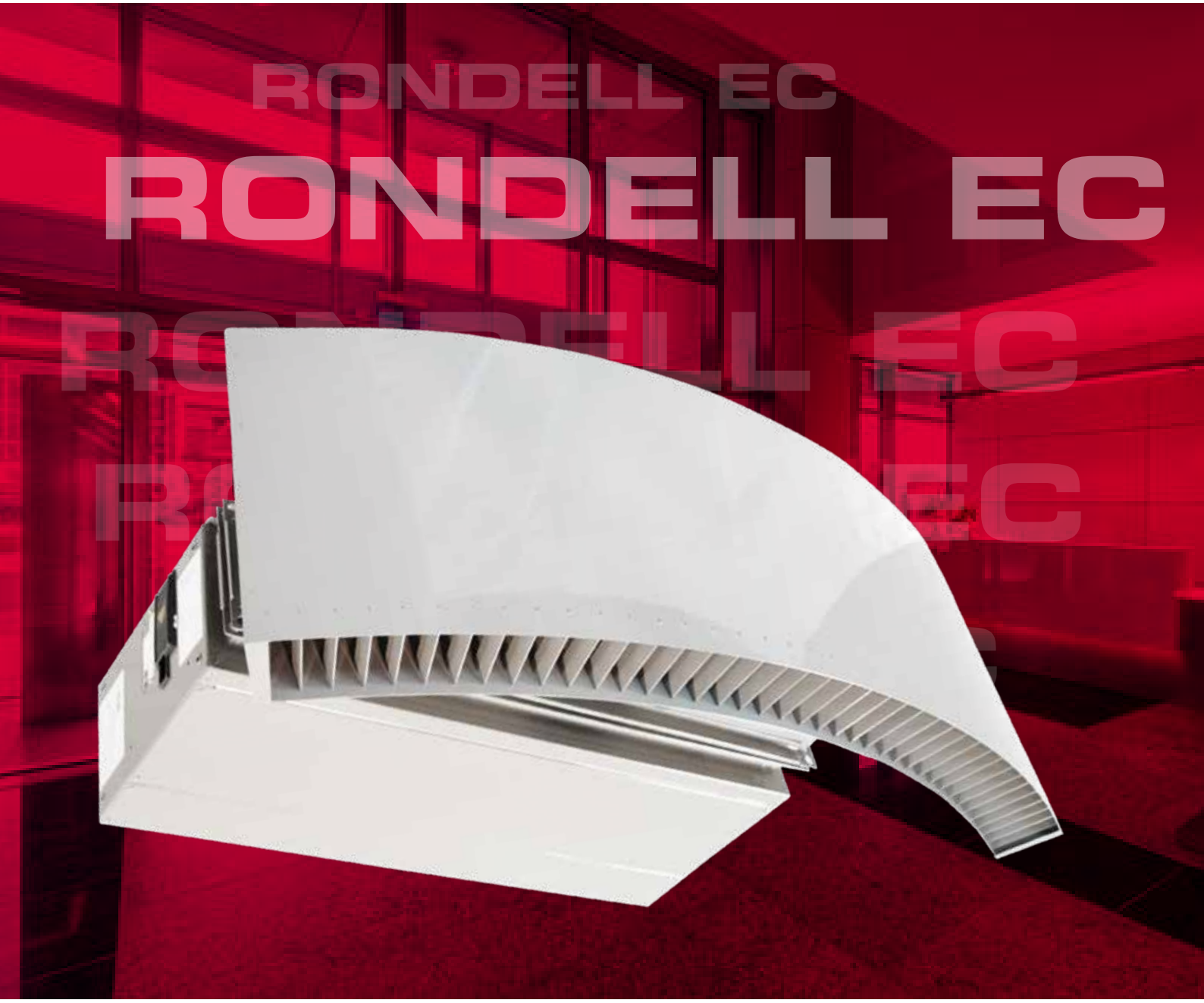
TEKADOOR®



RONDELL EC

FOR REVOLVING AND CURVED SLIDING DOORS

INDIVIDUAL
INNOVATIVE
ENERGY-SAVING

ERP conform

+ Self-supporting, industrially-galvanised sheet steel housing
powder-coated on request

+ Heating connections
at the side (left or right),
optional also possible on the intake side

RONDELL EC
DESIGN AIR CURTAIN

+ Discharge duct
with connection flange

+ Discharge support always in the radius of the revolving doors
with discharge fins for optimum air distribution,
powder coated with RAL colours

Applications
Rondell EC is "The" door air curtain for revolving doors.
The unit is delivered complete with a discharge duct and support, including discharge fins, in three installation variants. These variants can be installed on top of, integrated into or in front of the door.

Special design
With every rotation, revolving doors bring in cold external air. Particularly for highly-frequented doors, a "cold patch" forms on the floor directly behind the revolving door. By using our door air curtain system "TEKADOOR Rondell EC", with an integrated air outlet especially adapted to the door radius, the spread of cold air is prevented and the recirculating air is warmed up to room temperature.
This results in a pleasant indoor climate in the entry area.
The design of the Rondell EC air curtain is always individual, corresponding to the existing or planned revolving door, whereby the discharge support with integrated fins is adapted to the door radius.

