

HUB RADIATOR DHP

Patented high efficiency heat pump system with direct refrigerant / water exchange to produce domestic hot water, heating and air conditioning for small and medium-sized users



ENERGY RATING



Technical and construction features

HUB RADIATOR DHP is the most complete version of the Accorroni patent; designed to produce heating, air conditioning and domestic hot water.

HUB RADIATOR DHP is a split renewable energy system consisting of 2/3/4 heat pump boosters that work in cascade with direct refrigerant / technical water exchange and an extremely compact indoor unit housing a 150 liter technical flywheel used both as a power reserve for the distribution plant (summer or winter) and for the production of DHW.

The patented system produces heating / air conditioning and at the same time ACS in a hygienically controlled manner with the first in / first out method which allows to totally avoid the problem of legionella.

HUB RADIATOR DHP in winter, during defrosting operations, is much more efficient than traditional heat pumps thanks to the patented spiral copper exchanger / condenser directly immersed in the accumulation of technical water at 55 ° C.

The HUB RADIATOR system has been designed and patented to minimize the costly defrosting operations of HP evaporating coils. (Savings of about 79% on consumption in kW related to defrosting). During defrosting, HUB RADIATOR DHP continues to work on the system without interrupting the operation of the terminals, unlike traditional systems where during defrosting the heat is removed from the system itself, completely blocking the operation of the terminals.

This innovative product with total renewable energy (100% RES) represents the best solution to obtain optimal living comfort both in summer and in winter, especially in the coldest periods of the year where the thermal power of the system doubles, as the 2 technical water inertial accumulator radiators coupled to the relative boosters are put into communication.

The DHP system is supplied as standard complete with electronic system circulator, double system expansion tank, double filling group, safety valve, automatic air vent jolly valve, DHW priority diverter valve, power supply voltage control device and template anchoring to the base.



PATENTED SYSTEM



RENEWABLE ENERGY



ENERGY SAVING



CONDITIONING UP TO 4 °C



COMPACT DIMENSIONS



ECOLOGICAL GAS



PHOTOVOLTAIC COMBINATION



DHW WITHOUT LEGIONELLA



HEATING UP TO 58 °C






















PLUG & PLAY INSTALLATION

Modello	Code	€
HUB RADIATOR DHP 3.0 + 3.0	76802900	9.320,00
HUB RADIATOR DHP 7.8 + 3.0	76802910	10.700,00
HUB RADIATOR DHP 7.8 + 7.8	76802920	11.980,00
HUB RADIATOR DHP 7.8 + 7.8 + 3.0	76802925	13.250,00
HUB RADIATOR DHP 7.8 + 7.8 + 7.8	76802930	15.370,00
HUB RADIATOR DHP 7.8 + 7.8 + 7.8 + 7.8	76802940	18.330,00

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Accessoires HUB RADIATOR DHP			Codice	€
	Command and remote control panel	mod. built-in mod. on the wall	75100005 75100028	90,00 110,00
	Load control relay for managing the absorbed power	mod. BUS connection mod. Radio frequency	37081062 37081063	148,00 336,00
	Web server home automation control unit		75101005	580,00
	Mixing valve for radiant systems	mod. fixed mechanical adjustment mod. motorized adjustment	75101032 75101033	90,00 530,00
	Additional capacitor for HR Booster	mod. only hot mod. hot / cold	26505565 26505567	300,00 400,00
	Anchoring shelf for external Booster including rubber anti-vibration mounts	mod. Booster HR 3.0 mod. Booster HR 7.8	37081060 37081061	50,00 90,00
	Anchoring bracket for sloping roof for external Booster mod. HR 3.0 - 7.8 including rubber anti-vibration mounts		37081064	130,00
	Antivibration 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
	Spring anti-vibration kit in stainless steel complete with bolts, washers and nuts (pack of 2 pieces)	mod. HR 3.0 mod. HR 7.8	37081065 37081066	52,00 56,00
	Condensate anti-freeze heating cable with thermal sensor, factory fitted	mod. 3 metri 90 W mod. 6 metri 120 W	37081067 37081068	56,00 66,00
	Auxiliary basin for installation under shelf equipped with 90 W heating cable	mod. HR 3.0 mod. HR 7.8	37081069 37081070	252,00 272,00
	Floor support complete with auxiliary basin equipped with 90 W heating cable	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
	1/2 "DHW mixing valve kit		75100023	146,00
	Electronic management kit and additional heat generator connection sleeves		75100024	194,00
	Antivibration flexible joint kit with flare and straight union	mod. HR 7.8 (5/8") mod. HR 3.0 (3/8")	75100014 75100015	120,00 60,00
	Anti-vibration flexible joint kit with connecting flange and 90 ° curved union	mod. HR 7.8 (5/8") mod. HR 3.0 (3/8")	75100016 75100017	120,00 60,00
	Upper casing closing plinth		75101020	78,00
	Lower casing closing plinth		75101021	64,00

