Pump units

distribution systems for central heating system

USE

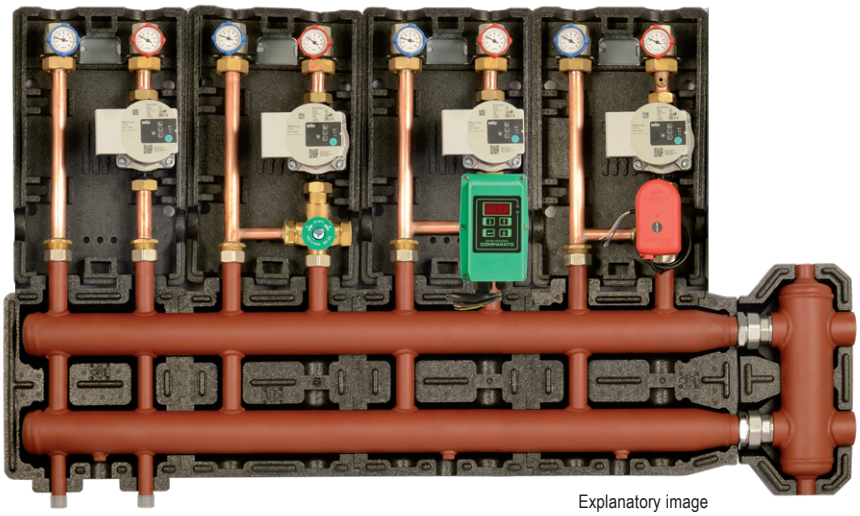
PUMP UNITS optimise space and functionality in the heating plant: modularity, flexibility, customisation possibilities and an extremely compact and uncluttered design are their strengths. They are available in four versions:

- **direct** zone
- **mixing fixed-point** zone with thermostatic valve adjustable between 30°C and 60°C
- **mixing electronic** zone with mixing valve with built-in electronics
- **mixing modulating** zone with control unit and climatic regulation

For each pump unit it is available also the version with direct energy metering:

- **direct** metered zone
- **metering kit** for mixing pump units (optional)

PUMP UNITS are fitted with manifold, separator and insulation to form a **COMPARATO SYSTEM** for central heating plant.

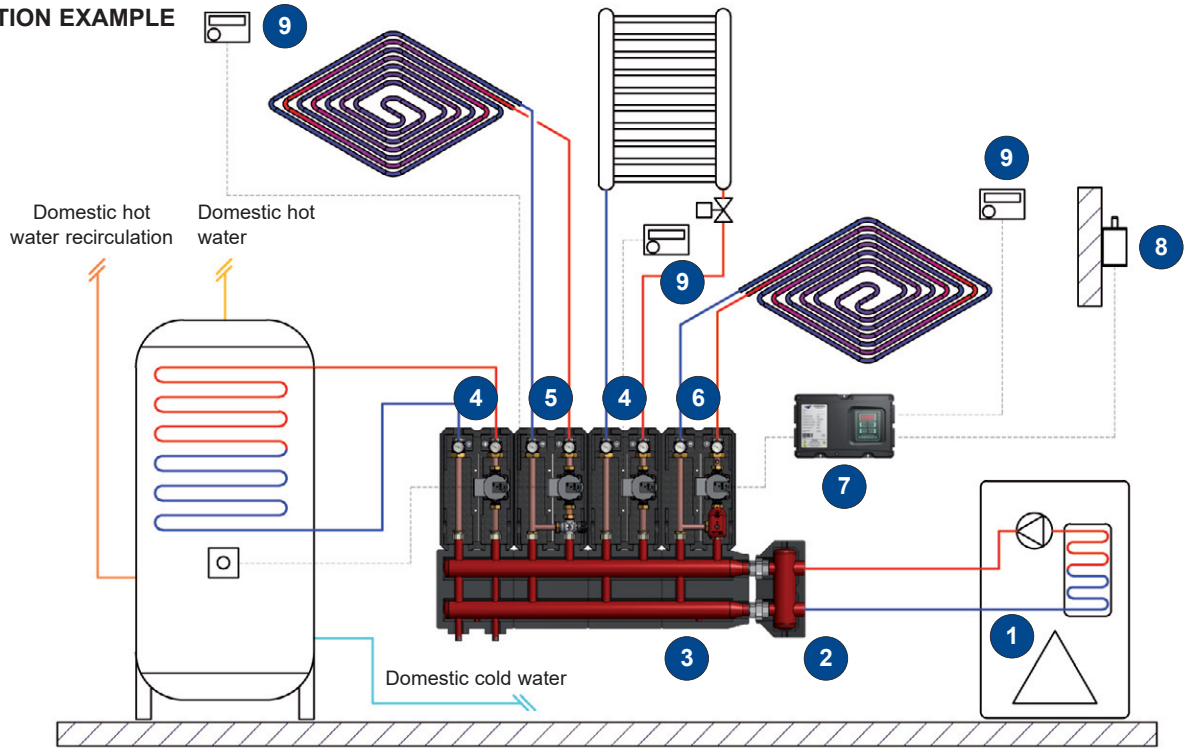


Explanatory image

MAIN FEATURES

- **Ease of installation**
- **Compact dimensions**
- **Heating and cooling**
- **Metering**
- **Complete insulation**
- **Design**

APPLICATION EXAMPLE



1. Boiler / Heat pump
2. Diacom MINI separator
3. Diacol 125 manifold
4. DIRECT pump unit
5. MIXING FIXED-POINT pump unit
6. MIXING MODULATING pump unit
7. Control unit
8. External probe for weather compensation
9. Room thermostat

Pump units

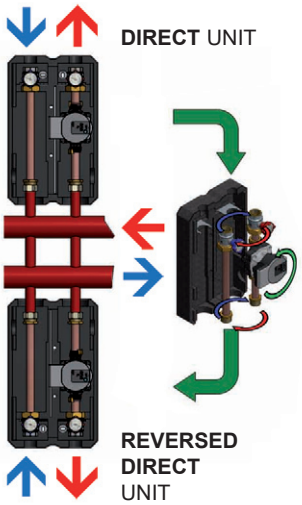
VERSIONS AND CODES

TYPE	HEATING				COOLING	
	STANDARD	*HIGH FLOW*	*READY FOR 1"x130mm PUMP*	*READY FOR 1"1/2x130mm PUMP*	*STANDARD*	*HIGH FLOW*
Direct	GR1D00	GR2D00	GR1DSC	GR2DSC	GR1DFR	GR2DFR
Mixing fixed-point	GR1THT	GR2THT	GR1THC	GR2THC	-	-
Mixing Electronic	GR1X0D GR1X0S	GR2X0D GR2X0S	- -	- -	GR1XFD GR1XFS	GR2XFD GR2XFS
Mixing modulating	GR1M00	GR2M00	GR1MSC	GR2MSC	GR1MFR	GR2MFR

PUMP UNITS WITH METER - VERSIONS AND CODES

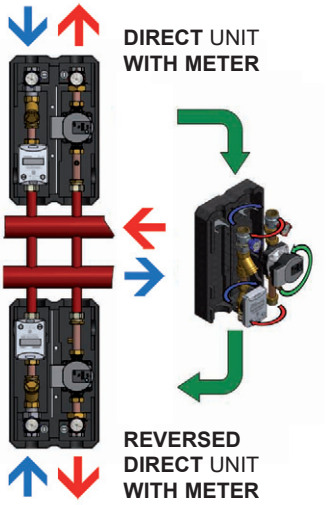
TYPE	HEATING		COOLING
	STANDARD	*READY FOR 1"x130mm PUMP*	*STANDARD*
Direct with stub piece for meter DN20 Qp=2,5 m^3/h	GR1C00	GR1CSC	GR1CFR

INSTALLATION



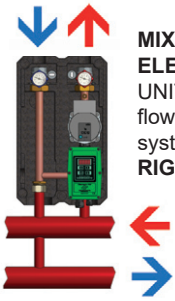
DIRECT UNIT

REVERSED DIRECT UNIT

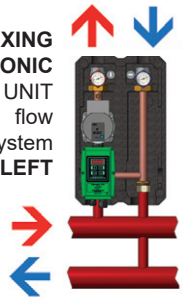


DIRECT UNIT **WITH METER**

REVERSED DIRECT UNIT **WITH METER**

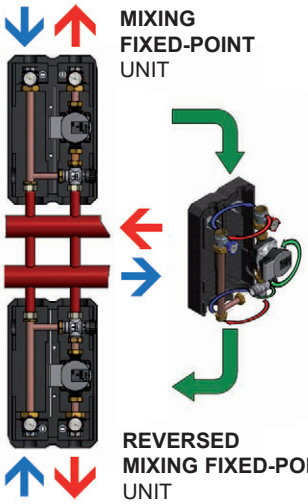


MIXING ELECTRONIC UNIT flow system **RIGHT**



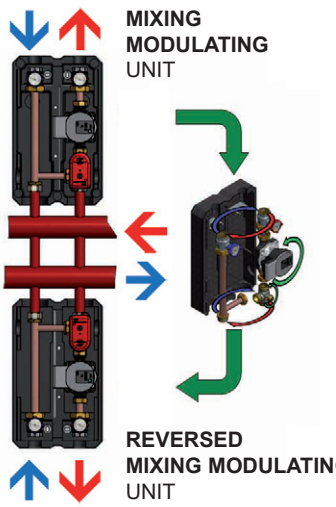
MIXING ELECTRONIC UNIT flow system **LEFT**

Mixing Electronic Units ARE NOT INVERTIBLE. RIGHT-HAND and LEFT-HAND flow versions are available.



MIXING FIXED-POINT UNIT

REVERSED MIXING FIXED-POINT UNIT

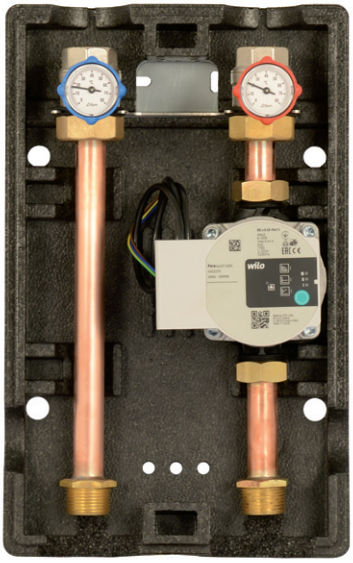


MIXING MODULATING UNIT

REVERSED MIXING MODULATING UNIT

Pump units

DIRECT PUMP UNITS



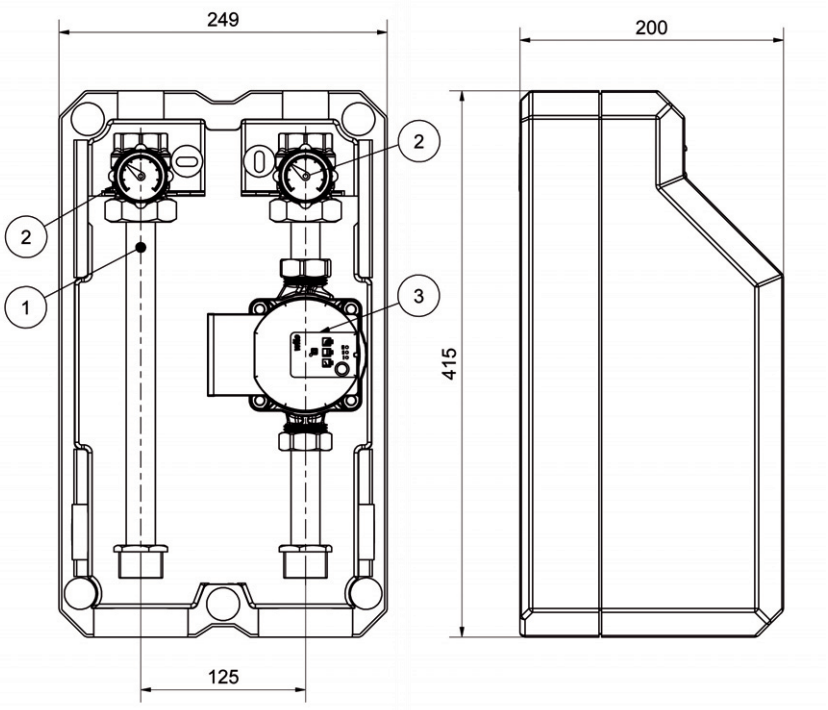
The **DIRECT** pump units are able to provide the right flow rate and proper head to the heat transfer fluid in hydraulic circuits where the control of the delivery temperature is not necessary.

