

# HUB RADIATOR PLUS SPLIT INVERTER

Patented Termodinamica® high-efficiency floor-standing boiler with direct refrigerant/water exchange to produce domestic hot water and heating for medium-sized users with or without solar thermal integration

CALDAIA  TERMODINAMICA®



## Technical and construction characteristics

The patented HUB RADIATOR PLUS SPLIT INVERTER Termodinamica® Boiler is a winter air conditioning system and a heat pump domestic hot water producer that uses the innovative patented direct refrigerant/water heat exchange.

The product consists of:

- One or two external Booster motor evaporators model "HR 9.0 only hot" which close the refrigeration circuit and which directly transfer the heat taken from the external air to the technical water of the accumulator. During the coldest periods of the year, the Booster uses the heat contained in the technical water accumulator to carry out very rapid defrosts with low energy impact;
- Inertial accumulation of 315 liters of technical water, with one inside outtwo patented immersion refrigerant/water condensers and a 4.54 m2 finned copper rapid DHW exchanger;
- DHW thermostatic mixing valve;
- High efficiency inverter electronic circulator for powering a high temperature heating circuit;
- Microprocessor command and control panel for the management of the heat pump water heater;
- 2.0 kW back-up electrical resistance, which can be activated in mode emergency or in integration mode;
- No. 2 expansion vessels (puffers) of 8 liters each;
- Manual filling group composed of pressure gauge, tap and non-return valve;
- Safety valve calibrated at 3 bar;
- Automatic air vent jolly valve;
- Wheel kit to facilitate movement of the internal unit. This unit

presents a perfect balance between compact dimensions, energy efficiency and innovative design and can be combined with a forced circulation solar thermal system (optional) which acts as an integration for the production of DHW and for winter air conditioning. The patented Termodinamica® HUB RADIATOR PLUS SPLIT INVERTER boiler, thanks to the use of a puffer equipped with a rapid finned copper DHW exchanger, is able to deliver large quantities of domestic hot water without the need to carry out anti-legionella thermal shock cycles. In fact, this innovative system uses the first in - first out method, which guarantees maximum hygiene of the sanitary circuit, definitively eliminating the problem of legionella. This design consideration raises the level of energy efficiency of the entire system, and translates into great economic savings. In order to facilitate the installation of the patented HUB RADIATOR PLUS SPLIT INVERTER Boiler Termodinamica®, the Accorroni group has equipped the internal storage unit with all the components hydraulic components necessary for the correct functioning of the system, all tested in the factory. The system can be equipped with a second inverter electronic circulator (optional) factory installed inside the storage unit, to power a second high or low temperature heating circuit.






Model	Code	€
<b>HUB RADIATOR PLUS SPLIT INVERTER 9.0</b>	<b>37308050</b>	<b>10.960,00</b>
<b>HUB RADIATOR PLUS SPLIT INVERTER 9.0 + 9.0</b>	<b>37308055</b>	<b>16.720,00</b>

# HUB RADIATOR PLUS SPLIT INVERTER

Termodinamica® patented high-efficiency floor-standing boiler with direct refrigerant/water exchange per produrre acqua calda sanitaria e riscaldamento per medie utenze con o senza integrazione solare termica










Solar thermal kit HUB RADIATOR PLUS SPLIT INVERTER	Code	€
KIT SOLAR HR 1 x 2.0 pitched roof	37308030	2.686,00
KIT SOLAR HR 1 x 2.0 flat roof	37318030	2.646,00
KIT SOLAR HR 1 x 2.5 pitched roof	37308031	2.836,00
KIT SOLAR HR 1 x 2.5 flat roof	37318031	2.824,00
KIT SOLAR HR 2 x 2.0 pitched roof	37308032	3.710,00
KIT SOLAR HR 2 x 2.0 flat roof	37318032	3.602,00
KIT SOLAR HR 2 x 2.5 pitched roof	37308033	4.064,00
KIT SOLAR HR 2 x 2.5 flat roof	37318033	3.968,00
KIT SOLAR HR 3 x 2.0 pitched roof	37308034	4.830,00
KIT SOLAR HR 3 x 2.0 flat roof	37318034	4.734,00
KIT SOLAR HR 3 x 2.5 pitched roof	37308035	5.404,00
KIT SOLAR HR 3 x 2.5 flat roof	37318035	5.308,00