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Accessories HUB RADIATOR DHP

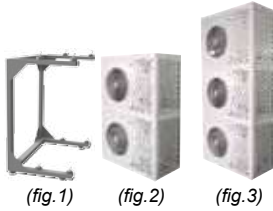
Code

€



Installation template kit complete with pre-flanged and insulated refrigerant pipes and connection pipes of the sanitary water circuit

mod. HR 3.0 + 3.0	75101010	360,00
mod. HR 7.8 + 3.0	75101011	370,00
mod. HR 7.8 + 7.8	75101012	380,00
mod. HR 7.8 + 7.8 + 3.0	75101013	400,00
mod. HR 7.8 + 7.8 + 7.8	75101014	420,00
mod. HR 7.8 + 7.8 + 7.8 + 7.8	75101015	440,00



Open shelf for n. 2 Booster outdoor units mod. HR 7.8 complete with anti-vibration mounts (fig. 1)

75060406 240,00

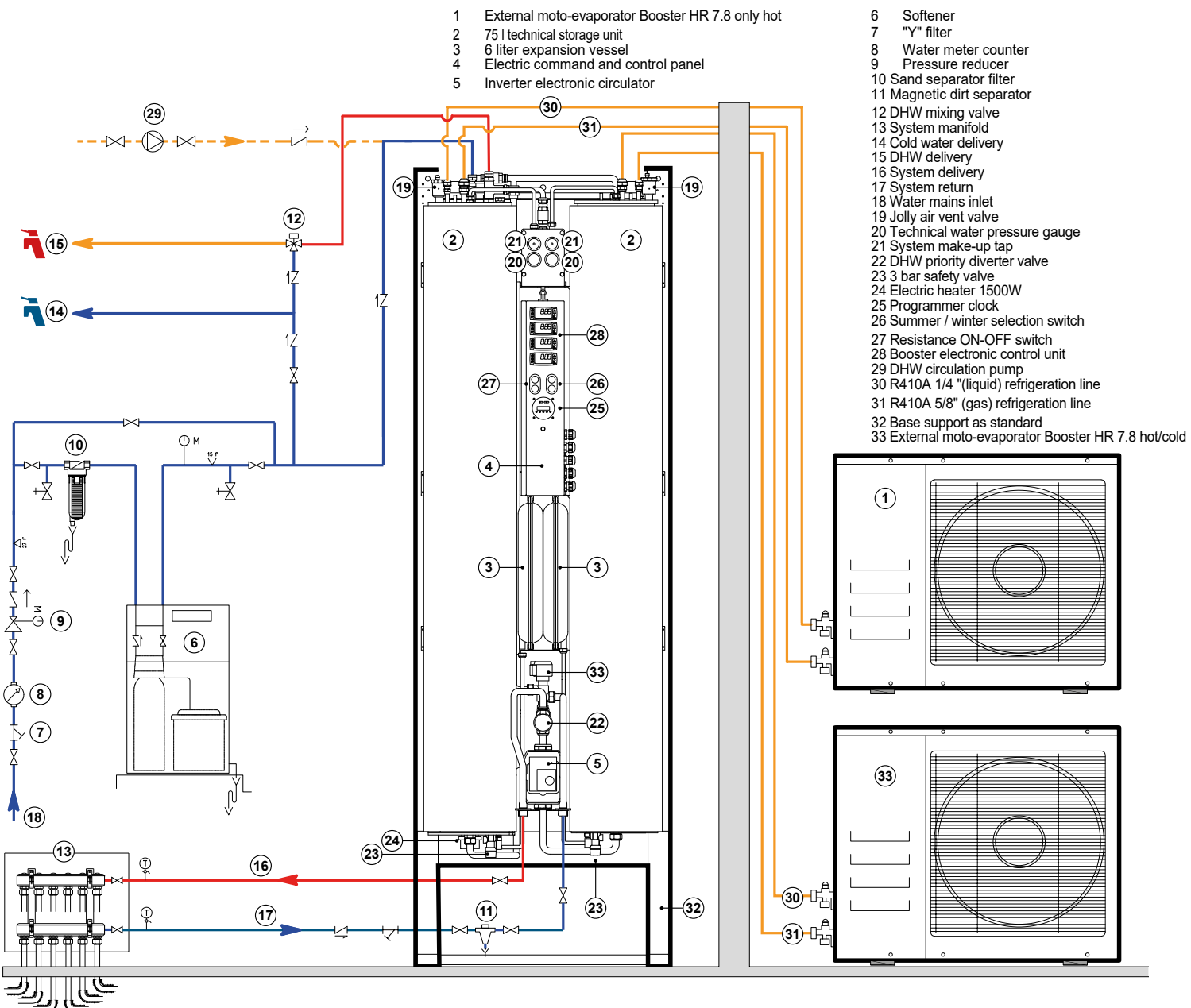
RACK 2 wardrobe for n. 2 Booster outdoor units mod. HR 3.0 - 7.8 (fig. 2)

