

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 users



ENERGY RATING



Technical and construction features

The HUB RADIATOR PACK C-IST hybrid system consists of one unit external motoevaporating unit in heat pump (HR booster heating only 3.0, 7.8) and by an internal storage unit for technical water of 62 liters with patented condenser with direct refrigerant / water exchange and instantaneous anti-legionella immersion sanitary exchanger, coupled with backup modulating condensing boiler (20 kW, 24 kW or 32 kW).

The condensing boiler is directly connected to the technical water puffer and both components are housed on the machine which includes as standard: the inverter electronic circulation pump, the manual filling and emptying unit, the expansion tank, the safety valves. and automatic vent, the base template.

The methane gas heat generator uses a highly modular premix condensing burner mounted on the latest generation boiler body with powers of 20 kW, 24 kW and 32 kW.

The combustion, at a constant stoichiometric air-gas ratio, allows to eliminate the polluting emissions of CO₂ and to reduce the NO_x emissions.

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

The high efficiency of the heat pump with the help, when necessary, of the condensing boiler allows for great savings, excellent reliability and operation down to temperatures of - 20 °C. The electronic control unit is equipped with a latest generation microprocessor that allows the user to set an automatic management of the hybrid system with the Energy Efficiency function which allows to optimize energy consumption both for the production of DHW and for winter air conditioning by going to activate the boiler only if strictly necessary.

The HUB RADIATOR patent also makes it possible to significantly reduce winter defrosting operations, allowing considerable energy savings during the defrosting phase up to 79% compared to classic heat pumps.

HUB RADIATOR PACK C-IST is also supplied as standard with an external climatic probe and lower support / support that allows easier and faster installation.



PATENTED SYSTEM



RENEWABLE ENERGY



CLIMATIC REGULATION



DHW WITHOUT LEGIONELLA



ALTA EFFICIENZA



ENERGY SAVING



ECOLOGICAL GAS



PHOTOVOLTAIC COMBINATION



HEATING UP TO 80°C



HYBRID SYSTEM

Modello	Code	€
HUB RADIATOR PACK C - IST 3.0/20 wall unit	76811900	6.350,00
HUB RADIATOR PACK C - IST 3.0/24 wall unit	76812000	6.550,00
HUB RADIATOR PACK C - IST 3.0/32 wall unit	76813900	6.600,00
HUB RADIATOR PACK C - IST 7.8/20 wall unit	76811010	8.390,00
HUB RADIATOR PACK C - IST 7.8/24 wall unit	76813914	8.590,00
HUB RADIATOR PACK C - IST 7.8/32 wall unit	76813910	8.640,00
HUB RADIATOR PACK C - IST 3.0/20 built-in	76811902	6.790,00
HUB RADIATOR PACK C - IST 3.0/24 built-in	76812002	6.990,00
HUB RADIATOR PACK C - IST 3.0/32 built-in	76812902	7.040,00
HUB RADIATOR PACK C - IST 7.8/20 built-in	76811912	8.830,00
HUB RADIATOR PACK C - IST 7.8/24 built-in	76812012	9.030,00
HUB RADIATOR PACK C - IST 7.8/32 built-in	76812912	9.080,00
Indoor unit HUB RADIATOR PACK C - IST 3.0/20	76811914	4.350,00
Indoor unit HUB RADIATOR PACK C - IST 3.0/24	76812014	4.500,00
Indoor unit HUB RADIATOR PACK C - IST 3.0/32	76812914	4.600,00
Indoor unit HUB RADIATOR PACK C - IST 7.8/20	76811915	4.690,00
Indoor unit HUB RADIATOR PACK C - IST 7.8/24	76812015	4.840,00
Indoor unit HUB RADIATOR PACK C - IST 7.8/32	76812915	4.940,00
Indoor unit Booster HR 3.0 just warm	76010240	2.000,00
Indoor unit Booster HR 7.8 just warm	76010500	3.700,00

