

Subtype VWL 75/8.2 AS 230V with Tower

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 75/8.2 AS 230V with Tower
Registration number	011-1W0949
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.5 kg
Certification Date	11.12.2024
Testing basis	HP KEYMARK certification scheme rules rev. 14

Model VWL 75/8.2 AS 230V + VWL 78/8.2 IS

Model name	VWL 75/8.2 AS 230V + VWL 78/8.2 IS
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	203 %	142 %
Prated	6.61 kW	5.67 kW
SCOP	5.15	3.63
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2649 kWh	3230 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	175 %	122 %
Prated	6.88 kW	5.69 kW
SCOP	4.44	3.12
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.76	2.66
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.57	3.97
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.78	5.32
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	8.06	6.73
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.61	2.02
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	2.02
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3816 kWh	4499 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.61	2.02
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	257 %	176 %
Prated	6.80 kW	6.79 kW
SCOP	6.51	4.47
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.42	2.37
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.94	3.84
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.87	5.72
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.42	2.37
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.42	2.37
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1397 kWh	2028 kWh
EN 14825 Cooling		
	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	5.05	7.02
P _{dc Tj = 35°C}	6.09 kW	6.63 kW
EER T _j = 35°C	2.96	4.05
C _{dc Tj = 35 °C}	1.000	1.000
P _{dc Tj = 30°C}	4.52 kW	4.93 kW
EER T _j = 30°C	4.17	6.00
C _{dc Tj = 30 °C}	1.000	1.000
P _{dc Tj = 25°C}	2.98 kW	3.95 kW
EER T _j = 25°C	5.72	8.20
C _{dc Tj = 25 °C}	0.991	0.990
P _{dc Tj = 20°C}	3.27 kW	4.03 kW
EER T _j = 20°C	7.26	9.64
C _{dc Tj = 20 °C}	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	723 kWh	567 kWh

Model VWL 75/8.2 AS 230V + VWL 78/8.2 IS C2

Model name	VWL 75/8.2 AS 230V + VWL 78/8.2 IS C2
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	190 %	135 %
Prated	6.61 kW	5.67 kW
SCOP	4.83	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.12	2.23
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	4.88	3.34
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	5.79	4.37
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	7.59	5.94
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.12	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.80	1.86

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2829 kWh	3400 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	165 %	116 %
Prated	6.88 kW	5.69 kW
SCOP	4.19	2.98
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.62	2.58
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.11	3.72
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.20	4.93
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	7.34	6.21
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.56	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.34	1.98
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	4044 kWh	4704 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.56	1.98
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	240 %	167 %
Prated	6.80 kW	6.79 kW
SCOP	6.06	4.25
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.35	2.33
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.62	3.70
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.17	5.32
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.35	2.33
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.35	2.33
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1499 kWh	2132 kWh
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EN 14825 | Cooling

	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	4.74	6.53
P _{dc} T _j = 35°C	6.09 kW	6.63 kW
EER T _j = 35°C	2.90	3.94
C _{dc} T _j = 35 °C	1.000	1.000
P _{dc} T _j = 30°C	4.52 kW	4.93 kW
EER T _j = 30°C	4.00	5.69
C _{dc} T _j = 30 °C	1.000	1.000
P _{dc} T _j = 25°C	2.98 kW	3.95 kW
EER T _j = 25°C	5.26	7.50
C _{dc} T _j = 25 °C	0.991	0.990
P _{dc} T _j = 20°C	3.27 kW	4.03 kW
EER T _j = 20°C	6.60	8.70
C _{dc} T _j = 20 °C	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	772 kWh	609 kWh

Model VWL 75/8.2 AS 230V + VWL 78/8.2 IS S5

Model name	VWL 75/8.2 AS 230V + VWL 78/8.2 IS S5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98
EN 14511-2 Cooling		
	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90
EN 12102-1 Average Climate		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)
EN 14825 Average Climate		
	Low temperature	Medium temperature
ηs	203 %	142 %
Prated	6.61 kW	5.67 kW
SCOP	5.15	3.63
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2649 kWh	3230 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	175 %	122 %
Prated	6.88 kW	5.69 kW
SCOP	4.44	3.12
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.76	2.66
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.57	3.97
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.78	5.32
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	8.06	6.73
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.61	2.02
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	2.02
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3816 kWh	4499 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.61	2.02
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	257 %	176 %
Prated	6.80 kW	6.79 kW
SCOP	6.51	4.47
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.42	2.37
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.94	3.84
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.87	5.72
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.42	2.37
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.42	2.37
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1397 kWh	2028 kWh
EN 14825 Cooling		
	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	5.05	7.02
P _{dc Tj = 35°C}	6.09 kW	6.63 kW
EER T _j = 35°C	2.96	4.05
C _{dc Tj = 35 °C}	1.000	1.000
P _{dc Tj = 30°C}	4.52 kW	4.93 kW
EER T _j = 30°C	4.17	6.00
C _{dc Tj = 30 °C}	1.000	1.000
P _{dc Tj = 25°C}	2.98 kW	3.95 kW
EER T _j = 25°C	5.72	8.20
C _{dc Tj = 25 °C}	0.991	0.990
P _{dc Tj = 20°C}	3.27 kW	4.03 kW
EER T _j = 20°C	7.26	9.64
C _{dc Tj = 20 °C}	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	723 kWh	567 kWh

