

ACR RECESSED AIR CURTAIN

AMBIENT WITH SPEED CONTROLLER

INSTALLATION AND OPERATING MANUAL



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WARNINGS

- 1 This appliance must only be installed by a competent person in accordance with the requirements of the Codes of Practice or the rules in force.
- 2 All external wiring MUST comply with the current IEE wiring regulations.
- 3 Warning this appliance must be earthed.

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General Information

1.1 Introduction

This instruction manual describes the Airbloc ACR recessed range of ambient air curtains with electronic speed controller.

Models range from 1000mm to 2000mm in length, and are available as ambient operation only. They are designed for discreet positioning in a suspended ceiling or bulkhead in the doorways of retail or commercial premises. Optional case for doorways with restricted space and no suspended ceiling or bulkhead.

Each air curtain is supplied with a fully electronic speed controller, (shown below), complete with



illuminated on/off switch and rotary speed control knob. The controller can be mounted up to 50m from the air curtain.

1.2 General

All installations must be in accordance with the regulations in force in the country of use.

These instructions must be handed to the user on completion of the installation.

Installers and service engineers must be able to demonstrate competence and be suitably qualified in accordance with the regulations in force in the country of use.

To ensure continued and safe operation it is recommended that the appliance is serviced annually.

The manufacturer, offers a maintenance service. Details are available on request.

The air curtain outlet grille and case air inlet slots must not be obstructed during use.

1.3 Electrical Supply.

For full electrical loadings, please refer to the individual technical data sheets within this manual.

It is recommended that the electrical supply to the base unit in the air curtain is via an appropriate switched isolator in accordance with the regulations in force in the country of use and must be via a fused isolator having a contact separation of greater than 3mm in all poles.

All units must be wired in accordance with I.E.E regulations for the Electrical Equipment of Buildings.

Warning

For safety reasons a good earth connection must ALWAYS be made to the heater and speed controller.

Electrical supply is 230V 1 phase, Neutral and Earth. Max cable terminal size is 4mm², (air curtain), and 2.5mm² (speed controller).

The speed controller is wired to the air curtain via standard mains rated cables

1.4 Location.

Airbloc units should be installed horizontally directly over the door opening. It is recommended that the air curtain is installed on the inside of the building, within the ceiling void or roof space.

Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct working operation of the air curtain. The discharge opening should be as close to the top of the door as possible and to cover the entire door width.

Units can be mounted adjacent to each other to cover the full door opening across wider entrances.

1.5 Clearance distances

It is recommended that a minimum clearance of 100mm is allowed around the case sizes detailed below. The clearance allows for cable entry and ventilation.

The minimum mounting height (floor to grille) is 1.8m. The recommended mounting height is 3m.

1.6 Health and Safety

Sole liability rests with the installer to ensure that all site safety procedures are adhered to during installation, including issuing a method statement or safe system of work statement and a risk assessment.

Sole liability rests with the installer to ensure that personal protective equipment is used during

installation of the product.

Do not rest anything, especially ladders, against the product.

