

Subtype FHA-Monoblock 11-17kW

Certificate Holder	WOLF GmbH
Address	Industriestr. 1
ZIP	84048
City	Mainburg
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	FHA-Monoblock 11-17kW
Registration number	011-1W0558
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.75 kg
Certification Date	17.10.2022
Testing basis	European KEYMARK Scheme for Heat Pumps Rev. 10 (as of 2022-06)

**Model FHA-11/14-230V-M2 FS-C2**

Model name	FHA-11/14-230V-M2 FS-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

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

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

Shutting off the heat transfer medium flow passed

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

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	12.30 kW	13.56 kW
El input	3.09 kW	4.86 kW
COP	3.98	2.79

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.25 kW	3.17 kW
Cooling capacity	8.46	10.23
EER	1.99	3.23

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	174 %	122 %
Prated	8.66 kW	8.01 kW
SCOP	4.42	3.12
Tbiv	-10 °C	-10 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.63 kW	6.52 kW
COP Tj = -7°C	2.76	1.65
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.58 kW	5.13 kW
COP Tj = +2°C	4.15	3.12
Cdh Tj = +2 °C	0.993	0.995
Pdh Tj = +7°C	7.11 kW	6.36 kW
COP Tj = +7°C	6.18	4.16
Cdh Tj = +7 °C	0.992	0.994
Pdh Tj = 12°C	7.78 kW	7.44 kW
COP Tj = 12°C	7.72	6.00
Cdh Tj = +12 °C	0.991	0.993
Pdh Tj = Tbiv	8.66 kW	8.01 kW
COP Tj = Tbiv	2.29	1.63
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.66 kW	8.01 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.63
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4053 kWh	5312 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	247 %	157 %
Prated	9.53 kW	8.41 kW
SCOP	6.24	4.00
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	9.53 kW	8.41 kW
COP Tj = +2°C	2.99	1.87
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.94 kW	6.95 kW

COP Tj = +7°C	5.75	3.37
Cdh Tj = +7 °C	0.993	0.996
Pdh Tj = 12°C	7.84 kW	7.18 kW
COP Tj = 12°C	7.68	5.36
Cdh Tj = +12 °C	0.991	0.993
Pdh Tj = Tbiv	9.53 kW	8.41 kW
COP Tj = Tbiv	2.99	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.53 kW	8.41 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.99	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2039 kWh	2811 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	8.45 kW	10.23 kW
SEER	4.41	5.65
Pdc Tj = 35°C	8.46 kW	10.23 kW
EER Tj = 35°C	1.99	3.23
Pdc Tj = 30°C	6.68 kW	8.16 kW
EER Tj = 30°C	3.71	5.34
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.10 kW	6.68 kW
EER Tj = 25°C	5.15	6.90
Cdc Tj = 25 °C	0.991	0.991
Pdc Tj = 20°C	4.98 kW	6.22 kW
EER Tj = 20°C	5.10	6.23
Cdc Tj = 20 °C	0.991	0.991
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Annual energy consumption Qce	1829 kWh	1726 kWh

**Model FHA-11/14-230V-M2 FS-e6-C2**

Model name	FHA-11/14-230V-M2 FS-e6-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

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

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

Shutting off the heat transfer medium flow passed

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

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	12.30 kW	13.56 kW
El input	3.09 kW	4.86 kW
COP	3.98	2.79

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.25 kW	3.17 kW
Cooling capacity	8.46	10.23
EER	1.99	3.23

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	174 %	126 %
Prated	11.25 kW	9.15 kW
SCOP	4.43	3.22
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.95 kW	8.10 kW
COP Tj = -7°C	2.61	1.74
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	6.13 kW	5.18 kW
COP Tj = +2°C	4.25	3.24
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.17 kW	6.38 kW
COP Tj = +7°C	6.34	4.22
Cdh Tj = +7 °C	0.992	0.994
Pdh Tj = 12°C	7.76 kW	7.51 kW
COP Tj = 12°C	7.81	6.08
Cdh Tj = +12 °C	0.991	0.993
Pdh Tj = Tbiv	9.95 kW	8.10 kW
COP Tj = Tbiv	2.61	1.74
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.66 kW	8.01 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.63
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.59 kW	1.14 kW
Annual energy consumption Qhe	5250 kWh	5880 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	147 %	101 %
Prated	8.88 kW	8.44 kW
SCOP	3.76	2.60
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	5.45 kW	5.23 kW
COP Tj = -7°C	3.42	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.73 kW	5.23 kW

COP Tj = +2°C	4.34	3.40
Cdh Tj = +2 °C	0.993	0.994
Pdh Tj = +7°C	7.36 kW	6.54 kW
COP Tj = +7°C	6.66	4.61
Cdh Tj = +7 °C	0.992	0.994
Pdh Tj = 12°C	7.74 kW	7.79 kW
COP Tj = 12°C	7.63	6.60
Cdh Tj = +12 °C	0.991	0.992
Pdh Tj = Tbiv	7.25 kW	6.88 kW
COP Tj = Tbiv	2.02	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.61 kW	6.88 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.27 kW	8.44 kW
Annual energy consumption Qhe	5822 kWh	8014 kWh
Pdh Tj = -15°C (if TOL)	7.25	6.88
COP Tj = -15°C (if TOL)	2.02	1.53
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	247 %	157 %
Prated	9.53 kW	8.41 kW
SCOP	6.24	4.00
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	9.53 kW	8.41 kW
COP Tj = +2°C	2.99	1.87
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.94 kW	6.95 kW
COP Tj = +7°C	5.75	3.37
Cdh Tj = +7 °C	0.993	0.996

