



Heat pump



AWK 47 EVI

WAMAK AWK 47 EVI

Product description

Compact heat pump for heating, cooling and domestic hot water designed for outdoor installation. A short closed refrigerant circuit with a silent Scroll compressor located in front of the low-height fan simplifies installation and aids long-term stable operation. Features include a double V-shaped heat exchanger, full stainless steel enclosure and robust frame construction.

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 - (with accessory)
- High pressure switch
- Low pressure sensor - analogue
- Flow sensor consumer - analogue - (with accessory)
- ECM speed circulator - condenser - (with accessory)
- Direct heating/cooling circuit control - (with accessory)
- DHW circulation control - (with accessory)
- DHW temperature sensor - (with accessory)
- Cascade control - (with accessory)
- Body parts and frame made of fully stainless steel sheet
- 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)
- Solid frame structure

Basic performance data - WAMAK AWK 47 EVI

Heating - EN 14511		
Heating capacity [kW]	A7 / W35	49.1
	A2 / W35	41.7
	A-7 / W34	35.0
Electrical power input [kW]	A7 / W35	11.4
	A2 / W35	11.4
	A-7 / W34	11.0
Heating efficiency faktor [COP]	A7 / W35	4.31
	A2 / W35	3.67
	A-7 / W34	3.17
Seasonal space heating energy efficiency - SCOP EN 14825		
Average Climate / Low Temperature [35 °C]	SCOP	4.17
	η [%]	166.9
	Label	A+++
	Qhe [kWh]	19312.6
	Pdesignh [kW]	39.7
	Tbivalent [°C]	-7
Cooling		
Cooling capacity - [kW]	A35 / W23-18	48.4
	A25 / W23-18	50.9
	A35 / W12-7	36.4
	A25 / W12-7	36.4
Seasonal space cooling energy efficiency - SEER EN 14825		
[W 23 / 18 °C]	SEER	4.46
	Qce [kWh]	21840.0
	η_c [%]	178.6
Sound EN 12102		
Acoustic power - Lw	dB(A)	65.3
Acoustic pressure - Lp	1 m dB(A)	57.3
	5 m dB(A)	43.3
	10 m dB(A)	37.3
Mechanical and operational information		
Compressor type (3~ 400/50)	SCROLL / 1 /	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		590 kg

Main technical data - WAMAK AWK 47 EVI

Enclosure type			AWK-VOV900			Heat energy rejection side data				
Basic dimensions	Height [mm]	1250	Operating limit temperatures heating	MAX [°C]	65	for more see operating limits diagram	Condenser	Port size	2 "	
	Width [mm]	1380		MIN [°C]	25			Type	BPHE	
	Length [mm]	1780		Count	1			Material	AISI 316	
Weight [kg]	590		Maximal operating pressure - refrigerant [bar]	50		for more see operating limits diagram	Maximal operating pressure - Water [bar]	6		
Colour	Inox		Testing pressure [bar]	70			Heat transfer medium	Water		
Enclosure IP Class	IP44		Volume flow @ dT 5K (nom) - Water [m3/h]	8.45			Internal pressure drop - Water [kPa]	14		
Refrigeration cycle			Compressor	Type	Scroll	Temperature difference	@ 35°C (nom)	5 K		
Refrigerant	Number of stages	1		@ 55°C	8 K					
	On/Off			@ 65°C	10 K					
	Power factor Cosφ	0.64		Renewable energy extraction side data						
	Winding resistance	0.76 Ohm		Operating limit temperatures source	MIN [°C]		-22			
	Refrigeration oil type	POE RL32-3MAF	MAX [°C]	40						
	Oil volume	3.38 L	for more see operating limits diagram			Evaporator	Type	Cu-coil /Al-fin		
Maximal pressure - refrigerant [bar]	50	PED class	2		Count		1			
					Material		Cu/Al			
EVI - vapour injection with economizer			Maximal operating pressure - refrigerant [bar]	29		Heat transfer medium	Air			
APS System of liquid subcooling			Volume flow - Air [m3/h]	14980		Internal pressure drop - Air [kPa]	0.032			
Reversible operation (cooling)			Temperature difference - Air	7 K		Number of fans	1			
Reverse defrosting with hot gas			Fan diameter [mm]	800		Electrical connection data				
Plate exchanger protection HG-BYPASS			Line voltage [#~ V/Hz]			3~ 400/50				
			Current	nominal [A]	23.53	Main controller			SIEMENS	RVS 21 AVS 55.199
				maximal [A]	37.40	Extension module	AVS75.3xx	AVS75.3xx	AVS75.372	
				starting [A]	57.2		Bus Clip-In	LPB OCI346	Modbus OCI352	
Softstart			Main safety	C40		Online connection	Web server OZW672	ToSyMo		
Control System			Superheat controller			1 - EEV H/C				
*** with accessory										

WAMAK AWK 47 EVI

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

Model	AWK 47 EVI
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	39.7	kW	Seasonal space heating energy efficiency	η_s	166.9	%
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	35.0	kW	Tj = -7 °C	COPd	3.17	-
Tj = +2 °C	Pdh	41.2	kW	Tj = +2 °C	COPd	4.1	-
Tj = +7 °C	Pdh	48.6	kW	Tj = +7 °C	COPd	5.1	-
Tj = +12 °C	Pdh	57.4	kW	Tj = +12 °C	COPd	6.4	-
Tj = bivalent temperature	Pdh	34.4	kW	Tj = bivalent temperature	COPd	3.1	-
Tj = operation limit temperature	Pdh	25.1	kW	Tj = operation limit temperature	COPd	2.3	-
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	17.6	kW
Standby mode	Psb	0.010	kW	Type of energy input	electricity		
Crankcase heater mode	Pck	0.050	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control		fixed					
Sound power level							
indoors	Lwa	---	dB				
outdoors	Lwa	65	dB				
Annual energy consumption	Q _{HE}	19312.6	kWh				

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

WAMAK AWK 47 EVI

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

Model	AWK 47 EVI
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	41.6	kW	Seasonal space heating energy efficiency	η_s	131.1	%
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	36.6	kW	Tj = -7 °C	COPd	2.24	-
Tj = +2 °C	Pdh	42.3	kW	Tj = +2 °C	COPd	3.2	-
Tj = +7 °C	Pdh	49.1	kW	Tj = +7 °C	COPd	4.2	-
Tj = +12 °C	Pdh	57.6	kW	Tj = +12 °C	COPd	5.6	-
Tj = bivalent temperature	Pdh	36.1	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	26.4	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	17.6	kW
Standby mode	Psb	0.010	kW	Type of energy input	electricity		
Crankcase heater mode	Pck	0.050	kW				
Other items				For air-to-water heat pumps: Rated air flow rate, outdoors	-	14980	m ³ /h
Capacity control	fixed			For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	---	m ³ /h
Sound power level							
indoors	Lwa	---	dB				
outdoors	Lwa	65	dB				
Annual energy consumption	Q _{HE}	25884.1	kWh				

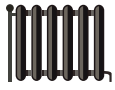
Contact details: WAMAK, s.r.o., Orovnicna 252, 96652, Orovnicna, Slovakia, info@wamak.sk



ENERG Y IIA
 енергия - ενεργεια IE IA

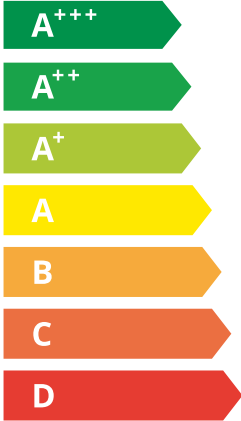


AWK 47 EVI



55 °C

35 °C



Speaker icon: --- dB

Microphone icon: 65 dB

■ 44	■ 41
■ 42	■ 40
■ 41	■ 38
kW	kW

2019

811/2013

AWK 47 EVI

ErP Data

	55 °C	35 °C
Energy class	A++	A+++
η [%]	131.1	166.9
P_{rated} [kW]	42	40
Q_{HE} [kWh/y]	25885	19313
SCOP [-]	3.28	4.17
$T_{bivalent}$ [°C]	-7	-7

CONTROLLER



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

Heating performance data

Version: v2024.010-AW

Average Climate / Low Temperature [35°C]

ZHI46K1P-TWD_R410A_1_AW

Operating conditions		Qh	P	COP
1	A7 / W30-35	49.1	11.4	4.31
2	A2 / W35	41.7	11.4	3.67
3	A-22 / W35	25.1	10.8	2.31
A	A-7 / W34	35.0	11.0	3.17
B	A2 / W30	41.2	10.2	4.06
C	A7 / W27	48.6	9.5	5.11
D	A12 / W24	57.4	9.0	6.41
E	A-10 / W35	34.4	11.3	3.05
F	A-7 / W34	35.0	11.0	3.17

SCOP DATA EN 14825:2018	
Average Climate / Low Temperature [35°C]	
SCOPon	4.25
SCOPnet	4.29
SCOP	4.17
η [%]	166.90
Label	A+++
Qh [kWh]	19312.60
Pdesignh [kW]	39.7
Tbivalent [°C]	-7.00

Average Climate / Medium Temperature [55°C]

Operating conditions		Qh	P	COP
1	A7 / W47-55	50.1	17.8	2.81
2	A2 / W55	43.2	17.7	2.44
3	A-22 / W55	26.4	15.2	1.62
A	A-7 / W52	36.6	16.3	2.24
B	A2 / W42	42.3	13.3	3.18
C	A7 / W36	49.1	11.6	4.22
D	A12 / W30	57.6	10.2	5.64
E	A-10 / W55	36.1	17.4	2.08
F	A-7 / W55	36.8	17.4	2.11

SCOP DATA EN 14825:2018	
Average Climate / Medium Temperature [55°C]	
SCOPon	3.32
SCOPnet	3.34
SCOP	3.28
η [%]	131.06
Label	A++
Qh [kWh]	25884.15
Pdesignh [kW]	41.6
Tbivalent [°C]	-7.00

Cooling performance data

Low temperature cooling W 12 / 7°C

Operating conditions		Qc	P	EER
A	A35 / W12-7	36.4	13.6	2.68
B	A30 / W12-7	37.4	12.2	3.07
C	A25 / W12-7	38.2	10.9	3.51
D	A20 / W12-7	38.9	9.7	4.00

SEER DATA EN 14825:2018 [W 12 / 7°C]	
SEERon	3.43
SEER	3.37
Qc [kWh]	8017.15
η [%]	134.85

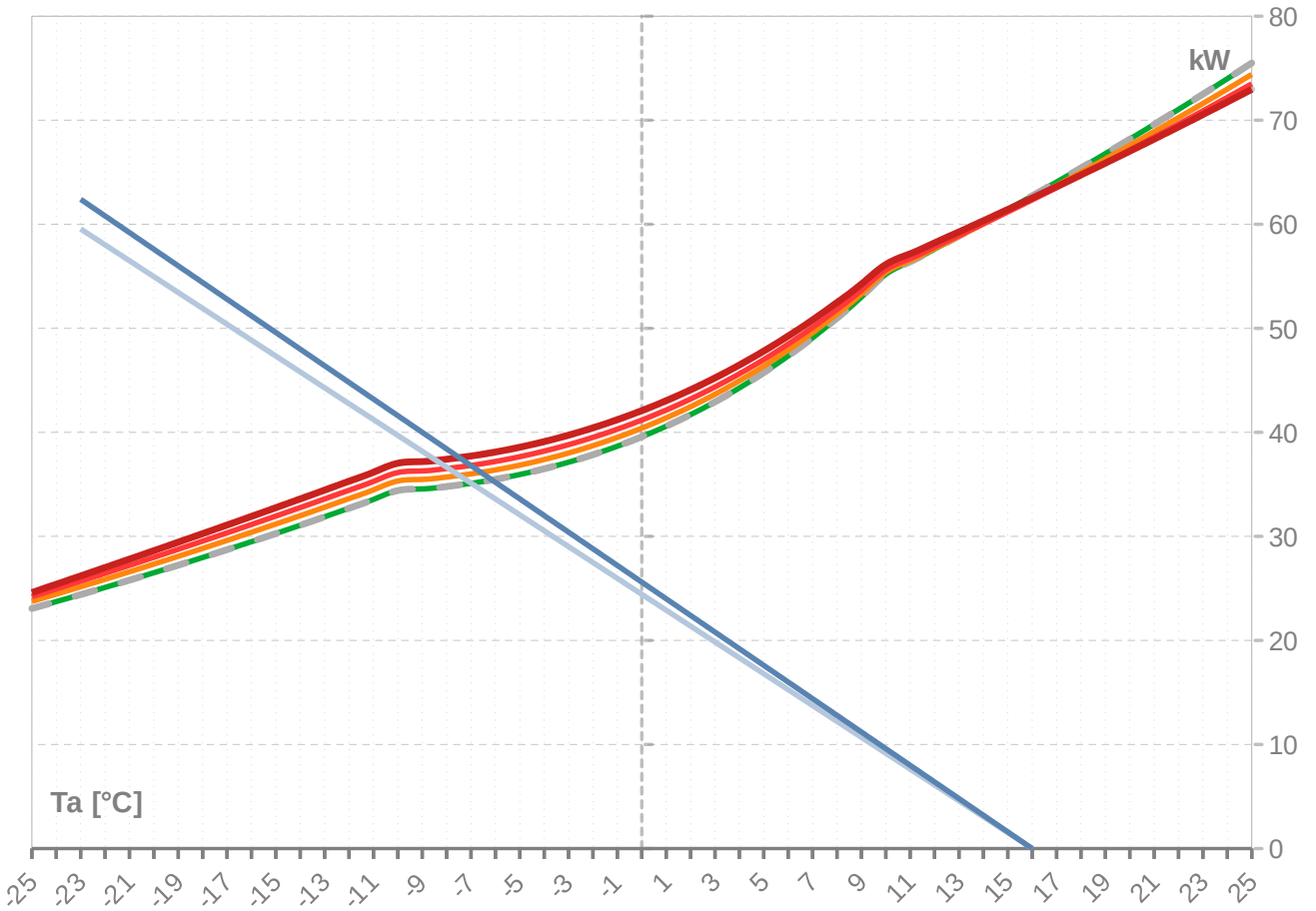
Radiant cooling W 23 / 18°C

Operating conditions		Qc	P	EER
A	A35 / W23-18	48.4	13.6	3.56
B	A30 / W23-18	49.7	11.3	4.09
C	A25 / W23-18	50.9	10.1	4.67
D	A20 / W23-18	51.9	9.1	5.34

