Unical

HEAT PUMPS

DOMESTIC AND PROFESSIONAL RANGE

DOMESTIC RANGE

MODELS	DESCRIPTION		HEATING CAPACITY (1) kW (min.-max.)	COOLING CAPACITY (2) kW (min.-max.)	C.O.P. (1)	E.E.R. (2)
HP_QOR 70÷140T	Enbloc full inverter heat pumps		from 6.50 to 14.10	from 6.50 to 13.90	4.70-5.30	4.40-5.10
HP_OWER ONE 70R D1÷180R	Enbloc full inverter heat pumps		from 6.08 to 17.90	from 6.18 to 17.10	4.32-4.85	4.16-5.40

MODELS	DESCRIPTION		HEATING CAPACITY (3) kW	D.H.W. TANK CAPACITY	C.O.P. (4)	ELECTRICAL RESISTANCE kW
HP 110	Wall hung heat pump for D.H.W. Production		0.85	110 l	3.01 (profile M)	1.5
HP 230	Heat pump for D.H.W. Production		2.06	228 l	2.64 (profile L)	1.2
HP 300S	Heat pump for D.H.W. Production		2.06	278 l	2.85 (profile XL)	1.2

(1) Heating mode: outdoor working temperature 7°C d.b., 6°C w.b.; water temp. inlet/outlet 30/35°C.
(2) Cooling mode: outdoor working temp. 35°C; water temp. inlet/outlet 23/18°C
(3) ambient temperature 20°C, water temperature from 15°C to 55°C

(4) Energy efficiency of water heating based on ERP regulation (EN 16147), Room temperature 7°C / 6°C, water temperature from 10°C to 55°C.

HP_QOR 70÷140T | HP_OWER ONE 70-90 RD1 | HP_OWER ONE 120 R-RT | HP_OWER ONE 140R-160RT-180 R

PROFESSIONAL RANGE

MODELS	DESCRIPTION		HEATING CAPACITY [1] kW (min.-max.)	COOLING CAPACITY [2] kW (min.-max.)	C.O.P. [1]	E.E.R. [2]
HP_OWER 260-320RK	Power heat pumps		26.0-32.1	26.2-31.4	4.04- 4.09	4.44-4.71
HP_OWER 500-700RK	Power heat pumps		50.2-66.8	55.3-66.0	4.10-4.11	3.98-4.25
HP_OWER 500-700RK A400	Power heat pumps (with integrated storage)		50.2-66.8	55.3-66.0	4.10-4.11	3.98-4.25
HP_OWER 1150N	Power heat pumps (with double refrigerant circuit)		111.47	139.3	3.90	3.65

(1) Heating mode: outdoor working temperature 7°C d.b., 6°C w.b.; water temp. inlet/outlet 30/35°C.
(2) Cooling mode: outdoor working temp. 35°C; water temp. inlet/outlet 23/18°C.

HP_OWER 260-320 RK HP_OWER 500-700 RK A400 HP_OWER 1150N

Unical, always attentive and at the forefront of **environment sustainability** and **energy saving**, offers numerous solutions in heat pump, ideal for both, residential systems (single and multi-family houses) and for commercial/industrial buildings.

Efficient alternative to traditional heating systems, the system with HEAT PUMP allows you to reach the required comfort, using **clean energy**, withdrawn and transferred

from the external air to the internal environment (or vice versa), drastically reducing CO_2 emissions, of all greenhouse gases, plus ensure **significant cost saving**s for the user.

The **advanced integrated electronics** allow to enhance performance of the machine and overcome the limits of technology in case of significantly unfavourable climatic conditions, by activating backup generators (gas and/or electric) automatically.

Unical offers solutions for **heating**, **cooling** and **domestic hot water production**, designed to widely customize plant configurations, responding to needs of the client.

CONTENTS

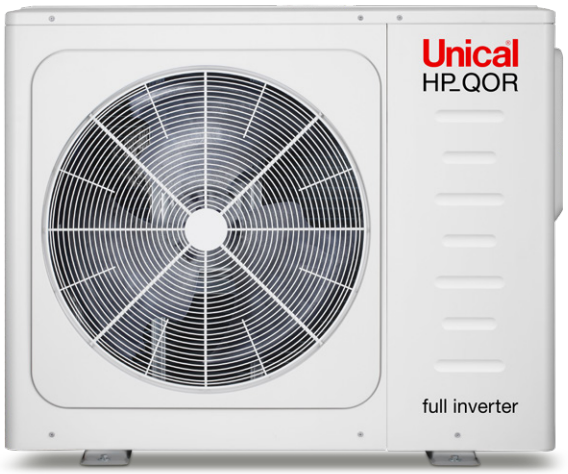
DOMESTIC

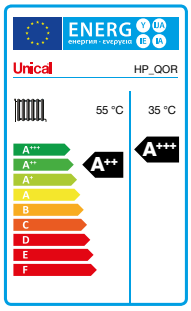
PROFESSIONAL

Enbloc full inverter heat pumps

High Efficiency air-to-water heat pump,
Full inverter available in 4 models

- **Efficiency Class A+++**
  COP up to 5,30 - EER up to 5,10
- **Flow temperatures up to 65°C**
- **Flow temperature of 60°C stably guaranteed** at low outside temperatures down to a temperature of -15°C
- **DC INVERTER Twin Rotary Compressor** with double compression chamber with balanced rotors: best modulation, higher stability, low vibration and greater silence
- 40% **reduction in reaction and ignition time**
- **DC INVERTER circulator**: high manometric head
- Operation up to **-25°C outside**
- **Compact dimensions** for the entire power range, guarantee of installation flexibility
- **DC INVERTER BRUSHLESS fan**
  with high modulation and low noise
- **PRE-ASSEMBLED hydronic kit**
  composed of: 3 bar safety valve, air relief valve, INVERTER circulator, circulation flow switch, 5 litre expansion vessel, water inlet filter
- **Water-to-gas plate** heat exchanger in high efficiency stainless steel, patented for R32
- **Air-to-gas exchanger** made of copper pipes with aluminium fins anti-corrosion treated
- **R32 refrigerant**
  with low environmental impact
- **Standard digital remote control**
  for managing the heat pump and system functions
- Possible configuration of **up to 6 machines in cascade with standard setting**
- **ModBus serial port** for remote management
- **D.H.W. production** with dedicated external storage
- **Integration source management**
- **Double zone** and **double setpoint management**
- **Integrated climatic regulation**
  customizable by area
- HOLIDAY function, FLOOR PROTECTION and ANTI-LEGIONELLA
- Adjustable **double level of silence**
- **Inlet absorbed power limitation**
- **Dedicated inlet for PHOTOVOLTAIC ENERGY OPTIMIZATION FOR D.H.W. PRODUCTION**
- **Antifreeze kit** for integrated plate heat exchanger



