Compact fans for DC centrifugal fans

Version 2016-01

ebmpapst

The engineer's choice

GREEN TECH

Trendsetter in fan technology

Uncompromising quality made by ebm-papst

Among the best.
Trendsetting with innovative technologies. Listening to customers' needs. Developing new ideas to meet requirements and realizing them with pioneering spirit. This philosophy has made ebm-papst the leading technology pioneer in the world of fans.

A brand in that decades of application expertise gained from large-volume fan production and because we are in a position to produce highly efficient quality products. Our intelligent solutions for electronics cooling make sure that you are always one step ahead of the competition thanks to innovative, reliable, top-quality technology. Of course they are readily available at fair market prices.
And if required, tailor-made right down to the last detail. In other words, if you need fans that do not yet actually exist, contact us.

Insist on ebm-papst.

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ebm-papst company profile

The entire world of ventilation and drive engineering. This is the world of ebm-papst. More than 12,000 people – in Germany and throughout the world – develop, produce and sell our motors and fans. Our global presence and unique range of products, based on a quality standard that surpasses all others, have made us the world market leader in motors and fans. Our daily work is determined by a keen awareness of our customer's needs and constant striving to arrive at the perfect application solution for a wide variety of different industries.
Those who know us know the high standards we apply to our work and know our creed: to be as close to our customers as possible and to simply be the best in terms of innovation and reliability.

Our history – Our drive

Rooted in ebm, PAPST and mvl, the three leading innovators in the development and production of motors and fans, ebm-papst has established itself as the world market leader. Now as ever, our legendary inventive spirit shines through in products that set standards in many industries worldwide. We are proud to say that, despite difficult competition, our performance has always been exemplary and outstanding in business, in our personal relationship with our customers, and of course with respect to technology and engineering. For decades, we have contributed to the world of air technology and drive engineering with both small revolutions and large milestones. To maintain this advantage in skills and knowledge to reach maximum quality and thus the highest degree of customer satisfaction, our employees around the world put their passion and dedication to work for you.

Passionately involved in R&D

Our catalogs only show you the results of our constant work in R&D: products of highest quality and reliability. After all, it is our passion to constantly try something new and improve what we have. We take advantage of the latest development methods and state-of-the-art technology, and invest heavily in R&D facilities. Best of all, though, we rely on excellently trained and skilled engineers and technicians to be at your service in R&D and Sales & Distribution.

Producing and safeguarding high-quality products and services

This is our promise without any compromise. Whether produced in one of our six factories in Germany or one of our eleven international production sites, our products always have the same high level of quality. This quality control is something you can definitely rely on throughout all the stages of the process, from customer service, development, and material selection, to the best certified suppliers, parts production, and final delivery. Furthermore, our products have to pass the most rigorous tests under all realistic operating conditions: continuous stress test, salt spray test, vibration test, or precision noise measuring, just to mention a few. And the product gets clearance for serial production only after all the desired characteristics have been determined to be just right. Environmental care is another priority with ebm-papst. This is why we have developed our product line in EC technology, which makes for very low power consumption. Our manufacturing philosophy is focused completely on environmental care in production, recycling, waste, and wastewater disposal.

Global Domestic

In order to be the world specialist for customized solutions, you need strong partners. Global Domestic – being present all over the world and being a national company in each individual country – is how we have established ourselves in all important markets on this globe with our successful subsidiaries. And so you will always find ebm-papst close to home, speaking your language, and knowing the demands of your markets. Besides, our worldwide production alliance serves as a basis for competitive pricing. Our global services and logistic services ensure short response times, IT networking, and just-in-time delivery.

All our efforts are documented in a comprehensive quality management system, both for products and services. Being certified as complying with the tough requirements of the international standards DIN EN ISO 9001, ISO/TS 16949-2 and of standard DIN EN ISO 14001 is just one seal of approval we have received for our constant efforts to provide only the best quality products and services.

Sustainability is at the core of our thinking and action. As a matter of principle!

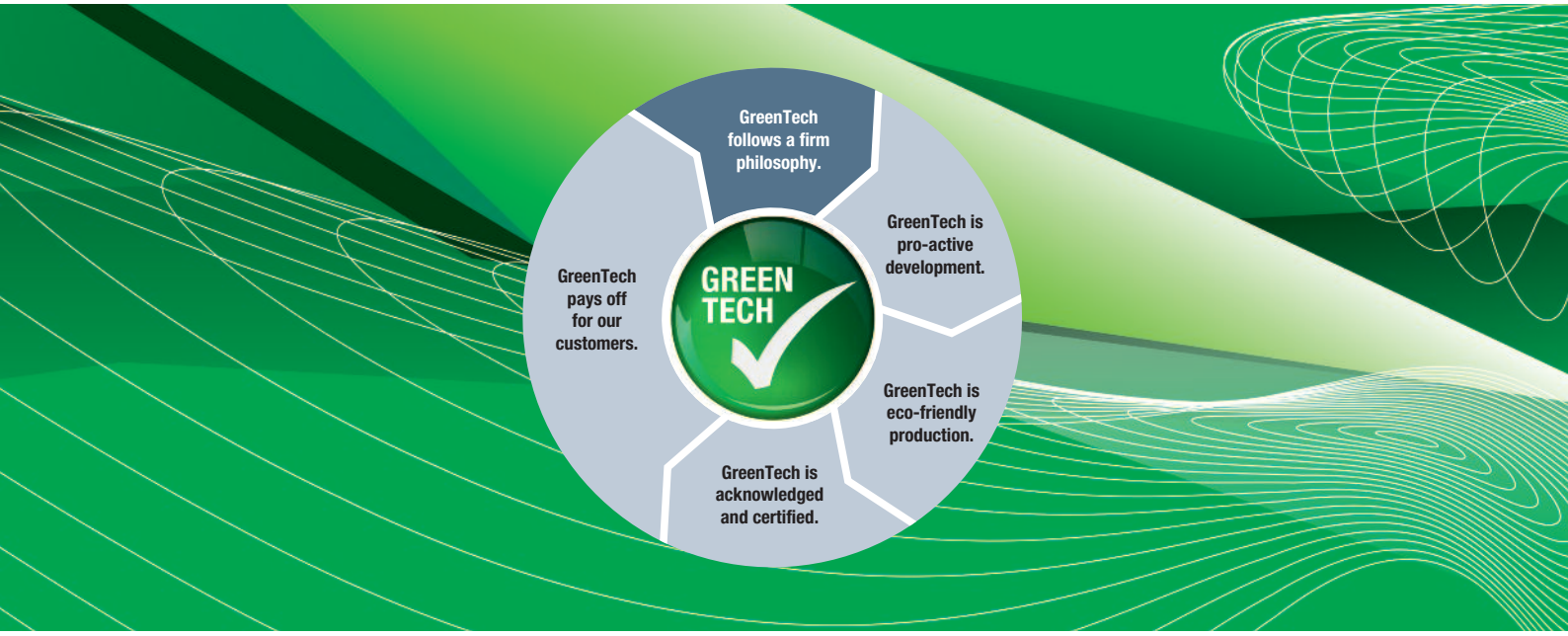
Environmental compatibility and sustainability have always been at the core of our thinking and action. Which is why we have been dedicated for decades to the simple but firm principle of one of our company founders, Gerhard Sturm: "Every new product we develop must be economically and ecologically superior to its predecessor." We use the name GreenTech to express our company philosophy.

GreenTech is proactive development.

Even in the design phase, the materials and processes we use are optimized for the greatest possible environmental sustainability, energy balance, and wherever possible, recyclability. We continually improve the material and performance of our products, as well as the flow and noise characteristics. At the same time, we reduce energy consumption significantly. Close cooperation with universities and scientific institutes and a professorship we sponsor in the field of power engineering and regenerative energies allow us to profit from the latest research findings in these disciplines while preparing highly qualified young academics for the future at the same time.

GreenTech is eco-friendly production.

GreenTech also stands for maximum energy efficiency in our production processes. Here, the intelligent use of industrial waste heat and groundwater cooling, photovoltaics, and of course, our own cooling and ventilation technology, play a very important role. For example, our most modern plant consumes 91% less energy than currently specified and required. This way our products contribute to protecting the the environment, from their origin to their recyclable packaging.



ebmpapst

GreenTech is acknowledged and certified.
Our entire production chain can stand up to critical scrutiny by environmental specialists and the public.
This supports our position as Germany's most sustainable company 2013, as does the DEKRA Award 2012 we received in the category "Umwelt Herausforderung Energiewende" (Environment Challenge: Transition to more sustainable energy systems), to name only a few of a large number of examples. The environmental advantage gained in the performance of the products developed from our GreenTech philosophy can also be measured in our compliance with the most stringent energy and environmental standards. In many instances, our products are already well below the thresholds energy legislation will impose a few years from now.

GreenTech is a good investment for our customers.
Innovative EC technology from ebm-papst is at the heart of GreenTech. As the core element of our most efficient motors and fans, this technology allows efficiencies of up to 90%, saves energy at a very high level, extends the service life significantly, and makes our products maintenance-free. Not only do these values benefit the environment, but every cent also pays off for the user! All ebm-papst products, even those with applications that are not (yet) ready for GreenTech EC technology, have an attractive link between economy and ecology that holds great promise for the future.

Expertise and technology

Drive know-how

For the past 60 years, all conceivable types and applications of drive engineering have played an essential role at ebm-papst. A commitment that is the foundation for the development of optimum drive solutions regardless of the type of fan and its use. DC and EC fans are generally equipped with electronically commutated external rotor motors. In order to save as much space as possible, commutation electronic components are integrated in the hub of the fan. Our AC fans are driven mainly by shaded-pole or capacitor motors based on the external rotor principle. In the 3900 and 9900 range of particularly slim fans, internal rotor motors are used.

Smooth operation

Our aerodynamically optimized design and high mechanical precision produces outstanding noise properties in series production. The "soft" commutation electronics of DC and EC fans produce a very smooth operation. By avoiding steep switching edges when the individual coils are switched, this reduces the structure-borne noise from the motor. Computer-aided measurements and series of analyses performed in a state-of-the-art sound measuring chamber are conducted on each fan model from the very beginning.

Long service life

The bearing system plays a vital role both in the long service life and the smooth operation of device fans. The Sintec compact bearing provides most of the device fans with a proven bearing system. Constant low noise during the entire operating time and considerably lower shock sensitivity are the outstanding features of this bearing technology. In addition, with regard to temperature endurance, Sintec compact bearings can be used without problems in most applications.

Despite the slightly greater noise and shock sensitivity of ball bearings, this bearing technology should be given preference for fans exposed to extreme thermal and adverse application conditions (e.g. extreme environmental conditions, critical installation position, etc.). The service life data provided in this catalog is based on extensive service life tests and mathematically / scientifically proven service life calculations. Our product descriptions are updated continuously with all relevant data obtained from long-term tests.

Aerodynamics

With the aid of state-of-the-art computer programs, we are able to optimize the fan impellers and the inner shape of the housing. Air output and available motor performance are matched exactly to the size of fan. This guarantees the low noise that is typical for ebm-papst, even at high back pressure.

Sturdy construction – in metal or plastic

Fans of all-metal construction: sturdy and resistant. The housing is made of an aluminum alloy. The metal surfaces that are subject to corrosion are permanently protected by an impact- and abrasion-resistant electrophoretic baked enamel. This particular version is very recyclable. Fans with fiberglass-reinforced plastic housing and impeller: Excellent stability and low weight distinguish this highly efficient fan design. Combinations of metal housing and plastic impeller combine the advantages of both types of design.

Product images

The dimensioned drawings and product photos that appear in the catalog are for orientation purposes and may differ in some details from the actual product design.

Product liability

Motors and fans from ebm-papst are components intended for proper installation. The customer bears responsibility for the overall end product.

Safety is included

It goes without saying that all ebm-papst fans conform to the approval requirements of the VDE (Association of German Electrical Engineers)and the standards and regulations of UL and CSA. All fans conform to the European Standard EN 60335 or EN 60950 plus those of the UL (Underwriters Laboratories) and CSA (Canadian Standards Association). With few exceptions, our DC fans are designed to meet the requirements of protection class 3 / protection class voltage. AC fans for protection class 1. ebm-papst fans meet the highest requirements of electrical safety. All design variants feature reverse polarity and locked-rotor protection.

Quality in detail

It is the important details that reveal the meaning of the words "made by ebm-papst": Consistent adherence to development and design processes and a goal-oriented commitment to quality along the entire process chain are the foundation for the above-average service life of our fans. 100,000 hours and above are no longer an exception.
The no-compromise ebm-papst quality assurance spans over all process levels – from the choice of materials and the use of carefully selected, certified suppliers, from the production of parts up to the final assembly. These details combine to result in reliable fan products with an above-average service life.

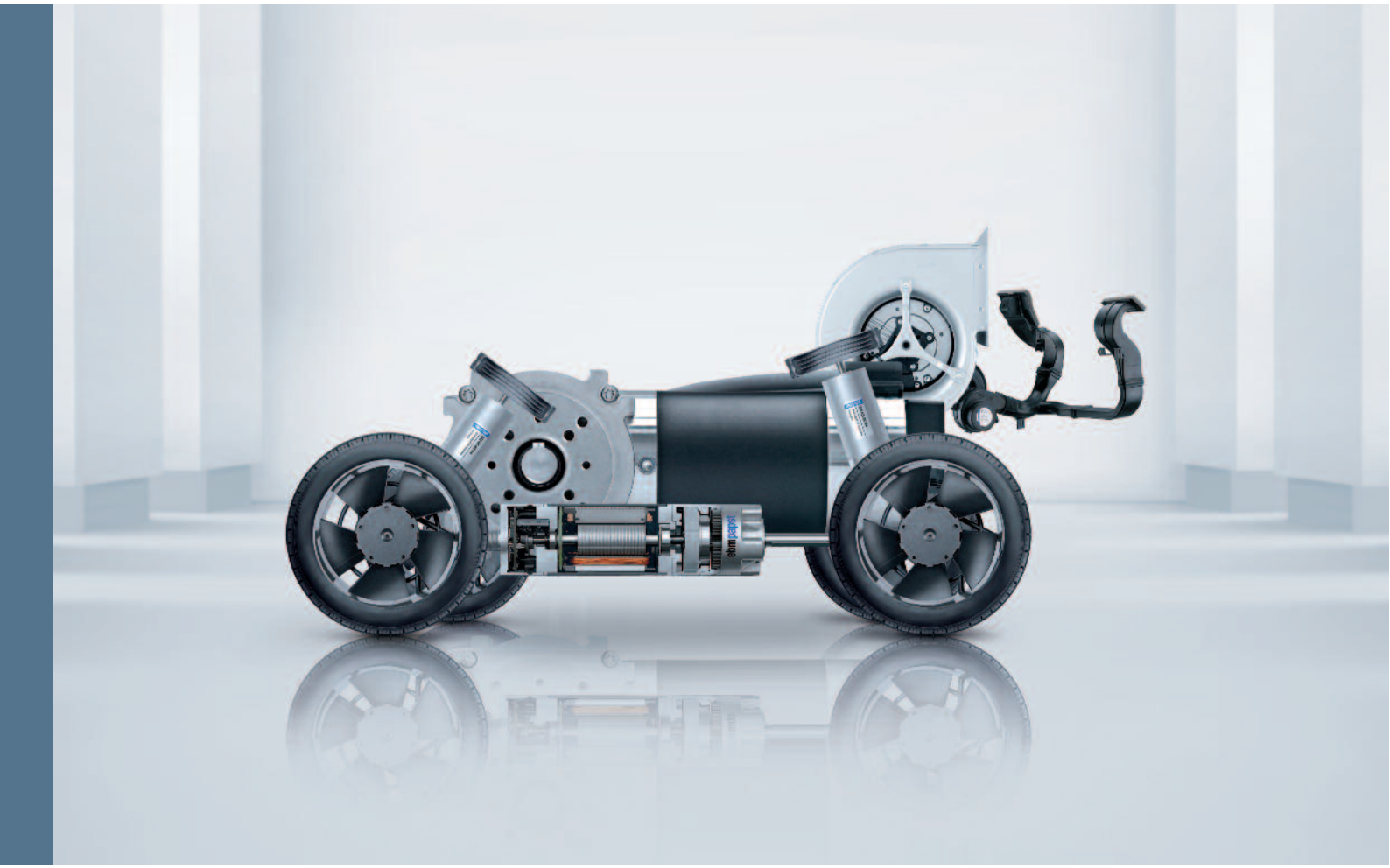
ErP Directive

All products with power consumption between 125 W and 500 kW are subject to the European "Energy-related Products Directive" (ErP) for improving energy efficiency, with the first stage applicable from 2013 and the second as of 2015. Thanks to ground-breaking GreenTech EC technology, all of our fans and motors in these performance classes already exceed the ErP Directive today.

Tailor-made to meet your special requirements

Practical applications: fans that are customized and smart

ebm-papst has always developed customer-specific smart fans that meet the exact requirements of the application. We provide a wide range of standard fan types, in many sizes and designs; with smart motor features, monitoring and control functions, as well as special designs for use under extreme conditions. They are all based on the standard type fans that you will find in this catalog. Special fan types for your application can be produced in economical batch sizes. Our expert engineers will assist you in selecting the right configuration.



Innovation at its best:
Vario-Pro® with "intelligence inside". Its programmed intelligence thanks to customer-specifically configured software modules makes the cooling of electronics even more economical and flexible. For example, temperature-dependent speed profiles are possible with a number of freely selectable interpolation points. External speed settings and a variety of combinable alarm and tachometer functions can also be programmed. The digital motor management achieves high control accuracy.

Higher degree of protection for every type of application
ebm-papst provides, on request, many fan series in versions that meet to the requirements of degree of protection IP 54 and IP 68: Their stator and all electrical components are fully encapsulated. Stainless steel ball bearings can be used for operation in particularly aggressive media and use under extreme environmental conditions, thus providing additional reliability.

Almost anything is possible
Regardless of your cooling and ventilation tasks, we will develop the right solution. And the most economical one. Based on the fans listed in this catalog, more than 4000 different versions are available.

Temperature-controlled fans
Fans with temperature-controlled speed have particularly quiet cooling characteristics. Thanks to integrated IC technology, they adapt their speed to the current cooling requirements. The result is a drastic reduction of noise in most operating conditions. A temperature sensor provides the fan with thermal information: either externally via an exposed wire or integrated into the hub of the fan.

Speed setting via interfaces
With a wide range of DC fans with separate control input, ebm-papst provides an alternative to the NTC-controlled types of fans. They are especially suitable for systems and units that already have standard interfaces for varying speed via internal switching and control circuits. The main applications are units that require load-dependent, individual speed profiles or systems with minimum standby cooling requirements and varied speed increase at varying power peaks.

Electronic tachometer
Do you want to be informed about the current fan speed at all times? ebm-papst has fans with an integrated "electronic tachometer". It registers the actual value of the fan speed. Via an integrated sensor, the fan generates speed-dependent signals that can be used directly. Depending on the number of poles of the motor, 2, 3, or 6 pulses per revolution are generated.

Alarm signal for greater safety
If your application requires monitored fan operation, in addition to speed monitoring, ebm-papst also provides a multitude of varying alarm signals. Depending on the type of fan in question, the signal will either be static, already evaluated, or interface-compatible. The alarm signal output provides reliable long-term monitoring and a status signal if critical operating conditions arise.

S-Force
The new standard!
When you need to provide extremely fast, powerful and efficient cooling for electronic components of all kinds, the generation of S-Force high-performance fans finishes first: in air performance, pressure increase, and technology. Extremely efficient drives and optimized aerodynamics form the core technology of the S-Force fans, which we offer in both an axial and brand-new centrifugal model.

S-Panther
S-Panther power delivered quietly. Wherever there is need for power and reduced noise, fans from the S-Panther range are the right solution. A strong pressure saddle curve at optimum air flow provides the power of a real big cat, an S-Panther.

Optional special versions

(see chapter DC fans - specials)

In the catalog, a text box in the upper right corner provides information on the special designs that are technically possible in the fan series.
Please note that these special versions are not possible for all voltages and speeds, and not in all combinations. The special versions are designed for specific customers and projects and are usually not available off the shelf.

max. 44 m³/h

DC axial fans

☐ 60 x 25 mm

- **Material:** Housing: GRP[1] (PBT) Impeller: GRP[1] (PA)
- **Direction of air flow:** Exhaust over struts
- **Direction of rotation:** Clockwise, seen on rotor
- **Connection:** Via single wires AWG 22, TR 64
- **Highlights:** Developed for applications with demanding environmental requirements
- **Mass:** 70 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go- / NoGo-alarm
  - Alarm with limit speed
  - External temperature sensor
  - PWM control input
  - Analog control input
  - Humidity protection
  - Salt fog protection
  - Degree of protection: IP 54 / IP 68

Possible special designs are depicted on the catalog page.

Speed signal /2, /12
The fan uses a separate wire to output information about its speed, and thus about the speed of the rotor. For technical details, please refer to page 168 and the following.

Go- / NoGo alarm /37, /39
The fan uses a separate wire to output a static signal when it is stationary, thus providing information about whether or not the rotor is turning. For technical details, please refer to page 175 and the following.

Alarm with speed limit /17, /19
When one of the speeds defined in the fan electronics is undershot, the fan outputs a static signal providing information that the set speed limit was undershot. For technical details, please refer to page 172 and the following.

External temperature sensor
An NTC resistor (negative temperature coefficient) is attached to the fan via a separate wire and the fan changes its speed depending on the temperature on the NTC. For technical details, please refer to page 178.

Internal temperature sensor
In this case, the NTC is integrated into the fan and the fan changes its speed depending on the temperature at the NTC. For technical details, please refer to page 178.

PWM control input
The speed of the fan can be changed via a pulse-width-modulated signal. This signal is applied to a specially provided wire. For technical details, please refer to page 179.

Analog control input
The speed of the fan can be changed via a control voltage. This control voltage is applied to a specially provided wire. For technical details, please refer to page 179.

Multi-option control input
The fan has a control input that the user can trigger either using a PWM signal, an analog signal, or a resistor. For technical details, please refer to page 180.

Moisture protection
Protection for the fan electronics against moisture and condensation. For technical details, please refer to page 181.

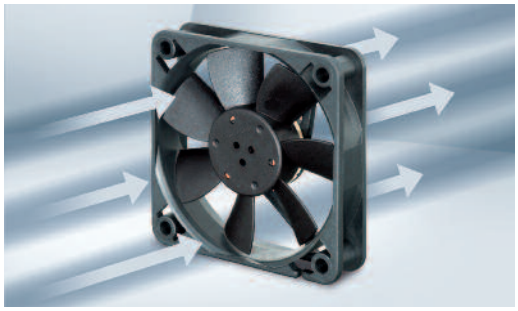
Degree of protection IP 54* / IP 68*
Protection of motor and circuit board against splashed water and moisture. For technical details, please refer to page 181.

Salt spray protection
Protection of fan against the damaging effects of salt spray. For technical details, please refer to page 181.

Direction of rotation
On many variants, the direction of rotation can be changed via a control input.

* IP = International degree of protection marking
For AC fans max. IP 65 available.

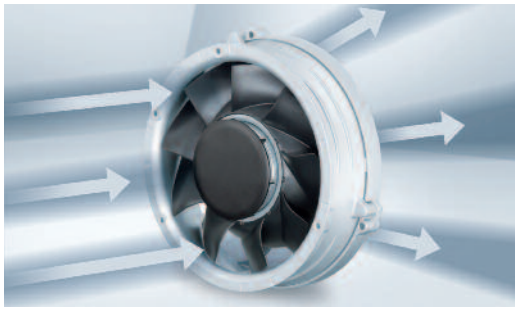
Types of fans and their function



Axial fans:

High air flow with medium to relatively high pressure increase

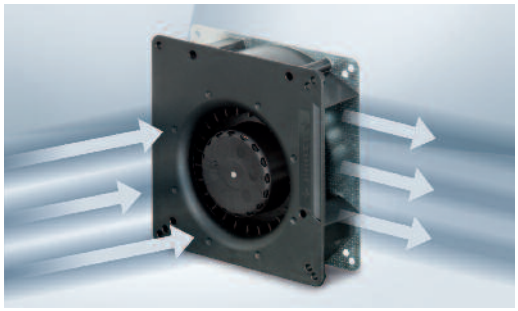
The air flow in axial fans with an impeller that is similar to a propeller is conducted largely parallel to the axis of rotation, in other words in the axial direction. Axial fans with free air delivery at zero static pressure have the lowest power input that rises with increasing back pressure. Axial fans for cooling of electronic equipment are mostly equipped with external housing. The electric motor is integrated in the fan hub. This compact design allows space-saving accommodation of all devices. The flange is equipped with mounting holes.



Diagonal fans:

High air flow at relatively high pressure increase

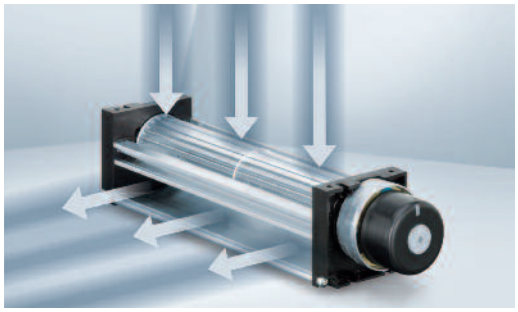
At first glance diagonal fans only differ slightly from axial fans. Intake is axial, whereas exhaust is diagonal. Due to the conical shape of the wheel and housing, the air is pressurized more in the diagonal fan. In direct comparison with axial fans of the same size and comparable performance, these fans are distinguished by the lower operating noise at high pressures.



Centrifugal fans:

High pressure increase at limited flow rate

Generally, many cooling tasks can be performed excellently by axial and/or diagonal fans. But if the cooling airflow has to be deflected at an angle of 90°, for example, or if even greater pressure increase is necessary, centrifugal fans are more effective. For your application, ebm-papst offers not only complete centrifugal fans, but also motor/impeller combinations without external housing.



Tangential fans:

High air flow with low pressure increase

Tangential fans are used especially to produce a wide airflow distribution through devices. The air flows through the roller-shaped impellers twice in the radial direction: in the intake area from the outside to the inside and in the outflow area from the inside to the outside. Whirls form in the roller due to the vanes, which guarantee a steady flow of air through the impeller.

Selecting the correct fan

1. Dissipated energy

A large amount of the energy consumed by electrical and electronic devices is converted to heat. So when selecting the correct fan, it is important to determine the dissipated energy that must be removed. The electrical power consumption of the unit to be cooled often represents a suitable value for this purpose.

2. Admissible temperature increase

The air flow that the selected fan is required to generate, is determined by the dissipated energy and the admissible heating (ΔT) of the cooling airflow (from entry to exit of the device to be cooled). The maximum admissible ΔT depends greatly on the temperature sensitivity of the individual parts of the device.

For example, ΔT = 5K means that the average cooling airflow leaving the device to be cooled may be only 5°C warmer than the ambient temperature. This requires a lot of air. A lower air flow rate is sufficient if a higher temperature difference (e.g. ΔT = 20K), can be tolerated.

3. Required cooling airflow

- In the diagram below, a horizontal line is drawn from the dissipated energy to intersect with the selected ΔT line.
- Read down from this point to obtain the required value for the cooling airflow. The diagram is based on the following formula:

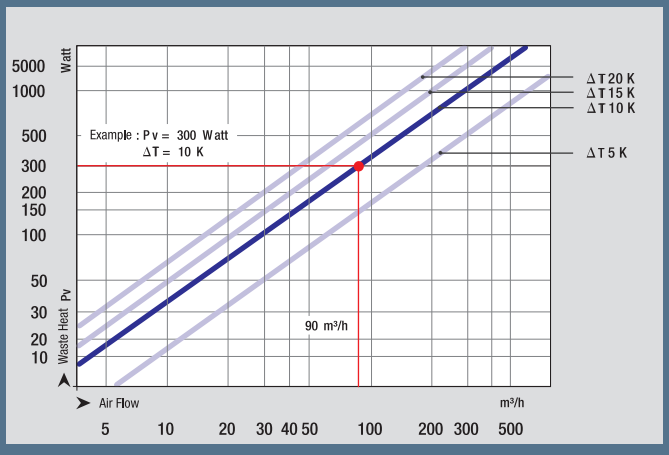
$$q_V = \frac{P_V}{C_{PL} \cdot \rho_L \cdot \Delta T}$$

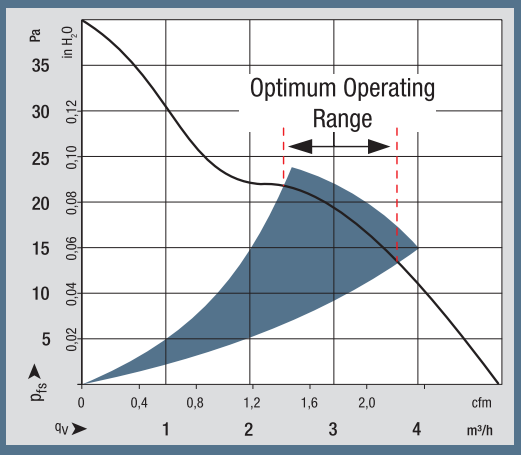
4. Optimum operating range

But the fan you are looking for must also be able to deliver a suitable static pressure increase Δpf, in order to force the cooling air through the device. So a fan must be selected that provides the required air flow performance within its optimum operating range (see also the air performance curves under technical data).

5. Fan selection

If more than one fan meets your requirements, the sound level, space requirements, economy, and ambient conditions will assist in making the final choice.





