



WAMAK

Heat pump



AiWa 11 EVI
H In

WAMAK AiWa 11 EVI H In

Product description

Compact air-to-water heat pump for heating, cooling and domestic hot water with the possibility of installation either in the utility room or outdoors. A short closed refrigerant circuit with a silent scroll compressor at the bottom under the fan simplifies installation and helps for long-term stable operation.

Use for single-family houses and smaller buildings with a heat output requirement of up to 20 kW. The COMFORT range includes robust heat pump internal refrigerant circuit parts as well as all the measuring, distribution and control elements required by today's modern climate technology in single-family houses.

The primary source is the heat energy from the ambient air, which is blown by a silent fan in the shape of an owl's wing through a heat exchanger made of copper and aluminium.

The EVI (Enhanced Vapour Injection) technology allows the heat pump to achieve higher header flow temperatures even at lower source temperatures. EVI also has a positive impact on the compressor lifespan and overall system stability because the discharge gas temperature from the compressor is lower.

The APS (Active Process Subcooling) system simultaneously increases the stability and efficiency of operation by additional utilisation of the liquid refrigerant temperature after it has condensed.

Indoor monoblock

Product features

- Scroll compressor
- EVI technology
- Asymmetric plate heat exchanger
- Active cooling
- Enhanced defrosting with APS system
- Heated drip tray
- Phase and rotation control
- High pressure sensor - analogue
- Flow switch consumer - on/off - (with accessory)
- ECM speed circulator - condenser
- Direct heating/cooling circuit control - (with accessory)
- DHW circulation control - (with accessory)
- DHW temperature sensor
- Cascade control - (with accessory)
- Solid frame structure
- Sylomer pads under compressor unit
- Electronic expansion valve
- Large air heat exchanger with APS system
- Reversible defrosting
- Speed - controlled EC fan
- Compressor soft starter
- High pressure switch
- Low pressure sensor - analogue
- Flow sensor consumer - analogue
- Mixed heating/cooling circuit control - (with accessory)
- DHW switching control - (with accessory)
- Outdoor temperature sensor
- Buffer temperature sensor
- Modbus connection - (with accessory)

Basic performance data - WAMAK AiWa 11 EVI H In

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	12.4
	A2 / W35	10.6
	A-7 / W34	8.8
Electrical power input [kW]	A7 / W35	2.5
	A2 / W35	2.6
	A-7 / W34	2.5
Heating efficiency faktor [COP]	A7 / W35	4.85
	A2 / W35	4.12
	A-7 / W34	3.49
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35°C]	SCOP	4.77
	η [%]	190.9
	Label	A+++
	Qhe [kWh]	20453.4
	Pdesignh [kW]	9.9
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	11.5
	A25 / W23-18	12.3
	A35 / W12-7	8.6
	A25 / W12-7	8.6
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18°C]	SEER	4.69
	Qce [kWh]	5160.0
	ηc [%]	187.5
Sound EN 12102		
Acoustic power - Lw	dB(A)	56
Acoustic pressure - Lp	1 m dB(A)	48
	5 m dB(A)	34
	10 m dB(A)	28
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 1 /	On/Off
Refrigerant	R410A (GWP - 2088)	5 kg
Operating limit temperatures heating - (min / max) [°C]	25 / 65	
Operating limit temperatures source - (min / max) [°C]	-22 / 40	
Weight	270 kg	

Main technical data - WAMAK AiWa 11 EVI H In

Enclosure type			Heat energy rejection side data		
Basic dimensions			Operating limit temperatures heating	MAX [°C]	65
			MIN [°C]	25	
			for more see operating limits diagram		
Weight [kg]	270		Condenser	Port size	1 "
Colour	Gray			Type	BPHE
Enclosure IP Class	IP44			Count	1
Refrigeration cycle				Material	AISI 316
Compressor	Type	Scroll	Maximal operating pressure - refrigerant [bar]	45	
	Number of stages	1	Maximal operating pressure - Water [bar]	3	
	On/Off		Testing pressure [bar]	70	
	Power factor Cosφ	0.79	Heat transfer medium	Water	
	Winding resistance	3.20 Ohm	Volume flow - Water [m3/h]	2.13	
Refrigerant	R410A		Internal pressure drop - Water [kPa]	12	
	Volme	5 kg	ECM speed circulator - condenser	UPM3 25-75	
	GWP	2088	Flow sensor consumer - analogue	0..10V	
	Safety class	A1	Temperature difference	@ 35°C (nom)	5 K
Refrigeration oil type	POE RL32-3MAF			@ 55°C	8 K
	Oil volume	1.25 L		@ 65°C	10 K
Maximal pressure - refrigerant [bar]		45	Renewable energy extraction side data		
PED class		1	Operating limit temperatures source	MIN [°C]	-22
EVI - vapour injection with economizer				MAX [°C]	40
APS System of liquid subcooling			for more see operating limits diagram		
Reversible operation (cooling)			Evaporator	Port size	700mm x 700mm "
Reverse defrosting with hot gas				Type	Cu-coil /Al-fin
Electrical connection data				Count	1
Line voltage [#~ V/Hz]				Material	Cu/Al
Current	nominal [A]	4.28	Maximal operating pressure - refrigerant [bar]	28	
	maximal [A]	9.20	Heat transfer medium	Air	
	starting [A]	11.55	Volume flow - Air [m3/h]	3930	
Softstart			Internal pressure drop - Air [kPa]	0.02	
Main safety			Temperature difference - Air	7 K	
Control System			Number of fans	1	
Main controller	SIEMENS	RVS 21 AVS 55.199	Fan diameter [mm]	630	
Extension module	AVS75.3xx	AVS75.3xx			
Bus Clip-In	LPB OCI346				
	Modbus OCI352				
Online connection	Web server OZW672				
Superheat controller	1 - EEV H/C				
*** with accessory					

