AR300

Recessed air curtain for commercial premises, with built-in control

- Recommended installation height 3,5 m*
- Recessed mounting
- Lengths: 1, 1,5 and 2 m

Electrical heat: 9–18 kW

Water heat

Application

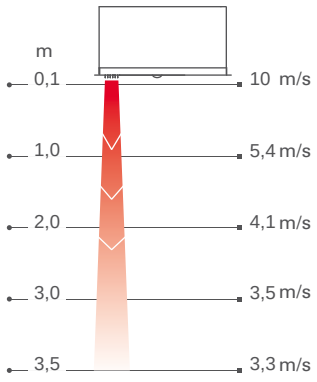
AR300 is very discreet thanks to its concealed appearance in the ceiling and built-in control that requires no wiring. The IR-eye in the Plug & play control detects if the door is opened or closed and controls the air curtain accordingly.

Design

AR300 is intended for recessed installation and the frame and hatch can be painted in colours that blend well with the premises.

Optimized airflow with Thermozone technology.

Air velocity profile



Measurements according to ISO 27327-1.
Average values for products in the series.

Product specifications

- Intelligent, built-in control, operating both when the door is open and when it is closed gives the air curtain dual functionality.
- Possibility to integrate the air curtain with a BMS system for on/off control and alarm indication.
- Corrosion proof housing made of hot zinc-plate and powder enamelled steel panels. Colour frame and hatch: white, RAL 9016, NCS S 0500-N. Colour grille: grey, RAL 7046. The frame and hatch can be painted in an optional colour.

*) Recommended installation height varies depending on the relevant premises.

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Technical specifications

Electrical heat - AR300 E

Type	Output steps [kW]	Airflow*1 [m³/h]	Δt*3 [°C]	Sound level*2 [dB(A)]	Voltage Amperage (control)	Voltage Amperage (heat)	Length [mm]	Weight [kg]
AR310E09	4,5/9	1000/2000	27/14	43/59	230 V~/2,1A	400 V3~/13 A	1057	42
AR315E14	7/13,5	1400/2800	29/15	43/60	230 V~/2,9 A	400 V3~/19,5 A	1567	58
AR320E18	9/18	2000/4000	27/14	46/63	230 V~/4,2 A	400 V3~/26 A	2073	78

Water heat - AR300 W, coil for low water temperature (≤80 °C)

Type	Output*4 [kW]	Airflow*1 [m³/h]	Δt*3,4 [°C]	Sound level*2 [dB(A)]	Voltage [V]	Amperage [A]	Length [mm]	Weight [kg]
AR310W	8,6	1000/2000	17/13	43/58	230V~	2,1	1057	42
AR315W	12,6	1400/2800	17/13	43/59	230V~	2,9	1567	58
AR320W	18,3	2000/4000	18/14	46/62	230V~	4,2	2073	78

*1) Lowest/highest airflow of totally 5 fan steps.

*2) Conditions: Distance to the unit 5 metres. Directional factor: 2. Equivalent absorption area: 200 m². At lowest/highest airflow.

*3) Δt = temperature rise of passing air at maximum heat output and lowest/highest airflow.

*4) Applicable at water temperature 60/40 °C, air temperature, in +18 °C.

Protection class, recessed mounting above suspended ceilings: IP44, hanging on rods without suspended ceiling: IP20. Approved by SEMKO and CE compliant.

