

SUPER HUB RADIATOR TOP

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

ENERGY RATING



Technical and construction features

SUPER HUB RADIATOR TOP is the most complete version of the patent created to best satisfy the requests for heating, air conditioning and domestic hot water.

The system consists of two inertial storage tanks of technical water, one used for heating and DHW production and one for air conditioning (in summer) and heating (in winter). One or more Boosters in cascade must be combined with each storage tank, activating the relative compressors according to the thermal load. This product today represents the best solution for total living comfort both in summer and in winter where in the coldest periods of the year the thermal power of the machine increases as the two closed vessel inertial storage radiators are put into communication through a system of motorized solenoid valves, thus generating a single super accumulation of technical water to be used as thermal flywheel of the system.

SUPER HUB RADIATOR TOP can be combined with Accorroni fan coils or the FAN DRIVE active controlled mechanical ventilation system, thus offering comfortable heat in winter, cooling and dehumidification of the premises in the summer. SUPER HUB RADIATOR TOP is supplied as standard complete with technical inertial hot only storage mod. ARM, hot / cold inertial technical storage mod. VT, air vent jolly valve, safety valve, drain cock, 2-way motorized valve, 3-way motorized diverter valve.

SUPER HUB RADIATOR TOP is an extremely versatile and modular innovative system, it allows the application of multiple boosters that work in cascade with load shedding steps through separate and independent thermodynamic circuits that are activated based on the actual heating / cooling needs of the building.

This operation, combined with the peculiarities of the technical water accumulations, is synonymous with extreme reliability, effectiveness and efficiency.









Model	Code	€
SUPER HUB RADIATOR TOP ARM1 300 + VT 300	37410300	5.020,00
SUPER HUB RADIATOR TOP ARM2 300 + VT 300	37420300	5.320,00
SUPER HUB RADIATOR TOP ARM1 500 + VT 300	37410500	5.210,00
SUPER HUB RADIATOR TOP ARM2 500 + VT 300	37420500	5.760,00
SUPER HUB RADIATOR TOP ARM1 500 + VT 500	37430500	5.630,00
SUPER HUB RADIATOR TOP ARM2 500 + VT 500	37440500	6.170,00
SUPER HUB RADIATOR TOP ARM1 800 + VT 300	37410800	6.210,00
SUPER HUB RADIATOR TOP ARM2 800 + VT 300	37420800	6.580,00
SUPER HUB RADIATOR TOP ARM1 800 + VT 500	37430800	6.620,00
SUPER HUB RADIATOR TOP ARM2 800 + VT 500	37440800	7.000,00
SUPER HUB RADIATOR TOP ARM1 800 + VT 800	37450800	6.900,00
SUPER HUB RADIATOR TOP ARM2 800 + VT 800	37460800	7.270,00
SUPER HUB RADIATOR TOP ARM1 1000 + VT 300	37411000	6.470,00
SUPER HUB RADIATOR TOP ARM2 1000 + VT 300	37421000	6.670,00
SUPER HUB RADIATOR TOP ARM1 1000 + VT 500	37431000	6.890,00
SUPER HUB RADIATOR TOP ARM2 1000 + VT 500	37441000	7.090,00
SUPER HUB RADIATOR TOP ARM1 1000 + VT 800	37451000	7.160,00
SUPER HUB RADIATOR TOP ARM2 1000 + VT 800	37461000	7.350,00

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Model	Code	€
Booster HR 3.0 solo caldo	76010240	2.000,00
Booster HR 3.0 caldo/freddo	76020240	2.430,00
Booster HR 7.8 solo caldo	76010500	3.700,00
Booster HR 7.8 caldo/freddo	76020500	4.130,00
Booster HR 9.0 solo caldo INVERTER	76030500	6.360,00
Booster HR 9.0 caldo/freddo INVERTER	76040500	6.560,00

















