valves RDT and RDT/K.

Type	Part no. WII	Part no. WID	Size
SS/RDT	1200500	10009977	3/8" - 1/2"

RTL

Blind plug. Self-sealing thread with O-ring.

Type	Part no. WII	Part no. WID	Size
RTL	1202008	10001483	1/4"
RTL	1202010	10001485	3/8
RTL	1202015	10001486	1/2"

PR

Reducing socket. Self-sealing thread with O-ring.

Type	Part no. WII	Part no. WID	Size
PR	1201100	10001473	3/8"
PR	1201200	10001478	1/2"

RIA

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

Type	Part no. WII	Part no. WID	Size
RIA	0259008	10005115	1/8"
RIA	0259010	10005116	3/8"
RIA	0259015	10005118	1/2"
RIA	0259016	10005119	3/8" x 1/2"

AUTOMATIC, MANUAL AND WITH ADJUSTABLE DISCHARGE AIR VENT VALVES

MV**MINIVENT**

Automatic air vent valve with unscrewable cover for inspection.

Body and cover of brass CW617N. Corrosion-resistant polyethylene float.

Max. pressure : 12 bar. Max. temperature : 115° C.

Also suitable for water containing additive (glycol up to 30%)



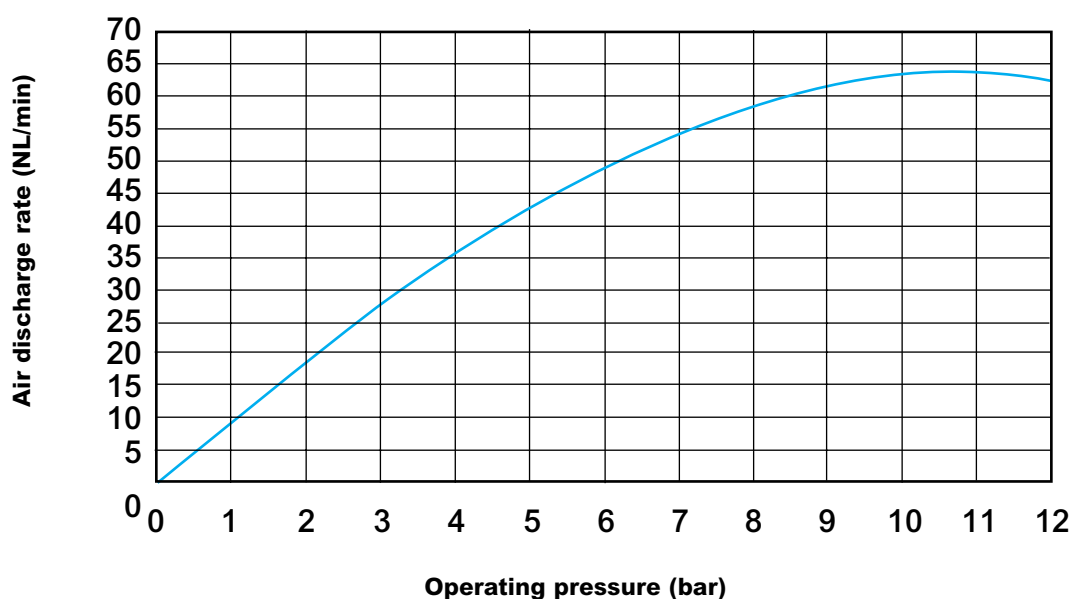
Type	Part no. WII	Part no. WID	Size
MV	0250008	10004916	1/4"
MV	0250010	10004917	3/8"
MV	0250215	10004919	1/2"

MVR**MINIVENT**

Automatic air vent valve like MVD but complete with automatic shut-off valve RIA.



Type	Part no. WII	Part no. WID	Size
MVR	0250110	10004932	3/8"
MVR	0250115	10004937	1/2"

Air discharge rate - Operating pressure

FLOAT AIR VENTS

MKV

MICROVENT

Automatic vertical air vent valve. Body and cover of brass CW617N. Sealed with O-Ring
Max. pressure : 10 bar. Max. temperature : 110° C.
Also suitable for water containing additive (glycol up to 30%).

Type	Part no. WII	Part no. WID	Size
MKV	0251210	10004980	3/8"
MKV	0251310	10004983	3/8"
MKV	0251410	10004984	1/2"

MKL

MICROVENT

Automatic side air vent valve. Body and cover of brass CW617N. Sealed with O-Ring
Max. pressure : 10 bar. Max. temperature : 110° C.
Also suitable for water containing additive (glycol up to 30%).

Type	Part no. WII	Part no. WID	Size
MKL	0252210	10004991	3/8"

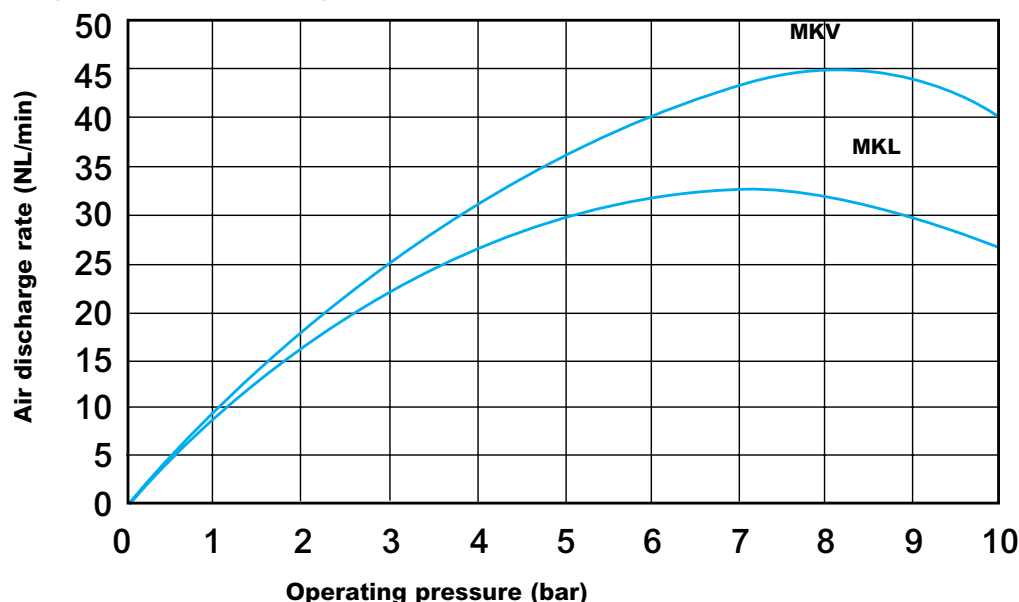
MKLR

MICROVENT

Automatic side air vent valve like MVD but complete with automatic **sealed** shut-off valve RIA.

Type	Part no. WII	Part no. WID	Size
MKLR	0252310	10004992	3/8"
MKLR	0252410	10004993	1/2"

Air discharge rate - Operating pressure



AV15

AIRVENT

Automatic air vent with plastic floater, elbow model, body and cover of brass CW617N nickel-plated, O-ring cover seal, connection R 1/2", max. system pressure 10 bar.
Max. operating temperature 110 °C, glycol resistant up to 50 % mixing ratio.

Type	Part no. WII	Part no. WID	Size
AV15	0254015	10005005	1/2"

FLOAT AIR VENTS

**2161C**

FLOATVENT.

Automatic vertical air vent valve. Sealed with O-ring. Designed for installation on head connections of flush manifolds. Brass CW617N body. Max. pressure: 10 bar.
Max. temperature: 110°C

Type	Part no. WII	Part no. WID	Size
2161C	2161C38	10004145	3/8"
2161C	2161C12	10026035	1/2"
2161C	2161C34	10004953	3/4"
2161C	2161C1	10026034	1"

**2311C**

CHECKVENT.

Sealed check valve for automatic vertical air vent valve 2161C38.

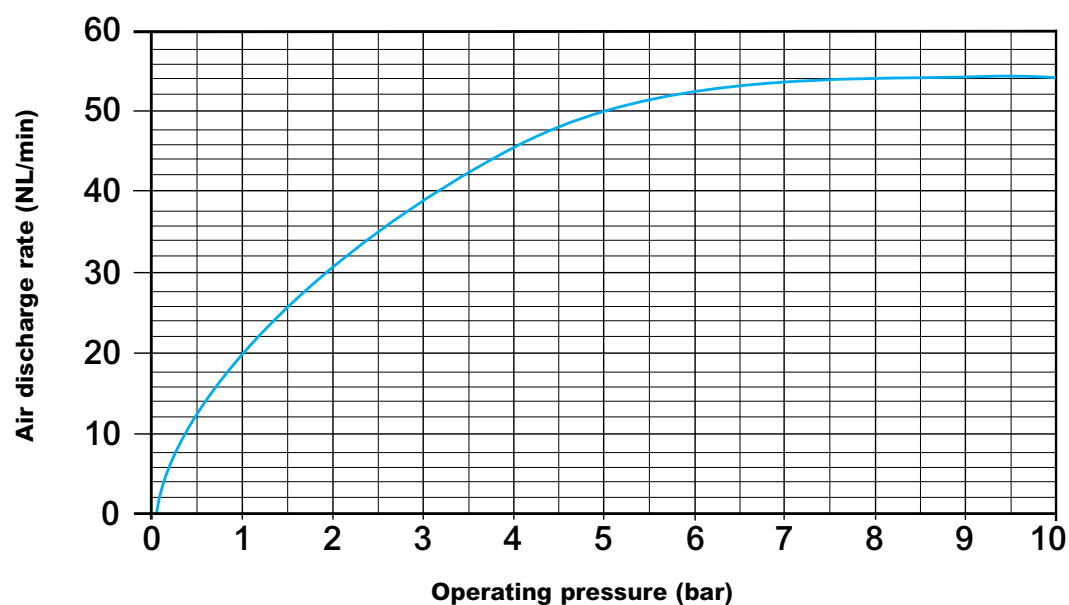
Type	Part no. WII	Part no. WID	Size
2311C	2311C38	-	3/8"

**MXV**

MAXIVENT.

Automatic high capacity deaerator provided with manual air vent valve.
Cast iron body and cover with epoxy finish. Max. operating pressure : 12 bar.
Max. operating temperature : 115° C. Female air outlet connection : 3/8".

Type	Part no. WII	Part no. WID	Size
MXV	0253020	-	3/4"
MXV	0253025	10025852	1"
MXV	0253032	-	1.1/4"

Air discharge rate - Operating pressure

FLOAT AIR VENTS FOR SOLAR SYSTEMS

MV-SOL



Solar

MINIVENT

Automatic air vent valve for solar systems with unscrewable cover for inspection.

Body and cover of brass CW617N, 1265-99. Polyethylene float.

Seal between reservoir and cover with O-ring. Connection DN 3/8" - 1/2" DIN - ISO 228/1 Stainless steel (AISI 304) vacuum breaker (only for DN 3/8")

Max. operating pressure : 12 bar. Max. operating temperature : 160 °C.

Type	Part no. WII	Part no. WID	Size
MV-SOL	0249110	10004914	3/8"
MV-SOL	0249115	10004915	1/2"

RIA/MV-SOL



Solar

Automatic shut-off valve. Allows the air vent valves (**MV-SOL**) to be removed without having to empty the system. The **RIA/MV-SOL** shut-off valve is fitted with a device for quick total emptying of the water from the valve. Body: Brass EN12164-01 CW614N.

Plug: Polymer high resistance. Spring: Stainless steel.

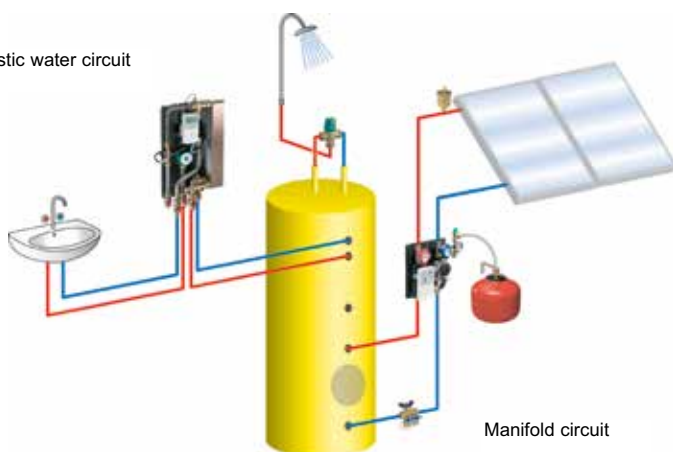
Connections MF 3/8" and 1/2" DIN - ISO 228/1. Sealing Elastomer high resistance.

Type	Part no. WII	Part no. WID	Size
RIA/MV-SOL	0259310	10005122	3/8" x 3/8"
RIA/MV-SOL	0259315	10005124	1/2" x 1/2"

HIGHLIGHTS

Components for solar heating systems

Domestic water circuit



Manifold circuit



The increasingly greater use of systems exploiting renewable solar energy entail development of a specific line of products for expelling air from the circuits.

The materials of construction used for the MV-SOL and RIA/MV SOL valves are designed to withstand high temperatures and particular operating conditions.

AIR SEPARATORS

ERD

EUROVENT

Automatic /manual double deaerator with expansion vessel. Tropicalized sheet steel body.

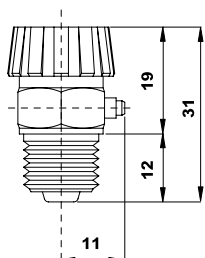
Max. pressure : 8 bar. Max. temperature : 115° C



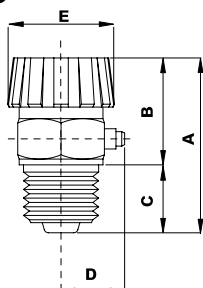
Type	Part no. WII	Part no. WID	Size
ERD	0253625	10004994	1"
ERD	0253640	10004995	1.1/2"

OVERALL DIMENSIONS

228C

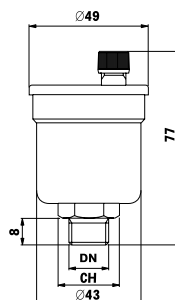


238C



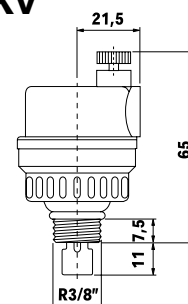
DN	A	B	C	D	E
1/8"	29	17	12	11	17
1/4"	29	17	12	11	17
3/8"	29	19	10	11	17

MV

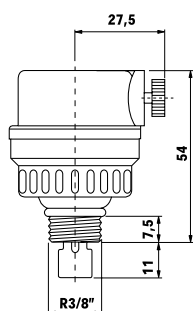


DN	CH
3/8"	19
1/2"	22

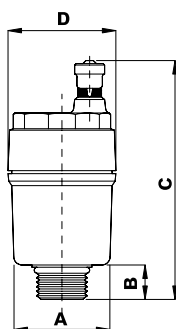
MKV



MKL

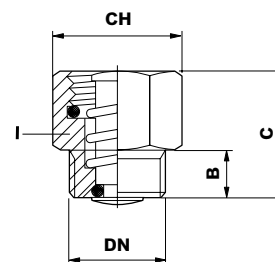


2161C



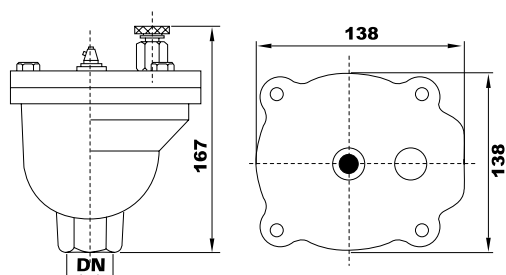
DN	A	B	C	D
3/8"	30	10	77	36
1/2"	30	10	77	36
3/4"	32	12	79	36
1"	37	12	79	36

RIA

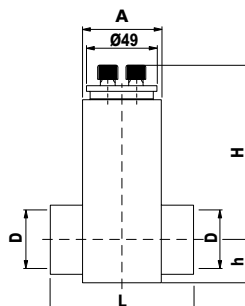


DN	B	C	CH
3/8"	8	11	19
1/2"	8	11	24

MXV - 3/4" - 1" - 1.1/4"

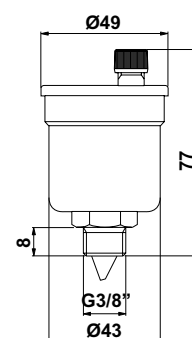


ERD



DN	A	L	H	h
1"	60x50	94	153	26
1.1/2"	60x60	104	191	32

MV-SOL





NOTES

Pressure gauges and thermometers



Bimetallic thermometers	pag. 120
Thermometers	pag. 121
Combined thermometers and pressure gauges	pag. 122
Pressure gauges	pag. 123
Accessories for pressure gauges	pag. 125

BIMETALLIC THERMOMETERS

F+R801 OR (TAS)

Bimetal dial indicator thermometer. Zinc-plated steel case with chrome-plated bezel center back entry. Screwed socket R1/2". Accuracy class 2. Stem: zinc-plated steel Ø 9mm.



Type	Part no. WID	DN	Dial	Pocket stem	Packaging
F+R801 OR	10005807	63 mm	-50 - +50°C	50 mm	50
F+R801 OR	10005800	63 mm	0-120°C	50 mm	50
F+R801 OR	10005809	63 mm	0-120°C	75 mm	50
F+R801 OR	10005811	63 mm	0-120°C	100 mm	50
F+R801 OR	10005806	63 mm	0-160°C	50 mm	50
F+R801 OR	10005810	63 mm	0-160°C	75 mm	50
F+R801 OR	10005951	63 mm	0-160°C	100 mm	50
F+R801 OR	10005931	80 mm	0-120°C	50 mm	50
F+R801 OR	10005944	80 mm	0-120°C	75 mm	50
F+R801 OR	10005950	80 mm	0-120°C	100 mm	50
F+R801 OR	10005942	80 mm	0-160°C	50 mm	50
F+R801 OR	10005945	80 mm	0-160°C	75 mm	50
F+R801 OR	10005951	80 mm	0-160°C	100 mm	50
F+R801 OR	10006066	100 mm	0-120°C	50 mm	32
F+R801 OR	10006071	100 mm	0-120°C	75 mm	32
F+R801 OR	10006076	100 mm	0-120°C	100 mm	32
F+R801 OR	10006084	100 mm	0-120°C	150 mm	32
F+R801 OR	10006079	100 mm	0-160°C	100 mm	32
F+R801 S	10005804	63 mm	0-120°C	50 mm	50
F+R801 S	10005939	80 mm	0-120°C	50 mm	50

OR= O-Ring, S= Stem with the screw

F+R801 SD (TAS)

Bimetal dial indicator thermometer, self-sealing. Dial 0 - 120 °C.

Metal design, screwed socket R 1/2", self-sealing, sensor length 50 mm, class 2,0.



Type	Part no. WID	DN	Dial	Pocket stem	Packaging
F+R801 SD	10005802	63 mm	0-120°C	50 mm	50
F+R801 SD	10005935	80 mm	0-120°C	50 mm	50
F+R801 SD	10005936	80 mm	0-150°C	50 mm	50
F+R801 SD	10006067	100 mm	0-120°C	50 mm	32
F+R801 SD	10006068	100 mm	0-150°C	50 mm	32

TH (F+R998)

Immersion sleeves. Brass. Outside Ø 12 mm, internal Ø 9 mm.



Type	Part no. WID	Length	Packaging
TH (F+R998) OR	10006130	50 mm	20
TH (F+R998) S	10006150	50 mm	25
TH (F+R998) OR	10006134	75 mm	20
TH (F+R998) OR	10006135	100 mm	20
TH (F+R998) OR	10006139	150 mm	20
TH (F+R998) OR	10006145	200 mm	15
TH (F+R998) OR	10006148	250 mm	1

OR= O-Ring, S= Stem with the screw

F+R810 (TSS)

Bimetal contact thermometer. Attached to the pipe via tension spring.

Suited for pipes from 1" to 2", class 2,0.



Type	Part no. WID	DN	Dial	Packaging
F+R810 TCM	10006445	63 mm	0-60°C	100
F+R810 TCM	10006476	80 mm	0-60°C	50
F+R810 TCM	10006504	63 mm	0-120°C	100
F+R810 TCM	10006505	80 mm	0-120°C	50

BIMETALLIC THERMOMETERS

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TR80

Bimetallic - exhaust control thermometer. Case Ø 80 mm steel zinc-plated, bezel ring nickel-plated, fixing by clamp taper socket with fixing screw, scale range 0 to 500°C.

Type	Part no. WID	Sensor	Packaging
TR 80/150	10020396	150 X 6 MM	1
TR 80/300	10020397	300 X 6MM	1


TC50

Remote thermometer with capillary. Panel mount, mounting by detents, scale range 0 - 120 °C. Ø 52,5 mm, sensor Ø 6.5 × 30 mm capillary tube 1000 mm.

Type	Part no. WII	Part no. WID	Length	Packaging
TC 50/100	0300050	10005469		1
TH/TC 100-7		10013520	100 mm	1


TEF

Remote thermometer with capillary. Panel mount 64 × 31mm, mounting by detents, capillary length 1,500 mm, bulb Ø 6.5 × 28mm, scale range 0 -120 °C.

Type	Part no. WID	Length	Packaging
TEF	10006190		50
TEF	10013520	100 mm	1

THERMOMETERS

H


MTG

Machine thermometer. Straight design, dial 0 - 160 °C, V-shape, NG 150 x 36. Connection G 1/2", accuracy ±2 °C.

Type	Part no. WID	Length	Packaging
MTG	10006414	50	5
MTG	10006416	63	5
MTG	10022068	100	5
MTG	10006431	160	5


MTW

Machine thermometer. Elbow design 90°, dial 0 - 160 °C, V-shape. NG 150 x 36 connection G 1/2", accuracy ±2 °C.

Type	Part no. WID	Length	Packaging
MTW	10006432	50	5
MTW	10006433	63	5
MTW	10006437	100	5
MTW	10006442	160	5

THERMOMETERS

F+R804 (TV)

Straight glass thermometer Temperature element: xylen-filled bulb. Accuracy class 2.