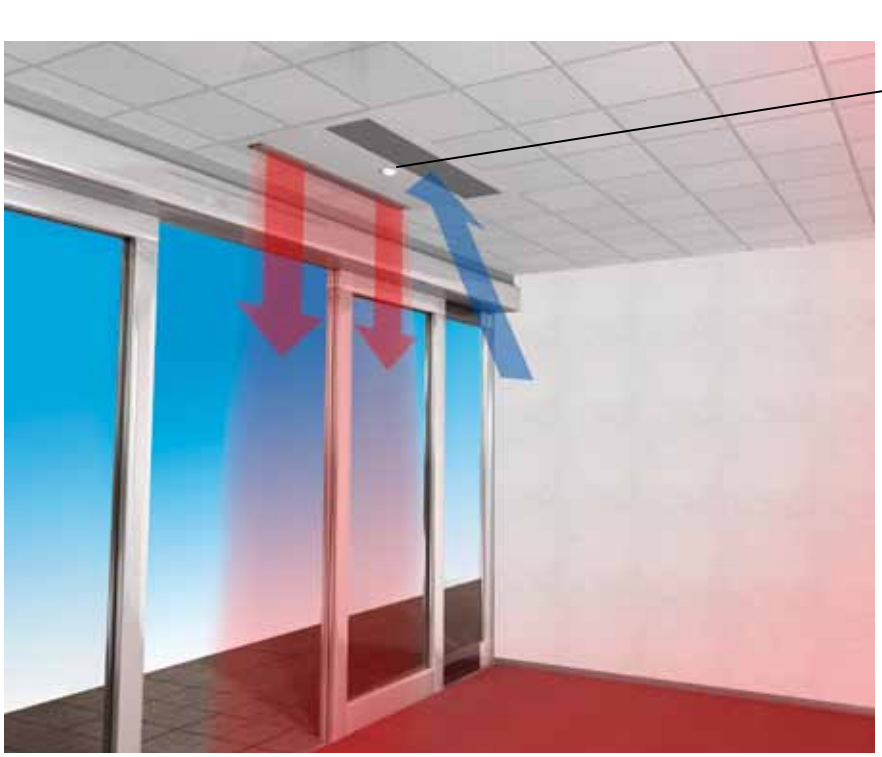
Control

The built-in control of AR300 is designed to give the highest level of functionality while minimizing installation and daily operation. No additional wiring or external controls are needed.

The air curtain operates at its maximum performance in all situations and is not dependent on day-to-day adjustments.

When the door is open the air curtain separates outdoor and indoor air and provides heat if it is needed.

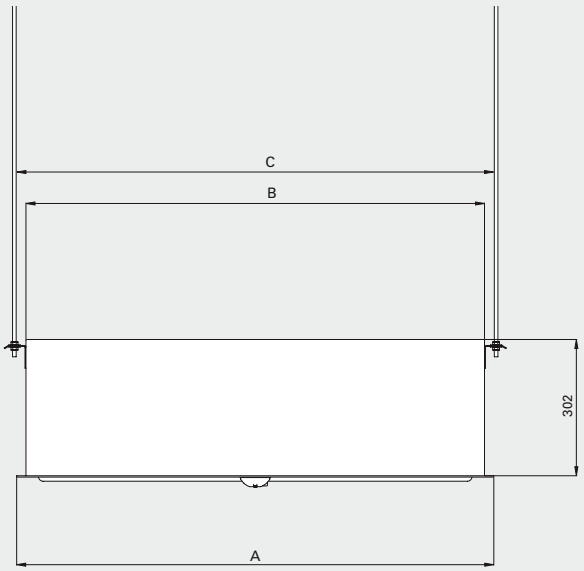
When the door is closed the air curtain operates as part of the heating system supplying additional heat if indoor temperature falls below desired temperature. There are also possibilities to connect the air curtain to a BMS system for on/off control and alarm indication.

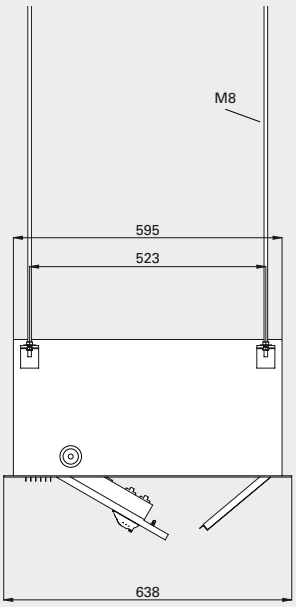


The IR-eye detects when the door is open and closed. The thermostat is located by the air intake and heat or ambient mode is set by a push button. Alarm indication by LED.

The thermostat setting and open door fan speed selection is hidden under the cover.

Dimensions





	A [mm]	B [mm]	C [mm]
AR310	1057	1016	1067
AR315	1567	1526	1577
AR320	2073	2031	2083

Mounting and connection

Mounting

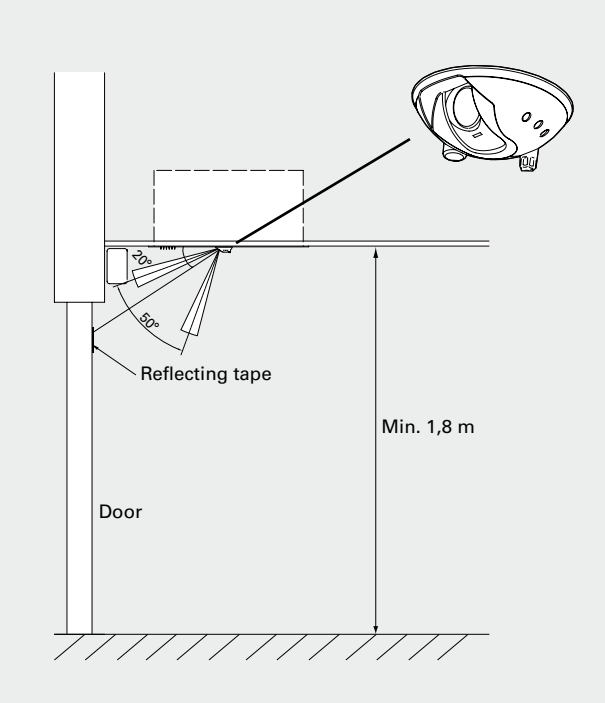
The air curtain is installed horizontally with the supply air grille facing downwards as close to the door as possible, concealed in the false ceiling. The only visible part of the unit is the underside which is level with the ceiling. The service hatch must be accessible, nothing should prevent it being fully opened.