Accessories HUB RADIATOR PLUS SPLIT INVERTER	Code	€	
 <p>Additional inverter electronic circulator, max flow rate 3.3 m<sup>3</sup>/h, max head 6.2 m, min. electrical absorption. 4W - max 45W</p>	35006001	230,00	
 <p>Additional low temperature system pump kit with climatic mixing</p>	75151005	760,00	
 <p>Mixing valve for radiant systems</p>	<b>mod. fixed mechanical adjustment</b> <b>mod. motorized adjustment</b>	<b>75101032</b> <b>75101033</b>	<b>120,00</b> <b>600,00</b>
 <p>Anchoring shelf for external Booster including rubber vibration dampers</p>	37081061	90,00	
 <p>Anchor bracket for sloping roof for external Booster including rubber vibration dampers</p>	37081064	218,00	
 <p>Vulcanized rubber anti-vibration floor base (height from the ground 95 mm) with level and screws (pack of 2 pieces)</p>	75100018	102,00	
 <p>Anti-vibration kit for installation on shelves</p>	75100022	22,00	
 <p>Stainless steel spring anti-vibration kits complete with bolts, washers and nuts (pack of 2)</p>	37081066	64,00	
 <p>Auxiliary tray for installation under shelf equipped with 90 W heating cable</p>	37081070	300,00	
 <p>Floor support complete with auxiliary basin equipped with 90 W heating cable</p>	<b>H fixed</b> <b>H variable</b>	<b>37081073</b> <b>37081074</b>	<b>350,00</b> <b>370,00</b>

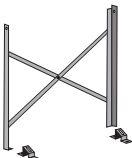





# HUB RADIATOR PLUS SPLIT INVERTER

Termodinamica® patented high-efficiency floor-standing boiler with direct refrigerant/water exchange per produrre acqua calda sanitaria e riscaldamento per medie utenze con o senza integrazione solare termica

## Accessories HUB RADIATOR PLUS SPLIT INVERTER

				Code
€		Load control relay for managing absorbed power	<b>mod. BUS connection</b> <b>mod. Radio frequency</b>	<b>37081062 172,00</b> <b>37081063 460,00</b>
		Anti-freeze condensate heating cable with thermal sensor, factory mounted	<b>mod. 3 m 90 W</b> <b>mod. 6 m 120 W</b>	<b>37081067 76,00</b> <b>37081068 80,00</b>
		Domestic hot water recirculation inverter electronic circulator with brass body max flow rate 0.4 m3/h max head 1.0 m		<b>35006004 260,00</b>
		Forced circulation solar thermal exchanger with 1.50 m2 exchange surface		<b>75101002 644,00</b>
		Daily/weekly digital programmer clock		<b>35639904 30,00</b>
		Flexible anti-vibration joint kit with connection plate and straight union (5/8")		<b>75100014 120,00</b>
		Flexible anti-vibration joint kit with connection plate and 90° curved union (5/8")		<b>75100016 120,00</b>
		<i>Open shelf for n. 2 Booster external units mod. HR 9.0 complete with vibration dampers (fig.1)</i>		<b>75060406 290,00</b>
		<i>RACK 2 cabinet for n. 2 Booster external units mod. HR 9.0 (fig.2)</i>		<b>75060306 1.060,00</b>

## Solar thermal kits to combine with HUB RADIATOR PLUS SPLIT INVERTER

						
Solar collector BLUH+ BLUHX+	Anchoring kit BLUH+ BLUHX+	solar station UNIT 2 PLUS	control box CONTROL MULTI 06 S	expansion solar tank	fitting kit	kit glicole antifreeze

