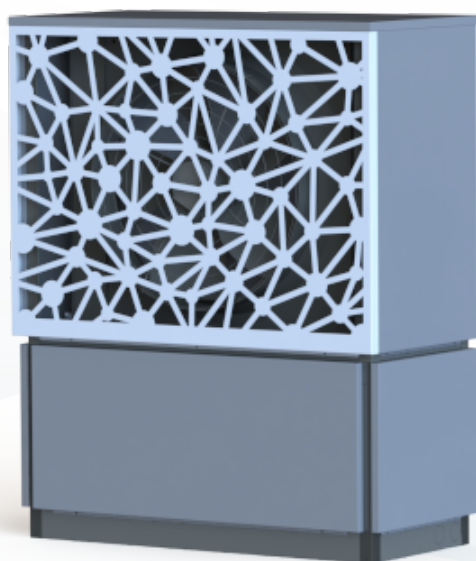




WAMAK

Heat pump



AiWa 27 EVI
H Out

WAMAK AiWa 27 EVI H 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.

Outdoor monoblock

Product features

- Scroll compressor
- EVI technology
- Asymetric 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)
- 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
- 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 27 EVI H Out

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	29.0
	A2 / W35	24.7
	A-7 / W34	20.3
Electrical power input [kW]	A7 / W35	6.4
	A2 / W35	6.4
	A-7 / W34	6.3
Heating efficiency faktor [COP]	A7 / W35	4.56
	A2 / W35	3.83
	A-7 / W34	3.23
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35°C]	SCOP	4.37
	η [%]	174.7
	Label	A+++
	Qhe [kWh]	47518.0
	Pdesignh [kW]	23.0
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	28.4
	A25 / W23-18	30.0
	A35 / W12-7	20.9
	A25 / W12-7	20.9
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18°C]	SEER	4.61
	Qce [kWh]	12540.0
	η_c [%]	184.3
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 / 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	360 kg	

Main technical data - WAMAK AiWa 27 EVI H 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]	360		Condenser	Port size	1.1/2 "			
Colour	Gray			Type	BPHE			
Enclosure IP Class	IP44			Count	1			
				Material	AISI 316			
Refrigeration cycle			Maximal operating pressure - refrigerant [bar]				50	
Compressor	Type	Scroll		Maximal operating pressure - Water [bar]			3	
	Number of stages	1		Testing pressure [bar]			70	
	On/Off			Heat transfer medium			Water	
	Power factor Cosφ	0.69		Volume flow - Water [m3/h]			5.00	
	Winding resistance	1.24 Ohm		Internal pressure drop - Water [kPa]			16	
Refrigerant		R410A		ECM speed circulator - condenser			UPMXL GEO 32-125	
	Volme	7.9 kg		Flow sensor consumer - analogue			0..10V	
	GWP	2088		Temperature difference	@ 35 °C (nom)	5 K		
	Safety class	A1			@ 55 °C	8 K		
Refrigeration oil type	POE RL32-3MAF				@ 65 °C	10 K		
	Oil volume	3.38 L		Renewable energy extraction side data				
Maximal pressure - refrigerant [bar]		50		Operating limit temperatures source	MIN [°C]	-22		
	PED class	2			MAX [°C]	40		
EVI - vapour injection with economizer			for more see operating limits diagram					
APS System of liquid subcooling			Evaporator	Type	Cu-coil /Al-fin			
Reversible operation (cooling)				Count	1			
Reverse defrosting with hot gas				Material	Cu/Al			
Plate exchanger protection HG-BYPASS			Maximal operating pressure - refrigerant [bar]				29	
Electrical connection data			Heat transfer medium				Air	
Line voltage [#~ V/Hz]			3~ 400/50		Volume flow - Air [m3/h]			9060
	nominal [A]	12.30		Internal pressure drop - Air [kPa]			0.036	
	maximal [A]	21.00		Temperature difference - Air			7 K	
	starting [A]	32.12		Number of fans			1	
Softstart			MCI 25		Fan diameter [mm]			800
Main safety			C32					
Control System								
Main controller	SIEMENS	RVS 21 AVS 55.199						
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 27 EVI H Out

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

Model	AiWa 27 EVI H 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	23.0	kW	Seasonal space heating energy efficiency	η_s	174.7	%
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	20.3	kW	Tj = -7 °C	COPd	3.23	-
Tj = +2 °C	Pdh	24.6	kW	Tj = +2 °C	COPd	4.3	-
Tj = +7 °C	Pdh	28.9	kW	Tj = +7 °C	COPd	5.5	-
Tj = +12 °C	Pdh	33.7	kW	Tj = +12 °C	COPd	7.4	-
Tj = bivalent temperature	Pdh	19.7	kW	Tj = bivalent temperature	COPd	3.1	-
Tj = operation limit temperature	Pdh	14.0	kW	Tj = operation limit temperature	COPd	2.2	-
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	10.5	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	-	9060	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	---	dB				
outdoors	Lwa	69	dB				
Annual energy consumption	Q _{HE}	47518.0	kWh				