SEER DATA EN 14825:2018 [W 23 / 18°C]	
SEERon	4.57
SEER	4.46
Qc [kWh]	6021.13
η [%]	178.56

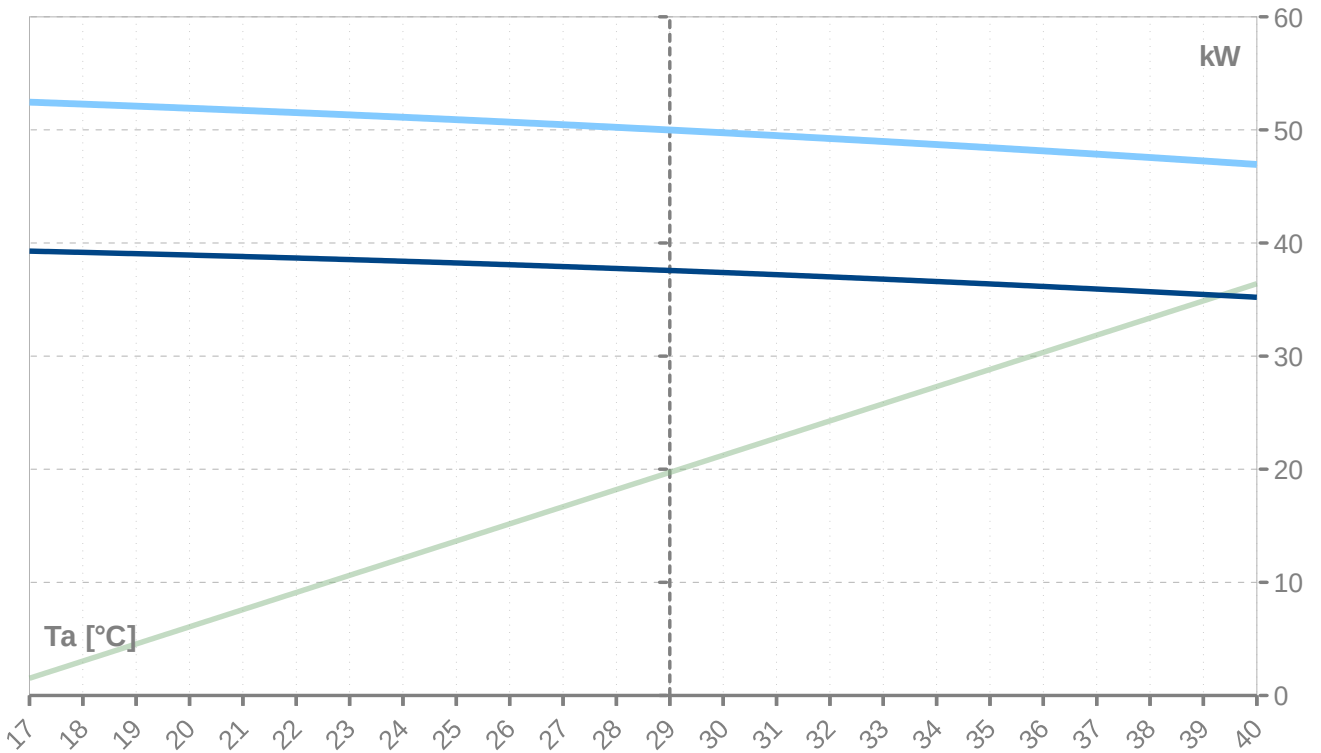
Performance lines - heating

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



Performance lines - cooling

- Pratedc — Qc-12/7 — Qc-23/18



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	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
24	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
23	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
22	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
21	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
20	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
19	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
18	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
17	64.1	64.1		11.4	11.4		5.62	23.3	23.3	
16	62.7	62.7	62.7	11.4	11.4	11.4	5.51	23.3	23.3	23.3
15	61.4	61.4	61.4	11.4	11.4	11.4	5.40	23.3	23.3	23.3
14	60.1	60.1	60.1	11.4	11.4	11.4	5.28	23.3	23.3	23.3
13	58.9	58.9	58.9	11.4	11.4	11.4	5.17	23.4	23.4	23.4
12	57.6	57.6	57.6	11.4	11.4	11.4	5.06	23.4	23.4	23.4
11	56.4	56.4	56.4	11.4	11.4	11.4	4.96	23.4	23.4	23.4
10	55.2	55.2	55.2	11.4	11.4	11.4	4.85	23.4	23.4	23.4
9	53.0	53.0	53.0	11.4	11.4	11.4	4.66	23.5	23.5	23.5
8	51.0	51.0	51.0	11.4	11.4	11.4	4.48	23.5	23.5	23.5
7	49.1	49.1	49.1	11.4	11.4	11.4	4.31	23.6	23.6	23.6
6	47.3	47.3	47.3	11.4	11.4	11.4	4.16	23.6	23.6	23.6
5	45.7	45.7	45.7	11.4	11.4	11.4	4.02	23.7	23.7	23.7
4	44.3	44.3	44.3	11.4	11.4	11.4	3.89	23.7	23.7	23.7
3	42.9	42.9	42.9	11.4	11.4	11.4	3.77	23.7	23.7	23.7
2	41.7	41.7	41.7	11.4	11.4	11.4	3.67	23.7	23.7	23.7
1	40.6	40.6	40.6	11.4	11.4	11.4	3.57	23.7	23.7	23.7
0	39.6	39.6	39.6	11.4	11.4	11.4	3.49	23.7	23.7	23.7
-1	38.7	38.7	38.7	11.3	11.3	11.3	3.41	23.7	23.7	23.7
-2	37.9	37.9	37.9	11.3	11.3	11.3	3.34	23.7	23.7	23.7
-3	37.1	37.1	37.1	11.3	11.3	11.3	3.28	23.7	23.7	23.7
-4	36.5	36.5	36.5	11.3	11.3	11.3	3.22	23.7	23.7	23.7
-5	35.9	35.9	35.9	11.3	11.3	11.3	3.18	23.7	23.7	23.7
-6	35.5	35.5	35.5	11.3	11.3	11.3	3.14	23.7	23.7	23.7
-7	35.1	35.1	35.1	11.3	11.3	11.3	3.11	23.7	23.7	23.7
-8	34.8	34.8	34.8	11.3	11.3	11.3	3.08	23.7	23.7	23.7
-9	34.6	34.6	34.6	11.3	11.3	11.3	3.06	23.7	23.7	23.7
-10	34.4	34.4	34.4	11.3	11.3	11.3	3.05	23.7	23.7	23.7
-11	33.5	33.5	33.5	11.3	11.3	11.3	2.98	23.7	23.7	23.7
-12	32.7	32.7	32.7	11.2	11.2	11.2	2.91	23.7	23.7	23.7
-13	31.9	31.9	31.9	11.2	11.2	11.2	2.84	23.6	23.6	23.6
-14	31.1	31.1	31.1	11.2	11.2	11.2	2.78	23.6	23.6	23.6
-15	30.3	30.3	30.3	11.1	11.1	11.1	2.72	23.5	23.5	23.5
-16	29.5	29.5	29.5	11.1	11.1	11.1	2.65	23.5	23.5	23.5
-17	28.7	28.7	28.7	11.1	11.1	11.1	2.59	23.4	23.4	23.4
-18	28.0	28.0	28.0	11.0	11.0	11.0	2.53	23.3	23.3	23.3
-19	27.2	27.2	27.2	11.0	11.0	11.0	2.48	23.3	23.3	23.3
-20	26.5	26.5	26.5	10.9	10.9	10.9	2.42	23.2	23.2	23.2
-21	25.8	25.8	25.8	10.9	10.9	10.9	2.37	23.1	23.1	23.1
-22	25.1	25.1	25.1	10.8	10.8	10.8	2.31	23.0	23.0	23.0
-23	24.4	24.4	24.4	10.8	10.8	10.8	2.26	22.9	22.9	22.9
-24	23.7	23.7	23.7	10.7	10.7	10.7	2.21	22.8	22.8	22.8
-25	23.1	23.1	23.1	10.7	10.7	10.7	2.17	22.6	22.6	22.6

* 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	74.4	74.4	74.4	14.1	14.1	14.1	5.27	26.5	26.5	26.5
24	73.0	73.0	73.0	14.1	14.1	14.1	5.17	26.5	26.5	26.5
23	71.6	71.6	71.6	14.1	14.1	14.1	5.07	26.5	26.5	26.5
22	70.2	70.2	70.2	14.1	14.1	14.1	4.98	26.5	26.5	26.5
21	68.9	68.9	68.9	14.1	14.1	14.1	4.88	26.5	26.5	26.5
20	67.6	67.6	67.6	14.1	14.1	14.1	4.78	26.5	26.5	26.5
19	66.3	66.3	66.3	14.1	14.1	14.1	4.69	26.5	26.5	26.5
18	65.0	65.0	65.0	14.1	14.1	14.1	4.60	26.5	26.5	26.5
17	63.7	63.7	63.7	14.1	14.1	14.1	4.50	26.6	26.6	26.6
16	62.5	62.5	62.5	14.2	14.2	14.2	4.41	26.6	26.6	26.6
15	61.2	61.2	61.2	14.2	14.2	14.2	4.32	26.6	26.6	26.6
14	60.0	60.0	60.0	14.2	14.2	14.2	4.24	26.6	26.6	26.6
13	58.8	58.8	58.8	14.2	14.2	14.2	4.15	26.6	26.6	26.6
12	57.7	57.7	57.7	14.2	14.2	14.2	4.07	26.6	26.6	26.6
11	56.5	56.5	56.5	14.2	14.2	14.2	3.98	26.6	26.6	26.6
10	55.4	55.4	55.4	14.2	14.2	14.2	3.90	26.6	26.6	26.6
9	53.3	53.3	53.3	14.2	14.2	14.2	3.75	26.6	26.6	26.6
8	51.4	51.4	51.4	14.2	14.2	14.2	3.62	26.7	26.7	26.7
7	49.6	49.6	49.6	14.2	14.2	14.2	3.49	26.7	26.7	26.7
6	47.9	47.9	47.9	14.2	14.2	14.2	3.37	26.7	26.7	26.7
5	46.4	46.4	46.4	14.2	14.2	14.2	3.26	26.6	26.6	26.6
4	45.0	45.0	45.0	14.2	14.2	14.2	3.17	26.6	26.6	26.6
3	43.7	43.7	43.7	14.2	14.2	14.2	3.08	26.6	26.6	26.6
2	42.5	42.5	42.5	14.2	14.2	14.2	3.00	26.6	26.6	26.6
1	41.4	41.4	41.4	14.2	14.2	14.2	2.92	26.5	26.5	26.5
0	40.4	40.4	40.4	14.1	14.1	14.1	2.86	26.5	26.5	26.5
-1	39.5	39.5	39.5	14.1	14.1	14.1	2.80	26.5	26.5	26.5
-2	38.7	38.7	38.7	14.1	14.1	14.1	2.74	26.4	26.4	26.4
-3	38.0	38.0	38.0	14.1	14.1	14.1	2.70	26.4	26.4	26.4
-4	37.4	37.4	37.4	14.1	14.1	14.1	2.66	26.4	26.4	26.4
-5	36.8	36.8	36.8	14.1	14.1	14.1	2.62	26.3	26.3	26.3
-6	36.4	36.4	36.4	14.0	14.0	14.0	2.59	26.3	26.3	26.3
-7	36.0	36.0	36.0	14.0	14.0	14.0	2.57	26.3	26.3	26.3
-8	35.7	35.7	35.7	14.0	14.0	14.0	2.55	26.2	26.2	26.2
-9	35.5	35.5	35.5	14.0	14.0	14.0	2.53	26.2	26.2	26.2
-10	35.3	35.3	35.3	14.0	14.0	14.0	2.52	26.2	26.2	26.2
-11	34.5	34.5	34.5	14.0	14.0	14.0	2.47	26.1	26.1	26.1
-12	33.6	33.6	33.6	13.9	13.9	13.9	2.42	26.0	26.0	26.0
-13	32.8	32.8	32.8	13.9	13.9	13.9	2.36	25.9	25.9	25.9
-14	32.0	32.0	32.0	13.8	13.8	13.8	2.31	25.8	25.8	25.8
-15	31.2	31.2	31.2	13.8	13.8	13.8	2.26	25.7	25.7	25.7
-16	30.4	30.4	30.4	13.7	13.7	13.7	2.21	25.6	25.6	25.6
-17	29.6	29.6	29.6	13.7	13.7	13.7	2.17	25.5	25.5	25.5
-18	28.8	28.8	28.8	13.6	13.6	13.6	2.12	25.4	25.4	25.4
-19	28.1	28.1	28.1	13.5	13.5	13.5	2.07	25.2	25.2	25.2
-20	27.3	27.3	27.3	13.5	13.5	13.5	2.03	25.1	25.1	25.1
-21	26.6	26.6	26.6	13.4	13.4	13.4	1.99	24.9	24.9	24.9
-22	25.9	25.9	25.9	13.3	13.3	13.3	1.94	24.7	24.7	24.7
-23	25.2	25.2	25.2	13.2	13.2	13.2	1.90	24.5	24.5	24.5
-24	24.4	24.4	24.4	13.1	13.1	13.1	1.86	24.3	24.3	24.3
-25	23.7	23.7	23.7	13.0	13.0	13.0	1.82	24.1	24.1	24.1