The unit is ready for suspension with threaded rods.

For the protection of wider doorways, several units can be mounted next to each other. Minimum distance from outlet to floor for electrically heated units is 1800 mm.

Adjusting

An IR-eye is mounted on AR300. A piece of reflector tape is also supplied. The door sensor can be directed up/down to ”see” the tape, see Fig. The maximum distance between the IR-eye and the reflecting tape is 1,5 m. If a greater angle is needed the reflecting tape may be angled towards the IR-eye. This is easily done with the enclosed cylinder cut to the right angle. When the distance between the eye and the reflector is too great for detection, an alternative external door contact (AR300DS) can be used.



Adjustment of the IR-eye downwards/upwards and minimum distance to floor.

Connection

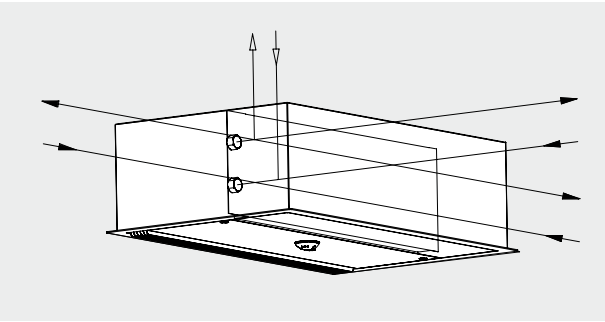
Unit with electrical heating

The electrical connection is made on the side or on the top of the unit. Control (230V~) should be connected to a terminal block in the terminal box. See wiring diagrams.

Unit with water heating

The unit is is delivered with a 2 m cable and plug. See wiring diagrams.

Connection of water pipes to the water heating coil is of type DN20 (3/4”), inside thread, inside the unit. Cable glands can be made from the back, top or the sides of the unit. There are pre-marked holes for drilling at these locations.



Water connection

Control options

Unit with electrical heating

The IR-eye detects when the door is open and closed. Airflow and heat output are controlled automatically based upon room temperature and whether the door is open or closed. High speed can be set on 4 different speeds.

When the door is open the fan runs at high speed, when the door closes the fan will continue to run at high speed for 60 seconds and then at low speed for 60 seconds. When the door is closed the fan runs at low speed if there is a need for heating, if not the fan will be switched off. If the temperature decreases further, the fan will run at high speed.

The built-in room thermostat controls the heat output. E.g. the thermostat is set on 20 °C and the difference between the stages 2 °C. The thermostat will activate below 20 °C when the door is closed. When the door opens, the thermostat will activate below 22 °C and normally the heat is switched on.

Possibility to choose between heat/ambient mode (summer case). Alarm, door status and heat/ambient mode is indicated with diodes on the IR-unit.

Complete control kit:
- Built-in control, controls the airflow and heat output in 2 steps.

Unit with water heating

The IR-eye detects when the door is open and closed. Airflow and heat output are controlled automatically based upon room temperature and whether the door is open or closed. High speed can be set on 4 different speeds.

When the door is open the fan runs at high speed, when the door closes the fan will continue to run at high speed for 60 seconds and then at low speed for 60 seconds. When the door is closed the fan runs at low speed if there is a need for heating, if not the fan will be switched off. If the temperature decreases further, the fan will run at high speed.

The built-in room thermostat controls the heat output. E.g. the thermostat is set on 20 °C and the difference between the stages 2 °C. The thermostat will activate below 20 °C when the door is closed. When the door opens, the thermostat will activate below 22 °C and normally the heat is switched on.

Possibility to choose between heat/ambient mode (summer case). Alarm, door status and heat/ambient mode is indicated with diodes on the IR-unit.

