Subtype TTL 4.5 ACS

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 4.5 ACS
Registration number	011-1W0117
Heat Pump Type	Outdoor Air/Water
Refrigerant	R410A
Mass of Refrigerant	1.1 kg
Certification Date	19.01.2017

Model TTL 4.5 ACS + HSBC 200, HSBC 200 S

Model name	TTL 4.5 ACS + HSBC 200, HSBC 200 S
Application	Heating + DHW + low 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	No

Outdoor Air/Water

EN 16147 | Average Climate

Declared load profile	L
Efficiency ηDHW	113 %
COP	2.70
Heating up time	1:50 h:min
Standby power input	35.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	245 l

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	2.27 kW	1.92 kW
El input	0.50 kW	0.74 kW
COP	4.54	2.59

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)
Sound power level outdoor	52 dB(A)	52 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
ηs	165 %	116 %

Prated	4.59 kW	3.83 kW
SCOP	4.20	2.96
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-7 °C
Pdh Tj = -7°C	4.03 kW	2.79 kW
COP Tj = -7°C	2.67	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	2.53 kW	2.01 kW
COP Tj = +2°C	4.00	2.94
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	1.63 kW	1.25 kW
COP Tj = +7°C	6.06	4.13
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	1.67 kW	1.54 kW
COP Tj = 12°C	6.43	5.13
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	4.03 kW	3.09 kW
COP Tj = Tbiv	2.67	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.80 kW	2.79 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.51	2.01
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	60 °C	60 °C
Poff	17 W	17 W
PTO	30 W	30 W
PSB	17 W	17 W
PCK	5 W	5 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.79 kW	3.83 kW
Annual energy consumption Qhe	2258 kWh	2672 kWh

Model TTL 4.5 ACS + HSBB 200 classic, HSBB 200 S classic	
Model name	TTL 4.5 ACS + HSBB 200 classic, HSBB 200 S classic
Application	Heating + DHW + low 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	No

Outdoor Air/Water

EN 16147 | Average Climate	
Declared load profile	L
Efficiency ηDHW	113 %
COP	2.70
Heating up time	1:50 h:min
Standby power input	35.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	245 l

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	2.27 kW	1.92 kW
El input	0.50 kW	0.74 kW
COP	4.54	2.59

EN 12102-1 | Average Climate		
	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)
Sound power level outdoor	52 dB(A)	52 dB(A)

EN 14825 | Average Climate		
	Low temperature	Medium temperature
ηs	165 %	116 %

Prated	4.59 kW	3.83 kW
SCOP	4.20	2.96
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-7 °C
Pdh Tj = -7°C	4.03 kW	2.79 kW
COP Tj = -7°C	2.67	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	2.53 kW	2.01 kW
COP Tj = +2°C	4.00	2.94
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	1.63 kW	1.25 kW
COP Tj = +7°C	6.06	4.13
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	1.67 kW	1.54 kW
COP Tj = 12°C	6.43	5.13
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	4.03 kW	30.90 kW
COP Tj = Tbiv	2.67	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.80 kW	2.79 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.51	2.01
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	60 °C	60 °C
Poff	17 W	17 W
PTO	30 W	30 W
PSB	17 W	17 W
PCK	5 W	5 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.79 kW	3.83 kW
Annual energy consumption Qhe	2258 kWh	2672 kWh

Model TTL 4.5 ACS, low temperature, all climates

Model name	TTL 4.5 ACS, low temperature, all climates
Application	Heating (low 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	1x230V 50Hz
Off-peak product	No

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	2.27 kW	1.92 kW
El input	0.50 kW	
COP	4.54	

EN 12102-1 | Average Climate

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

EN 14825 | Average Climate

	Low temperature	Medium temperature
ηs	165 %	
Prated	4.59 kW	
SCOP	4.20	
Tbiv	-7 °C	
TOL	-10 °C	
Pdh Tj = -7°C	4.03 kW	
COP Tj = -7°C	2.67	
Cdh Tj = -7 °C	0.900	
Pdh Tj = +2°C	2.53 kW	
COP Tj = +2°C	4.00	
Cdh Tj = +2 °C	0.900	

Pdh Tj = +7°C	1.63 kW
COP Tj = +7°C	6.06
Cdh Tj = +7 °C	0.900
Pdh Tj = 12°C	1.67 kW
COP Tj = 12°C	6.43
Cdh Tj = +12 °C	0.900
Pdh Tj = Tbiv	4.03 kW
COP Tj = Tbiv	2.67
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.51
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900
WTOL	60 °C
Poff	17 W
PTO	30 W
PSB	17 W
PCK	5 W
Supplementary Heater: Type of energy input	Electricity
Supplementary Heater: PSUP	0.79 kW
Annual energy consumption Qhe	2258 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	52 dB(A)	

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	147 %	
Prated	4.29 kW	
SCOP	3.76	
Tbiv	-15 °C	
TOL	-20 °C	
Pdh Tj = -7°C	2.94 kW	
COP Tj = -7°C	3.12	
Cdh Tj = -7 °C	0.900	
Pdh Tj = +2°C	1.75 kW	
COP Tj = +2°C	4.61	
Cdh Tj = +2 °C	0.900	
Pdh Tj = +7°C	1.42 kW	
COP Tj = +7°C	6.34	
Cdh Tj = +7 °C	0.900	
Pdh Tj = 12°C	1.65 kW	
COP Tj = 12°C	6.27	
Cdh Tj = +12 °C	0.900	

Pdh Tj = Tbiv	3.48 kW
COP Tj = Tbiv	2.52
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.91 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.13
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900
WTOL	60 °C
Poff	17 W
PTO	30 W
PSB	17 W
PCK	5 W
Supplementary Heater: Type of energy input	Electricity
Supplementary Heater: PSUP	4.29 kW
Annual energy consumption Qhe	2812 kWh
Pdh Tj = -15°C (if TOL	3.48
COP Tj = -15°C (if TOL	2.52
Cdh Tj = -15 °C	0.900

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	52 dB(A)	

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	203 %	
Prated	3.48 kW	
SCOP	5.14	
Tbiv	2 °C	
TOL	2 °C	
Pdh Tj = +2°C	3.48 kW	
COP Tj = +2°C	3.23	
Cdh Tj = +2 °C	0.900	
Pdh Tj = +7°C	2.51 kW	
COP Tj = +7°C	5.18	
Cdh Tj = +7 °C	0.900	
Pdh Tj = 12°C	1.64 kW	
COP Tj = 12°C	6.23	
Cdh Tj = +12 °C	0.900	
Pdh Tj = Tbiv	3.48 kW	
COP Tj = Tbiv	3.23	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.48 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900
WTOL	60 °C
Poff	17 W
PTO	30 W
PSB	17 W
PCK	5 W
Supplementary Heater: Type of energy input	Electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	904 kWh