FRICO

Discreet and energy-efficient air curtain for revolving doors

Ruwen is a customized air curtain installed above your revolving door, with the exhaust duct adapted to the diameter of the door. Ruwen is equipped with energy-efficient EC motors which enable stepless control of the airflow. The air curtain is custom made to your specifications which gives a neat and discrete solution.

Energy efficient and sustainable

The air curtain is equipped with EC motors that are up to 50% more energy efficient than traditional AC motors, and have a lower weight which makes for easier installations and greener transports.

Intelligent control options

Ruwen is supplemented with an intelligent control system that allows you to optimize your comfort with minimum effort. Smart and automatic features enable simple set-up and operation for different Frico products groups.

High performance

Frico air curtains are developed and manufactured in Sweden.
The air curtains are tested in one of the most modern and advanced air and sound laboratories in Europe which means that we can guarantee a high performance product.

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EC motor

Available in 3 versions:

✿ Ambient (without heat)

⚡ Electrical heating

💧 Water heating

A revolving door prevents continuous drafts but, still lets in a certain amount of cold air at every rotation. With correctly installed air curtains great energy savings can be obtained.

Design and specifications are subject to change without notice.

Product key

Type - R - W - X - Z - Material / colour
Example: RDFEC20WL - 2500 - 2900 - 2350 - 500 - P

See Dimension drawing for all measurements.

Type

R	Radius of the revolving door.
W	The opening width of the revolving door
X	Depth of the revolving door outside the wall.
Z	Relevant height.
Material/ Colour	P = Polished stainless steel B = Brushed stainless steel MP = Mirror polished stainless steel State RAL code = Powder coating RAL State NCS code = Powder coating NCS

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❁ Ambient, no heat - RDFEC A (IP20)

Voltage motor: 230V~

Type	Output	Airflow*¹	Sound power*²	Sound pressure*³	Amperage motor	Weight*⁷
	[kW]	[m³/h]	[dB(A)]	[dB(A)]	[A]	[kg]
RDFEC10A	0	1200/2400	78	46/62	3,2	60
RDFEC15A	0	1800/3500	79	47/64	4,1	130
RDFEC20A	0	2300/4700	81	48/65	6,0	180
RDFEC25A	0	3100/6150	83	50/67	6,9	200

⚡ Electrical heat - RDFEC E (IP20)

Type	Output steps [kW]	Airflow*¹ [m³/h]	Δt*⁴ [°C]	Sound power*² [dB(A)]	Sound pressure*³ [dB(A)]	Amperage motor [A]	Voltage [V] Amperage [A] (heat)	Weight*⁷ [kg]
RDFEC10E12	3,9/7,8/12	1200/2400	30/15	78	46/62	3,2	400V3~/17	80
RDFEC15E18	6/12/18	1800/3500	30/15	80	47/64	4,1	400V3~/26	130
RDFEC20E24	7,8/16/24	2300/4700	30/15	81	48/65	6,0	400V3~/34	180
RDFEC25E30	9,9/20/30	3100/6150	29/14	83	50/67	6,9	400V3~/43	200

💧 Water heat - RDFEC WL, coil for low water temperature (≤80 °C) (IP20)

Type	Output*⁵ [kW]	Output*⁶ [kW]	Airflow*¹ [m³/h]	Δt*⁴,⁵ [°C]	Δt*⁴,⁶ [°C]	Water volume [l]	Sound power*² [dB(A)]	Sound pressure*³ [dB(A)]	Amperage motor [A]	Weight*⁷ [kg]
RDFEC10WL	10	18	1100/2300	18/13	30/23	2,2	78	45/62	3,2	80
RDFEC15WL	16	28	1700/3400	18/14	31/24	3,4	80	46/64	4,1	130
RDFEC20WL	23	39	2200/4600	19/15	32/25	4,5	81	47/65	6,0	180
RDFEC25WL	30	50	2800/5750	20/15	33/26	5,7	83	49/67	6,9	200

*¹) Low/high airflow (2V/10V).
*²) Sound power (L_{WA}) measurements according to ISO 27327-2: 2014, Installation type E.
*³) Sound pressure (L_{pA}). Conditions: Distance to the unit 5 metres. Directional factor: 2. Equivalent absorption area: 200 m². At low/high airflow (2V/10V).
*⁴) Δt = temperature rise of passing air at maximum heat output and low/high airflow (2V/10V).
*⁵) Applicable at water temperature 60/40 °C, air temperature, in +18 °C.
*⁶) Applicable at water temperature 80/60 °C, air temperature, in +18 °C.
*⁷) Approximate weight for air curtain and duct.
*⁵,⁶) See www.frico.net for additional calculations.