### KIT SOLAR HR PLUS 2.0 m<sup>2</sup>

- N. 1 BLUH+ collector 2.0 m2
- BLUH+ 2.0 m2 anchoring kit
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 12 liter expansion vessel
- String fittings kit
- Glycol antifreeze (1 3 liter canister)

### KIT SOLAR HR PLUS 2.5 m<sup>2</sup>

- N. 1 BLUHX+ collector 2.5 m2
- BLUHX+ 2.5 m2 anchoring kit
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 18 liter expansion vessel
- String fittings kit
- Glycol antifreeze (1 4 liter canister)

### KIT SOLAR HR PLUS 2 x 2.0 m<sup>2</sup>

- N. 2 BLUH+ 2.0 m2 collectors
- Anchoring kit 2 BLUH+ 2.0 m2
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 25 liter expansion vessel
- String fittings kit (1 string-2 collectors)
- Antifreeze glycol (2 3-litre canisters)

### KIT SOLAR HR PLUS 2 x 2.5 m<sup>2</sup>

- N. 2 BLUH+ 2.5 m2 collectors
- Anchoring kit 2 BLUH+ 2.5 m2
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 25 liter expansion vessel
- String fittings kit (1 string-2 collectors)
- Antifreeze glycol (2 4 liter cans)

### KIT SOLAR HR PLUS 3 x 2.0 m<sup>2</sup>

- N. 3 BLUH+ 2.0 m2 collectors
- Anchor kit 3 BLUH+ 2.0 m2
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 40 liter expansion vessel
- String fittings kit (1 string-3 collectors)
- Antifreeze glycol (3 3-litre cans)

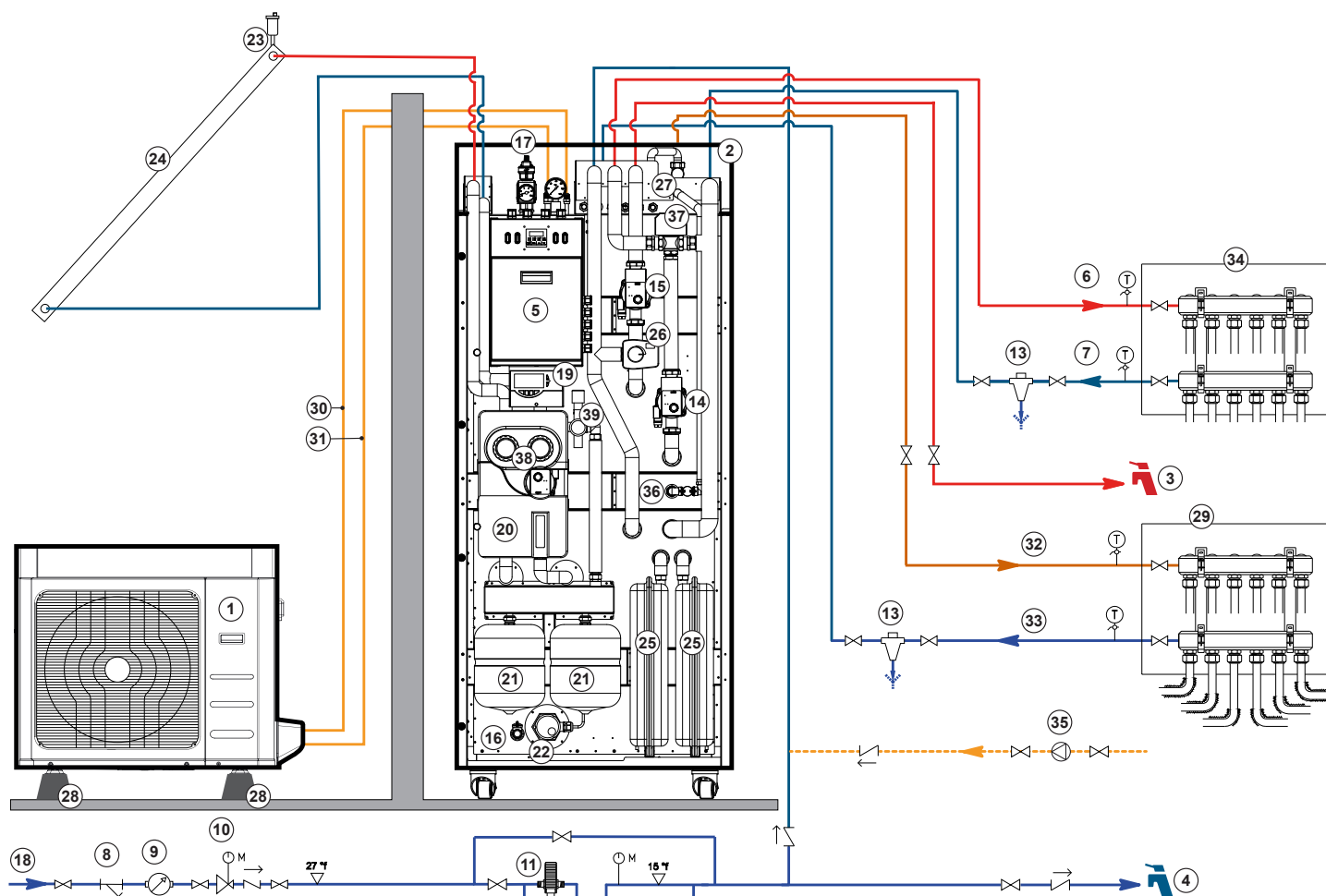
### KIT SOLAR HR PLUS 3 x 2.5 m<sup>2</sup>