* 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	73.5	73.5	73.5	17.7	17.7	17.7	4.15	30.7	30.7	30.7
24	72.2	72.2	72.2	17.7	17.7	17.7	4.07	30.7	30.7	30.7
23	70.9	70.9	70.9	17.7	17.7	17.7	3.99	30.7	30.7	30.7
22	69.6	69.6	69.6	17.8	17.8	17.8	3.92	30.7	30.7	30.7
21	68.4	68.4	68.4	17.8	17.8	17.8	3.85	30.7	30.7	30.7
20	67.1	67.1	67.1	17.8	17.8	17.8	3.77	30.7	30.7	30.7
19	65.9	65.9	65.9	17.8	17.8	17.8	3.70	30.7	30.7	30.7
18	64.7	64.7	64.7	17.8	17.8	17.8	3.63	30.7	30.7	30.7
17	63.5	63.5	63.5	17.8	17.8	17.8	3.56	30.7	30.7	30.7
16	62.3	62.3	62.3	17.8	17.8	17.8	3.50	30.7	30.7	30.7
15	61.2	61.2	61.2	17.8	17.8	17.8	3.43	30.8	30.8	30.8
14	60.0	60.0	60.0	17.8	17.8	17.8	3.36	30.8	30.8	30.8
13	58.9	58.9	58.9	17.9	17.9	17.9	3.30	30.8	30.8	30.8
12	57.8	57.8	57.8	17.9	17.9	17.9	3.24	30.8	30.8	30.8
11	56.7	56.7	56.7	17.9	17.9	17.9	3.17	30.8	30.8	30.8
10	55.6	55.6	55.6	17.9	17.9	17.9	3.11	30.8	30.8	30.8
9	53.7	53.7	53.7	17.9	17.9	17.9	3.00	30.8	30.8	30.8
8	51.8	51.8	51.8	17.9	17.9	17.9	2.90	30.7	30.7	30.7
7	50.1	50.1	50.1	17.8	17.8	17.8	2.81	30.7	30.7	30.7
6	48.5	48.5	48.5	17.8	17.8	17.8	2.72	30.7	30.7	30.7
5	47.0	47.0	47.0	17.8	17.8	17.8	2.64	30.6	30.6	30.6
4	45.6	45.6	45.6	17.8	17.8	17.8	2.57	30.6	30.6	30.6
3	44.4	44.4	44.4	17.8	17.8	17.8	2.50	30.5	30.5	30.5
2	43.2	43.2	43.2	17.7	17.7	17.7	2.44	30.5	30.5	30.5
1	42.1	42.1	42.1	17.7	17.7	17.7	2.38	30.4	30.4	30.4
0	41.2	41.2	41.2	17.7	17.7	17.7	2.33	30.3	30.3	30.3
-1	40.3	40.3	40.3	17.6	17.6	17.6	2.29	30.2	30.2	30.2
-2	39.5	39.5	39.5	17.6	17.6	17.6	2.25	30.2	30.2	30.2
-3	38.8	38.8	38.8	17.6	17.6	17.6	2.21	30.1	30.1	30.1
-4	38.2	38.2	38.2	17.5	17.5	17.5	2.18	30.0	30.0	30.0
-5	37.7	37.7	37.7	17.5	17.5	17.5	2.15	30.0	30.0	30.0
-6	37.2	37.2	37.2	17.5	17.5	17.5	2.13	29.9	29.9	29.9
-7	36.8	36.8	36.8	17.4	17.4	17.4	2.11	29.9	29.9	29.9
-8	36.5	36.5	36.5	17.4	17.4	17.4	2.10	29.8	29.8	29.8
-9	36.3	36.3	36.3	17.4	17.4	17.4	2.09	29.8	29.8	29.8
-10	36.1	36.1	36.1	17.4	17.4	17.4	2.08	29.8	29.8	29.8
-11	35.3	35.3	35.3	17.3	17.3	17.3	2.04	29.7	29.7	29.7
-12	34.4	34.4	34.4	17.3	17.3	17.3	1.99	29.5	29.5	29.5
-13	33.6	33.6	33.6	17.2	17.2	17.2	1.95	29.4	29.4	29.4
-14	32.8	32.8	32.8	17.1	17.1	17.1	1.91	29.2	29.2	29.2
-15	31.9	31.9	31.9	17.0	17.0	17.0	1.87	29.1	29.1	29.1
-16	31.1	31.1	31.1	17.0	17.0	17.0	1.84	28.9	28.9	28.9
-17	30.3	30.3	30.3	16.9	16.9	16.9	1.80	28.7	28.7	28.7
-18	29.5	29.5	29.5	16.8	16.8	16.8	1.76	28.5	28.5	28.5
-19	28.8	28.8	28.8	16.7	16.7	16.7	1.72	28.3	28.3	28.3
-20	28.0	28.0	28.0	16.6	16.6	16.6	1.69	28.1	28.1	28.1
-21	27.2	27.2	27.2	16.5	16.5	16.5	1.65	27.9	27.9	27.9
-22	26.4	26.4	26.4	16.3	16.3	16.3	1.62	27.6	27.6	27.6
-23	25.7	25.7	25.7	16.2	16.2	16.2	1.58	27.4	27.4	27.4
-24	24.9	24.9	24.9	16.1	16.1	16.1	1.55	27.1	27.1	27.1
-25	24.2	24.2	24.2	16.0	16.0	16.0	1.52	26.8	26.8	26.8

* 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	73.0	73.0	73.0	22.6	22.6	22.6	3.23	36.1	36.1	36.1
24	71.8	71.8	71.8	22.6	22.6	22.6	3.17	36.2	36.2	36.2
23	70.5	70.5	70.5	22.6	22.6	22.6	3.12	36.2	36.2	36.2
22	69.4	69.4	69.4	22.6	22.6	22.6	3.06	36.2	36.2	36.2
21	68.2	68.2	68.2	22.6	22.6	22.6	3.01	36.2	36.2	36.2
20	67.0	67.0	67.0	22.7	22.7	22.7	2.96	36.3	36.3	36.3
19	65.9	65.9	65.9	22.7	22.7	22.7	2.91	36.3	36.3	36.3
18	64.7	64.7	64.7	22.7	22.7	22.7	2.86	36.3	36.3	36.3
17	63.6	63.6	63.6	22.7	22.7	22.7	2.81	36.3	36.3	36.3
16	62.5	62.5	62.5	22.7	22.7	22.7	2.76	36.3	36.3	36.3
15	61.4	61.4	61.4	22.7	22.7	22.7	2.71	36.4	36.4	36.4
14	60.3	60.3	60.3	22.7	22.7	22.7	2.66	36.4	36.4	36.4
13	59.3	59.3	59.3	22.7	22.7	22.7	2.61	36.4	36.4	36.4
12	58.2	58.2	58.2	22.7	22.7	22.7	2.57	36.4	36.4	36.4
11	57.2	57.2	57.2	22.7	22.7	22.7	2.52	36.4	36.4	36.4
10	56.1	56.1	56.1	22.7	22.7	22.7	2.48	36.4	36.4	36.4
9	54.2	54.2	54.2	22.6	22.6	22.6	2.40	36.4	36.4	36.4
8	52.5	52.5	52.5	22.6	22.6	22.6	2.32	36.3	36.3	36.3
7	50.8	50.8	50.8	22.6	22.6	22.6	2.25	36.3	36.3	36.3
6	49.3	49.3	49.3	22.5	22.5	22.5	2.19	36.2	36.2	36.2
5	47.8	47.8	47.8	22.5	22.5	22.5	2.13	36.2	36.2	36.2
4	46.5	46.5	46.5	22.4	22.4	22.4	2.07	36.1	36.1	36.1
3	45.2	45.2	45.2	22.4	22.4	22.4	2.02	36.0	36.0	36.0
2	44.1	44.1	44.1	22.3	22.3	22.3	1.98	35.9	35.9	35.9
1	43.0	43.0	43.0	22.2	22.2	22.2	1.94	35.8	35.8	35.8
0	42.1	42.1	42.1	22.2	22.2	22.2	1.90	35.7	35.7	35.7
-1	41.2	41.2	41.2	22.1	22.1	22.1	1.86	35.6	35.6	35.6
-2	40.4	40.4	40.4	22.1	22.1	22.1	1.83	35.5	35.5	35.5
-3	39.7	39.7	39.7	22.0	22.0	22.0	1.81	35.4	35.4	35.4
-4	39.1	39.1	39.1	21.9	21.9	21.9	1.78	35.3	35.3	35.3
-5	38.6	38.6	38.6	21.9	21.9	21.9	1.76	35.2	35.2	35.2
-6	38.1	38.1	38.1	21.9	21.9	21.9	1.74	35.1	35.1	35.1
-7	37.7	37.7	37.7	21.8	21.8	21.8	1.73	35.1	35.1	35.1
-8	37.4	37.4	37.4	21.8	21.8	21.8	1.72	35.0	35.0	35.0
-9	37.2	37.2	37.2	21.8	21.8	21.8	1.71	35.0	35.0	35.0
-10	37.0	37.0	37.0	21.8	21.8	21.8	1.70	35.0	35.0	35.0
-11	36.2	36.2	36.2	21.7	21.7	21.7	1.67	34.8	34.8	34.8
-12	35.3	35.3	35.3	21.6	21.6	21.6	1.64	34.6	34.6	34.6
-13	34.4	34.4	34.4	21.5	21.5	21.5	1.61	34.4	34.4	34.4
-14	33.6	33.6	33.6	21.3	21.3	21.3	1.57	34.2	34.2	34.2
-15	32.8	32.8	32.8	21.2	21.2	21.2	1.54	34.0	34.0	34.0
-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	35.2	35.2	35.2	15.2	15.2	15.2	2.32	27.7	27.7	27.7
39	35.5	35.5	35.5	14.9	14.9	14.9	2.38	27.4	27.4	27.4
38	35.7	35.7	35.7	14.5	14.5	14.5	2.46	27.0	27.0	27.0
37	35.9	35.9	35.9	14.2	14.2	14.2	2.53	26.7	26.7	26.7
36	36.2	36.2	36.2	13.9	13.9	13.9	2.60	26.3	26.3	26.3
35	36.4	36.4	36.4	13.6	13.6	13.6	2.68	26.0	26.0	26.0
34	36.6	36.6	36.6	13.3	13.3	13.3	2.75	25.7	25.7	25.7
33	36.8	36.8	36.8	13.0	13.0	13.0	2.83	25.3	25.3	25.3
32	37.0	37.0	37.0	12.7	12.7	12.7	2.91	25.0	25.0	25.0
31	37.2	37.2	37.2	12.4	12.4	12.4	2.99	24.7	24.7	24.7
30	37.4	37.4	37.4	12.2	12.2	12.2	3.07	24.4	24.4	24.4
29	37.6	37.6	37.6	11.9	11.9	11.9	3.16	24.2	24.2	24.2
28	37.7	37.7	37.7	11.6	11.6	11.6	3.24	23.9	23.9	23.9
27	37.9	37.9	37.9	11.4	11.4	11.4	3.33	23.6	23.6	23.6
26	38.1	38.1	38.1	11.1	11.1	11.1	3.42	23.3	23.3	23.3
25	38.2	38.2	38.2	10.9	10.9	10.9	3.51	23.1	23.1	23.1
24	38.4	38.4	38.4	10.6	10.6	10.6	3.60	22.8	22.8	22.8
23	38.5	38.5	38.5	10.4	10.4	10.4	3.70	22.5	22.5	22.5
22	38.7	38.7	38.7	10.2	10.2	10.2	3.80	22.3	22.3	22.3
21	38.8	38.8	38.8	10.0	10.0	10.0	3.90	22.0	22.0	22.0
20	38.9	38.9	38.9	9.7	9.7	9.7	4.00	21.8	21.8	21.8
19	39.1	39.1	39.1	9.5	9.5	9.5	4.11	21.5	21.5	21.5
18	39.2	39.2	39.2	9.3	9.3	9.3	4.22	21.3	21.3	21.3
17	39.3	39.3	39.3	9.1	9.1	9.1	4.33	21.0	21.0	21.0

