

Subtype VWL 45/7.2 AS 230V S3 / VWL 65/7.2 AS230V S3

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 45/7.2 AS 230V S3 / VWL 65/7.2 AS230V S3
Registration number	011-1W0553
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1 kg
Certification Date	26.09.2022
Testing basis	European KEYMARK Scheme for Heat Pumps Rev. 10 (as of 2022-06)

**Model VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS**

Model name	VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	4.21 kW	4.32 kW
El input	0.79 kW	1.48 kW
COP	5.31	2.91

### EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.21 kW	0.81 kW
Cooling capacity	3.61	4.00
EER	2.97	4.96

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	182 %	133 %
P <sub>rated</sub>	4.75 kW	5.09 kW
SCOP	4.62	3.41
T <sub>biv</sub>	-7 °C	-7 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	4.20 kW	4.50 kW
COP T <sub>j</sub> = -7°C	3.08	2.19
Cd <sub>h</sub> T <sub>j</sub> = -7 °C	1.00	1.00
P <sub>dh</sub> T <sub>j</sub> = +2°C	2.66 kW	2.76 kW
COP T <sub>j</sub> = +2°C	4.51	3.35
Cd <sub>h</sub> T <sub>j</sub> = +2 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = +7°C	2.72 kW	2.46 kW
COP T <sub>j</sub> = +7°C	6.19	4.45
Cd <sub>h</sub> T <sub>j</sub> = +7 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = 12°C	3.01 kW	2.65 kW
COP T <sub>j</sub> = 12°C	6.46	5.38
Cd <sub>h</sub> T <sub>j</sub> = +12 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	4.20 kW	4.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.08	2.19
P <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.67 kW	3.37 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.54	1.60

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.08 kW	1.71 kW
Annual energy consumption Qhe	2126 kWh	3084 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	145 %	102 %
Prated	4.12 kW	3.68 kW
SCOP	3.71	2.63
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.58 kW	2.26 kW
COP Tj = -7°C	2.88	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.20 kW	2.09 kW
COP Tj = +2°C	4.80	3.58
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.74 kW	2.72 kW
COP Tj = +7°C	6.40	4.79
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.80 kW	2.69 kW
COP Tj = 12°C	6.64	5.61
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.36 kW	3.00 kW
COP Tj = Tbiv	2.20	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.72 kW	3.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.74	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.12 kW	3.68 kW
Annual energy consumption Qhe	2742 kWh	3440 kWh
Pdh Tj = -15°C (if TOL)	3.36	3.00
COP Tj = -15°C (if TOL)	2.20	1.58
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	225 %	156 %
Prated	4.42 kW	4.27 kW
SCOP	5.71	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.42 kW	4.27 kW
COP Tj = +2°C	3.49	2.17
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	2.57 kW	2.75 kW
COP Tj = +7°C	5.53	3.54
Cdh Tj = +7 °C	1.00	0.99
Pdh Tj = 12°C	2.76 kW	2.61 kW
COP Tj = 12°C	6.45	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.42 kW	4.27 kW
COP Tj = Tbiv	3.49	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.42 kW	4.27 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.17
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1033 kWh	1438 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	3.61 kW	3.84 kW
Pdc Tj = 35°C	4.85	7.34
EER Tj = 35°C	3.61 kW	3.84 kW
Cdc Tj = 35 °C	2.97	5.07
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	2.45 kW	3.18 kW
Cdc Tj = 30 °C	4.08	6.80
Pdc Tj = 25°C	1.000	0.970
EER Tj = 25°C	2.48 kW	3.45 kW
Cdc Tj = 25 °C	5.66	8.94
Pdc Tj = 20°C	0.967	0.963
EER Tj = 20°C	2.85 kW	3.63 kW
Cdc Tj = 20 °C	8.15	11.65
Poff	0.959	0.954
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	446 kWh	314 kWh

**Model VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS S5**

Model name	VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS S5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	4.21 kW	4.32 kW
El input	0.79 kW	1.48 kW
COP	5.31	2.91

### EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.21 kW	0.81 kW
Cooling capacity	3.61	4.00
EER	2.97	4.96

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	182 %	133 %
P <sub>rated</sub>	4.75 kW	5.09 kW
SCOP	4.62	3.41
T <sub>biv</sub>	-7 °C	-7 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7 °C	4.20 kW	4.50 kW
COP T <sub>j</sub> = -7 °C	3.08	2.19
Cd <sub>h</sub> T <sub>j</sub> = -7 °C	1.00	1.00
P <sub>dh</sub> T <sub>j</sub> = +2 °C	2.66 kW	2.76 kW
COP T <sub>j</sub> = +2 °C	4.51	3.35
Cd <sub>h</sub> T <sub>j</sub> = +2 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = +7 °C	2.72 kW	2.46 kW
COP T <sub>j</sub> = +7 °C	6.19	4.45
Cd <sub>h</sub> T <sub>j</sub> = +7 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = 12 °C	3.01 kW	2.65 kW
COP T <sub>j</sub> = 12 °C	6.46	5.38
Cd <sub>h</sub> T <sub>j</sub> = +12 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	4.20 kW	4.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.08	2.19
P <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.67 kW	3.37 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.54	1.60

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.08 kW	1.71 kW
Annual energy consumption Qhe	2126 kWh	3084 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	145 %	102 %
Prated	4.12 kW	3.68 kW
SCOP	3.71	2.63
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.58 kW	2.26 kW
COP Tj = -7°C	2.88	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.20 kW	2.09 kW
COP Tj = +2°C	4.80	3.58
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.74 kW	2.72 kW
COP Tj = +7°C	6.40	4.79
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.80 kW	2.69 kW
COP Tj = 12°C	6.64	5.61
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.36 kW	3.00 kW
COP Tj = Tbiv	2.20	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.72 kW	3.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.74	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.12 kW	3.68 kW
Annual energy consumption Qhe	2742 kWh	3440 kWh
Pdh Tj = -15°C (if TOL)	3.36	3.00
COP Tj = -15°C (if TOL)	2.20	1.58
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	225 %	156 %
Prated	4.42 kW	4.27 kW
SCOP	5.71	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.42 kW	4.27 kW
COP Tj = +2°C	3.49	2.17
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	2.57 kW	2.75 kW
COP Tj = +7°C	5.53	3.54
Cdh Tj = +7 °C	1.00	0.99
Pdh Tj = 12°C	2.76 kW	2.61 kW
COP Tj = 12°C	6.45	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.42 kW	4.27 kW
COP Tj = Tbiv	3.49	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.42 kW	4.27 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.17
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1033 kWh	1438 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	3.61 kW	3.84 kW
Pdc Tj = 35°C	4.85	7.34
EER Tj = 35°C	3.61 kW	3.84 kW
Cdc Tj = 35 °C	2.97	5.07
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	2.45 kW	3.18 kW
Cdc Tj = 30 °C	4.08	6.80
Pdc Tj = 25°C	1.000	0.970
EER Tj = 25°C	2.48 kW	3.45 kW
Cdc Tj = 25 °C	5.66	8.94
Pdc Tj = 20°C	0.967	0.963
EER Tj = 20°C	2.85 kW	3.63 kW
Cdc Tj = 20 °C	8.15	11.65
Poff	0.959	0.954
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	446 kWh	314 kWh

**Model VWL 45/7.2 AS 230V S3 + VWL 107/7.2 IS**

Model name	VWL 45/7.2 AS 230V S3 + VWL 107/7.2 IS
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
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 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	4.21 kW	4.32 kW
El input	0.79 kW	1.48 kW
COP	5.31	2.91

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.21 kW	0.81 kW
Cooling capacity	3.61	4.00
EER	2.97	4.96

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	182 %	133 %
Prated	4.75 kW	5.09 kW
SCOP	4.62	3.41
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.20 kW	4.50 kW
COP Tj = -7°C	3.08	2.19
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.66 kW	2.76 kW
COP Tj = +2°C	4.51	3.35
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.72 kW	2.46 kW
COP Tj = +7°C	6.19	4.45
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.01 kW	2.65 kW
COP Tj = 12°C	6.46	5.38
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.20 kW	4.50 kW
COP Tj = Tbiv	3.08	2.19
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.67 kW	3.37 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.54	1.60
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.08 kW	1.71 kW
Annual energy consumption Qhe	2126 kWh	3084 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	145 %	102 %
Prated	4.12 kW	3.68 kW
SCOP	3.71	2.63
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.58 kW	2.26 kW
COP Tj = -7°C	2.88	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.20 kW	2.09 kW

