

# AC centrifugal fans



AC centrifugal fan overview

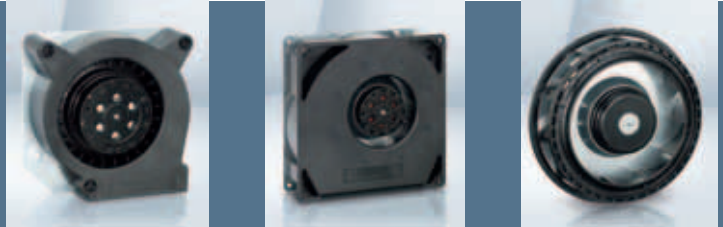
229

AC centrifugal fans

230

# AC centrifugal fans

## Technical information



### Product line

The renowned ebm-papst AC fans are used when DC voltage is not available. The AC range of fans is based on experience gained from decades of development activity, millions of units in series production and competence in innovation of a world-wide technological leader.

A wide range of fans for AC operation is presented in this catalogue. In addition to complete device fans, you will also find fans without external housing, providing a particularly economical advantage when the air duct can be integrated in the respective device.

### Variety of sizes

AC fans are available in a variety of sizes with either air exhaust or air intake over struts. Silent running models with sleeve bearings (or for extreme ambient conditions) fans with ball bearings are available. Electrical connection with plug connection or external leads are available.

### Shaded-pole or capacitor motors

Fan drives by shaded-pole or capacitor motors, most of which incorporate the world-famous ebm-papst external rotor principle: The fan blades are directly attached to the external rotor of the external rotor motor, thus combining both high performance and profitability.

### Flat built AC fans

ebm-papst also has particularly flat built AC fans with internal rotor motor. Their advantage: quick start to full speed. A plastic impeller and the both smaller and lighter internal rotor motor lead to a lower moment of inertia.

### Bearings

AC fans with sleeve bearings are powered by Class E insulated motors. Fans with ball bearings are equipped with Class B, E or F insulated motors.

### Type of protection

All ebm-papst fans conform to the requirements of IP 20. Fans conforming to IP 54 / IP 68 and special types of protection are also available.

### AC voltage

The line of AC fans for Euro voltage according to IEC 60038 (230 V  $\pm$  10 %) is basically also available for 115 V.

### Frequencies

AC fans can be operated at frequencies of 50 Hz or 60 Hz. However, their technical data then change accordingly.

### Capacitor

Fans driven by capacitor external motors provide particularly high operating efficiency. Generally, the required operating capacitor is already integrated in the fan housing.

### Overloading

Almost all AC fans are protected against overloading (e.g. due to locked rotor) the drive motors are either impedance protected (marked "Impedance protected", and/or "Z.P.") or are equipped with a thermal switch (marked "Thermally protected" or "Th.P."). The model designation of these fans ends with "S".

# Centrifugal fans for AC operation

## Overview of air performance

Dimension	Series	Air flow	Page
mm		m <sup>3</sup> /h	
		10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000 2000 3000	
□ 121 x 37	RL 90	40...42	230
□ 135 x 38	RG 90	47...54	231
□ 180 x 40	RG 125	86...94	232
□ 220 x 56	RG 160	202...223	233
∅ 138 x 40	RER 125	104...115	234
∅ 176 x 54	RER 160	234...274	235

Subject to alternations

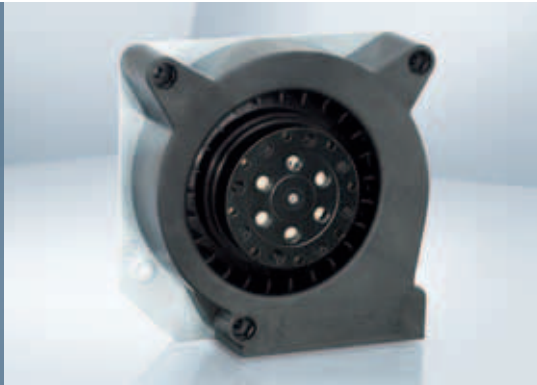
## Overview of technically feasible designs

