

Summary of	ECOGEO B/C 1 5-22kW	Reg. No.	011-1W0328
Certificate Holder		-	
Name	Ecoforest Geotermia S.L.		
Address	Rúa das Pontes, 25	Zip	36350
City	Nigrán (Pontevedra)	Country	Spain
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH		
Name of testing laboratory	AIT Austrian Institute of Technology GmbH		
Subtype title	ECOGEO B/C 1 5-22kW		
Heat Pump Type	Brine/Water		
Refrigerant	R410a		
Mass Of Refrigerant	1.4 kg		
Certification Date	28.05.2019		



Model: ECOGEO C1 T 5-22kW

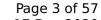
General Data		
Power supply	3x400V 50Hz	
Off-peak product	Yes	

Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	8.60 kW	7.91 kW	
El input	1.76 kW	2.62 kW	
СОР	4.88	3.02	
Indoor water flow rate	1.48 m³/h	0.83 m³/h	

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

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





EN 14825		
	Low temperature	Medium temperature
η _s	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90





Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90





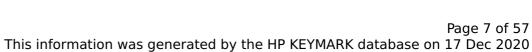
Cdh	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL<-20°C)	4.06	3.09
Cdh	0.99	0.99

Domestic Hot Water (DHW)

CEN heat pump KEYMARK



EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	

Warmer Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	





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EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	



Model: ECOGEO C2 T 5-22kW

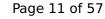
General Data		
Power supply	3x400V 50Hz	
Off-peak product	Yes	

Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	8.60 kW	7.91 kW	
El input	1.76 kW	2.62 kW	
СОР	4.88	3.02	
Indoor water flow rate	1.48 m³/h	0.83 m³/h	

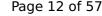
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





EN 14825		
	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90





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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
PTO	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90



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This information was generated by the HP KEYMARK database on 17 Dec 2020

	, -	
Cdh	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



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24.76 kW	19.09 kW		
3.77	2.90		
60 °C	60 °C		
7 W	7 W		
7 W	7 W		
6 W	6 W		
o w	0 W		
Electricity	Electricity		
6.00 kW	6.00 kW		
11764 kWh	15103 kWh		
18.78	16.54		
4.06	3.09		
0.99	0.99		
	3.77 60 °C 7 W 7 W 6 W 0 W Electricity 6.00 kW 11764 kWh 18.78 4.06		

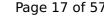
Domestic Hot Water (DHW)



EN 16147	
Declared load profile	L
Efficiency ηDHW	100 %
СОР	1.68
Heating up time	00:56:51 h:min
Standby power input	162.8 W
Reference hot water temperature	57.5 °C
Mixed water at 40°C	233 I

Warmer Climate

EN 16147	
Declared load profile	L
Efficiency ηDHW	100 %
СОР	1.68
Heating up time	00:56:51 h:min
Standby power input	162.8 W
Reference hot water temperature	57.5 °C
Mixed water at 40°C	233





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EN 16147	
Declared load profile	L
Efficiency ηDHW	100 %
СОР	1.68
Heating up time	00:56:51 h:min
Standby power input	162.8 W
Reference hot water temperature	57.5 °C
Mixed water at 40°C	233 I



Model: ECOGEO B1 T 5-22kW

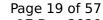
General Data	
Power supply 3x400V 50Hz	

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.60 kW	7.91 kW
El input	1.76 kW	2.62 kW
СОР	4.88	3.02
Indoor water flow rate	1.48 m³/h	0.83 m³/h

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

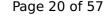
EN 12102-1			
Low temperature Medium temperature			
Sound power level indoor	42 dB(A)	42 dB(A)	





EN 14825

	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90



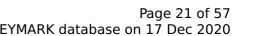


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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90





This information was	generated by the HP	KEYMARK database on 17 Dec 2020
Cdh	0.99	0.99
Pdh Tj = +7°C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL<-20°C)	4.06	3.09
Cdh	0.99	0.99



Model: ECOGEO B2 T 1 5-22kW

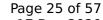
General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.60 kW	7.91 kW
El input	1.76 kW	2.62 kW
СОР	4.88	3.02
Indoor water flow rate	1.48 m³/h	0.83 m³/h

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

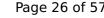
EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





EN 14825

	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90





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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90





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Cdh	0.99	0.99
Pdh Tj = +7°C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh





EN 14825

	Low temperature	Medium temperature
η_{S}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75
		1



Cdh

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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL $<$ -20°C)	4.06	3.09

0.99

0.99



Model: ECOGEO C1 5-22kW

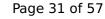
General Data	
Power supply	1x230V 50Hz
Off-peak product	Yes

Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	8.60 kW	7.91 kW	
El input	1.76 kW	2.62 kW	
СОР	4.88	3.02	
Indoor water flow rate	1.48 m³/h	0.83 m³/h	

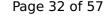
EN 14511-4		
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Starting and operating test	passed	

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





	EN 14825	
	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90





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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
PTO	7 W	7 W
PSB	6 W	6 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90



	<u> </u>	
Cdh	0.99	0.99
Pdh Tj = +7°C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



	Title database on 17 Dec 202
24.76 kW	19.09 kW
3.77	2.90
60 °C	60 °C
7 W	7 W
7 W	7 W
6 W	6 W
o w	0 W
Electricity	Electricity
6.00 kW	6.00 kW
11764 kWh	15103 kWh
18.78	16.54
4.06	3.09
0.99	0.99
	24.76 kW 3.77 60 °C 7 W 7 W 6 W 0 W Electricity 6.00 kW 11764 kWh 18.78 4.06

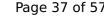
Domestic Hot Water (DHW)



EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	

Warmer Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	





 $$\operatorname{\textit{Page}}\xspace$ 37 of 57 This information was generated by the HP KEYMARK database on 17 Dec 2020

EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233	



Model: ECOGEO C2 1 5-22kW

General Data		
Power supply	1x230V 50Hz	
Off-peak product	Yes	

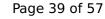
Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.60 kW	7.91 kW
El input	1.76 kW	2.62 kW
СОР	4.88	3.02
Indoor water flow rate	1.48 m³/h	0.83 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





	EN 14825	
	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90

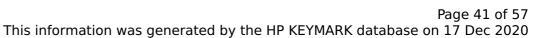




Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
PTO	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90





Cdh 0.99 0.99 Pdh Tj = 12°C 6.56 kW 5.72 kW COP Tj = 12°C 5.33 4.36 Cdh 0.99 0.99 Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW		T. Control of the con	
COP Tj = +7°C 4.20 3.21 Cdh 0.99 0.99 0.99 Pdh Tj = 12°C 5.33 4.36 Cdh 0.99 0.99 Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C POff 7 W 7 W PTO 7 W PSB 6 W 6 W PCK Supplementary Heater: Type of energy input Electricity Electricity Electricity Electricity Supplementary Heater: PSUP	Cdh	0.99	0.99
Cdh 0.99 0.99 Pdh Tj = 12°C 6.56 kW 5.72 kW COP Tj = 12°C 5.33 4.36 Cdh 0.99 0.99 Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	Pdh Tj = $+7^{\circ}$ C	14.91 kW	12.89 kW
Pdh Tj = 12°C 6.56 kW 5.72 kW COP Tj = 12°C 5.33 4.36 Cdh 0.99 0.99 Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	$COPTj = +7^{\circ}C$	4.20	3.21
COP Tj = 12°C	Cdh	0.99	0.99
Cdh 0.99 0.99 Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	Pdh Tj = 12°C	6.56 kW	5.72 kW
Pdh Tj = Tbiv 24.76 kW 19.09 kW COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	COP Tj = 12°C	5.33	4.36
COP Tj = Tbiv 3.77 2.90 Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	Cdh	0.99	0.99
Pdh Tj = TOL 24.76 kW 19.09 kW COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = TOL 3.77 2.90 WTOL 60 °C 60 °C Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	COP Tj = Tbiv	3.77	2.90
WTOL 60 °C 60 °C 7 W 7 W 7 W PTO 7 W 6 W PSB 6 W 6 W PCK 0 W Supplementary Heater: Type of energy input Electricity Electricity Electricity Supplementary Heater: PSUP 6.00 kW	Pdh Tj = TOL	24.76 kW	19.09 kW
Poff 7 W 7 W PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	COP Tj = TOL	3.77	2.90
PTO 7 W 7 W PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	WTOL	60 °C	60 °C
PSB 6 W 6 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	Poff	7 W	7 W
PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	РТО	7 W	7 W
Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.00 kW 6.00 kW	PSB	6 W	6 W
Supplementary Heater: PSUP 6.00 kW 6.00 kW	PCK	o w	o w
	Supplementary Heater: Type of energy input	Electricity	Electricity
Annual energy consumption Qhe 6572 kWh 7117 kWh	Supplementary Heater: PSUP	6.00 kW	6.00 kW
	Annual energy consumption Qhe	6572 kWh	7117 kWh

Colder Climate





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



This information was get	Teracea by the Thi RETH	Ann database on 17 Dec 2020
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL<-20°C)	4.06	3.09
Cdh	0.99	0.99

Domestic Hot Water (DHW)

Average Climate

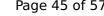


EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	

Warmer Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233 I	

Colder Climate





 $$\operatorname{Page}\ 45$$ of 57 This information was generated by the HP KEYMARK database on 17 Dec 2020