COP Tj = +2°C	4.80	3.58
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.74 kW	2.72 kW
COP Tj = +7°C	6.40	4.79
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.80 kW	2.69 kW
COP Tj = 12°C	6.64	5.61
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.36 kW	3.00 kW
COP Tj = Tbiv	2.20	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.72 kW	3.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.74	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.12 kW	3.68 kW
Annual energy consumption Qhe	2742 kWh	3440 kWh
Pdh Tj = -15°C (if TOL)	3.36	3.00
COP Tj = -15°C (if TOL)	2.20	1.58
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	225 %	156 %
Prated	4.42 kW	4.27 kW
SCOP	5.71	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.42 kW	4.27 kW
COP Tj = +2°C	3.49	2.17
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	2.57 kW	2.75 kW
COP Tj = +7°C	5.53	3.54
Cdh Tj = +7 °C	1.00	0.99

Pdh Tj = 12°C	2.76 kW	2.61 kW
COP Tj = 12°C	6.45	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.42 kW	4.27 kW
COP Tj = Tbiv	3.49	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.42 kW	4.27 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.17
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1033 kWh	1438 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	3.61 kW	3.84 kW
SEER	4.85	7.34
Pdc Tj = 35°C	3.61 kW	3.84 kW
EER Tj = 35°C	2.97	5.07
Cdc Tj = 35 °C	1.000	1.000
Pdc Tj = 30°C	2.45 kW	3.18 kW
EER Tj = 30°C	4.08	6.80
Cdc Tj = 30 °C	1.000	0.970
Pdc Tj = 25°C	2.48 kW	3.45 kW
EER Tj = 25°C	5.66	8.94
Cdc Tj = 25 °C	0.967	0.963
Pdc Tj = 20°C	2.85 kW	3.63 kW
EER Tj = 20°C	8.15	11.65
Cdc Tj = 20 °C	0.959	0.954
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Annual energy consumption Qce	446 kWh	314 kWh

**Model VWL 45/7.2 AS 230V S3 + VWL 107/7.2 IS S1**

Model name	VWL 45/7.2 AS 230V S3 + VWL 107/7.2 IS S1
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
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 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	4.21 kW	4.32 kW
El input	0.79 kW	1.48 kW
COP	5.31	2.91

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.21 kW	0.81 kW
Cooling capacity	3.61	4.00
EER	2.97	4.96

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	38 dB(A)	38 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	182 %	134 %
Prated	3.67 kW	3.37 kW
SCOP	4.63	3.41
Tbiv	-10 °C	-10 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.20 kW	4.50 kW
COP Tj = -7°C	3.08	2.19
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	2.66 kW	2.76 kW
COP Tj = +2°C	4.51	3.35
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	2.72 kW	2.46 kW
COP Tj = +7°C	6.19	4.45
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	3.01 kW	2.65 kW
COP Tj = 12°C	6.46	5.38
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	3.67 kW	3.37 kW
COP Tj = Tbiv	2.54	1.60
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.67 kW	3.37 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.54	1.60
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1635 kWh	2042 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	38 dB(A)	38 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	225 %	156 %
Prated	4.42 kW	4.39 kW
SCOP	5.71	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.42 kW	4.39 kW
COP Tj = +2°C	3.49	2.21
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	2.57 kW	2.75 kW

