

Subtype Thermia Atlas 12

Certificate Holder	Thermia
Address	Snickaregatan 1
ZIP	
City	Arvika
Country	SE
Certification Body	RISE CERT
Subtype title	Thermia Atlas 12
Registration number	012-C700006
Heat Pump Type	Brine/Water and Water/Water
Refrigerant	R410A
Mass of Refrigerant	1.4 kg
Certification Date	02.03.2020
Testing basis	HP Keymark Scheme Rules rev 7
Testing laboratory	RISE Research Institutes of Sweden

Model ATLAS 12 400V

Model name	ATLAS 12 400V
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Colder Climate
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	3x400V 50Hz
Off-peak product	Yes

Brine/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	5.24 kW	4.78 kW
El input	1.10 kW	1.68 kW
COP	4.75	2.85

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	222 %	162 %
Prated	11.49 kW	10.48 kW
SCOP	5.75	4.25
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.17 kW	9.27 kW
COP Tj = -7°C	4.82	3.24
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.19 kW	5.64 kW
COP Tj = +2°C	5.95	4.30
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.98 kW	3.63 kW
COP Tj = +7°C	6.50	5.02

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	2.81 kW	2.77 kW
COP Tj = 12°C	5.70	4.91
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4131 kWh	5097 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	226 %	167 %
Prated	11.49 kW	10.48 kW
SCOP	5.86	4.39
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.96 kW	6.34 kW
COP Tj = -7°C	5.64	3.96
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.23 kW	3.86 kW
COP Tj = +2°C	6.48	4.91
Cdh Tj = +2 °C	0.98	0.98
Pdh Tj = +7°C	2.72 kW	2.48 kW
COP Tj = +7°C	5.93	5.22
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.80 kW	2.77 kW
COP Tj = 12°C	5.49	5.06
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4838 kWh	5887 kWh

Water/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	10.16 kW	12.54 kW
El input	1.56 kW	3.76 kW
COP	6.52	3.33

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	334 %	217 %
Prated	10.16 kW	12.54 kW
SCOP	8.55	5.62
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.99 kW	11.10 kW
COP Tj = -7°C	6.95	4.20
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.47 kW	6.75 kW
COP Tj = +2°C	8.85	5.75
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.52 kW	4.34 kW
COP Tj = +7°C	10.21	6.70
Cdh Tj = +7 °C	0.96	0.98

Pdh Tj = 12°C	3.85 kW	3.75 kW
COP Tj = 12°C	8.73	6.41
Cdh Tj = +12 °C	0.96	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	6.52	3.33
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2454 kWh	4615 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	346 %	226 %
Prated	10.16 kW	12.54 kW
SCOP	8.86	5.84
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.15 kW	7.59 kW
COP Tj = -7°C	8.54	5.41
Cdh Tj = -7 °C	0.98	0.99
Pdh Tj = +2°C	3.74 kW	4.62 kW
COP Tj = +2°C	10.08	6.70
Cdh Tj = +2 °C	0.96	0.98
Pdh Tj = +7°C	3.85 kW	3.76 kW
COP Tj = +7°C	8.77	6.47
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.83 kW	3.78 kW
COP Tj = 12°C	8.49	6.62
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW

COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$	6.52	3.33
WTOL	65 °C	65 °C
P _{off}	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	2827 kWh	5291 kWh

Model ATLAS 12 DUO 400V

Model name	ATLAS 12 DUO 400V
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Colder Climate
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	3x400V 50Hz
Off-peak product	Yes

Brine/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	5.24 kW	4.78 kW
El input	1.10 kW	1.68 kW
COP	4.75	2.85

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	222 %	162 %
Prated	11.49 kW	10.48 kW
SCOP	5.75	4.25
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.17 kW	9.27 kW
COP Tj = -7°C	4.82	3.24
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.19 kW	5.64 kW
COP Tj = +2°C	5.95	4.30
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.98 kW	3.63 kW
COP Tj = +7°C	6.50	5.02