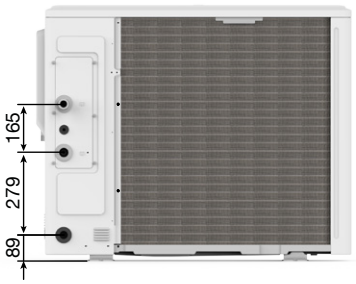


ErP

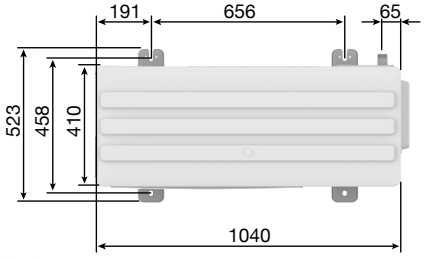
side view

front view

rear view



upper view



HP_QOR			70	90	120	140T
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++
Cooling	Cooling capacity (1)	kW	6.50	8.30	12.20	13.90
	Input power (1)	kW	1.27	1.71	2.65	3.16
	E.E.R. (1)	W/W	5.10	4.85	4.60	4.40
	Cooling capacity (2)	kW	5.50	7.40	11.60	13.40
	Input power (2)	kW	1.69	2.35	3.74	4.57
	E.E.R. (2) / S.E.E.R. (5)	W/W	3.25 / 5.09	3.15 / 5.19	3.10 / 5.07	2.93 / 5.09
	Water flow rate (2)	l/s	0.31	0.40	0.58	0.66
Heating	Heating capacity (3)	kW	6.50	8.40	12.20	14.10
	Input power (3)	kW	1.23	1.66	2.49	3.00
	C.O.P. (3)	W/W	5.30	5.05	4.90	4.70
	Heating capacity (4)	kW	6.60	8.50	12.50	14.50
	Input power (4)	kW	1.65	2.24	3.38	4.09
	C.O.P. (4) / S.C.O.P. (6)	W/W	4.00 / 5.12	3.80 / 5.17	3.70 / 5.08	3.55 / 4.89
	Water flow rate (3)	l/s	0.31	0.40	0.58	0.67
Electric data	Power supply	V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50	380-415/3/50
	Maximum input power	kW	3.2	3.5	5.8	6.2
	Maximum input current	A	18	18	30	14
R32 Refrigerant quantity (7)		kg	1.25	1.25	1.80	1.80
Hydraulic circuit	Available head pressure (2)	kPa	82	77	54	48
	Hydraulic connections		G1"BSP	G1"BSP	G5/4"BSP	G5/4"BSP
	Minimum volume of water	l	40	40	60	60
Sound power L_w (8)		dB(A)	48	51	56	59
Operating / Shipping weight		kg	87 / 103	87 / 103	106 / 122	120 / 136

Performance referring to the following conditions, in accordance with the EN 14511 standard:

(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C
(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/ 7°C.
(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.
(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.
(5) Raffreddamento: temperatura acqua ing./usc. 12/7°C.
Heating: average climatic conditions; Tbiv=-7°C; low temperature.

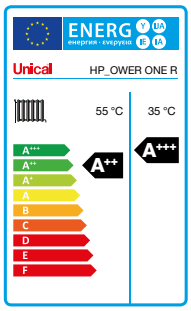
(7) Indicative data subject to changes. For the correct value, always refer to the technical label on the unit.
(8) Sound pressure measured at a distance of 1 m, in front of the unit at a height equal to (1+H)/2 m in a semi-anechoic chamber (outside temperature 7°C d.b.).

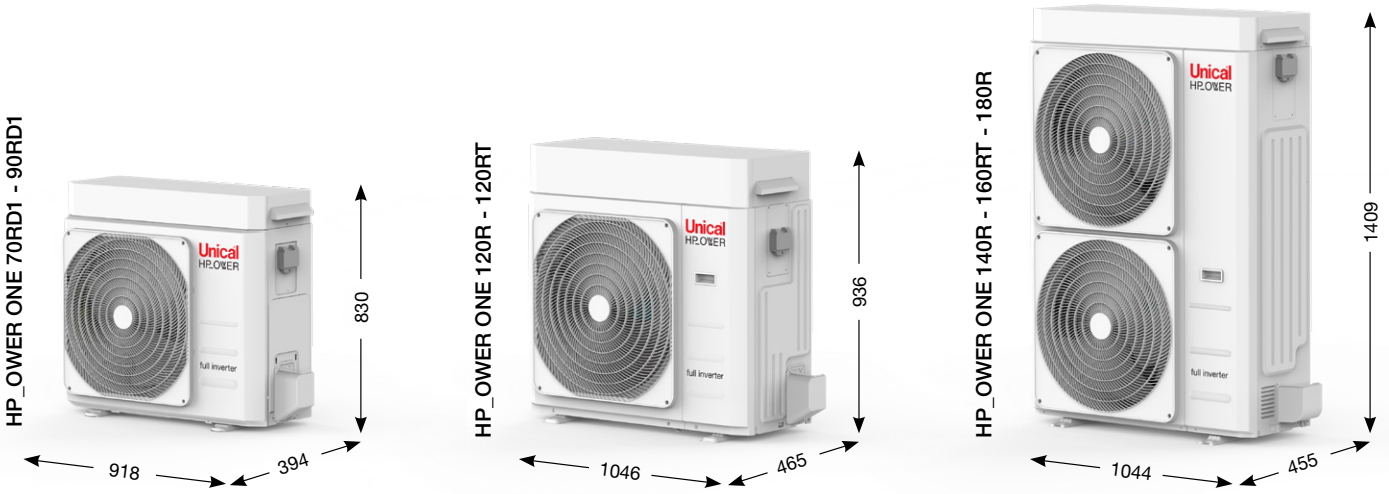
N.B. The performance data shown are indicative and may be subject to change. Furthermore, the figures declared in points (1), (2), (3) and (4) are to be understood as referring to the instantaneous power according to EN 14511. The data declared in points (5) and (6) are determined according to EN 14825.

Enbloc full inverter heat pumps

Air-water, full inverter, high efficiency heat pump, available in 7 models

- **Efficiency Class A+++**
  C.O.P. up to 4.85 - E.E.R. up to 5.40
- Possibility to configure **in cascade up to 7 machines**
- Low absorption and noisiness, twin rotary, **DC INVERTER compressor**
- **DC INVERTER BRUSHLESS fan motors**
- **INVERTER circulators with high efficiency BRUSHLESS MOTOR**
- **Flow temperatures** up to 60°C
- **Operation up to -20°C**
- **PREASSEMBLED hydronic kit** composed of: safety valve at 6 bar, air vent, INVERTER circulator, circulation flow-switch
- High efficiency, stainless steel, **water/gas plate heat exchanger**, patented for **R32**
- **D.H.W. production** through a dedicated storage tank
- **Air-gas heat exchanger** made of copper pipes with aluminium fins and anti-corrosion treatment
- **Refrigerant R32**
- **Integrated digital regulator**
- **Touch screen remote control (optional)**
- **Management of integration source** through integral climatic controller
- **Standard supplied thermo-controller** with management of modulating flow temperature
- **Management through outer controller** with 0-10 V signal (optional)
- Management through **external ON-OFF programmer** (optional)
- **Automatic management** of electric heater for D.H.W. tank
- **Automatic defrosting function**
- **Compressor case pre-heating** for low temperatures
- **Auto-restart**
- **Self-diagnosis**