Dimension	VDE, UL, CSA	Shields, sleeve bearings/ Ball bearings	Speed signal	Humidity protection IP >= IP 54	IP >= IP 68	Salt fog protection	Page
<b>Centrifugal fans</b>							
<b>Series</b>	<b>mm</b>		<b>OPTIONAL</b>				<b>p.</b>
RL 90	121 x 121 x 37	ja □/■	-	• • - •	- •	- •	230
RG 90	135 x 135 x 38	ja □/■	-	• • - •	- •	- •	231
RG 125	180 x 180 x 40	ja ■	-	• • - •	- •	- •	232
RG 160	220 x 220 x 56	ja ■	-	• • - •	- •	- •	233
RER 125	138 ∅ x 40	ja ■	-	• • - •	- •	- •	234
RER 160	176 ∅ x 54	ja ■	-	• • - •	- •	- •	235
Subject to alternations							
<ul style="list-style-type: none"> <li>• available   - not yet available   □ Sleeve bearings   ■ Ball bearings</li> </ul>							

max. 42 m<sup>3</sup>/h

# AC centrifugal fans

Series RL 90 121 x 121 x 37 mm



- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
Housing base: Steel plate
- **Direction of air flow:** Centrifugal: Air outlet via window in housing
- **Direction of rotation:** Clockwise, seen on rotor
- **Connection:** Via 2 single wires; housing base with flat plugs  
6,3 x 0,8 mm for protective earth conductor
- **Highlights:** forwards-curved impeller
- **Mass:** 680 g

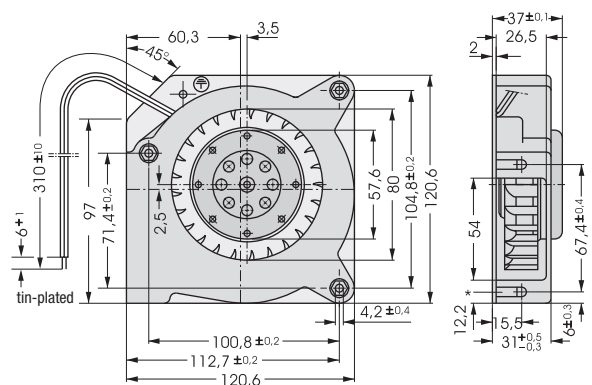
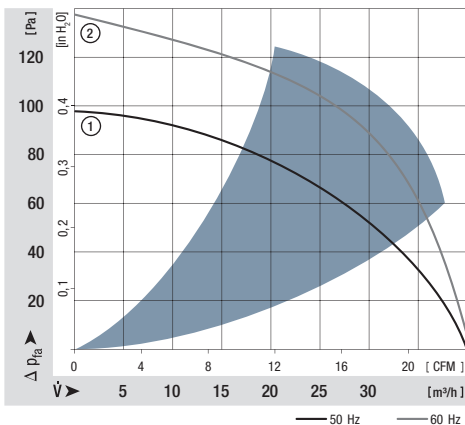
- **Possible special versions:**  
(See page 12)
  - Protection against moisture
  - Protection against salt fog
  - Type of protection: IP 54

1) Fibreglass-reinforced plastic

Nominal data	Air flow		Nominal voltage	Frequency	Sound power level	Sinter sleeve bearings		Input power	Nominal speed	Temperature range	Service life L <sub>10</sub>		Curve
	m <sup>3</sup> /h	CFM				Ball bearings	Watts				rpm	at 40 °C	
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours		
RL 90-18/50	40	23,5	230	50	5,6	□/■	20,0	2 450	-10...+50	37 500 / 30 000		①	
RL 90-18/56	40	23,5	230	50	5,6	/■	20,0	2 450	-30...+70	37 500 / 20 000		①	
RL 90-18/00	42	24,7	115	60	6,0	□/■	19,5	2 550	-10...+60	37 500 / 25 000		②	
RL 90-18/06	42	24,7	115	60	6,0	/■	19,5	2 550	-30...+85	37 500 / 15 000		②	

Subject to alternations

Fan type		Lead wires
RL 90-18/50	RL 90-18/00	AWG 18, TR 32
RL 90-18/56	RL 90-18/06	AWG 22