Manufactured in Sweden with a corrosion proof housing made of hot zinc-plate and powder coated steel panels. Colour of air curtain and duct: white, RAL 9016, NCS S 0500-N. Colour of duct cover plate is customized.

CE

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Type - R - W - X - Z - Material / colour

Example: RDFEC20WL - 2500 - 2900 - 2350 - 500 - P

|	
Type	See Technical specifications.
R	The outer radius of the revolving door above the entrance height.
W	The opening width of the revolving door
X	The largest distance between the outer radius R of the revolving door and the wall to the outside.
Z	The height between the inner ceiling of the revolving door (the position of the outlet of the duct) up to the outer roof of the revolving door (where the air curtain is mounted).
Material/ Colour	P = Polished stainless steel B = Brushed stainless steel MP = Mirror polished stainless steel State RAL code = Powder coating RAL State NCS code = Powder coating NCS Only valid for duct cover plate. Air curtain and duct are made of powder coated steel panels, white, RAL9016.

Y is variable, depending on the other dimensions in the product key.

Top view
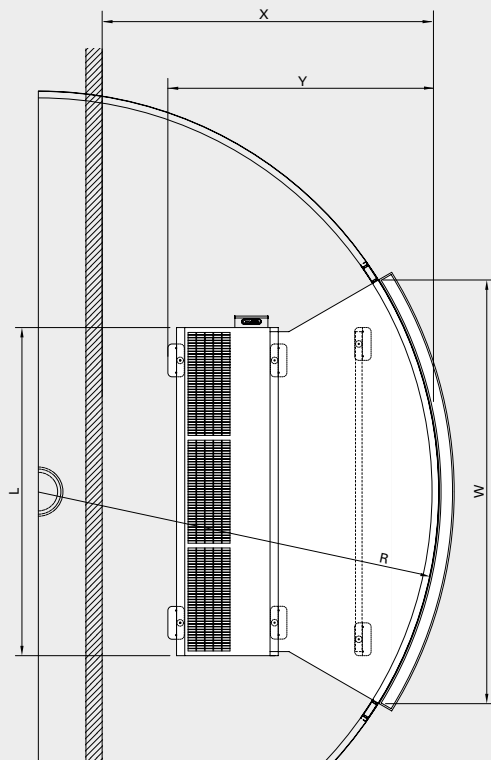
Side view
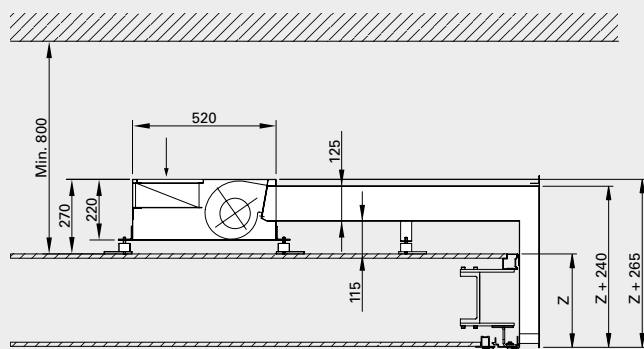
Minimum distance from outlet to floor for electrically heated units is 1800 mm.

Type	L [mm]
RDFEC10 E/A/WL	1000
RDFEC15 E/A/WL	1500
RDFEC20 E/A/WL	2000
RDFEC25 E/A/WL	2500

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Mounting

The air curtain is installed horizontally on the top of the revolving door with vibration dampers on steel plates (100 x 200 mm) that distribute the weight. The unit could alternatively be mounted on beams (accessory).

Connection

Service and maintenance are easily made through the service hatch on the top side of the unit. The air curtain has an integrated PC board, mounted on the side of the air curtain, which is connected to the selected external control system FC.
   Control is supplied by 230V~ to the PC board. The PC board is accessed via cable glands on the side of the unit. Communication- and sensor cables are connected to the PC board. The electrical connection is made on the side of the unit.
   Water heated units are connected to the water system on the side of the unit. Flexible hoses are available as accessories. Water heated units must always be supplemented with a valve kit mounted outside the unit. See Valves and Accessories.

