DN32 Pump Unit

Distribution systems for central heating system

USE

DN32 Pump Units optimise space and functionality in the boiler room; their key strengths are modularity, flexibility and a compact, tidy design, with the ability to serve systems requiring high flow rates.

Three versions are available, featuring:

- **direct** zone
- **electronic mixing** zone with fixed-point control
- **modulating mixing** zone compatible with control unit for weather compensation function

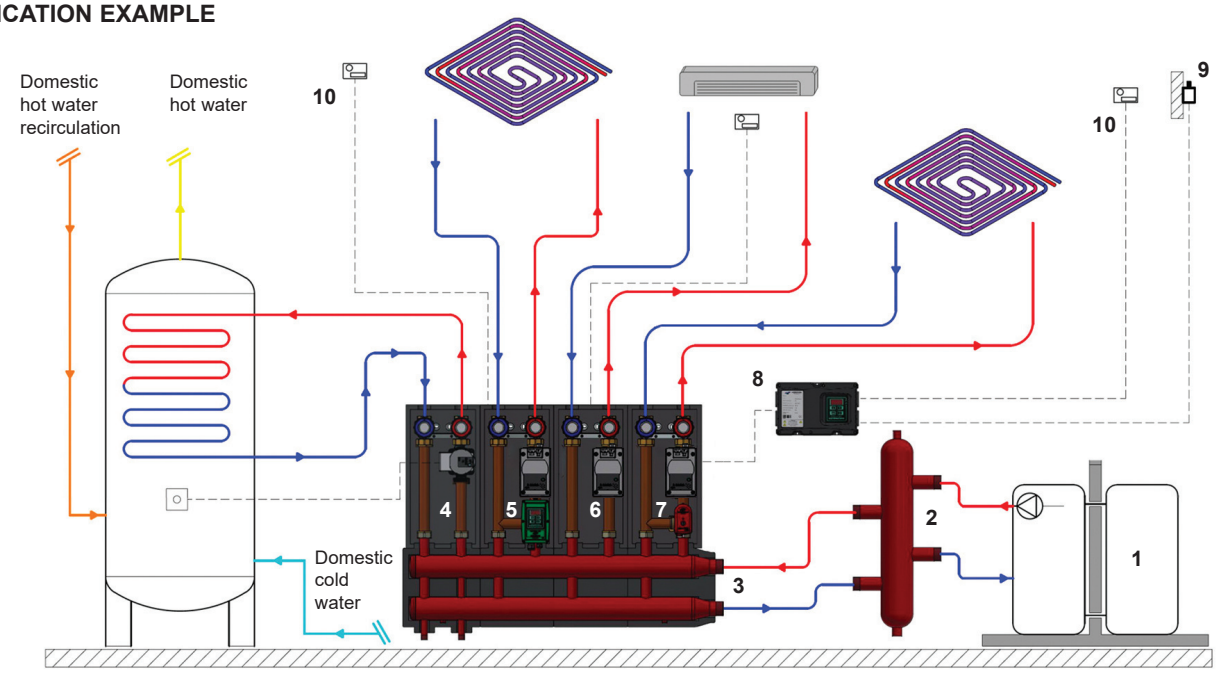
They can be configured for use in heating or cooling systems, with a choice of two pump options or ready for pumps featuring 1”1/2 x 180 mm connections.

DN32 Pump Units can be combined with coplanar manifolds and their associated insulation to form a **COMPARATO SYSTEM** for a thermal power station.

MAIN FEATURES

- **Ease of installation**
- **Compact dimensions**
- **Heating and cooling**
- **Complete insulation**
- **BMS - ready** Modbus RTU

APPLICATION EXAMPLE



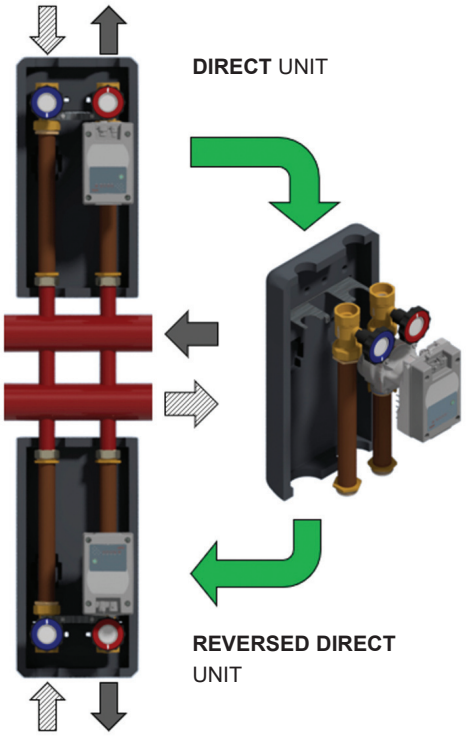
1. Generator
2. DIACOM separator
3. DIACOL 125 manifold
4. DN32 DIRECT pump unit
5. DN32 ELECTRONIC MIXING High-Flow Pump Unit
6. DN32 DIRECT High-Flow Pump Unit
7. DN32 MODULATING MIXING High-Flow Pump Unit
8. Control unit
9. Outdoor temperature probe for weather compensation
10. Room thermostat