1.7 Standards

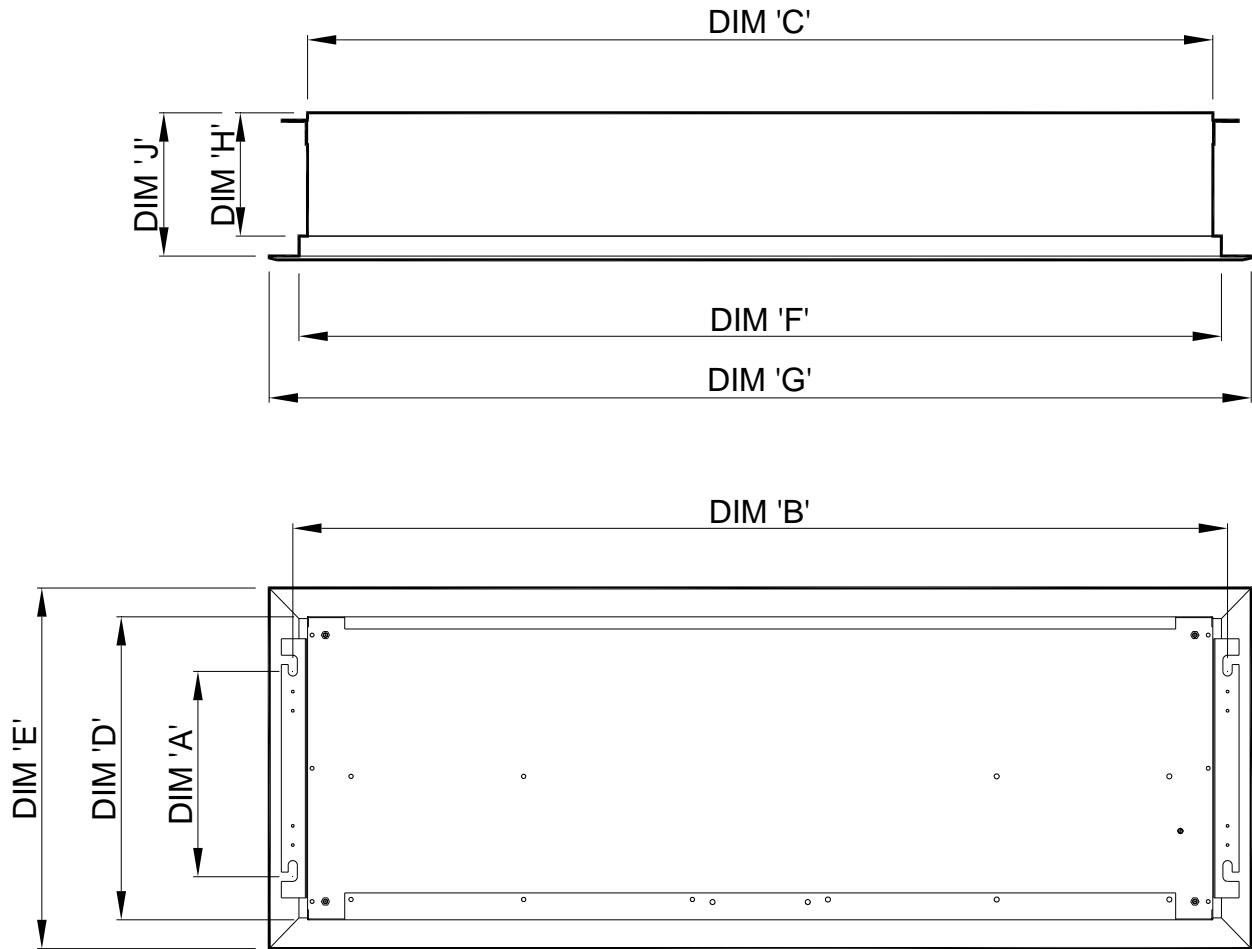
Units conform to the European electrical standard BS EN 60335-2-30 and to the following European CE directives-

2006/95/EC - low voltage;

2004/108/EC - electromagnetic compatibility.

2. Dimensions.

ACR Air Curtain



Dimensional detail (mm)

Size	ACR100SA-SC	ACR150SA-SC	ACR200SA-SC
A	253		
B	1220	1520	2020
C	1182	1482	1982
D	395		
E	454		
F	1205	1505	2005
G	1242	1542	2095
H	160		
J	200		

