AC centrifugal fans

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 know-how, millions of units in series production, and the innovation competence of a world-wide technology pioneer.

In this catalog, we offer you the broad spectrum of our AC fans. In addition to complete systems, you will also find fans without external housing. They offer economic benefits whenever the air duct design 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. Electrical connection with plug connection or external exposed connection wires 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. This construction combining high performance with profitability.

Flat built AC fans
ebm-papst also has AC fans with a particularly flat construction and an internal rotor motor. Their advantage: quick start to full speed. A plastic impeller and the smaller and lighter internal rotor motor result in lower rotational 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.

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

AC voltage
The line of AC fans for Euro voltage according to IEC 60038 (230 V ± 10 %) is also available in 115 V.

Frequencies
AC fans can be operated at frequencies of 50 or 60 Hz. In this case, their technical data changes accordingly.

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

Overloading
Almost all AC fans are protected against overloading (e. g. due to locked rotor) – either impedance protected (marked "Impedance protected" or "Z. P.") or 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

Dimensions	Series	Air flow	Page
mm		m³/h	
☐ 121 x 37	RL 90	40...42	234
☐ 135 x 38	RG 90	47...54	235
☐ 180 x 40	RG 125	86...94	236
☐ 220 x 56	RG 160	202...223	237
Ø 138 x 40	RER 125	104...115	238
Ø 176 x 54	RER 160	234...274	239

Subject to change

Overview of technically feasible designs

Dimensions		VDE, UL, CSA	SINTEC sleeve bearings/ Ball bearings	Speed signal	Moisture protection IP >= 54	IP 68	Salt spray protection	Page
Centrifugal fans								
mm	Series			OPTIONAL				P.
☐ 121 x 37	RL 90	yes	▫/■	–	•	•	–	•	234
☐ 135 x 38	RG 90	yes	▫/■	–	•	•	–	•	235
☐ 180 x 40	RG 125	yes	■	–	•	•	–	•	236
☐ 220 x 56	RG 160	yes	■	–	•	•	–	•	237
Ø 138 x 40	RER 125	yes	■	–	•	•	–	•	238
Ø 176 x 54	RER 160	yes	■	–	•	•	–	•	239

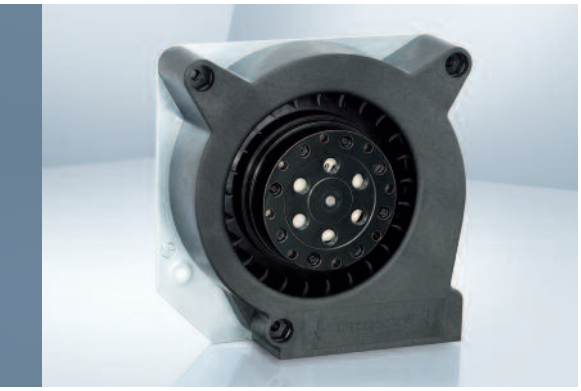
Subject to change

• available – not yet available ▫ Sleeve bearings ■ Ball bearings

Max. 42 m³/h

AC centrifugal fans

☐ 121 x 37 mm



- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  Housing base: Sheet steel
- **Direction of air flow:** Centrifugal: discharge through window in housing
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** Via 2 single wires; housing base with flat plugs 6.3 x 0.8 mm for ground conductor
- **Highlights:** Forward-curved impeller
- **Weight:** 680 g

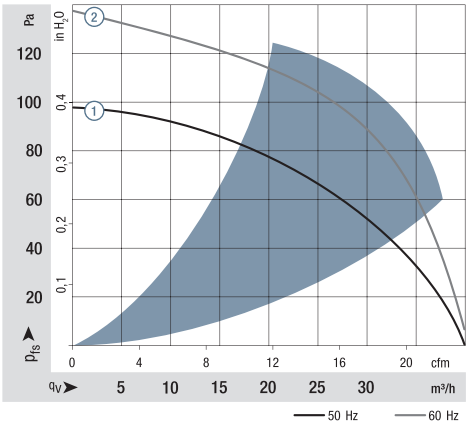
- **Possible special versions:**
  (See page 12)
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