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	46.9	46.9	46.9	15.2	15.2	15.2	3.09	27.7	27.7	27.7
39	47.3	47.3	47.3	14.9	14.9	14.9	3.18	27.3	27.3	27.3
38	47.6	47.6	47.6	14.5	14.5	14.5	3.27	26.9	26.9	26.9
37	47.9	47.9	47.9	14.2	14.2	14.2	3.37	26.6	26.6	26.6
36	48.1	48.1	48.1	13.9	13.9	13.9	3.46	26.2	26.2	26.2
35	48.4	48.4	48.4	13.6	13.6	13.6	3.56	25.9	25.9	25.9
34	48.7	48.7	48.7	13.3	13.3	13.3	3.66	25.5	25.5	25.5
33	49.0	49.0	49.0	13.0	13.0	13.0	3.77	25.2	25.2	25.2
32	49.2	49.2	49.2	12.7	12.7	12.7	3.87	24.9	24.9	24.9
31	49.5	49.5	49.5	12.4	12.4	12.4	3.98	24.5	24.5	24.5
30	49.7	49.7	49.7	12.2	12.2	12.2	4.09	24.2	24.2	24.2
29	50.0	50.0	50.0	11.9	11.9	11.9	4.20	23.9	23.9	23.9
28	50.2	50.2	50.2	11.6	11.6	11.6	4.32	23.6	23.6	23.6
27	50.5	50.5	50.5	11.4	11.4	11.4	4.43	23.3	23.3	23.3
26	50.7	50.7	50.7	11.1	11.1	11.1	4.55	23.0	23.0	23.0
25	50.9	50.9	50.9	10.9	10.9	10.9	4.67	22.7	22.7	22.7
24	51.1	51.1	51.1	10.6	10.6	10.6	4.80	22.4	22.4	22.4
23	51.3	51.3	51.3	10.4	10.4	10.4	4.93	22.2	22.2	22.2
22	51.5	51.5	51.5	10.2	10.2	10.2	5.06	21.9	21.9	21.9
21	51.7	51.7	51.7	10.0	10.0	10.0	5.20	21.6	21.6	21.6
20	51.9	51.9	51.9	9.7	9.7	9.7	5.34	21.3	21.3	21.3
19	52.1	52.1	52.1	9.5	9.5	9.5	5.48	21.0	21.0	21.0
18	52.3	52.3	52.3	9.3	9.3	9.3	5.63	20.8	20.8	20.8
17	52.5	52.5	52.5	9.1	9.1	9.1	5.78	20.5	20.5	20.5

* attention: operating limits not reflected in performance table

LEGENDE:

Ts-IN: Temperature renewable source - inlet [°C]

Th-OU: Temperature heating - outlet (flow) [°C]

Tc-OU: Temperature cooling - outlet (flow) [°C]

Qh nom: Heating capacity nominal

Qh min: Heating capacity minimal

Qh max: Heating capacity maximal

Pin nom: Power input at nominal heating capacity

Pin min: Power input at minimal heating capacity

Pin max: Power input at maximal heating capacity

COP nom: coefficient of performance at nominal heating capacity

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

Qc min: cooling / heat extraction at minimal heating capacity

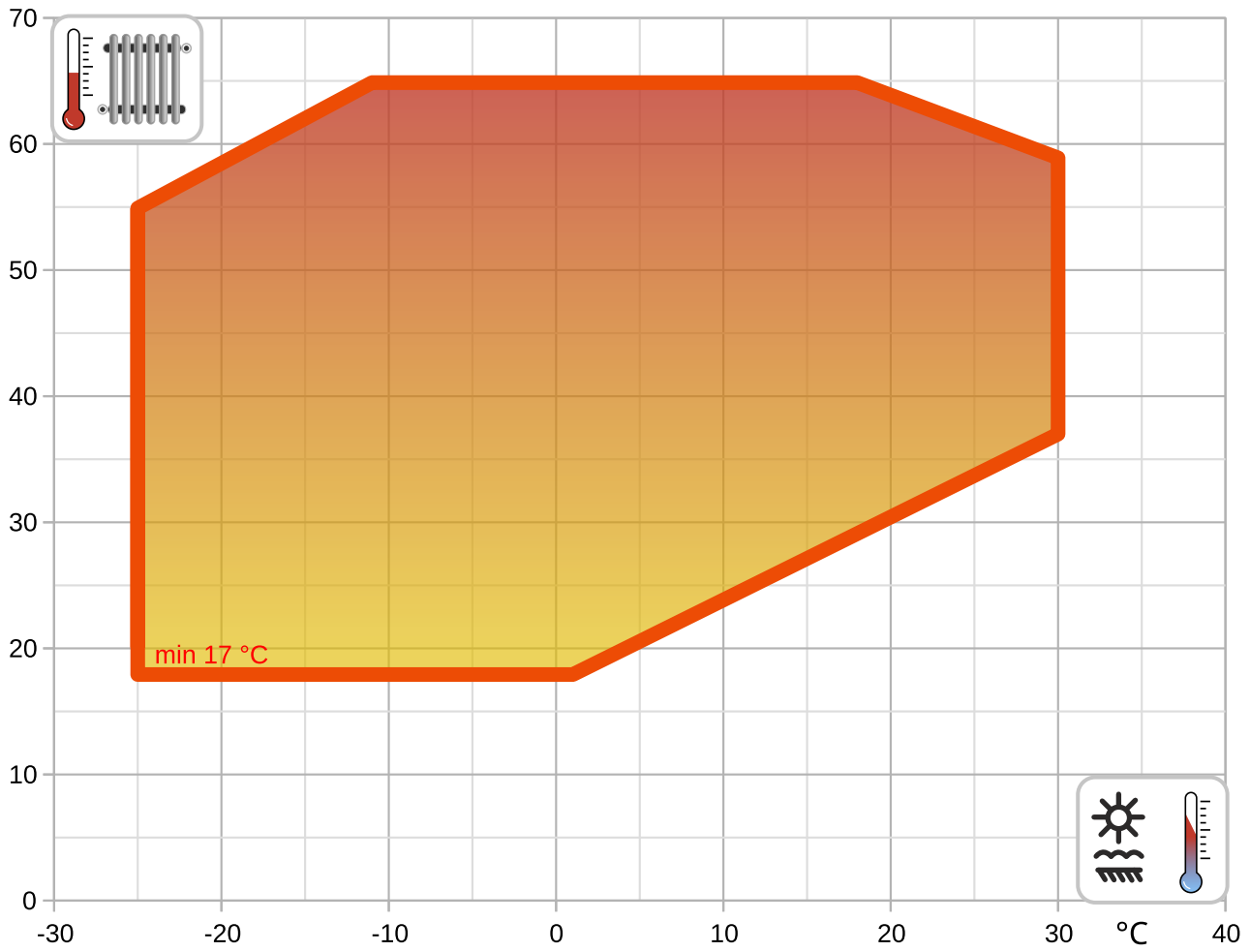
Qc max: cooling / heat extraction at maximal heating capacity

I nom: Current at nominal heating capacity

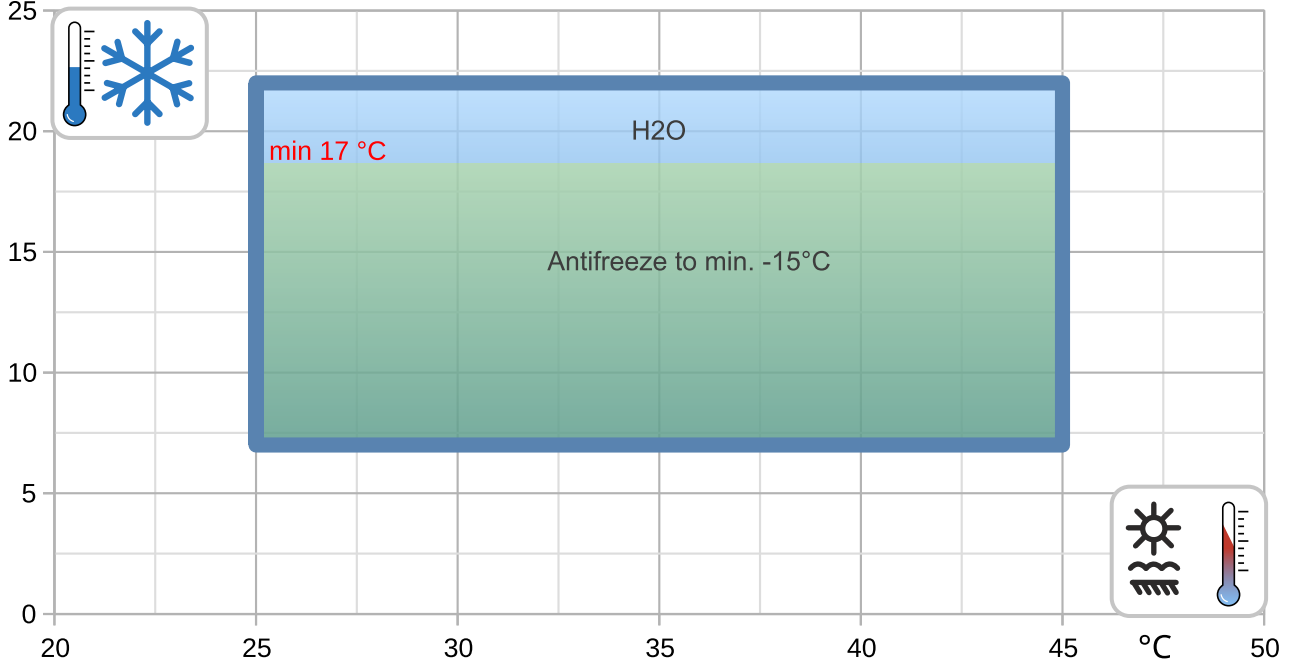
EER: energy efficiency ratio at nominal cooling capacity

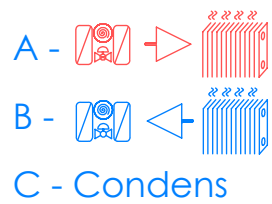
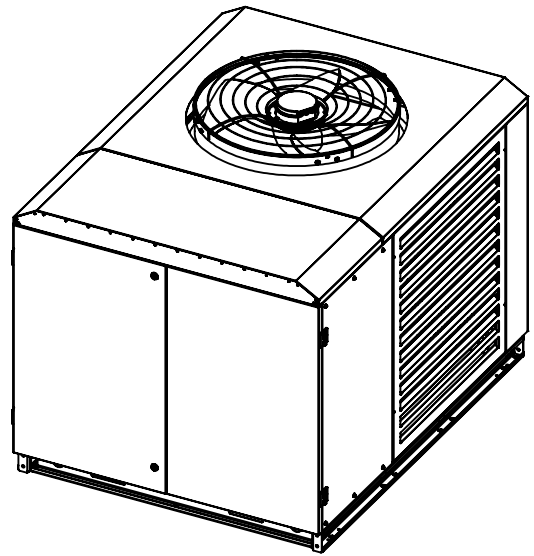
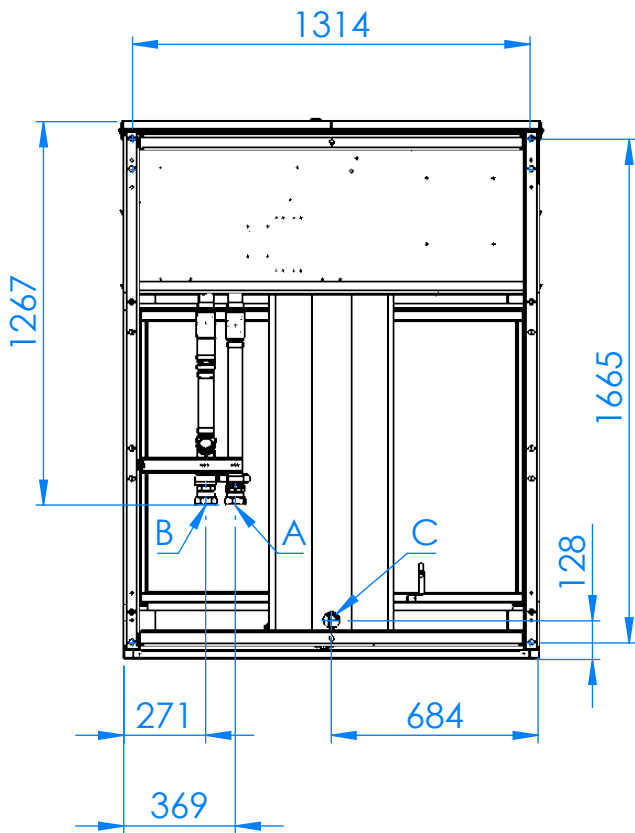
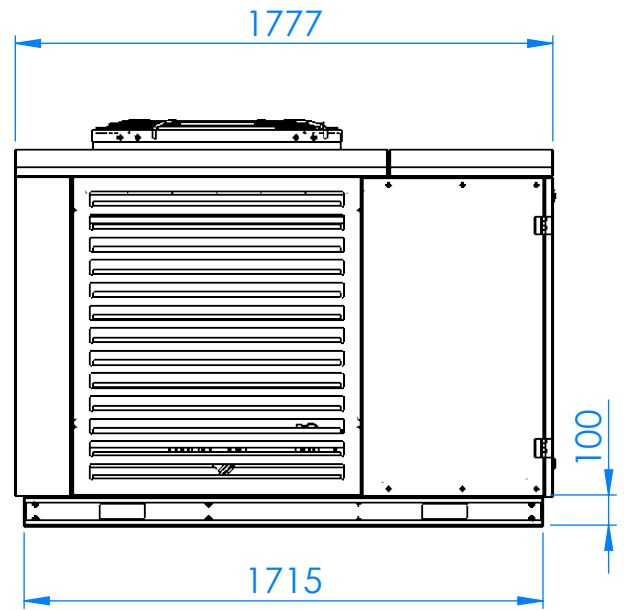
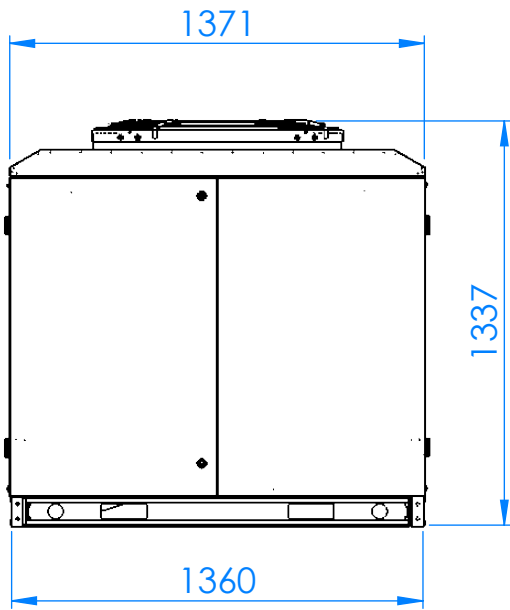
Operating limits

