

# HUB RADIATOR PACK C - IST

High efficiency patented integrated hybrid system in heat pump with direct refrigerant/water exchange with support boiler to produce domestic hot water and heating for small and medium-sized users



## Technical and construction characteristics

The HUB RADIATOR PACK C - IST hybrid system consists of an external heat pump evaporator unit (Booster HR hot only 2.5, 7.0 or 9.0 INVERTER) and an internal 48 liter technical water storage unit with patented condenser with direct refrigerant/water exchange coupled with back-up modulating condensing boiler (24 kW or 32 kW) with instant DHW production.

The condensing boiler is directly connected to the technical water buffer and both components are housed on board the internal unit which includes as standard:

- the inverter electronic circulation pump;
- the manual filling and emptying group;
- the expansion tank;
- safety and automatic vent valves;
- the base support template.

The methane gas heat generator uses a highly modular premix condensing burner mounted on a latest generation boiler body with powers of 24 kW and 32 kW.

The patented PACK C - IST system always uses the thermodynamic cycle of the heat pump as its primary source.

The high efficiency of the heat pump, assisted when necessary by the condensing boiler, allows for great energy savings, excellent reliability and operation down to temperatures of -20 °C.

The electronic control unit is equipped with a latest generation microprocessor which allows the user to set automatic management of the hybrid system with Energy Efficiency function which allows optimizing energy consumption both for winter air conditioning by activating the boiler only if strictly necessary by monitoring the external temperature.

The HUB RADIATOR patent also allows you to significantly reduce winter defrosting operations, allowing significant energy savings in the defrosting phase of up to 79% compared to classic heat pumps. HUB RADIATOR PACK C - IST is also supplied as standard with an external climate probe and lower support/support which allows for easy and quick installation.















Model	Code	€
HUB RADIATOR PACK C - IST 2.5/24 Wall unit	76812000	7.300,00
HUB RADIATOR PACK C - IST 2.5/32 Wall unit	76813900	7.400,00
HUB RADIATOR PACK C - IST 7.0/24 Wall unit	76813914	9.000,00
HUB RADIATOR PACK C - IST 7.0/32 Wall unit	76813910	9.100,00
HUB RADIATOR PACK C - IST 9.0/24 INVERTER Wall unit	76814014	11.560,00
HUB RADIATOR PACK C - IST 9.0/32 INVERTER Wall unit	76814010	11.660,00
HUB RADIATOR PACK C - IST 2.5/24 Built-in	76812002	7.700,00
HUB RADIATOR PACK C - IST 2.5/32 Built-in	76812902	7.800,00
HUB RADIATOR PACK C - IST 7.0/24 Built-in	76812012	9.400,00
HUB RADIATOR PACK C - IST 7.0/32 Built-in	76812912	9.500,00
HUB RADIATOR PACK C - IST 9.0/24 INVERTER Built-in	76814012	11.960,00
HUB RADIATOR PACK C - IST 9.0/32 INVERTER Built-in	76815012	12.060,00
Indoor unit HUB RADIATOR PACK C - IST 2.5/24	76812014	5.200,00
Indoor unit HUB RADIATOR PACK C - IST 2.5/32	76812914	5.300,00
Indoor unit HUB RADIATOR PACK C - IST 7.0/24	76812015	5.200,00
Indoor unit HUB RADIATOR PACK C - IST 7.0/32	76816012	5.300,00
Indoor unit HUB RADIATOR PACK C - IST 9.0/24 INVERTER	76817012	5.600,00
Indoor unit HUB RADIATOR PACK C - IST 9.0/32 INVERTER	76812915	5.700,00
External unit Booster HR 2.5 just warm	76010240	2.100,00
External unit Booster HR 7.0 just warm	76010500	3.800,00
External unit Booster HR 9.0 just warm INVERTER	76030500	6.360,00

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## Accessories HUB RADIATOR PACK C- IST