Type	Part no. WID	Dial	Length	Packaging
F+R804	10006405	0-120°C	200 mm	10
F+R804	10006407	0-120°C	250 mm	10
F+R804	10006406	0-150°C	250 mm	10

T-OT (F+R998)

Straight case with pocket for glass thermometer F+R804 (TV).

Type	Part no. WID	Length	Connection	Packaging
T-200 OT	10006408	200 mm	G 1/2"	100
T-250 OT	10006409	250 mm	G 1/2"	100

COMBINED THERMOMETERS AND PRESSURE GAUGES

F+R818 (TMAP)

Combined thermometer pressure gauge. Plastic case center back entry with automatic shut-off valve. Red mark pointer. Connection G1/2". Accuracy class: 2.5 (pressure), 2 (temperature).

Type	Part no. WID	DN	Temperature	Pressure	Packaging
F+R818	10015503	63	0-120°C	0-4 bar	50
F+R818	10018666	63	0-120°C	0-6 bar	50
F+R818	10022728	80	0-120°C	0-2,5bar	50
F+R818	10009464	80	0-120°C	0-4 bar	50
F+R818	10018742	80	0-120°C	0-6 bar	50
F+R818	10009465	80	0-120°C	0-10 bar	50
F+R818	10009461	80	0-120°C	0-40 MWS	50

F+R828 (TMRP)

Combined thermometer pressure gauge. Plastic case center bottom entry with automatic shut-off valve. Red mark pointer. Connection G1/2". Accuracy class: 2.5 (pressure), 2 (temperature).

Type	Part no. WID	DN	Temperature	Pressure	Packaging
F+R828*	10009472	80 mm	0-120°C	0-2,5 bar	50
F+R828	10025526	80 mm	0-120°C	0-4 bar	50
F+R828	10018749	80 mm	0-120°C	0-6 bar	50
F+R828	10025525	80 mm	0-120°C	0-10 bar	50
F+R828	10009462	80 mm	0-120°C	0-40 MWS	50

* Neutral dial

PRESSURE GAUGES

123

F+R100 (MAL)

Pressure gauge for closed heating installations, plastic body, back central entry.
Accuracy class 2,5 (1,6 on request).

Type	Part no. WID	DN	Pressure	Connection	Packaging
F+R100	10008092	50 mm	0-6 bar	G1/4"	100
F+R100	10008093	50 mm	0-10 bar	G1/4"	100
F+R100	10008094	50 mm	0-16 bar	G1/4"	100
F+R100	10008095	63 mm	0-6 bar	G1/4"	100
F+R100	10008096	63 mm	0-10 bar	G1/4"	100
F+R100	10008097	63 mm	0-16 bar	G1/4"	100

F+R101 (MAL)

Pressure gauge for closed heating installations with green sector and red reference pointer.
Plastic body, back central entry. Accuracy class 2,5 (1,6 on request).

Type	Part no. WID	DN	Pressure	Connection	Packaging
F+R101	10008089	50 mm	0-4 bar	G1/4"	100
F+R101	10008090	63 mm	0-4 bar	G1/4"	100
F+R101	10008091	63 mm	0-4 bar	G3/8"	100

F+R150 (MAS)

Pressure gauge for closed heating installations, black steel body, back central entry.
Accuracy 1,6.

Type	Part no. WID	DN	Pressure	Connection	Packaging
*F+R150	10008022	80 mm	0-4 bar	G1/4"	50
F+R150	10008023	80 mm	0-6 bar	G1/4"	50
F+R150	10008024	80 mm	0-10 bar	G1/4"	50
F+R150	10008029	80 mm	0-16 bar	G1/4"	50

* Green sector and red reference pointer

F+R150 (MSOL)

Pressure gauge for Solar systems. Self sealing PTFE connection.
Working temperature up to 120°C.

Type	Part no. WID	DN	Pressure	Connection	Packaging
F+R150	10016072	50 mm	0-10 bar	G1/4"	100
F+R150	10016074	50 mm	0-10 bar	G3/8"	100

H

PRESSURE GAUGE

F+R200 (MRP)

Pressure gauge for closed heating installations, plastic body, bottom central entry.



Type	Part no. WID	DN	Pressure	Accuracy	Connection	Packaging
F+R200	10007378	50	0-6 bar	1,6	G1/4"	100
F+R200	10007380	50	0-10 bar	2,5	G1/4"	100
F+R200	10007384	50	0-16 bar	1,6	G1/4"	100
F+R200	10007723	63	0-6 bar	1,6	G1/4"	100
F+R200	10007724	63	0-10 bar	1,6	G1/4"	100
F+R200	10007725	63	0-16 bar	1,6	G1/4"	100
F+R200	10007726	63	0-25 bar	2,5	G1/4"	100
F+R200	10007790	80	0-6 bar	1,6	G1/2"	50
F+R200	10007793	80	0-10 bar	1,6	G1/2"	50
F+R200	10007794	80	0-16 bar	1,6	G1/2"	50
F+R200	10007795	80	0-25 bar	1,6	G1/2"	50

F+R201 (MRP)

Pressure gauge for closed heating installations with green sector and red reference pointer. Plastic body, bottom central entry. Accuracy class 2,5 (1,6 on request).



Type	Part no. WID	DN	Pressure	Connection	Packaging
F+R201	10007375	50	0-4 bar	G1/4"	100
F+R201	10007722	63	0-4 bar	G1/4"	100
F+R201	10007736	63	0-4 bar	G3/8"	100
F+R201	10007784*	100	0-4 bar	G1/2"	30

* Completed with REM

F+R250 (MRS)

Pressure gauge for closed heating installations, black steel body, bottom central entry. Accuracy class 2,5 (1,6 on request).



Type	Part no. WID	DN	Pressure	Connection	Packaging
*F+R250	10008076	100	0-4 bar	G1/2"	30
F+R250	10008077	100	0-6 bar	G1/2"	30
F+R250	10008078	100	0-10 bar	G1/2"	30
*F+R250	10008087	100	0-10 bar, 1,6%Kl.	G1/2"	30
F+R250	10008079	100	0-16 bar, 1,6%Kl.	G1/2"	30

* Green sector, red pointer

MC50/6

Capillary pressure gauge



Type	Part no. WID	Description
MC 50/6	10009425	52 mm, 0-6 bar, capillary 1000mm
ASV1/20	10009426	Check valve 1/20

PRESSURE GAUGE

F+R260

Pressure gauge for gas applications. Bottom entry connection. Case in chrome plated steel. Accuracy class 2,5 (1,6 on request).

Type	Part no. WID	DN	Pressure	Connection	Packaging
F+R260	10021605	63 mm	0-60 mbar/mm H ₂ O	G1/4"	1
F+R260	10021606	63 mm	0-100 mbar/mm H ₂ O	G1/4"	1
F+R260	10021607	63 mm	0-250 mbar/mm H ₂ O	G1/4"	1
*F+R260	10021623	80 mm	0-60 mbar/mm H ₂ O	G3/8"	1
*F+R260	10021624	80 mm	0-100 mbar/mm H ₂ O	G3/8"	1
*F+R260	10021625	80 mm	0-250 mbar/mm H ₂ O	G3/8"	1
F+R260	10022247	100 mm	0-60 mbar/mm H ₂ O	G1/2"	1
F+R260	10022248	100 mm	0-100 mbar/mm H ₂ O	G1/2"	1
F+R260	10021651	100 mm	0-250 mbar/mm H ₂ O	G1/2"	1

* FIMET Logo

ACCESSORIES FOR PRESSURE GAUGES

REM

Check valve for pressure gauges.

Type	Part no. WID	Connection	Packaging
REM 8	10009431	1/4" x 1/4"	10
REM 10	10009432	3/8" x 3/8" W	10
REM 15	10009433	1/2" x 1/2"	10
REM 8/15	10009434	1/4" x 1/2"	10
REM10 SD	10009445	3/8" x 3/8" self sealing	10

RMD 15

Pressure gauge pushbutton stopcock. Nickel-plated brass, DIN-DVGW-tested for gas, PN 25, connection male thread 1/2".

Type	Part no. WID
RMD 15	10009493

RMD 15 P-MM

Pressure gauge stopcock with testing flange 60 x 25, three-way valve, made from brass, with gland, PN 25, operating temperature - 10 °C to + 50 °C, operating position is engraved on the plug, plastic handle, connection: Sleeve-sleeve.

Type	Part no. WID
RMD 15 P-MM	10009481

RM

Pressure gauge stopcock, made of brass, with gland DN15, operating position is engraved on the plug, plastic handle. Operating temperature: -10 to 50 °C. Operating pressure 16 bar.

Type	Part no. WII	Part no. WID	Connection
RM	0335008	10009478	1/4" M x 1/4" M
RM	0335010	10009479	3/8" M x 3/8" M
RM	0335015	10009480	1/2" M x 1/2" M
RM	PZ112000	10009486	1/4" M x 1/4" F
RM	PZ122000	10009487	3/8" M x 3/8" F
RM	PZ132000	10009488	1/2" M x 1/2" F

ACCESSORIES FOR PRESSURE GAUGES

**RM 15S**

Pressure gauge stopcock, made of brass, with gland DN15, operating position is engraved on the plug, plastic handle. Operating temperature: -10 to 50 °C. Operating pressure 25 bar.

Type	Part no. WID	Size
RM 15S (F+R 998)	10009490	3 WAY, 1/2" M x 1/2" M
RM 15 (F+R 998)	10009491	3-WAY, 1/2" M x 1/2" M

**403R**

Pressure gauge holder cock with control flange. Stuffing box packed. Nominal pressure: 16 bar.

According to INAIL.

Type	Part no. WII	Part no. WID	Size
403R	403R14	10021872	1/4"
403R	403R38	10021873	3/8"
403R	403R12	10021874	1/2"

**407D**

Copper insulation loop for water gauges, pressure gauges and pressure switches.

Type	Part no. WII	Part no. WID	Size
407D	407D14	10021886	1/4"
407D	407D38	10021887	3/8"
407D	407D12	10026040	1/2"

**WSU**

Syphon U-shape (commercial). Seamless stell pipe, PN25, max. temperature 150°C, U-shape.

Type	Part no. WID	Description
WSU 15 AA	10013237	On both sides inlet 1/2" M
WSU 15 AS	10013238	Inlet 1/2"M, outlet bushing 1/2" F
WSU 15 S	10013239	Inlet weld end, outlet bushing 1/2" F

SELECTION GUIDE

Ask for Watts Industries catalogue about of pressure gauges, thermometers, combined temperature and pressure gauges for Heating systems, Underfloor systems, Industrial and Air-conditioning systems.

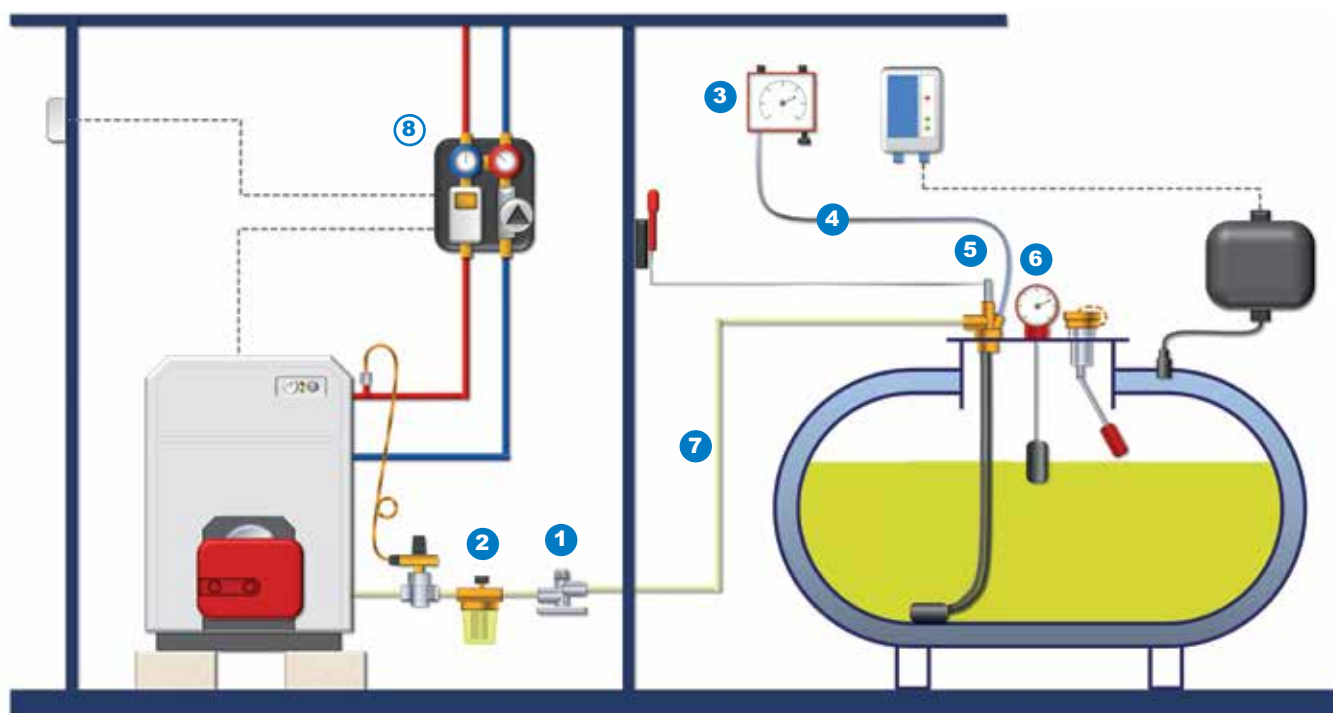


Components for oil-fired heating systems











Level indicators, probes and accessories.....	pag. 129
Dip units.....	pag. 131
Fittings.....	pag. 132
Filters.....	pag. 133
Safety devices.....	pag. 134
Overall dimensions.....	pag. 135

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

- | | | | | |
|--|--|--|---|--|
| <p>1</p>  <p>SIC10
pag. 134</p> <p>Diaphragm valve for automatic shut-off</p> | <p>2</p>  <p>RG
pag. 133</p> <p>Filter</p> | <p>3</p>  <p>TLM
pag. 129</p> <p>Pneumatic level indicator</p> | <p>4</p>  <p>PE50
pag. 129</p> <p>Flexible polyethylene tube for connection TLM</p> | <p>5</p>  <p>MB
pag. 131</p> <p>Multi-function dip unit</p> |
| <p>6</p>  <p>MECAV
pag. 130</p> <p>Level indicator</p> | <p>7</p>  <p>TECAL
pag. 131</p> <p>Connecting pipe between the fuel tank and burner</p> | <p>8</p>  <p>Chapter D
pag. 67</p> <p>Regulation and controls</p> | | |

LEVEL INDICATORS, PROBES AND ACCESSORIES

TLM

TELEVAR.

Remote pneumatic level indicator for tanks of any shape and height between 900 and 3000 mm (item ...103), or between 3000 and 5000 mm (for item ...105).

Basic dial in percentage volume for cylindrical tanks.

Tank connection suitable for pipe with \varnothing 6 mm. Case with 3 external mounting slots.

Type	Part no. WII	Part no. WID	Tank
TLM	0101103	10000286	h max = 3 m
TLM	0101105	10000287	h from 3 to 5 m


PE50

Flexible polyethylene hose for connection of the TELEVAR level indicator to fuel oil probe series G20 or MULTIBLOC dip units MB and MKF200.

Lay the polyethylene hose carefully to ensure correct level reading (avoid kinks and holes). Hose \varnothing 4 x 6 mm.

Length of roll: 50 metres.

Type	Part no. WII	Part no. WID
PE50	0105150	10000825


G20

Fuel oil probe. Mounted on tank for connection to the TELEVAR level indicator.

1" metal fitting with pipe connection \varnothing 6 mm.

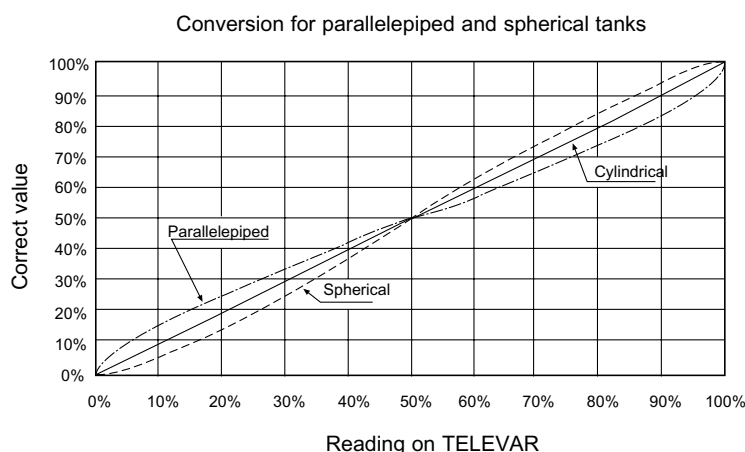
Perbunan dip element with bottom spacer.

Type	Part no. WII	Part no. WID	Size	Dip unit
TELE-SET 220	0104010	10000393	1"	L = 220 cm
G20	0104130	-	1"	L = 320 cm
G20	0104150	-	1"	L = 520 cm

The products whose non metal parts are in direct contact with the fuel are not suitable for installation in systems with "VEGETABLE FUEL OIL" or "BIODIESEL" of vegetable origin.

TECHNICAL NOTE
Televar
Calculation of contents for tanks of various shapes

It is possible to deduce from the graph to which percentage volume of the parallelepiped and spherical tanks does the value indicated on the standard unit (cylindrical tank) correspond.



LEVEL INDICATORS, PROBES AND ACCESSORIES

**MECAV**

Mechanical level indicator, vertical reading, complete with seal for tight tank connection.
 Very easy to set through external screw.
 High impact plastic case and cover.
 Measuring range: 0 - 2000 mm.

Type	Part no. WII	Part no. WID	Size
MECAV	0103100	10000372	1.1/2"

**Q 200V**

Mechanical level indicator 1 1/2", vertical reading. Steplessly adjustable up to 2000 mm.

Type	Part no. WII	Part no. WID
Q 200V	-	10000375

**MECAH**

Like MECAV but with horizontal reading.

Type	Part no. WII	Size
MECAH	0103200	1.1/2"

**RDA**

Double angle fitting for tanks, complete with kit of fittings for connection to pipe
 dia. 6 x 8, 8 x 10, 10 x 12 mm. Brass CW617N body.
 1" male tank connection.
 3/8" female suction/return fitting.

Type	Part no. WII	Size
RDA	0120120	1" M x 3/8" F

**VRU**

Check valve for fuel oil piping, complete with kit of fittings for connection to pipe
 dia. 6 x 8, 8 x 10, 10 x 12 mm. Brass CW617N body.
 Pressure drop at 50 litres/h: 11 mbar.
 Pressure drop at 100 litres/h: 18 mbar.

Type	Part no. WII	Size
VRU	0120140	3/8" F

**VFU**

Foot valve for fuel oil tanks, complete with kit of fittings for connection to pipe
 dia. 6 x 8, 8 x 10, 10 x 12 mm.
 Brass CW617N body.
 Plastic bottom spacer.

Type	Part no. WII	Part no. WID	Size
VFU	0120160	10001480	3/8" F

DIP UNITS

131

**MB****MULTIBLOC.**

Multi-function dip unit with counterweight for connection between the fuel tank and burner. Combines 5 functions: burner suction and return, check valve, quick shut-off lever and connection for remote level indicator TELEVAR, complete with kit of fittings.

Brass body CW617N. Perbunan dip elements.

1" male tank connection.

3/8" female suction and return connections.

TELEVAR level indicator, pipe dia. 4 x 6 mm.

TO AVOID CLOGGING OF THE BURNER OWING TO IMPURITIES IN THE FUEL OIL DRAWN FROM THE BOTTOM OF THE TANK.

Type	Part no. WII	Part no. WID	Size	Dip unit
MB 220	0108100	10001025	1"M x 3/8"F	L = 220 cm
MBO 220	0108301	10001027	1"M x 3/8"F	L = 220 cm Without holding wire
MB 320	0108500	10001029	1"M x 3/8"F	L = 320 cm

**MKF200****MULTIBLOC.**

Multi-function dip unit like MB but with overlapping 3/8" male connections and metal bushes for pipe 8 x 10 mm. The body is provided with an extra 3/8" male connection of suction from a second bank-mounted tank. The return pipe from the burner is conveyed to the tank bottom.

Type	Part no. WII	Part no. WID	Size	Dip unit
MKF200	0115110	10001422	1"	L = 200 cm

**TECAL**

PVC clad aluminium pipe. Finds application above all as connecting pipe between the fuel tank (fuel oil) and burner. The cladding serves to protect the pipe from chemicals and humidity of the outdoor environment. Seal test at 30 bar (before cladding with the PVC sheath). PVC cladding (0.75 mm thick).

Type	Part no. WII	Part no. WID	Internal Ø	External Ø	Roll
TECAL	0701210	10019601	8	10	50 m
TECAL	0701212	-	10	12	50 m

FITTINGS

DM

Straight male connector - double taper. Complete with cap and teflon ferrule.
Brass body and cap. Double taper teflon seal ferrule.
Max. pressure: 10 bar. Max. temperature: 110°C.



Type	Part no. WII	Size
DM	0702210	3/8" x 10
DM	0702212	3/8" x 12
DM	0702310	1/2" x 10
DM	0702312	1/2" x 12

DI

Straight bulkhead fitting, double taper-double taper.
Complete with 2 caps and 2 teflon ferrules. Characteristics like fitting DM.



Type	Part no. WII	Size
DI	0703010	10 x 10
DI	0703012	12 x 12

DF

Straight female connector, double taper.
Complete with cap and teflon ferrule. Characteristics like fitting DM.



Type	Part no. WII	Size
DF	0704210	3/8" x 10
DF	0704212	3/8" x 12
DF	0704310	1/2" x 10
DF	0704312	1/2" x 12

DKV 1

Connection fitting set. Universal cutting ring connection set 3/8" for 8 and 10 mm pipes.



