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Summary of	TTL 15 AS, TTL 15 ACS	Reg. No.	011-1W0048
Certificate Holder			
Name	tecalor GmbH		
Address	Fürstenbergerstr. 77	Zip	37603
City	Holzminden	Country	Germany
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH		
Subtype title	TTL 15 AS, TTL 15 ACS		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R410A		
Mass of Refrigerant	4.2 kg		
Certification Date	01.11.2016		

Model: TTL 15 AS

Configure model	
Model name	TTL 15 AS
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	No
Cooling mode application (optional)	n/a

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	4.68 kW	3.74 kW
El input	1.11 kW	1.37 kW
COP	4.23	2.73

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

Average Climate

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EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	50 dB(A)	50 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	151 %	122 %
Prated	8.00 kW	8.00 kW
SCOP	3.84	3.20
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.80 kW	7.10 kW
COP Tj = -7°C	2.49	2.18
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.30 kW	4.20 kW
COP Tj = +2°C	4.04	3.30
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.50 kW	4.20 kW
COP Tj = +7°C	5.08	4.07
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	4.40 kW	4.00 kW

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COP Tj = 12°C	6.30	5.14
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	7.10 kW	7.40 kW
COP Tj = Tbiv	2.42	2.13
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.60 kW	7.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.71	1.97
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4303 kWh	5300 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	153 %	120 %
Prated	4.00 kW	4.00 kW
SCOP	3.91	2.99

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Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.20 kW	4.00 kW
COP Tj = +2°C	3.48	2.50
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.30 kW	3.90 kW
COP Tj = +7°C	4.46	3.16
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	4.30 kW	3.80 kW
COP Tj = 12°C	5.89	4.57
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	4.20 kW	4.00 kW
COP Tj = Tbiv	3.48	2.50
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.20 kW	9.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.98
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity

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Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	1367 kWh	1750 kWh

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_s	137 %	118 %
Prated	11.00 kW	12.00 kW
SCOP	3.51	3.05
T _{biv}	-10 °C	-10 °C
TOL	-20 °C	-20 °C
P _{dh} T _j = -7°C	6.80 kW	7.00 kW
COP T _j = -7°C	2.72	2.45
C _{dh} T _j = -7 °C	0.90	0.90
P _{dh} T _j = +2°C	4.30 kW	4.20 kW
COP T _j = +2°C	4.45	3.70
C _{dh} T _j = +2 °C	0.90	0.90
P _{dh} T _j = +7°C	4.50 kW	4.30 kW
COP T _j = +7°C	5.44	4.53
C _{dh} T _j = +7 °C	0.90	0.90
P _{dh} T _j = 12°C	4.40 kW	4.10 kW

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COP Tj = 12°C	6.30	5.44
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	7.70 kW	7.90 kW
COP Tj = Tbiv	2.50	2.28
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.10 kW	9.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	2.10
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	11.20 kW	11.61 kW
Annual energy consumption Qhe	7727 kWh	9481 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.10	9.70
COP Tj = -15°C (if TOL<-20°C)	2.25	2.10
Cdh Tj = -15 °C	0.90	0.90

Model: TTL 15 ACS

Configure model	
Model name	TTL 15 ACS
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	No
Cooling mode application (optional)	n/a

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	4.68 kW	3.74 kW
El input	1.11 kW	1.37 kW
COP	4.23	2.73

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

Average Climate

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	50 dB(A)	50 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	159 %	127 %
Prated	8.00 kW	8.00 kW
SCOP	4.04	3.34
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.80 kW	7.10 kW
COP Tj = -7°C	2.49	2.18
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.30 kW	4.20 kW
COP Tj = +2°C	4.04	3.30
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.50 kW	4.20 kW
COP Tj = +7°C	5.08	4.07
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	4.40 kW	4.00 kW

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Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	7.10 kW	7.40 kW
COP Tj = Tbiv	2.42	2.13
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.60 kW	7.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.71	1.97
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4086 kWh	5084 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	190 %	142 %
Prated	4.00 kW	4.00 kW
SCOP	4.83	3.50

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Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.20 kW	4.00 kW
COP Tj = +2°C	3.48	2.50
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.30 kW	3.90 kW
COP Tj = +7°C	4.46	3.16
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	4.30 kW	3.80 kW
COP Tj = 12°C	5.89	4.57
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	4.20 kW	4.00 kW
COP Tj = Tbiv	3.48	2.50
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.20 kW	9.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.98
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity

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Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	1106 kWh	1489 kWh

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_s	140 %	119 %
Prated	11.00 kW	12.00 kW
SCOP	3.57	3.09
T _{biv}	-10 °C	-10 °C
TOL	-20 °C	-20 °C
P _{dh} T _j = -7°C	6.80 kW	7.00 kW
COP T _j = -7°C	2.72	2.45
C _{dh} T _j = -7 °C	0.90	0.90
P _{dh} T _j = +2°C	4.30 kW	4.20 kW
COP T _j = +2°C	4.45	3.70
C _{dh} T _j = +2 °C	0.90	0.90
P _{dh} T _j = +7°C	4.50 kW	4.30 kW
COP T _j = +7°C	5.44	4.53
C _{dh} T _j = +7 °C	0.90	0.90
P _{dh} T _j = 12°C	4.40 kW	4.10 kW

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COP Tj = 12°C	6.30	5.44
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	7.70 kW	7.90 kW
COP Tj = Tbiv	2.50	2.28
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.10 kW	9.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	2.10
WTOL	65 °C	65 °C
Poff	16 W	16 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	43 W	43 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	11.20 kW	11.61 kW
Annual energy consumption Qhe	7597 kWh	9351 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.10	9.70
COP Tj = -15°C (if TOL<-20°C)	2.25	2.10
Cdh Tj = -15 °C	0.90	0.90