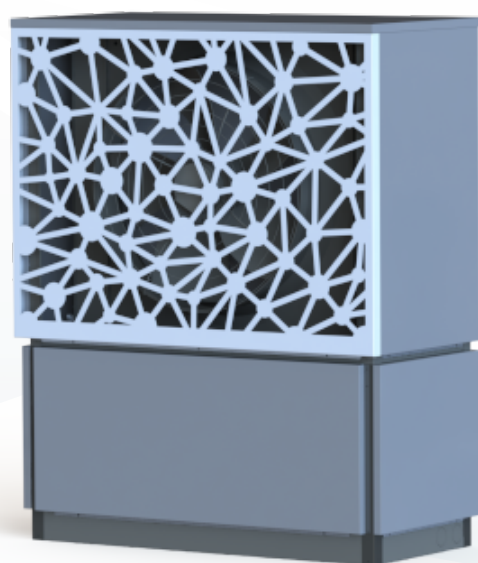




Heat pump



AiWa 23 EVI H-Twin Out

WAMAK AiWa 23 EVI H-Twin Out

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 multi-family dwellings, suburban mixed-use buildings or commercial operations. The Urban range is based on a robust construction quality steel for all parts. High quality, long proven heat pump circuit components extend the life of the heat pump.

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.

The twin compressors give the system robustness and the ability to distribute the heat output according to the actual load.

Outdoor monoblock

Product features

- Scroll compressor
- EVI technology
- Asymmetric plate heat exchanger
- Two-stage capacity control
- 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)
- Plate exchanger protection HG-BYPASS
- Mixed heating/cooling circuit control - (with accessory)
- DHW switching control - (with accessory)
- Outdoor temperature sensor
- Buffer temperature sensor
- Modbus connection - (with accessory)
- Sylomer pads under compressor unit
- Electronic expansion valve
- Large air heat exchanger with APS system
- Multi-stage capacity control
- Reversible defrosting
- Speed - controlled EC fan
- Compressor soft starter
- High pressure switch
- Low pressure sensor - analogue
- Flow sensor consumer - analogue
- 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

Basic performance data - WAMAK AiWa 23 EVI H-Twin Out

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	24.4 (12.2 / 24.4)
	A2 / W35	20.9 (10.4 / 20.9)
	A-7 / W34	17.3 (8.6 / 17.3)
Electrical power input [kW]	A7 / W35	5.1 (2.5 / 5.1)
	A2 / W35	5.2 (2.5 / 5.2)
	A-7 / W34	5.0 (2.4 / 5.0)
Heating efficiency faktor [COP]	A7 / W35	4.77
	A2 / W35	4.04
	A-7 / W34	3.43
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35°C]	SCOP	4.63
	η [%]	185.0
	Label	A+++
	Qhe [kWh]	40493.6
	Pdesignh [kW]	19.6
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	23.0
	A25 / W23-18	24.7
	A35 / W12-7	17.1
	A25 / W12-7	17.1
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18°C]	SEER	4.66
	Qce [kWh]	10260.0
	η_c [%]	186.3
Sound EN 12102		
Acoustic power - Lw	dB(A)	69
Acoustic pressure - Lp	1 m dB(A)	61
	5 m dB(A)	47
	10 m dB(A)	41
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 2 /	On/Off
Refrigerant	R410A (GWP - 2088)	8.9 kg
Operating limit temperatures heating - (min / max) [°C]	25 / 65	
Operating limit temperatures source - (min / max) [°C]	-22 / 40	
Weight	330 kg	

Main technical data - WAMAK AiWa 23 EVI H-Twin Out

Enclosure type			AiWa-O-1200			Heat energy rejection side data				
Basic dimensions	Height [mm]		1760		Operating limit temperatures heating	MAX [°C]		65		
	Width [mm]		1420			MIN [°C]		25		
	Length [mm]		660		for more see operating limits diagram					
Weight [kg]			330			Condenser	Port size		1.1/4 "	
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		2		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]				2.11 ~ 4.21	
Refrigerant			R410A		Internal pressure drop - Water [kPa]				13	
	Volme		8.9 kg		ECM speed circulator - condenser				UPMXL GEO 32-125	
	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		2 x 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	Type		Cu-coil /Al-fin	
Reverse defrosting with hot gas							Count		1	
Plate exchanger protection HG-BYPASS							Material		Cu/Al	
Electrical connection data						Maximal operating pressure - refrigerant [bar]				28
Line voltage [#~ V/Hz]			3~ 400/50			Heat transfer medium				Air
Current	nominal [A]		12.30		Volume flow - Air [m3/h]				3850 ~ 7700	
	maximal [A]		21.00		Internal pressure drop - Air [kPa]				0.031	
	starting [A]		11.55		Temperature difference - Air				7 K	
Softstart			2 x MCI 12			Number of fans				1
Main safety			C32			Fan diameter [mm]				800
Control System										
Main controller	SIEMENS	RVS 61								
Extension module	AVS75.3xx	AVS75.3xx	AVS75.372							
Bus Clip-In					Modbus OCI352					
Online connection		Web server OZW672	ToSyMo							
Superheat controller			1 - EEV H/C							
*** with accessory										