WAMAK AiWa 11 EVI H In

ErP (EU) No 811/2013: Technical parameters for heat pump space heaters

Model	AiWa 11 EVI H In		
Air-to-water heat pump	yes		
Brine-to-water heat pump	no		
Water-to-water heat pump	no		
Low-temperature heat pump	no		
Equipped with a supplementary heater	no		
Heat pump combination heater	no		
Temperature application	low (35 °C - 30 °C)		
Climate conditions	average		

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output at Tdesignh	Prated	9.9	kW	Seasonal space heating energy efficiency	ηs	190.9	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	Pdh	8.8	kW	Tj = -7 °C	COPd	3.49	-
Tj = +2 °C	Pdh	10.6	kW	Tj = +2 °C	COPd	4.7	-
Tj = +7 °C	Pdh	12.3	kW	Tj = +7 °C	COPd	6.1	-
Tj = +12 °C	Pdh	14.3	kW	Tj = +12 °C	COPd	8.2	-
Tj = bivalent temperature	Pdh	8.5	kW	Tj = bivalent temperature	COPd	3.3	-
Tj = operation limit temperature	Pdh	6.2	kW	Tj = operation limit temperature	COPd	2.4	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	-22	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	65	°C
Off mode	Poff	0.010	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	4.4	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.020	kW	For air-to-water heat pumps: Rated air flow rate, outdoors	-	3930	m3/h
Other items				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m3/h
Capacity control		fixed		Annual energy consumption	QHE	20453.4	kWh
Sound power level							
indoors	Lwa	56	dB				
outdoors	Lwa	---	dB				

Contact details: WAMAK, s.r.o., Orovnička 252, 96652, Orovnička, Slovensko, info@wamak.sk

WAMAK AiWa 11 EVI H In

ErP (EU) No 811/2013: Technical parameters for heat pump space heaters

Model	AiWa 11 EVI H In		
Air-to-water heat pump	yes		
Brine-to-water heat pump	no		
Water-to-water heat pump	no		
Low-temperature heat pump	no		
Equipped with a supplementary heater	no		
Heat pump combination heater	no		
Temperature application	middle (55 °C - 47 °C)		
Climate conditions	average		

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output at Tdesignh	Prated	10.5	kW	Seasonal space heating energy efficiency	ηs	143.7	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	Pdh	9.2	kW	Tj = -7 °C	COPd	2.32	-
Tj = +2 °C	Pdh	10.7	kW	Tj = +2 °C	COPd	3.5	-
Tj = +7 °C	Pdh	12.4	kW	Tj = +7 °C	COPd	4.7	-
Tj = +12 °C	Pdh	14.3	kW	Tj = +12 °C	COPd	6.7	-
Tj = bivalent temperature	Pdh	9.0	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	7.1	kW	Tj = operation limit temperature	COPd	1.7	-
Bivalent temperature	Tbiv	-7	°C	Tj = operation limit temperature	TOL	-22	°C
Power consumption in modes other than active mode				Heating water operating limit temperature	WTOL	65	°C
Off mode	Poff	0.010	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	4.4	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.020	kW	For air-to-water heat pumps: Rated air flow rate, outdoors	-	3930	m3/h
Other items				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m3/h
Capacity control		fixed		Annual energy consumption	QHE	21693.0	kWh
Sound power level							
indoors	Lwa	56	dB				
outdoors	Lwa	---	dB				

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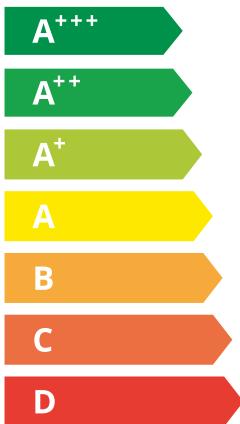
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AiWa 11 EVI H In

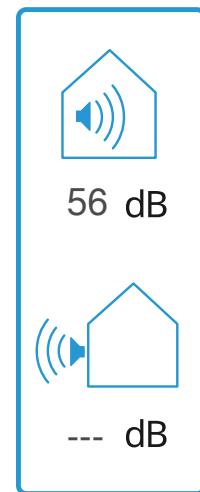


55 °C

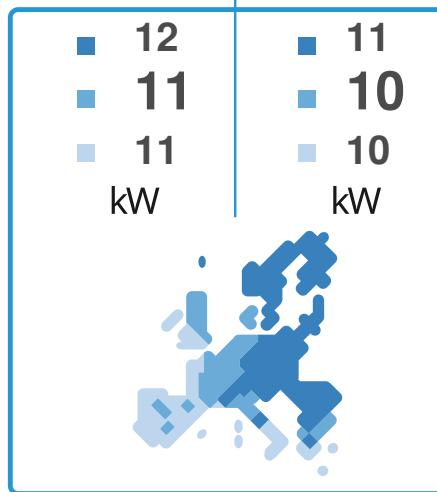
35 °C



A++



2019



811/2013

AiWa 11 EVI H In

ErP Data

	55 °C	35 °C
Energy class	A++	A+++
η	[%]	143.7 190.9
P _{rated}	[kW]	11 10
Q _{HE}	[kWh/y]	21693 20454
SCOP	[-]	3.59 4.77
T _{bivalent}	[°C]	-7 -7

CONTROLLER



+ QAA55/75 class **VII** 3.5% ↓
- QAA55/75 class **III** 1.5% ↓

Heating performance data

Version: v202223.006-AW

Average Climate / Low Temperature [35°C]

ZHI11K1P-TFM_R410A_1_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	12.4	2.5	4.85
2	A2 / W35	10.6	2.6	4.12
3	A-22 / W35	6.2	2.5	2.45
A	A-7 / W34	8.8	2.5	3.49
B	A2 / W30	10.6	2.3	4.66
C	A7 / W27	12.3	2.0	6.05
D	A12 / W24	14.3	1.7	8.24
E	A-10 / W35	8.5	2.6	3.29
F	A-7 / W34	8.8	2.5	3.49

