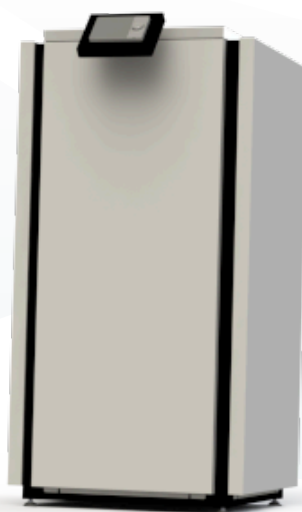




Heat pump



WW 18 EVI

WAMAK WW 18 EVI

Product description

Compact heat pump for heating and domestic hot water with passive cooling control. A short closed refrigerant circuit with a quiet scroll compressor 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.

As a primary source, thermal energy from underground water at a depth of between 12 and 30 metres is used. A submersible pump delivers the groundwater to the heat pump and, depending on the quality and chemical composition, the heat from the groundwater is extracted either directly in the heat pump or through a separating heat exchanger with an intermediate circuit and antifreeze. The heat pump then raises this temperature to a usable temperature for heating or hot water.

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.

Product features

- Scroll compressor
- EVI technology
- Asymmetric plate heat exchanger
- Phase and rotation control
- High pressure sensor - analogue
- Flow switch consumer - on/off - (with accessory)
- Flow switch source - on/off - (with accessory)
- Mixed heating/cooling circuit control
- DHW switching control
- Outdoor temperature sensor
- Buffer temperature sensor
- Modbus connection - (with accessory)
- Sylomer pads under compressor unit
- Electronic expansion valve
- Compressor soft starter
- High pressure switch
- Low pressure sensor - analogue
- Flow sensor consumer - analogue
- ECM speed circulator - condenser
- Direct heating/cooling circuit control
- DHW circulation control
- DHW temperature sensor
- Cascade control - (with accessory)
- Solid frame structure

Basic performance data - WAMAK WW 18 EVI

Heating - EN 14511		
Heating capacity [kW]	W10 / W35 (max)	18.9
	W10 / W35 (min)	18.9
	W10 / W34	18.9
Electrical power input [kW]	W10 / W35 (max)	3.0
	W10 / W35 (min)	3.0
	W10 / W34	2.9 (4.6 / 4.6)
Heating efficiency faktor [COP]	W10 / W35 (max)	6.26
	W10 / W35 (min)	6.26
	W10 / W34	6.43
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	7.27
	η [%]	290.9
	Label	A+++
	Qhe [kWh]	39047.4
	Pdesignh [kW]	18.9
	Tbivalent [°C]	-10
Cooling		
Cooling capacity - [kW]	A35 / W23-18	14.8
	A25 / W23-18	15.8
	A35 / W12-7	11.0
	A25 / W12-7	11.0
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	5.58
	Qce [kWh]	6600.0
	η_c [%]	223.3
Sound EN 12102		
Acoustic power - Lw	dB(A)	45
Acoustic pressure - Lp	1 m dB(A)	37
	5 m dB(A)	23
	10 m dB(A)	17
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 1 /	On/Off
Refrigerant	R410A (GWP - 2088)	2.4 kg
Operating limit temperatures heating - (min / max) [°C]	25 / 65	
Operating limit temperatures source - (min / max) [°C]	-10 (7) / 30	
Weight	150 kg	

Main technical data - WAMAK WW 18 EVI

Enclosure type			VN600		Heat energy rejection side data		
Basic dimensions		Height [mm]	1270		Operating limit temperatures heating	MAX [°C]	65
		Width [mm]	650			MIN [°C]	25
		Length [mm]	630		for more see operating limits diagram		
Weight [kg]		150		Condenser	Port size	1.1/4 "	
Colour		Gray			Type	BPHE	
Enclousure IP Class		IP20			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]			3
	On/Off			Testing pressure [bar]			70
	Power factor Cosφ	0.77		Heat transfer medium			Water
	Winding resistance	2.33 Ohm		Volume flow - Water [m3/h]			3.26
Refrigerant		R410A		Internal pressure drop - Water [kPa]			12
	Volme	2.4 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	1.24 L			@ 65°C	10 K	
Maximal pressure - refrigerant [bar]		45		Renewable energy extraction side data			
	PED class	1		Operating limit temperatures source	MIN [°C]	-10 (7)	
EVI - vapour injection with economizer			MAX [°C]		30		
Electrical connection data				for more see operating limits diagram			
Line voltage [#~ V/Hz]		3~ 400/50		Evaporator	Port size	1.1/4 "	
Current	nominal [A]	5.58			Type	BPHE	
	maximal [A]	10.90			Count	1	
	starting [A]	15.06			Material	AISI 316	
Softstart		MCI 12		Maximal operating pressure - refrigerant [bar]			28
Main safety		C25		Heat transfer medium			Water
Control System				Maximal operating pressure - Water [bar]			3
Main controller	SIEMENS	RVS 21 AVS 55.199		Volume flow - Water [m3/h]			4.56
Extension module	AVS75.391	AVS75.391	AVS75.3xx	Internal pressure drop - Water [kPa]			12
Bus Clip-In		LPB OCI346	Modbus OCI352	Temperature difference - Water			3 K
Online connection		Web server OZW672	ToSyMo				

*** with accessory

WAMAK WW 18 EVI

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

Model	WW 18 EVI
Air-to-water heat pump	no
Brine-to-water heat pump	no
Water-to-water heat pump	yes
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	18.9	kW	Seasonal space heating energy efficiency	ηs	290.9	%
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	18.9	kW	Tj = -7 °C	COPd	6.43	-
Tj = +2 °C	Pdh	18.9	kW	Tj = +2 °C	COPd	7.2	-
Tj = +7 °C	Pdh	19.0	kW	Tj = +7 °C	COPd	7.8	-
Tj = +12 °C	Pdh	19.0	kW	Tj = +12 °C	COPd	8.5	-
Tj = bivalent temperature	Pdh	18.9	kW	Tj = bivalent temperature	COPd	6.3	-
Tj = operation limit temperature	Pdh	---	kW	Tj = operation limit temperature	COPd	---	-
Bivalent temperature	Tbiv	-10	°C	Tj = operation limit temperature	TOL	---	°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	2.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.000	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	---	m3/h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	4.56	m3/h
indoors	Lwa	45	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	QHE	39047.4	kWh				