WAMAK AiWa 23 EVI H-Twin Out

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

Model	AiWa 23 EVI H-Twin Out
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	19.6	kW	Seasonal space heating energy efficiency	ηs	185.0	%
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	17.3	kW	Tj = -7 °C	COPd	3.43	-
Tj = +2 °C	Pdh	20.8	kW	Tj = +2 °C	COPd	4.6	-
Tj = +7 °C	Pdh	24.3	kW	Tj = +7 °C	COPd	5.9	-
Tj = +12 °C	Pdh	28.3	kW	Tj = +12 °C	COPd	8.1	-
Tj = bivalent temperature	Pdh	16.7	kW	Tj = bivalent temperature	COPd	3.2	-
Tj = operation limit temperature	Pdh	12.3	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	0.040	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	8.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		multi-stage		For air-to-water heat pumps: Rated air flow rate, outdoors	-	3850 ~ 7700	m3/h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m3/h
indoors	Lwa	---	dB				
outdoors	Lwa	69	dB				
Annual energy consumption	QHE	40493.6	kWh				

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

WAMAK AiWa 23 EVI H-Twin Out

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

Model	AiWa 23 EVI H-Twin Out
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	20.7	kW	Seasonal space heating energy efficiency	ηs	140.1	%
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	18.1	kW	Tj = -7 °C	COPd	2.29	-
Tj = +2 °C	Pdh	21.0	kW	Tj = +2 °C	COPd	3.4	-
Tj = +7 °C	Pdh	24.4	kW	Tj = +7 °C	COPd	4.6	-
Tj = +12 °C	Pdh	28.4	kW	Tj = +12 °C	COPd	6.6	-
Tj = bivalent temperature	Pdh	17.8	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	14.0	kW	Tj = operation limit temperature	COPd	1.6	-
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	0.040	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	8.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		multi-stage		For air-to-water heat pumps: Rated air flow rate, outdoors	-	3850 ~ 7700	m3/h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m3/h
indoors	Lwa	---	dB				
outdoors	Lwa	69	dB				
Annual energy consumption	QHE	42766.2	kWh				

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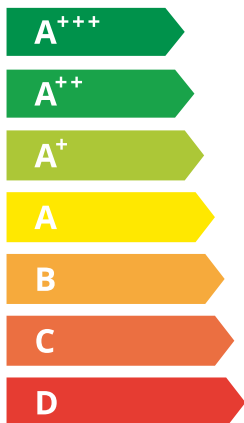
WAMAK

AiWa 23 EVI H-Twin Out



55 °C

35 °C



A++
A+++



--- dB



69 dB

22
21
21
kW

20
20
19
kW



2019

811/2013

AiWa 23 EVI H-Twin

ErP Data

Out

55 °C

35 °C

Energy class

A++

A+++

η [%]

140.1

185.0

P_{rated} [kW]

21

20

Q_{HE} [kWh/y]

42767

40494

SCOP [-]

3.50

4.63

$T_{bivalent}$ [°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_2_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	24.4	5.1	4.77
2	A2 / W35	20.9	5.2	4.04
3	A-22 / W35	12.3	5.1	2.42
A	A-7 / W34	17.3	5.0	3.43
B	A2 / W30	20.8	4.5	4.57
C	A7 / W27	24.3	4.1	5.94
D	A12 / W24	28.3	3.5	8.09
E	A-10 / W35	16.7	5.2	3.25
F	A-7 / W34	17.3	5.0	3.43

SCOP DATA EN 14825:2018	
Average Climate / Low Temperature [35°C]	
SCOPon	4.81
SCOPnet	4.86
SCOP	4.63
η [%]	185.04
Label	A+++
Qh [kWh]	40493.60
Pdesignh [kW]	19.6
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	24.4	8.6	2.84
2	A2 / W55	21.4	8.6	2.49
3	A-22 / W55	14.0	7.9	1.64
A	A-7 / W52	18.1	7.9	2.29
B	A2 / W42	21.0	6.2	3.41
C	A7 / W36	24.4	5.2	4.65
D	A12 / W30	28.4	4.3	6.64
E	A-10 / W55	17.8	8.5	2.09
F	A-7 / W55	18.3	8.6	2.14

SCOP DATA EN 14825:2018	
Average Climate / Medium Temperature [55°C]	
SCOPon	3.60
SCOPnet	3.63
SCOP	3.50
η [%]	140.06
Label	A++
Qh [kWh]	42766.20
Pdesignh [kW]	20.7
Tbivalent [°C]	-7.00

Cooling performance data

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	A35 / W12-7	17.1	6.3	2.71
B	A30 / W12-7	17.7	5.6	3.19
C	A25 / W12-7	18.3	4.9	3.75
D	A20 / W12-7	18.8	4.3	4.40

SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.64
SEER	3.51
Qc [kWh]	10260.00
η [%]	140.20