Pdh Tj = 12°C	7.84 kW	7.18 kW
COP Tj = 12°C	7.68	5.36
Cdh Tj = +12 °C	0.991	0.993
Pdh Tj = Tbiv	9.53 kW	8.41 kW
COP Tj = Tbiv	2.99	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.53 kW	8.41 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.99	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2039 kWh	2811 kWh

#### EN 14825 | Cooling

	+7°C/+12°C	+18°C/+23°C
Pdesignc	8.45 kW	10.23 kW
SEER	4.41	5.65
Pdc Tj = 35°C	8.46 kW	10.23 kW
EER Tj = 35°C	1.99	3.23
Pdc Tj = 30°C	6.68 kW	8.16 kW
EER Tj = 30°C	3.71	5.34
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.10 kW	6.68 kW
EER Tj = 25°C	5.15	6.90
Cdc Tj = 25 °C	0.991	0.991
Pdc Tj = 20°C	4.98 kW	6.22 kW
EER Tj = 20°C	5.10	6.23
Cdc Tj = 20 °C	0.991	0.991
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Annual energy consumption Qce	1829 kWh	1726 kWh

**Model FHA-14/17-230V-M2 FS-C2**

Model name	FHA-14/17-230V-M2 FS-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

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

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

Shutting off the heat transfer medium flow passed

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

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	16.98 kW	14.78 kW
El input	4.07 kW	5.11 kW
COP	4.17	2.89

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.12 kW	4.90 kW
Cooling capacity	10.38	15.52
EER	2.52	3.17

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	190 %	122 %
Prated	9.89 kW	6.68 kW
SCOP	4.82	3.12
Tbiv	-10 °C	-10 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.38 kW	8.94 kW
COP Tj = -7°C	2.83	2.00
Cdh Tj = -7 °C	0.900	0.998
Pdh Tj = +2°C	5.76 kW	4.94 kW
COP Tj = +2°C	4.81	2.99
Cdh Tj = +2 °C	0.900	0.994
Pdh Tj = +7°C	7.00 kW	6.21 kW
COP Tj = +7°C	6.19	4.08
Cdh Tj = +7 °C	0.991	0.994
Pdh Tj = 12°C	7.99 kW	7.29 kW
COP Tj = 12°C	8.33	5.92
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	9.89 kW	6.68 kW
COP Tj = Tbiv	2.41	1.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.89 kW	6.68 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.41	1.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4243 kWh	4430 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	261 %	164 %
Prated	12.26 kW	10.23 kW
SCOP	6.60	4.17
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.26 kW	10.23 kW
COP Tj = +2°C	3.20	2.04
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.20 kW	6.88 kW

COP Tj = +7°C	6.00	3.53
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	7.99 kW	7.17 kW
COP Tj = 12°C	8.17	5.52
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.26 kW	10.23 kW
COP Tj = Tbiv	3.20	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.26 kW	10.23 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.20	2.04
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2479 kWh	3277 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	10.38 kW	15.52 kW
SEER	4.48	5.92
Pdc Tj = 35°C	10.38 kW	15.52 kW
EER Tj = 35°C	2.52	3.17
Pdc Tj = 30°C	7.82 kW	10.98 kW
EER Tj = 30°C	3.73	5.15
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	4.89 kW	7.14 kW
EER Tj = 25°C	4.71	7.61
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	4.90 kW	6.37 kW
EER Tj = 20°C	5.15	6.54
Cdc Tj = 20 °C	0.990	0.990
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Annual energy consumption Qce	2210 kWh	2501 kWh

**Model FHA-14/17-230V-M2 FS-e6-C2**

Model name	FHA-14/17-230V-M2 FS-e6-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

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

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

Shutting off the heat transfer medium flow passed

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

**EN 14511-2 | Heating**

	Low temperature	Medium temperature
Heat output	16.98 kW	14.78 kW
El input	4.07 kW	5.11 kW
COP	4.17	2.89

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.12 kW	4.90 kW
Cooling capacity	10.38	15.52
EER	2.52	3.17

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	178 %	131 %
Prated	13.04 kW	12.09 kW
SCOP	4.52	3.36
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.53 kW	10.69 kW
COP Tj = -7°C	2.56	2.05
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	6.99 kW	6.92 kW
COP Tj = +2°C	4.40	3.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.04 kW	6.37 kW
COP Tj = +7°C	6.38	4.43
Cdh Tj = +7 °C	0.991	0.993
Pdh Tj = 12°C	7.99 kW	7.34 kW
COP Tj = 12°C	8.40	6.08
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.53 kW	10.69 kW
COP Tj = Tbiv	2.56	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.89 kW	6.68 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.41	1.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.14 kW	5.41 kW
Annual energy consumption Qhe	5959 kWh	7443 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	156 %	108 %
Prated	9.78 kW	10.62 kW
SCOP	3.96	2.78
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	5.81 kW	6.13 kW
COP Tj = -7°C	3.41	2.28
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.75 kW	5.20 kW

COP Tj = +2°C	4.92	3.52
Cdh Tj = +2 °C	0.992	0.993
Pdh Tj = +7°C	7.07 kW	6.47 kW
COP Tj = +7°C	6.49	4.71
Cdh Tj = +7 °C	0.991	0.993
Pdh Tj = 12°C	8.01 kW	7.43 kW
COP Tj = 12°C	8.30	6.41
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	7.98 kW	8.67 kW
COP Tj = Tbiv	2.14	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.65 kW	8.67 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.13 kW	10.62 kW
Annual energy consumption Qhe	6081 kWh	9423 kWh
Pdh Tj = -15°C (if TOL)	7.98	8.67
COP Tj = -15°C (if TOL)	2.14	1.79
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	261 %	164 %
Prated	12.26 kW	10.23 kW
SCOP	6.60	4.17
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.26 kW	10.23 kW
COP Tj = +2°C	3.20	2.04
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.20 kW	6.88 kW
COP Tj = +7°C	6.00	3.53
Cdh Tj = +7 °C	0.900	0.900

