Dehumidification unit

type ..01 U-EC
..01 U-MC-EC

Function description

Technical data

SET Schmidt Energietechnik * August-Blessing-Str. 5 * D-71282 Hemmingen * Tel: +49 (0)7150 9454-0 Fax: +49 (0)7150 2337

SET Circulating air dehumidifying units with heat recovery ..01 U-EC and ..01 U-MC-EC

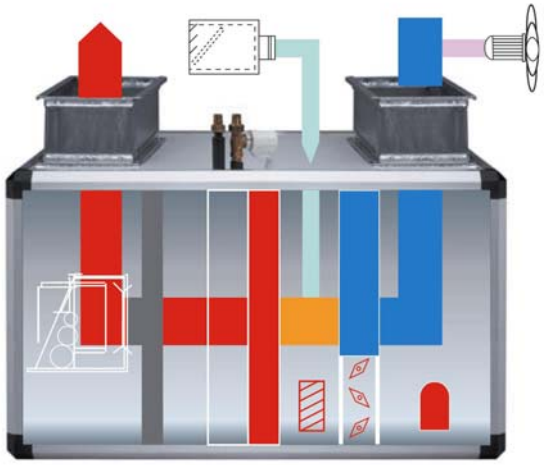
The air dehumidifying units of production series ..01 U-EC and ..01 U-MC-EC are equipped with a heat pump. Different unit outputs save the air-treatment of private swimming pools. In connection with an external air intake and exhaust system, they are also used in smaller indoor swimming pools in community associations and small hotels.

The air dehumidifying units ensure complete dehumidification of the adjoining spaces. Additional fixtures for room heating are not required if a pumped hot water heater battery is optionaly installed. With optional exhaust air regulation, the feed-in of an unregulated proportion of fresh air of 10-20% of the nominal air flow is possible. The exhaust fan generates a gentle vacuum in the swimming pool via the adjoining rooms or fresh air flows into the swimming pool via the fresh air intake filter.

Unit functions, Function description

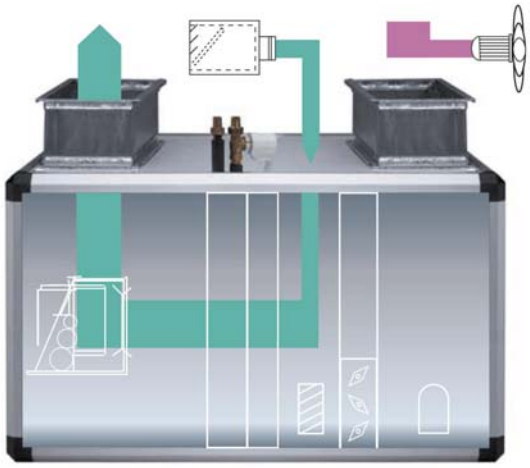
Air dehumidifying units from SET Schmidt Energietechnik have been developed and constructed especially for use in swimming pools. The use of premium and corrosion resistant materials ensures a long lifespan of the air dehumidifying units. Different surface coatings and finishes enable application for almost any purpose. Also available are titanium heat exchangers for thermal or salt water.

Every swimming pool must be dehumidified, ventilated and heated in order to guarantee a pleasant indoor climate and to avoid structural damage. Simple air extraction from the pool hall uses a great deal of energy, which can be significantly reduced by the heat recovery of an air dehumidifying unit.



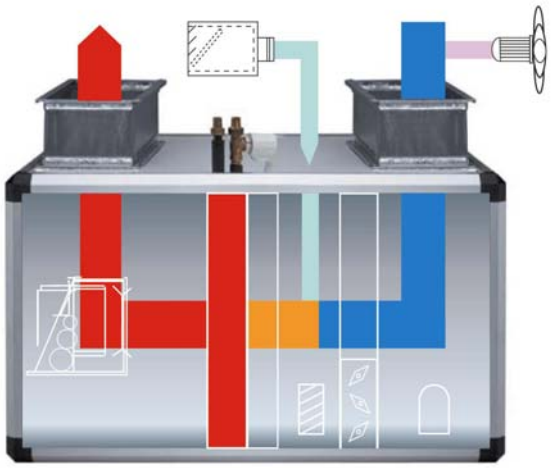
Dehumidification

Dehumidification is effected in circulating air operation by cooling the swimming pool air on the evaporator of the heat pump. The dehumidified air is heated on the condenser of the heat pump using the heat pump heat recovery resulting from dehumidification. Optionally a heat recovery output from dehumidification is possible for the pool water and in this way problems of excess temperature in the swimming pool can be kept to a minimum. The exhaust fan (optional) generates a slight vacuum in the swimming pool.



Excess temperature / Excess humidity

The dissipation of excess temperature and excess humidity is effected by the exhaust fan (optional). If the target value for temperature or humidity is exceeded, the speed of the exhaust fan increases and thus the amount of air expelled. Air flows into the pool area via the optional fresh air inlet or the adjoining rooms.



Heat

The heating of the pool area is effected by the pumped hot water heater battery, optionally integrated into the unit.

Regulation

Electronic regulation is provided as standard for the regulation of circulating air duct units. All functions can be covered in different increments with this regulation. The measurement of humidity and optional temperature and excess humidity, as well as the setting of target values for these parameters, is effected by the room controller built into the swimming pool. The room controllers are connected to the dehumidification unit by an 8-wire shielded cable.

Digital regulation is optionally available for circulating air duct units. The DDC regulation MC 2001 undertakes all control and regulation functions of the swimming pool climate. The target values for temperature and humidity are set on the operation and display unit, which has a four-line LCD display. Exhaust air is controlled automatically and is regulated depending on room temperature, room humidity and how the pool is used. During low use the system switches on when there is excess humidity or when the pool area temperature is exceeded and/or falls short; it switches off again when the operation target values are reached. Correspondingly, the heat valve continually regulates to the set target value. During low use and swimming use different target values can be set for temperature and humidity. Switching between low use and swimming use is done on the operation and display unit, via the optional clock module or optionally with an external switch, e.g. cover switch.
The air flow of the fans can be adjusted by the step-down transformers on the duct system.

Thermal output to pool water

All SET air dehumidifying units of production series ..01 U-EC and ..01 U-MC-EC can optionally be installed with a pool water condenser. This is recommended for high water temperatures (≥ 30°C) or when the room in question has low heat requirements. Overheating of the room with heat recovered from dehumidification can be avoided using the heat recovery output to the pool water.

Before delivery, SET air dehumidifying units undergo an extensive documented test run. This checks all device functions in the different operational areas and determines optimum settings. This ensures efficient operation within the customer system.

All devices with higher air flow (from 2,000 m³/h) can be dismantled into several parts for transportation. Assembly is simple and requires only a short time. The fully operational device wiring requires only the connection of the selected external consumer. The device parts are connected one beneath the other with plugs. Operational start-up can be carried out entirely by the system installation company.

Dehumidification unit type .. 01 U-EC

1 Dehumidification unit type .. 01 U-EC
with heat recovery by heat pump system for operation from 0 – 20% proportion of fresh air in connection with exhaust air fan (optional), basic hardware, complete with room controller,

consisting of:
Device housing of naturally anodised extruded hollow-chamber aluminium A6/CO with black plastic corners,
plastic cover panels with integrated acoustic and thermal insulation, service cover with internal quick-release fasteners. Internal structures of Al Mg3. Flexible air connections with canvas supports (distance over hubs 20 mm), installed therein:

1 heat pump unit with safety refrigerant R 407 C,
consisting of:
1 fully hermetic engine compressor, vibration-cushion mounted
1 crankcase heater
1 air cooler (evaporator) of CU pipe with pressed-on alu-blades, coated
1 air heater (condenser) of CU pipe with pressed-on alu-blades, coated
1 expansion valve (thermal and external pressure balance), coated
1 low pressure switch
1 high pressure switch (TÜV tested)
1 dryer
1 inspection glass with indicator
1 refrigerant collector
1 cooling piping of CU pipe, inc. condensation insulation

1 opposing bypass damper, manually adjustable, frames of extruded aluminium, blades of hollow-chamber aluminium inlaid with special seals and plastic cogs

unit 2601 U

1 high performance radial fan, directly driven by external rotary engine of quiet running performance

unit .601 U-EC

1 fan unit with EC-engine for energy saving operation across all load ranges with the highest degree of efficiency as a freely running, backward curved radial impeller, directly driven by external rotary engine as EC engine, fan unit to VDI standard 2060, Goods class Q 6.3, dynamically balanced in two planes, meeting EN 610200-3-2, speed infinitely adjustable by speed controller, engine in safety class IP 54, ISO class F, motor protection self-protecting

Dehumidification unit type .. 01 U-EC

1 switchbox, fully wired to VDE,
consisting of:
aluminium base plate and plastic cover bonnet, installed therein:
1 electronic control system of cartridge construction and all necessary safety and control loops for the heat pump, such as phase monitoring, low pressure, high pressure, fan and compressor controls, timer for guaranteed compressor downtime, fuses, overcurrent release, contacts, auxiliary contacts

Technical data

Dehumidification (+ 30°C / 60% r.h.)	..	kg/h
Air flow	..	m³/h
Air fan		
Nominal power	..	kW
Nominal current	..	A
external pressure drop max.	..	Pa
Sound pressure level LpA in 1m	..	dB(A)
Compressor		
Operating current on average	..	A
Power input on average	..	kW
Air heat recovery	..	kW
Feed-in	AC … V . N	
Total connected load	..	kW
Preliminary fuse (time-delay)	..	A
Control voltage	DC 24 V	
Operating weight	..	kg
Dimensions W x H x D	..	mm
largest transport unit W x H x D	..	mm

Brand SET Schmidt Energietechnik, Hemmingen
Type **.601 U-EC**
Supply from factory **€**

1 Pumped Hot Water Heater Battery PWW
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, Target value indicator and sensor included in room controller

Heat performance PWW at 80/60°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **PWW U .6**
Supply from factory **€**

Dehumidification unit type .. 01 U-EC

1 Pumped Hot Water Heater Battery PWW Low Temperature
installed in place of the available heater battery in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, Target value indicator and sensor included in room controller

Heat performance PWW at 50/40°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **NT-PWW U .6**
Supply from factory **€**

1 Electro heater battery for duct installation
constructed ready for operation in dehumidification unit, chassis with flange or aluminium with built-in temperature monitor and temperature limiter to VDE 0110/11.72,

Heat performance	.....	kW
Feed-in	AC … V . N	

Type **EHZ U**
Supply from factory **€**

1 Exhaust air regulation with pipe ventilator
installed ready for operation in dehumidification unit, to generate a slight vacuum in the swimming pool area and to dissipate excess temperature e.g. from direct sunlight. Activation using optical coupler on temperature sensor,
operating speed increase on increasing temperature
with operation mode selection switch - included in room controller, with pipe ventilator and self-activating cover flap

Free flowing air flow	.....	m³/h
Power input	.....	W

Type **FOL U**
Supply from factory **€**

1 Fresh air connection
for installation in the external wall (only required in connection with exhaust air fan, if sufficient fresh air can not flow in from suitable adjoining rooms), consisting of:
1 plastic wall sleeve with integrated thermal insulation and spigot NW 100 with filter insert, washable filter medium and weather protection grill of anodised aluminium E6EV1

Type **AAHU**
Supply from factory **€**

Dehumidification unit type .. 01 U-EC

1 Pool water heat exchanger of titanium
for the release of heat recovery into the pool water, fully wired
installed in dehumidification unit, regulated on the cooling side, complete with electronic temperature regulation using MC 2001. With flow monitor,
the pool water heat exchanger deactivates when there is insufficient water,