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

WAMAK WW 18 EVI

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

Model	WW 18 EVI
Air-to-water heat pump	no
Brine-to-water heat pump	no
Water-to-water heat pump	yes
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	18.6	kW	Seasonal space heating energy efficiency	η_s	212.5	%
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	18.9	kW	Tj = -7 °C	COPd	4.08	-
Tj = +2 °C	Pdh	19.0	kW	Tj = +2 °C	COPd	5.5	-
Tj = +7 °C	Pdh	19.1	kW	Tj = +7 °C	COPd	6.4	-
Tj = +12 °C	Pdh	19.2	kW	Tj = +12 °C	COPd	7.3	-
Tj = bivalent temperature	Pdh	18.6	kW	Tj = bivalent temperature	COPd	3.6	-
Tj = operation limit temperature	Pdh	---	kW	Tj = operation limit temperature	COPd	---	-
Bivalent temperature	Tbiv	-10	°C	Tj = operation limit temperature	TOL	---	°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	2.8	kW
Standby mode	Psb	0.010	kW	Type of energy input		electricity	
Crankcase heater mode	Pck	0.000	kW				
Other items							
Capacity control		fixed		For air-to-water heat pumps: Rated air flow rate, outdoors	-	---	m ³ /h
Sound power level				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	4.56	m ³ /h
indoors	Lwa	45	dB				
outdoors	Lwa	---	dB				
Annual energy consumption	Q _{HE}	38427.6	kWh				

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ENERG

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WAMAK

WW 18 EVI



55 °C

35 °C

A+++

A+++

A+++

A++

A+

A

B

C

D



45 dB



--- dB

■ 20
■ 19
■ 19
kW

■ 20
■ 19
■ 18
kW



2019

811/2013

WW 18 EVI

ErP Data

55 °C

35 °C

Energy class

A+++

A+++

η [%]

212.5

290.9

P_{rated} [kW]

19

19

Q_{HE} [kWh/y]

38428

39048

SCOP [-]

5.31

7.27

$T_{bivalent}$ [°C]

-10

-10

CONTROLLER



+ QAA55/75

class VII

3.5% ↓

- QAA55/75

class III

1.5% ↓

Heating performance data

Version: v202223.006-BW-WW

Source - Brine [0°C] / Low Temperature [35°C]

ZHI14K1P-TFM_R410A_1_BWW

Operating conditions		Qh	P	COP
1	B0 / W30-35	14.8	3.1	4.75
2	B0 / W30-35 (MIN)	14.8	3.1	4.75
A	B0 / Wxx-34	14.8	3.0	4.87
B	B0 / Wxx-30	14.8	2.7	5.39
C	B0 / Wxx-27	14.7	2.5	5.81
D	B0 / Wxx-24	14.7	2.3	6.28
E	B0 / Wxx-35	14.8	3.1	4.75
F	B0 / Wxx-35	14.8	3.1	4.75

SCOP DATA EN 14825:2018	
Source - Brine [0°C] / Low Temperature [35°C]	
SCOPon	5.48
SCOPnet	5.48
SCOP	5.44
η [%]	217.55
Label	A+++
Qh [kWh]	30577
Pdesignh [kW]	14.8
Tbivalent [°C]	-10

Source - Brine [0°C] / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	B0 / W47-55	15.2	5.2	2.94
2	B0 / W47-55 (MIN)	15.2	5.0	2.94
A	B0 / Wxx-52	15.2	4.7	3.37
B	B0 / Wxx-42	15.2	3.5	4.36
C	B0 / Wxx-36	15.0	3.1	4.88
D	B0 / Wxx-30	14.9	2.7	5.46
E	B0 / Wxx-55	15.2	5.2	2.94
F	B0 / Wxx-54	15.3	4.8	3.18

SCOP DATA EN 14825:2018	
Source - Brine [0°C] / Medium Temperature [55°C]	
SCOPon	4.24
SCOPnet	4.24
SCOP	4.21
η [%]	168.59
Label	A+++
Qh [kWh]	31403
Pdesignh [kW]	15.2
Tbivalent [°C]	-10

Source - Water [10°C] / Low Temperature [35°C]

Operating conditions		Qh	P	COP
1	W10 / W30-35	18.9	3.0	6.26
2	W10 / W30-35 (MIN)	18.9	3.0	6.26
A	W10 / Wxx-34	18.9	2.9	6.43
B	W10 / Wxx-30	18.9	2.6	7.20
C	W10 / Wxx-27	19.0	2.4	7.83
D	W10 / Wxx-24	19.0	2.2	8.52
E	W10 / Wxx-35	18.9	3.0	6.26
F	W10 / Wxx-35	18.9	3.0	6.26

SCOP DATA EN 14825:2018	
Source - Water [10°C] / Low Temperature [35°C]	
SCOPon	7.33
SCOPnet	7.33
SCOP	7.27
η [%]	290.94
Label	A+++
Qh [kWh]	39047
Pdesignh [kW]	18.9
Tbivalent [°C]	-10.00

Source - Water [10°C] / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	W10 / W47-55	18.6	5.1	3.63
2	W10 / W47-55 (MIN)	18.6	5.1	3.63
A	W10 / Wxx-52	18.9	4.6	4.08
B	W10 / Wxx-42	19.0	3.4	5.52
C	W10 / Wxx-36	19.1	3.0	6.43
D	W10 / Wxx-30	19.2	2.6	7.30
E	W10 / Wxx-55	18.6	5.1	3.63
F	W10 / Wxx-55	18.6	5.1	3.63

SCOP DATA EN 14825:2018
Source - Water [10°C] / Medium Temperature [55°C]

SCOPon	5.34
SCOPnet	5.34
SCOP	5.31
η [%]	212.51
Label	A+++
Qh [kWh]	38428
Pdesignh [kW]	18.6
Tbivalent [°C]	-10.00

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	W30-35 / W12-7	11.4	3.4	3.37
B	W26-xx / W12-7	11.6	3.0	3.81
C	W22-xx / W12-7	11.8	2.7	4.30
D	W18-xx / W12-7	11.9	2.6	4.57

SEER DATA EN 14825:2018 [W 12 / 7°C]