- N. 3 BLUHX+ 2.5 m2 collectors
- Anchor kit 3 BLUHX+ 2.5 m2
- 2-way solar station mod. UNIT 2 PLUS
- CONTROL MULTI 06 S solar control unit
- 40 liter expansion vessel
- String fittings kit (1 string-3 collectors)
- Antifreeze glycol (3 4 liter cans)

# HUB RADIATOR PLUS SPLIT INVERTER

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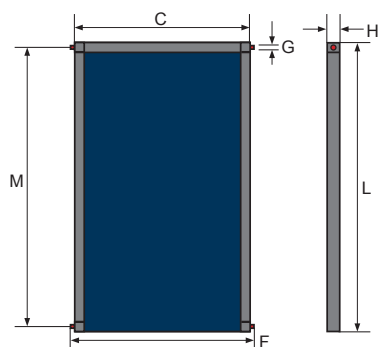
## Application example HUB RADIATOR PLUS SPLIT INVERTER



- 1 Booster HR 9.0 inverter hot only
- 2 Inertial accumulation of technical water (puffer) of 315 litres equipped with a 4.54 m<sup>2</sup> finned copper DHW exchanger
- 3 Domestic hot water delivery
- 4 Domestic cold water delivery
- 5 Electrical command and control panel
- 6 High temperature system technical water delivery
- 7 High temperature system technical water return
- 8 "Y" mechanical filter
- 9 Aqueduct volumetric meter
- 10 Water network pressure reducer
- 11 Water network sand trap filter
- 12 Volumetric softener
- 13 Magnetic dirt separator
- 14 High temperature inverter circulator
- 15 Low temperature inverter circulator
- 16 Accumulation emptying tap
- 17 Safety group consisting of pressure gauge, valve jolly air vent and 3 bar system safety valve
- 18 Water mains inlet
- 19 Digital solar controller 0-10V CONTROL MULTI 06 S

- 20 UNIT 2 PLUS solar station
- 21 8 liter solar expansion vessel
- 22 Supplementary electric resistance 2 kW
- 23 Jolly solar thermal air vent valve
- 24 BLUH+ / BLUHX+ solar collector
- 25 8 liter system expansion vessel
- 26 Motorized mixing valve for underfloor heating system
- 27 Anti-scald DHW mixing valve
- 28 Vulcanized rubber anti-vibration base
- 29 Low temperature system manifold
- 30 3/8" R410A refrigeration line (liquid)
- 31 5/8" R410A refrigeration line (gas)
- 32 Low temperature system technical water delivery
- 33 Low temperature system technical water return
- 34 High temperature system manifold
- 35 DHW recirculation pump
- 36 System filling group
- 37 DHW priority diverter valve
- 38 Inverter solar circulator
- 39 Forced circulation solar system safety group