HP_OWER ONE			70RD1	90RD1	120R	120 RT	140R	160RT	180R
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++
Cooling	Cooling capacity (1) min-nom-max	kW	4.82-6.18-6.80*	4.91-7.72-8.49*	6.41-11.60-12.76*	6.41-11.60-12.76*	9.17-14.00-14.70*	9.20-15.80-16.59*	9.09-17.10-17.96*
	Input power (1)	kW	1.28	1.76	2.79	2.79	2.59	3.15	3.59
	E.E.R. (1)	W/W	4.82	4.38	4.16	4.16	5.40	5.02	4.76
	Cooling capacity (2) min-nom-max	kW	3.20-5.02-5.52*	3.80-6.08-6.69*	4.55-8.51-9.36*	4.55-8.51-9.36*	6.87-11.48-12.05*	5.99-13.80-14.49*	6.86-15.04-15.79*
	Input power (2)	kW	1.60	1.99	2.79	2.79	3.53	4.38	4.88
	E.E.R. (2) / S.E.E.R. (5)	W/W	3.14 / 4.12	3.05 / 4.25	3.05 / 4.25	3.05 / 4.25	3.25 / 4.62	3.15 / 4.80	3.08 / 4.91
Heating	Heating capacity (3) min-nom-max	kW	3.95-6.08-6.99*	3.95-7.81-8.98*	5.33-11.30-13.57*	5.33-11.30-13.57*	7.54-14.10-15.23*	7.36-16.30-17.60*	7.30-17.90-19.33*
	Input power (3)	kW	1.35	1.78	2.61	2.61	2.91	3.49	4.07
	C.O.P. (3)	W/W	4.51	4.38	4.32	4.32	4.85	4.67	4.40
	Heating capacity (4) min-nom-max	kW	3.82-5.88-6.76*	3.80-7.58-8.72*	5.13-11.47-13.19*	5.13-11.47-13.19*	7.23-13.56-14.64*	7.06-15.77-17.03*	7.02-17.32-18.71*
	Input power (4)	kW	1.66	2.17	3.33	3.33	3.55	4.24	4.92
	C.O.P. (4) / S.C.O.P. (6)	W/W	3.54 / 4.46	3.50 / 4.46	3.44 / 4.47	3.44 / 4.47	3.82 / 4.48	3.72 / 4.50	3.52 / 4.46
Electric data	Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	400/3/50	230/1/50	400/3/50	400/3/50
	Maximum input power (vers. K)	kW	3.5 (3.6)	3.9 (4.0)	5.1 (5.2)	5.1 (5.2)	6.6 (6.7)	7.0 (7.1)	8.3 (8.5)
	Maximum input current (vers. K)	A	15.1 (15.6)	17.0 (17.6)	22.1 (22.7)	7.3 (7.5)	28.6 (29.2)	10.1 (10.3)	12.0 (12.2)
R32 Refrigerant quantity (7)		kg	1.5	1.5	2.5	2.5	3.2	3.5	3.5
Hydraulic circuit	Water flow rate (2)	l/s	0.24	0.28	0.41	0.41	0.55	0.66	0.71
	Available head pressure (2)	kPa	78.8	76.0	63.4	63.4	75.0	62.3	55.6
	Minimum volume of water	l	40	40	60	60	60	70	70
Noise level	Sound power at full load L_w	dB(A)	64	64	65	65	68	68	68
	Sound power at partial load L_w	dB(A)	49.8	49.8	50.4	50.4	52.7	52.7	52.7
	Sound pression level at a dist. of 1m at full load L_{p1}	dB(A)	32.8	32.8	33.7	33.7	36.6	36.6	36.6
	Sound pression level at a dist. of 10m at full load L_{p10}	dB(A)	72 / 84	72 / 84	96 / 110	108 / 122	121 / 134	141 / 154	141 / 154
	Sound pression level at a dist. of 1m at partial load L_{p1}	dB(A)	47,8	47,8	47,4	47,4	50,7	50,7	34,6
	Sound pression level at a dist. of 10m at partial load L_{p10}	dB(A)	30,8	30,8	30,7	30,7	34,6	50,7	34,6
Operating / Shipping weight		kg	72 / 84	72 / 84	96 / 110	108 / 122	121 / 134	141 / 154	141 / 154

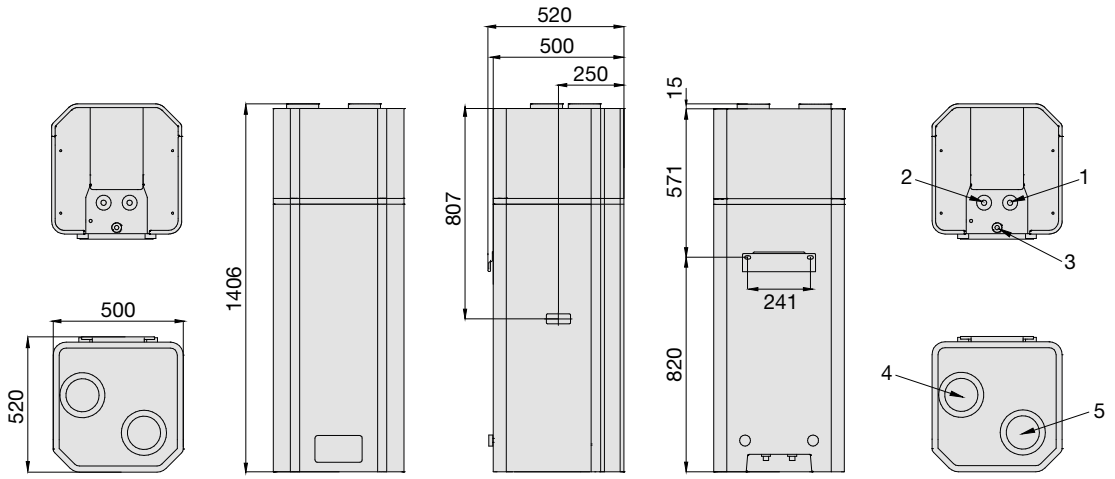
Performance referring to the following conditions:

(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C
(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/ 7°C.
(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.
(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.
(5) Cooling: in/out water temperature 7/12°C.
(6) Heating: average climatic conditions; T_{biv}=-7°C; in/out water temp 30/35°C.
(7) Indicative data subject to changes. For the correct value, always refer to the technical label on the unit.
(*) activating the "maximum Hz" function

Performance data declared in points (1), (2), (3) and (4) is intended to refer to instantaneous power according to UNI EN 14511. The value declared in point (5) and (6) is determined according to UNI EN 14825

Wall hung heat pump for D.H.W. Production

- **D.H.W. production** up to 70°C
- **110 litres storage tank** with double anticorrosion enamelling, “made in Italy”
- **Total insulation** in high thickness PU foam
- **Anti-contamination** and **anti-encrustation** copper coil heat exchanger outside the storage tank
- Magnesium anode
- Operational temperature range: -5 / +43 °C
- Integrated **touch screen** control
- Integrated **anti-legionella** function
- **Fixing template** for simplified wall installation
- Hydraulic connections positioned in the lower part
- Dedicated contact for **photovoltaic energy optimization** with automatic set-point temperature raising of the D.H.W. production
- **Rotary compressor** for maximum efficiency and quietness of the unit
- **ON-OFF contact** to start the unit from external switch
- **Integrated electric heater** 1.5 kW
- **Easy maintenance** thanks to the possibility to cut off the refrigerant circuit independently from the water circuit
- **Electronic expansion valve**
- Timer
- **Auto-restart** with automatic restart in case of electrical blackout
- **Self-diagnosis**
- Smart solution for indoor installations in residential applications
- **External cladding in painted sheet metal** with epoxy powders
- **Antifreeze** function
- Available operating modes: Green, Boost, E-heater, Auto, Fan



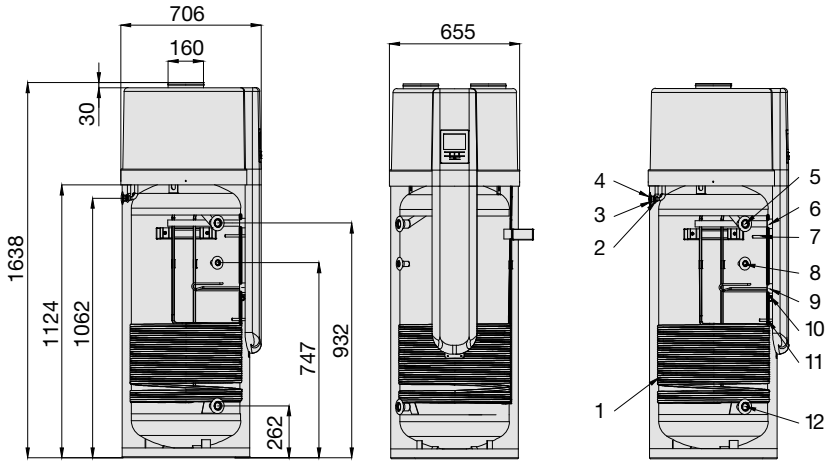
1 Cold water inlet R 1/2”
2 Hot water outlet R 1/2”
3 Condensate drain ø 18 mm
4 Air outlet ø 125 mm
5 Air inlet ø 125 mm

		HP 110
Efficiency class		A+
Power supply	v/Ph/Hz	230V/1/50Hz
Water tank actual capacity	l	110
Nominal output / nominal input	w	850* (+1500**) / 236*(+1500**)
Nominal current	a	1.14* (+6.5**)
COP_{DHW} (1)	W/W	3.01
COP_{DHW} (2)	W/W	3.31
Max. Absorbtion	w	400 (+1500**)
Max. Current	a	1.81 (+6.5**)
Max. Outlet water temperature (without using E-heater)	°C	60
Max. Water temperature	°C	70**
Ambient working temperature	°C	-5 / +43
Heating time starting from cold tank (3)	h:min	5:07
R134a refrigerant charge	g	650
Fan motor power	w	20
Fan air flow	m^3/h	300
Static pressure	pa	60
Ducts diameter	mm	125
Max allowed tank pressure	bar	6
Materials of inside tank surface		S235JR with double vitrified layer
Auxiliary electrical heater	kW	1.5
Heat exchanger material of heat pump (condenser)		copper
IP protection class		IPX1
Dry weight / weight with full water	kg	72 / 182
Acoustic power (***)	dB (A)	48.5