1 pool water sensor is supplied unconnected

Power from / to	..... /.....	kW
Flow rate	.....	m³/h
Pressure decrease	.....	kPa

Type **WRGU Titan**
Supply from factory **€**

Technical data

Device type		2601 U	3601 U-EC	4601 U-EC	6601 U-EC	8601 U-EC
Water surface up to approx. [1]	m²	30	30-40	40-50	50-70	70-100
Dehumidification (+ 30°C / 60% r.h.)	kg/h	2,4	3,3	4,1	6,1	8,2
Air flow	m³/h	500	1.000	1.200	1.400	2.500
Air fan nominal power	kW	0,26	0,2	0,3	0,35	0,77
Air fan nominal current	A	1,12	1,0	1,4	1,6	1,4
external pressure drop	Pa	110	180	200	220	250
Sound pressure level LpA in 1m	dB(A)	49	55	57	58	61
Air heat recovery	kW	2,9	3,9	4,8	7,1	9,0
Compressor operating current on average	A	110	180	200	220	250
Compressor power input on average	kW	1,27	1,65	1,54	1,94	2,23
Total connected load	kW	1,43	1,9	2,2	2,9	3,23
Preliminary fuse (time-delay)	A	1 x 16	3 x 10	3 x 10	3 x 16	3 x 16
Feed-in		AC 230 V 1 N	AC 400 V 3 N			
Dimensions W x D x H	mm	1100 x 550 x 522	1425 x 740 x 640			2140 x 790 x 740
largest transport unit W x D x H	mm					1400 x 790 x 740
Operating weight	kg	70	105	125	135	180
Heater Battery PWW						
Heat performance PWW at 80/60°C	kW	4,0	10,0	11,2	12,2	15,8
Flow rate	m³/h	0,28	0,43	0,5	0,6	1,1
Pressure decrease inc. valve	kPa	7	11	12	14	10
Heater Battery NT-PWW						
Heat performance PWW at 50/40°C	kW	-	5,7	6,7	7,6	12,0
Flow rate	m³/h	-	0,5	0,6	0,7	1,1
Pressure decrease inc. valve	kPa	-	10	11	12	10
Pipe ventilator						
Free flowing air flow	m³/h	300	300	300	300	600
Power input	W	80	80	80	80	110

[1] Ambient air condition + 30°C / 60 - 80% r. h., Pool water temperature 27 - 28 °C [2] Flow temperature 80/60° C

Dehumidification unit type .. 01 U-MC-EC

1 Dehumidification unit type .. 01 U-MC-EC
with heat recovery by heat pump system for operation from 0 – 20% proportion of fresh air in connection with exhaust air fan (optional), basic hardware, complete with Microcontroller MC 2001 and temperature and humidity sensors installed (optionally as room sensors),

consisting of:
Device housing of naturally anodised extruded hollow-chamber aluminium A6/CO with black plastic corners,
plastic cover panels with integrated acoustic and thermal insulation, service cover with internal quick-release fasteners. Internal structures of Al Mg3. Flexible air connections with canvas supports (distance over hubs 20 mm), installed therein:

1 heat pump unit with safety refrigerant R 407 C,
consisting of:
1 fully hermetic engine compressor, vibration-cushion mounted
1 crankcase heater
1 air cooler (evaporator) of CU pipe with pressed-on alu-blades, coated
1 air heater (condenser) of CU pipe with pressed-on alu-blades, coated
1 expansion valve (thermal and external pressure balance), coated
1 low pressure switch
1 high pressure switch (TÜV tested)
1 dryer
1 inspection glass with indicator
1 refrigerant collector
1 cooling piping of CU pipe, inc. condensation insulation

1 opposing bypass damper, manually adjustable, frames of extruded aluminium, blades of hollow-chamber aluminium inlaid with special seals and plastic cogs

1 fan unit with EC-engine for energy saving operation across all load ranges with the highest degree of efficiency as a freely running, backward curved radial impeller, directly driven by external rotary engine as EC engine, fan unit to VDI standard 2060, Goods class Q 6.3, dynamically balanced in two planes, meeting EN 610200-3-2, speed infinitely adjustable by speed controller, engine in safety class IP 54, ISO class F, motor protection self-protecting

1 switchbox, fully wired to VDE,
consisting of:
1 SET Microcontroller MC 2001
consisting of:
aluminium base plate with MC 2001 including fuses, overcurrent release contacts, connection cable with multipoint connector for operator control unit, switchboard wiring to VDE, fully wired for external room controllers, pumps etc.

Dehumidification unit type .. 01 U-MC-EC

Hardware

Operation and display unit in accessory pack, illuminated, for actual/target value display, heating valve position, exhaust fan function, hours of operation and display texts for operation and fault reporting. Microprocessor, digital and analogue inputs and outputs, digital relay outputs, summer and alarm relay, sensors for the measurement of room temperature, added air temperature and humidity are built into the device and fully wired.

Preparation of a modem interface for maintenance and remote operation.

Software

Control functions:

- Pool area temperature regulation (optional)
- Humidity regulation
- Control of the exhaust fan (optional)
- Mode of operation selector
- Error messages
- Filter monitoring (optional)
- PWW pumps activation (optional)

During low use the system switches on when there is excess humidity or when the pool area temperature is exceeded and/or falls short (optional); it switches off again when the operational target values are reached.
The exhaust fan generates a vacuum in the swimming pool and limits excess humidity and temperature.
Installed as standard is a sensor for temperature and humidity, which requires minimum circulating air always to be “on” or intermittent operation.

Technical data

Dehumidification (+ 30°C / 60% r.h.)	..	kg/h
Air flow	..	m³/h
Air fan		
Nominal power	..	kW
Nominal current	..	A
external pressure drop max.	..	Pa
Sound pressure level LpA in 1m	..	dB(A)
Compressor		
Operating current on average	..	A
Power input on average	..	kW
Air heat recovery	..	kW
Feed-in	AC … V . N	
Total connected load	..	kW
Preliminary fuse (time-delay)	..	A
Control voltage	DC 24 V	
Operating weight	..	kg
Dimensions W x H x D	..	mm
largest transport unit W x H x D	..	mm

Brand SET Schmidt Energietechnik, Hemmingen
Type **.601 U-MC-EC**
Supply from factory **€**

Dehumidification unit type .. 01 U-MC-EC

1 Pumped Hot Water Heater Battery PWW
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. electronic regulation, pump control and
control valve, target value indicator and sensor included in MC 2001.

Heat performance PWW at 80/60°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **PWW U-MC .6**
Supply from factory **€**

1 Pumped Hot Water Heater Battery PWW Low Temperature
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, target value indicator and sensor included in MC 2001.

Heat performance PWW at 50/40°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **NT-PWW U-MC .6**
Supply from factory **€**

1 Electro heater battery for duct installation
constructed ready for operation in dehumidification unit, chassis with flange or aluminium with built-in temperature monitor and temperature limiter to VDE 0110/11.72,

Heat performance	.....	kW
Feed-in	AC … V . N	

Type **EHZ U-MC**
Supply from factory **€**

1 Exhaust air regulation with pipe ventilator
installed ready for operation in dehumidification unit, to generate a slight vacuum in the swimming pool area and to dissipate excess temperature e.g. from direct sunlight, activation using MC 2001,
operating speed increase on increasing temperature, with pipe ventilator and self-activating cover flap

Free flowing air flow	.....	m³/h
Power input	.....	W

Type **FOL U-MC**
Supply from factory **€**

Dehumidification unit type .. 01 U-MC-EC

1 Fresh air connection
for installation in the external wall (only required in connection with exhaust air fan, if sufficient fresh air can not flow in from suitable adjoining rooms),
consisting of:
1 plastic wall sleeve with integrated thermal insulation
and spigot NW 100 with filter insert, washable filter medium
and weather protection grill of anodised aluminium E6EV1

Type **AAHU**
Supply from factory **€**

1 Pool water heat exchanger of titanium
for the release of heat recovery into the pool water, fully wired
installed in dehumidification unit, regulated on the cooling side, complete with electronic temperature regulation using MC 2001. With flow monitor,
the pool water heat exchanger deactivates when there is insufficient water,

1 pool water sensor is supplied unconnected

Power from / to	..... /.....	kW
Flow rate	.....	m³/h
Pressure decrease	.....	kPa

Type **WRGU Titan**
Supply from factory **€**

1 Room sensor
for installation in the swimming pool area, instead of installed sensors

Type **RF**
Supply from factory **€**

1 MC 2001 Real-time clock module
Real-time clock and storage module with popular back-up battery
for powercut-proof memory of the time, and to enable
time-programmed periods of swimming use and low use. Factory installed and configured ready for operation

Type **Uhr**
Supply from factory **€**

Dehumidification unit type .. 01 U-MC-EC

1 Remote indication (additional control panel)
(up to 50 m distance from main device) consisting of:
2nd operation and display unit with input and function button field,
four line LCD display, illuminated, for actual/target value display, damper positions,
Hours of operation and message texts as well as coloured LEDs
for operation and fault reporting (with acoustic alarm)

Type **BDT 2**
Supply from factory **€**

1 Humidity displacer
Further regulation for the “displacement” of room humidity depending on the outdoor temperature. When room humidity falls short of the dew point on a building component it is reduced by regulation.
Adjustment to the selected building component is made by adaptation within regulation.

1 building component sensor is supplied unconnected

Type **FS**
Supply from factory **€**

1 Temperature displacer
Further regulation for the “displacement” of room temperature depending on the pool water temperature.
Room temperature follows pool water temperature at a selected margin (0 - 9K).

1 pool water sensor is supplied unconnected

Type **TS**
Supply from factory **€**

1 Remote control module
Further regulation for the remote control of the air dehumidifying units
with the on-site central controller OSPA Bluecontrol.

Type **OSPA**
Supply from factory **€**

1 Further regulation RS 485
Further regulation for the remote control of the air dehumidifying units,
MC 2001 interface RS 485 for communication with external control units,
implementation of the data point list takes place on site