1) Fiberglass-reinforced plastic

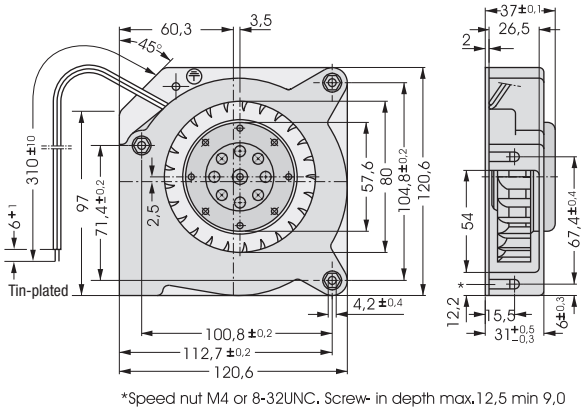
Series RL 90 **Nominal data**	Air flow	Air flow	**Nominal voltage**	**Frequency**	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T max	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	□ / ■	**Watts**	**rpm⁻¹**	**°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 change

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



Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002measured on a hemisphere with a radius of 2 m;
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions. described measurement set-up and may vary depending on the installation situation.
For detailed information see http://www.ebmpapst.com/general conditions



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

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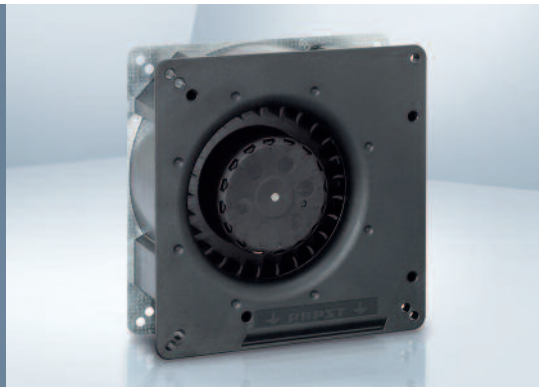
Max. 54 m³/h

AC centrifugal fans

☐ 135 x 38 mm



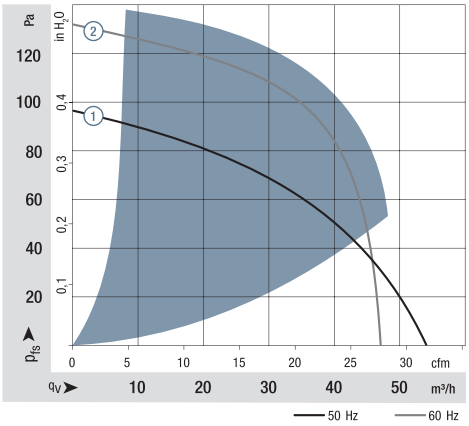
- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  Housing base: Sheet steel
- **Direction of air flow:** Centrifugal: discharge through window in housing
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** To 2 single wires AWG 22.
- **Highlights:** Forward-curved impeller
- **Weight:** 560 g

- **Possible special versions:**
  (See page 12)
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

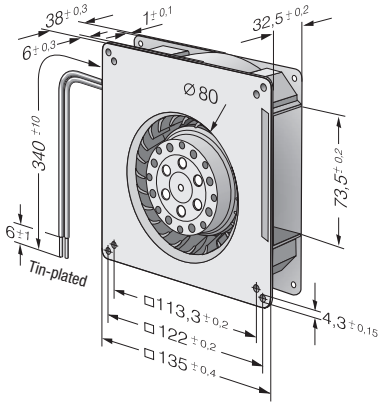
1) Fiberglass-reinforced plastic

Series RG 90 **Nominal data**	Air flow	Air flow	**Nominal voltage**	**Frequency**	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T_{max}	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°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 change