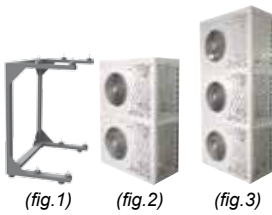


Accessories SUPER HUB RADIATOR

	230 V single-phase integrative electrical resistance degree of protection IP 65	mod. 1500 W	75050102	150,00		
		mod. 2000 W	75050103	160,00		
		mod. 3000 W	75060300	170,00		
	Additional inverter electronic circulator max flow rate 3.3 m ³ / h max head 6.2 m electrical absorption min. 4 W - max 45 W		35006001	214,00		
	System pump kit which includes: Inverter electronic circulation pump complete with shut-off valves, air vent jolly valve, safety valve, threaded plugs and probe wells		75100011	380,00		
	Hot / cold inverter system pump kit which includes: electronic circulation pump complete with valves shut-off valves, air vent jolly valve, safety valve, threaded caps and probe holder wells		75100009	674,00		
	High efficiency wet rotor electronic inverter circulator with ECM permanent magnet motor	mod. 3/6	Q max 3,2 m³/h	H max 6,6 m	35006002	540,00
		mod. 9/10	Q max 9 m³/h	H max 10,5 m	36576012	1.220,00
		mod. 18/12	Q max 18 m³/h	H max 12,8 m	36576013	2.380,00
		mod. 27/16	Q max 27 m³/h	H max 16,0 m	36576014	3.780,00
		mod. 30/18G	Q max 30 m³/h	H max 18,0 m	36576015	6.590,00
	Command and remote control panel	mod. built-in		75100005	90,00	
		mod. to the wall		75100028	110,00	
	Load control relay for managing the absorbed power	mod. Collegamento BUS		37081062	148,00	
		mod. Radiofrequenza		37081063	336,00	
	Web server home automation control unit			75101005	580,00	

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			Codice	€
	Mixing valve for radiant systems	mod. regolazione fissa meccanica mod. regolazione motorizzata	75101032 75101033	90,00 530,00
	Additional capacitor for HR Booster	mod. solo caldo mod. caldo/freddo	26505565 26505567	300,00 400,00
	Anchoring shelf for external Booster including rubber anti-vibration mounts	mod. HR 3.0 mod. HR 7.8	37081060 37081061	50,00 90,00
	Anchoring bracket for inclined roof for external Booster mod. 3.0 - 7.8 - 9.0 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 - 9.0 (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 - 9.0	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 - 9.0	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 - 9.0 H fissa mod. HR 7.8 - 9.0 H variabile	37081071 37081073 37081074	308,00 330,00 354,00
	DHW thermostatic mixer for anti-scald solar thermal systems	mod. MIX L mod. MIX XL mod. MIX XXL	50103015 50203015 50303015	370,00 396,00 1.370,00
	Domestic hot water recirculation kit Inverter electronic circulator with brass body max flow rate 0.4 m3 / h max head 1.0 m		35006004	460,00
	Electronic management kit and additional heat generator connection sleeves		75100024	194,00
	Anti-vibration flexible joint kit with connecting flange and straight union	mod. HR 7.8 - 9.0 (5/8") mod. HR 3.0 (3/8")	75100014 75100015	120,00 60,00
	Anti-vibration flexible joint kit with flare and 90 ° curved union	mod. HR 7.8 - 9.0 (5/8") mod. HR 3.0 (3/8")	75100016 75100017	120,00 60,00
	Programmer clock kit		35639900	40,00
	<i>Open shelf for n. 2 Booster outdoor units mod. HR 7.8 - 9.0 complete with anti-vibration mounts (fig. 1)</i>		75060406	240,00
	<i>RACK 2 wardrobe for n. 2 Booster outdoor units mod. HR 3.0 - 7.8 - 9.0 (fig. 2)</i>		75060306	890,00
	<i>RACK 3 wardrobe for n. 3 external units Booster mod. HR 3.0 - 7.8 - 9.0 Height 210 cm Width 96 cm Depth 54 cm (fig.3)</i>		75060206	980,00