* Capacity and power input based on the following conditions: ambient temperature 20°C, water temperature from 15°C to 55°C (these data are obtained by internal laboratory tests based on the uniform reintegration of the tank temperature).
** related to the supplementary e-heater. During disinfection, the water temp could be up to 70°C by electrical heater.
*** measured according to EN 1210 standard: ducted unit in/out 2 m.
(1) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile M - Room temperature 7°C / 6°C - Water temperature from 10°C to 55°C.
(2) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile M - Room temperature 14°C / 12°C - Water temperature from 10°C to 55°C.
(3) Uniform reinstatement of tank temperature according to EN 16147, with ambient temperature 20°C and water temperature from 10°C to 55°CC.

Heat pump for D.H.W. production

- **D.H.W. production** up to 75°C
- **228 litres storage tank** with double anticorrosion enamelling, “made in Italy”
- Magnesium anode
- **Total insulation** in PU foam, 50 mm thick
- **Anti-contamination** and **anti-encrustation** aluminium coil heat exchanger outside the storage tank
- Operational temperature range: -10 / +43 °C
- Integrated **touch screen** control
- Integrated **anti-legionella** function
- **Integrated electric heater** 1.2 kW
- Management of the D.H.W. recirculation pump
- **Rotary compressor** for maximum efficiency and quietness of the unit
- **ON-OFF contact** to start the unit from external switch
- Dedicated contact for **photovoltaic energy optimization** with automatic set-point temperature raising of the D.H.W. production
- **Easy maintenance** thanks to the possibility to cut off the refrigerant circuit independently from the water circuit
- **Electronic expansion valve**
- Timer
- **Auto-restart** with automatic restart in case of electrical blackout
- **Self-diagnosis**
- **Antifreeze** function
- Optimum solution for installation in laundries or in storerooms for foodstuffs, as it **dehumidifies and cools down the environment**



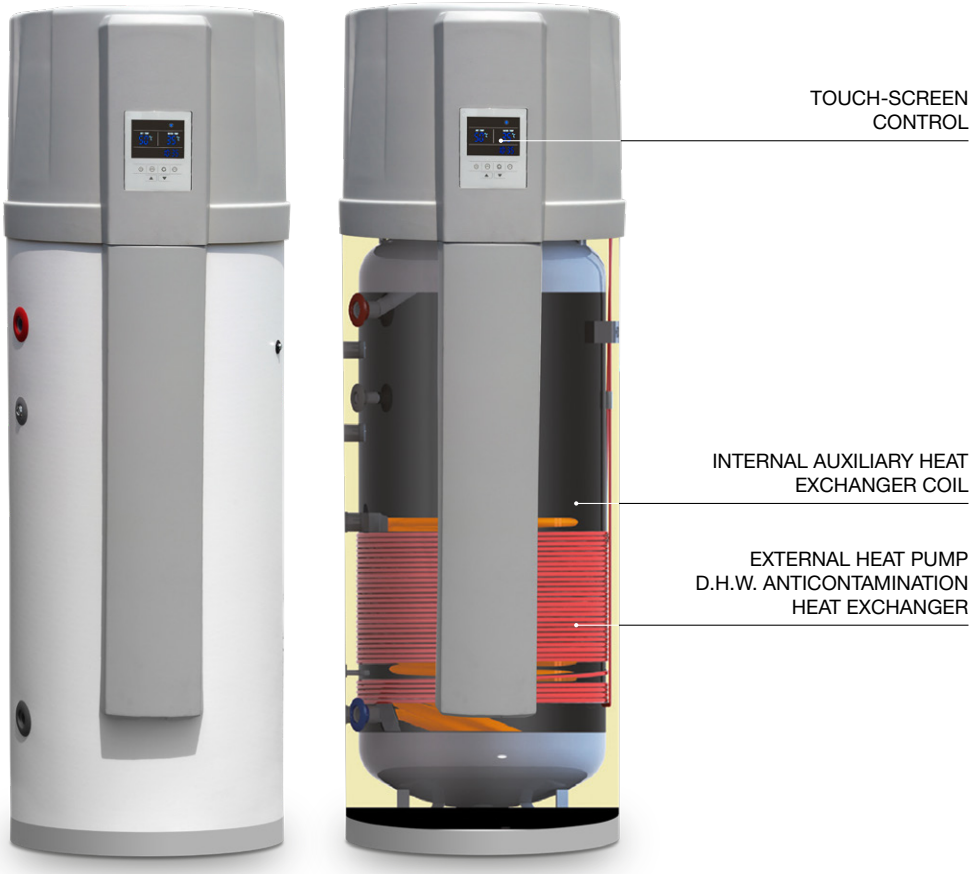
1 Aluminium heat exchanger 3/8”
2 Hole for auxiliary cables ø 17 mm
3 Hole for power supply ø 17 mm
4 Condensate drain ø 22 x 0.3 mm
5 Hot water outlet Rp 1” f.
6 Anti-corrosion magnesium anode 1”¼ f.
7 Upper tank temperature (T3) + thermostat T85°C ø 12 x L 120 mm
8 Connection for re-circulated water Rp ½” f.
9 1200 W auxiliary electric heater with integrated thermostat 1”¼ f.
10 Grounding M6
11 Lower tank temperature (T2) ø 12 x L 90 mm
12 Cold water inlet Rp 1” f.

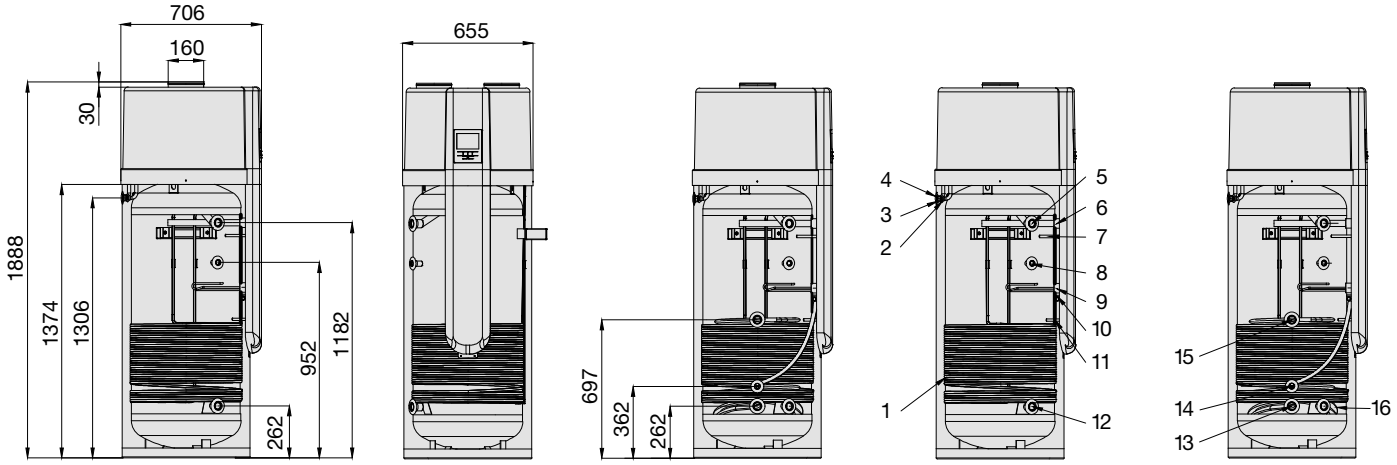
		HP 230
Efficiency class		A
Power supply	v/Ph/Hz	230V/1/50Hz
Water tank actual capacity	l	228
Nominal output / nominal input	w	2060* (+1200**) / 700* (+1200**)
Nominal current	a	2.21* (+5.2**)
COP_{DHW} (1)	W/W	2.64
COP_{DHW} (2)	W/W	2.81
Max. Absorbtion	w	765 (+1200**)
Max. Current	a	3.2 (+5.2**)
Max. Outlet water temperature (without using E-heater)	°C	65
Max. Water temperature	°C	75**
Ambient working temperature	°C	-10 / +43
Heating time starting from cold tank (3)	h:min	5:38
R134a refrigerant charge	g	920
Fan motor power	w	80
Fan air flow	m^3/h	350
Static pressure	pa	60
Ducts diameter	mm	160
Max allowed tank pressure	bar	10
Materials of inside tank surface		S235JR with double vitrified layer
Tank transmittance (kboll) (*****)	W/K	1.73
Auxiliary electrical heater	kW	1.2
Heat exchanger material of heat pump (condenser)		Aluminium alloy
IP protection class		IPX1
Dry weight / weight with full water	kg	98 / 326
Acoustic power (***)	dB (A)	58.2
Acoustic pressure (****)	dB (A)	42.8