Pdh Tj = 12°C	7.99 kW	7.17 kW
COP Tj = 12°C	8.17	5.52
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.26 kW	10.23 kW
COP Tj = Tbiv	3.20	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.26 kW	10.23 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.20	2.04
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2479 kWh	3277 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	10.38 kW	15.52 kW
SEER	4.48	5.92
Pdc Tj = 35°C	10.38 kW	15.52 kW
EER Tj = 35°C	2.52	3.17
Pdc Tj = 30°C	7.82 kW	10.98 kW
EER Tj = 30°C	3.73	5.15
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	4.89 kW	7.14 kW
EER Tj = 25°C	4.71	7.61
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	4.90 kW	6.37 kW
EER Tj = 20°C	5.15	6.54
Cdc Tj = 20 °C	0.990	0.990
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Annual energy consumption Qce	2210 kWh	2501 kWh

**Model FHA-11/14-400V-M2 FS-C2**

Model name	FHA-11/14-400V-M2 FS-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	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	14.65 kW	14.40 kW
El input	3.32 kW	4.93 kW
COP	4.41	2.92

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.65 kW	4.86 kW
Cooling capacity	11.09	15.44
EER	2.39	3.18

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	169 %	123 %
Prated	9.15 kW	7.51 kW
SCOP	4.30	3.15
Tbiv	-10 °C	-10 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.21 kW	6.97 kW
COP Tj = -7°C	2.67	1.76
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.83 kW	5.28 kW
COP Tj = +2°C	4.16	3.13
Cdh Tj = +2 °C	0.988	0.990
Pdh Tj = +7°C	6.96 kW	6.82 kW
COP Tj = +7°C	5.61	4.43
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.09 kW	7.34 kW
COP Tj = 12°C	6.07	5.50
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	9.15 kW	7.51 kW
COP Tj = Tbiv	2.39	1.39
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.15 kW	7.51 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.39	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4389 kWh	4921 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	227 %	166 %
Prated	10.76 kW	9.50 kW
SCOP	5.74	4.22
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.76 kW	9.50 kW
COP Tj = +2°C	3.26	2.01
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.96 kW	7.40 kW

COP Tj = +7°C	5.51	3.63
Cdh Tj = +7 °C	0.900	0.992
Pdh Tj = 12°C	7.37 kW	7.53 kW
COP Tj = 12°C	6.66	5.60
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	10.76 kW	9.50 kW
COP Tj = Tbiv	3.26	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.76 kW	9.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.26	2.01
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2504 kWh	3009 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	11.09 kW	15.44 kW
SEER	4.45	5.56
Pdc Tj = 35°C	11.09 kW	15.44 kW
EER Tj = 35°C	2.39	3.18
Pdc Tj = 30°C	8.42 kW	11.59 kW
EER Tj = 30°C	3.68	4.92
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.62 kW	7.70 kW
EER Tj = 25°C	5.04	7.05
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.13 kW	6.50 kW
EER Tj = 20°C	5.17	6.42
Cdc Tj = 20 °C	0.983	0.983
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2378 kWh	2649 kWh

**Model FHA-11/14-400V-M2 FS-e6-C2**

Model name	FHA-11/14-400V-M2 FS-e6-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	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	14.65 kW	14.40 kW
El input	3.32 kW	4.93 kW
COP	4.41	2.92

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.65 kW	4.86 kW
Cooling capacity	11.09	15.44
EER	2.39	3.18

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	165 %	121 %
Prated	11.55 kW	10.55 kW
SCOP	4.19	3.09
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.21 kW	9.34 kW
COP Tj = -7°C	2.67	1.84
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	6.09 kW	5.39 kW
COP Tj = +2°C	4.07	2.87
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.94 kW	6.95 kW
COP Tj = +7°C	5.65	4.65
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.35 kW	7.67 kW
COP Tj = 12°C	6.77	6.16
Cdh Tj = +12 °C	0.984	0.986
Pdh Tj = Tbiv	10.21 kW	9.34 kW
COP Tj = Tbiv	2.67	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.15 kW	7.51 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.39	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.40 kW	3.04 kW
Annual energy consumption Qhe	5687 kWh	7048 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	140 %	110 %
Prated	9.43 kW	8.80 kW
SCOP	3.56	2.82
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	6.03 kW	5.81 kW
COP Tj = -7°C	3.11	2.48
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.79 kW	5.51 kW

COP Tj = +2°C	4.25	3.52
Cdh Tj = +2 °C	0.988	0.989
Pdh Tj = +7°C	6.91 kW	6.89 kW
COP Tj = +7°C	5.69	4.82
Cdh Tj = +7 °C	0.986	0.988
Pdh Tj = 12°C	7.12 kW	7.79 kW
COP Tj = 12°C	6.04	6.48
Cdh Tj = +12 °C	0.986	0.986
Pdh Tj = Tbiv	7.69 kW	7.18 kW
COP Tj = Tbiv	2.16	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.67 kW	7.18 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.76 kW	8.80 kW
Annual energy consumption Qhe	6524 kWh	7485 kWh
Pdh Tj = -15°C (if TOL)	7.69	7.18
COP Tj = -15°C (if TOL)	2.16	1.58
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	227 %	166 %
Prated	10.76 kW	9.50 kW
SCOP	5.74	4.22
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.76 kW	9.50 kW
COP Tj = +2°C	3.26	2.01
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.96 kW	7.40 kW
COP Tj = +7°C	5.51	3.63
Cdh Tj = +7 °C	0.900	0.992