Model VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS

Model name	VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	199 %	140 %
Prated	6.61 kW	5.67 kW
SCOP	5.06	3.57
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Q _{he}	2698 kWh	3279 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	173 %	121 %
Prated	6.88 kW	5.69 kW
SCOP	4.41	3.10
T _{biv}	-15 °C	-15 °C
TOL	-20 °C	-15 °C
P _{dh} T _j = -7°C	4.51 kW	3.69 kW
COP T _j = -7°C	3.76	2.66
C _{dh} T _j = -7 °C	1.00	1.00
P _{dh} T _j = +2°C	2.82 kW	2.58 kW
COP T _j = +2°C	5.57	3.97
C _{dh} T _j = +2 °C	0.99	0.99
P _{dh} T _j = +7°C	3.24 kW	3.06 kW
COP T _j = +7°C	6.78	5.32
C _{dh} T _j = +7 °C	0.99	0.99
P _{dh} T _j = 12°C	3.69 kW	3.60 kW
COP T _j = 12°C	8.06	6.73
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	5.61 kW	4.64 kW
COP T _j = T _{biv}	2.61	2.02
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	4.12 kW	4.64 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	2.40	2.02
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3845 kWh	4529 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64

COP Tj = -15°C (if TOL	2.61	2.02
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	247 %	171 %
Prated	6.80 kW	6.79 kW
SCOP	6.24	4.35
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	6.80 kW	6.79 kW
COP Tj = +2°C	3.42	2.37
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	4.68 kW	4.82 kW
COP Tj = +7°C	5.94	3.84
Cdh Tj = +7 °C	0.99	1.00
Pdh Tj = 12°C	3.66 kW	3.49 kW
COP Tj = 12°C	7.87	5.72
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.80 kW	6.79 kW
COP Tj = Tbiv	3.42	2.37
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.80 kW	6.79 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.37
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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	1456 kWh	2086 kWh

Model VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS C2

Model name	VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS C2
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	187 %	133 %
Prated	6.61 kW	5.67 kW
SCOP	4.75	3.40
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.12	2.23
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	4.88	3.34
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	5.79	4.37
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	7.59	5.94
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.12	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.80	1.86
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Q _{he}	2878 kWh	3449 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	163 %	115 %
Prated	6.88 kW	5.69 kW
SCOP	4.16	2.96
T _{biv}	-15 °C	-15 °C
TOL	-20 °C	-15 °C
P _{dh} T _j = -7°C	4.51 kW	3.69 kW
COP T _j = -7°C	3.62	2.58
C _{dh} T _j = -7 °C	1.00	1.00
P _{dh} T _j = +2°C	2.82 kW	2.58 kW
COP T _j = +2°C	5.11	3.72
C _{dh} T _j = +2 °C	0.99	0.99
P _{dh} T _j = +7°C	3.24 kW	3.06 kW
COP T _j = +7°C	6.20	4.93
C _{dh} T _j = +7 °C	0.99	0.99
P _{dh} T _j = 12°C	3.69 kW	3.60 kW
COP T _j = 12°C	7.34	6.21
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	5.61 kW	4.64 kW
COP T _j = T _{biv}	2.56	1.98
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	4.12 kW	4.64 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	2.34	1.98
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	4074 kWh	4734 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64

COP Tj = -15°C (if TOL	2.56	1.98
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	230 %	163 %
Prated	6.80 kW	6.79 kW
SCOP	5.84	4.14
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	6.80 kW	6.79 kW
COP Tj = +2°C	3.35	2.33
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	4.68 kW	4.82 kW
COP Tj = +7°C	5.62	3.70
Cdh Tj = +7 °C	0.99	1.00
Pdh Tj = 12°C	3.66 kW	3.49 kW
COP Tj = 12°C	7.17	5.32
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.80 kW	6.79 kW
COP Tj = Tbiv	3.35	2.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.80 kW	6.79 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.33
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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	1557 kWh	2191 kWh