## Solar collector dimensions and dimensions BLUH+ - BLUHX+ (vertical installation)



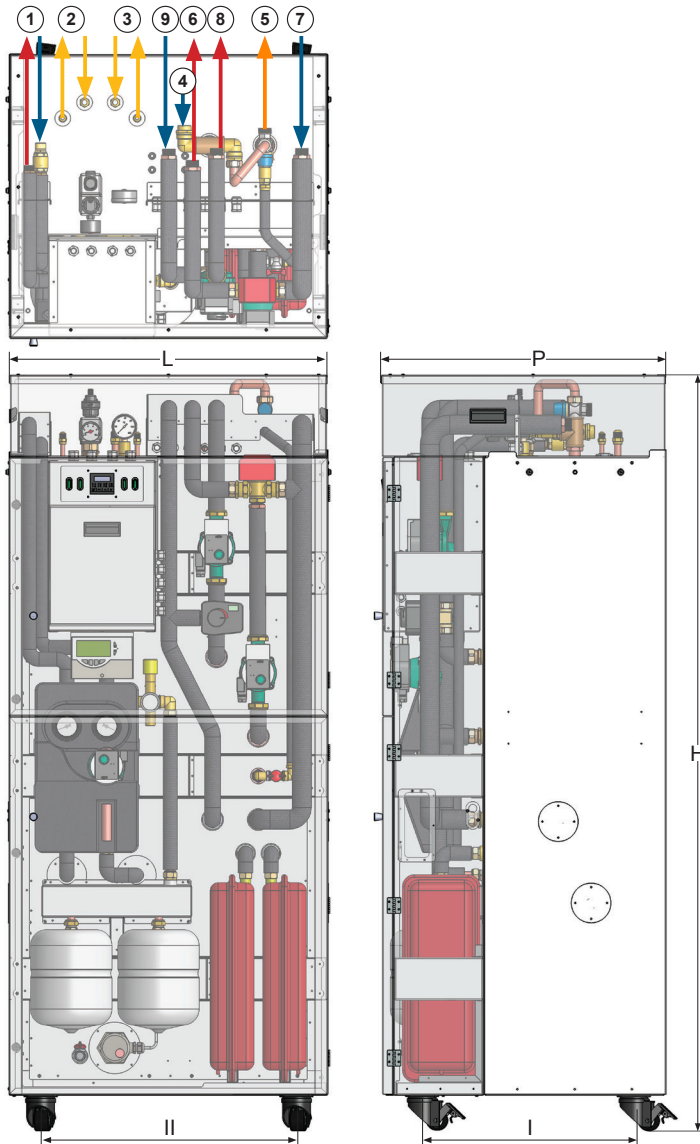
Mod.	U.M.	BLUH+	BLUHX+
L	mm	1987	1987
C	mm	984	1270
H	mm	100	100
M	mm	1876	1876
G	mm	22	22
F	mm	1050	1340
Weight	Kg	32	42