SEERon	4.15
SEER	4.13
Qc [kWh]	6600
η [%]	165.35

Radiant cooling W 23 / 18°C

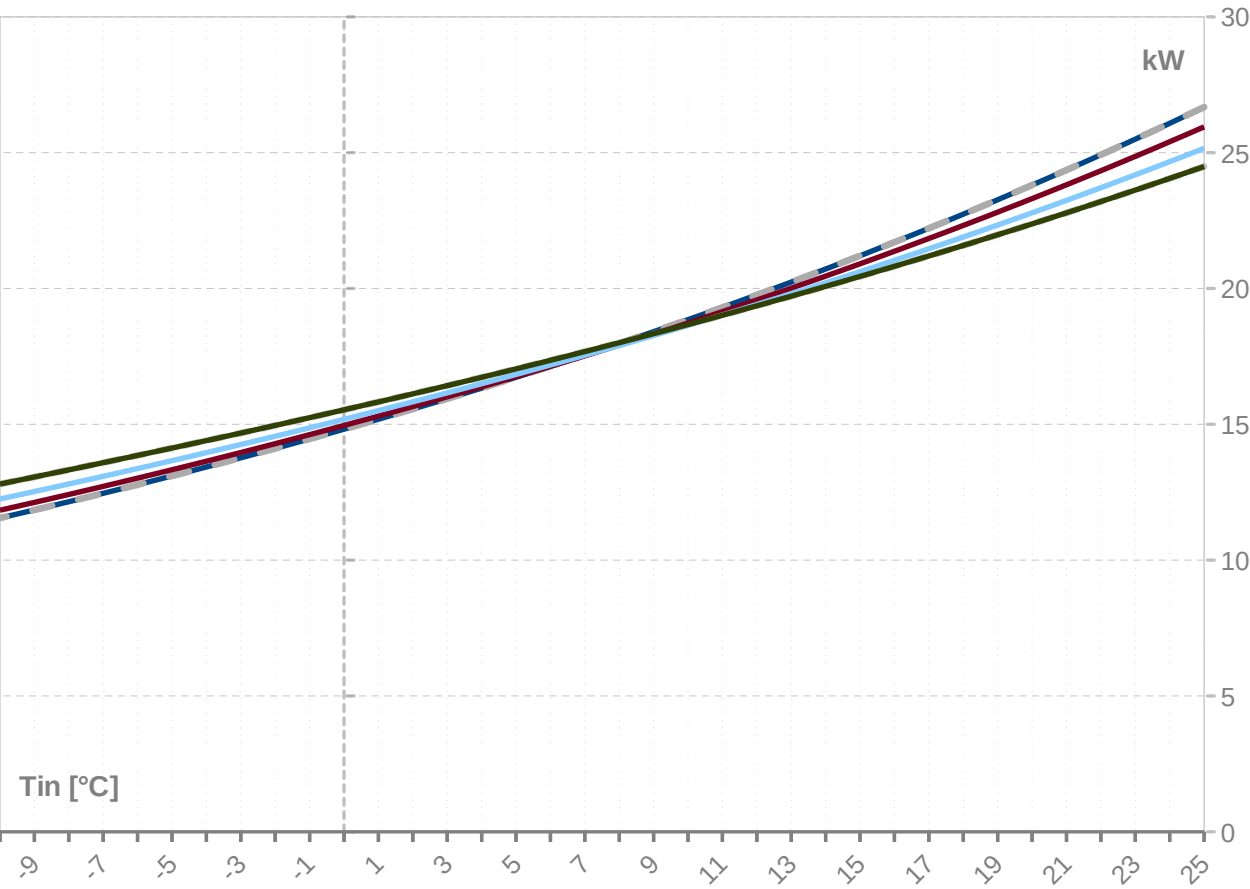
Operating conditions		Qc	P	EER
A	W50-xx / W23-18	13.1	5.6	2.36
B	W40-xx / W23-18	14.3	4.3	3.29
C	W30-35 / W23-18	15.3	3.4	4.54
D	W26-xx / W23-18	15.7	3.0	5.14

SEER DATA EN 14825:2018 [W 23 / 18°C]