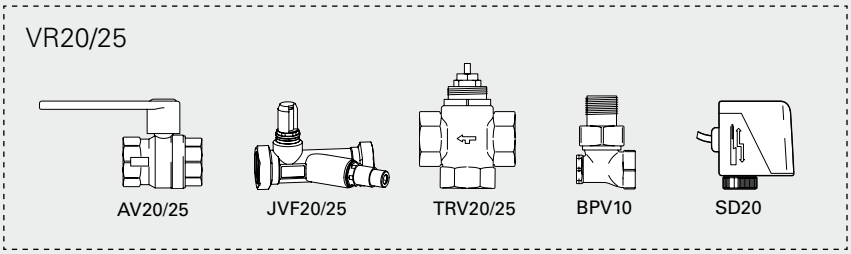
Water flow has to be regulated by using the VR20/25 Valve kit, see table below (accessory).

Complete control kit:
- Built-in control, controls the airflow and heat output.
- VR20/25, valve kit.

Recommended valve kits

Type	Water temp.	VR20	VR25
AR310W	60/40	X	
	80/60		X
AR315W	60/40	X	
	80/60		X
AR320W	60/40		X
	80/60		X

Water control



Type	Description
VR20	Valve set DN 20 mm
VR25	Valve set DN 25 mm

For further information and options regarding our water controls, see the "Controls" section.

Accessories

AR300ERS, external room sensor

If an external room sensor is needed, use the AR300ERS. The external room sensor is supplied with 7 m cable and a modular connector for easy and quick installation (no other adjustments are needed to get the accessories working). The connection of the room sensor is done on the control box accessible by opening the service hatch of the AR300.

AR300DS, external door contact

When the distance between the eye and the reflector is too long an external door contact AR300DS is needed. The external door contact is supplied with 7 m cable and a modular connector for easy and quick installation (no other adjustments are needed to get the accessories working). The connection of the door contact is done on the control box accessible by opening the service hatch of the AR300.

Type	Description	HxWxD [mm]
AR300ERS	External room sensor	80x80x31
AR300DS	External door contact	

Output charts water

			Supply water temperature:80 °C Room temperature: +18 °C Outlet air temperature: +35 °C*1				Water temperature: 80/60 °C Room temperature: +18 °C			
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Return water temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**	**Output *2 [kW]**	**Outlet air temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**
AR310W	max	2000	11,5	44,5	0,08	2,0	14,9	40,1	0,18	11,0
	min	1000	5,7	33,6	0,03	0,6	9,6	46,4	0,12	5,0
AR315W	max	2800	16,0	42,2	0,10	2,0	21,9	41,2	0,27	9,0
	min	1400	8,0	32,4	0,04	0,4	14,0	47,5	0,17	4,0
AR320W	max	4000	23,0	41,0	0,14	4,0	31,4	41,3	0,37	19,0
	min	2000	11,5	31,0	0,06	1,0	20,0	47,7	0,24	9,0

			Supply water temperature:70 °C Room temperature: +18 °C Outlet air temperature: +35 °C*1				Water temperature: 70/50 °C Room temperature: +18 °C			
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Return water temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**	**Output *2 [kW]**	**Outlet air temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**
AR310W	max	2000	11,5	48,7	0,13	6,0	11,5	35,4	0,14	7,0
	min	1000	5,7	37,0	0,04	1,0	7,6	40,5	0,09	3,0
AR315W	max	2800	16,0	46,2	0,16	4,0	17,3	36,3	0,21	6,0
	min	1400	8,0	35,5	0,06	1,0	11,1	41,4	0,13	3,0
AR320W	max	4000	23,0	45,5	0,22	8,0	24,9	36,5	0,29	14,0
	min	2000	11,5	34,4	0,08	1,0	15,9	41,6	0,19	6,0

			Supply water temperature: 60 °C Room temperature: +18 °C Outlet air temperature: +35 °C*1				Water temperature: 60/40 °C Room temperature: +18 °C			
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Return water temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**	**Output *2 [kW]**	**Outlet air temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**
AR310W	max	2000	11,5	53,7	0,44	53,0	8,6	30,7	0,10	4,0
	min	1000	5,7	41,2	0,08	2,0	5,6	34,5	0,07	2,0
AR315W	max	2800	16,0	51,0	0,43	20,0	12,6	31,3	0,15	3,0
	min	1400	8,0	39,6	0,09	1,0	8,1	35,2	0,10	1,0
AR320W	max	4000	23,0	51,2	0,63	46,0	18,3	31,6	0,22	8,0
	min	2000	11,5	38,8	0,13	3,0	11,8	35,5	0,14	4,0