Type **RS 485**
Supply from factory **€**

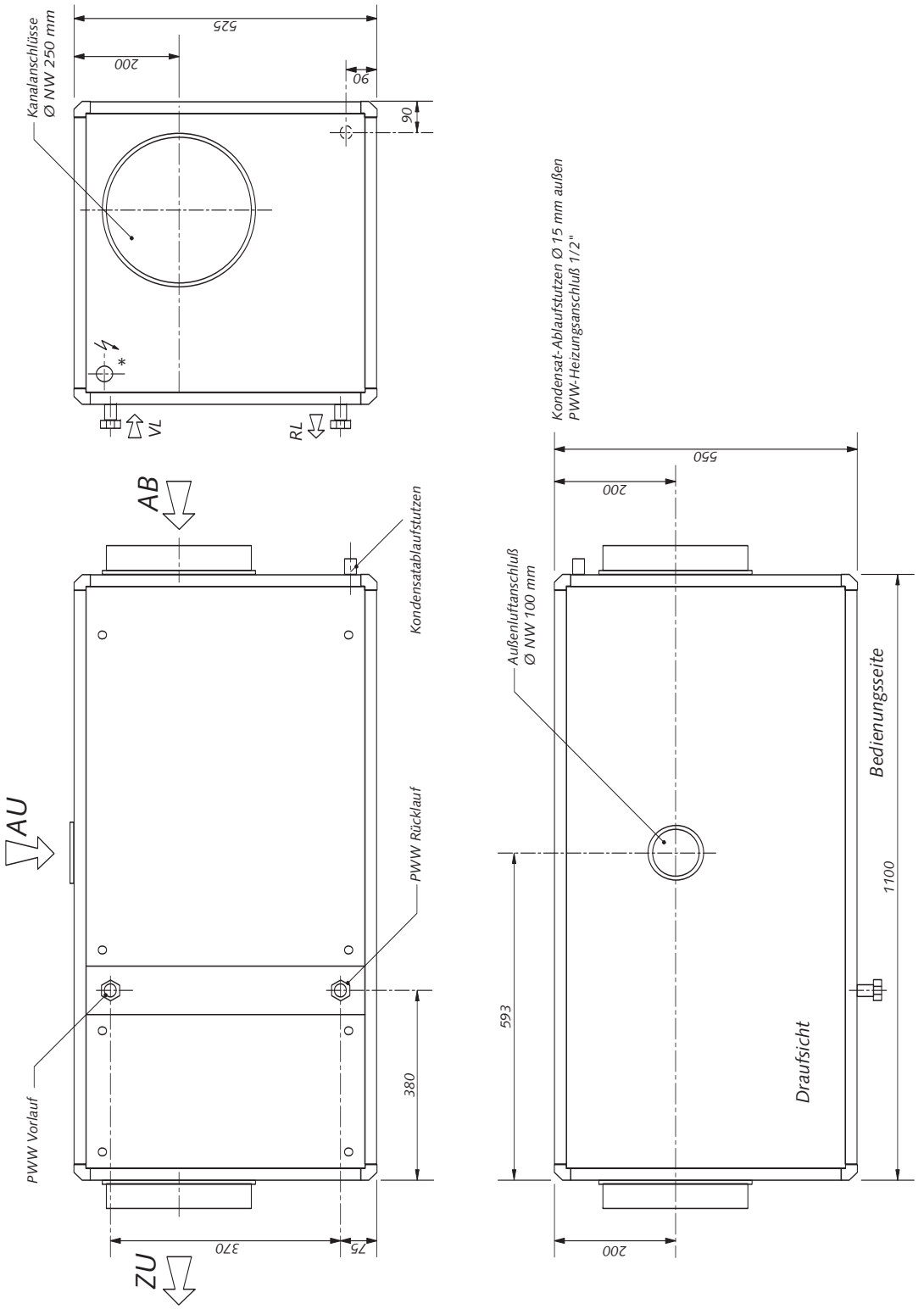
Technical data

Device type		3601 U-MC-EC	4601 U-MC-EC	6601 U-MC-EC	8601 U-MC-EC
Water surface up to approx. [1]	m²	30-40	40-50	50-70	70-100
Dehumidification (+ 30°C / 60% r.h.)	kg/h	3,3	4,1	6,1	8,2
Air flow	m³/h	1.000	1.200	1.400	2.500
Air fan nominal power	kW	0,2	0,3	0,35	0,77
Air fan nominal current	A	1,0	1,4	1,6	1,4
external pressure drop	Pa	180	200	220	250
Sound pressure level LpA in 1m	dB(A)	55	57	58	61
Air heat recovery	kW	3,9	4,8	7,1	9,0
Compressor operating current on average	A	180	200	220	250
Compressor power input on average	kW	1,65	1,54	1,94	2,23
Total connected load	kW	1,9	2,2	2,9	3,23
Preliminary fuse (time-delay)	A	3 x 10	3 x 10	3 x 16	3 x 16
Feed-in		AC 400 V 3 N			
Dimensions W x D x H	mm	1425 x 740 x 640			2140 x 790 x 740
largest transport unit W x D x H	mm				1400 x 790 x 740
Operating weight	kg	105	125	135	180
Heater Battery PWW					
Heat performance PWW at 80/60°C	kW	10,0	11,2	12,2	15,8
Flow rate	m³/h	0,43	0,5	0,6	1,1
Pressure decrease inc. valve	kPa	11	12	14	10
Heater Battery NT-PWW					
Heat performance PWW at 50/40°C	kW	5,7	6,7	7,6	12,0
Flow rate	m³/h	0,5	0,6	0,7	1,1
Pressure decrease inc. valve	kPa	10	11	12	10
Pipe ventilator					
Free flowing air flow	m³/h	300	300	300	600
Power input	W	80	80	80	110

[1] Ambient air condition + 30°C / 60 - 80% r. h., Pool water temperature 27 - 28 °C

Maßblatt U

Kanalgerät
Typ 2601 U



Technische Änderungen vorbehalten.

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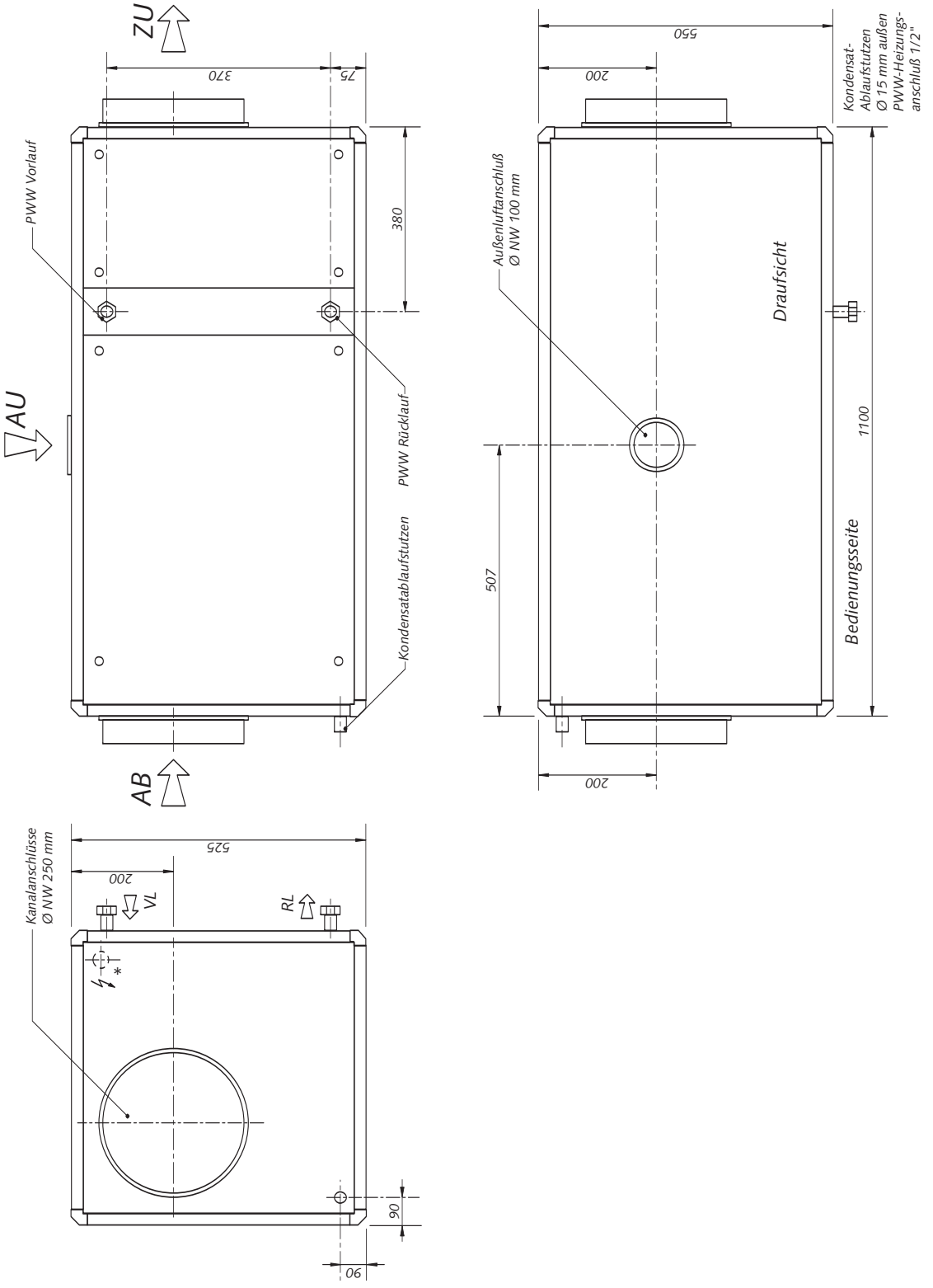
Telefon +49 (0) 71 50 / 94 54-0 · Telefax +49 (0) 71 50 / 23 37 · info@set-schmidt.de · www.set-schmidt.de

Maßblatt U

Kanalgerät

Typ 2601 U-S (spiegelverkehrt)



Technische Änderungen vorbehalten.

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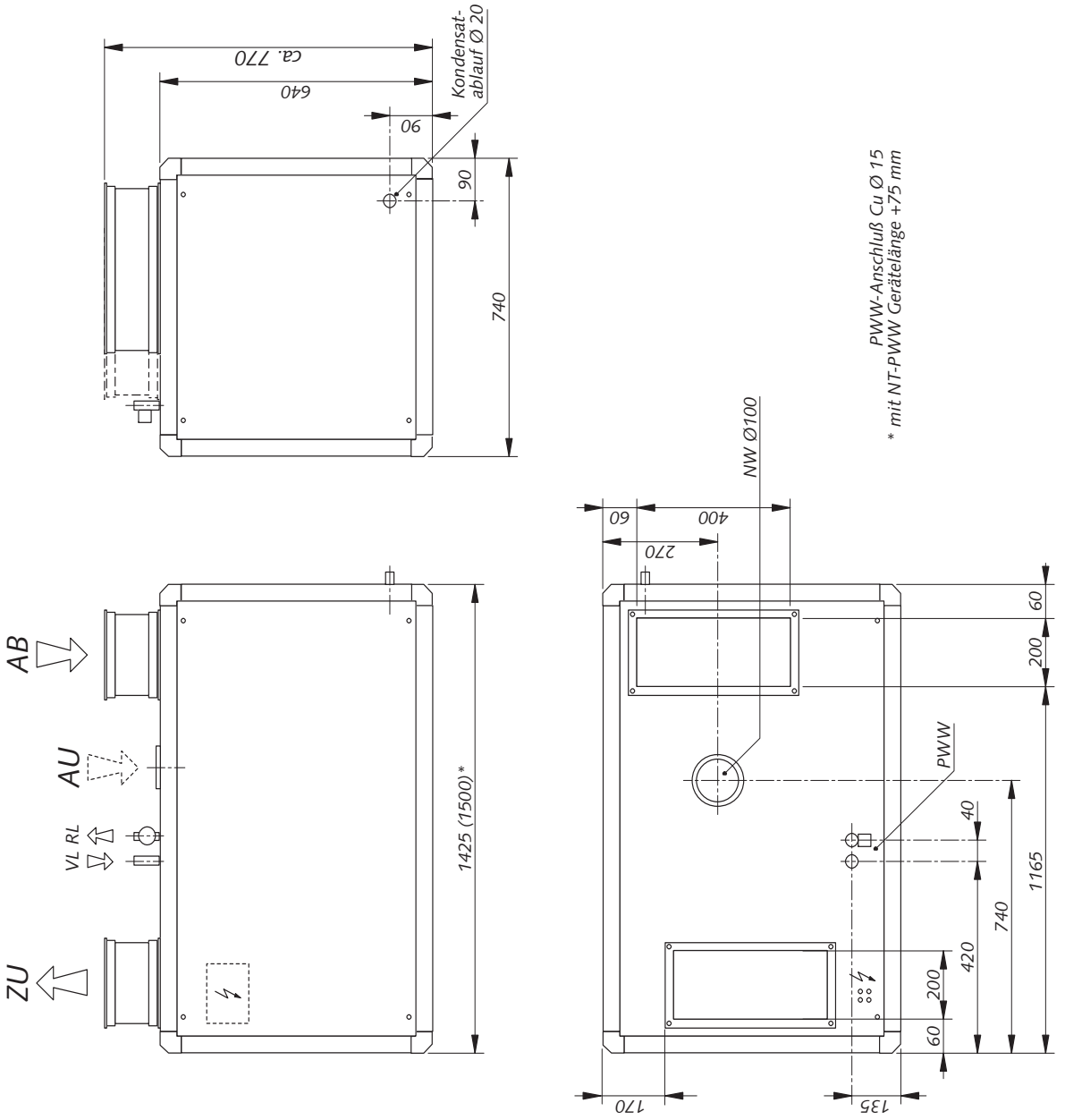
Maßblatt U-EC / U-MC-EC

Kanalgerät

Typ 3601 U-EC / U-MC-EC



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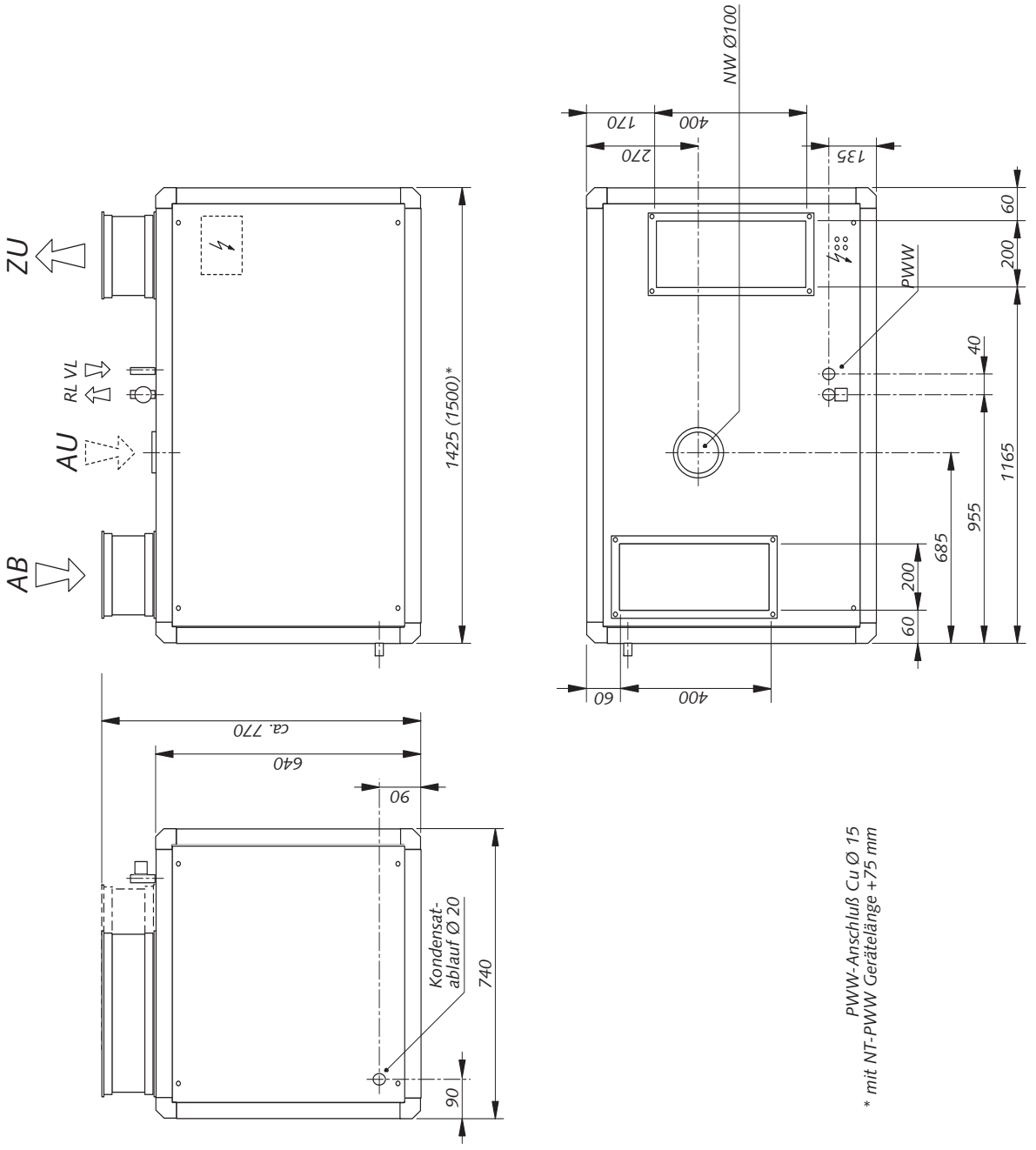
Maßblatt U-EC / U-MC-EC

Kanalgerät

Typ 3601 U-EC-S / U-MC-EC-S (spiegelverkehrt)



PWW-Anschluß Cu Ø 15
* mit NT-PWW Gerätelänge +75 mm

Technische Änderungen vorbehalten.