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

WAMAK AiWa 27 EVI H Out

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

Model	AiWa 27 EVI H 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	24.0	kW	Seasonal space heating energy efficiency	ηs	133.6	%
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	21.0	kW	Tj = -7 °C	COPd	2.17	-
Tj = +2 °C	Pdh	24.8	kW	Tj = +2 °C	COPd	3.3	-
Tj = +7 °C	Pdh	29.0	kW	Tj = +7 °C	COPd	4.5	-
Tj = +12 °C	Pdh	33.8	kW	Tj = +12 °C	COPd	6.3	-
Tj = bivalent temperature	Pdh	20.7	kW	Tj = bivalent temperature	COPd	2.0	-
Tj = operation limit temperature	Pdh	15.5	kW	Tj = operation limit temperature	COPd	1.5	-
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	0.040	kW	Supplementary heater			
Thermostat-off mode	Pto	0.010	kW	Rated heat output	Psup	10.5	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	-	9060	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	49584.0	kWh				

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ENERG

енергия - ενεργεια



WAMAK

AiWa 27 EVI H Out



55 °C

35 °C

A+++

A++

A+

A

B

C

D

A++

A+++



--- dB



69 dB

■ 26
■ 24
■ 24
kW

■ 24
■ 23
■ 22
kW



2019

811/2013

AiWa 27 EVI H Out

ErP Data

	55 °C	35 °C
Energy class	A++	A+++
η [%]	133.6	174.7
P_{rated} [kW]	24	23
Q_{HE} [kWh/y]	49584	47518
SCOP [-]	3.34	4.37
$T_{bivalent}$ [°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]

ZHI27K1P-TFD_R410A_1_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	29.0	6.4	4.56
2	A2 / W35	24.7	6.4	3.83
3	A-22 / W35	14.0	6.4	2.20
A	A-7 / W34	20.3	6.3	3.23
B	A2 / W30	24.6	5.7	4.29
C	A7 / W27	28.9	5.2	5.54
D	A12 / W24	33.7	4.5	7.45
E	A-10 / W35	19.7	6.4	3.06
F	A-7 / W34	20.3	6.3	3.23

SCOP DATA EN 14825:2018	
Average Climate / Low Temperature [35°C]	
SCOPon	4.51
SCOPnet	4.55
SCOP	4.37
η [%]	174.66
Label	A+++
Qh [kWh]	47518.00
Pdesignh [kW]	23.0
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	29.3	10.5	2.80
2	A2 / W55	25.2	10.5	2.41
3	A-22 / W55	15.5	9.8	1.47
A	A-7 / W52	21.0	9.7	2.17
B	A2 / W42	24.8	7.6	3.27
C	A7 / W36	29.0	6.5	4.45
D	A12 / W30	33.8	5.4	6.27
E	A-10 / W55	20.7	10.5	1.97
F	A-7 / W55	21.2	10.5	2.03

SCOP DATA EN 14825:2018	
Average Climate / Medium Temperature [55°C]	
SCOPon	3.42
SCOPnet	3.45
SCOP	3.34
η [%]	133.57
Label	A++
Qh [kWh]	49584.00
Pdesignh [kW]	24.0
Tbivalent [°C]	-7.00

Cooling performance data

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	A35 / W12-7	20.9	7.7	2.70
B	A30 / W12-7	21.7	6.9	3.16
C	A25 / W12-7	22.3	6.1	3.67
D	A20 / W12-7	22.9	5.4	4.24

