

## Subtype TTL 6.5/8.5 ACS

Certificate Holder	tecalor GmbH
Address	Fürstenbergerstr. 77
ZIP	37603
City	Holzminden
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	TTL 6.5/8.5 ACS
Registration number	011-1W0118
Heat Pump Type	Outdoor Air/Water
Refrigerant	R410A
Mass of Refrigerant	2 kg
Certification Date	13.10.2017
Testing basis	HP KEYMARK certification scheme rules rev. no. 6

## Model TTL 6.5 ACS + TSBC 200 ECO, TSBB 200 S

Model name	TTL 6.5 ACS + TSBC 200 ECO, TSBB 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 $\eta_{DHW}$	113 %
COP	2.70
Heating up time	01:50 h:min
Standby power input	35.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	245 l

## Model TTL 8.5 ACS + TSBC 200 ECO, TSBB 200 S

Model name	TTL 8.5 ACS + TSBC 200 ECO, TSBB 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 $\eta_{DHW}$	113 %
COP	2.70
Heating up time	01:50 h:min
Standby power input	35.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	245 l

## Model TTL 6.5 ACS, low temperature, all climates

Model name	TTL 6.5 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	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 outdoor	57 dB(A)	

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	177 %	
Prated	6.80 kW	
SCOP	4.50	
Tbiv	-7 °C	
TOL	-10 °C	
Pdh Tj = -7°C	6.02 kW	
COP Tj = -7°C	2.90	
Cdh Tj = -7 °C	0.90	
Pdh Tj = +2°C	3.89 kW	
COP Tj = +2°C	4.35	
Cdh Tj = +2 °C	0.90	
Pdh Tj = +7°C	3.50 kW	
COP Tj = +7°C	6.60	
Cdh Tj = +7 °C	0.90	
Pdh Tj = 12°C	3.39 kW	
COP Tj = 12°C	6.78	
Cdh Tj = +12 °C	0.90	
Pdh Tj = Tbiv	6.02 kW	
COP Tj = Tbiv	2.90	

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.30 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.80
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	0.50 kW
Annual energy consumption Qhe	3120 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
$\eta_s$	151 %	
Prated	5.80 kW	
SCOP	3.85	
Tbiv	-15 °C	
TOL	-20 °C	
Pdh Tj = -7°C	3.51 kW	
COP Tj = -7°C	3.30	
Cdh Tj = -7 °C	0.90	
Pdh Tj = +2°C	2.28 kW	
COP Tj = +2°C	4.55	
Cdh Tj = +2 °C	0.90	
Pdh Tj = +7°C	2.79 kW	
COP Tj = +7°C	5.81	
Cdh Tj = +7 °C	0.90	
Pdh Tj = 12°C	3.39 kW	
COP Tj = 12°C	6.71	
Cdh Tj = +12 °C	0.90	
Pdh Tj = Tbiv	5.80 kW	
COP Tj = Tbiv	2.70	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.50 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	
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	5.80 kW
Annual energy consumption Q <sub>he</sub>	3713 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL	5.80
COP T <sub>j</sub> = -15°C (if TOL	2.70
C <sub>dh</sub> T <sub>j</sub> = -15 °C	0.90

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η <sub>s</sub>	213 %	
Prated	6.30 kW	
SCOP	5.41	
T <sub>biv</sub>	2 °C	
TOL	2 °C	
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.30 kW	
COP T <sub>j</sub> = +2°C	3.60	
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = +7°C	4.10 kW	
COP T <sub>j</sub> = +7°C	5.25	
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = 12°C	3.37 kW	
COP T <sub>j</sub> = 12°C	6.61	
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	6.30 kW	
COP T <sub>j</sub> = T <sub>biv</sub>	3.60	
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	6.30 kW	
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	3.60	
WTOL	60 °C	
P <sub>off</sub>	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 Q <sub>he</sub>	1556 kWh	

## Model TTL 8.5 ACS, low temperature, all climates

Model name	TTL 8.5 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	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 outdoor	57 dB(A)	

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	177 %	
Prated	9.19 kW	
SCOP	4.50	
Tbiv	-7 °C	
TOL	-10 °C	
Pdh Tj = -7°C	8.13 kW	
COP Tj = -7°C	2.72	
Cdh Tj = -7 °C	0.90	
Pdh Tj = +2°C	5.22 kW	
COP Tj = +2°C	4.35	
Cdh Tj = +2 °C	0.90	
Pdh Tj = +7°C	3.50 kW	
COP Tj = +7°C	6.60	
Cdh Tj = +7 °C	0.90	
Pdh Tj = 12°C	3.39 kW	
COP Tj = 12°C	6.78	
Cdh Tj = +12 °C	0.90	
Pdh Tj = Tbiv	8.13 kW	
COP Tj = Tbiv	2.72	

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.92 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.64
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	1.27 kW
Annual energy consumption Qhe	4218 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
$\eta_s$	147 %	
Prated	8.70 kW	
SCOP	3.75	
Tbiv	-15 °C	
TOL	-20 °C	
Pdh Tj = -7°C	5.27 kW	
COP Tj = -7°C	3.17	
Cdh Tj = -7 °C	0.90	
Pdh Tj = +2°C	3.21 kW	
COP Tj = +2°C	4.46	
Cdh Tj = +2 °C	0.90	
Pdh Tj = +7°C	2.79 kW	
COP Tj = +7°C	5.81	
Cdh Tj = +7 °C	0.90	
Pdh Tj = 12°C	3.39 kW	
COP Tj = 12°C	6.71	
Cdh Tj = +12 °C	0.90	
Pdh Tj = Tbiv	7.10 kW	
COP Tj = Tbiv	2.54	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.80 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.19	
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	8.70 kW
Annual energy consumption Q <sub>he</sub>	5722 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL	7.10
COP T <sub>j</sub> = -15°C (if TOL	2.54
C <sub>dh</sub> T <sub>j</sub> = -15 °C	0.90

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η <sub>s</sub>	215 %	
Prated	7.60 kW	
SCOP	5.44	
T <sub>biv</sub>	2 °C	
TOL	2 °C	
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.60 kW	
COP T <sub>j</sub> = +2°C	3.44	
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = +7°C	4.89 kW	
COP T <sub>j</sub> = +7°C	5.15	
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = 12°C	3.37 kW	
COP T <sub>j</sub> = 12°C	6.61	
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.90	
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	7.60 kW	
COP T <sub>j</sub> = T <sub>biv</sub>	3.44	
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	3.44	
WTOL	60 °C	
P <sub>off</sub>	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 Q <sub>he</sub>	1867 kWh	