Definitions

P_V = amount of heat to be dissipated in [W]
C_{PL} = specific heat capacity of air in [J/kg/K]
C_{PL} = 1010 [J/kg/K]

ρ_L = air density in [kg/m³]
ρ_L = 1,2 kg/m³
$\Delta T = T_1 - T_2$ temperature difference in [K] between inlet and outlet

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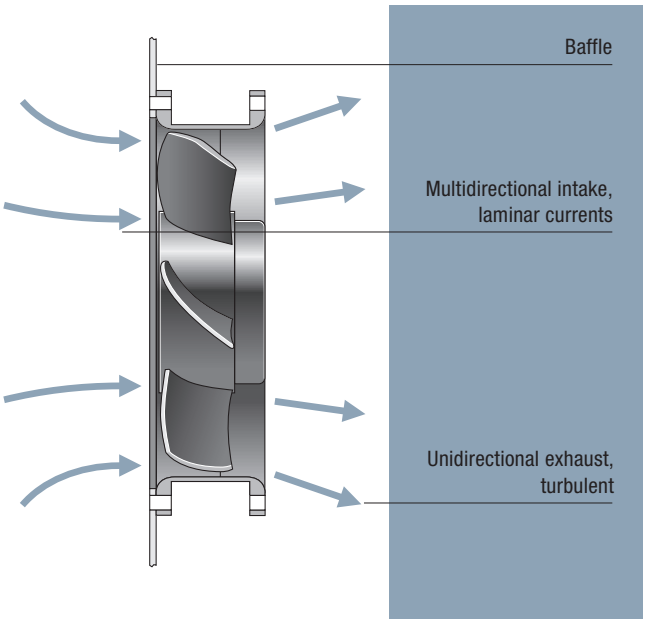
Fan installation

Intake or exhaust side installation

Under ideal conditions, the operating point is represented as the intersection between the fan and loss curves, regardless of whether the fan is positioned at the air intake or exhaust side of the device. In addition to ensuring the required flow rate, several other aspects must be considered for determining an appropriate fan concept. The intake air currents of a fan are mainly laminar, comprising nearly the entire suction area. By contrast, the exhaust air of a fan is generally turbulent and flows in a preferred direction, such as axial for an axial fan.
The turbulence of the exhaust intensifies the heat transfer from components within the air currents, so that installing the fan on the air intake side of the device is recommended for cooling and heating.
Installing the fan at the device intake is also advantageous because the fan will not be subjected to the dissipated heat of the device.
Therefore, it operates at low ambient temperatures and has a greater life expectancy.



Information on installation

When a fan is operated for the first time in an application, the user may have noticed that the air flow in the device was lower than expected. What is the reason for this?

- The values stated in this catalog were determined under optimum, constant, and comparable measurement conditions.
- Ideal installation conditions under which free air intake and exhaust are present are seldom feasible in practice. Quite frequently, the fans have to be installed in close proximity to other components or cabinet panels. As a consequence, the intake and exhaust currents may be restricted, causing the air flow to diminish and the sound level to increase. Fans are particularly sensitive to obstructions that are positioned directly in front of the output cross section, and they often cause an increase in tonal noise.

Our advice: The distance between the fan and adjacent components should be at least equal to the installation depth of the fan.

Accident prevention

The turning rotor and the high speeds that are sometimes involved mean that our fan products carry an inherent risk of injury. They may only be operated after correct installation and with suitable protective equipment (e.g. with a finger guard). More information can be found in the Internet at: **www.ebmpapst.com/safety**

Connection instructions for S-Force fans

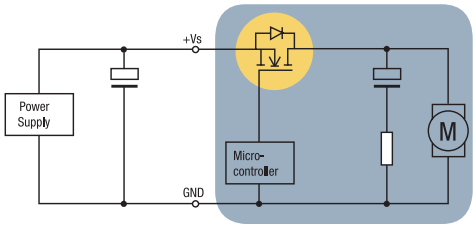
Special features of S-Force fans

The S-Force series is the most powerful product series. S-Force stands for the highest innovation in motor technology, fluid mechanics and electronics. The one-of-a-kind power density of the products requires special attention to the application at the customer's facility.

Service life

Due to the high currents in the fans, the load on the electrolyte capacitors is greater, which reduces the service life of the capacitor. As a larger or additional capacitor cannot be housed in the fan, the capacitor must be housed in the supply line.

If the power supply of the application has a corresponding capacitor, in some cases it may be possible to omit the external capacitor.



Recommended measure: additional external capacitor
(must be installed as close to the fan as possible < 30 cm).

Fan	Capacitor required
S-Force axial	
8200 / 3200 JH3-JH4	no
4100 NH3 / NH4 / NH5 / NH6	no
4100 NH7 / NH8	yes
5300 / 5300 TD	no
6300 / 6300 TD / DV 6300	no
2200 FTD	no
S-Force centrifugal	
RET 97 TD	yes
RER 120 TD	yes
RER 133 TD	no
RER 160 NTDHH / RG 160 NTDHH	yes
REF 175 TD	no
RER 175 TD	no
RER 190 TD / RG 190 TD	no
RER 220 TD / RG 220 TD	no
RER 225 TDM / RG 225 TDM	no
RER 225 TD / RG 225 TD	no

Recommended capacitors

We recommend using the following capacitors from Rubycon:

24 VDC:

50 ZL 680 µF; 12.5 mm x 30 mm or

50 ZLH 680 µF 12.5 mm x 30 mm

48 VDC:

100 YXG 470 µF; 16 mm x 35.5 mm or

100 ZLH 470 µF 16 mm x 31.5 mm

Other capacitors with equal or greater capacitance and equal or lower serial resistance can also be used.

ebm-papst St. Georgen has the following capacitors in stock:

24 VDC: 1000 µF / 50 V, 16 mm x 25 mm

Art. no.: 992 0354 000 (LZ 354)

48 VDC: 680 µF / 100 V, 18 mm x 40 mm

Art. no.: 992 0355 000 (LZ 355)

Service life

Service life data from ebm-papst St. Georgen

Our fans catalog gives three different values for the service life of each product. The first column usually states the service life L_{10} at 40 °C. the second column usually states the service life L_{10} at T_{max}. Exceptions are marked in the column headings. The third column states the new value, life expectancy L_{10IPC} (40 °C).

Sound power level	Sinter, sleeve bearings ▫ / Ball bearings ■	Input power	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst Standard	Service life L_{10} (T_{max}) ebm-papst Standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Bel(A)	▫ / ■	Watts	rpm	°C	Hours	Hours		
5,2	■	1,8	5 900	-20...+70	85 000 / 42 500	142 500		①
5,4	■	1,5	6 300	-20...+70	85 000 / 42 500	142 500		②

Example of the service life figures on the catalog page.

Service life L_{10} (40 °C) and L_{10} (T_{max})

The values given in the first two columns have been derived from intensive, in-house service life endurance tests in which our products are operated in various positions at 40 °C and 70 °C until they fail. A fan is deemed to have failed when it deviates from its defined air flow and speed values, or when the operating noise becomes noticeable. Such tests can take several years before a representative number of failures has been registered, and even today, some fans are still in the process of endurance testing, even though the test began early in the 1980s. These fans are proof of the legendary "made by ebm-papst" reliability.

Test results are presented in a diagram and the service life of the product L_{10} at the temperature tested is determined based on the Weibull distribution.

These tests have given us years of experience in the way various design parameters and temperatures can affect the service life of a product. Data for service life at various temperatures for new products can be stated with a very high degree of precision based on tests, product specifications, and commonalities in the design of the product.

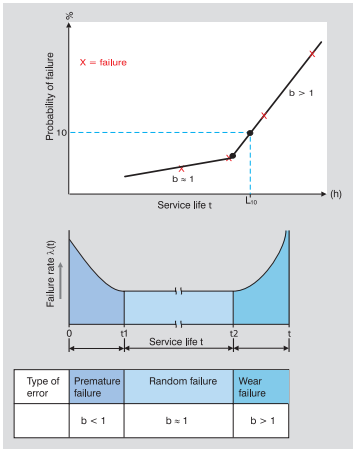
Life expectancy L_{10IPC} (40 °C)

The new third service life column states the life expectancy L_{10IPC}. This information is based on the international standard IPC 9591. Again here, the foundations for the service life values are our service life endurance tests at high ambient temperatures. The service life at temperatures below the test temperatures is calculated using fixed factors. This method produces much higher service life values, especially at room temperature (see diagram on right).

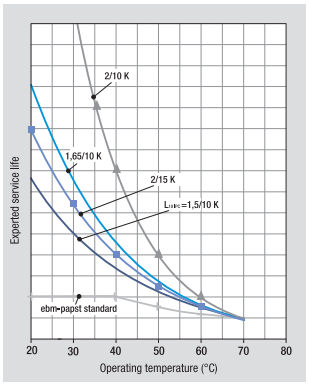
Summary:

The life span calculations have been carried out to the best of our knowledge and are based on experience gained by ebm-papst. The specified L_{10} (40 °C), L_{10} (T_{max}) and L_{10IPC} (40 °C) values all allow statements to be made about the theoretical calculated service life under certain assumptions. The values determined here are extrapolations from our own service life tests and from statistical variables. In the respective customer applications, there may be different influencing factors that cannot be included in the calculations due to their complexity. The service life information is explicitly not a guarantee of service life, but strictly a theoretical quality figure.

Fans in an endurance test cabinet at ebm-papst St. Georgen.
1500 fans are operated in temperature cabinets until they fail.



Bathtub curve and Weibull distribution.



Example of the influence of factors from various manufacturers on the life expectancy.

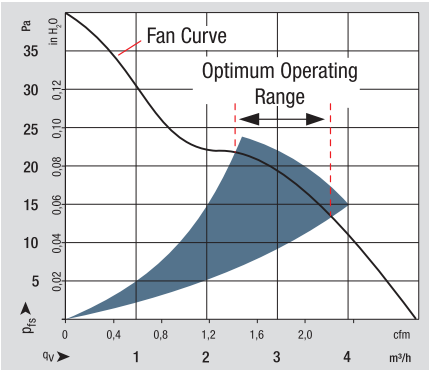
Definitions

Nominal voltage [volts]
The voltage at which the nominal values (the table values listed in this catalog) were determined. The fan operation for DC fans is not limited to the nominal voltage. Fan speed and fan performance can vary according to the admissible voltage range that is specified on the nameplate of each fan. Please note that this is not a pulsed or modulated DC voltage.

Frequency [Hz]
ebm-papst AC fans are made for operating frequencies of 50 Hz or 60 Hz. Their technical data changes accordingly.

Air flow [m^3/h, cfm]
The air performance of the fan in free air operation, i.e. the fan blows into the free space without static pressure increase.

Fan curves
The fan curves are determined in accordance with DIN ISO 5801 specifications on a dual-chamber test stand with intake side measurement. This measurement technique closely approximates the operating conditions experienced in typical applications for fans and yields realistic performance curves. The curves apply to an air density of ρ =1.2 kg/m^3 corresponding to an air pressure of 1013 mbar at 20 °C. Variations in air density affect pressure



generation, but not the flow rate. The pressure generated at other air densities can be estimated with the formula $\Delta\rho 2 = \Delta\rho 1\ (\rho 2 / \rho 1)$.
The nominal speed values, air flow and power consumption listed in the table were measured in free air operation with horizontal shaft at an ambient temperature of 20 +5 °C, air density ρ =1.2 kg/m^3 after a warmup period of 5 min.

Optimum operating range
The optimum operating range is always indicated in the colored area in the air performance diagrams. In this range the fans operate best with respect to efficiency and sound level. Within this optimum operating range the sound level only fluctuates slightly.

Noise [dB(A), Bel(A)]

1. Sound pressure level – dB(A)
Noise ratings of the fan in free air operation, i.e. at maximum flow rate.

2. Sound power level 1 Bel(A) = 10 dB(A)
Extent of the overall sound radiation of the fan. The sound power level is determined in the optimum operating range.

PAPST Sintec® sleeve bearings
A particularly economical bearing system with excellent advantages:
– Very precise, large sintered bearings
– Low running noise
– High service life expectancy
– Resistant to shock and vibration

Ball bearings
Precision ball bearings for particularly high ambient temperatures and high service life expectancy.

Power consumption [watts]
Input performance of the fan motor when operating free blowing at nominal voltage. Depending on the operating condition in the application, the power consumption may be higher.

Temperature range [°C]
The admissible ambient temperature range within which the fan can be expected to run continuously.

Service life [h]

Service life L_{10} at 40 °C and T_{max}
Standard figures for service life at ebm-papst. These two temperatures are based on intensive, in-house endurance tests and on experience from more than 60 years developing fans.

Life expectancy L_{10IPC} (40 °C)
Information calculated in line with the standard IPC 9591. Data based on the internal life expectancy at 70 °C, more optimistically extrapolated to 40 °C.

We expressly state that none of the information or data in this catalog is to be construed as a guarantee or warranty of properties.

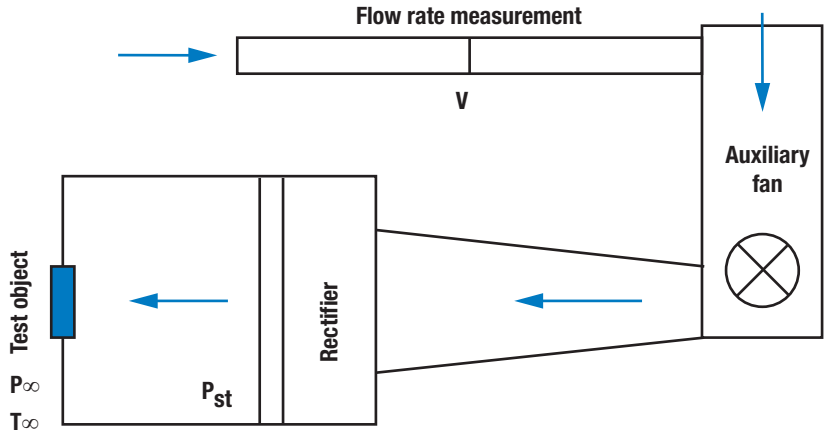
Unit conversion

Air flow	Pressure
1 cfm = 1.7 m^3/h	1 Pa = 1x10^{-5} bar
1 l/s = 3.6 m^3/h	1 inch H_2O = 249 Pa
1 l/min = 0.06 m^3/h	1 mm H_2O = 9.81 Pa

Standard test equipment to determine the fan characteristics

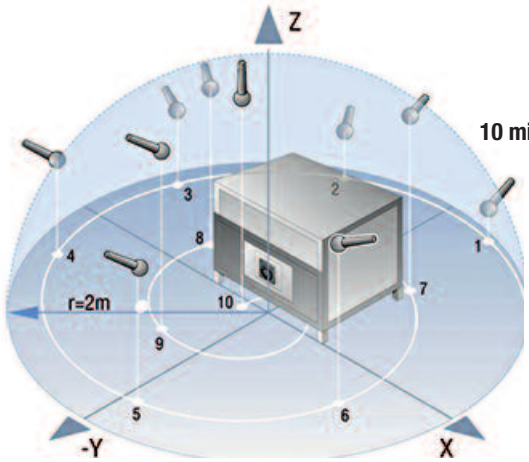
Pressure/air flow

Blow-down test facility acc. to ISO 5801

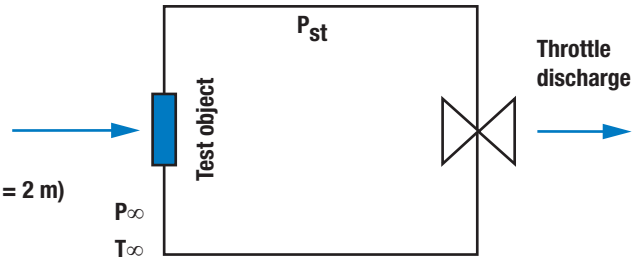


Sound power level pressure/air flow:

Outlet side regulated test rig in semi-anechoic chamber according to ISO 10302

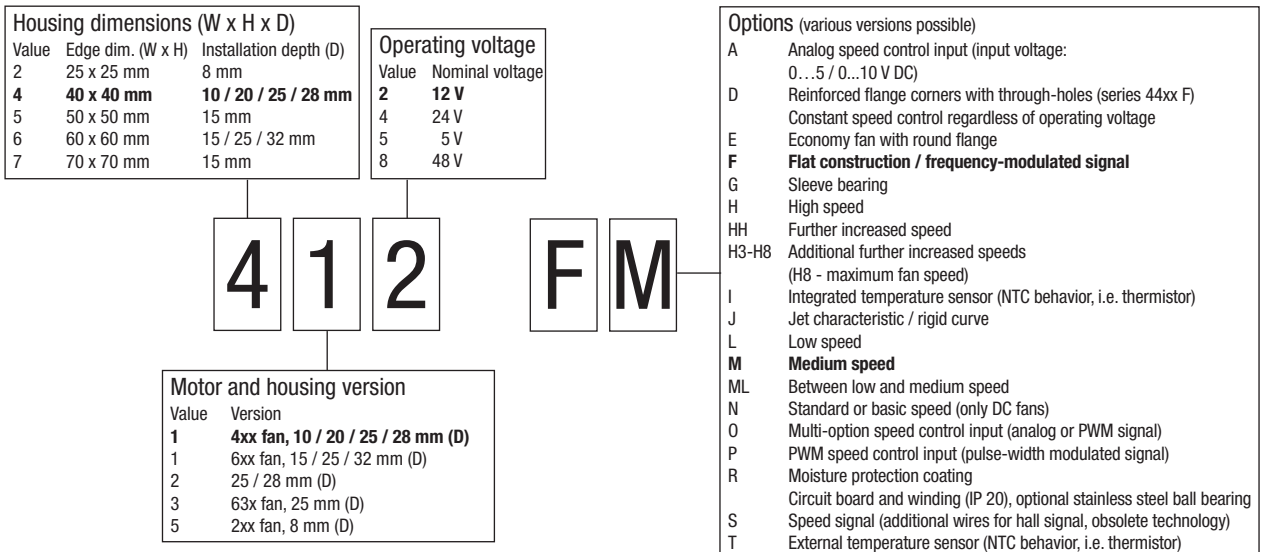


10 microphones (r = 2 m)



Type code

3-digit DC axial fan e.g. 412 FM



Housing dimensions (W x H x D)

Value	Edge dim. (W x H)	Installation depth (D)
2	25 x 25 mm	8 mm
4	**40 x 40 mm**	**10 / 20 / 25 / 28 mm**
5	50 x 50 mm	15 mm
6	60 x 60 mm	15 / 25 / 32 mm
7	70 x 70 mm	15 mm

Operating voltage

Value	Nominal voltage
2	**12 V**
4	24 V
5	5 V
8	48 V

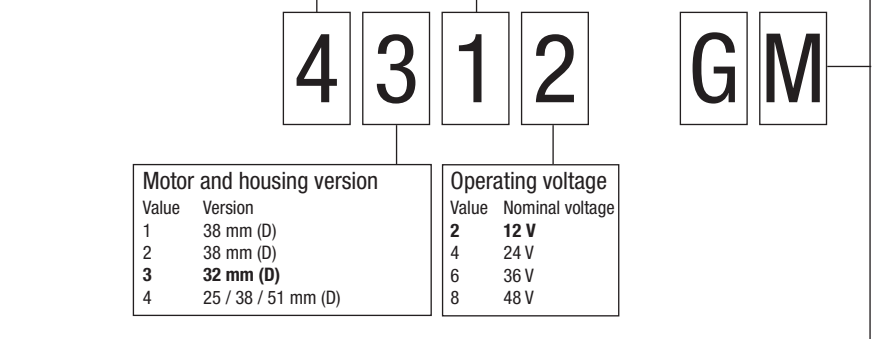
Motor and housing version

Value	Version
1	**4xx fan, 10 / 20 / 25 / 28 mm (D)**
1	6xx fan, 15 / 25 / 32 mm (D)
2	25 / 28 mm (D)
3	63x fan, 25 mm (D)
5	2xx fan, 8 mm (D)

Options (various versions possible)

A	Analog speed control input (input voltage: 0…5 / 0...10 V DC)
D	Reinforced flange corners with through-holes (series 44xx F) Constant speed control regardless of operating voltage
E	Economy fan with round flange
F	**Flat construction / frequency-modulated signal**
G	Sleeve bearing
H	High speed
HH	Further increased speed
H3-H8	Additional further increased speeds (H8 - maximum fan speed)
I	Integrated temperature sensor (NTC behavior, i.e. thermistor)
J	Jet characteristic / rigid curve
L	Low speed
M	**Medium speed**
ML	Between low and medium speed
N	Standard or basic speed (only DC fans)
O	Multi-option speed control input (analog or PWM signal)
P	PWM speed control input (pulse-width modulated signal)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	Speed signal (additional wires for hall signal, obsolete technology)
T	External temperature sensor (NTC behavior, i.e. thermistor)
TD	Turbo drive (extremely powerful 3-phase motor)
U	Environmentally friendly fan (min. IP 54)
V / VP	VARIOFAN
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number

4-digit DC axial fan, e.g. 4312 GM



Housing dimensions (W x H x D)

Value	Edge dimensions (W x H)	Installation depth (D)
2	Ø 220 x 200 mm	51 mm
3	92 x 92 mm	25 / 32 / 38 mm
4	**119 x 119 mm**	**25 / 32 / 38 mm**
5	127 x 127 mm	38 mm
5	135 x 135 mm	38 mm
5	140 x 140 mm	51 mm
6	Ø 172 mm	51 mm
6	Ø 172 x 150 / 160 mm	51 mm
7	Ø 150 mm	38 / 55 mm
8	80 x 80 mm	25 / 32 / 38 mm

Connection type and direction of rotation

Value	Connection type	Direction of rotation
1	**Wires, length = 310 mm**	
5	Wires, length = 310 mm	
6	Plug, 2.8 x 0.8 mm	Counterclockwise (CCW)
7	Plug, 2.8 x 0.8 mm	Clockwise (CW)
8	Plug, 2.8 x 0.5 mm	Counterclockwise (CCW)
9	Plug, 2.8 x 0.5 mm	Clockwise (CW)

Motor and housing version

Value	Version
1	38 mm (D)
2	38 mm (D)
3	**32 mm (D)**
4	25 / 38 / 51 mm (D)

Operating voltage

Value	Nominal voltage
2	**12 V**
4	24 V
6	36 V
8	48 V

Options (various versions possible)

A	Analog speed control input (input voltage: 0…5 / 0...10 V DC)
D	Reinforced flange corners with through-holes (series 44xx F) Constant speed control regardless of operating voltage
DV	Diagonal Venturi fan
E	Economy fan with round flange
F	Flat construction / frequency-modulated signal
G	**Sleeve bearing**
H	High speed
HH	Further increased speed
H3-H8	Additional further increased speeds (H8 - maximum fan speed)
I	Integrated temperature sensor (NTC behavior, i.e. thermistor)
J	Jet characteristic / rigid curve
L	Low speed
M	**Medium speed**
ML	Between low and medium speed
N	Standard or basic speed (only DC fans)
O	Multi-option speed control input (analog or PWM signal)
P	PWM speed control input (pulse-width modulated signal)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	Speed signal (additional wires for hall signal, obsolete technology)
T	External temperature sensor (NTC behavior, i.e. thermistor)
TD	Turbo drive (extremely powerful 3-phase motor)
U	Environmentally friendly fan (min. IP 54)
V / VP	VARIOFAN
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number

All measurements are given in mm.

Type code

DC centrifugal fan e.g. RER 160-28/12 N

Type	Housing and fan impeller versions	
	Housing	Impeller blade design
RE	None	Non-curved, no direction of rotation set
REF	None	Forward/backward-curved impeller blades, flat
RER	**None**	**Backward-curved impeller blades**
RET	None	Forward-curved impeller blades
RG	Square	Forward/backward-curved impeller blades
RL	Round	Forward-curved impeller blades
RLF	Round	Forward/backward-curved impeller blades, flat
RV	Round	Forward-curved impeller blades

Options (various versions possible)	
A	Analog speed control input (input voltage: 0…5 / 0...10 V DC)
D	Reinforced flange corners with through-holes (series 44xx F) Constant speed control regardless of operating voltage
E	Economy fan with round flange
F	Flat construction / frequency-modulated signal
G	Sleeve bearing
H	High speed
HH	Further increased speed
H3-H8	Additional further increased speeds (H8 - maximum fan speed)
I	Integrated temperature sensor (NTC behavior, i.e. thermistor)
J	Jet characteristic / rigid curve
L	Low speed
M	Medium speed
ML	Between low and medium speed
N	**Standard or basic speed (only DC fans)**
O	Multi-option speed control input (analog or PWM signal)
P	PWM speed control input (pulse-width modulated signal)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	Speed signal (additional wires for hall signal, obsolete technology)
T	External temperature sensor (NTC behavior, i.e. thermistor)
TD	Turbo drive (extremely powerful 3-phase motor)
U	Environmentally friendly fan (min. IP 54)
V / VP	VARIOFAN
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number

R	E	R	1	6	0	-	2	8	/	1	2	N

Fan impeller blade height

Impeller diameter in mm

Operating voltage	
Value	Nominal voltage
/12	**12 V**
/14	24 V
/18	48 V

Crossflow blower e.g. QG 030-148/12

Type	Housing and fan impeller versions	
	Housing	Impeller blade design
QG	**Round**	**Compressor drum**

Housing dimensions (W x H)			
Value	Edge dim. (W x H)	Impeller length	Total length
148	**48 x 50 mm**	**148 mm**	**201 mm**
198	48 x 50 mm	198 mm	258 mm
303	48 x 50 mm	303 mm	363 mm
353	48 x 50 mm	353 mm	413 mm

Q	G	0	3	0	-	1	4	8	/	1	2

Impeller diameter in mm

Operating voltage	
Value	Nominal voltage
/12	**12 V**
/14	24 V

All measurements are given in mm.

Type code

4-digit GreenTech EC tubeaxial fans axial fan e.g. ACi 4420 HH

Housing dimensions (W x H x D)

Value	Edge dim. (W x H)	Installation depth (D)
1	Ø 98.5 mm	130 mm
3	92 x 92 mm	38 mm
4	**119 x 119 mm**	**25 / 32 / 38 mm**
6	Ø 172	51 mm
8	80 x 80 mm	32 mm

Operating voltage

Value	Nominal voltage	Frequency	Version
0	115 / 230 V	50 / 60 Hz	Wide voltage range input (85-265 V AC)
1	115 V	50 Hz	
2	**230 V**	**50 Hz**	

Basic design

Value	Version
AC	DC basic fan with integrated AC/DC power supply
ACi	**EC technology (electronics completely integrated)**

Motor and housing version

Value	Version
0	130 mm (D)
1	51 mm (D)
2	38 / 51 mm (D)
3	32 mm (D)
4	**25 / 38 mm (D)**

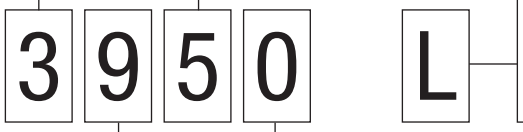
Bearing type and insulation class

Value	Bearing type	Insulation class
0	**Ball bearing**	**E**

Options (various versions possible)

A	Analog speed control input (input voltage: 0…5 / 0...10 V DC)
D	Reinforced flange corners with through-holes (series 44xx F) Constant speed control regardless of operating voltage
E	Economy fan with round flange
F	Flat construction / frequency-modulated signal
G	Sleeve bearing
H	High speed
HH	**Further increased speed**
H3-H8	Additional further increased speeds (H8 - maximum fan speed)
I	Integrated temperature sensor (NTC behavior, i.e. thermistor)
J	Jet characteristic / rigid curve
L	Low speed
M	Medium speed
ML	Between low and medium speed
N	Standard or basic speed (only DC fans)
O	Multi-option speed control input (analog or PWM signal)
P	PWM speed control input (pulse-width modulated signal)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	Speed signal (additional wires for hall signal, obsolete technology)
T	External temperature sensor (NTC behavior, i.e. thermistor)
TD	Turbo drive (extremely powerful 3-phase motor)
U	Environmentally friendly fan (min. IP 54)
V / VP	VARIOFAN
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number

AC axial fan e.g. 3950 L



Housing dimensions (W x H x D)

Value	Edge dim. (W x H)	Installat. depth (D)
3	**92 x 92 mm**	**25 / 38 mm**
4	119 x 119 mm	25 / 32 / 38 mm
5	127 x 127 mm	38 mm
5	135 x 135 mm	38 mm
5	140 x 140 mm	51 mm
6	Ø 172 mm	51 / 52 mm
7	Ø 150 mm	55 mm
7	Ø 150 x 172 mm	38 mm
8	80 x 80 mm	38 mm
9	119 x 119 mm	25 mm

Operating voltage

Value	Nominal voltage	Frequency
0	115 V	60 Hz
2	115 V	60 Hz
3	115 V	60 Hz
4	115 V	50 Hz
5	**230 V**	**50 Hz**
6	115 V / 230 V	50 Hz / 60 Hz
7	230 V	50 Hz
8	230 V	60 Hz
9	230 V	60 Hz

Motor and housing version

Value	Version
4	Shaded-pole motor, 55 mm (D) medium speed
5	Shaded-pole motor, 38 mm (D) medium / high speed
6	Shaded-pole motor, 38 mm (D) high speed
7	Shaded-pole motor, 38 mm (D) with mounting bracket
8	Shaded-pole motor, slow / medium speed
9	**Shaded-pole motor, 25 / 38 mm (D)**

Bearing type and insulation class

Value	Bearing type	Insulation class
0	**Sleeve bearing**	**E**
5	Ball bearing	E
6	Ball bearing	F
8	Ball bearing	E

Options (various versions possible)

A	Intake via bars
E	Made by ebm-papst Mulfingen (6xxx, 7xxx range) or round flange
H	Speed signal 1 Impulses per 360 degrees (additional magnet sensor and hall sensor)
L	**Low speed**
M	Medium speed
N	Air intake via struts (ø mounting bore hole)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	Integrated temperature switch
T	Mounting bracket
U	Environmentally friendly fan (min. IP 54)
V	Air exhaust over struts
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number
Z	Air exhaust over struts, reinforced flange corners with through-holes

All measurements are given in mm.

