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

#### **Login**

Summary of	TTL 4.5 ACS	Reg. No.	011-1W0117	
Certificate Holder				
Name	tecalor GmbH	tecalor GmbH		
Address	Fürstenbergerstr. 77	Fürstenbergerstr. 77 Zip 37603		
City	Holzminden	Country	Germany	
Certification Body	DIN CERTCO Gesellschaft für	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH		
Subtype title	TTL 4.5 ACS	TTL 4.5 ACS		
Heat Pump Type	Outdoor Air/Water	Outdoor Air/Water		
Refrigerant	R410A	R410A		
Mass of Refrigerant	1.1 kg	1.1 kg		
Certification Date	19.01.2017	19.01.2017		



# Model: TTL 4.5 ACS + HSBC 200, HSBC 200 S

Configure model		
Model name TTL 4.5 ACS + HSBC 200, HSBC 200 S		
Application	Heating + DHW + low temp	
Units	Indoor + Outdoor	
Climate Zone n/a		
Reversibility Yes		
Cooling mode application (optional) n/a		

General Data		
Power supply	1x230V 50Hz	

## Heating

EN 14511-2		
Low temperature Medium temperature		
Heat output	2.27 kW	1.92 kW
El input	0.50 kW	0.74 kW
СОР	4.54	2.59

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



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

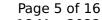
EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	165 %	116 %
Prated	4.59 kW	3.83 kW
SCOP	4.20	2.96
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-7 °C
Pdh Tj = -7°C	4.03 kW	2.79 kW
COP Tj = -7°C	2.67	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	2.53 kW	2.01 kW
COP Tj = +2°C	4.00	2.94
Cdh Tj = +2 °C	0.900	0.900
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
РТО	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

# Domestic Hot Water (DHW)





EN 16147		
Declared load profile	L	
Efficiency ηDHW	113 %	
СОР	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 I	



# Model: TTL 4.5 ACS + HSBB 200 classic, HSBB 200 S classic

Configure model		
Model name	TTL 4.5 ACS + HSBB 200 classic, HSBB 200 S classic	
Application	Heating + DHW + low temp	
Units	Indoor + Outdoor	
Climate Zone	n/a	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data	
Power supply 1x230V 50Hz	

## Heating

EN 14511-2			
Low temperature Medium temperature			
Heat output	2.27 kW	1.92 kW	
El input	0.50 kW	0.74 kW	
СОР	4.54	2.59	

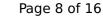
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

## **Average Climate**



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

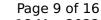
EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	165 %	116 %
Prated	4.59 kW	3.83 kW
SCOP	4.20	2.96
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-7 °C
Pdh Tj = -7°C	4.03 kW	2.79 kW
COP Tj = -7°C	2.67	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	2.53 kW	2.01 kW
COP Tj = +2°C	4.00	2.94
Cdh Tj = +2 °C	0.900	0.900
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
РТО	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

Domestic Hot Water (DHW)





EN 16147		
Declared load profile	L	
Efficiency ηDHW	113 %	
СОР	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 I	



# Model: TTL 4.5 ACS, low temperature, all climates

Configure model		
Model name	TTL 4.5 ACS, low temperature, all climates	
Application	Heating (low temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	1x230V 50Hz	

## Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	2.27 kW	1.92 kW
El input	0.50 kW	
СОР	4.54	

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



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EN 12102-1	
	Low temperature
Sound power level indoor	52 dB(A)
Sound power level outdoor	52 dB(A)

EN 14825	
	Low temperature
$\eta_s$	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
$COP Tj = +2^{\circ}C$	4.00
Cdh Tj = +2 °C	0.900
Pdh Tj = +7°C	1.63 kW
$COP Tj = +7^{\circ}C$	6.06
Cdh Tj = +7 °C	0.900

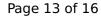




Pdh Tj = 12°C	1.67 kW
COP Tj = 12°C	6.43
Cdh Tj = +12 °C	0.900
Pdh Tj = Tbiv	4.03 kW
COP Tj = Tbiv	2.67
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.51
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900
WTOL	60 °C
Poff	17 W
РТО	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

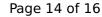
## Warmer Climate

EN 14825	
	Low temperature
$\eta_{S}$	203 %





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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
$COP Tj = +7^{\circ}C$	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
РТО	30 W



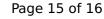


PSB	17 W
PCK	5 W
Supplementary Heater: Type of energy input	Electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	904 kWh

EN 12102-1	
	Low temperature
Sound power level outdoor	52 dB(A)

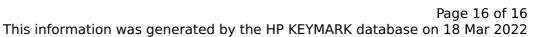
## Colder Climate

EN 14825		
	Low temperature	
$\eta_s$	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	





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Pdh Tj = +2°C	1.75 kW
$COPTj = +2^{\circ}C$	4.61
Cdh Tj = +2 °C	0.900
Pdh Tj = $+7^{\circ}$ C	1.42 kW
$COP Tj = +7^{\circ}C$	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
	1





Annual energy consumption Qhe	2812 kWh
Pdh Tj = -15°C (if TOL<-20°C)	3.48
COP Tj = -15°C (if TOL $<$ -20°C)	2.52
Cdh Tj = -15 °C	0.900

EN 12102-1	
	Low temperature
Sound power level outdoor	52 dB(A)