Complete with high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, shell insulation.

The unit is reversible, in fact it is possible to reverse the flow from right to left, depending on the installation requirements.

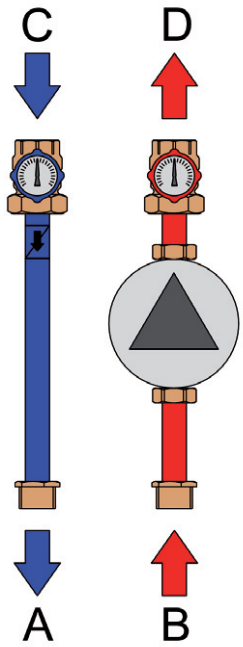
CODE	PRODUCT DESCRIPTION
GR1D00	direct heating
GR2D00	direct heating high head
GR1DSC	direct heating ready for 1"x130mm pump
GR2DSC	direct heating ready for 1"1/2x130mm pump
GR1DFR	direct cooling
GR2DFR	direct cooling high head

OVERALL SIZE



1. Built-in check valve
2. System interception valves with thermometer
3. System pump

HYDRAULIC DIAGRAM



- **A.** Return to the generator
- **B.** Flow from the generator
- **C.** Return from the system
- **D.** Flow to the system

Pump units

TECHNICAL FEATURES

PERFORMANCES	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Fluid type	water (max. glycol 30%)
Maximum flow rate *	
Direct	2200 l/h
Direct high head	3000 l/h

* with residual head of 20 kPa

COMPONENTS	
Pump	15/7
High flow pump	25/9
Check valve	integrated on the system return line
Thermometers	0-80°C

MATERIALS	
Pipes	copper Ø 22 mm
Shell insulation	EPP - density 45 kg/m^3
Pipe insulation **	rubber-based foam elastomer 6 mm
Insulating components **	polyethylene foam

** cooling versions

USE	
Installation	indoor
Room temperature	5-55°C
Humidity	25-85% non-condensing

HYDRAULIC CONNECTIONS	
Material	brass
System side	1" F (ISO 228-1)
Boiler/manifold side	1" M (ISO 228-1)
Span	125mm

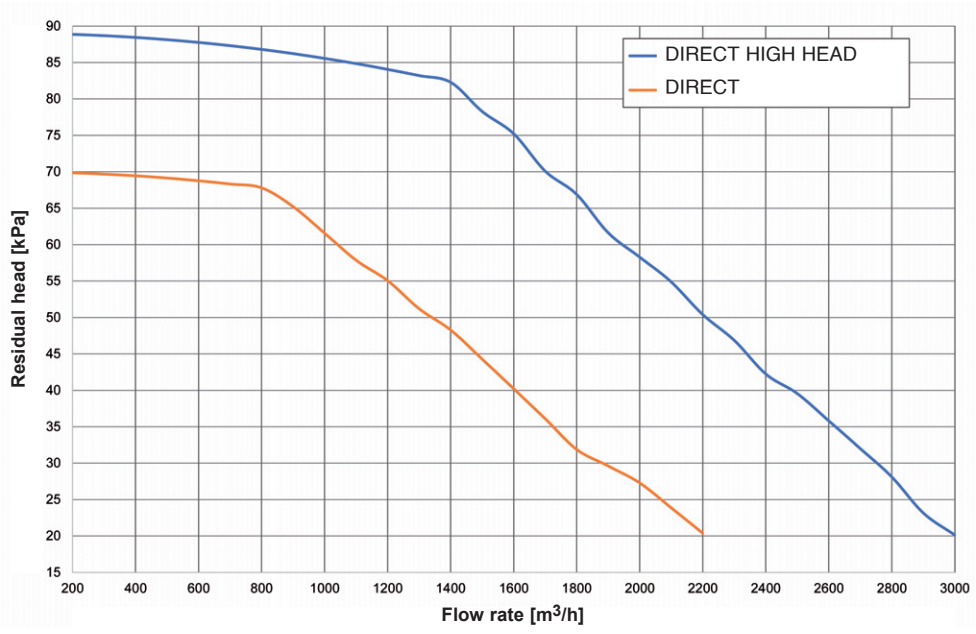
DIMENSIONS AND WEIGHT	
External dimensions	250x415x210mm
Empty weight	6 kg

POWER TABLES

Flow rate	Power output			
	Radiators with thermostatic valves ΔT = 30°C	Radiators with thermostatic valves ΔT = 20°C	Fan coils or radiators without thermostatic valves ΔT = 10°C	Radiant panels ΔT = 5°C
(l/h)	(kW)	(kW)	(kW)	(kW)
600	21	14	7	3,5
1200	42	28	14	7
1800	63	42	21	10,5
2400	84	56	28	14
3000	105	70	35	17

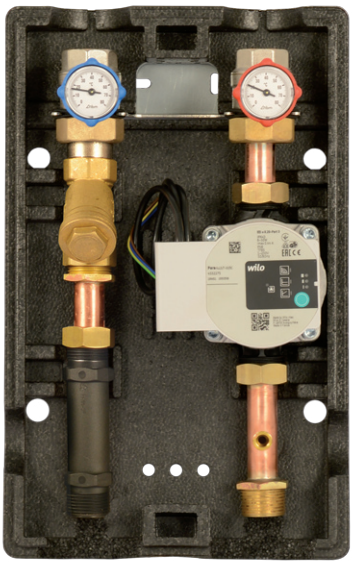
HYDRAULIC FEATURES

RESIDUAL HEAD • DIRECT PUMP UNIT



Pump units

DIRECT PUMP UNIT WITH ENERGY METER



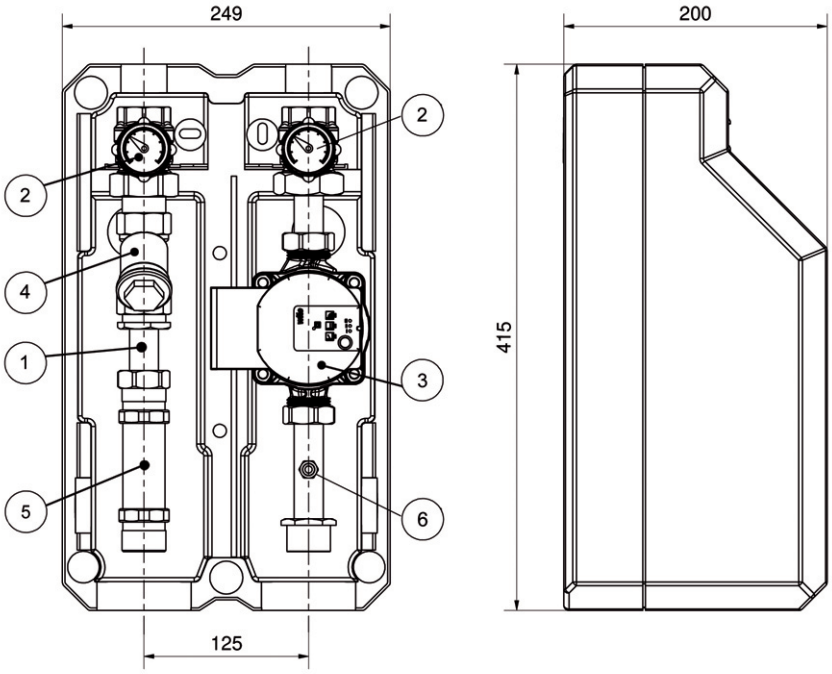
The **DIRECT** pump units for direct metering are able to provide the right flow rate and proper head to the heat transfer fluid in hydraulic circuits where the control of the delivery temperature is not necessary and they are ready for the installation of an **ENERGY METER** (accessory).

Complete with high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, replacement energy meter stub piece (1”x130 mm), Y-strainer and shell insulation.

The unit is reversible, in fact it is possible to reverse the flow from right to left, depending on the installation requirements.

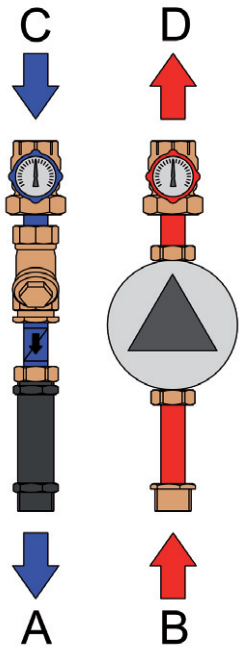
CODE	PRODUCT DESCRIPTION
GR1C00	direct heating stub piece for meter (1"x130mm)
GR1CSC	direct heating stub piece for meter and ready for pump (1"x130mm)
GR1CFR	direct cooling stub piece for meter (1"x130mm)

OVERALL SIZE



1. Built-in check valve
2. System interception valves with thermometer
3. System pump
4. Y-strainer
5. Replacement energy meter stub piece 1"x130mm
6. Probe thermowell M10x1

HYDRAULIC DIAGRAM



A. Return to the generator
B. Flow from the generator
C. Return from the system
D. Flow to the system

Pump units

TECHNICAL FEATURES

PERFORMANCES	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water
Maximum flow *	1800 l/h

* with residual head of 20 kPa

MATERIALS	
Pipes	copper Ø 22mm
Shell insulation	EPP - density 45 kg/m^3
Pipe insulation **	rubber-based foam elastomer 6mm
Insulating components **	polyethylene foam

** cooling versions

DIMENSIONS AND WEIGHT	
External dimensions	250x415x210mm
Empty weight	6,3 kg

HYDRAULIC CONNECTIONS	
Material	brass
System side	1" F (ISO 228-1)
Boiler/manifold side	1" M (ISO 228-1)
Span	125mm

COMPONENTS	
Pump	15/7
Check valve	integrated on the system return line
Thermometers	0-80°C
Energy meter	see accessories

