

Subtype S-Therm Ontario Split 120 140

Certificate Holder	SINCLAIR Global Group s.r.o.
Address	Purkyňova 45
ZIP	61200
City	Brno
Country	CZ
Certification Body	BRE Global Limited
Subtype title	S-Therm Ontario Split 120 140
Registration number	041-K037-27
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.84 kg
Certification Date	03.03.2023
Testing basis	Heat Pump Keymark Scheme Rules Rev 11
Testing laboratory	SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch, CN

**Model GSH-120IRB\*-3/GSH-120ERB-3**

Model name	GSH-120IRB*-3/GSH-120ERB-3
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	108 %
COP	2.58
Heating up time	1:28 h:min
Standby power input	67.1 W
Reference hot water temperature	52 °C
Mixed water at 40°C	336 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	85 %
COP	2.05
Heating up time	1:54 h:min
Standby power input	70 W
Reference hot water temperature	52 °C
Mixed water at 40°C	333 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	115 %
COP	2.73
Heating up time	1:28 h:min
Standby power input	68.2 W
Reference hot water temperature	52 °C
Mixed water at 40°C	332 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	
<b>EN 14511-2   Heating</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
Heat output	12 kW	12 kW
El input	2.4 kW	3.93 kW
COP	5	3.05
<b>EN 12102-1   Average Climate</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	64 dB(A)	68 dB(A)
<b>EN 14825   Average Climate</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	176 %	126 %
Prated	11 kW	11 kW
SCOP	4.48	3.23
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.7 kW	9.9 kW
COP Tj = -7°C	2.8	2.04
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.1 kW	5.4 kW
COP Tj = +2°C	4.38	2.98
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.9 kW	3.7 kW
COP Tj = +7°C	6.04	4.63
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.2 kW	3.1 kW
COP Tj = 12°C	7.19	5.61
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	9.7 kW	9.9 kW
COP Tj = Tbiv	2.8	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.6 kW	10.1 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.34	1.89
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	2.4 kW	0.9 kW
Annual energy consumption Qhe	5065 kWh	7028 kWh

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_s$	159 %	115 %
Prated	10 kW	11 kW
SCOP	4.05	2.95
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.6 kW	6.9 kW
COP Tj = -7°C	3.29	2.59
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4 kW	4.2 kW
COP Tj = +2°C	5.03	3.5
Cdh Tj = +2 °C	0.97	0.98
Pdh Tj = +7°C	2.8 kW	2.6 kW
COP Tj = +7°C	5.7	4.38
Cdh Tj = +7 °C	0.95	0.96
Pdh Tj = 12°C	3.4 kW	3.2 kW
COP Tj = 12°C	7.17	5.97
Cdh Tj = +12 °C	0.95	0.95
Pdh Tj = Tbiv	9 kW	9 kW
COP Tj = Tbiv	2.6	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.8 kW	4 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.75	1.08
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.2 kW	7 kW
Annual energy consumption Qhe	6088 kWh	9131 kWh
Pdh Tj = -15°C (if TOL)	9	9
COP Tj = -15°C (if TOL)	2.6	1.84

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	234 %	168 %
Prated	12 kW	13 kW
SCOP	5.93	4.28
Tbiv	2 °C	2 °C

TOL	2 °C	2 °C
Pdh Tj = +2°C	12 kW	12.8 kW
COP Tj = +2°C	3.25	2.34
Cdh Tj = +2 °C	0.99	1
Pdh Tj = +7°C	7.5 kW	8.3 kW
COP Tj = +7°C	5.12	3.59
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.5 kW	3.7 kW
COP Tj = 12°C	7.66	5.64
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	12.08 kW	12.8 kW
COP Tj = Tbiv	3.25	2.34
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.08 kW	12.8 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.25	2.34
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0 kW	0 kW
Annual energy consumption Qhe	2698 kWh	4047 kWh

