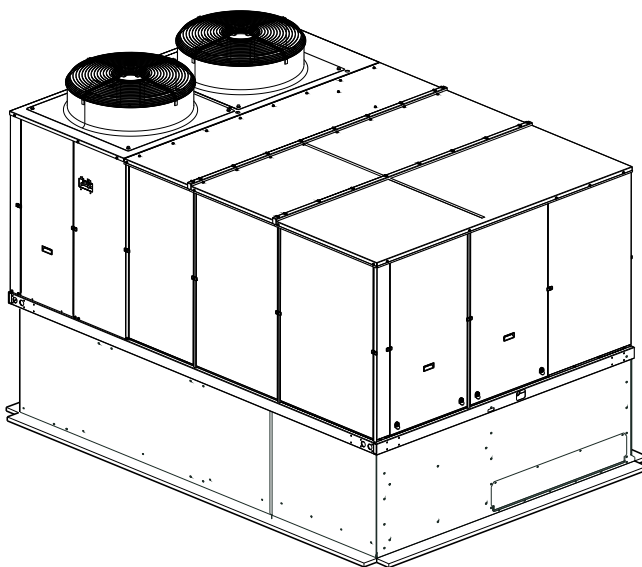




BY JOHNSON CONTROLS

Return fan for Roof Top ACTIVA 045/090 (with vertical ducts)



Options and Accessories, Installation manual

Ref.: N-40336_EN 0114



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1

Return fan for Roof Top ACTIVA 045-090

1.1 General Description

The return fan is generally suitable for installation fitted with a return duct with a significant pressure drop and where, for this reason, the installing of an axial exhaust fan is insufficient.

It is fitted with a centrifuge fan with backward-curved blades, a motor with built-in EC technology, a differential pressure sensor and a barometric relief damper.

The degree of protection of the motor is IP54 and insulation class F.

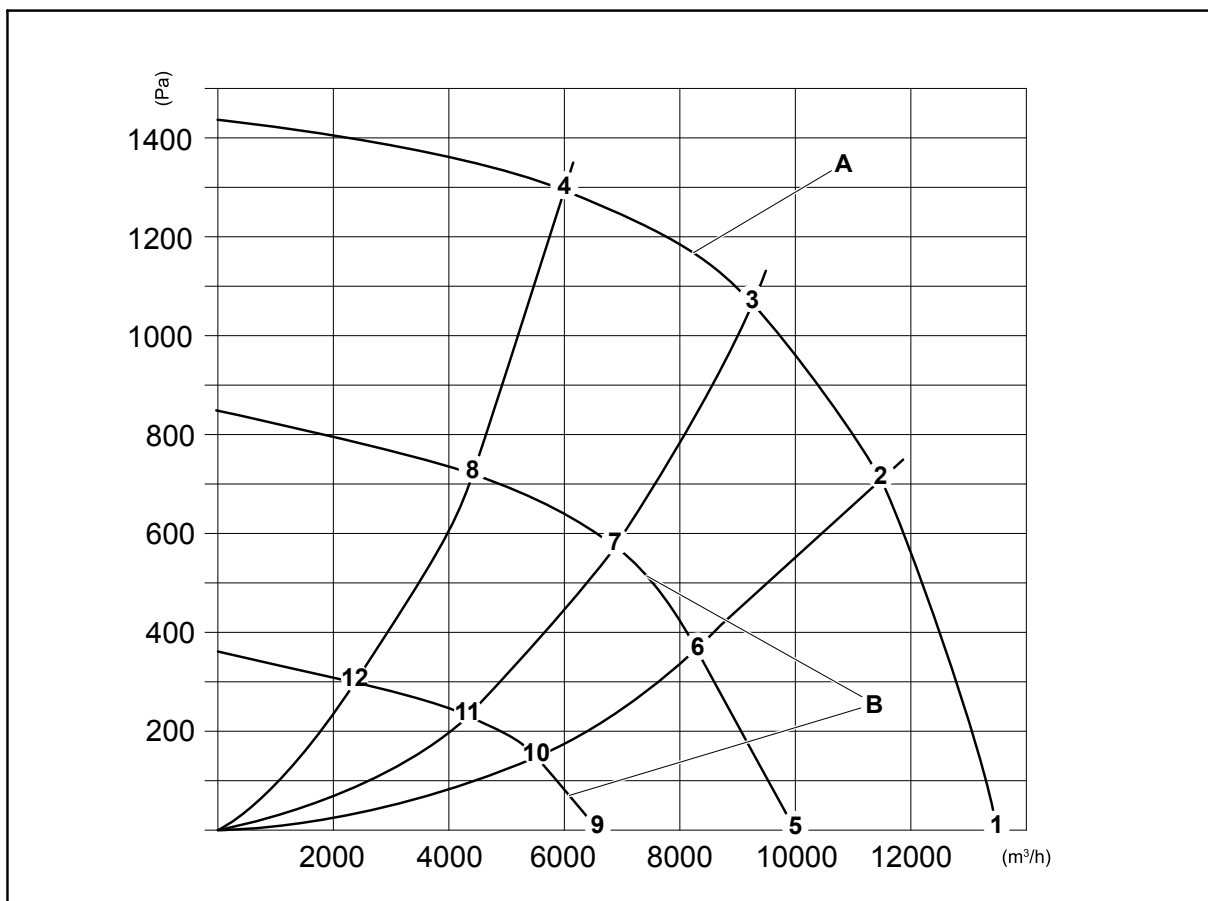
Use of the fan with EC technology provides significant advantages, such as:

- High performance.
- Minimum heat loss.
- Minimum noise level.
- Wide operating range.
- Absence of transmission parts and, therefore, maintenance.
- Return air flow factory-set, no on-site adjustment required.

1.2 Technical specifications

1.2.1 Features of 045/060 model fans

For operating data on Roof Top ACTIVA fan models 045 to 060:



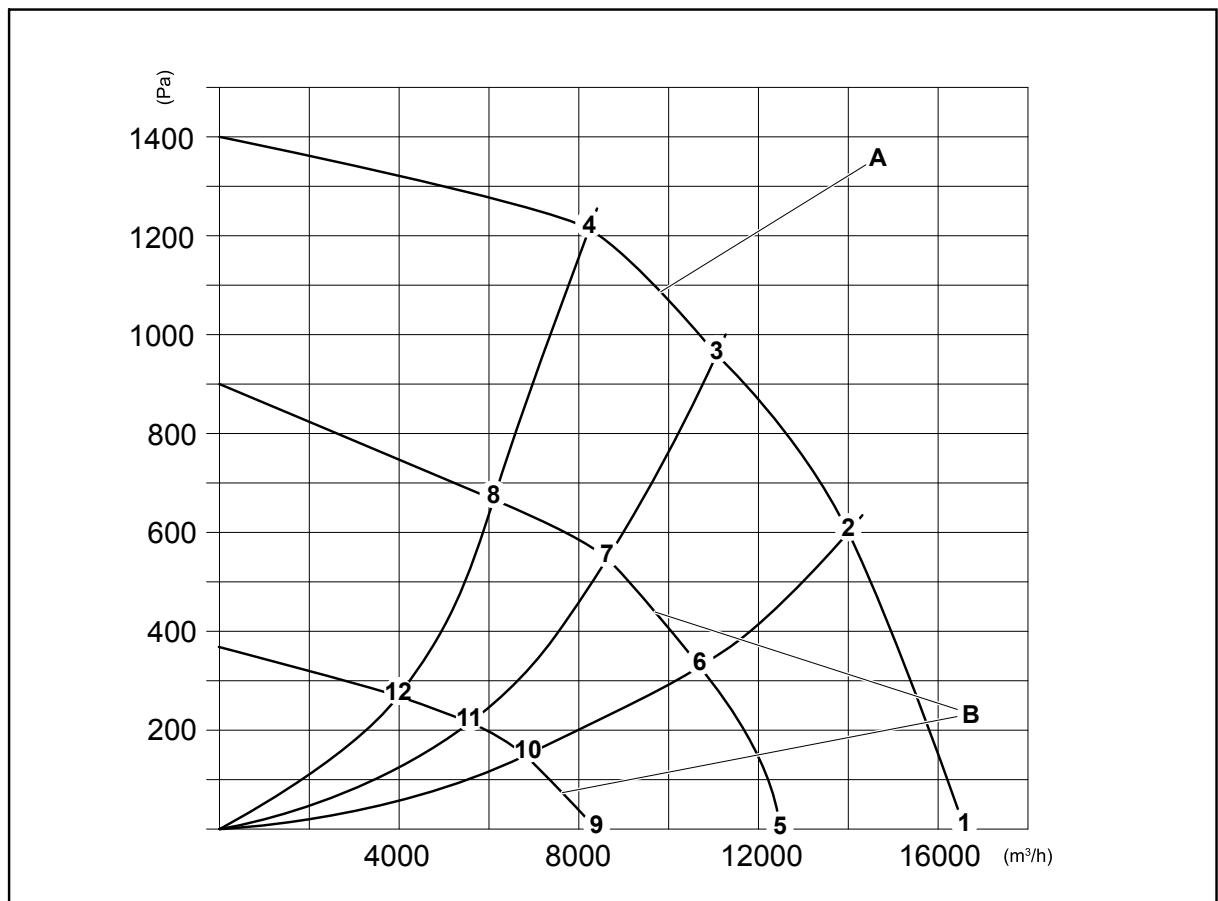
A. Maximum features curves.