* Capacity and power input based on the following conditions: ambient temperature 20°C, water temperature from 15°C to 55°C (these data are obtained by internal laboratory tests based on the uniform reintegration of the tank temperature).
** Related to the supplementary e-heater. During disinfection, the water temp could be up to 70°C by electrical heater.
*** measured according to the EN 12102 standard under the conditions set out in the EN 16147 standard.
**** calculated according to the ISO 3744:2010 algorithm at 1 m from the unit.
***** referred to storage tank with ambient temperature of 20°C and with water in the tank at 65°C.
(1) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile L - Room temperature 7°C / 6°C - Water temperature from 10°C to 55°C.
(2) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile L - Room temperature 14°C / 12°C - Water temperature from 10°C to 55°C.
(3) Uniform reinstatement of tank temperature according to EN16147, with ambient temperature 20°C and water temperature from 10°C to 55°C.

Heat pump for D.H.W. production

- **D.H.W. production** up to 75°C
- **278 litres storage tank** with double anticorrosion enamelling, “made in Italy”
- Magnesium anode
- **Total insulation** in PU foam, 50 mm thick
- **Large exchange** surface heating coil of 1.2 m^2 for auxiliary source
- **Anti-contamination** and **anti-encrustation** aluminium coil heat exchanger outside the storage tank
- Operational temperature range: -10 / +43 °C
- Integrated **touch screen** control
- Integrated **anti-legionella** function
- **Integrated electric heater** 1.2 kW
- **Rotary compressor** for maximum efficiency and quietness of the unit
- **ON-OFF contact** to start the unit from external switch
- Management of the D.H.W. recirculation pump and solar system integration
- Dedicated contact for **photovoltaic energy optimization** with automatic set-point temperature raising of the D.H.W. production
- **Easy maintenance** thanks to the possibility to cut off the refrigerant circuit independently from the water circuit
- **Electronic expansion valve**
- Timer
- **Auto-restart** with automatic restart in case of electrical blackout
- **Self-diagnosis**
- **Antifreeze** function
- Optimum solution for installation in laundries or in storerooms for foodstuffs, as it **dehumidifies and cools down the environment**





1 Aluminium heat exchanger 3/8”
2 Hole for auxiliary cables ø 17 mm
3 Hole for power supply ø 17 mm
4 Condensate drain ø 22 x 0.3 mm
5 Hot water outlet Rp 1” f.
6 Anti-corrosion magnesium anode 1”¼ f.
7 Upper tank temperature (T3) + thermostat T85°C ø 12 x L 120 mm
8 Connection for re-circulated water Rp ½” f.
9 1200 W auxiliary electric heater with integrated thermostat 1”¼ f.
10 Grounding M6
11 Lower tank temperature (T2) ø 12 x L 90 mm
12 Cold water inlet Rp 1” f.
13 Solar water outlet Rp 1” f.
14 Auxiliary tank temperature ø 12 x L 90 mm
15 Solar water inlet Rp 1” f.
16 Solar exchanger coil 1.2 m²

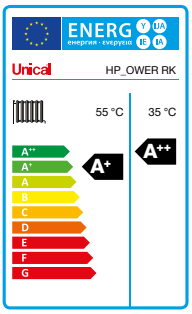
		HP 300S
Efficiency class		A
Power supply	v/Ph/Hz	230V/1/50Hz
Water tank actual capacity	l	278
Nominal output / nominal input	w	2060* (+1200**) / 700* (+1200**)
Nominal current	a	2.21* (+5.2**)
COP_{DHW} (1)	W/W	2.85
COP_{DHW} (2)	W/W	3.03
Max. Absorbtion	w	765 (+1200**)
Max. Current	a	3.2 (+5.2**)
Max. Outlet water temperature (without using E-heater)	°C	65
Max. Water temperature	°C	75**
Ambient working temperature	°C	-10 / +43
Heating time starting from cold tank (3)	h:min	6:57
R134a refrigerant charge	g	920
Fan motor power	w	80
Fan air flow	m³/h	350
Static pressure	pa	60
Ducts diameter	mm	160
Max allowed tank pressure	bar	10
Materials of inside tank surface		S235JR with double vitrified layer
Tank transmittance (kboll) (******)	w/K	2.00
Auxiliary electrical heater	kW	1.2
Heat exchanger material of heat pump (condenser)		Aluminium alloy
Solar exchanger coil surface / auxiliary	m²	1.2
Solar exchanger coil flow rate / auxiliary (***)	m³/h	1.2
Output exchanged by the solar / auxiliary coil (***)	kW	30
Exchanger coil max. Pressure	bar	6
IP protection class		IPX1
Dry weight / weight with full water	kg	121.5 / 399.5
Acoustic power (****)	dB (A)	58.2
Acoustic pressure (*****)	dB (A)	42.8

* Capacity and power input based on the following conditions: ambient temperature 20°C, water temperature from 15°C to 55°C (these data are obtained by internal laboratory tests based on the uniform reintegration of the tank temperature).
** Related to the supplementary e-heater. During disinfection, the water temp could be up to 70°C by electrical heater.
*** Values referring to integration with boiler in accordance with DIN 4708 norms (80/60°C on primary circuit, 10/45°C on secondary circuit).
**** measured according to the EN 12102 standard under the conditions set out in the EN 16147 standard.
***** alculated according to the ISO 3744:2010 algorithm at 1 m from the unit.
****** referred to storage tank with ambient temperature of 20°C and with water in the tank at 65°C.
(1) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile XL - Room temperature 7°C / 6°C - Water temperature from 10°C to 55°C.
(2) Energetic efficiency of water heating, based on ErP Directive (EN 16147) - profile XL - Room temperature 14°C / 12°C - Water temperature from 10°C to 55°C.
(3) Uniform reinstatement of tank temperature according to EN16147, with ambient temperature 20°C and water temperature from 10°C to 55°C.

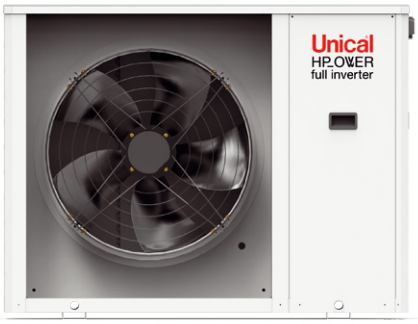
Power heat pumps

Ultra compact heat pumps, full inverter, high efficiency, R32 refrigerant, designed for heating, cooling and DHW production. Outdoor installation.

