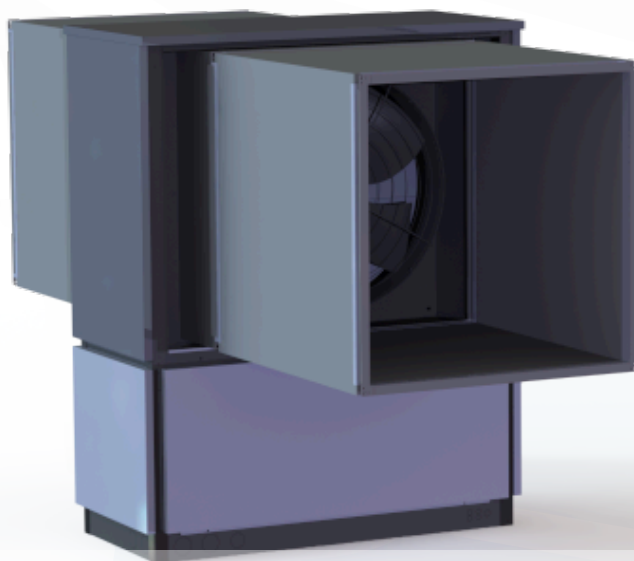




WAMAK

Heat pump



AiWa 23 EVI
H In

WAMAK AiWa 23 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 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.

Indoor monoblock

Product features

- Scroll compressor
- EVI technology
- Asymetric plate heat exchanger
- Active cooling
- Enhanced defrosting with APS system
- Heated drip tray
- 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 - (with accessory)
- 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
- 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 - (with accessory)
- Buffer temperature sensor - (with accessory)
- Modbus connection - (with accessory)

Basic performance data - WAMAK AiWa 23 EVI H In

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	26.0
	A2 / W35	22.2
	A-7 / W34	18.4
Electrical power input [kW]	A7 / W35	5.9
	A2 / W35	5.8
	A-7 / W34	5.5
Heating efficiency faktor [COP]	A7 / W35	4.40
	A2 / W35	3.84
	A-7 / W34	3.34
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	4.24
	η [%]	169.6
	Label	A+++
	Qhe [kWh]	42972.8
	Pdesignh [kW]	20.8
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	24.5
	A25 / W23-18	25.7
	A35 / W12-7	18.2
	A25 / W12-7	18.2
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	4.29
	Qce [kWh]	10920.0
	η_c [%]	171.6
Sound EN 12102		
Acoustic power - Lw	dB(A)	67.2
Acoustic pressure - Lp	1 m dB(A)	59.2
	5 m dB(A)	45.2
	10 m dB(A)	39.2
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 1 /	On/Off
Refrigerant	R410A (GWP - 2088)	7.9 kg
Operating limit temperatures heating - (min / max) [°C]	25 / 65	
Operating limit temperatures source - (min / max) [°C]	-22 / 40	
Weight	315 kg	

Main technical data - WAMAK AiWa 23 EVI H In

Enclosure type			AiWa-I-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]	315		Condenser	Port size	1.1/4 "		
Colour	Gray			Type	BPHE		
Enclosure IP Class	IP44			Count	1		
				Material	AISI 316		
Refrigeration cycle							
Compressor	Type	Scroll		Maximal operating pressure - refrigerant [bar]		45	
	Number of stages	1		Maximal operating pressure - Water [bar]		6	
	On/Off			Testing pressure [bar]		70	
	Power factor Cosφ	0.65		Heat transfer medium		Water	
	Winding resistance	1.38 Ohm		Volume flow @ dT 5K (nom) - Water [m3/h]		4.49	
Refrigerant		R410A		Internal pressure drop - Water [kPa]		14	
	Volme	7.9 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	1.77 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	1200mm x 1200mm "	
Reverse defrosting with hot gas					Type	Cu-coil /Al-fin	
Plate exchanger protection HG-BYPASS					Count	1	
					Material	Cu/Al	
Electrical connection data							
Line voltage [#~ V/Hz]		3~ 400/50		Maximal operating pressure - refrigerant [bar]		28	
Current	nominal [A]	11.80		Heat transfer medium		Air	
	maximal [A]	18.60		Volume flow - Air [m3/h]		8030	
	starting [A]	29.7		Internal pressure drop - Air [kPa]		0.032	
Softstart			-	Temperature difference - Air		7 K	
Main safety			C32	Number of fans		1	
Control System							
Main controller	SIEMENS	RVS 21 AVS 55.199		Fan diameter [mm]		800	
Extension module	AVS75.3xx	AVS75.3xx	AVS75.372				
Bus Clip-In		LPB OCI346	Modbus OCI352				
Online connection		Web server OZW672	ToSyMo				
Superheat controller			1 - EEV H/C				
*** with accessory							

WAMAK AiWa 23 EVI H In

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

Model	AiWa 23 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	20.8	kW	Seasonal space heating energy efficiency	ηs	169.6	%
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	18.4	kW	Tj = -7 °C	COPd	3.34	-
Tj = +2 °C	Pdh	22.0	kW	Tj = +2 °C	COPd	4.2	-
Tj = +7 °C	Pdh	25.8	kW	Tj = +7 °C	COPd	5.1	-
Tj = +12 °C	Pdh	30.3	kW	Tj = +12 °C	COPd	6.3	-
Tj = bivalent temperature	Pdh	17.8	kW	Tj = bivalent temperature	COPd	3.2	-
Tj = operation limit temperature	Pdh	13.0	kW	Tj = operation limit temperature	COPd	2.5	-
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	0.030	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	9.3	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	8030	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	67	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	42972.8	kWh				