		Code	€
	HUB RADIATOR PACK C - IST recessed template complete with flush-to-wall closing panel in galvanized sheet metal	<b>76801916</b>	<b>480,00</b>
	HUB RADIATOR PACK C- IST cover box mandatory for the installation of the internal unit outside the building made of insulated white painted galvanized steel Height 160 cm - Width 80 cm - Depth 35 cm	<b>75101022</b>	<b>560,00</b>
	HUB RADIATOR PACK C- IST wall-mounted installation template for preparation of all pipes on site	<b>76801919</b>	<b>190,00</b>
	Flush-mounted command and remote control panel for 503 box for PACK C- IST 2.5 - 7.0 models	<b>75100005</b>	<b>102,00</b>
	Wall or wall adapter for command and remote control panel for PACK C- IST 2.5 - 7.0 models	<b>75100029</b>	<b>24,00</b>
	Condensing boiler remote control and control panel (not a room thermostat)	<b>30400034</b>	<b>106,00</b>
	Web server home automation control unit for models PACK C- IST 2.5 - 7.0	<b>75101005</b>	<b>580,00</b>
	Anchoring shelf for external Booster including rubber vibration dampers	<b>mod. Booster HR 2.5</b> <b>37081060</b> <b>mod. Booster HR 7.0 - 9.0</b> <b>37081061</b>	<b>50,00</b> <b>90,00</b>
	Anchoring shelf for sloping roof for external Boosters mod. HR 2.5 - 7.0 - 9.0 including rubber vibration dampers	<b>37081064</b>	<b>218,00</b>
	Anti-vibration floor base in vulcanized rubber (height from the ground 95 mm) with level and screws for Booster HR 2.5 - 7.0 - 9.0 (pack of 2 pieces)	<b>75100018</b>	<b>102,00</b>
	Anti-vibration kit for installation on shelves	<b>75100022</b>	<b>22,00</b>
	Stainless steel spring anti-vibration kits complete with bolts, washers and nuts (pack of 2)	<b>mod. HR 2.5</b> <b>37081065</b> <b>mod. HR 7.0 - 9.0</b> <b>37081066</b>	<b>62,00</b> <b>64,00</b>

# HUB RADIATOR PACK C - IST

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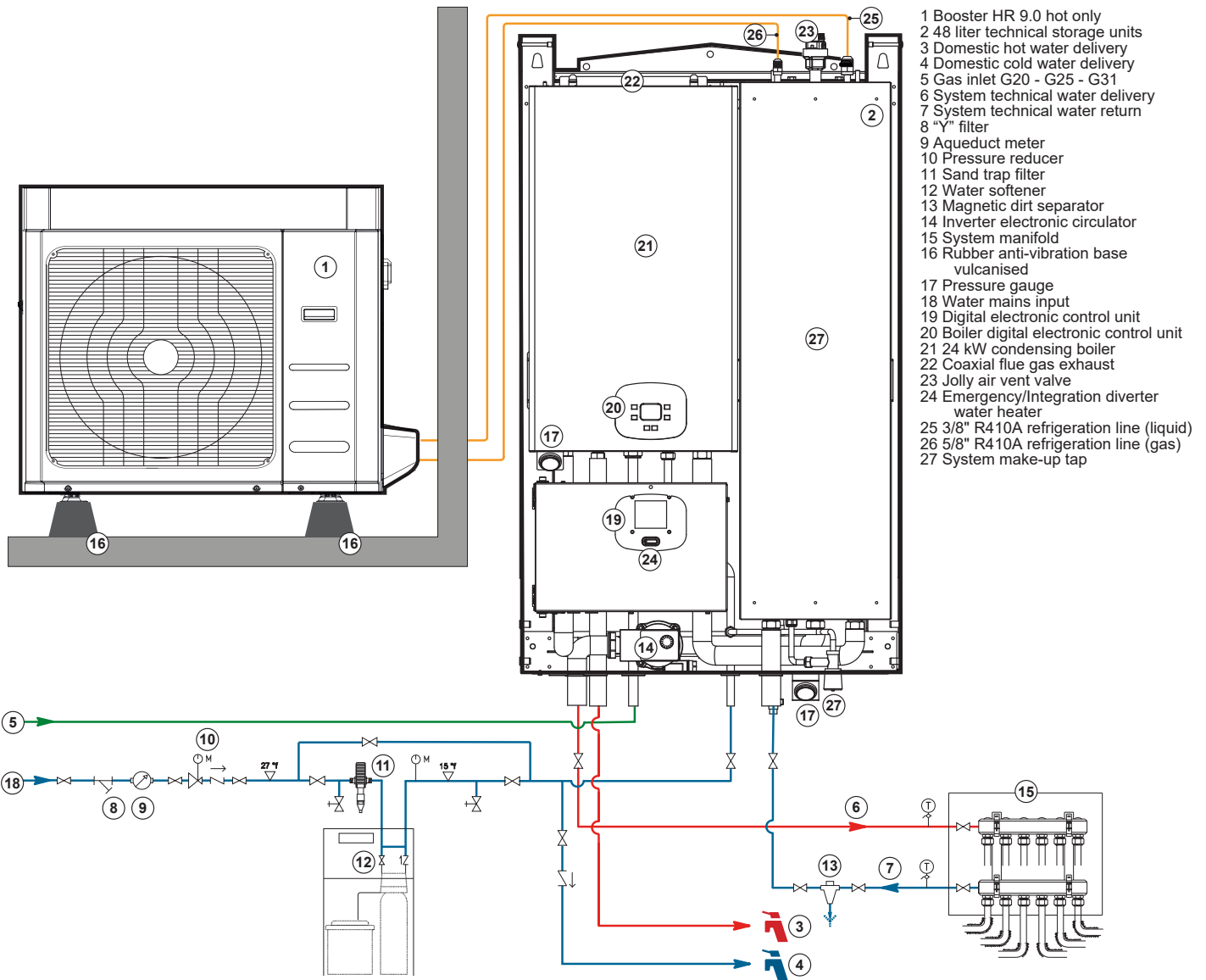
## Accessories HUB RADIATOR PACK C- IST