- **Power range: 26 kW - 32 kW**
- **Energy Class A++**
  C.O.P. up to 4.09 - E.E.R. up to 4.71
- Possibility to configure **in cascade up to 7 machines**
- **Ultra-compact dimensions** in relation to the output power and absorbed power
- Production of hot water up to 60 °C, winter operation down to -20 °C
- **Maximum Hz function** for 6% power increase
- Positioning flexibility guaranteed by compact dimensions and horizontal ejection
- **TWIN ROTARY DC Inverter compressors** with double balanced rotor, guarantee of greater performances and reduced noise emissions
- High modulation and low noise **EC Brushless Fan Motor**
- **Axial fan with high acoustic comfort blades**, thanks to the wing profile with anti-swirling flow shaping, the cause of annoying noises
- **High efficiency inverter circulator** standard supplied
- Water-gas exchanger in stainless steel AISI 304 with high efficiency and heat exchange
- **"FAN SILENT" mode,** which activates a reduction of the motor frequencies increasing the silence of the system
- **Standard antifreeze kit** to optimize the operation of the heat pump in conditions of unfavourable temperatures, consisting of low absorption heating cables, with automatic management and pre-wired electrical connection
- **HYDRONIC KIT** equipped with:
  - High efficiency water-gas plate heat exchanger in stainless steel, for R32
  - Integrated modulating INVERTER circulator
  - Circulation and protection flow switch
  - Automatic air vent, safety valve (6 bar) and fill / drain cock
- **Air-gas exchanger in copper pipes and aluminium fins**. Geometrically designed to have the highest heat exchange and lowest pressure drops
- Possibility of **management via ModBus.**



front view



side view

rear view

HP_OWER			260RK	320RK
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A++ / A+	A++ / A+
Cooling	Cooling capacity (1) min-nom-max	kW	12.50 - 26.20 - 27.70*	14.80 - 31.40 - 32.70*
	Cooling capacity (2) min-nom-max	kW	7.80 - 18.70 - 22.70*	10.10 - 26.00 - 27.50*
	Input power (1) / (2)	kW	5.56 / 6.19	7.08 / 8.65
	E.E.R. (1) / (2)	W/W	4.71 / 3.02	4.44 / 3.01
	S.E.E.R. (5)	W/W	4.46	4.73
Heating	Heating capacity (3) min-nom-max	kW	9.50 - 26.00 - 27.30*	11.90 - 32.10 - 33.90*
	Heating capacity (4) min-nom-max	kW	9.40 - 25.80 - 27.60*	12.70 - 32.70 - 34.50*
	Input power (3) / (4)	kW	6.44 / 7.86	7.84 / 9.90
	C.O.P. (3) / (4)	W/W	4.04 / 3.28	4.09 / 3.30
	S.C.O.P. (6)	W/W	3.95	4.02
Hydraulic circuit	Water flow rate (4)	l/s	1.2	1.6
	Available head pressure	kPa	86.5	74.7
	Minimum volume of water	l	110	110
Electric data	Power supply	V/Ph/Hz	400/3/50	400/3/50
	Maximum input power	kW	12.3	14.7
Weight	Shipping weight	kg	250	265
	Operating weight	kg	240	255
Noise level	Sound power L_w (8)	dB(A)	73	76
	Sound press. level at a dist. of 1m (9)	dB(A)	57.1	60.1
	Sound press. level at a dist. of 10m (9)	dB(A)	41.5	44.5
R32 refrigerant quantity (7)		kg	4.3	5.1
External working temperature range		°C	-20/+48	-20/+48

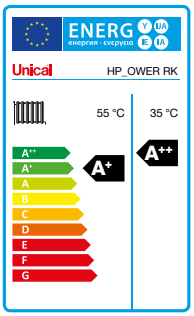
Performance referring to the following conditions:
(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C
(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/ 7°C.
(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.
(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.
(5) Cooling: in/out water temperature 7/12°C.
(6) Heating: average climatic conditions; Tbiv=-7°C; in/out water temp 30/35°C.
(7) Indicative data subject to variation. For the correct data, always refer to the technical label on the unit.
(8) Sound power level: full load unit in heating mode according to EU Regulation 813/2013 for medium and low temperature applications. Value determined on the basis of measurements carried out in accordance with EN 12102-1: 2017, used in conjunction with UNI EN ISO 9614-2 which describes the test with the Intensimetric method. The tolerance on the value of the total sound power level is 2 dB (A).
(9) Sound pressure level: value calculated from the sound power level using ISO 3744:2010, considering the units in the open field
(*) activating the "maximum Hz" function

Performance data declared in points (1), (2), (3) and (4) is intended to refer to instantaneous power according to UNI EN 14511. The value declared in point (5) and (6) is determined according to UNI EN 14825

Power heat pumps

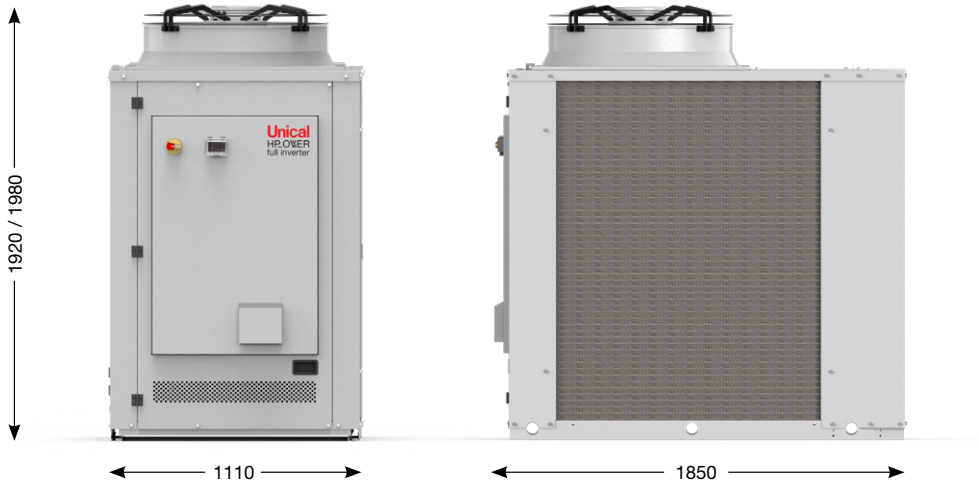
High efficiency **“Full inverter”** heat pumps, R32 refrigerant, designed for heating, cooling and DHW preparation. Outdoor installation.

- **Power range: 50 kW-70 kW**
- **Energy class A ++**
  C.O.P. up to 4.11 - E.E.R. up to 4.25
- Modularity up to **490 kW** (possibility of cascading **up to 7 machines**)
- **Low absorption DC SCROLL INVERTER compressors,** with limited noise emissions and continuous progressive modulation
- **EC (Electronic Commutation) BRUSHLESS INVERTER fan motor** with air flow modulation for maximum efficiency
- Patented asymmetrical stainless-steel **water-gas exchanger,** for R32 refrigerant
- **Air-gas heat exchanger** made of copper pipes with aluminum fins for a greater exchange surface
- **Refrigerant R32**
- **Integrated digital regulator** for monitoring, control, setting of heat pump parameters and complete system configuration
- **Preparation management** of DHW storage tank (such as Enerboil) or combined storage tank of Technical Water with DHW production (such as Multipower)
- **INVERTER circulator, integrated as standard**
- **Standard supplied antifreeze kit** for protection of the plate exchanger (through heating cables) and inverter circulator
- **Weatherproof box** with removable panels for maximum accessibility to the refrigeration and hydraulic circuits
- **Silenced version “SLN” with “Super Low Noise” Kit,** consisting of a fan diffuser to facilitate the expulsion of air with consequent reduction of the fan speed, and a thermoacoustic coat of the compressor to reduce noise emissions and heat losses
- Management options:
  - via ModBUS protocol
  - with 0-10 Volt external control unit
  - ON / OFF chronothermostat
- **Autorestart and Self-diagnosis**
- **Colour Touch screen Remote control (optional)**, for system configuration and module cascade management.