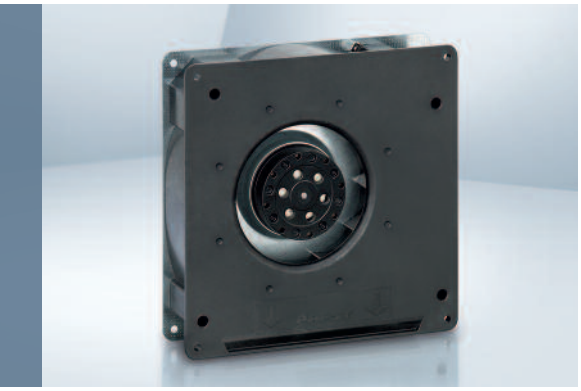
Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions.
In the event of deviation from the standard configuration, the parameters must be checked after installation!
For detailed information see
http://www.ebmpapst.com/general conditions



Max. 94 m³/h

AC centrifugal fans

☐ 180 x 40 mm



- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  Housing base: Sheet steel
- **Direction of air flow:** Centrifugal: discharge through window in housing
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** To 2 single wires AWG 22.
- **Highlights:** Backward-curved impeller
- **Weight:** 850 g

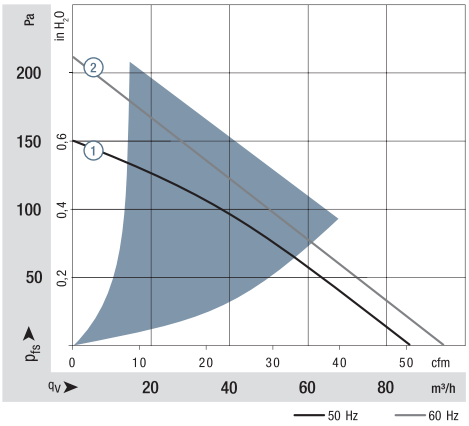
- **Possible special versions:**
  (See page 12)
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

1) Fiberglass-reinforced plastic

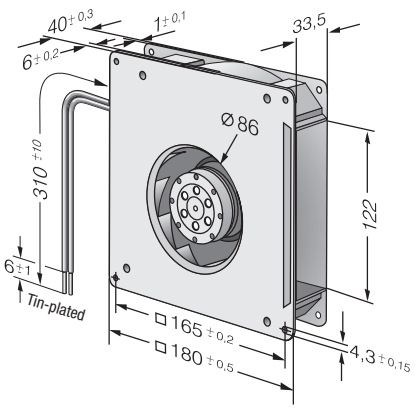
Series RG 125

Nominal data	Air flow	Air flow	Nominal voltage	Frequency	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T max	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°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 change



Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions.
In the event of deviation from the standard configuration, the parameters must be checked after installation!
For detailed information see
http://www.ebmpapst.com/general conditions



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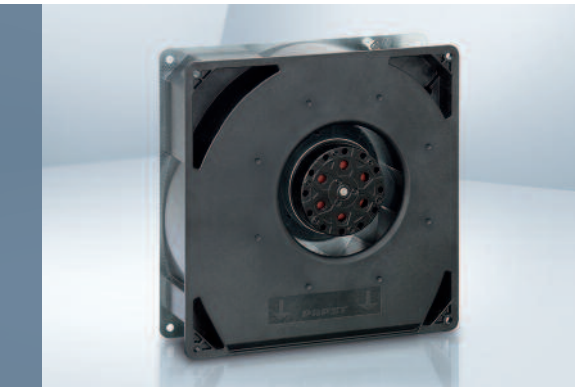
Max. 223 m³/h