SCOP DATA EN 14825:2018

Average Climate / Low Temperature [35°C]	
SCOPon	4.91
SCOPnet	4.95
SCOP	4.77
η [%]	190.93
Label	A+++
Qh [kWh]	20453.40
Pdesignh [kW]	9.9
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	12.3	4.3	2.88
2	A2 / W55	10.9	4.3	2.53
3	A-22 / W55	7.1	4.0	1.66
A	A-7 / W52	9.2	4.0	2.32
B	A2 / W42	10.7	3.1	3.46
C	A7 / W36	12.4	2.6	4.72
D	A12 / W30	14.3	2.1	6.75
E	A-10 / W55	9.0	4.3	2.11
F	A-7 / W55	9.3	4.3	2.17

SCOP DATA EN 14825:2018

Average Climate / Medium Temperature [55°C]	
SCOPon	3.66
SCOPnet	3.69
SCOP	3.59
η [%]	143.70
Label	A++
Qh [kWh]	21693.00
Pdesignh [kW]	10.5
Tbivalent [°C]	-7.00

Cooling performance data**Low temperature cooling W 12 / 7°C**

Operating conditions		Qc	P	EER
A	A35 / W12-7	8.6	3.2	2.71
B	A30 / W12-7	8.9	2.8	3.19
C	A25 / W12-7	9.2	2.4	3.75
D	A20 / W12-7	9.4	2.1	4.40

SEER DATA EN 14825:2018 [W 12 / 7°C]

SEERon	3.64
SEER	3.52
Qc [kWh]	5160.00
η [%]	140.89

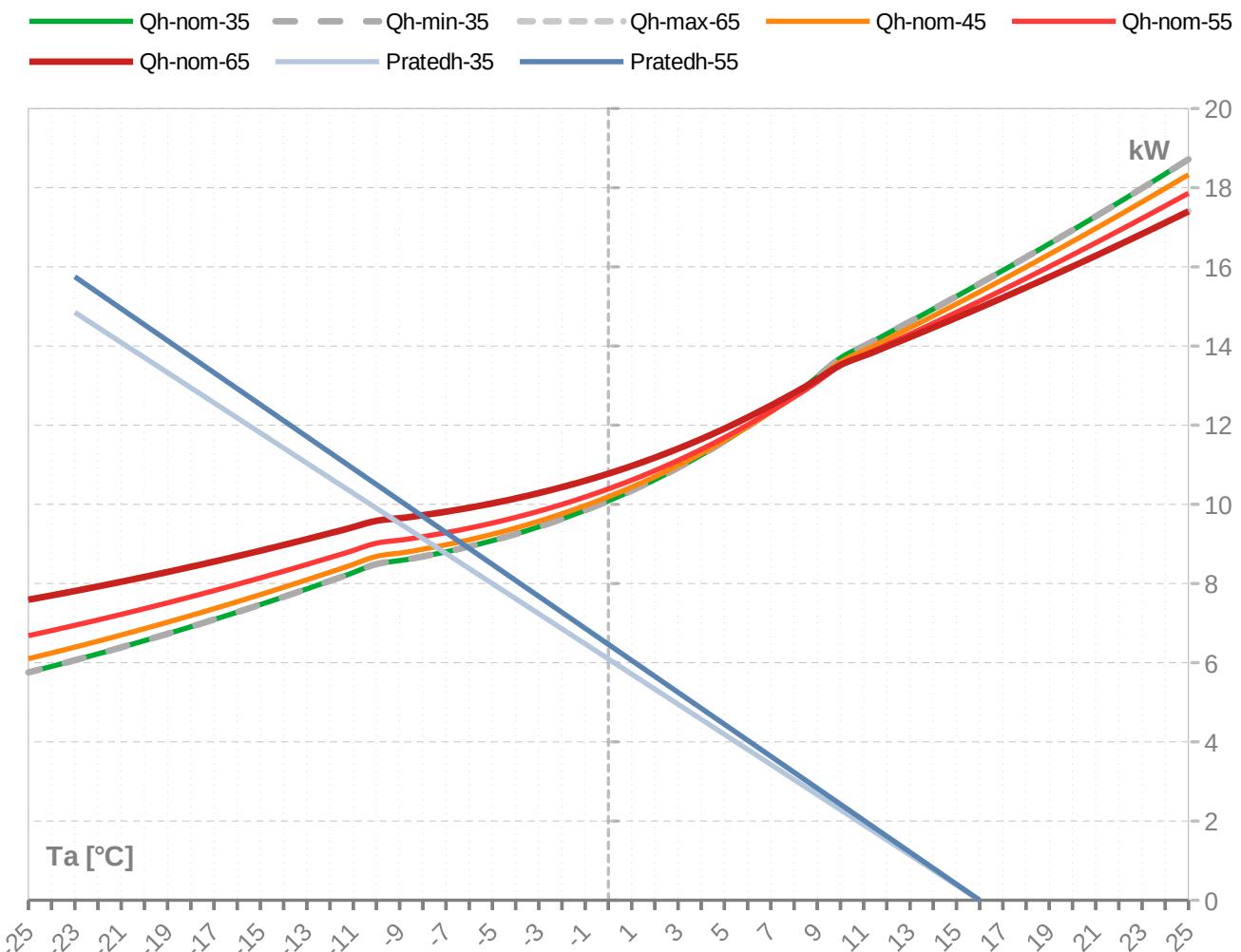
Radiant cooling W 23 / 18°C

Operating conditions		Qc	P	EER
A	A35 / W23-18	11.5	3.2	3.65
B	A30 / W23-18	11.9	2.5	4.30
C	A25 / W23-18	12.3	2.2	5.05
D	A20 / W23-18	12.7	1.8	5.92