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Accessories HUB RADIATOR PACK C - IST			Code	€
	HUB RADIATOR PACK C recessed template complete with flush-to-wall closing panel in galvanized sheet metal		76801916	440,00
	Cover box HUB RADIATOR PACK C mandatory for the installation of the indoor unit outside the building made of insulated white painted galvanized steel Height 160 cm - Width 80 cm - Depth 35 cm		75101022	490,00
	HUB RADIATOR PACK C wall-mounted installation template for preparation of all piping on site		76801919	190,00
	Command and remote control panel		75100005	90,00
	Wall or wall adapter for command and remote control panel		75100029	20,00
	Command and remote control panel condensing boiler (it is not a room thermostat)		30400034	140,00
	Load control relay for managing the absorbed power	mod. BUS connection	37081062	148,00
		mod. Radio frequency	37081063	336,00
	Web server home automation control unit		75101005	580,00
	Mixing valve for radiant systems	mod. fixed mechanical adjustment	75101032	90,00
		mod. motorized adjustment	75101033	530,00
	Anchoring shelf for external Booster including rubber anti-vibration mounts	mod. Booster HR 3.0	37081060	50,00
		mod. Booster HR 7.8	37081061	90,00
	Anchoring bracket for inclined roof for external Booster mod. HR 3.0 - 7.8 including rubber anti-vibration mounts		37081064	130,00
	Anti-vibration floor base in vulcanized rubber (height from the ground mm 95) with level and screws for Booster HR 3.0 - 7.8 (pack of 2 pieces)		75100018	94,00
	Anti-vibration kit for installation on shelves		75100022	18,00

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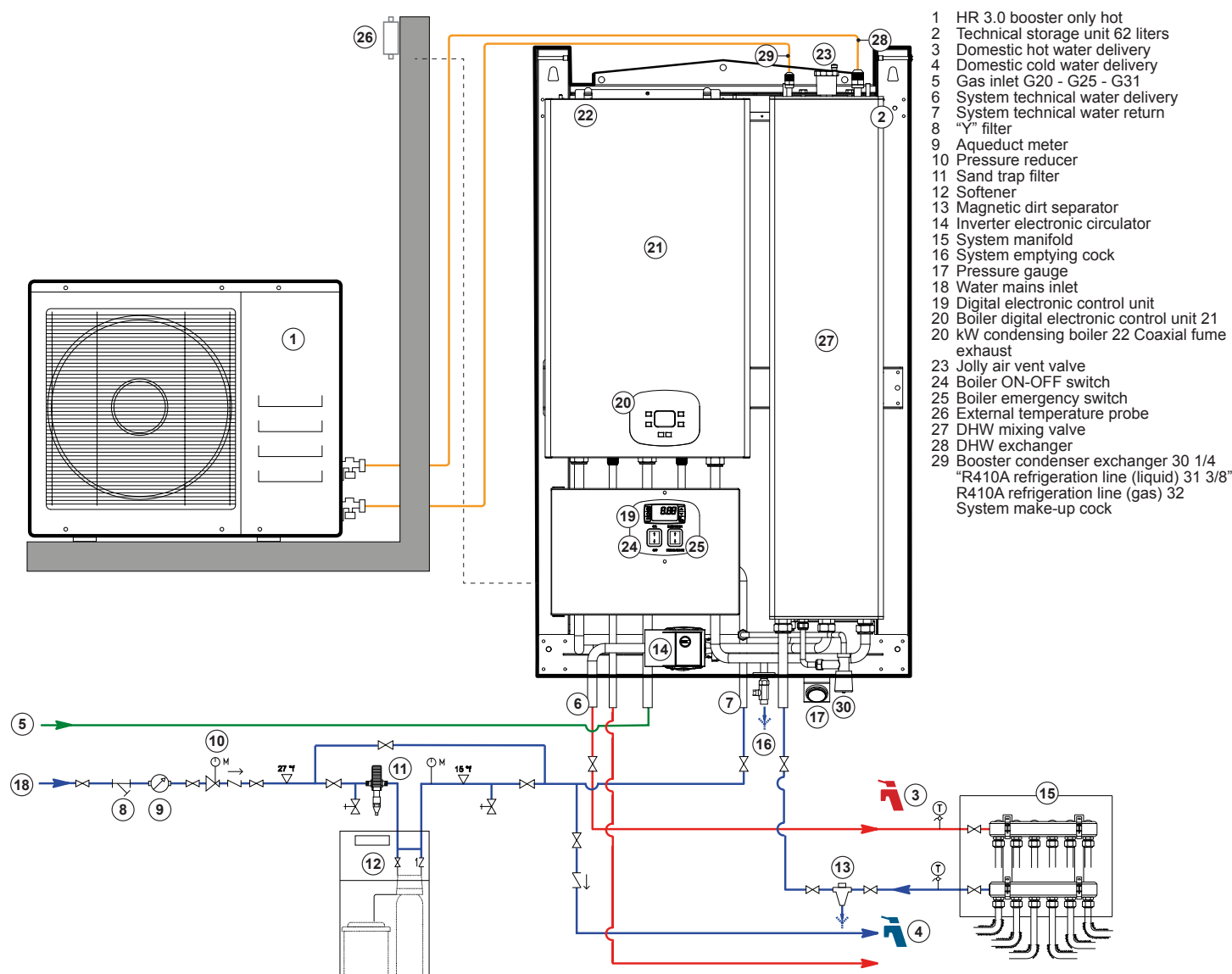
High efficiency patented integrated hybrid system in heat pump with direct refrigerant / water exchange with support boiler to produce domestic hot water and heating for small and medium users