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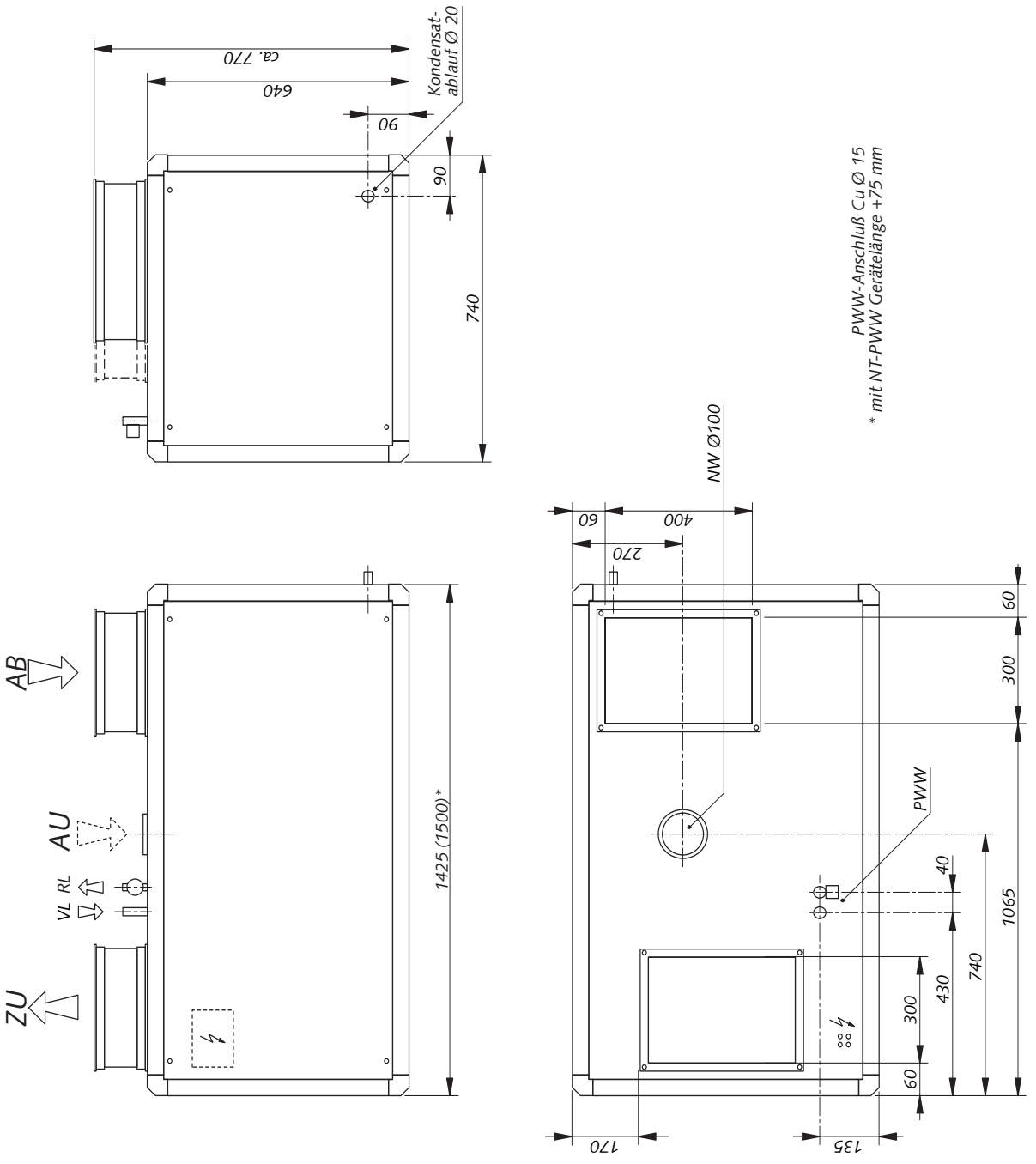
Maßblatt U-EC / U-MC-EC

Kanalgeräte

Typ 4601, 6601 U-EC / U-MC-EC und 3601 U-EC / U-MC-EC 1500



Technische Änderungen vorbehalten.

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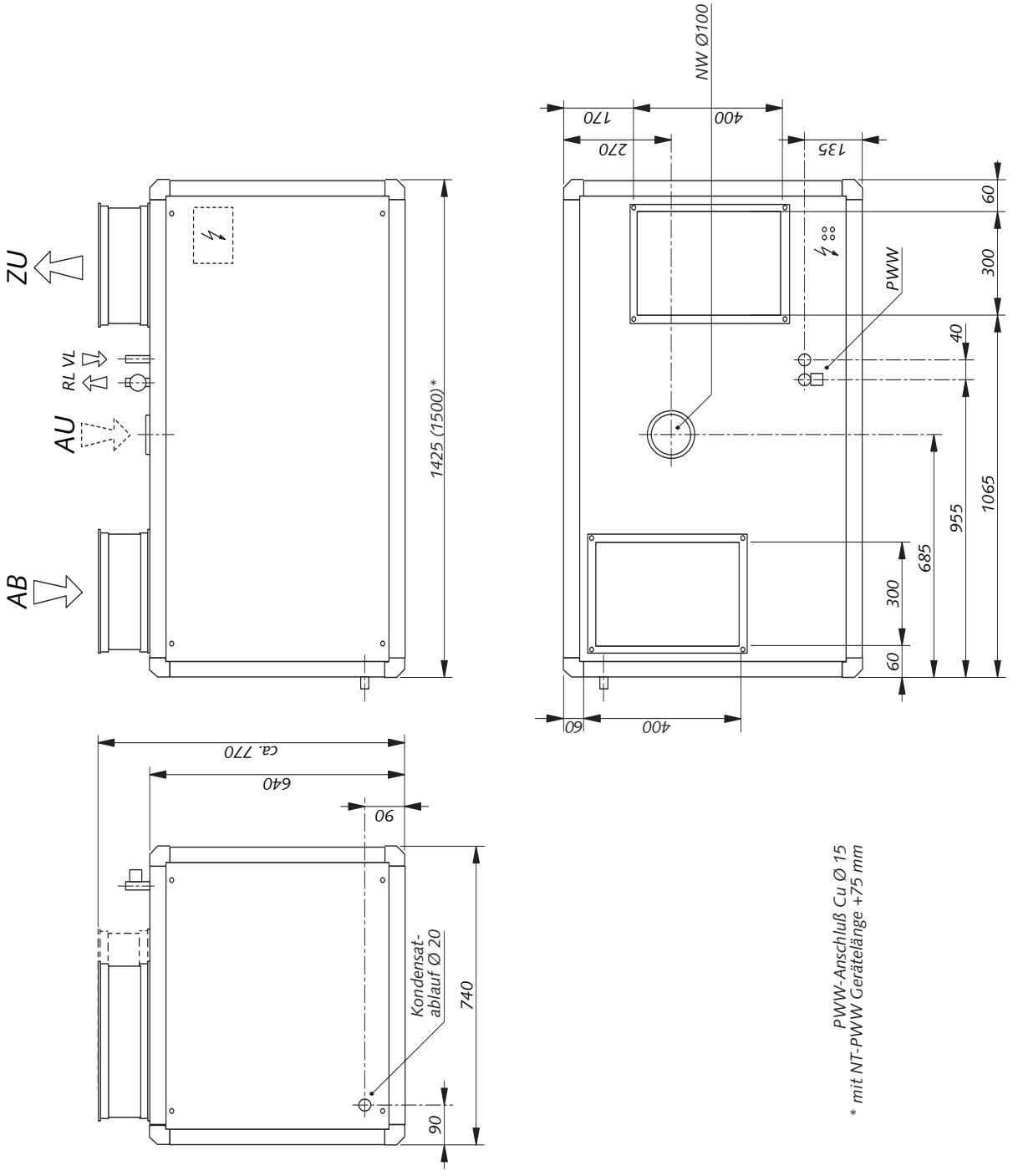
Maßblatt U-EC / U-MC-EC

Kanalgeräte Typ 4601 U-EC-S / U-MC-EC-S, 6601 U-EC-S /U-MC-EC-S und 3601 U-EC-S / U-MC-EC-S 1500 (spiegelverkehrt)



PWW-Anschluß Cu Ø 15
* mit NT-PWW Gerätelänge +75 mm

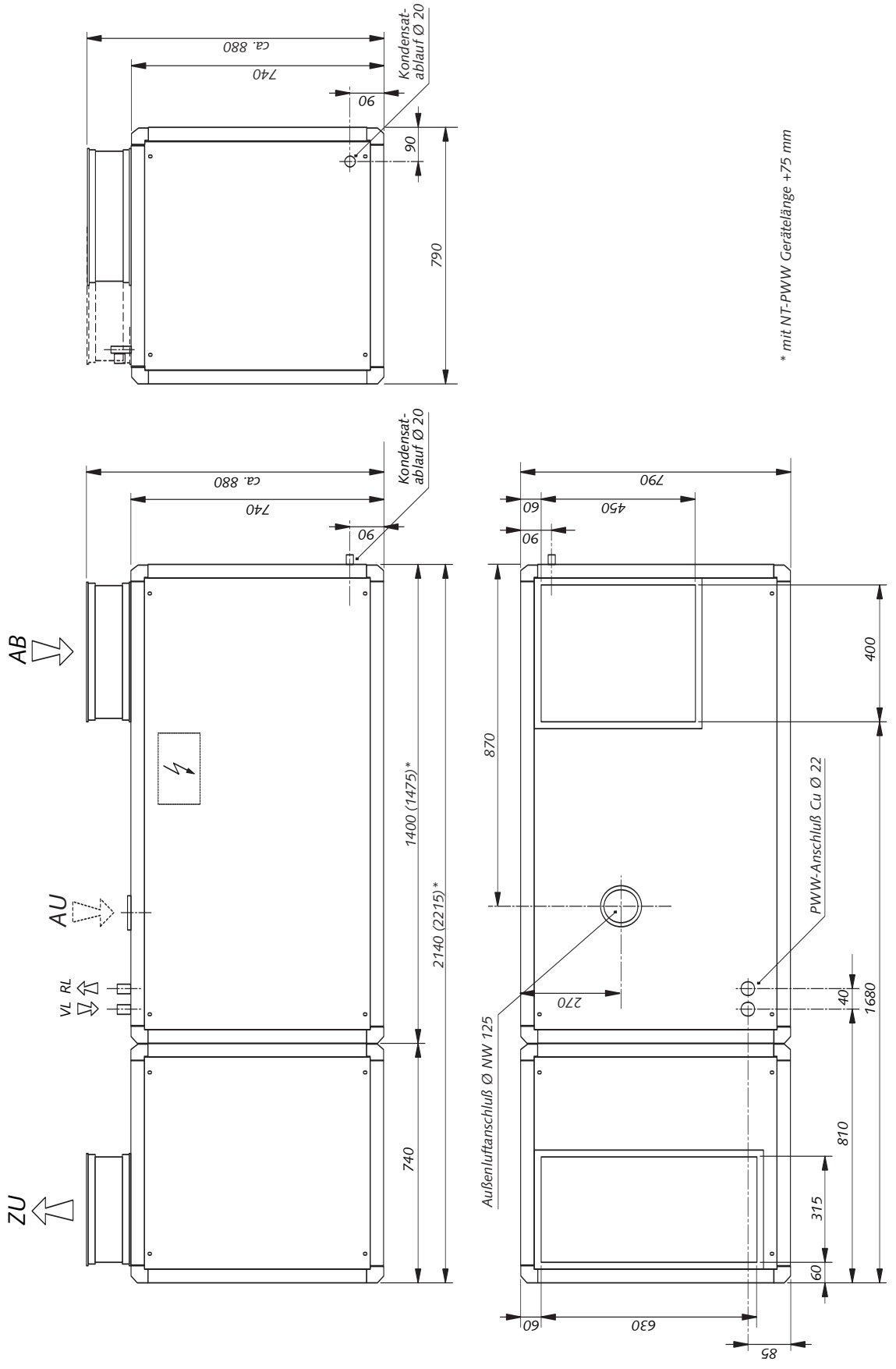
Technische Änderungen vorbehalten.