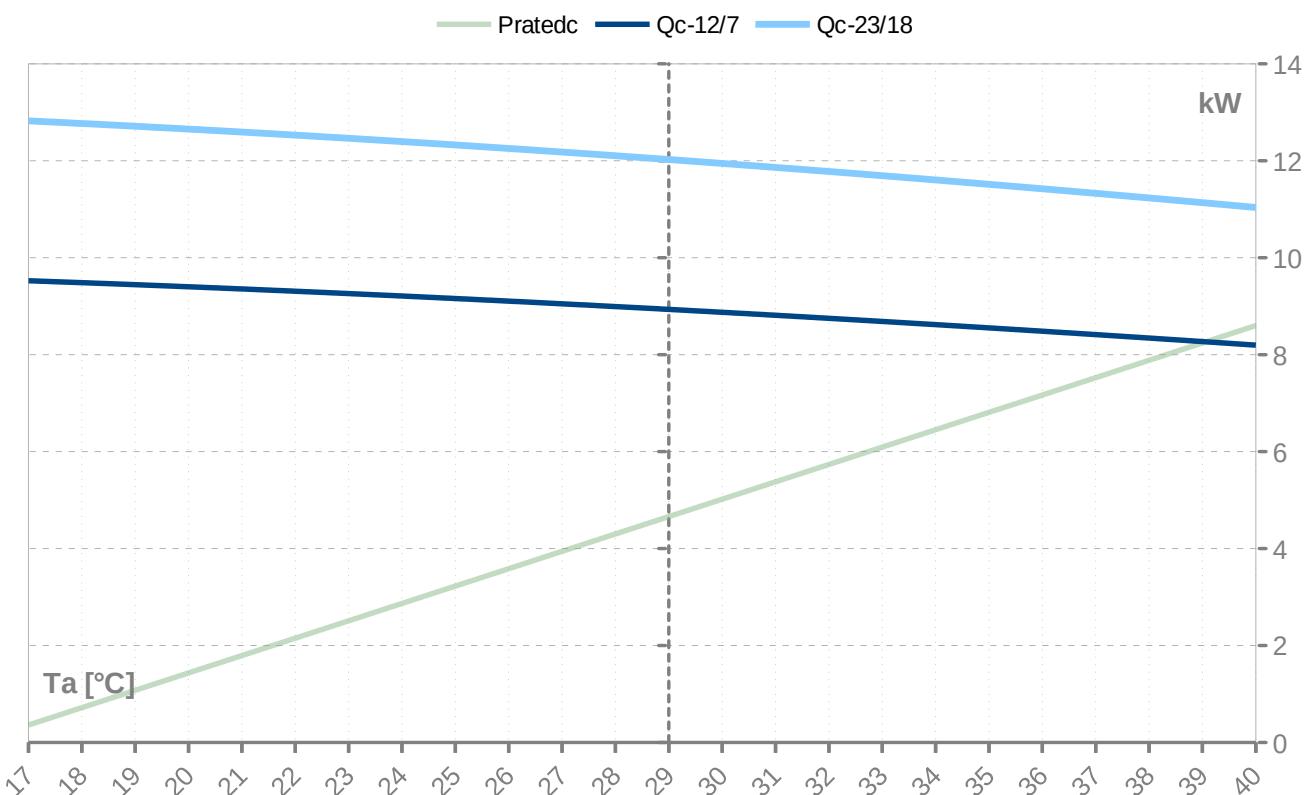
SEER DATA EN 14825:2018 [W 23 / 18°C]

SEERon	4.90
SEER	4.69
Qc [kWh]	5160.00
η [%]	187.55

Performance lines - heating



Performance lines - cooling



Th [°C]		35 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
24	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
23	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
22	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
21	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
20	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
19	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
18	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
17	15.9	15.9		2.4	2.4		6.68	4.1	4.1	
16	15.6	15.6	15.6	2.4	2.4	2.4	6.49	4.2	4.2	4.2
15	15.3	15.3	15.3	2.4	2.4	2.4	6.30	4.2	4.2	4.2
14	14.9	14.9	14.9	2.4	2.4	2.4	6.12	4.2	4.2	4.2
13	14.6	14.6	14.6	2.5	2.5	2.5	5.95	4.2	4.2	4.2
12	14.3	14.3	14.3	2.5	2.5	2.5	5.79	4.2	4.2	4.2
11	14.0	14.0	14.0	2.5	2.5	2.5	5.63	4.3	4.3	4.3
10	13.7	13.7	13.7	2.5	2.5	2.5	5.48	4.3	4.3	4.3
9	13.2	13.2	13.2	2.5	2.5	2.5	5.25	4.3	4.3	4.3
8	12.8	12.8	12.8	2.5	2.5	2.5	5.04	4.3	4.3	4.3
7	12.4	12.4	12.4	2.5	2.5	2.5	4.85	4.3	4.3	4.3
6	12.0	12.0	12.0	2.6	2.6	2.6	4.68	4.3	4.3	4.3
5	11.6	11.6	11.6	2.6	2.6	2.6	4.52	4.3	4.3	4.3
4	11.2	11.2	11.2	2.6	2.6	2.6	4.37	4.4	4.4	4.4
3	10.9	10.9	10.9	2.6	2.6	2.6	4.24	4.4	4.4	4.4
2	10.6	10.6	10.6	2.6	2.6	2.6	4.12	4.4	4.4	4.4
1	10.3	10.3	10.3	2.6	2.6	2.6	4.00	4.4	4.4	4.4
0	10.1	10.1	10.1	2.6	2.6	2.6	3.90	4.4	4.4	4.4
-1	9.8	9.8	9.8	2.6	2.6	2.6	3.81	4.4	4.4	4.4
-2	9.6	9.6	9.6	2.6	2.6	2.6	3.72	4.4	4.4	4.4
-3	9.4	9.4	9.4	2.6	2.6	2.6	3.65	4.4	4.4	4.4
-4	9.2	9.2	9.2	2.6	2.6	2.6	3.58	4.4	4.4	4.4
-5	9.1	9.1	9.1	2.6	2.6	2.6	3.51	4.4	4.4	4.4
-6	8.9	8.9	8.9	2.6	2.6	2.6	3.46	4.4	4.4	4.4
-7	8.8	8.8	8.8	2.6	2.6	2.6	3.41	4.4	4.4	4.4
-8	8.7	8.7	8.7	2.6	2.6	2.6	3.36	4.4	4.4	4.4
-9	8.6	8.6	8.6	2.6	2.6	2.6	3.32	4.4	4.4	4.4
-10	8.5	8.5	8.5	2.6	2.6	2.6	3.29	4.4	4.4	4.4
-11	8.3	8.3	8.3	2.6	2.6	2.6	3.21	4.4	4.4	4.4
-12	8.1	8.1	8.1	2.6	2.6	2.6	3.13	4.4	4.4	4.4
-13	7.9	7.9	7.9	2.6	2.6	2.6	3.06	4.4	4.4	4.4
-14	7.7	7.7	7.7	2.6	2.6	2.6	2.98	4.3	4.3	4.3
-15	7.5	7.5	7.5	2.6	2.6	2.6	2.91	4.3	4.3	4.3
-16	7.3	7.3	7.3	2.6	2.6	2.6	2.84	4.3	4.3	4.3
-17	7.1	7.1	7.1	2.6	2.6	2.6	2.77	4.3	4.3	4.3
-18	6.9	6.9	6.9	2.6	2.6	2.6	2.70	4.3	4.3	4.3
-19	6.7	6.7	6.7	2.6	2.6	2.6	2.64	4.3	4.3	4.3
-20	6.6	6.6	6.6	2.5	2.5	2.5	2.57	4.3	4.3	4.3
-21	6.4	6.4	6.4	2.5	2.5	2.5	2.51	4.3	4.3	4.3
-22	6.2	6.2	6.2	2.5	2.5	2.5	2.45	4.3	4.3	4.3
-23	6.1	6.1	6.1	2.5	2.5	2.5	2.39	4.3	4.3	4.3
-24	5.9	5.9	5.9	2.5	2.5	2.5	2.33	4.3	4.3	4.3
-25	5.8	5.8	5.8	2.5	2.5	2.5	2.27	4.3	4.3	4.3

