

Subtype Aquarea Split 12-16 kW STD (H Series)

Certificate Holder	Panasonic Marketing Europe GmbH
Address	Hagenauer Strasse 43, Wiesbaden
ZIP	65203
City	Wiesbaden
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	Aquarea Split 12-16 kW STD (H Series)
Registration number	011-1W0515
Heat Pump Type	Outdoor Air/Water
Refrigerant	R410A
Mass of Refrigerant	2.55 kg
Certification Date	08.12.2021
Testing basis	HP KEYMARK certification scheme rules rev. 9

**Model WH-ADC1216H6E5 / WH-UD12HE5**

Model name	WH-ADC1216H6E5 / WH-UD12HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	95 %
COP	2.37
Heating up time	0:58 h:min
Standby power input	42.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	75 %
COP	
Heating up time	h:min
Standby power input	W
Reference hot water temperature	°C
Mixed water at 40°C	l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	110 %
COP	2.75
Heating up time	0:58 h:min
Standby power input	36.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 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	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20
Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_S$	245 %	159 %
P <sub>rated</sub>	11.00 kW	9.00 kW
SCOP	6.21	4.05
T <sub>biv</sub>	2 °C	2 °C
T <sub>OL</sub>	2 °C	2 °C
P <sub>dh T<sub>j</sub></sub> = +2°C	11.20 kW	9.40 kW
COP T <sub>j</sub> = +2°C	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +7°C	7.10 kW	6.10 kW
COP T <sub>j</sub> = +7°C	5.53	3.29
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.00 kW	5.90 kW
COP T <sub>j</sub> = 12°C	7.82	5.51
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.980	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.61	2.43
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 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>	2368 kWh	2970 kWh

**Model WH-ADC1216H6E5UK / WH-UD12HE5**

Model name	WH-ADC1216H6E5UK / WH-UD12HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	95 %
COP	2.37
Heating up time	0:58 h:min
Standby power input	42.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	75 %
COP	
Heating up time	h:min
Standby power input	W
Reference hot water temperature	°C
Mixed water at 40°C	l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	110 %
COP	2.75
Heating up time	0:58 h:min
Standby power input	36.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 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	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20
Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_S$	245 %	159 %
Prated	11.00 kW	9.00 kW
SCOP	6.21	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.20 kW	9.40 kW
COP Tj = +2°C	3.61	2.43
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.10 kW	6.10 kW
COP Tj = +7°C	5.53	3.29
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.00 kW	5.90 kW
COP Tj = 12°C	7.82	5.51
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	11.20 kW	9.40 kW
COP Tj = Tbiv	3.61	2.43
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.20 kW	9.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.61	2.43
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2368 kWh	2970 kWh

**Model WH-ADC1216H6E5C / WH-UD12HE5**

Model name	WH-ADC1216H6E5C / WH-UD12HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	92 %
COP	2.31
Heating up time	0:54 h:min
Standby power input	39.0 W
Reference hot water temperature	53.1 °C
Mixed water at 40°C	228 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	75 %
COP	
Heating up time	h:min
Standby power input	W
Reference hot water temperature	°C
Mixed water at 40°C	l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	107 %
COP	2.68
Heating up time	0:54 h:min
Standby power input	32.0 W
Reference hot water temperature	53.1 °C
Mixed water at 40°C	228 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	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20
Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_S$	245 %	159 %
P <sub>rated</sub>	11.00 kW	9.00 kW
SCOP	6.21	4.05
T <sub>biv</sub>	2 °C	2 °C
T <sub>OL</sub>	2 °C	2 °C
P <sub>dh T<sub>j</sub></sub> = +2°C	11.20 kW	9.40 kW
COP T <sub>j</sub> = +2°C	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +7°C	7.10 kW	6.10 kW
COP T <sub>j</sub> = +7°C	5.53	3.29
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.00 kW	5.90 kW
COP T <sub>j</sub> = 12°C	7.82	5.51
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.980	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.61	2.43
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 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>	2368 kWh	2970 kWh

**Model WH-ADC0916H9E8 / WH-UD12HE8**

Model name	WH-ADC0916H9E8 / WH-UD12HE8
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	95 %
COP	2.37
Heating up time	0:58 h:min
Standby power input	42.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	75 %
COP	
Heating up time	h:min
Standby power input	W
Reference hot water temperature	°C
Mixed water at 40°C	l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	110 %
COP	2.75
Heating up time	0:58 h:min
Standby power input	36.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 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	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20
Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_S$	245 %	159 %
P <sub>rated</sub>	11.00 kW	9.00 kW
SCOP	6.21	4.05
T <sub>biv</sub>	2 °C	2 °C
T <sub>OL</sub>	2 °C	2 °C
P <sub>dh T<sub>j</sub></sub> = +2°C	11.20 kW	9.40 kW
COP T <sub>j</sub> = +2°C	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +7°C	7.10 kW	6.10 kW
COP T <sub>j</sub> = +7°C	5.53	3.29
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.00 kW	5.90 kW
COP T <sub>j</sub> = 12°C	7.82	5.51
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.980	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.61	2.43
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 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>	2368 kWh	2970 kWh