AC centrifugal fans

☐ 220 x 56 mm



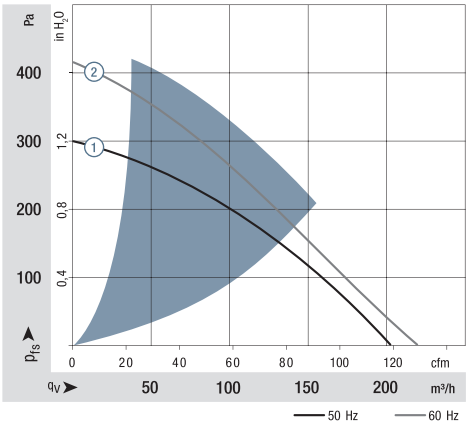
- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  Housing base: Sheet steel
- **Direction of air flow:** Centrifugal: discharge through window in housing
- **Direction of rotation:** Counterclockwise, looking towards rotor
- **Connection:** To 2 single wires AWG 18.
- **Highlights:** Backward-curved impeller
- **Weight:** 1.7 kg

- **Possible special versions:**
  (See page 12)
  - Moisture protection

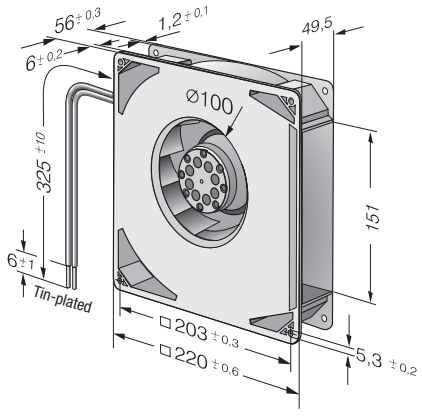
1) Fiberglass-reinforced plastic

Series RG 160 **Nominal data**	Air flow	Air flow	**Nominal voltage**	**Frequency**	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T_{max}	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°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 change



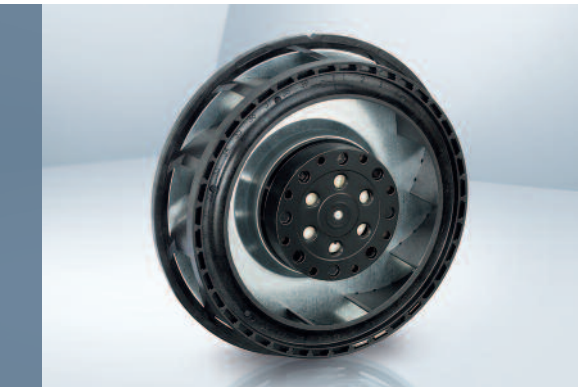
Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions.
In the event of deviation from the standard configuration, the parameters must be checked after installation!
For detailed information see
http://www.ebmpapst.com/general conditions



Max. 115 m³/h

AC centrifugal fans

Ø 138 x 40 mm



- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  with sheet steel reinforced
- **Direction of air flow:** centrifugal
- **Direction of rotation:** Clockwise,
  looking towards rotor
- **Connection:** To 2 single wires AWG 22.
- **Highlights:** Backward-curved impeller
- **Weight:** 500 g

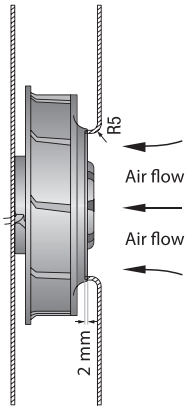
- **Possible special versions:**
  (See page 12)
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

1) Fiberglass-reinforced plastic

Series RER 125

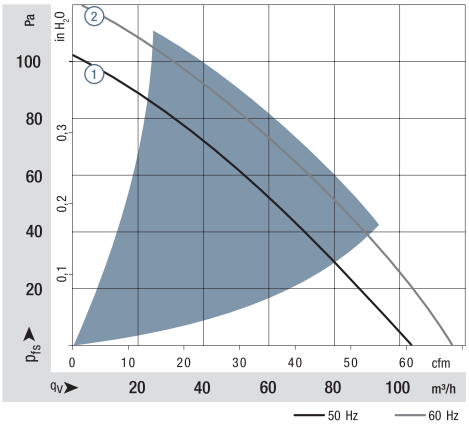
Nominal data	Air flow	Air flow	Nominal voltage	Frequency	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T max	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
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 change