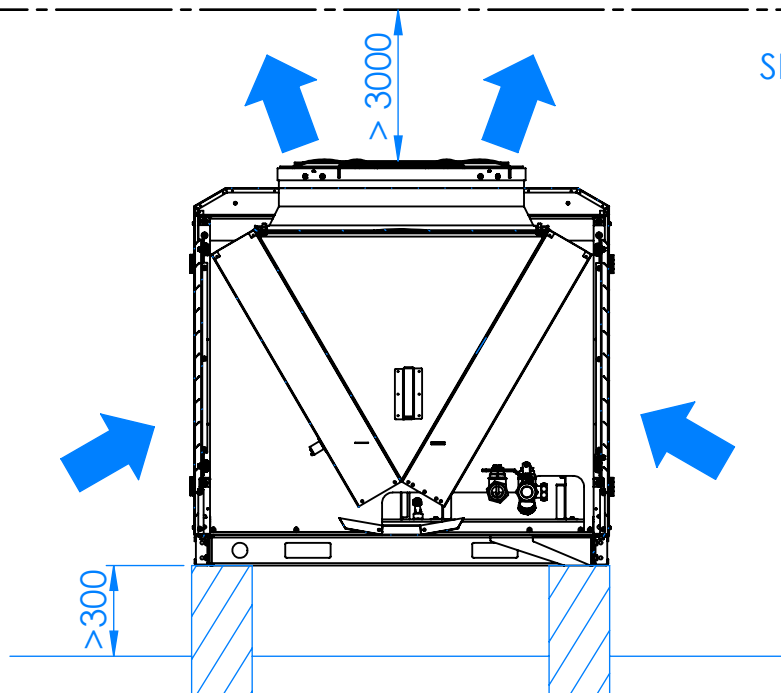
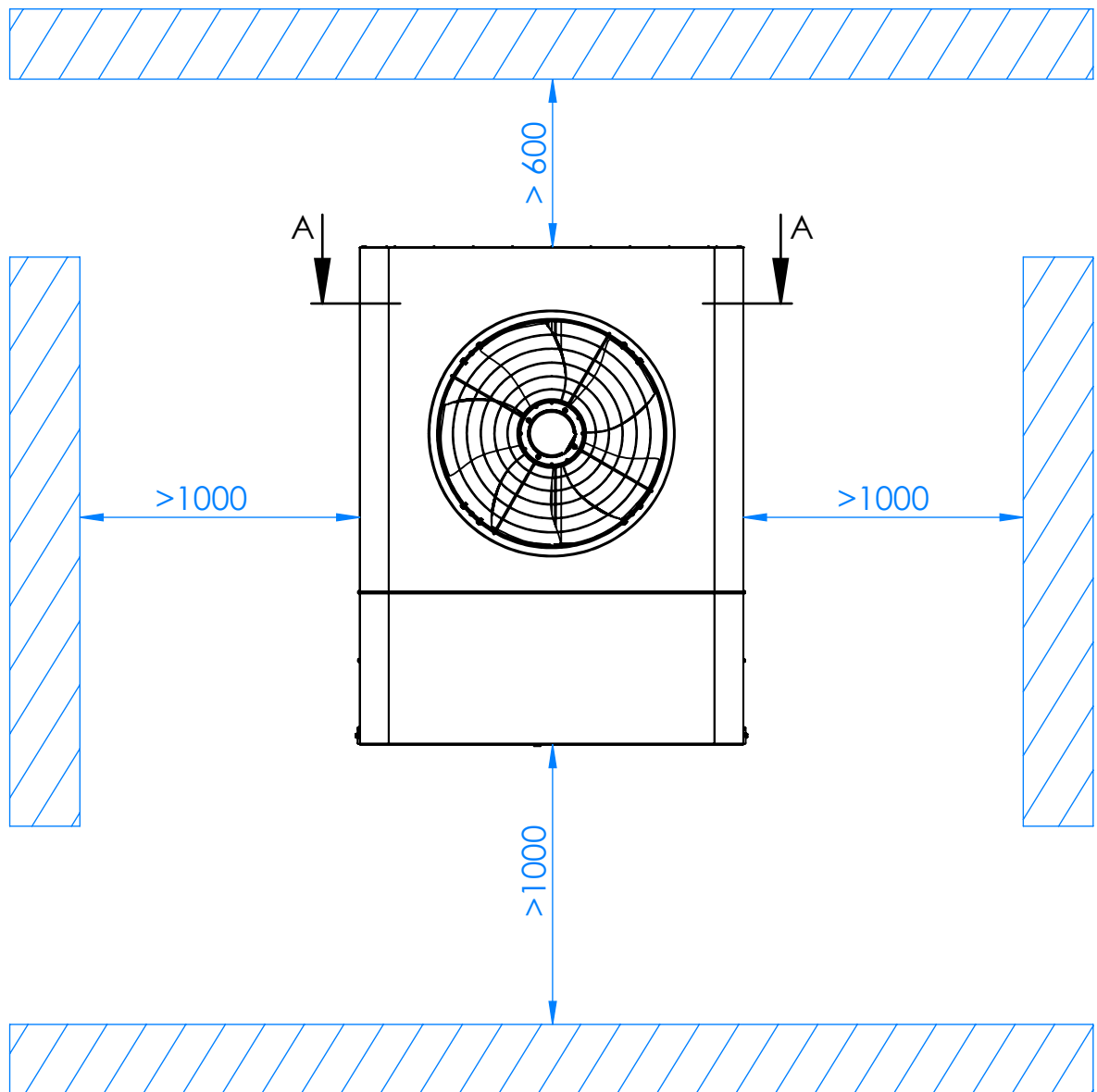
°C

