

## Subtype Vitocal 25x-A z5

Certificate Holder	Viessmann Climate Solutions SE
Address	Viessmannstr. 1
ZIP	35107
City	Allendorf/Eder
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	Vitocal 25x-A z5
Registration number	011-1W0776
Heat Pump Type	Outdoor Air/Water
Refrigerant	R290
Mass of Refrigerant	2 kg
Certification Date	11.03.2024
Testing basis	HP KEYMARK certification scheme rules V12

**Model Vitocal 250-A AWO-E-AC 251.A16**

Model name	Vitocal 250-A AWO-E-AC 251.A16
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
$\eta_s$	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

## Model Vitocal 250-A AWO-E-AC 251.A19

Model name	Vitocal 250-A AWO-E-AC 251.A19
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	Yes

## 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

## EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

## EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
$\eta_s$	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh

## Model Vitocal 250-A AWO-E-AC 251.A16 2C

Model name	Vitocal 250-A AWO-E-AC 251.A16 2C
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	Yes

## 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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

## EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

## EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
ηs	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

**Model Vitocal 250-A AWO-E-AC 251.A19 2C**

Model name	Vitocal 250-A AWO-E-AC 251.A19 2C
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
$\eta_s$	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh

**Model Vitocal 250-A AWO-E-AC-AF 251.A16**

Model name	Vitocal 250-A AWO-E-AC-AF 251.A16
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
$\eta_s$	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

## Model Vitocal 250-A AWO-E-AC-AF 251.A19

Model name	Vitocal 250-A AWO-E-AC-AF 251.A19
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	Yes

## 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

## EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

## EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
$\eta_s$	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh

**Model Vitocal 250-A AWO-E-AC-AF 251.A16 2C**

Model name	Vitocal 250-A AWO-E-AC-AF 251.A16 2C
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
$\eta_s$	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

## Model Vitocal 250-A AWO-E-AC-AF 251.A19 2C

Model name	Vitocal 250-A AWO-E-AC-AF 251.A19 2C
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	Yes

## 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

## EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

## EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
$\eta_s$	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh

**Model Vitocal 252-A AWOT-E-AC 251.A16**

Model name	Vitocal 252-A AWOT-E-AC 251.A16
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
$\eta_s$	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.40 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.20	5.00
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.50 kW	11.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	10.60 kW	10.90 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.10
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Q <sub>he</sub>	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	17.13 kW	16.89 kW
η <sub>s</sub>	153 %	127 %
P <sub>rated</sub>	17.13 kW	16.89 kW
SCOP	3.90	3.26
T <sub>biv</sub>	-9 °C	-9 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	10.30 kW	10.20 kW
COP T <sub>j</sub> = -7°C	3.30	2.70
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.970	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.50 kW	6.30 kW
COP T <sub>j</sub> = +2°C	5.50	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.40 kW
COP T <sub>j</sub> = +7°C	6.50	5.40
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.50	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.30 kW	11.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.90	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Q <sub>he</sub>	10819 kWh	12788 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.24 kW	6.77 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.24 kW	6.77 kW
SCOP	5.46	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	4.50	2.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.950	0.970
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.40 kW	7.00 kW
COP T <sub>j</sub> = +7°C	5.70	3.80
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.940	0.960
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.40 kW
COP T <sub>j</sub> = 12°C	7.10	5.60
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.950
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	7.20 kW	6.80 kW
COP T <sub>j</sub> = T <sub>biv</sub>	4.50	2.90
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.20 kW	6.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	4.50	2.90
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1772 kWh	2236 kWh

**Model Vitocal 252-A AWOT-E-AC 251.A19**

Model name	Vitocal 252-A AWOT-E-AC 251.A19
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
$\eta_s$	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.30	5.10
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.50 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	12.00 kW	12.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	11.00 kW	11.50 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.00
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Q <sub>he</sub>	5897 kWh	7019 kWh

## EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

## EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	18.67 kW	18.53 kW
η <sub>s</sub>	147 %	121 %
P <sub>rated</sub>	18.67 kW	18.53 kW
SCOP	3.75	3.10
T <sub>biv</sub>	-8 °C	-8 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.20 kW	11.10 kW
COP T <sub>j</sub> = -7°C	3.20	2.60
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.980	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.90 kW	6.60 kW
COP T <sub>j</sub> = +2°C	5.40	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.940	0.950
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.30 kW
COP T <sub>j</sub> = +7°C	6.50	5.50
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.50 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.40	6.50
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.80 kW	11.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.00	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity



Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Q <sub>he</sub>	12265 kWh	14724 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.22 kW	6.73 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.22 kW	6.73 kW
SCOP	5.44	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.70 kW
COP T <sub>j</sub> = +2°C	4.40	2.80
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.970	0.970
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.30 kW	6.90 kW
COP T <sub>j</sub> = +7°C	5.60	3.80
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.940	0.960
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.40 kW
COP T <sub>j</sub> = 12°C	7.20	5.60
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.950
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	7.20 kW	6.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	4.40	2.80
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.20 kW	6.70 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	4.40	2.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1773 kWh	2224 kWh

**Model Vitocal 252-A AWOT-E-AC 251.A16 2C**

Model name	Vitocal 252-A AWOT-E-AC 251.A16 2C
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
$\eta_s$	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.40 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.20	5.00
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.50 kW	11.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	10.60 kW	10.90 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.10
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Q <sub>he</sub>	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	17.13 kW	16.89 kW
η <sub>s</sub>	153 %	127 %
P <sub>rated</sub>	17.13 kW	16.89 kW
SCOP	3.90	3.26
T <sub>biv</sub>	-9 °C	-9 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	10.30 kW	10.20 kW
COP T <sub>j</sub> = -7°C	3.30	2.70
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.970	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.50 kW	6.30 kW
COP T <sub>j</sub> = +2°C	5.50	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.40 kW
COP T <sub>j</sub> = +7°C	6.50	5.40
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.50	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.30 kW	11.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.90	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Q <sub>he</sub>	10819 kWh	12788 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.24 kW	6.77 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.24 kW	6.77 kW
SCOP	5.46	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	4.50	2.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.950	0.970
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.40 kW	7.00 kW
COP T <sub>j</sub> = +7°C	5.70	3.80
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.940	0.960
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.40 kW
COP T <sub>j</sub> = 12°C	7.10	5.60
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.950
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	7.20 kW	6.80 kW
COP T <sub>j</sub> = T <sub>biv</sub>	4.50	2.90
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.20 kW	6.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	4.50	2.90
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1772 kWh	2236 kWh

**Model Vitocal 252-A AWOT-E-AC 251.A19 2C**

Model name	Vitocal 252-A AWOT-E-AC 251.A19 2C
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
$\eta_s$	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.30	5.10
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.50 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	12.00 kW	12.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	11.00 kW	11.50 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.00
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Q <sub>he</sub>	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	18.67 kW	18.53 kW
η <sub>s</sub>	147 %	121 %
P <sub>rated</sub>	18.67 kW	18.53 kW
SCOP	3.75	3.10
T <sub>biv</sub>	-8 °C	-8 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.20 kW	11.10 kW
COP T <sub>j</sub> = -7°C	3.20	2.60
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.980	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.90 kW	6.60 kW
COP T <sub>j</sub> = +2°C	5.40	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.940	0.950
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.30 kW
COP T <sub>j</sub> = +7°C	6.50	5.50
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.50 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.40	6.50
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.80 kW	11.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.00	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity



Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Q <sub>he</sub>	12265 kWh	14724 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.22 kW	6.73 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.22 kW	6.73 kW
SCOP	5.44	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh Tj = +2°C</sub>	7.20 kW	6.70 kW
COP T <sub>j = +2°C</sub>	4.40	2.80
C <sub>dh Tj = +2 °C</sub>	0.970	0.970
P <sub>dh Tj = +7°C</sub>	7.30 kW	6.90 kW
COP T <sub>j = +7°C</sub>	5.60	3.80
C <sub>dh Tj = +7 °C</sub>	0.940	0.960
P <sub>dh Tj = 12°C</sub>	8.60 kW	8.40 kW
COP T <sub>j = 12°C</sub>	7.20	5.60
C <sub>dh Tj = +12 °C</sub>	0.930	0.950
P <sub>dh Tj = T<sub>biv</sub></sub>	7.20 kW	6.70 kW
COP T <sub>j = T<sub>biv</sub></sub>	4.40	2.80
P <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	7.20 kW	6.70 kW
COP T <sub>j = TOL or COP T<sub>j = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	4.40	2.80
C <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1773 kWh	2224 kWh