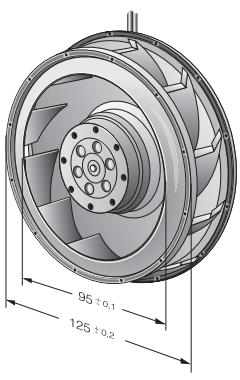


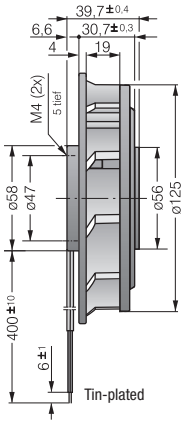
The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions. The stated air flow and noise levels have been measured under the following conditions:

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.



Air performance measured according to: ISO 5801.
Installation category A, with ebm-papst inlet ring without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a distance of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions.
In the event of deviation from the standard configuration, the parameters must be checked after installation!
For detailed information see
http://www.ebmpapst.com/general conditions

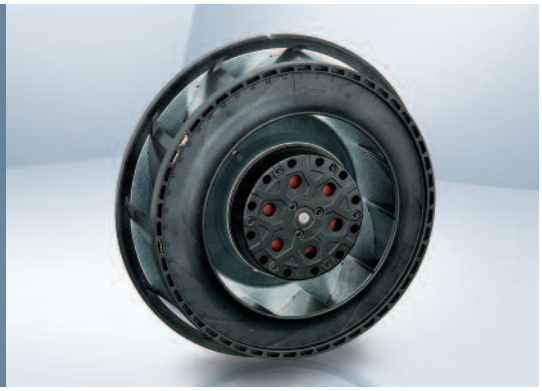




Max. 274 m³/h

AC centrifugal fans

Ø 176 x 54 mm



- **Material:** Scroll housing: GRP[1] (PBT)
  Impeller: GRP[1] (PA)
  with sheet steel reinforced
- **Direction of air flow:** centrifugal
- **Direction of rotation:** Counterclockwise, looking towards rotor
- **Connection:** To 2 single wires AWG 18.
- **Highlights:** Backward-curved impeller
- **Weight:** 1.0 kg

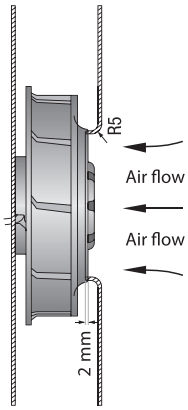
- **Possible special versions:**
  (See page 12)
  - Moisture protection

1) Fiberglass-reinforced plastic

Series RER 160

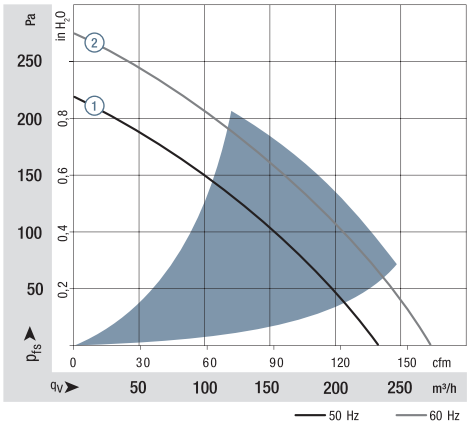
Nominal data	Air flow	Air flow	Nominal voltage	Frequency	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} at 40 °C	at T_{max}	Curve
Type	**m³/h**	**cfm**	**VAC**	**Hz**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
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 change



The air flow and sound level of the centrifugal fans without external housing depend on their individual 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.



Air performance measured according to: ISO 5801.
Installation category A, with ebm-papst inlet ring without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a distance of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only under the specified measuring conditions and may differ depending on the installation conditions.
In the event of deviation from the standard configuration, the parameters must be checked after installation!
For detailed information see
http://www.ebmpapst.com/general conditions