front view

side view



HP_OWER			500RK	700RK
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A++ / A+	A++ / A+
Cooling	Cooling capacity (1) min-nom-max	kW	31.20 - 55.30 - 62.30*	38.50 - 66.00 - 73.80*
	Input power (1)	kW	13.00	16.60
	E.E.R. (1)	W/W	4.25	3.98
	Cooling capacity (2) min-nom-max	kW	20.10 - 36.30 - 41.20*	27.10 - 53.20 - 58.20*
	Input power (2)	kW	11.70	17.70
	E.E.R. (2) / S.E.E.R. (5)	W/W	3.10 / 4.72	3.01 / 4.85
Heating	Heating capacity (3) min-nom-max	kW	24.10 - 50.20 - 56.30*	32.90 - 66.80 - 74.60*
	Input power (3)	kW	12.20	16.30
	C.O.P. (3)	W/W	4.11	4.10
	Heating capacity (4) min-nom-max	kW	22.80 - 49.70 - 55.90*	32.10 - 66.60 - 75.50*
	Input power (4)	kW	15.40	20.40
	C.O.P. (4) / S.C.O.P. (6)	W/W	3.23 / 4.16	3.26 / 3.94
Electric data	Power supply	V/Ph/Hz	400/3/50	400/3/50
	Maximum input power	kW	34	43
Hydraulic circuit	Water flow rate (2)	l/s	1.74	2.55
	Available head pressure (2) / (4)	kPa	138 / 109	151 / 122
	Minimum volume of water (8)	l	239	322
Noise level	Sound power L_w (9) / SLN version (9)	dB(A)	83 / 81	84 / 82
	Sound press. level at a dist. of 1m (10) / SLN version (10)	dB(A)	65.40 / 63.30	66.40 / 64.30
	Sound press. level at a dist. of 10m (10) / SLN version (10)	dB(A)	51.20 / 49.20	52.20 / 50.20
Dimensions and weight	Dimensions (L x H x D)	mm	1110 x 1920 x 1850	1110 x 1920 x 1850
	Dimensions SLN vers. (L x H x D)	mm	1110 x 1980 x 1850	1110 x 1980 x 1850
	Shipping weight / Operating weight	kg	535 / 540	595 / 600
R32 Refrigerant quantity		kg	9.5	12
External working temperature range		°C	-19 / +46	-19 / +46

Performance referring to the following conditions:

(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C

(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/ 7°C.

(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.

(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.

(5) Cooling: in/out water temperature 7/12°C.

(6) Heating: average climatic conditions; T_{biv}=-7°C; in/out water temp 30/35°C.

(7) Indicative data subject to variation. For the correct data, always refer to the technical label on the unit.

(8) The volume indicated refers to the total needed; the designer must satisfy it by considering the quantity already present inside the unit, according to the hydronic kit chosen (please check this value in the data sheet).

(9) Sound power level: full load unit in heating mode according to EU Regulation 813/2013 for medium and low temperature applications. Value determined on the basis of measurements carried out in accordance with EN 12102-1: 2017, used in conjunction with UNI EN ISO 9614-2 which describes the test with the Intensimetric method. The tolerance on the value of the total sound power level is 2 dB (A).

(10) Sound pressure level: value calculated from the sound power level using ISO 3744:2010, considering the units in the open field

(*) activating the “maximum Hz” function

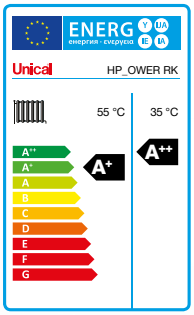
Performance data declared in points (1), (2), (3) and (4) is intended to refer to instantaneous power according to UNI EN 14511. The value declared in point (5) and (6) is determined according to UNI EN 14825.

Power heat pumps

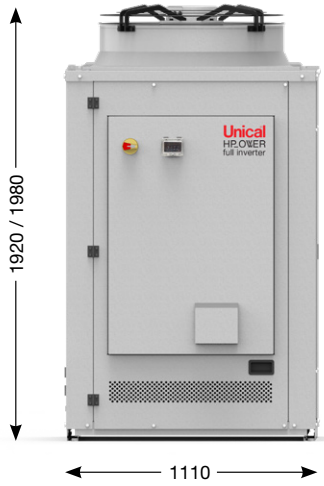
(with integrated storage)

High efficiency **“Full inverter”** heat pumps, R32 refrigerant, designed for heating, cooling and DHW preparation. Outdoor installation with integrated storage.

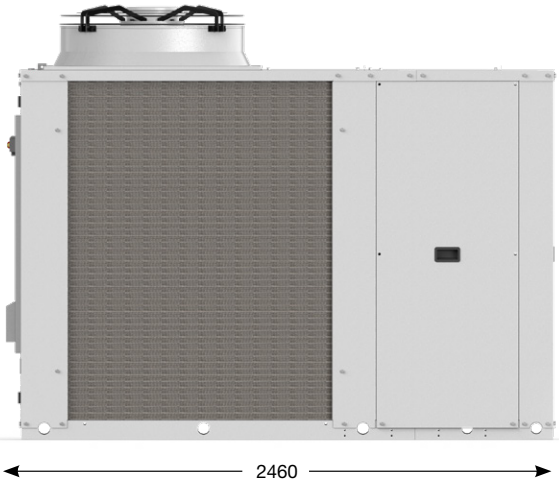
- **Power range: 50 kW-70 kW**
- **Energy class A ++**
  C.O.P. up to 4.11 - E.E.R. up to 4.25
- Modularity up to **490 kW** (possibility of cascading **up to 7 machines**)
- **Low absorption DC SCROLL INVERTER compressors,** with limited noise emissions and continuous progressive modulation.
- **EC (Electronic Commutation) BRUSHLESS INVERTER fan motor** with air flow modulation for maximum efficiency
- Patented asymmetrical stainless-steel **water-gas exchanger,** for R32 refrigerant
- **Air-gas heat exchanger** made of copper pipes with aluminum fins for a greater exchange surface
- **Refrigerant R32**
- **Preparation management** of DHW storage tank (such as Enerboil) or combined storage tank of Technical Water with DHW production (such as Multipower)
- **Integrated digital regulator** for monitoring, control, setting of heat pump parameters and complete system configuration
- **INVERTER circulator, integrated as standard**
- **Standard supplied antifreeze kit** for protection of the plate exchanger (through heating cables) and inverter circulator
- **Weatherproof box** with removable panels for maximum accessibility to the refrigeration and hydraulic circuits
- **Inertial storage tank (400 litre)** integrated in the heat pump box for complete outdoor installation
- Management options:
  - via ModBUS protocol
  - with 0-10 Volt external control unit
  - ON / OFF chronothermostat
- **Silenced version “SLN” with “Super Low Noise” Kit,** consisting of a fan diffuser to facilitate the expulsion of air with consequent reduction of the fan speed, and a thermoacoustic coat of the compressor to reduce noise emissions and heat losses
- **Autorestart and Self-diagnosis**
- **Colour Touch screen Remote control (optional),** for system configuration and module cascade management.



front view



side view



HP_OWER			500RK A400	700RK A400
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A++ / A+	A++ / A+
Cooling	Cooling capacity (1) min-nom-max	kW	31.20 - 55.30 - 62.30*	38.50 - 66.00 - 73.80*
	Input power (1)	kW	13.00	16.60
	E.E.R. (1)	W/W	4.25	3.98
	Cooling capacity (2) min-nom-max	kW	20.10 - 36.30 - 41.20*	27.10 - 53.20 - 58.20*
	Input power (2)	kW	11.70	17.70
	E.E.R. (2) / S.E.E.R. (5)	W/W	3.10 / 4.72	3.01 / 4.85
Heating	Heating capacity (3) min-nom-max	kW	24.10 - 50.20 - 56.30*	32.90 - 66.80 - 74.60*
	Input power (3)	kW	12.20	16.30
	C.O.P. (3)	W/W	4.11	4.10
	Heating capacity (4) min-nom-max	kW	22.80 - 49.70 - 55.90*	32.10 - 66.60 - 75.50*
	Input power (4)	kW	15.40	20.40
	C.O.P. (4) / S.C.O.P. (6)	W/W	3.23 / 4.16	3.26 / 3.94
Electric data	Power supply	V/Ph/Hz	400/3/50	400/3/50
	Maximum input power	kW	34	43
Hydraulic circuit	Water flow rate (2)	l/s	1.74	2.55
	Available head pressure (2) / (4)	kPa	138 / 109	151 / 122
	Minimum volume of water (8)	l	239	322
Noise level	Sound power L_w (9) / versione SLN (9)	dB(A)	83 / 81	84 / 82
	Sound press. level at a dist. of 1m (10) / SLN version (10)	dB(A)	65.40 / 63.30	66.40 / 64.30
	Sound press. level at a dist. of 10m (10) / SLN version (10)	dB(A)	51.20 / 49.20	52.20 / 50.20
Dimensions and weight	Dimensions (L x H x D)	mm	1110 x 1920 x 2460	1110 x 1920 x 2460
	Dimensions SLN vers. (L x H x D)	mm	1110 x 1980 x 2460	1110 x 1980 x 2460
	Shipping weight / Operating weight	kg	685 / 1090	745 / 1150
R32 Refrigerant quantity		kg	9.5	12
External working temperature range		°C	-19 / +46	-19 / +46