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	2.81 kW	2.77 kW
COP Tj = 12°C	5.70	4.91
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4131 kWh	5097 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	226 %	167 %
Prated	11.49 kW	10.48 kW
SCOP	5.86	4.39
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.96 kW	6.34 kW
COP Tj = -7°C	5.64	3.96
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.23 kW	3.86 kW
COP Tj = +2°C	6.48	4.91
Cdh Tj = +2 °C	0.98	0.98
Pdh Tj = +7°C	2.72 kW	2.48 kW
COP Tj = +7°C	5.93	5.22
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.80 kW	2.77 kW
COP Tj = 12°C	5.49	5.06
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4838 kWh	5887 kWh

Water/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	10.16 kW	12.54 kW
El input	1.56 kW	3.76 kW
COP	6.52	3.33

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	334 %	217 %
Prated	10.16 kW	12.54 kW
SCOP	8.55	5.62
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.99 kW	11.10 kW
COP Tj = -7°C	6.95	4.20
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.47 kW	6.75 kW
COP Tj = +2°C	8.85	5.75
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.52 kW	4.34 kW
COP Tj = +7°C	10.21	6.70
Cdh Tj = +7 °C	0.96	0.98

Pdh Tj = 12°C	3.85 kW	3.75 kW
COP Tj = 12°C	8.73	6.41
Cdh Tj = +12 °C	0.96	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	6.52	3.33
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2454 kWh	4615 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	346 %	226 %
Prated	10.16 kW	12.54 kW
SCOP	8.86	5.84
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.15 kW	7.59 kW
COP Tj = -7°C	8.54	5.41
Cdh Tj = -7 °C	0.98	0.99
Pdh Tj = +2°C	3.74 kW	4.62 kW
COP Tj = +2°C	10.08	6.70
Cdh Tj = +2 °C	0.96	0.98
Pdh Tj = +7°C	3.85 kW	3.76 kW
COP Tj = +7°C	8.77	6.47
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.83 kW	3.78 kW
COP Tj = 12°C	8.49	6.62
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW

COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$	6.52	3.33
WTOL	65 °C	65 °C
P _{off}	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	2827 kWh	5291 kWh

Model ATLAS 12 230V

Model name	ATLAS 12 230V
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Colder Climate
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	1x230V 50Hz
Off-peak product	Yes

Brine/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	5.24 kW	4.78 kW
El input	1.10 kW	1.68 kW
COP	4.75	2.85

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	222 %	162 %
Prated	11.49 kW	10.48 kW
SCOP	5.75	4.25
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.17 kW	9.27 kW
COP Tj = -7°C	4.82	3.24
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.19 kW	5.64 kW
COP Tj = +2°C	5.95	4.30
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.98 kW	3.63 kW
COP Tj = +7°C	6.50	5.02

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	2.81 kW	2.77 kW
COP Tj = 12°C	5.70	4.91
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4131 kWh	5097 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	226 %	167 %
Prated	11.49 kW	10.48 kW
SCOP	5.86	4.39
Tbiv	-22 °C	-22 °C
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COP Tj = -7°C	5.64	3.96
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.23 kW	3.86 kW
COP Tj = +2°C	6.48	4.91
Cdh Tj = +2 °C	0.98	0.98
Pdh Tj = +7°C	2.72 kW	2.48 kW
COP Tj = +7°C	5.93	5.22
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.80 kW	2.77 kW
COP Tj = 12°C	5.49	5.06
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4838 kWh	5887 kWh

Water/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	10.16 kW	12.54 kW
El input	1.56 kW	3.76 kW
COP	6.52	3.33

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	334 %	217 %
Prated	10.16 kW	12.54 kW
SCOP	8.55	5.62
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.99 kW	11.10 kW
COP Tj = -7°C	6.95	4.20
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.47 kW	6.75 kW
COP Tj = +2°C	8.85	5.75
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.52 kW	4.34 kW
COP Tj = +7°C	10.21	6.70
Cdh Tj = +7 °C	0.96	0.98