Radiant cooling W 23 / 18°C

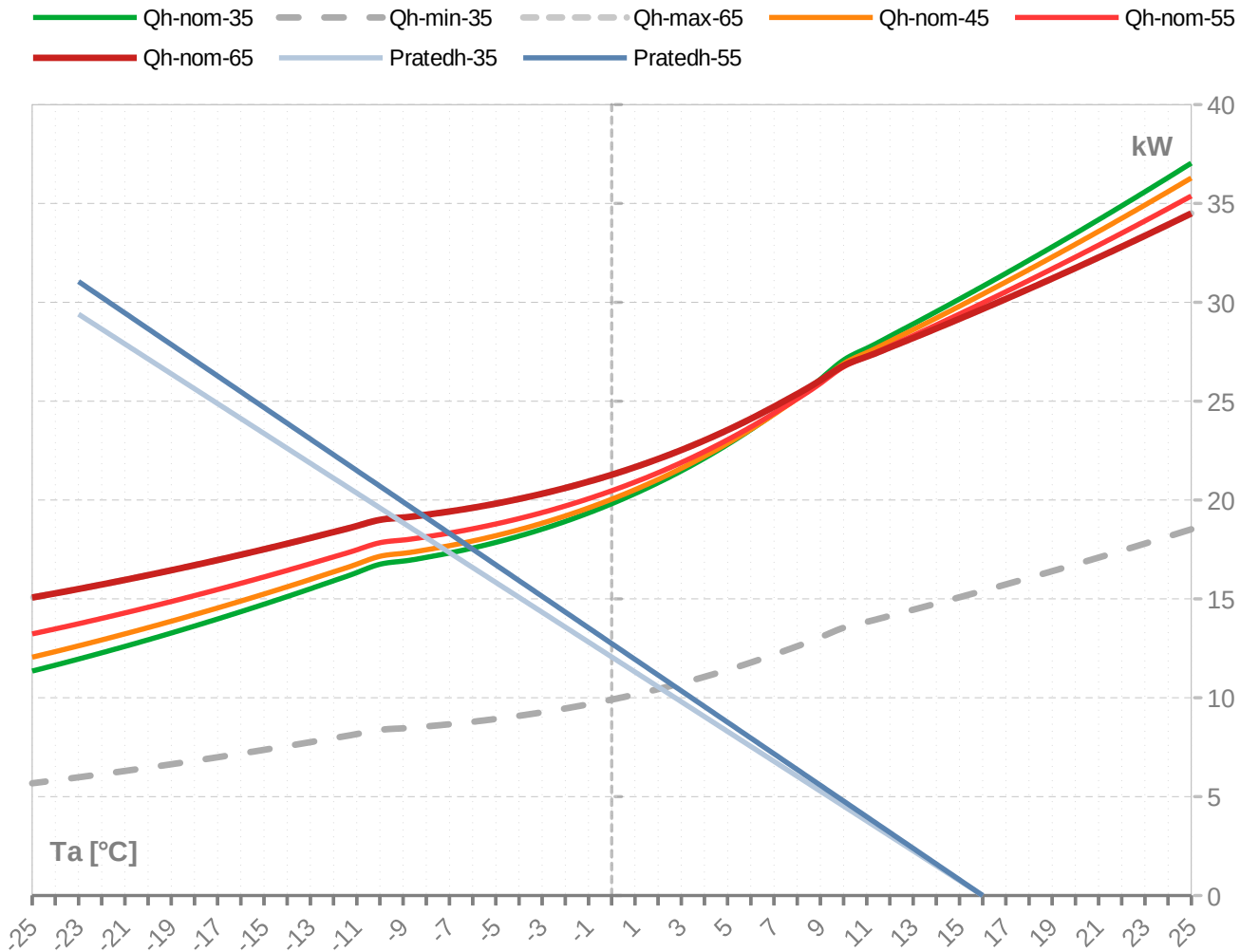
Operating conditions		Qc	P	EER
A	A35 / W23-18	23.0	6.3	3.65
B	A30 / W23-18	23.9	5.0	4.30
C	A25 / W23-18	24.7	4.3	5.05
D	A20 / W23-18	25.3	3.7	5.92

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	4.90
SEER	4.66
Qc [kWh]	10260.00
η [%]	186.33