75060306 890,00

RACK 3 wardrobe for n. 3 external units Booster mod. HR 3.0 - 7.8 Height 210 cm Width 96 cm Depth 54 cm (fig. 3)

75060206 980,00

Application example HUB RADIATOR DHP 7.8 + 7.8

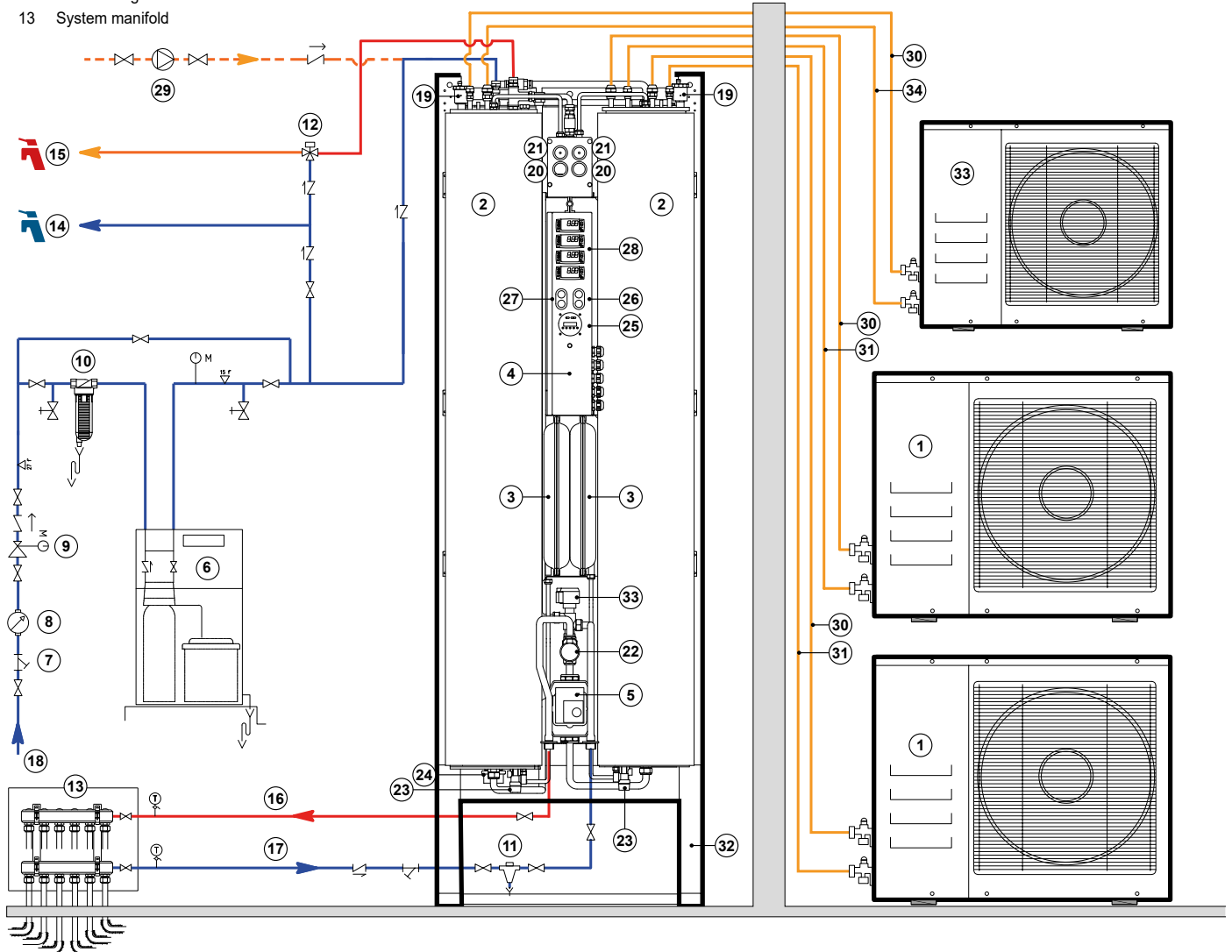


HUB RADIATOR DHP

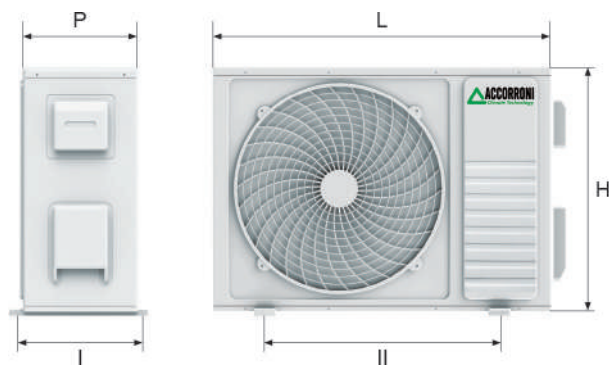
Patented high efficiency heat pump system with direct refrigerant / water exchange to produce domestic hot water, heating and air conditioning for small and medium-sized users

Esempio applicativo HUB RADIATOR DHP 7.8 + 7.8 + 3.0

- | | | |
|--|-----------------------------------|---|
| 1 External moto-evaporator Booster HR 7.8 hot / cold | 14 Cold water delivery | 25 Programmer clock |
| 2 75 l technical storage unit | 15 DHW delivery | 26 Summer / winter selection switch |
| 3 6 liter expansion vessel | 16 System delivery | 27 Resistance ON-OFF switch |
| 4 Electric command and control panel | 17 System return | 28 Booster electronic control unit |
| 5 Inverter circulator | 18 Water mains inlet | 29 DHW circulation pump |
| 6 Softener | 19 Jolly air vent valve | 30 1/4" R410A refrigeration line (liquid) |
| 7 "Y" filter | 20 Technical water pressure gauge | 31 5/8" R410A refrigeration line (gas) |
| 8 Water meter counter | 21 System make-up cock | 32 Base support as standard |
| 9 Pressure reducer | 22 DHW priority diverter valve | 33 External moto-evaporator Booster HR 3.0 heating only |
| 10 Sand trap filter | 23 3 bar safety valve | 34 Refrigeration line R410A 3/8" (gas) |
| 11 Magnetic dirt separator | 24 Electric heater 1500W | |
| 12 DHW mixing valve | | |
| 13 System manifold | | |



Outdoor unit dimensions HUB RADIATOR DHP



Booster	L	H	P	I	II
	mm	mm	mm	mm	mm
HR 3.0	700	552	256	275	435
HR 7.8	830	585	300	330	515