* attention: operating limits not reflected in performance table

ZHI11K1P-TFM_R410A_1_AW

Th [°C]		45 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	18.3	18.3	18.3	3.0	3.0	3.0	6.02	4.9	4.9	4.9
24	18.0	18.0	18.0	3.1	3.1	3.1	5.86	4.9	4.9	4.9
23	17.6	17.6	17.6	3.1	3.1	3.1	5.70	5.0	5.0	5.0
22	17.3	17.3	17.3	3.1	3.1	3.1	5.55	5.0	5.0	5.0
21	17.0	17.0	17.0	3.1	3.1	3.1	5.41	5.0	5.0	5.0
20	16.6	16.6	16.6	3.2	3.2	3.2	5.27	5.0	5.0	5.0
19	16.3	16.3	16.3	3.2	3.2	3.2	5.14	5.1	5.1	5.1
18	16.0	16.0	16.0	3.2	3.2	3.2	5.01	5.1	5.1	5.1
17	15.7	15.7	15.7	3.2	3.2	3.2	4.89	5.1	5.1	5.1
16	15.4	15.4	15.4	3.2	3.2	3.2	4.77	5.1	5.1	5.1
15	15.1	15.1	15.1	3.2	3.2	3.2	4.65	5.1	5.1	5.1
14	14.8	14.8	14.8	3.2	3.2	3.2	4.54	5.1	5.1	5.1
13	14.5	14.5	14.5	3.3	3.3	3.3	4.44	5.2	5.2	5.2
12	14.2	14.2	14.2	3.3	3.3	3.3	4.33	5.2	5.2	5.2
11	13.9	13.9	13.9	3.3	3.3	3.3	4.23	5.2	5.2	5.2
10	13.6	13.6	13.6	3.3	3.3	3.3	4.14	5.2	5.2	5.2
9	13.1	13.1	13.1	3.3	3.3	3.3	3.99	5.2	5.2	5.2
8	12.7	12.7	12.7	3.3	3.3	3.3	3.85	5.2	5.2	5.2
7	12.3	12.3	12.3	3.3	3.3	3.3	3.72	5.2	5.2	5.2
6	12.0	12.0	12.0	3.3	3.3	3.3	3.61	5.2	5.2	5.2
5	11.6	11.6	11.6	3.3	3.3	3.3	3.50	5.2	5.2	5.2
4	11.3	11.3	11.3	3.3	3.3	3.3	3.40	5.2	5.2	5.2
3	11.0	11.0	11.0	3.3	3.3	3.3	3.30	5.2	5.2	5.2
2	10.7	10.7	10.7	3.3	3.3	3.3	3.22	5.2	5.2	5.2
1	10.4	10.4	10.4	3.3	3.3	3.3	3.14	5.2	5.2	5.2
0	10.2	10.2	10.2	3.3	3.3	3.3	3.07	5.2	5.2	5.2
-1	10.0	10.0	10.0	3.3	3.3	3.3	3.00	5.2	5.2	5.2
-2	9.8	9.8	9.8	3.3	3.3	3.3	2.94	5.2	5.2	5.2
-3	9.6	9.6	9.6	3.3	3.3	3.3	2.89	5.2	5.2	5.2
-4	9.4	9.4	9.4	3.3	3.3	3.3	2.84	5.2	5.2	5.2
-5	9.2	9.2	9.2	3.3	3.3	3.3	2.79	5.2	5.2	5.2
-6	9.1	9.1	9.1	3.3	3.3	3.3	2.75	5.2	5.2	5.2
-7	9.0	9.0	9.0	3.3	3.3	3.3	2.71	5.2	5.2	5.2
-8	8.9	8.9	8.9	3.3	3.3	3.3	2.68	5.2	5.2	5.2
-9	8.8	8.8	8.8	3.3	3.3	3.3	2.65	5.2	5.2	5.2
-10	8.7	8.7	8.7	3.3	3.3	3.3	2.63	5.2	5.2	5.2
-11	8.5	8.5	8.5	3.3	3.3	3.3	2.57	5.2	5.2	5.2
-12	8.3	8.3	8.3	3.3	3.3	3.3	2.51	5.2	5.2	5.2
-13	8.1	8.1	8.1	3.3	3.3	3.3	2.45	5.2	5.2	5.2
-14	7.9	7.9	7.9	3.3	3.3	3.3	2.40	5.2	5.2	5.2
-15	7.7	7.7	7.7	3.3	3.3	3.3	2.35	5.2	5.2	5.2
-16	7.5	7.5	7.5	3.3	3.3	3.3	2.29	5.2	5.2	5.2
-17	7.4	7.4	7.4	3.3	3.3	3.3	2.24	5.2	5.2	5.2
-18	7.2	7.2	7.2	3.3	3.3	3.3	2.19	5.2	5.2	5.2
-19	7.0	7.0	7.0	3.3	3.3	3.3	2.14	5.2	5.2	5.2
-20	6.9	6.9	6.9	3.3	3.3	3.3	2.09	5.2	5.2	5.2
-21	6.7	6.7	6.7	3.3	3.3	3.3	2.04	5.2	5.2	5.2
-22	6.5	6.5	6.5	3.3	3.3	3.3	2.00	5.2	5.2	5.2
-23	6.4	6.4	6.4	3.3	3.3	3.3	1.95	5.2	5.2	5.2
-24	6.2	6.2	6.2	3.3	3.3	3.3	1.91	5.2	5.2	5.2
-25	6.1	6.1	6.1	3.3	3.3	3.3	1.86	5.2	5.2	5.2