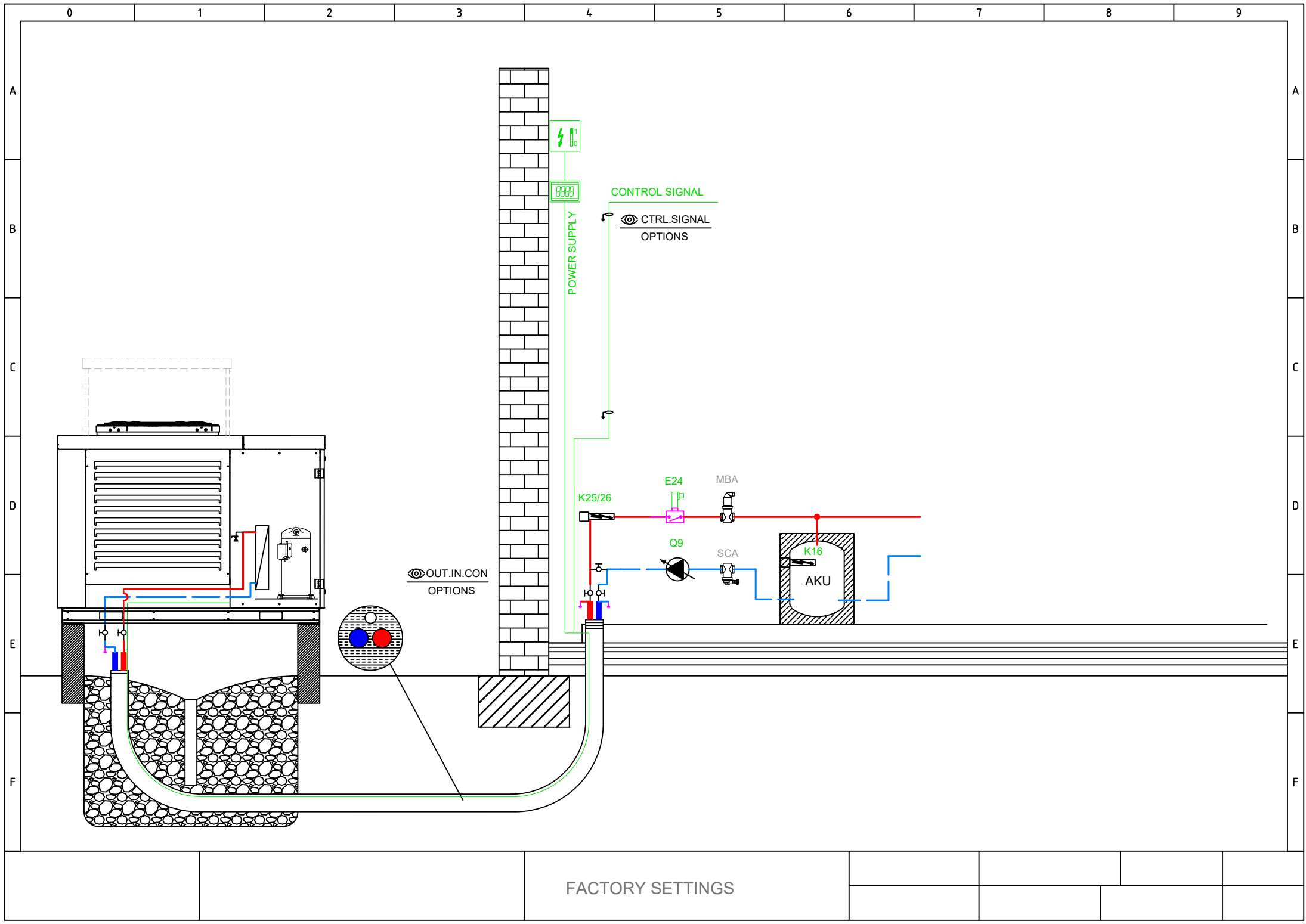


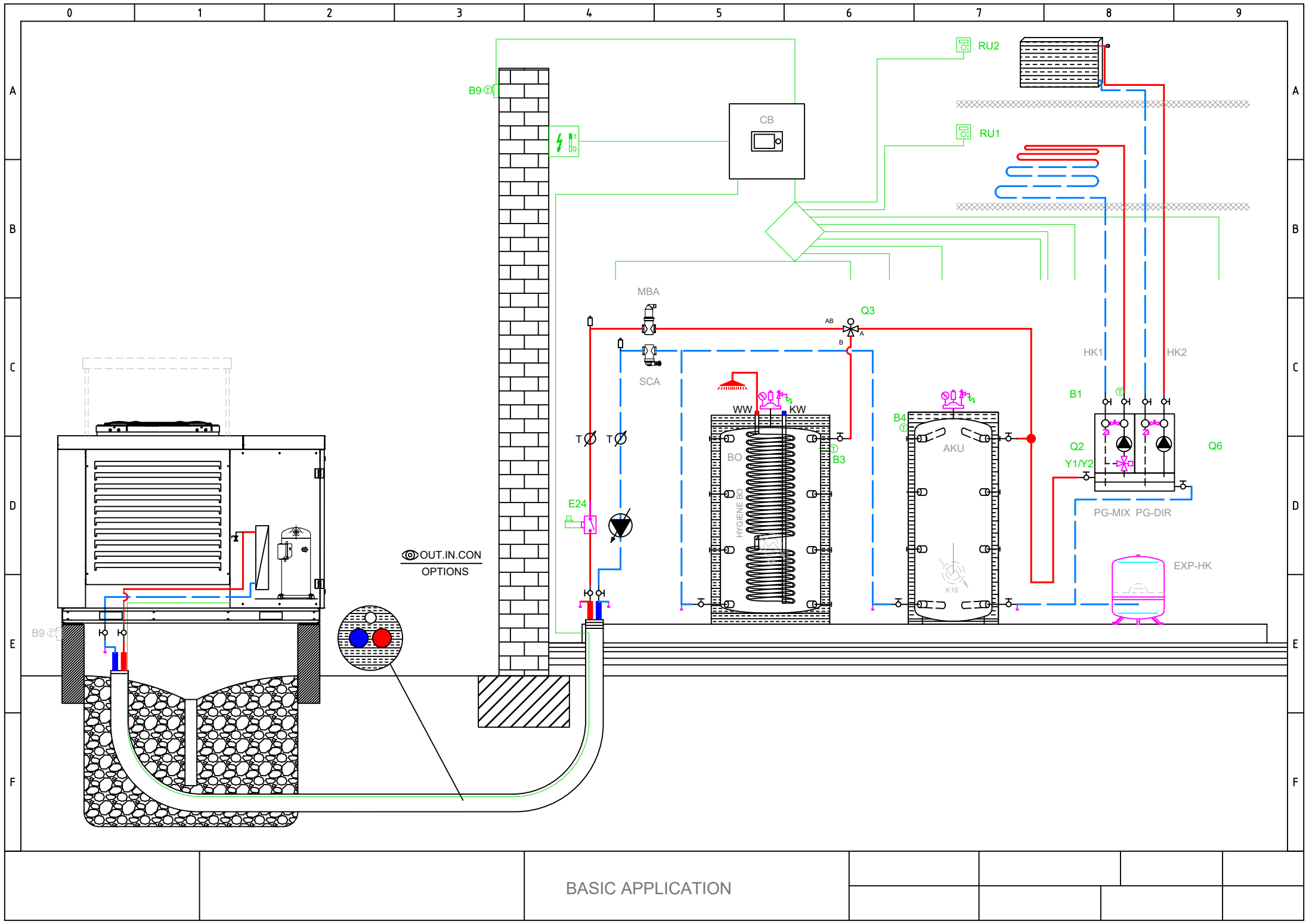
°C



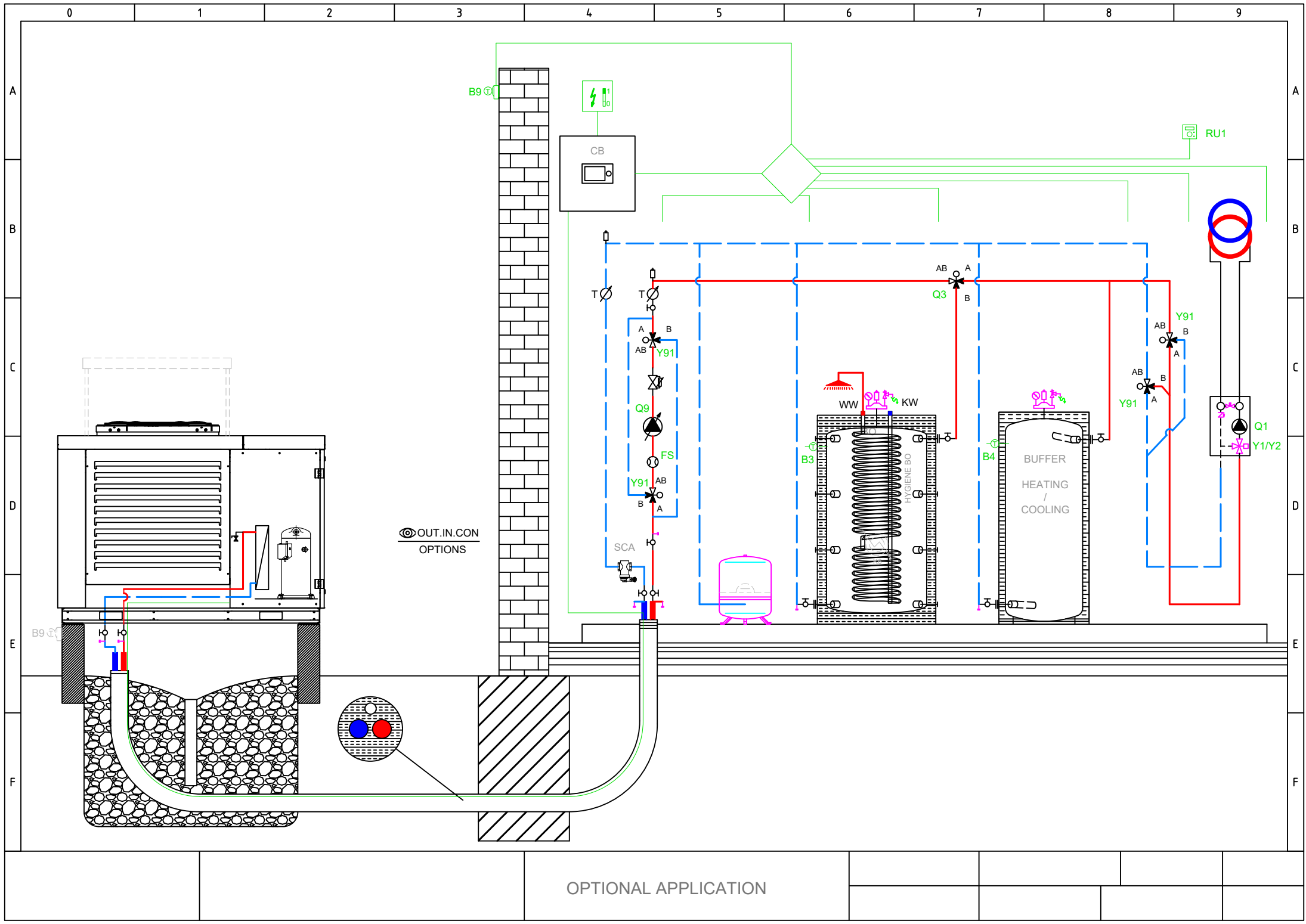








BASIC APPLICATION



Main power supply 230V / 50 Hz
Ground
Neutral conductor

- E10 High-pressure switch E10
- E11 Overload compressor 1 E11
- E14 Overload source E14
- E24 Flow switch consumers E24
- K82 Valve EVI K82

K40 Crankcase heater K40

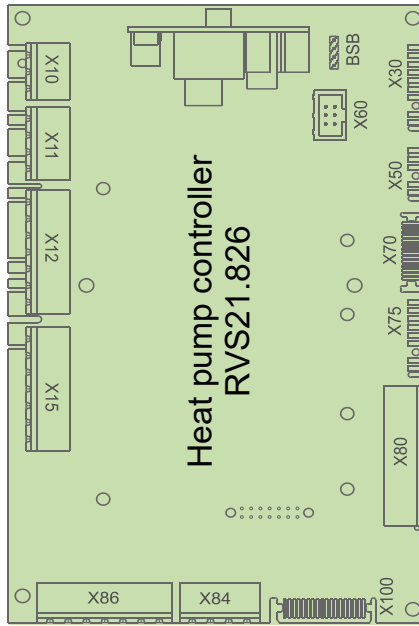
- L Phase 230V
- K1 Compressor stage 1 K1
- Y22 Process revers valve Y22

Q9 Condenser pump Q9

X10	1	L
X10	1	PE
X10	1	N
X11	1	EX1
X11	1	EX2
X11	1	EX3
X11	1	EX4
X12	1	QX1
X12	1	N
X12	1	QX2
X12	1	QX2i
X12	1	N
X12	1	FX3
X12	1	QX3
X15	1	QX4
X15	1	QX4i
X15	1	N
X15	1	QX5
X15	1	N
X15	1	ZX6
X15	1	N
X86	1	GX1
X86	1	H3
X86	1	M
X86	1	H1
X86	1	G+
X86	1	M
X86	1	BSB



Total: max 6A
1 x QX...: max 2A



BSB
X30
X60
X50
X70

- BSB Connection service tool (OCI700)
- X30 Operating unit (HMI) AVS37.xxx
- X60 Modbus clip-in OCI351.01
- X50 Extension module AVS75.xxx
- X70 LPB clip-in

D1
D2
D3
UX3
M
DI6
DI7
M

- D1 Digital output 1 Heating
- D2 Digital output 2 Cooling
- D3 Digital output 3 HP On/Off

- DI6 Digital input 6 Defrosting
- DI7 Digital input 7 Alarm

BX1
M
BX2
M
UX1
M
UX2
M

- B91 Source inlet sensor B91
- B84 Source outl sens B92/B84
- K19 Fan K19
- 0..10 V Signal
- Q9 Condenser pump Q9
- PWM Signal

BX3
M
BX4
M

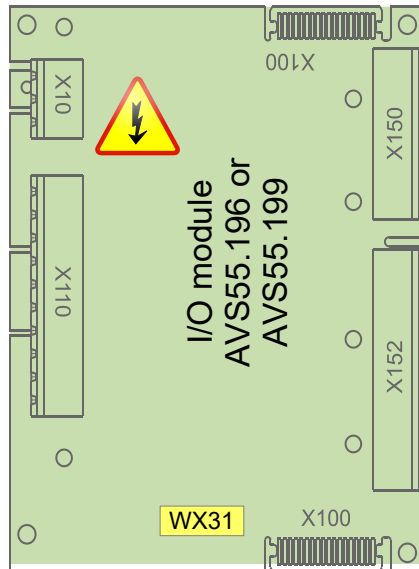
- B71 HP return sensor B71
- B9 Outside sensor B9

Main power supply 230V / 50 Hz
Ground
Neutral conductor

K10 Alarm output K10

V81 EEV evaporator V81

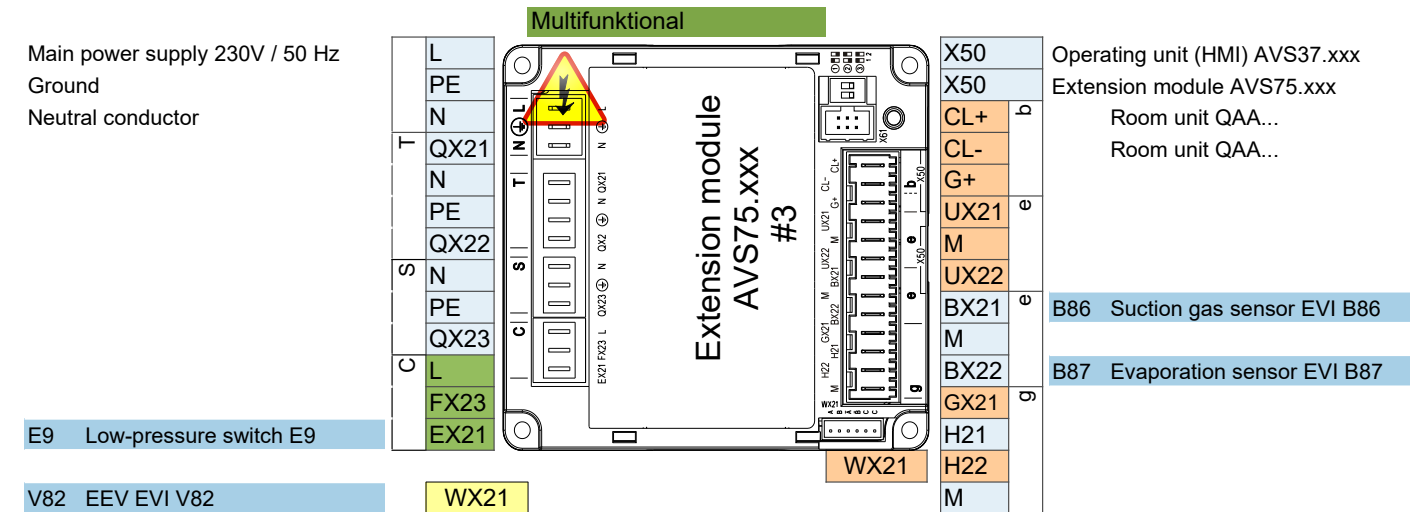
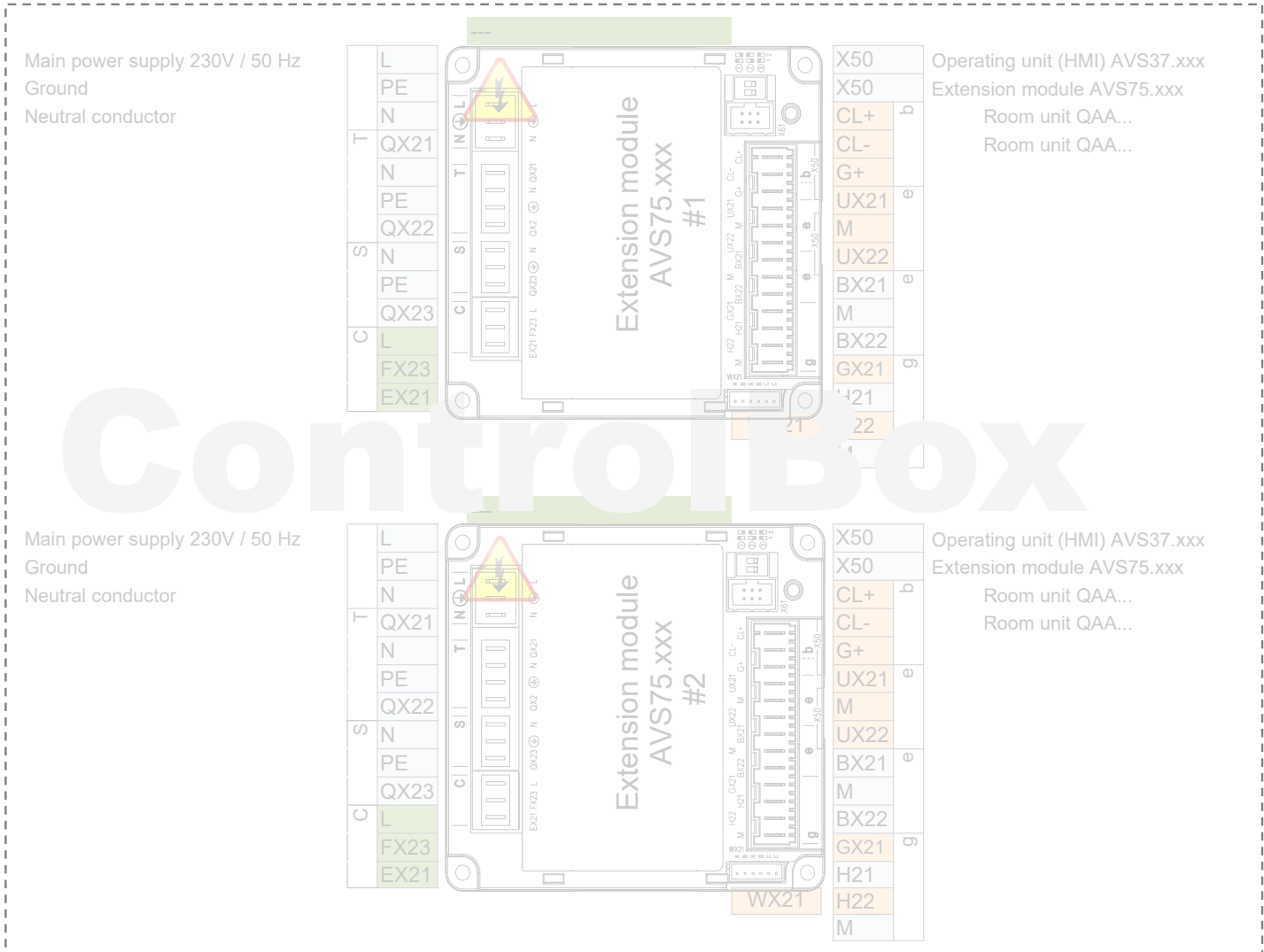
X10	1	L
X10	1	PE
X10	1	N
X110	1	QX31
X110	1	QX32
X110	1	N
X110	1	QX33
X110	1	N
X110	1	ZX34
X110	1	N
X115	1	QX35
X115	1	QX35i
X115	1	N