Booster technical data

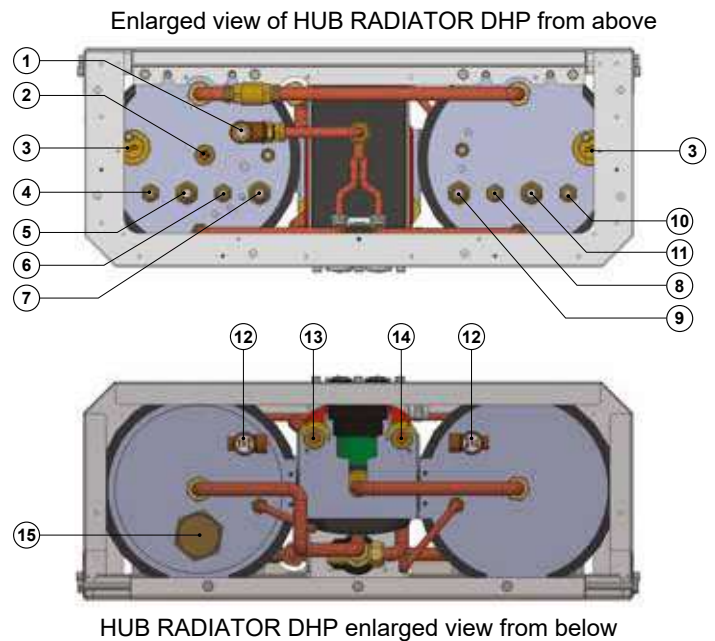
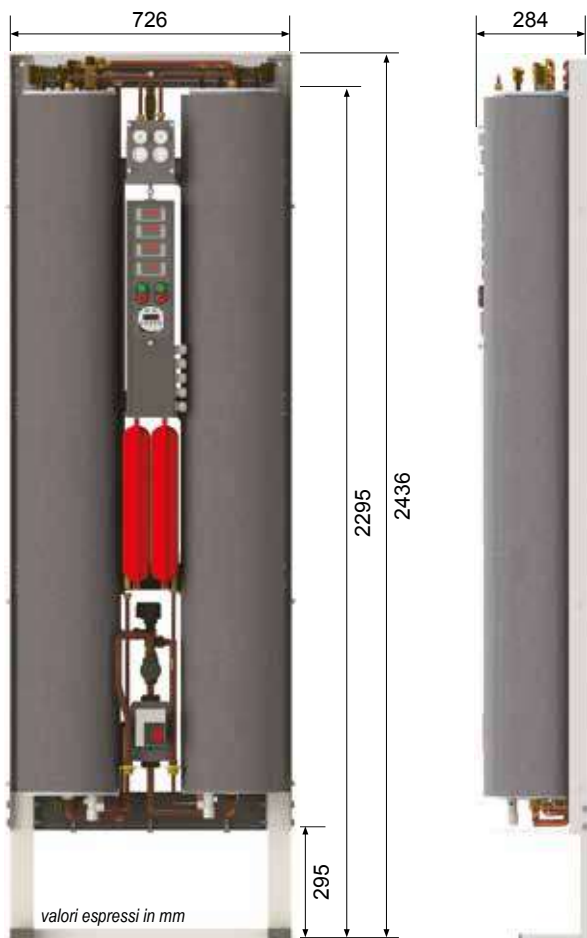
	U.M.	HR 3.0	HR 7.8
Refrigerant quantity	Kg	1,1	2,0
Refrigerant gas connections		3/8"	5/8"
Coolant fluid connections		1/4"	1/4"
Power supply		230V/1/50Hz	
Sound power (1)	dB(A)	65,1	68,4
Sound pressure at one meter (2)	dB(A)	51,2	54,7
Weight	Kg	33	43

(1) Measurements carried out according to UNI EN 14511 i - heating 30/35 ° C - Ext. 7 ° C b.s./6 ° C b.u.
 (2) Value calculated according to ISO 3744: 2010

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Indoor unit dimensions HUB RADIATOR DHP



- 1 Mains water supply (domestic cold water)
- 2 Domestic hot water outlet
- 3 Jolly air vent valve
- 4 Male threaded connection SAE cooling line 1/4 "R410A (Booster 1)
- 5 Male threaded connection SAE cooling line R410A of 5/8 "or 3/8" (Booster 1)
- 6 Male threaded connection SAE cooling line 1/4 "R410A (Booster 2)
- 7 Male threaded connection SAE cooling line R410A, 5/8 "or 3/8" (Booster 2)
- 8 Male threaded connection SAE, refrigeration line R410A 1/4 "(Booster 3)
- 9 Male threaded connection SAE cooling line R410A from 5/8 "or 3/8" (Booster 3)
- 10 Male threaded connection SAE refrigeration line 1/4 "R410A (Booster 4)
- 11 Male threaded connection SAE 5/8 "or 3/8" R410A cooling line (Booster 4)
- 12 Safety valve 3 bar
- 13 System delivery
- 14 System return
- 15 Electric resistance 1500W