Pdh Tj = 12°C	7.37 kW	7.53 kW
COP Tj = 12°C	6.66	5.60
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	10.76 kW	9.50 kW
COP Tj = Tbiv	3.26	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.76 kW	9.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.26	2.01
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2504 kWh	3009 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	11.09 kW	15.44 kW
SEER	4.45	5.56
Pdc Tj = 35°C	11.09 kW	15.44 kW
EER Tj = 35°C	2.39	3.18
Pdc Tj = 30°C	8.42 kW	11.59 kW
EER Tj = 30°C	3.68	4.92
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.62 kW	7.70 kW
EER Tj = 25°C	5.04	7.05
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.13 kW	6.50 kW
EER Tj = 20°C	5.17	6.42
Cdc Tj = 20 °C	0.983	0.983
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2378 kWh	2649 kWh

**Model FHA-14/17-400V-M2 FS-C2**

Model name	FHA-14/17-400V-M2 FS-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer, Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	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	17.02 kW	16.34 kW
El input	4.08 kW	5.73 kW
COP	4.17	2.85

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	5.28 kW	4.75 kW
Cooling capacity	12.91	15.84
EER	2.45	3.33

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	172 %	119 %
Prated	9.34 kW	7.71 kW
SCOP	4.37	3.05
Tbiv	-10 °C	-10 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.96 kW	6.67 kW
COP Tj = -7°C	2.77	1.70
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.81 kW	5.06 kW
COP Tj = +2°C	4.18	3.06
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.22 kW	6.27 kW
COP Tj = +7°C	6.12	4.07
Cdh Tj = +7 °C	0.986	0.990
Pdh Tj = 12°C	7.35 kW	7.52 kW
COP Tj = 12°C	6.80	5.95
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	9.34 kW	7.71 kW
COP Tj = Tbiv	2.36	1.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.34 kW	7.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.36	1.33
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4413 kWh	5215 kWh

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	231 %	165 %
Prated	12.38 kW	10.34 kW
SCOP	5.86	4.19
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.38 kW	10.34 kW
COP Tj = +2°C	3.22	2.04
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.03 kW	7.06 kW

COP Tj = +7°C	5.62	3.56
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	7.43 kW	7.46 kW
COP Tj = 12°C	6.78	5.58
Cdh Tj = +12 °C	0.985	0.988
Pdh Tj = Tbiv	12.38 kW	10.34 kW
COP Tj = Tbiv	3.22	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.38 kW	10.34 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.22	2.04
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	n/a	n/a
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2822 kWh	3298 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	12.91 kW	15.84 kW
SEER	4.50	5.67
Pdc Tj = 35°C	12.91 kW	15.84 kW
EER Tj = 35°C	2.45	3.33
Pdc Tj = 30°C	9.77 kW	12.41 kW
EER Tj = 30°C	3.58	5.07
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	6.11 kW	7.09 kW
EER Tj = 25°C	5.02	7.12
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.14 kW	6.50 kW
EER Tj = 20°C	5.19	6.47
Cdc Tj = 20 °C	1.000	1.000
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2736 kWh	2664 kWh

**Model FHA-14/17-400V-M2 FS-e6-C2**

Model name	FHA-14/17-400V-M2 FS-e6-C2
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	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	17.02 kW	16.34 kW
El input	4.08 kW	5.73 kW
COP	4.17	2.85

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	5.28 kW	4.75 kW
Cooling capacity	12.91	15.84
EER	2.45	3.33

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	173 %	129 %
Prated	13.07 kW	11.73 kW
SCOP	4.40	3.30
Tbiv	-7 °C	-7 °C

TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.56 kW	10.37 kW
COP Tj = -7°C	2.60	1.87
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.69 kW	6.06 kW
COP Tj = +2°C	4.32	3.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.19 kW	6.47 kW
COP Tj = +7°C	6.24	4.37
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.42 kW	7.76 kW
COP Tj = 12°C	6.93	6.31
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	11.56 kW	10.37 kW
COP Tj = Tbiv	2.60	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.34 kW	7.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.36	1.33
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.73 kW	4.02 kW
Annual energy consumption Qhe	6131 kWh	7348 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
ηs	146 %	105 %
Prated	9.93 kW	8.37 kW
SCOP	3.72	2.70
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	6.33 kW	5.24 kW
COP Tj = -7°C	3.22	2.37
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.98 kW	7.04 kW

COP Tj = +2°C	4.49	3.37
Cdh Tj = +2 °C	0.988	0.992
Pdh Tj = +7°C	7.20 kW	6.55 kW
COP Tj = +7°C	6.28	4.59
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.43 kW	7.73 kW
COP Tj = 12°C	6.78	6.43
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	8.10 kW	6.83 kW
COP Tj = Tbiv	2.17	1.46
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.63 kW	6.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.46
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.29 kW	8.37 kW
Annual energy consumption Qhe	6570 kWh	7645 kWh
Pdh Tj = -15°C (if TOL)	8.10	6.83
COP Tj = -15°C (if TOL)	2.17	1.46
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	231 %	165 %
Prated	12.38 kW	10.34 kW
SCOP	5.86	4.19
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.38 kW	10.34 kW
COP Tj = +2°C	3.22	2.04
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.03 kW	7.06 kW
COP Tj = +7°C	5.62	3.56
Cdh Tj = +7 °C	0.900	0.900