3. Technical specifications

3.1 All models		ACR100SA-SC	ACR150SA-SC	ACR200SA-SC	
General Data					
Maximum height	M	3.0			
Door width	M	1.0	1.5	2.0	
Heat medium		Ambient			
Fan type / dia		Crossflow / 100mm			
Fan settings		Variable			
Weight	kg	28	34	49	
Electrical Data					
Supply voltage		230V 1ph 50Hz			
Total load	kW	0.06		0.09	
	amps	0.26		0.4	
Motor power	W	60		90	
Max Starting current*	amps	0.96		1.5	
Max Running current*	amps	0.65		0.75	
External fuse size amps	amps	3			
Speed controller	pt. no.	900485			
Cable terminal size (air curtain)		4.0mm ² Max			
Cable terminal size (controller)		2.5mm ² Max			
Mains terminal block position		Inside unit L1, N + E			
Air Data					
Air volume	<i>Low speed</i>	m ³ /h	1164	1475	2013
	<i>Medium speed</i>	m ³ /h	1405	1780	2432
	<i>High speed</i>	m ³ /h	1646	2085	2851
Air velocity	<i>Low @ 0M</i>	m/s	4.3		5.4
	<i>Medium @ 0M</i>	m/s	5.6		6.9
	<i>High @ 0M</i>	m/s	7.0		8.4
	<i>High @ 1M</i>	m/s	3.5		4.2
	<i>High @ 2M</i>	m/s	1.6		2.1
	<i>High @ 3M</i>	m/s	0.8		1.0
Noise level @ 1M in free field	<i>Low speed</i>	dBA	59		62
	<i>Medium speed</i>	dBA	62		64
	<i>High speed</i>	dBA	64		66
Dims Data					
Length	mm	1182	1482	1982	
Depth (width)	mm	395			
Total height*	mm	200			
Outlet length	mm	1125	1425	1945	
Outlet depth (width)	mm	85			
Grille height	mm	40			
Mounting bracket centres length	mm	1220	1520	2020	
Side to 1 st bracket centre	mm	18			
Mounting bracket centres height	mm	Flush with top of the unit			
Top to 1 st bracket centre	mm	Flush with top of the unit			

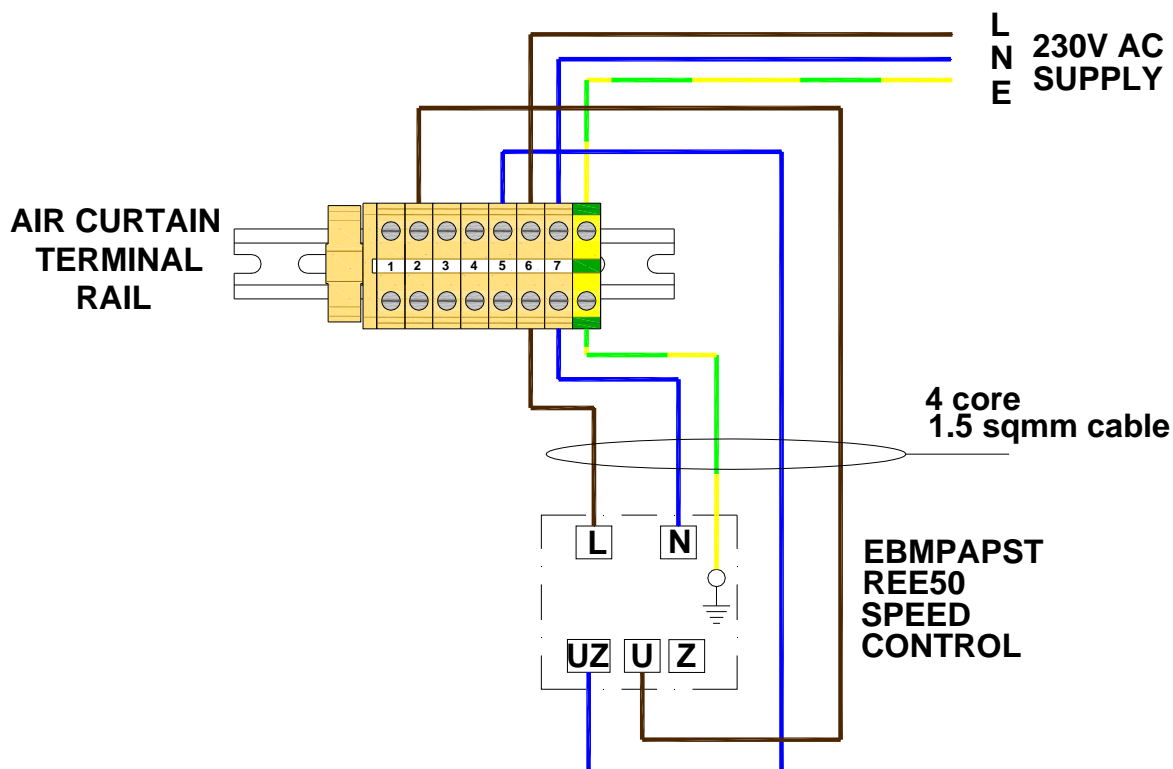
* Motor current when wired for high speed

Greyed out figures refer to medium and high speed wiring option. See Section 4.