**Model WH-ADC0916H9E8AN / WH-UD12HE8**

Model name	WH-ADC0916H9E8AN / WH-UD12HE8
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	95 %
COP	2.37
Heating up time	0:58 h:min
Standby power input	42.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 l

**EN 16147 | Colder Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	75 %
COP	
Heating up time	h:min
Standby power input	W
Reference hot water temperature	°C
Mixed water at 40°C	l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	110 %
COP	2.75
Heating up time	0:58 h:min
Standby power input	36.0 W
Reference hot water temperature	52.7 °C
Mixed water at 40°C	256 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	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20
Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_S$	245 %	159 %
P <sub>rated</sub>	11.00 kW	9.00 kW
SCOP	6.21	4.05
T <sub>biv</sub>	2 °C	2 °C
T <sub>OL</sub>	2 °C	2 °C
P <sub>dh T<sub>j</sub></sub> = +2°C	11.20 kW	9.40 kW
COP T <sub>j</sub> = +2°C	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = +2 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +7°C	7.10 kW	6.10 kW
COP T <sub>j</sub> = +7°C	5.53	3.29
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.00 kW	5.90 kW
COP T <sub>j</sub> = 12°C	7.82	5.51
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.980	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>biv</sub>	3.61	2.43
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.20 kW	9.40 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	3.61	2.43
C <sub>dh</sub> T <sub>j</sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 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>	2368 kWh	2970 kWh

**Model WH-ADC1216H6E5 / WH-UD16HE5**

Model name	WH-ADC1216H6E5 / WH-UD16HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	91 %
COP	2.27
Heating up time	0:44 h:min
Standby power input	41.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	107 %
COP	2.67
Heating up time	0:44 h:min
Standby power input	38.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 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	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_S$	190 %	130 %
P <sub>rated</sub>	12.00 kW	13.00 kW
SCOP	4.82	3.33
T <sub>biv</sub>	-10 °C	-3 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	11.10 kW	9.00 kW
COP T <sub>j</sub> = -7°C	2.90	2.07
C <sub>dh T<sub>j</sub></sub> = -7 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +2°C	6.40 kW	7.10 kW
COP T <sub>j</sub> = +2°C	4.83	3.29
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = +7°C	5.30 kW	4.90 kW
COP T <sub>j</sub> = +7°C	6.11	4.85
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.20 kW	5.80 kW
COP T <sub>j</sub> = 12°C	7.59	6.11
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.80 kW	9.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.77	2.46
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.80 kW	8.70 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.77	1.88
C <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Q <sub>he</sub>	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-ADC1216H6E5UK / WH-UD16HE5**

Model name	WH-ADC1216H6E5UK / WH-UD16HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	91 %
COP	2.27
Heating up time	0:44 h:min
Standby power input	41.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	107 %
COP	2.67
Heating up time	0:44 h:min
Standby power input	38.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 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	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_S$	190 %	130 %
P <sub>rated</sub>	12.00 kW	13.00 kW
SCOP	4.82	3.33
T <sub>biv</sub>	-10 °C	-3 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	11.10 kW	9.00 kW
COP T <sub>j</sub> = -7°C	2.90	2.07
C <sub>dh T<sub>j</sub></sub> = -7 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +2°C	6.40 kW	7.10 kW
COP T <sub>j</sub> = +2°C	4.83	3.29
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = +7°C	5.30 kW	4.90 kW
COP T <sub>j</sub> = +7°C	6.11	4.85
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.20 kW	5.80 kW
COP T <sub>j</sub> = 12°C	7.59	6.11
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.80 kW	9.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.77	2.46
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.80 kW	8.70 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.77	1.88
C <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Q <sub>he</sub>	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-ADC1216H6E5C / WH-UD16HE5**