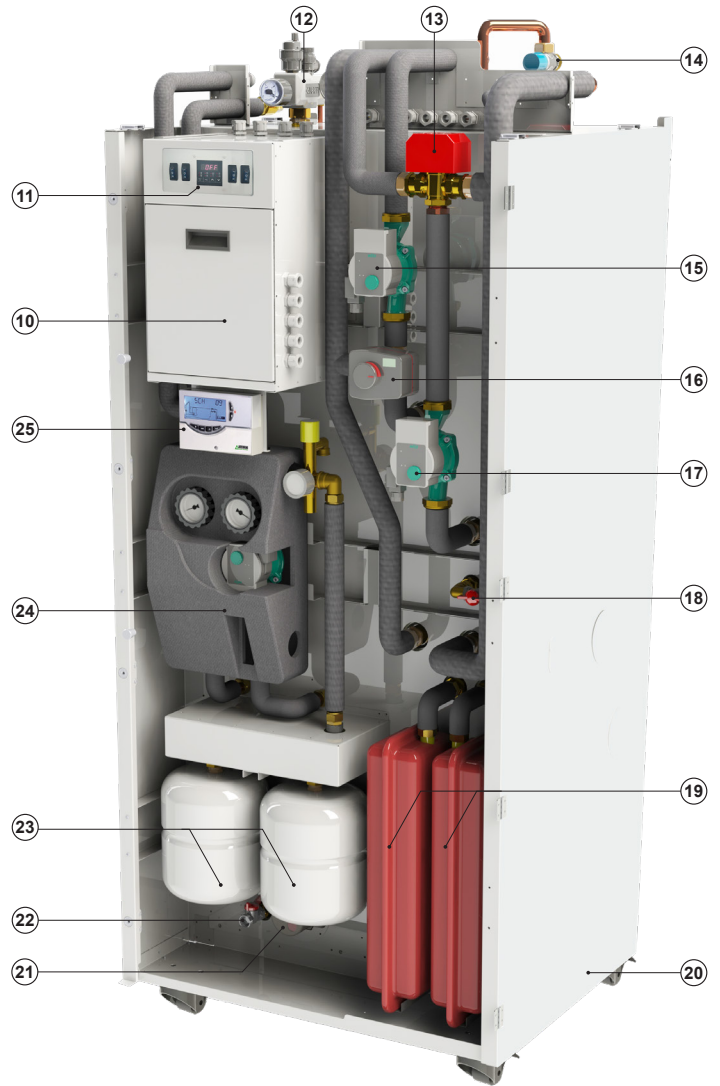
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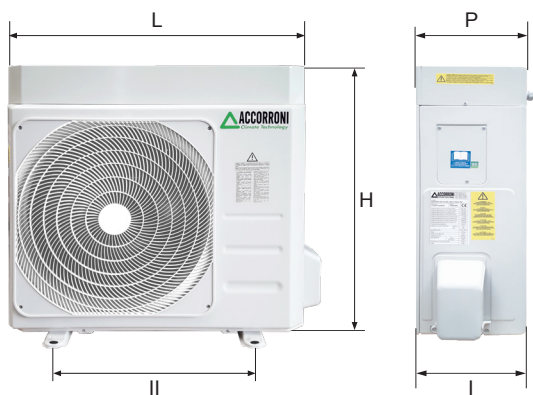
## Indoor unit dimensions PLUS SPLIT INVERTER



## Internal unit axonometric view PLUS SPLIT INV.



## Dimensions Booster HR 9.0 INVERTER



Model	L	H	P	I	II	Weight
	mm	mm	mm	mm	mm	kg
HR 9.0 INVERTER (U.E.)	925	785	380	358	540	62
PLUS SPLIT INVERTER* (U.I.)	804	1902	715	534	645	184

- \* Minimum distance between outdoor unit and indoor unit 2,5 m
- \* Maximum distance between outdoor unit and indoor unit without charging 5,0 m
- \* Maximum distance between outdoor unit and indoor unit with additional charging 15,0 m (20 g/m after the first 5 m)
- \* Maximum height difference between external unit and internal unit 5,0 m (always respecting the maximum distance of 15 m)