3.2	Speed Controller
General Data	
Protection	1 x 10A ceramic quick blow
Fan Output	Variable (20% to Max speed)
Connection	Screw terminals 2 for supply, 2 for fan output + earth.
Supply	230V 1Ph
Dimensions	Enclosure 118mm(L) x 95mm(H) x 57mm (D)
Mounting positions	Enclosure fixing centres 90mm x 65mm
Temperature	Max operating temperature 40°C
Speed control	Rotary knob min to max
Switch	Illuminated on/off rocker switch

4. Wiring diagrams

4.1 Installer Wiring (all models)

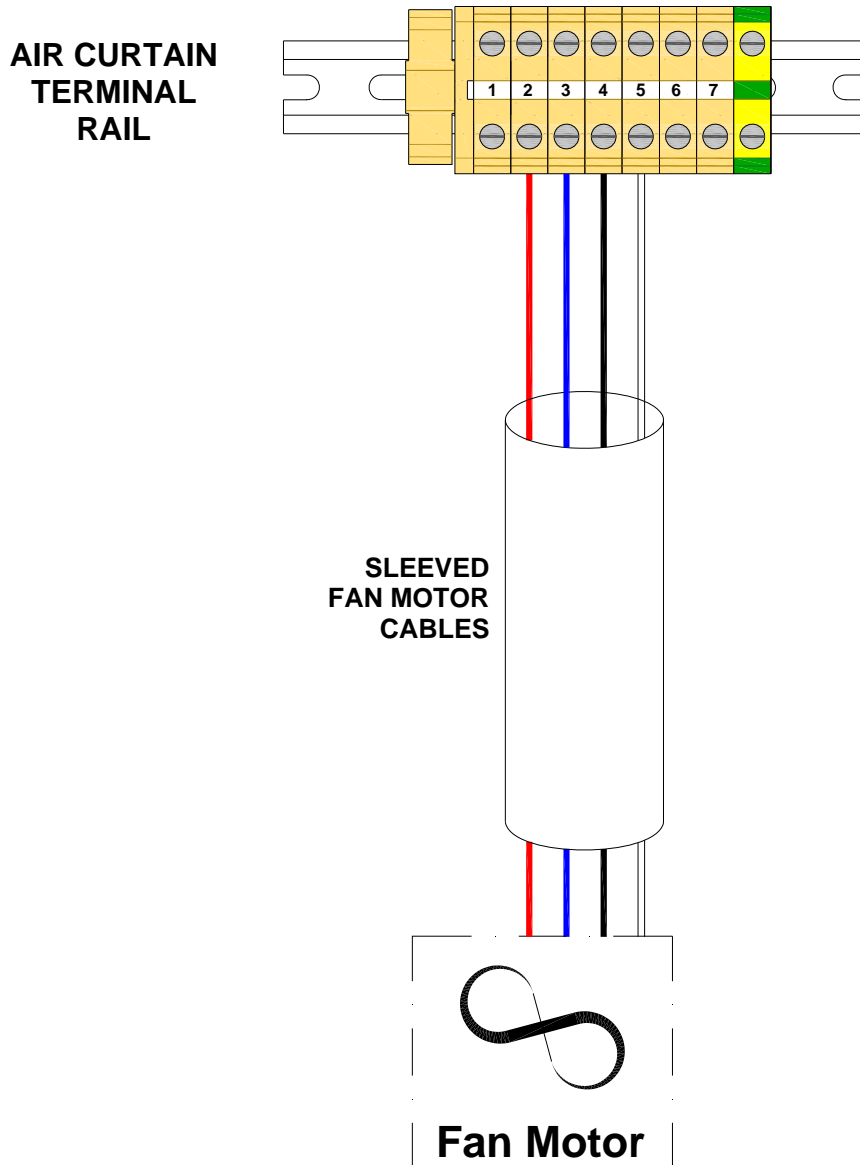


WARNING:

Only **ONE** of the speed windings must be connected to the speed controller via terminal 2 on the terminal rail.