Table of ACS HUB RADIATOR DHP withdrawals for the summer period

DESCRIPTION	U.M.	3.0+3.0	3.0+7.8	7.8+7.8	7.8+7.8+3.0	7.8+7.8+7.8	7.8+7.8+7.8+7.8
DHW withdrawal 40 ° C - storage 55 ° C - inlet water 10 ° C *	l	48	48	52	48	52	56 (1)
DHW withdrawal 40 ° C - storage 55 ° C - inlet water 15 ° C *	l	58	58	63	58	63	68 (2)
HP recovery time from 38 ° C to 55 ° C *	min	32	32	18	32	18	8
HP recovery time + resistance from 38 ° C to 58 ° C *	min	28	28	15	28	15	7
DHW withdrawal 40 ° C - storage 62 ° C - inlet water 10 ° C *	l	60	60	64	60	64	70 (1)
DHW withdrawal 40 ° C - storage 62 ° C - inlet water 15 ° C *	l	74	74	78	74	78	85 (2)
HP recovery time + resistance from 38 ° C to 62 ° C *	min	40	40	22	40	22	10
Recovery time from 10 ° C to 55 ° C *	min	72	72	39	72	39	19

* Data calculated with an external temperature of 20 ° C d.b. - (1) Continuous DHW supply on a single user of 7 liters per minute (external temperature 20 ° C d.b.) (2) Continuous DHW supply on a single user of 8 liters per minute (external temperature 20 ° C d.b.)

Table of ACS HUB RADIATOR DHP withdrawals for the winter and mid-seasons

DESCRIPTION	U.M.	3.0+3.0	3.0+7.8	7.8+7.8	7.8+7.8+3.0	7.8+7.8+7.8	7.8+7.8+7.8+7.8
DHW withdrawal 40 ° C - storage 55 ° C - inlet water 10 ° C *	l	100	104	108 (1)	112 (3)	115 (5)	121 (7)
DHW withdrawal 40 ° C - storage 55 ° C - inlet water 15 ° C *	l	120	128	132 (2)	138 (4)	140 (6)	147 (8)
HP recovery time from 38 ° C to 55 ° C *	min	42	28	16	13	11	8
HP recovery time + resistance from 38 ° C to 58 ° C *	min	34	22	14	12	9	7
DHW withdrawal 40 ° C - storage 62 ° C - inlet water 10 ° C *	l	124	130	134 (1)	140 (3)	144 (5)	152 (7)
DHW withdrawal 40 ° C - storage 62 ° C - inlet water 15 ° C *	l	152	160	164 (2)	170 (4)	175 (6)	184 (8)
HP recovery time + resistance from 38 ° C to 62 ° C *	min	50	32	20	16	13	10
Recovery time from 10 ° C to 55 ° C *	min	90	60	38	32	25	19

* Data calculated with an external temperature of 7 ° C d.b.

- (1) Continuous DHW supply - max flow 7 l / min, external T. 7 ° C d.b.
- (2) Continuous DHW supply - max flow 8 l / min, external T. 7 ° C d.b.
- (3) Continuous DHW supply - max flow 9 l / min, external T. 7 ° C d.b.
- (4) Continuous DHW supply - max flow 10 l / min, external T. 7 ° C d.b.

- (5) Continuous DHW supply - max flow rate 12 l / min, external T. 7 ° C d.b.
- (6) Continuous DHW supply - max flow 13 l / min, external T. 7 ° C d.b.
- (7) Continuous DHW supply - max flow 17 l / min, external T. 7 ° C d.b.
- (8) Continuous DHW supply - max flow rate 18 l / min, external T. 7 ° C d.b.

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Tabella dati tecnici HUB RADIATOR DHP