* attention: operating limits not reflected in performance table

Th [°C]		55 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	17.9	17.9	17.9	4.1	4.1	4.1	4.35	6.2	6.2	6.2
24	17.5	17.5	17.5	4.1	4.1	4.1	4.25	6.2	6.2	6.2
23	17.2	17.2	17.2	4.1	4.1	4.1	4.15	6.3	6.3	6.3
22	16.9	16.9	16.9	4.2	4.2	4.2	4.06	6.3	6.3	6.3
21	16.6	16.6	16.6	4.2	4.2	4.2	3.98	6.3	6.3	6.3
20	16.3	16.3	16.3	4.2	4.2	4.2	3.89	6.3	6.3	6.3
19	16.0	16.0	16.0	4.2	4.2	4.2	3.81	6.3	6.3	6.3
18	15.7	15.7	15.7	4.2	4.2	4.2	3.73	6.4	6.4	6.4
17	15.4	15.4	15.4	4.2	4.2	4.2	3.65	6.4	6.4	6.4
16	15.1	15.1	15.1	4.2	4.2	4.2	3.57	6.4	6.4	6.4
15	14.9	14.9	14.9	4.2	4.2	4.2	3.50	6.4	6.4	6.4
14	14.6	14.6	14.6	4.3	4.3	4.3	3.43	6.4	6.4	6.4
13	14.3	14.3	14.3	4.3	4.3	4.3	3.36	6.4	6.4	6.4
12	14.0	14.0	14.0	4.3	4.3	4.3	3.29	6.4	6.4	6.4
11	13.8	13.8	13.8	4.3	4.3	4.3	3.22	6.4	6.4	6.4
10	13.5	13.5	13.5	4.3	4.3	4.3	3.16	6.4	6.4	6.4
9	13.1	13.1	13.1	4.3	4.3	4.3	3.06	6.4	6.4	6.4
8	12.7	12.7	12.7	4.3	4.3	4.3	2.96	6.4	6.4	6.4
7	12.3	12.3	12.3	4.3	4.3	4.3	2.88	6.4	6.4	6.4
6	12.0	12.0	12.0	4.3	4.3	4.3	2.80	6.5	6.5	6.5
5	11.7	11.7	11.7	4.3	4.3	4.3	2.72	6.5	6.5	6.5
4	11.4	11.4	11.4	4.3	4.3	4.3	2.65	6.5	6.5	6.5
3	11.1	11.1	11.1	4.3	4.3	4.3	2.59	6.5	6.5	6.5
2	10.9	10.9	10.9	4.3	4.3	4.3	2.53	6.5	6.5	6.5
1	10.6	10.6	10.6	4.3	4.3	4.3	2.47	6.4	6.4	6.4
0	10.4	10.4	10.4	4.3	4.3	4.3	2.42	6.4	6.4	6.4
-1	10.2	10.2	10.2	4.3	4.3	4.3	2.38	6.4	6.4	6.4
-2	10.0	10.0	10.0	4.3	4.3	4.3	2.33	6.4	6.4	6.4
-3	9.8	9.8	9.8	4.3	4.3	4.3	2.29	6.4	6.4	6.4
-4	9.7	9.7	9.7	4.3	4.3	4.3	2.26	6.4	6.4	6.4
-5	9.5	9.5	9.5	4.3	4.3	4.3	2.23	6.4	6.4	6.4
-6	9.4	9.4	9.4	4.3	4.3	4.3	2.20	6.4	6.4	6.4
-7	9.3	9.3	9.3	4.3	4.3	4.3	2.17	6.4	6.4	6.4
-8	9.2	9.2	9.2	4.3	4.3	4.3	2.15	6.4	6.4	6.4
-9	9.1	9.1	9.1	4.3	4.3	4.3	2.13	6.4	6.4	6.4
-10	9.0	9.0	9.0	4.3	4.3	4.3	2.11	6.4	6.4	6.4
-11	8.8	8.8	8.8	4.3	4.3	4.3	2.07	6.4	6.4	6.4
-12	8.7	8.7	8.7	4.3	4.3	4.3	2.03	6.4	6.4	6.4
-13	8.5	8.5	8.5	4.3	4.3	4.3	1.99	6.4	6.4	6.4
-14	8.3	8.3	8.3	4.3	4.3	4.3	1.95	6.4	6.4	6.4
-15	8.1	8.1	8.1	4.3	4.3	4.3	1.91	6.4	6.4	6.4
-16	8.0	8.0	8.0	4.3	4.3	4.3	1.87	6.4	6.4	6.4
-17	7.8	7.8	7.8	4.3	4.3	4.3	1.83	6.4	6.4	6.4
-18	7.7	7.7	7.7	4.3	4.3	4.3	1.80	6.4	6.4	6.4
-19	7.5	7.5	7.5	4.3	4.3	4.3	1.76	6.4	6.4	6.4
-20	7.4	7.4	7.4	4.3	4.3	4.3	1.72	6.4	6.4	6.4
-21	7.2	7.2	7.2	4.3	4.3	4.3	1.69	6.4	6.4	6.4
-22	7.1	7.1	7.1	4.3	4.3	4.3	1.66	6.4	6.4	6.4
-23	6.9	6.9	6.9	4.3	4.3	4.3	1.62	6.4	6.4	6.4
-24	6.8	6.8	6.8	4.3	4.3	4.3	1.59	6.4	6.4	6.4
-25	6.7	6.7	6.7	4.3	4.3	4.3	1.56	6.4	6.4	6.4