**Model GSH-120IRB\*/GSH-120ERB**

Model name	GSH-120IRB*/GSH-120ERB
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, 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 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	105 %
COP	2.52
Heating up time	1:28 h:min
Standby power input	60.2 W
Reference hot water temperature	52 °C
Mixed water at 40°C	336 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	84 %
COP	2.04
Heating up time	1:54 h:min
Standby power input	58.7 W
Reference hot water temperature	52 °C
Mixed water at 40°C	333 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	108 %
COP	2.59
Heating up time	1:28 h:min
Standby power input	58.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	332 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	12 kW	12 kW
El input	2.4 kW	3.81 kW
COP	5	3.15

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	64 dB(A)	68 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	182 %	126 %
Prated	11 kW	11 kW
SCOP	4.63	3.23
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.8 kW	9.6 kW
COP Tj = -7°C	2.89	2.04
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.2 kW	5.6 kW
COP Tj = +2°C	4.48	3.03
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.6 kW	3.9 kW
COP Tj = +7°C	6.4	4.44
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.2 kW	3.1 kW
COP Tj = 12°C	7.19	5.61
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	9.8 kW	9.6 kW
COP Tj = Tbiv	2.89	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.6 kW	10.1 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.47	1.96
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	2.4 kW	0.9 kW
Annual energy consumption Qhe	4967 kWh	6985 kWh

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_s$	161 %	119 %
P <sub>rated</sub>	10 kW	11 kW
SCOP	4.1	3.05
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>d</sub> h T <sub>j</sub> = -7°C	6.5 kW	6.8 kW
COP T <sub>j</sub> = -7°C	3.32	2.6
Cd <sub>h</sub> T <sub>j</sub> = -7 °C	0.99	0.99
P <sub>d</sub> h T <sub>j</sub> = +2°C	3.9 kW	4.3 kW
COP T <sub>j</sub> = +2°C	5.23	3.74
Cd <sub>h</sub> T <sub>j</sub> = +2 °C	0.97	0.98
P <sub>d</sub> h T <sub>j</sub> = +7°C	2.8 kW	2.6 kW
COP T <sub>j</sub> = +7°C	5.7	4.38
Cd <sub>h</sub> T <sub>j</sub> = +7 °C	0.95	0.96
P <sub>d</sub> h T <sub>j</sub> = 12°C	3.2 kW	3.2 kW
COP T <sub>j</sub> = 12°C	7.02	5.97
Cd <sub>h</sub> T <sub>j</sub> = +12 °C	0.95	0.95
P <sub>d</sub> h T <sub>j</sub> = T <sub>biv</sub>	8.5 kW	9.3 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.65	1.95
P <sub>d</sub> h T <sub>j</sub> = TOL or P <sub>d</sub> h T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.8 kW	4 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.83	1.08
WTOL	60 °C	60 °C
P <sub>off</sub>	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.2 kW	7 kW
Annual energy consumption Qhe	6277 kWh	9207 kWh
P <sub>d</sub> h T <sub>j</sub> = -15°C (if TOL)	8.5	9.3
COP T <sub>j</sub> = -15°C (if TOL)	2.65	1.95

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	262 %	169 %
P <sub>rated</sub>	12 kW	13 kW
SCOP	6.63	4.3
T <sub>biv</sub>	2 °C	2 °C

TOL	2 °C	2 °C
Pdh Tj = +2°C	12.3 kW	13.1 kW
COP Tj = +2°C	3.49	2.54
Cdh Tj = +2 °C	0.99	1
Pdh Tj = +7°C	7.5 kW	8 kW
COP Tj = +7°C	5.47	3.67
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.4 kW	3.6 kW
COP Tj = 12°C	9.06	5.52
Cdh Tj = +12 °C	0.93	0.96
Pdh Tj = Tbiv	12.3 kW	13.1 kW
COP Tj = Tbiv	3.49	2.54
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.3 kW	13.1 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.54
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0 kW	0 kW
Annual energy consumption Qhe	2488 kWh	4057 kWh