DN32 Pump Unit

VERSIONS AND CODES

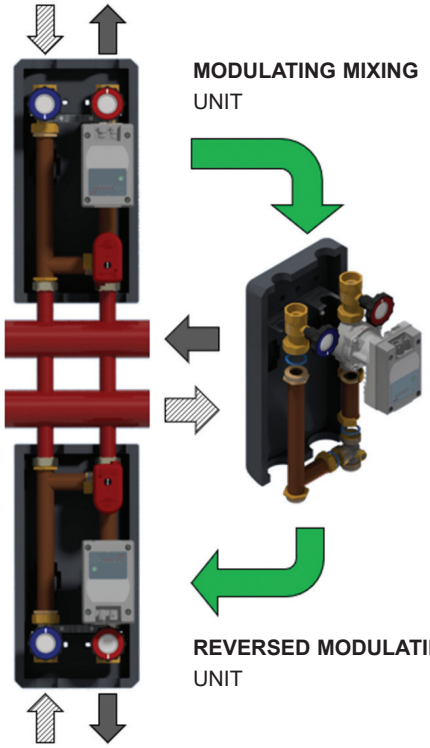
TYPE DN32	HEATING			HEATING AND COOLING		COOLING	
	STANDARD	*HIGH FLOW RATE*	*SETUP PUMP 1"1/2x180mm*	*STANDARD*	*HIGH FLOW RATE*	*STANDARD*	*HIGH FLOW RATE*
Direct	G31D00	G32D00	G33DSC	G31DFR	G32DFR	-	-
Electronic Mixing	G31X0D G31X0S	G32X0D G33X0S	-	-	-	G31XFD G31XFS	G32XFD G32XFS
Modulating Mixing	G31M00	G32M00	G33MSC	G31MFR	G32MFR	-	-

INSTALLATION



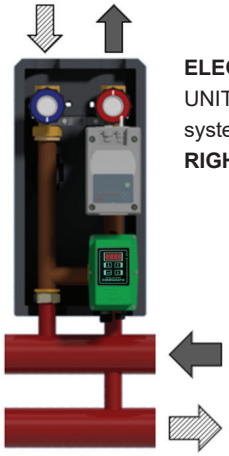
DIRECT UNIT

REVERSED DIRECT UNIT

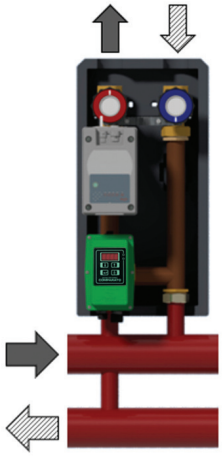


MODULATING MIXING UNIT

REVERSED MODULATING MIXING UNIT



ELECTRONIC MIXING UNIT system flow to the **RIGHT**



ELECTRONIC MIXING UNIT system flow to the **LEFT**

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

DN32 Pump Unit

DIRECT DN32 PUMP UNITS

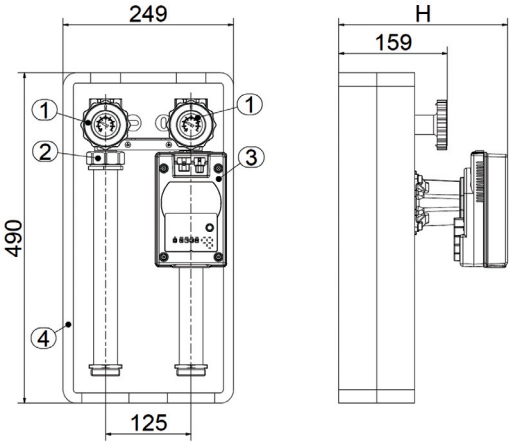
DN32 DIRECT pump units are capable of supplying the heat-transfer fluid with the correct flow rate and adequate head in hydraulic circuits where flow temperature control is not required.

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

The unit is reversible; in fact, the flow direction can be reversed from right to left, depending on the installation requirements.

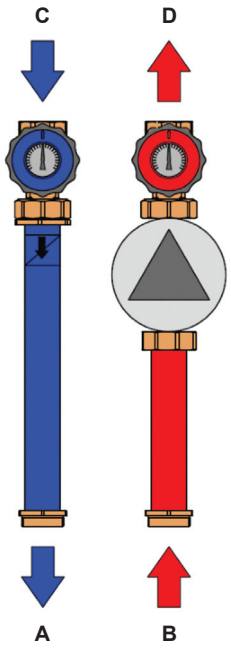
CODE	PRODUCT DESCRIPTION
G31D00	direct heating • standard pump
G32D00	direct heating • high-flow pump
G33DSC	direct heating • pump-ready 1"1/2x180mm
G31DFR	direct heating / cooling • standard pump
G32DFR	direct heating / cooling • high-flow pump

OVERALL DIMENSIONS AND MAIN COMPONENTS



1. Shut-off valves with thermometer
2. Integrated non-return valve
3. System pump
4. Shell insulation

HYDRAULIC DIAGRAM



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

VERSION	H [mm]
Standard pump	175
High-flow pump	224
Pump-ready 1"1/2 x 180 mm	/

DN32 Pump Unit

TECHNICAL FEATURES

PERFORMANCE	
Nominal diameter	DN32
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water (max. 30% glycol)
Flow rate *	
Direct standard pump	2.800 l/h
Direct high-flow pump	4.700 l/h

* with a residual flow of 40 kPa

COMPONENTS	
Standard pump	25/9
High-flow pump	25/10
Check valve	built into the interception valve
Thermometers	0-80°C

MATERIAL	
Pipelines	copper Ø35 mm
Shell insulation	polyethylene foam 15mm
Pipe insulation **	foamed elastomer rubber-based 6 mm
Insulation of components **	polyethylene foam

** cooling versions

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

HYDRAULIC CONNECTIONS	
Material	brass
System side	1"1/4 F (ISO 228-1)
Boiler/manifold side	1"1/4 M (ISO 228-1)
Centre-to-centre distance	125 mm