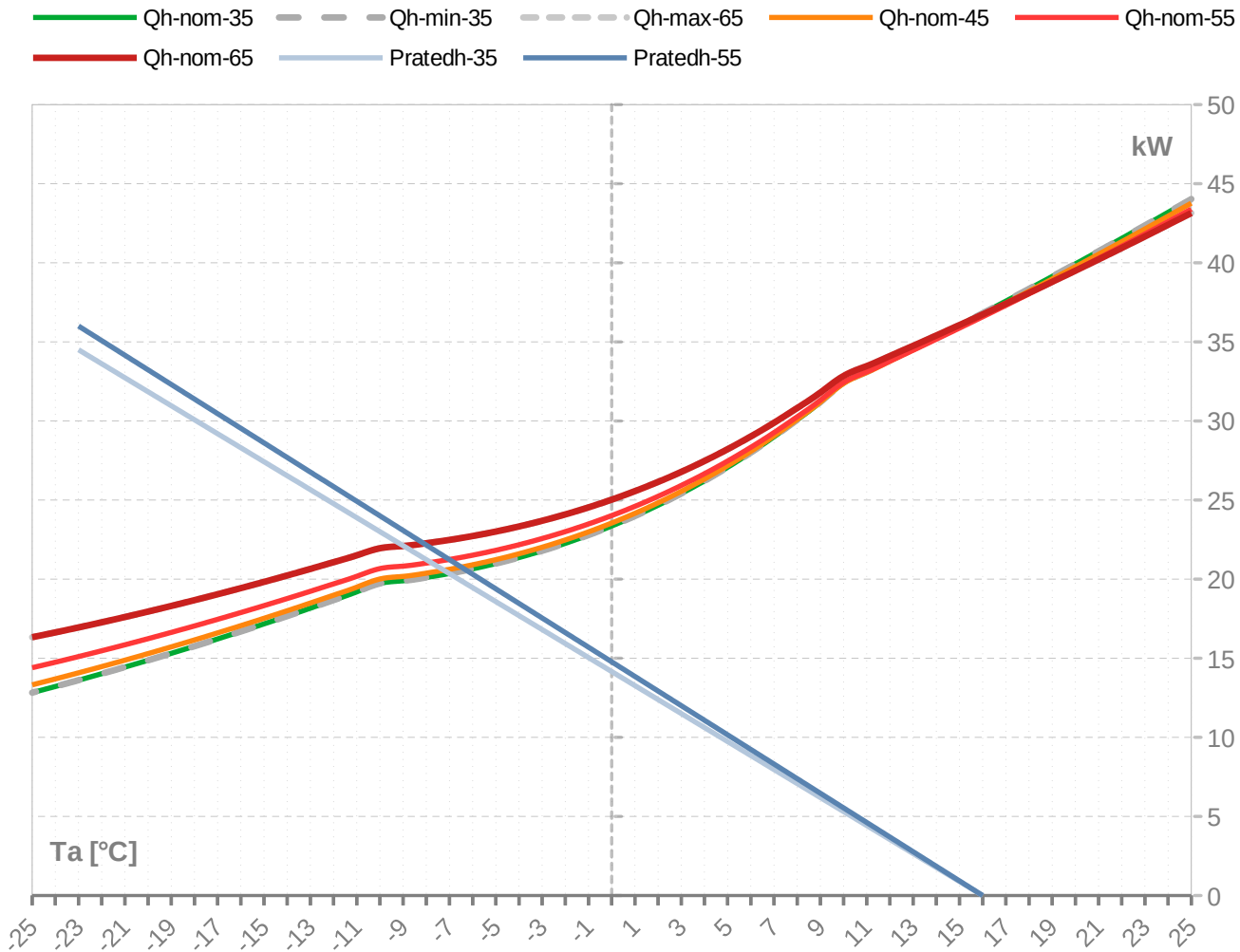
SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.56
SEER	3.46
Qc [kWh]	12540.00
η [%]	138.31

Radiant cooling W 23 / 18°C

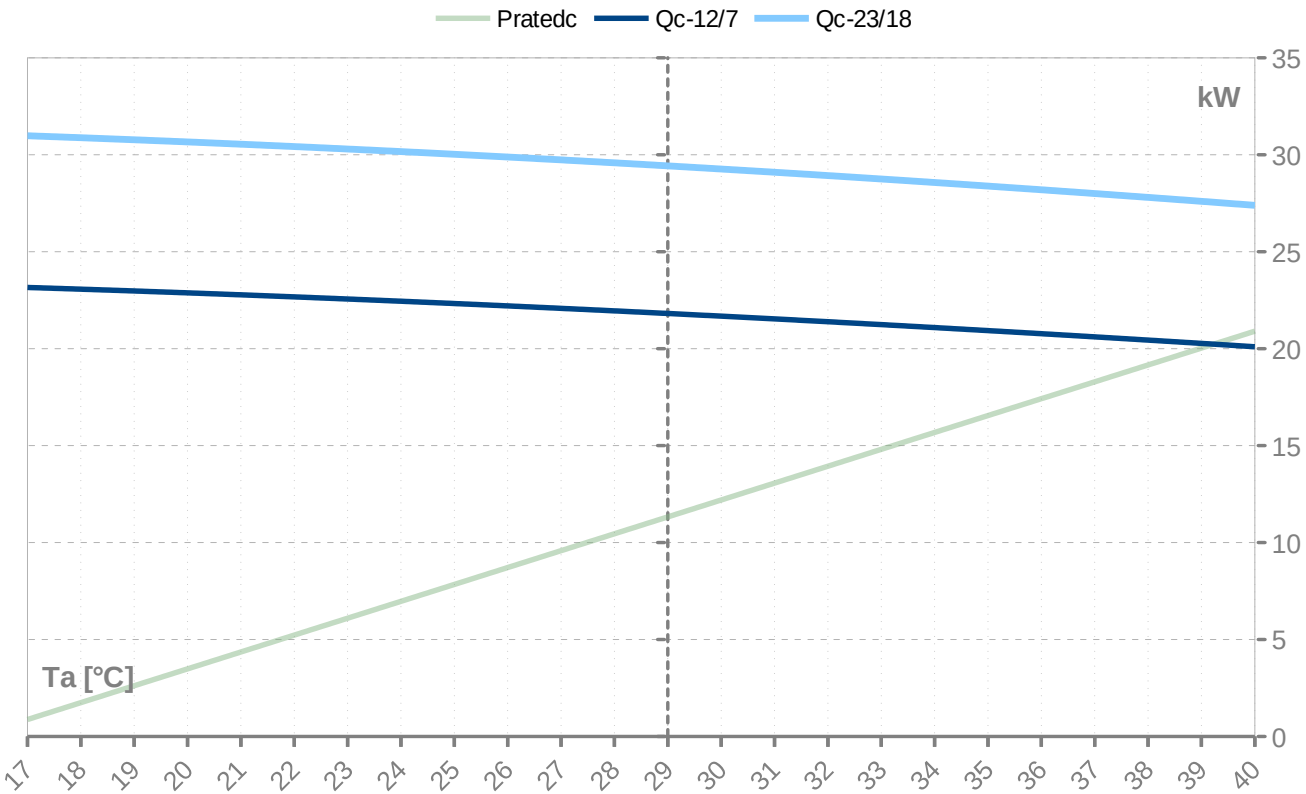
Operating conditions		Qc	P	EER
A	A35 / W23-18	28.4	7.7	3.67
B	A30 / W23-18	29.3	6.1	4.26
C	A25 / W23-18	30.0	5.4	4.93
D	A20 / W23-18	30.7	4.6	5.68