Model name	WH-ADC1216H6E5C / WH-UD16HE5
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	88 %
COP	2.21
Heating up time	0:48 h:min
Standby power input	35.0 W
Reference hot water temperature	52.6 °C
Mixed water at 40°C	225 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	104 %
COP	2.60
Heating up time	0:44 h:min
Standby power input	32.0 W
Reference hot water temperature	52.6 °C
Mixed water at 40°C	225 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	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_S$	190 %	130 %
P <sub>rated</sub>	12.00 kW	13.00 kW
SCOP	4.82	3.33
T <sub>biv</sub>	-10 °C	-3 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	11.10 kW	9.00 kW
COP T <sub>j</sub> = -7°C	2.90	2.07
C <sub>dh T<sub>j</sub></sub> = -7 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +2°C	6.40 kW	7.10 kW
COP T <sub>j</sub> = +2°C	4.83	3.29
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = +7°C	5.30 kW	4.90 kW
COP T <sub>j</sub> = +7°C	6.11	4.85
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.20 kW	5.80 kW
COP T <sub>j</sub> = 12°C	7.59	6.11
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.80 kW	9.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.77	2.46
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.80 kW	8.70 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.77	1.88
C <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Q <sub>he</sub>	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-ADC0916H9E8 / WH-UD16HE8**

Model name	WH-ADC0916H9E8 / WH-UD16HE8
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	91 %
COP	2.27
Heating up time	0:44 h:min
Standby power input	41.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	107 %
COP	2.67
Heating up time	0:44 h:min
Standby power input	38.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 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	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_S$	190 %	130 %
P <sub>rated</sub>	12.00 kW	13.00 kW
SCOP	4.82	3.33
T <sub>biv</sub>	-10 °C	-3 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	11.10 kW	9.00 kW
COP T <sub>j</sub> = -7°C	2.90	2.07
C <sub>dh T<sub>j</sub></sub> = -7 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +2°C	6.40 kW	7.10 kW
COP T <sub>j</sub> = +2°C	4.83	3.29
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = +7°C	5.30 kW	4.90 kW
COP T <sub>j</sub> = +7°C	6.11	4.85
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.20 kW	5.80 kW
COP T <sub>j</sub> = 12°C	7.59	6.11
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.80 kW	9.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.77	2.46
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.80 kW	8.70 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.77	1.88
C <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Q <sub>he</sub>	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-ADC0916H9E8AN / WH-UD16HE8**

Model name	WH-ADC0916H9E8AN / WH-UD16HE8
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

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

Declared load profile	L
Efficiency $\eta_{DHW}$	91 %
COP	2.27
Heating up time	0:44 h:min
Standby power input	41.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 l

**EN 16147 | Warmer Climate**

Declared load profile	L
Efficiency $\eta_{DHW}$	107 %
COP	2.67
Heating up time	0:44 h:min
Standby power input	38.0 W
Reference hot water temperature	52.5 °C
Mixed water at 40°C	253 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	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_S$	190 %	130 %
P <sub>rated</sub>	12.00 kW	13.00 kW
SCOP	4.82	3.33
T <sub>biv</sub>	-10 °C	-3 °C
T <sub>OL</sub>	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	11.10 kW	9.00 kW
COP T <sub>j</sub> = -7°C	2.90	2.07
C <sub>dh T<sub>j</sub></sub> = -7 °C	1.000	1.000
P <sub>dh T<sub>j</sub></sub> = +2°C	6.40 kW	7.10 kW
COP T <sub>j</sub> = +2°C	4.83	3.29
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = +7°C	5.30 kW	4.90 kW
COP T <sub>j</sub> = +7°C	6.11	4.85
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = 12°C	6.20 kW	5.80 kW
COP T <sub>j</sub> = 12°C	7.59	6.11
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.990	0.990
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	11.80 kW	9.50 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.77	2.46
P <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	11.80 kW	8.70 kW
COP T <sub>j</sub> = T <sub>OL</sub> or COP T <sub>j</sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	2.77	1.88
C <sub>dh T<sub>j</sub></sub> = T <sub>OL</sub> or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if T <sub>OL</sub> < T <sub>designh</sub>	0.900	0.900
WT <sub>OL</sub>	55 °C	55 °C
P <sub>off</sub>	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Q <sub>he</sub>	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-SDC12H6E5 / WH-UD12HE5**

Model name	WH-SDC12H6E5 / WH-UD12HE5
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 14511-4 | Heating**

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990

Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20

Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	245 %	159 %
Prated	11.00 kW	9.00 kW
SCOP	6.21	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.20 kW	9.40 kW
COP Tj = +2°C	3.61	2.43
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.10 kW	6.10 kW
COP Tj = +7°C	5.53	3.29
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.00 kW	5.90 kW
COP Tj = 12°C	7.82	5.51
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	11.20 kW	9.40 kW
COP Tj = Tbiv	3.61	2.43
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.20 kW	9.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.61	2.43

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2368 kWh	2970 kWh

**Model WH-SDC12H9E8 / WH-UD12HE8**

Model name	WH-SDC12H9E8 / WH-UD12HE8
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 14511-4 | Heating**

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	12.00 kW	12.00 kW
El input	2.53 kW	4.10 kW
COP	4.74	2.93