Type code

AC centrifugal fan e.g. RER 160-28/56 S

Type	Housing and fan impeller versions	
	Housing	Impeller blade design
RE	None	Non-curved, no direction of rotation set
REF	None	Forward/backward-curved impeller blades, flat
RER	**None**	**Backward-curved impeller blades**
RET	None	Forward-curved impeller blades
RG	Square	Forward/backward-curved impeller blades
RL	Round	Forward-curved impeller blades
RLF	Round	Forward/backward-curved impeller blades, flat
RV	Round	Forward-curved impeller blades

Options (various versions possible)

A	Intake via bars
E	Made by ebm-papst Mulfingen (6xxx, 7xxx range) or round flange
H	Speed signal 1 Impulses per 360 degrees (additional magnet sensor and hall sensor)
L	Low speed
M	Medium speed
N	Air intake via struts (ø mounting bore hole)
R	Moisture protection coating Circuit board and winding (IP 20), optional stainless steel ball bearing
S	**Integrated temperature switch**
T	Mounting bracket
U	Environmentally friendly fan (min. IP 54)
V	Air exhaust over struts
W	Additional wires (standard length 310 mm)
X	Mounting bore hole 3.7 mm
-xxx	Variant number
Z	Air exhaust via bars, reinforced flange joints with through-holes

Fan impeller blade height

R E R 1 6 0 - 2 8 / 5 6 S

Impeller diameter in mm

Operating voltage

Value	Nominal voltage	Frequency
/00	115 V	60 Hz
/06	115 V	60 Hz
/50	230 V	50 Hz
/56	**230 V**	**50 Hz**

DC centrifugal fan e.g. R3G 190-RN 38-01

Note: This type code specifies fans from ebm-papst Mulfingen and can be used to clearly identify and order them:

Type	Housing and fan impeller versions
A	Axial fan
S	Axial fan with finger guard
W	Axial fan with fan housing
V	Axial combination
R	**Centrifugal fan, single inlet**
G	Centrifugal blower, single inlet (with scroll housing)
B	Centrifugal fan, dual inlet
G	Centrifugal blower, dual inlet (with scroll housing)
K	Centrifugal combination

Impeller diameter in mm

Key for mechanical design

Key for mechanical variants

R 3 G 1 9 0 - R N 3 8 - 0 1

Number of poles (AC)

2	2-pole

Number of cores (DC/EC)

1	1-phase/core
3	**3-phase/core**

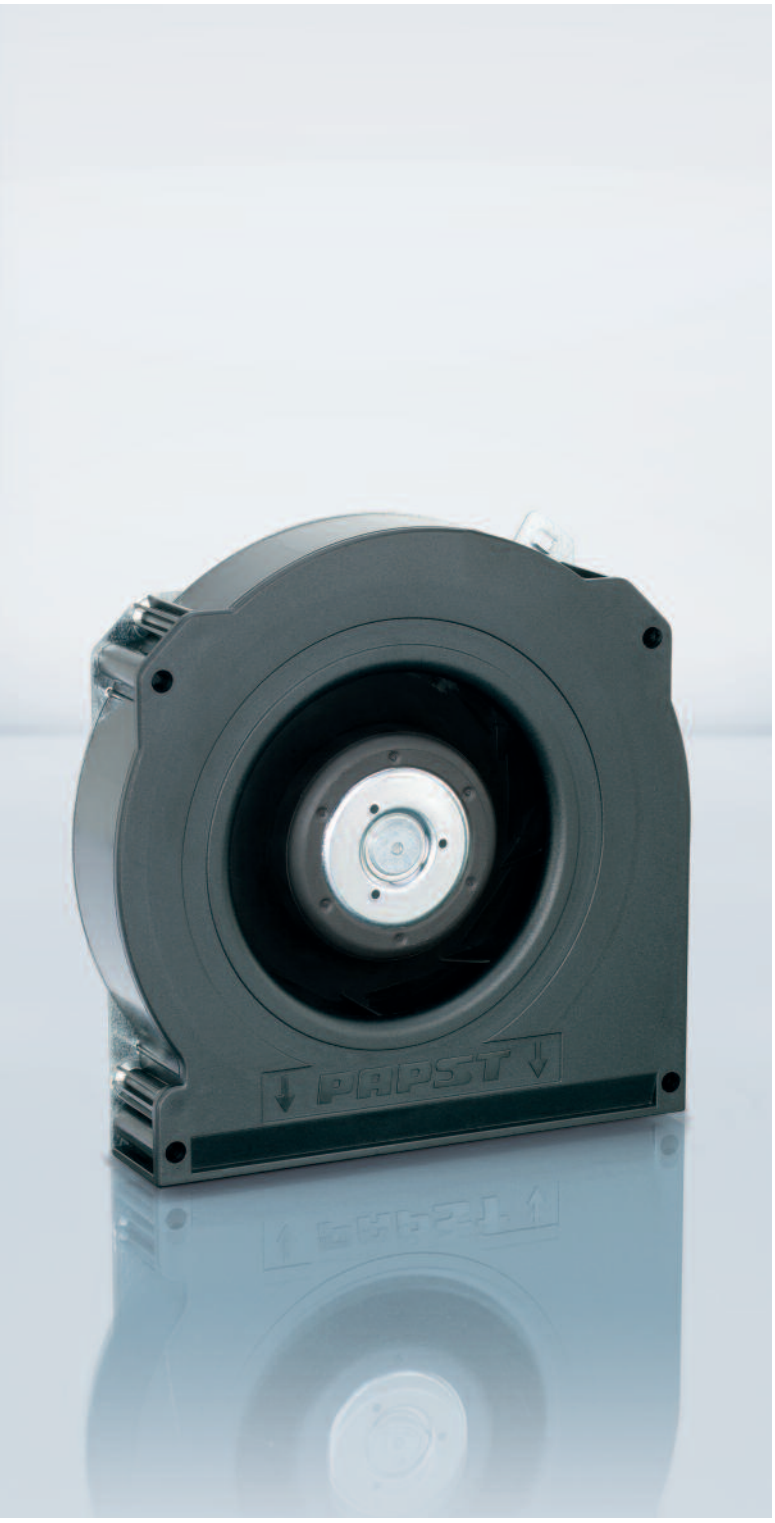
Motor type

D	Three-phase motor
E	Single-phase motor with motor run capacitor
G	**DC/EC motor**

Key for electrical design

All measurements are given in mm.

DC centrifugal fans



DC centrifugal fans

Technical information

Product line

Our centrifugal product line includes fans for every application. Whether as free-running impellers with a diameter between 97 mm and 225 mm, or as assemblies in a ready-to-install, compact housing with inlet ring with an edge length between 51 mm and 270 mm. Of course, all models feature highly efficient, brushless motor technology.

Electronic protection against reverse polarity

ebm-papst DC fans have electronically commutated drives with electronic protection against reverse polarity. The electronics are integrated in the fan's impeller hub to save space.

Product life expectancy

A distinctive feature of DC fan technology is the amazing product life expectancy. The outstanding efficiency of the brushless drive results in lower heat stress for the bearings, which significantly increases the service life of the fan.

Degree of protection

DC fans with sleeve and ball bearings are powered by class E insulated motors. All ebm-papst fans conform to the requirements of degree of protection IP 20. Fans conforming to IP 54 / IP 68 and special degrees of protection are also available.

Voltage range

Many of our DC fans can be operated on voltages that are up to 50% lower and 25% higher than their nominal voltage (see voltage range in the technical tables). This allows the air performance to be adapted to the cooling requirements and the noise to be reduced, even if the fan does not have a control input.

Closed-loop speed control and monitoring

Closed-loop speed control and function monitoring are becoming increasingly important in many applications. ebm-papst offers many fans in the standard design with a control input and open-collector speed signal.

S-Force centrifugal RadiCal

The new S-Force centrifugal fans provide peak performance among fans of this type. With air flow capacity of over 1500 m³/h and a pressure increase of up to 1000 pascals, the highest heat flows are manageable. The models are extremely efficient due to the multi-pole, electronically commutated drive motors, and can be adapted individually to every application thanks to intelligent motor features. Some models use our new, highly efficient RadiCal impellers.

Centrifugal fans for DC operation

Overview of air performance

	Dimension	Series	Air flow		Page
	mm		m³/h	10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000 2000 2500	
	105 x 59 x 79	RV 40	18...24		95
	☐ 51 x 15	RLF 35	9.6		96
	☐ 76 x 27	RL 48	22...28		97
	97 x 93.5 x 33	RL 65	56...61		98
	☐ 121 x 37	RL 90 N	40...55		99
	☐ 127 x 25	RLF 100	64...80		100
	☐ 135 x 38	RG 90 N	55		101
	☐ 180 x 40	RG 125 N	60...137		102
	☐ 180 x 40	RG 140 NTD	118	NEW	103
	☐ 220 x 56	RG 160 N	139...209		104
	☐ 220 x 56	RG 160 NTD	59...444		105
S-Force	☐ 226 x 85	RG 190 TD	630...930		106
S-Force	☐ 270 x 99	RG 220 TD	1090...1100		107
S-Force	☐ 270 x 119	RG 225 TD	1040...1450		108
S-Force	Ø 97 x 41	RET 97 TD	220		109
	Ø 104 x 25	REF 100	86...104		110
	Ø 101 x 52	RER 101 N	162...190		111
S-Force	Ø 120 x 54	RER 120 TD	320...390		112
	Ø 120	R1G 120	250		114
	Ø 138 x 35	RER 125 N	110...166		116
S-Force	Ø 133 x 91	RER 133 TD	460...565		117
	Ø 165 x 51	RER 160 N	255		118
S-Force	Ø 165 x 51	RER 160 NTD	360		119
S-Force	Ø 175 x 55	REF 175 TD	800		120
S-Force	Ø 175 x 69	RER 175 TD	600...980		121
S-Force	Ø 190 x 69	RER 190 TD	650...970		122
	Ø 190	R3G 190	880...930		124
	Ø 220	R3G 220	1200...1215		126
S-Force	Ø 220 x 71	RER 220 TD	1063...1250		128
S-Force	Ø 225 x 99	RER 225 TD	1190...1600		129
	Ø 225	R3G 225	1300...1340		130
	Ø 250	R3G 250	1505...1640		132
	Ø 280	R3G 280	2160...2190		134
	Ø 310	R3G 310	2310...2380		136
	201...413 x 50 x 48	QG 030	75...155		138
	Ø 85	*1G 085	95		140
	Ø 97	*1G 097	95		142
	Ø 108	*1G 108	200		144
	Ø 120	*1G 120	255		146
	Ø 133	*1G 133	225		148
	Ø 140	*1G 140	400...410		150
	Ø 146	*1G 146	465...470		152
	Ø 160	*1G 160	505		154
	Ø 133	D1G 133	700		156
	Ø 133	D1G 133	1020		158
	Ø 146	D1G 146	1000		160
	Ø 160	D1G 160	980		162

Subject to change

m³/h 10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1000 2000 2500

Centrifugal fans for DC operation

Overview of technically feasible designs

Dimension		VDE, UL, CSA	SINTEC sleeve bearings / ball bearings	Speed signal	Go / NoGo alarm	Alarm with speed limit	External temperature sensor	Internal temperature sensor	PWM control input	Analog control input	Multi-options control input	Moisture protection	IP >= 54	IP 68	Salt spray protection	Page
Centrifugal fans																
mm		**Series**					**OPTIONAL**									**P.**
105 x 59 x 79		RV 40	•	■	•	–	–	–	–	–	–	–	•	–	–	–	95
□ 51 x 15		RLF 35	yes	■	•	–	–	–	–	•	–	–	•	–	–	–	96
□ 76 x 27		RL 48	yes	■	•	•	•	•	•	•	•	–	•	–	–	–	97
97 x 93.5 x 33		RL 65	yes	■	•	•	•	•	•	•	•	–	•	–	–	–	98
□ 121 x 37		RL 90 N	yes	□/■	•	•	•	•	•	•	•	–	•	•	•	•	99
□ 127 x 25		RLF 100	yes	■	•	•	•	•	•	•	•	–	•	•	–	–	100
□ 135 x 38		RG 90 N	yes	□/■	•	•	•	•	•	•	•	–	•	•	•	•	101
□ 180 x 40		RG 125 N	yes	■	•	•	•	•	•	•	•	–	•	•	•	•	102
NEW	□ 180 x 40	RG 140 NTD	yes	■	•	•	•	•	–	•	•	•	•	•	•	•	103
□ 220 x 56		RG 160 N	yes	■	•	•	•	•	•	•	•	–	•	•	–	•	104
□ 220 x 56		RG 160 NTD	yes	■	•	•	•	•	•	•	•	–	•	•	–	•	105
S-Force	□ 226 x 85	RG 190 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	106
S-Force	□ 270 x 99	RG 220 TD	yes	■	•	•	•	•	•	•	•	–	•	•	–	•	107
S-Force	□ 270 x 132	RG 225 TD	yes	■	•	•	•	•	•	•	•	–	•	•	–	•	108
S-Force	Ø 97 x 41	RET 97 TD	yes	■	•	•	•	•	•	•	•	–	•	–	–	–	109
Ø 100 x 25		REF 100	yes	■	•	•	•	•	•	•	•	–	•	•	–	–	110
Ø 101 x 52		RER 101 N	yes	■	•	•	•	•	•	•	•	–	•	–	–	–	111
S-Force	Ø 120 x 54	RER 120 TD	yes	■	•	•	•	•	•	•	•	–	•	–	–	–	112
Ø 138 x 35		RER 125 N	yes	■	•	•	•	•	•	•	•	–	•	•	•	•	116
S-Force	Ø 133 x 91	RER 133 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	117
Ø 165 x 51		RER 160 N	yes	■	•	•	•	•	•	•	•	–	•	•	–	•	118
S-Force	Ø 165 x 51	RER 160 NTD	yes	■	•	•	•	•	•	•	•	–	•	•	–	–	119
S-Force	Ø 175 x 55	REF 175 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	–	120
S-Force	Ø 175 x 69	RER 175 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	121
S-Force	Ø 190 x 69	RER 190 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	122
S-Force	Ø 220 x 71	RER 220 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	128
S-Force	Ø 225 x 99	RER 225 TD	yes	■	•	•	•	•	•	•	•	•	•	•	–	•	129
201...413 x 50 x 48		QG 030	yes	□/■	•	–	–	–	–	–	–	–	•	–	–	–	138
Subject to change																	

– Not yet available □ Sleeve bearings
• Available ■ Ball bearings

Please note that these special versions are not possible for all voltages and speeds, and not in all combinations. The special versions are designed for specific customers and projects. As a rule they are not available off the shelf and are subject to minimum volumes.

Please consult your customer support representative about the feasibility of your special variant.

Optional special versions (see page 12)

On the catalog pages and in the overview on page 12, we provide information about the special designs that are technically feasible in the fan series. Please note that these special versions are not possible for all voltages and speeds, and not in all combinations. The special versions are designed for specific customers and projects and are usually not available off the shelf.

Max. 24 m³/h

DC centrifugal fans

105 x 59 x 79 mm

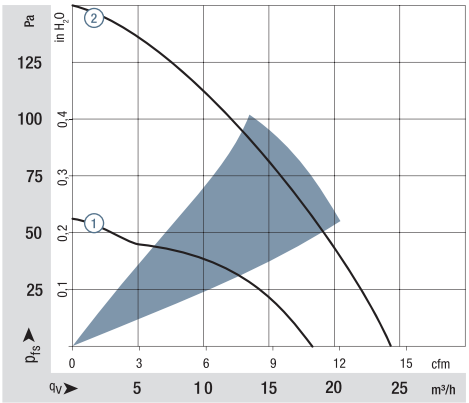
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 26, TR 64
- **Highlights:** Forward-curved impeller
- **Weight:** 100 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Moisture protection

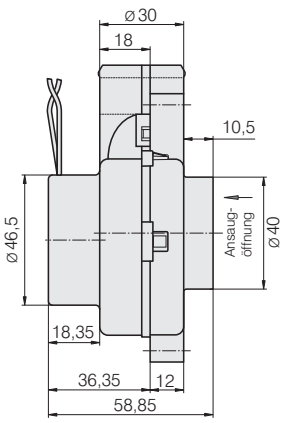
1) Fiberglass-reinforced plastic

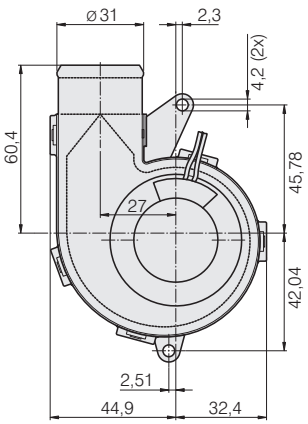
Series RV 40 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RV 40-18/12 L	18	10.6	**12**	9...16	4.0	■	2.0	3 900	-20...+70	70 000 / 35 000	117 500	①
RV 40-18/12 H	24	14.1	**12**	9...16	5.0	■	4.5	4 800	-20...+70	50 000 / 25 000	85 000	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 acoustic values are only valid for the described measurement setup and may vary depending on the installation situation.
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. 9.6 m³/h

DC centrifugal fans

☐ 51 x 15 mm

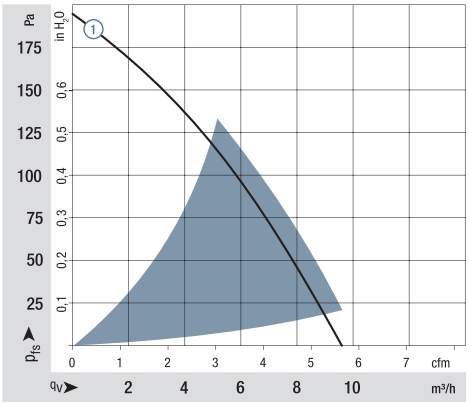
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 26, TR 64
- **Highlights:** Forward-curved impeller
- **Weight:** 40 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal - PWM control input
  - Moisture protection

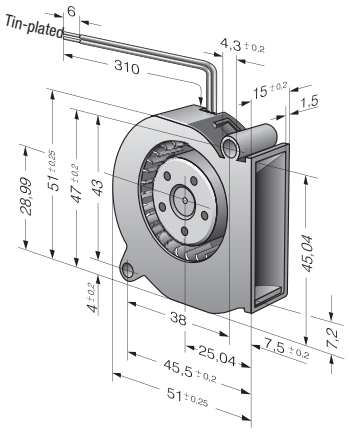
1) Fiberglass-reinforced plastic

Series RLF 35 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RLF 35-8/12 N	9.6	5.64	**12**	8...13.2	5.5	■	3.5	6 700	-20...+70	60 000 / 30 000	102 500	①
RLF 35-8/14 N	9.6	5.64	**24**	14...28	5.5	■	4.3	6 700	-20...+70	60 000 / 30 000	102 500	①

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. 28 m³/h

DC centrifugal fans

☐ 76 x 27 mm

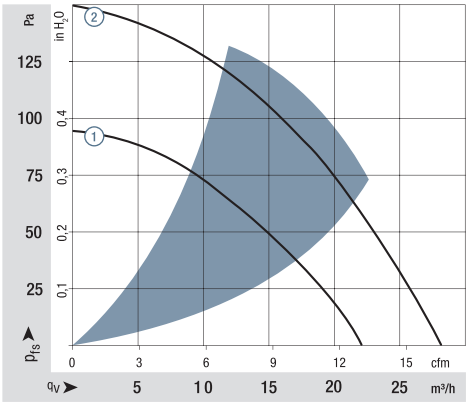
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 26, TR 64
- **Highlights:** Forward-curved impeller
- **Weight:** 75 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go- / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection

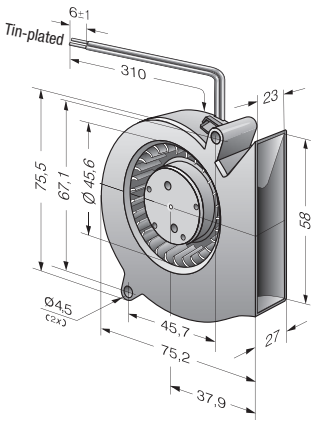
1) Fiberglass-reinforced plastic

Series RL 48 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RL 48-19/12 ML	22	12.9	**12**	8...15	5.3	■	5.0	3 500	-20...+70	70 000 / 35 000	117 500	①
RL 48-19/12	28	16.5	**12**	8...13.5	5.7	■	4.6	4 400	-20...+70	60 000 / 30 000	102 500	②
RL 48-19/14 ML	22	12.9	**24**	18...28	5.3	■	5.0	3 500	-20...+70	70 000 / 35 000	117 500	①
RL 48-19/14	28	16.5	**24**	18...26.4	5.7	■	4.4	4 400	-20...+70	60 000 / 30 000	102 500	②

Subject to change



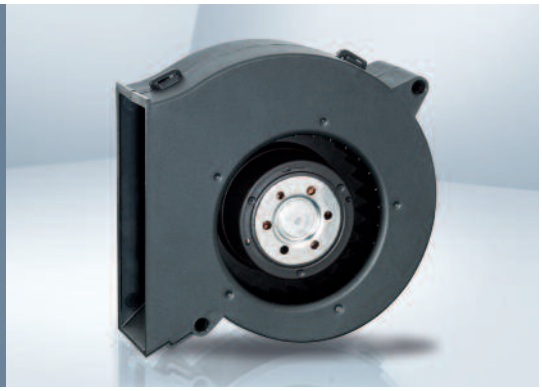
Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only 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. 61 m³/h

DC centrifugal fans

97 x 93.5 x 33 mm



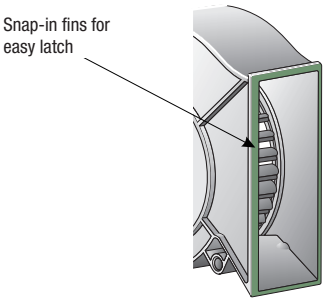
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 26, TR 64
- **Highlights:** Forward-curved impeller
- **Weight:** 170 g

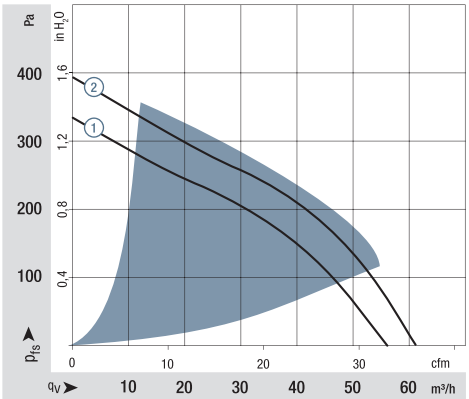
- **Possible special versions:**
  (See chapter DC fans - specials):
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection

1) Fiberglass-reinforced plastic

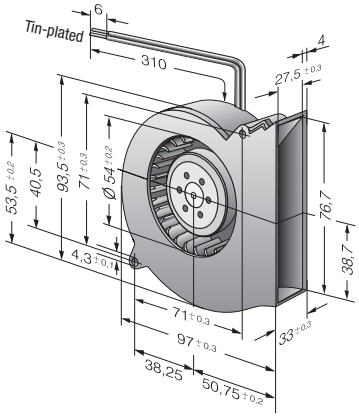
Series RL 65 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□ / ■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RL 65-21/12	56	32,9	**12**	6.8...13.8	6.6	■	15.0	4 500	-20...+70	60 000 / 30 000	102 500	①
RL 65-21/12 H	61	35,8	**12**	6.8...13.2	6.8	■	19.2	4 900	-20...+55	55 000 / 40 000	92 500	②
RL 65-21/14	56	32,9	**24**	12...26.4	6.6	■	14.0	4 500	-20...+70	60 000 / 30 000	102 500	①
RL 65-21/14 H	61	35,8	**24**	12...26.4	6.8	■	18.0	4 900	-20...+60	55 000 / 35 000	92 500	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



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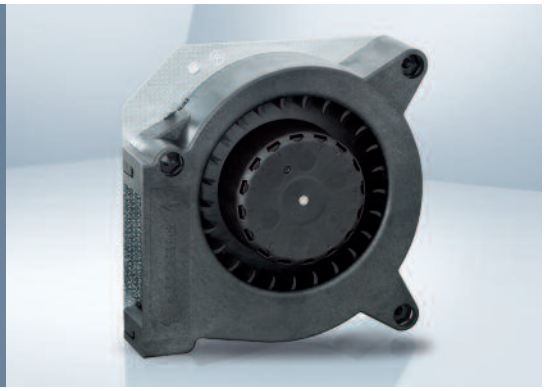
Max. 55 m³/h

DC centrifugal fans

☐ 121 x 37 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Forward-curved impeller
- **Weight:** 420 g

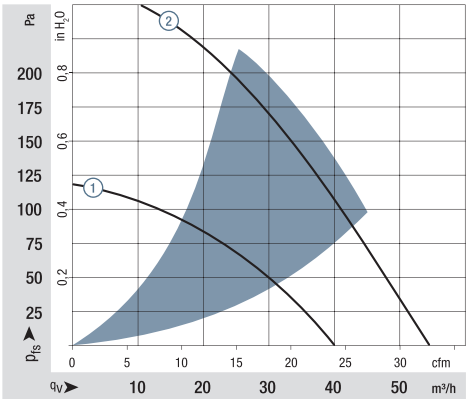
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection:IP 54 / IP 68

1) Fiberglass-reinforced plastic

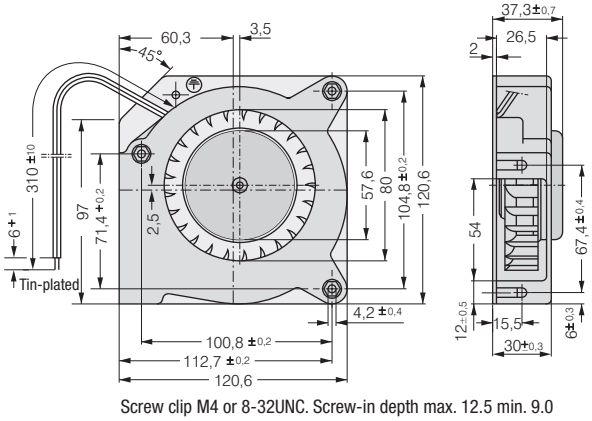
Series RL 90 N

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RL 90-18/12 N	40	23.5	**12**	7...15	5.8	■	6.3	2 500	-30...+75	62 500 / 27 500	105 000	①
RL 90-18/14 NG	40	23.5	**24**	12...28	5.8	□	5.6	2 500	-20...+75	62 500 / 27 500	105 000	①
RL 90-18/14 N	40	23.5	**24**	12...28	5.8	■	5.6	2 500	-30...+75	62 500 / 27 500	105 000	①
RL 90-18/18 NH	55	32.4	**48**	36...53	6.9	■	14.7	3 500	-30...+65	32 500 / 17 500	55 000	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 acoustic values are only valid for the described measurement setup and may vary depending on the installation situation.
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

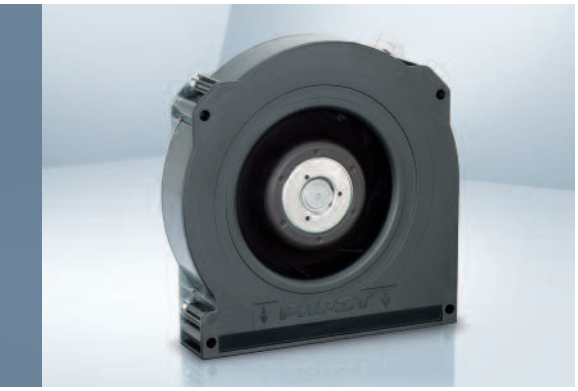


Screw clip M4 or 8-32UNC. Screw-in depth max. 12.5 min. 9.0

Max. 80 m³/h

DC centrifugal fans

☐ 127 x 25 mm



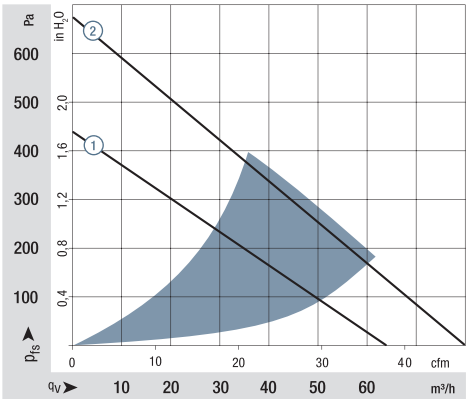
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Optional protective cap for outlet opening
  Backward-curved impeller
- **Weight:** 320 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Degree of protection: IP 54

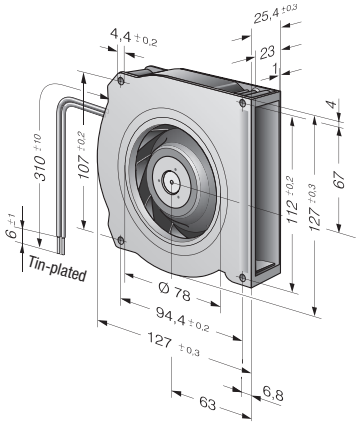
1) Fiberglass-reinforced plastic

Series RLF 100 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RLF 100-11/12	64	37.7	**12**	8...15	6.4	■	8.0	5 100	-20...+75	80 000 / 30 000	135 000	①
RLF 100-11/14	64	37.7	**24**	16...30	6.4	■	8.0	5 100	-20...+75	80 000 / 30 000	135 000	①
RLF 100-11/18	64	37.7	**48**	36...60	6.4	■	8.6	5 100	-20...+75	80 000 / 30 000	135 000	①
High speed models with open-collector tachometer and PWM speed control.												
RLF 100-11/12/2 HP-200	80	47.1	**12**	10...13.2	7.5	■	18.6	6 400	-20...+60	72 500 / 45 000	122 500	②
RLF 100-11/18/2 HP-182	80	47.1	**48**	43...53	7.5	■	17.0	6 400	-20...+70	72 500 / 35 000	122 500	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

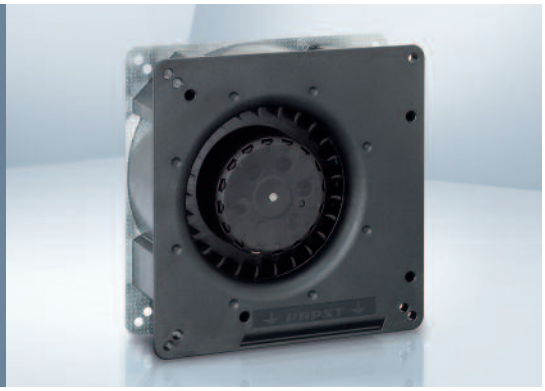


ebmpapst

Max. 55 m³/h

DC centrifugal fans

☐ 135 x 38 mm



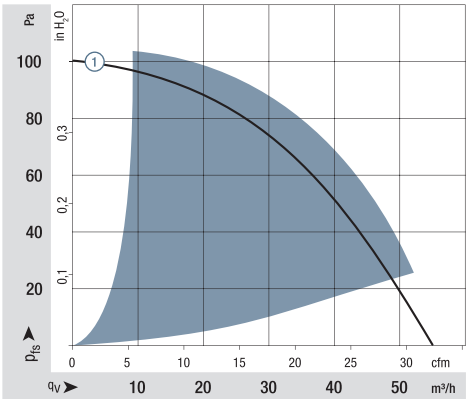
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** Via single wires AWG 22, TR 64
  48 V model: Flat plug
  6.3 x 0.8 mm for ground conductor
- **Highlights:** Forward-curved impeller
- **Weight:** 440 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54 / IP 68

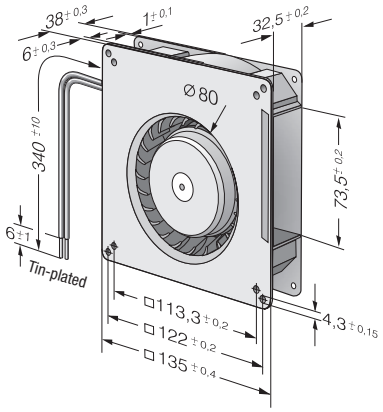
1) Fiberglass-reinforced plastic

Series RG 90 N **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□ / ■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 90-18/12 N	55	32.4	**12**	7...15	5.5	■	6.7	2 200	-30...+75	62 500 / 27 500	105 000	①
RG 90-18/14 NG	55	32.4	**24**	12...28	5.5	□	6.2	2 200	-10...+75	62 500 / 27 500	105 000	①
RG 90-18/14 N	55	32.4	**24**	12...28	5.5	■	6.2	2 200	-30...+75	62 500 / 27 500	105 000	①
RG 90-18/18 N	55	32.4	**48**	36...56	5.5	■	6.1	2 200	-30...+75	62 500 / 27 500	105 000	①