**Model GSH-140IRB\*-3/GSH-140ERB-3**

Model name	GSH-140IRB*-3/GSH-140ERB-3
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	108 %
COP	2.58
Heating up time	1:28 h:min
Standby power input	67.1 W
Reference hot water temperature	52 °C
Mixed water at 40°C	336 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	85 %
COP	2.05
Heating up time	1:54 h:min
Standby power input	70 W
Reference hot water temperature	52 °C
Mixed water at 40°C	333 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	115 %
COP	2.73
Heating up time	1:28 h:min
Standby power input	68.2 W
Reference hot water temperature	52 °C
Mixed water at 40°C	332 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	14 kW	14 kW
El input	2.98 kW	4.67 kW
COP	4.7	3

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	64 dB(A)	68 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	175 %	131 %
Prated	12 kW	13 kW
SCOP	4.45	3.35
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.5 kW	11.6 kW
COP Tj = -7°C	2.64	1.96
Cdh Tj = -7 °C	0.99	1
Pdh Tj = +2°C	6.5 kW	7.3 kW
COP Tj = +2°C	4.48	3.33
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	4.2 kW	4.2 kW
COP Tj = +7°C	5.75	4.48
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	3.2 kW	3.1 kW
COP Tj = 12°C	7.24	5.65
Cdh Tj = +12 °C	0.94	0.95
Pdh Tj = Tbiv	10.5 kW	11.6 kW
COP Tj = Tbiv	2.64	1.96
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.7 kW	11 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.61	1.81
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	1.3 kW	2 kW
Annual energy consumption Qhe	5552 kWh	7958 kWh

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	156 %	119 %
Prated	12 kW	13 kW
SCOP	3.98	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.6 kW	8.6 kW
COP Tj = -7°C	3.29	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.5 kW	4.7 kW
COP Tj = +2°C	4.85	3.69
Cdh Tj = +2 °C	0.97	0.98
Pdh Tj = +7°C	2.8 kW	3 kW
COP Tj = +7°C	5.83	4.58
Cdh Tj = +7 °C	0.95	0.96
Pdh Tj = 12°C	3.2 kW	3.2 kW
COP Tj = 12°C	7.02	5.97
Cdh Tj = +12 °C	0.95	0.95
Pdh Tj = Tbiv	10.1 kW	10.5 kW
COP Tj = Tbiv	2.57	1.83
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.8 kW	4 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.75	1.08
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.2 kW	9 kW
Annual energy consumption Qhe	7442 kWh	10476 kWh
Pdh Tj = -15°C (if TOL)	10.1	10.5
COP Tj = -15°C (if TOL)	2.57	1.83

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	241 %	171 %
Prated	12 kW	14 kW
SCOP	6.1	4.35
Tbiv	2 °C	2 °C

TOL	2 °C	2 °C
Pdh Tj = +2°C	12 kW	13.7 kW
COP Tj = +2°C	3.25	2.29
Cdh Tj = +2 °C	0.99	1
Pdh Tj = +7°C	7.5 kW	8.9 kW
COP Tj = +7°C	5.35	3.61
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.7 kW	4.2 kW
COP Tj = 12°C	7.78	5.84
Cdh Tj = +12 °C	0.95	0.97
Pdh Tj = Tbiv	12 kW	13.7 kW
COP Tj = Tbiv	3.25	2.29
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12 kW	13.7 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.25	2.29
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0 kW	0 kW
Annual energy consumption Qhe	2625 kWh	4287 kWh