SEERon	5.61
SEER	5.58
Qc [kWh]	6600
η [%]	223.30

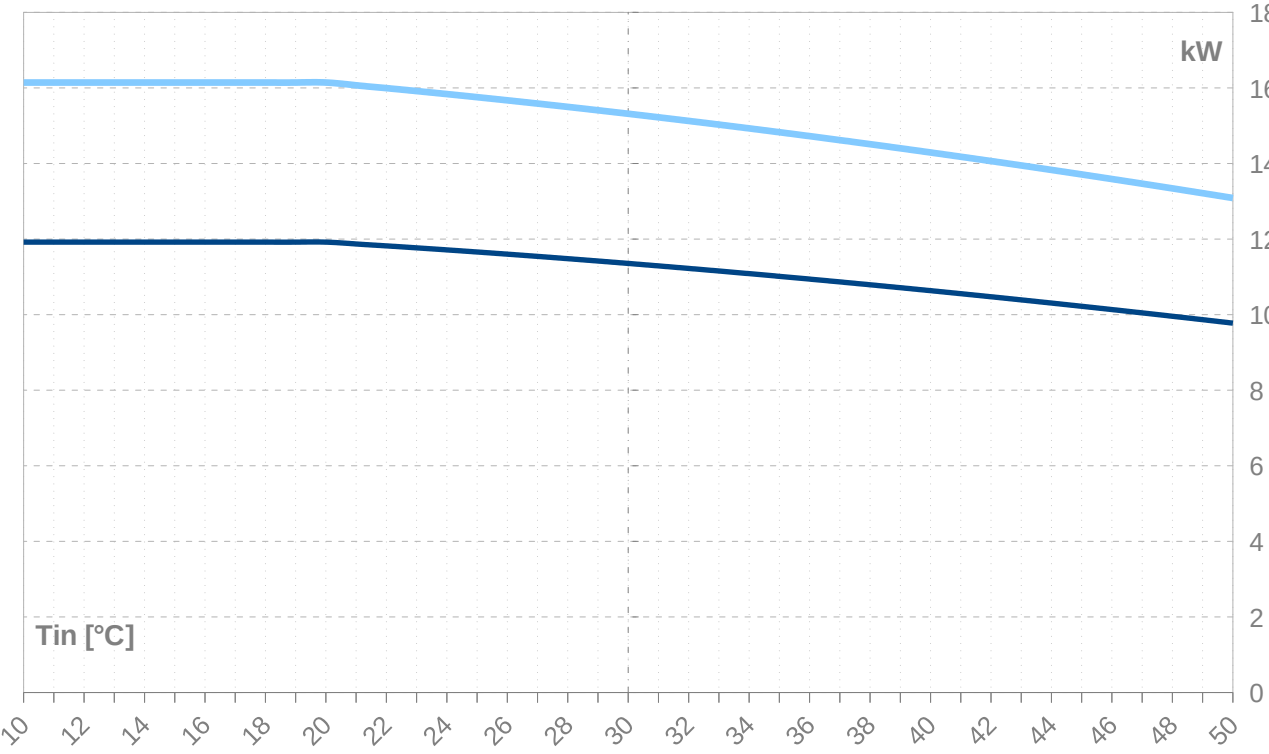
Performance lines - heating

Qh-nom-35 Qh-min-35 Qh-max-65 Qh-nom-45 Qh-nom-55
Qh-nom-65



Performance lines - cooling

Qc-nom-12-7 Qc-nom-23-18



Th -OU	35										
Ts -IN	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
25	26.7	26.7	26.7	2.8	2.8	2.8	9.54	24.1	24.1	24.1	5.3
24	26.1	26.1	26.1	2.8	2.8	2.8	9.28	23.5	23.5	23.5	5.3
23	25.5	25.5	25.5	2.8	2.8	2.8	9.02	22.9	22.9	22.9	5.3
22	24.9	24.9	24.9	2.8	2.8	2.8	8.77	22.3	22.3	22.3	5.3
21	24.4	24.4	24.4	2.9	2.9	2.9	8.53	21.7	21.7	21.7	5.3
20	23.8	23.8	23.8	2.9	2.9	2.9	8.29	21.1	21.1	21.1	5.4
19	23.3	23.3	23.3	2.9	2.9	2.9	8.06	20.6	20.6	20.6	5.4
18	22.7	22.7	22.7	2.9	2.9	2.9	7.84	20.0	20.0	20.0	5.4
17	22.2	22.2	22.2	2.9	2.9	2.9	7.62	19.5	19.5	19.5	5.4
16	21.7	21.7	21.7	2.9	2.9	2.9	7.41	19.0	19.0	19.0	5.4
15	21.2	21.2	21.2	2.9	2.9	2.9	7.20	18.5	18.5	18.5	5.4
14	20.7	20.7	20.7	3.0	3.0	3.0	7.00	18.0	18.0	18.0	5.5
13	20.2	20.2	20.2	3.0	3.0	3.0	6.81	17.5	17.5	17.5	5.5
12	19.8	19.8	19.8	3.0	3.0	3.0	6.62	17.0	17.0	17.0	5.5
11	19.3	19.3	19.3	3.0	3.0	3.0	6.43	16.5	16.5	16.5	5.5
10	18.9	18.9	18.9	3.0	3.0	3.0	6.26	16.0	16.0	16.0	5.5
9	18.4	18.4	18.4	3.0	3.0	3.0	6.08	15.6	15.6	15.6	5.5
8	18.0	18.0	18.0	3.0	3.0	3.0	5.92	15.1	15.1	15.1	5.6
7	17.6	17.6	17.6	3.1	3.1	3.1	5.75	14.7	14.7	14.7	5.6
6	17.1	17.1	17.1	3.1	3.1	3.1	5.60	14.3	14.3	14.3	5.6
5	16.7	16.7	16.7	3.1	3.1	3.1	5.44	13.9	13.9	13.9	5.6
4	16.3	16.3	16.3	3.1	3.1	3.1	5.30	13.5	13.5	13.5	5.6
3	15.9	15.9	15.9	3.1	3.1	3.1	5.15	13.1	13.1	13.1	5.6
2	15.6	15.6	15.6	3.1	3.1	3.1	5.02	12.7	12.7	12.7	5.6
1	15.2	15.2	15.2	3.1	3.1	3.1	4.88	12.3	12.3	12.3	5.6
0	14.8	14.8	14.8	3.1	3.1	3.1	4.75	11.9	11.9	11.9	5.7
-1	14.5	14.5	14.5	3.1	3.1	3.1	4.63	11.5	11.5	11.5	5.7
-2	14.1	14.1	14.1	3.1	3.1	3.1	4.51	11.2	11.2	11.2	5.7
-3	13.8	13.8	13.8	3.1	3.1	3.1	4.39	10.8	10.8	10.8	5.7
-4	13.4	13.4	13.4	3.1	3.1	3.1	4.27	10.5	10.5	10.5	5.7
-5	13.1	13.1	13.1	3.1	3.1	3.1	4.16	10.2	10.2	10.2	5.7
-6	12.8	12.8	12.8	3.1	3.1	3.1	4.06	9.8	9.8	9.8	5.7
-7	12.5	12.5	12.5	3.1	3.1	3.1	3.96	9.5	9.5	9.5	5.7
-8	12.1	12.1	12.1	3.1	3.1	3.1	3.86	9.2	9.2	9.2	5.7
-9	11.8	11.8	11.8	3.1	3.1	3.1	3.76	8.9	8.9	8.9	5.7
-10	11.5	11.5	11.5	3.1	3.1	3.1	3.67	8.6	8.6	8.6	5.7
-11	11.3	11.3	11.3	3.1	3.1	3.1	3.58	8.3	8.3	8.3	5.7
-12	11.0	11.0	11.0	3.1	3.1	3.1	3.49	8.0	8.0	8.0	5.7
-13	10.7	10.7	10.7	3.1	3.1	3.1	3.41	7.8	7.8	7.8	5.7
-14	10.4	10.4	10.4	3.1	3.1	3.1	3.33	7.5	7.5	7.5	5.7
-15	10.2	10.2	10.2	3.1	3.1	3.1	3.25	7.2	7.2	7.2	5.7