			Code	
	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</b> <b>37081068</b>	<b>76,00</b> <b>80,00</b>
	Auxiliary tray for installation under shelf equipped with 90 W heating cable	<b>mod. HR 2.5</b> <b>mod. HR 7.0 - 9.0</b>	<b>37081069</b> <b>37081070</b>	<b>280,00</b> <b>300,00</b>
	Floor support complete with auxiliary basin equipped with 90 W heating cable	<b>mod. HR 2.5 H fixed</b> <b>mod. HR 7.0 - 9.0 H fixed</b> <b>mod. HR 7.0 - 9.0 H variable</b>	<b>37081071</b> <b>37081073</b> <b>37081074</b>	<b>320,00</b> <b>350,00</b> <b>370,00</b>
	Flexible anti-vibration joint kit with connection plate and straight union	<b>mod. HR 7.0 - 9.0 (5/8")</b> <b>mod. HR 2.5 (3/8")</b>	<b>75100014</b> <b>75100015</b>	<b>120,00</b> <b>60,00</b>
	Flexible anti-vibration joint kit with connection plate and 90° curved union	<b>mod. HR 7.0 - 9.0 (5/8")</b> <b>mod. HR 2.5 (3/8")</b>	<b>75100016</b> <b>75100017</b>	<b>120,00</b> <b>60,00</b>
	Coaxial vertical outlet Ø 60/100 with smoke extraction		<b>30403124</b>	<b>32,00</b>
	Coaxial starting curve Ø 60/100 at 90° with smoke extraction		<b>30403123</b>	<b>38,00</b>
	Separate duct kits Ø 80/80 with smoke extraction		<b>30403022</b>	<b>50,00</b>
	Curve 90° Ø 80 M/F		<b>30403013</b>	<b>8,00</b>
	Curve 45° Ø 80 M/F		<b>30403012</b>	<b>8,00</b>
	Extension Ø 80 M/F = 1000 mm		<b>30403011</b>	<b>10,00</b>
	Curve 90° coaxial Ø 60/100 M/F		<b>30403004</b>	<b>38,00</b>
	Curve 45° coaxial Ø 60/100 M/F		<b>30403003</b>	<b>30,00</b>
	Coaxial extension Ø 60/100 M/F = 1000 mm		<b>30403002</b>	<b>28,00</b>
	Coaxial fume exhaust kit Ø 60/100		<b>30403000</b>	<b>60,00</b>
	Coaxial roof terminal Ø 60/100		<b>30403014</b>	<b>144,00</b>

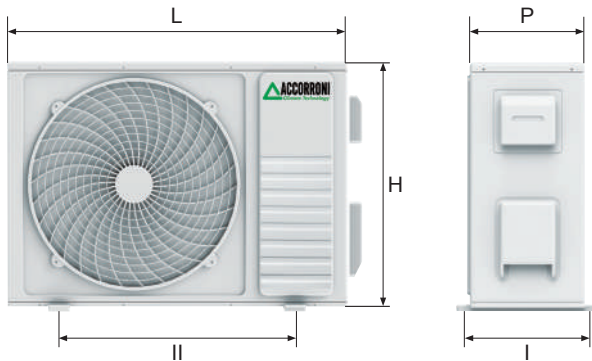
# HUB RADIATOR PACK C - IST

High efficiency patented integrated hybrid heat pump system with direct refrigerant/water exchange with support boiler to produce domestic hot water and heating for small and medium users