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

WAMAK AiWa 23 EVI H In

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

Model	AiWa 23 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	22.1	kW	Seasonal space heating energy efficiency	η_s	135.5	%
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	19.3	kW	Tj = -7 °C	COPd	2.41	-
Tj = +2 °C	Pdh	22.4	kW	Tj = +2 °C	COPd	3.4	-
Tj = +7 °C	Pdh	26.0	kW	Tj = +7 °C	COPd	4.3	-
Tj = +12 °C	Pdh	30.3	kW	Tj = +12 °C	COPd	5.6	-
Tj = bivalent temperature	Pdh	19.0	kW	Tj = bivalent temperature	COPd	2.2	-
Tj = operation limit temperature	Pdh	14.4	kW	Tj = operation limit temperature	COPd	1.8	-
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	0.030	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	9.3	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.050	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	8030	m ³ /h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m ³ /h
indoors	Lwa	67	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	Q _{HE}	45658.6	kWh				

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



ENERG

енергия - ενεργεια



WAMAK

AiWa 23 EVI H In



55 °C

35 °C

A+++

A++

A+

A

B

C

D

A++

A+++



67 dB



--- dB

■ 24
■ 23
■ 22
kW

■ 22
■ 21
■ 20
kW



2019

811/2013

AiWa 23 EVI H In

ErP Data

	55 °C	35 °C
Energy class	A++	A+++
η [%]	135.5	169.6
P_{rated} [kW]	23	21
Q_{HE} [kWh/y]	45659	42973
SCOP [-]	3.39	4.24
$T_{bivalent}$ [°C]	-7	-7

CONTROLLER



+ QAA55/75

class VII

3.5% ↓

- QAA55/75

class III

1.5% ↓

Heating performance data

Version: v2024.004-AW

Average Climate / Low Temperature [35°C]

ZHI23K1P-TFM_R410A_1_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	26.0	5.9	4.40
2	A2 / W35	22.2	5.8	3.84
3	A-22 / W35	13.0	5.2	2.49
A	A-7 / W34	18.4	5.5	3.34
B	A2 / W30	22.0	5.2	4.22
C	A7 / W27	25.8	5.0	5.15
D	A12 / W24	30.3	4.8	6.29
E	A-10 / W35	17.8	5.6	3.19
F	A-7 / W34	18.4	5.5	3.34

SCOP DATA EN 14825:2018	
Average Climate / Low Temperature [35°C]	
SCOPon	4.37
SCOPnet	4.41
SCOP	4.24
η [%]	169.63
Label	A+++
Qh [kWh]	42972.80
Pdesignh [kW]	20.8
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	26.5	9.0	2.93
2	A2 / W55	23.0	8.8	2.61
3	A-22 / W55	14.4	7.3	1.83
A	A-7 / W52	19.3	8.0	2.41
B	A2 / W42	22.4	6.7	3.36
C	A7 / W36	26.0	6.0	4.32
D	A12 / W30	30.3	5.4	5.60
E	A-10 / W55	19.0	8.5	2.24
F	A-7 / W55	19.5	8.5	2.29

SCOP DATA EN 14825:2018	
Average Climate / Medium Temperature [55°C]	
SCOPon	3.47
SCOPnet	3.50
SCOP	3.39
η [%]	135.52
Label	A++
Qh [kWh]	45658.60
Pdesignh [kW]	22.1
Tbivalent [°C]	-7.00

Cooling performance data

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	A35 / W12-7	18.2	6.9	2.64
B	A30 / W12-7	18.7	6.2	3.00
C	A25 / W12-7	19.1	5.6	3.40
D	A20 / W12-7	19.4	5.1	3.83

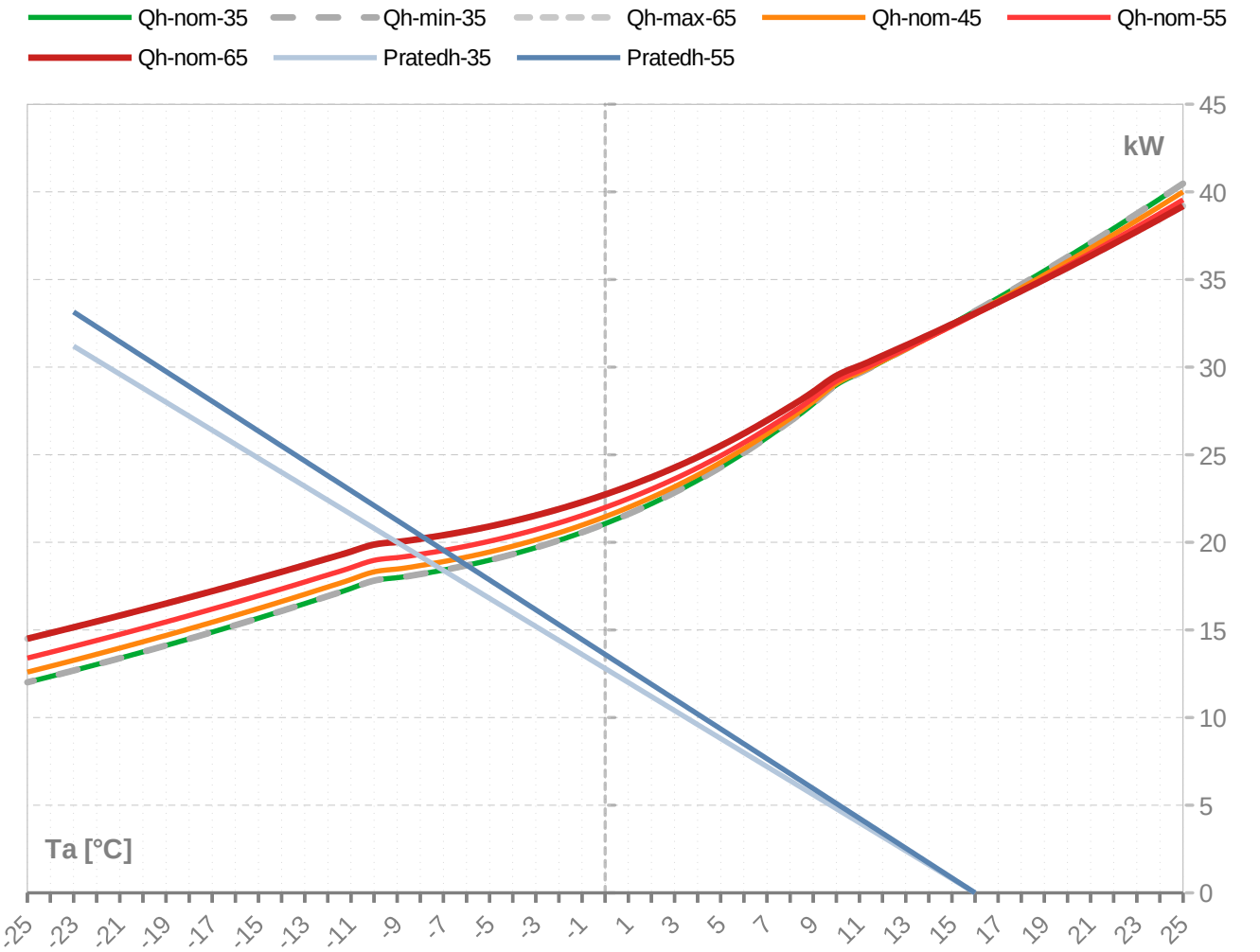
SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.33
SEER	3.22
Qc [kWh]	10920.00
η [%]	128.82