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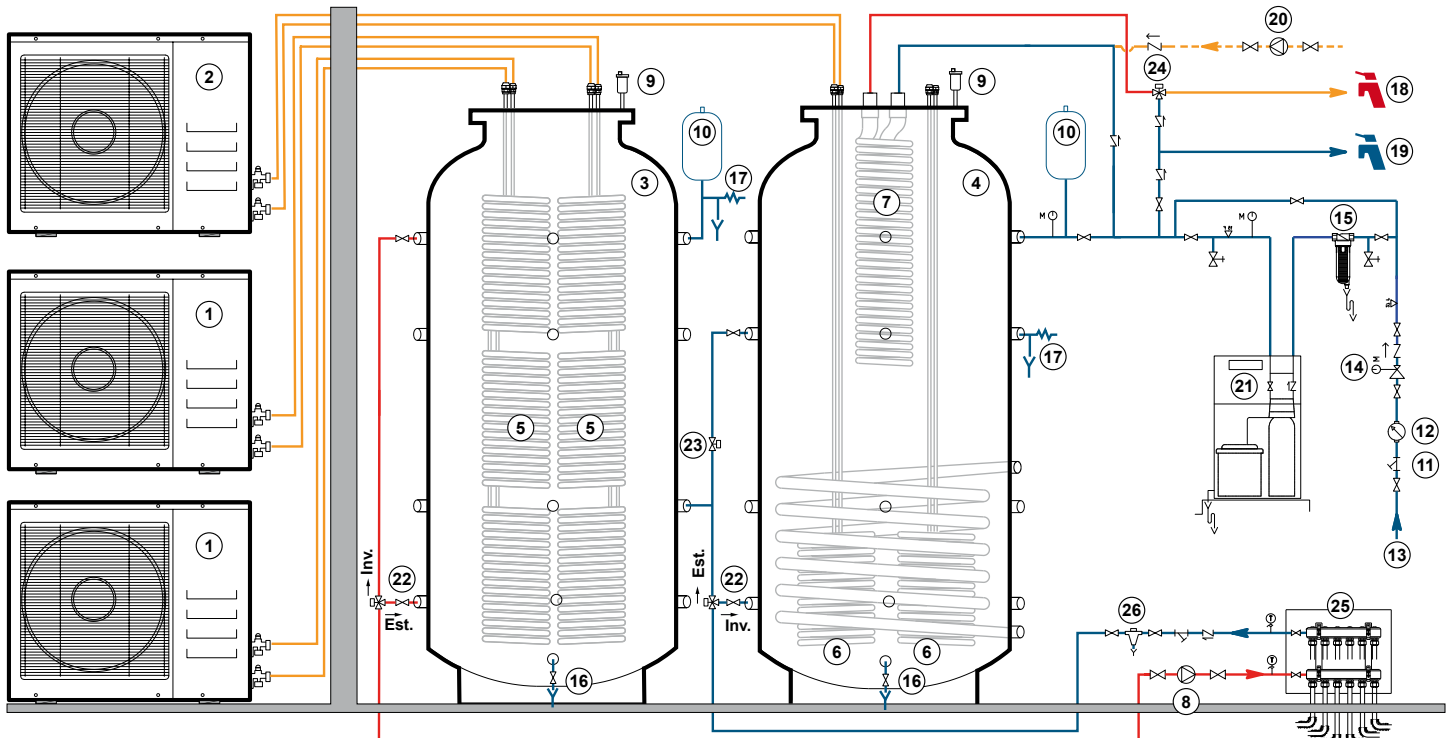
Esempio di applicativi SUPER HUB RADIATOR TOP

Example of SUPER HUB RADIATOR TOP consisting of an inertial storage of technical water of 300 liters model VT 300 fed by 2 external boosters HR 7.8 hot / cold and a storage of technical water of 300 liters model ARM2 300 fed by an external booster HR 7.8 only hot.

Inside the ARM2 300 storage tank there is also an additional patented hot-only immersion heat exchanger for possible future integration and a lower fixed heat exchanger to connect a forced circulation solar thermal system that can assist both the production of DHW and heating in winter.