B. Intermediate curves illustrated as a reference for approximate data on the operating point.

Features of model 045/060, fan D.N.500 mm				
Operating point	n [r.p.m.]	P ₁ [W]	I [A]	Lw _A [dB]
1	2015	2715	4,12	98
2	2020	3853	5,86	89
3	2000	4270	6,60	85
4	2015	3837	5,83	87
5	1500	1146	1,81	89
6	1500	1565	2,43	81
7	1490	1689	2,61	77
8	1505	1545	2,39	79
9	980	402	0,77	77
10	965	481	0,90	70
11	960	508	0,94	67
12	960	486	0,91	67

1.2.2 Features of 075/090 model fans

For operating data on Roof Top ACTIVA fan models 075 to 090:



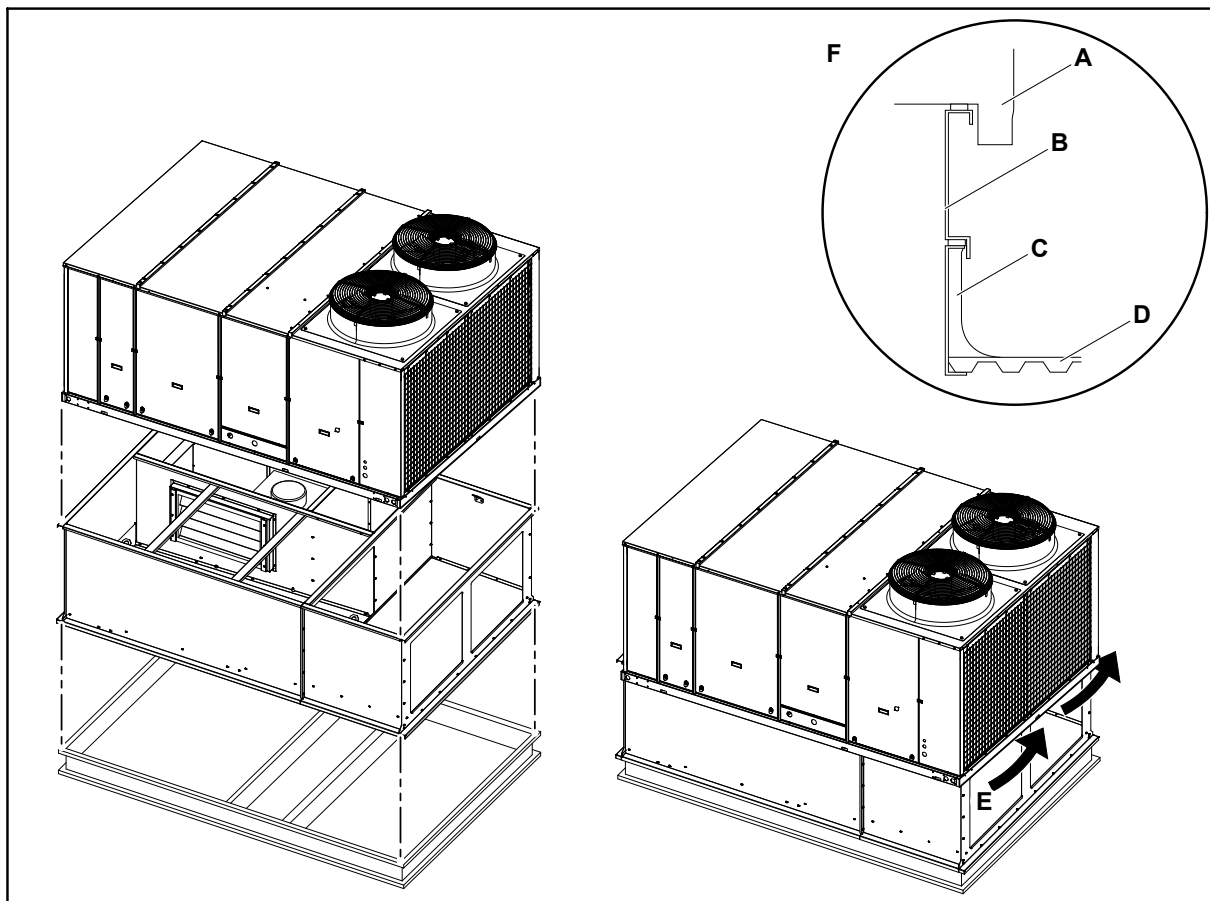
A. Maximum features curves.