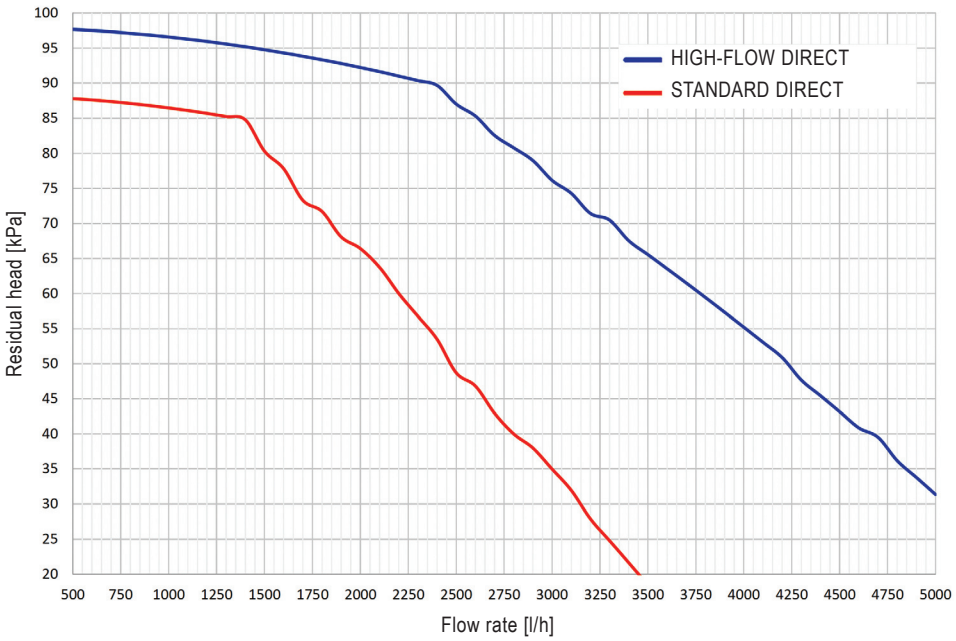
DIMENSIONS AND WEIGHT	
External dimensions	249 x 490 x 224 mm
Empty weight	7 kg

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)
1800	63	42	21	10,5
2400	84	56	28	14
3000	105	70	35	17
3600	126	84	42	21
4000	140	93	47	24
4600	160	107	54	27

HYDRAULIC FEATURES

RESIDUAL FLOW • DIRECT



DN32 Pump Unit

ELECTRONIC MIXING PUMP UNITS DN32

SYSTEM FLOW ON THE RIGHT

SYSTEM FLOW ON THE LEFT

ELECTRONIC mixing pump units **DN32** 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.

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

* for heating and cooling operation see modulating mixing units

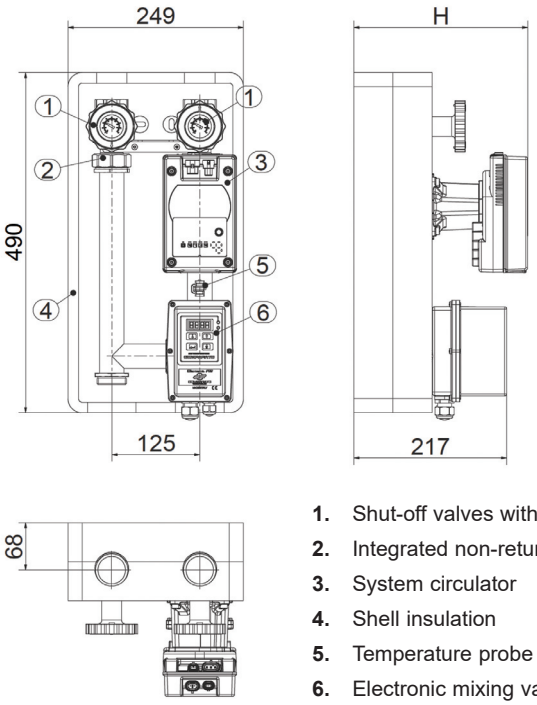
SYSTEM FLOW ON THE RIGHT

CODE	PRODUCT DESCRIPTION
G31X0D	mixing electronic • heating • standard pump • flow on the right
G31X0D	mixing electronic • heating • high-flow pump • flow on the right
G31XFD	mixing electronic • cooling • standard pump • flow on the right
G32XFD	mixing electronic • cooling • high-flow pump • flow on the right

SYSTEM FLOW ON THE LEFT

CODE	PRODUCT DESCRIPTION
G31X0S	mixing electronic • heating • standard pump • flow on the left
G32X0S	mixing electronic • heating • high-flow pump • flow on the left
G31XFS	mixing electronic • cooling • standard pump • flow on the left
G32XFS	mixing electronic • cooling • high-flow pump • flow on the left

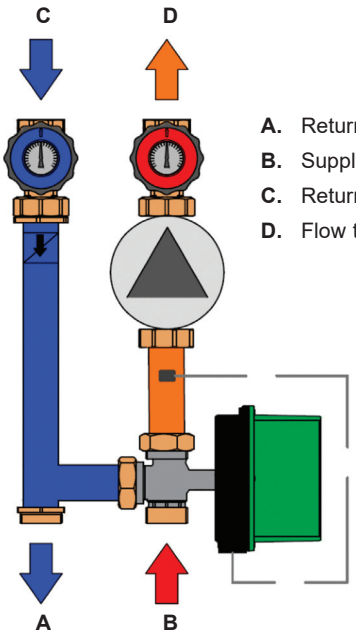
OVERALL DIMENSIONS AND MAIN COMPONENTS



1. Shut-off valves with thermometer
2. Integrated non-return valve
3. System circulator
4. Shell insulation
5. Temperature probe
6. Electronic mixing valve

VERSION	H [mm]
Standard pump	175
High-flow pump	224

HYDRAULIC DIAGRAM



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

DN32 Pump Unit

TECHNICAL FEATURES

PERFORMANCE	
Nominal diameter	DN32
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water (max. 30% glycol)
Flow rate *	
mixing standard pump	2.600 l/h
mixing high-flow pump	4.200 l/h

* with a residual flow of 40 kPa

COMPONENTS	
Standard pump	25/9
High-flow pump	25/10
Check valve	built into the interception valve
Thermometers	0-80°C
Mixing ball valve	3-way ball valve
Kv Mixing valve	11 m³/h
Mixing actuator	see next page
Temperature probe	contact-type, type NTC 10kΩ