EN 16147		
Declared load profile	L	
Efficiency ηDHW	100 %	
СОР	1.68	
Heating up time	00:56:51 h:min	
Standby power input	162.8 W	
Reference hot water temperature	57.5 °C	
Mixed water at 40°C	233	



Model: ECOGEO B1 5-22kW

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.60 kW	7.91 kW
El input	1.76 kW	2.62 kW
СОР	4.88	3.02
Indoor water flow rate	1.48 m³/h	0.83 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)





EN 14825

	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
COP Tj = +7°C	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90





Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	187 %	148 %
Prated	23.00 kW	20.00 kW
SCOP	4.68	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	24.76 kW	19.09 kW
COP Tj = +2°C	3.77	2.90





Cdh	0.99	0.99
Pdh Tj = +7°C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh

Colder Climate





EN 14825

	Low temperature	Medium temperature
η_{s}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



$$\operatorname{\textit{Page}}\xspace\,51}$ of 57 This information was generated by the HP KEYMARK database on 17 Dec 2020

Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL $<$ -20°C)	4.06	3.09
Cdh	0.99	0.99



Model: ECOGEO B2 5-22kW

General Data		
Power supply	1x230V 50Hz	

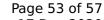
Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	8.60 kW	7.91 kW	
El input	1.76 kW	2.62 kW	
СОР	4.88	3.02	
Indoor water flow rate	1.48 m³/h	0.83 m³/h	

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

Average Climate

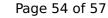
EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	42 dB(A)	42 dB(A)	





EN 14825

	Low temperature	Medium temperature
η_{s}	188 %	150 %
Prated	23.00 kW	20.00 kW
SCOP	4.71	3.75
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	20.07 kW	17.41 kW
COP Tj = -7°C	3.27	2.67
Cdh	0.99	0.99
Pdh Tj = +2°C	12.97 kW	10.69 kW
COP Tj = +2°C	4.86	3.60
Cdh	0.99	0.99
Pdh Tj = +7°C	8.50 kW	7.08 kW
$COP Tj = +7^{\circ}C$	5.52	4.99
Cdh	0.99	0.99
Pdh Tj = 12°C	3.79 kW	3.76 kW
COP Tj = 12°C	5.19	4.38
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90

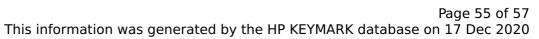




Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	10084 kWh	10840 kWh

Warmer Climate

EN 14825			
	Low temperature	Medium temperature	
η_{s}	187 %	148 %	
Prated	23.00 kW	20.00 kW	
SCOP	4.68	3.70	
Tbiv	2 °C	2 °C	
TOL	2 °C	2 °C	
Pdh Tj = +2°C	24.76 kW	19.09 kW	
COP Tj = +2°C	3.77	2.90	



SVV.	CEN heat pump KEYMARK
6	KEYMARK

Cdh	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	14.91 kW	12.89 kW
$COP Tj = +7^{\circ}C$	4.20	3.21
Cdh	0.99	0.99
Pdh Tj = 12°C	6.56 kW	5.72 kW
COP Tj = 12°C	5.33	4.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	24.76 kW	19.09 kW
COP Tj = Tbiv	3.77	2.90
Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6572 kWh	7117 kWh

Colder Climate





EN 14825

	Low temperature	Medium temperature
η_{S}	193 %	129 %
Prated	23.00 kW	20.00 kW
SCOP	4.82	3.22
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	13.83 kW	11.90 kW
COP Tj = -7°C	4.39	3.71
Cdh	0.99	0.99
Pdh Tj = +2°C	8.55 kW	7.38 kW
COP Tj = +2°C	5.18	4.66
Cdh	0.99	0.99
Pdh Tj = +7°C	5.62 kW	4.80 kW
COP Tj = +7°C	5.38	5.24
Cdh	0.99	0.99
Pdh Tj = 12°C	3.57 kW	3.55 kW
COP Tj = 12°C	4.94	5.55
Cdh	0.99	0.99
Pdh Tj = Tbiv	15.54 kW	13.79 kW
COP Tj = Tbiv	4.96	3.75



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Pdh Tj = TOL	24.76 kW	19.09 kW
COP Tj = TOL	3.77	2.90
WTOL	60 °C	60 °C
Poff	7 W	7 W
РТО	7 W	7 W
PSB	6 W	6 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	11764 kWh	15103 kWh
Pdh Tj = -15°C (if TOL<-20°C)	18.78	16.54
COP Tj = -15°C (if TOL<-20°C)	4.06	3.09
Cdh	0.99	0.99