Radiant cooling W 23 / 18°C

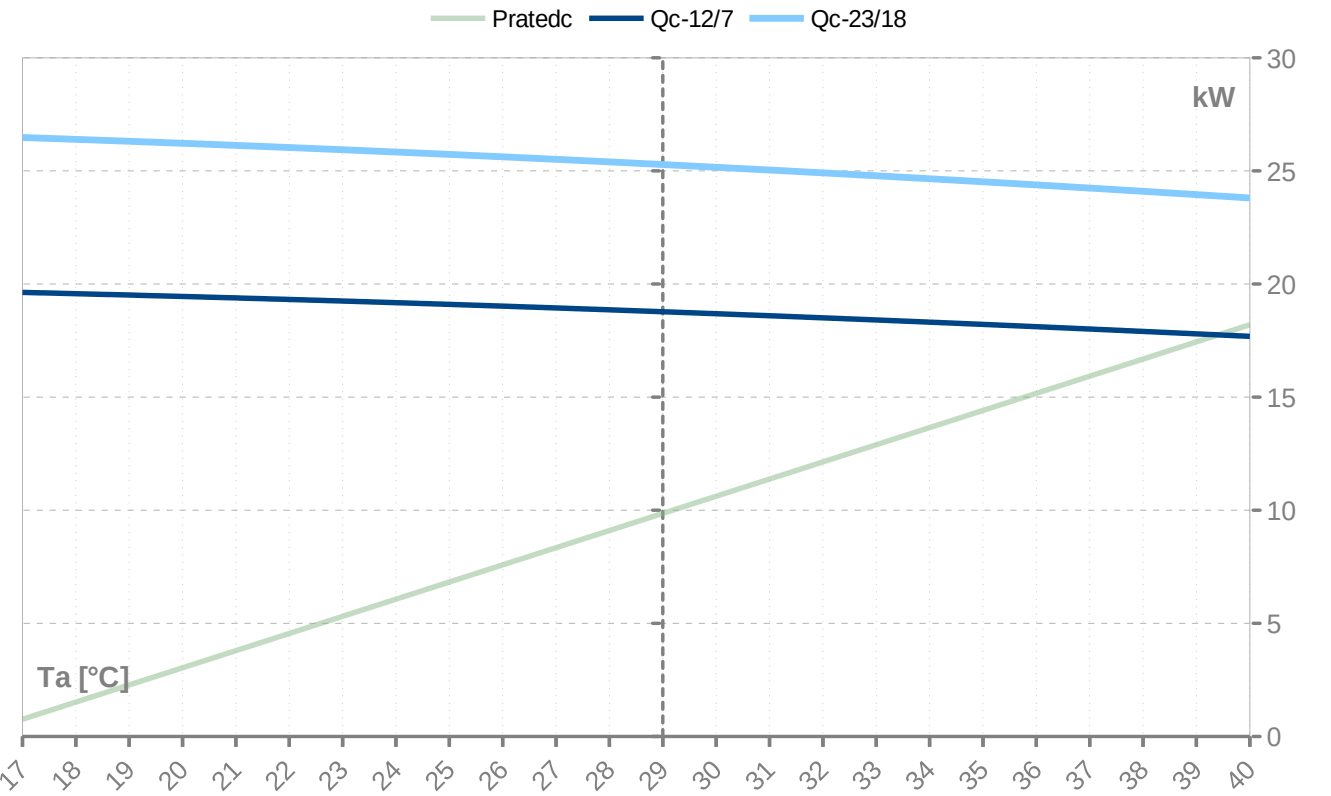
Operating conditions		Qc	P	EER
A	A35 / W23-18	24.5	6.9	3.55
B	A30 / W23-18	25.2	5.9	4.05
C	A25 / W23-18	25.7	5.4	4.59
D	A20 / W23-18	26.2	4.8	5.17

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	4.48
SEER	4.29
Qc [kWh]	10920.00
η [%]	171.62