COP Tj = +7°C	5.53	3.54
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	2.76 kW	2.61 kW
COP Tj = 12°C	6.45	4.89
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	4.42 kW	4.39 kW
COP Tj = Tbiv	3.49	2.21
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.42 kW	4.39 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.49	2.21
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1033 kWh	1477 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	3.61 kW	3.84 kW
SEER	4.85	7.34
Pdc Tj = 35°C	3.61 kW	3.84 kW
EER Tj = 35°C	2.97	5.07
Cdc Tj = 35 °C	1.000	1.000
Pdc Tj = 30°C	2.45 kW	3.18 kW
EER Tj = 30°C	4.08	6.80
Cdc Tj = 30 °C	1.000	0.970
Pdc Tj = 25°C	2.48 kW	3.45 kW
EER Tj = 25°C	5.66	8.94
Cdc Tj = 25 °C	0.967	0.963
Pdc Tj = 20°C	2.85 kW	3.63 kW
EER Tj = 20°C	8.15	11.65
Cdc Tj = 20 °C	0.959	0.954
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Annual energy consumption Qce	446 kWh	314 kWh

**Model VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS C2**

Model name	VWL 45/7.2 AS 230V S3 + VWL 108/7.2 IS C2
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Heat Source	Outdoor Air
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	4.21 kW	4.32 kW
El input	0.84 kW	1.53 kW
COP	5.00	2.82

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.26 kW	0.86 kW
Cooling capacity	3.61	4.00
EER	2.85	4.67

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	168 %	125 %
Prated	4.75 kW	5.09 kW
SCOP	4.27	3.21
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.20 kW	4.50 kW
COP Tj = -7°C	2.97	2.14
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.66 kW	2.76 kW
COP Tj = +2°C	4.15	3.16
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.72 kW	2.46 kW
COP Tj = +7°C	5.55	4.08
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.01 kW	2.65 kW
COP Tj = 12°C	5.84	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.20 kW	4.50 kW
COP Tj = Tbiv	2.97	2.14
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.67 kW	3.37 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.45	1.57

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.08 kW	1.71 kW
Annual energy consumption Qhe	2301 kWh	3276 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	135 %	97 %
Prated	4.12 kW	3.68 kW
SCOP	3.44	2.49
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.58 kW	2.26 kW
COP Tj = -7°C	2.72	1.89
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.20 kW	2.09 kW
COP Tj = +2°C	4.33	3.29
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.74 kW	2.72 kW
COP Tj = +7°C	5.73	4.40
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.80 kW	2.69 kW
COP Tj = 12°C	5.93	5.08
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.36 kW	3.00 kW
COP Tj = Tbiv	2.13	1.54
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.72 kW	3.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.68	1.54
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.12 kW	3.68 kW
Annual energy consumption Qhe	2954 kWh	3639 kWh
Pdh Tj = -15°C (if TOL)	3.36	3.00
COP Tj = -15°C (if TOL)	2.13	1.54
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	204 %	145 %
Prated	4.44 kW	4.39 kW
SCOP	5.16	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.42 kW	4.39 kW
COP Tj = +2°C	3.36	2.16
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	2.57 kW	2.75 kW
COP Tj = +7°C	4.99	3.33
Cdh Tj = +7 °C	1.00	1.00
Pdh Tj = 12°C	2.76 kW	2.61 kW
COP Tj = 12°C	5.77	4.47
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.44 kW	4.39 kW
COP Tj = Tbiv	3.34	2.16
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.44 kW	4.39 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.16
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1148 kWh	1586 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	3.61 kW	3.84 kW
Pdc Tj = 35°C	4.44	6.63
EER Tj = 35°C	3.61 kW	3.84 kW
Cdc Tj = 35 °C	2.85	4.75
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	2.45 kW	3.18 kW
Cdc Tj = 30 °C	3.77	6.14
Pdc Tj = 25°C	1.000	0.972
EER Tj = 25°C	2.48 kW	3.45 kW
Cdc Tj = 25 °C	5.08	7.91
Pdc Tj = 20°C	0.971	0.967
EER Tj = 20°C	2.85 kW	3.63 kW
Cdc Tj = 20 °C	7.13	10.04
Poff	0.964	0.961
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	488 kWh	347 kWh

**Model VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS**

Model name	VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Heat Source	Outdoor Air
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	6.07 kW	6.09 kW
El input	1.20 kW	1.85 kW
COP	5.05	3.28

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.79 kW	1.39 kW
Cooling capacity	5.14	5.90
EER	2.87	4.25