- 1 3/4" M solar thermal system delivery and return
- 2 Cooling line connections 1st Booster HR 9.0 (3/8" - 5/8")
- 3 Cooling line connections 2nd Booster HR 9.0 (3/8" - 5/8")
- 4 Domestic cold water inlet 1" M
- 5 Mixed domestic hot water delivery 1" M
- 6 1st heating circuit flow 1" M
- 7 1st heating circuit return 1" M
- 8 2nd heating circuit flow 1" M
- 9 2nd heating circuit return 1" M
- 10 Electrical panel with connection terminal block for the unit external Booster HR 9.0 inverter hot only
- 11 Electronic command and control unit
- 12 Safety group consisting of pressure gauge, jolly valve di air vent and 3 bar system safety valve
- 13 DHW priority diverter valve
- 14 Anti-scald DHW mixing valve
- 15 Inverter electronic circulator for the 2nd circuit heating (optional)
- 16 Electronic mixing valve for radiant systems (optional)
- 17 Inverter electronic circulator for the 1st heating circuit heating (standard)
- 18 Manual puffer filling group
- 19 8 liter system expansion vessel
- 20 Inertial accumulation of technical water (puffer) of 315 litres equipped with a 4.54 m2 finned copper DHW exchanger
- 21 2 kW supplementary electrical resistance
- 22 Accumulation emptying tap (1/2" F)
- 23 8 liter solar expansion vessel
- 24 UNIT 2 PLUS solar station
- 25 Digital solar controller 0-10V CONTROL MULTI 06

# HUB RADIATOR PLUS SPLIT INVERTER

**Caldia Termodinamica®** brevettata a basamento ad alta efficienza a scambio diretto refrigerante/acqua per produrre acqua calda sanitaria e riscaldamento per medie utenze con o senza integrazione solare termica

## DHW withdrawal table HUB RADIATOR PLUS SPLIT INVERTER 9.0

DESCRIPTION	U.M.	HR 9.0 INVERTER
DHW withdrawal at 40 °C - accumulation at 55 °C - inlet water at 10 °C	l	292
DHW withdrawal at 40 °C - accumulation at 55 °C - inlet water at 15 °C	l	312
HP recovery time from 38 °C to 55 °C - External temp. 7 °C*	min	34
Recovery time PdC + resistance from 38 °C to 58 °C - External temp. 7 °C*	min	22
Water withdrawal at 40 °C with accumulation at 62 °C with inlet water at 10 °C	l	330
Water withdr. at 40 °C with accumulation at 62 °C with inlet water at 15 °C	l	364
Recovery time PdC + resistance from 38 °C to 62 °C - External temp. 7 °C*	min	38
Recovery time from 10 °C to 55 °C - External temp. 7 °C*	min	90

\*Data calculated with heating system off

## DHW withdrawal table HUB RADIATOR PLUS SPLIT INVERTER 9.0 + 9.0

DESCRIPTION	U.M.	HR 9.0 + 9.0 INVERTER
DHW withdrawal at 40 °C - accumulation at 55 °C - inlet water at 10 °C	l	315
DHW withdrawal at 40 °C - accumulation at 55 °C - inlet water at 15 °C	l	341
HP recovery time from 38 °C to 55 °C - External temp. 7 °C*	min	17
Recovery time PdC + resistance from 38 °C to 58 °C - External temp. 7 °C*	min	11
Water withdrawal at 40 °C with accumulation at 62 °C with inlet water at 10 °C	l	356
Water withdr. at 40 °C with accumulation at 62 °C with inlet water at 15 °C	l	389
Recovery time PdC + resistance from 38 °C to 62 °C - External temp. 7 °C*	min	19
Recovery time from 10 °C to 55 °C - External temp. 7 °C*	min	45

\*Data calculated with heating system off

## Storage unit technical data table HUB RADIATOR PLUS SPLIT INVERTER

DESCRIPTION	U.M.	PLUS SPLIT INVERTER
Technical storage water content	l	315
Max flow rate of 1st inverter electronic circulator (standard)	m <sup>3</sup> /h	3,3
Max head of 1st inverter electronic circulator (standard)	m	6,2
Electrical absorption of 1st inverter electronic circulator (standard)	W	3 - 45
System expansion tank volume	l	8
Number of system expansion vessels	n.	2
Preload expansion tank	bar	1
Safety valve calibration	bar	3
Back up electrical resistance	W	2000
Max flow rate of 2nd inverter electronic circulator (optional)	m <sup>3</sup> /h	3,3
Max head of 2nd inverter electronic circulator (optional)	m	6,2
Electrical absorption of 2nd inverter electronic circulator (optional)	W	3 - 45
Water temperature min / max	°C	+30 / +55
Cold water inlet and DHW outlet hydraulic connections		1"
System delivery and return hydraulic connections		1"
Copper sanitary exchanger surface	m <sup>2</sup>	4,54
Solar delivery and return hydraulic connections (optional)		3/4"
Pressure drop in copper sanitary exchanger	Pa	1,8
Copper solar exchanger surface	m <sup>2</sup>	1,5
Copper solar exchanger pressure drop	kPa	2,2
Insulation type		High density extruded expanded polystyrene
Insulation thickness	cm	5
Power supply		230V/1/50Hz
Thermal dispersion of internal unit accumulations	kWh/24h	1,58
Degree of protection		IPX4D
Shipping weight	kg	184
Operating weight	kg	436