B. Intermediate curves illustrated as a reference for approximate data on the operating point.

1.3 Installation

Features of 075/090 model, fan D.N. 560 mm				
Operating point	n [r.p.m.]	P ₁ [W]	I [A]	Lw _A [dB]
1	1765	3190	4,39	98
2	1750	4097	6,29	88
3	1720	4600	7,10	84
4	1750	4538	6,98	84
5	1315	1285	2,06	91
6	1335	1723	2,72	82
7	1320	1923	3,01	78
8	1320	1796	2,81	79
9	885	466	0,92	80
10	870	552	1,07	73
11	865	610	1,17	70
12	865	594	1,13	69

1.3 Installation



- A. Roof Top unit
- B. Return fan
- C. Roof Curb
- D. Roof of the building
- E. Extraction air
- F. Detailed cross-section view of installation

The return fan assembly is supplied fully mounted, ready for positioning on the mounting base (Roofcurb, fixed or adjustable) before installing the Roof Top unit.

The panels requiring as such are fitted with heat insulation on the inside. No further insulation is required on site.

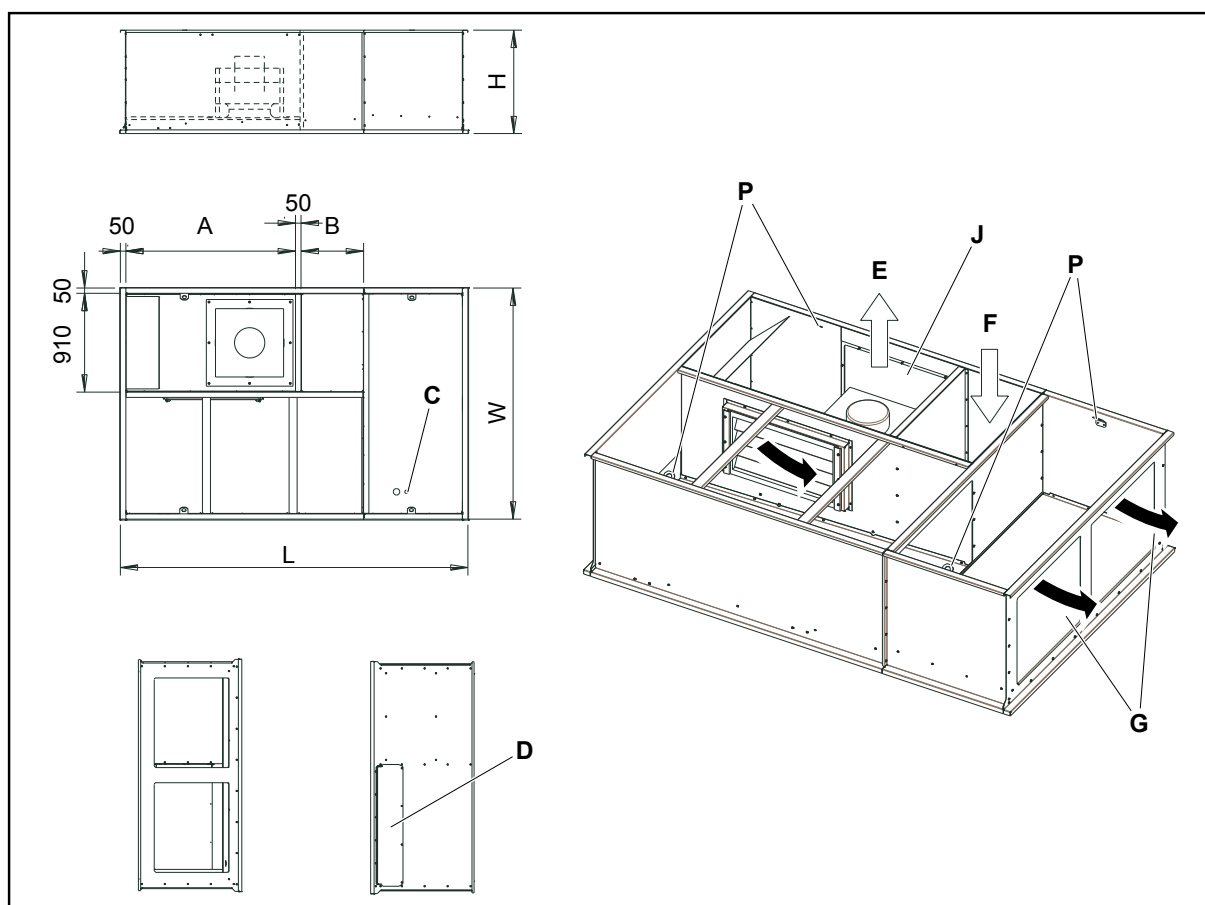
No type of fixture is required and it is connected directly using the return and supply openings to the base of the unit, without the need for additional sections of ducting or plenum, ensuring a sealed connection.