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	181 %	136 %
Prated	5.01 kW	5.21 kW
SCOP	4.61	3.46
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.43 kW	4.61 kW
COP Tj = -7°C	3.06	2.20
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.81 kW	2.81 kW
COP Tj = +2°C	4.46	3.43
Cdh Tj = +2 °C	0.99	1.00
Pdh Tj = +7°C	2.74 kW	2.42 kW
COP Tj = +7°C	6.25	4.45
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.01 kW	2.68 kW
COP Tj = 12°C	6.44	5.53
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.43 kW	4.61 kW
COP Tj = Tbiv	3.06	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.04 kW	3.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.69	1.58

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.97 kW	1.22 kW
Annual energy consumption Qhe	2246 kWh	3109 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	147 %	101 %
Prated	4.48 kW	3.95 kW
SCOP	3.75	2.61
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.74 kW	2.51 kW
COP Tj = -7°C	2.86	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.26 kW	2.00 kW
COP Tj = +2°C	5.04	3.50
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.68 kW	2.68 kW
COP Tj = +7°C	6.36	4.82
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.83 kW	2.73 kW
COP Tj = 12°C	6.79	5.79
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.66 kW	3.22 kW
COP Tj = Tbiv	2.09	1.51
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.99 kW	3.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.70	1.51
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.48 kW	3.95 kW
Annual energy consumption Qhe	2949 kWh	3733 kWh
Pdh Tj = -15°C (if TOL)	3.66	3.22
COP Tj = -15°C (if TOL)	2.09	1.51
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	230 %	156 %
Prated	4.81 kW	4.57 kW
SCOP	5.83	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.81 kW	4.57 kW
COP Tj = +2°C	3.30	2.20
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.10 kW	2.75 kW
COP Tj = +7°C	5.63	3.54
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.82 kW	2.61 kW
COP Tj = 12°C	6.65	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.81 kW	4.57 kW
COP Tj = Tbiv	3.30	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.81 kW	4.57 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.30	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1102 kWh	1536 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	5.22 kW	5.71 kW
Pdc Tj = 35°C	4.68	7.24
EER Tj = 35°C	5.22 kW	5.71 kW
Cdc Tj = 35 °C	2.81	4.30
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	3.99 kW	4.07 kW
Cdc Tj = 30 °C	3.58	5.93
Pdc Tj = 25°C	0.987	1.000
EER Tj = 25°C	2.35 kW	3.31 kW
Cdc Tj = 25 °C	5.42	8.58
Pdc Tj = 20°C	0.967	0.963
EER Tj = 20°C	2.71 kW	3.58 kW
Cdc Tj = 20 °C	7.71	11.87
Poff	0.959	0.953
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	669 kWh	473 kWh

**Model VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS S5**

Model name	VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS S5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	6.07 kW	6.09 kW
El input	1.20 kW	1.85 kW
COP	5.05	3.28

### EN 14511-2 | Cooling

	+7°C/+12°C	+18°C/+23°C
El input	1.79 kW	1.39 kW
Cooling capacity	5.14	5.90
EER	2.87	4.25

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	181 %	136 %
P <sub>rated</sub>	5.01 kW	5.21 kW
SCOP	4.61	3.46
T <sub>biv</sub>	-7 °C	-7 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	4.43 kW	4.61 kW
COP T <sub>j</sub> = -7°C	3.06	2.20
Cd <sub>h</sub> T <sub>j</sub> = -7 °C	1.00	1.00
P <sub>dh</sub> T <sub>j</sub> = +2°C	2.81 kW	2.81 kW
COP T <sub>j</sub> = +2°C	4.46	3.43
Cd <sub>h</sub> T <sub>j</sub> = +2 °C	0.99	1.00
P <sub>dh</sub> T <sub>j</sub> = +7°C	2.74 kW	2.42 kW
COP T <sub>j</sub> = +7°C	6.25	4.45
Cd <sub>h</sub> T <sub>j</sub> = +7 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = 12°C	3.01 kW	2.68 kW
COP T <sub>j</sub> = 12°C	6.44	5.53
Cd <sub>h</sub> T <sub>j</sub> = +12 °C	0.99	0.99
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	4.43 kW	4.61 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.06	2.20
P <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	4.04 kW	3.99 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.69	1.58