Top view
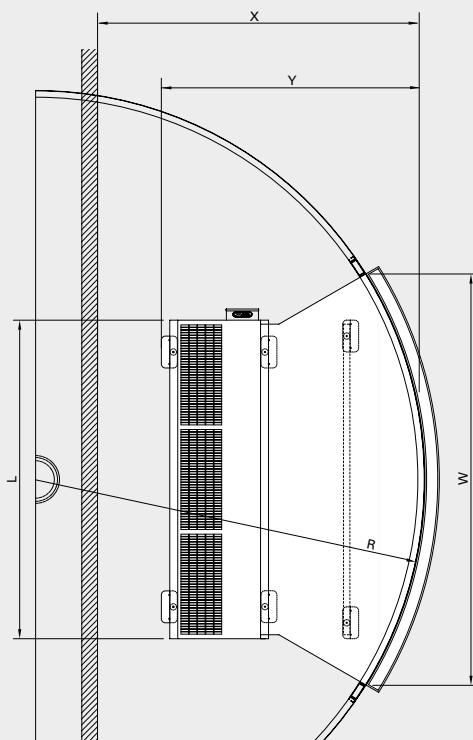
Side view
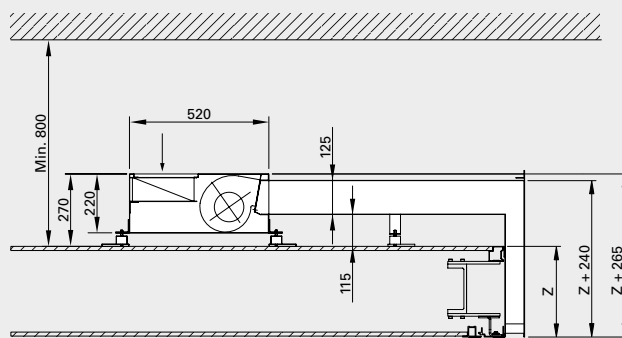
W: The opening width of the revolving door
R: The outer radius of the revolving door above the entrance height.

Minimum distance from outlet to floor for electrically heated units is 1800 mm.

Type	L [mm]
RDFEC10 E/A/WL	1000
RDFEC15 E/A/WL	1500
RDFEC20 E/A/WL	2000
RDFEC25 E/A/WL	2500

For wiring diagrams and other technical information, please see the manual and www.frico.net.

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Frico air curtains come with an integrated PC-board and are supplemented with the intelligent control system FC of your choice, working together to create many smart and energy saving features. There are four different packages to choose from, depending on your requirements.

FC Direct
Entry level
• Door contact
• Calendar function
• Filter timer

FC Smart
FC Direct +
• Control via app (Bluetooth)
• Wireless sensors possible
• Adjustable calendar function
• Away and Boost function
• Adjustable filter timer
• Vestibule function
• Zone possibility

FC Pro
FC Direct + FC Smart +
• Automatic air flow control
• Automatic heat blocking

FC Building - BMS
FC Direct +
• 0-10V or Modbus
• Automatic air flow control*
• Automatic heat blocking*
• Heat and fan settings
• Alarm indication
• Read values
* Requires outdoor temp signal

■ FC Direct

Entry level control system for a great start. The door contact provides an automatic energy-saving function, as the air curtain becomes active only when the door is open. When the door is closed, it remains on stand-by or runs on a lower fan speed if extra heat is needed. With the calendar function, you can schedule when the system should be active.

■ FC Smart

Second level control system for full freedom. FC Smart comes with all features from FC Direct plus additional energy saving features and the possibility of app control (Bluetooth). The app gives you access to all functions in the system, allowing you to set it up exactly the way you want it. It also enables you to create different zones with different settings in a larger system.

■ FC Pro

Third level control system for maximum savings. FC Pro comes with all features from FC Direct and FC Smart plus additional automatic energy saving features. By receiving and reacting to information about indoor and outdoor temperatures, the right amount of heat and air flow is added to avoid overshoots and thus reducing energy consumption.

■ FC Building - BMS system

Comprehensive control system for buildings, with the option to control via 0-10V or Modbus. FC Building enables you to receive product information status and alarms. Modbus allows for full use of all the energy saving features within the control system.