Pdh Tj = 12°C	7.43 kW	7.46 kW
COP Tj = 12°C	6.78	5.58
Cdh Tj = +12 °C	0.985	0.988
Pdh Tj = Tbiv	12.38 kW	10.34 kW
COP Tj = Tbiv	3.22	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.38 kW	10.34 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.22	2.04
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2822 kWh	3298 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	12.91 kW	15.84 kW
SEER	4.50	5.67
Pdc Tj = 35°C	12.91 kW	15.84 kW
EER Tj = 35°C	2.45	3.33
Pdc Tj = 30°C	9.77 kW	12.41 kW
EER Tj = 30°C	3.58	5.07
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	6.11 kW	7.09 kW
EER Tj = 25°C	5.02	7.12
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.14 kW	6.50 kW
EER Tj = 20°C	5.19	6.47
Cdc Tj = 20 °C	1.000	1.000
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2736 kWh	2664 kWh

Model FHA-11/14-230V-M2 FS-e6-C2 + SEW-2-300 (FHA-11/14-230V-M2 FC-300-e6-C2;  
 FHA-11/14-230V-M2 FC-300-R50-e6-C2; FHA-11/14-230V-M2 FC-300-S50-e6-C2)

Model name	FHA-11/14-230V-M2 FS-e6-C2 + SEW-2-300 (FHA-11/14-230V-M2 FC-300-e6-C2; FHA-11/14-230V-M2 FC-300-R50-e6-C2; FHA-11/14-230V-M2 FC-300-S50-e6-C2)
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

#### General data

Power supply	n/a
Off-peak product	n/a

#### Outdoor Air/Water

##### EN 16147 | Average Climate

Declared load profile	XXL
Efficiency ηDHW	108 %
COP	2.71
Heating up time	1:55 h:min
Standby power input	61.9 W
Reference hot water temperature	49.8 °C
Mixed water at 40°C	312 l

##### EN 16147 | Warmer Climate

Declared load profile	XXL
Efficiency ηDHW	130 %
COP	3.25
Heating up time	2:03 h:min
Standby power input	54.2 W
Reference hot water temperature	50.0 °C
Mixed water at 40°C	315 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
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Heat output	12.30 kW	13.56 kW
El input	3.09 kW	4.86 kW
COP	3.98	2.79

**EN 14511-2 | Cooling**

	+7°C/+12°C	+18°C/+23°C
El input	4.25 kW	3.17 kW
Cooling capacity	8.46	10.23
EER	1.99	3.23

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
$\eta_s$	174 %	126 %
P <sub>rated</sub>	11.25 kW	9.15 kW
SCOP	4.43	3.22
T <sub>biv</sub>	-7 °C	-7 °C
TOL	-10 °C	-10 °C
P <sub>dh T<sub>j</sub></sub> = -7°C	9.95 kW	8.10 kW
COP T <sub>j</sub> = -7°C	2.61	1.74
C <sub>dh T<sub>j</sub></sub> = -7 °C	0.900	0.900
P <sub>dh T<sub>j</sub></sub> = +2°C	6.13 kW	5.18 kW
COP T <sub>j</sub> = +2°C	4.25	3.24
C <sub>dh T<sub>j</sub></sub> = +2 °C	0.900	0.900
P <sub>dh T<sub>j</sub></sub> = +7°C	7.17 kW	6.38 kW
COP T <sub>j</sub> = +7°C	6.34	4.22
C <sub>dh T<sub>j</sub></sub> = +7 °C	0.992	0.994
P <sub>dh T<sub>j</sub></sub> = 12°C	7.76 kW	7.51 kW
COP T <sub>j</sub> = 12°C	7.81	6.08
C <sub>dh T<sub>j</sub></sub> = +12 °C	0.991	0.993
P <sub>dh T<sub>j</sub></sub> = T <sub>biv</sub>	9.95 kW	8.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.61	1.74
P <sub>dh T<sub>j</sub></sub> = TOL or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	8.66 kW	8.01 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.29	1.63
C <sub>dh T<sub>j</sub></sub> = TOL or P <sub>dh T<sub>j</sub></sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	0.900	0.900
WTOL	65 °C	65 °C
P <sub>off</sub>	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W

PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.59 kW	1.14 kW
Annual energy consumption Qhe	5250 kWh	5880 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_s$	147 %	101 %
Prated	8.88 kW	8.44 kW
SCOP	3.76	2.60
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	5.45 kW	5.23 kW
COP Tj = -7°C	3.42	2.01
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.73 kW	5.23 kW
COP Tj = +2°C	4.34	3.40
Cdh Tj = +2 °C	0.993	0.994
Pdh Tj = +7°C	7.36 kW	6.54 kW
COP Tj = +7°C	6.66	4.61
Cdh Tj = +7 °C	0.992	0.994
Pdh Tj = 12°C	7.74 kW	7.79 kW
COP Tj = 12°C	7.63	6.60
Cdh Tj = +12 °C	0.991	0.992
Pdh Tj = Tbiv	7.25 kW	6.88 kW
COP Tj = Tbiv	2.02	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.61 kW	6.88 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.27 kW	8.44 kW
Annual energy consumption Qhe	5822 kWh	8014 kWh

Pdh Tj = -15°C (if TOL)	7.25	6.88
COP Tj = -15°C (if TOL)	2.02	1.53
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	247 %	157 %
Prated	9.53 kW	8.41 kW
SCOP	6.24	4.00
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	9.53 kW	8.41 kW
COP Tj = +2°C	2.99	1.87
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.94 kW	6.95 kW
COP Tj = +7°C	5.75	3.37
Cdh Tj = +7 °C	0.993	0.996
Pdh Tj = 12°C	7.84 kW	7.18 kW
COP Tj = 12°C	7.68	5.36
Cdh Tj = +12 °C	0.991	0.993
Pdh Tj = Tbiv	9.53 kW	8.41 kW
COP Tj = Tbiv	2.99	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.53 kW	8.41 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.99	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2039 kWh	2811 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	8.45 kW	10.23 kW