Subject to change



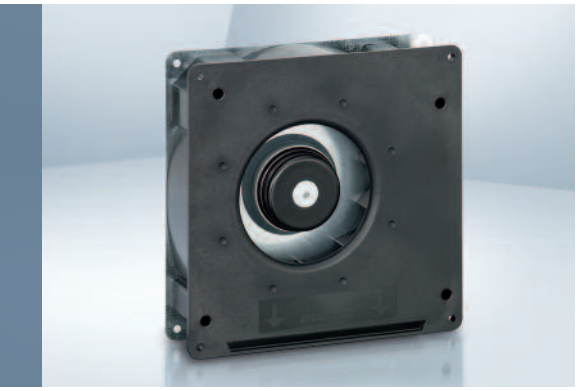
Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_{pA} measured at 1 m distance from fan axis.
The values given are applicable only 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. 137 m³/h

DC centrifugal fans

☐ 180 x 40 mm



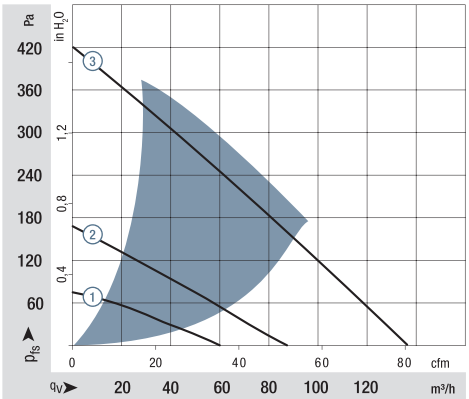
- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** Via single wires AWG 22, TR 64
  48 V model: Flat plug
  6.3 x 0.8 mm for ground conductor
- **Highlights:** Backward-curved impeller
- **Weight:** 730 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54 / IP 68

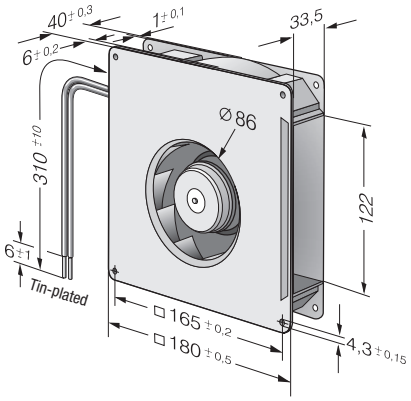
1) Fiberglass-reinforced plastic

Series RG 125 N **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 125-19/12 NM	60.0	35.3	**12**	7...15	4.8	■	2.0	1 750	-30...+75	70 000 / 30 000	117 500	①
RG 125-19/12 N	87.5	51.5	**12**	7...15	5.8	■	5.2	2 550	-30...+75	62 500 / 27 500	105 000	②
RG 125-19/14 NM	60.0	35.3	**24**	12...28	4.8	■	2.0	1 750	-30...+75	70 000 / 30 000	117 500	①
RG 125-19/14 N	87.5	51.5	**24**	12...28	5.8	■	4.9	2 550	-30...+75	62 500 / 27 500	105 000	②
RG 125-19/18 N	87.5	51.5	**48**	36...56	5.8	■	4.8	2 550	-30...+75	62 500 / 27 500	105 000	②
RG 125-19/18 NH	137	80.6	**48**	36...56	7.0	■	19.0	4 000	-20...+70	55 000 / 27 500	92 500	③

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

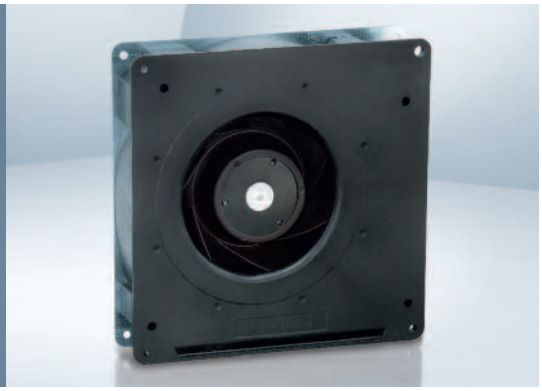


ebmpapst

Max. 118 m³/h

DC centrifugal fans

☐ 180 x 40 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Backward-curved impeller
  3-phase fan drive with special commutation electronics for extremely low-noise operation
- **Weight:** 750 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / No-go alarm
  - Alarm with speed limit
  - External temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

1) Fiberglass-reinforced plastic

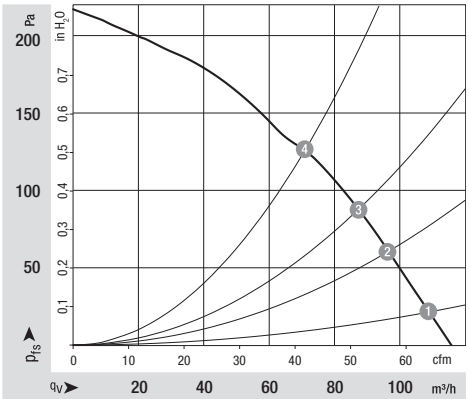
Series RG 140 NTD

	Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
	Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
NEW	RG 140-22/14 N/2 TDPU	118	69.4	**24**	20.4...27.6	6.0	■	9.3	2 500	-20...+70	62 500 / 32 500	105 000	①

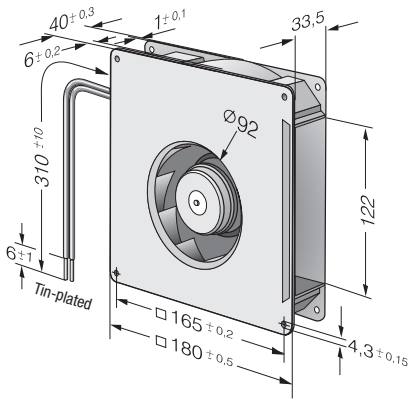
Subject to change

Higher performance levels on request.

		n rpm⁻¹	P_{ed} W	Lw_A dB(A)
①	❶	2504	9	61
①	❷	2504	9	61
①	❸	2504	9	62
①	❹	2504	9	64



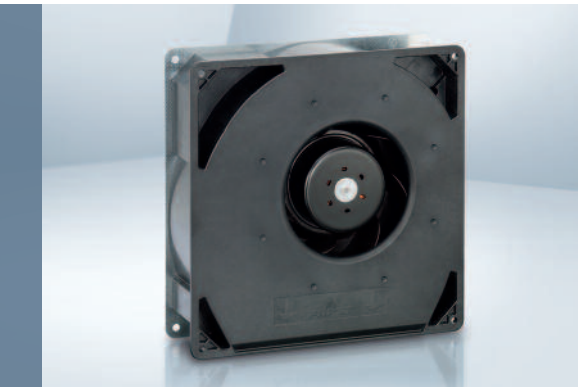
Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level L_{WA} ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level L_pA measured at 1 m distance from fan axis.
The values given are applicable only 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. 209 m³/h

DC centrifugal fans

☐ 220 x 56 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** Via single wires AWG 22, TR 64
  48 V model: Flat plug
  6.3 x 0.8 mm for ground conductor
- **Highlights:** Backward-curved impeller
- **Weight:** 1.4 kg

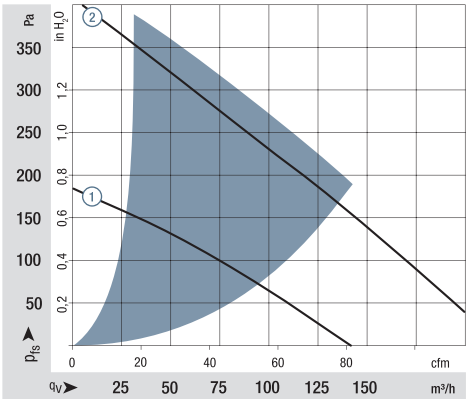
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

1) Fiberglass-reinforced plastic

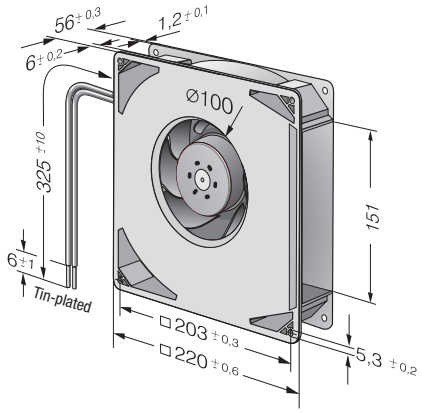
Series RG 160 N

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 160-28/12 NM	139	81	**12**	7...14	5.6	■	7.5	1 900	-20...+70	80 000 / 40 000	135 000	①
RG 160-28/12 N	209	123	**12**	7.5...14	6.6	■	21.0	2 850	-20...+70	70 000 / 35 000	117 500	②
RG 160-28/14 NM	139	81	**24**	12...28	5.6	■	7.0	1 900	-20...+70	80 000 / 40 000	135 000	①
RG 160-28/14 N	209	123	**24**	12...28	6.6	■	20.0	2 850	-20...+70	70 000 / 35 000	117 500	②
RG 160-28/18 N	209	123	**48**	28...60	6.6	■	20.0	2 850	-20...+70	70 000 / 35 000	117 500	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

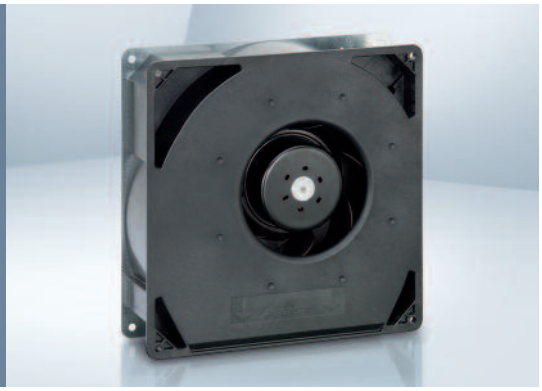


ebmpapst

Max. 444 m³/h

DC centrifugal fans

☐ 220 x 56 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
  Base plate: Sheet steel
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Connection:** Via single wires AWG 22, TR 64
  48 V model: Flat plug
  6.3 x 0.8 mm for ground conductor
- **Highlights:** Smoothly operating 3-phase fan drive
  Backward-curved impeller
- **Weight:** 1.4 kg

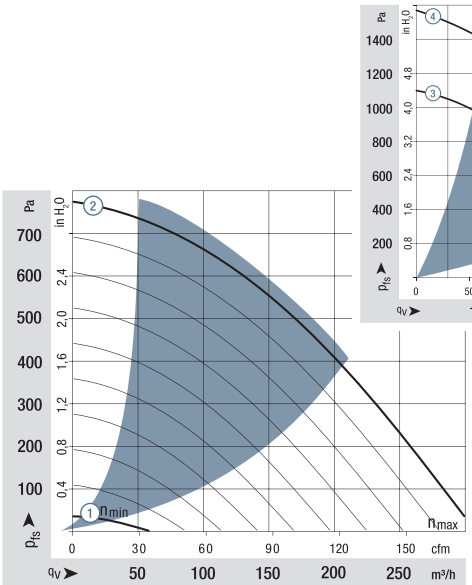
1) Fiberglass-reinforced plastic

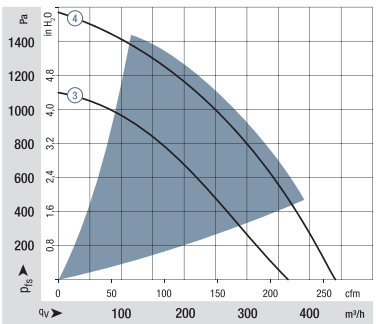
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Humidity protection
  - Degree of protection: IP 54

Series RG 160 NTD **Nominal data**		Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
	Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□ / ■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
Min.	RG 160-28/14 NTD...	59	34.7	**24**	16...28	—		2.0	800	-20...+60	55 000 / 35 000	92 500	①
Max.		308	181			7.5	■	64	4 200				②
	RG 160-28/14 NTD	308	181	**24**	16...28	7.5	■	64	4 200	-20...+60	55 000 / 35 000	92 500	②
	RG 160-28/14 NTDH	370	218	**24**	16...28	7.8	■	101	5 000	-20...+60	50 000 / 32 500	85 000	③
Min.	RG 160-28/18 NTD...	59	34.7	**48**	38...57	—		2.0	800	-20...+70	55 000 / 27 500	92 500	①
Max.		308	181			7.5	■	59	4 200				②
	RG 160-28/18 N/2 TDHHP*	444	261	**48**	36...60	8.5	■	159	6 000	-20...+65	40 000 / 22 500	67 500	④

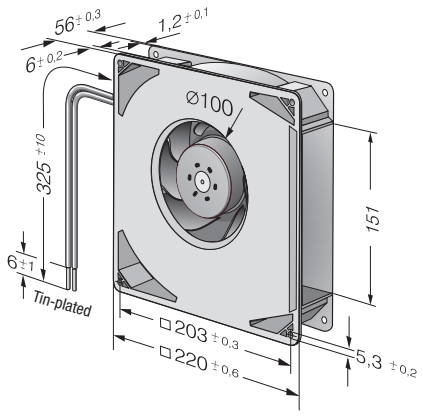
Subject to change

Models RG 160-28/14 NTD... and RG 160-28/18 NTD... are available in customer-specific, custom-developed variants only.
The figures indicated are technically feasible benchmark values.
The fans can be specially adapted to your application with signal outputs and control inputs.
*The specific service life is valid when an external capacitor is wired between the positive and negative wires.
Please note the wiring suggestion.





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

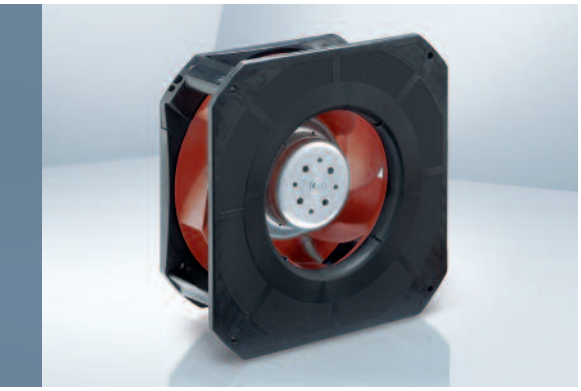


Max. 930 m³/h

S-Force

DC centrifugal fans

□ 226 x 85 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive
  Backward-curved RadiCal impeller
- **Weight:** 1210 g

1) Fiberglass-reinforced plastic

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

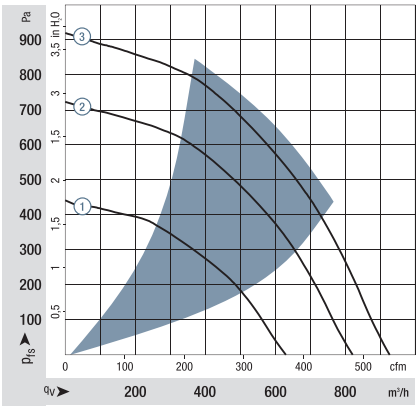
Series RG 190 TD

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 190-39/14/2 TDMLO	630	371	**24**	16...30	7.6	■	54	3 000	-20...+60	55 000 / 35 000	92 500	①
RG 190-39/14/2 TDMO	820	482	**24**	16...36	7.9	■	113	3 900	-20...+65	52 500 / 30 000	87 500	②
RG 190-39/18/2 TDMLO*	630	371	**48**	36...57	7.6	■	52	3 000	-20...+65	55 000 / 30 000	92 500	①
RG 190-39/18/2 TDMO	820	482	**48**	36...72	7.9	■	113	3 900	-20...+65	52 500 / 30 000	87 500	②
RG 190-39/18/2 TDO	930	547	**48**	36...72	8.3	■	140	4 400	-20...+65	40 000 / 22 500	67 500	③

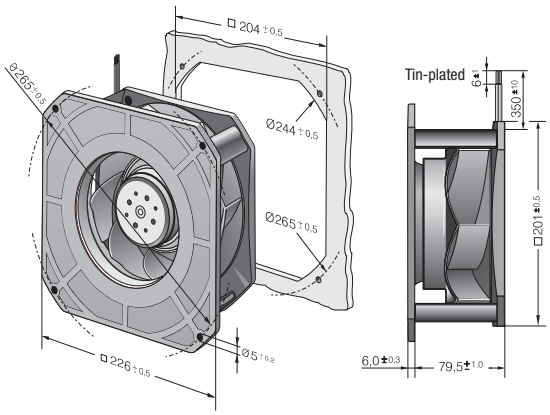
Subject to change

* On request

Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM. Standstill at 0% PWM, Standstill if control cable is interrupted.



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

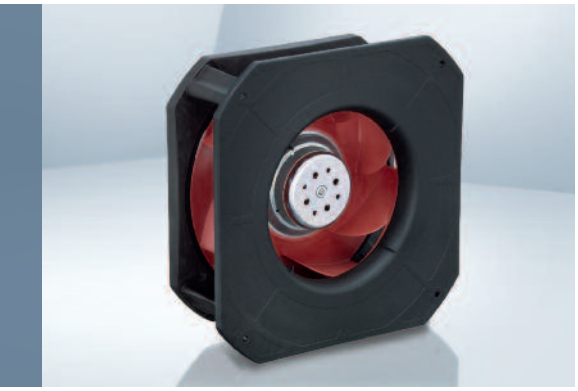


Max. 1100 m³/h

S-Force

DC centrifugal fans – RadiCal

☐ 270 x 99 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake,
  Centrifugal: Exhaust
- **Direction of rotation:** Clockwise,
  looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive
  Backward-curved impeller
- **Weight:** 1560 g

1) Fiberglass-reinforced plastic

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Humidity protection
  - Salt spray protection
  - Degree of protection:IP 54

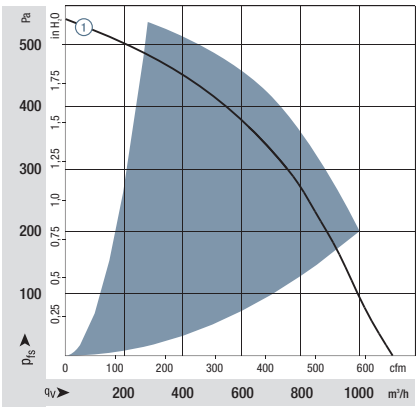
Series RG 220 TD

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 220-43/14/2 TDM0	1100	647	**24**	16...36	7.5	■	101	3 000	-20...+55	55 000 / 40 000	92 500	①
RG 220-43/18/2 TDM0*	1100	647	**48**	36...72	7.5	■	101	3 000	-20...+55	55 000 / 40 000	92 500	①

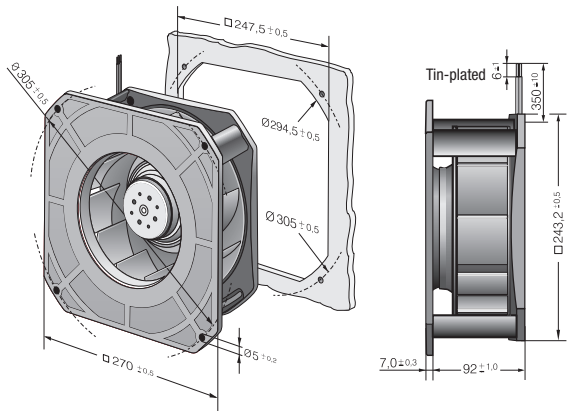
Subject to change

* On request

Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, Standstill if control cable is interrupted.
Further types available on request.



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

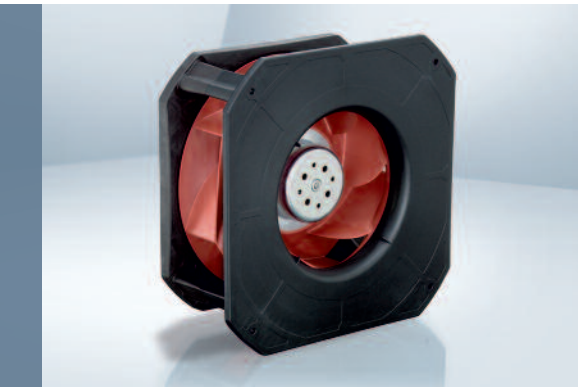


Max. 1450 m³/h

S-Force

DC centrifugal fans – RadiCal

□ 270 x 119 mm



- **Material:** Scroll housing: GRP[1)]
  Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive
  Backward-curved RadiCal impeller
- **Weight:** 1750 g

1) Fiberglass-reinforced plastic

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Humidity protection
  - Salt spray protection
  - Degree of protection: IP 54

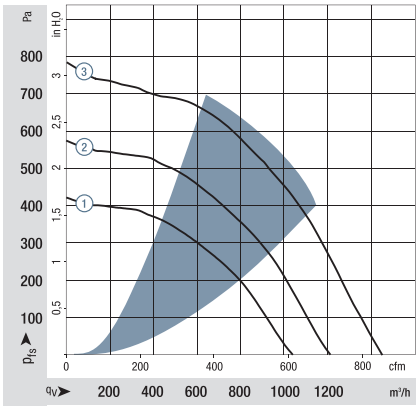
Series RG 225 TD

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RG 225-55/14/2 TDML0	1090	641	**24**	16...36	7.4	■	80	2 500	-20...+65	52 500 / 30 000	87 500	①
RG 225-55/18/2 TDML0*	1090	641	**48**	36...72	7.4	■	80	2 500	-20...+65	52 500 / 30 000	87 500	①
RG 225-55/18/2 TDM0	1210	712	**48**	36...72	7.9	■	116	2 800	-20...+55	55 000 / 40 000	92 500	②
RG 225-55/18/2 TD0	1450	853	**48**	36...60	8.1	■	192	3 300	-20...+40	30 000 / 30 000	50 000	③

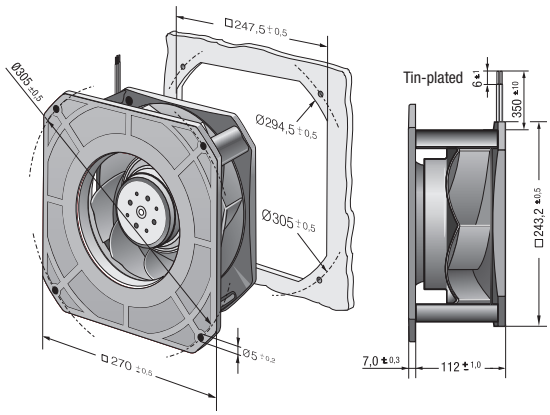
Subject to change

* On request

Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM. Standstill at 0% PWM, Standstill if control cable is interrupted.
The specific service life is valid when an external capacitor is wired between the positive and negative wires.
Please note the wiring suggestion.



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. 220 m³/h

S-Force

DC centrifugal fans

Ø 97 x 41 mm

- **Material:** Impeller: Galvanized sheet steel
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive, Forward-curved impeller, Fan requires a scroll housing
- **Weight:** 430 g

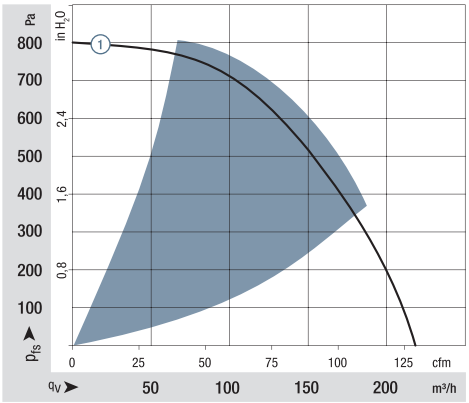
- **Possible special versions:**
(See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection

Series RET 97 TD

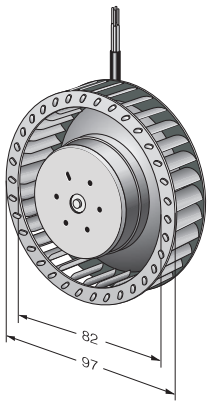
Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RET 97-25/14/2 TDP	220	129	**24**	16...32	8.1	■	77	6 000	-20...+60	80 000 / 50 000	135 000	①
RET 97-25/18/2 TDP	220	129	**48**	36...60	8.1	■	76	6 000	-20...+60	80 000 / 50 000	135 000	①

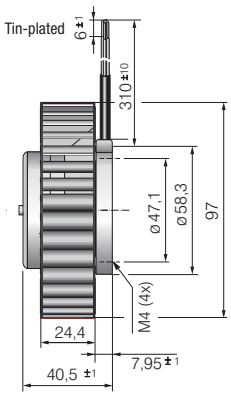
Subject to change

Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, maximum speed if control cable is interrupted.
To attain the specified service life, an external capacitor must be wired between the positive and negative wires. Please note the wiring suggestion.



Air performance measured according to: ISO 5801.
Installation category A, with ebm-papst scroll housing 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 parametersmust be checked after installation!
For detailed information see http://www.ebmpapst.com/general conditions





Max. 104 m³/h

DC centrifugal fans

Ø 104 x 25 mm

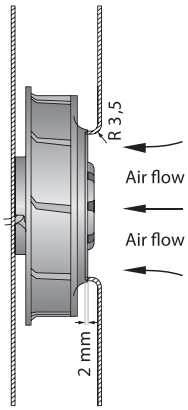
- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Backward-curved impeller
- **Weight:** 160 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Degree of protection: IP 54

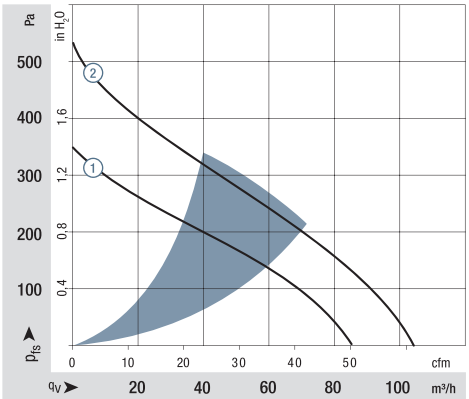
1) Fiberglass-reinforced plastic

Series REF 100 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
REF 100-11/12	86	50.6	**12**	8...15	6.3	■	7.5	5 400	-20...+75	80 000 / 30 000	135 000	①
REF 100-11/14	86	50.6	**24**	16...30	6.3	■	7.5	5 400	-20...+75	80 000 / 30 000	135 000	①
REF 100-11/18	86	50.6	**48**	36...60	6.3	■	8.2	5 400	-20...+75	80 000 / 30 000	135 000	①
REF 100-11/18 H	104	61.2	**48**	36...56	6.9	■	14.8	6 700	-20...+70	67 500 / 32 500	115 000	②

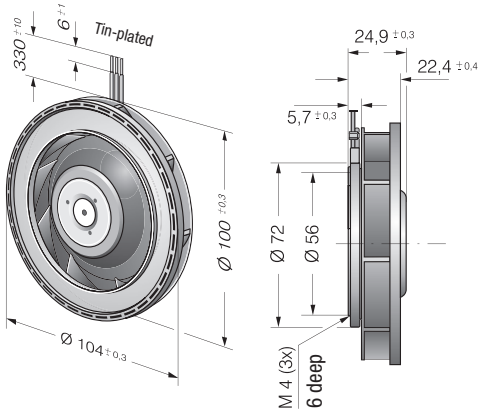
Subject to change



The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 127 x 127 mm.
Cover plate 127 x 127 mm, with an air inlet opening Ø 70 mm, arranged concentrically 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

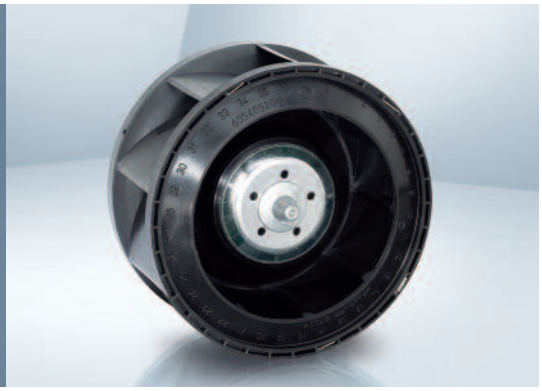


ebmpapst

Max. 190 m³/h

DC centrifugal fans

Ø 101 x 52 mm



- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Backward-curved impeller
- **Weight:** 305 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection

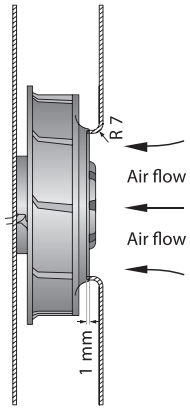
1) Fiberglass-reinforced plastic

Series RER 101 N

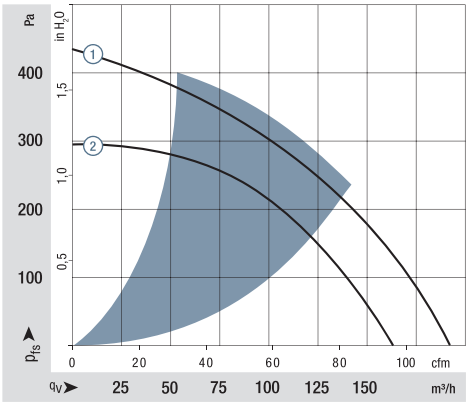
Nominal data

Type	Air flow m³/h	Air flow cfm	**Nominal voltage VDC**	Voltage range VDC	Sound power level Bel(A)	Sintec sleeve bearings □ / Ball bearings ■	Power consumption Watts	Nominal speed rpm⁻¹	Temperature range °C	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard Hours	Life expectancy L_{10IPC} (40 °C) see page 17 Hours	Curve
RER 101-36/12 NH	162	95	**12**	9...13.6	6.9	■	13.0	5 000	-20...+70	65 000 / 32 500	110 000	②
RER 101-36/12 NHH	190	112	**12**	9...13.6	7.2	■	20.5	6 000	-20...+70	60 000 / 30 000	102 500	①
RER 101-36/14 NHH	190	112	**24**	18...27.2	7.2	■	22.5	6 050	-20...+70	60 000 / 30 000	102 500	①
RER 101-36/18 NHH	190	112	**48**	36...60	7.2	■	19.4	5 850	-20...+70	60 000 / 30 000	102 500	①

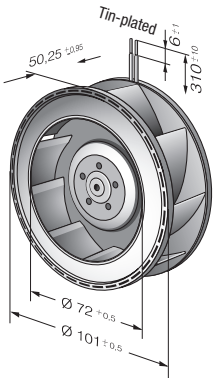
Subject to change

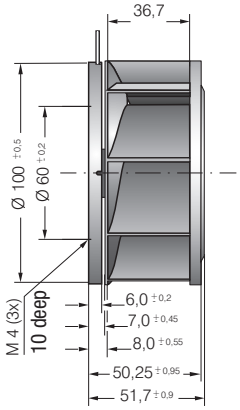


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 148 x 148 mm.
Cover plate 148 x 148 mm, with an air inlet opening Ø 66 mm, arranged concentrically 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. 390 m³/h

S-Force

DC centrifugal fans

Ø 120 x 54 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 430 g

1) Fiberglass-reinforced plastic

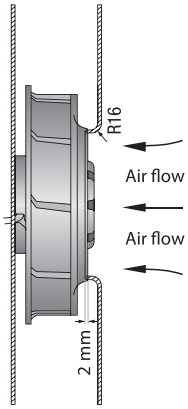
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection

Series RER 120 TD **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 120-26/14/2 TDMP*	320	188	**24**	16...32	tbd	■	51	5 200	-20...+60	60 000 / 37 500	102 500	①
RER 120-26/14/2 TDP	377	222	**24**	16...32	8.2	■	78	6 100	-20...+60	55 000 / 35 000	92 500	②
RER 120-26/18/2 TDMP*	320	188	**48**	36...60	tbd	■	51	5 200	-20...+60	57 500 / 35 000	97 500	①
RER 120-26/18/2 TDP	390	230	**48**	36...60	8.3	■	92	6 300	-20...+60	50 000 / 30 000	85 000	③

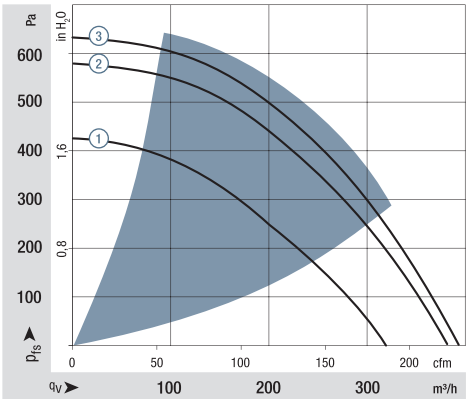
Subject to change

* On request

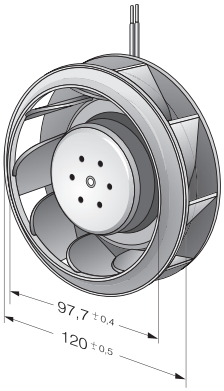
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM. Standstill at 0% PWM, maximum speed if control cable is interrupted.
The specific service life is valid when an external capacitor is wired between the positive and negative wires. Please note the wiring suggestion.