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	4.80
SEER	4.61
Qc [kWh]	12540.00
η [%]	184.29

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	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
24	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
23	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
22	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
21	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
20	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
19	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
18	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
17	37.6	37.6		6.0	6.0		6.30	11.9	11.9	
16	36.8	36.8	36.8	6.0	6.0	6.0	6.12	12.0	12.0	12.0
15	36.0	36.0	36.0	6.1	6.1	6.1	5.95	12.0	12.0	12.0
14	35.3	35.3	35.3	6.1	6.1	6.1	5.79	12.0	12.0	12.0
13	34.6	34.6	34.6	6.1	6.1	6.1	5.63	12.1	12.1	12.1
12	33.8	33.8	33.8	6.2	6.2	6.2	5.48	12.1	12.1	12.1
11	33.1	33.1	33.1	6.2	6.2	6.2	5.33	12.2	12.2	12.2
10	32.4	32.4	32.4	6.2	6.2	6.2	5.19	12.2	12.2	12.2
9	31.2	31.2	31.2	6.3	6.3	6.3	4.96	12.2	12.2	12.2
8	30.1	30.1	30.1	6.3	6.3	6.3	4.75	12.3	12.3	12.3
7	29.0	29.0	29.0	6.4	6.4	6.4	4.56	12.3	12.3	12.3
6	28.0	28.0	28.0	6.4	6.4	6.4	4.39	12.3	12.3	12.3
5	27.1	27.1	27.1	6.4	6.4	6.4	4.23	12.4	12.4	12.4
4	26.2	26.2	26.2	6.4	6.4	6.4	4.08	12.4	12.4	12.4
3	25.4	25.4	25.4	6.4	6.4	6.4	3.95	12.4	12.4	12.4
2	24.7	24.7	24.7	6.4	6.4	6.4	3.83	12.4	12.4	12.4
1	24.0	24.0	24.0	6.4	6.4	6.4	3.72	12.4	12.4	12.4
0	23.4	23.4	23.4	6.4	6.4	6.4	3.62	12.4	12.4	12.4
-1	22.8	22.8	22.8	6.4	6.4	6.4	3.53	12.5	12.5	12.5
-2	22.3	22.3	22.3	6.4	6.4	6.4	3.45	12.5	12.5	12.5
-3	21.8	21.8	21.8	6.4	6.4	6.4	3.38	12.5	12.5	12.5
-4	21.4	21.4	21.4	6.4	6.4	6.4	3.31	12.5	12.5	12.5
-5	21.0	21.0	21.0	6.4	6.4	6.4	3.26	12.5	12.5	12.5
-6	20.6	20.6	20.6	6.4	6.4	6.4	3.20	12.5	12.5	12.5
-7	20.4	20.4	20.4	6.4	6.4	6.4	3.16	12.5	12.5	12.5
-8	20.1	20.1	20.1	6.4	6.4	6.4	3.12	12.5	12.5	12.5
-9	19.9	19.9	19.9	6.4	6.4	6.4	3.09	12.5	12.5	12.5
-10	19.7	19.7	19.7	6.4	6.4	6.4	3.06	12.5	12.5	12.5
-11	19.2	19.2	19.2	6.4	6.4	6.4	2.98	12.5	12.5	12.5
-12	18.7	18.7	18.7	6.4	6.4	6.4	2.91	12.5	12.5	12.5
-13	18.2	18.2	18.2	6.4	6.4	6.4	2.83	12.5	12.5	12.5
-14	17.7	17.7	17.7	6.4	6.4	6.4	2.75	12.5	12.5	12.5
-15	17.2	17.2	17.2	6.4	6.4	6.4	2.68	12.4	12.4	12.4
-16	16.7	16.7	16.7	6.4	6.4	6.4	2.61	12.4	12.4	12.4
-17	16.2	16.2	16.2	6.4	6.4	6.4	2.54	12.4	12.4	12.4
-18	15.8	15.8	15.8	6.4	6.4	6.4	2.47	12.4	12.4	12.4
-19	15.3	15.3	15.3	6.4	6.4	6.4	2.40	12.4	12.4	12.4
-20	14.9	14.9	14.9	6.4	6.4	6.4	2.33	12.4	12.4	12.4
-21	14.4	14.4	14.4	6.4	6.4	6.4	2.27	12.4	12.4	12.4
-22	14.0	14.0	14.0	6.4	6.4	6.4	2.20	12.3	12.3	12.3
-23	13.6	13.6	13.6	6.4	6.4	6.4	2.14	12.3	12.3	12.3
-24	13.2	13.2	13.2	6.3	6.3	6.3	2.08	12.3	12.3	12.3
-25	12.8	12.8	12.8	6.3	6.3	6.3	2.02	12.3	12.3	12.3