-- attention: operating limits not reflected in performance table

ZHI14K1P-TFM_R410A_1_BWW

Th -OU	45										
Th -OU	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
25	25.9	25.9	25.9	3.7	3.7	3.7	7.09	22.5	22.5	22.5	6.3
24	25.4	25.4	25.4	3.7	3.7	3.7	6.91	22.0	22.0	22.0	6.3
23	24.9	24.9	24.9	3.7	3.7	3.7	6.73	21.4	21.4	21.4	6.3
22	24.3	24.3	24.3	3.7	3.7	3.7	6.56	20.9	20.9	20.9	6.4
21	23.8	23.8	23.8	3.7	3.7	3.7	6.39	20.3	20.3	20.3	6.4
20	23.3	23.3	23.3	3.7	3.7	3.7	6.22	19.8	19.8	19.8	6.4
19	22.8	22.8	22.8	3.8	3.8	3.8	6.06	19.3	19.3	19.3	6.4
18	22.3	22.3	22.3	3.8	3.8	3.8	5.91	18.8	18.8	18.8	6.4
17	21.8	21.8	21.8	3.8	3.8	3.8	5.75	18.3	18.3	18.3	6.5
16	21.4	21.4	21.4	3.8	3.8	3.8	5.61	17.8	17.8	17.8	6.5
15	20.9	20.9	20.9	3.8	3.8	3.8	5.46	17.3	17.3	17.3	6.5
14	20.5	20.5	20.5	3.8	3.8	3.8	5.33	16.9	16.9	16.9	6.5
13	20.0	20.0	20.0	3.9	3.9	3.9	5.19	16.4	16.4	16.4	6.5
12	19.6	19.6	19.6	3.9	3.9	3.9	5.06	16.0	16.0	16.0	6.6
11	19.1	19.1	19.1	3.9	3.9	3.9	4.93	15.5	15.5	15.5	6.6
10	18.7	18.7	18.7	3.9	3.9	3.9	4.81	15.1	15.1	15.1	6.6
9	18.3	18.3	18.3	3.9	3.9	3.9	4.69	14.7	14.7	14.7	6.6
8	17.9	17.9	17.9	3.9	3.9	3.9	4.57	14.3	14.3	14.3	6.6
7	17.5	17.5	17.5	3.9	3.9	3.9	4.46	13.9	13.9	13.9	6.6
6	17.1	17.1	17.1	3.9	3.9	3.9	4.35	13.5	13.5	13.5	6.6
5	16.8	16.8	16.8	3.9	3.9	3.9	4.25	13.1	13.1	13.1	6.7
4	16.4	16.4	16.4	4.0	4.0	4.0	4.14	12.7	12.7	12.7	6.7
3	16.0	16.0	16.0	4.0	4.0	4.0	4.04	12.3	12.3	12.3	6.7
2	15.7	15.7	15.7	4.0	4.0	4.0	3.95	12.0	12.0	12.0	6.7
1	15.3	15.3	15.3	4.0	4.0	4.0	3.85	11.6	11.6	11.6	6.7
0	15.0	15.0	15.0	4.0	4.0	4.0	3.76	11.2	11.2	11.2	6.7
-1	14.6	14.6	14.6	4.0	4.0	4.0	3.67	10.9	10.9	10.9	6.7
-2	14.3	14.3	14.3	4.0	4.0	4.0	3.59	10.6	10.6	10.6	6.7
-3	14.0	14.0	14.0	4.0	4.0	4.0	3.51	10.2	10.2	10.2	6.7
-4	13.6	13.6	13.6	4.0	4.0	4.0	3.43	9.9	9.9	9.9	6.7
-5	13.3	13.3	13.3	4.0	4.0	4.0	3.35	9.6	9.6	9.6	6.7
-6	13.0	13.0	13.0	4.0	4.0	4.0	3.27	9.3	9.3	9.3	6.7
-7	12.7	12.7	12.7	4.0	4.0	4.0	3.20	9.0	9.0	9.0	6.7
-8	12.4	12.4	12.4	4.0	4.0	4.0	3.13	8.7	8.7	8.7	6.7
-9	12.1	12.1	12.1	4.0	4.0	4.0	3.06	8.4	8.4	8.4	6.7
-10	11.8	11.8	11.8	4.0	4.0	4.0	2.99	8.1	8.1	8.1	6.7
-11	11.6	11.6	11.6	3.9	3.9	3.9	2.93	7.9	7.9	7.9	6.7
-12	11.3	11.3	11.3	3.9	3.9	3.9	2.87	7.6	7.6	7.6	6.6
-13	11.0	11.0	11.0	3.9	3.9	3.9	2.81	7.3	7.3	7.3	6.6
-14	10.7	10.7	10.7	3.9	3.9	3.9	2.75	7.1	7.1	7.1	6.6
-15	10.5	10.5	10.5	3.9	3.9	3.9	2.69	6.8	6.8	6.8	6.6

