

Subtype VWL 77/5 230V / VWL 77/5 230V S2 / VWL 79/5 230V / VWL 79/5 230V S2

Certificate Holder	Vaillant GmbH
Address	Berghauser Str. 40
ZIP	42859
City	Remscheid
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	VWL 77/5 230V / VWL 77/5 230V S2 / VWL 79/5 230V / VWL 79/5 230V S2
Registration number	011-1W0755
Heat Pump Type	Outdoor Air/Water
Refrigerant	R410A
Mass of Refrigerant	1.8 kg
Certification Date	10.08.2022
Testing basis	DIN EN 14511-1:2019-07; EN 14511-1:2018, DIN EN 14511-2:2019-07; EN 14511-2:2018, DIN EN 14511-3:2019-07; EN 14511-3:2018, DIN EN 14511-4:2019-07; EN 14511-4:2018, DIN EN 14825:2019-07; EN 14825:2018, DIN EN 12102-1:2018-02; EN 12102-1:2017

Model VWL 77/5 230V

Model name	VWL 77/5 230V
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	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 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	5.77 kW	6.84 kW
El input	1.55 kW	2.60 kW
COP	3.72	2.63

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	169 %	133 %
Prated	7.34 kW	6.32 kW
SCOP	4.29	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.53 kW	5.62 kW
COP Tj = -7°C	2.63	1.98
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.84 kW	3.42 kW
COP Tj = +2°C	4.26	3.45
Cdh Tj = +2 °C	1.000	1.000

Pdh Tj = +7°C	2.84 kW	2.64 kW
COP Tj = +7°C	5.67	4.29
Cdh Tj = +7 °C	0.970	0.966
Pdh Tj = 12°C	3.43 kW	3.22 kW
COP Tj = 12°C	7.48	6.01
Cdh Tj = +12 °C	0.967	0.961
Pdh Tj = Tbiv	6.53 kW	5.62 kW
COP Tj = Tbiv	2.63	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.96 kW	4.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.38 kW	1.74 kW
Annual energy consumption Qhe	3538 kWh	3849 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	157 %	114 %
Prated	6.25 kW	6.08 kW
SCOP	4.00	2.94
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.59 kW	3.81 kW
COP Tj = -7°C	3.38	2.53
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	2.55 kW	2.29 kW
COP Tj = +2°C	5.03	3.70
Cdh Tj = +2 °C	0.971	1.000
Pdh Tj = +7°C	2.86 kW	2.69 kW
COP Tj = +7°C	5.87	4.69
Cdh Tj = +7 °C	0.969	0.964
Pdh Tj = 12°C	3.42 kW	3.26 kW
COP Tj = 12°C	7.42	6.39

Cdh Tj = +12 °C	0.967	0.959
Pdh Tj = Tbiv	5.14 kW	4.99 kW
COP Tj = Tbiv	2.36	1.95
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.81 kW	4.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.26	1.95
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.25 kW	6.08 kW
Annual energy consumption Qhe	3854 kWh	5106 kWh
Pdh Tj = -15°C (if TOL		
COP Tj = -15°C (if TOL		
Cdh Tj = -15 °C		

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	221 %	154 %
Prated	4.45 kW	4.33 kW
SCOP	5.59	3.92
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.49 kW	4.36 kW
COP Tj = +2°C	3.63	2.45
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.82 kW	2.77 kW
COP Tj = +7°C	5.09	3.26
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	3.33 kW	3.14 kW
COP Tj = 12°C	6.87	5.30
Cdh Tj = +12 °C	0.969	0.965
Pdh Tj = Tbiv	4.49 kW	4.36 kW
COP Tj = Tbiv	3.63	2.45
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.49 kW	4.36 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.63	2.45
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	1073 kWh	1474 kWh

Model VWL 79/5 230V	
Model name	VWL 79/5 230V
Application	Heating + DHW + low temp
Units	Indoor
Climate zone (for heating)	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}	96 %
COP	2.33
Heating up time	02:24 h:min
Standby power input	38.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	270 l
EN 16147 Colder Climate	
Declared load profile	XL
Efficiency η_{DHW}	90 %
COP	2.19
Heating up time	02:51 h:min
Standby power input	39.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	266 l
EN 16147 Warmer Climate	
Declared load profile	XL
Efficiency η_{DHW}	113 %
COP	2.75
Heating up time	01:15 h:min
Standby power input	34.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	275 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	5.77 kW	6.84 kW
El input	1.55 kW	2.60 kW
COP	3.72	2.63