Accessories HUB RADIATOR PACK C - IST			Code	€
	Kit antivibranti a molla in acciaio inox completi di bulloni, rondelle e dadi (confezione da 2 pezzi)	mod. HR 3.0 mod. HR 7.8	37081065 37081066	52,00 56,00
	Cavo scaldante anticongelamento condensa con sensore termico, montato in fabbrica	mod. 3 metri 90 W mod. 6 metri 120 W	37081067 37081068	56,00 66,00
	Bacinella ausiliaria per installazione sotto mensola dotata di cavo scaldante da 90 W	mod. HR 3.0 mod. HR 7.8	37081069 37081070	252,00 272,00
	Supporto a pavimento completo di bacinella ausiliaria dotata di cavo scaldante da 90 W	mod. HR 3.0 H fissa mod. HR 7.8 H fissa mod. HR 7.8 H variabile	37081071 37081073 37081074	308,00 330,00 354,00
	Kit valvola miscelatrice ACS da 1/2''		75100023	146,00
	Kit giunto flessibile antivibrante con cartella di raccordo e bocchettone dritto	mod. HR 7.8 (5/8'') mod. HR 3.0 (3/8'')	75100014 75100015	120,00 60,00
	Kit giunto flessibile antivibrante con cartella di raccordo e bocchettone curvo a 90°	mod. HR 7.8 (5/8'') mod. HR 3.0 (3/8'')	75100016 75100017	120,00 60,00
	Curva di partenza coassiale Ø 60/100 a 90° con prelievo fumi		30403123	23,00
	Partenza verticale coassiale Ø 60/100 con prelievo fumi		30403124	25,00
	Kit scarico fumi coassiale Ø 60/100		30403000	50,00
	Terminale a tetto coassiale Ø 60/100		30403014	118,00
	Prolunga coassiale Ø 60/100 M/F = 1000 mm		30403002	28,00
	Curva 90° coassiale Ø 60/100 M/F		30403004	30,00
	Curva 45° coassiale Ø 60/100 M/F		30403003	30,00
	Kit sdoppiatore a ciabatta da Ø 60/100 a Ø 80/80		30403018	33,00
	Kit condotti separati Ø 80/80 con prelievo fumi		30403022	22,00
	Prolunga Ø 80 M/F = 1000 mm		30403011	8,00
	Curva 90° coassiale Ø 80 M/F		30403013	5,00
	Curva 45° coassiale Ø 80 M/F		30403012	5,00