Type	Part no. WII	Part no. WID
DKV 1	0199026	10003877

FILTERS

133


HE 10

Heating oil ventilator with integrated filter. Completely odor - tight, no leakage of oil or oil sludge, temperature range 0 - 60° C, connection 3/8" female thread - 3/8" male thread, pressure level PN 6, also suitable for biogenic fuels as per DIN V 51603-6.

Type	Part no. WII	Part no. WID
HE 10	-	10002013


RG

Two-line filter. With universal cutting ring connection 8 and 10 mm, male thread 3/8", female thread 3/8".

Type	Part no. WII	Part no. WID	Description	Size
RG N	0130151	10001930	-	3/8"
RG NF	0130221	10001938	with felt filter	3/8"
RG N-S	0130152	10001931	with sinterized cartridge	3/8"


RV2

Two-way line filter for fuel oil, with screw valve on delivery side and check valve on return, complete with mounting bracket. Brass CW617N body and ring nut. Transparent plastic bowl. 3/8" female connections with pipe bushes dia. 6 x 8, 8 x 10, 10 x 12 mm. Connections, burner side: 3/8" female. Degree of filtration: 200 micron.

Type	Part no. WII	Size
RV2	0133100	3/8" F


RV1

One-way line filter for fuel oil, with screw valve and mounting bracket. Brass CW617N body. Transparent plastic bowl. 3/8" female connections on burner side, with pipe bushes dia. 6 x 8, 8 x 10, 10 x 12 mm. 3/8" female connections, tank side. Degree of filtration: 140 micron.

Type	Part no. WII	Part no. WID	Description	Size
RV 1	0135100	10001986	both female	3/8" F


V1

One-way line filter for fuel oil like RV1 but without shut-off valve.

Type	Part no. WII	Size
V1	0138100	3/8" F


RG/FS, RG/HS

Spare parts for RG filters

Type	Part no. WII	Part no. WID	Materials
RG/SS	-	10003868	Stainless steel
RG/FS	-	10003871	Felt
RG/HS	-	10003872	Rigid foam

SAFETY DEVICES

SIC10



SICUREX.

Diaphragm valve for automatic shut-off of fuel oil in the supply piping of the burners.

Replaces solenoid valve M10M15. Die-cast aluminium body.

3/8" female connections, with pipe bushes dia. 6 x 8, 8 x 10, 10 x 12 mm.

Opening negative pressure: 50 mbar.

Type	Part no. WII	Part no. WID
SIC10	0150110	10002203

RIS



Fuel oil shut-off with pull-out lever remotely controlled by cable and fire-fighting lever LAC, complete with kit of fittings for pipe dia. 6 x 8, 8 x 10, 10 x 12 mm.

Brass CW617N body.

Pressure drop at 50 litres/h: 3 mbar.

Pressure drop at 100 litres/h: 8,5 mbar.

Type	Part no. WII	Size
RIS	0120100	3/8" F

LACPT



Fire-fighting lever for cable-operation of shut-off valves (MULTIBLOC, RIS), also includes 10 m of PVC cladded flexible steel cable, 3 intermediate slots and 3 cable clamps for connection of ends. Complete with transparent protective cover.

Base plate and red lever of special plastic.

Box containing 4 screws and wall mounting plugs.

Type	Part no.
LACPT	0153130

TECHNICAL NOTE

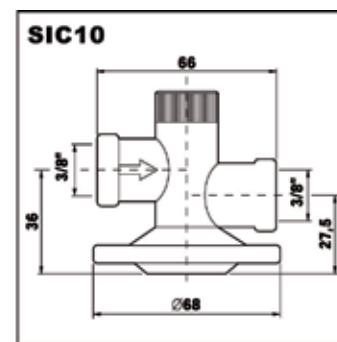
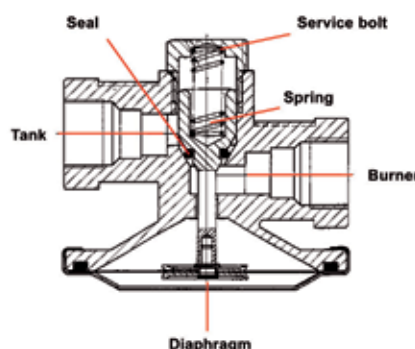
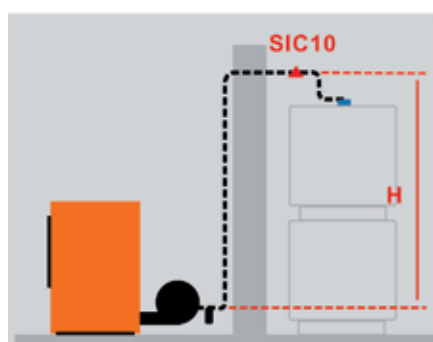
Function

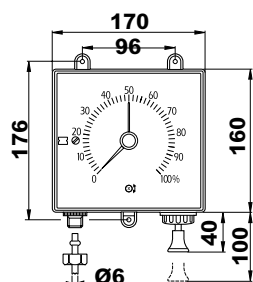
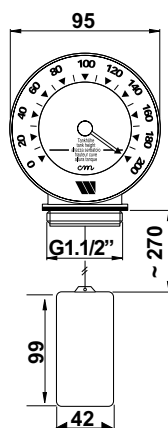
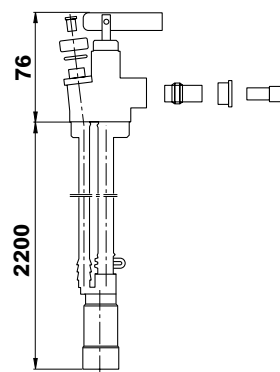
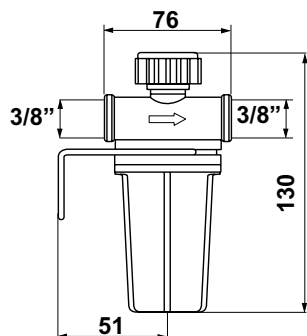
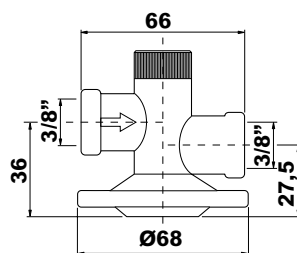
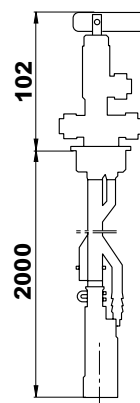
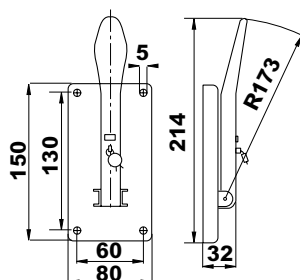
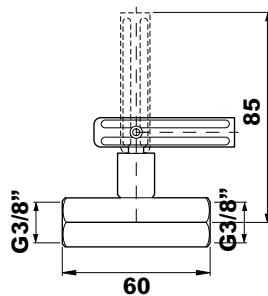
The SIC10 is a diaphragm controlled valve, which is closed by a spring in non-operated mode. The valve opens, if a negative pressure produced by the burner pump develops.

With leakages of the pipe or stop of the burner pump the valve closes automatically.

Installation

The SIC10 is to be installed at the highest point of the supply pipe in direct proximity of the tank. The SIC10 can be installed in arbitrary position, considering the flow direction. For the venting of the SIC10 with start-up the valve seat can be raised by means of a pin which is accessible through an aperture on the cover.



OVERALL DIMENSIONS
TLM

MECAV - MECAH

MB

RV2/RV1

SIC10

MKF200

LACPT

RIS




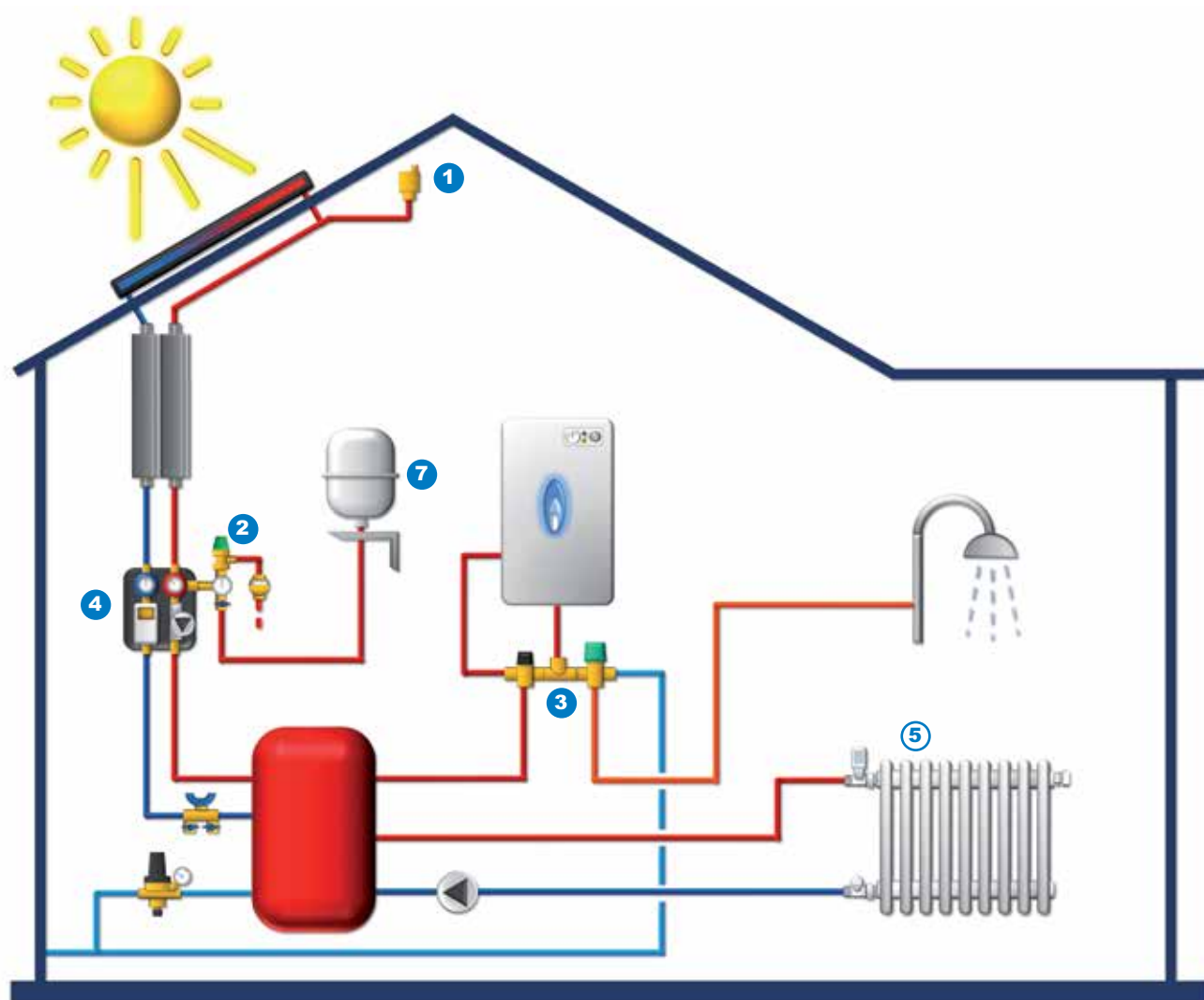
NOTES

Components for solar heating systems



Pumping and control units	pag. 139
Electronic control units	pag. 142
Accessories	pag. 144

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

1 **MV-SOL**
pag. 146



Automatic air vent valve

2 **SVE-SOL**
pag. 146



Diaphragm safety valve

3 **SOLARKIT**
pag. 145



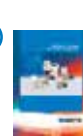
integration boiler kit

4 **FBS8180-CE**
pag. 140



Compact solar
control unit

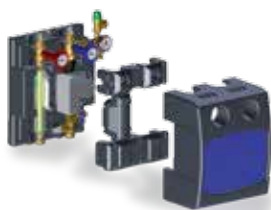
5 **Chapter A**
pag. 5



Radiator valve for
heat elements

PUMPING AND CONTROL UNITS

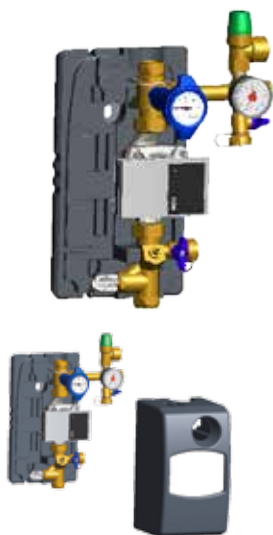
SOL-DUO



Ready-to-mount, compact solar control unit. New 3 part isolation provides thermal separation of electronic and hydraulic components. Pump installation length 180 mm - wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity flow stop. EPP heat insulation. Venting pipe. Compression fitting connection 22 mm.

Type	Part no. WII	Part no. WID	Description
SOL-DUO	10026405	10026405	2-16 l/min Wilo Yonos PARA 25/7
SOL-DUO	10026403	10026403	2-16 l/min Grundfos Solar PM 25-105

FLOWBOX SOLAR 8010 SINGLE



Ready-to mount, compact solar return. Pump installation length 130 mm- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel with, arrangeable metal gravity flow stop. EPP heat insulation. Compression fitting connection 22 mm. On request: Flow sensor 1-12 or 2-40 l/min, solar safety relief valve with set pressure 2,5/3/4/8/10 bar. Integration of High- efficiency pumps of all known manufacturers.

Type	Part no. WID	Description
FBS 8010-S	1)	0,5-6 l/min Wilo Yonos PARA ST 15/7
FBS 8010-S	1)	0,5-6 l/min Grundfos UPM3 solar 15-75
FBS 8010-S	10036102	2-16 l/min Wilo Yonos PARA ST 15/7
FBS 8010-S	10036101	2-16 l/min Grundfos UPM3 solar 15-75
FBS 8010-S	10036105	4-36 l/min Wilo Yonos PARA ST 15/7,5
FBS 8010-S	10036103	4-36 l/min Grundfos UPM3 solar 15-105

1) on request

FLOWBOX SOLAR 8010-E

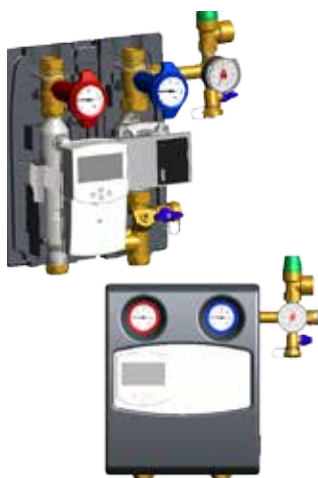


Ready-to-mount, compact solar control unit. Pump installation length 130 mm- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel with, arrangeable metal gravity flow stop. EPP heat insulation. Venting pipe. Compression fitting connection 22 mm. On request: Flow sensor 1-12 or 2-40 l/min, pressure sensor, solar safety relief valve with set pressure 2,5/3/4/8/10 bar. Integration of High- efficiency pumps of all known manufacturers.

Type	Part no. WID	Description
FBS 8010-E	10035873	0,5-6 l/min Wilo Yonos PARA ST 15/7
FBS 8010-E	10035742	0,5-6 l/min Grundfos UPM3 solar 15-75
FBS 8010-E	10036018	2-16 l/min Wilo Yonos PARA ST 15/7
FBS 8010-E	10030720	2-16 l/min Grundfos UPM3 solar 15-75
FBS 8010-E	10036100	4-36 l/min Wilo Yonos PARA ST 15/7,5
FBS 8010-E	10036019	4-36 l/min Grundfos UPM3 solar 15-105

PUMPING AND CONTROL UNITS

140

**FLOWBOX SOLAR 8010-CE**

Ready-to-mount, compact solar control unit. Pump installation length 130 mm- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel with, arrangeable metal gravity flow stop. EPP heat insulation. Venting pipe. Compression fitting connection 22 mm. LCD Plus solar controller. On request: solar safety relief valve with set pressure 2,5/3/4/8/10 bar.

Type	Part no. WID	Description
FBS 8010-CE	1)	0,5-6 l/min Wilo Yonos PARA ST 15/7
FBS 8010-CE	1)	0,5-6 l/min Grundfos UPM3 solar 15-75
FBS 8010-CE	10035580	2-16 l/min Wilo Yonos PARA ST 15/7
FBS 8010-CE	10035581	2-16 l/min Grundfos UPM3 solar 15-75
FBS 8010-CE	10035741	4-36 l/min Wilo Yonos PARA ST 15/7,5
FBS 8010-CE	10036099	4-36 l/min Grundfos UPM3 solar 15-105

1) on request

**FLOWBOX SOLAR 8180 SINGLE**

Ready-to mount, compact solar return. Pump installation length **180 mm**- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel with, arrangeable metal gravity flow stop. **New 3 part EPP insulation provides thermal isolation of electronic and hydraulic components.** Compression fitting connection 22 mm. On request: Flow sensor 1-12 or 2-40 l/min, solar safety relief valve with set pressure 2,5/3/4/8/10 bar. Integration of High- efficiency pumps of all known manufacturers.

Type	Part no. WID	Description
FBS 8180-S	1)	0,5-6 l/min Wilo Yonos PARA ST 25/7
FBS 8180-S	1)	0,5-6 l/min Grundfos UPM3 solar 25-75
FBS 8180-S	10037105	2-16 l/min Wilo Yonos PARA ST 25/7
FBS 8180-S	10037106	2-16 l/min Grundfos UPM3 solar 25-75
FBS 8180-S	10037104	4-36 l/min Wilo Yonos PARA ST 25/7,5
FBS 8180-S	10037100	4-36 l/min Grundfos UPM3 solar 25-105
FBS 8180-S	1)	14-42,5 l/min Grundfos PML Solar 25-145
FBS 8180-S	1)	14-42,5 l/min Wilo Stratos Para 25/1-11

1) on request

**FLOWBOX SOLAR 8180-E**

Ready-to-mount, compact solar control unit. Thermal separation of electronic and hydraulic components. Pump installation length **180 mm**- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity flow stop. **New 3 part EPP insulation provides thermal isolation of electronic and hydraulic components.** Venting pipe. Compression fitting connection 22 mm up to 36 l/min, 28 mm up to 42,5 l/min. On request: Flow sensor 1-12 or 2-40 l/min, pressure sensor, solar safety relief valve with set pressure 2,5/3/4/8/10 bar. Integration of High- efficiency pumps and solar controls of all known manufacturers.

Type	Part no. WID	Description
FBS 8180-E	1)	0,5-6 l/min Wilo Yonos PARA ST 25/7
FBS 8180-E	1)	0,5-6 l/min Grundfos UPM3 solar 25-75
FBS 8180-E	10027576	2-16 l/min Wilo Yonos PARA ST 25/7
FBS 8180-E	10037015	2-16 l/min Grundfos UPM3 solar 25-75
FBS 8180-E	10029687	4-36 l/min Wilo Yonos PARA ST 25/7,5
FBS 8180-E	10037107	4-36 l/min Grundfos UPM3 solar 25-105
FBS 8180-E	10045872	14-42,5 l/min Grundfos PML Solar 25-145
FBS 8180-S	1)	14-42,5 l/min Wilo Stratos Para 25/1-11

1) on request

PUMPING AND CONTROL UNITS


FLOWBOX SOLAR 8180-CE

Ready-to-mount, compact solar control unit. Pump installation length **180 mm**- wired ex works, balancing valve WattFlow with fill and drain-cook, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cook, wall bracket including corrugated tube to connect with the expansion vessel with, arrangeable metal gravity flow stop. **New 3 part EPP insulation provides thermal isolation of electronic and hydraulic components.** Venting pipe. Compression fitting connection 22 mm. LCD Plus solar controller. On request: solar safety relief valve with set pressure 2,5/3/4/8/10 bar.



Type	Part no. WID	Description
FBS 8180-CE	0,5-6 l/min	Wilo Yonos PARA ST 25/7
FBS 8180-CE	0,5-6 l/min	Grundfos UPM3 solar 25-75
FBS 8180-CE	2-16 l/min	Wilo Yonos PARA ST 25/7
FBS 8180-CE	2-16 l/min	Grundfos UPM3 solar 25-75
FBS 8180-CE	4-36 l/min	Wilo Yonos PARA ST 25/7,5
FBS 8180-CE	4-36 l/min	Grundfos UPM3 solar 25-105
FBS 8180-CE	14-42,5 l/min	Grundfos PML Solar 25-145
FBS 8180-S	14-42,5 l/min	Wilo Stratos Para 25/1-11

1) on request

KVSR - RED STK

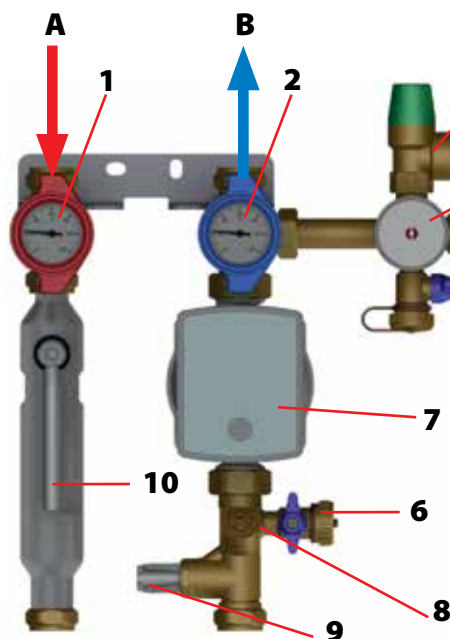
Connection accessories for solar units.