-- attention: operating limits not reflected in performance table

Th -OU	55										
Ts -IN	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
25	25.2	25.2	25.2	4.9	4.9	4.9	5.12	20.6	20.6	20.6	7.9
24	24.7	24.7	24.7	4.9	4.9	4.9	5.00	20.1	20.1	20.1	7.9
23	24.2	24.2	24.2	5.0	5.0	5.0	4.88	19.6	19.6	19.6	8.0
22	23.7	23.7	23.7	5.0	5.0	5.0	4.77	19.1	19.1	19.1	8.0
21	23.2	23.2	23.2	5.0	5.0	5.0	4.66	18.6	18.6	18.6	8.0
20	22.8	22.8	22.8	5.0	5.0	5.0	4.55	18.1	18.1	18.1	8.0
19	22.3	22.3	22.3	5.0	5.0	5.0	4.45	17.6	17.6	17.6	8.1
18	21.9	21.9	21.9	5.0	5.0	5.0	4.35	17.2	17.2	17.2	8.1
17	21.5	21.5	21.5	5.1	5.1	5.1	4.25	16.7	16.7	16.7	8.1
16	21.0	21.0	21.0	5.1	5.1	5.1	4.15	16.3	16.3	16.3	8.1
15	20.6	20.6	20.6	5.1	5.1	5.1	4.06	15.9	15.9	15.9	8.1
14	20.2	20.2	20.2	5.1	5.1	5.1	3.97	15.5	15.5	15.5	8.2
13	19.8	19.8	19.8	5.1	5.1	5.1	3.88	15.0	15.0	15.0	8.2
12	19.4	19.4	19.4	5.1	5.1	5.1	3.79	14.6	14.6	14.6	8.2
11	19.0	19.0	19.0	5.1	5.1	5.1	3.71	14.2	14.2	14.2	8.2
10	18.6	18.6	18.6	5.1	5.1	5.1	3.63	13.8	13.8	13.8	8.2
9	18.3	18.3	18.3	5.1	5.1	5.1	3.55	13.5	13.5	13.5	8.2
8	17.9	17.9	17.9	5.2	5.2	5.2	3.48	13.1	13.1	13.1	8.2
7	17.5	17.5	17.5	5.2	5.2	5.2	3.40	12.7	12.7	12.7	8.2
6	17.2	17.2	17.2	5.2	5.2	5.2	3.33	12.4	12.4	12.4	8.3
5	16.8	16.8	16.8	5.2	5.2	5.2	3.26	12.0	12.0	12.0	8.3
4	16.5	16.5	16.5	5.2	5.2	5.2	3.19	11.7	11.7	11.7	8.3
3	16.2	16.2	16.2	5.2	5.2	5.2	3.13	11.3	11.3	11.3	8.3
2	15.8	15.8	15.8	5.2	5.2	5.2	3.06	11.0	11.0	11.0	8.3
1	15.5	15.5	15.5	5.2	5.2	5.2	3.00	10.7	10.7	10.7	8.3
0	15.2	15.2	15.2	5.2	5.2	5.2	2.94	10.4	10.4	10.4	8.3
-1	14.9	14.9	14.9	5.2	5.2	5.2	2.88	10.0	10.0	10.0	8.3
-2	14.6	14.6	14.6	5.2	5.2	5.2	2.82	9.7	9.7	9.7	8.3
-3	14.3	14.3	14.3	5.2	5.2	5.2	2.77	9.4	9.4	9.4	8.2
-4	14.0	14.0	14.0	5.1	5.1	5.1	2.71	9.2	9.2	9.2	8.2
-5	13.7	13.7	13.7	5.1	5.1	5.1	2.66	8.9	8.9	8.9	8.2
-6	13.4	13.4	13.4	5.1	5.1	5.1	2.61	8.6	8.6	8.6	8.2
-7	13.1	13.1	13.1	5.1	5.1	5.1	2.56	8.3	8.3	8.3	8.2
-8	12.8	12.8	12.8	5.1	5.1	5.1	2.51	8.0	8.0	8.0	8.2
-9	12.5	12.5	12.5	5.1	5.1	5.1	2.46	7.8	7.8	7.8	8.2
-10	12.2	12.2	12.2	5.1	5.1	5.1	2.42	7.5	7.5	7.5	8.1
-11	12.0	12.0	12.0	5.0	5.0	5.0	2.37	7.3	7.3	7.3	8.1
-12	11.7	11.7	11.7	5.0	5.0	5.0	2.33	7.0	7.0	7.0	8.1
-13	11.4	11.4	11.4	5.0	5.0	5.0	2.29	6.8	6.8	6.8	8.0
-14	11.2	11.2	11.2	5.0	5.0	5.0	2.25	6.5	6.5	6.5	8.0
-15	10.9	10.9	10.9	4.9	4.9	4.9	2.21	6.3	6.3	6.3	8.0

-- attention: operating limits not reflected in performance table

Th -OU	65 (T-max)										
Ts -IN	Qh nom	Qh min	Qh max	Pin nom	Pin min	Pin max	COP nom	Qc nom	Qc min	Qc max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
25	24.5	24.5	24.5	6.5	6.5	6.5	3.80	18.5	18.5	18.5	10.0
24	24.1	24.1	24.1	6.5	6.5	6.5	3.72	18.0	18.0	18.0	10.1
23	23.6	23.6	23.6	6.5	6.5	6.5	3.64	17.6	17.6	17.6	10.1
22	23.2	23.2	23.2	6.5	6.5	6.5	3.57	17.1	17.1	17.1	10.1
21	22.8	22.8	22.8	6.5	6.5	6.5	3.49	16.7	16.7	16.7	10.1
20	22.4	22.4	22.4	6.5	6.5	6.5	3.42	16.3	16.3	16.3	10.2
19	22.0	22.0	22.0	6.5	6.5	6.5	3.36	15.9	15.9	15.9	10.2
18	21.6	21.6	21.6	6.6	6.6	6.6	3.29	15.5	15.5	15.5	10.2
17	21.2	21.2	21.2	6.6	6.6	6.6	3.22	15.1	15.1	15.1	10.2
16	20.8	20.8	20.8	6.6	6.6	6.6	3.16	14.7	14.7	14.7	10.2
15	20.4	20.4	20.4	6.6	6.6	6.6	3.10	14.3	14.3	14.3	10.2
14	20.1	20.1	20.1	6.6	6.6	6.6	3.04	13.9	13.9	13.9	10.3
13	19.7	19.7	19.7	6.6	6.6	6.6	2.98	13.5	13.5	13.5	10.3
12	19.4	19.4	19.4	6.6	6.6	6.6	2.93	13.2	13.2	13.2	10.3
11	19.0	19.0	19.0	6.6	6.6	6.6	2.87	12.8	12.8	12.8	10.3
10	18.7	18.7	18.7	6.6	6.6	6.6	2.82	12.5	12.5	12.5	10.3
9	18.3	18.3	18.3	6.6	6.6	6.6	2.77	12.1	12.1	12.1	10.3
8	18.0	18.0	18.0	6.6	6.6	6.6	2.72	11.8	11.8	11.8	10.3
7	17.7	17.7	17.7	6.6	6.6	6.6	2.67	11.5	11.5	11.5	10.3
6	17.4	17.4	17.4	6.6	6.6	6.6	2.62	11.2	11.2	11.2	10.3
5	17.0	17.0	17.0	6.6	6.6	6.6	2.57	10.9	10.9	10.9	10.3
4	16.7	16.7	16.7	6.6	6.6	6.6	2.53	10.5	10.5	10.5	10.3
3	16.4	16.4	16.4	6.6	6.6	6.6	2.48	10.2	10.2	10.2	10.3
2	16.1	16.1	16.1	6.6	6.6	6.6	2.44	10.0	10.0	10.0	10.3
1	15.8	15.8	15.8	6.6	6.6	6.6	2.40	9.7	9.7	9.7	10.3
0	15.5	15.5	15.5	6.6	6.6	6.6	2.36	9.4	9.4	9.4	10.2
-1	15.2	15.2	15.2	6.6	6.6	6.6	2.32	9.1	9.1	9.1	10.2
-2	15.0	15.0	15.0	6.6	6.6	6.6	2.28	8.8	8.8	8.8	10.2
-3	14.7	14.7	14.7	6.5	6.5	6.5	2.24	8.6	8.6	8.6	10.2
-4	14.4	14.4	14.4	6.5	6.5	6.5	2.20	8.3	8.3	8.3	10.2
-5	14.1	14.1	14.1	6.5	6.5	6.5	2.17	8.0	8.0	8.0	10.1
-6	13.9	13.9	13.9	6.5	6.5	6.5	2.13	7.8	7.8	7.8	10.1
-7	13.6	13.6	13.6	6.5	6.5	6.5	2.10	7.5	7.5	7.5	10.1
-8	13.3	13.3	13.3	6.4	6.4	6.4	2.07	7.3	7.3	7.3	10.0
-9	13.1	13.1	13.1	6.4	6.4	6.4	2.04	7.1	7.1	7.1	10.0
-10	12.8	12.8	12.8	6.4	6.4	6.4	2.00	6.8	6.8	6.8	10.0
-11	12.5	12.5	12.5	6.4	6.4	6.4	1.97	6.6	6.6	6.6	9.9
-12	12.3	12.3	12.3	6.3	6.3	6.3	1.94	6.4	6.4	6.4	9.9
-13	12.0	12.0	12.0	6.3	6.3	6.3	1.91	6.2	6.2	6.2	9.8
-14	11.8	11.8	11.8	6.3	6.3	6.3	1.89	5.9	5.9	5.9	9.8
-15	11.5	11.5	11.5	6.2	6.2	6.2	1.86	5.7	5.7	5.7	9.7