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	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
24	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
23	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
22	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
21	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
20	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
19	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
18	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
17	33.9	33.9		6.1	6.1		5.59	12.0	12.0	
16	33.2	33.2	33.2	6.1	6.1	6.1	5.48	12.0	12.0	12.0
15	32.5	32.5	32.5	6.0	6.0	6.0	5.37	12.0	12.0	12.0
14	31.7	31.7	31.7	6.0	6.0	6.0	5.26	12.0	12.0	12.0
13	31.0	31.0	31.0	6.0	6.0	6.0	5.16	12.0	12.0	12.0
12	30.3	30.3	30.3	6.0	6.0	6.0	5.05	12.0	12.0	12.0
11	29.7	29.7	29.7	6.0	6.0	6.0	4.95	11.9	11.9	11.9
10	29.0	29.0	29.0	6.0	6.0	6.0	4.85	11.9	11.9	11.9
9	27.9	27.9	27.9	5.9	5.9	5.9	4.69	11.9	11.9	11.9
8	26.9	26.9	26.9	5.9	5.9	5.9	4.54	11.9	11.9	11.9
7	26.0	26.0	26.0	5.9	5.9	5.9	4.40	11.9	11.9	11.9
6	25.1	25.1	25.1	5.9	5.9	5.9	4.27	11.8	11.8	11.8
5	24.3	24.3	24.3	5.9	5.9	5.9	4.15	11.8	11.8	11.8
4	23.5	23.5	23.5	5.8	5.8	5.8	4.04	11.8	11.8	11.8
3	22.8	22.8	22.8	5.8	5.8	5.8	3.94	11.8	11.8	11.8
2	22.2	22.2	22.2	5.8	5.8	5.8	3.84	11.8	11.8	11.8
1	21.6	21.6	21.6	5.8	5.8	5.8	3.75	11.8	11.8	11.8
0	21.1	21.1	21.1	5.7	5.7	5.7	3.67	11.7	11.7	11.7
-1	20.6	20.6	20.6	5.7	5.7	5.7	3.60	11.7	11.7	11.7
-2	20.1	20.1	20.1	5.7	5.7	5.7	3.53	11.7	11.7	11.7
-3	19.7	19.7	19.7	5.7	5.7	5.7	3.47	11.7	11.7	11.7
-4	19.3	19.3	19.3	5.7	5.7	5.7	3.41	11.7	11.7	11.7
-5	19.0	19.0	19.0	5.6	5.6	5.6	3.36	11.7	11.7	11.7
-6	18.7	18.7	18.7	5.6	5.6	5.6	3.32	11.7	11.7	11.7
-7	18.4	18.4	18.4	5.6	5.6	5.6	3.28	11.6	11.6	11.6
-8	18.2	18.2	18.2	5.6	5.6	5.6	3.24	11.6	11.6	11.6
-9	18.0	18.0	18.0	5.6	5.6	5.6	3.22	11.6	11.6	11.6
-10	17.8	17.8	17.8	5.6	5.6	5.6	3.19	11.6	11.6	11.6
-11	17.4	17.4	17.4	5.6	5.6	5.6	3.12	11.6	11.6	11.6
-12	16.9	16.9	16.9	5.5	5.5	5.5	3.06	11.6	11.6	11.6
-13	16.5	16.5	16.5	5.5	5.5	5.5	3.00	11.6	11.6	11.6
-14	16.1	16.1	16.1	5.5	5.5	5.5	2.94	11.5	11.5	11.5
-15	15.7	15.7	15.7	5.5	5.5	5.5	2.88	11.5	11.5	11.5
-16	15.3	15.3	15.3	5.4	5.4	5.4	2.82	11.5	11.5	11.5
-17	14.9	14.9	14.9	5.4	5.4	5.4	2.76	11.5	11.5	11.5
-18	14.5	14.5	14.5	5.4	5.4	5.4	2.70	11.4	11.4	11.4
-19	14.1	14.1	14.1	5.3	5.3	5.3	2.65	11.4	11.4	11.4
-20	13.7	13.7	13.7	5.3	5.3	5.3	2.59	11.4	11.4	11.4
-21	13.4	13.4	13.4	5.3	5.3	5.3	2.54	11.4	11.4	11.4
-22	13.0	13.0	13.0	5.2	5.2	5.2	2.49	11.3	11.3	11.3
-23	12.7	12.7	12.7	5.2	5.2	5.2	2.44	11.3	11.3	11.3
-24	12.3	12.3	12.3	5.2	5.2	5.2	2.39	11.3	11.3	11.3
-25	12.0	12.0	12.0	5.1	5.1	5.1	2.34	11.3	11.3	11.3

