

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

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 η_{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 η_{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 η_{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	12 kW	12 kW
El input	2.4 kW	3.93 kW
COP	5	3.05
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
η_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 Q _{he}	5065 kWh	7028 kWh

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	159 %	115 %
Prated	10 kW	11 kW
SCOP	4.05	2.95
T _{biv}	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P _{dh} T _j = -7°C	6.6 kW	6.9 kW
COP T _j = -7°C	3.29	2.59
C _{dh} T _j = -7 °C	0.99	0.99
P _{dh} T _j = +2°C	4 kW	4.2 kW
COP T _j = +2°C	5.03	3.5
C _{dh} T _j = +2 °C	0.97	0.98
P _{dh} T _j = +7°C	2.8 kW	2.6 kW
COP T _j = +7°C	5.7	4.38
C _{dh} T _j = +7 °C	0.95	0.96
P _{dh} T _j = 12°C	3.4 kW	3.2 kW
COP T _j = 12°C	7.17	5.97
C _{dh} T _j = +12 °C	0.95	0.95
P _{dh} T _j = T _{biv}	9 kW	9 kW
COP T _j = T _{biv}	2.6	1.84
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	7.8 kW	4 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	1.75	1.08
WTOL	60 °C	60 °C
P _{off}	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 Q _{he}	6088 kWh	9131 kWh
P _{dh} T _j = -15°C (if TOL	9	9
COP T _j = -15°C (if TOL	2.6	1.84

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	234 %	168 %
Prated	12 kW	13 kW
SCOP	5.93	4.28
T _{biv}	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 η_{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 η_{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 η_{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
η_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 Q _{he}	4967 kWh	6985 kWh

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	161 %	119 %
Prated	10 kW	11 kW
SCOP	4.1	3.05
T _{biv}	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P _{dh} T _j = -7°C	6.5 kW	6.8 kW
COP T _j = -7°C	3.32	2.6
C _{dh} T _j = -7 °C	0.99	0.99
P _{dh} T _j = +2°C	3.9 kW	4.3 kW
COP T _j = +2°C	5.23	3.74
C _{dh} T _j = +2 °C	0.97	0.98
P _{dh} T _j = +7°C	2.8 kW	2.6 kW
COP T _j = +7°C	5.7	4.38
C _{dh} T _j = +7 °C	0.95	0.96
P _{dh} T _j = 12°C	3.2 kW	3.2 kW
COP T _j = 12°C	7.02	5.97
C _{dh} T _j = +12 °C	0.95	0.95
P _{dh} T _j = T _{biv}	8.5 kW	9.3 kW
COP T _j = T _{biv}	2.65	1.95
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	7.8 kW	4 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	1.83	1.08
WTOL	60 °C	60 °C
P _{off}	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 Q _{he}	6277 kWh	9207 kWh
P _{dh} T _j = -15°C (if TOL	8.5	9.3
COP T _j = -15°C (if TOL	2.65	1.95

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	262 %	169 %
Prated	12 kW	13 kW
SCOP	6.63	4.3
T _{biv}	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 η_{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 η_{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 η_{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
η_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 Q _{he}	5552 kWh	7958 kWh

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	156 %	119 %
Prated	12 kW	13 kW
SCOP	3.98	3.05
T _{biv}	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P _{dh} T _j = -7°C	6.6 kW	8.6 kW
COP T _j = -7°C	3.29	2.63
C _{dh} T _j = -7 °C	0.99	0.99
P _{dh} T _j = +2°C	4.5 kW	4.7 kW
COP T _j = +2°C	4.85	3.69
C _{dh} T _j = +2 °C	0.97	0.98
P _{dh} T _j = +7°C	2.8 kW	3 kW
COP T _j = +7°C	5.83	4.58
C _{dh} T _j = +7 °C	0.95	0.96
P _{dh} T _j = 12°C	3.2 kW	3.2 kW
COP T _j = 12°C	7.02	5.97
C _{dh} T _j = +12 °C	0.95	0.95
P _{dh} T _j = T _{biv}	10.1 kW	10.5 kW
COP T _j = T _{biv}	2.57	1.83
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	7.8 kW	4 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	1.75	1.08
WTOL	60 °C	60 °C
P _{off}	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 Q _{he}	7442 kWh	10476 kWh
P _{dh} T _j = -15°C (if TOL	10.1	10.5
COP T _j = -15°C (if TOL	2.57	1.83

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	241 %	171 %
Prated	12 kW	14 kW
SCOP	6.1	4.35
T _{biv}	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 η_{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 η_{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 η_{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	14 kW	14 kW
El input	2.98 kW	4.52 kW
COP	4.7	3.1
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
η_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 Q _{he}	5535 kWh	8045 kWh

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	165 %	122 %
Prated	12 kW	13 kW
SCOP	4.2	3.13
T _{biv}	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P _{dh} T _j = -7°C	6.6 kW	8.3 kW
COP T _j = -7°C	3.33	2.62
C _{dh} T _j = -7 °C	0.99	0.99
P _{dh} T _j = +2°C	4.7 kW	5.1 kW
COP T _j = +2°C	5.49	3.84
C _{dh} T _j = +2 °C	0.97	0.98
P _{dh} T _j = +7°C	2.8 kW	3 kW
COP T _j = +7°C	5.83	4.58
C _{dh} T _j = +7 °C	0.95	0.96
P _{dh} T _j = 12°C	3.2 kW	3.2 kW
COP T _j = 12°C	7.02	5.97
C _{dh} T _j = +12 °C	0.95	0.95
P _{dh} T _j = T _{biv}	9.5 kW	11 kW
COP T _j = T _{biv}	2.64	2.05
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	7.8 kW	4 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	1.83	1.08
WTOL	60 °C	60 °C
P _{off}	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 Q _{he}	6908 kWh	10672 kWh
P _{dh} T _j = -15°C (if TOL	9.5	11
COP T _j = -15°C (if TOL	2.64	2.05

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	Low temperature	Medium temperature
η_s	260 %	180 %
Prated	12 kW	14 kW
SCOP	6.58	4.58
T _{biv}	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