MATERIAL	
Pipelines	copper Ø35 mm
Shell insulation	polyethylene foam 15 mm
Pipe insulation **	foamed elastomer rubber-based 6 mm
Insulation of components **	polyethylene foam

** cooling versions

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

HYDRAULIC CONNECTIONS	
Material	brass
System side	1"1/4 F (ISO 228-1)
Boiler / manifold side	1"1/4 M (ISO 228-1)
Centre-to-centre distance	125 mm

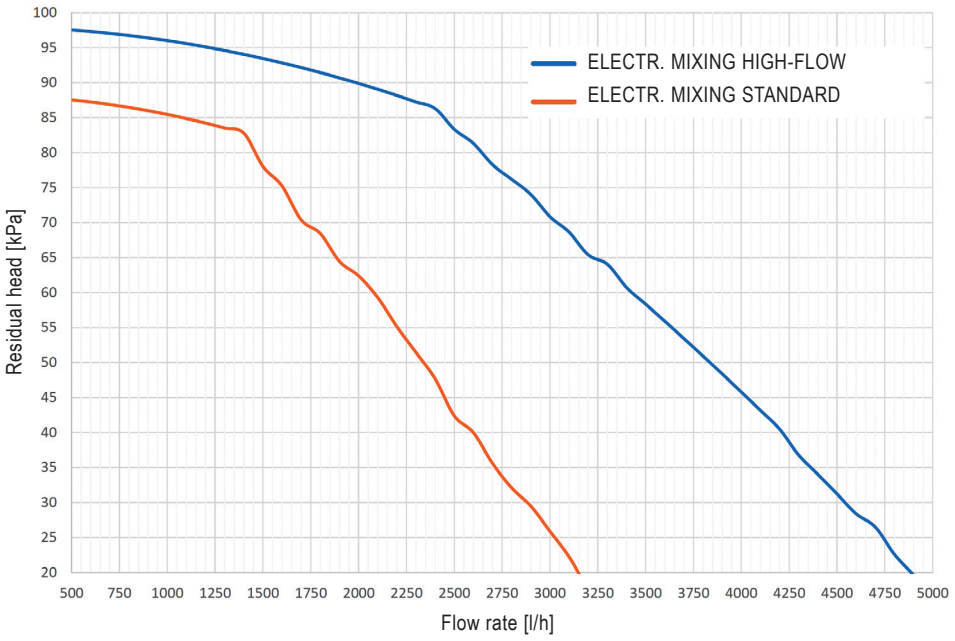
DIMENSIONS AND WEIGHT	
External dimensions	249 x 490 x 224 mm
Empty weight	8 kg

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)
1800	63	42	21	10,5
2400	84	56	28	14
3000	105	70	35	17
3600	126	84	42	21
4000	140	93	47	24

HYDRAULIC FEATURES

RESIDUAL FLOW - ELECTRONIC MIXING



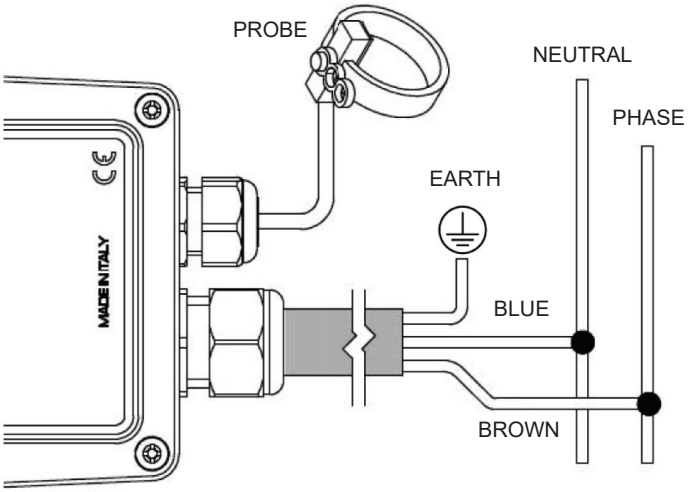
DN32 Pump Unit

FIXED-POINT MIXING ACTUATOR • Diamix

Adjustment range: -15°C to +85°C

TECHNICAL SPECIFICATIONS	Diamix
Power supply (110V on request)	230V • 50/60 Hz
Maximum power consumption	15 VA
Operating time (90° rotation)	35 s
Protection degree	IP67
Operational room temperature	-10°C to + 50°C, RH max. 85%
Temperature probe	contact-type, NTC 10kΩ, length 80 cm
Electronic adjuster	PID
Temperature adjustment range	-15°C to +85°C
Precision	± 1°C
Maintenance	none
Certification	CE

ELECTRICAL CONNECTIONS



Power cable length: 80 cm

DN32 Pump Unit

MODULATING MIXING PUMP UNITS DN32

SINTESI actuator
supplied separately

MODULATING MIXING pump units **DN32** 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 high-efficiency pump, flow and return thermometers, system-side interception valves, non-return valve, motorizable mixing valve, shell insulation.

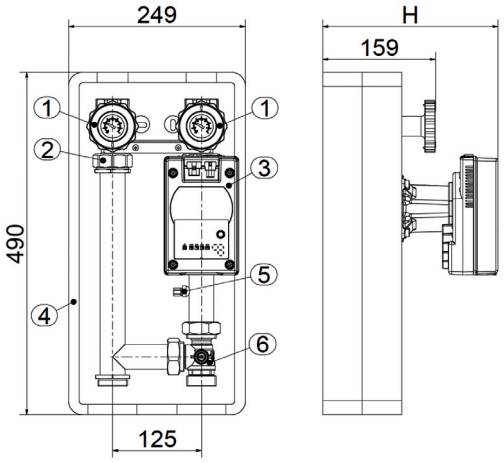
With the addition of **SINTESI** or **SINTESI SMART** (accessories) and an electronic temperature controller, a precise and reliable control is achieved.