* attention: operating limits not reflected in performance table

ZHI27K1P-TFD_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	43.8	43.8	43.8	7.5	7.5	7.5	5.84	13.5	13.5	13.5
24	42.9	42.9	42.9	7.5	7.5	7.5	5.69	13.5	13.5	13.5
23	42.1	42.1	42.1	7.6	7.6	7.6	5.54	13.6	13.6	13.6
22	41.3	41.3	41.3	7.7	7.7	7.7	5.40	13.7	13.7	13.7
21	40.5	40.5	40.5	7.7	7.7	7.7	5.26	13.7	13.7	13.7
20	39.8	39.8	39.8	7.7	7.7	7.7	5.13	13.8	13.8	13.8
19	39.0	39.0	39.0	7.8	7.8	7.8	5.00	13.8	13.8	13.8
18	38.2	38.2	38.2	7.8	7.8	7.8	4.88	13.8	13.8	13.8
17	37.4	37.4	37.4	7.9	7.9	7.9	4.76	13.9	13.9	13.9
16	36.7	36.7	36.7	7.9	7.9	7.9	4.64	13.9	13.9	13.9
15	35.9	35.9	35.9	7.9	7.9	7.9	4.53	14.0	14.0	14.0
14	35.2	35.2	35.2	8.0	8.0	8.0	4.42	14.0	14.0	14.0
13	34.5	34.5	34.5	8.0	8.0	8.0	4.32	14.0	14.0	14.0
12	33.8	33.8	33.8	8.0	8.0	8.0	4.22	14.1	14.1	14.1
11	33.1	33.1	33.1	8.0	8.0	8.0	4.12	14.1	14.1	14.1
10	32.4	32.4	32.4	8.1	8.1	8.1	4.02	14.1	14.1	14.1
9	31.2	31.2	31.2	8.1	8.1	8.1	3.86	14.2	14.2	14.2
8	30.1	30.1	30.1	8.1	8.1	8.1	3.72	14.2	14.2	14.2
7	29.1	29.1	29.1	8.1	8.1	8.1	3.58	14.2	14.2	14.2
6	28.1	28.1	28.1	8.1	8.1	8.1	3.45	14.3	14.3	14.3
5	27.2	27.2	27.2	8.1	8.1	8.1	3.34	14.3	14.3	14.3
4	26.3	26.3	26.3	8.1	8.1	8.1	3.23	14.3	14.3	14.3
3	25.5	25.5	25.5	8.1	8.1	8.1	3.14	14.3	14.3	14.3
2	24.8	24.8	24.8	8.1	8.1	8.1	3.05	14.3	14.3	14.3
1	24.2	24.2	24.2	8.1	8.1	8.1	2.96	14.3	14.3	14.3
0	23.5	23.5	23.5	8.1	8.1	8.1	2.89	14.3	14.3	14.3
-1	23.0	23.0	23.0	8.1	8.1	8.1	2.82	14.3	14.3	14.3
-2	22.5	22.5	22.5	8.1	8.1	8.1	2.76	14.3	14.3	14.3
-3	22.0	22.0	22.0	8.1	8.1	8.1	2.70	14.3	14.3	14.3
-4	21.6	21.6	21.6	8.1	8.1	8.1	2.65	14.3	14.3	14.3
-5	21.2	21.2	21.2	8.1	8.1	8.1	2.61	14.3	14.3	14.3
-6	20.9	20.9	20.9	8.1	8.1	8.1	2.57	14.3	14.3	14.3
-7	20.6	20.6	20.6	8.1	8.1	8.1	2.54	14.3	14.3	14.3
-8	20.4	20.4	20.4	8.1	8.1	8.1	2.51	14.3	14.3	14.3
-9	20.2	20.2	20.2	8.1	8.1	8.1	2.48	14.3	14.3	14.3
-10	20.0	20.0	20.0	8.1	8.1	8.1	2.46	14.3	14.3	14.3
-11	19.5	19.5	19.5	8.1	8.1	8.1	2.40	14.3	14.3	14.3
-12	19.0	19.0	19.0	8.1	8.1	8.1	2.34	14.3	14.3	14.3
-13	18.5	18.5	18.5	8.1	8.1	8.1	2.28	14.3	14.3	14.3
-14	18.0	18.0	18.0	8.1	8.1	8.1	2.22	14.2	14.2	14.2
-15	17.5	17.5	17.5	8.1	8.1	8.1	2.16	14.2	14.2	14.2
-16	17.1	17.1	17.1	8.1	8.1	8.1	2.11	14.2	14.2	14.2
-17	16.6	16.6	16.6	8.1	8.1	8.1	2.05	14.2	14.2	14.2
-18	16.2	16.2	16.2	8.1	8.1	8.1	2.00	14.1	14.1	14.1
-19	15.7	15.7	15.7	8.1	8.1	8.1	1.94	14.1	14.1	14.1
-20	15.3	15.3	15.3	8.1	8.1	8.1	1.89	14.1	14.1	14.1
-21	14.9	14.9	14.9	8.1	8.1	8.1	1.84	14.1	14.1	14.1
-22	14.5	14.5	14.5	8.1	8.1	8.1	1.79	14.0	14.0	14.0
-23	14.1	14.1	14.1	8.1	8.1	8.1	1.74	14.0	14.0	14.0
-24	13.7	13.7	13.7	8.1	8.1	8.1	1.69	14.0	14.0	14.0
-25	13.3	13.3	13.3	8.1	8.1	8.1	1.64	13.9	13.9	13.9