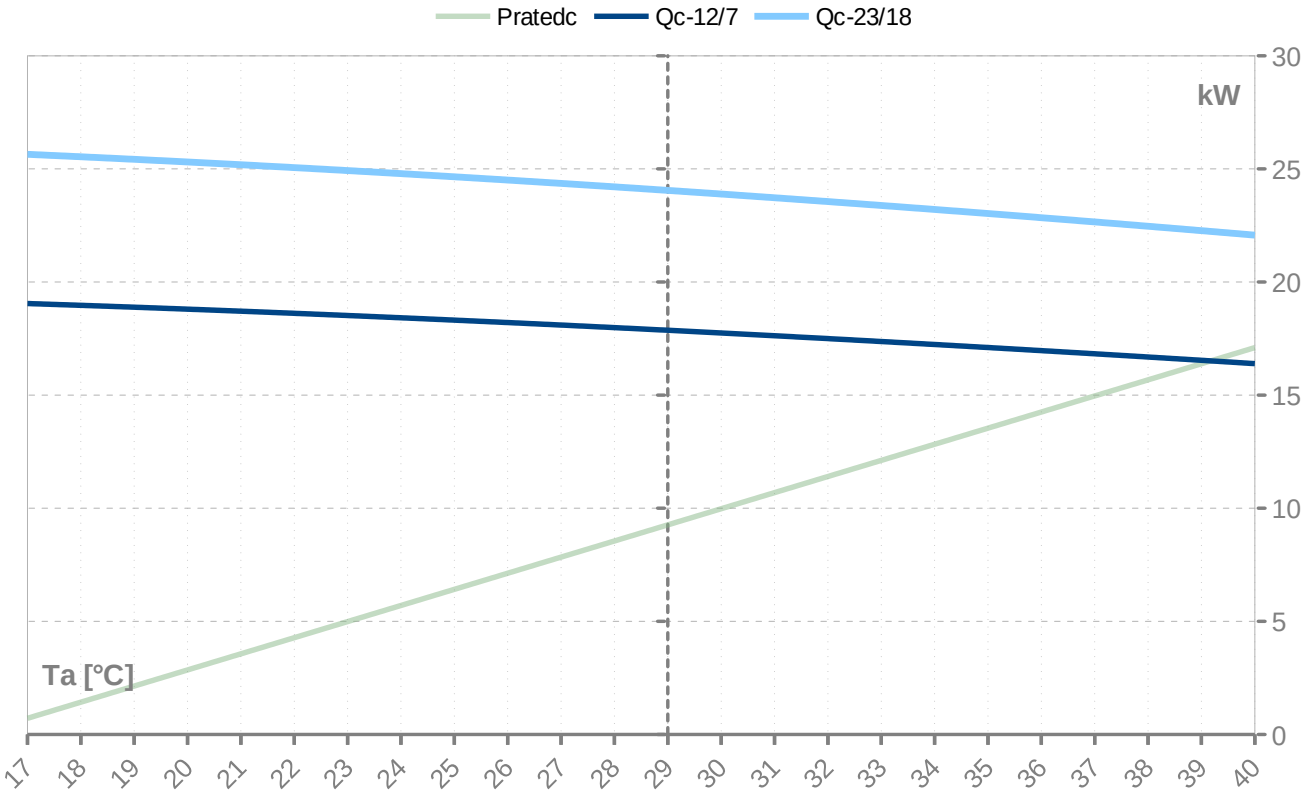
WAMAK AiWa 23 EVI H-Twin Out

ZHI11K1P-TFM_R410A_2_AW

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	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
24	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
23	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
22	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
21	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
20	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
19	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
18	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
17	31.5	15.7		4.8	2.3		6.58	8.3	4.1	
16	30.8	15.4	30.8	4.8	2.3	4.8	6.39	8.3	4.2	8.3
15	30.2	15.1	30.2	4.9	2.3	4.9	6.20	8.4	4.2	8.4
14	29.5	14.8	29.5	4.9	2.4	4.9	6.03	8.4	4.2	8.4
13	28.9	14.5	28.9	4.9	2.4	4.9	5.86	8.5	4.2	8.5
12	28.3	14.1	28.3	5.0	2.4	5.0	5.70	8.5	4.2	8.5
11	27.7	13.8	27.7	5.0	2.4	5.0	5.55	8.5	4.3	8.5
10	27.1	13.5	27.1	5.0	2.4	5.0	5.40	8.6	4.3	8.6
9	26.1	13.1	26.1	5.1	2.4	5.1	5.17	8.6	4.3	8.6
8	25.2	12.6	25.2	5.1	2.4	5.1	4.96	8.6	4.3	8.6
7	24.4	12.2	24.4	5.1	2.5	5.1	4.77	8.7	4.3	8.7
6	23.6	11.8	23.6	5.1	2.5	5.1	4.60	8.7	4.3	8.7
5	22.8	11.4	22.8	5.1	2.5	5.1	4.44	8.7	4.3	8.7
4	22.1	11.1	22.1	5.2	2.5	5.2	4.29	8.7	4.4	8.7
3	21.5	10.7	21.5	5.2	2.5	5.2	4.16	8.7	4.4	8.7
2	20.9	10.4	20.9	5.2	2.5	5.2	4.04	8.7	4.4	8.7
1	20.3	10.2	20.3	5.2	2.5	5.2	3.93	8.7	4.4	8.7
0	19.8	9.9	19.8	5.2	2.5	5.2	3.83	8.7	4.4	8.7
-1	19.3	9.7	19.3	5.2	2.5	5.2	3.74	8.7	4.4	8.7
-2	18.9	9.5	18.9	5.2	2.5	5.2	3.66	8.7	4.4	8.7
-3	18.5	9.3	18.5	5.2	2.5	5.2	3.58	8.7	4.4	8.7
-4	18.2	9.1	18.2	5.2	2.5	5.2	3.52	8.7	4.4	8.7
-5	17.9	8.9	17.9	5.2	2.5	5.2	3.46	8.7	4.4	8.7
-6	17.6	8.8	17.6	5.2	2.5	5.2	3.40	8.7	4.4	8.7
-7	17.3	8.7	17.3	5.2	2.5	5.2	3.35	8.7	4.4	8.7
-8	17.1	8.5	17.1	5.2	2.5	5.2	3.31	8.7	4.4	8.7
-9	16.9	8.5	16.9	5.2	2.5	5.2	3.28	8.7	4.4	8.7
-10	16.7	8.4	16.7	5.2	2.5	5.2	3.25	8.7	4.4	8.7
-11	16.3	8.2	16.3	5.2	2.5	5.2	3.17	8.7	4.4	8.7
-12	15.9	8.0	15.9	5.1	2.5	5.1	3.09	8.7	4.4	8.7
-13	15.5	7.8	15.5	5.1	2.5	5.1	3.02	8.7	4.3	8.7
-14	15.1	7.6	15.1	5.1	2.5	5.1	2.94	8.7	4.3	8.7
-15	14.7	7.4	14.7	5.1	2.5	5.1	2.87	8.7	4.3	8.7
-16	14.4	7.2	14.4	5.1	2.5	5.1	2.80	8.7	4.3	8.7
-17	14.0	7.0	14.0	5.1	2.5	5.1	2.74	8.7	4.3	8.7
-18	13.6	6.8	13.6	5.1	2.5	5.1	2.67	8.7	4.3	8.7
-19	13.3	6.6	13.3	5.1	2.5	5.1	2.60	8.7	4.3	8.7
-20	12.9	6.5	12.9	5.1	2.5	5.1	2.54	8.7	4.3	8.7
-21	12.6	6.3	12.6	5.1	2.5	5.1	2.48	8.6	4.3	8.6
-22	12.3	6.1	12.3	5.1	2.4	5.1	2.42	8.6	4.3	8.6
-23	12.0	6.0	12.0	5.1	2.4	5.1	2.36	8.6	4.3	8.6
-24	11.6	5.8	11.6	5.1	2.4	5.1	2.30	8.6	4.3	8.6
-25	11.3	5.7	11.3	5.1	2.4	5.1	2.24	8.6	4.3	8.6