\*Speed nut M4 or 8-32UNC. Screw- in depth max.12,5 min 9,0

max. 54 m<sup>3</sup>/h

# AC centrifugal fans

Series RG 90 135 x 135 x 38 mm

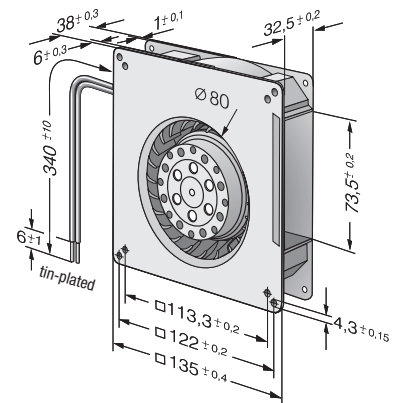
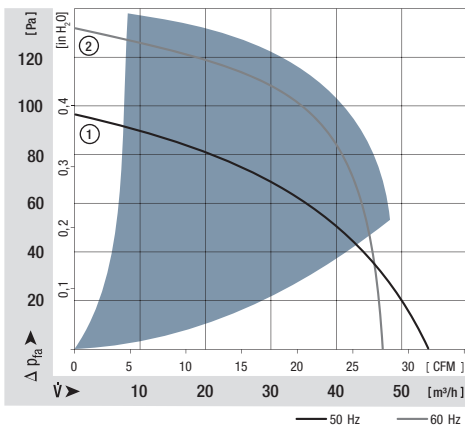


- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
Housing base: Steel plate
  - **Direction of air flow:** Centrifugal: Air outlet via window in housing
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Connection:** Via 2 single wires AWG 22
  - **Highlights:** forwards-curved impeller
  - **Mass:** 560 g
- **Possible special versions:** (See page 12)
    - Protection against moisture
    - Protection against salt fog
    - Type of protection: IP 54

1) Fibreglass-reinforced plastic

Nominal data	Air flow		Nominal voltage	Frequency	Sound power level	Sinter sleeve bearings		Input power	Nominal speed	Temperature range	Service life L <sub>10</sub>		Curve
	m <sup>3</sup> /h	CFM				Ball bearings	Watts				Hours	at T <sub>max</sub>	
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours		
RG 90-18/50	54	32	230	50	5,8	□/■	22,0	2 200	-30...+60	35 000 / 22 500		①	
RG 90-18/56	54	32	230	50	5,8	/■	22,0	2 200	-30...+60	35 000 / 22 500		①	
RG 90-18/00	47	28	115	60	6,2	□/■	22,0	1 900	-30...+65	35 000 / 20 000		②	
RG 90-18/06	47	28	115	60	6,2	/■	22,0	1 900	-30...+65	35 000 / 20 000		②	

Subject to alternations



max. 94 m<sup>3</sup>/h

# AC centrifugal fans

Series RG 125 180 x 180 x 40 mm

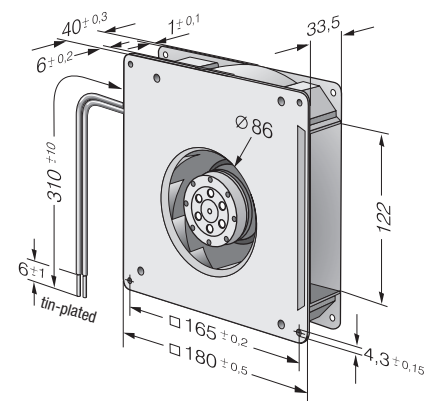
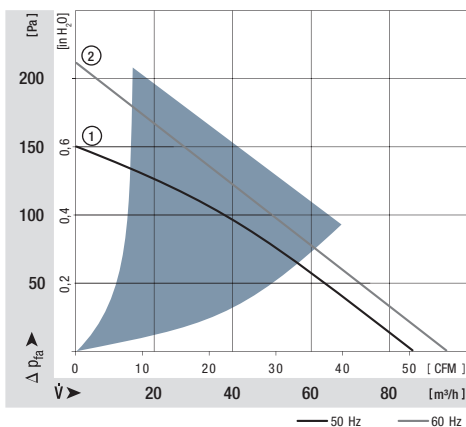


- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
Housing base: Steel plate
  - **Direction of air flow:** Centrifugal: Air outlet via window in housing
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Connection:** Via 2 single wires AWG 22
  - **Highlights:** backwards-curved impeller
  - **Mass:** 850 g
- **Possible special versions:**  
(See page 12)
    - Protection against moisture
    - Protection against salt fog
    - Type of protection: IP 54

1) Fibreglass-reinforced plastic

Nominal data	Air flow		Nominal voltage	Frequency	Sound power level	Sinter sleeve bearings		Input power	Nominal speed	Temperature range	Service life L <sub>10</sub>		Curve
	m <sup>3</sup> /h	CFM				Ball bearings	Watts				Hours	at T <sub>max</sub>	
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours		
RG 125-19/56	86	51	230	50	5,8	/■	20,0	2 550	-30...+70	37 500 / 20 000		①	
RG 125-19/06	94	55	115	60	6,0	/■	19,0	2 750	-30...+80	40 000 / 15 000		②	

Subject to alternations



max. 223 m<sup>3</sup>/h

# AC centrifugal fans

Series RG 160 220 x 220 x 56 mm

Information

DC axial fans

DC centrifugal fans

DC fans - specials

ACmaxx / GreenTech  
EC-Compact fans

AC axial fans

AC centrifugal fans

Accessories

Representatives

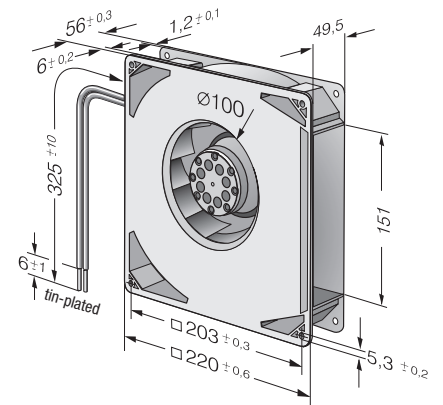
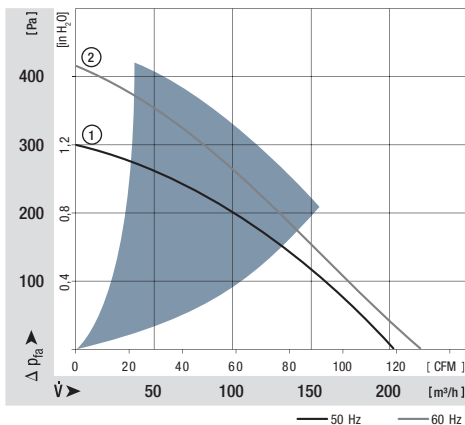


- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
Housing base: Steel plate
  - **Direction of air flow:** Centrifugal: Air outlet via window in housing
  - **Direction of rotation:** Counter-clockwise, seen on rotor
  - **Connection:** Via 2 single wires AWG 18
  - **Highlights:** backwards-curved impeller
  - **Mass:** 1,7 kg
- **Possible special versions:**  
(See page 12)  
- Protection against moisture

1) Fibreglass-reinforced plastic

Nominal data	Air flow		Nominal voltage	Frequency	Sound power level	Sinter sleeve bearings		Input power	Nominal speed	Temperature range	Service life L <sub>10</sub>		Curve
	m <sup>3</sup> /h	CFM				Ball bearings	Watts				Hours	at T <sub>max</sub>	
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours		
RG 160-28/56S	202	119	230	50	6,6	/■	47,0	2 750	-30...+70	30 000 / 15 000		①	
RG 160-28/06S	223	131	115	60	6,9	/■	50,0	3 050	-30...+80	27 500 / 12 500		②	

Subject to alternations



max. 115 m<sup>3</sup>/h

# AC centrifugal fans

Series RER 125 138 Ø x 40 mm

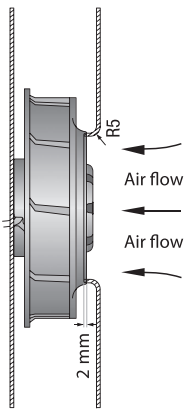


- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
with steel plate reinforced
  - **Direction of air flow:** centrifugal
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Connection:** Via 2 single wires AWG 22
  - **Highlights:** backwards-curved impeller
  - **Mass:** 500 g
- **Possible special versions:**  
(See page 12)
    - Protection against moisture
    - Protection against salt fog
    - Type of protection: IP 54