* attention: operating limits not reflected in performance table

ZHI23K1P-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	40.0	40.0	40.0	7.6	7.6	7.6	5.25	13.5	13.5	13.5
24	39.2	39.2	39.2	7.6	7.6	7.6	5.15	13.5	13.5	13.5
23	38.4	38.4	38.4	7.6	7.6	7.6	5.06	13.5	13.5	13.5
22	37.6	37.6	37.6	7.6	7.6	7.6	4.96	13.5	13.5	13.5
21	36.8	36.8	36.8	7.6	7.6	7.6	4.87	13.4	13.4	13.4
20	36.0	36.0	36.0	7.5	7.5	7.5	4.77	13.4	13.4	13.4
19	35.3	35.3	35.3	7.5	7.5	7.5	4.68	13.4	13.4	13.4
18	34.5	34.5	34.5	7.5	7.5	7.5	4.59	13.4	13.4	13.4
17	33.8	33.8	33.8	7.5	7.5	7.5	4.51	13.4	13.4	13.4
16	33.1	33.1	33.1	7.5	7.5	7.5	4.42	13.4	13.4	13.4
15	32.4	32.4	32.4	7.5	7.5	7.5	4.34	13.4	13.4	13.4
14	31.7	31.7	31.7	7.4	7.4	7.4	4.25	13.3	13.3	13.3
13	31.0	31.0	31.0	7.4	7.4	7.4	4.17	13.3	13.3	13.3
12	30.3	30.3	30.3	7.4	7.4	7.4	4.09	13.3	13.3	13.3
11	29.7	29.7	29.7	7.4	7.4	7.4	4.02	13.3	13.3	13.3
10	29.1	29.1	29.1	7.4	7.4	7.4	3.94	13.3	13.3	13.3
9	28.0	28.0	28.0	7.3	7.3	7.3	3.82	13.2	13.2	13.2
8	27.1	27.1	27.1	7.3	7.3	7.3	3.70	13.2	13.2	13.2
7	26.2	26.2	26.2	7.3	7.3	7.3	3.60	13.2	13.2	13.2
6	25.3	25.3	25.3	7.2	7.2	7.2	3.50	13.1	13.1	13.1
5	24.6	24.6	24.6	7.2	7.2	7.2	3.41	13.1	13.1	13.1
4	23.8	23.8	23.8	7.2	7.2	7.2	3.32	13.1	13.1	13.1
3	23.2	23.2	23.2	7.1	7.1	7.1	3.24	13.0	13.0	13.0
2	22.6	22.6	22.6	7.1	7.1	7.1	3.17	13.0	13.0	13.0
1	22.0	22.0	22.0	7.1	7.1	7.1	3.10	13.0	13.0	13.0
0	21.5	21.5	21.5	7.1	7.1	7.1	3.04	13.0	13.0	13.0
-1	21.0	21.0	21.0	7.0	7.0	7.0	2.98	12.9	12.9	12.9
-2	20.5	20.5	20.5	7.0	7.0	7.0	2.93	12.9	12.9	12.9
-3	20.1	20.1	20.1	7.0	7.0	7.0	2.88	12.9	12.9	12.9
-4	19.8	19.8	19.8	7.0	7.0	7.0	2.84	12.9	12.9	12.9
-5	19.5	19.5	19.5	6.9	6.9	6.9	2.80	12.8	12.8	12.8
-6	19.2	19.2	19.2	6.9	6.9	6.9	2.77	12.8	12.8	12.8
-7	18.9	18.9	18.9	6.9	6.9	6.9	2.74	12.8	12.8	12.8
-8	18.7	18.7	18.7	6.9	6.9	6.9	2.71	12.8	12.8	12.8
-9	18.5	18.5	18.5	6.9	6.9	6.9	2.69	12.8	12.8	12.8
-10	18.3	18.3	18.3	6.9	6.9	6.9	2.67	12.8	12.8	12.8
-11	17.9	17.9	17.9	6.8	6.8	6.8	2.62	12.7	12.7	12.7
-12	17.5	17.5	17.5	6.8	6.8	6.8	2.57	12.7	12.7	12.7
-13	17.0	17.0	17.0	6.8	6.8	6.8	2.52	12.7	12.7	12.7
-14	16.6	16.6	16.6	6.7	6.7	6.7	2.47	12.6	12.6	12.6
-15	16.2	16.2	16.2	6.7	6.7	6.7	2.43	12.6	12.6	12.6
-16	15.8	15.8	15.8	6.6	6.6	6.6	2.38	12.6	12.6	12.6
-17	15.4	15.4	15.4	6.6	6.6	6.6	2.34	12.5	12.5	12.5
-18	15.1	15.1	15.1	6.6	6.6	6.6	2.29	12.5	12.5	12.5
-19	14.7	14.7	14.7	6.5	6.5	6.5	2.25	12.5	12.5	12.5
-20	14.3	14.3	14.3	6.5	6.5	6.5	2.21	12.4	12.4	12.4
-21	14.0	14.0	14.0	6.4	6.4	6.4	2.17	12.4	12.4	12.4
-22	13.6	13.6	13.6	6.4	6.4	6.4	2.13	12.3	12.3	12.3
-23	13.3	13.3	13.3	6.4	6.4	6.4	2.09	12.3	12.3	12.3
-24	12.9	12.9	12.9	6.3	6.3	6.3	2.05	12.3	12.3	12.3
-25	12.6	12.6	12.6	6.3	6.3	6.3	2.01	12.2	12.2	12.2

* 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	39.5	39.5	39.5	9.5	9.5	9.5	4.17	15.6	15.6	15.6
24	38.8	38.8	38.8	9.5	9.5	9.5	4.10	15.6	15.6	15.6
23	38.0	38.0	38.0	9.4	9.4	9.4	4.02	15.5	15.5	15.5
22	37.2	37.2	37.2	9.4	9.4	9.4	3.95	15.5	15.5	15.5
21	36.5	36.5	36.5	9.4	9.4	9.4	3.88	15.5	15.5	15.5
20	35.8	35.8	35.8	9.4	9.4	9.4	3.81	15.5	15.5	15.5
19	35.1	35.1	35.1	9.4	9.4	9.4	3.74	15.4	15.4	15.4
18	34.4	34.4	34.4	9.3	9.3	9.3	3.68	15.4	15.4	15.4
17	33.7	33.7	33.7	9.3	9.3	9.3	3.61	15.4	15.4	15.4
16	33.0	33.0	33.0	9.3	9.3	9.3	3.55	15.4	15.4	15.4
15	32.3	32.3	32.3	9.3	9.3	9.3	3.49	15.3	15.3	15.3
14	31.7	31.7	31.7	9.3	9.3	9.3	3.42	15.3	15.3	15.3
13	31.1	31.1	31.1	9.2	9.2	9.2	3.36	15.3	15.3	15.3
12	30.4	30.4	30.4	9.2	9.2	9.2	3.30	15.3	15.3	15.3
11	29.8	29.8	29.8	9.2	9.2	9.2	3.25	15.2	15.2	15.2
10	29.2	29.2	29.2	9.2	9.2	9.2	3.19	15.2	15.2	15.2
9	28.2	28.2	28.2	9.1	9.1	9.1	3.10	15.2	15.2	15.2
8	27.3	27.3	27.3	9.1	9.1	9.1	3.01	15.1	15.1	15.1
7	26.5	26.5	26.5	9.0	9.0	9.0	2.93	15.1	15.1	15.1
6	25.7	25.7	25.7	9.0	9.0	9.0	2.86	15.0	15.0	15.0
5	24.9	24.9	24.9	8.9	8.9	8.9	2.79	15.0	15.0	15.0
4	24.3	24.3	24.3	8.9	8.9	8.9	2.73	14.9	14.9	14.9
3	23.6	23.6	23.6	8.9	8.9	8.9	2.67	14.9	14.9	14.9
2	23.0	23.0	23.0	8.8	8.8	8.8	2.61	14.8	14.8	14.8
1	22.5	22.5	22.5	8.8	8.8	8.8	2.56	14.8	14.8	14.8
0	22.0	22.0	22.0	8.7	8.7	8.7	2.52	14.7	14.7	14.7
-1	21.5	21.5	21.5	8.7	8.7	8.7	2.47	14.7	14.7	14.7
-2	21.1	21.1	21.1	8.7	8.7	8.7	2.43	14.7	14.7	14.7
-3	20.7	20.7	20.7	8.6	8.6	8.6	2.40	14.6	14.6	14.6
-4	20.4	20.4	20.4	8.6	8.6	8.6	2.37	14.6	14.6	14.6
-5	20.1	20.1	20.1	8.6	8.6	8.6	2.34	14.6	14.6	14.6
-6	19.8	19.8	19.8	8.6	8.6	8.6	2.31	14.5	14.5	14.5
-7	19.5	19.5	19.5	8.5	8.5	8.5	2.29	14.5	14.5	14.5
-8	19.3	19.3	19.3	8.5	8.5	8.5	2.27	14.5	14.5	14.5
-9	19.1	19.1	19.1	8.5	8.5	8.5	2.25	14.5	14.5	14.5
-10	19.0	19.0	19.0	8.5	8.5	8.5	2.24	14.5	14.5	14.5
-11	18.6	18.6	18.6	8.4	8.4	8.4	2.20	14.4	14.4	14.4
-12	18.1	18.1	18.1	8.4	8.4	8.4	2.16	14.4	14.4	14.4
-13	17.7	17.7	17.7	8.3	8.3	8.3	2.13	14.3	14.3	14.3
-14	17.3	17.3	17.3	8.3	8.3	8.3	2.09	14.3	14.3	14.3
-15	16.9	16.9	16.9	8.2	8.2	8.2	2.05	14.2	14.2	14.2
-16	16.6	16.6	16.6	8.2	8.2	8.2	2.02	14.2	14.2	14.2
-17	16.2	16.2	16.2	8.2	8.2	8.2	1.99	14.1	14.1	14.1
-18	15.8	15.8	15.8	8.1	8.1	8.1	1.95	14.1	14.1	14.1
-19	15.5	15.5	15.5	8.0	8.0	8.0	1.92	14.0	14.0	14.0
-20	15.1	15.1	15.1	8.0	8.0	8.0	1.89	14.0	14.0	14.0
-21	14.7	14.7	14.7	7.9	7.9	7.9	1.86	13.9	13.9	13.9
-22	14.4	14.4	14.4	7.9	7.9	7.9	1.83	13.8	13.8	13.8
-23	14.1	14.1	14.1	7.8	7.8	7.8	1.80	13.8	13.8	13.8
-24	13.7	13.7	13.7	7.8	7.8	7.8	1.77	13.7	13.7	13.7
-25	13.4	13.4	13.4	7.7	7.7	7.7	1.74	13.7	13.7	13.7