SET Schmidt Energietechnik · August-Blessing-Straße 5 · D-71282 Hemmingen
Telefon +49 (0) 71 50 / 94 54-0 · Telefax +49 (0) 71 50 / 23 37 · info@set-schmidt.de · www.set-schmidt.de

Maßblatt U-EC / U-MC-EC

Kanalgerät

Typ 8601 U-EC / U-MC-EC



Technische Änderungen vorbehalten.

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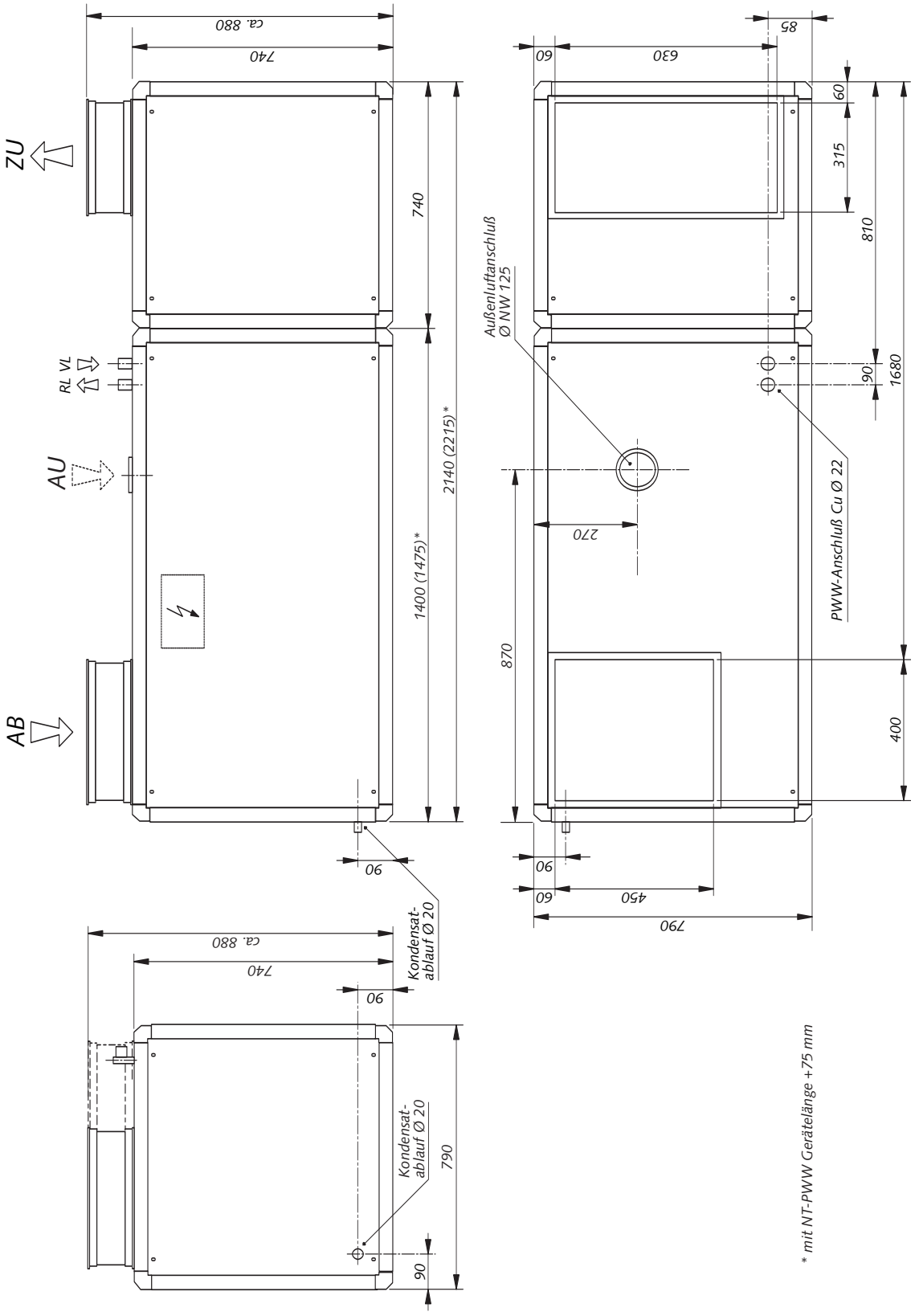
Maßblatt U-EC / U-MC-EC

Kanalgerät

Typ 8601 U-EC / U-MC-EC-S (spiegelverkehrt)



Technische Änderungen vorbehalten.

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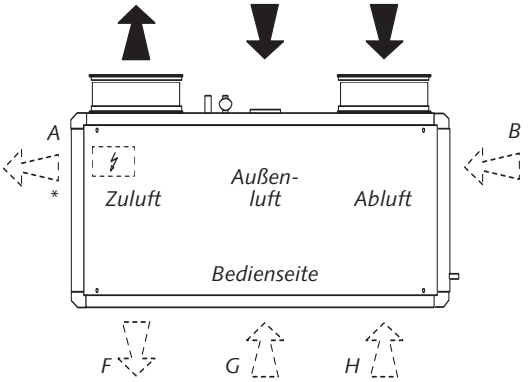
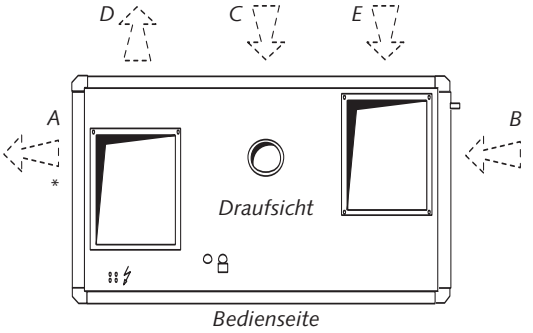
Maßblatt U-EC / U-MC-EC

Kanalgeräte
Anschlußmöglichkeiten

Luftseitige Anschlußmöglichkeiten bei Umluftgeräten mit Außenluftanteil

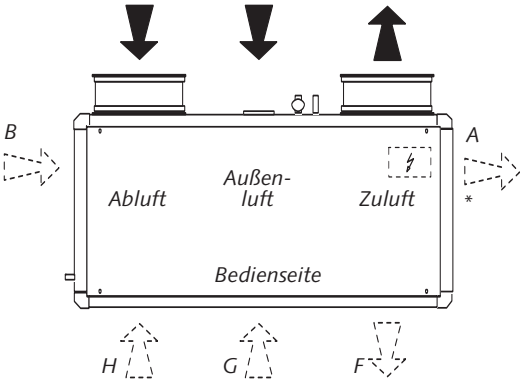
Standardausführung

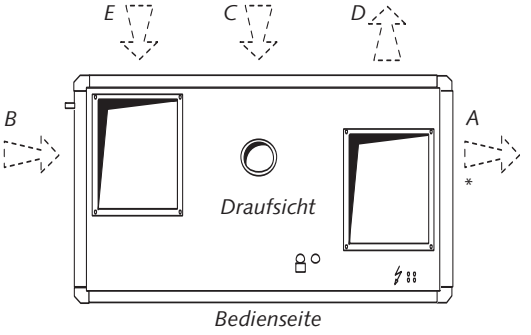




serienmäßig
alternativ (bei Bestellung angeben)

Ausführung „S“ (spiegelverkehrt)





serienmäßig
alternativ (bei Bestellung angeben)

** Bei Ausführung A (Zuluft stirnseitig) Gerätelänge +150 mm*

Technische Änderungen vorbehalten.

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Dehumidification unit

type ..02 U-EC
..02 U-MC-EC

Technical data

SET Schmidt Energietechnik * August-Blessing-Str. 5 * D-71282 Hemmingen * Tel: +49 (0)7150 9454-0 Fax: +49 (0)7150 2337

Dehumidification unit type .. 02 U-EC

1 Dehumidification unit type .. 02 U-EC
with multi-level heat recovery by heat pump system and recuperative heat exchanger for operation from 0 – 20% proportion of fresh air in connection with exhaust air fan (optional), basic hardware, complete with room controller,

consisting of:
device housing of naturally anodised extruded hollow-chamber aluminium A6/CO with black plastic corners,
plastic cover panels with integrated acoustic and thermal insulation, service cover with internal quick-release fasteners. Internal structures of Al Mg3. Flexible air connections with canvas supports (distance over hubs 20 mm), installed therein:

1 heat pump unit with safety refrigerant R 407 C,
consisting of:
1 fully hermetic engine compressor, vibration-cushion mounted
1 crankcase heater
1 air cooler (evaporator) of CU pipe with pressed-on alu-blades, coated
1 air heater (condenser) of CU pipe with pressed-on alu-blades, coated
1 expansion valve (thermal and external pressure balance), coated
1 low pressure switch
1 high pressure switch (TÜV tested)
1 dryer
1 inspection glass with indicator
1 refrigerant collector
1 cooling piping of CU pipe, inc. condensation insulation

1 opposing bypass damper, manually adjustable, frames of extruded aluminium, blades of hollow-chamber aluminium inlaid with special seals and plastic cogs

1 Cross-flow plate heat exchanger of special-form aluminium plates plastic-coated, with positive and negative indentations to maintain spacing. Thus there are no ducts; currents and condensation drainage is possible in all directions. The plates are interlocked beneath one another with a double seam. Thus there is 6-fold material strength for the air inlet and outlet. The double seam is additionally waterproofed with artificial resin. The corners of the exchange section are moulded with permanently elastic artificial resin using a patented procedure. The heat exchanger block is easily removable and can be taken out for cleaning purposes.

1 fan unit with EC-engine for energy saving operation across all load ranges with the highest degree of efficiency as a freely running, backward curved radial impeller, directly driven by external rotary engine as EC engine, fan unit to VDI standard 2060, Goods class Q 6.3, dynamically balanced in two planes, meeting EN 610200-3-2, speed infinitely adjustable by speed controller, engine in safety class IP 54, ISO class F, motor protection self-protecting

Dehumidification unit type .. 02 U-EC

1 switchbox, fully wired to VDE,
consisting of:
aluminium base plate and plastic cover bonnet, installed therein:
1 electronic control system of cartridge construction and all necessary safety and control loops for the heat pump, such as phase monitoring, low pressure, high pressure, fan and compressor controls, timer for guaranteed compressor downtime, fuses, overcurrent release, contacts, auxiliary contacts

Technical data

Dehumidification (+ 30°C / 60% r.h.)	..	kg/h
Air flow	..	m³/h
Air fan		
Nominal power	..	kW
Nominal current	..	A
external pressure drop max.	..	Pa
Sound pressure level LpA in 1m	..	dB(A)
Compressor		
Operating current on average	..	A
Power input on average	..	kW
Air heat recovery	..	kW
Feed-in	AC … V . N	
Total connected load	..	kW
Preliminary fuse (time-delay)	..	A
Control voltage	DC 24 V	
Operating weight	..	kg
Dimensions W x H x D	..	mm
largest transport unit W x H x D	..	mm

Brand SET Schmidt Energietechnik, Hemmingen
Type **.602 U-EC**
Supply from factory **€**

1 Pumped Hot Water Heater Battery PWW
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, Target value indicator and sensor included in room controller

Heat performance PWW at 80/60°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **PWW U .6**
Supply from factory **€**

Dehumidification unit type .. 02 U-EC

1 Pumped Hot Water Heater Battery PWW Low Temperature
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, Target value indicator and sensor included in room controller