The housing
This consists of an industrially-galvanised self-supporting sheet steel housing with intake grille and duct connection flange, discharge duct with support and integrated discharge fins.
All the visible parts can be powder coated in standard RAL colours, depending on the wishes of the client. Fascia covers can be manufactured in RAL colours or, optionally, in stainless steel.
Inspection panel optionally from above or below.

Heating media
Heat exchangers for different heating media
LPHW: for normal temperature LPHW 70/50°C and low-temperature LPHW 60/40°C, other temperatures available on request.
DX: DX register soldered under nitrogen for operation with heat pumps (only heating modus possible). High-quality heat exchanger made from copper tubes, with pressed-on, extra-strong aluminium fins.
ELECTRO: 3-stage heat exchanger 400V, spiral form, corrosion resistant, with thermal overheating protection and switch-off delay.

Advantages at a glance

- + Made in Germany
- + ErP conform / EC fans
- + Certified by TÜV-Süd
- + Individual solutions / custom-made depending on the revolving door
- + Different heating media possible
- + Service-friendly thanks to filterless intake grille
- + Individual colours – standard RAL colours available
- + Low noise, optimum shielding

EC fans

The efficiency of the EC fans used by TEKADOOR is > 90% under partial load operation. This is 30–35% higher than for conventional AC fans. This does not just increase the efficiency, but also reduces the operating costs. The individually-driven EC fans with integrated motor protection can intake air in both directions. They have vibration-free bearings and are controlled using a PWM signal (pulse width modulation) – and with 0-10 V for the DX. They do not just comply with Directive ErP, but actually exceed this standard.

Mounting

Simple mounting thanks to the incorporated M8 rivet nuts on the top or at the sides of the unit (4 on each side).
Accessories for mounting on the revolving door (top mounted unit) consist of two rectangular tubes and a set of bolts.

Maintenance

Easy to clean without opening the unit by simply vacuuming the intake grille. The inspection panel can be removed completely for maintenance work.

Control

Electronic TEKADOOR GTC EC control unit, multifunctional with touch display, including an optional ModBus interface
A GTC 1 EC control unit is used as standard for models with LPHW heating. A GTC E EC control unit is used for models with electrical heating. The units come with 20 m preassembled and shielded data cable. The GTC 1 EC 5-stage control unit includes the ability to switch from manual to automatic and from summer mode to winter mode as standard. A solenoid valve of up to 2.5 A can be connected as an option for the winter mode. With the standard GTC E EC control unit, the airflow can be selected manually in 5 stages and the heating capacity – depending on the fan level – can be selected manually in 3 stages. Each control unit includes a manual to automatic mode switch and a potential-free contact for enabling via any on-site BMS or BEMS. A choice of 5-stage or stepless fan operation is offered as standard.
A maximum of 10 units can be connected in parallel.

RONDELL EC
DETAILS

Connections

Heating connections – flow and return –
for easy connection to the on-site heating system.
(Internal thread dimensions depend on the model series)

Connection box (LPHW)

Simple electrical connection via connection box
(voltage supply 230V/50 Hz at the side of the unit).

Exception:
Electrical units with a heating capacity greater than 22,5kW.

Data cable connection/interface

Simple, standard plug and play connection of the data cable and an optional solenoid valve.

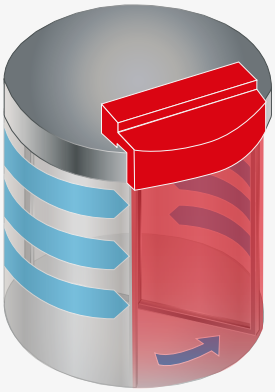
Control:
Input for the data cable to the control unit.

Auxiliary:
Output for parallel operation with other units.

Discharge duct

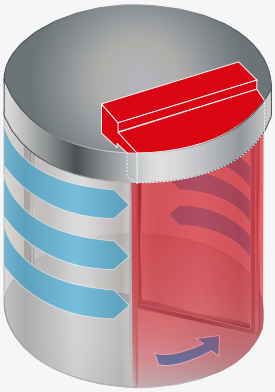
Discharge duct with guide plates (corresponding to the number of fans installed) consisting of a support adapted to the radius of the revolving door and vertically arranged fixed fins. All surfaces of the parts visible from below are powder coated in standard RAL colours according to the customer's wishes.