The wiring diagrams show the low speed motor cable (**RED WIRE**) connected to the speed controller. If a higher fan speed is necessary, the **BLUE (medium speed)**, or the **BLACK (high speed)** wire can be used. The two unused cables must always be inserted into the unused cable terminals 3 and 4.

4.2 Factory Wiring - (2.0m models)

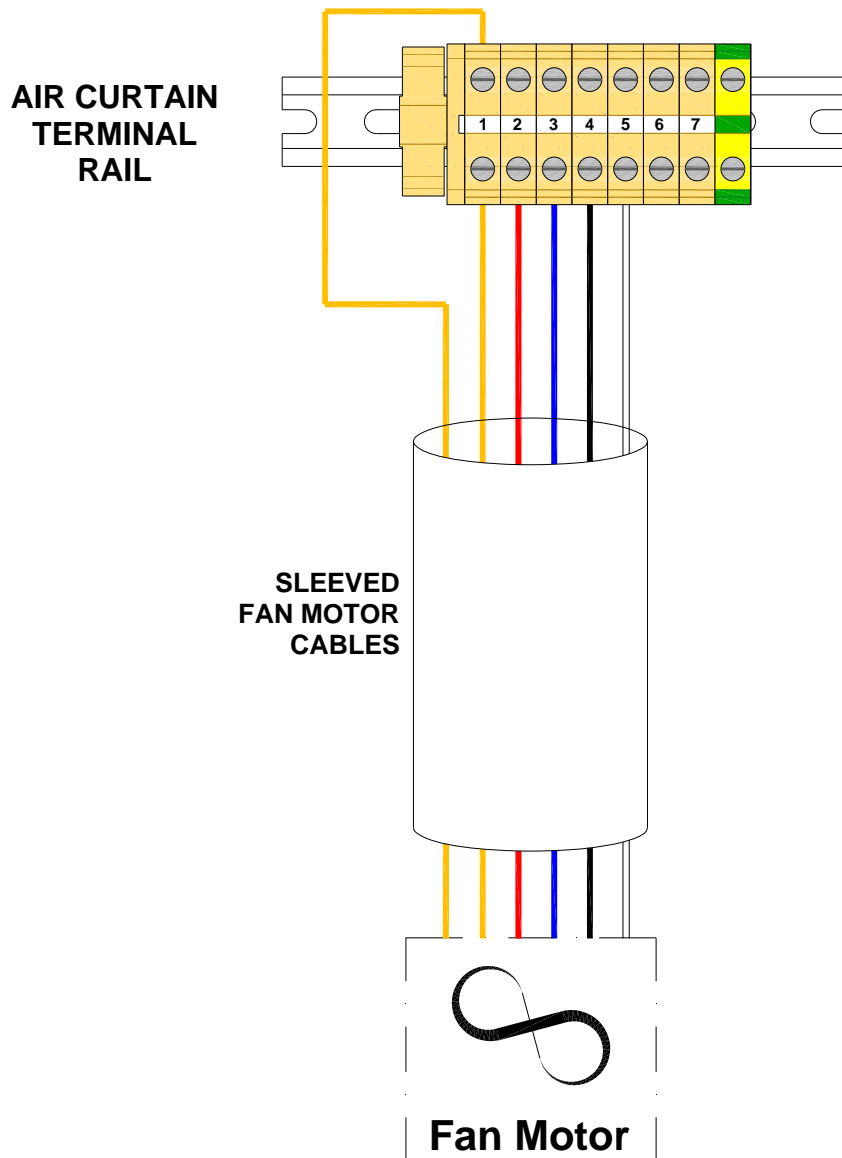


WARNING:

Only **ONE** of the speed windings must be connected to the speed controller via terminal 2 on the terminal rail.