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	169 %	133 %
Prated	7.34 kW	6.32 kW
SCOP	4.29	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.53 kW	5.62 kW
COP Tj = -7°C	2.63	1.98
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.84 kW	3.42 kW
COP Tj = +2°C	4.26	3.45
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.84 kW	2.64 kW
COP Tj = +7°C	5.67	4.29
Cdh Tj = +7 °C	0.970	0.966
Pdh Tj = 12°C	3.43 kW	3.22 kW
COP Tj = 12°C	7.48	6.01
Cdh Tj = +12 °C	0.970	0.961
Pdh Tj = Tbiv	6.53 kW	5.62 kW
COP Tj = Tbiv	2.63	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.96 kW	4.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.38 kW	1.74 kW
Annual energy consumption Q _{he}	3538 kWh	3849 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	157 %	114 %
Prated	6.25 kW	6.08 kW
SCOP	4.00	2.94
T _{biv}	-15 °C	-15 °C
TOL	-20 °C	-15 °C
P _{dh} T _j = -7°C	3.59 kW	3.81 kW
COP T _j = -7°C	3.38	2.53
C _{dh} T _j = -7 °C	1.000	1.000
P _{dh} T _j = +2°C	2.55 kW	2.29 kW
COP T _j = +2°C	5.03	3.70
C _{dh} T _j = +2 °C	0.971	1.000
P _{dh} T _j = +7°C	2.86 kW	2.69 kW
COP T _j = +7°C	5.87	4.69
C _{dh} T _j = +7 °C	0.969	0.964
P _{dh} T _j = 12°C	3.42 kW	3.26 kW
COP T _j = 12°C	7.42	6.39
C _{dh} T _j = +12 °C	0.967	0.959
P _{dh} T _j = T _{biv}	5.14 kW	4.99 kW
COP T _j = T _{biv}	2.36	1.95
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	3.81 kW	4.99 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	2.26	1.95
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.000	1.000
WTOL	55 °C	55 °C
P _{off}	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.25 kW	6.08 kW
Annual energy consumption Q _{he}	3854 kWh	5106 kWh
P _{dh} T _j = -15°C (if TOL		

COP Tj = -15°C (if TOL

Cd_h Tj = -15 °C

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	221 %	154 %
Prated	4.45 kW	4.33 kW
SCOP	5.59	3.92
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _d h Tj = +2°C	4.49 kW	4.36 kW
COP Tj = +2°C	3.63	2.45
Cd _h Tj = +2 °C	1.000	1.000
P _d h Tj = +7°C	2.82 kW	2.77 kW
COP Tj = +7°C	5.09	3.26
Cd _h Tj = +7 °C	1.000	1.000
P _d h Tj = 12°C	3.33 kW	3.14 kW
COP Tj = 12°C	6.87	5.30
Cd _h Tj = +12 °C	0.969	0.965
P _d h Tj = T _{biv}	4.49 kW	4.36 kW
COP Tj = T _{biv}	3.63	2.45
P _d h Tj = TOL or P _d h Tj = T _{designh} if TOL < T _{designh}	4.49 kW	4.36 kW
COP Tj = TOL or COP Tj = T _{designh} if TOL < T _{designh}	3.63	2.45
Cd _h Tj = TOL or P _d h Tj = T _{designh} if TOL < T _{designh}	1.000	1.000
WTOL	55 °C	55 °C
P _{off}	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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}	1073 kWh	1474 kWh

Model VWL 77/5 230V S2

Model name	VWL 77/5 230V S2
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Warmer Climate, Colder Climate
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 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	5.77 kW	6.84 kW
El input	1.55 kW	2.60 kW
COP	3.72	2.63

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	167 %	131 %
Prated	7.34 kW	6.32 kW
SCOP	4.24	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.52 kW	5.62 kW
COP Tj = -7°C	2.63	1.98
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.84 kW	3.42 kW
COP Tj = +2°C	4.26	3.45
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.84 kW	2.64 kW

COP Tj = +7°C	5.67	4.29
Cdh Tj = +7 °C	0.970	0.966
Pdh Tj = 12°C	3.43 kW	3.22 kW
COP Tj = 12°C	7.48	6.01
Cdh Tj = +12 °C	0.967	0.961
Pdh Tj = Tbiv	6.53 kW	5.62 kW
COP Tj = Tbiv	2.63	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.96 kW	4.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.38 kW	1.74 kW
Annual energy consumption Qhe	3574 kWh	3887 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	156 %	114 %
Prated	6.25 kW	6.08 kW
SCOP	3.98	2.92
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.59 kW	3.81 kW
COP Tj = -7°C	3.38	2.53
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	2.55 kW	2.29 kW
COP Tj = +2°C	5.03	3.70
Cdh Tj = +2 °C	0.971	1.000
Pdh Tj = +7°C	2.86 kW	2.69 kW
COP Tj = +7°C	5.87	4.69
Cdh Tj = +7 °C	0.969	0.964
Pdh Tj = 12°C	3.42 kW	3.26 kW
COP Tj = 12°C	7.42	6.39
Cdh Tj = +12 °C	0.967	0.959

Pdh Tj = Tbiv	5.14 kW	4.99 kW
COP Tj = Tbiv	2.36	1.95
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.81 kW	4.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.26	1.95
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.25 kW	6.08 kW
Annual energy consumption Qhe	3875 kWh	5129 kWh
Pdh Tj = -15°C (if TOL		
COP Tj = -15°C (if TOL		
Cdh Tj = -15 °C		