* attention: operating limits not reflected in performance table

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	36.3	18.1	36.3	6.1	2.9	6.1	5.93	9.8	4.9	9.8
24	35.6	17.8	35.6	6.2	3.0	6.2	5.77	9.9	4.9	9.9
23	34.9	17.5	34.9	6.2	3.0	6.2	5.62	9.9	5.0	9.9
22	34.2	17.1	34.2	6.3	3.0	6.3	5.48	10.0	5.0	10.0
21	33.6	16.8	33.6	6.3	3.0	6.3	5.33	10.0	5.0	10.0
20	32.9	16.5	32.9	6.3	3.1	6.3	5.20	10.1	5.0	10.1
19	32.3	16.1	32.3	6.4	3.1	6.4	5.07	10.1	5.1	10.1
18	31.7	15.8	31.7	6.4	3.1	6.4	4.94	10.2	5.1	10.2
17	31.0	15.5	31.0	6.4	3.1	6.4	4.82	10.2	5.1	10.2
16	30.4	15.2	30.4	6.5	3.1	6.5	4.71	10.2	5.1	10.2
15	29.8	14.9	29.8	6.5	3.1	6.5	4.60	10.3	5.1	10.3
14	29.2	14.6	29.2	6.5	3.1	6.5	4.49	10.3	5.1	10.3
13	28.6	14.3	28.6	6.5	3.1	6.5	4.38	10.3	5.2	10.3
12	28.0	14.0	28.0	6.5	3.2	6.5	4.28	10.3	5.2	10.3
11	27.5	13.7	27.5	6.6	3.2	6.6	4.18	10.4	5.2	10.4
10	26.9	13.4	26.9	6.6	3.2	6.6	4.09	10.4	5.2	10.4
9	26.0	13.0	26.0	6.6	3.2	6.6	3.93	10.4	5.2	10.4
8	25.1	12.6	25.1	6.6	3.2	6.6	3.80	10.4	5.2	10.4
7	24.3	12.2	24.3	6.6	3.2	6.6	3.67	10.4	5.2	10.4
6	23.6	11.8	23.6	6.6	3.2	6.6	3.55	10.5	5.2	10.5
5	22.9	11.4	22.9	6.6	3.2	6.6	3.44	10.5	5.2	10.5
4	22.2	11.1	22.2	6.6	3.2	6.6	3.34	10.5	5.2	10.5
3	21.6	10.8	21.6	6.6	3.2	6.6	3.25	10.5	5.2	10.5
2	21.0	10.5	21.0	6.6	3.2	6.6	3.17	10.5	5.2	10.5
1	20.5	10.3	20.5	6.6	3.2	6.6	3.09	10.5	5.2	10.5
0	20.0	10.0	20.0	6.6	3.2	6.6	3.02	10.5	5.2	10.5
-1	19.6	9.8	19.6	6.6	3.2	6.6	2.95	10.5	5.2	10.5
-2	19.2	9.6	19.2	6.6	3.2	6.6	2.89	10.5	5.2	10.5
-3	18.8	9.4	18.8	6.6	3.2	6.6	2.84	10.5	5.2	10.5
-4	18.5	9.2	18.5	6.6	3.2	6.6	2.79	10.4	5.2	10.4
-5	18.2	9.1	18.2	6.6	3.2	6.6	2.75	10.4	5.2	10.4
-6	17.9	9.0	17.9	6.6	3.2	6.6	2.71	10.4	5.2	10.4
-7	17.7	8.8	17.7	6.6	3.2	6.6	2.67	10.4	5.2	10.4
-8	17.5	8.7	17.5	6.6	3.2	6.6	2.64	10.4	5.2	10.4
-9	17.3	8.7	17.3	6.6	3.2	6.6	2.62	10.4	5.2	10.4
-10	17.2	8.6	17.2	6.6	3.2	6.6	2.60	10.4	5.2	10.4
-11	16.8	8.4	16.8	6.6	3.2	6.6	2.54	10.4	5.2	10.4
-12	16.4	8.2	16.4	6.6	3.2	6.6	2.48	10.4	5.2	10.4
-13	16.0	8.0	16.0	6.6	3.2	6.6	2.42	10.4	5.2	10.4
-14	15.6	7.8	15.6	6.6	3.2	6.6	2.37	10.4	5.2	10.4
-15	15.2	7.6	15.2	6.6	3.2	6.6	2.32	10.4	5.2	10.4
-16	14.9	7.4	14.9	6.6	3.2	6.6	2.26	10.4	5.2	10.4
-17	14.5	7.3	14.5	6.6	3.2	6.6	2.21	10.4	5.2	10.4
-18	14.2	7.1	14.2	6.6	3.2	6.6	2.16	10.4	5.2	10.4
-19	13.9	6.9	13.9	6.6	3.2	6.6	2.11	10.4	5.2	10.4
-20	13.5	6.8	13.5	6.6	3.2	6.6	2.07	10.4	5.2	10.4
-21	13.2	6.6	13.2	6.6	3.2	6.6	2.02	10.4	5.2	10.4
-22	12.9	6.5	12.9	6.6	3.2	6.6	1.97	10.4	5.2	10.4
-23	12.6	6.3	12.6	6.6	3.2	6.6	1.93	10.4	5.2	10.4
-24	12.3	6.2	12.3	6.6	3.2	6.6	1.88	10.4	5.2	10.4
-25	12.1	6.0	12.1	6.6	3.2	6.6	1.84	10.4	5.2	10.4