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.97 kW	1.22 kW
Annual energy consumption Qhe	2246 kWh	3109 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	147 %	101 %
Prated	4.48 kW	3.95 kW
SCOP	3.75	2.61
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.74 kW	2.51 kW
COP Tj = -7°C	2.86	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.26 kW	2.00 kW
COP Tj = +2°C	5.04	3.50
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.68 kW	2.68 kW
COP Tj = +7°C	6.36	4.82
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.83 kW	2.73 kW
COP Tj = 12°C	6.79	5.79
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.66 kW	3.22 kW
COP Tj = Tbiv	2.09	1.51
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.99 kW	3.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.70	1.51
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.48 kW	3.95 kW
Annual energy consumption Qhe	2949 kWh	3733 kWh
Pdh Tj = -15°C (if TOL)	3.66	3.22
COP Tj = -15°C (if TOL)	2.09	1.51
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	230 %	156 %
Prated	4.81 kW	4.57 kW
SCOP	5.83	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.81 kW	4.57 kW
COP Tj = +2°C	3.30	2.20
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.10 kW	2.75 kW
COP Tj = +7°C	5.63	3.54
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.82 kW	2.61 kW
COP Tj = 12°C	6.65	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.81 kW	4.57 kW
COP Tj = Tbiv	3.30	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.81 kW	4.57 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.30	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1102 kWh	1536 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	5.22 kW	5.71 kW
Pdc Tj = 35°C	4.68	7.24
EER Tj = 35°C	5.22 kW	5.71 kW
Cdc Tj = 35 °C	2.81	4.30
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	3.99 kW	4.07 kW
Cdc Tj = 30 °C	3.58	5.93
Pdc Tj = 25°C	0.987	1.000
EER Tj = 25°C	2.35 kW	3.31 kW
Cdc Tj = 25 °C	5.42	8.58
Pdc Tj = 20°C	0.967	0.963
EER Tj = 20°C	2.71 kW	3.58 kW
Cdc Tj = 20 °C	7.71	11.87
Poff	0.959	0.953
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	669 kWh	473 kWh

**Model VWL 65/7.2 AS 230V S3 + VWL 107/7.2 IS**

Model name	VWL 65/7.2 AS 230V S3 + VWL 107/7.2 IS
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
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 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	6.07 kW	6.09 kW
El input	1.20 kW	1.85 kW
COP	5.05	3.28

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.79 kW	1.39 kW
Cooling capacity	5.14	5.90
EER	2.87	4.25

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	181 %	136 %
Prated	5.01 kW	5.21 kW
SCOP	4.61	3.46
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.43 kW	4.61 kW
COP Tj = -7°C	3.06	2.20
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.81 kW	2.81 kW
COP Tj = +2°C	4.46	3.43
Cdh Tj = +2 °C	0.99	1.00
Pdh Tj = +7°C	2.74 kW	2.42 kW
COP Tj = +7°C	6.25	4.45
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.01 kW	2.68 kW
COP Tj = 12°C	6.44	5.53
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.43 kW	4.61 kW
COP Tj = Tbiv	3.06	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.04 kW	3.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.69	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.97 kW	1.22 kW
Annual energy consumption Qhe	2246 kWh	3109 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	147 %	101 %
Prated	4.48 kW	3.95 kW
SCOP	3.75	2.61
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.74 kW	2.51 kW
COP Tj = -7°C	2.86	1.97
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.26 kW	2.00 kW

COP Tj = +2°C	5.04	3.50
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.68 kW	2.68 kW
COP Tj = +7°C	6.36	4.82
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.83 kW	2.73 kW
COP Tj = 12°C	6.79	5.79
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.66 kW	3.22 kW
COP Tj = Tbiv	2.09	1.51
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.99 kW	3.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.70	1.51
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.48 kW	3.95 kW
Annual energy consumption Qhe	2949 kWh	3733 kWh
Pdh Tj = -15°C (if TOL)	3.66	3.22
COP Tj = -15°C (if TOL)	2.09	1.51
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	230 %	156 %
Prated	4.81 kW	4.57 kW
SCOP	5.83	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.81 kW	4.57 kW
COP Tj = +2°C	3.30	2.20
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.10 kW	2.75 kW
COP Tj = +7°C	5.63	3.54
Cdh Tj = +7 °C	0.99	0.99