The wiring diagrams show the low speed motor cable (**RED WIRE**) connected to the speed controller. If a higher fan speed is necessary, the **BLUE (medium speed)**, or the **BLACK (high speed)** wire can be used. The two unused cables must always be inserted into the unused cable terminals 3 and 4.

4.3 Factory Wiring - (1m-1.5m models)



WARNING:

Only **ONE** of the speed windings must be connected to the speed controller via terminal 2 on the terminal rail.

The wiring diagrams show the low speed motor cable (**RED WIRE**) connected to the speed controller. If a higher fan speed is necessary, the **BLUE (medium speed)**, or the **BLACK (high speed)** wire can be used. The two unused cables must always be inserted into the unused cable terminals 3 and 4.

5. Installation Details.

5.1 Mounting

Airbloc units should be installed horizontally directly over the door opening. It is recommended that the air curtain is installed on the inside of the building, within the open room space against a wall or ceiling.

Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct working operation of the air curtain. The discharge opening should be as close to the top of the door as possible and to cover the entire door width.

Units can be mounted adjacent to each other to cover the full door opening across wider entrances.

5.2 Electrical Supply.

230/240 Volt 50 Hz single phase supply.

The ACR100SA-SC, and the ACR150SA-SC models consume 60W, the ACR200SA-SC consumes 90W.

The appliance shall be connected to the supply via an appropriate switched fused double pole isolator having a contact separation of greater than 3mm.

For connection to the mains supply it will be necessary to open the hinged lid from the unit. The terminal rail is mounted on a bracket within the air curtain. Wire in accordance to diagram in section 4.1

! For safety reasons, a sound earth connection must always be made to the unit before it is put to use. The unit should be wired in accordance with IEE Regulations for the Electrical Equipment of Buildings.

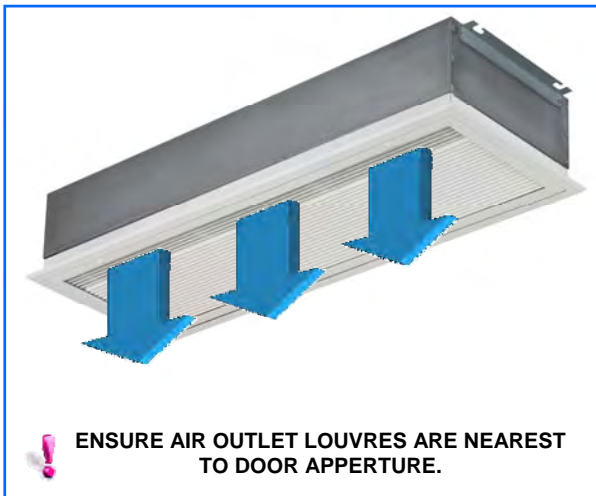
5.3 Installation.

It is the sole responsibility of the installer to ensure that the points of attachment to the building are sound. Consultation with the consultant/architect or owner of the building is recommended to ensure that a sound, mechanically stable installation is achieved.

All attachments must be capable of supporting the weight of the product detailed in Section 3.

Step 1

Before fitting or wiring the air curtain, ensure casing faces as below and see general installation guidance notes.



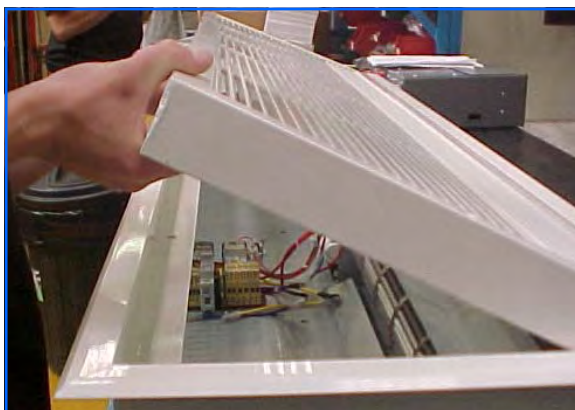
Step 2

Using a pozidrive screwdriver remove the M5 screws at the side of the grille.