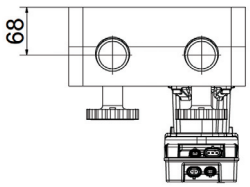
When used in conjunction with the control unit **CGRMS1** (optional), which already includes a **SINTESI** actuator and temperature probe, it is possible to control the heating system at a fixed setpoint or using the climate control function and, for cooling versions, to control the dew point temperature and prevent condensation from forming. Furthermore, thanks to the serial port using the Modbus-RTU protocol, the system can be managed remotely (BMS).

The unit is reversible; in fact, the flow direction can be reversed from right to left, depending on the installation requirements.

CODE	PRODUCT DESCRIPTION
G31M00	modulating mixing heating • standard pump
G32M00	modulating mixing heating • high-flow pump
G33MSC	modulating mixing heating • pump-ready 1"1/2x180mm
G31MFR	modulating mixing heating / cooling • standard pump
G32MFR	modulating mixing heating / cooling • high-flow pump

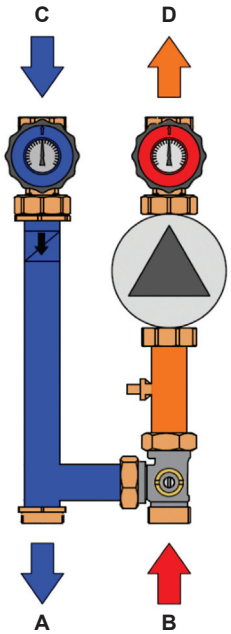
OVERALL DIMENSIONS AND MAIN COMPONENTS





1. Shut-off valves with thermometer
2. Integrated non-return valve
3. System pump
4. Shell insulation
5. Probe housing
6. Mixing valve (to be motorised)

HYDRAULIC DIAGRAM



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

VERSION	H [mm]
Standard pump	175
High-flow pump	224
Pump-ready 1"1/2 x 180 mm	/

DN32 Pump Unit

TECHNICAL FEATURES

PERFORMANCE	
Nominal diameter	DN32
Maximum operating pressure	PN6
Maximum temperature	90°C
Minimum temperature	5°C
Type of fluid	water (max. 30% glycol)
Flow rate *	
mixing standard pump	2.600 l/h
mixing high-flow pump	4.200 l/h

* with a residual flow of 40 kPa

COMPONENTS	
Standard pump	25/9
High-flow pump	25/10
Check valve	integrated into the return flow line
Thermometers	0-80°C
Mixing valve	3-way ball valve
Kv Mixing valve	11 m³/h
Actuator	see accessories
Probe housing	Ø 6

MATERIAL	
Pipelines	copper 35 mm
Shell insulation	polyethylene foam 15 mm
Pipe insulation **	foamed elastomer rubber-based 6 mm
Insulation of components **	polyethylene foam

** cooling versions

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

HYDRAULIC CONNECTIONS	
Material	brass
System side	1"1/4 F (ISO 228-1)
Boiler / manifold side	1"1/4 M (ISO 228-1)
Centre-to-centre distance	125 mm

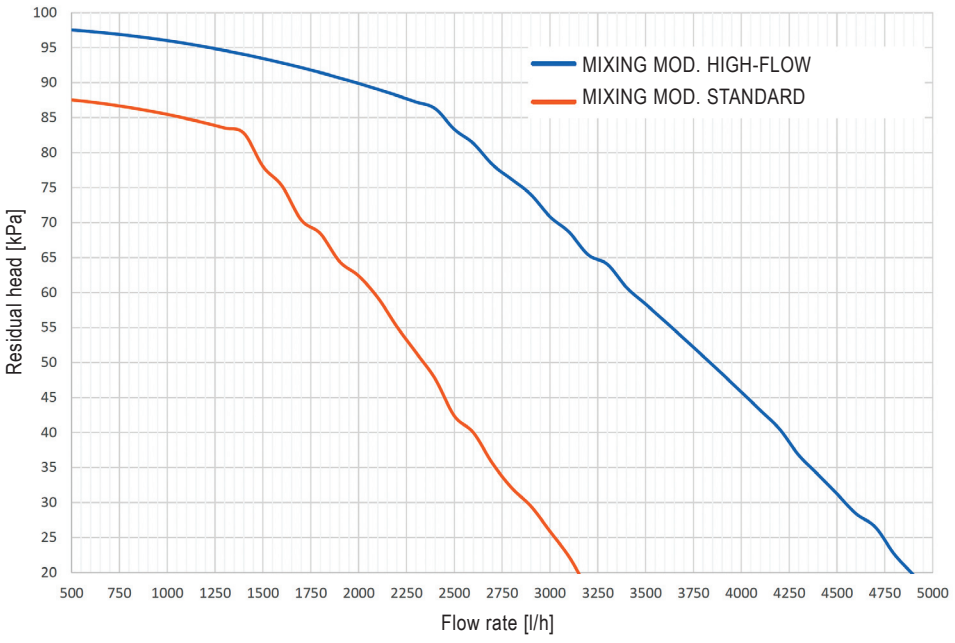
DIMENSIONS AND WEIGHT	
External dimensions	249 x 490 x 224 mm
Empty weight	7,6 kg

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)
1800	63	42	21	10,5
2400	84	56	28	14
3000	105	70	35	17
3600	126	84	42	21
4000	140	93	47	24

HYDRAULIC FEATURES

RESIDUAL FLOW • MODULATING MIXING



DN32 Pump Unit

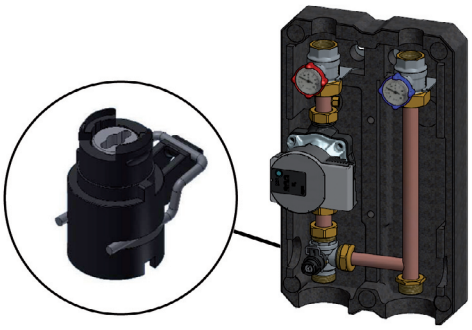
ACCESSORIES FOR MODULATING MIXING PUMP UNITS

code SS2221BI (35s)

code SS2221BC2I (120s)