## Application example HUB RADIATOR PACK C - IST 9.0/24

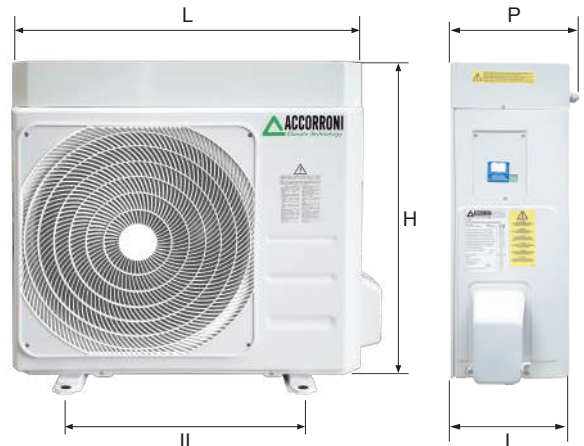


### Dimensions Booster HR 2.5 - 7.0



External Unit Models	L	H	P	I	II	Weight
	mm	mm	mm	mm	mm	kg
Booster HR 2.5	700	552	256	275	435	25
Booster HR 7.0	830	585	300	330	515	43

### Dimensions Booster HR 9.0 INVERTER

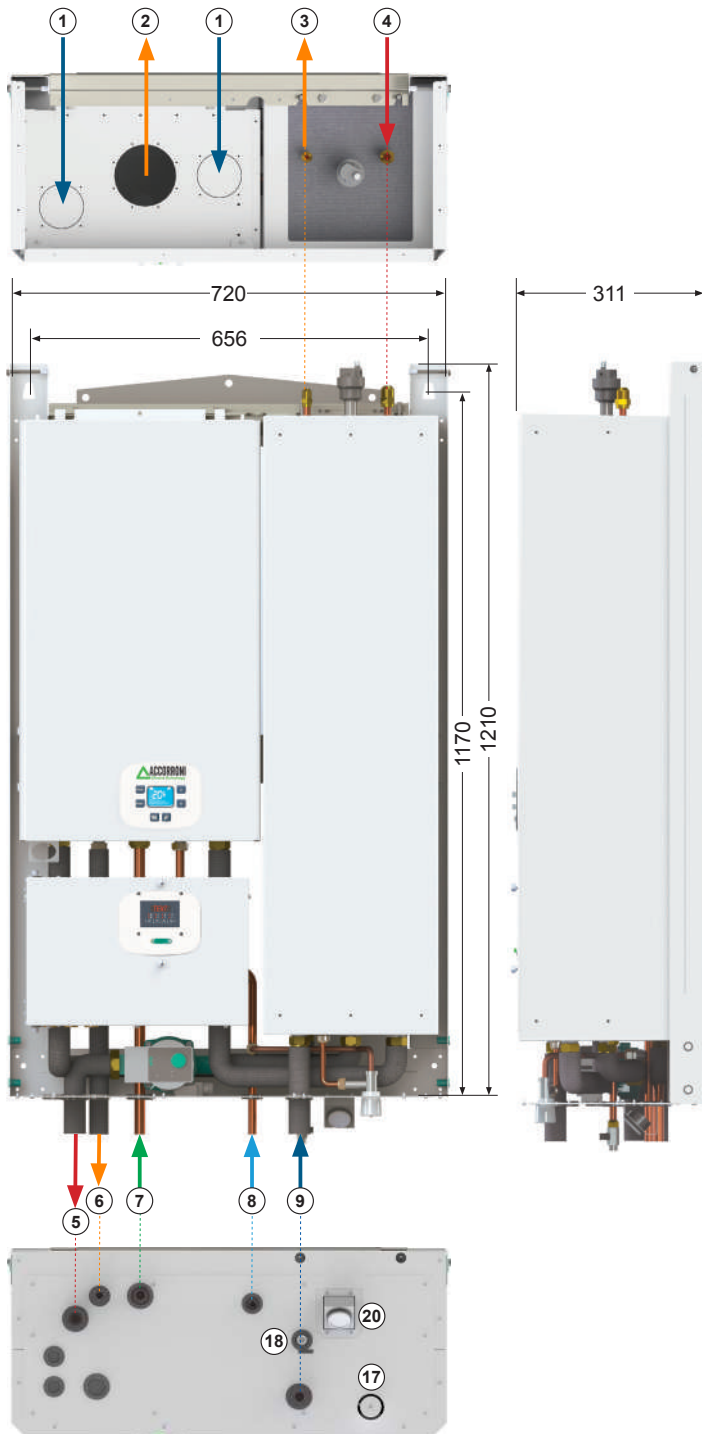


External Unit Models	L	H	P	I	II	Weight
	mm	mm	mm	mm	mm	kg
Booster HR 9.0 inverter	925	785	380	358	540	62