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	134 %
Prated	10.00 kW	8.00 kW
SCOP	4.82	3.42
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.90 kW	7.20 kW
COP Tj = -7°C	3.18	2.27
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.20 kW	4.30 kW
COP Tj = +2°C	4.67	3.25
Cdh Tj = +2 °C	0.990	0.990

Pdh Tj = +7°C	5.20 kW	4.90 kW
COP Tj = +7°C	6.15	4.36
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.10 kW	5.80 kW
COP Tj = 12°C	7.88	6.12
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.00 kW	8.00 kW
COP Tj = Tbiv	2.68	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.00 kW	8.00 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.68	2.05
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4286 kWh	4840 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	168 %	121 %
Prated	11.00 kW	9.00 kW
SCOP	4.29	3.10
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.00 kW	5.60 kW
COP Tj = -7°C	3.59	2.63
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.40 kW	3.90 kW
COP Tj = +2°C	5.12	3.52
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.71	4.91
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.30 kW	5.80 kW
COP Tj = 12°C	8.15	6.20

Cdh Tj = +12 °C	0.98	0.99
Pdh Tj = Tbiv	9.30 kW	7.50 kW
COP Tj = Tbiv	2.66	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.40 kW	5.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.15	1.43
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.00 kW	6.00 kW
Annual energy consumption Qhe	6327 kWh	7147 kWh
Pdh Tj = -15°C (if TOL	9.30	7.50
COP Tj = -15°C (if TOL	2.66	2.07
Cdh Tj = -15 °C	1.00	1.00

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	55 dB(A)	55 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	245 %	159 %
Prated	11.00 kW	9.00 kW
SCOP	6.21	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.20 kW	9.40 kW
COP Tj = +2°C	3.61	2.43
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	7.10 kW	6.10 kW
COP Tj = +7°C	5.53	3.29
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.00 kW	5.90 kW
COP Tj = 12°C	7.82	5.51
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	11.20 kW	9.40 kW
COP Tj = Tbiv	3.61	2.43
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.20 kW	9.40 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.61	2.43

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2368 kWh	2970 kWh

**Model WH-SDC12H6E5 / WH-UD16HE5**

Model name	WH-SDC12H6E5 / WH-UD16HE5
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	1x230V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 14511-4 | Heating**

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	130 %
Prated	12.00 kW	13.00 kW
SCOP	4.82	3.33
Tbiv	-10 °C	-3 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.10 kW	9.00 kW
COP Tj = -7°C	2.90	2.07
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	6.40 kW	7.10 kW
COP Tj = +2°C	4.83	3.29
Cdh Tj = +2 °C	0.990	0.990

Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.11	4.85
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.80 kW
COP Tj = 12°C	7.59	6.11
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	11.80 kW	9.50 kW
COP Tj = Tbiv	2.77	2.46
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.80 kW	8.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.88
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Qhe	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh

**Model WH-SDC16H9E8 / WH-UD16HE8**

Model name	WH-SDC16H9E8 / WH-UD16HE8
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

**General data**

Power supply	3x400V 50Hz
Off-peak product	n/a

**Outdoor Air/Water****EN 14511-4 | Heating**

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	16.00 kW	14.50 kW
El input	3.74 kW	5.33 kW
COP	4.28	2.72

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	190 %	130 %
Prated	12.00 kW	13.00 kW
SCOP	4.82	3.33
Tbiv	-10 °C	-3 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.10 kW	9.00 kW
COP Tj = -7°C	2.90	2.07
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	6.40 kW	7.10 kW
COP Tj = +2°C	4.83	3.29
Cdh Tj = +2 °C	0.990	0.990

Pdh Tj = +7°C	5.30 kW	4.90 kW
COP Tj = +7°C	6.11	4.85
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.80 kW
COP Tj = 12°C	7.59	6.11
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	11.80 kW	9.50 kW
COP Tj = Tbiv	2.77	2.46
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.80 kW	8.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.88
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.20 kW	4.30 kW
Annual energy consumption Qhe	5146 kWh	8076 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	46 dB(A)	46 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	245 %	169 %
Prated	13.00 kW	10.00 kW
SCOP	6.20	4.30
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.50 kW	10.70 kW
COP Tj = +2°C	3.34	2.41
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.40 kW	6.70 kW
COP Tj = +7°C	5.61	3.79
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.20 kW	5.90 kW
COP Tj = 12°C	7.72	5.46
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	12.50 kW	10.70 kW
COP Tj = Tbiv	3.34	2.41

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.50 kW	10.70 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.34	2.41
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	55 °C	55 °C
Poff	3 W	3 W
PTO	12 W	12 W
PSB	12 W	12 W
PCK	39 W	39 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.50 kW	0.00 kW
Annual energy consumption Qhe	2801 kWh	3104 kWh