SINTESI actuator - 3-POINT MODULATING

TECHNICAL SPECIFICATIONS	SS2221BI	SS2221BC2I
Electrical control	3-point	
Connection to the ball valve	fast push coupling	
Rotation	90°	
Operating time	35 s	120 s
Position indicator	rotating arrow	
Power supply	230V 50/60 Hz	
Input power	3,9 VA	
Additional microswitch	max 1A	
Microswitch contact rating	1 A, resistive - 250 V	
Protection degree	IP54	
Cable length	80 cm	



code DISN05

For the installation of SINTESI 3-point **MODULATING** actuators with on **REVERSED** units (system flow to the left and system return to the right), it is necessary to use the appropriate adapter (code **DISN05**) and rotate the valve ball 90° clockwise.

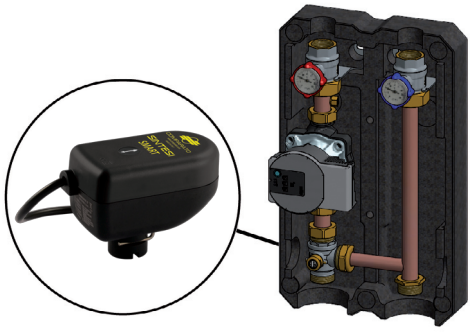
SINTESI SMART actuator - PROPORTIONAL

code SM4010F030I

TECHNICAL FEATURES	
Positioning command	0-10V DC *
Connection to the ball valve	fast push coupling
Rotation	90°
Operating time	30 s **
Position indicator	rotating arrow
Power supply	24V AC/DC (50/60 Hz)
Input power	3,5 VA
Positioning feedback	2-10V DC
Protection degree	IP54
Cable length	80 cm

* other positioning signals available on request

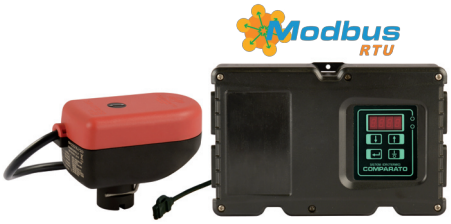
** other operating times available on request



code SM4010F030D (inverted version)

For the installation of **SINTESI SMART PROPORTIONAL** actuators on **REVERSED** units (system supply on the left and system return on the right), the valve ball must be rotated by 180°.

DN32 Pump Unit



code CGRMS1 • control of 1 modulating zone

CONTROL UNIT for RADIANT PANELS with actuator

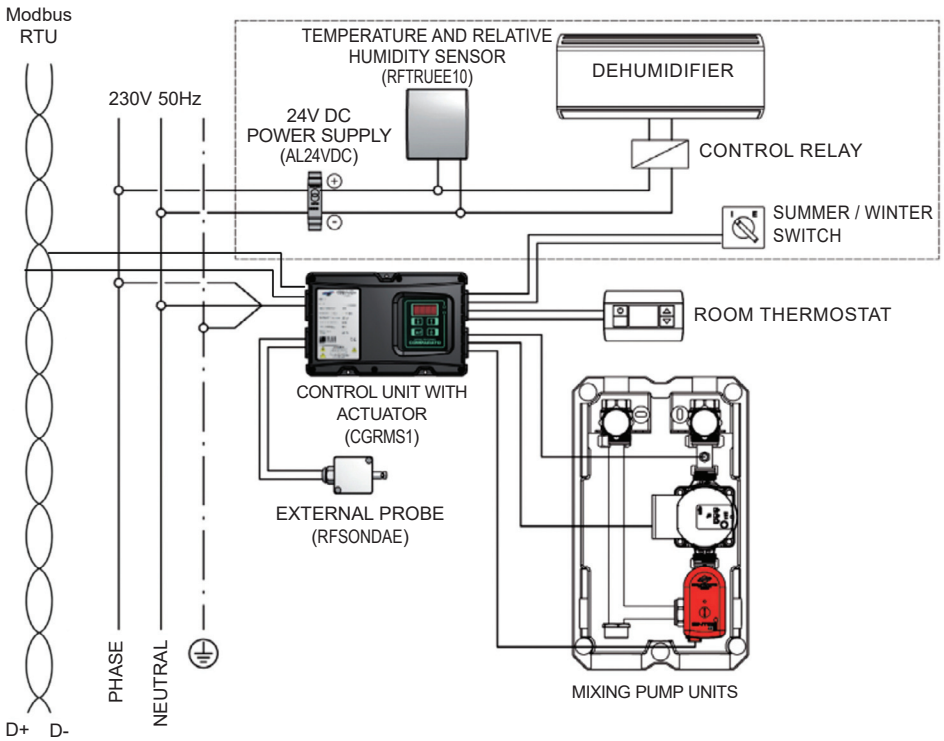
High-temperature version available on request

The electronic control unit, equipped with an actuator and temperature probe, regulates and controls heating and / or cooling* systems with radiant floor, wall or ceiling panels. After installation, the type of operation can be selected by activating or deactivating the various functions:

* For cooling, a G31MFR or G32MFR pump unit is required

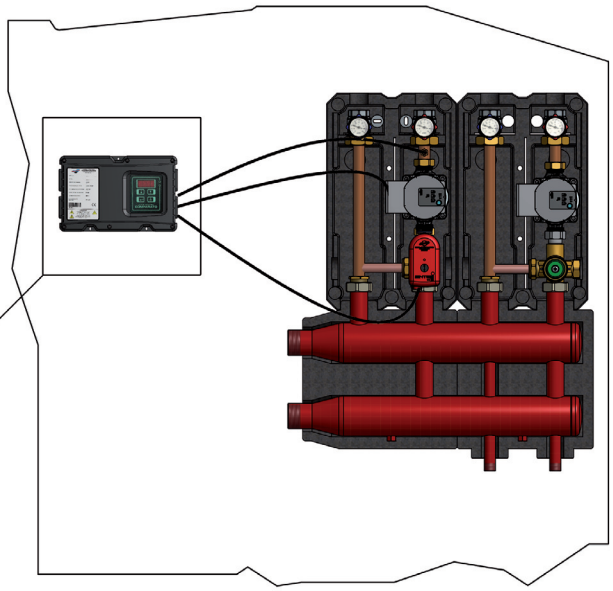
Fixed-point adjustment	The heating setpoint temperature is set via keypad and display. When activated by the room thermostat, the control system keeps the flow temperature constant at the setpoint value.
Sliding control (weather compensation function)	The setpoint temperature is automatically calculated by the software based on the outside temperature detected by the outside temperature probe (accessory) according to programmable climate 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 starts and the electronic system, which operates by means of PID algorithm, controls the outlet temperature according set values. When the room thermostat sends the signal to interrupt the energy supply to the system, the controller stops the circulation pump, halts the regulation, and connects the supply line (mixing) to the system return.
Anti-condensation function (cooling)	During summer cooling, the anti-condensation function calculates the dew temperature of the heated room using a temperature probe and a relative humidity probe (accessory). The dew temperature represents the temperature below which the humidity in the environment condenses. The control unit regulates the flow temperature of the fluid to the radiant panel system, keeping it always higher than the dew point temperature in order to avoid condensation on the floor. Furthermore, if the difference between the flow temperature and the dew point temperature is within a certain range, the controller activates the digital output which allows the dehumidifier to be switched on (lowering the humidity decreases the dew point temperature and allows the temperature to “keep away” from the condensation threshold on the floor during cooling).
Electronic security	It is possible to set the limit temperature for heating. When this value is exceeded, the mixing valve goes into 'safety' mode: it stops the circulation pump and connects the common (mixing) line to the system return. The display shows a warning message and the system only resumes normal operation when the temperature is within normal operating limits.
Remote management	The control unit is equipped with a MODBUS RTU interface and it is possible, using the RS485 serial connection, to change all operating parameters, send commands to the valve and receive information on the operating status. Control units are suitable for connection to modern building management systems (BMS). The Modbus address table can be downloaded from www.comparato.com

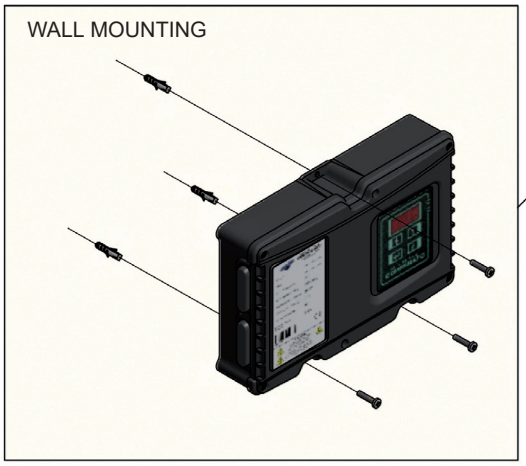
CONTROL UNIT CONNECTION DIAGRAM



DN32 Pump Unit

Each individual **MODULATING MIXING UNIT** requires its own **CONTROL UNIT**.





CONTROL UNIT ACCESSORIES

code RFSONDAE

EXTERNAL TEMPERATURE PROBE

TECHNICAL FEATURES	
Case material	plastic
Plug material	stainless steel
Operating and environmental	-40°C ÷ 100°C, RH 0 ÷ 100%
Sensor	NTC
Minimum insulation resistance	100Ω a 100Vdc
Protection degree	IP65

code RFTRUEE10

TEMPERATURE AND RELATIVE HUMIDITY SENSOR

TECHNICAL FEATURES	
Assembly	wall-mounted
Protection degree	IP30
Operating humidity range	RH: 0 ÷ 95%
Analogue output	0-10V
Temperature sensor	NTC
Power supply	15 - 40V DC / 24V AC

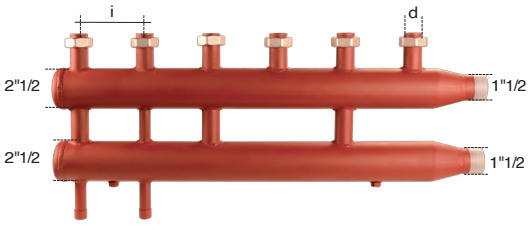
code AL24VDC

POWER SUPPLY FOR TEMPERATURE AND HUMIDITY SENSOR

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

DN32 Pump Unit

DIACOL 125 MANIFOLDS FOR DN32 BOOSTER UNITS

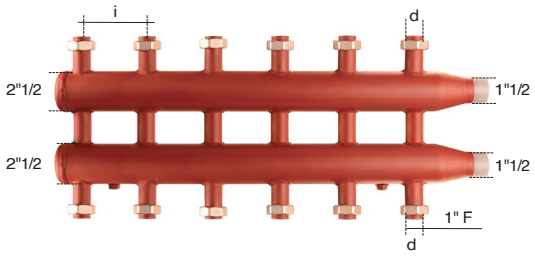


DUAL MANIFOLDS
SPAN 125mm • 1"1/4 NUT JOINT connections

CODE	ZONES	d	i
C02D01GR	2	1"	125 mm
C03D01GR	3	1"	125 mm
C04D01GR	4	1"	125 mm
C05D01GR	5	1"	125 mm
C06D01GR	6	1"	125 mm

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

CODE	ZONES	i
CBC02D01	2	125 mm
CBC03D01	3	125 mm
CBC04D01	4	125 mm
CBC05D01	5	125 mm
CBC06D01	6	125 mm