Step 3



Access to the inside of the air curtain grille can be made. Open the grille. The grille is hinged to prevent the inner frame from dropping.



Step 4

The grille assembly can now be removed from the case to allow fitting of the product in the ceiling recess. Remove the screws from the outer frame to the top of the product case.



Step 5

Attachment of the air curtain to the ceiling structure is by means of the two brackets attached to the side of the air curtain. The brackets may be removed to assist in passing the air curtain through the recess then reattached when in-situ.



Step 7

The height between the ceiling face and the face of the air curtain case needs to be adjusted to circa 40mm to enable the grille assembly to fit flush with the ceiling. Adjust accordingly.

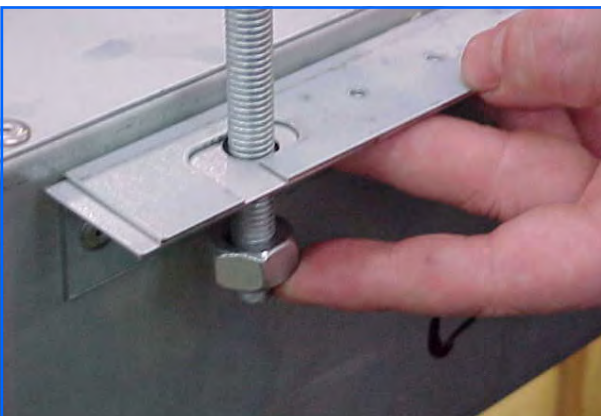


After fitting the product in the ceiling recess and adjusting the height to ensure that the grille sits flush to the ceiling (when re-fitted) take the grille assembly and refit using the screws removed during Step 4.

Step 6

Either drop rods or catenary wire (available from manufacturer) can be used to fasten the air curtain to the ceiling support structure.

Note When using drop rods the casing mounting brackets are slotted and the mounting plates provided must be used on assembly.

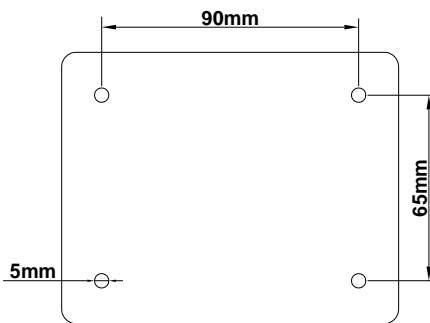


5.4 Installation details - Speed controller

The speed controller is supplied loose. All the external electrical connections between the controller and the air curtain are via screw terminals.

The speed controller is self contained within its own enclosure which can be fixed to the wall in a suitable location.

The distance between the speed controller and the program panel can be up to 50m maximum.



REE 50

Fixing hole centres

5.5 Installation wiring

With the louvres opened for access, connect the mains electrical supply and interconnecting wiring to the appropriate terminals in the air curtain and the speed controller (See installer wiring diagram section 4)

6. Servicing & Maintenance.

! ALWAYS ENSURE THAT THE MAIN EXTERNAL ELECTRICITY SUPPLY IS SWITCHED OFF BEFORE COMMENCING ANY MAINTENANCE ON THIS HEATER.

To obtain the best results from the air curtain, it is essential to avoid the accumulation of dust and dirt within the unit on the air inlet and discharge grilles. For this reason regular cleaning is necessary, paying particular attention to the removal of dirt build up on the rotor blades.

Cleaning of the fan is best carried out with a soft brush.

A single drop of light oil should be applied to the motor bearing from time to time.

The product should be serviced annually. Servicing shall be undertaken by a competent person. Airbloc offer a service facility, call 01384 489700.

Step 1

Using a pozidrive screwdriver remove the M5 screws at the side of the grille.



Step 2

Access to the inside of the air curtain grille can be made.



Open the grille. The grille is hinged to prevent the inner frame from dropping

Step 3

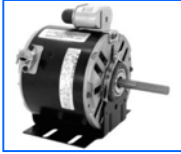
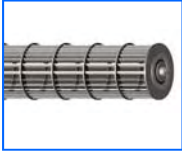


With a soft brush clean away any dust from the motor and impellers.