Item number	Type	Description
74684	**FCDA**	FC Direct, first level control system
74685	**FCSA**	FC Smart, second level control system
74686	**FCPA**	FC Pro, third level control system
74687	**FCBA**	FC Building, BMS system

Control system content and accessories

FC Control system helps to create many smart and energy saving features. In addition to our four packages, components can be added to expand and customize the system. With the app levels (FC Smart and FC Pro) it is also possible to create and control different zones. Each added zone needs to be equipped with one FC Direct and can be designed to fit its specific needs by adding different accessories.

FC Direct, control kit
Control panel for fan and heat, door contact and 5 m communication cable. Used for additional zones with FC Smart and FC Pro. IP44.

FCRTX, external room temperature sensor
For reading of the room temperature on another location than that of the control panel, incl. 10 m sensor cable. IP20.

FCOTX, outdoor temperature sensor
Reading the outdoor temperature, incl. 10 m sensor cable. Enables automatic air curtain control and heat blocking. IP44.

FCLAP, local access point
Local access point for extra sensors (when operating more than 8 sensors) and extended range for sensors or app control (Bluetooth), incl. 10 m communication cable. IP44.

FCSC/FCBC, cable
FCSC Sensor cable available in 10 or 25 m for extra length. FCBC Communication cable for additional products within the same zone, available in 5, 10 or 25 m.

FCDC, door contact
The door contact regulates the airflow on/off. Allows you to control air curtains at different doorways individually within the same zone.

FCTXRF, indoor/outdoor wireless sensor
Indoor/outdoor wireless sensor with same features as FCRTX and FCOTX. Range up to 50 m. Battery life: 3-5 years. IP44.

FC Direct

Content
- FCCF control panel
- FCBC05
- FCDC

FC Smart

Content
- FCCF control panel
- FCBC10
- FCDC
- FCLAP

FC Pro

Content
- FCCF control panel
- FCBC10
- FCDC
- FCLAP
- FCTXRF

FC Building - BMS

Content
- FCCF control panel
- FCBC10
- FCDC
- FCBAP building access point

Item number	Type	Description	Dimensions
74684	**FCDA**	FC Direct, first level control system	89x89x26 mm (FCCF)
74694	**FCRTX**	External room temperature sensor	39x39x23 mm
74695	**FCOTX**	Outdoor temperature sensor	39x39x23 mm
74699	**FCLAP**	Local access point for extra sensors and extended range	89x89x26 mm
74718	**FCBC05**	Extra communication cable, 5 m	5 m
74719	**FCBC10**	Extra communication cable, 10 m	10 m
74720	**FCBC25**	Extra communication cable, 25 m	25 m
74721	**FCSC10**	Extra sensor cable, 10 m	10 m
74722	**FCSC25**	Extra sensor cable, 25 m	25 m
17495	**FCDC**	Door contact	
74703	**FCTXRF**	Indoor/outdoor wireless sensor (for FC Smart, FC Pro)	89x89x26 mm

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Water heated units must be supplemented with valves. The valve system controls the water flow and activates maximum heat only when needed. By activating the built-in bypass feature, a small leakage flow is let through to make sure there is always hot water in the heating coil, providing frost protection and faster heating. The return water temperature sensor is making sure that as much energy as possible from the water in the coil is used, thus reducing energy consumption.

VPFC, pressure independent and modulating valve system
Two way pressure independent control and adjustment valve with modulating actuator and shut-off valve.

FCWTA, return water temperature sensor
Enables control of return water temperature and automatic bypass function, which provides extended frost protection and reduced energy consumption.

Item number	Type	Dimension valves	Flow range l/s
238293	**VPFC15LF**	DN15	0,012-0,068
238294	**VPFC15NF**	DN15	0,024-0,13
238295	**VPFC20**	DN20	0,058-0,32
238296	**VPFC25**	DN25	0,10-0,60
238297	**VPFC32**	DN32	0,22-1,03
74702	**FCWTA**	Return water temperature sensor	

Accessories - water heated units
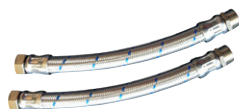
FH1025, flexible hose
Flexible hose (DN25, 1" inside/outside thread) for easy connection to the pipe system.

Item number	Type	Used for	Consists of
330955	**FH1025**	RDFEC10/15/20/25W	2

Accessories - mounting

RDSB, beam
If the revolving door roof cannot take the weight, Ruwen can be carried on a beam construction. Measurements 40x80 mm, state length when ordering.

Item number	Type	Used for	Consists of
	RDSB	RDFEC10/15/20/25	1