Pdh Tj = 12°C	2.82 kW	2.61 kW
COP Tj = 12°C	6.65	4.89
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.81 kW	4.57 kW
COP Tj = Tbiv	3.30	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.81 kW	4.57 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.30	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1102 kWh	1536 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	5.22 kW	5.71 kW
SEER	4.68	7.24
Pdc Tj = 35°C	5.22 kW	5.71 kW
EER Tj = 35°C	2.81	4.30
Cdc Tj = 35 °C	1.000	1.000
Pdc Tj = 30°C	3.99 kW	4.07 kW
EER Tj = 30°C	3.58	5.93
Cdc Tj = 30 °C	0.987	1.000
Pdc Tj = 25°C	2.35 kW	3.31 kW
EER Tj = 25°C	5.42	8.58
Cdc Tj = 25 °C	0.967	0.963
Pdc Tj = 20°C	2.71 kW	3.58 kW
EER Tj = 20°C	7.71	11.87
Cdc Tj = 20 °C	0.959	0.953
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Annual energy consumption Qce	669 kWh	473 kWh

**Model VWL 65/7.2 AS 230V S3 + VWL 107/7.2 IS S1**

Model name	VWL 65/7.2 AS 230V S3 + VWL 107/7.2 IS S1
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
Heat Source	Outdoor Air
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 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	6.07 kW	6.09 kW
El input	1.20 kW	1.85 kW
COP	5.05	3.28

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.79 kW	1.39 kW
Cooling capacity	5.14	5.90
EER	2.87	4.25

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	38 dB(A)	38 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	182 %	136 %
Prated	4.04 kW	3.99 kW
SCOP	4.62	3.47

Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.43 kW	4.61 kW
COP Tj = -7°C	3.06	2.20
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	2.81 kW	2.81 kW
COP Tj = +2°C	4.46	3.43
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	2.74 kW	2.42 kW
COP Tj = +7°C	6.25	4.45
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	3.01 kW	2.68 kW
COP Tj = 12°C	6.44	5.53
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	4.04 kW	3.99 kW
COP Tj = Tbiv	2.69	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.04 kW	3.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.69	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1804 kWh	2375 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	38 dB(A)	38 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	230 %	156 %
Prated	4.81 kW	4.57 kW
SCOP	5.83	3.97
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.81 kW	4.57 kW
COP Tj = +2°C	3.30	2.20
Cdh Tj = +2 °C	1.000	1.000

Pdh Tj = +7°C	3.10 kW	2.75 kW
COP Tj = +7°C	5.63	3.54
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	2.82 kW	2.61 kW
COP Tj = 12°C	6.65	4.89
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	4.81 kW	4.57 kW
COP Tj = Tbiv	3.30	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.81 kW	4.57 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.30	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1102 kWh	1536 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	5.22 kW	5.71 kW
SEER	4.68	7.24
Pdc Tj = 35°C	5.22 kW	5.71 kW
EER Tj = 35°C	2.81	4.30
Cdc Tj = 35 °C	1.000	1.000
Pdc Tj = 30°C	3.99 kW	4.07 kW
EER Tj = 30°C	3.58	5.93
Cdc Tj = 30 °C	0.987	1.000
Pdc Tj = 25°C	2.35 kW	3.31 kW
EER Tj = 25°C	5.42	8.58
Cdc Tj = 25 °C	0.967	0.963
Pdc Tj = 20°C	2.71 kW	3.58 kW
EER Tj = 20°C	7.71	11.87
Cdc Tj = 20 °C	0.959	0.953
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Annual energy consumption Qce	669 kWh	473 kWh