* attention: operating limits not reflected in performance table

Th [°C]		T-Max @ 65 °C								
Ta [°C]	Qh nom [kW]	Qh min [kW]	Qh max [kW]	Pin nom [kW]	Pin-min [kW]	Pin-max [kW]	COP kW / kW	I nom [A]	I min [A]	I max [A]
25	17.4	17.4	17.4	5.4	5.4	5.4	3.21	8.0	8.0	8.0
24	17.1	17.1	17.1	5.4	5.4	5.4	3.15	8.0	8.0	8.0
23	16.8	16.8	16.8	5.5	5.5	5.5	3.09	8.0	8.0	8.0
22	16.6	16.6	16.6	5.5	5.5	5.5	3.03	8.0	8.0	8.0
21	16.3	16.3	16.3	5.5	5.5	5.5	2.97	8.0	8.0	8.0
20	16.0	16.0	16.0	5.5	5.5	5.5	2.92	8.0	8.0	8.0
19	15.7	15.7	15.7	5.5	5.5	5.5	2.87	8.1	8.1	8.1
18	15.5	15.5	15.5	5.5	5.5	5.5	2.81	8.1	8.1	8.1
17	15.2	15.2	15.2	5.5	5.5	5.5	2.76	8.1	8.1	8.1
16	15.0	15.0	15.0	5.5	5.5	5.5	2.71	8.1	8.1	8.1
15	14.7	14.7	14.7	5.5	5.5	5.5	2.66	8.1	8.1	8.1
14	14.5	14.5	14.5	5.5	5.5	5.5	2.62	8.1	8.1	8.1
13	14.2	14.2	14.2	5.5	5.5	5.5	2.57	8.1	8.1	8.1
12	14.0	14.0	14.0	5.5	5.5	5.5	2.53	8.1	8.1	8.1
11	13.7	13.7	13.7	5.5	5.5	5.5	2.48	8.1	8.1	8.1
10	13.5	13.5	13.5	5.5	5.5	5.5	2.44	8.1	8.1	8.1
9	13.2	13.2	13.2	5.5	5.5	5.5	2.37	8.1	8.1	8.1
8	12.8	12.8	12.8	5.5	5.5	5.5	2.31	8.1	8.1	8.1
7	12.5	12.5	12.5	5.6	5.6	5.6	2.25	8.1	8.1	8.1
6	12.2	12.2	12.2	5.6	5.6	5.6	2.20	8.1	8.1	8.1
5	11.9	11.9	11.9	5.6	5.6	5.6	2.15	8.1	8.1	8.1
4	11.7	11.7	11.7	5.6	5.6	5.6	2.10	8.1	8.1	8.1
3	11.4	11.4	11.4	5.6	5.6	5.6	2.05	8.1	8.1	8.1
2	11.2	11.2	11.2	5.6	5.6	5.6	2.01	8.1	8.1	8.1
1	11.0	11.0	11.0	5.6	5.6	5.6	1.98	8.1	8.1	8.1
0	10.8	10.8	10.8	5.6	5.6	5.6	1.94	8.1	8.1	8.1
-1	10.6	10.6	10.6	5.6	5.6	5.6	1.91	8.1	8.1	8.1
-2	10.4	10.4	10.4	5.6	5.6	5.6	1.88	8.1	8.1	8.1
-3	10.3	10.3	10.3	5.6	5.6	5.6	1.85	8.1	8.1	8.1
-4	10.1	10.1	10.1	5.6	5.6	5.6	1.83	8.1	8.1	8.1
-5	10.0	10.0	10.0	5.6	5.6	5.6	1.80	8.1	8.1	8.1
-6	9.9	9.9	9.9	5.6	5.6	5.6	1.78	8.1	8.1	8.1
-7	9.8	9.8	9.8	5.6	5.6	5.6	1.77	8.1	8.1	8.1
-8	9.7	9.7	9.7	5.6	5.6	5.6	1.75	8.1	8.1	8.1
-9	9.6	9.6	9.6	5.6	5.6	5.6	1.74	8.1	8.1	8.1
-10	9.6	9.6	9.6	5.6	5.6	5.6	1.72	8.1	8.1	8.1
-11	9.4	9.4	9.4	5.6	5.6	5.6	1.70	8.1	8.1	8.1
-12	9.3	9.3	9.3	5.6	5.6	5.6	1.67	8.1	8.1	8.1
-13	9.1	9.1	9.1	5.6	5.6	5.6	1.64	8.1	8.1	8.1
-14	9.0	9.0	9.0	5.6	5.6	5.6	1.61	8.1	8.1	8.1
-15	8.8	8.8	8.8	5.6	5.6	5.6	1.59	8.1	8.1	8.1
-16										
-17										
-18										
-19										
-20										
-21										
-22										
-23										
-24										
-25										