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	47 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	212 %	149 %
Prated	4.49 kW	4.36 kW
SCOP	5.37	3.81
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.49 kW	4.36 kW
COP Tj = +2°C	3.63	2.45
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.82 kW	2.77 kW
COP Tj = +7°C	5.09	3.26
Cdh Tj = +7 °C	1.000	0.930
Pdh Tj = 12°C	3.33 kW	3.14 kW
COP Tj = 12°C	6.87	5.30
Cdh Tj = +12 °C	0.969	0.965
Pdh Tj = Tbiv	4.49 kW	4.36 kW
COP Tj = Tbiv	3.63	2.45
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.49 kW	4.36 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.63	2.45
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	1107 kWh	1519 kWh

Model VWL 79/5 230V S2

Model name	VWL 79/5 230V S2
Application	Heating + DHW + low temp
Units	Indoor
Climate zone (for heating)	Warmer Climate, Colder Climate
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}	96 %
COP	2.33
Heating up time	02:24 h:min
Standby power input	38.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	270 l

EN 16147 | Colder Climate

Declared load profile	XL
Efficiency η_{DHW}	90 %
COP	2.19
Heating up time	02:51 h:min
Standby power input	39.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	266 l

EN 16147 | Warmer Climate

Declared load profile	XL
Efficiency η_{DHW}	113 %
COP	2.75
Heating up time	01:15 h:min
Standby power input	34.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	275 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	5.77 kW	6.84 kW
El input	1.55 kW	2.60 kW
COP	3.72	2.63

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	167 %	131 %
Prated	7.34 kW	6.32 kW
SCOP	4.24	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.53 kW	5.62 kW
COP Tj = -7°C	2.63	1.98
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.84 kW	3.42 kW
COP Tj = +2°C	4.26	3.45
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.84 kW	2.64 kW
COP Tj = +7°C	5.67	4.29
Cdh Tj = +7 °C	0.970	0.966
Pdh Tj = 12°C	3.43 kW	3.22 kW
COP Tj = 12°C	7.48	6.01
Cdh Tj = +12 °C	0.967	0.961
Pdh Tj = Tbiv	6.53 kW	5.62 kW
COP Tj = Tbiv	2.63	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.96 kW	4.58 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.38 kW	1.74 kW
Annual energy consumption Q _{he}	3574 kWh	3887 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	156 %	114 %
Prated	6.25 kW	6.08 kW
SCOP	3.98	2.92
T _{biv}	-15 °C	-15 °C
TOL	-20 °C	-15 °C
P _{dh} T _j = -7°C	3.59 kW	3.81 kW
COP T _j = -7°C	3.38	2.53
C _{dh} T _j = -7 °C	1.000	1.000
P _{dh} T _j = +2°C	2.55 kW	2.29 kW
COP T _j = +2°C	5.03	3.70
C _{dh} T _j = +2 °C	0.971	1.000
P _{dh} T _j = +7°C	2.86 kW	2.69 kW
COP T _j = +7°C	5.87	4.69
C _{dh} T _j = +7 °C	0.969	0.964
P _{dh} T _j = 12°C	3.42 kW	3.26 kW
COP T _j = 12°C	7.42	6.39
C _{dh} T _j = +12 °C	0.967	0.959
P _{dh} T _j = T _{biv}	5.14 kW	4.99 kW
COP T _j = T _{biv}	2.36	1.95
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	3.81 kW	4.99 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	2.26	1.95
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.000	1.000
WTOL	55 °C	55 °C
P _{off}	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.25 kW	6.08 kW
Annual energy consumption Q _{he}	3875 kWh	5129 kWh
P _{dh} T _j = -15°C (if TOL		

COP Tj = -15°C (if TOL

Cd_h Tj = -15 °C

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	48 dB(A)	50 dB(A)
Sound power level outdoor	- dB(A)	- dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	212 %	149 %
Prated	4.49 kW	4.36 kW
SCOP	5.37	3.81
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _d h Tj = +2°C	4.49 kW	4.36 kW
COP Tj = +2°C	3.63	2.45
Cd _h Tj = +2 °C	1.000	1.000
P _d h Tj = +7°C	2.82 kW	2.77 kW
COP Tj = +7°C	5.09	3.26
Cd _h Tj = +7 °C	1.000	0.930
P _d h Tj = 12°C	3.33 kW	3.14 kW
COP Tj = 12°C	6.87	5.30
Cd _h Tj = +12 °C	0.969	0.965
P _d h Tj = T _{biv}	4.49 kW	4.36 kW
COP Tj = T _{biv}	3.63	2.45
P _d h Tj = TOL or P _d h Tj = T _{designh} if TOL < T _{designh}	4.49 kW	4.36 kW
COP Tj = TOL or COP Tj = T _{designh} if TOL < T _{designh}	3.63	2.45
Cd _h Tj = TOL or P _d h Tj = T _{designh} if TOL < T _{designh}	1.000	1.000
WTOL	55 °C	55 °C
P _{off}	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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}	1107 kWh	1519 kWh