SEER	4.41	5.65
Pdc Tj = 35°C	8.46 kW	10.23 kW
EER Tj = 35°C	1.99	3.23
Pdc Tj = 30°C	6.68 kW	8.16 kW
EER Tj = 30°C	3.71	5.34
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.10 kW	6.68 kW
EER Tj = 25°C	5.15	6.90
Cdc Tj = 25 °C	0.991	0.991
Pdc Tj = 20°C	4.98 kW	6.22 kW
EER Tj = 20°C	5.10	6.23
Cdc Tj = 20 °C	0.991	0.991
Poff	7 W	7 W
PTO	9 W	9 W
PSB	9 W	9 W
PCK	0 W	0 W
Annual energy consumption Qce	1829 kWh	1726 kWh

**Model FHA-14/17-230V-M2 FS-e6-C2 + SEW-2-300 (FHA-14/17-230V-M2 FC-300-S50-e6-C2)**

Model name	FHA-14/17-230V-M2 FS-e6-C2 + SEW-2-300 (FHA-14/17-230V-M2 FC-300-S50-e6-C2)
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	n/a
Off-peak product	n/a

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

Declared load profile	XXL
Efficiency ηDHW	108 %
COP	2.71
Heating up time	1:55 h:min
Standby power input	61.9 W
Reference hot water temperature	49.8 °C
Mixed water at 40°C	312 l

**EN 16147 | Warmer Climate**

Declared load profile	XXL
Efficiency ηDHW	130 %
COP	3.25
Heating up time	2:03 h:min
Standby power input	54.2 W
Reference hot water temperature	50.0 °C
Mixed water at 40°C	315 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	16.98 kW	14.78 kW
El input	4.07 kW	5.11 kW
COP	4.17	2.89

**EN 14511-2 | Cooling**

El input	+7°C/+12°C	+18°C/+23°C
Cooling capacity	4.12 kW	4.90 kW
EER	10.38	15.52
	2.52	3.17

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	178 %	131 %
Prated	13.04 kW	12.09 kW
SCOP	4.52	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.53 kW	10.69 kW
COP Tj = -7°C	2.56	2.05
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	6.99 kW	6.92 kW
COP Tj = +2°C	4.40	3.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.04 kW	6.37 kW
COP Tj = +7°C	6.38	4.43
Cdh Tj = +7 °C	0.991	0.993
Pdh Tj = 12°C	7.99 kW	7.34 kW
COP Tj = 12°C	8.40	6.08
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	11.53 kW	10.69 kW
COP Tj = Tbiv	2.56	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.89 kW	6.68 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.41	1.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.14 kW	5.41 kW
Annual energy consumption Qhe	5959 kWh	7443 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	62 dB(A)	62 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_S$	156 %	108 %
Prated	9.78 kW	10.62 kW
SCOP	3.96	2.78
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	5.81 kW	6.13 kW
COP Tj = -7°C	3.41	2.28
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.75 kW	5.20 kW
COP Tj = +2°C	4.92	3.52
Cdh Tj = +2 °C	0.992	0.993
Pdh Tj = +7°C	7.07 kW	6.47 kW
COP Tj = +7°C	6.49	4.71
Cdh Tj = +7 °C	0.991	0.993
Pdh Tj = 12°C	8.01 kW	7.43 kW
COP Tj = 12°C	8.30	6.41
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	7.98 kW	8.67 kW
COP Tj = Tbiv	2.14	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.65 kW	8.67 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.79
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.13 kW	10.62 kW
Annual energy consumption Qhe	6081 kWh	9423 kWh
Pdh Tj = -15°C (if TOL)	7.98	8.67
COP Tj = -15°C (if TOL)	2.14	1.79
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

Sound power level outdoor	62 dB(A)	62 dB(A)
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**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
ηs	261 %	164 %
Prated	12.26 kW	10.23 kW
SCOP	6.60	4.17
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.26 kW	10.23 kW
COP Tj = +2°C	3.20	2.04
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.20 kW	6.88 kW
COP Tj = +7°C	6.00	3.53
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	7.99 kW	7.17 kW
COP Tj = 12°C	8.17	5.52
Cdh Tj = +12 °C	0.990	0.992
Pdh Tj = Tbiv	12.26 kW	10.23 kW
COP Tj = Tbiv	3.20	2.04
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.26 kW	10.23 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.20	2.04
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2479 kWh	3277 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
Pdesignc	10.38 kW	15.52 kW
SEER	4.48	5.92
Pdc Tj = 35°C	10.38 kW	15.52 kW
EER Tj = 35°C	2.52	3.17
Pdc Tj = 30°C	7.82 kW	10.98 kW
EER Tj = 30°C	3.73	5.15
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	4.89 kW	7.14 kW
EER Tj = 25°C	4.71	7.61

Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	4.90 kW	6.37 kW
EER Tj = 20°C	5.15	6.54
Cdc Tj = 20 °C	0.990	0.990
Poff	7 W	7 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Annual energy consumption Qce	2210 kWh	2501 kWh

Model FHA-11/14-400V-M2 FS-e6-C2 + SEW-2-300 (FHA-11/14-400V-M2 FC-300-e6-C2 ;  
 FHA-11/14-400V FC-300-R50-e6-C2; FHA-11/14-400V FC-300-S50-e6-C2)