* attention: operating limits not reflected in performance table

Tc [°C]			W 12 / 7 °C								
Ta [°C]	Qc nom [kW]	Qc min [kW]	Qc max [kW]	Pin [kW]	Pin min [kW]	Pin max [kW]	EER kW / kW	I nom [A]	I min [A]	I max [A]	
40	8.2	8.2	8.2	3.6	3.6	3.6	2.29	5.6	5.6	5.6	
39	8.3	8.3	8.3	3.5	3.5	3.5	2.37	5.4	5.4	5.4	
38	8.3	8.3	8.3	3.4	3.4	3.4	2.45	5.3	5.3	5.3	
37	8.4	8.4	8.4	3.3	3.3	3.3	2.53	5.2	5.2	5.2	
36	8.5	8.5	8.5	3.2	3.2	3.2	2.62	5.1	5.1	5.1	
35	8.6	8.6	8.6	3.2	3.2	3.2	2.71	5.0	5.0	5.0	
34	8.6	8.6	8.6	3.1	3.1	3.1	2.80	4.9	4.9	4.9	
33	8.7	8.7	8.7	3.0	3.0	3.0	2.90	4.8	4.8	4.8	
32	8.7	8.7	8.7	2.9	2.9	2.9	2.99	4.8	4.8	4.8	
31	8.8	8.8	8.8	2.9	2.9	2.9	3.09	4.7	4.7	4.7	
30	8.9	8.9	8.9	2.8	2.8	2.8	3.19	4.6	4.6	4.6	
29	8.9	8.9	8.9	2.7	2.7	2.7	3.30	4.5	4.5	4.5	
28	9.0	9.0	9.0	2.6	2.6	2.6	3.41	4.4	4.4	4.4	
27	9.0	9.0	9.0	2.6	2.6	2.6	3.52	4.3	4.3	4.3	
26	9.1	9.1	9.1	2.5	2.5	2.5	3.63	4.3	4.3	4.3	
25	9.2	9.2	9.2	2.4	2.4	2.4	3.75	4.2	4.2	4.2	
24	9.2	9.2	9.2	2.4	2.4	2.4	3.87	4.1	4.1	4.1	
23	9.3	9.3	9.3	2.3	2.3	2.3	4.00	4.1	4.1	4.1	
22	9.3	9.3	9.3	2.3	2.3	2.3	4.13	4.0	4.0	4.0	
21	9.4	9.4	9.4	2.2	2.2	2.2	4.26	3.9	3.9	3.9	
20	9.4	9.4	9.4	2.1	2.1	2.1	4.40	3.9	3.9	3.9	
19	9.4	9.4	9.4	2.1	2.1	2.1	4.54	3.8	3.8	3.8	
18	9.5	9.5	9.5	2.0	2.0	2.0	4.69	3.7	3.7	3.7	
17	9.5	9.5	9.5	2.0	2.0	2.0	4.84	3.7	3.7	3.7	

Tc [°C]			W 23 / 18 °C								
Ta [°C]	Qc [kW]	Qh-min [kW]	Qh-max [kW]	Pin [kW]	Pin-min [kW]	Pin-max [kW]	EER kW / kW	I [A]	I-min [A]	I-max [A]	
40	11.0	11.0	11.0	3.6	3.6	3.6	3.08	5.5	5.5	5.5	
39	11.1	11.1	11.1	3.5	3.5	3.5	3.19	5.4	5.4	5.4	
38	11.2	11.2	11.2	3.4	3.4	3.4	3.30	5.3	5.3	5.3	
37	11.3	11.3	11.3	3.3	3.3	3.3	3.41	5.2	5.2	5.2	
36	11.4	11.4	11.4	3.2	3.2	3.2	3.53	5.1	5.1	5.1	
35	11.5	11.5	11.5	3.2	3.2	3.2	3.65	5.0	5.0	5.0	
34	11.6	11.6	11.6	3.1	3.1	3.1	3.77	4.9	4.9	4.9	
33	11.7	11.7	11.7	3.0	3.0	3.0	3.90	4.8	4.8	4.8	
32	11.8	11.8	11.8	2.9	2.9	2.9	4.03	4.7	4.7	4.7	
31	11.9	11.9	11.9	2.9	2.9	2.9	4.16	4.6	4.6	4.6	
30	11.9	11.9	11.9	2.8	2.8	2.8	4.30	4.5	4.5	4.5	
29	12.0	12.0	12.0	2.7	2.7	2.7	4.44	4.4	4.4	4.4	
28	12.1	12.1	12.1	2.6	2.6	2.6	4.59	4.3	4.3	4.3	
27	12.2	12.2	12.2	2.6	2.6	2.6	4.74	4.2	4.2	4.2	
26	12.3	12.3	12.3	2.5	2.5	2.5	4.89	4.2	4.2	4.2	
25	12.3	12.3	12.3	2.4	2.4	2.4	5.05	4.1	4.1	4.1	
24	12.4	12.4	12.4	2.4	2.4	2.4	5.21	4.0	4.0	4.0	
23	12.5	12.5	12.5	2.3	2.3	2.3	5.38	3.9	3.9	3.9	
22	12.5	12.5	12.5	2.3	2.3	2.3	5.55	3.9	3.9	3.9	
21	12.6	12.6	12.6	2.2	2.2	2.2	5.73	3.8	3.8	3.8	
20	12.7	12.7	12.7	2.1	2.1	2.1	5.92	3.7	3.7	3.7	
19	12.7	12.7	12.7	2.1	2.1	2.1	6.11	3.6	3.6	3.6	
18	12.8	12.8	12.8	2.0	2.0	2.0	6.31	3.6	3.6	3.6	
17	12.8	12.8	12.8	2.0	2.0	2.0	6.52	3.5	3.5	3.5	

* attention: operating limits not reflected in performance table

LEGENDE:

Ts-IN: Temperature renewable source - inlet [°C]
Th-OU: Temperature heating - outlet (flow) [°C]
Tc-OU: Temperature cooling - outlet (flow) [°C]
Qh nom: Heating capacity nominal
Qh min: Heating capacity minimal
Qh max: Heating capacity maximal
Pin nom: Power input at nominal heating capacity
Pin min: Power input at minimal heating capacity
Pin max: Power input at maximal heating capacity
COP nom: coefficient of performance at nominal heating capacity
Qc nom: cooling / heat extraction capacity at nominal heating capacity
Qc min: cooling / heat extraction at minimal heating capacity
Qc max: cooling / heat extraction at maximal heating capacity
I nom: Current at nominal heating capacity
EER: energy efficiency ratio at nominal cooling capacity

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