


CERTIFICATE

Certificate holder	Bosch Thermotechnik GmbH Sophienstr. 30-32 35576 Wetzlar GERMANY
Production facility	Tranas, Rishon LeZion, Aveiro
Product	Air/Water Heat pumps
Type, Model	Buderus Logatherm WLW-4 SP AR
Testing basis	DIN EN 14511-1; DIN EN 14511-2; DIN EN 14511-3; DIN EN 14511-4:2019-07 DIN EN 14825:2019-07 DIN EN 12102-1:2018-02 DIN EN 16147:2017-08 European KEYMARK Scheme for Heat Pumps Rev. 9 (2021-03)
Mark of conformity	
Registration No.	011-1W0538
Valid until	2032-06-30
Right of use	This certificate entitles the holder to use the mark of conformity shown above in conjunction with the specified registration number.

See annex for further information.

K. Vehrung

2022-06-10

Dipl.-Biol. Katharina Vehrung, M. Eng.
Certification Body



ANNEX

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Certificate	011-1W0538 dated 2022-06-10
Technical Data	See Heat Pump KEYMARK database for detailed information
Testing laboratory/ Inspection body	TÜV Rheinland Energy GmbH 51101 Köln GERMANY
Test report(s)	HP1602022S1 dated 2022-05-09 HP1602022S2 dated 2022-04-14 HP1602022S3 dated 2022-05-09



Subtype Buderus Logatherm WLW-4 SP AR

Certificate Holder	Bosch Thermotechnik GmbH (Buderus)
Address	Sophienstraße 30-32
ZIP	35576
City	Wetzlar
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	Buderus Logatherm WLW-4 SP AR
Registration number	011-1W0538
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.1 kg
Certification Date	10.06.2022
Testing basis	European KEYMARK Scheme for Heat Pumps Version 12 (2023-03)

Model WLW166i-4 SP AR T190

Model name	WLW166i-4 SP AR T190
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	1x230V 50Hz
Off-peak product	No

Outdoor Air/Water
EN 16147 | Average Climate

Declared load profile	XL
Efficiency η_{DHW}	125 %
COP	3.02
Heating up time	02:34 h:min
Standby power input	38 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	279 l

EN 16147 | Colder Climate

Declared load profile	XL
Efficiency η_{DHW}	100 %
COP	2.42
Heating up time	02:44 h:min
Standby power input	41 W
Reference hot water temperature	53.5 °C
Mixed water at 40°C	270 l

EN 16147 | Warmer Climate

Declared load profile	XL
Efficiency η_{DHW}	152 %
COP	3.68
Heating up time	02:30 h:min
Standby power input	33 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	277 l

EN 14511-4 | Heating

Shutting off the heat transfer medium flow	passed
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Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	5.21 kW	3.9 kW
El input	1.12 kW	1.44 kW
COP	4.67	2.7

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	186 %	125 %
Prated	5 kW	5.6 kW
SCOP	4.72	3.20
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.36 kW	3.80 kW
COP Tj = -7°C	2.96	1.92
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	2.73 kW	3.30 kW
COP Tj = +2°C	4.68	3.27
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	2.34 kW	2.01 kW
COP Tj = +7°C	6.07	4.24
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.77 kW	2.51 kW
COP Tj = 12°C	8.02	5.80
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	4.36 kW	4.15 kW
COP Tj = Tbiv	2.96	2.14
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.93 kW	2.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W

PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.07 kW	3.00 kW
Annual energy consumption Q _{he}	2186 kWh	3613 kWh
EN 12102-1 Colder Climate		
	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)
EN 14825 Colder Climate		
	Low temperature	Medium temperature
η_s	148 %	108 %
Prated	5 kW	5 kW
SCOP	3.77	2.76
T _{biv}	-12 °C	-11 °C
TOL	-20 °C	-17 °C
P _{dh} T _j = -7°C	3.15 kW	3.18 kW
COP T _j = -7°C	3.4	2.44
C _{dh} T _j = -7 °C	0.99	0.99
P _{dh} T _j = +2°C	1.9 kW	1.89 kW
COP T _j = +2°C	4.61	3.55
C _{dh} T _j = +2 °C	0.97	0.98
P _{dh} T _j = +7°C	2.27 kW	1.62 kW
COP T _j = +7°C	6.12	4.27
C _{dh} T _j = +7 °C	0.97	0.97
P _{dh} T _j = 12°C	2.09 kW	1.79 kW
COP T _j = 12°C	5.97	5.18
C _{dh} T _j = +12 °C	0.97	0.97
P _{dh} T _j = T _{biv}	3.69 kW	3.39 kW
COP T _j = T _{biv}	3	1.86
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	2.24 kW	2.45 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	1.59	1.4
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	0.99	0.99
WTOL	60 °C	60 °C
P _{off}	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5 kW	5 kW
Annual energy consumption Q _{he}	3267 kWh	4461 kWh

Pdh Tj = -15°C (if TOL	3.26	2.77
COP Tj = -15°C (if TOL	2.43	1.59
Cdh Tj = -15 °C	0.99	0.99

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	240 %	150 %
Prated	5 kW	5 kW
SCOP	6.07	3.84
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.94 kW	3.71 kW
COP Tj = +2°C	3.55	2.12
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.3 kW	3.28 kW
COP Tj = +7°C	5.52	3.39
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	2.76 kW	2.32 kW
COP Tj = 12°C	7.7	5.03
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	4.23 kW	4.02 kW
COP Tj = Tbiv	3.96	2.28
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.94 kW	3.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.55	2.12
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.06 kW	1.29 kW
Annual energy consumption Qhe	1101 kWh	1741 kWh