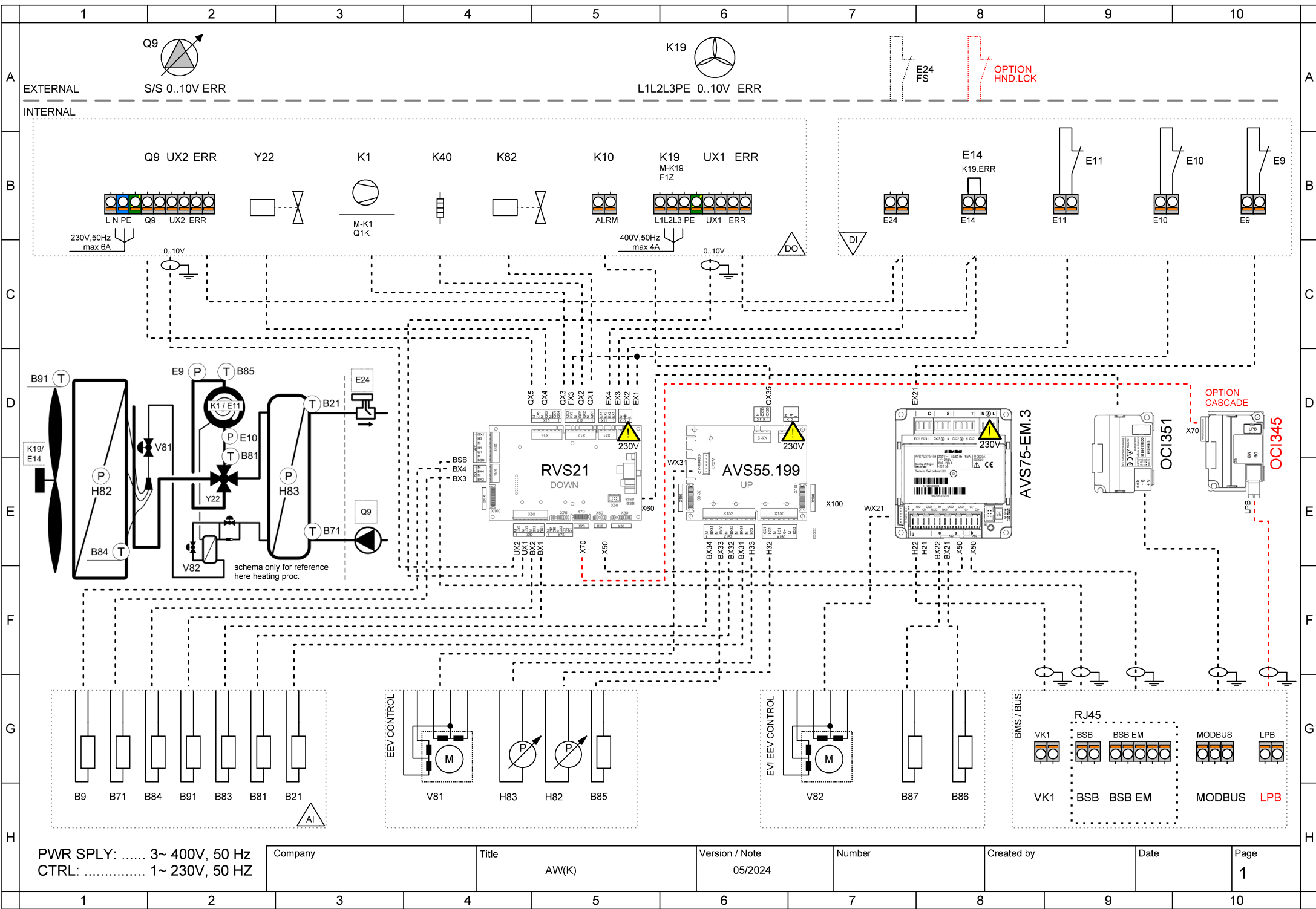


BSB
M
G+
H31
M
H32
GX1
H33
M
BX31
M
BX32
M
BX33
M
BX34
M

- 5 V/12 V for active sensors
- Flow measurement 10V
- Low pressure 0..10V
- 5 V/12 V for active sensors
- High pressure 0..10V
- B21 HP flow sensor B21
- B81 Hot-gas sensor B81
- B85 Suction gas sensor B85
- B83 Refrig sensor liquid B83