# HUB RADIATOR PACK C - IST

High efficiency patented integrated hybrid heat pump system with direct refrigerant/water exchange with support boiler to produce domestic hot water and heating for small and medium users

## Dimensions U.I. PACK C - IST



## Axonometry U.I. PACK C - IST



Values expressed in mm

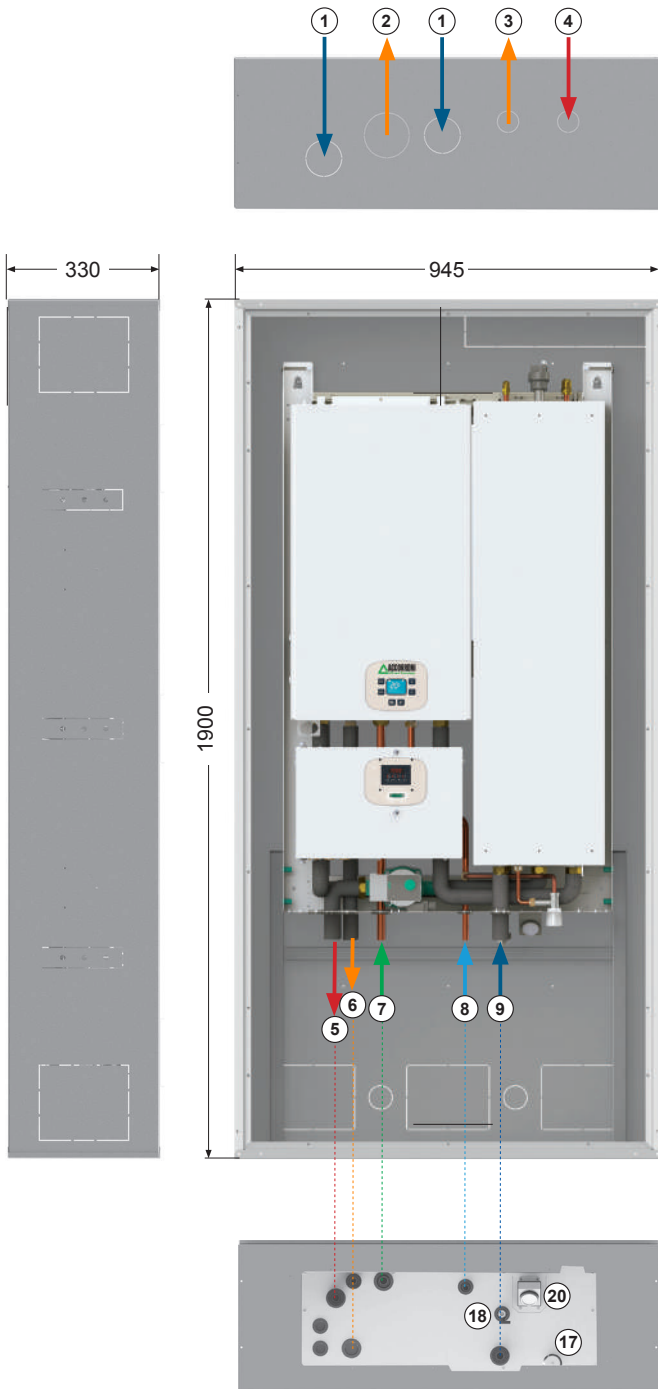
- 1 Pre-cut hole Ø 80 mm for combustion air inlet
- 2 Coaxial fume duct connection Ø 60/100 mm
- 3 Threaded fitting for connecting the refrigeration line coming from the external Booster (liquid side connection)
- 4 Threaded fitting for connecting the refrigeration line coming from the external Booster (gas side connection)
- 5 Heating circuit flow 3/4" M
- 6 Domestic hot water circuit delivery 1/2" M
- 7 3/4" M methane/LPG gas inlet
- 8 Domestic cold water inlet 1/2" M
- 9 Heating circuit return 3/4" M
- 10 Wall anchoring bracket
- 11 Automatic air vent jolly valve in polymer material