RONDELL EC
TYPES



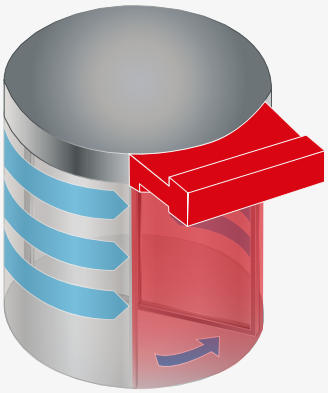
Rondell, Top mounted type AB

For use on revolving doors: installed on top of the door system body.
Mounting of the air curtain system with discharge duct on top of the doors; the recirculating air is sucked in through the front of the unit.
The discharge support – adapted to the door's outer radius – with integrated fins, is situated in front of the door's fascia.
An additional cover can be mounted in front of the discharge support for architectural reasons. Covers and surfaces of all the parts visible from below are powder coated in standard RAL colours according to the customer's wishes. Heating and electrical connections can be made either from above or from the side. Inspection panel optionally from above or below.



Rondell, Integrated type EB

For use on revolving doors: integrated in the door system body.
Mounting of the air curtain system with discharge duct within the door system; the recirculating air is sucked in through suitable air replacement grilles provided on-site by the client. The discharge support – adapted to the door's inner radius – with integrated fins, is installed within the door system. The surfaces of all the parts visible from below are powder coated in standard RAL colours according to the customer's wishes. Heating and electrical connections can be made either from above or from the side. Inspection panel optionally from above or below.

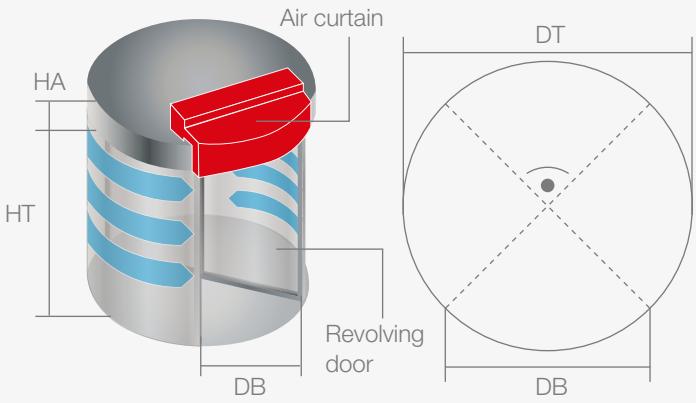


Rondell, Front mounted type VB

For use on revolving doors: installed in front of the doors. Mounting of the air curtain system with discharge duct in front of the door (inside the building), e.g. in the suspended ceiling. The recirculating air intake is either from the suspended ceiling or from below via an additional intake chamber. The discharge support – adapted to the door's outer radius – with integrated fins, is situated outside the door system, in front of the door's fascia. An additional cover can be mounted in front of the discharge support for architectural reasons. Covers and surfaces of all the parts visible from below are powder coated in standard RAL colours according to the customer's wishes.
Heating and electrical connections can be made either from above or from the side.
Inspection panel optionally from above or below.

RONDE

The design



We need the following principal data to design the door air curtain system:

Important for the size of the unit are

Drum diameter: DT = _____ mm

Entrance width: DB = _____ mm

Fascia height: HA = _____ mm

Please name the responsible contact person with whom we can agree the design.

Name: _____

Company: _____

Telephone: _____

Telefax: _____

e-mail: _____

Type of installation:
☐ Integrated (EB) ☐ Top mounted (AB) ☐ Front mounted (VB)

For the calculation of the air volume

Headroom/discharge height **HT** = _____ mm

Number of door leaves **FZ** = _____

Passage angle = _____ °

Drum speed / min. **dZ** = _____ rpm
Standard 3 to 4 rotations/min

For the configuration of the heater
t_A Reference outside temperature _____ °C
(depends on installation location)

e.g. **-14 °C** for Berlin but
-10 °C for Düsseldorf

Available heating media
Low-pressure hot water LPHW = _____ °C

Electrical energy = _____ V

If known

Door manufacturer: _____

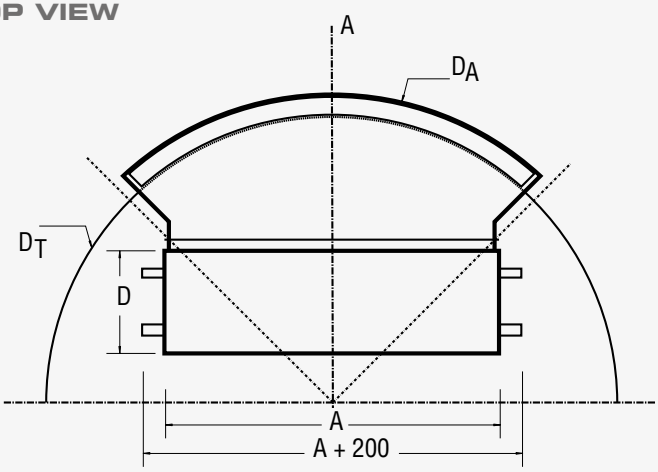
Type: _____

Surface / RAL colour: _____

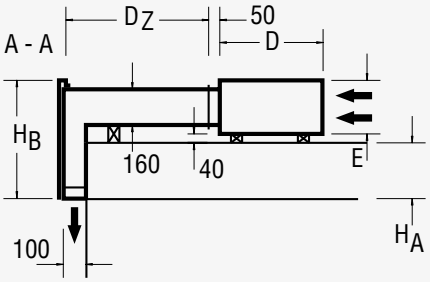
Additional covers: _____
(across the entire internal area (approximate total 180°))