Check all connections and components for soundness or signs of deterioration and replace as necessary.

Re-assemble and test.

7. Spare parts

7.1 General

7.1 General		ACR100SA-SC	ACR150SA-SC	ACR200SA-SC
Description				
	Motor		100003	100012
	Rotor Left Hand	100001	100006	100010
	Rotor Right Hand	100002	100007	100011
	Speed Controller		900485	

⚠ Due to the nature of it's construction, it is not advisable to attempt any repairs on damaged electronic components on the speed controller.

8. Fault Finding.

8.1 General

If the air curtain does not operate after running through the detail provided in Section 6, then a suitably competent service engineer should be called to identify the nature of the fault.

Note: The manufacturer operates a service function from the address provided in these instructions.

All air curtains are fitted with fuse protection and motor thermal protection.

Other faults in relation to the motor and wiring should be identified using conventional fault finding techniques.

In the event that electrical components are replaced, please ensure that electrical safety checks in accordance with the regulations in force in the country of use are undertaken.

8.2 Speed controller

The speed controller contains no user serviceable parts other than the protection fuse. *See Section 3.2 for replacement type.*

9. Parts Replacement.

Rotor and motor replacement

Step 1

Using a pozidrive screwdriver remove the M5 screws at the side of the grille. Access to the inside of the air curtain grille can be made. Open the grille. The grille is hinged to prevent the inner frame from dropping.

Step 2

Remove fastening holding rotor support bracket



Step 3

Move rotor support bracket towards outside of case.



Step 4

Disengage rotor bearing.



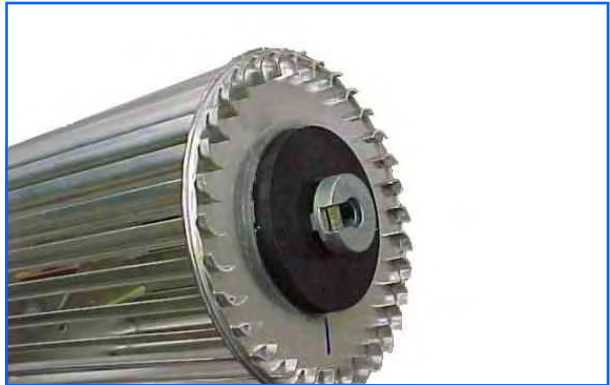
Step 5

Disconnect rotor from motor shaft.



Step 6

Ensure on replacement of rotor that the flat on the rotor bearing aligns with the flat on the motor shaft.



Step 7

Disconnect motor facing clips (2) using a large screwdriver and exerting downward pressure. A sharp tap can help in releasing the clip. Disconnect the wires from the motor to the mains terminal rail.



Replace motor in reverse order.

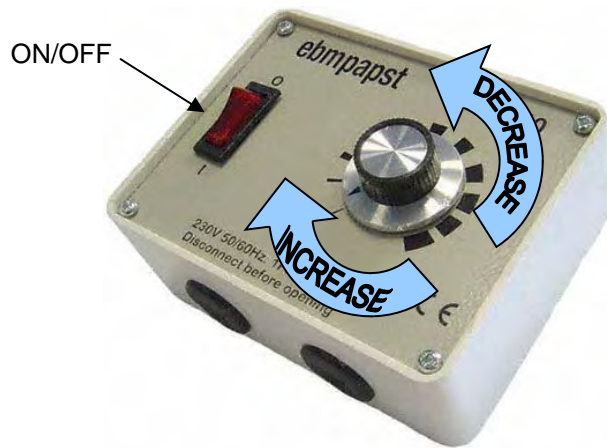
Carefully close the grille and refit the fixing screw.

Test product as shown in the User Instructions.

10. User Instructions.

Switch the air curtain on using the on/off rocker switch. The switch should illuminate.

Set the desired fan speed using the rotary speed control knob. Turn clockwise to increase speed, and anti-clockwise to decrease speed. When set to minimum, (fully anti-clockwise), the fan will run at 20% full speed.





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