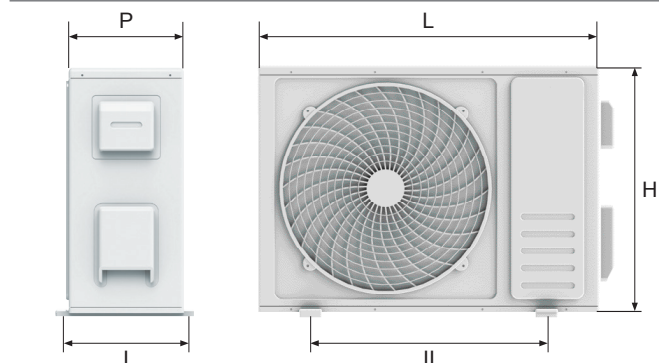
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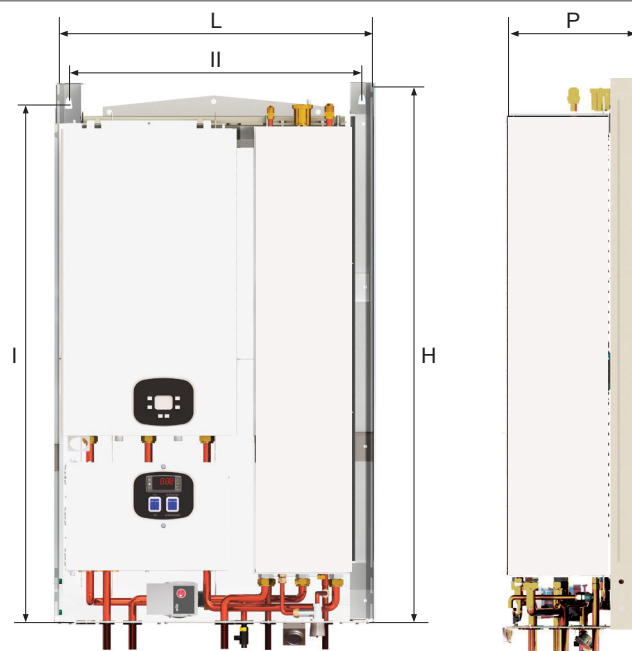
Application example HUB RADIATOR PACK C - IST 3.0/20



Dimensions of outdoor unit and indoor unit HUB RADIATOR PACK C - IST on wall



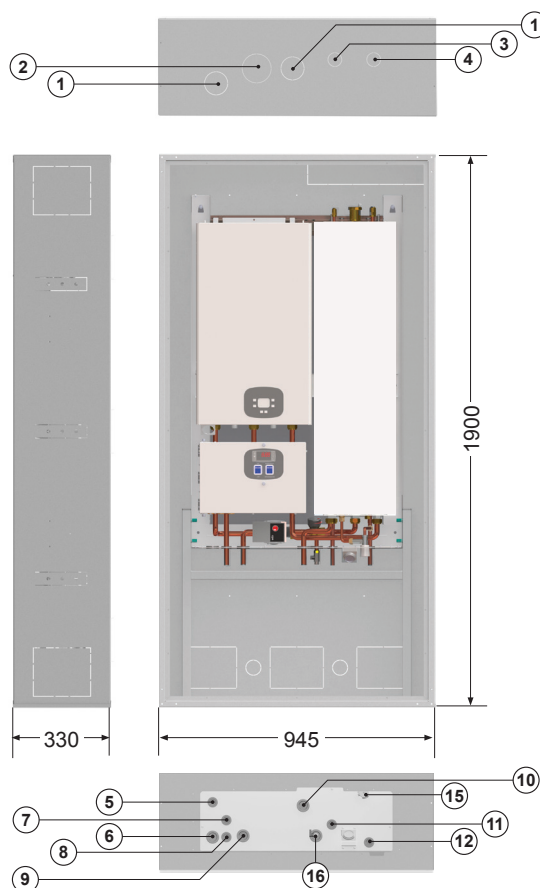
Model	L	H	P	I	II	weight
	mm	mm	mm	mm	mm	kg
O.U. Booster HR 3.0	700	552	256	275	435	33
O.U. Booster HR 7.8	902	650	307	350	620	55
I.U. HR PACK C - IST 20	720	1210	300	1170	656	110
I.U. HR PACK C - IST 24	720	1210	300	1170	656	110
I.U. HR PACK C - IST 32	720	1210	1210	1170	656	110