Rondell, Top mounted type AB

TOP VIEW

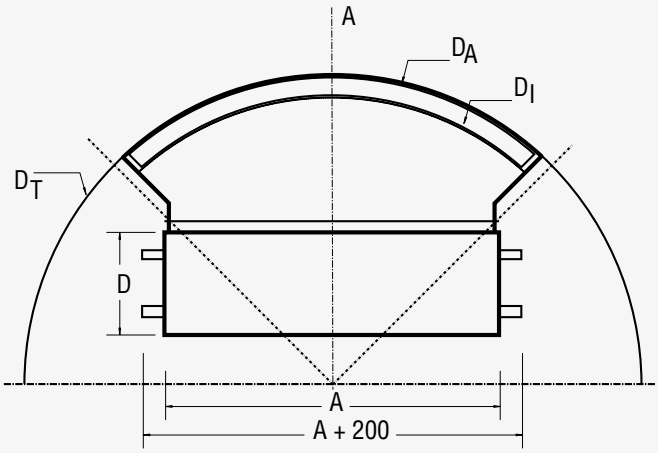


SECTION A-A

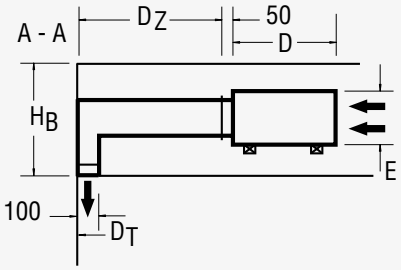


Rondell, Integrated type EB

TOP VIEW



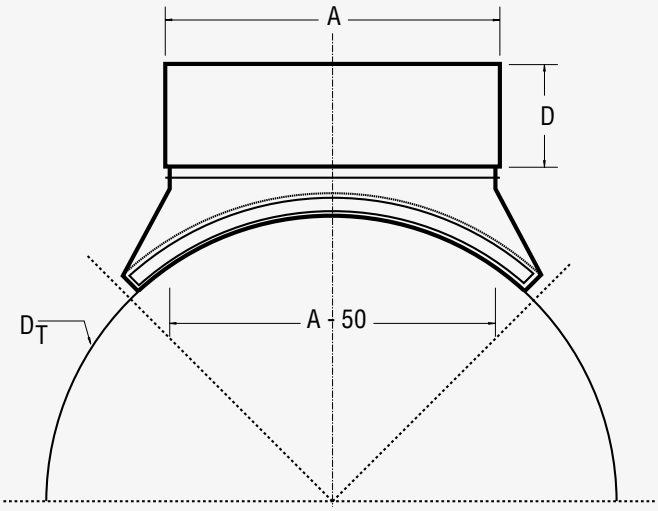
SECTION A-A



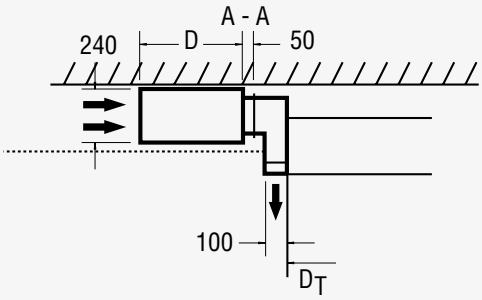
Connection-ready door air curtain system with intake at the front and discharge support fitted to the door radius.

Rondell, Front mounted type VB

TOP VIEW



SECTION A-A



Basic unit / total length

A (mm) = Length
E (mm) = Height
D (mm) = Depth

Supply air support design

A-50 (mm) = Width supply air support
D_T (mm) = Drum diameter
D_A (mm) = External duct diameter
D_I (mm) = Internal air duct diameter
D_Z (mm) = Max. depth supply air support
H_A (mm) = Fascia height
H_B (mm) = Cover height

Connection-ready door air curtain system with intake at the front and discharge support fitted to the door radius.
Unit to be installed in the suspended ceiling in front of the door.

RONDELL EC
OPTIONAL ACCESSORIES

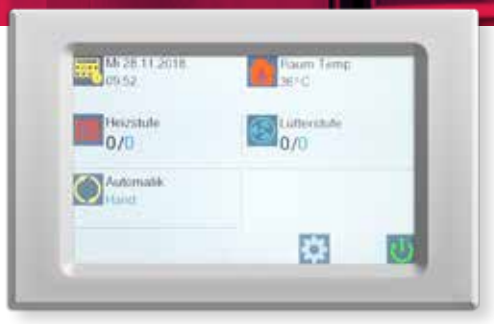
Thermostatic 3-way valve

(Setting range from +20°C to +35°C)
Limits the discharge temperature (constant supply air temperature limitation).
Also available as a straight-way valve.