Performance referring to the following conditions:

(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C
(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/ 7°C.
(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.
(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.
(5) Cooling: in/out water temperature 7/12°C.
(6) Heating: average climatic conditions; T_{biv}=-7°C; in/out water temp 30/35°C.
(7) Indicative data subject to variation. For the correct data, always refer to the technical label on the unit.
(8) The volume indicated refers to the total needed; the designer must satisfy it by considering the quantity already present inside the unit, according to the hydronic kit chosen (please check this value in the data sheet).
(9) Sound power level: full load unit in heating mode according to EU Regulation 813/2013 for medium and low temperature applications. Value determined on the basis of measurements carried out in accordance with EN 12102-1: 2017, used in conjunction with UNI EN ISO 9614-2 which describes the test with the Intensimetric method. The tolerance on the value of the total sound power level is 2 dB (A).
(10) Sound pressure level: value calculated from the sound power level using ISO 3744:2010, considering the units in the open field
(*) activating the “maximum Hz” function

Performance data declared in points (1), (2), (3) and (4) is intended to refer to instantaneous power according to UNI EN 14511. The value declared in point (5) and (6) is determined according to UNI EN 14825.

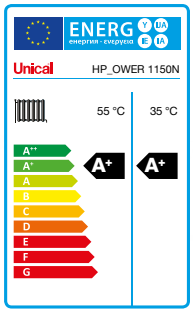
Power heat pumps

(with double refrigerant circuit)

High efficiency air-water DC INVERTER heat pump with very high shutting and double refrigerant circuit, R410A refrigerant, fully wired and pre-assembled, designed for heating, cooling and DHW preparation.

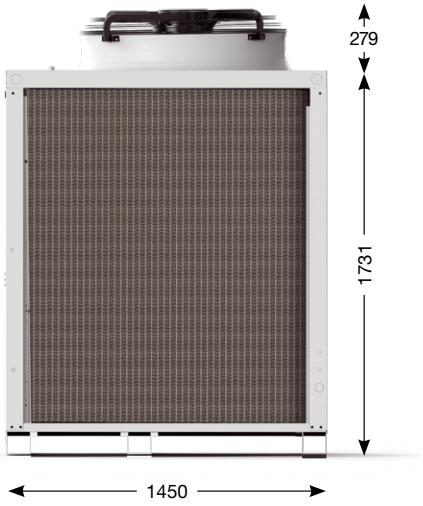
Outdoor installation, resistant to atmospheric agents thanks to the hot-dip galvanized sheet and painted, after processing, with polyurethane powders in the oven at 180 °C.

- **"Full inverter"** Air-Water heat pump
- High efficiency, **Energy Class A+**
  C.O.P. = 3.90 - E.E.R. = 3.65
- **Extraordinary 1:16 modulation ratio** to optimize operating consumption
- **Double refrigerant circuit, powered by 6 scroll compressors** that ensure reliability and operating safety even in the event of a component failure, avoiding the complete blocking of the machine
- Possibility to configure **up to 7 machines in cascade**
- **Sequential defrosting of the circuits** to avoid downtime
- **Intelligent electronics** that equally shares the operation hours of the compressors, increasing the useful life of the system
- **Standard antifreeze kit** to optimize the operation of the heat pump in unfavorable temperature conditions, consisting of low absorption heating cables with automatic management and pre-wired electrical connection
- **LN silencing as standard**, consisting of soundproofed compressor housing, guarantee of reduced noise emissions
- Low energy consumption **DC INVERTER fan motors**
- **Resistance to atmospheric agents** guaranteed by galvanized sheet metal casing and polyurethane painting
- **Air-gas exchanger in copper pipes and aluminium fins**. Geometrically designed to have the highest heat exchange and lowest pressure drops
- **Electrical panel board with IP54 protection degree**, with dedicated door to facilitate installation and maintenance works
- **Control system** to monitor and adapt the performance of the inverter compressor, circulator and fan, together with the INVERTER technology and the on-board sensors
- **HYDRONIC KIT** equipped with:
  - Patented high efficiency water-gas, stainless steel plate exchanger for R410A conceived with double refrigerant circuit and single hydraulic circuit.
  - Integrated modulating INVERTER circulator
  - Circulation and protection flow switch
  - Automatic air vent valve, safety valve (6 bar) and fill & drain cock.
- Integrated system configurator with **expansion modules for I / O resources** and MODBUS connection port
- Flow temperatures: up to 57 °C
- Operating limit outside temperature:
  -15 °C (Heating) + 46 °C (Cooling).



front view

side view



HP_OWER			1150N
Season EFFICIENCY CLASS in heating mode (T_{out} = 35/55°C)			A+ / A+
Cooling	Cooling capacity (1) / (2)	kW	139.3 / 114.3
	Input power (1) / (2)	kW	38.16 / 39.4
	E.E.R. (1) / (2)	W/W	3.65 / 2.9
	S.E.E.R. (5)	W/W	3.81
Heating	Heating capacity (3) / (4)	kW	111.47 / 108.28
	Input power (3) / (4)	kW	28.58 / 36.09
	C.O.P. (3) / (4)	W/W	3.9 / 3.0
	S.C.O.P. (6)	W/W	3.50
Electric data	Power supply	V/Ph/Hz	400/3/50
	Maximum input power	kW	63
Hydraulic circuit	Water flow rate (4)	l/s	5.18
	Minimum volume of water	l	260
	Available head pressure (2)	kPa	77
Noise level	Sound power L_w (8) LN	dB(A)	82.7
	Sound press. level at a dist. of 10m (9) LN	dB(A)	52.7
Weight	Shipping weight	kg	1142
	Operating weight	kg	1120
Rated air flow		m^3/s	9 x 2
R410A Refrigerant quantity (circuit 1 / circuit 2) (7)		kg	14.3 / 14.3
External working temperature range		°C	-15 / +46

Performance referring to the following conditions:

(1) Cooling: outdoor air temperature 35°C; in/out water temperature 23/18 °C
(2) Cooling: outdoor air temperature 35°C; in/out water temperature 12/7°C.
(3) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 30/35°C.
(4) Heating: outdoor air temperature 7°C DB 6°C WB; in/out water temp 40/45°C.
(5) Cooling: in/out water temperature 7/12°C.
(6) Heating: average climatic conditions; Tbiv=-7°C; in/out water temp 30/35°C.
(7) Indicative data subject to variation. For the correct data, always refer to the technical label on the unit.
(8) Sound power level: full load unit in heating mode according to EU Regulation 813/2013 for medium and low temperature applications. Value determined on the basis of measurements carried out in accordance with EN 12102-1: 2017, used in conjunction with UNI EN ISO 9614-2 which describes the test with the Intensimetric method.
The tolerance on the value of the total sound power level is 2 dB (A).
(9) Sound pressure level: value calculated from the sound power level using ISO 3744:2010, considering the units in the open field.

Performance data declared in points (1), (2), (3) and (4) is intended to refer to instantaneous power according to UNI EN 14511. The value declared in point (5) and (6) is determined according to UNI EN 14825.

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