

Subtype LWD 50A

Certificate Holder	ait-deutschland GmbH
Address	Industriestr. 3
ZIP	95359
City	Kasendorf
Country	DE
Certification Body	BRE Global Limited
Subtype title	LWD 50A
Registration number	041-K001-20
Heat Pump Type	Outdoor Air/Water
Refrigerant	R290
Mass of Refrigerant	0.95 kg
Certification Date	12.05.2017
Testing basis	HP Keymark Scheme Transition Rules
Testing laboratory	Wärmepumpen-Testzentrum (WPZ), CH

Model alpha innotec LWD 50A-HMD

Model name	alpha innotec LWD 50A-HMD
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	n/a
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 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed

EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	7.10 kW	6.57 kW
El input	1.48 kW	1.95 kW
COP	4.80	3.37

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	164 %	125 %
Prated	6.02 kW	5.41 kW
SCOP	4.16	3.20
Tbiv	-5 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.70 kW	4.00 kW
COP Tj = -7°C	3.27	1.99
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	5.60 kW	5.40 kW
COP Tj = +2°C	4.20	3.18
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.20 kW	7.10 kW
COP Tj = +7°C	5.29	4.65
Cdh Tj = +7 °C	0.99	0.99

Pdh Tj = 12°C	8.00 kW	7.90 kW
COP Tj = 12°C	6.14	5.97
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.90 kW	4.30 kW
COP Tj = Tbiv	3.51	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.20 kW	3.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.96	1.74
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.82 kW	1.81 kW
Annual energy consumption Qhe	2989 kWh	3491 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	147 %	112 %
Prated	5.56 kW	4.88 kW
SCOP	3.74	2.89
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.80 kW	4.30 kW
COP Tj = -7°C	3.59	2.46
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.70 kW	5.50 kW
COP Tj = +2°C	4.48	3.61
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.30 kW	7.20 kW
COP Tj = +7°C	5.48	5.11
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	8.00 kW	8.00 kW
COP Tj = 12°C	6.10	6.31
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.10 kW	3.60 kW
COP Tj = Tbiv	3.11	2.00

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.00 kW	2.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.56 kW	4.88 kW
Annual energy consumption Qhe	3661 kWh	4169 kWh
Pdh Tj = -15°C (if TOL)	3.70	3.20
COP Tj = -15°C (if TOL)	2.78	1.76
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	198 %	160 %
Prated	7.28 kW	6.76 kW
SCOP	5.02	4.07
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.60 kW	5.20 kW
COP Tj = +2°C	3.82	2.39
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	7.20 kW	6.70 kW
COP Tj = +7°C	5.02	3.75
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	7.90 kW	7.80 kW
COP Tj = 12°C	5.95	5.38
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.20 kW	5.80 kW
COP Tj = Tbiv	4.38	2.88
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.60 kW	5.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.82	2.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90

WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.68 kW	1.56 kW
Annual energy consumption Qhe	1937 kWh	2217 kWh

Model alpha innotec LWD 50A-HTD

Model name	alpha innotec LWD 50A-HTD
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	n/a
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 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed

EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	7.10 kW	6.57 kW
El input	1.48 kW	1.95 kW
COP	4.80	3.37

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	164 %	125 %
Prated	6.02 kW	5.41 kW
SCOP	4.16	3.20
Tbiv	-5 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.70 kW	4.00 kW
COP Tj = -7°C	3.27	1.99
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	5.60 kW	5.40 kW
COP Tj = +2°C	4.20	3.18
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.20 kW	7.10 kW
COP Tj = +7°C	5.29	4.65
Cdh Tj = +7 °C	0.99	0.99

Pdh Tj = 12°C	8.00 kW	7.90 kW
COP Tj = 12°C	6.14	5.97
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.90 kW	4.30 kW
COP Tj = Tbiv	3.51	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.20 kW	3.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.96	1.74
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.82 kW	1.81 kW
Annual energy consumption Qhe	2989 kWh	3491 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	147 %	112 %
Prated	5.56 kW	4.88 kW
SCOP	3.74	2.89
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.80 kW	4.30 kW
COP Tj = -7°C	3.59	2.46
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.70 kW	5.50 kW
COP Tj = +2°C	4.48	3.61
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.30 kW	7.20 kW
COP Tj = +7°C	5.48	5.11
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	8.00 kW	8.00 kW
COP Tj = 12°C	6.10	6.31
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.10 kW	3.60 kW
COP Tj = Tbiv	3.11	2.00

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.00 kW	2.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.56 kW	4.88 kW
Annual energy consumption Qhe	3661 kWh	4169 kWh
Pdh Tj = -15°C (if TOL)	3.70	3.20
COP Tj = -15°C (if TOL)	2.78	1.76
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	198 %	160 %
Prated	7.28 kW	6.76 kW
SCOP	5.02	4.07
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.60 kW	5.20 kW
COP Tj = +2°C	3.82	2.39
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	7.20 kW	6.70 kW
COP Tj = +7°C	5.02	3.75
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	7.90 kW	7.80 kW
COP Tj = 12°C	5.95	5.38
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.20 kW	5.80 kW
COP Tj = Tbiv	4.38	2.88
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.60 kW	5.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.82	2.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90

WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.68 kW	1.56 kW
Annual energy consumption Qhe	1937 kWh	2217 kWh

Model NOVELAN LAD 5 - CSD

Model name	NOVELAN LAD 5 - CSD
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	n/a
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 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed

EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	7.10 kW	6.57 kW
El input	1.48 kW	1.95 kW
COP	4.80	3.37

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	164 %	125 %
Prated	6.02 kW	5.41 kW
SCOP	4.16	3.20
Tbiv	-5 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.70 kW	4.00 kW
COP Tj = -7°C	3.27	1.99
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	5.60 kW	5.40 kW
COP Tj = +2°C	4.20	3.18
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.20 kW	7.10 kW
COP Tj = +7°C	5.29	4.65
Cdh Tj = +7 °C	0.99	0.99

Pdh Tj = 12°C	8.00 kW	7.90 kW
COP Tj = 12°C	6.14	5.97
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.90 kW	4.30 kW
COP Tj = Tbiv	3.51	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.20 kW	3.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.96	1.74
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.82 kW	1.81 kW
Annual energy consumption Qhe	2989 kWh	3491 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	147 %	112 %
Prated	5.56 kW	4.88 kW
SCOP	3.74	2.89
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.80 kW	4.30 kW
COP Tj = -7°C	3.59	2.46
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.70 kW	5.50 kW
COP Tj = +2°C	4.48	3.61
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.30 kW	7.20 kW
COP Tj = +7°C	5.48	5.11
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	8.00 kW	8.00 kW
COP Tj = 12°C	6.10	6.31
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.10 kW	3.60 kW
COP Tj = Tbiv	3.11	2.00

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.00 kW	2.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.56 kW	4.88 kW
Annual energy consumption Qhe	3661 kWh	4169 kWh
Pdh Tj = -15°C (if TOL)	3.70	3.20
COP Tj = -15°C (if TOL)	2.78	1.76
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	198 %	160 %
Prated	7.28 kW	6.76 kW
SCOP	5.02	4.07
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.60 kW	5.20 kW
COP Tj = +2°C	3.82	2.39
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	7.20 kW	6.70 kW
COP Tj = +7°C	5.02	3.75
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	7.90 kW	7.80 kW
COP Tj = 12°C	5.95	5.38
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.20 kW	5.80 kW
COP Tj = Tbiv	4.38	2.88
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.60 kW	5.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.82	2.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90

WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.68 kW	1.56 kW
Annual energy consumption Qhe	1937 kWh	2217 kWh

Model NOVELAN LAD 5 - HID

Model name	NOVELAN LAD 5 - HID
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	n/a
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 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed

EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	7.10 kW	6.57 kW
El input	1.48 kW	1.95 kW
COP	4.80	3.37

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	164 %	125 %
Prated	6.02 kW	5.41 kW
SCOP	4.16	3.20
Tbiv	-5 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.70 kW	4.00 kW
COP Tj = -7°C	3.27	1.99
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	5.60 kW	5.40 kW
COP Tj = +2°C	4.20	3.18
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.20 kW	7.10 kW
COP Tj = +7°C	5.29	4.65
Cdh Tj = +7 °C	0.99	0.99

Pdh Tj = 12°C	8.00 kW	7.90 kW
COP Tj = 12°C	6.14	5.97
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.90 kW	4.30 kW
COP Tj = Tbiv	3.51	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.20 kW	3.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.96	1.74
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.82 kW	1.81 kW
Annual energy consumption Qhe	2989 kWh	3491 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	147 %	112 %
Prated	5.56 kW	4.88 kW
SCOP	3.74	2.89
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.80 kW	4.30 kW
COP Tj = -7°C	3.59	2.46
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.70 kW	5.50 kW
COP Tj = +2°C	4.48	3.61
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.30 kW	7.20 kW
COP Tj = +7°C	5.48	5.11
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	8.00 kW	8.00 kW
COP Tj = 12°C	6.10	6.31
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.10 kW	3.60 kW
COP Tj = Tbiv	3.11	2.00

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.00 kW	2.60 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.25	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90
WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.56 kW	4.88 kW
Annual energy consumption Qhe	3661 kWh	4169 kWh
Pdh Tj = -15°C (if TOL)	3.70	3.20
COP Tj = -15°C (if TOL)	2.78	1.76
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	198 %	160 %
Prated	7.28 kW	6.76 kW
SCOP	5.02	4.07
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.60 kW	5.20 kW
COP Tj = +2°C	3.82	2.39
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	7.20 kW	6.70 kW
COP Tj = +7°C	5.02	3.75
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	7.90 kW	7.80 kW
COP Tj = 12°C	5.95	5.38
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.20 kW	5.80 kW
COP Tj = Tbiv	4.38	2.88
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.60 kW	5.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.82	2.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.90	0.90

WTOL	62 °C	62 °C
Poff	15 W	15 W
PTO	15 W	15 W
PSB	15 W	15 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.68 kW	1.56 kW
Annual energy consumption Qhe	1937 kWh	2217 kWh