Heat performance PWW at 50/40°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **NT-PWW U .6**
Supply from factory **€**

1 Electro heater battery for duct installation
constructed ready for operation in dehumidification unit, chassis with flange or aluminium with built-in temperature monitor and temperature limiter to VDE 0110/11.72,

Heat performance	.....	kW
Feed-in	AC … V . N	

Type **EHZ U**
Supply from factory **€**

1 Exhaust air regulation with pipe ventilator
installed ready for operation in dehumidification unit, to generate a slight vacuum in the swimming pool area and to dissipate excess temperature e.g. from direct sunlight. Activation using optical coupler on temperature sensor,
operating speed increase on increasing temperature
with operation mode selection switch - included in room controller, with pipe ventilator and self-activating cover flap

Free flowing air flow	.....	m³/h
Power input	.....	W

Type **FOL U**
Supply from factory **€**

1 Fresh air connection
for installation in the external wall (only required in connection with exhaust air fan, if sufficient fresh air can not flow in from suitable adjoining rooms),
consisting of:
1 plastic wall sleeve with integrated thermal insulation
and spigot NW 100 with filter insert, washable filter medium
and weather protection grill of anodised aluminium E6EV1

Type **AAHU**
Supply from factory **€**

Dehumidification unit type .. 02 U-EC

1 Pool water heat exchanger of titanium
for the release of heat recovery into the pool water, fully wired
installed in dehumidification unit, regulated on the cooling side, complete with electronic temperature regulation using MC 2001. With flow monitor,
the pool water heat exchanger deactivates when there is insufficient water,

1 pool water sensor is supplied unconnected

Power from / to	..... /.....	kW
Flow rate	.....	m³/h
Pressure decrease	.....	kPa

Type **WRGU Titan**
Supply from factory **€**

Technical data

Device type		3602 U-EC	4602 U-EC	6602 U-EC	8602 U-EC
Water surface up to approx. [1]	m²	30-50	40-60	50-75	70-100
Dehumidification (+ 30°C / 60% r.h.)	kg/h	3,6	4,7	6,4	9,6
Air flow	m³/h	1.000	1.200	1.400	2.500
Air fan nominal power	kW	0,2	0,3	0,35	0,77
Air fan nominal current	A	1,0	1,4	1,6	1,4
external pressure drop	Pa	180	200	220	220
Sound pressure level LpA in 1m	dB(A)	58	59	59	63
Air heat recovery	kW	3,7	4,9	5,9	9,3
Compressor operating current on average	A	180	200	220	250
Compressor power input on average	kW	0,84	1,35	1,54	1,94
Total connected load	kW	1,1	1,5	2,2	2,9
Preliminary fuse (time-delay)	A	1 x 10	1 x 16	3 x 10	3 x 16
Feed-in		AC 230 V 1 N		AC 400 V 3 N	
Dimensions W x D x H	mm	1880 x 740 x 1100			2400 x 790 x 1225
largest transport unit W x D x H	mm	1880 x 740 x 640			1660 x 790 x 740
Operating weight	kg	145	155	165	210
Heater Battery PWW					
Heat performance PWW at 80/60°C	kW	10,0	11,2	12,2	15,8
Flow rate	m³/h	0,43	0,5	0,6	1,1
Pressure decrease inc. valve	kPa	11	12	14	10
Heater Battery NT-PWW					
Heat performance PWW at 50/40°C	kW	5,7	6,7	7,6	12,0
Flow rate	m³/h	0,5	0,6	0,7	1,1
Pressure decrease inc. valve	kPa	10	11	12	10
Pipe ventilator					
Free flowing air flow	m³/h	300	300	300	600
Power input	W	80	80	80	110

[1] Ambient air condition + 30°C / 60 - 80% r. h., Pool water temperature 27 - 28 °C [2] Flow temperature 80/60° C

Dehumidification unit type .. 02 U-MC-EC

1 Dehumidification unit type .. 02 U-MC-EC
with multi-level heat recovery by heat pump system and recuperative heat exchanger for operation from 0 – 20% proportion of fresh air in connection with exhaust air fan (optional), basic hardware, complete with
Microcontroller MC 2001 and temperature and humidity sensors installed
(optionally as room sensors),

consisting of:
device housing of naturally anodised extruded hollow-chamber aluminium A6/CO with black plastic corners,
plastic cover panels with integrated acoustic and thermal insulation, service cover with internal quick-release fasteners. Internal structures of
Al Mg3. Flexible air connections with canvas supports (distance over hubs 20 mm), installed therein:

1 heat pump unit with safety refrigerant R 407 C,
consisting of:
1 fully hermetic engine compressor, vibration-cushion mounted
1 crankcase heater
1 air cooler (evaporator) of CU pipe with pressed-on alu-blades, coated
1 air heater (condenser) of CU pipe with pressed-on alu-blades, coated
1 expansion valve (thermal and external pressure balance), coated
1 low pressure switch
1 high pressure switch (TÜV tested)
1 dryer
1 inspection glass with indicator
1 refrigerant collector
1 cooling piping of CU pipe, inc. condensation insulation

1 opposing bypass damper, manually adjustable, frames of extruded aluminium, blades of hollow-chamber aluminium inlaid with special seals and plastic cogs

1 Cross-flow plate heat exchanger of special-form aluminium plates plastic-coated, with positive and negative indentations to maintain spacing. Thus there are no ducts; currents and condensation drainage is possible in all directions. The plates are interlocked beneath one another with a double seam. Thus there is 6-fold material strength for the air inlet and outlet. The double seam is additionally waterproofed with artificial resin. The corners of the exchange section are moulded with permanently elastic artificial resin using a patented procedure. The heat exchanger block is easily removable and can be taken out for cleaning purposes.

1 fan unit with EC-engine for energy saving operation across
all load ranges with the highest degree of efficiency as a freely running,
backward curved radial impeller, directly driven by
external rotary engine as EC engine, fan unit to VDI standard 2060,
Goods class Q 6.3, dynamically balanced in two planes,
meeting EN 610200-3-2, speed infinitely adjustable by
speed controller, engine in safety class IP 54, ISO class F, motor protection self-protecting

Dehumidification unit type .. 02 U-MC-EC

1 switchbox, fully wired to VDE,
consisting of:
1 SET Microcontroller MC 2001
consisting of:
aluminium base plate with MC 2001 including fuses, overcurrent release contacts, connection cable with multipoint connector for operator control unit, switchboard wiring to VDE, fully wired for external room controllers, pumps etc.

Hardware
Operation and display unit in accessory pack, illuminated, for actual/target value display, heating valve position, exhaust fan function, hours of operation and display texts for operation and fault reporting. Microprocessor, digital and analogue inputs and outputs, digital relay outputs, summer and alarm relay, sensors for the measurement of room temperature, added air temperature and humidity are built into the device and fully wired.
Preparation of a modem interface for maintenance and remote operation.

Software
Control functions:
- Pool area temperature regulation (optional)
- Humidity regulation
- Control of the exhaust fan (optional)
- Mode of operation selector
- Error messages
- Filter monitoring (optional)
- PWW pumps activation (optional)

During low use the system switches on when there is excess humidity or when the pool area temperature is exceeded and/or falls short (optional); it switches off again when the operational target values are reached.
The exhaust fan generates a vacuum in the swimming pool and limits excess humidity and temperature.
Installed as standard is a sensor for temperature and humidity, which requires minimum circulating air always to be “on” or intermittent operation.

Dehumidification unit type .. 02 U-MC-EC

Technical data

Dehumidification (+ 30°C / 60% r.h.)	..	kg/h
Air flow	..	m³/h
Air fan		
Nominal power	..	kW
Nominal current	..	A
external pressure drop max.	..	Pa
Sound pressure level LpA in 1m	..	dB(A)
Compressor		
Operating current on average	..	A
Power input on average	..	kW
Air heat recovery	..	kW
Feed-in	AC … V . N	
Total connected load	..	kW
Preliminary fuse (time-delay)	..	A
Control voltage	DC 24 V	
Operating weight	..	kg
Dimensions W x H x D	..	mm
largest transport unit W x H x D	..	mm

Brand SET Schmidt Energietechnik, Hemmingen
Type **.602 U-MC-EC**
Supply from factory **€**

1 Pumped Hot Water Heater Battery PWW
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. electronic regulation, pump control and
control valve, target value indicator and sensor included in MC 2001.

Heat performance PWW at 80/60°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **PWW U-MC .6**
Supply from factory **€**

1 Pumped Hot Water Heater Battery PWW Low Temperature
installed in the dehumidification unit ready for operation, for connection to the available building heating, inc. regulation, pump activation and control valve, target value indicator and sensor included in MC 2001.

Heat performance PWW at 50/40°C	.....	kW
Flow rate	.....	m³/h
Pressure decrease inc. valve	.....	kPa

Type **NT-PWW U-MC .6**
Supply from factory **€**

Dehumidification unit type .. 02 U-MC-EC

1 Electro heater battery for duct installation
constructed ready for operation in dehumidification unit, chassis with flange or aluminium with built-in temperature monitor and temperature limiter to VDE 0110/11.72,

Heat performance ..... kW
Feed-in AC … V . N

Type **EHZ U-MC**
Supply from factory **€**

1 Exhaust air regulation with pipe ventilator
installed ready for operation in dehumidification unit, to generate a slight vacuum in the swimming pool area and to dissipate excess temperature e.g. from direct sunlight, activation using MC 2001,
operating speed increase on increasing temperature, with pipe ventilator and self-activating cover flap

Free flowing air flow ..... m³/h
Power input ..... W

Type **FOL U-MC**
Supply from factory **€**

1 Fresh air connection
for installation in the external wall (only required in connection with exhaust air fan, if sufficient fresh air can not flow in from suitable adjoining rooms),
consisting of:
1 plastic wall sleeve with integrated thermal insulation
and spigot NW 100 with filter insert, washable filter medium
and weather protection grill of anodised aluminium E6EV1

Type **AAHU**
Supply from factory **€**

Dehumidification unit type .. 02 U-MC-EC

1 Pool water heat exchanger of titanium
for the release of heat recovery into the pool water, fully wired
installed in dehumidification unit, regulated on the cooling side, complete with electronic temperature regulation using MC 2001. With flow monitor,
the pool water heat exchanger deactivates when there is insufficient water,

1 pool water sensor is supplied unconnected

Power from / to	..... /.....	kW
Flow rate	.....	m³/h
Pressure decrease	.....	kPa

Type **WRGU Titan**
Supply from factory **€**

1 Room sensor
for installation in the swimming pool area, instead of installed sensors

Type **RF**
Supply from factory **€**

1 MC 2001 Real-time clock module
Real-time clock and storage module with popular back-up battery
for powercut-proof memory of the time, and to enable
time-programmed periods of swimming use and low use. Factory installed and configured ready for operation

Type **Uhr**
Supply from factory **€**

1 Remote indication (additional control panel)
(up to 50 m distance from main device) consisting of:
2nd operation and display unit with input and function button field,
four line LCD display, illuminated, for actual/target value display, damper positions,
Hours of operation and message texts as well as coloured LEDs
for operation and fault reporting (with acoustic alarm)

Type **BDT 2**
Supply from factory **€**

Dehumidification unit type .. 02 U-MC-EC

1 Humidity displacer
Further regulation for the “displacement” of room humidity depending on the outdoor temperature. When room humidity falls short of the dew point on a building component it is reduced by regulation.
Adjustment to the selected building component is made by adaptation within regulation.

1 building component sensor is supplied unconnected

Type **FS**
Supply from factory **€**

1 Temperature displacer
Further regulation for the “displacement” of room temperature depending on the pool water temperature.
Room temperature follows pool water temperature at a selected margin (0 - 9K).

1 pool water sensor is supplied unconnected

Type **TS**
Supply from factory **€**

1 Remote control module
Further regulation for the remote control of the air dehumidifying units with the on-site central controller OSPA Bluecontrol.