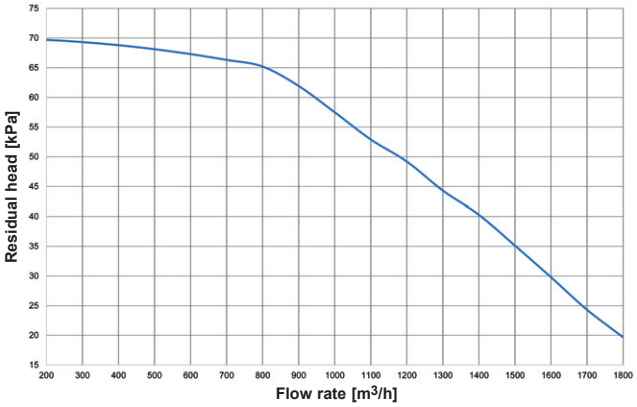
USE	
Installation	indoor
Room temperature	5-55°C
Humidity	25-85% non-condensing

POWER TABLES

Flow rate	Power output			
	Radiators with thermostatic valves ΔT = 30°C	Radiators with thermostatic valves ΔT = 20°C	Fan coils or radiators without thermostatic valves ΔT = 10°C	Radiant panels ΔT = 5°C
(l/h)	(kW)	(kW)	(kW)	(kW)
600	21	14	7	3,5
1200	42	28	14	7
1800	63	42	21	10,5

HYDRAULIC FEATURES with energy meter installed

RESIDUAL HEAD • DIRECT PUMP UNIT WITH ENERGY METER



ACCESSORY FOR DIRECT PUMP UNITS WITH ENERGY METER

ENERGY METER

code CFCENM01B

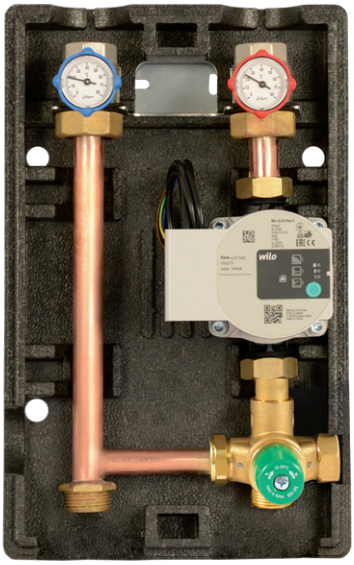
* Ultrasonic version on request

** Wireless M-bus version on request

TECHNICAL FEATURES	
Type	mechanical *
Measurement principle	single jet
Flow rate Qp	2,5 m3/h
Maximum flow	5 m3/h
Minimum flow	100 l/h
Fluid temperature	10...90°C
ΔT min	3°C
DN	20
PN	16
Power supply	lithium battery
Battery life	> 6 years
Protection	IP54
Interface	M-bus **
Pulse inputs	3
Certification	MID

Pump units

MIXING FIXED-POINT PUMP UNITS



The mixing fixed-point pump units are able to provide the right flow rate and proper head to the heat transfer fluid in hydraulic circuits where the control of the **FIXED-POINT** delivery temperature is necessary.

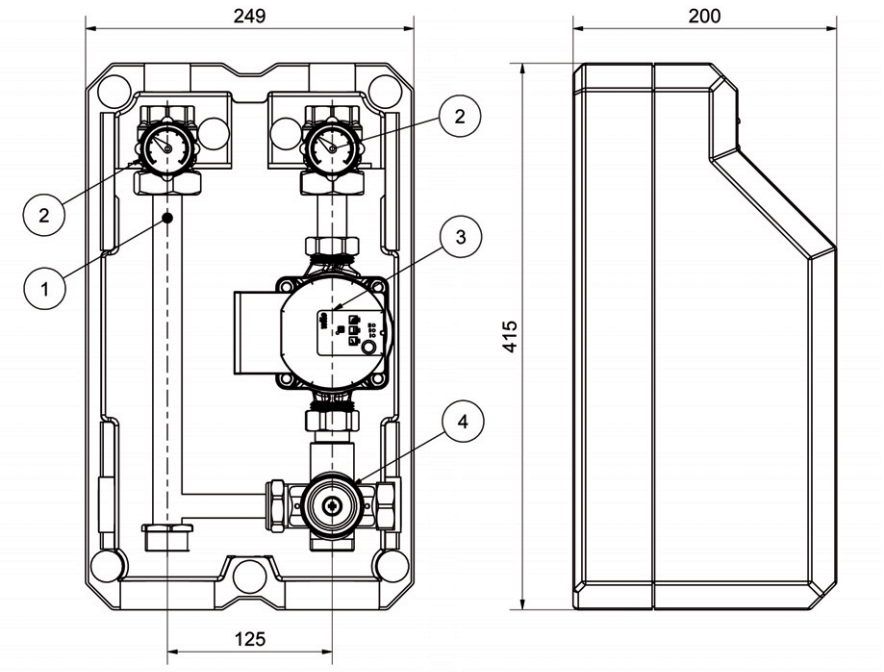
Complete with high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, mixing thermostatic valve, shell insulation.

Temperature range adjustable between 30°C and 60°C.

The unit is reversible, in fact it is possible to reverse the flow from right to left, depending on the installation requirements.

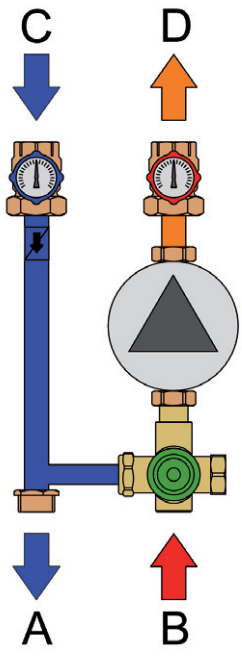
CODE	PRODUCT DESCRIPTION
GR1THT	mixing fixed-point
GR2THT	mixing fixed-point high head
GR1THC	mixing fixed-point ready for 1"x130mm pump
GR2THC	mixing fixed-point ready for 1"1/2x130mm pump

OVERALL SIZE



1. Built-in check valve
2. System interception valves with thermometer
3. System pump
4. Thermostatic mixer

HYDRAULIC DIAGRAM



- **A.** Return to the generator
- **B.** Flow from the generator
- **C.** Return from the system
- **D.** Flow to the system

Pump units

TECHNICAL FEATURES

PERFORMANCES	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Fluid type	water (max. glycol 30%)
Maximum flow *	
Mixing fixed-point	1400 l/h
Mixing fixed-point high head	1800 l/h

* with residual head of 20 kPa

COMPONENTS	
Pump	15/7
High flow pump	25/9
Check valve	integrated on the system return line
Thermometers	0-80°C
Thermostatic mixer setpoint	30-60°C
Thermostatic mixer Kv	3 m^3/h
Accuracy	+/- 2°C **

** at inlet temperature 15°C above setpoint

MATERIALS	
Pipes	copper Ø 22mm
Shell insulation	EPP - density 45 kg/m^3

USE	
Installation	indoor
Room temperature	5-55°C
Humidity	25-85% non-condensing

HYDRAULIC CONNECTIONS	
Material	brass
System side	1" F (ISO 228-1)
Boiler/manifold side	1" M (ISO 228-1)
Span	125mm

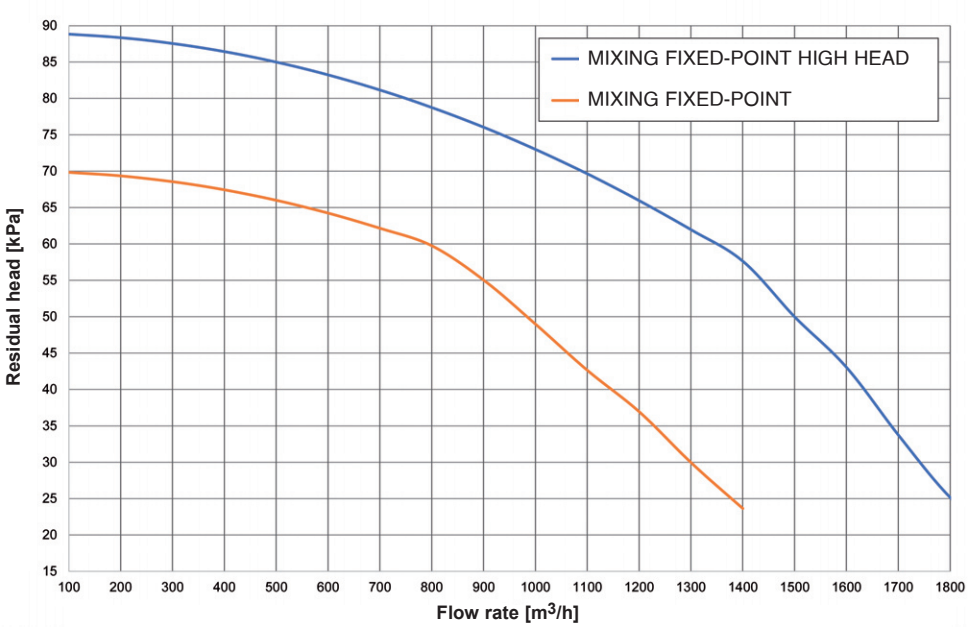
DIMENSIONS AND WEIGHT	
External dimensions	250x415x210mm
Empty weight	6,5 kg

POWER TABLES

Flow rate	Power output			
	Radiators with thermostatic valves ΔT = 30°C	Radiators with thermostatic valves ΔT = 20°C	Fan coils or radiators without thermostatic valves ΔT = 10°C	Radiant panels ΔT = 5°C
(l/h)	(kW)	(kW)	(kW)	(kW)
600	21	14	7	3,5
1200	42	28	14	7
1800	63	42	21	10,5

HYDRAULIC FEATURES

RESIDUAL HEAD • MIXING FIXED-POINT PUMP UNIT



Pump units

ACCESSORIES FOR FIXED-POINT MIXED PUMP UNITS

cod. GRKCON

ENERGY METER SET-UP KIT

PERFORMANCE	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water

MATERIAL	
Piping	copper Ø22 mm
Shell insulation	polyethylene foam

HYDRAULIC CONNECTIONS	
Material	brass
Pump unit side	nut 1"
Boiler/collector side	1" M (ISO 228-1)
Span	125 mm

COMPONENTS	
Replacement energy meter stub piece	material polyamide 1"x130mm
Filter	brass Y-type
Probe holder plug	M10x1

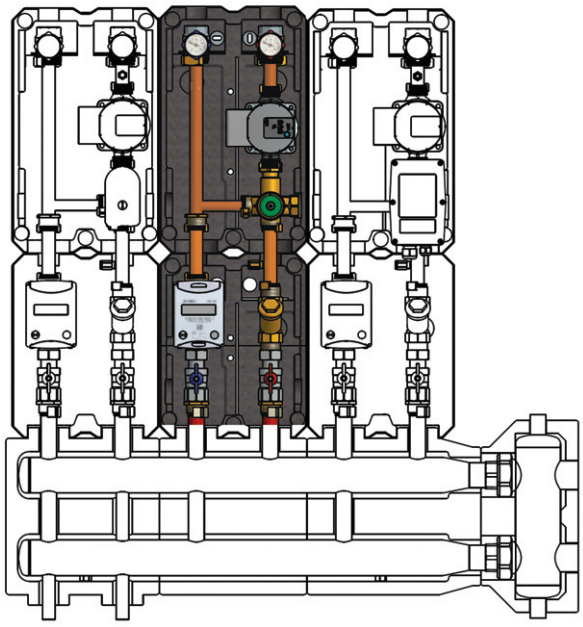
ENERGY METER

cod. CFCENM01B

ELECTRICAL FEATURES	
Type	mechanical *
Measuring principle	single jet
Nominal flow rate Qp	2,5 m^3/h
Maximum flow rate	5 m^3/h
Minimum flow rate	100 l/h
Fluid temperature	10...90°C
ΔT min	3°C
DN	20
PN	16
Power supply	lithium battery
Battery life	> 6 years
Protection	IP54
Interface	M-bus **
Pulse inputs	3
Certification	MID

* Ultrasonic version on request

** Wireless M-bus on request



Pump units

ELECTRONIC MIXED PUMP UNITS

SYSTEM FLOW ON THE RIGHT

MIXING ELECTRONIC units are able to provide the correct flow rate and adequate head to the heat transfer fluid in hydraulic circuits where **MODULATING** flow temperature control is required.