Flexible heating connections

Flexible heating connections with threaded connections for flow and return.

Length approx. 1 metre each



Control unit GTC 2 EC including an optional ModBus interface

Possibility of combination of various automatic operations. A constant discharge temperature can be set via an optional electronic control valve, and a week timer is incorporated as standard, enabling up to 12 different switching times to be programmed per week.

Frost protection thermostat

For monitoring LPHW heat exchangers exposed to the risk of frost. As soon as the temperature falls below +7 °C, the fans are switched off and an optional solenoid valve is opened.

Solenoid valve

Opens or closes the heating water circuit in the summer/ winter setting of the control unit, to close the heating water circuit during summer operation or when the air curtain is not working (normally closed).

Caution: If solenoid valves or thermo-electric shut-off valves are used, it is expressly recommended to install a frost protection thermostat (automatically actuated) and a strainer.

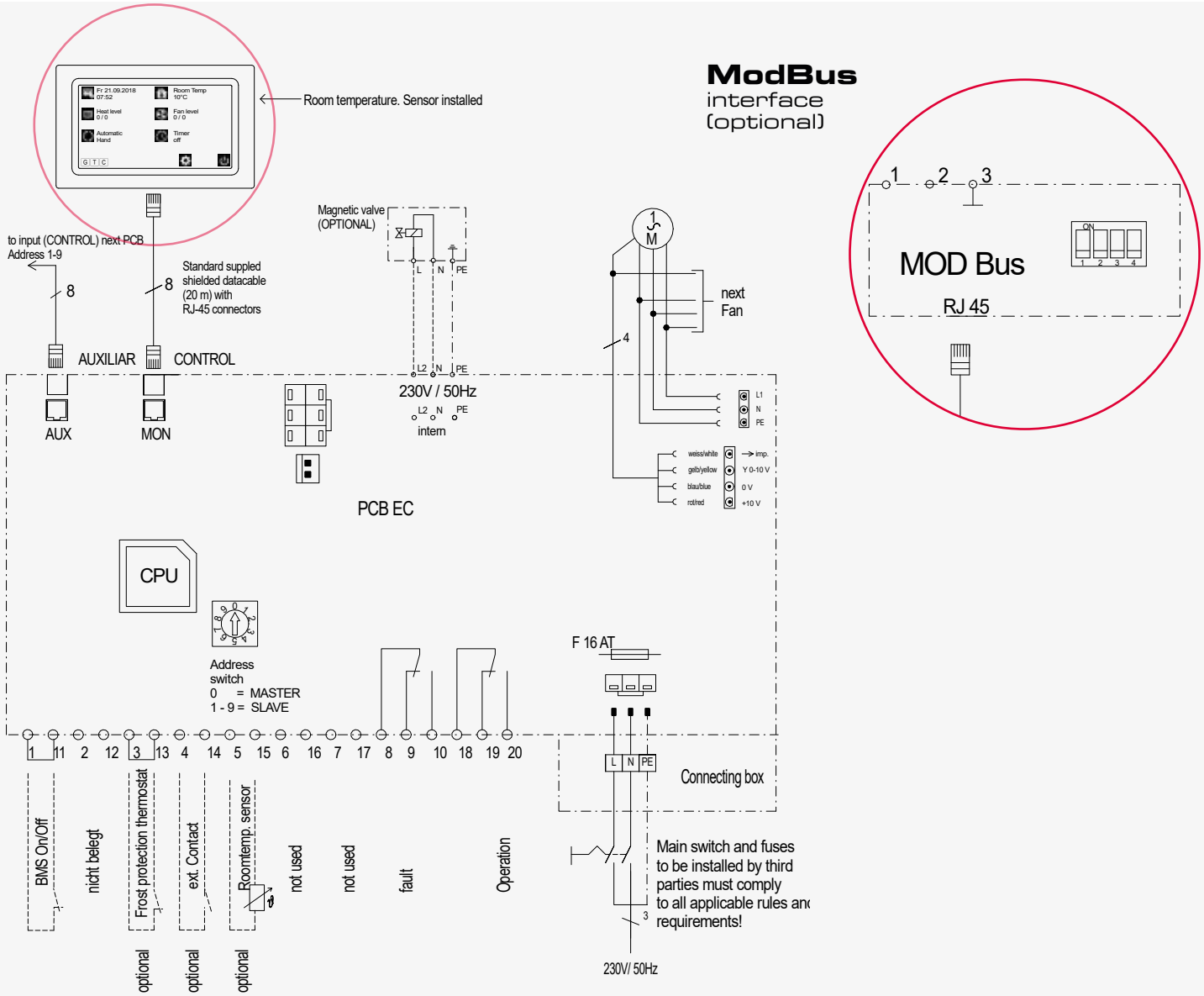
Electronic control valve

Electronic valve with 0-10V impulse and blow-out temperature sensor completely installed and wired. In combination with the GTC 2 control, a preselected blow-out temperature is kept constant.