Pdh Tj = 12°C	3.85 kW	3.75 kW
COP Tj = 12°C	8.73	6.41
Cdh Tj = +12 °C	0.96	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	6.52	3.33
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2454 kWh	4615 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	33 dB(A)	33 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	346 %	226 %
Prated	10.16 kW	12.54 kW
SCOP	8.86	5.84
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.15 kW	7.59 kW
COP Tj = -7°C	8.54	5.41
Cdh Tj = -7 °C	0.98	0.99
Pdh Tj = +2°C	3.74 kW	4.62 kW
COP Tj = +2°C	10.08	6.70
Cdh Tj = +2 °C	0.96	0.98
Pdh Tj = +7°C	3.85 kW	3.76 kW
COP Tj = +7°C	8.77	6.47
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.83 kW	3.78 kW
COP Tj = 12°C	8.49	6.62
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW

COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$	6.52	3.33
WTOL	65 °C	65 °C
P _{off}	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	2827 kWh	5291 kWh

Model ATLAS 12 DUO 230V

Model name	ATLAS 12 DUO 230V
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Colder Climate
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	1x230V 50Hz
Off-peak product	Yes

Brine/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	5.24 kW	4.78 kW
El input	1.10 kW	1.68 kW
COP	4.75	2.85

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	222 %	162 %
Prated	11.49 kW	10.48 kW
SCOP	5.75	4.25
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.17 kW	9.27 kW
COP Tj = -7°C	4.82	3.24
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	6.19 kW	5.64 kW
COP Tj = +2°C	5.95	4.30
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.98 kW	3.63 kW
COP Tj = +7°C	6.50	5.02

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	2.81 kW	2.77 kW
COP Tj = 12°C	5.70	4.91
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4131 kWh	5097 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	226 %	167 %
Prated	11.49 kW	10.48 kW
SCOP	5.86	4.39
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.96 kW	6.34 kW
COP Tj = -7°C	5.64	3.96
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.23 kW	3.86 kW
COP Tj = +2°C	6.48	4.91
Cdh Tj = +2 °C	0.98	0.98
Pdh Tj = +7°C	2.72 kW	2.48 kW
COP Tj = +7°C	5.93	5.22
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.80 kW	2.77 kW
COP Tj = 12°C	5.49	5.06
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	11.49 kW	10.48 kW
COP Tj = Tbiv	4.38	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.49 kW	10.48 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.38	2.91
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4838 kWh	5887 kWh

Water/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 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	10.16 kW	12.54 kW
El input	1.56 kW	3.76 kW
COP	6.52	3.33

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	334 %	217 %
Prated	10.16 kW	12.54 kW
SCOP	8.55	5.62
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.99 kW	11.10 kW
COP Tj = -7°C	6.95	4.20
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.47 kW	6.75 kW
COP Tj = +2°C	8.85	5.75
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	3.52 kW	4.34 kW
COP Tj = +7°C	10.21	6.70
Cdh Tj = +7 °C	0.96	0.98

Pdh Tj = 12°C	3.85 kW	3.75 kW
COP Tj = 12°C	8.73	6.41
Cdh Tj = +12 °C	0.96	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	6.52	3.33
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2454 kWh	4615 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	346 %	226 %
Prated	10.16 kW	12.54 kW
SCOP	8.86	5.84
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	6.15 kW	7.59 kW
COP Tj = -7°C	8.54	5.41
Cdh Tj = -7 °C	0.98	0.99
Pdh Tj = +2°C	3.74 kW	4.62 kW
COP Tj = +2°C	10.08	6.70
Cdh Tj = +2 °C	0.96	0.98
Pdh Tj = +7°C	3.85 kW	3.76 kW
COP Tj = +7°C	8.77	6.47
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	3.83 kW	3.78 kW
COP Tj = 12°C	8.49	6.62
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	10.16 kW	12.54 kW
COP Tj = Tbiv	6.52	3.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.16 kW	12.54 kW

COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$	6.52	3.33
WTOL	65 °C	65 °C
P _{off}	15 W	15 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q _{he}	2827 kWh	5291 kWh