Type **OSPA**
Supply from factory **€**

1 Further regulation RS 485
Further regulation for the remote control of the air dehumidifying units, MC 2001 interface RS 485 for communication with external control units, implementation of the data point list takes place on site

Type **RS 485**
Supply from factory **€**

Technical data

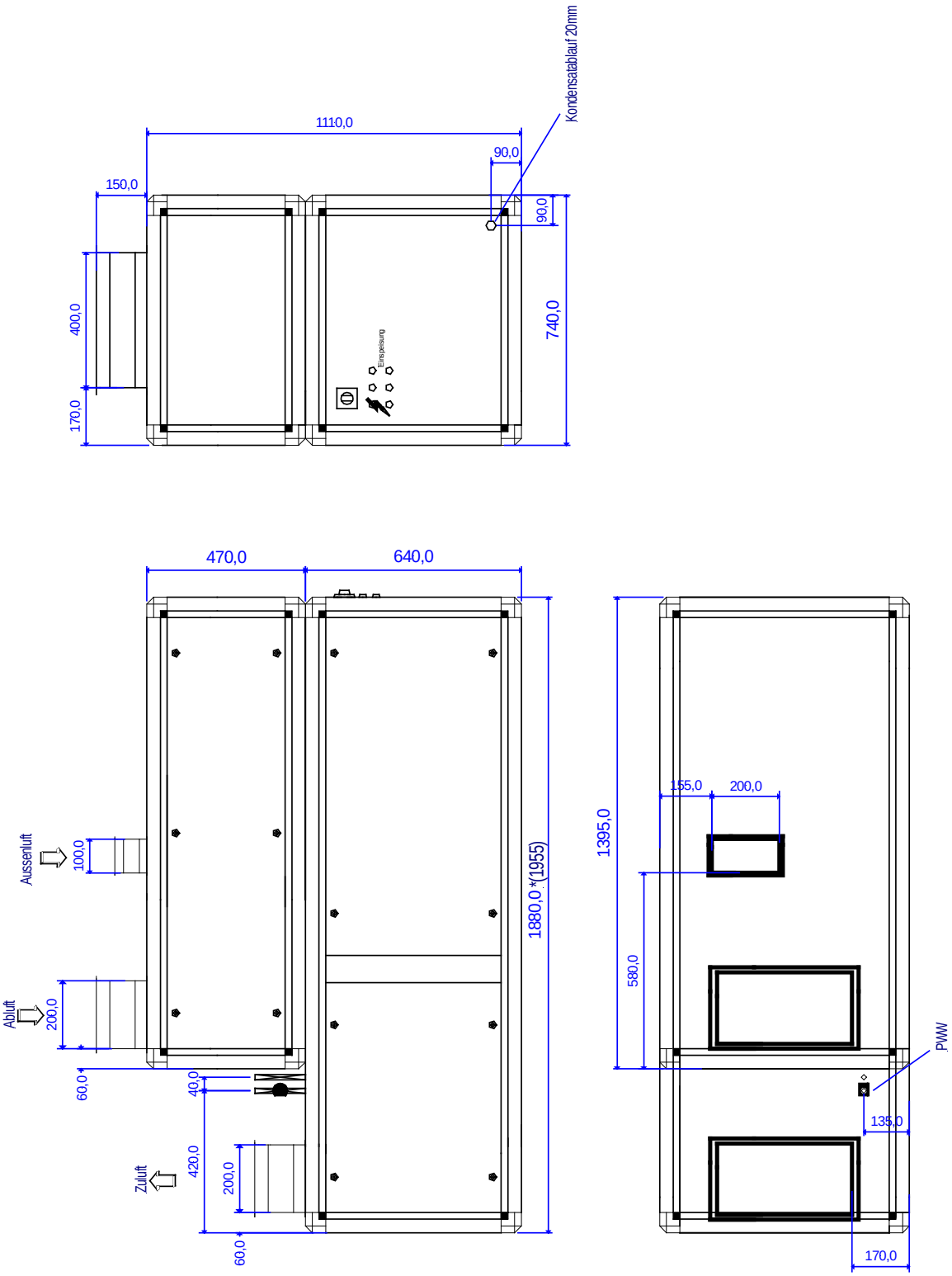
Device type		3602 U-MC-EC	4602 U-MC-EC	6602 U-MC-EC	8602 U-MC-EC
Water surface up to approx. [1]	m²	30-50	40-60	50-75	70-100
Dehumidification (+ 30°C / 60% r.h.)	kg/h	3,6	4,7	6,4	9,6
Air flow	m³/h	1.000	1.200	1.400	2.500
Air fan nominal power	kW	0,2	0,3	0,35	0,77
Air fan nominal current	A	1,0	1,4	1,6	1,4
external pressure drop	Pa	180	200	220	220
Sound pressure level LpA in 1m	dB(A)	58	59	59	63
Air heat recovery	kW	3,7	4,9	5,9	9,3
Compressor operating current on average	A	180	200	220	250
Compressor power input on average	kW	0,84	1,35	1,54	1,94
Total connected load	kW	1,1	1,5	2,2	2,9
Preliminary fuse (time-delay)	A	1 x 10	1 x 16	3 x 10	3 x 16
Feed-in		AC 230 V 1 N		AC 400 V 3 N	
Dimensions W x D x H	mm	1880 x 740 x 1100			2400 x 790 x 1225
largest transport unit W x D x H	mm	1880 x 740 x 640			1660 x 790 x 740
Operating weight	kg	145	155	165	210
Heater Battery PWW					
Heat performance PWW at 80/60°C	kW	10,0	11,2	12,2	15,8
Flow rate	m³/h	0,43	0,5	0,6	1,1
Pressure decrease inc. valve	kPa	11	12	14	10
Heater Battery NT-PWW					
Heat performance PWW at 50/40°C	kW	5,7	6,7	7,6	12,0
Flow rate	m³/h	0,5	0,6	0,7	1,1
Pressure decrease inc. valve	kPa	10	11	12	10
Pipe ventilator					
Free flowing air flow	m³/h	300	300	300	600
Power input	W	80	80	80	110

[1] Ambient air condition + 30°C / 60 - 80% r. h., Pool water temperature 27 - 28 °C [2] Flow temperature 80/60° C

Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 3602 U-EC / U-MC-EC



Technische Änderungen vorbehalten.

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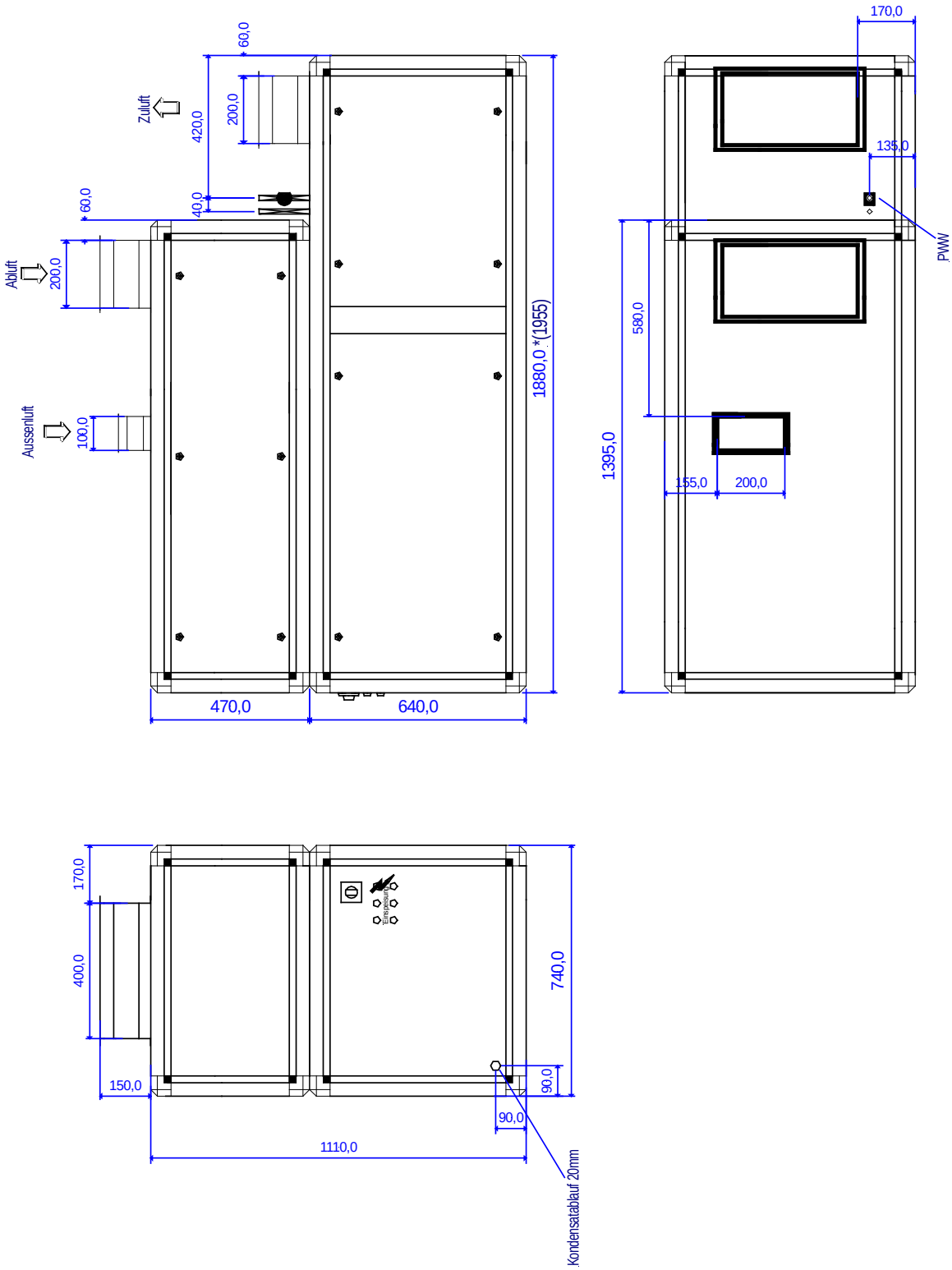
Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 3602 U-EC-S / U-MC-EC-S (spiegelverkehrt)



Technische Änderungen vorbehalten.

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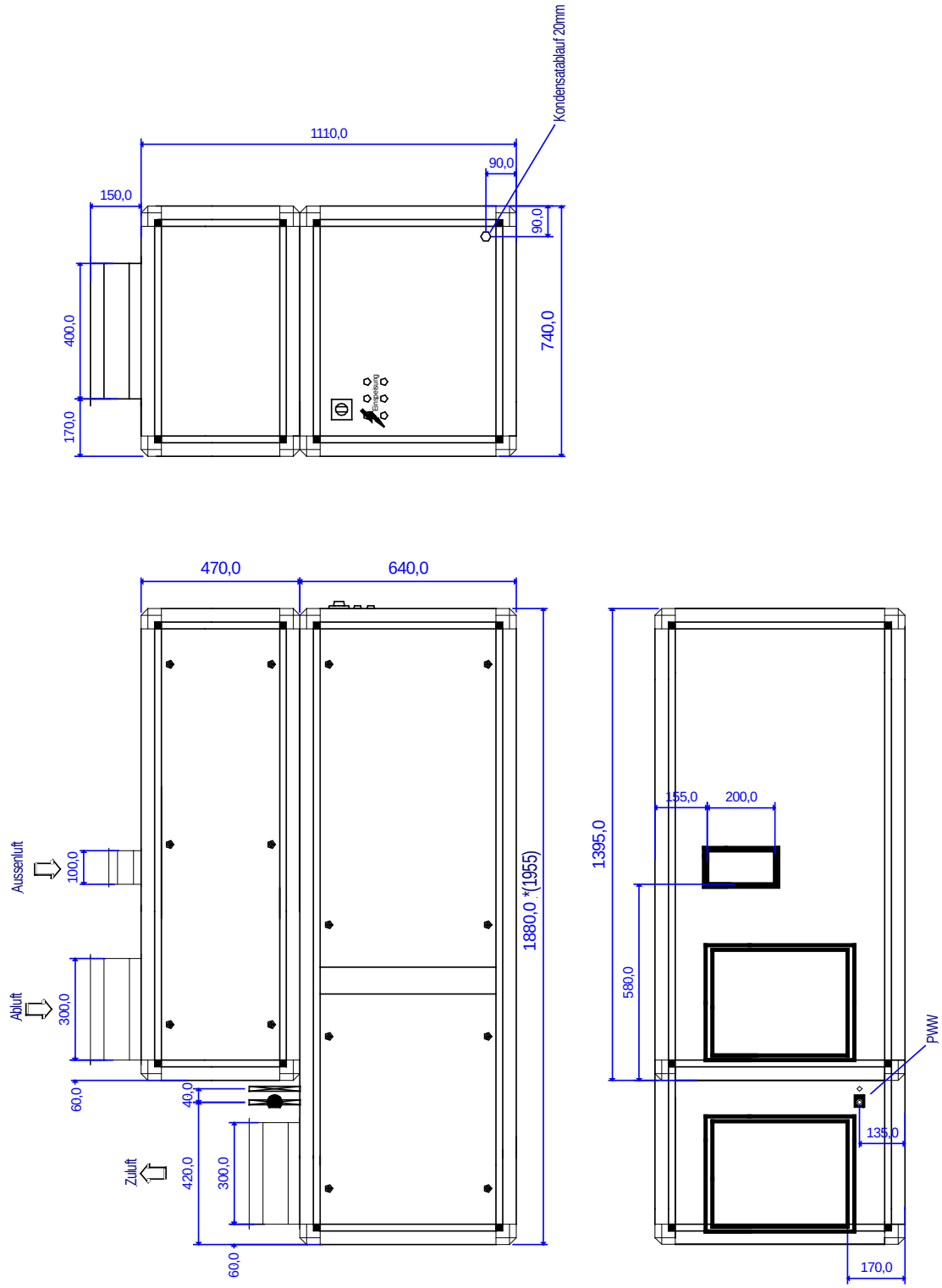
Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 4602 – 6602 U-EC / U-MC-EC