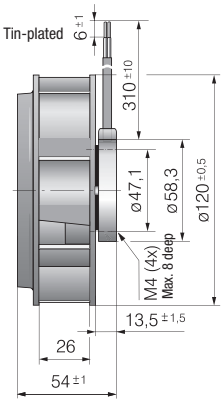


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 140 x 140 mm.
Cover plate 140 x 140 mm, with an air inlet opening Ø 94.4 mm, arranged concentrically 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





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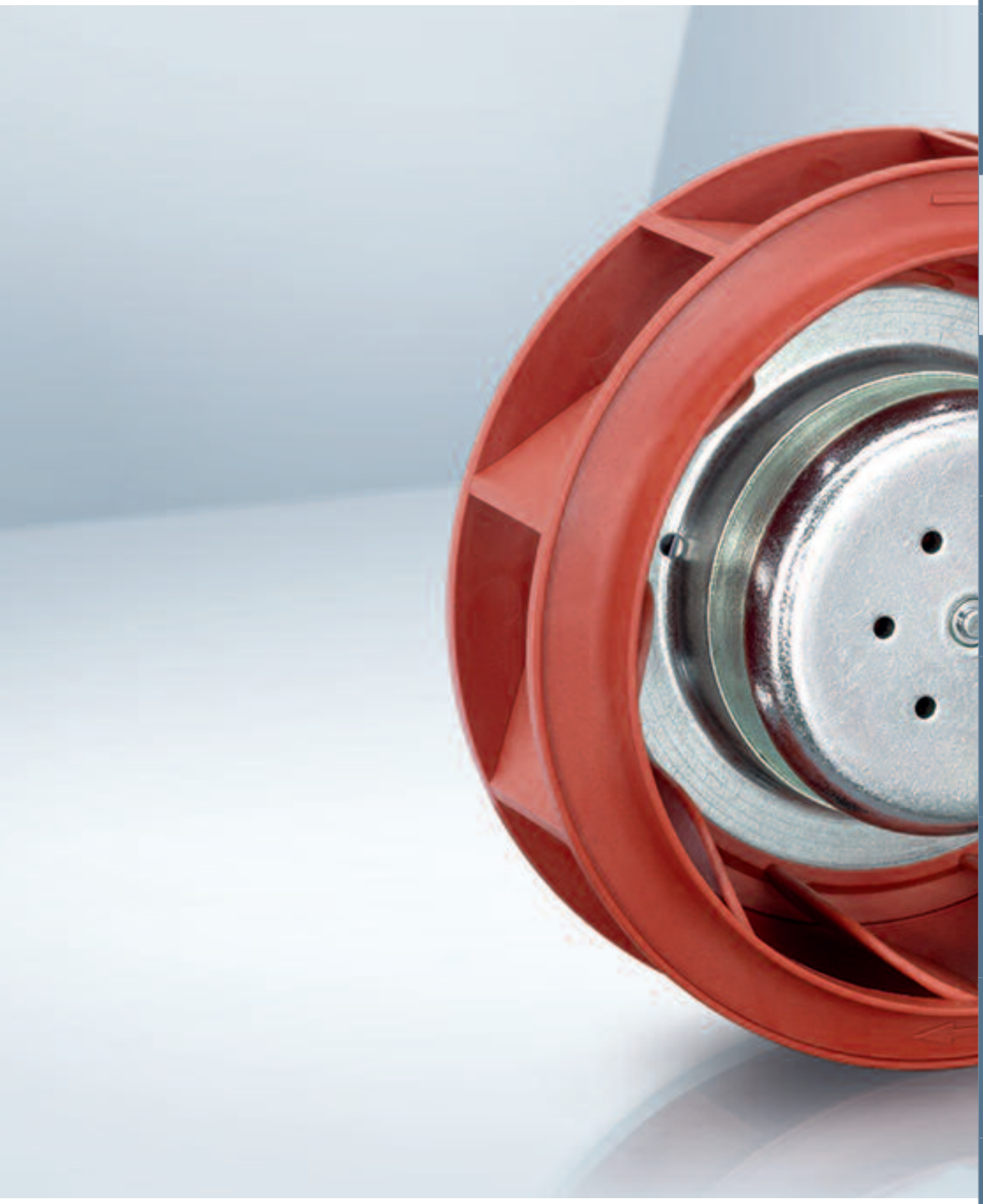


Max. 250 m³/h

DC centrifugal fans

Ø 120 mm

- **Material:** Impeller: PA 6.6 plastic, fiberglass-reinforced
  Rotor: Galvanized
- **Number of blades:** 9
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 20
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

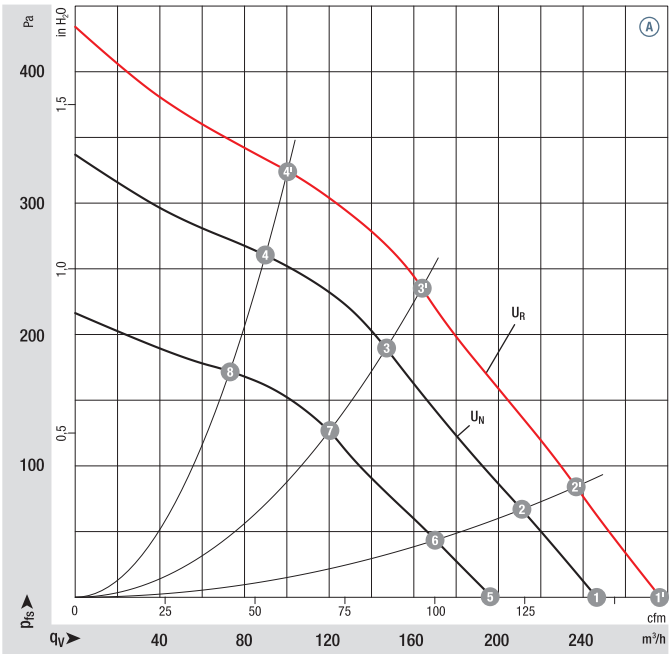
Type	Motor	Curve	Nominal voltage VDC	Nominal voltage range VDC	Air flow m³/h	Nominal speed rpm⁻¹	Power consumption W	Input current A	Sound pressure level dB(A)	Admissible amb. temp. °C	Technical features and connection diagram
R1G 120	M1G 045-BE	Ⓐ	24	16-28	250	4060	26	1.20	62	-25..+50	p. 259 / G)
R1G 120	M1G 045-BE	Ⓐ	48	36-57	250	4060	26	0.60	62	-25..+50	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)



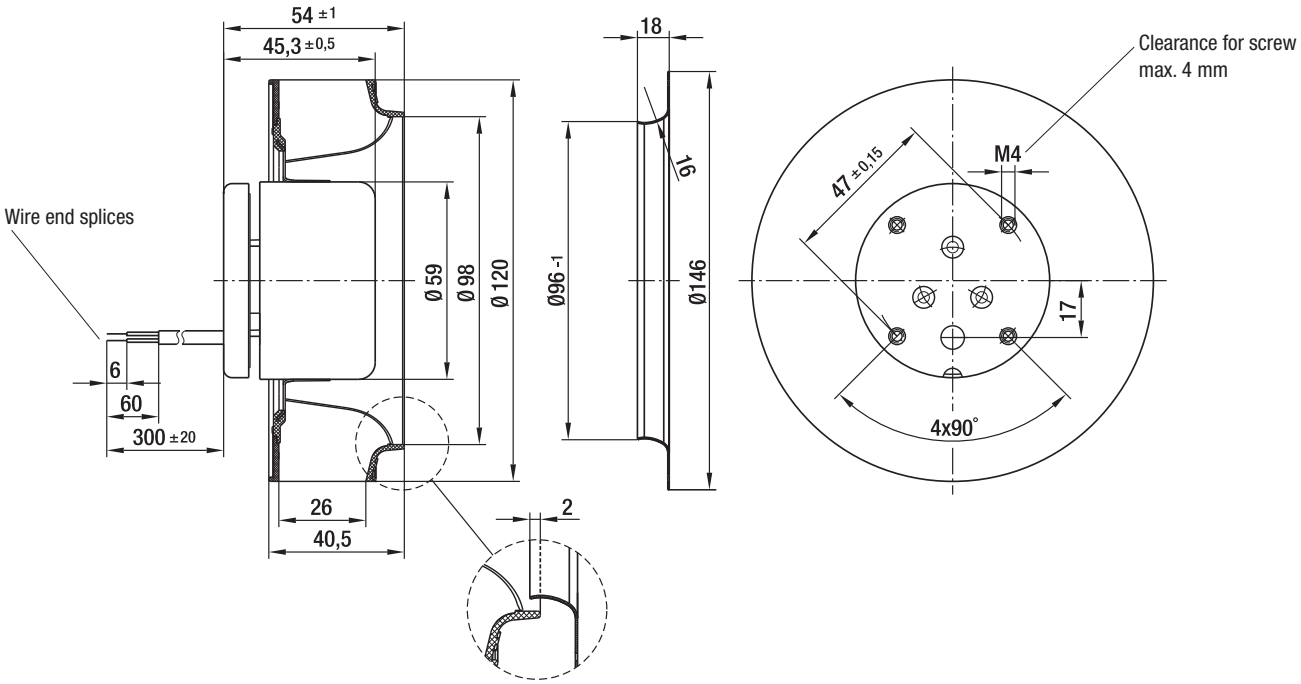
		n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ	1'	4520	36	65	—
Ⓐ	2'	4500	36	64	27
Ⓐ	3'	4540	36	61	45
Ⓐ	4'	4750	32	64	39
Ⓐ	1	4060	26	62	—
Ⓐ	2	4000	26	61	27
Ⓐ	3	4050	26	58	45
Ⓐ	4	4200	23	61	39
Ⓐ	5	3270	14	56	—
Ⓐ	6	3250	14	55	27
Ⓐ	7	3280	14	53	45
Ⓐ	8	3400	13	56	39

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: LWA according to ISO 13347, 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

ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

Centrifugal fans	Weight centrifugal fans kg	Inlet ring (long)
R1G 120-AD13 -02	0.5	96120-2-4013
R1G 120-AD11 -02	0.5	96120-2-4013



Max. 166 m³/h

DC centrifugal fans

Ø 138 x 35 mm

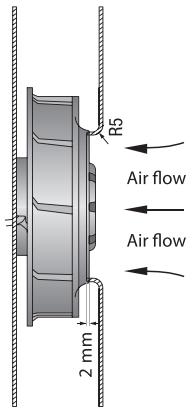
- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Backward-curved impeller
- **Weight:** 320 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54 / IP 68

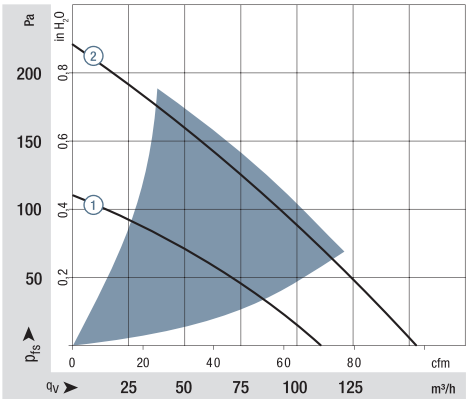
1) Fiberglass-reinforced plastic

Series RER 125 N **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□ / ■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 125-19/12 N	110	64.7	**12**	7...15	5.7	■	4.6	2 650	-30...+75	62 500 / 27 500	105 000	①
RER 125-19/14 N	110	64.7	**24**	12...28	5.7	■	4.3	2 650	-30...+75	62 500 / 27 500	105 000	①
RER 125-19/14 NH	166	97.7	**24**	12...28	7.0	■	13.0	4 000	-20...+70	55 000 / 27 500	92 500	②
RER 125-19/18 N	110	64.7	**48**	36...56	5.7	■	4.2	2 650	-30...+75	62 500 / 27 500	105 000	①

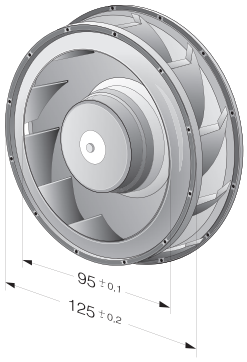
Subject to change

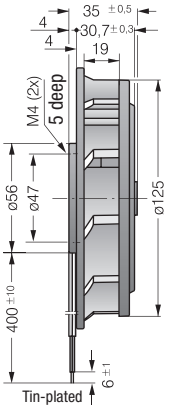


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 220 x 220 mm.
Cover plate 220 x 220 mm, with an air inlet opening Ø 86 mm, arranged concentrically 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





ebmpapst

Max. 565 m³/h

S-Force

DC centrifugal fans

Ø 133 x 91 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 890 g

1) Fiberglass-reinforced plastic

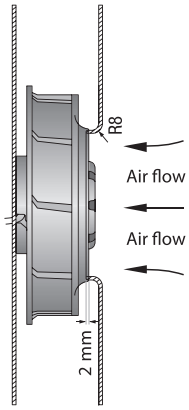
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

Series RER 133 TD **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 133-41/14/2 TDMP	460	271	**24**	16...30	tbd	■	58	5 000	-20...+65	72 500 / 40 000	122 500	①
RER 133-41/14/2 TDP*	565	332	**24**	16...36	tbd	■	90	6 000	-20...+65	70 000 / 37 500	117 500	②
RER 133-41/18/2 TDMP*	460	271	**48**	36...57	tbd	■	50	5 000	-20...+65	72 500 / 40 000	122 500	①
RER 133-41/18/2 TDP	565	332	**48**	36...72	8.2	■	87	6 000	-20...+65	70 000 / 37 500	117 500	②

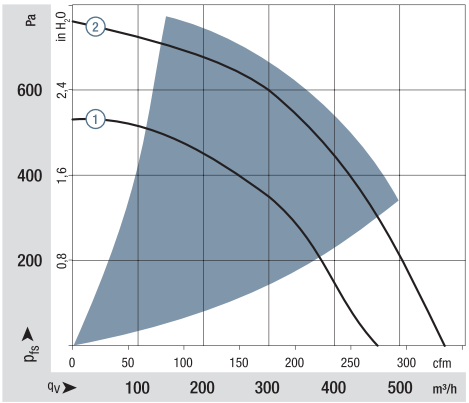
Subject to change

* On request

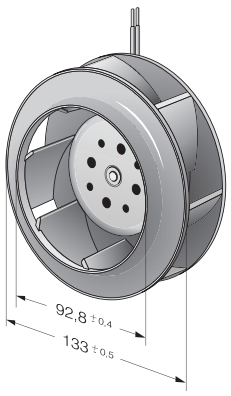
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, maximum speed if control cable is interrupted.

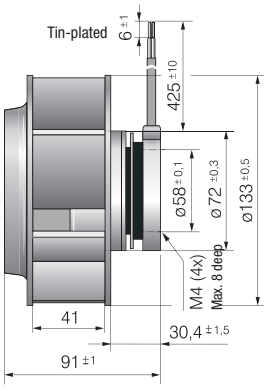


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 140 x 140 mm.
Cover plate 140 x 140 mm, with an air inlet opening Ø 87 mm, arranged concentrically 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. 255 m³/h

DC centrifugal fans

Ø 165 x 51 mm

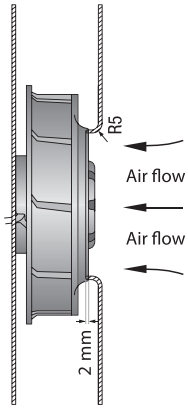
- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Counterclockwise, looking towards rotor
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Backward-curved impeller
- **Weight:** 590 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

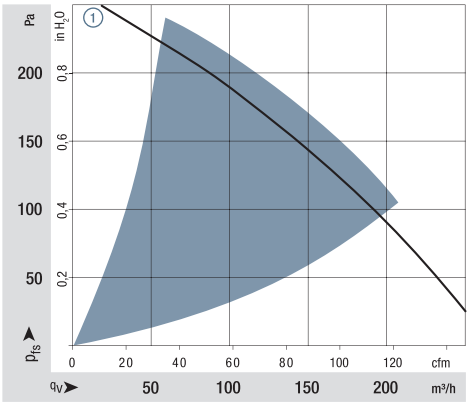
1) Fiberglass-reinforced plastic

Series RER 160 N **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 160-28/12 N	255	150	**12**	7...14	6.4	■	19.0	3 000	-20...+70	75 000 / 37 500	127 500	①
RER 160-28/14 N	255	150	**24**	12...28	6.4	■	19.0	3 000	-20...+70	75 000 / 37 500	127 500	①
RER 160-28/18 N	255	150	**48**	28...60	6.4	■	19.0	3 000	-20...+70	75 000 / 37 500	127 500	①

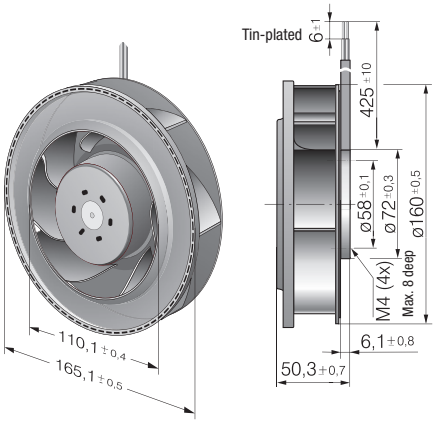
Subject to change



The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 260 x 260 mm.
Cover plate 260 x 260 mm, with an air inlet opening Ø 100 mm, arranged concentrically 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. 360 m³/h

S-Force

DC centrifugal fans

Ø 165 x 51 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 22, TR 64
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive, Backward-curved impeller
- **Weight:** 590 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Humidity protection
  - Degree of protection: IP 54

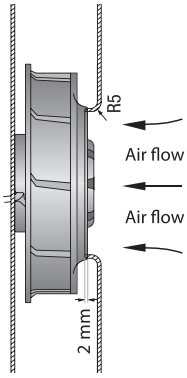
1) Fiberglass-reinforced plastic

Series RER 160 NTD

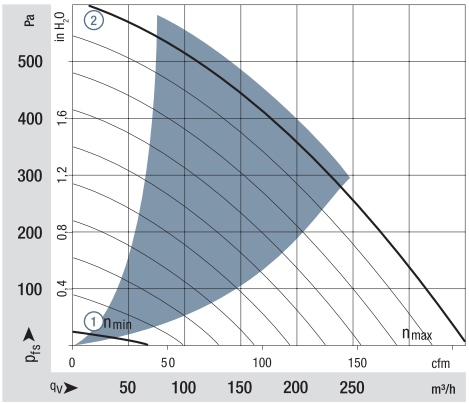
Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 160-28/14 NTD…	360	211	**24**	16...28	7.4	■	51	4 200	-20...+60	55 000 / 27 500	92 500	②
RER 160-28/18 NTD…	360	211	**48**	38...57	7.4	■	48	4 200	-20...+70	55 000 / 27 500	92 500	①

Subject to change

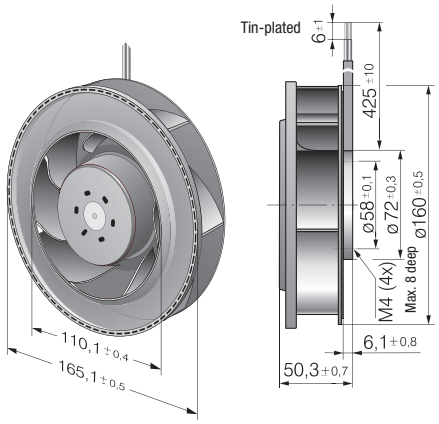
Model RER 160-28/18 NTD... is available in customer-specific, custom-developed variant only.
The figures indicated are technically feasible benchmark values. The fans can be specially adapted to your application with signal outputs and control inputs.
* The specific service life is valid when an external capacitor is wired between the positive and negative wires.
Please note the wiring suggestion.



The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 260 x 260 mm.
Cover plate 260 x 260 mm, with an air inlet opening Ø 100 mm, arranged concentrically 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

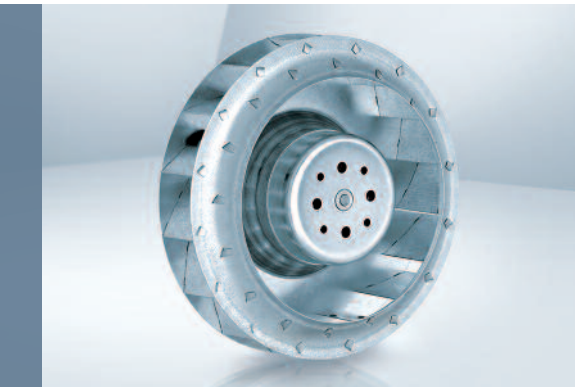


Max. 800 m³/h

S-Force

DC centrifugal fans

Ø 175 x 55 mm



- **Material:** Impeller: Galvanized sheet steel
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** via single wires AWG 18, 20 or AWG 22, TR 64. Speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 930 g

- **Possible special versions:**
(See chapter DC fans - specials)
- Speed signal
- Go / NoGo alarm
- Alarm with speed limit
- External temperature sensor
- Internal temperature sensor
- PWM control input
- Analog control input
- Multi-option control input
- Humidity protection
- Degree of protection: IP 54

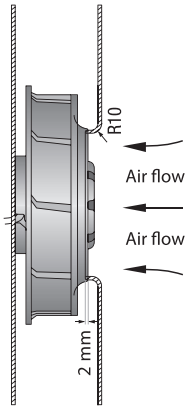
Series RER 175 TD

Nominal data

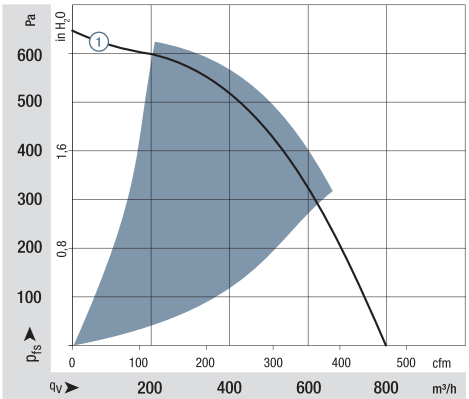
Type	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
	m³/h	cfm	VDC	VDC	Bel(A)	□/■	Watts	rpm⁻¹	°C	Hours	Hours	
REF 175-30/18/2 TDP	800	470	**48**	36 ... 72	8.3	■	144	4 400	-20...+60	65 000 / 37 500	110 000	①

Subject to change

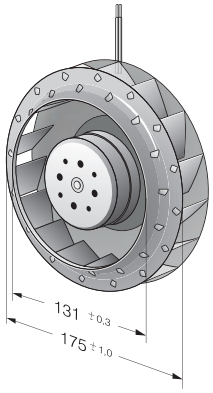
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, maximum speed if control cable is interrupted.

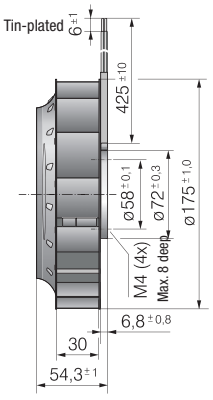


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 180 x 180 mm.
Cover plate 180 x 180 mm, with an air inlet opening Ø 125.5 mm, arranged concentrically 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





ebmpapst

Max. 980 m³/h

S-Force

DC centrifugal fans

Ø 175 x 69 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** Via single wires AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 775 g

1) Fiberglass-reinforced plastic

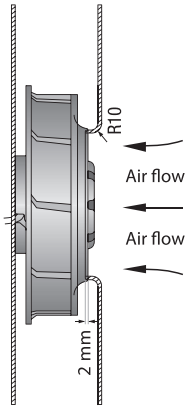
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

Series RER 175 TD **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 175-42/14/2 TDMLP	600	353	**24**	16...30	7.3	■	48	3 400	-20...+65	72 500 / 40 000	122 500	①
RER 175-42/14/2 TDMP	865	509	**24**	16...36	8.2	■	110	4 800	-20...+65	70 000 / 40 000	117 500	②
RER 175-42/18/2 TDMLP	600	353	**48**	36...57	7.3	■	46	3 400	-20...+65	72 500 / 40 000	122 500	①
RER 175-42/18/2 TDMP*	865	509	**48**	36...72	8.2	■	110	4 800	-20...+65	70 000 / 40 000	117 500	②
RER 175-42/18/2 TDP	980	577	**48**	36...72	8.5	■	166	5 400	-20...+65	60 000 / 32 500	102 500	③

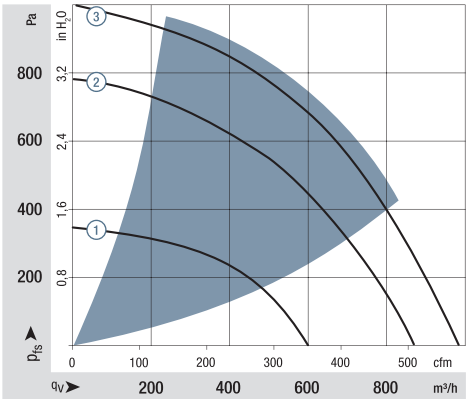
Subject to change

* On request

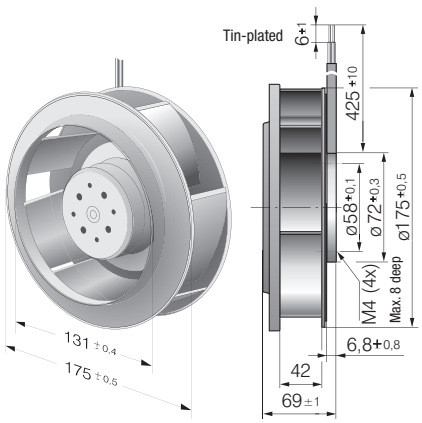
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, maximum speed if control cable is interrupted.



The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 180 x 180 mm.
Cover plate 180 x 180 mm, with an air inlet opening Ø 125.5 mm, arranged concentrically 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. 970 m³/h

S-Force

DC centrifugal fans – RadiCal

Ø 190 x 69 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** Via single wires AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved RadiCal impeller
- Weight: 870 g

1) Fiberglass-reinforced plastic

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Moisture protection
  - Salt spray protection
  - Degree of protection: IP 54

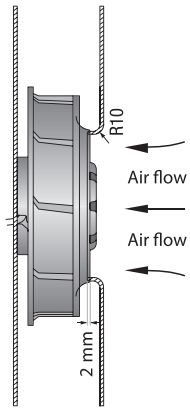
Series RER 190 TD

Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□/■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 190-39/14/2 TDMLO	650	382	**24**	16...30	7.6	■	58	3 000	-20...+60	55 000 / 35 000	92 500	①
RER 190-39/14/2 TDMO	860	506	**24**	16...36	7.9	■	110	3 900	-20...+65	52 500 / 30 000	87 500	②
RER 190-39/18/2 TDMLO*	650	382	**48**	36...57	7.6	■	56	3 000	-20...+65	55 000 / 30 000	92 500	①
RER 190-39/18/2 TDMO*	860	506	**48**	36...72	7.9	■	105	3 900	-20...+65	52 500 / 30 000	87 500	②
RER 190-39/18/2 TDO	970	571	**48**	36...72	8.3	■	148	4 400	-20...+65	40 000 / 22 500	67 500	③

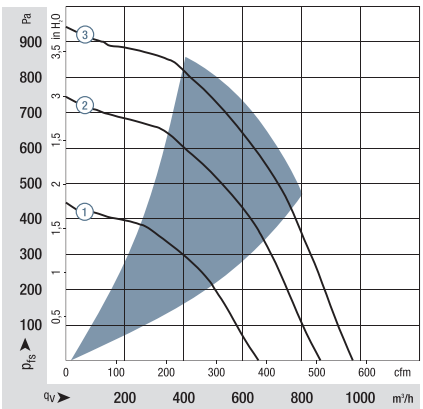
Subject to change

* On request

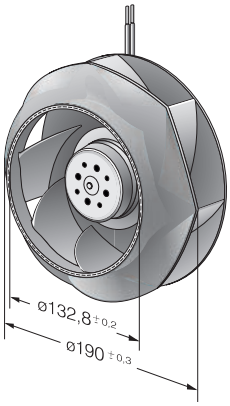
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, Standstill if control cable is interrupted.