			Supply water temperature: 55 °C Room temperature: +18 °C Outlet air temperature: +35 °C*1				Water temperature: 55/35 °C Room temperature: +18 °C			
Type	**Fan position**	**Airflow [m³/h]**	**Output [kW]**	**Return water temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**	**Output *2 [kW]**	**Outlet air temp. [°C]**	**Water flow [l/s]**	**Pressure drop [kPa]**
AR310W	max	2000	-	-	-	-	6,9	28,3	0,08	3,0
	min	1000	5,7	44,0	0,13	6,0	4,5	31,4	0,06	1,0
AR315W	max	2800	-	-	-	-	10,2	28,8	0,12	2,0
	min	1400	8,0	42,2	0,15	3,0	6,6	32,0	0,08	1,0
AR320W	max	4000	-	-	-	-	15,0	29,1	0,18	6,0
	min	2000	11,5	41,7	0,21	7,0	9,7	32,4	0,12	3,0

– = at the current water temperatures and airflows, the air outlet temperature will be less than 35 °C.

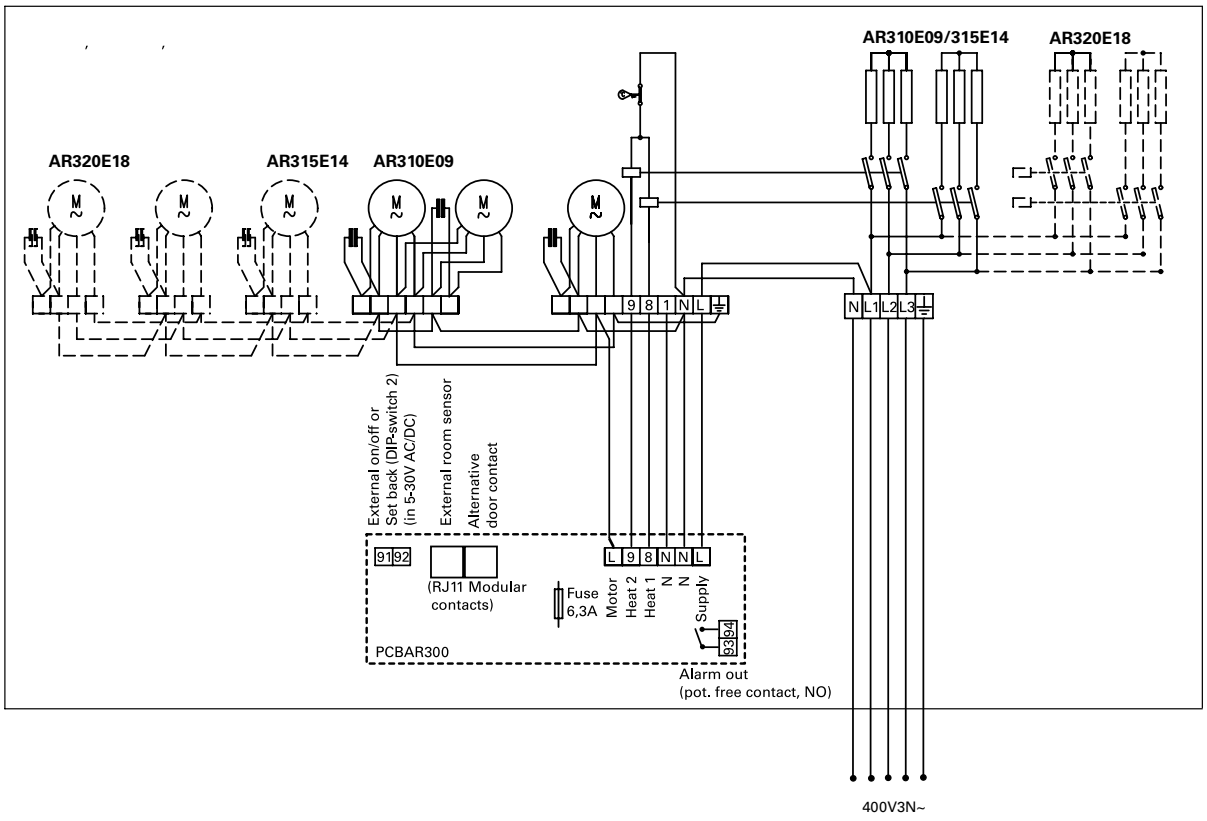
*1) Recommended outlet air temperature for good comfort and optimized output.

*2) Nominal output at given supply and return water temperature.

Wiring diagrams

Internal wiring diagram

Unit with electrical heating



Unit with water heating