* 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	43.4	43.4	43.4	10.0	10.0	10.0	4.33	16.3	16.3	16.3
24	42.6	42.6	42.6	10.1	10.1	10.1	4.23	16.4	16.4	16.4
23	41.8	41.8	41.8	10.1	10.1	10.1	4.14	16.4	16.4	16.4
22	41.0	41.0	41.0	10.1	10.1	10.1	4.05	16.5	16.5	16.5
21	40.3	40.3	40.3	10.2	10.2	10.2	3.96	16.5	16.5	16.5
20	39.5	39.5	39.5	10.2	10.2	10.2	3.87	16.6	16.6	16.6
19	38.8	38.8	38.8	10.2	10.2	10.2	3.79	16.6	16.6	16.6
18	38.0	38.0	38.0	10.3	10.3	10.3	3.71	16.7	16.7	16.7
17	37.3	37.3	37.3	10.3	10.3	10.3	3.63	16.7	16.7	16.7
16	36.6	36.6	36.6	10.3	10.3	10.3	3.55	16.8	16.8	16.8
15	35.9	35.9	35.9	10.3	10.3	10.3	3.47	16.8	16.8	16.8
14	35.2	35.2	35.2	10.4	10.4	10.4	3.40	16.8	16.8	16.8
13	34.5	34.5	34.5	10.4	10.4	10.4	3.32	16.9	16.9	16.9
12	33.8	33.8	33.8	10.4	10.4	10.4	3.25	16.9	16.9	16.9
11	33.1	33.1	33.1	10.4	10.4	10.4	3.18	16.9	16.9	16.9
10	32.4	32.4	32.4	10.4	10.4	10.4	3.12	16.9	16.9	16.9
9	31.3	31.3	31.3	10.4	10.4	10.4	3.00	17.0	17.0	17.0
8	30.3	30.3	30.3	10.4	10.4	10.4	2.90	17.0	17.0	17.0
7	29.3	29.3	29.3	10.5	10.5	10.5	2.80	17.0	17.0	17.0
6	28.3	28.3	28.3	10.5	10.5	10.5	2.71	17.0	17.0	17.0
5	27.5	27.5	27.5	10.5	10.5	10.5	2.62	17.0	17.0	17.0
4	26.7	26.7	26.7	10.5	10.5	10.5	2.55	17.0	17.0	17.0
3	25.9	25.9	25.9	10.5	10.5	10.5	2.48	17.0	17.0	17.0
2	25.2	25.2	25.2	10.5	10.5	10.5	2.41	17.0	17.0	17.0
1	24.6	24.6	24.6	10.5	10.5	10.5	2.35	17.0	17.0	17.0
0	24.0	24.0	24.0	10.5	10.5	10.5	2.29	17.0	17.0	17.0
-1	23.5	23.5	23.5	10.5	10.5	10.5	2.24	17.0	17.0	17.0
-2	23.0	23.0	23.0	10.5	10.5	10.5	2.20	17.0	17.0	17.0
-3	22.6	22.6	22.6	10.5	10.5	10.5	2.15	17.0	17.0	17.0
-4	22.2	22.2	22.2	10.5	10.5	10.5	2.12	17.0	17.0	17.0
-5	21.8	21.8	21.8	10.5	10.5	10.5	2.08	17.0	17.0	17.0
-6	21.5	21.5	21.5	10.5	10.5	10.5	2.05	17.0	17.0	17.0
-7	21.2	21.2	21.2	10.5	10.5	10.5	2.03	17.0	17.0	17.0
-8	21.0	21.0	21.0	10.5	10.5	10.5	2.01	16.9	16.9	16.9
-9	20.8	20.8	20.8	10.5	10.5	10.5	1.99	16.9	16.9	16.9
-10	20.7	20.7	20.7	10.5	10.5	10.5	1.97	16.9	16.9	16.9
-11	20.2	20.2	20.2	10.5	10.5	10.5	1.93	16.9	16.9	16.9
-12	19.7	19.7	19.7	10.5	10.5	10.5	1.88	16.9	16.9	16.9
-13	19.2	19.2	19.2	10.5	10.5	10.5	1.84	16.9	16.9	16.9
-14	18.8	18.8	18.8	10.5	10.5	10.5	1.79	16.8	16.8	16.8
-15	18.3	18.3	18.3	10.5	10.5	10.5	1.75	16.8	16.8	16.8
-16	17.9	17.9	17.9	10.5	10.5	10.5	1.71	16.8	16.8	16.8
-17	17.5	17.5	17.5	10.5	10.5	10.5	1.66	16.7	16.7	16.7
-18	17.0	17.0	17.0	10.5	10.5	10.5	1.62	16.7	16.7	16.7
-19	16.6	16.6	16.6	10.5	10.5	10.5	1.58	16.6	16.6	16.6
-20	16.2	16.2	16.2	10.5	10.5	10.5	1.54	16.6	16.6	16.6
-21	15.8	15.8	15.8	10.5	10.5	10.5	1.51	16.6	16.6	16.6
-22	15.5	15.5	15.5	10.5	10.5	10.5	1.47	16.5	16.5	16.5
-23	15.1	15.1	15.1	10.6	10.6	10.6	1.43	16.5	16.5	16.5
-24	14.7	14.7	14.7	10.6	10.6	10.6	1.39	16.4	16.4	16.4
-25	14.4	14.4	14.4	10.6	10.6	10.6	1.36	16.4	16.4	16.4