Type	Part no. WII	Part no. WID	Description
KVSR	10016200	10016200	1 x screw nut M28 x 1,5; 1 x clamp ring 22 mm
KVSR	10009695	10009695	clamp ring reduction 22 x 18 mm without screw nut
KVSR	10009693	10009693	clamp ring reduction 22 x 15 mm without screw nut
RED-STK	10007425	10007425	reduction 1"x Ø22 m without screwings
RED-STK	10007437	10007437	reduction G3/4"x Ø22 m without screwings

TECHNICAL NOTE

COMPONENTS OVERVIEW OF SOL-DUO AND FLOWBOX SOLAR PUMP UNITS



- 1 Ball valve with thermometer (supply line)
- 2 Ball valve with thermometer (return line)
- 3 Solar safety valve
- 4 Pressure gauge
- 5 Connection for expansion tank
- 6 Rinsing and filling device with drain tap
- 7 Circulation pump (solar circuit)
180 mm for SOL-DUO and FLOWBOX 8180
130 mm for FLOWBOX 8010
- 8 WattFlow: Regulating and gate valve
- 9 WattFlow: Flow indicator in l/min
- 10 Venting pipe (with venting valve)
- A Collector supply line
- B Collector return line

ELECTRONIC CONTROL UNITS

LED BASIC



Solar controller for solar installations with one collector field, one tank and one pump. Graphic installation layout on the controller contains one LED for the pump and one for each temperature sensor.

Inclusive sensors, 2 x PT1000/SF3 and 1 x PT1000/KS1,5 Power supply 230 V. IP42

- 3 Temperature sensor inputs (PT1000)
- 2 Pump outputs
- One LED for the pump and one for each temperature sensor.

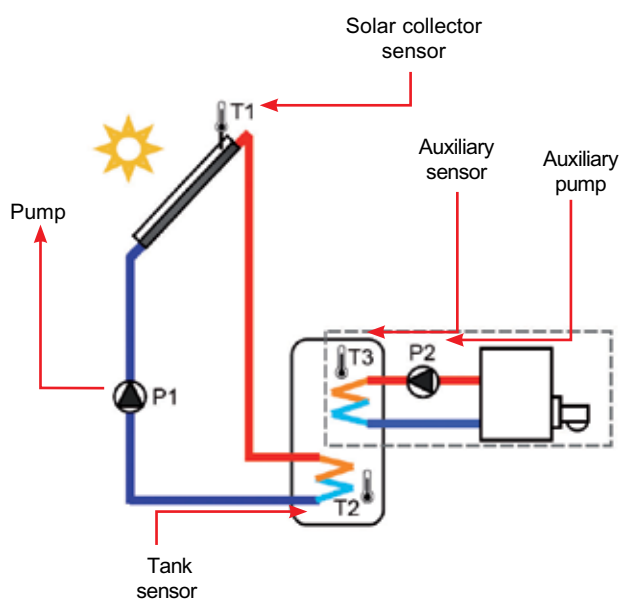
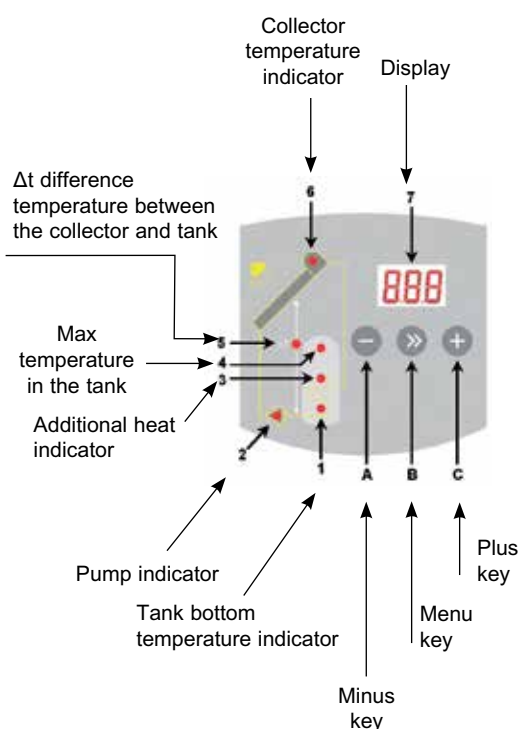
NO PUMP SPEED REGULATION (ON/OFF).

Type	Part no. WII	Part no. WID	Sensor no.
LED BASIC	P03752	10021158	3 (two L = 3 m + one L = 1,5 m)

TECHNICAL NOTE

LED BASIC controller

- 1 Tank bottom temperature indicator (the display "7" shows the measured temperature)
- 2 Pump indicator (blinks when operating)
- 3 Additional heat indicator (blinks when operating)
- 4 Max temperature in the tank (setting level)
- 5 Δt difference temperature between the collector "6" and tank "1" (setting level)
- 6 Collector temperature indicator (the display "7" shows the measured temperature)
- 7 Display (red)
- A Minus key (to decrease the current value)
- B Menu key (to change the displayed value and parameter number)
- C Plus key (to increase the current value)



ELECTRONIC CONTROL UNITS
LCD PLUS

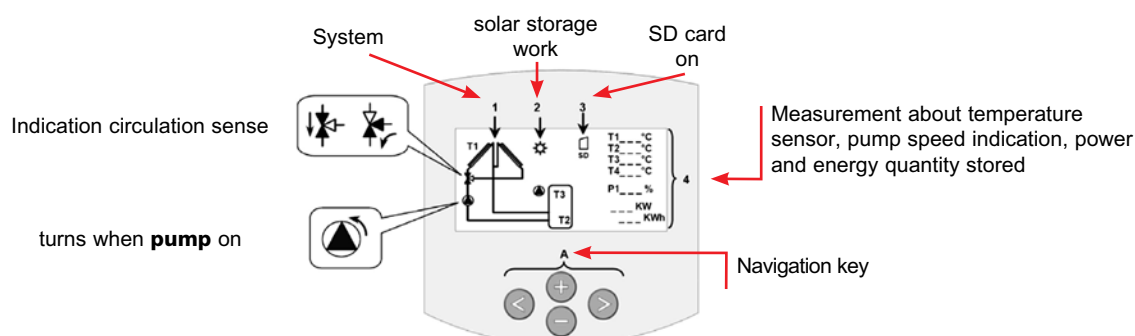
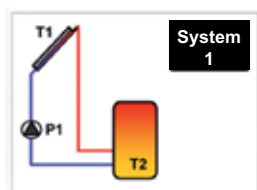

Solar controller for solar installations with one or two collector fields, tanks and pumps. Graphic display with backlight. Collector protection (Freeze and over heat) Energy measuring with SD card interface to save the recorded statistics. Inclusive sensors, 2 x PT1000/SF3 and 1 x PT1000/KS1,5. Power supply 230 V. IP42

- 5 Temperature sensor inputs (PT1000)
- 1 Impulse flow meter input
- 2 Analogue inputs for Grundfos sensors (Flow, pressure and temperature)
- 2 Pump outputs for pump speed control standard or PWM.
- 1 Extra output for valve control or additional pump
- 8 working systems programmed

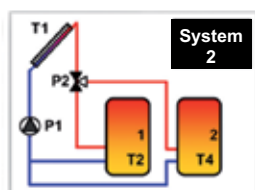
Data logging set in connection with the solar controller LCD plus composed of a SD card, Software CD and a USB SD card reader.

PUMP SPEED REGULATION FOR STANDARD (TRIAC) AND HIGH EFFECIENCY PUMPS WITH PWM2 SIGNAL.

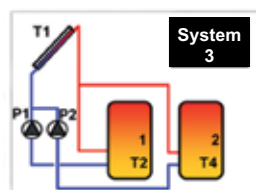
Type	Part no. WII	Part no. WID	Sensor no.
LCD PLUS	P04456	10021165	3 (two L = 3M + one L = 1,5M)
DLS for LCD PLUS	-	10020761	

TECHNICAL NOTE
Display PLUS controller

Systems with possibility to add extra funtion


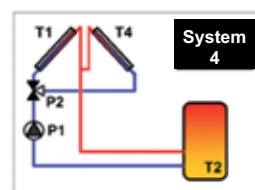
System 1
1 Solar collector (T1)
1 Pump (P1)
1 Tank (T2)



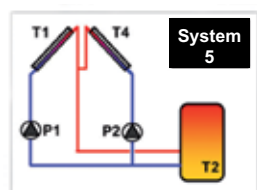
System 2
1 Solar collector (T1)
1 Pump (P1)
2 Tanks (T2/T4)
1 Valve (P2)



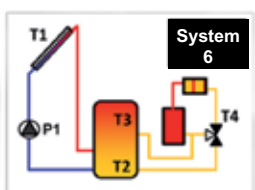
System 3
1 Solar collector (T1)
2 Pumps (P1/P2)
2 Tanks (T2/T4)



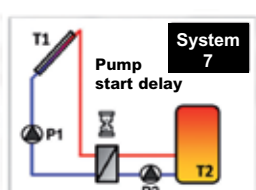
System 4
2 Solar collector (T1/T4)
1 Pump (P1)
1 Tank (T2)
1 Valve (P2)



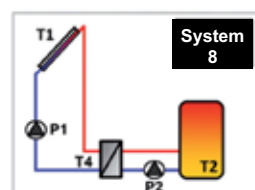
System 5
2 Solar collectors (T1/T4)
2 Pumps (P1/P2)
1 Tank (T2)



System 6
1 Solar collector (T1)
1 Pump (P1)
1 Tank (T2/T3)
1 Valve (T4)



System 7
1 Solar collector (T1)
2 Pumps (P1/P2)
1 Tank (T2)
delay activation between the two pumps



System 8
1 Solar collector (T1)
2 Pumps (P1/P2)
1 Tank (T2)
Return temperature solar circuit (T4)

ACCESSORIES

ST



Temperature sensorst PT1000
 -tank sensor up to 105°C, 3 m cable
 -collector sensor up to 180°C, 1,5 m cable
 -collector sensor up to 180°C, 5,0 m cable

Type	Part no. WII	Part no. WID	Description
ST	PPLELE00060	10021176	L=3,0 m, 105°C
ST	PPLELE00061	10021177	L=1,5 m, 180°C
ST	-	10021175	L=5,0 m, 180°C

SP1



Overload protection for the collector sensor

Type	Part no. WII	Part no. WID
SP1	-	10020785

SES



Solar gain set for solar systems to controll the pump speed and for gain measuring in connection with a solar controller for example the Watts Solarcontroller LCD or LCD plus. Composed of a volume flow meter QN 1,5 m³/h 3/4". Impulse number: 1 impuls per litre flow volume. Incl. temperature pipe contact sensor with mounting parts.

Type	Part no. WII	Part no. WID
SES	-	10021156

MMV-S



Thermostatic mixing valve solar.
 For drinking water installations.
 Adjustment range 30 - 65 °C, factory setting 50 °C, serves as scalding protection, brass body, max. hot water supply 110 °C, flow rate 63 l/min at 3 bar.
 Any installation position.

In accordance with EN 1111 and EN 1287.

Type	Part no. WII	Part no. WID	Size	Finishing
MMV-S	97500	10017432	1" with fitting 1/2" M	Brass
MMV-S	97501	10017433	1" with fitting 3/4" M	Brass
MMV-S	-	10017434	With integrated check valves	Brass
MMV-S	97560	10017435	1" M Without fittings	Brass

SSG 6



Solar safety unit for connection to solar control unit, pressure gauge 0 – 10 bar, solar combined feed cock and drain valve, solar relief valve 6 bar. Different response pressure available on request.

Type	Part no. WIID	Description
SSG 6	10010512	3/4" UN x 3/4" M, safety valve 6 bar

ACCESSORIES

SOLARKIT



Thermostatic kit to connect a solar panel to the boiler for thermal integration.
DZR Brass body CW602N.

5 different temperature setting points for mixed water: $30 \div 65 \text{ }^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Flow rate at 3 bar: 63 l/min – minimum flow rate 5 l/min.

Max. static pressure: 10 bar – Working pressure: $0,2 \div 5 \text{ bar}$.

Hot water temperature range, mixing valve side: $52 \div 100 \text{ }^{\circ}\text{C}$.

Cold water temperature range, mixing valve side: $5 \div 20 \text{ }^{\circ}\text{C}$.

Opening temperature of diverting valve: $45 \text{ }^{\circ}\text{C}$.

Type	Part no. WII	Part no. WID
KIT-SOL	97590	10026390

QUICKFILL



Easy filling and rinsing of heating, solar or heat pump circuits.

Brass body, short installation length, any installation position.

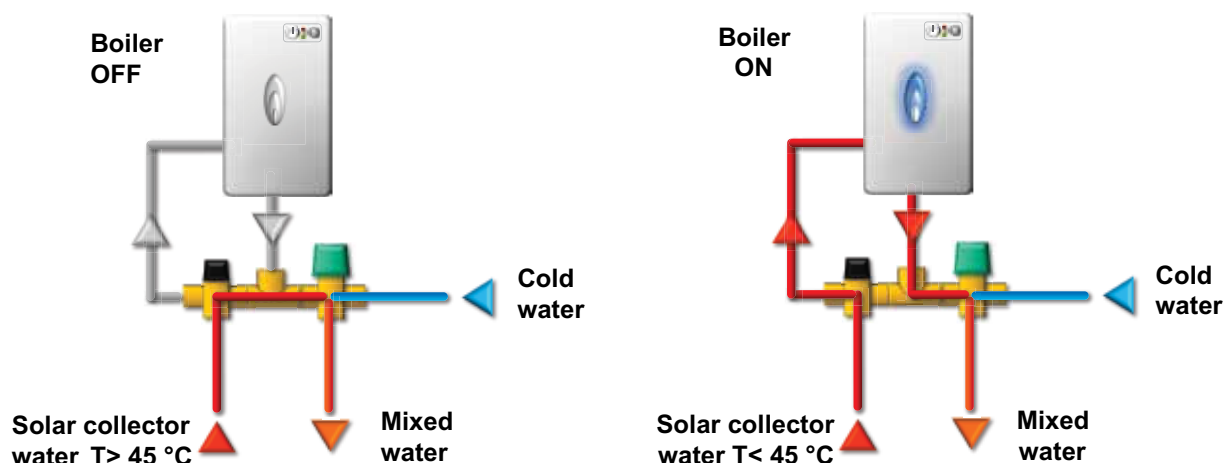
Type	Part no. WII	Part no. WID	Description
QUICKFILL	3499615	10010379	15 mm
QUICKFILL	3499620	10010380	18 mm
QUICKFILL	3499635	10010385	22 mm
QUICKFILL	3499625	10010381	3/4" M eurocone
QUICKFILL	3499630	10010383	1" M flat sealing
QUICKFILL	-	10017127	EPP Insulation for Quickfill

TECHNICAL NOTE

Working principle SOLARKIT

The thermostatic kit SOLARKIT to connect a solar panel to the boiler for thermal integration is a totally automatic device for the control of solar system for the domestic hot water production.

Without any external power supply, only using thermostatic elements, the SOLARKIT diverts the water to a thermal integration boiler when the solar energy it's not enough to obtain the needed domestic hot water temperature.



ACCESSORIES

SVE-SOL

Diaphragm safety valve for solar systems. Body and cap of brass CW617N, EN 12165-99. Elastomeric diaphragm. Discharge pressure factory set and with sealed knob. Suitable for water, also water mixtures (glycol up to 50%) as according to DIN 4757 Part 1. Max operating temperature : 160 °C

TÜV SOLAR certified. According to Directive PED 97/23/CEE.
Identification number CE1115.

Type	Part no. WII	Part no. WID	Size	bar
SVE-SOL	0215825	-	1/2" x 3/4"	2,5
SVE-SOL	0215830	10004653	1/2" x 3/4"	3
SVE-SOL	0215835	10004654	1/2" x 3/4"	3,5
SVE-SOL	0215840	10004655	1/2" x 3/4"	4
SVE-SOL	0215860	10013164	1/2" x 3/4"	6
SVE-SOL	0215880	10004659	1/2" x 3/4"	8
SVE-SOL	0215899	10004661	1/2" x 3/4"	10

MV-SOL**MINIVENT**

Automatic air vent valve for solar systems with unscrewable cover for inspection. Body and cover of brass CW617N, 1265-99. Polyethylene float. Seal between reservoir and cover with O-ring. Connection ND 3/8" - 1/2" DIN - ISO 228/1. Stainless steel (AISI 304) vacuum breaker (only for ND 3/8")
Max. operating pressure : 12 bar. Max. operating temperature : 160 °C.

Type	Part no. WII	Part no. WID	Size
MV-SOL	0249110	10004914	3/8"
MV-SOL	0249115	10004915	1/2"

RIA/MV-SOL

Automatic shut-off valve. Allows the air vent valves (**MV-SOL**) to be removed without having to empty the system. The **RIA/MV-SOL** shut-off valve is fitted with a device for quick total emptying of the water from the valve. Body: Brass EN12164-01 CW614N. Plug: Polymer high resistance. Spring: Stainless steel. Connections MF 3/8" and 1/2" DIN - ISO 228/1. Sealing Elastomer high resistance.

Type	Part no. WII	Part no. WID	Size
RIA/MV-SOL	0259310	10005122	3/8" x 3/8"
RIA/MV-SOL	0259315	10005124	1/2" x 1/2"

KFE

Solar ball valve. Universal use for sanitary, solar and heating installations, self-sealing connection 1/2", full bore, PN 10, hot-pressed brass with threaded hose coupling, with KTW-tested seals, can be used up to a maximum of 160 °C.

Type	Part no. WID	Size
KFE	10017317	1/2"

ACCESSORIES

SK-SOL

SOLAR quick coupling. To test and replace expansion vessels without draining of the system, for solar heating systems, temperature range up to a maximum of 160 °C.

Type	Part no. WII	Part no. WID
SK-SOL	0608102	10005114


VS

Solar expansion vessel. EPDM diaphragm. Precharge pressure 2,5 bar, temperature range -10 ... +140 °C, max. operating pressure 10 bar. Colour: white (RAL 9010).

Type	Part no. WID	Volume
VS8	10027677	8l
VS12	10027678	12l
VS18	10027670	18l
VS24	10027676	24l
VS35	10027675	35l
VS60	10027674	60l
VS80	10027673	80l
VS100	10027672	100l
VS200	10027671	200l

WH-MAG

Wall bracket with quick coupling for expansion vessel.



Type	Part no. WID	Description
WH-MAG	10001220	for vessel <18 l
WH-MAG	10014054	for vessel > 24 l



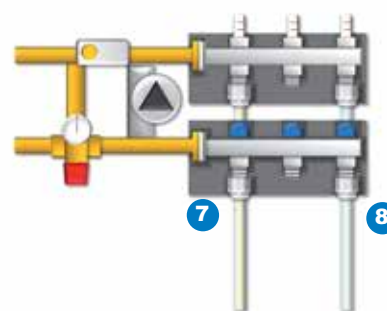
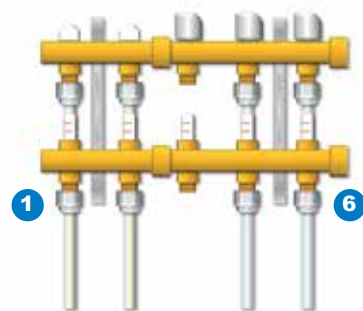
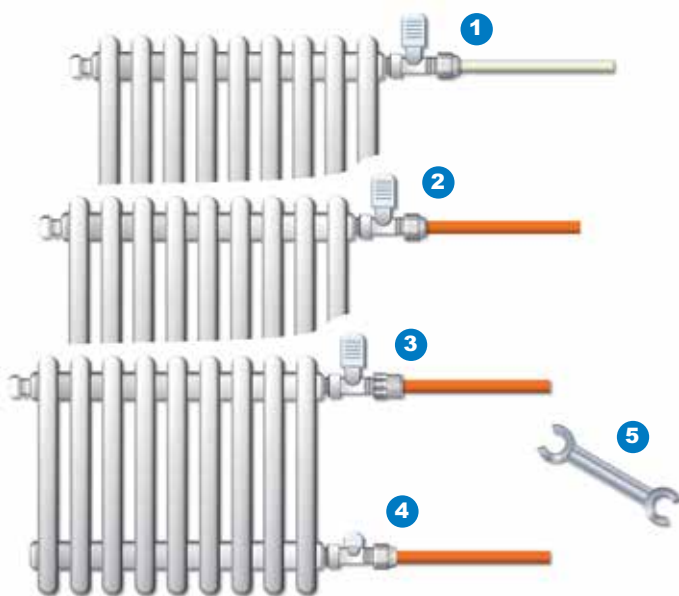
NOTES

Fittings



Fittings for copper pipes	pag. 151
Fittings for polyethylene and multi-layer pipes	pag. 153
Nipples, elbows, tee unions	pag. 155
Overall Dimensions	pag. 157

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

1 **817MS**
pag. 153



Fitting for multi-layer pipe.

2 **873M**
pag. 151



VELOFIT
One piece fittings
for copper

3 **872M**
pag. 151



RAFIT+
One piece fittings
for copper

4 **820R**
pag. 152



Unions for copper
series 820R

5 **829M**
pag. 151



Steel wrench for
tightening
RAFIT+

6 **817M**
pag. 153



Fitting for cross-linked
polyethylene pipe.

7 **ECM**
pag. 154



3/4" EURO-CONE
compression unions
for PEX pipe.

8 **ECP**
pag. 154



3/4" EURO-CONE
compression unions
for multilayer pipe.

FITTINGS FOR COPPER PIPES

872M

RAFIT+.

One-piece soft seal fitting, patented, for quick copper pipe connections.

Tightening torque with good unthreading resistance (tearing resistant):

DN 3/8" = 15-18 Nm - DN 1/2" = 20-25 Nm

* 1/2"S M24 x 1,5 (ONLY FOR 102M AND 119SX VALVES SIZE 1/2"S)

Type	Part no. WII	Part no. WID	Size	Ø Tube
872M	872M3810	-	3/8"	10
872M	872M3812	-	3/8"	12
872M	872M1210	-	1/2"	10
872M	872M1212	10000991	1/2"	12
872M	872M1214	-	1/2"	14
872M	872M1215	-	1/2"	15
872M	872M1216	-	1/2"	16
872M *	872M12S18	-	1/2"S	18

873M

VELOFIT.

One-piece compact soft seal fitting, patented, for quick copper pipe connections.