Cable temperature sensor

Cable sensor for detecting the actual temperature combined with the GTC 1 EC and GTC E EC control units. Includes 10 metres connection cable.

RONDELL EC
STANDARD CIRCUIT DIAGRAM FOR LPHW



* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

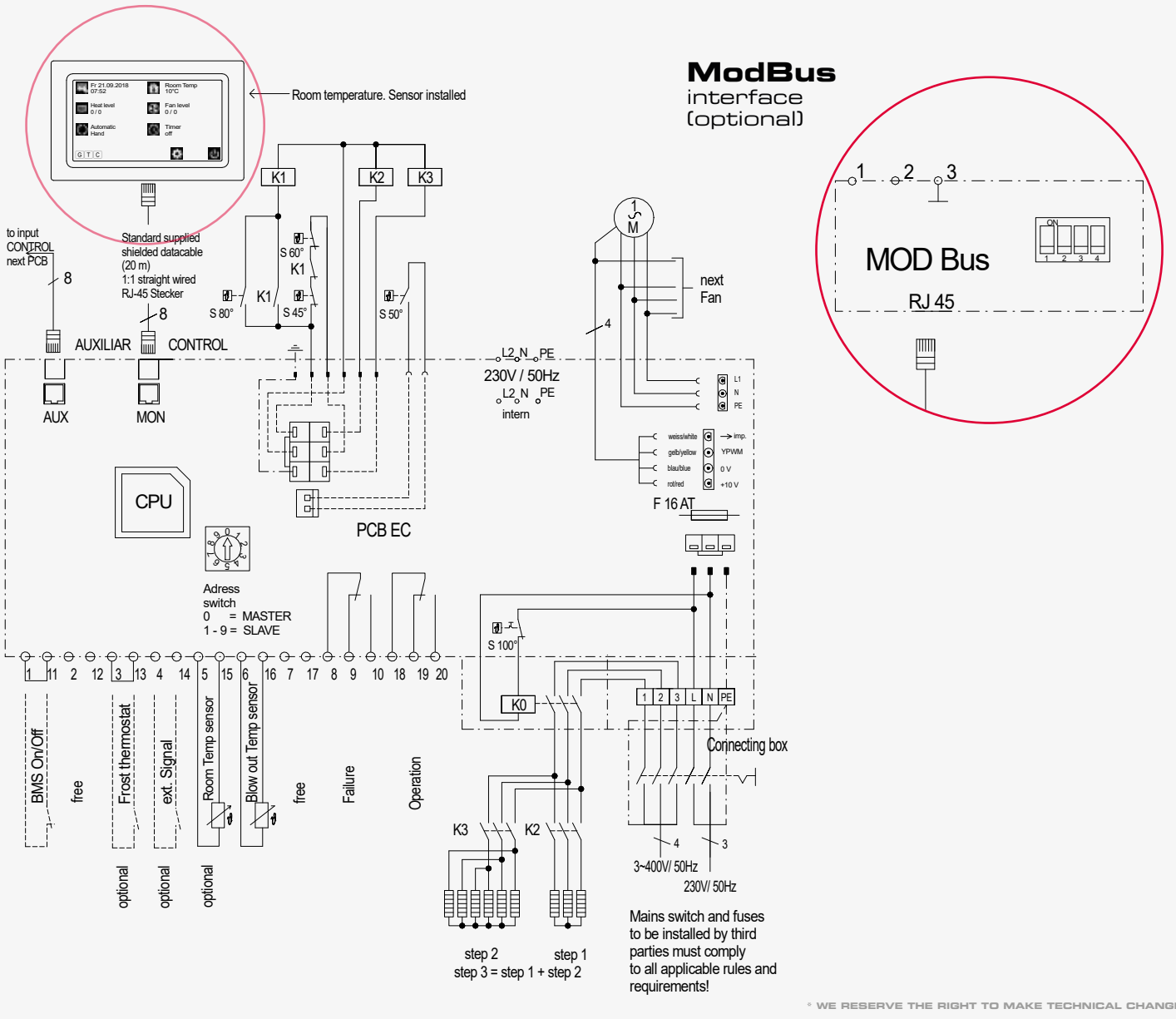
CONTROL UNIT GTC 1 EC

Multilingual, menu-driven electronic control unit for TEKADOOR air curtains with LPHW heating and energy-saving EC fans. A standard feature of the control unit with touch display is a choice between 5-stage or stageless fan control, which can be selected individually by the operator. The relevant operating modes and symbols are arranged clearly on the colour display. The date, time and room temperature are shown as standard. The room temperature is monitored via an internal temperature sensor in the control unit as standard.