* attention: operating limits not reflected in performance table

WAMAK AiWa 23 EVI H-Twin Out

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	35.4	17.7	35.4	8.2	4.0	8.2	4.29	12.5	6.2	12.5
24	34.7	17.4	34.7	8.3	4.0	8.3	4.20	12.5	6.2	12.5
23	34.1	17.1	34.1	8.3	4.0	8.3	4.11	12.5	6.3	12.5
22	33.5	16.7	33.5	8.3	4.0	8.3	4.02	12.6	6.3	12.6
21	32.9	16.4	32.9	8.4	4.0	8.4	3.93	12.6	6.3	12.6
20	32.3	16.1	32.3	8.4	4.0	8.4	3.85	12.7	6.3	12.7
19	31.7	15.8	31.7	8.4	4.1	8.4	3.76	12.7	6.3	12.7
18	31.1	15.6	31.1	8.4	4.1	8.4	3.68	12.7	6.4	12.7
17	30.5	15.3	30.5	8.5	4.1	8.5	3.61	12.7	6.4	12.7
16	30.0	15.0	30.0	8.5	4.1	8.5	3.53	12.8	6.4	12.8
15	29.4	14.7	29.4	8.5	4.1	8.5	3.46	12.8	6.4	12.8
14	28.9	14.4	28.9	8.5	4.1	8.5	3.39	12.8	6.4	12.8
13	28.3	14.2	28.3	8.5	4.1	8.5	3.32	12.8	6.4	12.8
12	27.8	13.9	27.8	8.5	4.1	8.5	3.25	12.8	6.4	12.8
11	27.3	13.6	27.3	8.5	4.1	8.5	3.19	12.9	6.4	12.9
10	26.7	13.4	26.7	8.6	4.1	8.6	3.12	12.9	6.4	12.9
9	25.9	12.9	25.9	8.6	4.1	8.6	3.02	12.9	6.4	12.9
8	25.1	12.6	25.1	8.6	4.1	8.6	2.93	12.9	6.4	12.9
7	24.4	12.2	24.4	8.6	4.1	8.6	2.84	12.9	6.5	12.9
6	23.7	11.8	23.7	8.6	4.1	8.6	2.76	12.9	6.5	12.9
5	23.1	11.5	23.1	8.6	4.1	8.6	2.69	12.9	6.5	12.9
4	22.5	11.2	22.5	8.6	4.1	8.6	2.62	12.9	6.5	12.9
3	21.9	10.9	21.9	8.6	4.1	8.6	2.55	12.9	6.5	12.9
2	21.4	10.7	21.4	8.6	4.1	8.6	2.49	12.9	6.5	12.9
1	20.9	10.5	20.9	8.6	4.1	8.6	2.44	12.9	6.4	12.9
0	20.5	10.2	20.5	8.6	4.1	8.6	2.39	12.9	6.4	12.9
-1	20.1	10.0	20.1	8.6	4.1	8.6	2.34	12.9	6.4	12.9
-2	19.7	9.8	19.7	8.6	4.1	8.6	2.30	12.9	6.4	12.9
-3	19.4	9.7	19.4	8.6	4.1	8.6	2.26	12.9	6.4	12.9
-4	19.1	9.5	19.1	8.6	4.1	8.6	2.23	12.9	6.4	12.9
-5	18.8	9.4	18.8	8.6	4.1	8.6	2.20	12.9	6.4	12.9
-6	18.5	9.3	18.5	8.6	4.1	8.6	2.17	12.9	6.4	12.9
-7	18.3	9.2	18.3	8.6	4.1	8.6	2.14	12.9	6.4	12.9
-8	18.1	9.1	18.1	8.5	4.1	8.5	2.12	12.9	6.4	12.9
-9	18.0	9.0	18.0	8.5	4.1	8.5	2.10	12.9	6.4	12.9
-10	17.8	8.9	17.8	8.5	4.1	8.5	2.09	12.9	6.4	12.9
-11	17.5	8.7	17.5	8.5	4.1	8.5	2.05	12.9	6.4	12.9
-12	17.1	8.6	17.1	8.5	4.1	8.5	2.00	12.8	6.4	12.8
-13	16.8	8.4	16.8	8.5	4.1	8.5	1.96	12.8	6.4	12.8
-14	16.4	8.2	16.4	8.5	4.1	8.5	1.93	12.8	6.4	12.8
-15	16.1	8.1	16.1	8.5	4.1	8.5	1.89	12.8	6.4	12.8
-16	15.8	7.9	15.8	8.5	4.1	8.5	1.85	12.8	6.4	12.8
-17	15.5	7.7	15.5	8.5	4.1	8.5	1.81	12.8	6.4	12.8
-18	15.2	7.6	15.2	8.5	4.1	8.5	1.78	12.8	6.4	12.8
-19	14.9	7.4	14.9	8.5	4.1	8.5	1.74	12.8	6.4	12.8
-20	14.6	7.3	14.6	8.5	4.1	8.5	1.71	12.8	6.4	12.8
-21	14.3	7.1	14.3	8.6	4.1	8.6	1.67	12.8	6.4	12.8
-22	14.0	7.0	14.0	8.6	4.1	8.6	1.64	12.8	6.4	12.8
-23	13.7	6.9	13.7	8.6	4.1	8.6	1.60	12.8	6.4	12.8
-24	13.5	6.7	13.5	8.6	4.1	8.6	1.57	12.8	6.4	12.8
-25	13.2	6.6	13.2	8.6	4.1	8.6	1.54	12.9	6.4	12.9