It is fitted with hoisting and handling lugs -P-: *Assembly, see on page 5.*

It is compliant with regulations regarding public buildings in France (ERP).

Simple remove the cover from one end, without having to add any other accessory.

1.4 Assembly



- | | |
|------------------------------|-------------------------------|
| A. See table | F. Supply |
| B. See table | G. Discharge extraction air |
| C. Run cables from Roof Curb | J. Side access for inspection |
| D. ERP cover | P. Hoisting points |
| E. Return | |

Model	A	B	L	W	H	Weight [kg]
045/060	1304	578	2930	2134	723	345
060/090	1568	578	3210	2134	923	445

1.5 Selection and operations

The return fan runs continuously, provided that the supply fan is running on the Roof Top unit.

It must be selected considering the return total air flow, i.e.

1.6 Electrical connection

Return flow = Supply air flow – Renewal air flow.

The pressure sensor compares the static pressures on the return duct and the fan opening and the control automatically sets the speed of rotation to the required r.p.m to obtain the precise return air flow required (see features curves).

If the return air flow value required is not indicated in the order, it is factory-set to the following:

Model	Flow
045/060	7000 m ³ /h
075/090	11500 m ³ /h

The supply fan in the Roof Top unit must be selected and set for 100% supply air flow required in the installation and considering the static pressure resulting from the sum of:

Supply duct + economiser + optional air filters (where applicable) + heating option (where applicable).

See the Roof Top installation manual for the pressure drop values of the different options and accessories.

While the equipment is running, the barometric damper allows for the necessary air flow relief directly from the return duct to outdoors, maintaining a correct pressure inside the air conditioned room. The discharged air is directly to the ventilation area of the outside coil, helping to improve its performance.

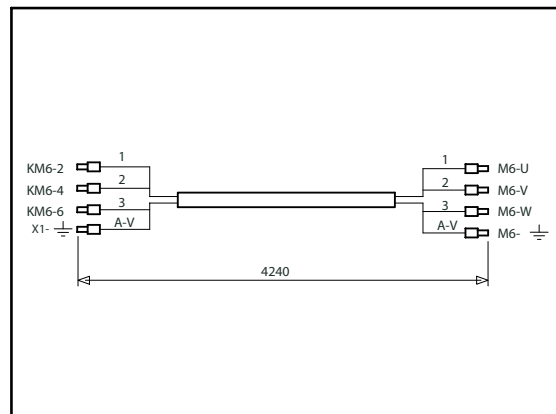
1.6 Electrical connection

Make the electrical connections according to the diagram.

Run the connection cable to the electrical box along the route of the economiser cables.

KM6: Box side.

M6: Motor side.

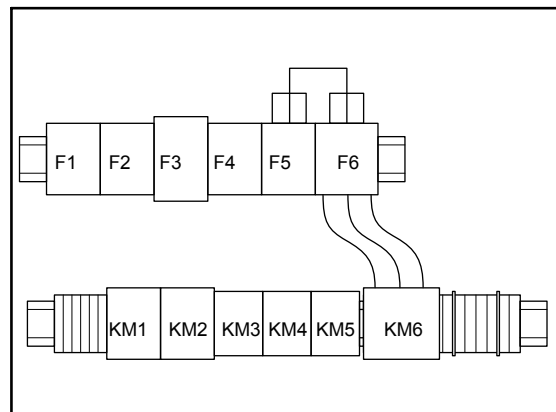


Close-up of connections in the electrical box

Connect the return fan cables to contactor KM-6, terminals 2, 4 and 6.

Adjust motor trip switch F6:

- Models 045/090: 6,3 A.



Connect cables according to table.

Cable no.	Colour	Cross-section	From	To	Cable length
1	Black	1,5	F6-6	KM6-5	220
2	Black	1,5	F6-4	KM6-3	220
3	Black	1,5	F6-2	KM6-1	220
4	Black	1,5	F5-5	F6-5	270
5	Black	1,5	F5-3	F6-3	270
6	Black	1,5	F5-1	F6-1	270
7	White	1	KM5-A2	KM6-A2	190
8	Red	1	KM3-A1	KM6-A1	320