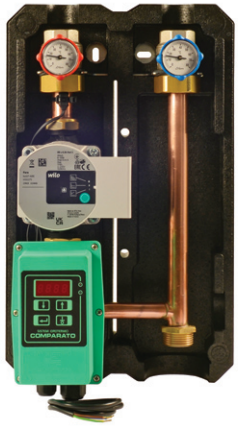
Complete with electronic fixed-point mixing valve, high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, shell insulation.

A precise and reliable control is achieved thanks to the electronic temperature controller fitted in the actuator. Using the appropriate probe, the regulator detects the flow temperature and changes the position of the ball inside the 3-way valve by appropriately mixing the hot inlet with the cold inlet.

In this way, the temperature is maintained at the setpoint value through the display, with an accuracy of ±1°C.

MIXING ELECTRONIC units are available in **heating-only** and **cooling-only*** **versions without the possibility of being reversed**: all versions are available **with flow on the right and flow on the left**.

* *for heating and cooling operation see modulating pump units.*



SYSTEM FLOW ON THE LEFT

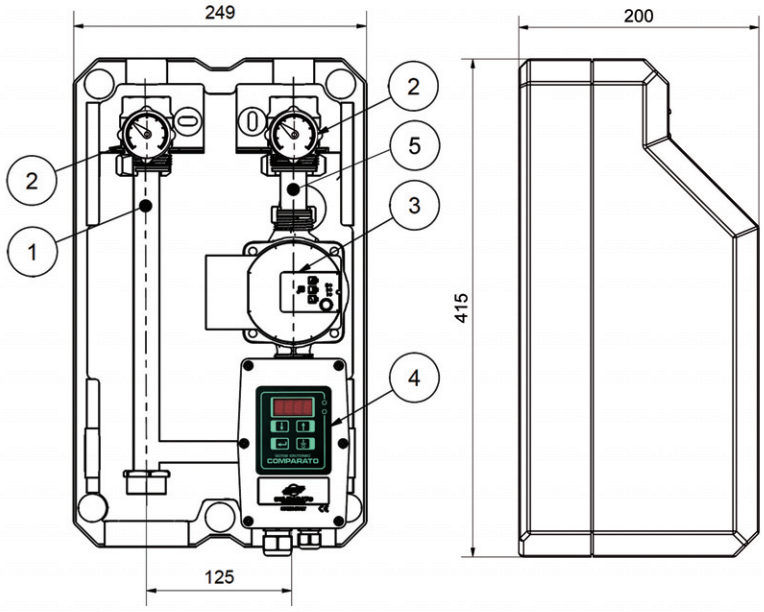
SYSTEM FLOW ON THE RIGHT

CODE	PRODUCT DESCRIPTION
GR1X0D	mixing electronic • heating • flow on the right
GR2X0D	mixing electronic • heating • high flow rate • flow on the right
GR1XFD	mixing electronic • cooling • flow on the right
GR2XFD	mixing electronic • cooling • high flow rate • flow on the right

SYSTEM FLOW ON THE LEFT

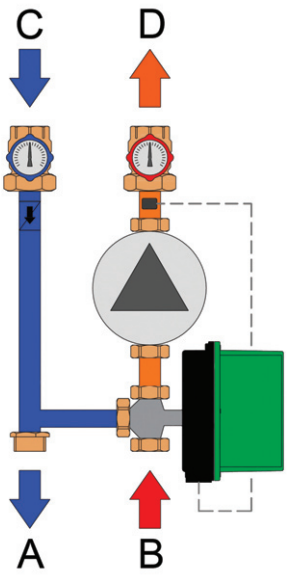
CODE	PRODUCT DESCRIPTION
GR1X0S	mixing electronic • heating • flow on the left
GR2X0S	mixing electronic • heating • high flow rate • flow on the left
GR1XFS	mixing electronic • cooling • flow on left
GR2XFS	mixing electronic • cooling • high flow rate • flow on the left

OVERALL SIZE



1. Integrated check valve
2. System interception valves with thermometer
3. System pump
4. ELECTRONIC mixing valve
5. Temperature probe

HYDRAULIC DIAGRAM



A. Return to generator
B. Flow from generator
C. Return from system
D. Flow to system

Pump units

TECHNICAL FEATURES

PERFORMANCE	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Fluid type	water (max. glycol 30%)
Flow rate *	
mixed	1.500 l/h
mixed high flow	2.280 l/h

* with a residual flow of 40 kPa

COMPONENTS	
Pump	15/7
High-flow pump	25/9
Check valve	integrated on system return line
Thermometers	0-80°C
Ball valve	3-way mixing type
Kv mixing valve	11 m^3/h
Actuator	see next page
Temperature probe	contact-type NTC 10kΩ

MATERIAL	
Piping	copper Ø22 mm
Shell insulation	EPP - density 45 kg/m^3
Pipe insulation **	rubber-based elastomer foam 6mm
Insulation components **	polyethylene foam

** cooling versions

USE	
Installation	indoor
Room temperature	5-55°C
Humidity	25-85% no condensation

HYDRAULIC CONNECTIONS	
Material	brass
System side	1" F (ISO 228-1)
Boiler/collector side	1" M (ISO 228-1)
Span	125 mm

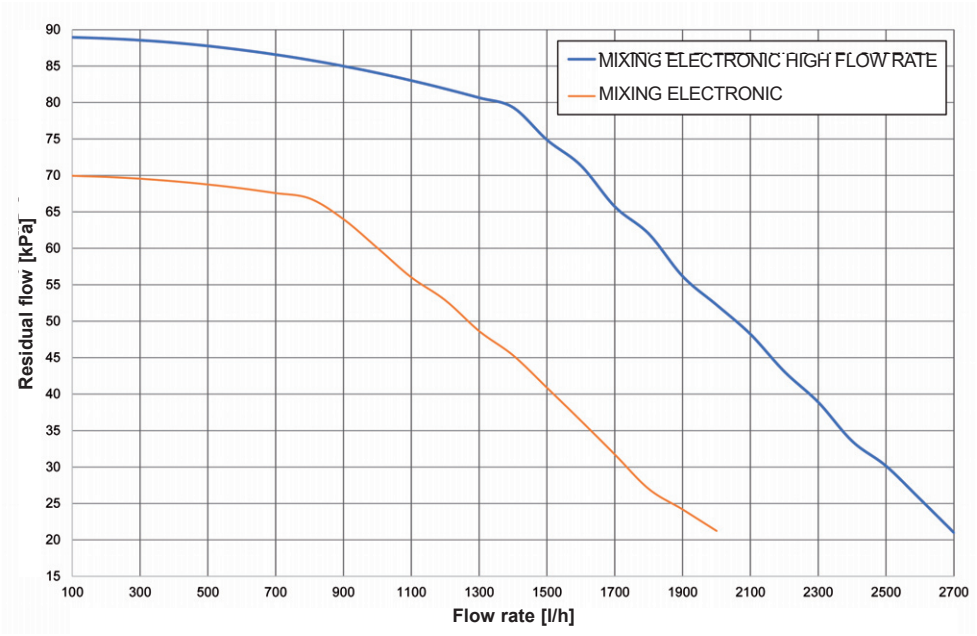
DIMENSIONS AND WEIGHT	
External dimensions	250 x 415 x 200 mm
Empty weight	7,4 kg

TABLE OF POWERS

Flow rate	Power output			
	Radiators with thermostatic valves ΔT = 30°C	Radiators with thermostatic valves ΔT = 20°C	Fan coils or radiators without thermostatic valves ΔT = 10°C	Radiant panels ΔT = 5°C
(l/h)	(kW)	(kW)	(kW)	(kW)
600	21	14	7	3,5
1200	42	28	14	7
1800	63	42	21	10,5
2400	64	56	28	14

HYDRAULIC FEATURES

RESIDUAL FLOW • MODULATING



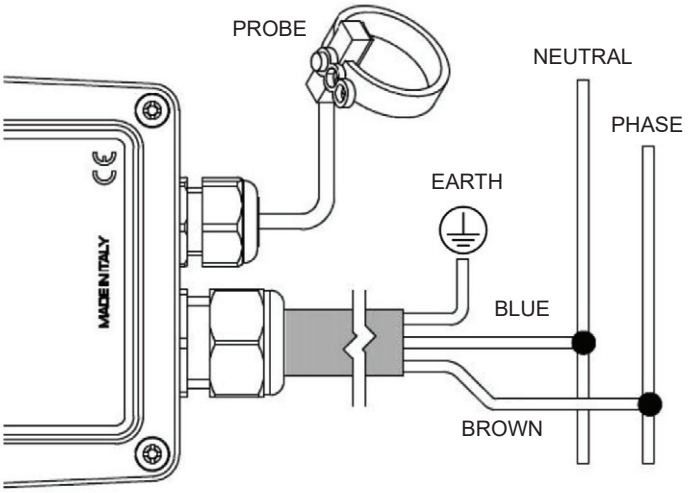
Pump units

FIXED-POINT MIXING ACTUATOR • Diamix

Adjustment range: -15°C to +85°C

TECHNICAL FEATURES	Diamix
Power supply (110V on request)	230V • 50/60 Hz
Maximum power consumption	15 VA
Operating times (90° rotation)	35 sec
Degree of electrical protection	IP67
Room operating temperature	-10°C to + 50°C, max. RH 85%
Temperature probe	contact type, NTC 10kΩ, length 80cm
Electronic adjuster	PID
Temperature adjustment range	-15°C to +85°C
Accuracy	± 1°C
Required maintenance	none
Certification	CE

ELECTRICAL CONNECTIONS



Power cable length: 80 cm

Pump units

ACCESSORIES FOR ELECTRONIC MIXED PUMP UNITS

cod. GRKCON

ENERGY METER SET-UP KIT

PERFORMANCE	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water

MATERIAL	
Piping	copper Ø22 mm
Shell insulation	polyethylene foam

HYDRAULIC CONNECTIONS	
Material	brass
Pump unit side	nut 1"
Boiler/collector side	1" M (ISO 228-1)
Span	125 mm

COMPONENTS	
Replacement energy meter stub piece	material polyamide 1"x130mm
Filter	brass Y-type
Probe holder plug	M10x1