* attention: operating limits not reflected in performance table

WAMAK AiWa 23 EVI H-Twin Out

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	34.5	17.2	34.5	10.9	5.2	10.9	3.18	15.9	8.0	15.9
24	33.9	17.0	33.9	10.9	5.2	10.9	3.12	16.0	8.0	16.0
23	33.4	16.7	33.4	10.9	5.3	10.9	3.06	16.0	8.0	16.0
22	32.8	16.4	32.8	10.9	5.3	10.9	3.00	16.0	8.0	16.0
21	32.3	16.1	32.3	11.0	5.3	11.0	2.94	16.1	8.0	16.1
20	31.7	15.9	31.7	11.0	5.3	11.0	2.89	16.1	8.0	16.1
19	31.2	15.6	31.2	11.0	5.3	11.0	2.84	16.1	8.1	16.1
18	30.7	15.3	30.7	11.0	5.3	11.0	2.79	16.1	8.1	16.1
17	30.2	15.1	30.2	11.0	5.3	11.0	2.74	16.2	8.1	16.2
16	29.7	14.8	29.7	11.0	5.3	11.0	2.69	16.2	8.1	16.2
15	29.2	14.6	29.2	11.1	5.3	11.1	2.64	16.2	8.1	16.2
14	28.7	14.3	28.7	11.1	5.3	11.1	2.59	16.2	8.1	16.2
13	28.2	14.1	28.2	11.1	5.3	11.1	2.55	16.2	8.1	16.2
12	27.7	13.9	27.7	11.1	5.3	11.1	2.50	16.2	8.1	16.2
11	27.3	13.6	27.3	11.1	5.3	11.1	2.46	16.2	8.1	16.2
10	26.8	13.4	26.8	11.1	5.3	11.1	2.42	16.3	8.1	16.3
9	26.1	13.0	26.1	11.1	5.3	11.1	2.35	16.3	8.1	16.3
8	25.4	12.7	25.4	11.1	5.3	11.1	2.28	16.3	8.1	16.3
7	24.7	12.4	24.7	11.1	5.4	11.1	2.23	16.3	8.1	16.3
6	24.1	12.1	24.1	11.1	5.4	11.1	2.17	16.3	8.1	16.3
5	23.5	11.8	23.5	11.1	5.4	11.1	2.12	16.3	8.1	16.3
4	23.0	11.5	23.0	11.1	5.4	11.1	2.07	16.3	8.1	16.3
3	22.5	11.3	22.5	11.1	5.4	11.1	2.03	16.3	8.1	16.3
2	22.1	11.0	22.1	11.1	5.4	11.1	1.99	16.3	8.1	16.3
1	21.7	10.8	21.7	11.1	5.4	11.1	1.95	16.3	8.1	16.3
0	21.3	10.6	21.3	11.1	5.4	11.1	1.92	16.3	8.1	16.3
-1	20.9	10.5	20.9	11.1	5.4	11.1	1.88	16.3	8.1	16.3
-2	20.6	10.3	20.6	11.1	5.4	11.1	1.86	16.3	8.1	16.3
-3	20.3	10.2	20.3	11.1	5.4	11.1	1.83	16.3	8.1	16.3
-4	20.1	10.0	20.1	11.1	5.4	11.1	1.81	16.3	8.1	16.3
-5	19.8	9.9	19.8	11.1	5.4	11.1	1.78	16.3	8.1	16.3
-6	19.6	9.8	19.6	11.1	5.4	11.1	1.76	16.3	8.1	16.3
-7	19.4	9.7	19.4	11.1	5.4	11.1	1.75	16.3	8.1	16.3
-8	19.3	9.6	19.3	11.1	5.4	11.1	1.73	16.3	8.1	16.3
-9	19.1	9.6	19.1	11.1	5.4	11.1	1.72	16.3	8.1	16.3
-10	19.0	9.5	19.0	11.1	5.4	11.1	1.71	16.3	8.1	16.3
-11	18.7	9.3	18.7	11.1	5.4	11.1	1.68	16.3	8.1	16.3
-12	18.4	9.2	18.4	11.1	5.4	11.1	1.65	16.3	8.1	16.3
-13	18.1	9.0	18.1	11.1	5.4	11.1	1.62	16.3	8.1	16.3
-14	17.8	8.9	17.8	11.1	5.4	11.1	1.60	16.3	8.1	16.3
-15	17.5	8.8	17.5	11.1	5.4	11.1	1.57	16.3	8.1	16.3
-16										
-17										
-18										
-19										
-20										
-21										
-22										
-23										
-24										
-25										