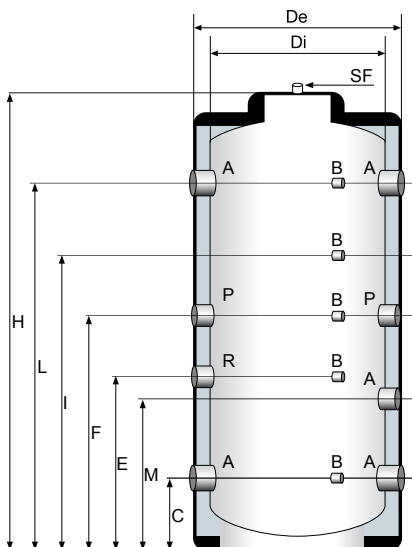
In the upper part of the ARM2 300 storage there is a finned copper exchanger directly immersed in technical water for the instantaneous production of DHW with the first in - first out method which guarantees maximum yield and sanitation hygiene, also eliminating the problem of legionella.

The main peculiarity of the patented SUPER HUB RADIATOR TOP system is represented by an automatic system of 3 and 2-way motorized valves that allow the 2 technical water accumulators to communicate during the winter and separate them during the summer.



- | | | |
|--|---------------------------------|--|
| 1 External moto-evaporator Booster HR 7.8 hot / cold | 10 System expansion vessel | 20 DHW recirculation pump |
| 2 External moto-evaporator Booster HR 7.8 only hot | 11 "Y" filter | 21 Softener |
| 3 Technical storage unit VT 300 hot / cold | 12 Water meter counter | 22 Summer / winter diverter valve |
| 4 Technical storage unit A_RM2 300 heating only | 13 Water mains inlet | 23 Summer / winter 2-way valve (open winter - closed summer) |
| 5 Patented hot / cold immersion exchanger | 14 Pressure reducer | 24 DHW mixing valve |
| 6 Patented hot-only immersion exchanger | 15 Sand trap filter | 25 Manifold fan coil system |
| 7 DHW heat exchanger in finned copper | 16 Drain cock | 26 Magnetic dirt separator |
| 8 Inverter system circulator | 17 Safety valve | |
| 9 Jolly air vent valve | 18 Domestic hot water delivery | |
| | 19 Domestic cold water delivery | |