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Dimensions internal unit HUB RADIATOR PACK C - IST built-in

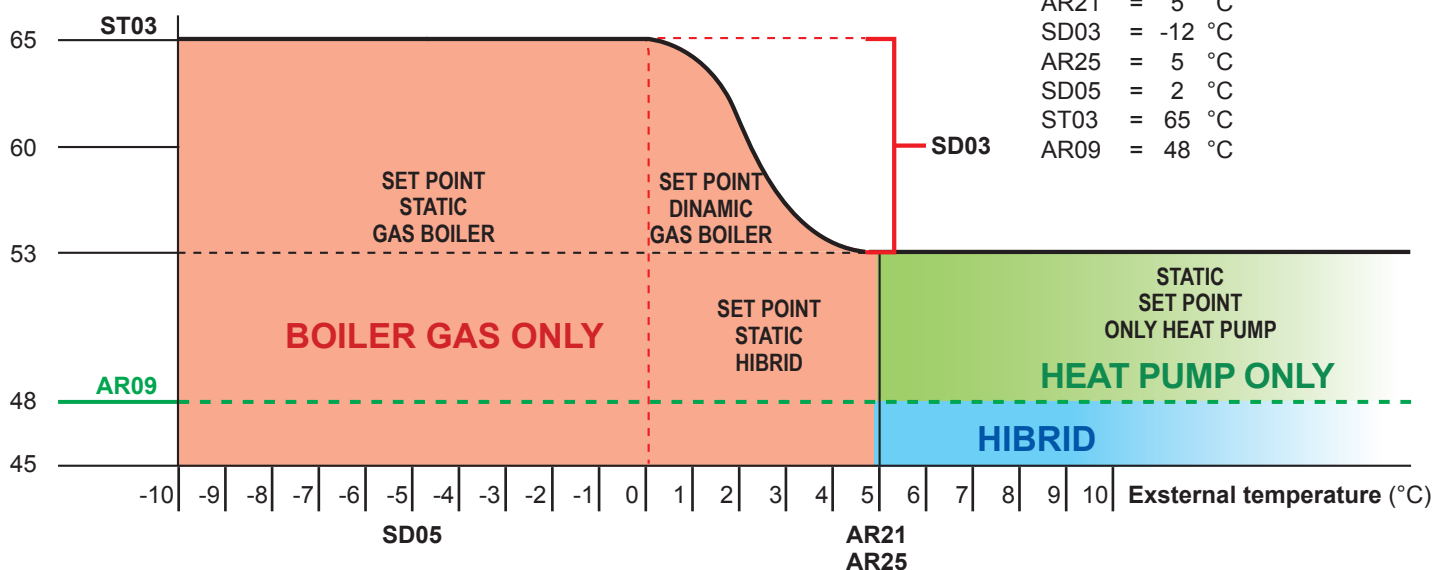


- 1 Combustion air inlet for split boiler exhaust Ø 80 mm
- 2 Coaxial boiler outlet Ø 60/100 mm
- 3 External Booster liquid line connection
- 4 External Booster gas line connection
- 5 Power supply line input
- 6 Boiler condensate drain
- 7 Boiler methane gas line inlet
- 8 External probe electrical cable entry
- 9 System delivery
- 10 System return
- 11 Domestic hot water delivery
- 12 Water mains inlet
- 13 Outside air temperature probe
- 14 Template for recessed installation
- 15 System filling cock
- 16 System drain cock

Values expressed in mm

Example of operation with external climatic probe HUB RADIATOR PACK C - IST

Accumulation temperature (°C)