- 12 Back-up condensing boiler
- 13 Inertial accumulation of technical water (puffer) of 48 litres
- 14 Back-up boiler command and control unit
- 15 Factory made hybrid system command and control unit
- 16 Boiler emergency/integration diverter
- 17 Manual puffer filling group tap
- 18 1/4" M puffer emptying tap
- 19 Direct inverter electronic circulator for power supply the high or low temperature heating system
- 20 Puffer technical water pressure gauge
- 21 Electrical panel with connection terminal block for the unit External Booster only hot HR

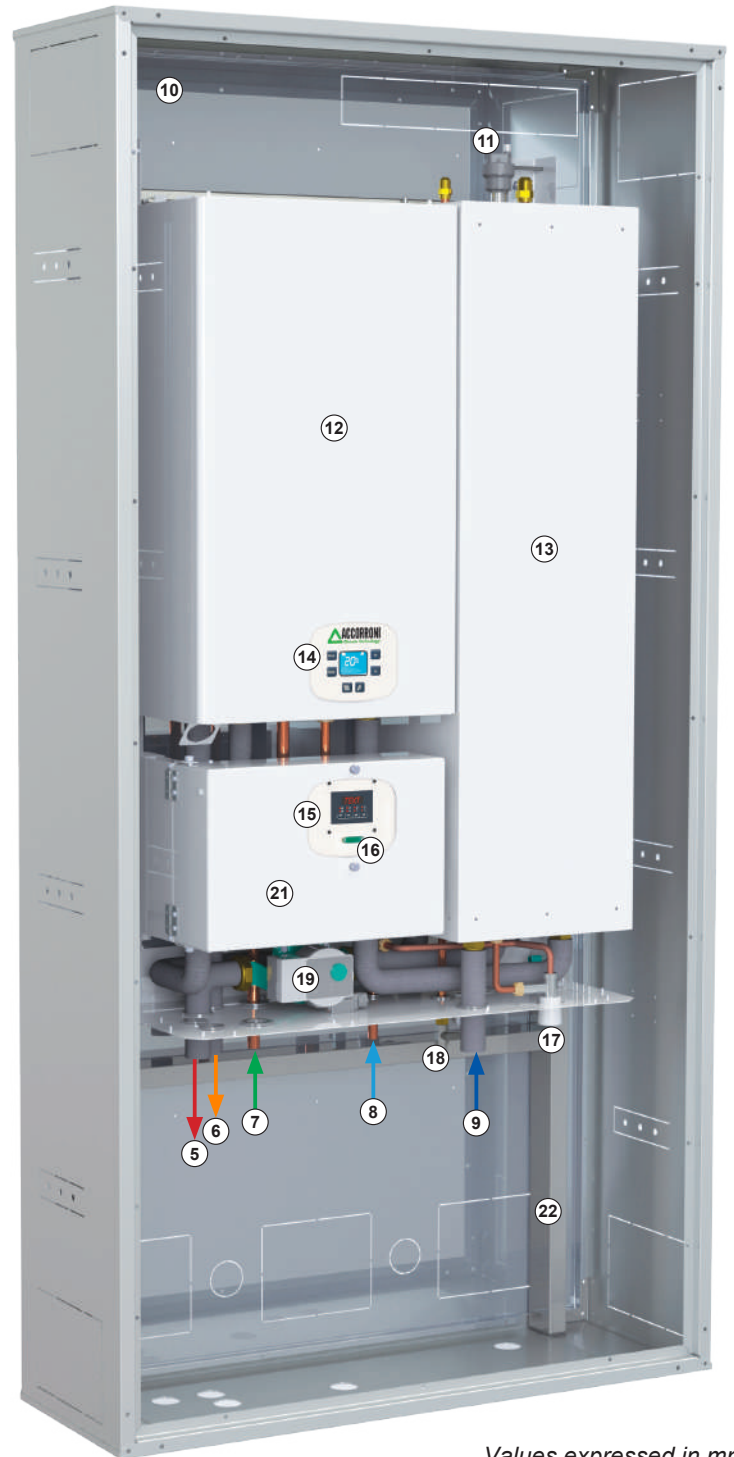
# HUB RADIATOR PACK C - IST

High efficiency patented integrated hybrid heat pump system with direct refrigerant/water exchange with support boiler to produce domestic hot water and heating for small and medium users