**Model Vitocal 252-A AWOT-E-AC-AF 251.A16**

Model name	Vitocal 252-A AWOT-E-AC-AF 251.A16
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
$\eta_s$	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.40 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.20	5.00
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.50 kW	11.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	10.60 kW	10.90 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.10
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Q <sub>he</sub>	5673 kWh	6594 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	17.13 kW	16.89 kW
η <sub>s</sub>	153 %	127 %
P <sub>rated</sub>	17.13 kW	16.89 kW
SCOP	3.90	3.26
T <sub>biv</sub>	-9 °C	-9 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	10.30 kW	10.20 kW
COP T <sub>j</sub> = -7°C	3.30	2.70
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.970	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.50 kW	6.30 kW
COP T <sub>j</sub> = +2°C	5.50	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.40 kW
COP T <sub>j</sub> = +7°C	6.50	5.40
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.50	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.30 kW	11.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.90	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Q <sub>he</sub>	10819 kWh	12788 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.24 kW	6.77 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.24 kW	6.77 kW
SCOP	5.46	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh Tj = +2°C</sub>	7.20 kW	6.80 kW
COP T <sub>j = +2°C</sub>	4.50	2.90
C <sub>dh Tj = +2 °C</sub>	0.950	0.970
P <sub>dh Tj = +7°C</sub>	7.40 kW	7.00 kW
COP T <sub>j = +7°C</sub>	5.70	3.80
C <sub>dh Tj = +7 °C</sub>	0.940	0.960
P <sub>dh Tj = 12°C</sub>	8.60 kW	8.40 kW
COP T <sub>j = 12°C</sub>	7.10	5.60
C <sub>dh Tj = +12 °C</sub>	0.930	0.950
P <sub>dh Tj = T<sub>biv</sub></sub>	7.20 kW	6.80 kW
COP T <sub>j = T<sub>biv</sub></sub>	4.50	2.90
P <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	7.20 kW	6.80 kW
COP T <sub>j = TOL or COP T<sub>j = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	4.50	2.90
C <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1772 kWh	2236 kWh

**Model Vitocal 252-A AWOT-E-AC-AF 251.A19**

Model name	Vitocal 252-A AWOT-E-AC-AF 251.A19
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
$\eta_s$	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.30	5.10
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.50 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	12.00 kW	12.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	11.00 kW	11.50 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.00
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Q <sub>he</sub>	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	18.67 kW	18.53 kW
η <sub>s</sub>	147 %	121 %
P <sub>rated</sub>	18.67 kW	18.53 kW
SCOP	3.75	3.10
T <sub>biv</sub>	-8 °C	-8 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.20 kW	11.10 kW
COP T <sub>j</sub> = -7°C	3.20	2.60
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.980	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.90 kW	6.60 kW
COP T <sub>j</sub> = +2°C	5.40	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.940	0.950
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.30 kW
COP T <sub>j</sub> = +7°C	6.50	5.50
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.50 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.40	6.50
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.80 kW	11.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.00	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity



Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Q <sub>he</sub>	12265 kWh	14724 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.22 kW	6.73 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.22 kW	6.73 kW
SCOP	5.44	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh Tj = +2°C</sub>	7.20 kW	6.70 kW
COP T <sub>j = +2°C</sub>	4.40	2.80
C <sub>dh Tj = +2 °C</sub>	0.970	0.970
P <sub>dh Tj = +7°C</sub>	7.30 kW	6.90 kW
COP T <sub>j = +7°C</sub>	5.60	3.80
C <sub>dh Tj = +7 °C</sub>	0.940	0.960
P <sub>dh Tj = 12°C</sub>	8.60 kW	8.40 kW
COP T <sub>j = 12°C</sub>	7.20	5.60
C <sub>dh Tj = +12 °C</sub>	0.930	0.950
P <sub>dh Tj = T<sub>biv</sub></sub>	7.20 kW	6.70 kW
COP T <sub>j = T<sub>biv</sub></sub>	4.40	2.80
P <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	7.20 kW	6.70 kW
COP T <sub>j = TOL or COP T<sub>j = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	4.40	2.80
C <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1773 kWh	2224 kWh

**Model Vitocal 252-A AWOT-E-AC-AF 251.A16 2C**

Model name	Vitocal 252-A AWOT-E-AC-AF 251.A16 2C
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
Pdesignh	13.29 kW	12.09 kW
$\eta_s$	190 %	153 %
Prated	13.29 kW	12.09 kW
SCOP	4.85	3.92
Tbiv	-7 °C	-8 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.50 kW	10.90 kW
COP Tj = -7°C	2.80	2.30
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	7.10 kW	6.40 kW
COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Q <sub>he</sub>	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	17.13 kW	16.89 kW
η <sub>s</sub>	153 %	127 %
P <sub>rated</sub>	17.13 kW	16.89 kW
SCOP	3.90	3.26
T <sub>biv</sub>	-9 °C	-9 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	10.30 kW	10.20 kW
COP T <sub>j</sub> = -7°C	3.30	2.70
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.970	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.50 kW	6.30 kW
COP T <sub>j</sub> = +2°C	5.50	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.40 kW
COP T <sub>j</sub> = +7°C	6.50	5.40
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.50	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.30 kW	11.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.90	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Q <sub>he</sub>	10819 kWh	12788 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.24 kW	6.77 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.24 kW	6.77 kW
SCOP	5.46	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh Tj = +2°C</sub>	7.20 kW	6.80 kW
COP T <sub>j = +2°C</sub>	4.50	2.90
C <sub>dh Tj = +2 °C</sub>	0.950	0.970
P <sub>dh Tj = +7°C</sub>	7.40 kW	7.00 kW
COP T <sub>j = +7°C</sub>	5.70	3.80
C <sub>dh Tj = +7 °C</sub>	0.940	0.960
P <sub>dh Tj = 12°C</sub>	8.60 kW	8.40 kW
COP T <sub>j = 12°C</sub>	7.10	5.60
C <sub>dh Tj = +12 °C</sub>	0.930	0.950
P <sub>dh Tj = T<sub>biv</sub></sub>	7.20 kW	6.80 kW
COP T <sub>j = T<sub>biv</sub></sub>	4.50	2.90
P <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	7.20 kW	6.80 kW
COP T <sub>j = TOL or COP T<sub>j = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	4.50	2.90
C <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub> if TOL &lt; T<sub>designh</sub></sub></sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1772 kWh	2236 kWh

**Model Vitocal 252-A AWOT-E-AC-AF 251.A19 2C**

Model name	Vitocal 252-A AWOT-E-AC-AF 251.A19 2C
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**Outdoor Air/Water**
**EN 16147 | Average Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	116 %
COP	2.89
Heating up time	01:14 h:min
Standby power input	55.5 W
Reference hot water temperature	53.3 °C
Mixed water at 40°C	260 l

**EN 16147 | Colder Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	98 %
COP	2.44
Heating up time	01:16 h:min
Standby power input	83 W
Reference hot water temperature	53.6 °C
Mixed water at 40°C	260 l

**EN 16147 | Warmer Climate**

Declared load profile	XL
Efficiency $\eta_{DHW}$	128 %
COP	3.2
Heating up time	01:12 h:min
Standby power input	52 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	260 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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

#### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Average Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
$\eta_s$	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW
COP T <sub>j</sub> = +2°C	5.00	3.90
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.20 kW
COP T <sub>j</sub> = +7°C	6.30	5.10
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.991	0.992
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.70 kW	8.50 kW
COP T <sub>j</sub> = 12°C	7.70	6.40
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.990	0.992
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	12.00 kW	12.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.80	2.20
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	11.00 kW	11.50 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.60	2.00
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.000	1.000
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W

PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Q <sub>he</sub>	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
P <sub>designh</sub>	18.67 kW	18.53 kW
η <sub>s</sub>	147 %	121 %
P <sub>rated</sub>	18.67 kW	18.53 kW
SCOP	3.75	3.10
T <sub>biv</sub>	-8 °C	-8 °C
TOL	-20 °C	-20 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.20 kW	11.10 kW
COP T <sub>j</sub> = -7°C	3.20	2.60
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.980	0.980
P <sub>dh</sub> T <sub>j</sub> = +2°C	6.90 kW	6.60 kW
COP T <sub>j</sub> = +2°C	5.40	4.40
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.940	0.950
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.50 kW	7.30 kW
COP T <sub>j</sub> = +7°C	6.50	5.50
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.50 kW	8.60 kW
COP T <sub>j</sub> = 12°C	7.40	6.50
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.940
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	11.80 kW	11.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.00	2.40
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.60 kW	7.80 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.40	1.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.970	0.980
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity



Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Q <sub>he</sub>	12265 kWh	14724 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	7.22 kW	6.73 kW
η <sub>s</sub>	215 %	159 %
P <sub>rated</sub>	7.22 kW	6.73 kW
SCOP	5.44	4.05
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.70 kW
COP T <sub>j</sub> = +2°C	4.40	2.80
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.970	0.970
P <sub>dh</sub> T <sub>j</sub> = +7°C	7.30 kW	6.90 kW
COP T <sub>j</sub> = +7°C	5.60	3.80
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.940	0.960
P <sub>dh</sub> T <sub>j</sub> = 12°C	8.60 kW	8.40 kW
COP T <sub>j</sub> = 12°C	7.20	5.60
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.930	0.950
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	7.20 kW	6.70 kW
COP T <sub>j</sub> = T <sub>biv</sub>	4.40	2.80
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	7.20 kW	6.70 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	4.40	2.80
C <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.950	0.950
WTOL	70 °C	70 °C
P <sub>off</sub>	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	1773 kWh	2224 kWh

**Model Vitocal 250-AH HAWO-AC 252.A16**

Model name	Vitocal 250-AH HAWO-AC 252.A16
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
ηs	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

**Model Vitocal 250-AH HAWO-AC 252.A19**

Model name	Vitocal 250-AH HAWO-AC 252.A19
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
ηs	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh

**Model Vitocal 250-AH HAWO-AC-AF 252.A16**

Model name	Vitocal 250-AH HAWO-AC-AF 252.A16
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	8.50 kW	8.14 kW
El input	1.60 kW	2.46 kW
COP	5.31	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.29 kW	12.09 kW
η <sub>s</sub>	190 %	153 %
P <sub>rated</sub>	13.29 kW	12.09 kW
SCOP	4.85	3.92
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.50 kW	10.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.30
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.10 kW	6.40 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.40 kW	7.20 kW
COP Tj = +7°C	6.20	5.00
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.60 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.50 kW	11.40 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.60 kW	10.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.10
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	2.74 kW	1.25 kW
Annual energy consumption Qhe	5673 kWh	6594 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	17.13 kW	16.89 kW
$\eta_s$	153 %	127 %
Prated	17.13 kW	16.89 kW
SCOP	3.90	3.26
Tbiv	-9 °C	-9 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	10.30 kW	10.20 kW
COP Tj = -7°C	3.30	2.70
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	6.50 kW	6.30 kW
COP Tj = +2°C	5.50	4.40
Cdh Tj = +2 °C	0.930	0.940
Pdh Tj = +7°C	7.50 kW	7.40 kW
COP Tj = +7°C	6.50	5.40