**Model GSH-140IRB\*/GSH-140ERB**

Model name	GSH-140IRB*/GSH-140ERB
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, 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 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	105 %
COP	2.52
Heating up time	1:28 h:min
Standby power input	60.2 W
Reference hot water temperature	52 °C
Mixed water at 40°C	336 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	84 %
COP	2.04
Heating up time	1:54 h:min
Standby power input	58.7 W
Reference hot water temperature	52 °C
Mixed water at 40°C	333 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	108 %
COP	2.59
Heating up time	1:28 h:min
Standby power input	58.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	332 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	
<b>EN 14511-2   Heating</b>		
	Low temperature	Medium temperature
Heat output	14 kW	14 kW
El input	2.98 kW	4.52 kW
COP	4.7	3.1
<b>EN 12102-1   Average Climate</b>		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	64 dB(A)	68 dB(A)
<b>EN 14825   Average Climate</b>		
	Low temperature	Medium temperature
$\eta_s$	183 %	137 %
Prated	12 kW	13 kW
SCOP	4.65	3.5
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11 kW	12 kW
COP Tj = -7°C	2.79	2.23
Cdh Tj = -7 °C	0.99	1
Pdh Tj = +2°C	6.2 kW	7.2 kW
COP Tj = +2°C	4.48	3.33
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	4.3 kW	4.5 kW
COP Tj = +7°C	6.54	4.72
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.2 kW	3.1 kW
COP Tj = 12°C	7.24	5.65
Cdh Tj = +12 °C	0.94	0.95
Pdh Tj = Tbiv	11 kW	12 kW
COP Tj = Tbiv	2.79	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.7 kW	11.8 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.74	2
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	1.3 kW	1.2 kW
Annual energy consumption Qhe	5535 kWh	8045 kWh

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_s$	165 %	122 %
P <sub>rated</sub>	12 kW	13 kW
SCOP	4.2	3.13
T <sub>biv</sub>	-15 °C	-15 °C
T <sub>OL</sub>	-22 °C	-22 °C
P <sub>d</sub> h T <sub>j</sub> = -7°C	6.6 kW	8.3 kW
COP T <sub>j</sub> = -7°C	3.33	2.62
Cd <sub>h</sub> T <sub>j</sub> = -7 °C	0.99	0.99
P <sub>d</sub> h T <sub>j</sub> = +2°C	4.7 kW	5.1 kW
COP T <sub>j</sub> = +2°C	5.49	3.84
Cd <sub>h</sub> T <sub>j</sub> = +2 °C	0.97	0.98
P <sub>d</sub> h T <sub>j</sub> = +7°C	2.8 kW	3 kW
COP T <sub>j</sub> = +7°C	5.83	4.58
Cd <sub>h</sub> T <sub>j</sub> = +7 °C	0.95	0.96
P <sub>d</sub> h T <sub>j</sub> = 12°C	3.2 kW	3.2 kW
COP T <sub>j</sub> = 12°C	7.02	5.97
Cd <sub>h</sub> T <sub>j</sub> = +12 °C	0.95	0.95
P <sub>d</sub> h T <sub>j</sub> = T <sub>biv</sub>	9.5 kW	11 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.64	2.05
P <sub>d</sub> h T <sub>j</sub> = T <sub>OL</sub> or P <sub>d</sub> h T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	7.8 kW	4 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	1.83	1.08
WT <sub>OL</sub>	60 °C	60 °C
P <sub>off</sub>	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.2 kW	9 kW
Annual energy consumption Qhe	6908 kWh	10672 kWh
P <sub>d</sub> h T <sub>j</sub> = -15°C (if T <sub>OL</sub> )	9.5	11
COP T <sub>j</sub> = -15°C (if T <sub>OL</sub> )	2.64	2.05

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	260 %	180 %
P <sub>rated</sub>	12 kW	14 kW
SCOP	6.58	4.58
T <sub>biv</sub>	2 °C	2 °C

TOL	2 °C	2 °C
Pdh Tj = +2°C	12.3 kW	13.7 kW
COP Tj = +2°C	3.49	2.32
Cdh Tj = +2 °C	0.99	1
Pdh Tj = +7°C	7.5 kW	9 kW
COP Tj = +7°C	5.35	3.71
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.4 kW	4.1 kW
COP Tj = 12°C	9.06	6.34
Cdh Tj = +12 °C	0.93	0.96
Pdh Tj = Tbiv	12.3 kW	13.7 kW
COP Tj = Tbiv	3.49	2.32
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.3 kW	13.7 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.32
WTOL	60 °C	60 °C
Poff	25 W	25 W
PTO	25 W	25 W
PSB	25 W	25 W
PCK	25 W	25 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0 kW	0 kW
Annual energy consumption Qhe	2513 kWh	4017 kWh