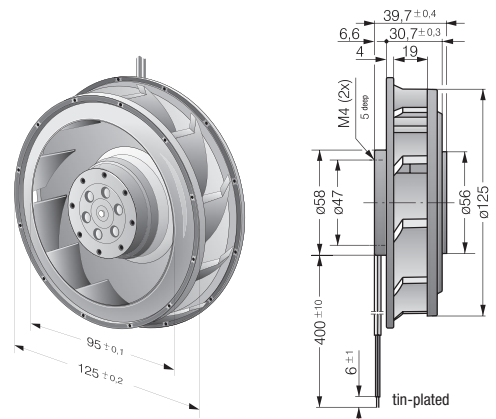
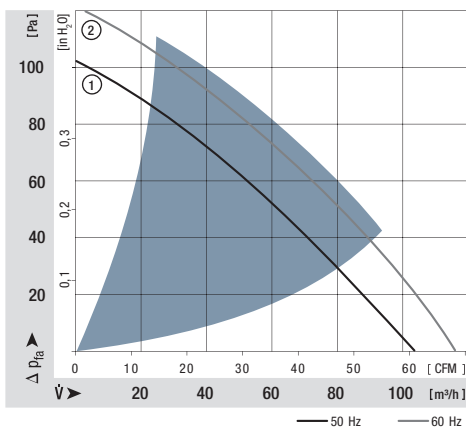
1) Fibreglass-reinforced plastic

Nominal data	Air flow		Nominal voltage	Frequency	Sound power level	Sinter sleeve bearings Ball bearings	Input power	Nominal speed	Temperature range	Service life L <sub>10</sub>		Curve
	m <sup>3</sup> /h	CFM								Hours	Hours	
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours	
RER 125-19/56	104	61	230	50	6,2	/■	19,0	2 600	-30...+60	37 500 / 22 500		①
RER 125-19/06	115	68	115	60	6,5	/■	18,0	2 850	-30...+70	40 000 / 20 000		②

Subject to alternations



The air flow and noise level of fans without external housing depend on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:  
Centrifugal fan mounted on a base plate 220 x 220 mm.  
Cover plate 220 x 220 mm with an air inlet of Ø 86 mm, concentric to the impeller.





max. 274 m<sup>3</sup>/h

# AC centrifugal fans

Series RER 160 176 Ø x 54 mm

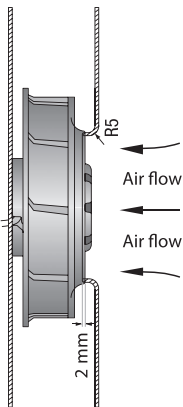


- **Material:** Spiral housing: GRP<sup>1)</sup> (PBT)  
Impeller: GRP<sup>1)</sup> (PA)  
with steel plate reinforced
  - **Direction of air flow:** centrifugal
  - **Direction of rotation:** Counter-clockwise, seen on rotor
  - **Connection:** Via 2 single wires AWG 18
  - **Highlights:** backwards-curved impeller
  - **Mass:** 1,0 kg
- **Possible special versions:**  
(See page 12)  
- Protection against moisture

1) Fibreglass-reinforced plastic

Nominal data	Air flow	Air flow	Nominal voltage	Frequency	Sound power level	Sintec sleeve bearings Ball bearings	Input power	Nominal speed	Temperature range	Service life L <sub>10</sub> at 40 °C	at T <sub>max</sub>	Curve
Type	m <sup>3</sup> /h	CFM	V	Hz	Bel(A)	□/■	Watts	rpm	°C	Hours	Hours	①
RER 160-28/56S	234	138	230	50	6,6	/■	45,0	2 800	-30...+60	30 000 / 20 000		①
RER 160-28/06S	274	161	115	60	6,8	/■	46,0	3 250	-30...+70	30 000 / 15 000		②

Subject to alternations



The air flow and noise level of fans without external housing depend on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:  
Centrifugal fan mounted on a base plate 260 x 260 mm.  
Cover plate 260 x 260 mm with an air inlet of Ø 100 mm, concentric to the impeller.