* 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	39.2	39.2	39.2	11.8	11.8	11.8	3.31	18.4	18.4	18.4
24	38.5	38.5	38.5	11.8	11.8	11.8	3.26	18.4	18.4	18.4
23	37.7	37.7	37.7	11.8	11.8	11.8	3.20	18.4	18.4	18.4
22	37.0	37.0	37.0	11.8	11.8	11.8	3.15	18.3	18.3	18.3
21	36.3	36.3	36.3	11.7	11.7	11.7	3.10	18.3	18.3	18.3
20	35.7	35.7	35.7	11.7	11.7	11.7	3.05	18.3	18.3	18.3
19	35.0	35.0	35.0	11.7	11.7	11.7	3.00	18.2	18.2	18.2
18	34.3	34.3	34.3	11.6	11.6	11.6	2.95	18.2	18.2	18.2
17	33.7	33.7	33.7	11.6	11.6	11.6	2.90	18.2	18.2	18.2
16	33.1	33.1	33.1	11.6	11.6	11.6	2.85	18.1	18.1	18.1
15	32.4	32.4	32.4	11.6	11.6	11.6	2.81	18.1	18.1	18.1
14	31.8	31.8	31.8	11.5	11.5	11.5	2.76	18.0	18.0	18.0
13	31.2	31.2	31.2	11.5	11.5	11.5	2.72	18.0	18.0	18.0
12	30.7	30.7	30.7	11.5	11.5	11.5	2.67	18.0	18.0	18.0
11	30.1	30.1	30.1	11.4	11.4	11.4	2.63	17.9	17.9	17.9
10	29.5	29.5	29.5	11.4	11.4	11.4	2.59	17.9	17.9	17.9
9	28.6	28.6	28.6	11.3	11.3	11.3	2.52	17.8	17.8	17.8
8	27.7	27.7	27.7	11.3	11.3	11.3	2.46	17.7	17.7	17.7
7	27.0	27.0	27.0	11.2	11.2	11.2	2.40	17.7	17.7	17.7
6	26.2	26.2	26.2	11.2	11.2	11.2	2.35	17.6	17.6	17.6
5	25.5	25.5	25.5	11.1	11.1	11.1	2.30	17.5	17.5	17.5
4	24.9	24.9	24.9	11.1	11.1	11.1	2.25	17.5	17.5	17.5
3	24.3	24.3	24.3	11.0	11.0	11.0	2.21	17.4	17.4	17.4
2	23.7	23.7	23.7	11.0	11.0	11.0	2.17	17.3	17.3	17.3
1	23.2	23.2	23.2	10.9	10.9	10.9	2.13	17.3	17.3	17.3
0	22.7	22.7	22.7	10.9	10.9	10.9	2.09	17.2	17.2	17.2
-1	22.3	22.3	22.3	10.8	10.8	10.8	2.06	17.2	17.2	17.2
-2	21.9	21.9	21.9	10.8	10.8	10.8	2.04	17.1	17.1	17.1
-3	21.5	21.5	21.5	10.7	10.7	10.7	2.01	17.1	17.1	17.1
-4	21.2	21.2	21.2	10.7	10.7	10.7	1.99	17.0	17.0	17.0
-5	20.9	20.9	20.9	10.6	10.6	10.6	1.96	17.0	17.0	17.0
-6	20.6	20.6	20.6	10.6	10.6	10.6	1.95	16.9	16.9	16.9
-7	20.4	20.4	20.4	10.6	10.6	10.6	1.93	16.9	16.9	16.9
-8	20.2	20.2	20.2	10.6	10.6	10.6	1.91	16.9	16.9	16.9
-9	20.0	20.0	20.0	10.5	10.5	10.5	1.90	16.8	16.8	16.8
-10	19.9	19.9	19.9	10.5	10.5	10.5	1.89	16.8	16.8	16.8
-11	19.5	19.5	19.5	10.5	10.5	10.5	1.86	16.8	16.8	16.8
-12	19.1	19.1	19.1	10.4	10.4	10.4	1.84	16.7	16.7	16.7
-13	18.7	18.7	18.7	10.3	10.3	10.3	1.81	16.6	16.6	16.6
-14	18.3	18.3	18.3	10.3	10.3	10.3	1.78	16.6	16.6	16.6
-15	17.9	17.9	17.9	10.2	10.2	10.2	1.76	16.5	16.5	16.5
-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	17.7	17.7	17.7	7.7	7.7	7.7	2.30	13.6	13.6	13.6
39	17.8	17.8	17.8	7.5	7.5	7.5	2.37	13.4	13.4	13.4
38	17.9	17.9	17.9	7.4	7.4	7.4	2.43	13.3	13.3	13.3
37	18.0	18.0	18.0	7.2	7.2	7.2	2.50	13.1	13.1	13.1
36	18.1	18.1	18.1	7.1	7.1	7.1	2.57	12.9	12.9	12.9
35	18.2	18.2	18.2	6.9	6.9	6.9	2.64	12.8	12.8	12.8
34	18.3	18.3	18.3	6.8	6.8	6.8	2.71	12.7	12.7	12.7
33	18.4	18.4	18.4	6.6	6.6	6.6	2.78	12.5	12.5	12.5
32	18.5	18.5	18.5	6.5	6.5	6.5	2.85	12.4	12.4	12.4
31	18.6	18.6	18.6	6.4	6.4	6.4	2.93	12.3	12.3	12.3
30	18.7	18.7	18.7	6.2	6.2	6.2	3.00	12.2	12.2	12.2
29	18.8	18.8	18.8	6.1	6.1	6.1	3.08	12.0	12.0	12.0
28	18.9	18.9	18.9	6.0	6.0	6.0	3.16	11.9	11.9	11.9
27	18.9	18.9	18.9	5.8	5.8	5.8	3.24	11.8	11.8	11.8
26	19.0	19.0	19.0	5.7	5.7	5.7	3.32	11.7	11.7	11.7
25	19.1	19.1	19.1	5.6	5.6	5.6	3.40	11.6	11.6	11.6
24	19.2	19.2	19.2	5.5	5.5	5.5	3.49	11.5	11.5	11.5
23	19.2	19.2	19.2	5.4	5.4	5.4	3.57	11.4	11.4	11.4
22	19.3	19.3	19.3	5.3	5.3	5.3	3.66	11.4	11.4	11.4
21	19.4	19.4	19.4	5.2	5.2	5.2	3.74	11.3	11.3	11.3
20	19.4	19.4	19.4	5.1	5.1	5.1	3.83	11.2	11.2	11.2
19	19.5	19.5	19.5	5.0	5.0	5.0	3.92	11.1	11.1	11.1
18	19.6	19.6	19.6	4.9	4.9	4.9	4.01	11.1	11.1	11.1
17	19.6	19.6	19.6	4.8	4.8	4.8	4.10	11.0	11.0	11.0