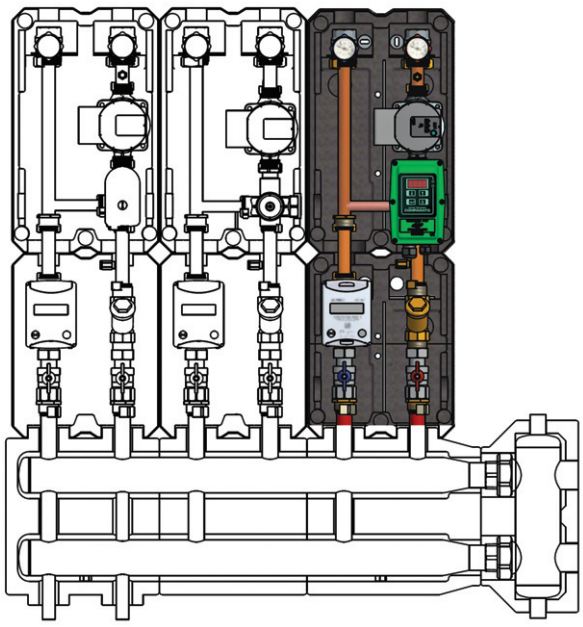
ENERGY METER

cod. CFCENM01B

ELECTRICAL FEATURES	
Type	mechanical *
Measuring principle	single jet
Nominal flow rate Qp	2,5 m^3/h
Maximum flow rate	5 m^3/h
Minimum flow rate	100 l/h
Fluid temperature	10...90°C
ΔT min	3°C
DN	20
PN	16
Power supply	lithium battery
Battery life	> 6 years
Protection	IP54
Interface	M-bus **
Pulse inputs	3
Certification	MID

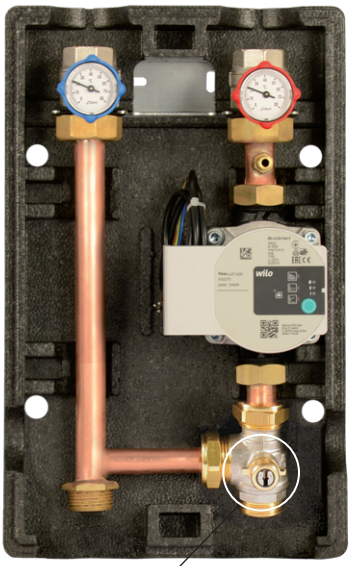
* Ultrasonic version on request

** Wireless M-bus on request



Pump units

MIXING MODULATING PUMP UNITS



SINTESI actuator is supplied loose

The mixing modulating pump units are able to provide the right flow rate and proper head to the heat transfer fluid in hydraulic circuits where the control of the **MODULATING** delivery temperature is required. Complete with high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, motorised mixing valve, shell insulation.

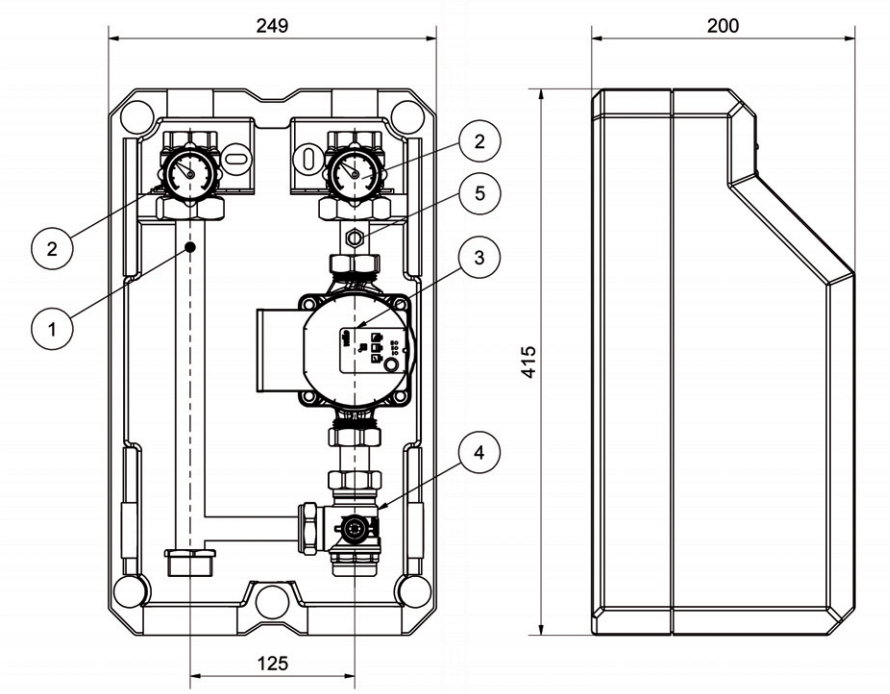
With the addition of **SINTESI** or **SINTESI SMART** actuator (accessories) and an electronic temperature controller, it is possible to have a precise and reliable control.

In combination with the **CGRMS1** control unit, already included with the **SINTESI** actuator and the delivery probe, it manages the fixed-point or weather compensation heating system and, for cooling versions, it controls the dew-point temperature and prevents the formation of condensation.

The unit is reversible, in fact it is possible to reverse the flow from right to left, depending on the installation requirements.

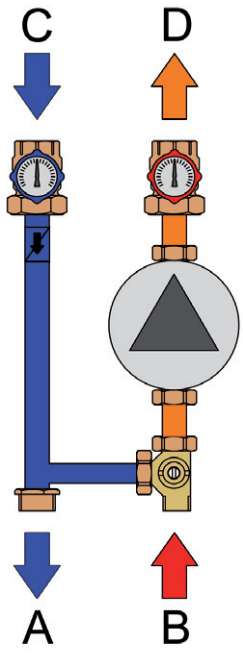
CODE	PRODUCT DESCRIPTION
GR1M00	mixing modulating heating
GR2M00	mixing modulating high-head heating
GR1MSC	mixing modulating heating ready for 1"x130mm pump
GR2MSC	mixing modulating heating ready for 1 1/2"x130mm pump
GR1MFR	mixing modulating cooling
GR2MFR	mixing modulating high-head cooling

OVERALL SIZE



1. Built-in check valve
2. System interception valves with thermostat
3. System pump
4. Mixing valve (to be motorised)

HYDRAULIC DIAGRAM



- **A.** Return to the generator
- **B.** Flow from the generator
- **C.** Return from the system
- **D.** Flow to the system

Pump units

TECHNICAL FEATURES

PERFORMANCES	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Fluid type	water (max. glycol 30%)
Maximum flow *	
mixed rate	2000 l/h
mixed high head	2700 l/h

* with residual head of 20 kPa

COMPONENTS	
Pump	15/7
High flow pump	25/9
Check valve	integrated on the system return line
Thermometers	0-80°C
Mixer ball valve	3-way
Kv mixing valve	11 m^3/h
Actuator	see accessories

MATERIALS	
Pipes	copper Ø 22mm
Shell insulation	EPP - density 45 kg/m^3
Pipe insulation **	rubber-based foam elastomer 6mm
Insulating components **	polyethylene foam

** cooling versions

USE	
Installation	indoor
Room temperature	5-55°C
Humidity	25-85% non-condensing

HYDRAULIC CONNECTIONS	
Material	brass
System side	1" F (ISO 228-1)
Boiler/manifold side	1" M (ISO 228-1)
Span	125mm

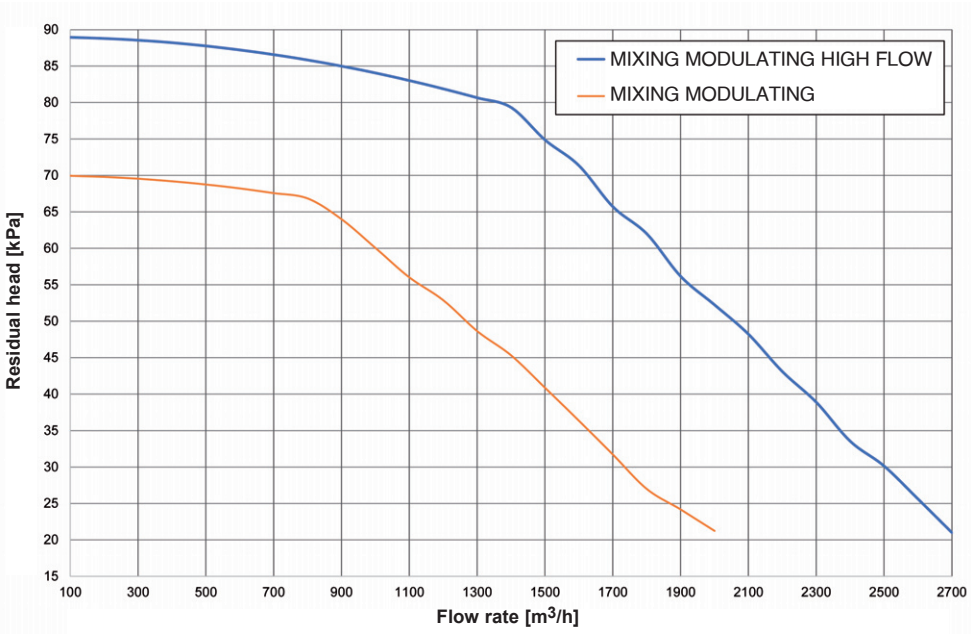
DIMENSIONS AND WEIGHT	
External dimensions	250x415x210mm
Empty weight	6,3 kg

POWER TABLES

Flow rate	Power output			
	Radiators with thermostatic valves ΔT = 30°C	Radiators with thermostatic valves ΔT = 20°C	Fan coils or radiators without thermostatic valves ΔT = 10°C	Radiant panels ΔT = 5°C
(l/h)	(kW)	(kW)	(kW)	(kW)
600	21	14	7	3,5
1200	42	28	14	7
1800	63	42	21	10,5
2400	64	56	28	14

HYDRAULIC FEATURES

RESIDUAL HEAD • MIXING MODULATING PUMP UNIT



Pump units

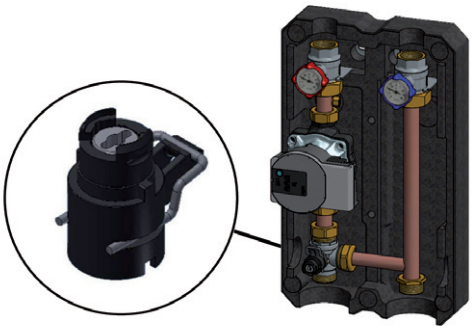
ACCESSORIES FOR MIXING MODULATING PUMP UNITS

code SS2221BI (35s)

code SS2221BC2I (120s)

SINTESI actuator - MODULATING 3-POINT

TECHNICAL FEATURES	SS2221BI	SS2221BC2I
Electric control	3-point	
Connection to the ball valve	fast push connection	
Rotation	90°	
Operating time	35 s	120 s
Position indicator	rotating arrow	
Power supply	230V 50/60 Hz	
Power consumption	3,9 VA	
Microswitch	closed position (mixing valve oriented toward system return)	
Microswitch power output	1 A resistive - 250 V	
Class protection	IP54	
Cable length	80 cm	



code DISN05

For the installation of **SINTESI 3-POINT MODULATING** actuators on inverted pump units (system flow to the left and system return to the right) it is necessary to use DISN05 adapter and to rotate the ball of the valve 90° clockwise.

