Subtype TTL 9.5/12.5 AC

Certificate Holder	tecalor GmbH
Address	Lüchtringer Weg 3
ZIP	37603
City	Holzminden
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	TTL 9.5/12.5 AC
Registration number	011-1W0441
Heat Pump Type	Outdoor Air/Water
Refrigerant	R410A
Mass of Refrigerant	5.5 kg
Certification Date	14.10.2021
Testing basis	HP KEYMARK certification scheme rules rev. 8

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Model TTL 9.5 AC	
Model name	TTL 9.5 AC
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data	
Power supply	3x400V 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	8.66 kW	7.90 kW
El input	1.88 kW	2.75 kW
COP	4.61	2.87

EN 12102-1 | Average Climate		
	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Average Climate		
	Low temperature	Medium temperature
ηs	159 %	125 %
Prated	10.29 kW	11.45 kW
SCOP	4.04	3.21
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.10 kW	10.13 kW
COP Tj = -7°C	3.11	2.56
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.30 kW	7.75 kW
COP Tj = +2°C	3.93	3.31
Cdh Tj = +2 °C	0.990	0.900
Pdh Tj = +7°C	8.92 kW	8.38 kW

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COP Tj = +7°C	5.04	4.14
Cdh Tj = +7 °C	0.980	0.900
Pdh Tj = 12°C	9.10 kW	9.05 kW
COP Tj = 12°C	5.53	4.74
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	9.10 kW	10.13 kW
COP Tj = Tbiv	3.11	2.56
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.52 kW	9.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.94	2.26
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.77 kW	2.05 kW
Annual energy consumption Qhe	5265 kWh	7377 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	133 %	112 %
Prated	14.53 kW	15.94 kW
SCOP	3.40	2.88
Tbiv	-7 °C	-7 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	8.80 kW	9.65 kW
COP Tj = -7°C	3.27	2.82
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.19 kW	7.58 kW
COP Tj = +2°C	4.08	3.55
Cdh Tj = +2 °C	0.980	0.900
Pdh Tj = +7°C	9.02 kW	8.57 kW
COP Tj = +7°C	5.21	4.46
Cdh Tj = +7 °C	0.980	0.900
Pdh Tj = 12°C	9.10 kW	9.06 kW
COP Tj = 12°C	5.53	4.88
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	8.80 kW	9.65 kW
COP Tj = Tbiv	3.27	2.82

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.38 kW	7.53 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.54	1.85
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	14.53 kW	15.94 kW
Annual energy consumption Qhe	10540 kWh	13625 kWh

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	187 %	128 %
Prated	7.90 kW	8.14 kW
SCOP	4.76	3.28
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.90 kW	8.14 kW
COP Tj = +2°C	3.75	2.78
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.76 kW	8.04 kW
COP Tj = +7°C	4.77	3.40
Cdh Tj = +7 °C	0.990	0.900
Pdh Tj = 12°C	9.09 kW	9.03 kW
COP Tj = 12°C	5.41	4.48
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	7.90 kW	8.14 kW
COP Tj = Tbiv	3.75	2.78
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.90 kW	8.14 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.75	2.78
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2218 kWh	3314 kWh

Model TTL 12.5 AC	
Model name	TTL 12.5 AC
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data	
Power supply	3x400V 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	8.66 kW	7.90 kW
El input	1.88 kW	2.75 kW
COP	4.61	2.87

EN 12102-1 | Average Climate		
	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Average Climate		
	Low temperature	Medium temperature
ηs	159 %	130 %
Prated	12.80 kW	13.42 kW
SCOP	4.05	3.32
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.30 kW	11.87 kW
COP Tj = -7°C	2.84	2.43
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.24 kW	7.67 kW
COP Tj = +2°C	4.01	3.42
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.94 kW	8.41 kW

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COP Tj = +7°C	5.08	4.19
Cdh Tj = +7 °C	0.980	0.900
Pdh Tj = 12°C	9.10 kW	9.05 kW
COP Tj = 12°C	5.55	4.76
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	11.32 kW	11.87 kW
COP Tj = Tbiv	2.84	2.43
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.58 kW	11.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.83	2.16
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.22 kW	2.32 kW
Annual energy consumption Qhe	6537 kWh	8358 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	133 %	115 %
Prated	18.44 kW	19.19 kW
SCOP	3.39	2.94
Tbiv	-7 °C	-7 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.16 kW	11.61 kW
COP Tj = -7°C	3.15	2.69
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.13 kW	7.49 kW
COP Tj = +2°C	4.16	3.66
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	9.05 kW	8.61 kW
COP Tj = +7°C	5.25	4.53
Cdh Tj = +7 °C	0.980	0.900
Pdh Tj = 12°C	9.10 kW	9.06 kW
COP Tj = 12°C	5.55	4.91
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	11.16 kW	11.61 kW
COP Tj = Tbiv	3.15	2.69

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.29 kW	9.65 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.47	1.85
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	18.44 kW	19.19 kW
Annual energy consumption Qhe	13397 kWh	16099 kWh

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	188 %	128 %
Prated	8.10 kW	8.14 kW
SCOP	4.77	3.28
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.10 kW	8.14 kW
COP Tj = +2°C	3.74	2.78
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.76 kW	8.04 kW
COP Tj = +7°C	4.77	3.40
Cdh Tj = +7 °C	0.990	0.900
Pdh Tj = 12°C	9.09 kW	9.03 kW
COP Tj = 12°C	5.41	4.48
Cdh Tj = +12 °C	0.980	0.900
Pdh Tj = Tbiv	8.10 kW	8.41 kW
COP Tj = Tbiv	3.74	2.78
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.10 kW	8.14 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.74	2.78
WTOL	65 °C	65 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	38 W	38 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2271 kWh	3314 kWh

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