Tightening torque :

DN 3/8" = 15-20 Nm - DN 1/2" = 20-25 Nm - DN 3/4" = 30-35 Nm**DN 1" = 35-40 Nm**

* 1/2"S M24x 1,5 (ONLY FOR 102M AND 119SX VALVES SIZE 1/2"S)

** ONLY FOR VALVES

Type	Part no. WII	Part no. WID	Size	Ø Tube
873M	873M3810	-	3/8"	10
873M	873M3812	-	3/8"	12
873M	873M1210	-	1/2"	10
873M	873M1212	-	1/2"	12
873M	873M1214	10001683	1/2"	14
873M	873M1215	10001684	1/2"	15
873M	873M1216	-	1/2"	16
873M *	873M12S18	-	1/2"S	18
873M **	873M3418	-	3/4"	18
873M **	873M122	10001685	1"	22

829M

Steel wrench for tightening RAFIT+.

Type	Part no. WII	Part no. WID	Size
829M	829M2025	-	3/8" - 1/2"
829M	829M2527	10001001	1/2" - 1/2"S



TECHNICAL NOTE

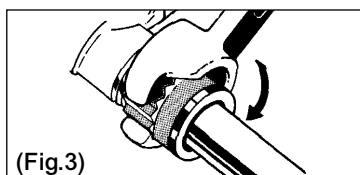
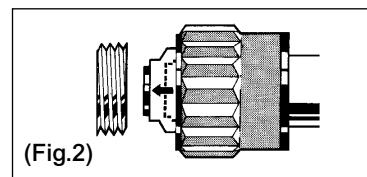
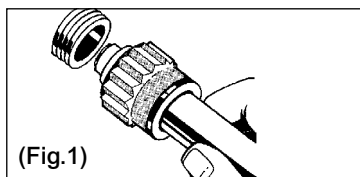
Installation of quick one-piece fittings RAFIT

1 - When cutting the pipe, be careful to deburr the pipe ends if necessary.

2 - Insert the pipe in the fitting pushing it until butting against the end stop (fig. 1), then keep it still in this position while tightening; hence the seal will 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 is engaged inside. Then tighten by hand.

4 - Fully tighten with respective wrench (item 829M) in accordance with recommended tightening torque (fig. 3).



FITTINGS FOR COPPER PIPES

820R

Compression union for copper pipe. Metal seal.



Type	Part no. WII	Part no. WID	Size	Ø Tube
820R	820R3808	-	3/8"	8
820R	820R3810	-	3/8"	10
820R	820R3812	-	3/8"	12
820R	820R1210	10000997	1/2"	10
820R	820R1212	-	1/2"	12
820R	820R1214	-	1/2"	14
820R	820R1215	10001642	1/2"	15
820R	820R1216	-	1/2"	16
820R *	820R12S18	10001000	1/2"S	18
820R	820R3418	-	3/4"	18
820R	820R3422	-	3/4"	22

* 1/2"S M24x 1,5 (ONLY FOR 102M AND 119SX VALVES SIZE 1/2")

197

Nickel-plated reducer for metal seal for connection of copper pipe (1mm wall thickness) to valves and lockshields with female connections.



Type	Part no. WII	Size	Ø Tube
197	197SN3810	3/8"	10
197	197SN3812	3/8"	12
197	197SN1214	1/2"	14
197	197SN1215	1/2"	15
197	197SN1216	1/2"	16
197	197SN3418	3/4"	18

TECHNICAL NOTE

Installation of fittings with metal seal



The series 197 adapter allows connection of copper pipes to all valves and lockshields with female connections of the iron series.



Shot-blasted brass biconical ring



Nickel-plated brass threaded ring nut



Fitting series 820R is used for connecting copper pipes to valves and lockshields with male connections. Coupling is by compressing an annealed brass olive between the threaded part and the pipe, which is determined by tightening of the nut. The pipe end should be reinforced by a mandrel in order to avoid squashing the pipe during tightening. The use of the olive prevents the pipe from slipping out but it also allows very easy disassembly.



Olive
Insert

Pipe tightening nut

FITTINGS FOR POLYETHYLENE AND MULTI-LAYER PIPES

817M

Nickel-plated compression union for cross-linked polyethylene pipe to **UNI 9338 standard**. EPDM O-ring.



Type	Part no. WII	Part no. WID	Size	Ø Tube
817M	817MC12142	-	1/2"	14 x 2,0
817M	817MC1215	-	1/2"	15 x 2,5
817M	817MC121612	-	1/2"	16 x 2,0
817M	817MC1216	-	1/2"	16 x 2,2
817M	817MC12S18	-	1/2"S	18 x 2,5
817M	817MC341612	-	3/4"	16 x 2,0
817M	817MC341713	10001003	3/4"	17 x 2,0
817M	817MC341814	-	3/4"	18 x 2,0
817M	817MC341813	-	3/4"	18 x 2,5
817M	817MC342016	-	3/4"	20 x 2,0

817MS

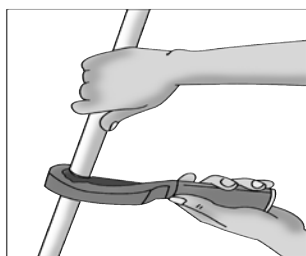
Compression unit for **multi-layer** pipe. Hose fitting with O-ring. Teflon washer to protect against stray currents.



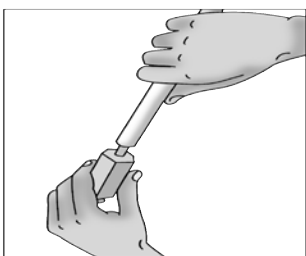
Type	Part no. WII	Part no. WID	Size	Ø Tube
817MS	817MSC121420	-	1/2"	14 x 2,0
817MS	817MSC121620	-	1/2"	16 x 2,0
817MS	817MSC1216225	-	1/2"	16 x 2,25
817MS	817MSC341820	-	3/4"	18 x 2,0
817MS	817MSC341620	10001688	3/4"	16 x 2,0
817MS	817MSC3416225	-	3/4"	16 x 2,25
817MS	817MSC342020	-	3/4"	20 x 2,0
817MS	817MSC342025	-	3/4"	20 x 2,5
817MS	817MSC121626R	-	1/2"	16,2 x 2,6
817MS	817MSC342029R	-	3/4"	20 x 2,9

TECHNICAL NOTE

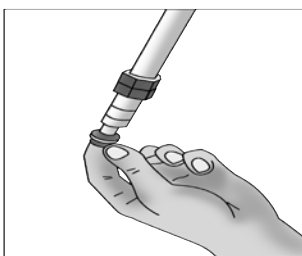
Installation series 817MS for multi-layer pipe



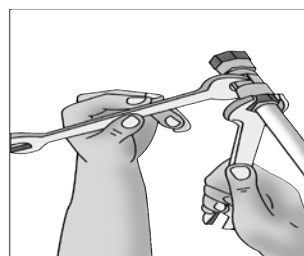
Make an accurate, burr-free, right-angled cut using a special tube cutter.



Leave the pipe with its original cylindrical shape for easier insertion of the hose fitting.



Make sure that there are no traces of burrs inside the pipe. Then mount the fitting.



Tighten fully with the aid of a spanner.

FITTINGS FOR POLYETHYLENE AND MULTI-LAYER PIPES

ECP

3/4" EURO-CONE compression unions **for PEX pipe**, designed for connections of valves and manifolds.



Type	Part no. WII	Part no. WID	Size	Ø Tube
ECP	ECP1620	10023974	3/4" EURO-CONE	16 x 2,0
ECP	ECP1720	-	3/4" EURO-CONE	17 x 2,0
ECP	ECP1820	-	3/4" EURO-CONE	18 x 2,0
ECP	ECP2020	10023975	3/4" EURO-CONE	20 x 2,0

ECM

3/4" EURO-CONE compression unions **for multilayer pipe**, designed for connections of valves and manifolds.



Type	Part no. WII	Part no. WID	Size	Ø Tube
ECM	ECM1620	-	3/4" EURO-CONE	16 x 2,0
ECM	ECM16225	10027964	3/4" EURO-CONE	16 x 2,25
ECM	ECM2020	-	3/4" EURO-CONE	20 x 2,0

NIPPLES, ELBOWS, TEE UNIONS

**220**

Nikel-plated three pieces union elbow.

Type	Part no. WII	Part no. WID	Size
220	220SN38	10022419	3/8"
220	220SN12	10001725	1/2"
220	220SN34	10022420	3/4"
220	220SN1	-	1"

**221**

Nikel-plated three pieces straight connector.

Type	Part no. WII	Part no. WID	Size
221	221SN38	10001728	3/8"
221	221SN12	10001729	1/2"
221	221SN34	10001730	3/4"
221	221SN1	10001731	1"

**893GL**

Brass nipple with threaded male/female connections (brass extensions).

Type	Part no. WII	Part no. WID	Size
893GL	893GL38	-	3/8" M
893GL	893GL12	-	1/2" MF
893GL	893GL34	-	3/4" MF

**892GL**

Brass nipple with threaded male connections.

Type	Part no. WII	Part no. WID	Size
892GL	892GL38	-	3/8" MM
892GL	892GL12	-	1/2" MM
892GL	892GL34	-	3/4" MM

**891GL**

Brass tee fitting with threaded male connections.

Type	Part no. WII	Part no. WID	Size
891GL	891GL12	-	1/2" MM

NIPPLES, ELBOWS, TEE UNIONS

**E890GL**

Brass elbow, male/female connections

Type	Part no. WII	Part no. WID	Size
E890GL	E890GL12MF	-	1/2"

**833M**

Brass reducer, male/male.

Type	Part no. WII	Part no. WID	Size
833M	833M3812	-	3/8" - 1/2"
833M	833M3834	-	3/8" - 3/4"
833M	833M1234	-	1/2" - 3/4"
833M	833M121	-	1/2" - 1"
833M	833M341	-	3/4" - 1"

**821M**

Brass reducer, male/female.

Type	Part no. WII	Part no. WID	Size
821M	821M38M12F	-	3/8" M x 1/2" F
821M	821M12M38F	-	1/2" M x 3/8" F
821M	821M12M34F	-	1/2" M x 3/4" F
821M	821M12F34M	-	1/2" F x 3/4" M
821M	821M12M1F	-	1/2" M x 1" F
821M	821M12F12SM	-	1/2" SM x 1/2" F
821M	821M34M38F	10001007	3/4" M x 3/8" F
821M	821M34M1F	-	3/4" M x 1" F

**841M**

Brass male plugs with o-ring sealed.

Type	Part no. WII	Part no. WID	Size
841M	841M38M	-	3/8"
841M	841M12M	-	1/2"
841M	841M34M	10001008	3/4"
841M	841M1M	-	1"

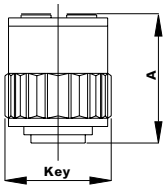
**834M**

Brass female plugs.

Type	Part no. WII	Part no. WID	Size
834M	834M38	-	3/8"
834M	834M12	-	1/2"
834M	834M34	-	3/4"
834M	834M1	-	1"

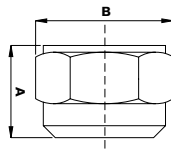
OVERALL DIMENSIONS

872M



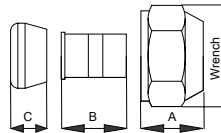
DN	A	Rafit Key
3/8"	25	20
1/2"	27	25
1/2"S	29	27

873M



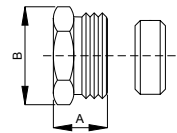
DN	A	B	Exagon key
3/8" x 10	17.5	24	21
3/8" x 12	17	24	21
1/2" x 12	18.5	28	25
1/2" x 14	18.5	28	25
1/2" x 15	18.5	28	25
1/2" x 16	18	30	27
1/2"S x 18	17.5	30	27
3/4" x 18	18	30	--

820R



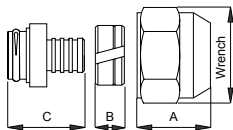
DN	A	B	C	Wrench
3/8"	17	24	9	20
1/2"	19	24	10	25
1/2"S	20	24	11	25
3/4"	20	24	11	32

197



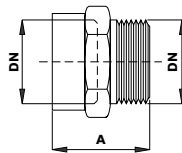
DN	A	B
3/8"	11	20
1/2"	14	24
3/4"	18	31

817M - 817MS



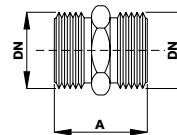
DN	A	B	C	Wrench
1/2"	23	8	21	20
1/2"S	26	8	22	25
3/4"	24	8	22	32

893GL



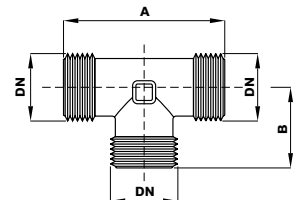
DN	A
3/8"	20
1/2"	23
3/4"	32

892GL



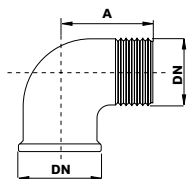
DN	A
3/8"	22
1/2"	25
3/4"	28

891GL



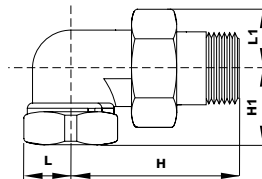
DN	A	B
1/2"	51	25,5

E890GL



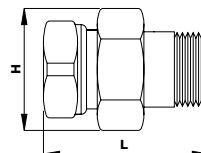
DN	A
1/2"	28

220



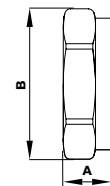
DN	H	H1	L	L1
3/8"MF	47	27	14	14
1/2"MF	53	34	16	18
3/4"MF	60	37	19	21
1"MF	77	46	23	27

221



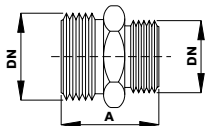
DN	H	L
3/8"MF	28	43
1/2"MF	35	51
3/4"MF	42	58
1"MF	54	62

834M



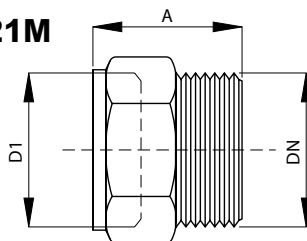
DN	A	B
3/8"	7	19
1/2"	9	25
3/4"	18	32
1"	18	38

833M



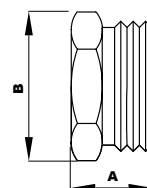
DN	A	DN	A
3/8" x 1/2"	24	1/2" x 1"	34
3/8" x 3/4"	28	3/4" x 1"	35
1/2" x 3/4"	30		

821M



DN	D1	A	DN	D1	A
3/8"M	1/2"F	21	1/2"M	1"F	21
1/2"M	3/8"F	22	3/4"M	1"F	21
1/2"SM	1/2"F	24	1"M	3/8"F	24
1/2"M	3/4"F	25			

841M



DN	A	B
3/8"	13	21
1/2"	15	27
3/4"	16	30
1"	22	37



NOTES

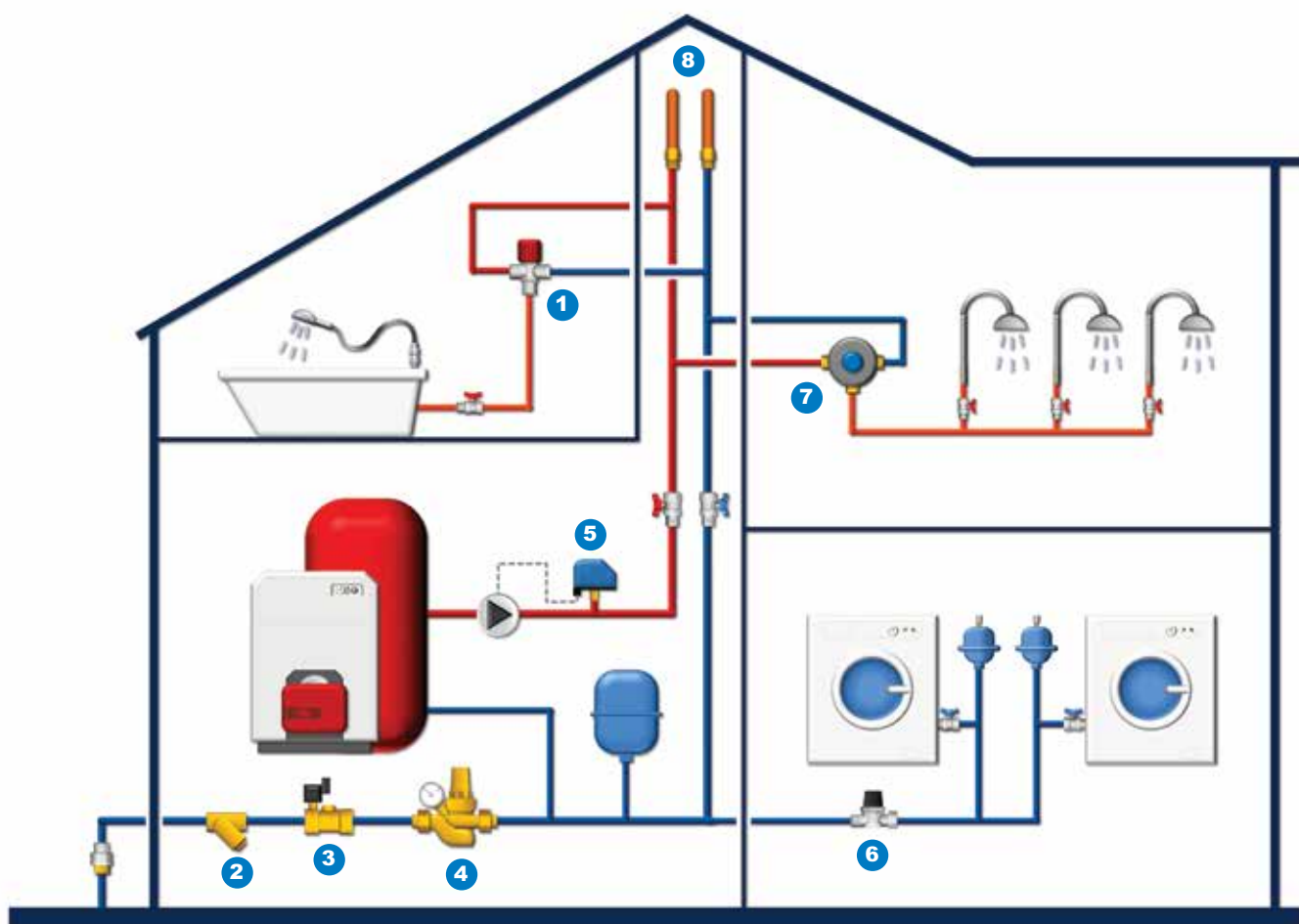
Sanitary system devices



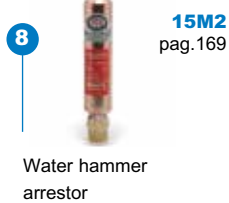
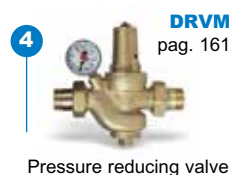
Pressure reducing valves	pag. 161
Solenoid valves	pag. 163
Boilers safety units	pag. 164
Thermostatic mixing valves	pag. 166
Thermostatic mixing valves for communities	pag. 167

Water hammer arrestors.....	pag. 169
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Filters	pag. 171
Ball valves	pag. 172
Overall dimensions	pag. 173

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter



PRESSURE REDUCING VALVES



REDUBAR

Compact adjustable pressure reducing valve in brass nickel plated. Max inlet pressure: 15 bar. Adjustable outlet pressure: 1,5 to 4 bar (factory preset $3 \pm 0,5$).

Max. working temperature: 70 °C.

Available in two versions:

- double threaded connections 1/2" F x 3/4" M on both sides
- connections 3/4" M x union nut 3/4" F.

Approved A.C.S (F).

Type	Part no. WII	Part no. WID	Connections
REDUBAR	82500		3/4" M x 3/4" UN
REDUBAR	82501	10029529	1/2" F / 3/4" M x 1/2" F / 3/4"



REDUBLOC

Compact three functions brass pressure reducing valve:

- pressure reduction
- non return valve (according to NF)
- on-off valve

Max inlet pressure: 15 bar.

Adjustable outlet pressure: 1,5 to 4 bar (factory preset $3 \pm 0,5$).

Max. working temperature: 70 °C

Connections 3/4" M x union nut 3/4" F

Type	Part no. WII	Part no. WID	Connections
REDUBLOC	82900	10029528	1/2" F / 3/4" M x UN



DRV

Diaphragm pressure reducing valve with compensated seat and complete with unions.

Brass CW617N body and cap. Stainless steel strainer.

1/2" - 3/4" - 1" = 600µm 1.1/4" - 1.1/2" - 2" = 750µm. Plastic valve seat.

Interchangeable filter-regulator unit. Max. inlet pressure: 25 bar.

Adjustable downstream pressure: 1.5 - 6 bar.

Can be used for water, air and neutral gases up to 60°C. Pressure drops less than 1.3 bar at characteristic flow rate DIN. Noise < 20 dB - **Class 1 in Germany.**

According to DVGW, SVGW, TIN, NF (only for ND 1/2" and 3/4").

Type	Part no. WII	Part no. WID	Size
DRV	0501115	10015740	1/2" MM
DRV	0501120	10015741	3/4" MM
DRV	0501125	10015742	1" MM
DRV	0501132	10015743	1.1/4" MM
DRV	0501140	10015744	1.1/2" MM
DRV	0501150	10015745	2" MM



DRVM

Like DRV, but with pressure gauge M1-ABS50 (Scale 0 - 6 bar).

Type	Part no. WII	Size
DRVM	0501315	1/2" MM
DRVM	0501320	3/4" MM
DRVM	0501325	1" MM
DRVM	0501332	1.1/4" MM
DRVM	0501340	1.1/2" MM
DRVM	0501350	2" MM

PRESSURE REDUCING VALVES

DRVN



Patented diaphragm pressure reducing valve with compensated seat, outlet pressure adjusting knob and external graduated scale for easy reading of set pressure.

Complete with unions. Body and cap of shot-blasted stamped brass CW617N.

Stainless steel filter cartridge. Pressure gauge connection on both sides: 1/4".

Materials in contact with fluids KTW certified. Max. inlet pressure: 25 bar.

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**.

According to DVGW.