* 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	43.1	43.1	43.1	13.2	13.2	13.2	3.26	20.3	20.3	20.3
24	42.4	42.4	42.4	13.3	13.3	13.3	3.19	20.3	20.3	20.3
23	41.7	41.7	41.7	13.3	13.3	13.3	3.13	20.4	20.4	20.4
22	40.9	40.9	40.9	13.3	13.3	13.3	3.07	20.4	20.4	20.4
21	40.2	40.2	40.2	13.4	13.4	13.4	3.01	20.5	20.5	20.5
20	39.5	39.5	39.5	13.4	13.4	13.4	2.95	20.5	20.5	20.5
19	38.8	38.8	38.8	13.4	13.4	13.4	2.89	20.5	20.5	20.5
18	38.1	38.1	38.1	13.4	13.4	13.4	2.84	20.6	20.6	20.6
17	37.4	37.4	37.4	13.4	13.4	13.4	2.78	20.6	20.6	20.6
16	36.7	36.7	36.7	13.5	13.5	13.5	2.73	20.6	20.6	20.6
15	36.1	36.1	36.1	13.5	13.5	13.5	2.67	20.7	20.7	20.7
14	35.4	35.4	35.4	13.5	13.5	13.5	2.62	20.7	20.7	20.7
13	34.7	34.7	34.7	13.5	13.5	13.5	2.57	20.7	20.7	20.7
12	34.1	34.1	34.1	13.5	13.5	13.5	2.52	20.7	20.7	20.7
11	33.5	33.5	33.5	13.5	13.5	13.5	2.47	20.8	20.8	20.8
10	32.8	32.8	32.8	13.5	13.5	13.5	2.42	20.8	20.8	20.8
9	31.8	31.8	31.8	13.6	13.6	13.6	2.34	20.8	20.8	20.8
8	30.8	30.8	30.8	13.6	13.6	13.6	2.27	20.8	20.8	20.8
7	29.9	29.9	29.9	13.6	13.6	13.6	2.20	20.8	20.8	20.8
6	29.0	29.0	29.0	13.6	13.6	13.6	2.13	20.8	20.8	20.8
5	28.2	28.2	28.2	13.6	13.6	13.6	2.07	20.8	20.8	20.8
4	27.5	27.5	27.5	13.6	13.6	13.6	2.02	20.8	20.8	20.8
3	26.8	26.8	26.8	13.6	13.6	13.6	1.97	20.8	20.8	20.8
2	26.1	26.1	26.1	13.6	13.6	13.6	1.92	20.8	20.8	20.8
1	25.6	25.6	25.6	13.6	13.6	13.6	1.87	20.8	20.8	20.8
0	25.0	25.0	25.0	13.6	13.6	13.6	1.83	20.7	20.7	20.7
-1	24.5	24.5	24.5	13.7	13.7	13.7	1.80	20.7	20.7	20.7
-2	24.1	24.1	24.1	13.7	13.7	13.7	1.76	20.7	20.7	20.7
-3	23.7	23.7	23.7	13.7	13.7	13.7	1.73	20.7	20.7	20.7
-4	23.3	23.3	23.3	13.7	13.7	13.7	1.71	20.7	20.7	20.7
-5	23.0	23.0	23.0	13.7	13.7	13.7	1.68	20.6	20.6	20.6
-6	22.7	22.7	22.7	13.7	13.7	13.7	1.66	20.6	20.6	20.6
-7	22.5	22.5	22.5	13.7	13.7	13.7	1.64	20.6	20.6	20.6
-8	22.3	22.3	22.3	13.7	13.7	13.7	1.63	20.6	20.6	20.6
-9	22.1	22.1	22.1	13.7	13.7	13.7	1.61	20.6	20.6	20.6
-10	21.9	21.9	21.9	13.7	13.7	13.7	1.60	20.6	20.6	20.6
-11	21.5	21.5	21.5	13.7	13.7	13.7	1.57	20.5	20.5	20.5
-12	21.1	21.1	21.1	13.7	13.7	13.7	1.53	20.5	20.5	20.5
-13	20.6	20.6	20.6	13.7	13.7	13.7	1.50	20.4	20.4	20.4
-14	20.2	20.2	20.2	13.8	13.8	13.8	1.47	20.4	20.4	20.4
-15	19.8	19.8	19.8	13.8	13.8	13.8	1.44	20.4	20.4	20.4
-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	20.1	20.1	20.1	8.8	8.8	8.8	2.29	15.0	15.0	15.0
39	20.3	20.3	20.3	8.5	8.5	8.5	2.37	14.7	14.7	14.7
38	20.4	20.4	20.4	8.3	8.3	8.3	2.45	14.5	14.5	14.5
37	20.6	20.6	20.6	8.1	8.1	8.1	2.53	14.3	14.3	14.3
36	20.8	20.8	20.8	7.9	7.9	7.9	2.62	14.0	14.0	14.0
35	20.9	20.9	20.9	7.7	7.7	7.7	2.70	13.8	13.8	13.8
34	21.1	21.1	21.1	7.6	7.6	7.6	2.79	13.6	13.6	13.6
33	21.2	21.2	21.2	7.4	7.4	7.4	2.88	13.4	13.4	13.4
32	21.4	21.4	21.4	7.2	7.2	7.2	2.97	13.2	13.2	13.2
31	21.5	21.5	21.5	7.0	7.0	7.0	3.06	13.0	13.0	13.0
30	21.7	21.7	21.7	6.9	6.9	6.9	3.16	12.8	12.8	12.8
29	21.8	21.8	21.8	6.7	6.7	6.7	3.26	12.7	12.7	12.7
28	21.9	21.9	21.9	6.5	6.5	6.5	3.35	12.5	12.5	12.5
27	22.1	22.1	22.1	6.4	6.4	6.4	3.46	12.4	12.4	12.4
26	22.2	22.2	22.2	6.2	6.2	6.2	3.56	12.2	12.2	12.2
25	22.3	22.3	22.3	6.1	6.1	6.1	3.67	12.1	12.1	12.1
24	22.4	22.4	22.4	5.9	5.9	5.9	3.77	11.9	11.9	11.9
23	22.6	22.6	22.6	5.8	5.8	5.8	3.89	11.8	11.8	11.8
22	22.7	22.7	22.7	5.7	5.7	5.7	4.00	11.7	11.7	11.7
21	22.8	22.8	22.8	5.5	5.5	5.5	4.12	11.5	11.5	11.5
20	22.9	22.9	22.9	5.4	5.4	5.4	4.24	11.4	11.4	11.4
19	23.0	23.0	23.0	5.3	5.3	5.3	4.36	11.3	11.3	11.3
18	23.1	23.1	23.1	5.1	5.1	5.1	4.49	11.2	11.2	11.2
17	23.2	23.2	23.2	5.0	5.0	5.0	4.62	11.1	11.1	11.1