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.60 kW	8.60 kW
COP Tj = 12°C	7.50	6.40
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.30 kW	11.10 kW
COP Tj = Tbiv	2.90	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	17.13 kW	16.89 kW
Annual energy consumption Qhe	10819 kWh	12788 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.24 kW	6.77 kW
ηs	215 %	159 %
Prated	7.24 kW	6.77 kW
SCOP	5.46	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.80 kW
COP Tj = +2°C	4.50	2.90
Cdh Tj = +2 °C	0.950	0.970
Pdh Tj = +7°C	7.40 kW	7.00 kW
COP Tj = +7°C	5.70	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.10	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.80 kW
COP Tj = Tbiv	4.50	2.90

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.50	2.90
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1772 kWh	2236 kWh

**Model Vitocal 250-AH HAWO-AC-AF 252.A19**

Model name	Vitocal 250-AH HAWO-AC-AF 252.A19
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Heat Source	Outdoor Air
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	Yes

**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	9.00 kW	8.55 kW
El input	1.71 kW	2.59 kW
COP	5.27	3.31

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
P <sub>designh</sub>	13.61 kW	13.18 kW
η <sub>s</sub>	191 %	152 %
P <sub>rated</sub>	13.61 kW	13.18 kW
SCOP	4.86	3.89
T <sub>biv</sub>	-7 °C	-8 °C
TOL	-10 °C	-10 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	12.00 kW	11.90 kW
COP T <sub>j</sub> = -7°C	2.80	2.20
C <sub>dh</sub> T <sub>j</sub> = -7 °C	1.000	1.000
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.20 kW	6.80 kW

COP Tj = +2°C	5.00	3.90
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.50 kW	7.20 kW
COP Tj = +7°C	6.30	5.10
Cdh Tj = +7 °C	0.991	0.992
Pdh Tj = 12°C	8.70 kW	8.50 kW
COP Tj = 12°C	7.70	6.40
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.00 kW	12.10 kW
COP Tj = Tbiv	2.80	2.20
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.00 kW	11.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.60	2.00
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	2.57 kW	1.72 kW
Annual energy consumption Qhe	5897 kWh	7019 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
Pdesignh	18.67 kW	18.53 kW
$\eta_s$	147 %	121 %
Prated	18.67 kW	18.53 kW
SCOP	3.75	3.10
Tbiv	-8 °C	-8 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	11.20 kW	11.10 kW
COP Tj = -7°C	3.20	2.60
Cdh Tj = -7 °C	0.980	0.980
Pdh Tj = +2°C	6.90 kW	6.60 kW
COP Tj = +2°C	5.40	4.40
Cdh Tj = +2 °C	0.940	0.950
Pdh Tj = +7°C	7.50 kW	7.30 kW
COP Tj = +7°C	6.50	5.50

Cdh Tj = +7 °C	0.930	0.940
Pdh Tj = 12°C	8.50 kW	8.60 kW
COP Tj = 12°C	7.40	6.50
Cdh Tj = +12 °C	0.930	0.940
Pdh Tj = Tbiv	11.80 kW	11.70 kW
COP Tj = Tbiv	3.00	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.60 kW	7.80 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.40	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.970	0.980
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	18.67 kW	18.53 kW
Annual energy consumption Qhe	12265 kWh	14724 kWh

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	40 dB(A)	40 dB(A)
Sound power level outdoor	48 dB(A)	48 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
Pdesignh	7.22 kW	6.73 kW
ηs	215 %	159 %
Prated	7.22 kW	6.73 kW
SCOP	5.44	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	7.20 kW	6.70 kW
COP Tj = +2°C	4.40	2.80
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	7.30 kW	6.90 kW
COP Tj = +7°C	5.60	3.80
Cdh Tj = +7 °C	0.940	0.960
Pdh Tj = 12°C	8.60 kW	8.40 kW
COP Tj = 12°C	7.20	5.60
Cdh Tj = +12 °C	0.930	0.950
Pdh Tj = Tbiv	7.20 kW	6.70 kW
COP Tj = Tbiv	4.40	2.80



Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	6.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.40	2.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.950	0.950
WTOL	70 °C	70 °C
Poff	11 W	11 W
PTO	16 W	16 W
PSB	16 W	16 W
PCK	33 W	33 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1773 kWh	2224 kWh