DUAL OPPOSED MANIFOLDS
SPAN 125mm • 1"1/4 NUT JOINT connections

CODE	ZONES	d	i
C21D01GR	2+1	1"	125 mm
C22D01GR	2+2	1"	125 mm
C31D01GR	3+1	1"	125 mm
C32D01GR	3+2	1"	125 mm
C33D01GR	3+3	1"	125 mm
C41D01GR	4+1	1"	125 mm
C42D01GR	4+2	1"	125 mm
C51D01GR	5+1	1"	125 mm

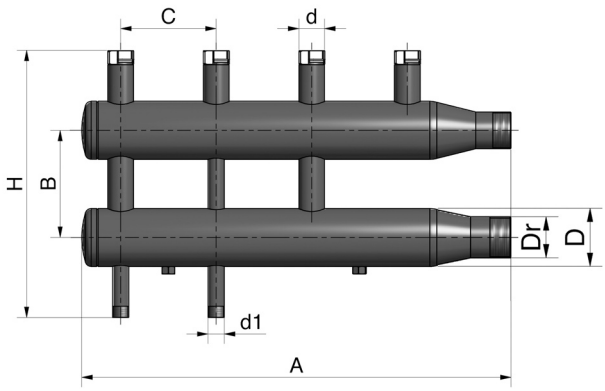
SHELL INSULATION • DUAL OPPOSED MANIFOLDS
in expanded polypropylene (EPP) (density 30 Kg/m³), embedded

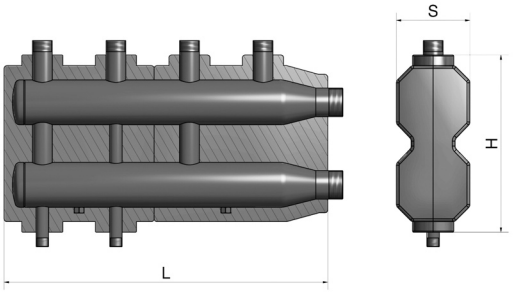
CODE	ZONES	i
CBC21D01	2+1	125 mm
CBC22D01	2+2	125 mm
CBC31D01	3+1	125 mm
CBC32D01	3+2	125 mm
CBC33D01	3+3	125 mm
CBC41D01	4+1	125 mm
CBC42D01	4+2	125 mm
CBC51D01	5+1	125 mm

DN32 Pump Unit

OVERALL DIMENSIONS

With female nut outlet G 1"1/4





COPLANAR

ZONES	A	B	C	H	D	Dr	d	d1	WEIGHT
2	562	140	125	350	2"1/2	R1"1/2	1"	1/2"	10 Kg
3	812	140	125	350	2"1/2	R1"1/2	1"	1/2"	14 Kg
4	1062	140	125	350	2"1/2	R1"1/2	1"	1/2"	18 Kg
5	1312	140	125	350	2"1/2	R1"1/2	1"	1/2"	23 Kg
6	1562	140	125	350	2"1/2	R1"1/2	1"	1/2"	27 Kg

COPLANAR OPPOSING

ZONES	A	B	C	H	D	Dr	d	d1	WEIGHT
2+1	562	140	125	350	2"1/2	R1"1/2	1"	1"	10 Kg
2+2	562	140	125	350	2"1/2	R1"1/2	1"	1"	11 Kg
3+1	812	140	125	350	2"1/2	R1"1/2	1"	1"	14 Kg
3+2	812	140	125	350	2"1/2	R1"1/2	1"	1"	15 Kg
3+3	812	140	125	350	2"1/2	R1"1/2	1"	1"	16 Kg
4+1	1062	140	125	350	2"1/2	R1"1/2	1"	1"	19 Kg
4+2	1062	140	125	350	2"1/2	R1"1/2	1"	1"	20 Kg
5+1	1312	140	125	350	2"1/2	R1"1/2	1"	1"	24 Kg

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

DIMENSIONS FOR OPPOSING VERSIONS REMAIN UNCHANGED

TECHNICAL FEATURES

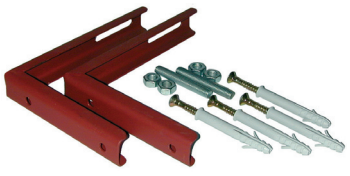
- Maximum fluid temperature: 90°C
- Minimum fluid temperature: 5°C
- Maximum fluid pressure: 5 bar
- Material: carbon steel EN10255
- Paint: water-based primer, red

HYDRAULIC FEATURES

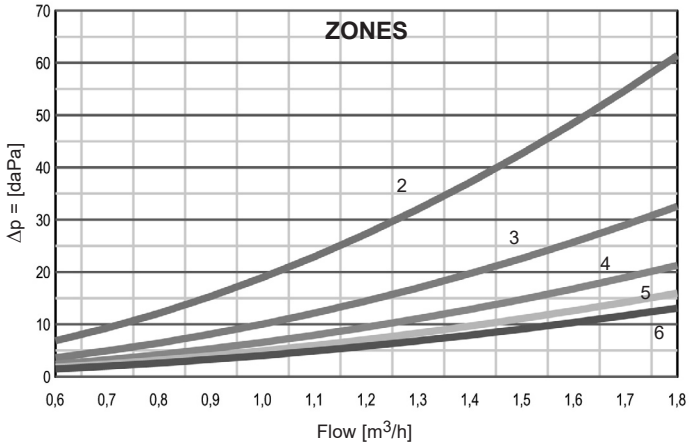
ZONES	Kv [m³/h]
2	22,97
3	31,55
4	39,05
5	45,08
6	49,74

FIXING KIT code KSC1

Consisting of two painted steel support brackets with holes to facilitate assembly, two M10 threaded posts, four nuts and four Ø 10 x 80 mm wall plugs, complete with screws for a safe wall anchoring.



Δp [daPa] MANIFOLDS Ø1" CONNECTIONS, SPAN 125 mm



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