Model VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS

Model name	VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	203 %	142 %
Prated	6.61 kW	5.67 kW
SCOP	5.15	3.63
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2649 kWh	3230 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	175 %	122 %
Prated	6.88 kW	5.69 kW
SCOP	4.44	3.12
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.76	2.66
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.57	3.97
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.78	5.32
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	8.06	6.73
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.61	2.02
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	2.02
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3816 kWh	4499 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.61	2.02
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	257 %	176 %
Prated	6.80 kW	6.79 kW
SCOP	6.51	4.47
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.42	2.37
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.94	3.84
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.87	5.72
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.42	2.37
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.42	2.37
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1397 kWh	2028 kWh
EN 14825 Cooling		
	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	5.05	7.02
P _{dc Tj = 35°C}	6.09 kW	6.63 kW
EER T _j = 35°C	2.96	4.05
C _{dc Tj = 35 °C}	1.000	1.000
P _{dc Tj = 30°C}	4.52 kW	4.93 kW
EER T _j = 30°C	4.17	6.00
C _{dc Tj = 30 °C}	1.000	1.000
P _{dc Tj = 25°C}	2.98 kW	3.95 kW
EER T _j = 25°C	5.72	8.20
C _{dc Tj = 25 °C}	0.991	0.990
P _{dc Tj = 20°C}	3.27 kW	4.03 kW
EER T _j = 20°C	7.26	9.64
C _{dc Tj = 20 °C}	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	723 kWh	567 kWh

Model VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS C2

Model name	VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS C2
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	190 %	135 %
Prated	6.61 kW	5.67 kW
SCOP	4.83	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.12	2.23
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	4.88	3.34
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	5.79	4.37
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	7.59	5.94
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.12	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.80	1.86

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2829 kWh	3400 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	165 %	116 %
Prated	6.88 kW	5.69 kW
SCOP	4.19	2.98
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.62	2.58
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.11	3.72
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.20	4.93
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	7.34	6.21
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.56	1.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.34	1.98
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	4044 kWh	4704 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.56	1.98
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	240 %	167 %
Prated	6.80 kW	6.79 kW
SCOP	6.06	4.25
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.35	2.33
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.62	3.70
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.17	5.32
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.35	2.33
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.35	2.33
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1499 kWh	2132 kWh
EN 14825 Cooling		
	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	4.74	6.53
P _{dc Tj = 35°C}	6.09 kW	6.63 kW
EER Tj = 35°C	2.90	3.94
C _{dc Tj = 35 °C}	1.000	1.000
P _{dc Tj = 30°C}	4.52 kW	4.93 kW
EER Tj = 30°C	4.00	5.69
C _{dc Tj = 30 °C}	1.000	1.000
P _{dc Tj = 25°C}	2.98 kW	3.95 kW
EER Tj = 25°C	5.26	7.50
C _{dc Tj = 25 °C}	0.991	0.990
P _{dc Tj = 20°C}	3.27 kW	4.03 kW
EER Tj = 20°C	6.60	8.70
C _{dc Tj = 20 °C}	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	772 kWh	609 kWh

Model VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS S5

Model name	VWL 85/8.2 AS 230V S3 + VWL 88/8.2 IS S5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.40 kW	1.87 kW
Cooling capacity	4.26	7.29
EER	3.04	3.90

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	203 %	142 %
Prated	6.61 kW	5.67 kW
SCOP	5.15	3.63
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Qhe	2649 kWh	3230 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	175 %	122 %
Prated	6.88 kW	5.69 kW
SCOP	4.44	3.12
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	4.51 kW	3.69 kW
COP Tj = -7°C	3.76	2.66
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.82 kW	2.58 kW
COP Tj = +2°C	5.57	3.97
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	3.24 kW	3.06 kW
COP Tj = +7°C	6.78	5.32
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.69 kW	3.60 kW
COP Tj = 12°C	8.06	6.73
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.61 kW	4.64 kW
COP Tj = Tbiv	2.61	2.02
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.12 kW	4.64 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	2.02
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W

PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3816 kWh	4499 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64
COP T _j = -15°C (if TOL	2.61	2.02
C _{dh} T _j = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η _s	257 %	176 %
Prated	6.80 kW	6.79 kW
SCOP	6.51	4.47
T _{biv}	2 °C	2 °C
TOL	2 °C	2 °C
P _{dh} T _j = +2°C	6.80 kW	6.79 kW
COP T _j = +2°C	3.42	2.37
C _{dh} T _j = +2 °C	1.00	1.00
P _{dh} T _j = +7°C	4.68 kW	4.82 kW
COP T _j = +7°C	5.94	3.84
C _{dh} T _j = +7 °C	0.99	1.00
P _{dh} T _j = 12°C	3.66 kW	3.49 kW
COP T _j = 12°C	7.87	5.72
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	6.80 kW	6.79 kW
COP T _j = T _{biv}	3.42	2.37
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	6.80 kW	6.79 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	3.42	2.37
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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}	1397 kWh	2028 kWh
EN 14825 Cooling		
	+7°C/+12°C	+18°C/+23°C
P _{designc}	6.09 kW	6.63 kW
SEER	5.05	7.02
P _{dc Tj = 35°C}	6.09 kW	6.63 kW
EER T _j = 35°C	2.96	4.05
C _{dc Tj = 35 °C}	1.000	1.000
P _{dc Tj = 30°C}	4.52 kW	4.93 kW
EER T _j = 30°C	4.17	6.00
C _{dc Tj = 30 °C}	1.000	1.000
P _{dc Tj = 25°C}	2.98 kW	3.95 kW
EER T _j = 25°C	5.72	8.20
C _{dc Tj = 25 °C}	0.991	0.990
P _{dc Tj = 20°C}	3.27 kW	4.03 kW
EER T _j = 20°C	7.26	9.64
C _{dc Tj = 20 °C}	0.990	0.989
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Annual energy consumption Q _{ce}	723 kWh	567 kWh