# HUB RADIATOR PLUS SPLIT INVERTER

Termodinamica® patented high-efficiency floor-standing boiler with direct refrigerant/water exchange to produce domestic hot water and heating for medium users with or without solar thermal integration

## Technical data table Booster HUB RADIATOR PLUS SPLIT INVERTER

DESCRIPTION	U.M.	HR 9.0 INVERTER
Thermal power (1)	kW	3,54 / 8,01 / 8,81*
Absorbed power (1)	kW	1,89
C.O.P. (1)	W/W	4,24
Thermal power (2)	kW	2,85 / 7,92 / 8,71*
Absorbed power (2)	kW	2,39
C.O.P. (2)	W/W	3,31
Thermal power (3)	kW	2,54 / 7,04 / 7,74*
Absorbed power (3)	kW	2,00
C.O.P. (3)	W/W	3,52
Thermal power (4)	kW	2,46 / 6,82 / 7,50*
Absorbed power (4)	kW	2,74
C.O.P. (4)	W/W	2,68
Thermal power (5)	kW	2,31 / 6,41 / 7,05*
Absorbed power (5)	kW	2,54
C.O.P. (5)	W/W	3,04
Thermal power (6)	kW	2,25 / 6,25 / 6,88*
Absorbed power (6)	kW	2,68
C.O.P. (6)	W/W	2,39
SCOP (7)	W/W	3,94
Seasonal heating efficiency (ηs)		159,62%
Energy efficiency class (8)		A++ / A+++
Type compressor		Twin Rotary DC INV.
Compressors	n.	1
Refrigerant circuits	n.	1
Defrosting method		Inversione di ciclo con condensatore ad immersione
Type of refrigerant		R410A
Technical water temperature min/max	°C	+30 / +55
Refrigerant quantity (pre-inserted)	kg	2,2
Min distance between outdoor and indoor unit	m	3
Max distance betw. outdoor/indoor unit without charging	m	5
Max distance betw. external/internal unit with charging	m	15
Max height difference betw. external/internal unit	m	5
Refrigerant gas line connection R410A		5/8"
Coolant line connection R410A		3/8"
Sound power (9)	dB(A)	64,0
Sound pressure at one meter (10)	dB(A)	32,8
External temperature operating limits	°C	-20 / +46
Power supply		230V/1/50Hz
Max power absorbed	kW	4,70
Max current absorbed	A	20,40
Weight	Kg	62

(1) Heating: external air temperature 7 °C d.b. - 6 °C b.u.; inlet/outlet water temperature 30/35 °C

(2) Heating: external air temperature 7 °C d.b. - 6 °C b.u.; inlet/outlet water temperature 40/45 °C

(3) Heating: external air temperature 0 °C db; inlet/outlet water temperature 30/35 °C

(4) Heating: external air temperature 0 °C d.b.; inlet/outlet water temperature 40/45 °C

(5) Heating: external air temperature -7 °C db; inlet/outlet water temperature 30/35 °C

(6) Heating: external air temperature -7 °C db; inlet/outlet water temperature 40/45 °C

(7) Heating: average climate conditions; inlet/outlet water temperature 30/35 °C

(8) Water 35°C / 55°C

(9) Measurements carried out according to UNI EN 14511 in heating mode and boundary conditions (1)

(10) Value calculated according to ISO 3744: 2010

(\*) By activating the maximum HZ function