Model name	FHA-11/14-400V-M2 FS-e6-C2 + SEW-2-300 (FHA-11/14-400V-M2 FC-300-e6-C2 ; FHA-11/14-400V FC-300-R50-e6-C2; FHA-11/14-400V FC-300-S50-e6-C2)
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

#### General data

Power supply	n/a
Off-peak product	n/a

#### Outdoor Air/Water

##### EN 16147 | Average Climate

Declared load profile	XXL
Efficiency ηDHW	104 %
COP	2.59
Heating up time	2:04 h:min
Standby power input	75.4 W
Reference hot water temperature	49.6 °C
Mixed water at 40°C	311 l

##### EN 16147 | Warmer Climate

Declared load profile	XXL
Efficiency ηDHW	128 %
COP	3.19
Heating up time	2:07 h:min
Standby power input	63.6 W
Reference hot water temperature	49.6 °C
Mixed water at 40°C	311 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	14.65 kW	14.40 kW

El input	3.32 kW	4.93 kW
COP	4.41	2.92
<b>EN 14511-2   Cooling</b>		
	+7°C/+12°C	+18°C/+23°C
El input	4.65 kW	4.86 kW
Cooling capacity	11.09	15.44
EER	2.39	3.18
<b>EN 12102-1   Average Climate</b>		
	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)
<b>EN 14825   Average Climate</b>		
	Low temperature	Medium temperature
ηs	165 %	121 %
Prated	11.55 kW	10.55 kW
SCOP	4.19	3.09
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.21 kW	9.34 kW
COP Tj = -7°C	2.67	1.84
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	6.09 kW	5.39 kW
COP Tj = +2°C	4.07	2.87
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.94 kW	6.95 kW
COP Tj = +7°C	5.65	4.65
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.35 kW	7.67 kW
COP Tj = 12°C	6.77	6.16
Cdh Tj = +12 °C	0.984	0.986
Pdh Tj = Tbiv	10.21 kW	9.34 kW
COP Tj = Tbiv	2.67	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.15 kW	7.51 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.39	1.39
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.40 kW	3.04 kW
Annual energy consumption Qhe	5687 kWh	7048 kWh
<b>EN 12102-1   Colder Climate</b>		
	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)
<b>EN 14825   Colder Climate</b>		
	Low temperature	Medium temperature
ηs	140 %	110 %
Prated	9.43 kW	8.80 kW
SCOP	3.56	2.82
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	6.03 kW	5.81 kW
COP Tj = -7°C	3.11	2.48
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.79 kW	5.51 kW
COP Tj = +2°C	4.25	3.52
Cdh Tj = +2 °C	0.988	0.989
Pdh Tj = +7°C	6.91 kW	6.89 kW
COP Tj = +7°C	5.69	4.82
Cdh Tj = +7 °C	0.986	0.988
Pdh Tj = 12°C	7.12 kW	7.79 kW
COP Tj = 12°C	6.04	6.48
Cdh Tj = +12 °C	0.986	0.986
Pdh Tj = Tbiv	7.69 kW	7.18 kW
COP Tj = Tbiv	2.16	1.58
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.67 kW	7.18 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.54	1.58
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.76 kW	8.80 kW
Annual energy consumption Qhe	6524 kWh	7485 kWh
Pdh Tj = -15°C (if TOL)	7.69	7.18

COP Tj = -15°C (if TOL	2.16	1.58
Cdh Tj = -15 °C	0.900	0.900

### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	227 %	166 %
Prated	10.76 kW	9.50 kW
SCOP	5.74	4.22
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.76 kW	9.50 kW
COP Tj = +2°C	3.26	2.01
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	6.96 kW	7.40 kW
COP Tj = +7°C	5.51	3.63
Cdh Tj = +7 °C	0.900	0.992
Pdh Tj = 12°C	7.37 kW	7.53 kW
COP Tj = 12°C	6.66	5.60
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	10.76 kW	9.50 kW
COP Tj = Tbiv	3.26	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.76 kW	9.50 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.26	2.01
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2504 kWh	3009 kWh

### EN 14825 | Cooling

	+7°C/+12°C	+18°C/+23°C
Pdesignc	11.09 kW	15.44 kW
SEER	4.45	5.56

Pdc Tj = 35°C	11.09 kW	15.44 kW
EER Tj = 35°C	2.39	3.18
Pdc Tj = 30°C	8.42 kW	11.59 kW
EER Tj = 30°C	3.68	4.92
Cdc Tj = 30 °C	0.900	0.900
Pdc Tj = 25°C	5.62 kW	7.70 kW
EER Tj = 25°C	5.04	7.05
Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.13 kW	6.50 kW
EER Tj = 20°C	5.17	6.42
Cdc Tj = 20 °C	0.983	0.983
Poff	14 W	14 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2378 kWh	2649 kWh

**Model FHA-14/17-400V-M2 FS-e6-C2 + SEW-2-300 (FHA-14/17-400V FC-300-S50-e6-C2)**

Model name	FHA-14/17-400V-M2 FS-e6-C2 + SEW-2-300 (FHA-14/17-400V FC-300-S50-e6-C2)
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Colder, Warmer, Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	+7°C/12°C, +18°C/+23°C
Any additional heat sources	n/a

**General data**

Power supply	n/a
Off-peak product	n/a

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

Declared load profile	XXL
Efficiency ηDHW	104 %
COP	2.59
Heating up time	2:04 h:min
Standby power input	75.4 W
Reference hot water temperature	49.6 °C
Mixed water at 40°C	311 l