Model VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS S5

Model name	VWL 75/8.2 AS 230V S2 + VWL 78/8.2 IS S5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer
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	L
Efficiency η_{DHW}	148 %
COP	3.69
Heating up time	01:05 h:min
Standby power input	44.7 W
Reference hot water temperature	53 °C
Mixed water at 40°C	249 l

EN 16147 | Colder Climate

Declared load profile	L
Efficiency η_{DHW}	128 %
COP	3.19
Heating up time	01:11 h:min
Standby power input	53.4 W
Reference hot water temperature	53 °C
Mixed water at 40°C	248 l

EN 16147 | Warmer Climate

Declared load profile	L
Efficiency η_{DHW}	172 %
COP	4.31
Heating up time	00:57 h:min
Standby power input	38.4 W
Reference hot water temperature	52 °C
Mixed water at 40°C	249 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	5.07 kW	6.45 kW
El input	1.01 kW	2.16 kW
COP	5.00	2.98

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
η_s	199 %	140 %
Prated	6.61 kW	5.67 kW
SCOP	5.06	3.57
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	5.85 kW	5.01 kW
COP Tj = -7°C	3.20	2.27
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	3.34 kW	2.91 kW
COP Tj = +2°C	5.22	3.52
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.14 kW	2.97 kW
COP Tj = +7°C	6.31	4.68
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.71 kW	3.57 kW
COP Tj = 12°C	8.36	6.42
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	5.85 kW	5.01 kW
COP Tj = Tbiv	3.20	2.27
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.78 kW	4.72 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.83 kW	0.94 kW
Annual energy consumption Q _{he}	2698 kWh	3279 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
η_s	173 %	121 %
Prated	6.88 kW	5.69 kW
SCOP	4.41	3.10
T _{biv}	-15 °C	-15 °C
TOL	-20 °C	-15 °C
P _{dh} T _j = -7°C	4.51 kW	3.69 kW
COP T _j = -7°C	3.76	2.66
C _{dh} T _j = -7 °C	1.00	1.00
P _{dh} T _j = +2°C	2.82 kW	2.58 kW
COP T _j = +2°C	5.57	3.97
C _{dh} T _j = +2 °C	0.99	0.99
P _{dh} T _j = +7°C	3.24 kW	3.06 kW
COP T _j = +7°C	6.78	5.32
C _{dh} T _j = +7 °C	0.99	0.99
P _{dh} T _j = 12°C	3.69 kW	3.60 kW
COP T _j = 12°C	8.06	6.73
C _{dh} T _j = +12 °C	0.99	0.99
P _{dh} T _j = T _{biv}	5.61 kW	4.64 kW
COP T _j = T _{biv}	2.61	2.02
P _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	4.12 kW	4.64 kW
COP T _j = TOL or COP T _j = T _{designh} if TOL < T _{designh}	2.40	2.02
C _{dh} T _j = TOL or P _{dh} T _j = T _{designh} if TOL < T _{designh}	1.00	1.00
WTOL	60 °C	60 °C
P _{off}	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.88 kW	5.69 kW
Annual energy consumption Q _{he}	3845 kWh	4529 kWh
P _{dh} T _j = -15°C (if TOL	5.61	4.64

COP Tj = -15°C (if TOL	2.61	2.02
Cdh Tj = -15 °C	1.00	1.00

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η_s	247 %	171 %
Prated	6.80 kW	6.79 kW
SCOP	6.24	4.35
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	6.80 kW	6.79 kW
COP Tj = +2°C	3.42	2.37
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	4.68 kW	4.82 kW
COP Tj = +7°C	5.94	3.84
Cdh Tj = +7 °C	0.99	1.00
Pdh Tj = 12°C	3.66 kW	3.49 kW
COP Tj = 12°C	7.87	5.72
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	6.80 kW	6.79 kW
COP Tj = Tbiv	3.42	2.37
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	6.80 kW	6.79 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.37
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	13 W	13 W
PTO	5 W	5 W
PSB	13 W	13 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	1456 kWh	2086 kWh