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	27.4	27.4	27.4	8.8	8.8	8.8	3.13	14.8	14.8	14.8
39	27.6	27.6	27.6	8.5	8.5	8.5	3.23	14.5	14.5	14.5
38	27.8	27.8	27.8	8.3	8.3	8.3	3.34	14.2	14.2	14.2
37	28.0	28.0	28.0	8.1	8.1	8.1	3.44	14.0	14.0	14.0
36	28.2	28.2	28.2	7.9	7.9	7.9	3.55	13.8	13.8	13.8
35	28.4	28.4	28.4	7.7	7.7	7.7	3.67	13.6	13.6	13.6
34	28.6	28.6	28.6	7.6	7.6	7.6	3.78	13.3	13.3	13.3
33	28.7	28.7	28.7	7.4	7.4	7.4	3.90	13.1	13.1	13.1
32	28.9	28.9	28.9	7.2	7.2	7.2	4.02	12.9	12.9	12.9
31	29.1	29.1	29.1	7.0	7.0	7.0	4.14	12.7	12.7	12.7
30	29.3	29.3	29.3	6.9	6.9	6.9	4.26	12.6	12.6	12.6
29	29.4	29.4	29.4	6.7	6.7	6.7	4.39	12.4	12.4	12.4
28	29.6	29.6	29.6	6.5	6.5	6.5	4.52	12.2	12.2	12.2
27	29.7	29.7	29.7	6.4	6.4	6.4	4.65	12.1	12.1	12.1
26	29.9	29.9	29.9	6.2	6.2	6.2	4.79	11.9	11.9	11.9
25	30.0	30.0	30.0	6.1	6.1	6.1	4.93	11.7	11.7	11.7
24	30.2	30.2	30.2	5.9	5.9	5.9	5.07	11.6	11.6	11.6
23	30.3	30.3	30.3	5.8	5.8	5.8	5.22	11.5	11.5	11.5
22	30.4	30.4	30.4	5.7	5.7	5.7	5.37	11.3	11.3	11.3
21	30.5	30.5	30.5	5.5	5.5	5.5	5.52	11.2	11.2	11.2
20	30.7	30.7	30.7	5.4	5.4	5.4	5.68	11.1	11.1	11.1
19	30.8	30.8	30.8	5.3	5.3	5.3	5.84	11.0	11.0	11.0
18	30.9	30.9	30.9	5.1	5.1	5.1	6.01	10.9	10.9	10.9
17	31.0	31.0	31.0	5.0	5.0	5.0	6.18	10.8	10.8	10.8

* 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