Dimensions of hot / cold technical accumulators VT SUPER HUB RADIATOR TOP

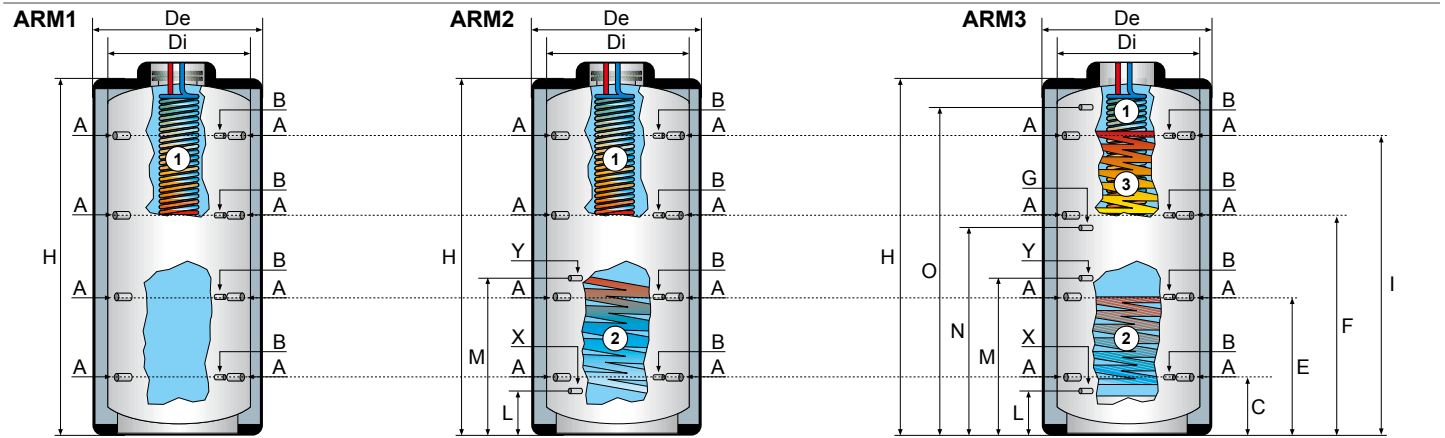


Model	U.M.	300	500	800
De	mm	600	750	990
Di	mm	500	650	790
H	mm	1545	1605	1665
C	mm	225	222	222
E	mm	596	615	655
F	mm	840	860	840
I	mm	1080	1105	1145
L	mm	1340	1355	1385
M	mm	642	642	642
A		2"	2" 1/2	3"
B		1/2"	1/2"	1/2"
R		1" 1/4	1" 1/4	1" 1/2
P		1" 1/2	1" 1/2	1" 1/2
SF		1/2"	1/2"	1/2"
Insulation thickness	mm	50	50	100
Pressure max	bar	4	4	4
Temperature min / max	°C	4 / 95	4 / 95	4 / 95
Thermal dispersion	W	93,0	94,1	117,5
Unladen / operating weight	Kg	80 / 378	114 / 609	146 / 941

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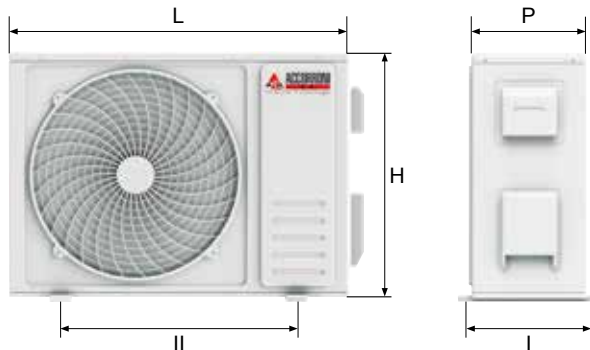
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Dimensions and technical characteristics of technical accumulations ARM1 - ARM2 - ARM3 SUPER HUB RADIATOR TOP



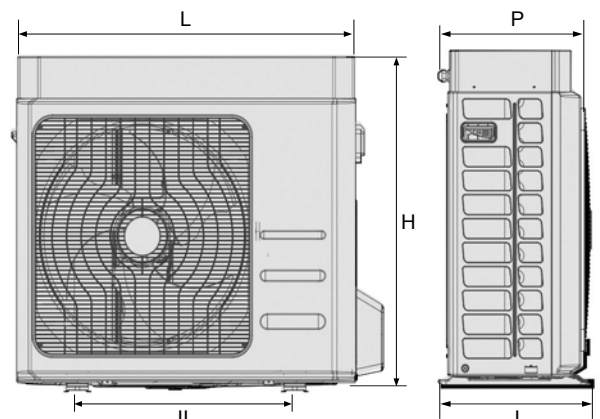
Technical accumulation dimensions	U.M.	300	500	800	1000	1500	2000
De	mm	600	750	1050	1050	1260	1360
Di	mm	500	650	790	790	1000	1100
H	mm	1595	1645	1750	2110	2115	2380
C	mm	215	240	275	275	340	370
E	mm	595	615	655	810	765	930
F	mm	1080	1105	1145	1355	1400	1435
I	mm	1350	1375	1410	1755	1725	1945
L	mm	290	315	355	350	420	450
M	mm	810	835	875	1035	1080	1090
N	mm	930	955	1015	1195	1220	1230
O	mm	1290	1315	1345	1675	1620	1710
X - Y - G - D		1"	1"	1"	1"	1"	1"
A		1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
B		1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Technical water volume	l	289,8	499,8	749,3	931,0	1472,4	1950,0
Sup. Exchange removable DHW (1)	m ²	4,54	4,54	5,26	5,26	6,34	6,34
Sup. Exchange fixed lower (2)	m ²	1,4	2,0	2,5	3,5	4,0	4,8
Sup. Exchange fixed upper (3)	m ²	1,1	1,8	2,0	2,5	2,8	3,8
Insulation thickness	mm	50	50	100	100	100	100
Accumulation operating pressure	bar	4	4	4	4	4	4
Max operating temperature	°C	95	95	95	95	95	95
Working pressure fixed exchangers	bar	12	12	12	12	12	12
Thermal dispersion	W	57,3	69,7	109,9	113,8	132,8	143,5
Empty weight ARM1	Kg	81	115	148	186	232	308
Empty weight ARM2	Kg	92	129	168	208	260	356
Empty weight ARM3	Kg	101	143	186	231	288	386