-- attention: operating limits not reflected in performance table

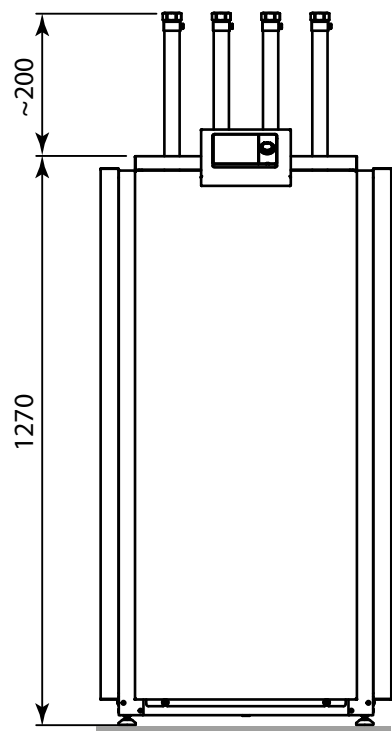
Tc -OU		W 12 / 7 °C									
Ts -IN	Qc nom	Qc min	Qc max	Pin nom	Pin min	Pin max	EER	Qh nom	Qh min	Qh max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
40	10.6	10.6	10.6	4.3	4.3	4.3	2.45	14.7	14.7	14.7	7.2
39	10.7	10.7	10.7	4.2	4.2	4.2	2.53	14.7	14.7	14.7	7.0
38	10.8	10.8	10.8	4.1	4.1	4.1	2.61	14.6	14.6	14.6	6.9
37	10.9	10.9	10.9	4.0	4.0	4.0	2.70	14.6	14.6	14.6	6.8
36	10.9	10.9	10.9	3.9	3.9	3.9	2.79	14.6	14.6	14.6	6.6
35	11.0	11.0	11.0	3.8	3.8	3.8	2.88	14.6	14.6	14.6	6.5
34	11.1	11.1	11.1	3.7	3.7	3.7	2.97	14.6	14.6	14.6	6.4
33	11.2	11.2	11.2	3.6	3.6	3.6	3.06	14.6	14.6	14.6	6.3
32	11.2	11.2	11.2	3.6	3.6	3.6	3.16	14.5	14.5	14.5	6.2
31	11.3	11.3	11.3	3.5	3.5	3.5	3.26	14.5	14.5	14.5	6.1
30	11.4	11.4	11.4	3.4	3.4	3.4	3.37	14.5	14.5	14.5	6.0
29	11.4	11.4	11.4	3.3	3.3	3.3	3.47	14.5	14.5	14.5	5.9
28	11.5	11.5	11.5	3.2	3.2	3.2	3.58	14.5	14.5	14.5	5.8
27	11.5	11.5	11.5	3.1	3.1	3.1	3.69	14.5	14.5	14.5	5.7
26	11.6	11.6	11.6	3.0	3.0	3.0	3.81	14.4	14.4	14.4	5.6
25	11.7	11.7	11.7	3.0	3.0	3.0	3.93	14.4	14.4	14.4	5.5
24	11.7	11.7	11.7	2.9	2.9	2.9	4.05	14.4	14.4	14.4	5.4
23	11.8	11.8	11.8	2.8	2.8	2.8	4.17	14.4	14.4	14.4	5.3
22	11.8	11.8	11.8	2.7	2.7	2.7	4.30	14.4	14.4	14.4	5.2
21	11.9	11.9	11.9	2.7	2.7	2.7	4.44	14.4	14.4	14.4	5.1
20	11.9	11.9	11.9	2.6	2.6	2.6	4.57	14.4	14.4	14.4	5.1

Tc [°C]		W 23 / 18 °C									
0	Qc nom	Qc min	Qc max	Pin nom	Pin min	Pin max	EER	Qh nom	Qh min	Qh max	I nom
[°C]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	kW / kW	[kW]	[kW]	[kW]	[A]
40	14.3	14.3	14.3	4.3	4.3	4.3	3.29	18.3	18.3	18.3	7.1
39	14.4	14.4	14.4	4.2	4.2	4.2	3.40	18.3	18.3	18.3	6.9
38	14.5	14.5	14.5	4.1	4.1	4.1	3.51	18.3	18.3	18.3	6.8
37	14.6	14.6	14.6	4.0	4.0	4.0	3.63	18.3	18.3	18.3	6.7
36	14.7	14.7	14.7	3.9	3.9	3.9	3.75	18.3	18.3	18.3	6.5
35	14.8	14.8	14.8	3.8	3.8	3.8	3.87	18.3	18.3	18.3	6.4
34	14.9	14.9	14.9	3.7	3.7	3.7	4.00	18.3	18.3	18.3	6.3
33	15.0	15.0	15.0	3.6	3.6	3.6	4.13	18.3	18.3	18.3	6.2
32	15.1	15.1	15.1	3.6	3.6	3.6	4.26	18.4	18.4	18.3	6.1
31	15.2	15.2	15.2	3.5	3.5	3.5	4.40	18.4	18.4	18.3	5.9
30	15.3	15.3	15.3	3.4	3.4	3.4	4.54	18.4	18.4	18.3	5.8
29	15.4	15.4	15.4	3.3	3.3	3.3	4.68	18.4	18.4	18.3	5.7
28	15.5	15.5	15.5	3.2	3.2	3.2	4.83	18.4	18.4	18.3	5.6
27	15.6	15.6	15.6	3.1	3.1	3.1	4.99	18.4	18.4	18.3	5.5
26	15.7	15.7	15.7	3.0	3.0	3.0	5.14	18.4	18.4	18.3	5.4
25	15.8	15.8	15.8	3.0	3.0	3.0	5.31	18.4	18.4	18.3	5.4
24	15.8	15.8	15.8	2.9	2.9	2.9	5.47	18.4	18.4	18.3	5.3
23	15.9	15.9	15.9	2.8	2.8	2.8	5.65	18.5	18.5	18.3	5.2
22	16.0	16.0	16.0	2.7	2.7	2.7	5.82	18.5	18.5	18.4	5.1
21	16.1	16.1	16.1	2.7	2.7	2.7	6.00	18.5	18.5	18.4	5.0
20	16.1	16.1	16.1	2.6	2.6	2.6	6.19	18.5	18.5	18.4	5.0