## Dimensions U.I. PACK C - IST built-in



## Axonometry U.I. PACK C - IST built-in



Values expressed in mm

- 1 Pre-cut hole Ø 80 mm for combustion air inlet
- 2 Coaxial fume duct connection Ø 60/100 mm
- 3 Threaded fitting for connecting the refrigeration line coming from the external Booster (liquid side connection)
- 4 Threaded fitting for connecting the refrigeration line coming from the external Booster (gas side connection)
- 5 Heating circuit flow 3/4" M
- 6 Domestic hot water circuit delivery 1/2" M
- 7 3/4" M methane/LPG gas inlet
- 8 Domestic cold water inlet 1/2" M
- 9 Heating circuit return 3/4" M
- 10 Template for recessed wall installation
- 11 Automatic air vent jolly valve in polymer material

- 12 Back-up condensing boiler
- 13 Inertial accumulation of technical water (puffer) of 48 litres
- 14 Back-up boiler command and control unit
- 15 Factory made hybrid system command and control unit
- 16 Boiler emergency/integration diverter
- 17 Manual puffer filling group tap
- 18 1/4" M puffer emptying tap
- 19 Direct inverter electronic circulator for power supply the high or low temperature heating system
- 20 Puffer technical water pressure gauge
- 21 Electrical panel with connection terminal block for the unit External Booster only hot HR
- 22 Support structure for unloading the weight on the ground (standard)

# HUB RADIATOR PACK C- IST

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## Indoor unit technical data table HUB RADIATOR PACK C - IST

DESCRIPTION	U.M.	24	32
Device category		I12H3P	
Minimum heat output of the boiler in methane gas heating G20	kW	2,8	3,4
Maximum heat output of the boiler in methane gas heating G20	kW	24,0	32,0
Minimum heat output of the boiler in gas heating GPL	kW	2,8	3,4
Maximum heat output of the boiler in heating gas GPL	kW	24,0	32,0
Minimum heat output of the boiler in heating (80-60 °C) methane gas G20	kW	2,5	3,3
Maximum boiler heat output in heating (80-60 °C) G20 methane gas	kW	23,7	31,3
Minimum boiler heat output in heating (80-60 °C) LPG gas	kW	2,5	3,3
Maximum boiler heat output in heating (80-60 °C) LPG gas	kW	23,7	31,3
Minimum heat output of the boiler in heating (50-30 °C) methane gas G20	kW	2,9	3,5
Maximum boiler heat output in heating (50-30 °C) methane gas G20	kW	24,9	35,1
Minimum boiler heat output in heating (50-30 °C) LPG gas	kW	2,9	3,5
Maximum boiler heat output in heating (50-30 °C) LPG gas	kW	24,9	35,1
Supply pressure for boiler powered by G20 methane gas	mbar	20	
LPG gas boiler supply pressure	mbar	30/37	
Diaphragm diameter of boiler powered by G20 methane gas	mm	5,6	6,3
Diaphragm diameter of boiler powered by LPG gas	mm	5,6	6,3
Minimum CO2 emission from boiler powered by G20 methane gas	%	9,3	8,4
Maximum CO2 emission from boiler powered by G20 methane gas		9,8%	10,6%
Minimum CO2 emission boiler powered by LPG gas		10,4%	10,5%
Maximum CO2 emission from boiler powered by LPG gas		10,7%	10,6%
Minimum pressure of the heating circuit	bar	0,5	
Maximum pressure of the heating circuit	bar	3	
Boiler useful thermal efficiency at maximum power (60/80 °C)		98,8%	97,1%
Boiler useful thermal efficiency at maximum power (30/50 °C)		103,7%	109,8%
Boiler useful thermal efficiency at minimum power (60/80 °C)		90,0%	95,7%
Useful thermal efficiency of the boiler at minimum power (30/50 °C)		102,1%	103,5%
Useful thermal efficiency of the boiler at 30% of the load		109,8%	110,7%
Emission class NOx		6	6
Emission NOx	mg/kWh	23	55
Fume temperature at max. power	°C	70,0	74,5
Max operating temperature in heating	°C	85,0	
Methane gas consumption at maximum flow rate in heating (1)	m <sup>3</sup> /h	2,54	3,37
LPG consumption at maximum flow rate in heating (1)	m <sup>3</sup> /h	0,75	0,97
Seasonal space heating boiler energy efficiency		92,0%	
Boiler useful efficiency at nominal heat output at high temperature regime (2)		86,4 %	86,7 %
Boiler useful efficiency at 30% of nominal thermal power at low temperature regime (3)		96,4%	
Heat loss in boiler stand-by	kW	0,069	0,071
Boiler annual energy consumption	GJ	42,2	62,7
Boiler seasonal energy efficiency class		A	
Inertial technical water storage volume	l	48	
Expansion vessel volume	l	9	
System delivery/return connections		3/4"	
Domestic hot water and cold water connections		1/2"	
G20/LPG methane gas inlet connection		3/4"	
Boiler condensate drain hose diameter	mm	22	
Coaxial smoke extraction duct diameter	mm	60/100	
Diameter of double rope evacuation ducts	mm	80	
Maximum system circulator flow rate	m <sup>3</sup> /h	3,3	
Maximum system circulator head	m	6,2	
Maximum electrical power absorbed	W	118	147
Power supply		230V/1/50Hz	
Transport / operating weight	Kg	110 / 159	113 / 162