External booster dimensions HR 3.0 - 7.8



Outdoor Unit Models	L	H	P	I	II	weight
	mm	mm	mm	mm	mm	kg
Booster HR 3.0	700	552	256	275	435	33
Booster HR 7.8	902	650	307	350	620	55

External booster dimensions HR 9.0 INVERTER



Outdoor 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

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DHW available in a single tap (storage 55 ° C / leaving water 40 ° C) - summer operation (liters) Recovery time from 40 ° C to 55 ° C - summer operation (hours)

Model	3.0 / 7.8	7.8 / 7.8	7.8 / 7.8x2	7.8 / 7.8x3	7.8x2 / 7.8x2	7.8x2 / 7.8x3	7.8x2 / 7.8x4	7.8x4 / 7.8x4
300 + 300*	165 - 1,68		173 - 0,64			179 - 0,32		208 - 0,16
500 + 300*	275 - 2,80		288 - 1,07			300 - 0,54		346 - 0,26
500 + 500*	275 - 2,80		288 - 1,07			300 - 0,54		346 - 0,26
800 + 300*	440 - 4,49		462 - 1,72			482 - 0,86		556 - 0,42
800 + 500*	440 - 4,49		462 - 1,72			482 - 0,86		556 - 0,42
800 + 800*	440 - 4,49		462 - 1,72			482 - 0,86		556 - 0,42
1000 + 300*	825 - 5,61		666 - 2,15			679 - 1,08		692 - 0,52
1000 + 500*	825 - 5,61		666 - 2,15			679 - 1,08		692 - 0,52
1000 + 800*	825 - 5,61		666 - 2,15			679 - 1,08		692 - 0,52

*the first figure refers to the hot only storage mod. ARM1 / 2, the second digit refers to the hot / cold storage mod. VT

Model	3.0 / 9.0	9.0 / 9.0	9.0 / 9.0x2	9.0 / 9.0x3	9.0x2 / 9.0x2	9.0x2 / 9.0x3	9.0x2 / 9.0x4	9.0x4 / 9.0x4
300 + 300*	165 - 1,68		178 - 0,58			179 - 0,29		213 - 0,15
500 + 300*	275 - 2,80		295 - 0,99			300 - 0,50		354 - 0,24
500 + 500*	275 - 2,80		295 - 0,99			300 - 0,50		354 - 0,24
800 + 300*	440 - 4,49		472 - 1,58			488 - 0,79		569 - 0,38
800 + 500*	440 - 4,49		472 - 1,58			488 - 0,79		569 - 0,38
800 + 800*	440 - 4,49		472 - 1,58			488 - 0,79		569 - 0,38
1000 + 300*	825 - 5,61		687 - 1,98			696 - 0,99		708 - 0,48
1000 + 500*	825 - 5,61		687 - 1,98			696 - 0,99		708 - 0,48
1000 + 800*	825 - 5,61		687 - 1,98			696 - 0,99		708 - 0,48

*the first figure refers to the hot only storage mod. ARM1 / 2, the second digit refers to the hot / cold storage mod. VT

DHW available in a single tap (storage 55 ° C / leaving water 40 ° C) - winter operation (liters) Recovery time from 40 ° C to 55 ° C - winter operation (hours)