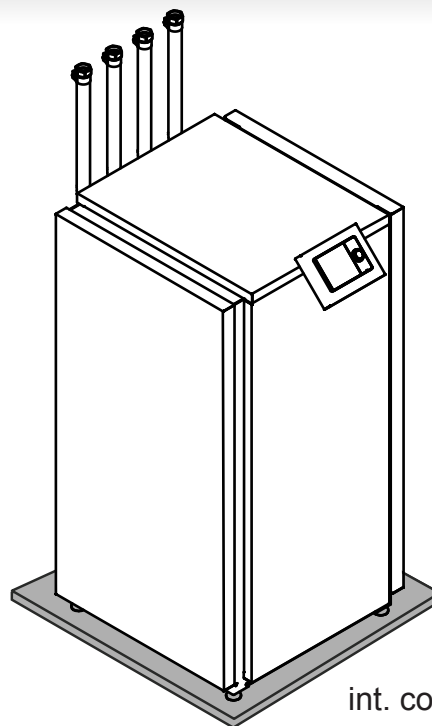
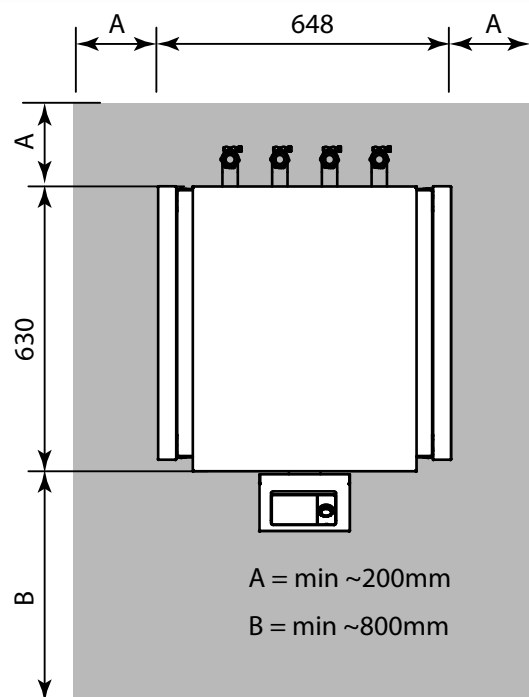
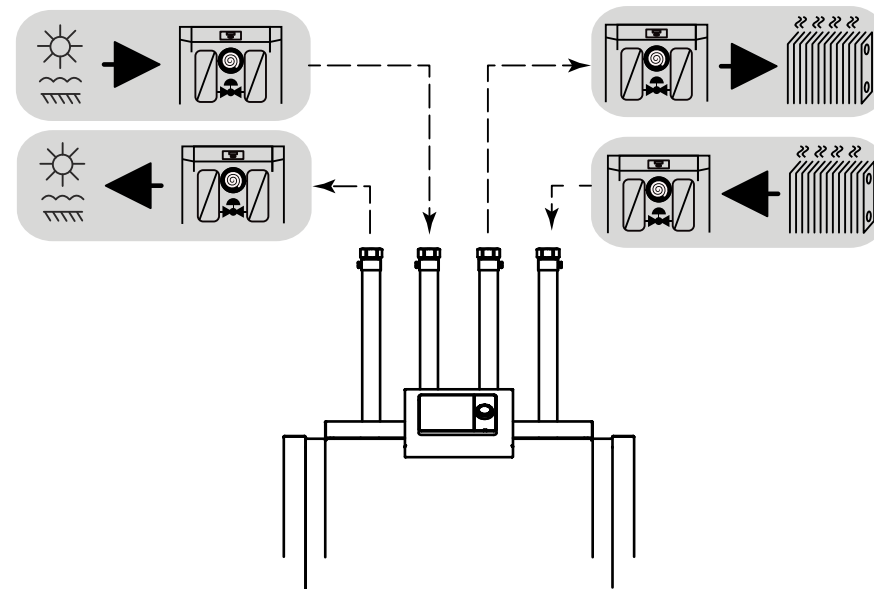
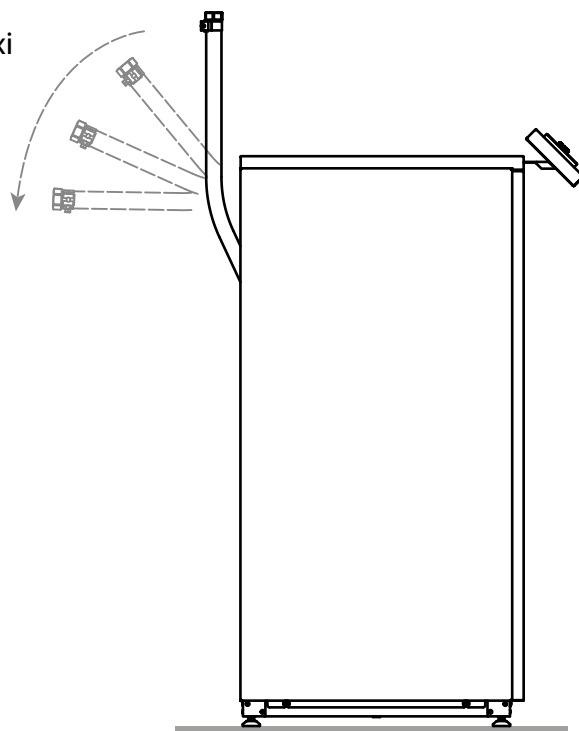
-- attention: operating limits not reflected in performance table

LEGEND:

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



Flexi



int. code: VN600

