

## Subtype DC Inverter Air to Water Heat Pump Thermal Plus 12

Certificate Holder	REFSYSTEM Sp. z o.o.
Address	Street Metalowców 5,
ZIP	86-300
City	Grudziądz
Country	PL
Certification Body	BRE Global Limited
Subtype title	DC Inverter Air to Water Heat Pump Thermal Plus 12
Registration number	041-K053-08
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.8 kg
Certification Date	12.05.2023
Testing basis	Heat Pump Keymark Scheme Rules Rev 11
Testing laboratory	TÜV SÜD Certification and Testing Co., Ltd. Guangzhou Branch, CN

## Model Thermal(b) Plus 12 / Thermal(b) Plus 12

Model name	Thermal(b) Plus 12 / Thermal(b) Plus 12
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	n/a
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	1x230V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	6.67 kW	10.51 kW
El input	1.35 kW	3.83 kW
COP	4.93	2.75

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	46 dB(A)
Sound power level outdoor	52 dB(A)	54 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	181 %	132 %
Prated	8.79 kW	7.07 kW
SCOP	4.60	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.78 kW	6.26 kW
COP Tj = -7°C	3.25	1.79
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	4.91 kW	3.84 kW
COP Tj = +2°C	4.46	3.46
Cdh Tj = +2 °C	0.900	0.900

Pdh Tj = +7°C	4.19 kW	4.05 kW
COP Tj = +7°C	6.16	4.84
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	5.02 kW	4.87 kW
COP Tj = 12°C	8.24	6.74
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.78 kW	6.26 kW
COP Tj = Tbiv	3.25	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.36 kW	5.86 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.78	1.78
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	56 °C	56 °C
Poff	17 W	9 W
PTO	25 W	25 W
PSB	17 W	9 W
PCK	33 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.43 kW	1.21 kW
Annual energy consumption Qhe	3944 kWh	4345 kWh