Model	3.0 / 7.8	7.8 / 7.8	7.8 / 7.8x2	7.8 / 7.8x3	7.8x2 / 7.8x2	7.8x2 / 7.8x3	7.8x2 / 7.8x4	7.8x4 / 7.8x4
300 + 300*	330 - 0,89	346 - 0,64	349 - 0,43	352 - 0,32		359 - 0,26	362 - 0,21	370 - 0,16
500 + 300*	440 - 1,18	461 - 0,85	465 - 0,57	470 - 0,43		479 - 0,35	483 - 0,28	492 - 0,21
500 + 500*	550 - 1,48	576 - 1,07	581 - 0,72	587 - 0,54		598 - 0,43	604 - 0,35	616 - 0,26
800 + 300*	605 - 1,62	635 - 1,17	640 - 0,77	647 - 0,59		660 - 0,48	666 - 0,39	680 - 0,30
800 + 500*	715 - 1,92	750 - 1,39	758 - 0,93	765 - 0,69		780 - 0,56	787 - 0,45	802 - 0,34
800 + 800*	880 - 2,38	924 - 1,72	942 - 1,15	942 - 0,86		956 - 0,70	946 - 0,55	964 - 0,42
1000 + 300*	715 - 1,94	750 - 1,40	758 - 0,94	765 - 0,70		776 - 0,57	784 - 0,46	800 - 0,35
1000 + 500*	825 - 2,22	865 - 1,61	873 - 1,09	882 - 0,81		895 - 0,66	904 - 0,53	922 - 0,40
1000 + 800*	990 - 2,22	1039 - 1,93	1045 - 1,30	1060 - 0,97		1074 - 0,79	1084 - 0,64	1106 - 0,49

*the first figure refers to the hot only storage mod. ARM1 / 2, the second digit refers to the hot / cold storage mod. VT

Model	3.0 / 9.0	9.0 / 9.0	9.0 / 9.0x2	9.0 / 9.0x3	9.0x2 / 9.0x2	9.0x2 / 9.0x3	9.0x2 / 9.0x4	9.0x4 / 9.0x4
300 + 300*	330 - 0,85	346 - 0,59	352 - 0,40	352 - 0,29		359 - 0,24	362 - 0,19	370 - 0,14
500 + 300*	440 - 1,12	461 - 0,78	470 - 0,53	470 - 0,40		479 - 0,32	483 - 0,26	492 - 0,19
500 + 500*	550 - 1,41	576 - 0,99	587 - 0,66	587 - 0,50		598 - 0,40	604 - 0,32	616 - 0,24
800 + 300*	605 - 1,54	635 - 1,08	647 - 0,72	647 - 0,54		660 - 0,44	666 - 0,36	680 - 0,27
800 + 500*	715 - 1,83	750 - 1,28	765 - 0,86	765 - 0,64		780 - 0,52	787 - 0,41	802 - 0,31
800 + 800*	880 - 2,27	924 - 1,59	942 - 1,06	942 - 0,79		956 - 0,65	946 - 0,50	964 - 0,39
1000 + 300*	715 - 1,85	750 - 1,29	765 - 0,87	765 - 0,65		776 - 0,52	784 - 0,42	800 - 0,32
1000 + 500*	825 - 2,11	872 - 1,48	882 - 1,01	882 - 0,75		895 - 0,61	904 - 0,49	922 - 0,37
1000 + 800*	990 - 2,11	1039 - 1,78	1060 - 1,20	1060 - 0,89		1074 - 0,73	1084 - 0,59	1106 - 0,45

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Technical data table Booster SUPER HUB RADIATOR TOP hot / cold