(1) Value referred to the temperature of 15 °C external and 1013 mbar - (2) High temperature regime with 60 °C return and 80 °C delivery (3) Low temperature regime 30 °C (return temperature to boiler inlet)

# HUB RADIATOR PACK C- IST

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## Domestic hot water withdrawal technical data table HUB RADIATOR PACK C - IST

DESCRIPTION	U.M.	2.5/24	2.5/32	7.0/24	7.0/32	9.0 INV/24	9.0 INV/32
DHW production with $\Delta T$ 25 °C	l/min	15,0	19,0	15,0	19,0	15,0	19,0
DHW production with $\Delta T$ 30 °C	l/min	12,0	14,0	12,0	14,0	12,0	14,0
DHW production with $\Delta T$ 35 °C	l/min	11,0	13,6	11,0	13,6	11,0	13,6
DHW production with $\Delta T$ 40 °C	l/min	9,6	11,9	9,6	11,9	9,6	11,9
DHW production with $\Delta T$ 45 °C	l/min	8,6	10,5	8,6	10,5	8,6	10,5

## Technical data table Booster HUB RADIATOR PACK C- IST

DESCRIPTION	U.M.	HR 2.5	HR 7.0	HR 9.0 INVERTER
Thermal power (1)	kW	2,48	7,02	3,54/8,01/8,81*
Absorbed power (1)	kW	0,60	1,70	1,89
C.O.P. (1)	W/W	4,14	4,12	4,24
Thermal power (2)	kW	2,37	6,79	2,85/7,92/8,71*
Absorbed power (2)	kW	0,78	2,21	2,39
C.O.P. (2)	W/W	3,02	3,07	3,31
Thermal power (3)	kW	2,06	5,90	2,54/7,04/7,74*
Absorbed power (3)	kW	0,63	1,75	2,00
C.O.P. (3)	W/W	3,28	3,37	3,52
Thermal power (4)	kW	2,24	6,44	2,46/6,82/7,50*
Absorbed power (4)	kW	0,90	2,54	2,74
C.O.P. (4)	W/W	2,50	2,53	2,68
Thermal power(5)	kW	2,11	5,52	2,31/6,41/7,05*
Absorbed power (5)	kW	0,75	2,00	2,54
C.O.P. (5)	W/W	2,81	2,76	3,04
Thermal power (6)	kW	1,99	5,20	2,25/6,25/6,88*
Absorbed power (6)	kW	0,94	2,53	2,68
C.O.P. (6)	W/W	2,11	2,05	2,39
SCOP (7)	W/W	3,78	3,71	3,94
Seasonal heating efficiency ( $\eta_s$ )	%	153,1	150,3	159,62
Energy efficiency class (8)		A / A++		A++ / A+++
Type compressor		Rotation ON-OFF		Twin Rotary DC INV.
Compressors	n.	1		
Refrigerant circuits	n.	1		
Defrosting method		Cycle reversal with immersion condenser		
Type of refrigerant		R410A		
Technical water temperature min/max	°C	+30 / +55		
Refrigerant quantity (pre-inserted)	kg	0,8	1,5	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		
R410A refrigerant gas line connection		3/8"	5/8"	5/8"
R410A refrigerant liquid line fitting		1/4"	1/4"	3/8"
Sound power (9)	dB(A)	65,1	68,4	64,0
Sound pressure at one meter (10)	dB(A)	51,2	54,7	49,8
External temperature operating limits	°C	-15 / +45		-20 / +45
Power supply		230V/1/50Hz		
Max power absorbed	kW	0,94	2,53	4,70
Max current absorbed	A	4,30	11,57	20,40
Weight	Kg	25	43	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