* attention: operating limits not reflected in performance table

WAMAK AiWa 23 EVI H-Twin Out

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	16.4	16.4	16.4	7.2	6.9	7.2	2.29	11.1	11.1	11.1
39	16.5	16.5	16.5	7.0	6.7	7.0	2.37	10.9	10.9	10.9
38	16.7	16.7	16.7	6.8	6.6	6.8	2.45	10.7	10.7	10.7
37	16.8	16.8	16.8	6.6	6.4	6.6	2.53	10.5	10.5	10.5
36	17.0	17.0	17.0	6.5	6.2	6.5	2.62	10.3	10.3	10.3
35	17.1	17.1	17.1	6.3	6.1	6.3	2.71	10.1	10.1	10.1
34	17.2	17.2	17.2	6.2	5.9	6.2	2.80	9.9	9.9	9.9
33	17.4	17.4	17.4	6.0	5.8	6.0	2.90	9.7	9.7	9.7
32	17.5	17.5	17.5	5.8	5.6	5.8	2.99	9.5	9.5	9.5
31	17.6	17.6	17.6	5.7	5.5	5.7	3.09	9.3	9.3	9.3
30	17.7	17.7	17.7	5.6	5.4	5.6	3.19	9.2	9.2	9.2
29	17.9	17.9	17.9	5.4	5.2	5.4	3.30	9.0	9.0	9.0
28	18.0	18.0	18.0	5.3	5.1	5.3	3.41	8.9	8.9	8.9
27	18.1	18.1	18.1	5.1	5.0	5.1	3.52	8.7	8.7	8.7
26	18.2	18.2	18.2	5.0	4.8	5.0	3.63	8.5	8.5	8.5
25	18.3	18.3	18.3	4.9	4.7	4.9	3.75	8.4	8.4	8.4
24	18.4	18.4	18.4	4.8	4.6	4.8	3.87	8.3	8.3	8.3
23	18.5	18.5	18.5	4.6	4.5	4.6	4.00	8.1	8.1	8.1
22	18.6	18.6	18.6	4.5	4.3	4.5	4.13	8.0	8.0	8.0
21	18.7	18.7	18.7	4.4	4.2	4.4	4.26	7.9	7.9	7.9
20	18.8	18.8	18.8	4.3	4.1	4.3	4.40	7.7	7.7	7.7
19	18.9	18.9	18.9	4.2	4.0	4.2	4.54	7.6	7.6	7.6
18	19.0	19.0	19.0	4.0	3.9	4.0	4.69	7.5	7.5	7.5
17	19.0	19.0	19.0	3.9	3.8	3.9	4.84	7.4	7.4	7.4

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	22.1	22.1	22.1	7.2	6.9	7.2	3.08	11.0	11.0	11.0
39	22.3	22.3	22.3	7.0	6.7	7.0	3.19	10.8	10.8	10.8
38	22.5	22.5	22.5	6.8	6.6	6.8	3.30	10.5	10.5	10.5
37	22.7	22.7	22.7	6.6	6.4	6.6	3.41	10.3	10.3	10.3
36	22.8	22.8	22.8	6.5	6.2	6.5	3.53	10.1	10.1	10.1
35	23.0	23.0	23.0	6.3	6.1	6.3	3.65	9.9	9.9	9.9
34	23.2	23.2	23.2	6.2	5.9	6.2	3.77	9.7	9.7	9.7
33	23.4	23.4	23.4	6.0	5.8	6.0	3.90	9.5	9.5	9.5
32	23.6	23.6	23.6	5.8	5.6	5.8	4.03	9.3	9.3	9.3
31	23.7	23.7	23.7	5.7	5.5	5.7	4.16	9.1	9.1	9.1
30	23.9	23.9	23.9	5.6	5.4	5.6	4.30	9.0	9.0	9.0
29	24.0	24.0	24.0	5.4	5.2	5.4	4.44	8.8	8.8	8.8
28	24.2	24.2	24.2	5.3	5.1	5.3	4.59	8.6	8.6	8.6
27	24.4	24.4	24.4	5.1	5.0	5.1	4.74	8.5	8.5	8.5
26	24.5	24.5	24.5	5.0	4.8	5.0	4.89	8.3	8.3	8.3
25	24.7	24.7	24.7	4.9	4.7	4.9	5.05	8.2	8.2	8.2
24	24.8	24.8	24.8	4.8	4.6	4.8	5.21	8.0	8.0	8.0
23	24.9	24.9	24.9	4.6	4.5	4.6	5.38	7.8	7.8	7.8
22	25.1	25.1	25.1	4.5	4.3	4.5	5.55	7.7	7.7	7.7
21	25.2	25.2	25.2	4.4	4.2	4.4	5.73	7.6	7.6	7.6
20	25.3	25.3	25.3	4.3	4.1	4.3	5.92	7.4	7.4	7.4
19	25.4	25.4	25.4	4.2	4.0	4.2	6.11	7.3	7.3	7.3
18	25.5	25.5	25.5	4.0	3.9	4.0	6.31	7.1	7.1	7.1
17	25.6	25.6	25.6	3.9	3.8	3.9	6.52	7.0	7.0	7.0

* 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