Type	Part no. WII	Part no. WID	Size
DRVN	0502515	10015770	1/2" MM
DRVN	0502520	10015771	3/4" MM
DRVN	0502525	10015772	1" MM
DRVN	0502532	10015773	1.1/4" MM
DRVN	0502540	10015774	1.1/2" MM
DRVN	0502550	10015775	2" MM

DRVMN



Like DRVN but with pressure gauge M3A-ABS50 (Scale 0 - 6 bar).

Type	Part no. WII	Part no. WID	Size
DRVMN	0502615	10015776	1/2" MM
DRVMN	0502620	10015777	3/4" MM
DRVMN	0502625	10015778	1" MM
DRVMN	0502632	-	1.1/4" MM
DRVMN	0502640	-	1.1/2" MM
DRVMN	0502650	-	2" MM

TECHNICAL NOTE

Cavitation diagram for pressure reducing valves series DRV

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

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 damage of the internal parts.

SIZING

Example 1 (cavitation)

Pressure reducing valve with: - Inlet pressure P1 = 14 bar

- Outlet pressure P2 = 3 bar.

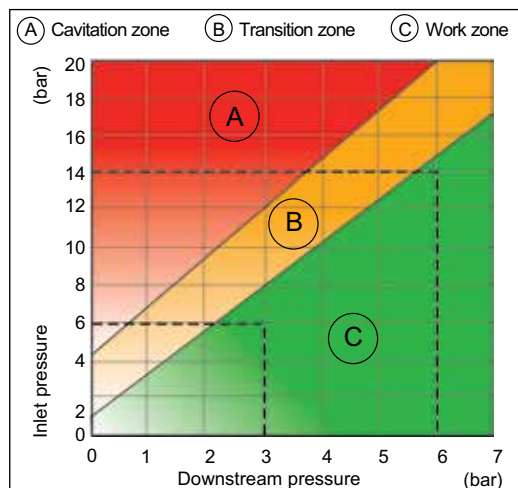
From the cavitation diagram it can be seen that the pressure reducing valve is constantly working in the red zone. To avoid rapid deterioration, two pressure reducing valves could be used, one connected upstream to the other.

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).



SOLENOID VALVES

850T

Solenoid valve for water. Operating temperature: - 10°C / +90°C.
Max. pressure: 25 bar. Normally closed (NC). Normally open (NO).



Type	Part no. WII	Part no. WID	Size	Power supply
850T	850T38W220	-	3/8"	230V NC
850T	850T38W24	-	3/8"	24V NC
850T	850T12W220	10023639	1/2"	230V NC
850T	850T12W24	10026147	1/2"	24V NC
850T	850T34W220	10023642	3/4"	230V NC
850T	850T34W24	-	3/4"	24V NC
850T	850T1W220	10023640	1"	230V NC
850T	850T1W24	-	1"	24V NC
850T	850T114W220	10027191	1.1/4"	230V NC
850T	850T112W220	10027190	1.1/2"	230V NC

850T	850T38W220NA	-	3/8"	230V NO
850T	850T38W24NA	-	3/8"	24V NO
850T	850T12W220NA	-	1/2"	230V NO
850T	850T12W24NA	-	1/2"	24V NO
850T	850T34W220NA	10023643	3/4"	230V NO
850T	850T34W24NA	-	3/4"	24V NO
850T	850T1W220NA	10023641	1"	230V NO
850T	850T1W24NA	-	1"	24V NO
850T	850T114W220NA	10023638	1.1/4"	230V NO
850T	850T112W220NA	-	1.1/2"	230V NO

PG9	P99035	10024848	Electric plug
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Attention: the connector must be ordered together the valves.

RB850T

Spare coil for solenoid valves series 850T.



Type	Part no. WII	Part no. WID	Power supply
RB850T	RB850T230V	10027729	230 V
RB850T	RB850T24VCA	-	24 VCA
RB850T	RB850T24VCC	-	24 VCC
RB850T	RB850T12VCA	-	12 VCA
RB850T	RB850T12VCC	-	12 VCC

BOILERS SAFETY UNITS

SVW

Diaphragm safety relief valve for water heaters in accordance with DIN 4753, brass CW617N.
Operating temperature: -10 - +10 °C.



Type	Part no. WII	Part no. WID	Size	bar
SVW	0215104	10004701	1/2" x 3/4"	4
SVW	0216105	10004702	1/2" x 3/4"	5
SVW	0216106	10004703	1/2" x 3/4"	6
SVW	0216108	10004704	1/2" x 3/4"	8
SVW	0216110	10004705	1/2" x 3/4"	10
SVW	0217604	10004722	3/4" x 1"	4
SVW	0218604	10004748	1" x 1.1/4"	4
SVW	0219604	10004766	1.1/4" x 1.1/2"	4
SVW	0217205	10004723	3/4" x 1"	5
SVW	0217206	10004724	3/4" x 1"	6
SVW	0217208	10004726	3/4" x 1"	8
SVW	0217210	10004727	3/4" x 1"	10
SVW	0218606	10004749	1" x 1.1/4"	6
SVW	0218608	10004751	1" x 1.1/4"	8
SVW	0218610	10004752	1" x 1.1/4"	10
SVW	0219604	10004766	1.1/4" x 1.1/2"	4
SVW	0219405	10004767	1.1/4" x 1.1/2"	5
SVW	0219606	10004768	1.1/4" x 1.1/2"	6
SVW	0219608	10004769	1.1/4" x 1.1/2"	8
SVW	0219610	10004770	1.1/4" x 1.1/2"	10

NA53 (SV-NA)

Safety group for hot water storage heaters up to 4kW (10-50l). Safety valve 7bar, shut off valve, inspectable check valve, air gap threaded 1". Max. operating temperature: 120 °C.



Type	Part no. WII	Part no. WID	Size
SV-NA	54310	10004608	1/2"

SFR (FIABILIS)

Safety group for hot water storage heaters up to 10kW (300l). Safety valve 7bar, shut off valve, inspectable check valve, air gap threaded 1". Max. operating temperature: 120 °C.



Type	Part no. WII	Part no. WID	Size
SFR	52550	10004611	3/4" MF



SFR 3/4" (SFR-D)

Safety group for hot water storage heaters up to 10kW (300l). Safety valve 7bar, shut off valve, inspectable check valve, air gap threaded 1". Max. operating temperature: 120°C. Angle body. Stainless steel seat to prevent corrosion from impairing the valve seal.

Type	Part no. WID	Size
SFR 3/4" INOX	10025229	3/4"MF



GSM 1"

Safety group for hot water storage heaters up to 18kW (600l). Safety valve 7bar, shut off valve, inspectable check vavle, air gap threaded 1". Max. operating temperature: 120 °C.
Angle body.

Type	Part no. WID	Size
GSM 1"	10004624	1"MF 1

**SIF**

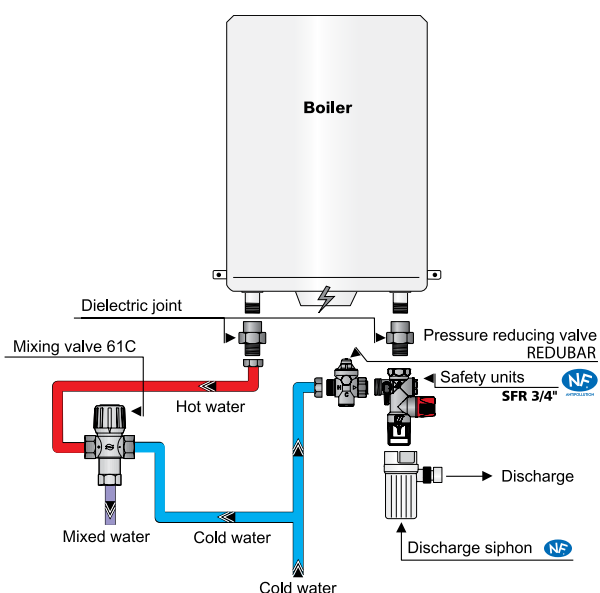
Discharge siphon for safety units SFR. White polypropylene body.

NF approved.

Type	Part no. WII	Part no. WID	Size
SIF	7092315	10025236	1" F

TECHNICAL NOTE

Installation exemple

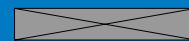


Characteristics of safety units series SFR

The special seat arrangement facilitates removal of any impurities present under the valve diaphragm. _____



- Safety unit with ball valve
- Flat connection, cold water side, with specific machining (pipe up to 16/18) for quick connection, snap-on type.



THERMOSTATIC MIXING VALVES

**61C**

AQUAMIX.

Thermostatic mixing valve with 4 set positions. Anti-scald protection. Setting range: 32°C ÷ 50°C. Max. differential pressure: 2 bar. Female connections. Without internal check valves.

Type	Part no. WII	Part no. WID	Size
61C	6109C12	10017424	1/2" F
61C	6110C34	10017418	3/4" F
61C	6111C1	10017423	1" F

**61CM**

AQUAMIX.

Thermostatic mixing valve with 4 set positions. Anti-scald protection. Setting range: 32°C ÷ 50°C. Max. differential pressure: 2 bar. Connections with male tailpieces. Without internal check valves.

Type	Part no. WII	Part no. WID	Size
61CM	61CM12	-	1/2" M
61CM	61CM34	10023554	3/4" M
61CM	61CM1	10023553	1" M

**MMV-C**

Thermostatic mixing valve. For drinking water installations. With two integrated check valves (DVGW), adjustment range 30 - 65 °C, factory setting 38 °C, serves as scalding protection, brass body, max. hot water supply 85 °C, flow rate 57 l/min at 3 bar. Connections with 1" M tailpieces.

Type	Part no. WII	Part no. WID	Size
MMV-C	97133	10017427	1/2" x 1/2"
MMV-C	97135	10017428	3/4" x 3/4"

**62C**

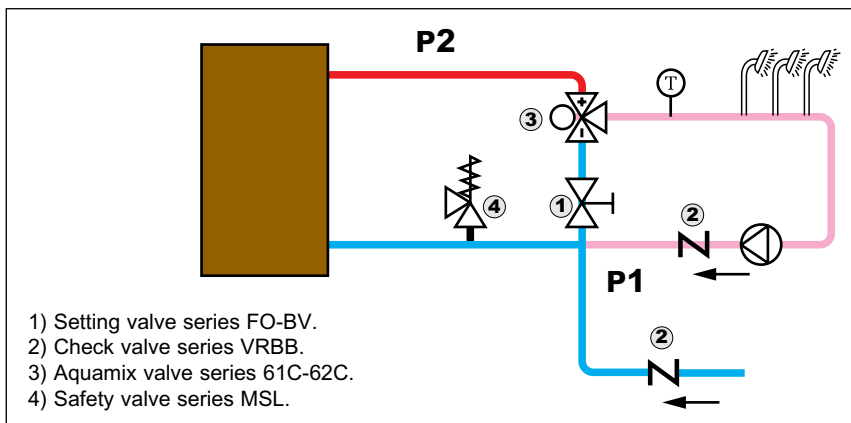
AQUAMIX

Thermostatic mixing valve with 4 set positions. Anti-scald protection. Setting range: 42°C ÷ 60°C. Max. differential pressure: 2 bar. Female connections. Without internal check valves.

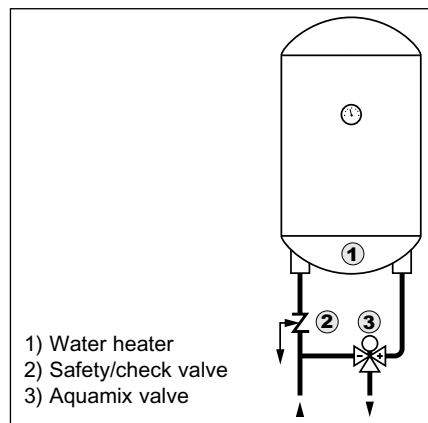
Type	Part no. WII	Part no. WID	Size
62C	6209C12	10022122	1/2" F
62C	6210C34	10017419	3/4" F
62C	6211C1	10017422	1" F

TECHNICAL NOTE**Aquamix valve installation diagrams**

Sanitary systems with recirculation



Domestic hot water

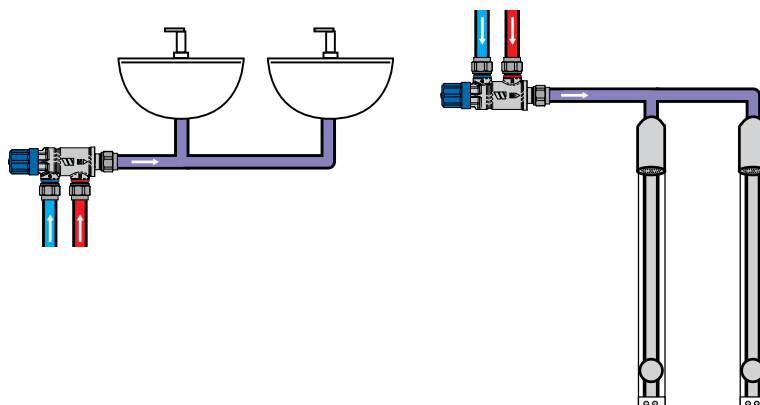
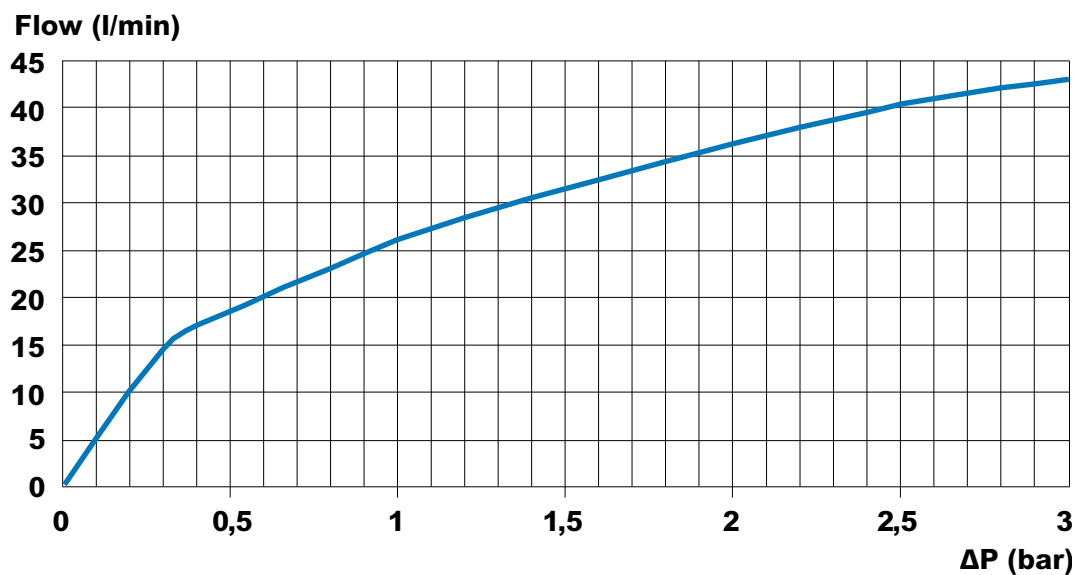


THERMOSTATIC MIXING VALVES FOR COMMUNITIES

**ISTAMIX**

Compact thermostatic mixing valve designed to supply general purpose applications with tempered water not exceeding a set temperature. Locking cap preventing the end user from adjusting the temperature. Nickel plated brass body (CW617N). Fitted with 2 check valves. Can be installed in any position. Maximum static pressure: 10 bar. Temperature setting range: 30 to 60 °C (factory setting 38 °C).

Type	Part no. WII	Part no. WID	Size
INSTAMIX	2297600	10050540	1/2" M
INSTAMIX	2297601	10050541	3/4" M

TECHNICAL NOTE**Installation exemples****Pressure drop curve / headloss**

THERMOSTATIC MIXING VALVES FOR COMMUNITIES

TX90

ULTRAMIX.

Visible thermostatic mixer for community installations such as swimming pools, sports centres, schools, factories, camping sites, hospitals, spas, etc. which allow controlling and holding of the mixed water temperature at a constant level also in the presence of variations in pressure (max. 1.5 bar). Brass body.

Cover with grey epoxy finish and blue graduated knob (Type E).

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

Anti-seize mechanism with filters and check valves. Bimetal steel strip coated with rilsan to protect against scale formation.

Available with two temperature setting range: 10÷50°C or 30÷70 °C with provision or locking. **Anti-scald protection** : water shut off in less than 2 seconds in the event of cold water missing. Max. operating pressure : 10 bar. Max. hot water temperature : 85°C.

Flow rates guaranteed with upstream dynamic pressure : 3 bar

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

Min. difference in inlet/outlet temperature : 5°C

*As a guide consider the simultaneity coefficient.



Type	Part no. WII	Part no. WID	Size		N° of users	T °C	Flow rate l/min
TX90	TX91E	10002504	3/4"	M	1-7	10-50°	3-56 *
TX90	TX91C	-	3/4"	M	1-7	10-50°	3-56 *
TX90	TX92E	10002505	3/4"	M	1-10	10-50°	3-80 *
TX90	TX92C	-	3/4"	M	1-10	10-50°	3-80 *
TX90	TX93E	10002503	1"	M	1-15	10-50°	3-120 *
TX90	TX93C	-	1"	M	1-15	10-50°	3-120 *
TX90	TX94E	10002494	1.1/4"	M	1-21	10-50°	5-175 *
TX90	TX94C	-	1.1/4"	M	1-21	10-50°	5-175 *
TX90	TX95E	10002493	1.1/2"	M	1-32	10-50°	5-260 *
TX90	TX95C	-	1.1/2"	M	1-32	10-50°	5-260 *
TX90	TX96E	10002506	2"	M	1-50	10-50°	6-400 *
TX90	TX96C	-	2"	M	1-50	10-50°	6-400 *
TX90	TX91E37	10002495	3/4"	M	1-7	30-70°	3-56 *
TX90	TX91C37	-	3/4"	M	1-7	30-70°	3-56 *
TX90	TX92E37	10002496	3/4"	M	1-10	30-70°	3-80 *
TX90	TX92C37	10002497	3/4"	M	1-10	30-70°	3-80 *
TX90	TX93E37	10002498	1"	M	1-15	30-70°	3-120 *
TX90	TX93C37	10002499	1"	M	1-15	30-70°	3-120 *
TX90	TX94E37	10002500	1.1/4"	M	1-21	30-70°	5-175 *
TX90	TX94C37	10002501	1.1/4"	M	1-21	30-70°	5-175 *
TX90	TX95E37	-	1.1/2"	M	1-32	30-70°	5-260 *
TX90	TX95C37	-	1.1/2"	M	1-32	30-70°	5-260 *
TX90	TX96E37	10002492	2"	M	1-50	30-70°	6-400 *
TX90	TX96C37	-	2"	M	1-50	30-70°	6-400 *

CAR-TX90

Spare cartridge for community mixers series TX90 ULTRAMIX.



Type	Part no. WII	Part no. WID	For model	T °C	Flow rate l/min
CAR-TX90	TX1	10002523	TX91E, TX91C	10-50°	3-56
CAR-TX90	TX2	10002522	TX92E, TX92C	10-50°	3-80
CAR-TX90	TX3	10002521	TX93E, TX93C	10-50°	3-120
CAR-TX90	TX4	10002518	TX94E, TX94C	10-50°	5-175
CAR-TX90	TX5	10002519	TX95E, TX95C	10-50°	5-260
CAR-TX90	TX6	10002520	TX96E, TX96C	10-50°	6-400
CAR-TX90	TX137	-	TX93E, TX93C	30-70°	3-120
CAR-TX90	TX237	-	TX94E, TX94C	30-70°	5-175
CAR-TX90	TX337	-	TX95E, TX95C	30-70°	5-260
CAR-TX90	TX437	-	TX96E, TX96C	30-70°	6-400
CAR-TX90	TX537	10002488	TX95E, TX95C	30-70°	5-260
CAR-TX90	TX637	-	TX96E, TX96C	30-70°	6-400

WATER HAMMER ARRESTORS

15M2



Water hammer arrestor with double sealed piston (O-ring and EPDM).
Can be installed in any positions. It does not require maintenance.
Suitable for washing machines, dish washers, sinks, sanitary systems, etc.
Copper body, polypropylene piston, brass connection, EPDM seals and O-rings.
Precharging pressure: 4 bar. Operating pressure: 10,3 bar. Peak pressure 14,5 bar.
Operating temperature: $0,5 \div 82$ °C.

Type	Part no. WII	Part no. WID	DN	Protection
15M2	471015002	10026028	1/2" M	A
15M2	471020002	10026029	3/4" M	B
15M2	471025002	-	1" M	C
15M2	471032002	-	1.1/4" M	D
15M2	471040002	10027393	1.1/2" M	E
15M2	471050002	10027392	2" M	F

TECHNICAL NOTE

Selection of water hammer arrestors series 15M2

UNI 9182 standard cites: "All hot and cold water distribution systems must be provided with water hammer arrestors of hydropneumatic type (with permanent or resettable air cushions)."

Each model of the 15M2 series is able to offer a certain cushioning action (table 1); hence for facilitating the choice we have given a table (table 2) with the unit load values assigned to each shut-off component (or units) normally installed in plumbing and hot water systems.

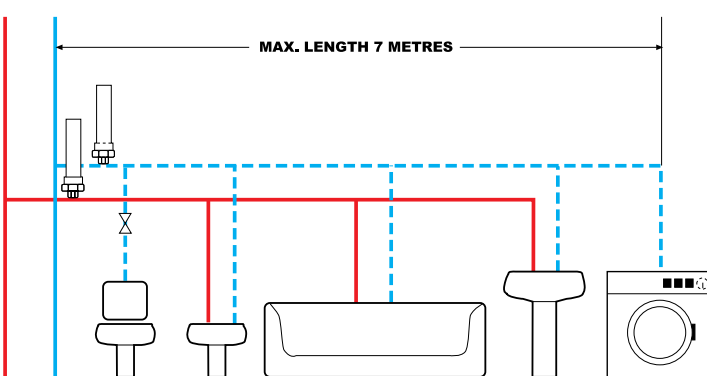
N.B. Install the water hammer arrestor as close as possible to the shut-off component causing the water hammer.