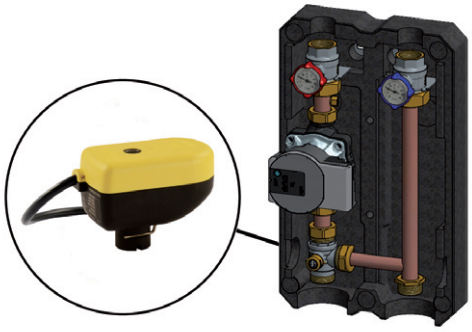
code SM4010F030I

SINTESI SMART actuator - PROPORTIONAL

TECHNICAL FEATURES	
Positioning control	0-10V DC *
Connection to the ball valve	fast push connection
Rotation	90°
Operating time	30 s **
Position indicator	rotating arrow
Power supply	24V DC/AC 50/60 Hz
Power consumption	3,5 VA
Positioning feedback	2-10V DC
Class protection	IP54
Cable length	80 cm

* more positioning signals available upon request

** more operating times available upon request



code SM4010F030D (reversed version)

For the installation of **SINTESI SMART PROPORTIONAL** actuators on inverted units (system flow to the left and system return to the right) it is necessary to rotate the ball valve of 180°.

Pump units

code CGRMS1 • management of 1 modulating zone

CONTROL UNIT for RADIANT PANELS with actuator

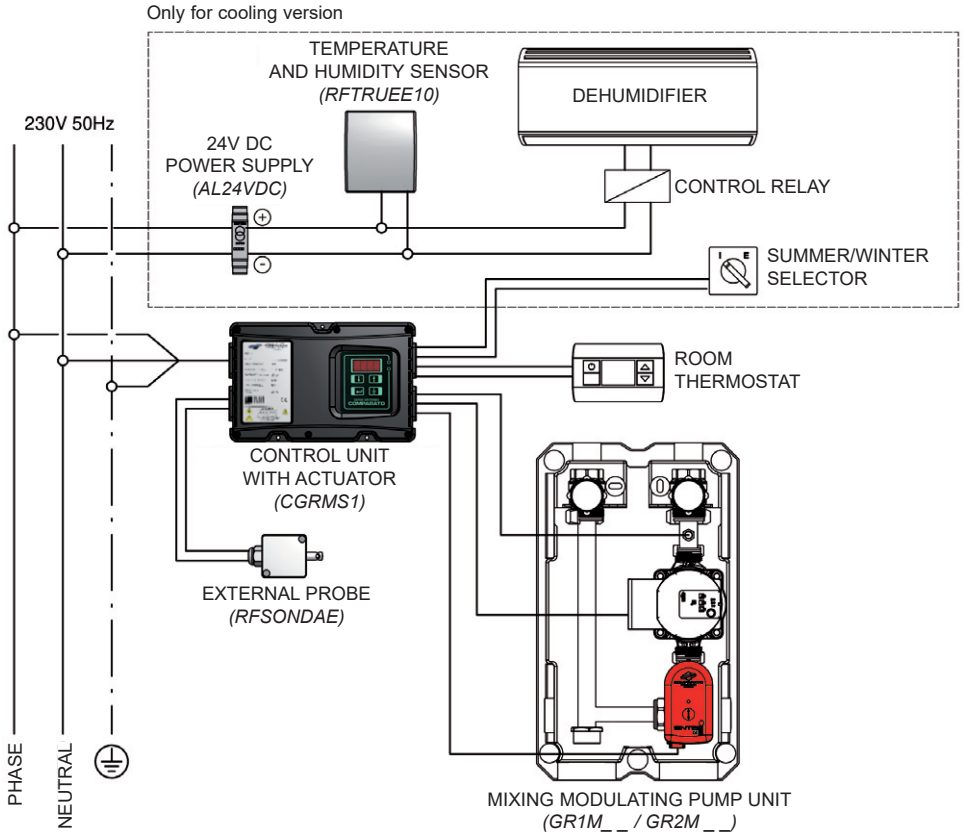
The electronic control unit, equipped with actuator and delivery temperature probe, regulates and manages heating and cooling systems* with floor, wall or ceiling radiant panels. Once installed, it is possible to select the type of operation, enabling or disabling the various functions.

* for cooling GR1MFR or GR2MFR pump unit is necessary

Fixed-point regulation	The heating setpoint temperature is set via the keypad and display. The room thermostat is activated by the room thermostat and keeps the outlet temperature constant on the setpoint value.
Sliding adjustment weather compensation function	The software automatically calculates the setpoint temperature according to the external temperature detected by the relevant probe (optional), following programmable climatic curves.
Summer/winter switching	The summer/winter function modifies the control logic of the mixing valve during the transition from summertime (cooling) to wintertime (heating)
System management	The control unit receives the activation command from the room thermostat (not included). The pump is activated and the electronic system, which operates by means of PID algorithm, controls the outlet temperature according to the pre-set values. When the room thermostat sends the signal to cut the power supply to the system, the control unit stops the pump, stops the regulation and connects the outlet (mixed) way to the system return.
Anti-condensation function (cooling)	In summer, the anti-condensation function calculates the dew point temperature of the climate-controlled environment using a temperature probe and a relative humidity probe (accessory). The dew point temperature is the temperature below which the ambient humidity condenses. The controller regulates the temperature at which the fluid is delivered to the radiant panel system, keeping it always higher than the dew point temperature in order to prevent condensation on the floor. Moreover, if the difference between the flow temperature and the dew point temperature is within a given range, the control unit activates the digital outlet which allows to switch the dehumidifier on (the dew point temperature will decrease and the weather compensation function will be able to operate below the floor condensation threshold during the cooling phase).
Electronic security	You can set the heating limit temperature. When this value is exceeded, the mixing valve enters the “safety” mode: it stops the pump and connects the common (mixing) way to the system return. The display shows an alarm message and the system resumes its normal operation only when the temperature returns within the normal operation temperature limits.

CONTROL UNIT CONNECTION DIAGRAM

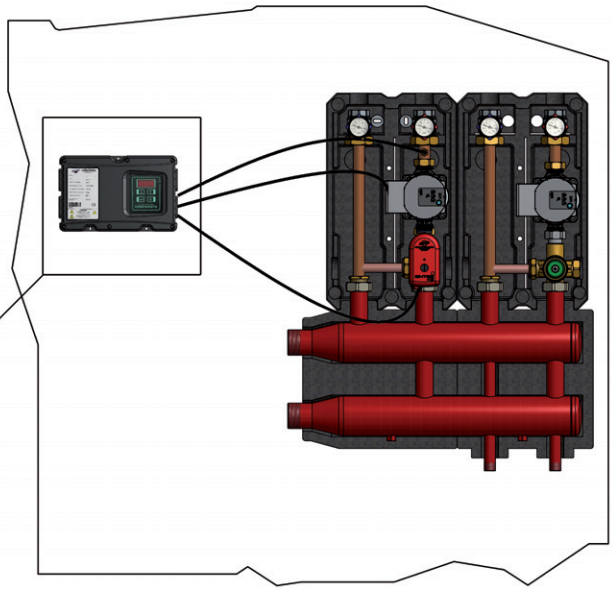
Only for cooling version

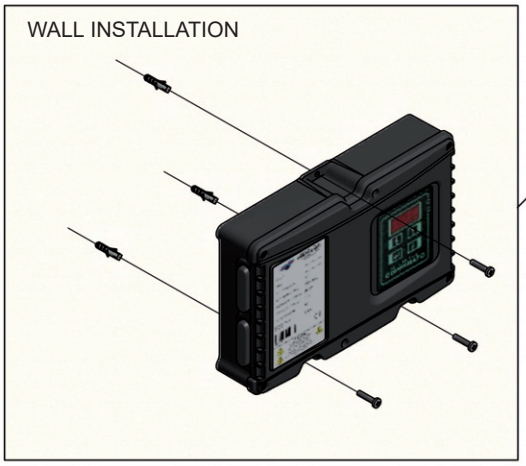


Pump units

OVERALL DIMENSIONS OF THE CONTROL UNIT

Each **MIXING MODULATING PUMP UNIT** needs its **CONTROL UNIT**.





CONTROL UNIT ACCESSORIES

code RFSONDAE

EXTERNAL TEMPERATURE PROBE

TECHNICAL FEATURES	
Case material	plastic
Thermal well material	stainless steel
Operating and environmental conditions	-40°C ÷ 100°C, relative humidity: 0 ÷ 100%
Probe	NTC
Minimum insulation resistance	100Ω a 100Vdc
Class protection	IP65

code RFTRUEE10

TEMPERATURE AND RELATIVE HUMIDITY PROBE

TECHNICAL FEATURES	
Mounting	wall
Class protection	IP30
Humidity working range	0...95% RH
Analogue output	0-10V relative humidity
Temperature probe	NTC
Power supply	15 - 40V DC / 24V AC

code AL24VDC

POWER SUPPLY FOR TEMPERATURE AND RELATIVE HUMIDITY PROBE

TECHNICAL FEATURES	
Installation	DIN rail
V in	230V 50Hz
V out	24V DC
I out	500 mA
P out	12W

Pump units

ACCESSORIES FOR MIXING MODULATING PUMP UNITS

cod. GRKCON

ENERGY METER SET-UP KIT

PERFORMANCE	
Nominal diameter	DN25
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water

MATERIAL	
Piping	copper Ø22 mm
Shell insulation	polyethylene foam

HYDRAULIC CONNECTIONS	
Material	brass
Pump unit side	nut 1"
Boiler/collector side	1" M (ISO 228-1)
Span	125 mm

COMPONENTS	
Replacement energy meter stub piece	material polyamide 1"x130mm
Filter	brass Y-type
Probe holder plug	M10x1

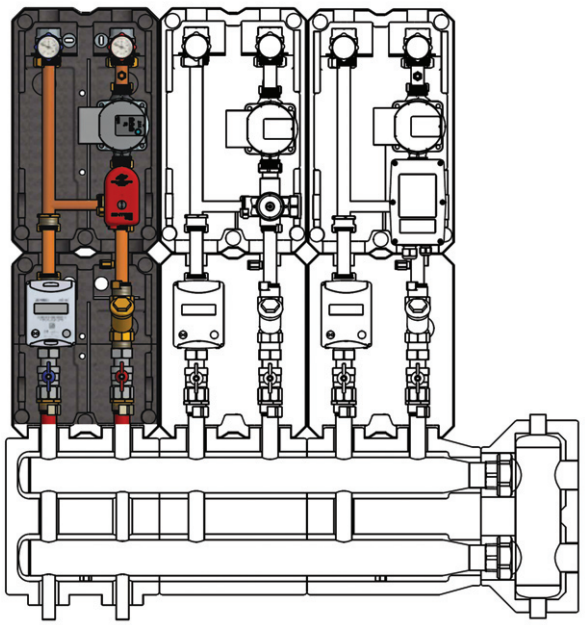
ENERGY METER

cod. CFCENM01B

ELECTRICAL FEATURES	
Type	mechanical *
Measuring principle	single jet
Nominal flow rate Qp	2,5 m^3/h
Maximum flow rate	5 m^3/h
Minimum flow rate	100 l/h
Fluid temperature	10...90°C
ΔT min	3°C
DN	20
PN	16
Power supply	lithium battery
Battery life	> 6 years
Protection	IP54
Interface	M-bus **
Pulse inputs	3
Certification	MID