DESCRIPTION	U.M.	3.0+3.0	3.0+7.8	7.8+7.8	7.8+7.8+3.0	7.8+7.8+7.8	7.8+7.8+7.8+7.8
Thermal power (1)	kW	6,22	11,23	16,24	19,35	24,36	32,48
Absorbed power (1)	kW	1,48	2,70	3,92	4,66	5,88	7,24
C.O.P. (1)	W/W	4,20	4,16	4,14	4,15	4,14	4,14
Thermal power (2)	kW	5,94	10,72	15,50	18,47	23,25	31,00
Absorbed power (2)	kW	1,88	3,46	5,04	5,98	7,56	10,08
C.O.P. (2)	W/W	3,16	3,10	3,08	3,09	3,08	3,08
Thermal power (3)	kW	5,16	9,31	13,47	16,05	20,20	26,94
Absorbed power (3)	kW	1,48	2,74	4,00	4,74	6,00	8,00
C.O.P. (3)	W/W	3,48	3,40	3,37	3,39	3,37	3,37
Thermal power (4)	kW	4,94	8,91	12,88	15,35	19,32	25,76
Absorbed power (4)	kW	1,88	3,48	5,08	6,02	7,62	10,16
C.O.P. (4)	W/W	2,67	2,56	2,53	2,55	2,54	2,54
Thermal power (5)	kW	4,22	7,63	11,04	13,15	16,56	22,08
Absorbed power (5)	kW	1,50	2,75	4,00	4,75	6,00	8,00
C.O.P. (5)	W/W	2,81	2,77	2,76	2,77	2,76	2,76
Thermal power (6)	kW	3,98	7,19	10,90	12,39	15,60	20,80
Absorbed power (6)	kW	1,88	3,47	5,06	6,00	7,59	10,12
C.O.P. (6)	W/W	2,11	2,07	2,06	2,07	2,06	2,06
S.C.O.P. (7)	W/W	3,78	3,72	3,71	3,72	3,71	3,71
Seasonal heating efficiency (η_s)	%	153,1	150,6	150,3	150,6	150,3	150,3
Refrigeration power (8)	kW	2,94	7,24	7,24	14,48	14,48	21,72
Absorbed power (8)	kW	0,72	1,89	1,89	3,79	3,79	5,68
E.E.R. (8)	W/W	4,08	3,82	3,82	3,82	3,82	3,82
Refrigeration power (9)	kW	2,63	5,84	5,84	11,68	11,68	17,52
Absorbed power (9)	kW	0,89	2,20	2,20	4,40	4,40	6,60
E.E.R. (9)	W/W	2,95	2,65	2,65	2,65	2,65	2,65
S.E.E.R. (10)	W/W	3,67	3,29	3,29	3,29	3,29	3,29
Heating energy class (11)	W/W	A / A++					
Defrosting method		Reverse cycle with immersion condenser					
Type of refrigerant		R410A					
Outdoor temperature operating limits	°C	-15 / +45					
Technical water temperature min / max	°C	+4 / +58					
Refrigerant quantity (pre-inserted)	kg	1,1x2	1,1+1,5	1,5x2	1,1+1,5+1,5	1,5x3	1,5x4
Min distance between outdoor and indoor unit	m	3					
Max distance between outdoor and indoor unit without charging	m	5					
Max distance between outdoor and indoor unit with recharge	m	15					
Max difference in height between outdoor and indoor unit	m	5					
Refrigerant gas line connection		3/8"x2	3/8"-5/8"	5/8"x2	5/8"x2-3/8"	5/8"x3	5/8"x4
Coolant fluid line connection		1/4"x2	1/4"-1/4"	1/4"x2	1/4"x3	1/4"x3	1/4"x4
Technical water content from indoor unit	l	75 + 75					
Max flow rate electronic inverter circulator	m ³ /h	3,3					
Max head of electronic inverter circulator	m	6,2					
Electric absorption of electronic inverter circulator	W	3 - 45					
Expansion vessel volume	l	6 + 6					
Expansion vessel preload	bar	1					
Safety valve calibration	bar	3					
Back up electric heater	W	1500					
Power supply		230V/1/50Hz				400V/3+N/50Hz	
Cold water inlet and DHW outlet hydraulic connections		1/2" M					
System delivery and return hydraulic connections		3/4" M					
Internal unit accumulation heat loss	kWh/24h	1,82					
Transport / operating indoor unit weight	kg	80 / 134	80 / 134	89 / 143	80 / 134	89 / 143	98 / 152
Weight internal unit	kg	33x2	33+55	33+55x2	55x2	55x3	55x4

(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 d.b. ; inlet / outlet water temperature 30/35 °C

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

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

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

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

(8) Cooling: external air temperature 35 °C db; inlet / outlet water temperature 23/18 °C

(9) Cooling: external air temperature 35 °C db; inlet / outlet water temperature 12/7 °C

(10) Cooling: external air temperature 35 °C d.b. ; inlet / outlet water temperature 12/7 °C

(11) Water 35 °C / 58 °C