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	23.8	23.8	23.8	7.7	7.7	7.7	3.10	13.8	13.8	13.8
39	24.0	24.0	24.0	7.5	7.5	7.5	3.19	13.7	13.7	13.7
38	24.1	24.1	24.1	7.4	7.4	7.4	3.27	13.5	13.5	13.5
37	24.2	24.2	24.2	7.2	7.2	7.2	3.36	13.3	13.3	13.3
36	24.4	24.4	24.4	7.1	7.1	7.1	3.46	13.2	13.2	13.2
35	24.5	24.5	24.5	6.9	6.9	6.9	3.55	13.0	13.0	13.0
34	24.7	24.7	24.7	6.8	6.8	6.8	3.65	12.8	12.8	12.8
33	24.8	24.8	24.8	6.6	6.6	6.6	3.74	12.7	12.7	12.7
32	24.9	24.9	24.9	6.5	6.5	6.5	3.84	12.6	12.6	12.6
31	25.0	25.0	25.0	6.4	6.4	6.4	3.94	12.4	12.4	12.4
30	25.2	25.2	25.2	6.2	6.2	6.2	4.05	12.3	12.3	12.3
29	25.3	25.3	25.3	6.1	6.1	6.1	4.15	12.2	12.2	12.2
28	25.4	25.4	25.4	6.0	6.0	6.0	4.26	12.1	12.1	12.1
27	25.5	25.5	25.5	5.8	5.8	5.8	4.36	12.0	12.0	12.0
26	25.6	25.6	25.6	5.7	5.7	5.7	4.47	11.9	11.9	11.9
25	25.7	25.7	25.7	5.6	5.6	5.6	4.59	11.8	11.8	11.8
24	25.8	25.8	25.8	5.5	5.5	5.5	4.70	11.7	11.7	11.7
23	25.9	25.9	25.9	5.4	5.4	5.4	4.81	11.6	11.6	11.6
22	26.0	26.0	26.0	5.3	5.3	5.3	4.93	11.5	11.5	11.5
21	26.1	26.1	26.1	5.2	5.2	5.2	5.05	11.4	11.4	11.4
20	26.2	26.2	26.2	5.1	5.1	5.1	5.17	11.3	11.3	11.3
19	26.3	26.3	26.3	5.0	5.0	5.0	5.29	11.2	11.2	11.2
18	26.4	26.4	26.4	4.9	4.9	4.9	5.41	11.2	11.2	11.2
17	26.5	26.5	26.5	4.8	4.8	4.8	5.54	11.1	11.1	11.1