Table 1

SELECTION OF WATER HAMMER ARRESTOR ACCORDING TO THE UNIT LOAD NUMBER			
MODEL	Size	Protection	Unit load
15M2 - WAM	1/2" M	A	1 - 11
15M2	3/4" M	B	12 - 32
15M2	1" M	C	33 - 60
15M2	1.1/4" M	D	61 - 113
15M2	1.1/2" M	E	114 - 154
15M2	2" M	F	155 - 330

Table 2

APPLIANCE	UNIT LOAD
Quick flushing WC	6
Float WC	3
Wash basins	1
Bath-tub	2
Bidet	1
Shower	1
Washing machine/dish washer	2
Sink	2
Bath suite complete with quick flushing WC	8
Bath suite complete with float WC	6

BATH SUITE complete with quick flushing = 8 load units
1 15M2 or WAM 1/2"


N.B. Use half the values indicated for the hot water circuit.

EXPANSION VESSELS AND ACCESSORIES

SANIFLEX



Diaphragm type expansion vessel for warm water heating installations, in accordance with DIN 4753, to collect the additional volume that is generated during heat-up, prevents draining via safety relief valve. Primary pressure 4 bar, max. positive operating pressure 8 bar, max. operating temperature 70 °C, stainless steel connection 3/4".

Type	Part no. WID	Volume
SANIFLEX SG 5	10022132	5l
SANIFLEX SG 8	10022133	8l
SANIFLEX SG 12	10022134	12l
SANIFLEX SG 18	10022135	18l
SANIFLEX SG 25	10022136	25l
WH 25/SG	10017932	Mounting brackets for EG/SG 8-25

UWK



Wall console for sanitary expansion vessels. Connections: 1/2"M for safety valve, 1/4"M for pressure gauge, 2 x 3/4" for expansion vessel and system.

Type	Part no. WID	Description
UWK/VA	10017953	Stainless steel

PA5



Pressure switch for pumps and autoclaves. Setting range: 1 - 5 bar. Factory setting: 1.4 bar (contacts close), 2.8 bar (contacts open). Differential from 0.5 to 2.5 bar. Contact load rating: 16A (10) Max. fluid temperature: 90°C. Max. room temperature: 55°C. Degree of protection: IP44.

TÜV approved (only 0402202). According to VDE 0660 CEI 61-1. According to 2004/108/EC, 2006/95/EC.

Type	Part no. WII	Part no. WID	Size	Power supply
PA5	0402202	10013340	1/4"	250V - Single-phase
PA5	0402105	-	1/4"	500V - Three-phase

PA12



Pressure switch for pumps and autoclaves. Setting range: 2 - 12 bar. Factory setting: 5 bar (contacts close), 7 bar (contacts open). Differential from 1.5 to 4 bar. Other characteristics like PA5.

According to 2004/108/EC, 2006/95/EC.

Type	Part no. WII	Part no. WID	Size	Power supply
PA12	0402206	10013342	1/4"	250V - Single-phase
PA12	0402205	10013341	1/4"	500V - Three-phase

FILTERS

F21NOR/SMY

Brass Y strainer with removable stainless steel (AISI 304) mesh. O-ring sealed plug. Threaded connections FF ISO 228 (equivalent to DIN 259 and BS2779)

Type	Part no. WII	Part no. WID	Size	Kvs	Filtration capacity
F21NOR/SMY	F21NOR10	10017595	3/8"	4.48	500 µm
F21NOR/SMY	F21NOR15	10017596	1/2"	4.48	500 µm
F21NOR/SMY	F21NOR20	10017599	3/4"	7.86	500 µm
F21NOR/SMY	F21NOR25	10017601	1"	11	500 µm
F21NOR/SMY	F21NOR32	10017603	1.1/4"	16	500 µm
F21NOR/SMY	F21NOR40	10017605	1.1/2"	22	500 µm
F21NOR/SMY	F21NOR50	10017607	2"	35	500 µm
F21NOR/SMY	F21NOR65F	10017609	2.1/2"	60	800 µm
F21NOR/SMY	F21NOR80F	10017610	3"	83	800 µm
F21NOR/SMY	F21NOR100F	10017611	4"	100	800 µm

F21N

Cast iron (GG25) Y strainer with removable stainless steel (AISI 304) mesh. Drilled flange UNI 2222/67 PN16.

Type	Part no. WII	Size	Kvs	Filtration capacity
F21N	F21N-65	65	180	800 µm
F21N	F21N-80	80	258	800 µm
F21N	F21N-100	100	365	1000 µm
F21N	F21N-125	125	567	1000 µm
F21N	F21N-150	150	788	1000 µm
F21N	F21N-200	200	1258	1000 µm
F21N	F21N-250	250	1432	1600 µm

BALL VALVES

AKH



Drain ball valve. Heavy design, full bore, hot-pressed brass CW 617N, nickel-plated, angled drain, threaded hose coupling, steel handle, PN 20, max. temperature 110 °C.

Type	Part no. WID	Size
AKH	10017282	1/2"
AKH	10017283	3/4"
AKH	10017284	1"

KHE



Ball valve with drain. Full bore, brass CW 617N, PN 25, max. temperature 110 °C.

Type	Part no. WID	Size
KHE	10017342	1/2"
KHE	10017343	3/4"
KHE	10017344	1"
KHE	10017345	1.1/4"
KHE	10017346	1.1/2"
KHE	10017347	2"

KHR



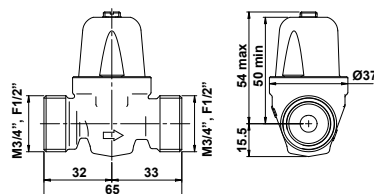
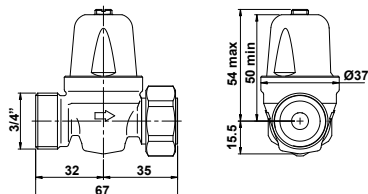
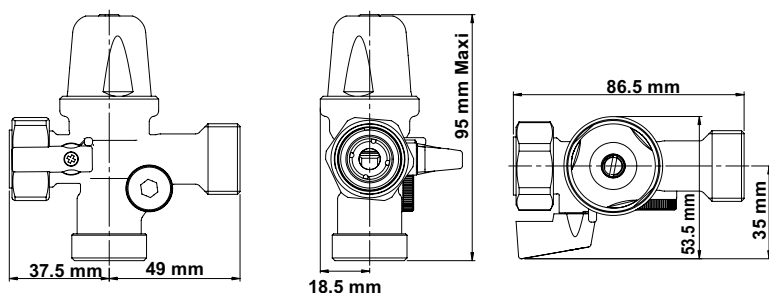
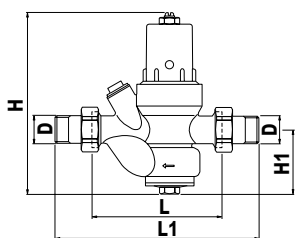
Ball valve. Heavy design, full bore, hot-pressed brass CW 617N, hard-chrome plated ball, Teflon® ball seals, double spindle seal, red handle, PN 20, max. temperature 110 °C, for water, oils, fuels and compressed air, double-sided female thread.

Type	Part no. WID	Size
KHR	10017018	3/8"
KHR	10017019	1/2"
KHR	10017020	3/4"
KHR	10017022	1"
KHR	10017023	1.1/4"
KHR	10017024	1.1/2"
KHR	10017025	2"

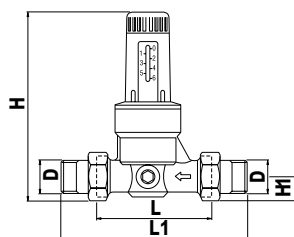
OVERALL DIMENSIONS
REDUBAR

part no. 82500

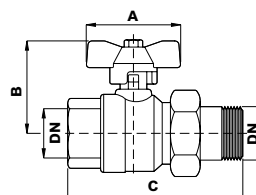
part no. 82501


REDUBLOC

DRV/DRVM


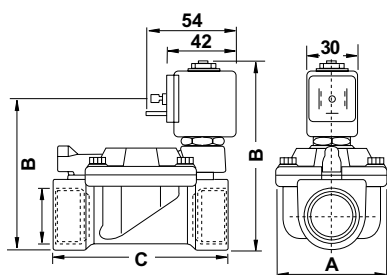
DN	L	L1	H	H1
1/2"	97	152	135	48
3/4"	110	171	155	58
1"	120	191	182	66
1.1/4"	140	211	227	75
1.1/2"	160	246	255	82
2"	175	261	262	88

DRVN/DRVMN


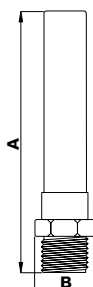
DN	L	L1	H	H1
1/2"	84	135	113	16,5
3/4"	94	151	133	20,5
1"	104	161	140	26
1.1/4"	109	175	192	29,5
1.1/2"	134	214	200	36
2"	144	224	205	42

210


DN	A	B	C
1/2"	45	50	76
3/4"	46	53	94
1"	66	65	109
1.1/4"	66	70	128

850T


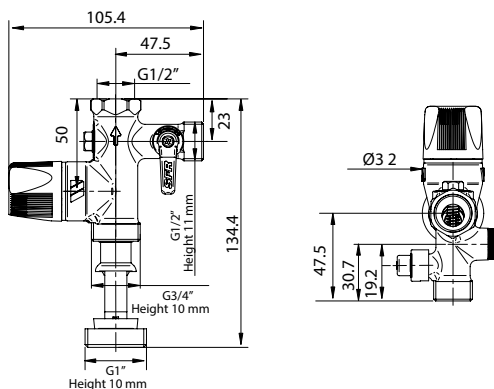
DN	A	B	C
3/8"	40	103	72
1/2"	40	103	72
3/4"	65	105	104
1"	65	112	104

15M2


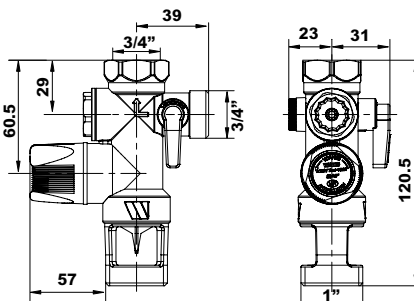
DN	A	B
1/2"	152	29
3/4"	291	29
1"	229	35
1.1/4"	264	42
1.1/2"	283	54
2"	330	67

OVERALL DIMENSIONS

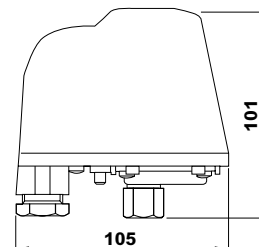
SFR-NA



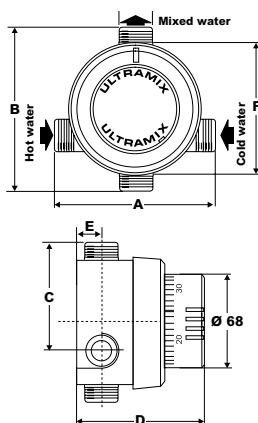
SFR-D



PA5/PA12

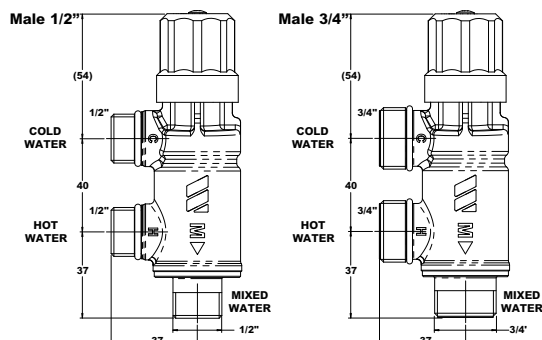


TX90

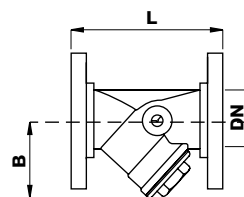


DN	A	B	C	D	E
2.1/2"	294	215	90	185	145
3"	336	270	105	200	160
4"	404	270	125	220	180

INSTAMIX

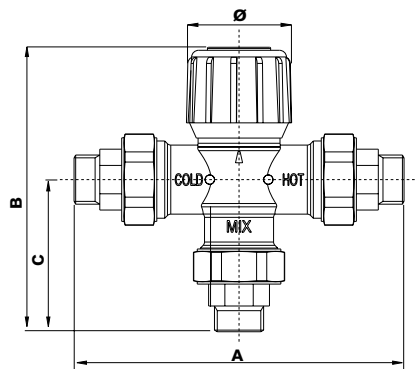


F21N



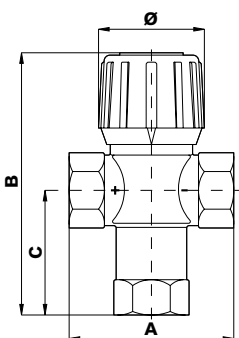
DN	L	B
2.1/2"-65	290	193
3"-80	310	205
4"-100	350	245
5"-125	400	295
6"-150	480	325
8"-200	600	390
10"-250	730	460

61CM



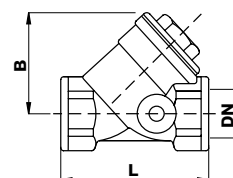
DN	A	B	C	Ø
1/2"	136	122	65	45
3/4"	140	124	67	45
1"	154	131	74	45

61C/62C



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

F21NOR/SMY



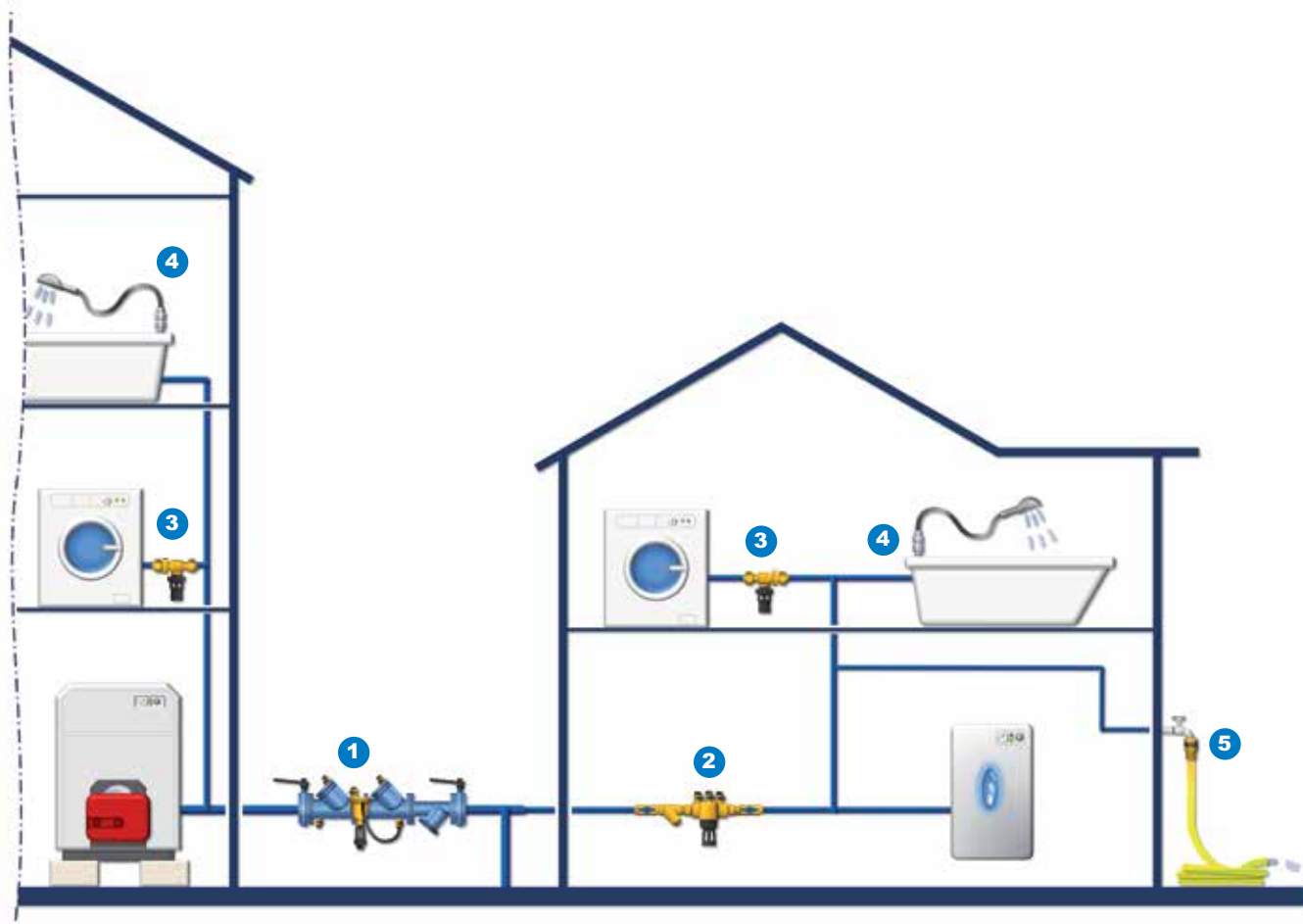
DN	L	B
1/2"	58	40
3/4"	70	50
1"	87	60
1.1/4"	96	68
1.1/2"	105	75
2"M	126	90
2.1/2"M	150	107
3"M	169	120
4"M	219	161

Water protection and regulation



Controllable backflow preventers	pag. 177
Backflow preventers, anti-siphon devices and check valves	pag. 179
Pressure reducing valves	pag. 181
Automatic control valves	pag. 182
Overall dimensions	pag. 183

EXAMPLE OF APPLICATION



Simplified scheme aimed at the product presentation in chapter

1 **WST909 (BA909)**
pag. 178



Backflow preventer with regulated reduced pressure zone

2 **BA BM**
pag. 177



Compact threaded backflow preventer

3 **CA9C**
pag. 179



Back flow preventer compact type

4 **DAWN**
pag. 179



Anti-siphon vacuum breaker device for flexible hose

5 **DAWNF**
pag. 179



Anti-siphon vacuum breaker device

CONTROLLABLE BACKFLOW PREVENTERS

BA BM



Compact flanged backflow preventer, with regulated reduced pressure zone, to EN 1717 and EN 12729 9157 standards. Max. operating temperature: 65 °C (top max 90°C per hour/day)
Max. operating pressure: 10 bar. Body brass DZR CW602N.
It is compulsory put upstream Y strainer model F21NOR.

Protection BA - compliant EN 12729:2003

Approved SIET, Kiwa, WRAS, NF, Belgacqua, SITAC, SVGV.

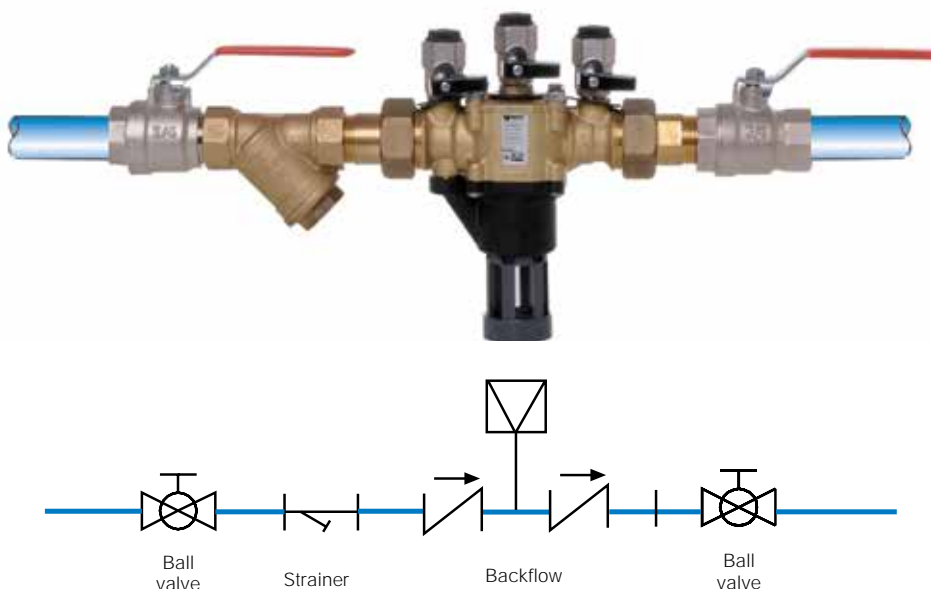
Type	Part no. WII	Part no. WID	Size
BA BM	405015310	10002343	15
BA BM	405020310	10002344	20
BA BM	405025310	10002345	25
BA BM	405032310	10002346	32
BA BM	405040310	10002347	40
BA BM	405050310	10002348	50

TECHNICAL NOTE

Advantages :

- More compact and light.
- Easy to install and for maintenance (no diaphragm is present).
- Available from DN06.

Example of installation with the hydraulic scheme as for UNI EN 1717



CONTROLLABLE BACKFLOW PREVENTERS

**BA009**

Compact flanged backflow preventer, with regulated reduced pressure zone, to UNI 9157 standards. Cast iron body lined on inside and outside with 2 coats of epoxy resin.

Stainless steel springs.

Complete with inspection system and stainless steel connection to discharge pipe.

Max. operating temperature: 60°C. Max. operating pressure: 10 bar.

Flanged fittings: DIN 2532.

Protection BA - Compliant EN 12729:2003

Approved SIET and NF.

Type	Part no. WII	Part no. WID	Size
BA009	2231722MC	10002300	65
BA009	2231822MC	10002301	80

**BA009MC (WST909)**

Flanged backflow preventer, with regulated reduced pressure zone, to UNI 9157 standards.

WATTS patented high protection series "AIR IN - WATER OUT".

Cast iron body lined on inside and outside with 2 coats of epoxy resin.

Stainless steel discharge valve guides and springs. Max. operating temperature: 60°C.

Max. operating pressure: 10 bar. Flanged fittings: NP 10.

Complete with inspection system and stainless steel connection to discharge pipe for ND 65 and 80.

With drain funnel from ND 100 to ND 250.

Protection BA - Compliant EN 12729:2003

Approved SIET and NF.