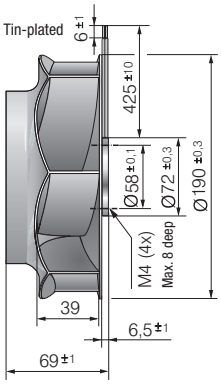


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 195 x 195 mm.
Cover plate 195 x 195 mm, with an air inlet opening Ø 125.5 mm, arranged concentrically 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

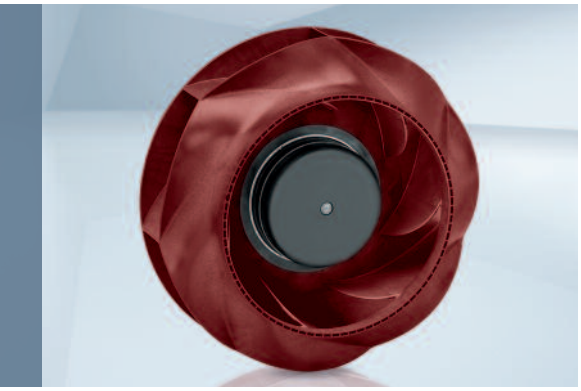




Max. 930 m³/h

DC centrifugal fans – RadiCal

Ø 190 mm



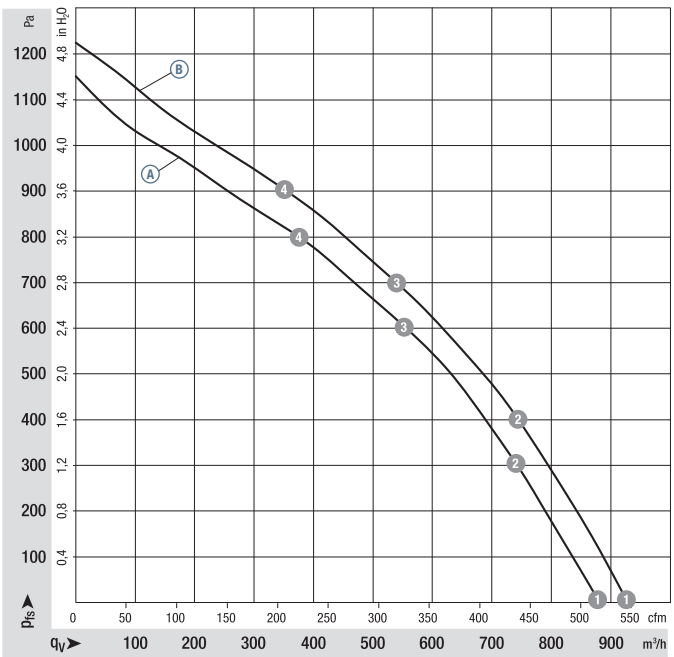
- **Material:** Impeller: PA plastic; Rotor: Painted black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 190	M3G 074-CF	Ⓐ	24	16-28	880	4570	180	7.50	76	-25..+60	p. 262 / J5)
R3G 190	M3G 074-CF	Ⓑ	48	36-57	930	4800	192	4.00	76	-25..+60	p. 262 / J5)

Subject to change

Curves:



		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	4570	180	7.50	84
Ⓐ	2	4525	188	7.83	79
Ⓐ	3	4435	199	8.34	77
Ⓐ	4	4520	191	7.96	81
Ⓑ	1	4800	192	4.00	84
Ⓑ	2	4690	212	4.41	80
Ⓑ	3	4640	221	4.60	79
Ⓑ	4	4740	205	4.28	81

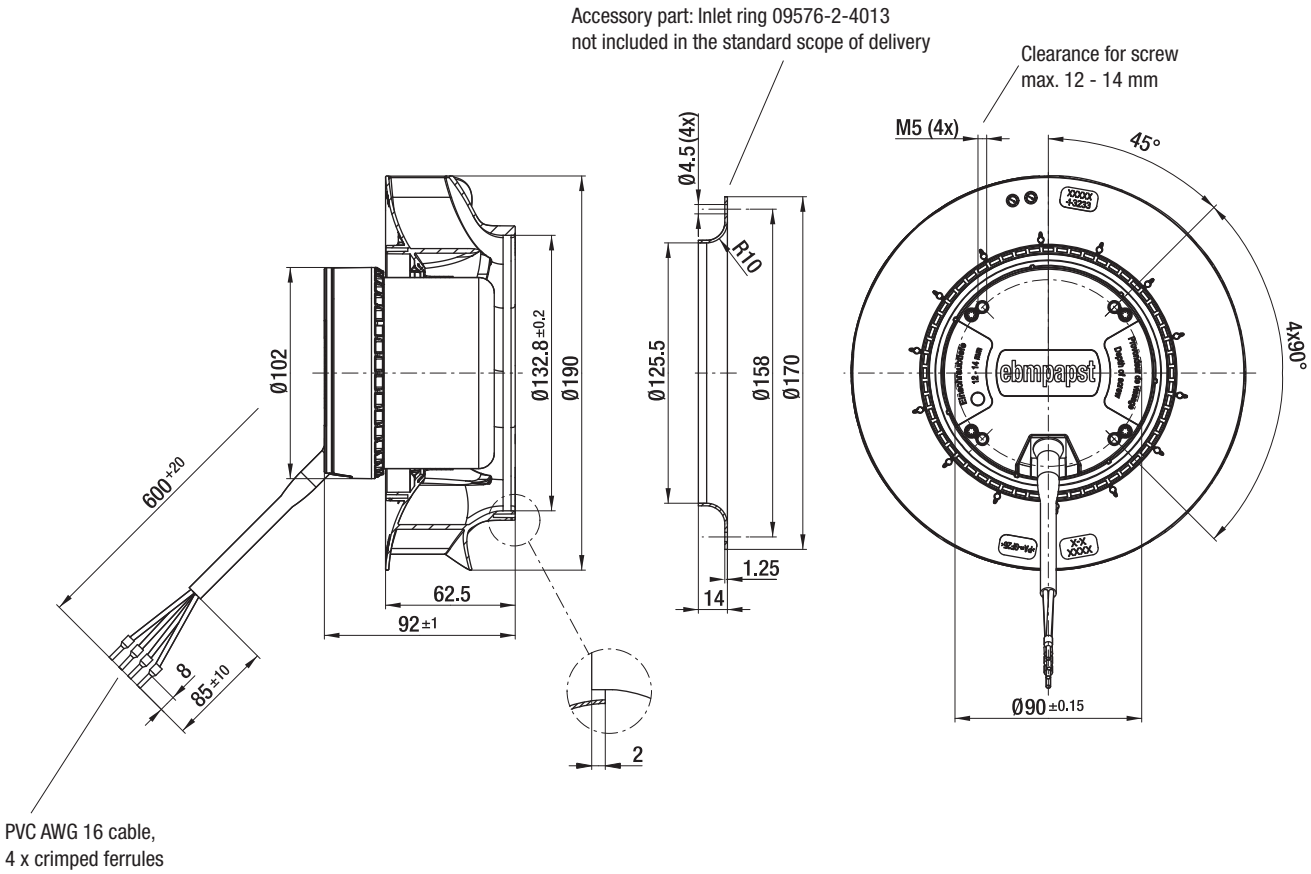
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: LWA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

Weight centrifugal fans

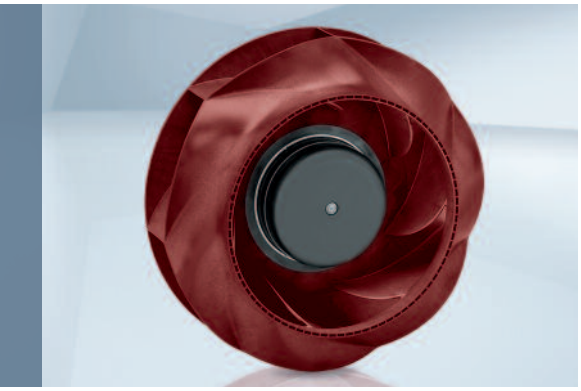
Centrifugal fans	kg	Inlet ring
R3G 190-RN38 -01	1.9	09576-2-4013
R3G 190-RN99 -02	1.9	09576-2-4013



Max. 1215 m³/h

DC centrifugal fans – RadiCal

Ø 220 mm



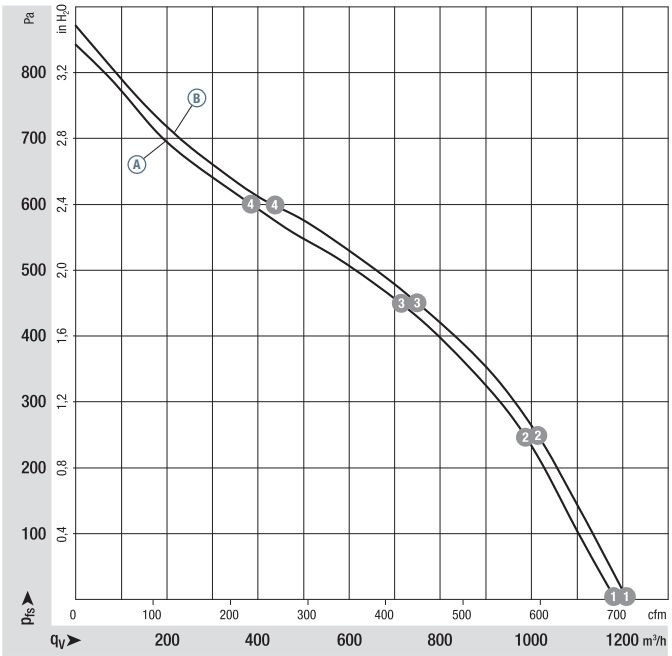
- **Material:** Impeller: PA plastic; Rotor: Painted black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 220	M3G 074-CF	Ⓐ	24	16-28	1200	3460	157	6.50	73	-25...+60	p. 262 / J5)
R3G 220	M3G 074-CF	Ⓑ	48	36-57	1215	3510	160	3.40	73	-25...+60	p. 262 / J5)

Subject to change

Curves:



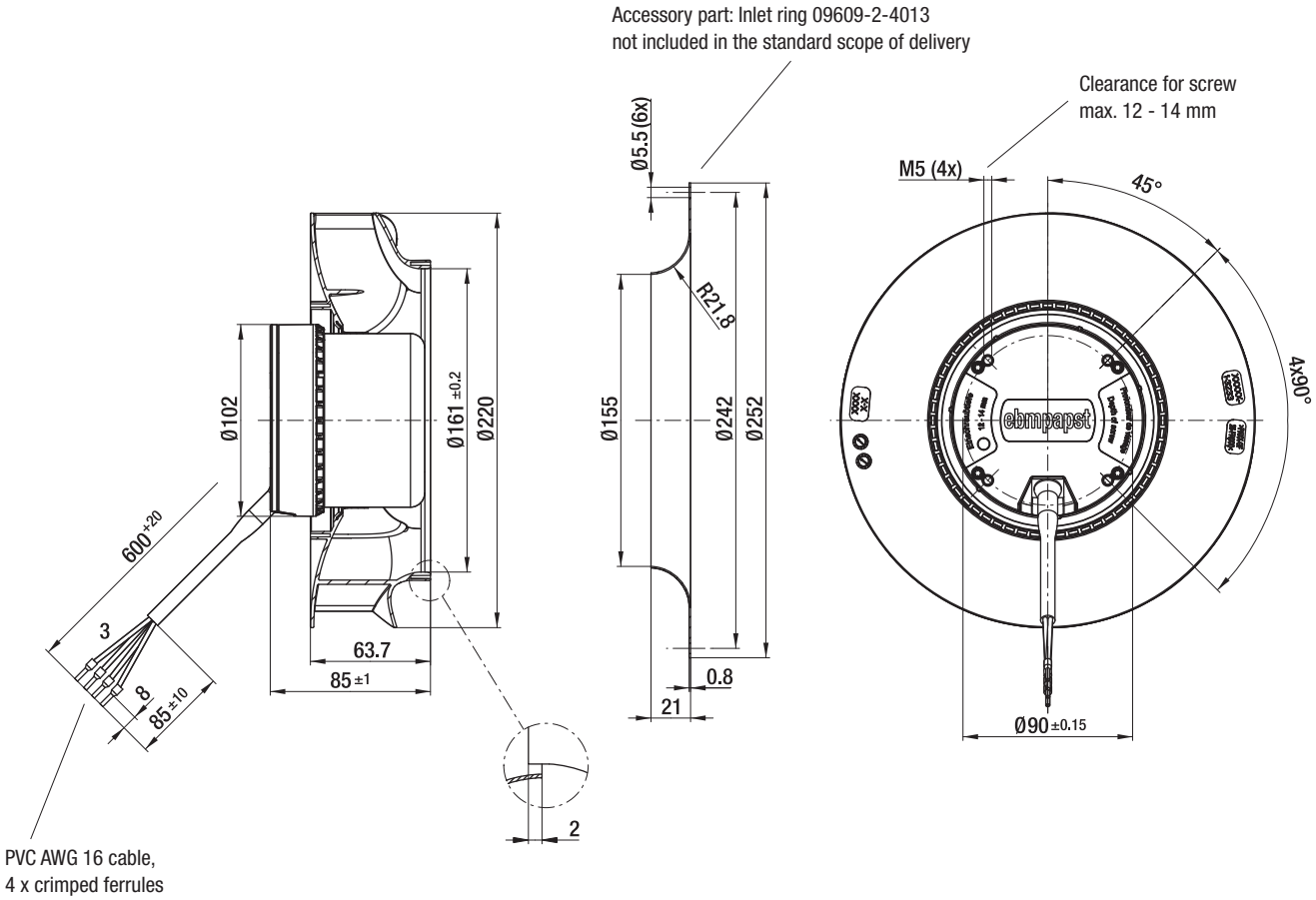
		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	3460	157	6.50	81
Ⓐ	2	3420	171	7.11	77
Ⓐ	3	3360	182	7.59	74
Ⓐ	4	3455	168	6.97	79
Ⓑ	1	3510	160	3.40	81
Ⓑ	2	3450	168	3.50	77
Ⓑ	3	3385	178	3.71	74
Ⓑ	4	3460	167	3.47	79

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: LWA according to ISO 13347, 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

Centrifugal fans	Weight centrifugal fans kg	Inlet ring
R3G 220-RN12 -01	1.9	09609-2-4013
R3G 220-RNB6 -02	1.9	09609-2-4013

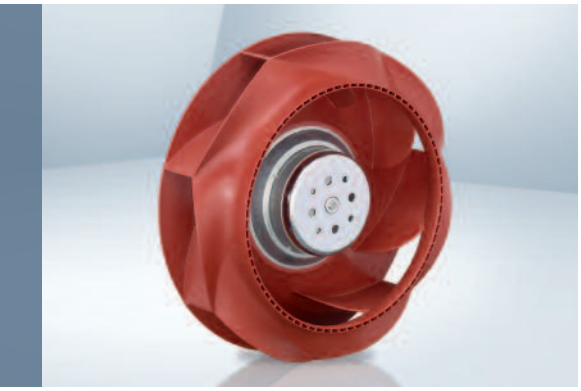


Max. 1250 m³/h

S-Force

DC centrifugal fans – RadiCal

Ø 221 x 71 mm



- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** Via single wires AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 940 g

1) Fiberglass-reinforced plastic

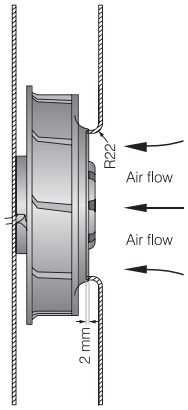
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Humidity protection
  - Salt spray protection
  - Degree of protection: IP 54

Series RER 220 TD **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	□/■	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 220-43/14/2 TDM0*	1063	625	**24**	16...36	tbd	■	110	3 000	-20...+55	65 000 / 45 000	110 000	①
RER 220-43/18/2 TDM0	1063	625	**48**	36...72	tbd	■	110	3 000	-20...+55	65 000 / 45 000	110 000	①
RER 220-43/18/2 TD0	1250	735	**48**	36...72	tbd	■	160	3 500	-20...+55	60 000 / 42 500	102 500	②

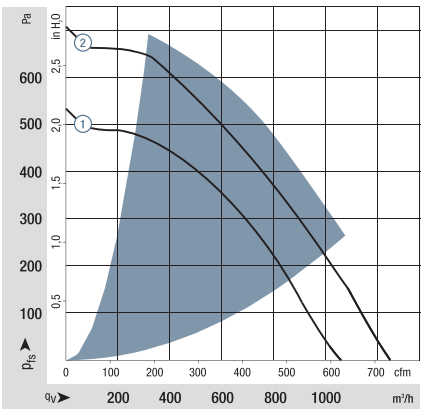
Subject to change

* On request

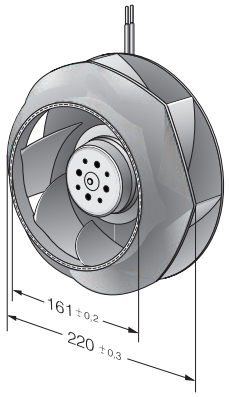
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, Standstill if control cable is interrupted.

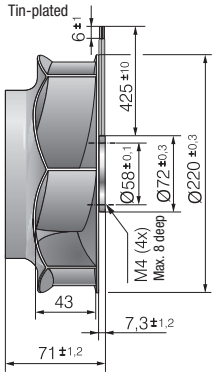


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 230 x 230 mm.
Cover plate 230 x 230 mm, with an air inlet opening Ø 155 mm, arranged concentrically 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 LWA ISO 103002 measured on a hemisphere with a distance of 2 m.
Sound pressure level LpA 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. 1600 m³/h

S-Force

DC centrifugal fans

Ø 225 x 99 mm

- **Material:** Impeller: GRP[1)]
- **Direction of air flow:** Axial: Intake, Centrifugal: Exhaust
- **Direction of rotation:** Clockwise, looking towards rotor
- **Connection:** Via single wires AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22
- **Highlights:** Highly efficient and smoothly operating 3-phase fan drive Backward-curved impeller
- **Weight:** 1030 g

1) Fiberglass-reinforced plastic

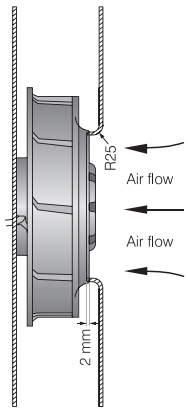
- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Go / NoGo alarm
  - Alarm with speed limit
  - External temperature sensor
  - Internal temperature sensor
  - PWM control input
  - Analog control input
  - Multi-option control input
  - Humidity protection
  - Salt spray protection
  - Degree of protection: IP 54

Series RER 225 TD

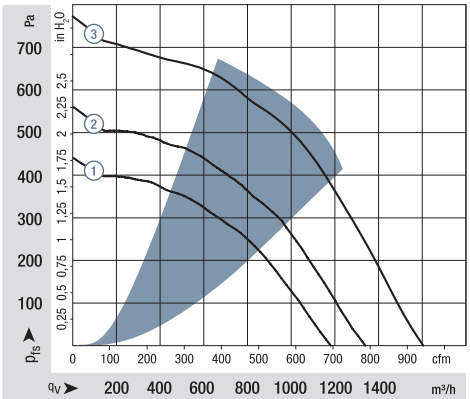
Nominal data	Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sintec sleeve bearings / Ball bearings	Power consumption	Nominal speed	Temperature range	Service life L_{10} (40 °C) ebm-papst standard / Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**Bel(A)**	**□ / ■**	**Watts**	**rpm⁻¹**	**°C**	**Hours**	**Hours**	
RER 225-63/18/2 TDMLO	1190	700	**48**	36...72	7.2	■	77	2 500	-20...+55	70 000 / 50 000	122 500	①
RER 225-63/18/2 TDMO	1340	789	**48**	36...72	7.8	■	108	2 800	-20...+55	55 000 / 40 000	92 500	②
RER 225-63/18/2 TDO	1600	941	**48**	36...72	8.1	■	163	3 300	-20...+55	52 500 / 37 500	87 500	③

Subject to change

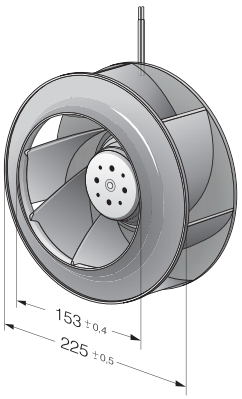
Speed control range from 800 rpm⁻¹ at 7% PWM up to nominal speed at > 90% PWM.
Standstill at 0% PWM, Type O: Standstill if control cable is interrupted. Type P: Maximum speed if control cable is interrupted.

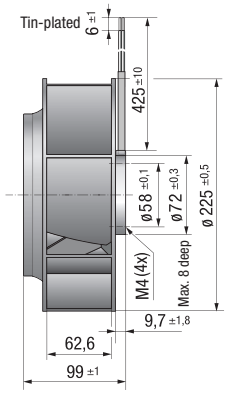


The air flow and sound level of the centrifugal fans without external housing depend on their individual installation conditions.
The stated air flow and sound level were recorded under the following measurement parameters:
Centrifugal fan mounted on a foundation plate 230 x 230 mm.
Cover plate 230 x 230 mm, with an air inlet opening Ø 146 mm, arranged concentrically 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 LWA ISO 103002 measured on a hemisphere with a distance of 2 m.
Sound pressure level LpA 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

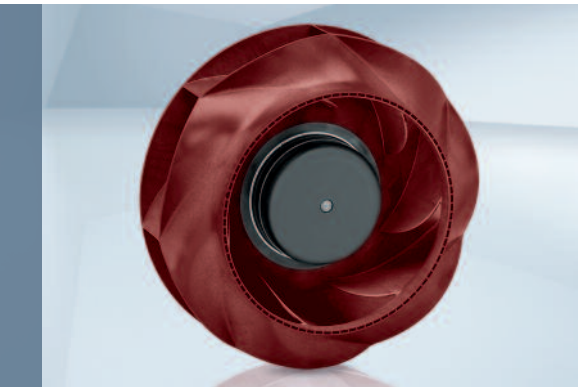




Max. 1340 m³/h

DC centrifugal fans – RadiCal

Ø 225 mm



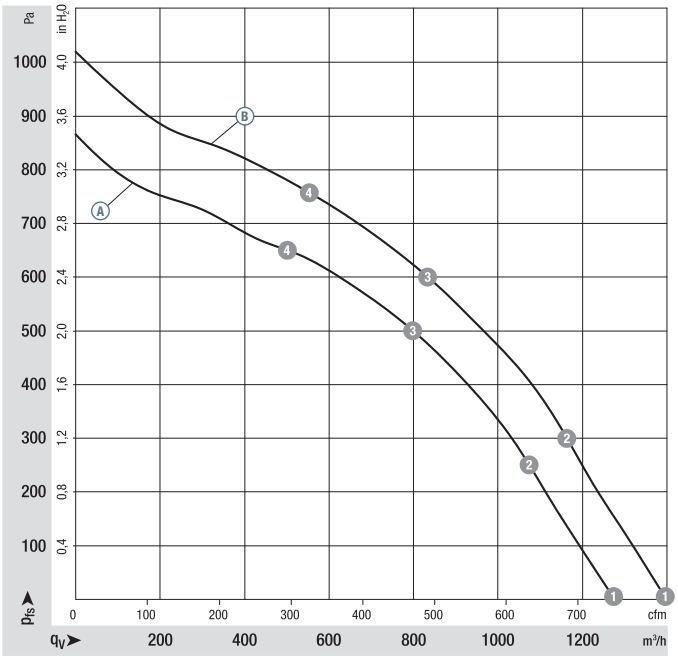
- **Material:** Impeller: PA plastic; Rotor: Painted black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 225	M3G 074-CF	Ⓐ	24	16-28	1300	3270	205	8.50	75	-25...+60	p. 262 / J5)
R3G 225	M3G 074-CF	Ⓑ	48	36-57	1340	3400	230	4.80	73	-25...+60	p. 262 / J5)

Subject to change

Curves:

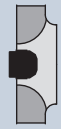


		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	3270	205	8.50	81
Ⓐ	2	3200	208	8.66	78
Ⓐ	3	3185	213	8.88	74
Ⓐ	4	3260	194	8.02	77
Ⓑ	1	3400	230	4.80	83
Ⓑ	2	3440	257	5.35	80
Ⓑ	3	3435	260	5.43	76
Ⓑ	4	3500	239	4.97	78

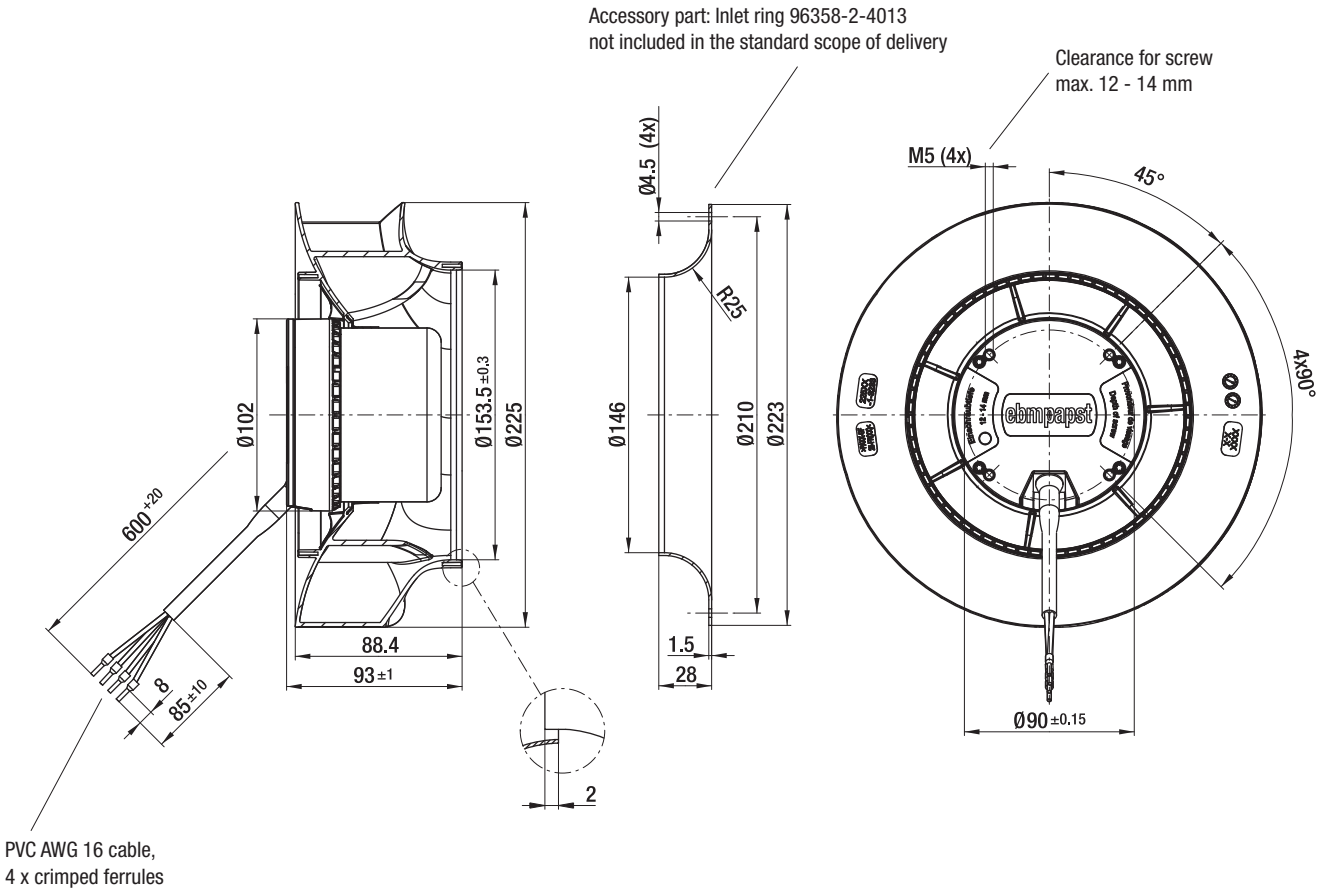
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC



Centrifugal fans	Weight centrifugal fans kg	Inlet ring
R3G 225-RN28 -01	2.1	96358-2-4013
R3G 225-RN18 -02	2.1	96358-2-4013



Max. 1640 m³/h

DC centrifugal fans – RadiCal

Ø 250 mm

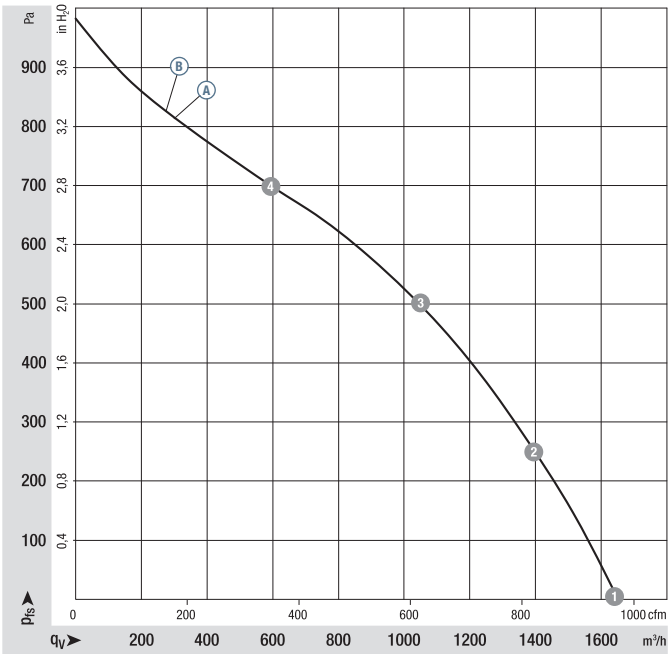
- **Material:** Impeller: PA plastic; Rotor: Painted black
- **Number of blades:** 7
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 250	M3G 074-CF	Ⓐ	24	16-28	1505	2850	175	7.20	73	-25...+60	p. 262 / J5)
R3G 250	M3G 074-CF	Ⓑ	48	36-57	1640	3100	230	4.80	73	-25...+60	p. 262 / J5)

Subject to change

Curves:



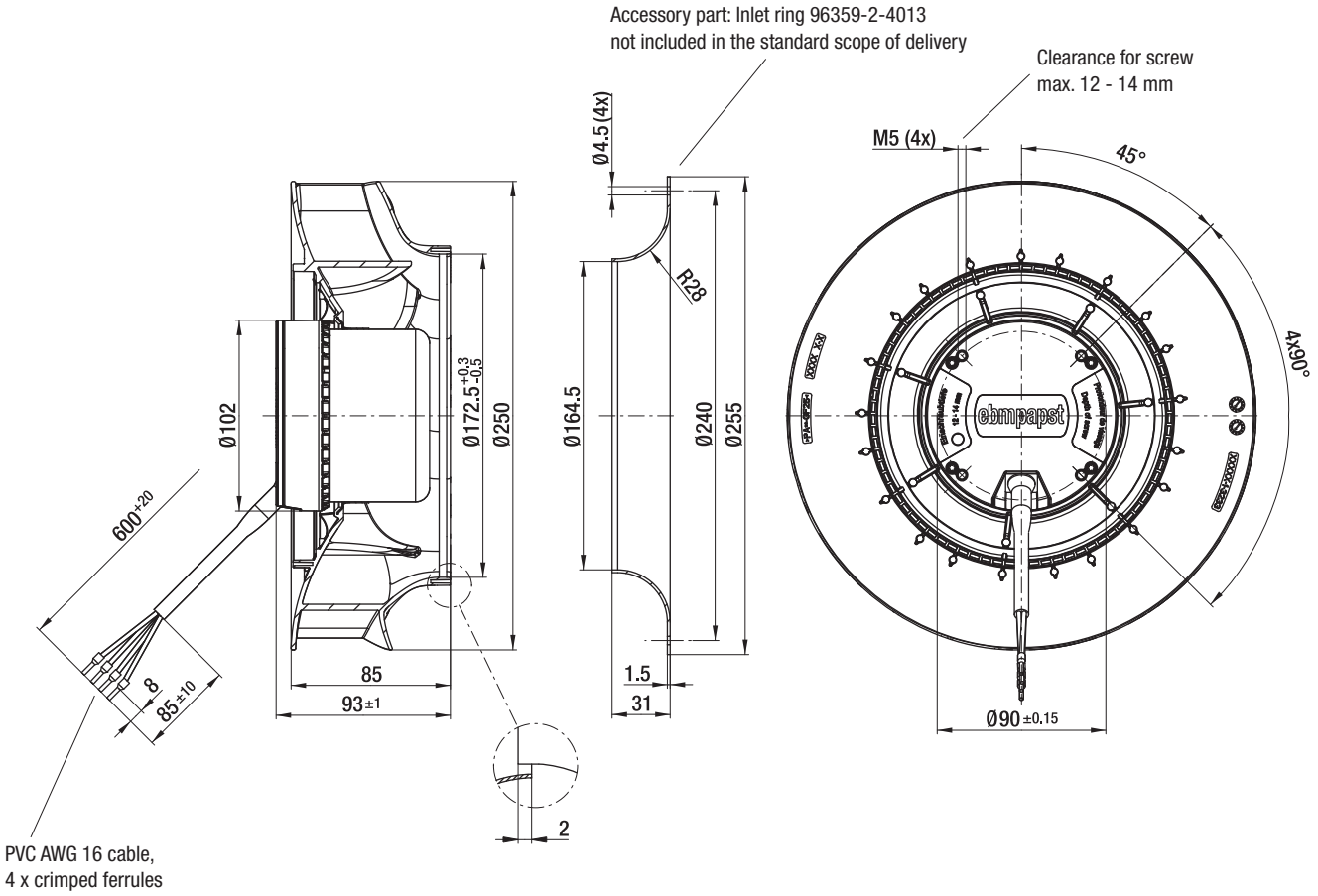
		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	2850	175	7.20	81
Ⓐ	2	3075	260	10.80	77
Ⓐ	3	3035	276	11.45	75
Ⓐ	4	3095	256	10.66	75
Ⓑ	1	3100	230	4.80	81
Ⓑ	2	3065	249	5.20	77
Ⓑ	3	3025	266	5.55	75
Ⓑ	4	3090	244	5.09	78

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

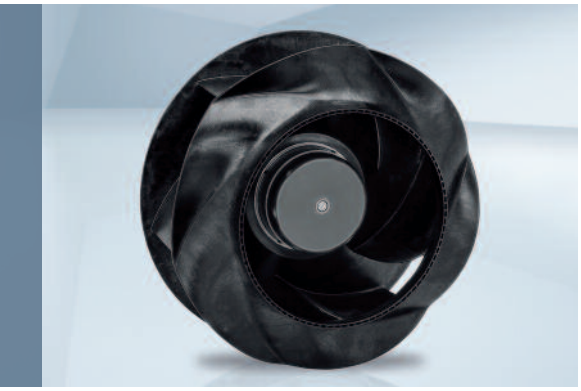
Centrifugal fans	Weight centrifugal fans kg	Inlet ring
R3G 250-RN46 -01	2.1	96359-2-4013
R3G 250-RNB5 -02	2.1	96359-2-4013



Max. 2190 m³/h

DC centrifugal fans – RadiCal

Ø 280 mm



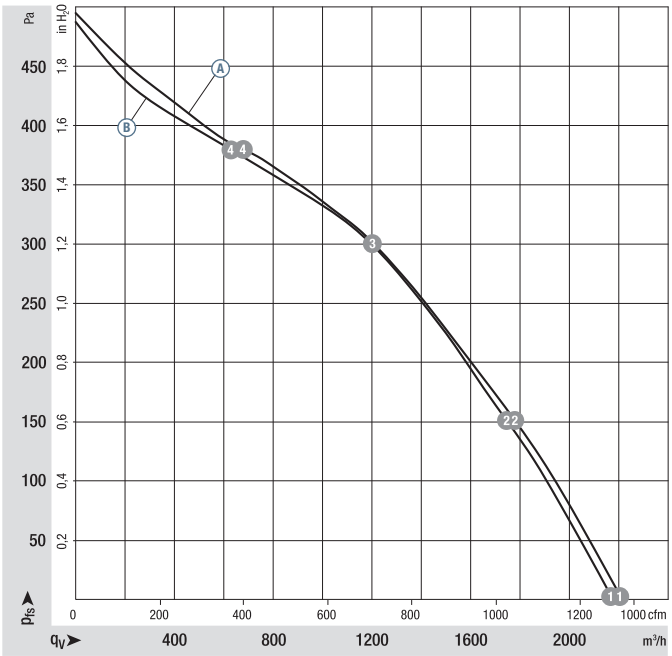
- **Material:** Impeller: PP plastic; Rotor: Painted black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 280	M3G 074-CF	Ⓐ	24	16-28	2190	1900	142	5.90	67	-25...+60	p. 262 / J5)
R3G 280	M3G 074-CF	Ⓑ	48	36-57	2160	1910	140	2.90	67	-25...+60	p. 262 / J5)

Subject to change

Curves:



		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	1900	142	5.90	74
Ⓐ	2	1870	162	6.76	67
Ⓐ	3	1840	173	7.21	64
Ⓐ	4	1905	153	6.36	68
Ⓑ	1	1910	140	2.90	74
Ⓑ	2	1845	158	3.30	67
Ⓑ	3	1830	163	3.40	64
Ⓑ	4	1900	141	2.93	68

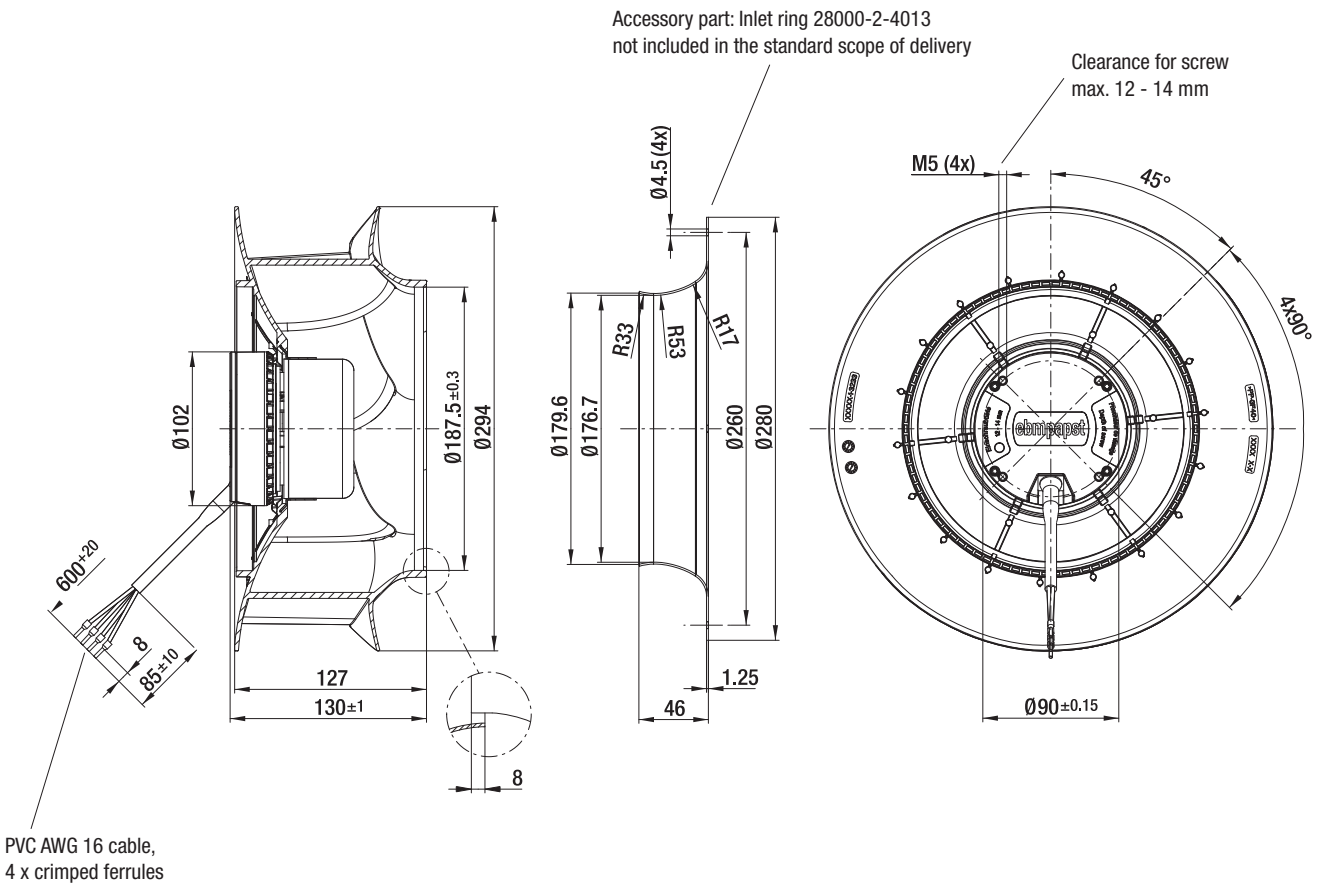
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

Weight centrifugal fans

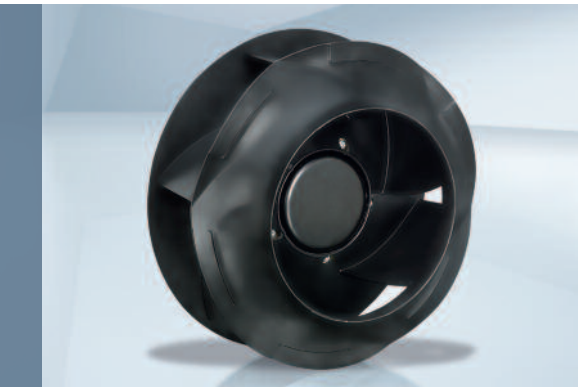
Centrifugal fans	kg	Inlet ring
R3G 280-RN30 -01	2.4	28000-2-4013
R3G 280-RNB1 -02	2.4	28000-2-4013



Max. 2380 m³/h

DC centrifugal fans – RadiCal

Ø 310 mm



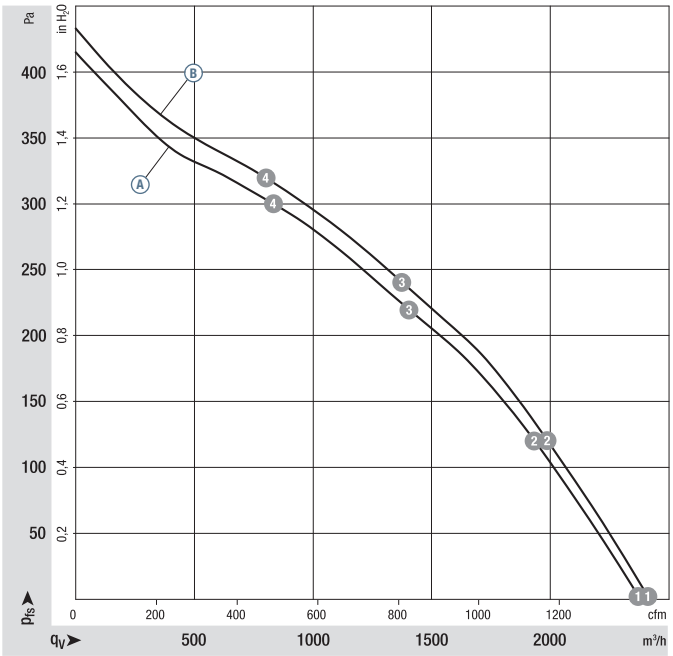
- **Material:** Impeller: PP plastic; Rotor: Painted black
- **Number of blades:** 6
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 44, depending on installation and position
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	°C	
R3G 310	M3G 074-CF	Ⓐ	24	16-28	2310	1580	108	4.50	64	-25...+60	p. 262 / J5)
R3G 310	M3G 074-CF	Ⓑ	48	36-57	2380	1620	123	2.60	64	-25...+60	p. 262 / J5)

Subject to change

Curves:



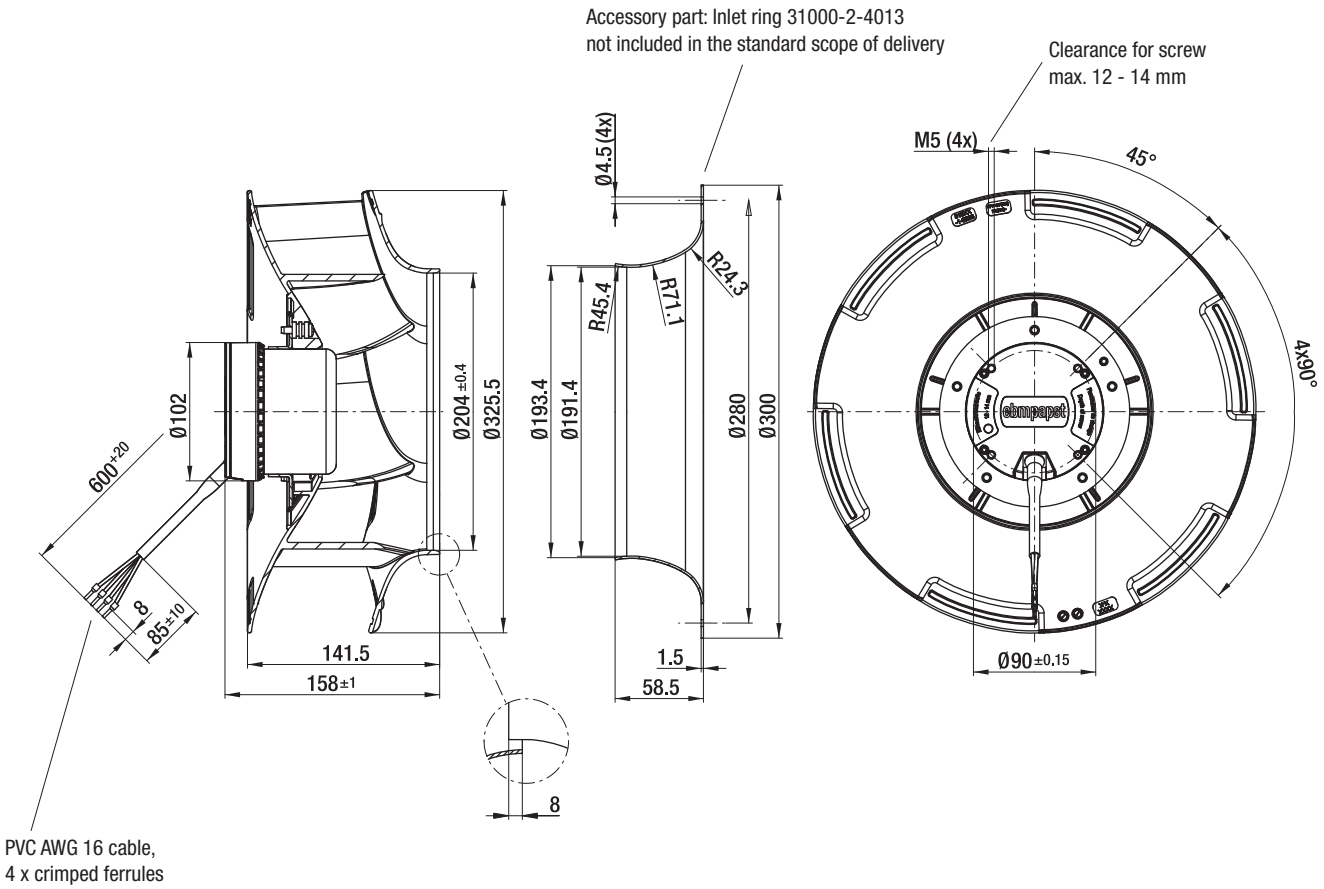
		n rpm⁻¹	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	1580	108	4.50	70
Ⓐ	2	1540	145	6.03	67
Ⓐ	3	1520	152	6.34	63
Ⓐ	4	1550	143	5.95	65
Ⓑ	1	1620	123	2.60	70
Ⓑ	2	1570	147	3.07	66
Ⓑ	3	1545	156	3.26	63
Ⓑ	4	1580	144	3.01	66

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst inlet ring without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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

ebmpapst

- **Technical features:** See connection diagram p. 262
- **Cable exit:** Variable
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC

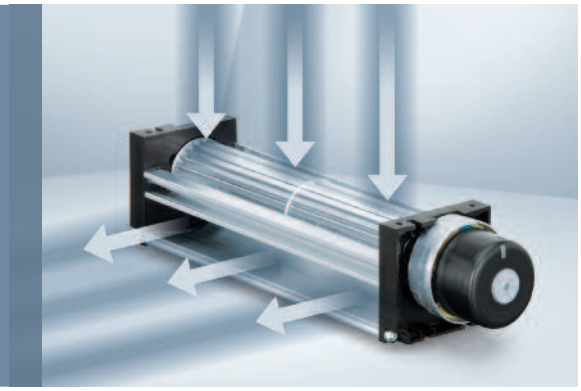
Centrifugal fans	Weight centrifugal fans kg	Inlet ring
R3G 310-RN99 -01	2.8	31000-2-4013
R3G 310-RN98 -02	2.8	31000-2-4013



Max. 155 m³/h

DC tangential fans

201...413 x 50 x 48 mm



- **Material:** Housing: Aluminum
  Housing side parts: Plastic
  Impeller: Aluminum
- **Direction of air flow:** See photo
- **Connection:** via single wires AWG 24, TR 64
- **Highlights:** Motor with ball bearing system
  Impeller retaining plate with sleeve bearing
- **Weight:** 235 / 290 / 380 / 415 g

- **Possible special versions:**
  (See chapter DC fans - specials)
  - Speed signal
  - Moisture protection

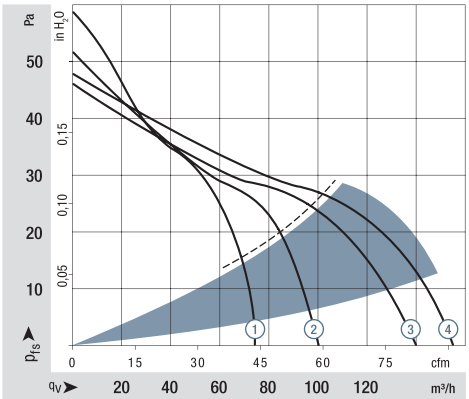
Series QG 030 **Nominal data**	Air flow	Air flow	**Nominal voltage**	Voltage range	Sound pressure level	Sound power level	Sintec sleeve bearings Ball bearings	Power consumption	Temperature range	Service life L_{10} (40 °C) ebm-papst standard Service life L_{10} (T_{max}) ebm-papst standard	Life expectancy L_{10IPC} (40 °C) see page 17	Curve
Type	**m³/h**	**cfm**	**VDC**	**VDC**	**db(A)**	**Bel(A)**	□/■	**Watts**	**°C**	**Hours**	**Hours**	
QG 030-148/12	75	44	**12**	8...14	49	5.7	□/■	6.2	-20...+60	30 000 / 20 000	50 000	①
QG 030-198/12	100	59	**12**	8...14	51	5.8	□/■	8,0	-20...+60	30 000 / 20 000	50 000	②
QG 030-303/12	140	82	**12**	8...14	51	5.8	□/■	8.7	-20...+60	30 000 / 20 000	50 000	③
QG 030-353/12	155	91	**12**	8...14	51	5.9	□/■	9.6	-20...+60	30 000 / 20 000	50 000	④
QG 030-148/14	75	44	**24**	16...28	49	5.7	□/■	6.2	-20...+60	30 000 / 20 000	50 000	①
QG 030-198/14	100	59	**24**	16...28	51	5.8	□/■	8.0	-20...+60	30 000 / 20 000	50 000	②
QG 030-303/14	140	82	**24**	16...28	51	5.8	□/■	8.7	-20...+60	30 000 / 20 000	50 000	③
QG 030-353/14	155	91	**24**	16...28	51	5.9	□/■	9.6	-20...+60	30 000 / 20 000	50 000	④

Subject to change

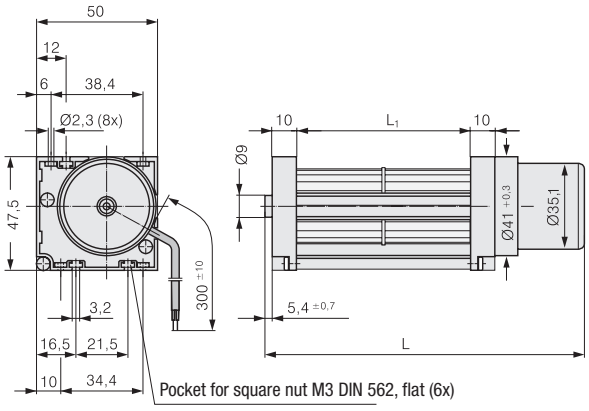
The values for service life were recorded with the fan installed horizontally.

Type Dimension:	L	L_1	Mass
QG 030-148/ ..	203.4 $^{+1.5}$	148	235 g
QG 030-198/ ..	260.4 $^{+1.5}$	198	290 g
QG 030-303/ ..	365.4 $^{+1.5}$	303	380 g
QG 030-353/ ..	415.4 $^{+1.5}$	353	415 g

------ Tangential fans are suitable only for operation with high air flow and low back-pressure.



Air performance measured according to: ISO 5801.
Installation category A, without contact protection.
Noise: Total sound power level LWA ISO 103002 measured on a hemisphere with a radius of 2 m.
Sound pressure level LpA measured at 1 m distance to 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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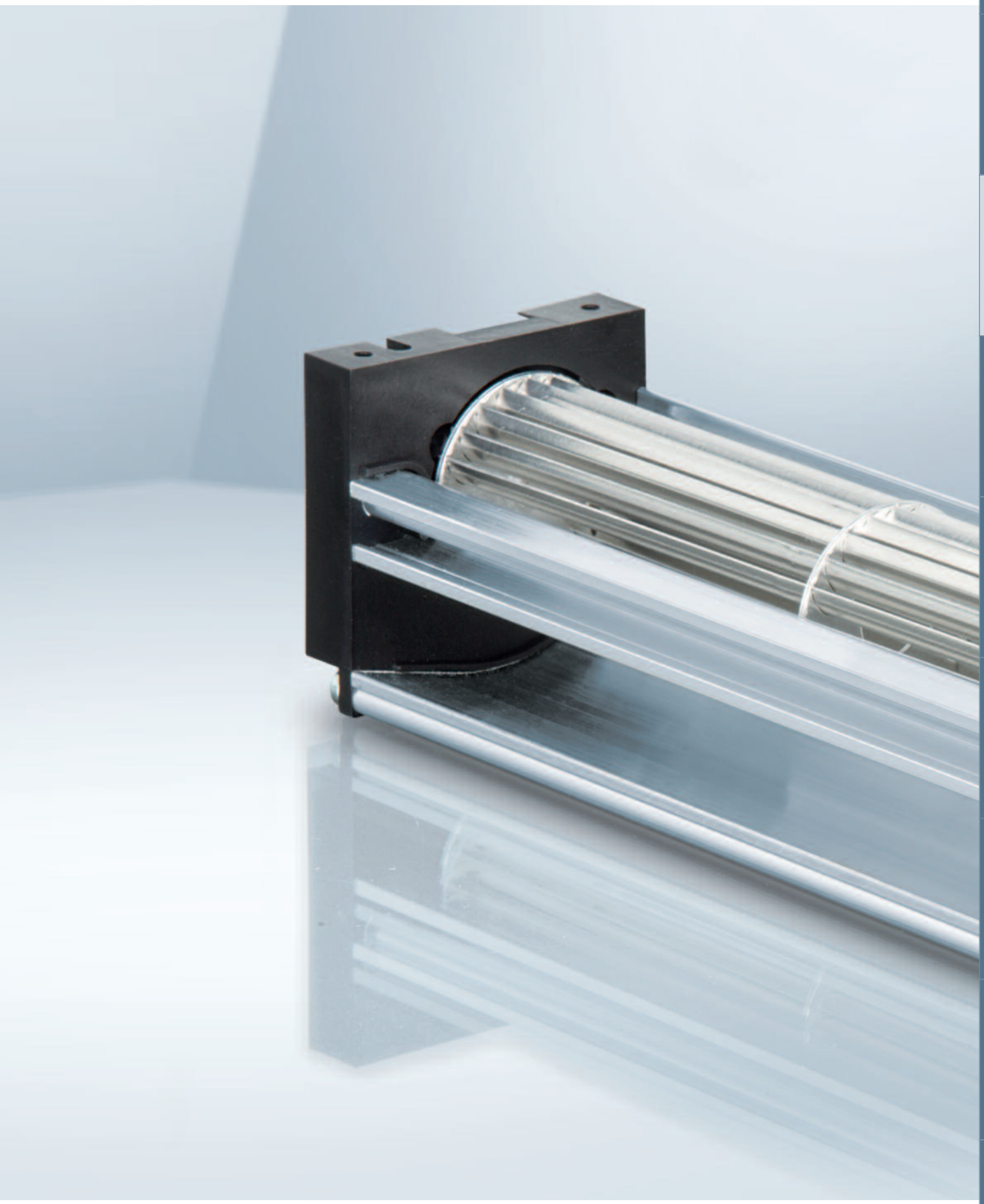
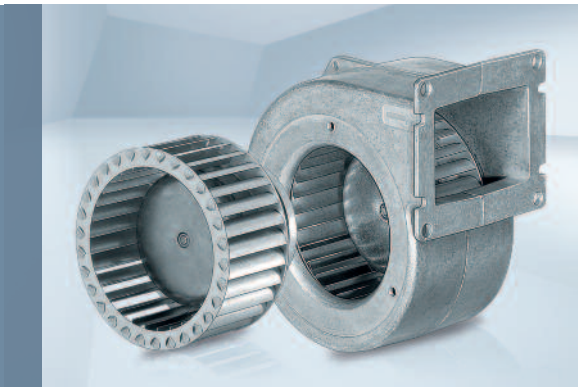


Max. 95 m³/h

DC centrifugal fans and blowers

Ø 85 mm



- **Material:** Housing: Die-cast aluminum
Impeller: Hot-dip galvanized sheet steel
Rotor: Galvanized
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

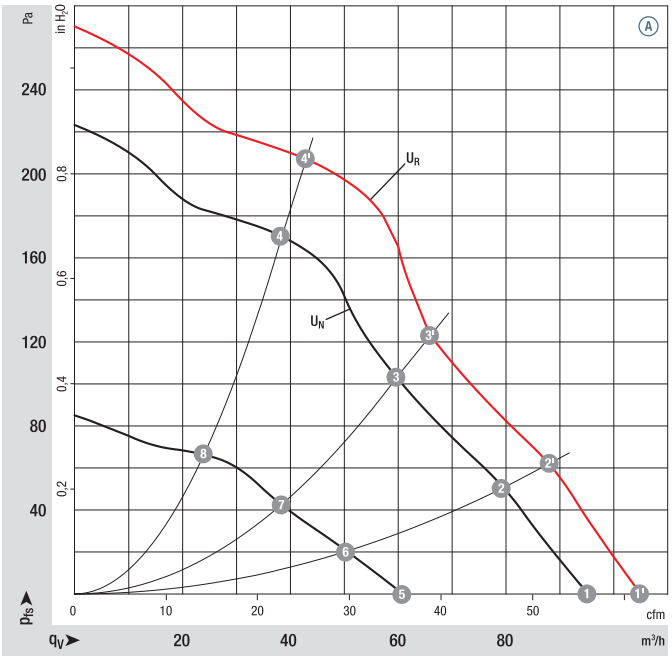
Nominal data		Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
Type	**Motor**		**VDC**	**VDC**	**m³/h**	**rpm⁻¹**	**W**	**A**	**dB(A)**	**Pa**	**°C**	
***1G 085**	M1G045-BE	Ⓐ	24	16-28	95	2850	14	0.64	57	0	-25...+60	p. 259 / G)
***1G 085**	M1G045-BE	Ⓐ	48	36-57	95	2850	14	0.32	57	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

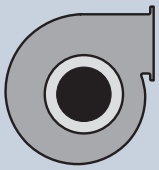


		n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ	1'	3180	19	59	—
Ⓐ	2'	3300	16	57	28
Ⓐ	3'	3500	15	57	32
Ⓐ	4'	3800	12	57	37
Ⓐ	1	2850	14	57	—
Ⓐ	2	3000	12	55	28
Ⓐ	3	3180	11	55	32
Ⓐ	4	3400	9	54	37
Ⓐ	5	1890	5	46	—
Ⓐ	6	1970	4	44	25
Ⓐ	7	2070	4	44	30
Ⓐ	8	2170	3	42	33