* 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

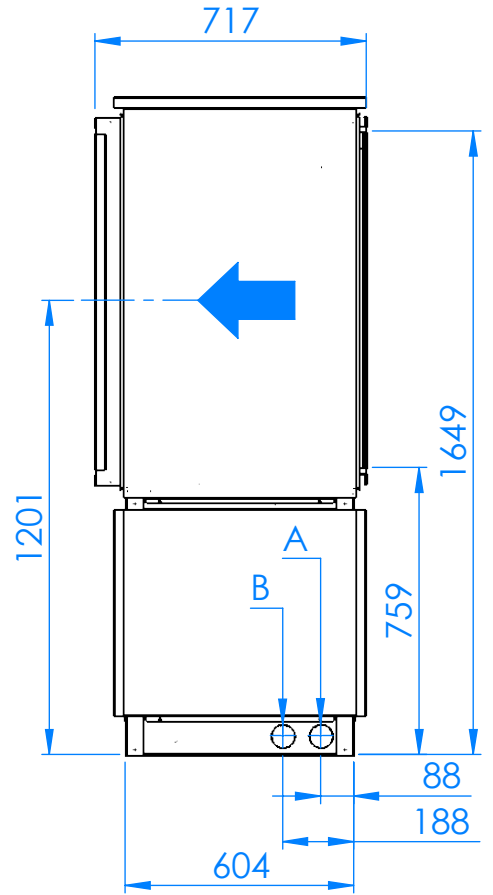
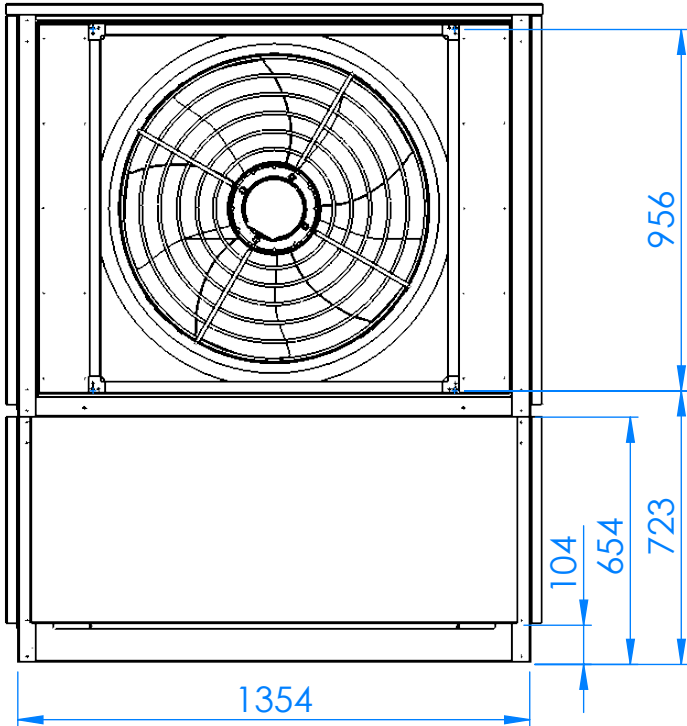
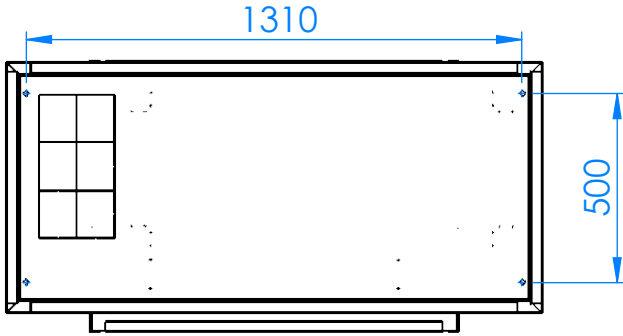
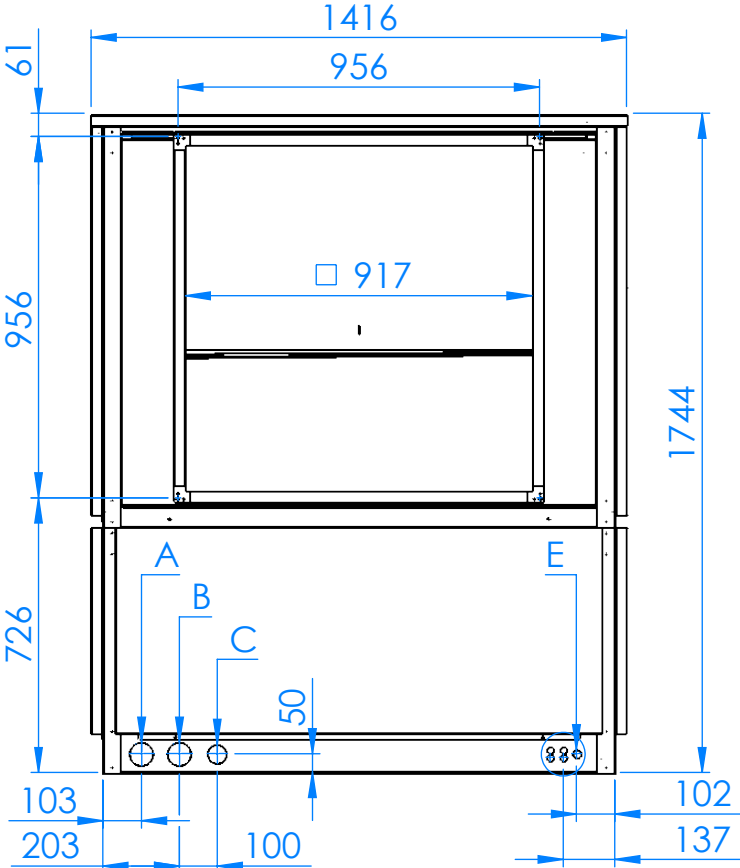
Qc nom: cooling / heat extraction capacity at nominal heating capacity

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



- A -  
- B -  
- C - condens
- E - electro