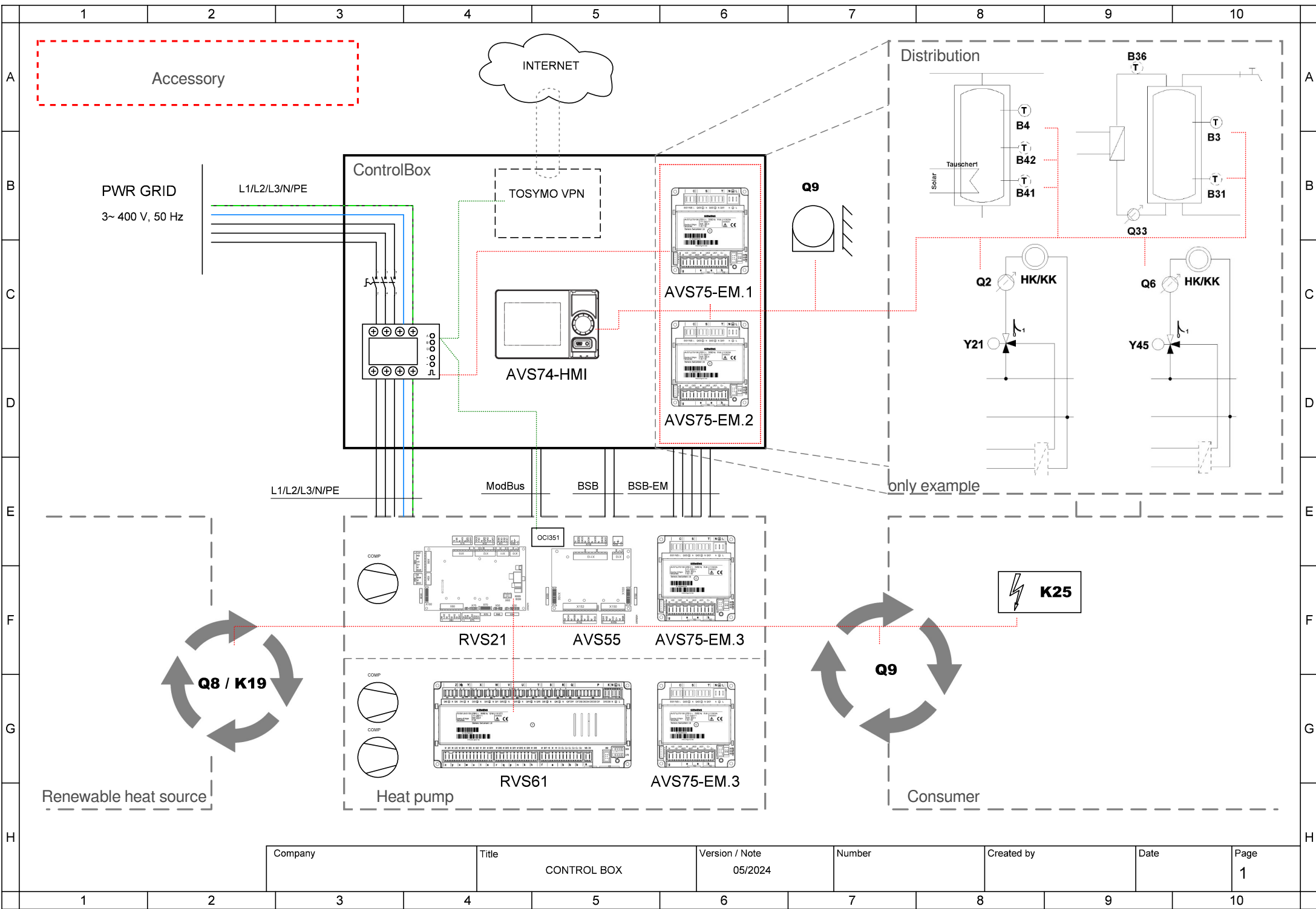
- AVS75.390
- AVS75.391
- AVS75.370



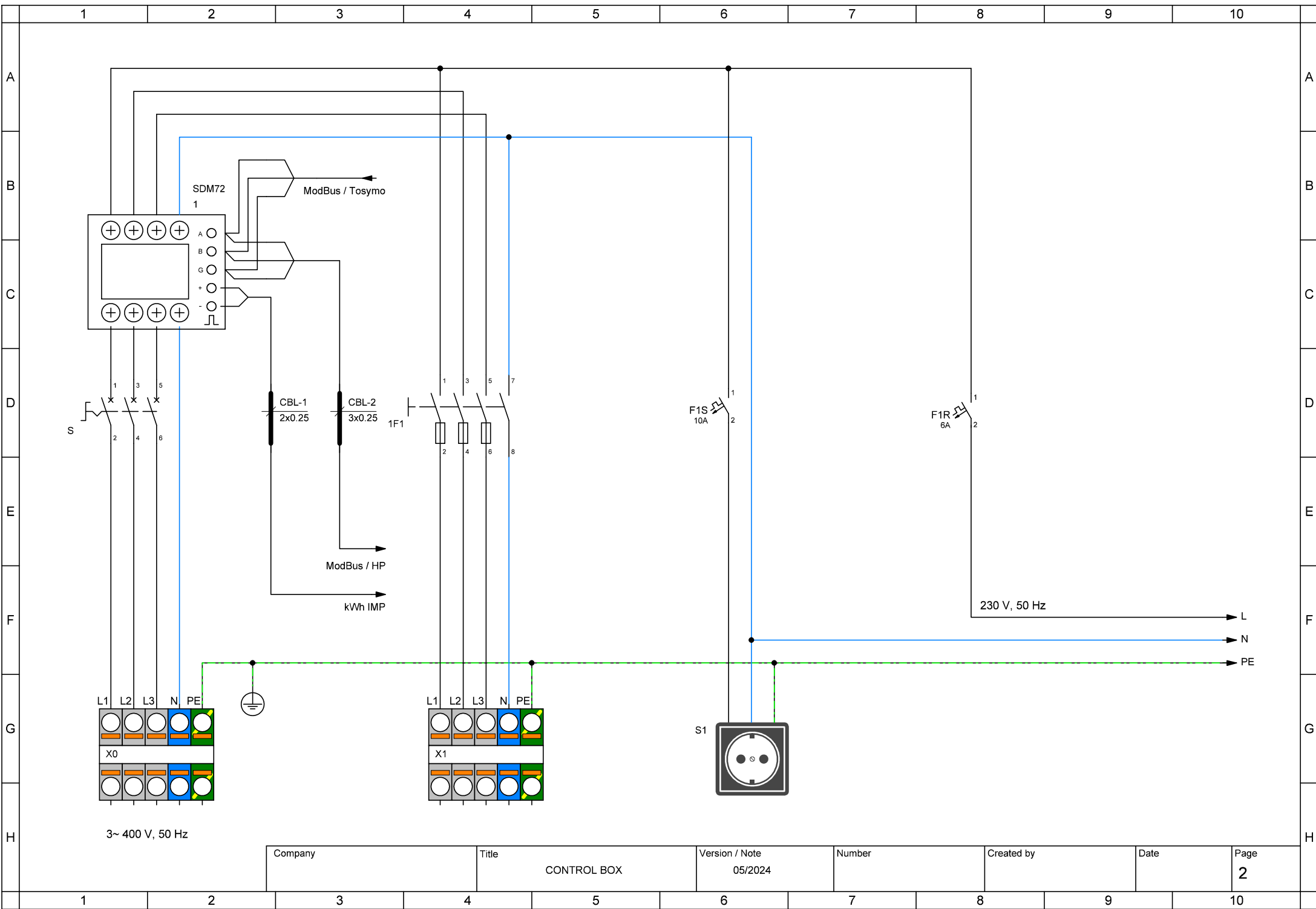


PWR SPLY: 3~ 400V, 50 Hz
 CTRL: 1~ 230V, 50 HZ

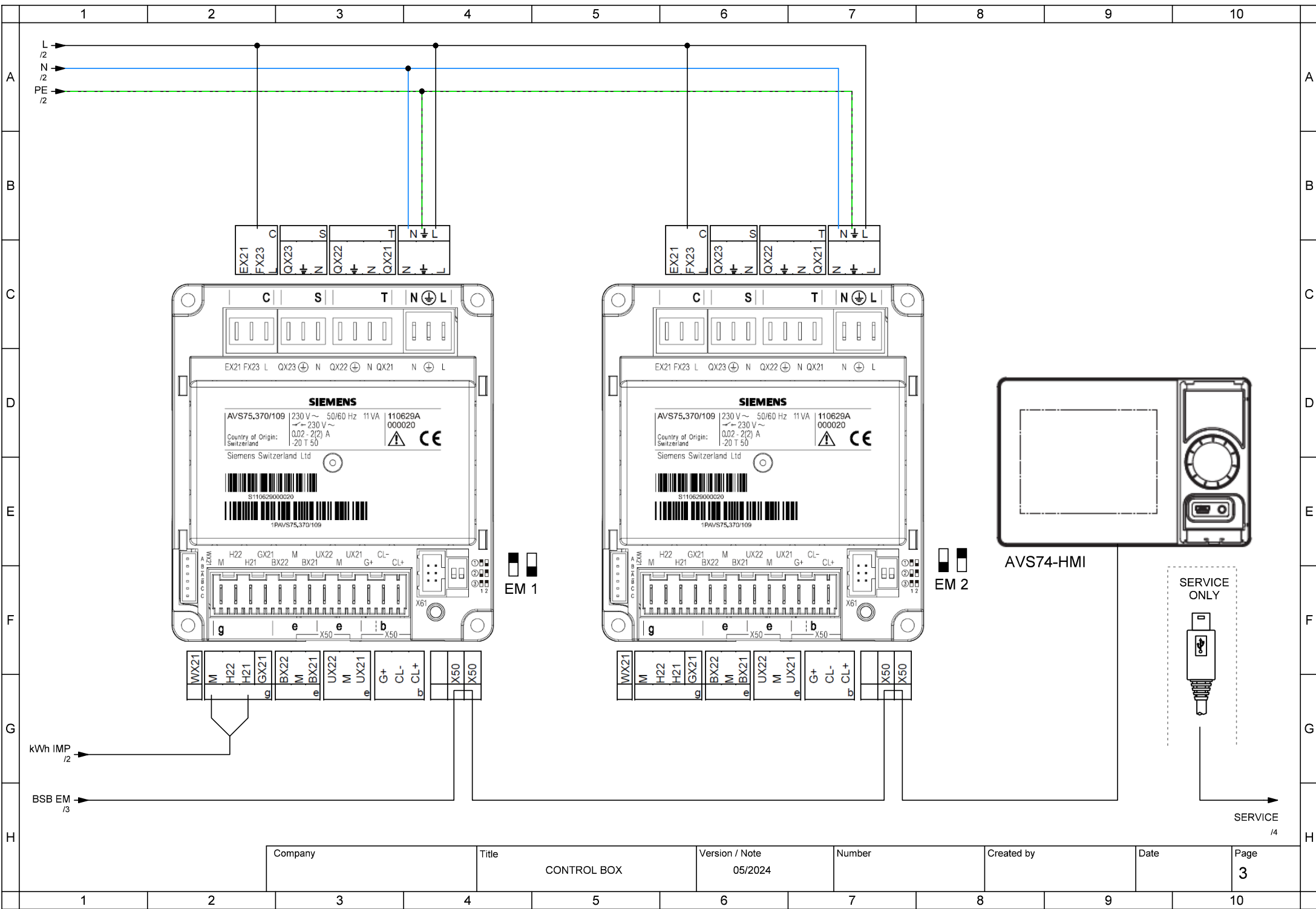
Company	Title	Version / Note	Number	Created by	Date	Page
	AW(K)	05/2024				1



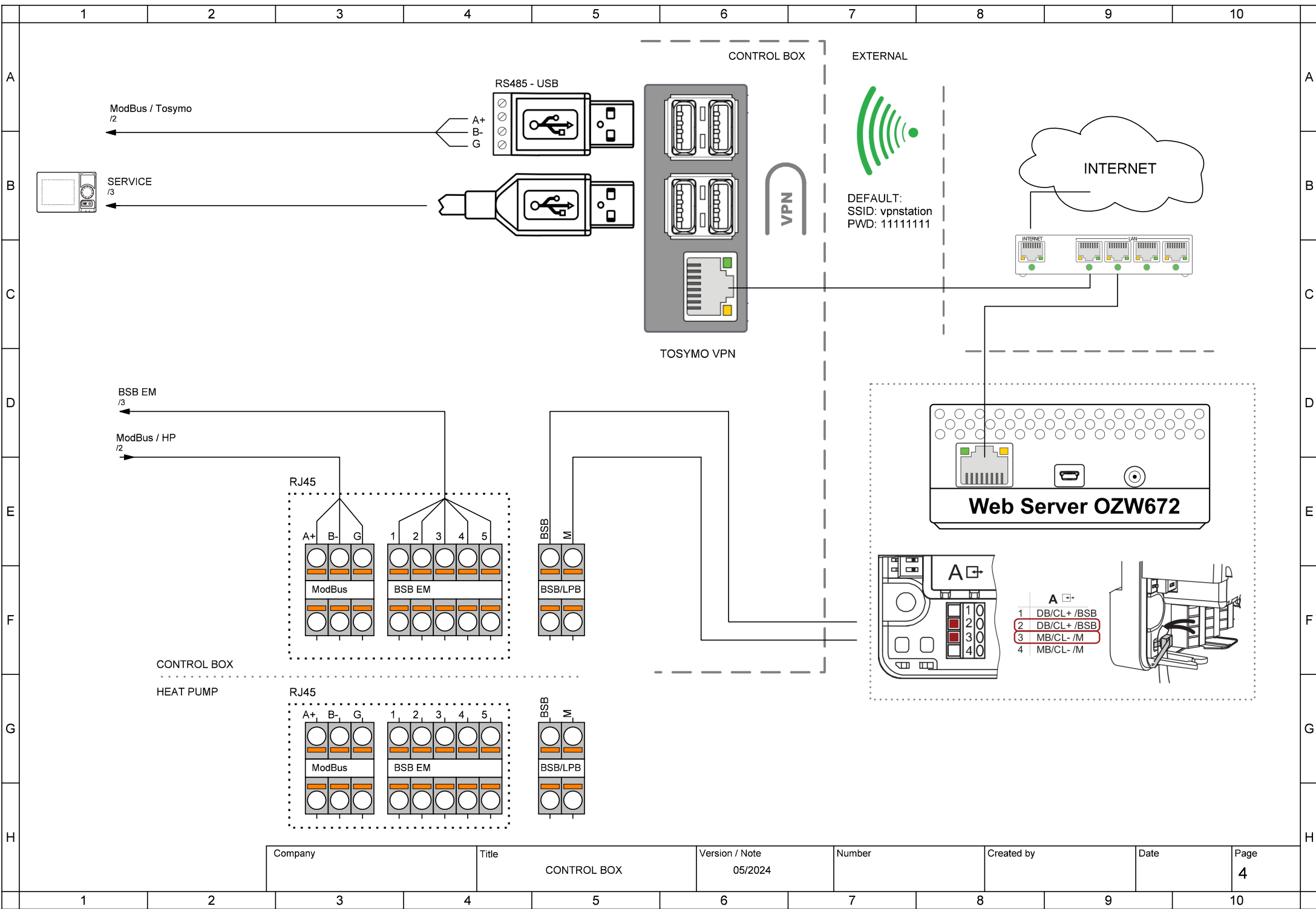
Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				1



Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				2



Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				3



Company	Title	Version / Note	Number	Created by	Date	Page
	CONTROL BOX	05/2024				4

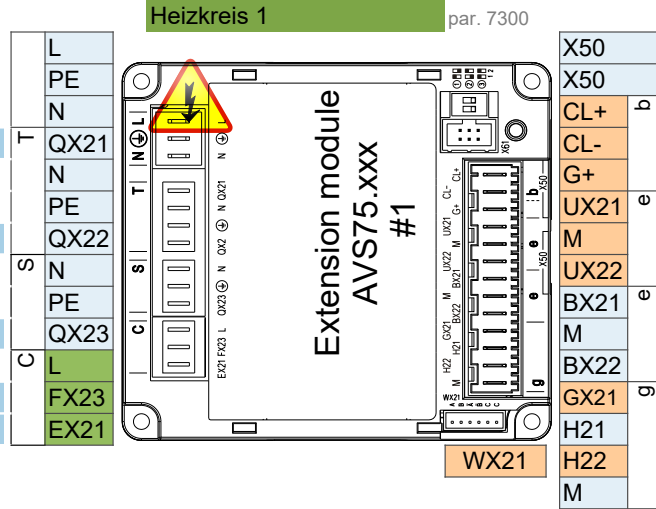
- AVS75.390
- AVS75.391
- AVS75.370

- AVS75.370**
 Main power supply 230V / 50 Hz
 Ground
 Neutral conductor
Y1 Mixing valve Open

Y2 Mixing valve Close

Q2 Heat circuit pump HC1 Q2

L Phase 230V
E61 Smart grid E61



- Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

B1 Flow sensor 1

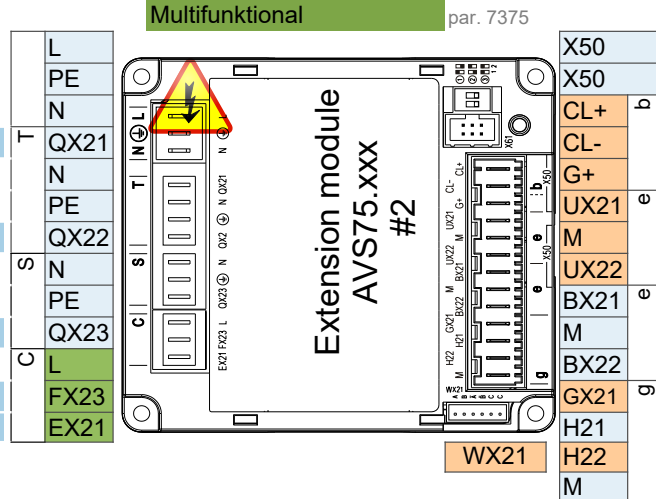
 Pulse count

- AVS75.370**
 Main power supply 230V / 50 Hz
 Ground
 Neutral conductor
Q3 DHW ctrl elem Q3

K6 El imm heater DHW K6

Q6 Heat circuit pump HC2 Q6

L Phase 230V
E62 Smart grid E62

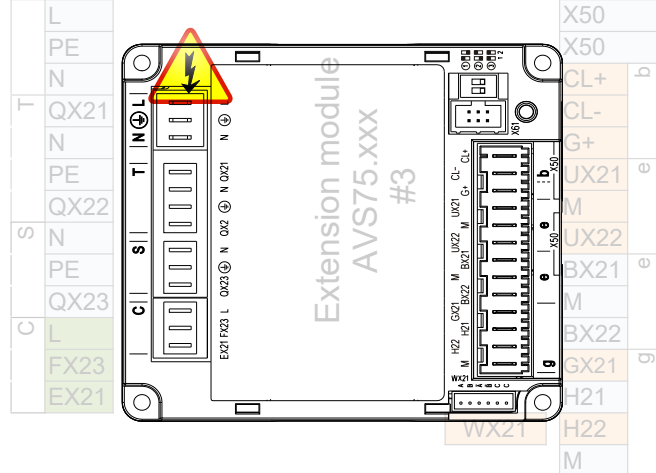


- Operating unit (HMI) AVS37.xxx
 Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

B3 DHW sensor B3

B4 Buffer sensor B4

- Main power supply 230V / 50 Hz
 Ground
 Neutral conductor



- Operating unit (HMI) AVS37.xxx
 Extension module AVS75.xxx
 Room unit QAA...
 Room unit QAA...

Attention: Extension module 3 is inside the heat pump

Control connection options

1 ControlBox

ControlBox, with two built-in extension modules, enables numerous options for application control on the consumer side behind the heat pump. For more, see the ControlBox schematic and the application diagrams sheet.

2 Fix flow temperature setpoint - On / Off dry (potential free) contact

2 wire shielded cable 2 x 0.5 mm² - Setpoint = 45°C (editable by param. 1859)

Connection terminal - see wiring diagram

3 Analog 0..10V flow temperature setpoint control

2 wire shielded cable 2 x 0.5 mm² - Setpoint: 0V = 16°C ~ 10V = 60°C (editable in parameter set)

Connection terminal - see wiring diagram

4 ModBus RTU communication command

3 wire shielded cable min. 3 x 0.25mm²

For ModBus mapping table contact technical support

5 MQTT IoT communication protocol

For more information contact technical support