

## Subtype DC Inverter Air to Water Heat Pump Thermal Plus 09

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 09
Registration number	041-K053-07
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.4 kg
Certification Date	12.05.2023
Testing basis	Heat Pump Keymark Scheme Rules Rev 11

## Model Thermal(b) Plus 9 / Thermal(b) Plus 9

Model name	Thermal(b) Plus 9 / Thermal(b) Plus 9
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 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	46 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)

## EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	181 %	130 %
Prated	6.39 kW	5.97 kW
SCOP	4.61	3.32
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.65 kW	5.28 kW
COP Tj = -7°C	3.19	1.94
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	3.52 kW	3.41 kW
COP Tj = +2°C	4.43	3.34
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	3.36 kW	3.15 kW
COP Tj = +7°C	6.36	4.60
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.96 kW	3.73 kW
COP Tj = 12°C	8.37	6.49
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	5.65 kW	5.28 kW

COP $T_j = T_{biv}$	3.19	1.94
$P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$	5.32 kW	4.80 kW
COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$	2.82	1.71
$C_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$	0.900	0.900
WTOL	57 °C	57 °C
P <sub>off</sub>	10 W	10 W
PTO	19 W	19 W
PSB	10 W	10 W
PCK	27 W	27 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.07 kW	1.17 kW
Annual energy consumption Q <sub>he</sub>	2864 kWh	3720 kWh