**EN 16147 | Warmer Climate**

Declared load profile	XXL
Efficiency ηDHW	128 %
COP	3.19
Heating up time	2:07 h:min
Standby power input	63.6 W
Reference hot water temperature	49.6 °C
Mixed water at 40°C	311 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	17.02 kW	16.34 kW
El input	4.08 kW	5.73 kW
COP	4.17	2.85

**EN 14511-2 | Cooling**

El input	+7°C/+12°C	+18°C/+23°C
Cooling capacity	5.28 kW	4.75 kW
EER	12.91	15.84
	2.45	3.33

**EN 12102-1 | Average Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Average Climate**

	Low temperature	Medium temperature
ηs	173 %	129 %
Prated	13.07 kW	11.73 kW
SCOP	4.40	3.30
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.56 kW	10.37 kW
COP Tj = -7°C	2.60	1.87
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	7.69 kW	6.06 kW
COP Tj = +2°C	4.32	3.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.19 kW	6.47 kW
COP Tj = +7°C	6.24	4.37
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.42 kW	7.76 kW
COP Tj = 12°C	6.93	6.31
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	11.56 kW	10.37 kW
COP Tj = Tbiv	2.60	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.34 kW	7.71 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.36	1.33
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	3.73 kW	4.02 kW
Annual energy consumption Qhe	6131 kWh	7348 kWh

**EN 12102-1 | Colder Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)
Sound power level outdoor	61 dB(A)	61 dB(A)

**EN 14825 | Colder Climate**

	Low temperature	Medium temperature
$\eta_S$	146 %	105 %
Prated	9.93 kW	8.37 kW
SCOP	3.72	2.70
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-15 °C
Pdh Tj = -7°C	6.33 kW	5.24 kW
COP Tj = -7°C	3.22	2.37
Cdh Tj = -7 °C	0.900	0.900
Pdh Tj = +2°C	5.98 kW	7.04 kW
COP Tj = +2°C	4.49	3.37
Cdh Tj = +2 °C	0.988	0.992
Pdh Tj = +7°C	7.20 kW	6.55 kW
COP Tj = +7°C	6.28	4.59
Cdh Tj = +7 °C	0.986	0.989
Pdh Tj = 12°C	7.43 kW	7.73 kW
COP Tj = 12°C	6.78	6.43
Cdh Tj = +12 °C	0.985	0.987
Pdh Tj = Tbiv	8.10 kW	6.83 kW
COP Tj = Tbiv	2.17	1.46
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.63 kW	6.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.53	1.46
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.900	0.900
WTOL	65 °C	65 °C
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.29 kW	8.37 kW
Annual energy consumption Qhe	6570 kWh	7645 kWh
Pdh Tj = -15°C (if TOL	8.10	6.83
COP Tj = -15°C (if TOL	2.17	1.46
Cdh Tj = -15 °C	0.900	0.900

**EN 12102-1 | Warmer Climate**

	Low temperature	Medium temperature
Sound power level indoor	34 dB(A)	34 dB(A)

Sound power level outdoor	61 dB(A)	61 dB(A)
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**EN 14825 | Warmer Climate**

	Low temperature	Medium temperature
$\eta_s$	231 %	165 %
P <sub>rated</sub>	12.38 kW	10.34 kW
SCOP	5.86	4.19
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh Tj = +2°C</sub>	12.38 kW	10.34 kW
COP T <sub>j = +2°C</sub>	3.22	2.04
C <sub>dh Tj = +2 °C</sub>	0.900	0.900
P <sub>dh Tj = +7°C</sub>	8.03 kW	7.06 kW
COP T <sub>j = +7°C</sub>	5.62	3.56
C <sub>dh Tj = +7 °C</sub>	0.900	0.900
P <sub>dh Tj = 12°C</sub>	7.43 kW	7.46 kW
COP T <sub>j = 12°C</sub>	6.78	5.58
C <sub>dh Tj = +12 °C</sub>	0.985	0.988
P <sub>dh Tj = T<sub>biv</sub></sub>	12.38 kW	10.34 kW
COP T <sub>j = T<sub>biv</sub></sub>	3.22	2.04
P <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub></sub> if TOL &lt; T<sub>designh</sub></sub>	12.38 kW	10.34 kW
COP T <sub>j = TOL or COP T<sub>j = T<sub>designh</sub></sub> if TOL &lt; T<sub>designh</sub></sub>	3.22	2.04
C <sub>dh Tj = TOL or P<sub>dh Tj = T<sub>designh</sub></sub> if TOL &lt; T<sub>designh</sub></sub>	0.900	0.900
WTOL	65 °C	65 °C
P <sub>off</sub>	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	2822 kWh	3298 kWh

**EN 14825 | Cooling**

	+7°C/+12°C	+18°C/+23°C
P <sub>designc</sub>	12.91 kW	15.84 kW
SEER	4.50	5.67
P <sub>dc Tj = 35°C</sub>	12.91 kW	15.84 kW
EER T <sub>j = 35°C</sub>	2.45	3.33
P <sub>dc Tj = 30°C</sub>	9.77 kW	12.41 kW
EER T <sub>j = 30°C</sub>	3.58	5.07
C <sub>dc Tj = 30 °C</sub>	0.900	0.900
P <sub>dc Tj = 25°C</sub>	6.11 kW	7.09 kW
EER T <sub>j = 25°C</sub>	5.02	7.12

Cdc Tj = 25 °C	0.250	0.250
Pdc Tj = 20°C	5.14 kW	6.50 kW
EER Tj = 20°C	5.19	6.47
Cdc Tj = 20 °C	1.000	1.000
Poff	15 W	15 W
PTO	16 W	16 W
PSB	17 W	17 W
PCK	0 W	0 W
Annual energy consumption Qce	2736 kWh	2664 kWh