An easy-to-navigate menu offers a selection of different operating modes:
Hand – manual operation
Auto AS – automatic operation via cool down protection
Auto RT – automatic operation via room temperature
Auto TK – automatic operation via door contact
Auto Kombi – option to combine all individual automatic modes

An enabling contact and potential-free operation and malfunction signals are provided for control via an on-site BMS or BEMS. Errors and faults are displayed with a red „warning“ sign. By coding the control boards differently, up to 10 door air curtains can also be operated in parallel with 1 control unit, using the Master/Slave principle. The control board is preinstalled in the door air curtain unit and 20 m of preassembled data cable (connection between the door air curtain and control unit) are included as standard.

RONDELL EC
CIRCUIT DIAGRAM ELECTRICAL HEAT EXCHANGER



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CONTROL UNIT GTC E EC

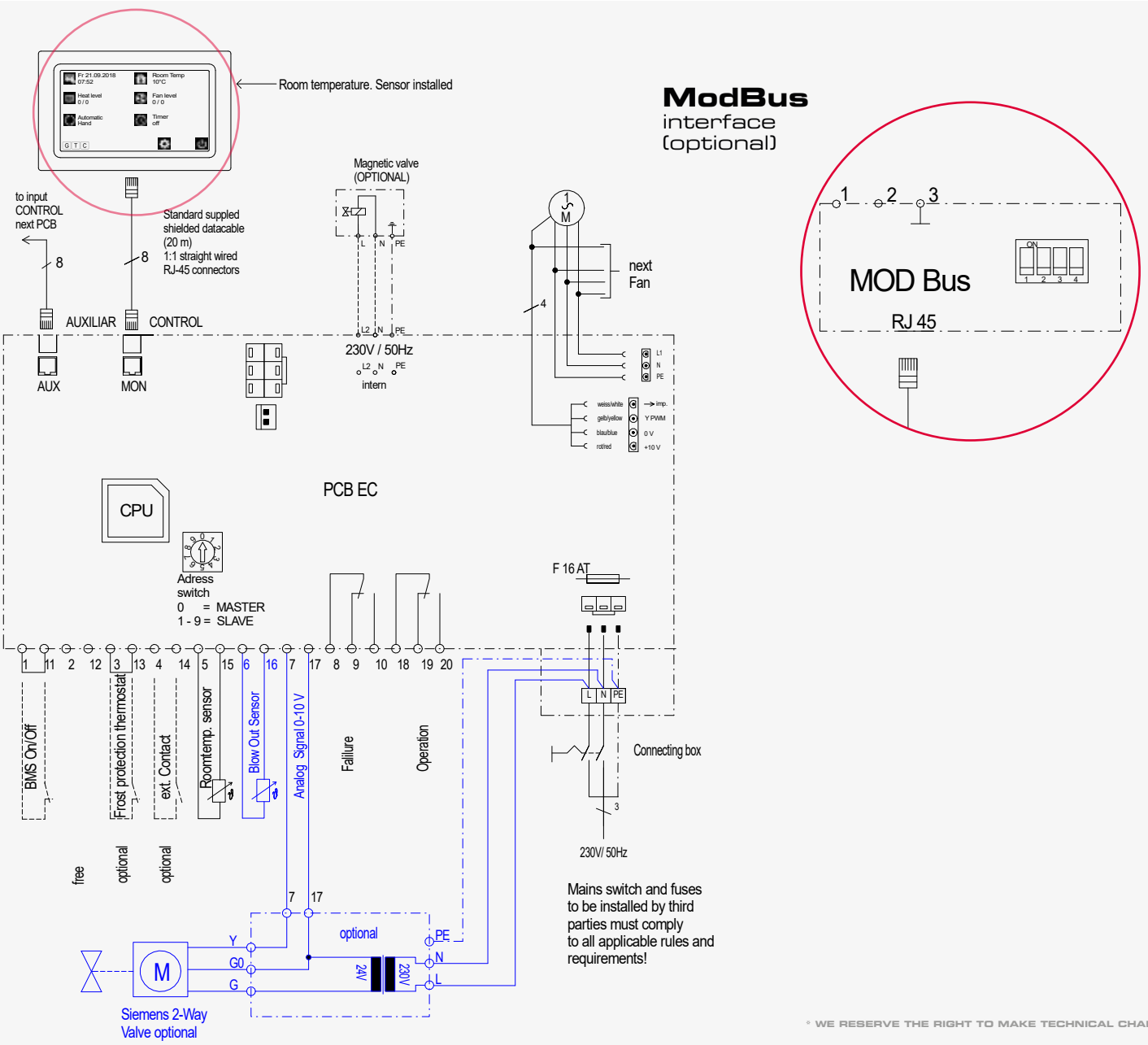
Multilingual, menu-driven electronic control unit for TEKADOOR air curtains with LPHW heating and energy-saving EC fans. 5-stage fan operation or stageless fan control – easy to adjust on the control unit using the touch display. The electric heater can be activated in 3 stages.The relevant operating modes and symbols are arranged clearly on the colour display. The date, time and room temperature are shown as standard. The room temperature is monitored via an internal temperature sensor in the control unit as standard.