The factory made hybrid system HUB RADIATOR PACK C is equipped as standard with an external temperature probe which, thanks to the microprocessor present in the indoor unit, allows you to set a fully automatic operation aimed at ensuring maximum energy efficiency based on the actual external climatic conditions. Specifically, it will be possible to establish an external temperature value (AR21) above which the use of only the renewable energy of the HP Booster is preferred both for the production of DHW and for the production of heating. Above this temperature, however, the "integration boiler" mode will remain active upon request from the

storage probe to ensure the system never drops below a preset limit temperature which may vary according to the type of system terminals present. In the external temperature range that goes from the value of the parameter (AR21) to (AR25) we will have a hybrid combined operation with the 2 generators operating simultaneously. Below the "critical" external temperature (AR25), a "boiler only" operation will be activated which will also activate a dynamic technical water set-point so as to obtain a system delivery temperature that increases proportionally to the decrease in the temperature of the outside air.

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Tabella dati tecnici unità interna HUB RADIATOR PACK C - IST

DESCRIPTION	U.M.	20	24	32
Device category		I12H3P		
Minimum boiler heat input in natural gas heating G20	kW	2,8	2,8	3,4
Boiler maximum heat input in natural gas heating G20	kW	20,0	24,0	32,0
Minimum boiler heat input in LPG gas heating	kW	2,8	2,8	3,4
Maximum boiler heat input in LPG gas heating	kW	20,0	24,0	32,0
Minimum boiler heat output in heating mode (80-60 °C) natural gas G20	kW	2,5	2,5	3,3
Maximum boiler heat output in heating (80-60 °C) natural gas G20	kW	19,2	23,0	30,8
Minimum boiler heat output in heating (80-60 °C) LPG gas	kW	2,5	2,5	3,3
Maximum boiler heat output in heating (80-60 °C) LPG gas	kW	19,2	23,0	30,8
Minimum boiler heat output in heating (50-30 °C) natural gas G20	kW	2,9	2,9	3,5
Maximum boiler heat output in heating (50-30 °C) methane gas G20	kW	20,7	24,9	33,5
Minimum boiler heat output in heating (50-30 °C) LPG gas	kW	2,9	2,9	3,5
Maximum boiler heat output in heating (50-30 °C) LPG gas	kW	20,7	24,9	33,5
Boiler supply pressure fed with natural gas G20	mbar	20		
Boiler supply pressure fed by LPG gas	mbar	30/37		
Diaphragm diameter boiler fueled by natural gas G20	mm	5,6	5,6	6,3
LPG gas boiler diaphragm diameter	mm	5,6	5,6	6,3
Minimum CO2 emission boiler fueled with natural gas G20	%	9,3	9,3	8,4
Maximum CO2 emission boiler fueled with natural gas G20	%	9,8	9,8	10,6
Minimum CO2 emission boiler powered by LPG gas	%	10,4	10,4	10,5
Maximum CO2 emission by LPG gas powered boiler	%	10,7	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 output (60/80 °C)	%	95,8	95,9	96,3
Boiler useful thermal efficiency at maximum output (30/50 °C)	%	103,4	103,7	104,5
Boiler useful thermal efficiency at minimum output (60/80 °C)	%	90,0	90,0	95,7
Boiler useful thermal efficiency at minimum output (30/50 °C)	%	102,1	102,1	103,5
Boiler useful thermal efficiency at 30% of the load	%		107,1	
NOx emission class		6	6	5
NOx emission	mg/kWh	23	23	55
Smoke temperature	°C	70,0	70,0	74,5
Max operating temperature in heating	°C	85,0		
Natural gas consumption at maximum flow rate in heating (1)	m³/h	2,08	2,54	3,37
LPG consumption at maximum flow rate in heating (1)	m³/h	0,64	0,75	0,97
Seasonal space heating boiler energy efficiency	%		92,0	
Boiler useful efficiency at nominal heat output at high temperature regime (2)	%	86,3	86,4	86,7
Boiler useful efficiency at 30% of nominal heat output at low temperature regime (3)	%		96,4	
Thermal dispersion in boiler stand-by	kW	0,069	0,069	0,071
Boiler annual energy consumption	GJ	38,7	42,2	62,7
Boiler seasonal energy efficiency class		A		
Technical water buffer tank volume	l	62		
Expansion tank volume	l	7		
System delivery/return connections		3/4"		
Domestic hot and cold water connections		1/2"		
Natural gas G20/LPG inlet connection		3/4"		
Boiler condensate drain hose diameter	mm	22		
Diameter of coaxial flue gas exhaust	mm	60/100		
Diameter of split rope evacuation ducts	mm	80		
Maximum system circulator flow rate	m³/h	3,3		
System circulator maximum head	m	6,2		
Maximum electrical power absorbed	W	118	118	147
Power supply		230V/1/50Hz		