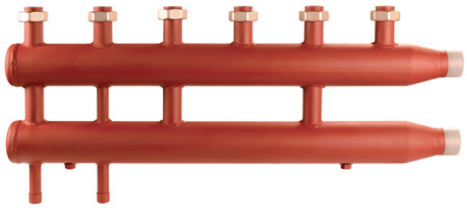
* Ultrasonic version on request

** Wireless M-bus on request



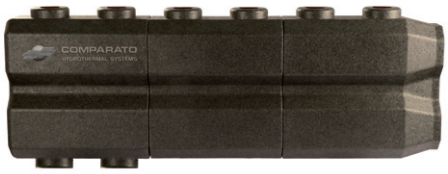
Pump units

DIACOL 125 MANIFOLDS FOR PUMP UNITS



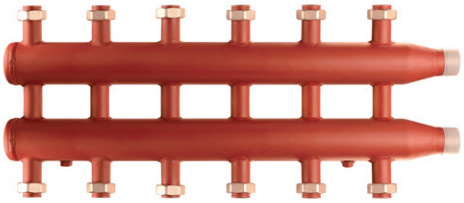
DUAL MANIFOLDS
SPAN 125mm • 1" NUT JOINT connections

CODE	DESCRIPTION
C02D34GR	2 dual zones
C03D34GR	3 dual zones
C04D34GR	4 dual zones
C05D34GR	5 dual zones
C06D34GR	6 dual zones



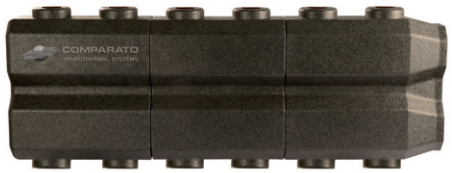
SHELL INSULATION • DUAL MANIFOLDS
in expanded polypropylene (EPP) (density 30 Kg/m³), embedded

CODE	DESCRIPTION
CBC02D34	2 dual zones insulation
CBC03D34	3 dual zones insulation
CBC04D34	4 dual zones insulation
CBC05D34	5 dual zones insulation
CBC06D34	6 dual zones insulation



DUAL OPPOSED MANIFOLDS
SPAN 125mm • 1" NUT JOINT connections

CODE	DESCRIPTION
C21D34GR	2+1 dual opposed zones
C22D34GR	2+2 dual opposed zones
C31D34GR	3+1 dual opposed zones
C32D34GR	3+2 dual opposed zones
C33D34GR	3+3 dual opposed zones
C41D34GR	4+1 dual opposed zones
C42D34GR	4+2 dual opposed zones
C51D34GR	5+1 dual opposed zones



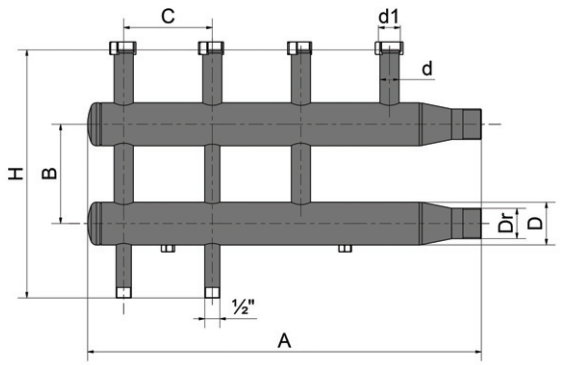
SHELL INSULATION • DUAL OPPOSED MANIFOLDS
SPAN 125mm • 1" NUT JOINT connections

CODE	DESCRIPTION
CBC21D34	2+1 dual opposed zones insulation
CBC22D34	2+2 dual opposed zones insulation
CBC31D34	3+1 dual opposed zones insulation
CBC32D34	3+2 dual opposed zones insulation
CBC33D34	3+3 dual opposed zones insulation
CBC41D34	4+1 dual opposed zones insulation
CBC42D34	4+2 dual opposed zones insulation
CBC51D34	5+1 dual opposed zones insulation

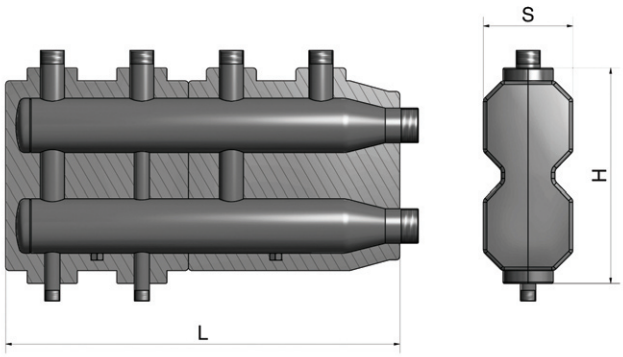
Pump units

OVERALL SIZE

MANIFOLDS



INSULATION



DUAL MANIFOLDS

ZONES	A	B	C	H	D	Dr	d	d1 *	WEIGHT
2	555	140	125	350	2"	1"1/4	3/4"	1"	9 Kg
3	805	140	125	350	2"	1"1/4	3/4"	1"	13 Kg
4	1055	140	125	350	2"	1"1/4	3/4"	1"	17 Kg
5	1305	140	125	350	2"	1"1/4	3/4"	1"	21 Kg
6	1555	140	125	350	2"	1"1/4	3/4"	1"	25 Kg

DUAL OPPOSED MANIFLODS

ZONES	A	B	C	H	D	Dr	d	d1 *	WEIGHT
2+1	555	140	125	350	2"	1"1/4	3/4"	1"	9 Kg
2+2	555	140	125	350	2"	1"1/4	3/4"	1"	9 Kg
3+1	805	140	125	350	2"	1"1/4	3/4"	1"	13 Kg
3+2	805	140	125	350	2"	1"1/4	3/4"	1"	13 Kg
3+3	805	140	125	350	2"	1"1/4	3/4"	1"	14 Kg
4+1	1055	140	125	350	2"	1"1/4	3/4"	1"	17 Kg
4+2	1055	140	125	350	2"	1"1/4	3/4"	1"	18 Kg
5+1	1305	140	125	350	2"	1"1/4	3/4"	1"	22 Kg

* with nut

DUAL MANIFOLDS

ZONES	L	H	S
2	555	300	123
3	805	300	123
4	1055	300	123
5	1305	300	123
6	1555	300	123

DUAL OPPOSED MANIFLODS

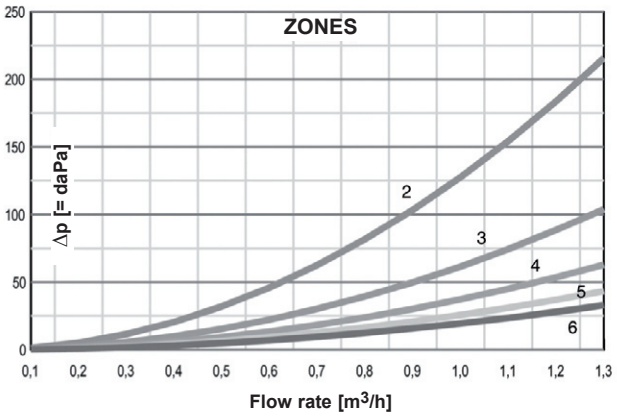
ZONES	L	H	S
2	555	300	123
3	805	300	123
4	1055	300	123
5	1305	300	123
6	1555	300	123

TECHNICAL FEATURES

- Maximum fluid temperature: 90°C
- Maximum fluid pressure: 5 bar
- Material: carbon steel EN10255
- Paint: water-based primer, red

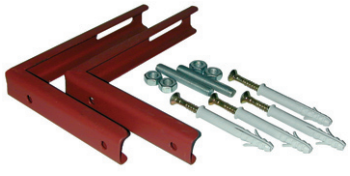
HYDRAULIC FEATURES

ZONES	Kv
2	8,85
3	12,75
4	16,40
5	19,76
6	22,71



FIXING KIT

It's made of two painted steel support brackets with slots, in order to simplify the assembling, two threaded bars M10, four nuts and four expansion bolts Ø 10 x 80mm for a safe wall anchoring.



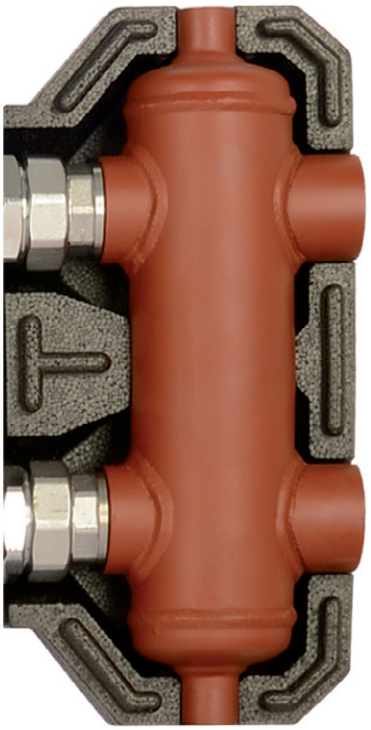
Pump units

DIACOM MINI COMPACT SEPARATOR

DIACOM MINI hydraulic separator is used to hydraulically separate the energy production circuit from the utilization circuit when they have different flow rates.

Moreover, it creates a slow vertical path aimed at helping the upflow **air separation** and **the accumulation of dirt and sludge** in the lower part.