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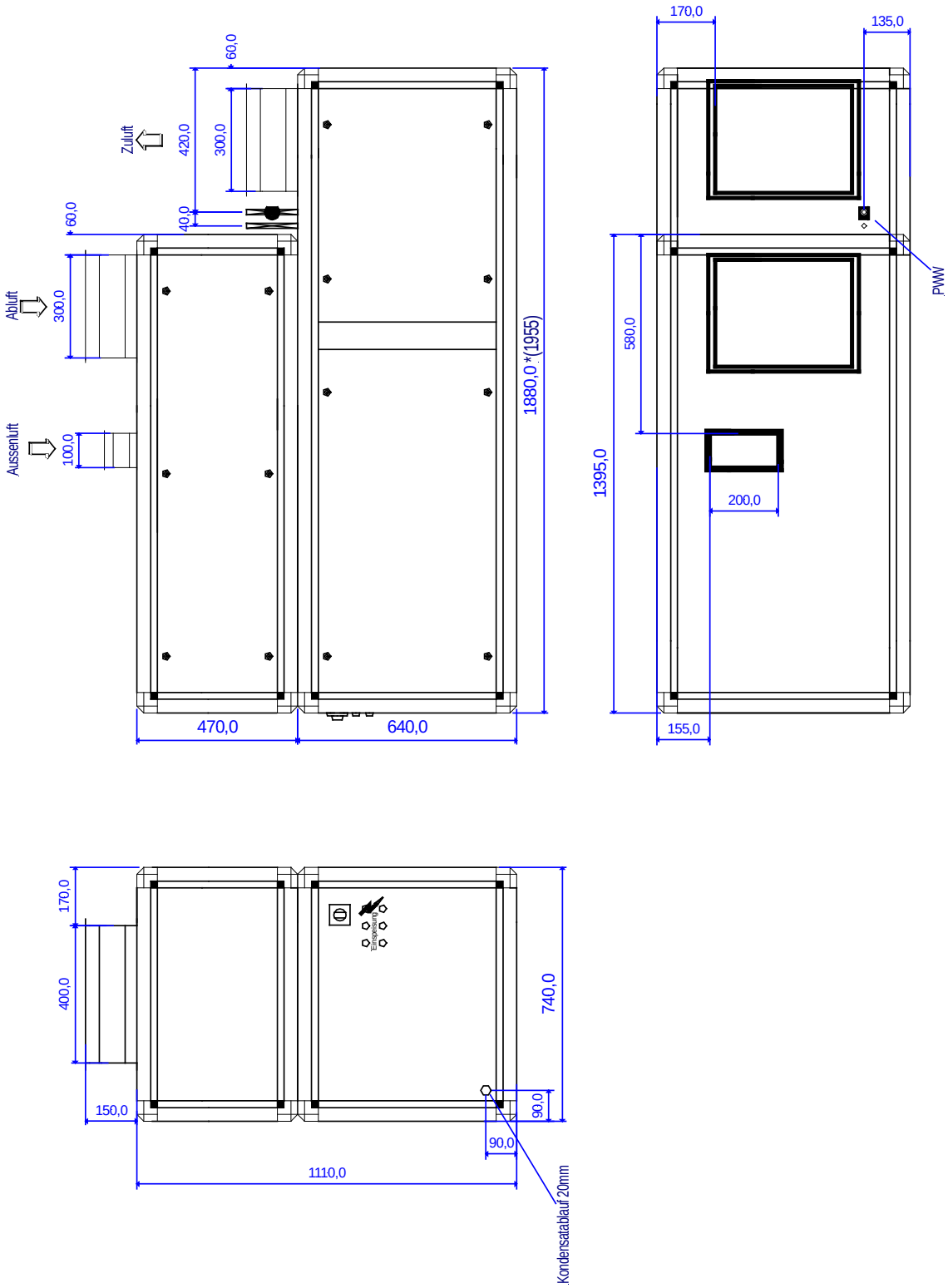
Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 4602 – 6602 U-EC-S / U-MC-EC-S (spiegelverkehrt)



Technische Änderungen vorbehalten.

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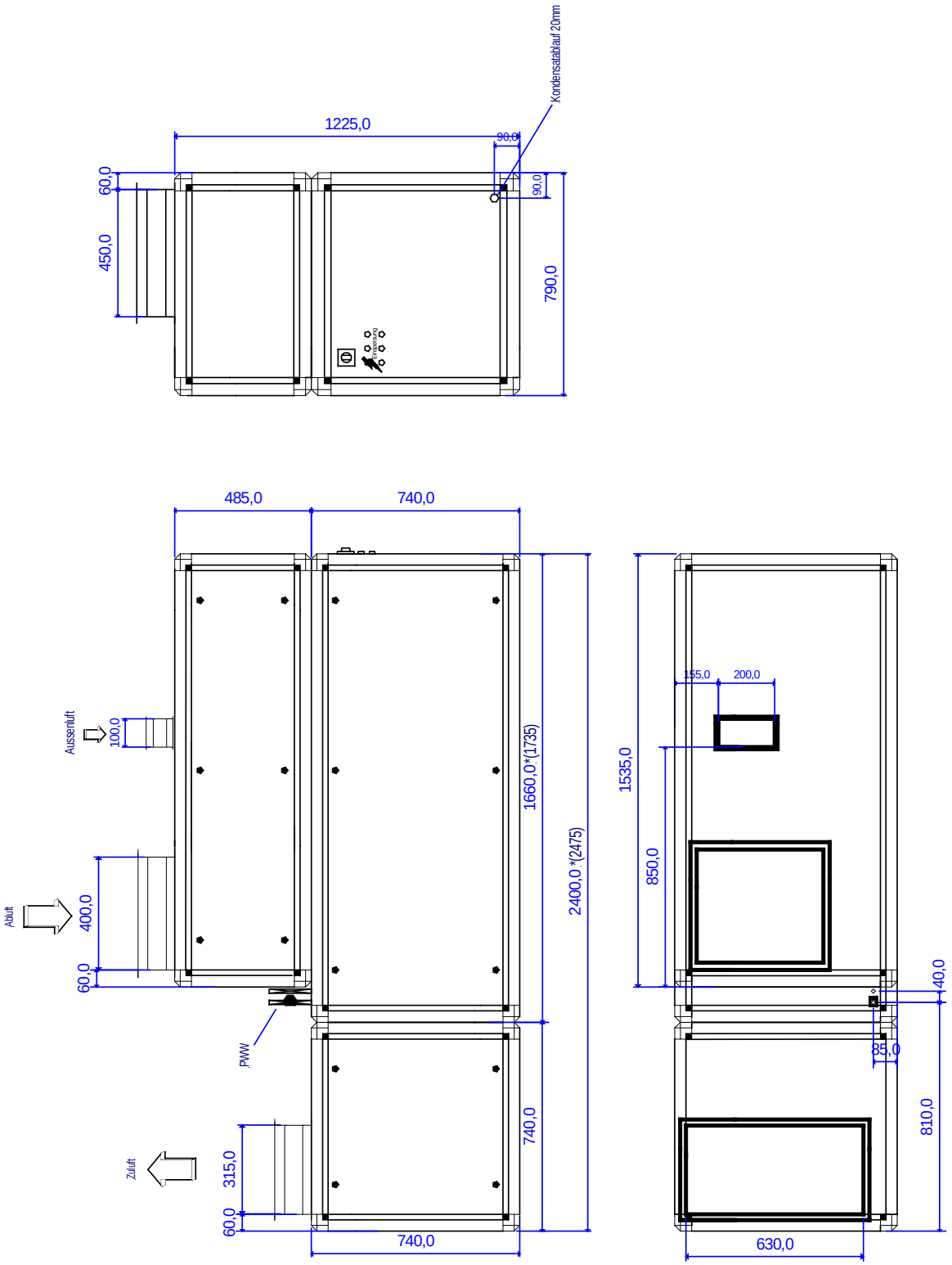
Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 8602 U-EC / U-MC-EC



Technische Änderungen vorbehalten.

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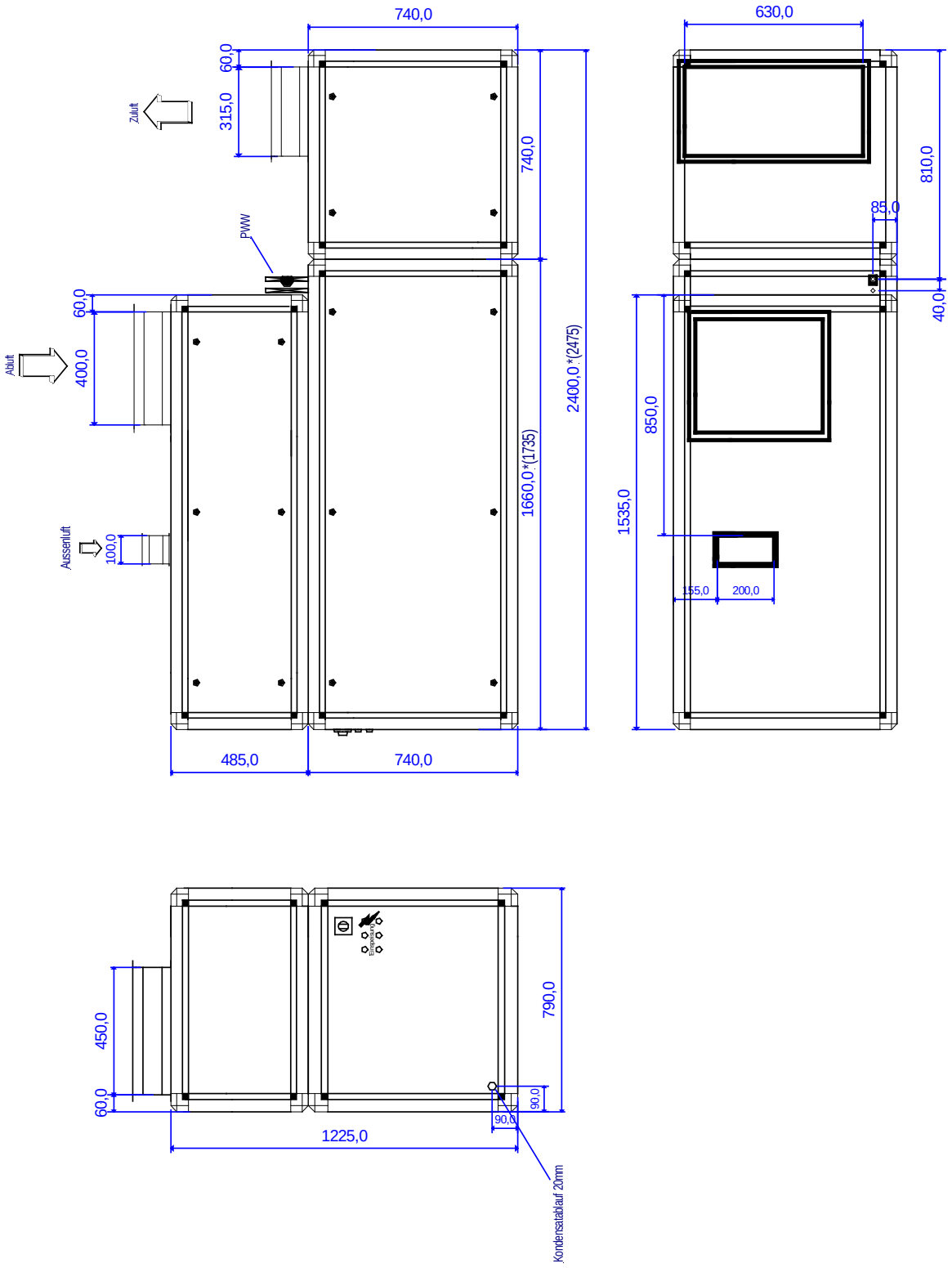
Maßblatt 02 U-EC / 02 U-MC-EC

Kanalgerät

Typ 8602 U-EC-S / U-MC-EC-S (spiegelverkehrt)



Technische Änderungen vorbehalten.

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