DESCRIPTION	U.M.	HR 3.0 only heat	HR 7.8 only heat	HR 3.0 Hot/Cold	HR 7.8 Hot/Cold	HR 9.0 inverter only heat	HR 9.0 inverter Hot/Cold
Thermal power(1)	kW	3,11	8,12	3,11	8,12	3,54/8,01/8,81*	3,54/8,01/8,81*
Absorbed power (1)	kW	0,74	1,96	0,74	1,96	1,89	1,89
C.O.P. (1)	W/W	4,20	4,14	4,20	4,14	4,24	4,24
Thermal power(2)	kW	2,97	7,75	2,97	7,75	2,85/7,92/8,71*	2,85/7,92/8,71*
Absorbed power (2)	kW	0,94	2,52	0,94	2,52	2,39	2,39
C.O.P. (2)	W/W	3,16	3,07	3,16	3,07	3,31	3,31
Thermal power(3)	kW	2,58	6,73	2,58	6,73	2,54/7,04/7,74*	2,54/7,04/7,74*
Absorbed power (3)	kW	0,74	2,00	0,74	2,00	2,15	2,15
C.O.P. (3)	W/W	3,48	3,37	3,48	3,37	3,52	3,52
Thermal power(4)	kW	2,47	6,44	2,47	6,44	2,46/6,82/7,50*	2,46/6,82/7,50*
Absorbed power (4)	kW	0,94	2,54	0,94	2,54	2,74	2,74
C.O.P. (4)	W/W	2,67	2,53	2,67	2,53	2,68	2,68
Thermal power(5)	kW	2,11	5,52	2,11	5,52	2,31/6,41/7,05*	2,31/6,41/7,05*
Absorbed power (5)	kW	0,75	2,00	0,75	2,00	2,31	2,31
C.O.P. (5)	W/W	2,81	2,76	2,81	2,76	3,04	3,04
Thermal power(6)	kW	1,99	5,20	1,99	5,20	2,25/6,25/6,88*	2,25/6,25/6,88*
Absorbed power (6)	kW	0,94	2,53	0,94	2,53	2,78	2,78
C.O.P. (6)	W/W	2,11	2,05	2,11	2,05	3,39	3,39
S.C.O.P. (7)	W/W	3,78	3,71	3,78	3,71	3,94	3,94
Seasonal heating efficiency(η _s)	%	153,1	150,3	153,1	150,3	159,62	159,62
Refrigeration power (8)	kW	-	-	2,94	7,24	-	4,91/7,72/8,49*
Absorbed power (8)	kW	-	-	0,72	1,89	-	1,76
E.E.R. (8)	W/W	-	-	4,08	3,82	-	4,38
Refrigeration power (9)	kW	-	-	2,63	5,84	-	3,80/6,08/6,69*
Absorbed power (9)	kW	-	-	0,89	2,20	-	1,99
E.E.R. (9)	W/W	-	-	2,95	2,65	-	3,05
S.E.E.R. (9)	W/W	-	-	3,67	3,32	-	4,25
Energy efficiency class (10)		A / A++				A++ / A++	
Compressor type		Rotation ON-OFF				Twin Rotary DC INVERTER	
Compressors		1					
Refrigerant circuits		1					
Defrosting method		Inversione di ciclo con condensatore ad immersione					
Type of refrigerant		R410A					
Technical water temperature min / max	°C	+ 30 / + 58		+ 4 / + 58		+ 30 / + 58	+ 4 / + 58
Refrigerant quantity (pre-inserted)	Kg	1,1	2,0	1,1	2,0	2,2	2,2
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"	5/8"	3/8"	5/8"	5/8"	5/8"
Coolant line connection		1/4"	1/4"	1/4"	1/4"	3/8"	3/8"
Sound power (11)	dB(A)	65,1	68,4	65,1	68,4	64,0	64,0
Sound pressure at one meter(12)	dB(A)	51,2	54,7	51,2	54,7	49,8	49,8
Outdoor temperature operating limits	°C	-15 / +45				-20 / +46	
Power supply		230V/1/50Hz					
Max absorbed power	kW	0,94	2,53	0,94	2,53	4,70	4,70
Max absorbed current	A	4,30	11,57	4,30	11,57	20,40	20,40
Weight	Kg	33	55	33	55	62	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 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: outside 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 d.b. ; inlet / outlet water temperature 23/18 °C

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

(10) Water 35 °C / 55 °C

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

(12) Value calculated according to ISO 3744: 2010