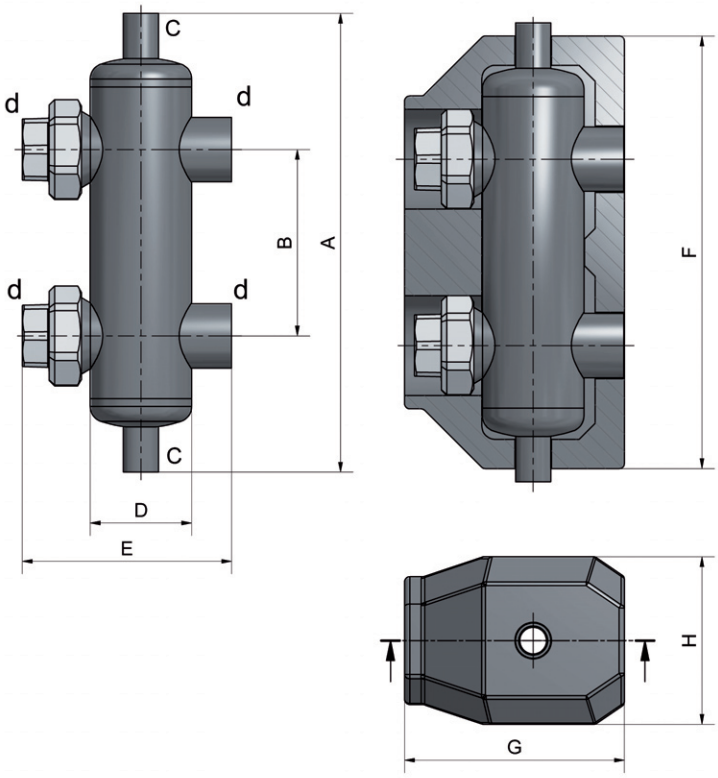
DIACOM MINI is designed to be easily combined with the **DIACOL 125** dual manifolds designed for pump units and it is supplied with connection joints for a correct installation. A shell insulation made of the same material and finishes of manifolds and pump units is also available, in order to obtain a perfect result.



code CM114 (DIACOM MINI)

code CBC114 (DIACOM MINI insulation)

OVERALL SIZE



A	B	C	D	d	E	F	G	H
345	140	1/2"F	2"1/2	1"1/4F	157	325	165	126

TECHNICAL FEATURES

- Span 140 mm
- Female threaded connections 1"1/4
- Shell insulation in expanded polypropylene (EPP) (density 30 Kg/m^3), with interlocking
- Maximum fluid temperature: 90°
- Maximum fluid pressure: 5 bar
- Material: carbon steel EN10255
- Paint: water-based primer, red

HYDRAULIC FEATURES

- Primary maximum flow (generator): 4 m^3/h
- Maximum secondary flow (system): 6 m^3/h

Pump units

DIASYS MULTIFUNCTION MANIFOLD

The **DIASYS** multifunction single-pipe manifold provides a compact package of hydraulic separator and distribution manifold functions for pump units.

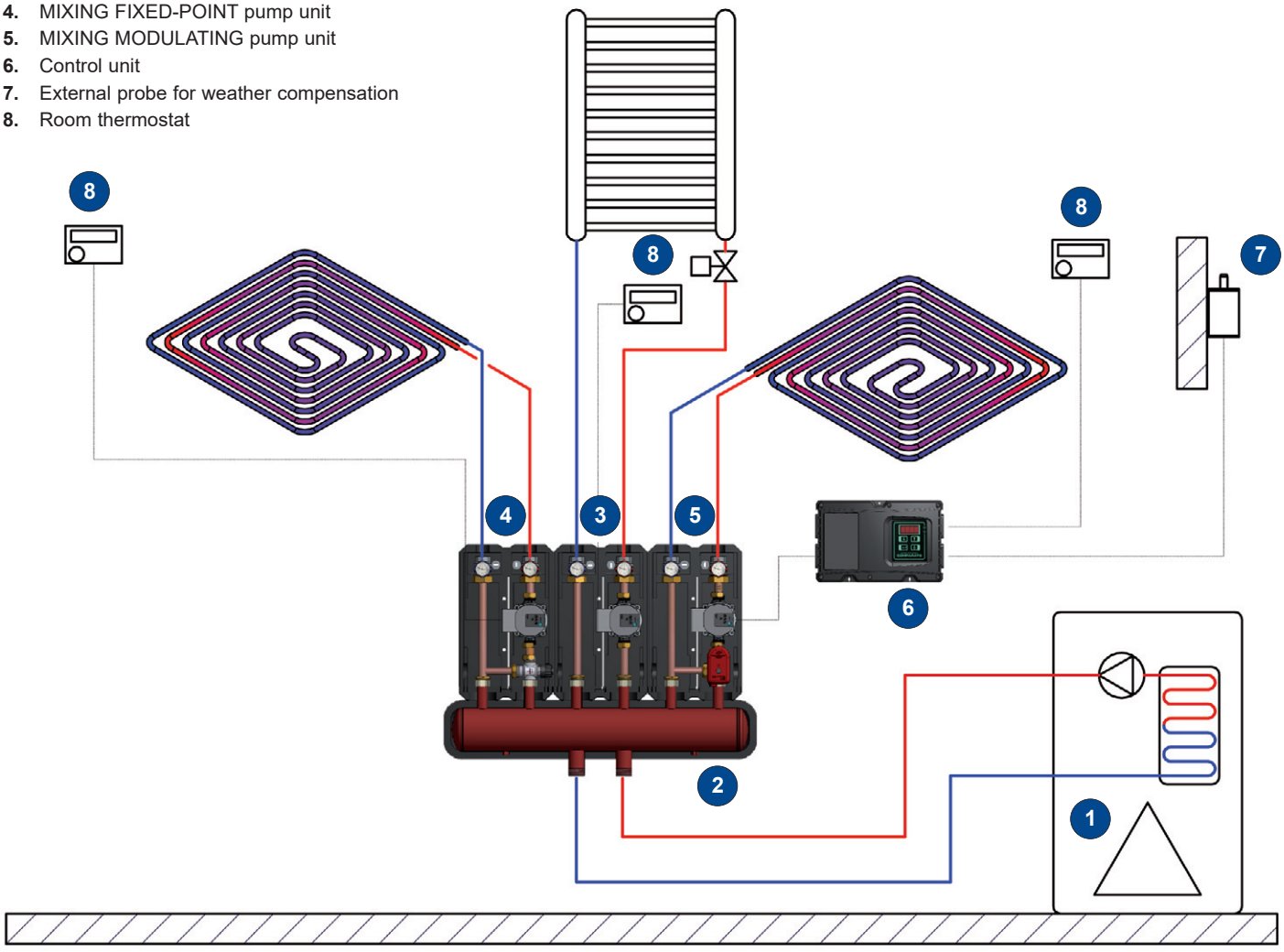
OPERATION

The purpose of the separator is to hydraulically separate the heating circuit and the plant in use, when they have different water flow needs.

The manifold function allows to distribute the provided quantity of thermal carrier fluid to the various zones, according to the characteristics of the zone itself, using the relevant pumps.

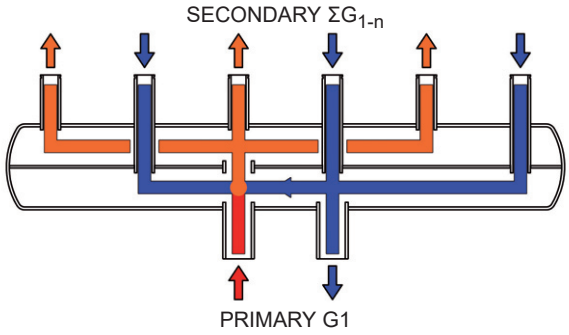
APPLICATION EXAMPLE

1. Generator
2. DIASYS
3. DIRECT pump unit
4. MIXING FIXED-POINT pump unit
5. MIXING MODULATING pump unit
6. Control unit
7. External probe for weather compensation
8. Room thermostat

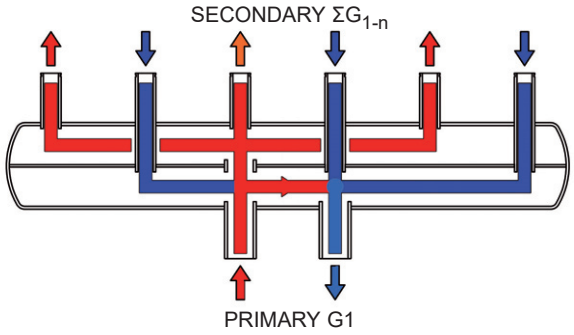


Pump units

According to the flow rate differences between G1 primary circuit (power unit) and the sum of ΣG_{1-n} secondary circuits (plant), two different scenarios may occur inside **DIASYS**:

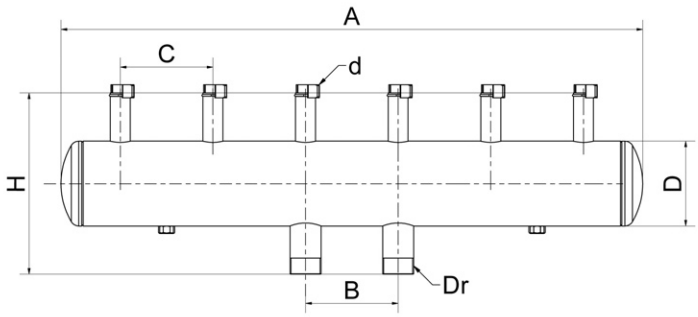


The lower flow rate on the primary circuit G1 allows the mixing of the system flow and return inside the compensation chamber. Consequently, the delivery temperature to the various zones will be lower than the temperature of the flow coming from the generator.



The higher flow rate on the primary circuit G1 allows the mixing between the flow and the return to the generator, thus increasing the return temperature to the generator itself.

OVERALL SIZE



ZONES	A	B	C	H	D	Dr	d	WEIGHT
2	535	125	125	244	4"	1"1/4	1"F	10 Kg
3	785	125	125	244	4"	1"1/4	1"F	13 Kg
3+1	785	125	125	244	4"	1"1/4	1"F	14 Kg
3+2	785	125	125	244	4"	1"1/4	1"F	15 Kg

DIASYS code	ZONES
CCI0234GR	2
CCI0334GR	3
CCI3134GR	3+1
CCI3234GR	3+2

INSULATION code	ZONES
CBI0234GR	2
CBI0334GR	3
CBI3134GR	3+1
CBI3234GR	3+2

HYDRAULIC FEATURES

VERSION ZONES	PRIMARY CIRCUIT G1	SECONDARY CIRCUIT ΣG_{1-n}
2	3.5 m^3/h	4 m^3/h
3	3.5 m^3/h	4.5 m^3/h
3+1	3.5 m^3/h	5.0 m^3/h
3+2	3.5 m^3/h	5.5 m^3/h

ACCESSORIES

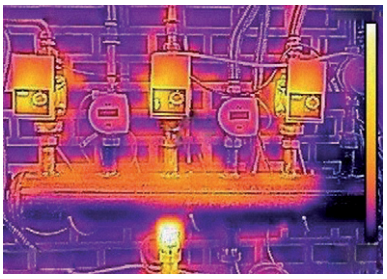
- Polyethylene foam insulation
- KSC1 Support Bracket Kit

TECHNICAL FEATURES

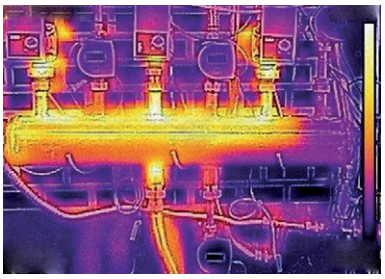
- Span 125mm
- Maximum fluid temperature: 90°C
- Maximum fluid pressure: 5 bar
- Material: carbon steel EN 10255
- Paint: water-based primer, red

TEMPERATURE DISTRIBUTION

As shown in the thermographic images of the laboratory tests, **DIASYS** differs from other multifunction products because, thanks to the particular conformation of the compensation chamber and the separation septum, it guarantees a uniform distribution of the temperature at the outlet of the various zones.



$G1 < \Sigma G_{1-n}$



$G1 > \Sigma G_{1-n}$

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com

HYDROTHERMAL SYSTEMS
COMPARATO NELLO s.r.l.
17014 CAIRO MONTENOTTE (SV) ITALIA VIALE DELLA LIBERTÀ • LOCALITÀ FERRANIA • Tel. +39 019 510.371 - FAX +39 019 517.102
www.comparato.com e-mail:info@comparato.com
UNI EN ISO 9001:2015 CERTIFIED COMPANY