An easy-to-navigate menu offers a selection of different operating modes:
Hand – manual operation
Auto AS – automatic operation via cool down protection
Auto RT – automatic operation via room temperature
Auto TK – automatic operation via door contact
Auto AT – automatic operation via constant discharge temperature
Auto Kombi – option to combine all individual automatic modes

An enabling contact and potential-free operation and malfunction signals are provided for control via an on-site BMS or BEMS. A constant discharge temperature can be set via an optional cable temperature sensor. This enables optimisation of the shielding performance. A week timer is incorporated as standard, enabling up to 12 different switching times to be programmed per week. Errors and faults are displayed with a red „warning“ sign. By coding the control boards differently, up to 10 door air curtains can also be operated in parallel with 1 control unit, using the Master/Slave principle.The control board is preinstalled in the door air curtain unit and 20 m of preassembled data cable (connection between the door air curtain and control unit) are included as standard.

RONDELL EC

STANDARD CIRCUIT DIAGRAM FOR LPHW (OPTIONAL)



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EASY-TO-USE CONTROL UNIT GTC 2 EC

Multilingual, menu-driven electronic control unit for TEKADOOR air curtains with LPHW heating and energy-saving EC fans. A standard feature of the control unit with touch display is a choice between 5-stage or stageless fan control, which can be selected individually by the operator. The relevant operating modes and symbols are arranged clearly on the colour display. The date, time and room temperature are shown as standard. The room temperature is monitored via an internal temperature sensor in the control unit as standard.

An easy-to-navigate menu offers a selection of different operating modes:

Hand – manual operation

Auto AS – automatic operation via cool down protection

Auto RT – automatic operation via room temperature

Auto TK – automatic operation via door contact

Auto AT – automatic operation via constant discharge temperature (opt. electronic control valve required)

Auto Kombi – option to combine all individual automatic modes

An enabling contact and potential-free operation and malfunction signals are provided for control via an on-site BMS or BEMS. A constant discharge temperature can be set via an optional cable temperature sensor. This enables optimisation of the shielding performance. A week timer is incorporated as standard, enabling up to 12 different switching times to be programmed per week. Errors and faults are displayed with a red „warning“ sign. By coding the control boards differently, up to 10 door air curtains can also be operated in parallel with 1 control unit, using the Master/Slave principle.

The control board is preinstalled in the door air curtain unit and 20 m of preassembled data cable (connection between the door air curtain and control unit) are included as standard.

RONDELL EC 2000

TECHNICAL DATA

TEKADOOR®

Design based on:

recommended operating point
intake temperature tLE = +20 °C
discharge temperature tLA = +34 °C

Since the design and calculation of the air curtain is always individual, corresponding to the existing or planned revolving door, a few examples are shown below.

RONDEL EC 2000			2001-2	2001.5-3	2002-5	2002.5-6	2003-8
Outside diameter		**m**	**2.5**	**2.5**	**4.8**	**3.6**	**6.0**
Discharge height		m	2.6	2.4	2.6	3.0	3.0
Passage angle		°	60	90	60	90	60
Air quantity max.		m^3/h	1800	2700	4500	5400	7200
Heating capacity rated[1]	LPHW 70 / 50 °C	kW	8.5	12.7	21.2	25.5	34.0
	LPHW 60 / 40 °C	kW	8.5	12.7	21.2	25.5	34.0
Flow rate	LPHW 70 / 50 °C	m^3/h	0.37	0.56	0.93	1.11	1.49
	LPHW 60 / 40 °C	m^3/h	0.37	0.55	0.92	1.11	1.49
Water resistance	LPHW 70 / 50 °C	kPa	0.5	5.7	3.2	3.7	7.2
	LPHW 60 / 40 °C	kPa	3.8	7.0	3.2	4.2	7.2
Nominal connection sizes	Internal thread	Inches	2 x 3/4"	2 x 3/4"	2 x 3/4"	2 x 3/4"	2 x 3/4"
	Flow/return	DN	20	20	20	20	20
EC fans	Voltage	V	230 / 1 / N / PE				
	Frequency	Hz	50				
	Current consumption	A	2.1	3.1	5.1	6.2	8.2
	Motor power	kW	0.3	0.5	0.8	0.9	1.2
Electric heater 3-stage	Voltage	V	400 / 3 / N / PE				
	Frequency	Hz	50				
	Heating capacity	kW	3/6/9	4/8/12	6/12/18	10/20/30	10.7/21.4/32
Sound pressure level[2]	Highest setting	dB(A)	58	59	61	62	64
Dimensions of the basic unit without duct	Unit width	mm	1000	1500	2000	2500	3000
	Unit height	mm	240	240	240	240	240
	Unit depth	mm	390	390	390	390	390
Weight of the basic unit without duct		kg	45	60	80	102	125

* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

1. Rated operation based on operating point (see above), discharge temperature control recommended.
2. Measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.

[DX-H available on request (only heating mode possible)]

A well-balanced pressure ratio is one of the prerequisites for perfect function.

TEKADOOR®

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