Model WLW166i-4 SP AR E

Model name	WLW166i-4 SP AR E
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	1x230V 50Hz
Off-peak product	No

Outdoor Air/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	5.21 kW	3.9 kW
El input	1.12 kW	1.44 kW
COP	4.67	2.7

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	186 %	125 %
Prated	5 kW	5.6 kW
SCOP	4.72	3.20
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.36 kW	3.80 kW
COP Tj = -7°C	2.96	1.92
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	2.73 kW	3.30 kW
COP Tj = +2°C	4.68	3.27

Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	2.34 kW	2.01 kW
COP Tj = +7°C	6.07	4.24
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.77 kW	2.51 kW
COP Tj = 12°C	8.02	5.80
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	4.36 kW	4.15 kW
COP Tj = Tbiv	2.96	2.14
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.93 kW	2.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.07 kW	3.00 kW
Annual energy consumption Qhe	2186 kWh	3613 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	148 %	108 %
Prated	5 kW	5 kW
SCOP	3.77	2.76
Tbiv	-12 °C	-11 °C
TOL	-20 °C	-17 °C
Pdh Tj = -7°C	3.15 kW	3.18 kW
COP Tj = -7°C	3.4	2.44
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	1.9 kW	1.89 kW
COP Tj = +2°C	4.61	3.55
Cdh Tj = +2 °C	0.97	0.98
Pdh Tj = +7°C	2.27 kW	1.62 kW
COP Tj = +7°C	6.12	4.27
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.09 kW	1.79 kW

COP Tj = 12°C	5.97	5.18
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	3.69 kW	3.39 kW
COP Tj = Tbiv	3	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.24 kW	2.45 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.59	1.4
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5 kW	5 kW
Annual energy consumption Qhe	3267 kWh	4461 kWh
Pdh Tj = -15°C (if TOL	3.26	2.77
COP Tj = -15°C (if TOL	2.43	1.59
Cdh Tj = -15 °C	0.99	0.99

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	240 %	150 %
Prated	5 kW	5 kW
SCOP	6.07	3.84
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.94 kW	3.71 kW
COP Tj = +2°C	3.55	2.12
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.3 kW	3.28 kW
COP Tj = +7°C	5.52	3.39
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	2.76 kW	2.32 kW
COP Tj = 12°C	7.7	5.03
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	4.23 kW	4.02 kW
COP Tj = Tbiv	3.96	2.28

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.94 kW	3.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.55	2.12
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.06 kW	1.29 kW
Annual energy consumption Qhe	1101 kWh	1741 kWh

Model WLW166i-4 SP AR B

Model name	WLW166i-4 SP AR B
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

General data

Power supply	1x230V 50Hz
Off-peak product	No

Outdoor Air/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	5.21 kW	3.9 kW
El input	1.12 kW	1.44 kW
COP	4.67	2.7

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	186 %	125 %
Prated	5 kW	5.6 kW
SCOP	4.72	3.20
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.36 kW	3.80 kW
COP Tj = -7°C	2.96	1.92
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	2.73 kW	3.30 kW
COP Tj = +2°C	4.68	3.27

Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	2.34 kW	2.01 kW
COP Tj = +7°C	6.07	4.24
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.77 kW	2.51 kW
COP Tj = 12°C	8.02	5.80
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	4.36 kW	4.15 kW
COP Tj = Tbiv	2.96	2.14
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.93 kW	2.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	1.07 kW	3.00 kW
Annual energy consumption Qhe	2186 kWh	3613 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	148 %	108 %
Prated	5 kW	5 kW
SCOP	3.77	2.76
Tbiv	-12 °C	-11 °C
TOL	-20 °C	-17 °C
Pdh Tj = -7°C	3.15 kW	3.18 kW
COP Tj = -7°C	3.4	2.44
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	1.9 kW	1.89 kW
COP Tj = +2°C	4.61	3.55
Cdh Tj = +2 °C	0.97	0.98
Pdh Tj = +7°C	2.27 kW	1.62 kW
COP Tj = +7°C	6.12	4.27
Cdh Tj = +7 °C	0.97	0.97
Pdh Tj = 12°C	2.09 kW	1.79 kW

COP Tj = 12°C	5.97	5.18
Cdh Tj = +12 °C	0.97	0.97
Pdh Tj = Tbiv	3.69 kW	3.39 kW
COP Tj = Tbiv	3	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.24 kW	2.45 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.59	1.4
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	5 kW	5 kW
Annual energy consumption Qhe	3267 kWh	4461 kWh
Pdh Tj = -15°C (if TOL	3.26	2.77
COP Tj = -15°C (if TOL	2.43	1.59
Cdh Tj = -15 °C	0.99	0.99

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	60 dB(A)	60 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	240 %	150 %
Prated	5 kW	5 kW
SCOP	6.07	3.84
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.94 kW	3.71 kW
COP Tj = +2°C	3.55	2.12
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.3 kW	3.28 kW
COP Tj = +7°C	5.52	3.39
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	2.76 kW	2.32 kW
COP Tj = 12°C	7.7	5.03
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	4.23 kW	4.02 kW
COP Tj = Tbiv	3.96	2.28

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.94 kW	3.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.55	2.12
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	60 °C	60 °C
Poff	11 W	11 W
PTO	0 W	0 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	1.06 kW	1.29 kW
Annual energy consumption Qhe	1101 kWh	1741 kWh