Type	Part no. WII	Part no. WID	Size
WST909	2232300MC	10002329	100
WST909	2232400MC	10002330	150
WST909	2232500MC	10002331	200
WST909	2232600MC	10002332	250

**TK-9A**

To test function and differential pressure of the BA 009, BA 909 and BA BM backflow preventers.

Type	Part no. WII	Part no. WID
TK-9A	1597023	10002337

BACKFLOW PREVENTER, ANTI-SIPHON DEVICES AND CHECK VALVES

CA9C

Backflow preventer, compact type, used to prevent the reverse flow of polluted/contaminated water (fluid class 3). The valve offers protection with regard to back-siphonage as well as backflow, and was especially developed for smaller connections to the water supply system, such as with water softeners and central heating boilers > 45 KW.

Connection F 1/2", 3/4". Working pressure PN 10. Max. temperature 65 °C.

Connection tundish Ø 40. Body Brass (DZR).

Spring Stainless steel. Sealing Rubber. Funnel Plastic.

Protection CA - Compliant EN 14367
Approved Belgaqua, Kiwa, NF, WRAS.

Type	Part no. WII	Part no. WID	Size
CA9C	407015290	10002427	1/2" FF
CA9C	407020290	10002428	3/4" FF

DAWS

Anti-siphon vacuum breaker device for sanitary appliances.

Recommended whenever there is risk of flowback when immersing a flexible hose in a bath or sink. Chrome-plated brass body. Stainless steel spring.

Max. temperature: 60°C. Max. pressure: 10 bar.

Protection : HA.
According to ASSE, CSA, ANSI.

Type	Part no. WII	Size
DAWS	1505315	1/2" MF

DAWNF

Anti-siphon vacuum breaker device for washing and watering taps outside the home.

Installed between the tap and flexible hose.

Provided with anti-freeze device to allow emptying the valve. Brass body.

Stainless steel spring. Max. temperature: 60°C. Max. pressure: 10 bar.

Protection : HA.
According to ASSE, CSA, ANSI.

Type	Part no. WII	Size
DAWNF	1505320	3/4" MF

DAWN

Anti-siphon vacuum breaker device for constant pressure applications. To be installed on the tap end-piece at the water outlet. As it is provided with direct safety drain it is installed above the service pipework. Brass body (item ...330 is chrome-plated). Stainless steel inside parts.

Max. pressure: 10 bar. Max. temperature: 60°C.

Protection : HA.
According to ASSE, CSA, ANSI.

Type	Part no. WII	Size
DAWN	1505329	3/8" FF
DAWN	1505330	3/8" FF

BACKFLOW PREVENTER, ANTI-SIPHON DEVICES AND CHECK VALVES

RV-CO



Plastic check valve. Designed for easy assembly into faucets, fittings, pumps, filtration equipment, and other type of water handling or processing equipment.

Same as type IN but with reduced dimensions. and without "snap-in-cams"

Can be used where the IO series and IN series cannot be. Body: POM polymer.

Seat: SBR Buna-S. O-ring: NBR Buna-N. Spring: Stainless steel. Working pressure: 10 bar.

Max working pressure: 16 bar. Max working temperature: 90°C.

Approvals: KIWA, BELGAQUA, DVGW,NF, WRAS, ETA, SITAC, NSF, ABP.

Type	Part no. WII	Part no. WID	DN
RV-CO10	1514210	10002736	10
RV-CO13	1514213	10002738	13
RV-CO14	1514214	10002739	14
RV-CO15	1514215	10002740	15

RV-IN



Plastic check valve. Designed for easy assembly into faucets, fittings, pumps, filtration equipment, and other type of water handling or processing equipment. Simple assembly.

Short overall length. Low opening pressure. Low pressure loss. Body: POM polymer.

Seat: SBR Buna-S. O-ring: NBR Buna-N. Spring: Stainless steel. Working pressure: 10 bar.

Max working pressure: 16 bar. Max working temperature: 90°C

Approvals : KIWA, DVGW,NF, WRAS, ETA, SITAC, NSF, ABP.

Type	Part no. WII	Part no. WID	DN
RV-IN 15	1515015	10002694	15
RV-IN 20	1515020	10002695	20
RV-IN 25	1515025	10002696	25
RV-IN 32	1515032	10002697	32
RV-IN 40	1515040	10002698	40
RV-IN 50	1515050	10002699	50

RV-IO



Plastic check valve. Designed for easy assembly into faucets, fittings, pumps, filtration equipment, and other type of water handling or processing equipment.

Simple assembly. Short overall length. Low opening pressure. Low pressure loss.

Body: POM polymer. Seat: SBR Buna-S. O-ring: NBR Buna-N. Spring: Stainless steel

Working pressure: 10 bar. Max working pressure: 16 bar. Max working temperature: 90°C

Approvals: KIWA, ABP, DVGW, NF, WRAS, ETA, SITAC, NSF, SVGW.

Type	Part no. WII	Part no. WID	DN
RV-IO 15	1515115	10002707	15
RV-IO 20	1515120	10002710	20
RV-IO 25	1515125	10002712	25
RV-IO 32	1515132	10002714	32
RV-IO 40	1515140	10002716	40
RV-IO 50	1515150	10002717	50

RV-WM



Plastic check valve. Designed for easy assembly into faucets, fittings, pumps, filtration equipment, and other type of water handling or processing equipment. Low opening pressure.

Low pressure loss. For use in water meter boxes. For use in German type water meter

Body: POM polymer. Seat: SBR Buna-S. O-ring: NBR Buna-N. Spring: Stainless steel.

Working pressure: 10 bar. Max working pressure: 16 bar. Max working temperature: 90°C.

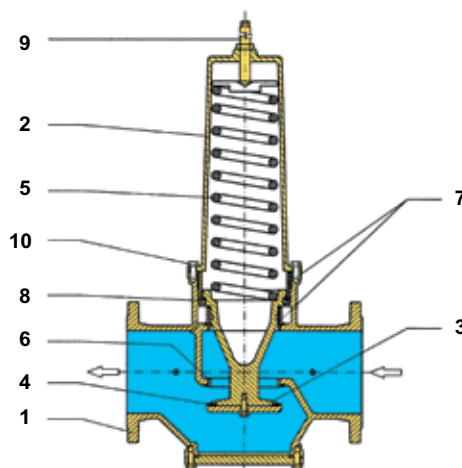
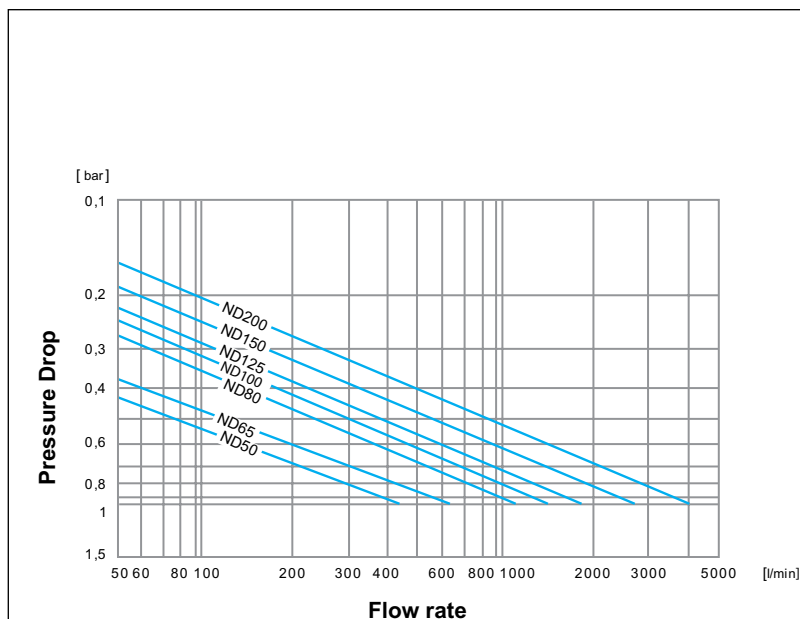
Approvals: KIWA, ABP, DVGW, NF, WRAS, ETA, SITAC.

Type	Part no. WII	Part no. WID	DN
RV-WM 15	1515215	10002681	15
RV-WM20	1515220	10002682	20
RV-WM25	1515225	10002683	25
RV-WM 32	1515232	10002684	32
RV-WM 40	1515240	10002685	40
RV-WM 50	-	10002686	50

PRESSURE REDUCING VALVES
DRVD16


Flanged pressure reducing valve with single spring-compensated seat, pressure gauge connections upstream and downstream 1/4" (ND 50 - 65) and 3/8" (ND 80 - 200).
Cast iron body, cap and flanges with epoxy finish. Max. inlet pressure: 16 bar.
Adjustable downstream pressures: 1,5 ÷ 6 bar / 2 ÷ 8 bar / 4 ÷ 12 bar.
Optional version: 2 - 8 bar / 4 - 12 bar.
Can be used for water, air and neutral gases up to 80°C. Flanged connections UNI 2223.
Available on request PN 25 and PN 40.

Type	Part no. WII	Part no. WID	Size	bar
DRVD16	0504053	10028148	50	1,5 - 6
DRVD16	0504068	-	65	1,5 - 6
DRVD16	0504083	10022108	80	1,5 - 6
DRVD16	0504103	10022109	100	1,5 - 6
DRVD16	0504128	-	125	1,5 - 6
DRVD16	0504153	10029124	150	1,5 - 6
DRVD16	0504203	10027744	200	1,5 - 6
DRVD16	0504054	-	50	2 - 8
DRVD16	0504069	-	65	2 - 8
DRVD16	0504084	-	80	2 - 8
DRVD16	0504104	10029693	100	2 - 8
DRVD16	0504129	-	125	2 - 8
DRVD16	0504154	-	150	2 - 8
DRVD16	0504204	-	200	2 - 8
DRVD16	0504055	-	50	4 - 12
DRVD16	0504070	-	65	4 - 12
DRVD16	0504085	-	80	4 - 12
DRVD16	0504105	-	100	4 - 12
DRVD16	0504130	-	125	4 - 12
DRVD16	0504155	-	150	4 - 12
DRVD16	0504205	-	200	4 - 12

TECHNICAL NOTE
Pressure reducing valves series DRVD
FLOW RATE - PRESSURE DROP CHART

Legend :

- 1 Body
- 2 Cap
- 3 Plug
- 4 Packing
- 5 Spring
- 6 Seal ring
- 7 Guide bushings
- 8 Lip seal
- 9 Setting screw
- 10 Cap mounting screws

AUTOMATIC CONTROL VALVES

PR500

Pressure reducing valve pilot operated. Designed to reduce a higher upstream pressure to a constant lower downstream pressure.

Easy to install and adjustable outlet pressure.

Body: Ductil Iron GGG40. Epoxy finish: internal and external. Diaphragm: NBR.

Max working temperature : + 70°C.

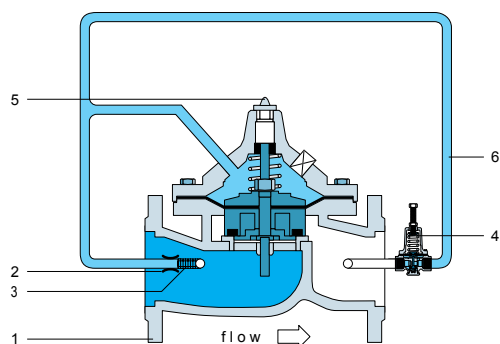
Nominal Pressure: PN 16, 25. Adjustment range of pilot: STANDARD: 1,4 - 12 bar.

On request: 0,1 - 2 bar, 7 - 21 bar. Fluid: water.



Type	Part no. WII	Part no. WID	Size	Pn
PR 500	500050548	10023388	50	16
PR 500	500065548	-	65	16
PR 500	500080548	10023390	80	16
PR 500	500100548	10023391	100	16
PR 500	500125548	-	125	16
PR 500	500150548	10023392	150	16
PR 500	503050548	-	50	25
PR 500	503065548	-	65	25
PR 500	503080548	-	80	25
PR 500	503100548	10003587	100	25
PR 500	503125548	-	125	25
PR 500	503150548	-	150	25

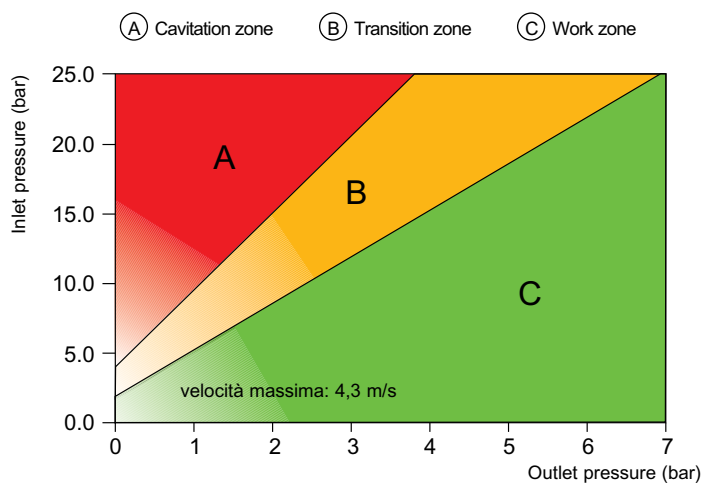
TECHNICAL NOTE



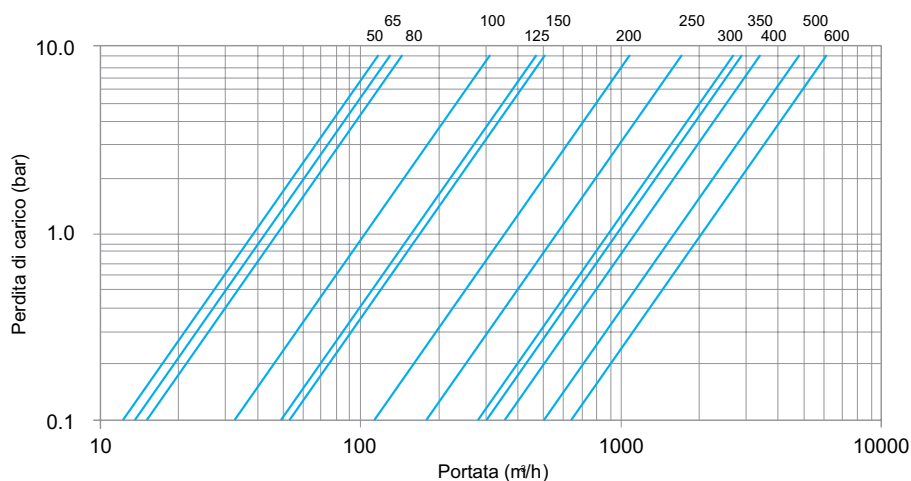
PR500

- 1 Body/Main valve
- 2 Fixed orifice
- 3 Flow stainer

- 4 Pilot valve
- 5 Air vent
- 6 Flexible tubing

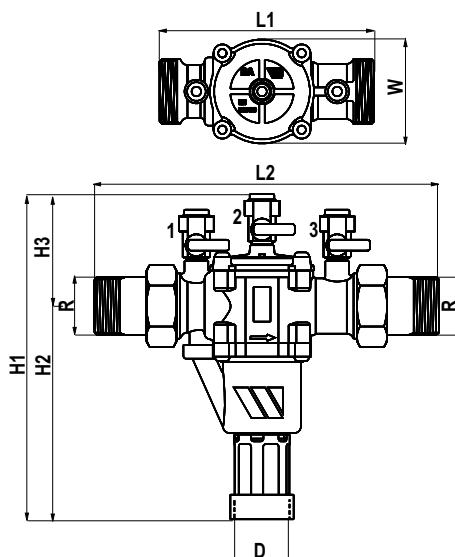


Pressure Loss Curve



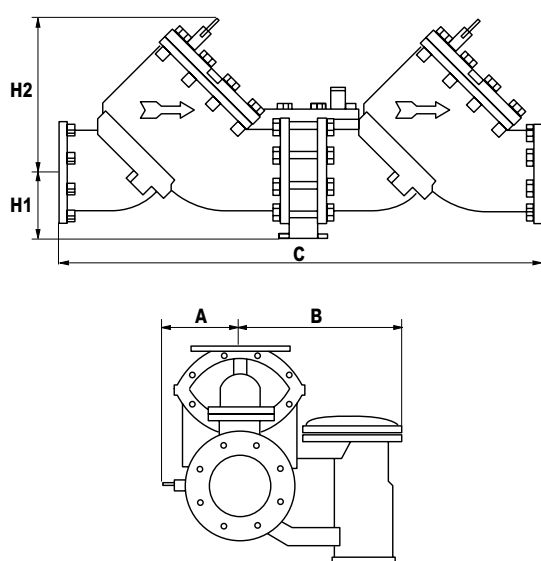
OVERALL DIMENSIONS

BA BM



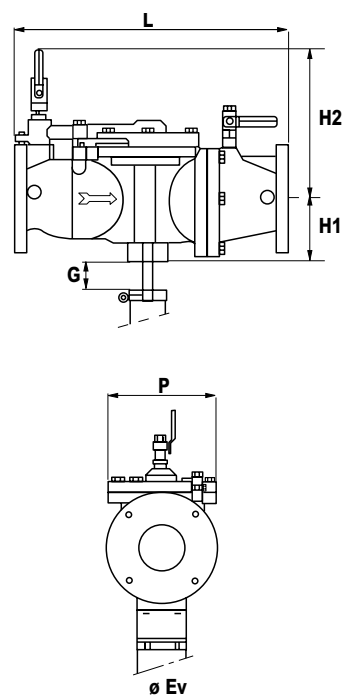
DN	R	D	L1	L2	H1	H2	H3	W	L
15	1/2"	32	122	201	168.5	103	65.5	53	1,2
20	3/4"	32	122	201	168.5	103	65.5	53	1,2
25	1"	40	157	252	238	156	82	76	2,7
32	1.1/4"	40	157	252	238	156	82	76	2,7
40	1.1/2"	50	220	336	303.5	202.5	101	115	6,5
50	2"	50	220	336	303.5	202.5	101	115	6,5

BA909



DN	A	B	C	H1	H2
65	102	229	664	133	178
80	127	229	664	133	178
100	152	346	940	152	241
150	241	346	1130	152	368
200	267	470	1403	248	470
250	298	470	1715	248	546

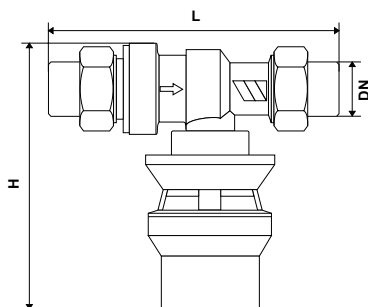
BA009



DN	L	H1	H2	P	G	øEv
65	460	151	270	202	37	90-100
80	460	151	270	202	37	90-100

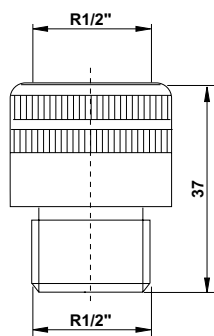
OVERALL DIMENSIONS

CA9C

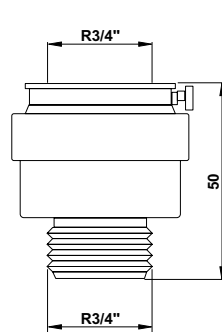


DN	L	H
1/2"	122	129
3/4"	153	129

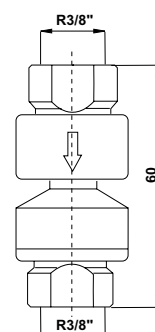
DAWS



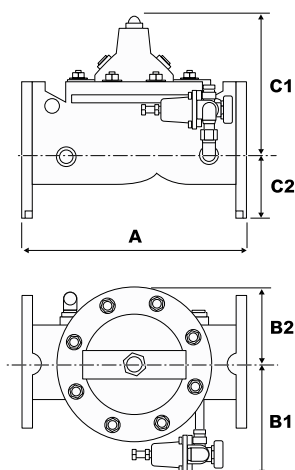
DAWNF



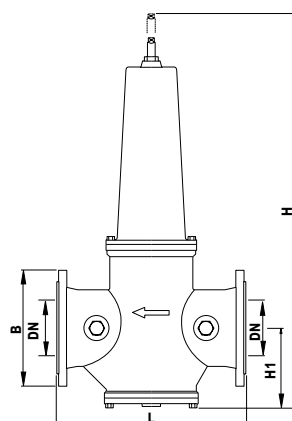
DAWN



PR500



DRVD16



DN	NP	A	B1	B2	C1	C2
50	10/16/25	230	160	85	165	85
65/80	10/16/25	290	170	85	165	95
80	10/16/25	310	175	85	265	100
100	10/16	350	190	120	210	110
100	25	350	190	120	210	120
125	10/16	400	200	150	285	125
125	25	400	200	150	285	135
150	10/16	480	210	150	285	145
150	25	480	210	150	285	150
200	10	600	235	200	360	170
200	16	600	235	200	360	170
200	25	600	235	200	360	180
250	10	730	280	255	475	200
250	16	730	280	255	475	200
250	25	730	280	255	475	215

DN	L	H	H1	B (PN16)	B (PN25)	B (PN40)
50	230	383	83	165	165	165
65	290	440	90	185	185	185
80	310	490	100	200	200	200
100	350	561	121	220	235	235
125	400	712	152	250	270	270
150	450	839	169	285	300	300
200	550	1684	234	340	360	--

Type	Page	Type	Page
4x2 3-way brass valve for fan-coils	26	389TRV Thermostatic straight valve for iron with pre-set	8
15M2 Water hammer arrestor - piston type	169	395TRV Lockshield with angle body for iron pipes	9
22CX ON/OFF electrothermic actuator	27	396TRV Lockshield with straight body for iron pipes	9
26LC ON/OFF electrothermic actuator with LED status indication	27	403R Pressure gauge stopcock with round testing flange	126
102M One-pipe thermostat adapt. valve for copper or plastic	11	407D Copper insulation loop for pressure gauges	126
119SX One-pipe manual valve for copper and plastic	17	466 (THERMATIC) Relief valve	103
120B 2-pipe thermostat adaptable valve for copper or plastic	11	808D White plastic single-hole rose	18
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