(1) Value referred to the temperature of 15 °C outside and 1013 mbar

(2) High temperature regime with 60 °C return and 80 °C delivery

(3) Low temperature regime 30 °C (return temperature at boiler inlet)

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Technical data table for domestic hot water HUB RADIATOR PACK C - IST

DESCRIPTION	U.M.	3.0/20	3.0/24	3.0/32	7.8/20	7.8/24	7.8/32
DHW production with ΔT 25 °C	l/min	14,0	17,0	19,0	14,0	17,0	19,0
DHW production with ΔT 30 °C	l/min	11,0	12,5	14,0	11,0	12,5	14,0
DHW production with ΔT 35 °C	l/min	10,0	11,7	16,6	10,0	11,7	13,6
DHW production with ΔT 40 °C	l/min	9,0	10,2	11,9	9,0	10,2	11,9
DHW production with ΔT 45 °C	l/min	8,0	9,6	10,5	8,0	9,6	10,5

External unit technical data table Booster HUB RADIATOR PACK C - IST

DESCRIPTION	U.M.	HR 3.0	HR 7.8
Thermal power (1)	kW	3,11	8,12
Absorbed power (1)	kW	0,74	1,96
C.O.P. (1)	W/W	4,20	4,14
Thermal power (2)	kW	2,97	7,75
Absorbed power (2)	kW	0,94	2,52
C.O.P. (2)	W/W	3,16	3,07
Thermal power (3)	kW	2,58	6,73
Absorbed power (3)	kW	0,74	2,00
C.O.P. (3)	W/W	3,48	3,37
Thermal power (4)	kW	2,47	6,44
Absorbed power (4)	kW	0,94	2,54
C.O.P. (4)	W/W	2,67	2,53
Thermal power (5)	kW	2,11	5,52
Absorbed power (5)	kW	0,75	2,00
C.O.P. (5)	W/W	2,81	2,76
Thermal power (6)	kW	1,99	5,20
Absorbed power (6)	kW	0,94	2,53
C.O.P. (6)	W/W	2,11	2,05
S.C.O.P. (7)	W/W	3,78	3,71
Seasonal heating efficiency (η_s)	%	153,1	150,3
Energy Efficiency (8)		A / A++	
Defrost method		Inversione di ciclo con condensatore ad immersione	
Type of refrigerant		R410A	
Technical water temperature min/max	°C	+ 30 / + 50	
Refrigerant quantity (pre-entered)	kg	1,1	2,0
Min distance between outdoor and indoor unit	m	3	
Max distance between outdoor and indoor unit without recharging	m	5	
Max distance between outdoor and indoor unit with recharge	m	15	
Max height difference between outdoor and indoor unit	m	5	
Refrigerant gas line fitting		3/8"	5/8"
Coolant line fitting		1/4"	1/4"
Sound Power (9)	dB(A)	65,1	68,4
Sound pressure at one meter (10)	dB(A)	51,2	54,7
External temperature operating limits	°C	-15 / +45	
Power supply		230V/1/50Hz	

(1) Heating: external air temperature 7 °C Dry bulb - 6 °C Wet bulb; inlet/outlet water temperature 30/35 °C

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

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

(4) Heating: external air temperature 0 °C Dry bulb; inlet/outlet water temperature 40/45 °C

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

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

(7) Heating: average climatic 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 surrounding conditions (1)

(10) Value calculated according to ISO 3744: 2010