**Model VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS C2**

Model name	VWL 65/7.2 AS 230V S3 + VWL 108/7.2 IS C2
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Heat Source	Outdoor Air
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 ηDHW	106 %
COP	2.65
Heating up time	01:05 h:min
Standby power input	31.0 W
Reference hot water temperature	51.3 °C
Mixed water at 40°C	235.37 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency ηDHW	86 %
COP	2.16
Heating up time	01:10 h:min
Standby power input	33.7 W
Reference hot water temperature	51.06 °C
Mixed water at 40°C	233.99 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency ηDHW	126 %
COP	3.14
Heating up time	01:00 h:min
Standby power input	29.1 W
Reference hot water temperature	51.6 °C
Mixed water at 40°C	237.7 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	6.07 kW	6.09 kW
El input	1.25 kW	1.90 kW
COP	4.85	3.20

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	1.84 kW	1.44 kW
Cooling capacity	5.14	5.90
EER	2.79	4.10

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	168 %	127 %
Prated	5.01 kW	5.21 kW
SCOP	4.27	3.26
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.43 kW	4.61 kW
COP Tj = -7°C	2.96	2.15
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	2.81 kW	2.81 kW
COP Tj = +2°C	4.13	3.24
Cdh Tj = +2 °C	0.99	1.00
Pdh Tj = +7°C	2.74 kW	2.42 kW
COP Tj = +7°C	5.61	4.07
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	3.01 kW	2.68 kW
COP Tj = 12°C	5.82	5.01
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.43 kW	4.61 kW
COP Tj = Tbiv	2.96	2.15
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.04 kW	3.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.61	1.55

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.97 kW	1.22 kW
Annual energy consumption Qhe	2424 kWh	3304 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	136 %	96 %
Prated	4.48 kW	3.95 kW
SCOP	3.48	2.47
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	2.74 kW	2.51 kW
COP Tj = -7°C	2.72	1.89
Cdh Tj = -7 °C	0.99	1.00
Pdh Tj = +2°C	2.26 kW	2.00 kW
COP Tj = +2°C	4.54	3.22
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.68 kW	2.68 kW
COP Tj = +7°C	5.68	4.42
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.83 kW	2.73 kW
COP Tj = 12°C	6.06	5.23
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	3.66 kW	3.22 kW
COP Tj = Tbiv	2.03	1.48
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.99 kW	3.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.65	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W

PSB	12 W	12 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.48 kW	3.95 kW
Annual energy consumption Qhe	3174 kWh	3946 kWh
Pdh Tj = -15°C (if TOL)	3.66	3.22
COP Tj = -15°C (if TOL)	2.03	1.48
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	63 dB(A)	63 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	209 %	145 %
Prated	4.81 kW	4.57 kW
SCOP	5.30	3.70
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.81 kW	4.57 kW
COP Tj = +2°C	3.19	2.15
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	3.10 kW	2.75 kW
COP Tj = +7°C	5.16	3.33
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	2.82 kW	2.61 kW
COP Tj = 12°C	5.95	4.47
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	4.81 kW	4.57 kW
COP Tj = Tbiv	3.19	2.15
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.81 kW	4.57 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.19	2.15
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.00	1.00
WTOL	60 °C	60 °C
Poff	12 W	12 W
PTO	6 W	6 W
PSB	12 W	12 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	1211 kWh	1649 kWh
EN 14825   Cooling		
Pdesignc	+7°C/+12°C	+18°C/+23°C
SEER	5.22 kW	5.71 kW
Pdc Tj = 35°C	4.32	6.57
EER Tj = 35°C	5.22 kW	5.71 kW
Cdc Tj = 35 °C	2.74	4.14
Pdc Tj = 30°C	1.000	1.000
EER Tj = 30°C	3.99 kW	4.07 kW
Cdc Tj = 30 °C	3.42	5.53
Pdc Tj = 25°C	0.988	1.000
EER Tj = 25°C	2.74	3.31 kW
Cdc Tj = 25 °C	4.86	7.59
Pdc Tj = 20°C	0.971	0.967
EER Tj = 20°C	2.35 kW	3.58 kW
Cdc Tj = 20 °C	6.75	10.18
Poff	0.964	0.959
PTO	12 W	12 W
PSB	6 W	6 W
PCK	12 W	12 W
Annual energy consumption Qce	0 W	0 W
	726 kWh	521 kWh