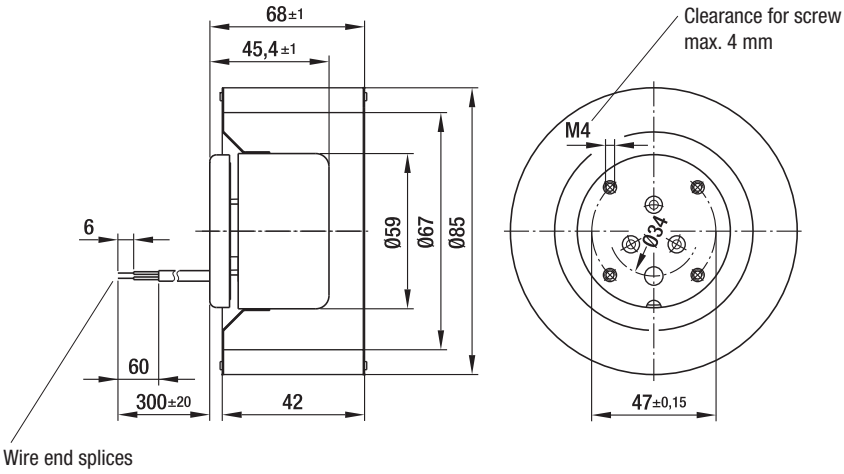
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

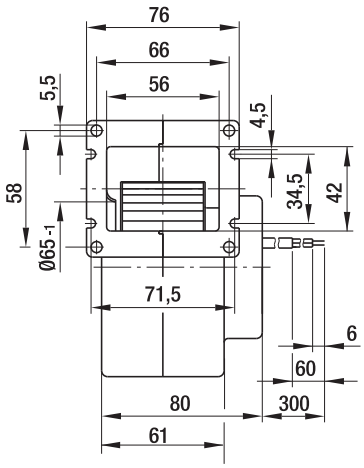
ebmpapst

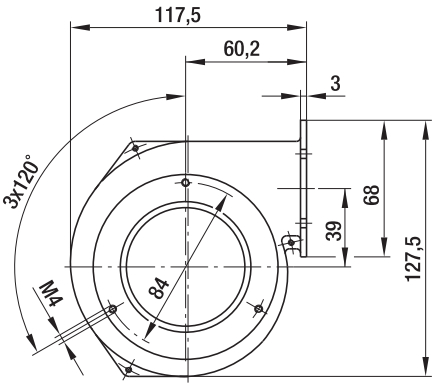
- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC



Centrifugal fans	kg	Centrifugal blowers with flange	kg
R1G 085-AB05 -01	0.5	**G1G 085-AB05 -01**	0.8
R1G 085-AB07 -01	0.5	**G1G 085-AB07 -01**	0.8



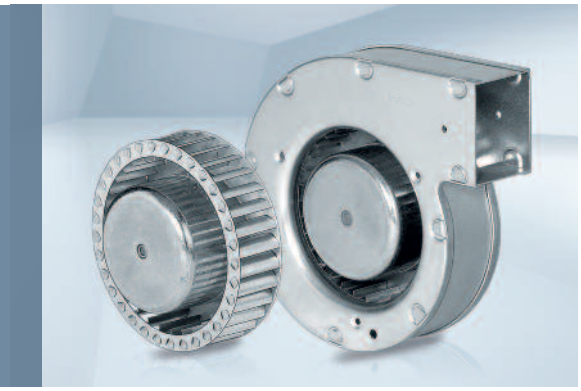




Max. 95 m³/h

DC centrifugal fans and blowers

Ø 97 mm



- **Material:** Housing: Hot-dip galvanized sheet steel
Impeller: Hot-dip galvanized sheet steel
Rotor: Galvanized
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

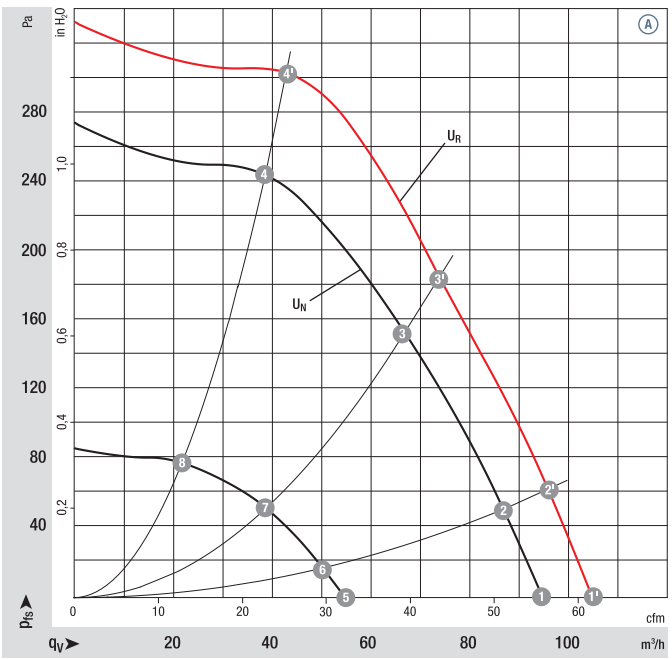
Nominal data		Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
Type	**Motor**		**VDC**	**VDC**	**m³/h**	**rpm⁻¹**	**W**	**A**	**dB(A)**	**Pa**	**°C**	
***1G 097**	M1G045-BE	Ⓐ	24	16-28	95	2650	16	0.75	59	0	-25...+60	p. 259 / G)
***1G 097**	M1G045-BE	Ⓐ	48	36-57	95	2650	16	0.38	59	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

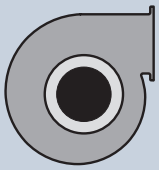


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	2920	22	62	—
Ⓐ 2'	3030	21	61	41
Ⓐ 3'	3300	17	59	48
Ⓐ 4'	3700	13	58	48
Ⓐ 1	2650	16	59	—
Ⓐ 2	2730	15	58	41
Ⓐ 3	2960	13	56	48
Ⓐ 4	3290	10	55	48
Ⓐ 5	1615	4	45	—
Ⓐ 6	1650	4	45	38
Ⓐ 7	1745	4	43	46
Ⓐ 8	1880	3	42	47

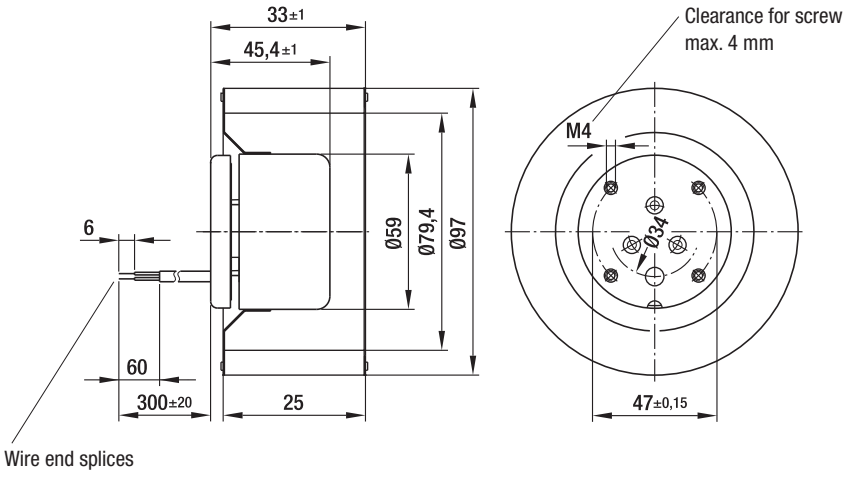
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

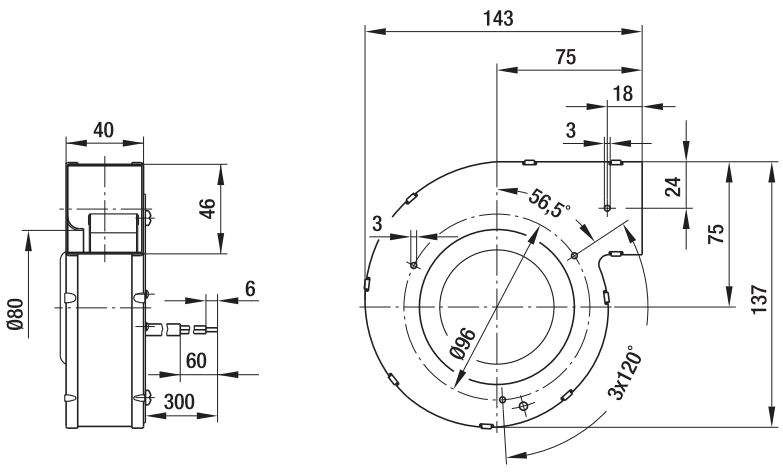
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** EAC



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 097-AA05 -01	0.5	**G1G 097-AA05 -01**	0.8
R1G 097-AA07 -01	0.5	**G1G 097-AA07 -01**	0.8





Max. 200 m³/h

DC centrifugal fans and blowers

Ø 108 mm

- **Material:** Housing: Die-cast aluminum
  Impeller: Hot-dip galvanized sheet steel
  Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

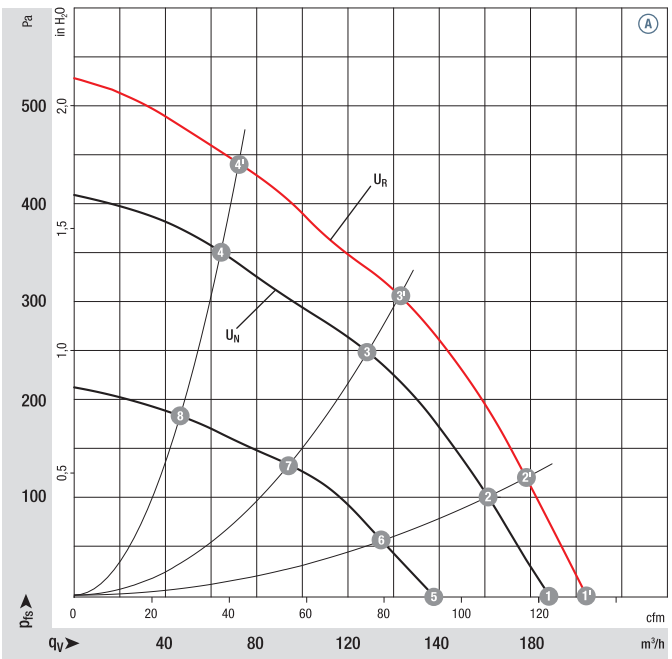
Type	Motor	Curve	Nominal voltage VDC	Nominal voltage range VDC	Air flow m³/h	Nominal speed rpm⁻¹	Power consumption W	Input current A	Sound pressure level dB(A)	Min. back-pressure Pa	Admissible amb. temp. °C	Technical features and connection diagram
***1G 108**	M1G 055-BD	Ⓐ	24	16-28	200	3000	42	2.00	65	0	-25...+60	p. 259 / G)
***1G 108**	M1G 055-BD	Ⓐ	48	36-57	200	3000	42	1.00	65	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

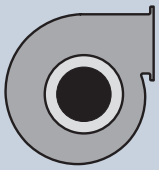


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	3230	55	67	—
Ⓐ 2'	3410	52	66	33
Ⓐ 3'	3800	43	65	41
Ⓐ 4'	4100	35	64	33
Ⓐ 1	3000	42	65	—
Ⓐ 2	3140	40	64	33
Ⓐ 3	3420	32	63	41
Ⓐ 4	3690	26	63	33
Ⓐ 5	2300	20	61	—
Ⓐ 6	2380	17	58	33
Ⓐ 7	2550	14	55	41
Ⓐ 8	2720	11	55	33

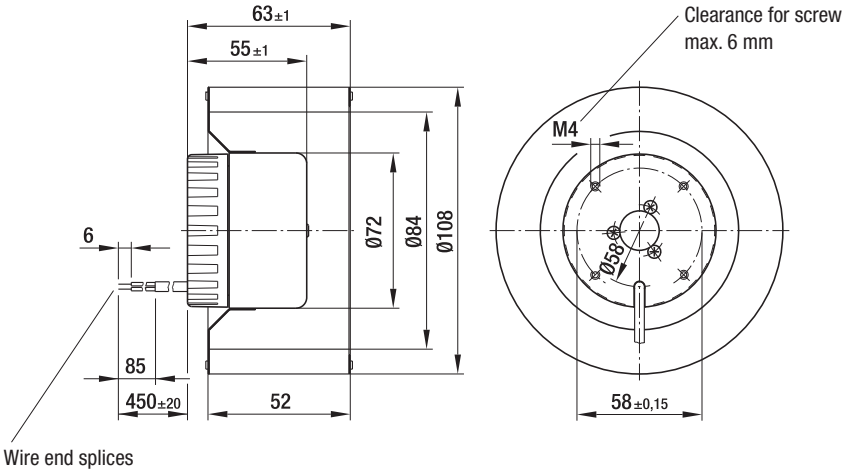
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

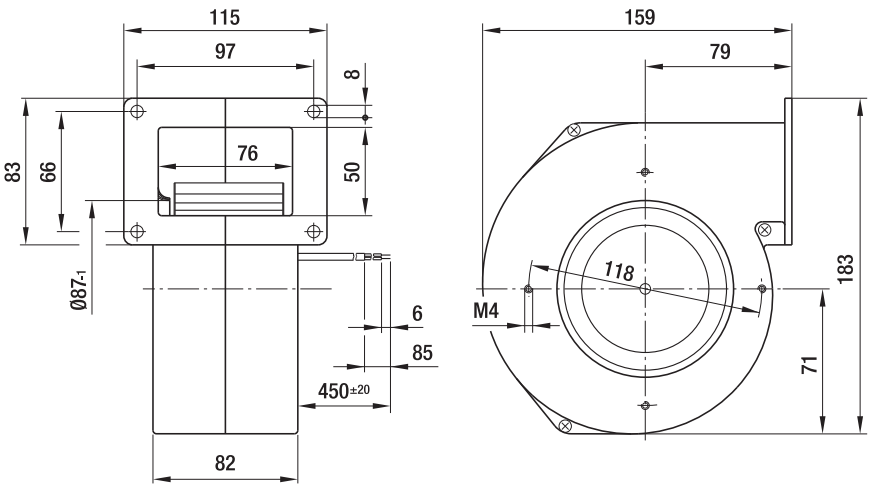
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** Ⓐ (24 VDC) UL, CSA, Ⓐ (48 VDC) CCC



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 108-AB17 -02	0.7	**G1G 108-AB17 -02**	1.4
R1G 108-AB41 -02	0.7	**G1G 108-AB41 -02**	1.4





Max. 255 m³/h

DC centrifugal fans and blowers

Ø 120 mm

- **Material:** Housing: Die-cast aluminum
Impeller: Hot-dip galvanized sheet steel
Rotor: Galvanized
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

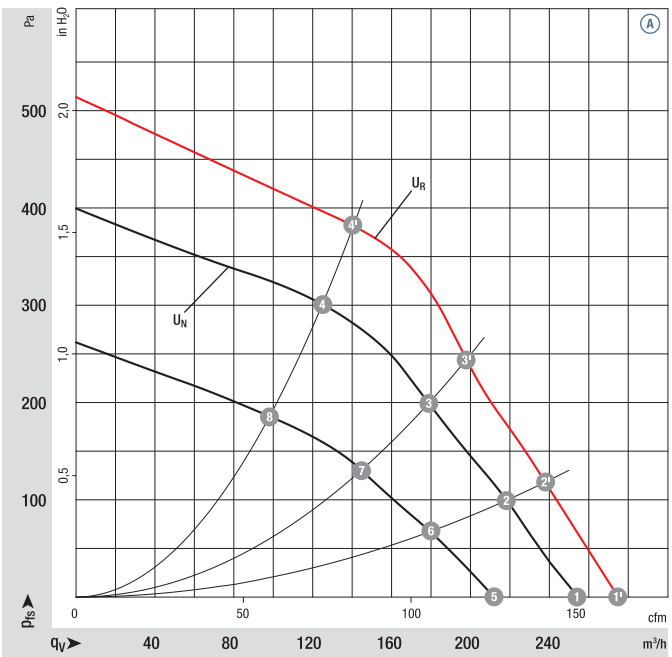
Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	Pa	°C	
***1G 120**	M1G 055-BD	Ⓐ	24	16-28	255	2200	40	1.90	62	0	-25...+60	p. 259 / G)
***1G 120**	M1G 055-BD	Ⓐ	48	36-57	255	2200	40	0.95	62	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

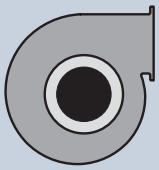


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	2410	50	63	—
Ⓐ 2'	2620	47	62	58
Ⓐ 3'	2870	44	61	60
Ⓐ 4'	3200	36	62	55
Ⓐ 1	2200	40	62	—
Ⓐ 2	2410	36	60	59
Ⓐ 3	2600	32	58	62
Ⓐ 4	2880	25	58	55
Ⓐ 5	1870	24	55	—
Ⓐ 6	1990	21	54	58
Ⓐ 7	2100	18	53	61
Ⓐ 8	2310	14	54	54

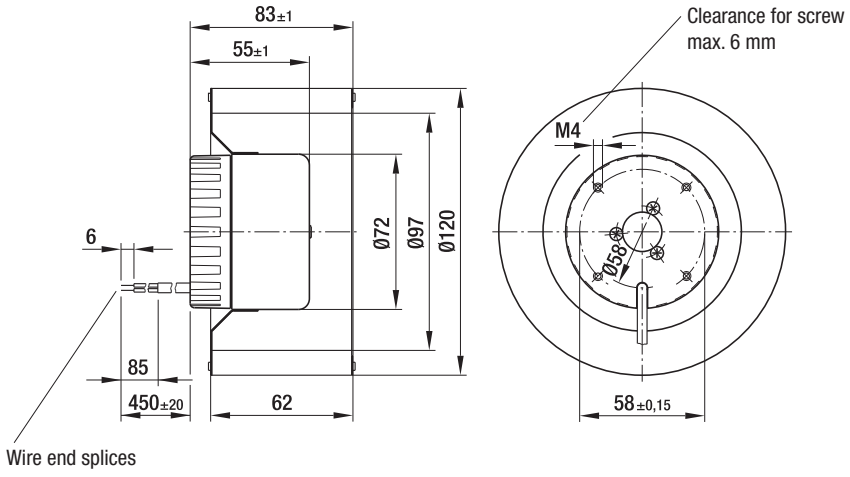
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

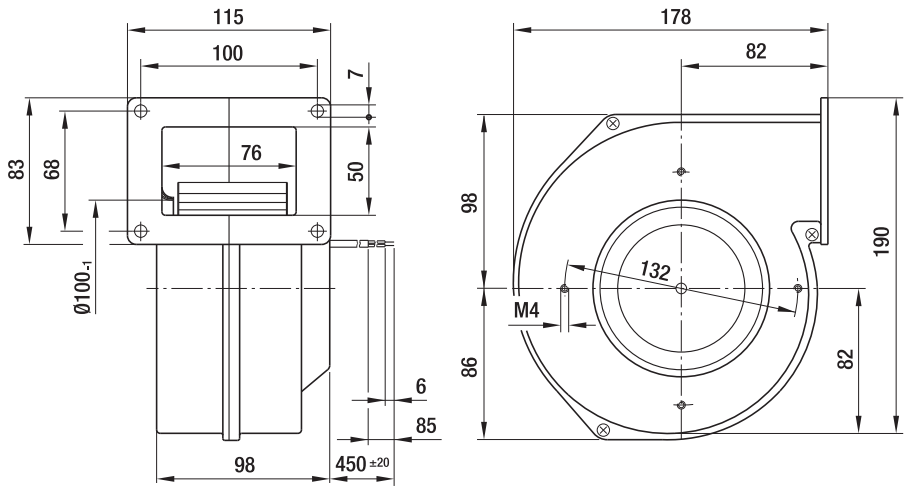
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** Ⓐ (24 VDC) UL, CSA, Ⓐ (48 VDC) CCC



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 120-AB67 -02	0.8	**G1G 120-AB67 -02**	1.6
R1G 120-AB71 -02	0.8	**G1G 120-AB71 -02**	1.6

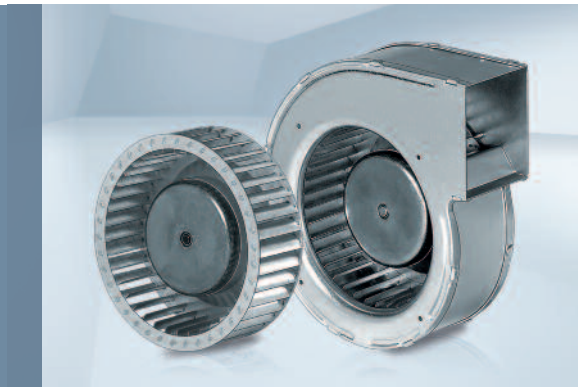




Max. 225 m³/h

DC centrifugal fans and blowers

Ø 133 mm



- **Material:** Housing: Hot-dip galvanized sheet steel
  Impeller: Hot-dip galvanized sheet steel
  Rotor: Galvanized
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

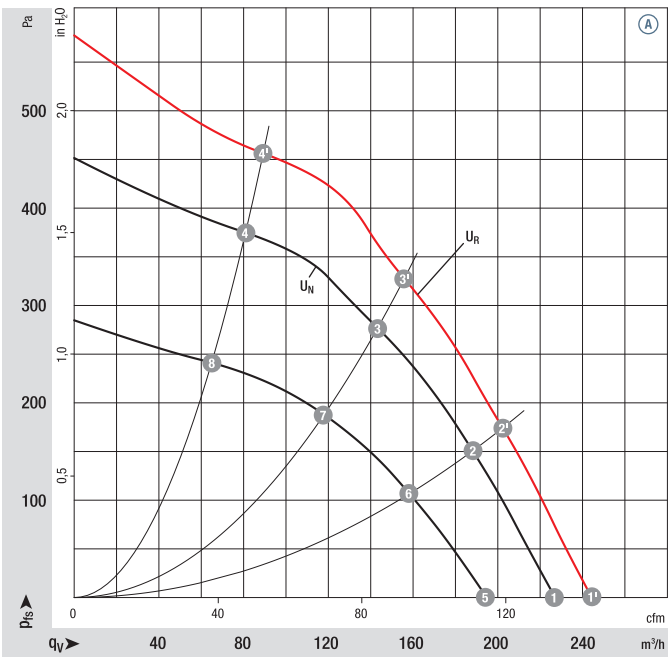
Type	Motor	Curve	Nominal voltage VDC	Nominal voltage range VDC	Air flow m³/h	Nominal speed rpm⁻¹	Power consumption W	Input current A	Sound pressure level dB(A)	Min. back-pressure Pa	Admissible amb. temp. °C	Technical features and connection diagram
***1G 133**	M1G 055-BD	Ⓐ	24	16-28	225	2000	40	2.20	64	0	-25...+60	p. 259 / G)
***1G 133**	M1G 055-BD	Ⓐ	48	36-57	225	2000	40	1.10	64	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

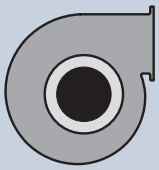


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	2170	57	66	—
Ⓐ 2'	2410	51	66	47
Ⓐ 3'	2750	44	64	49
Ⓐ 4'	3200	36	66	32
Ⓐ 1	2000	45	64	—
Ⓐ 2	2230	40	64	49
Ⓐ 3	2540	35	62	51
Ⓐ 4	2920	27	63	33
Ⓐ 5	1750	28	60	—
Ⓐ 6	1910	24	59	50
Ⓐ 7	2120	20	58	53
Ⓐ 8	2370	15	59	35

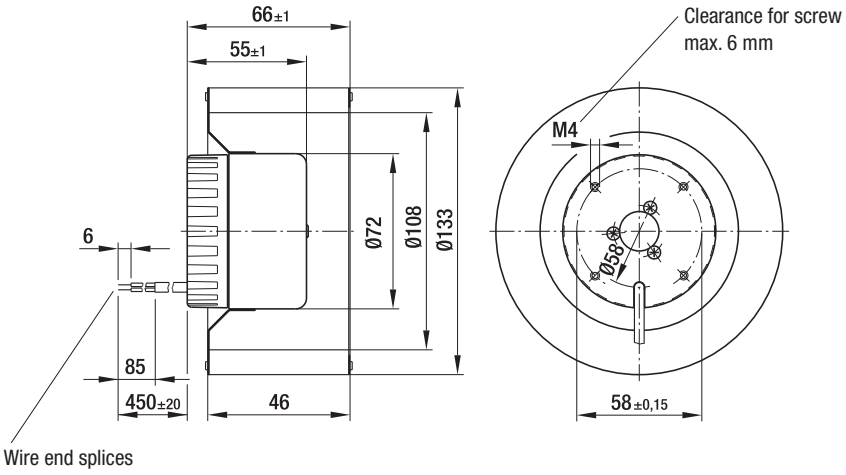
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

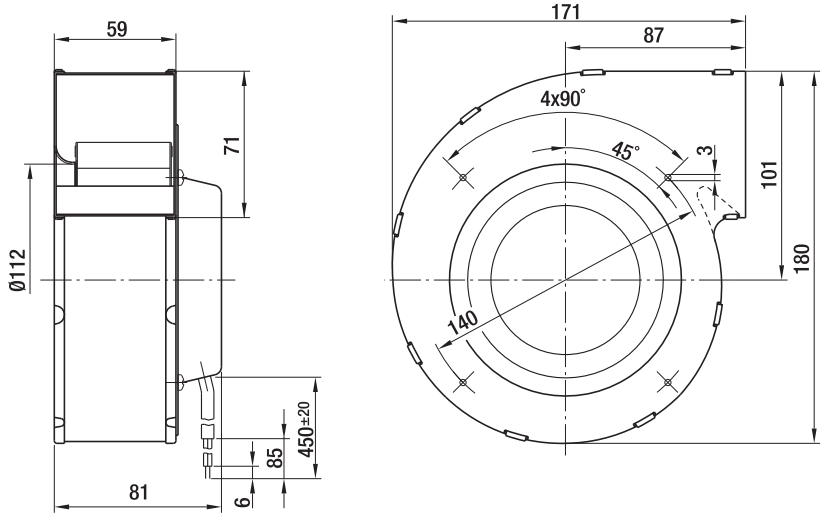
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Lateral
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** Ⓐ (24 VDC) UL, CSA, Ⓐ (48 VDC) CCC



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 133-AE19 -02	0.7	**G1G 133-DE19 -02**	1.3
R1G 133-AE03 -02	0.7	**G1G 133-DE03 -02**	1.3

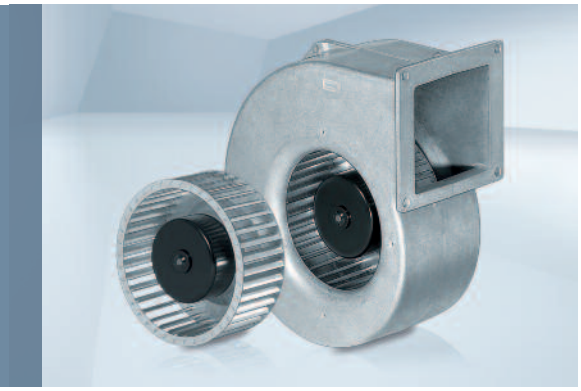




Max. 410 m³/h

DC centrifugal fans and blowers

Ø 140 mm



- **Material:** Housing: Die-cast aluminum
Impeller: Hot-dip galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 22
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

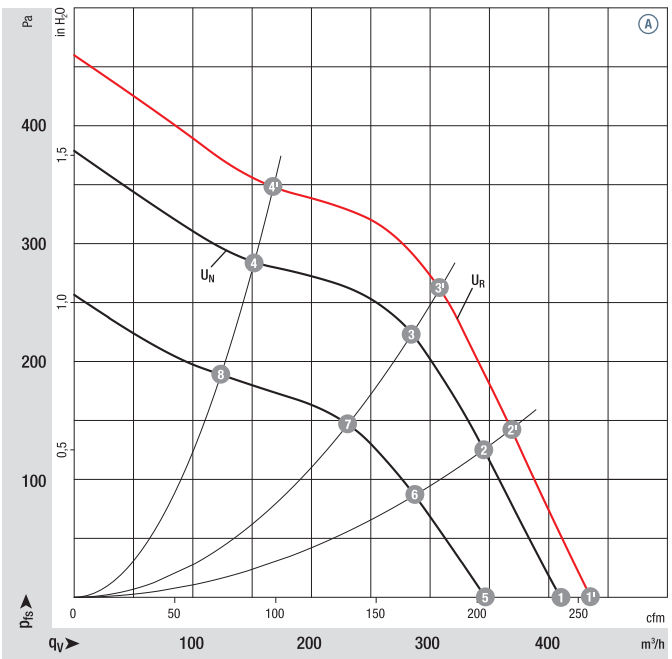
Nominal data		Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
Type	**Motor**		**VDC**	**VDC**	**m³/h**	**rpm⁻¹**	**W**	**A**	**dB(A)**	**Pa**	**°C**	
***1G 140**	M1G 055-BD	Ⓐ	24	16-28	400	1750	54	2.50	63	0	-25...+60	p. 259 / G)
***1G 140**	M1G 055-BD	Ⓐ	48	36-57	410	1750	54	1.30	63	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

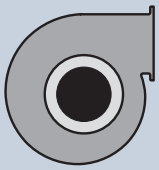


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	1850	65	64	—
Ⓐ 2'	2020	61	61	50
Ⓐ 3'	2200	57	59	54
Ⓐ 4'	2550	43	60	40
Ⓐ 1	1750	54	63	—
Ⓐ 2	1900	50	59	51
Ⓐ 3	2030	45	58	54
Ⓐ 4	2310	32	58	40
Ⓐ 5	1500	34	60	—
Ⓐ 6	1580	29	56	50
Ⓐ 7	1670	25	54	53
Ⓐ 8	1880	19	53	41

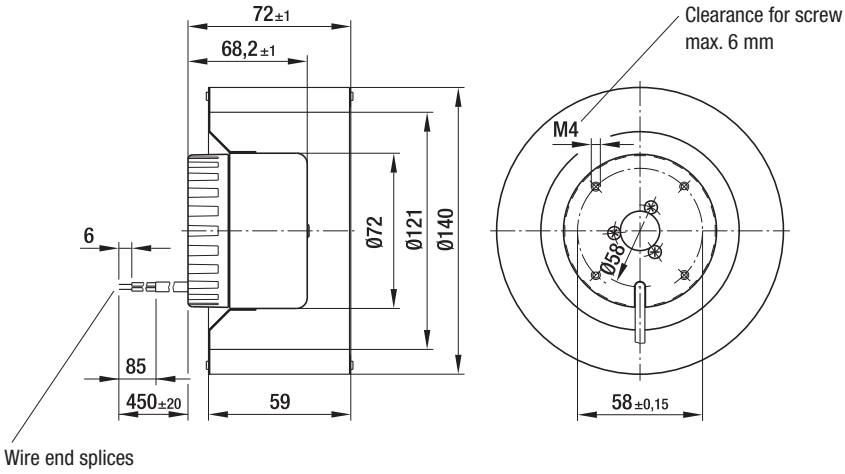
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

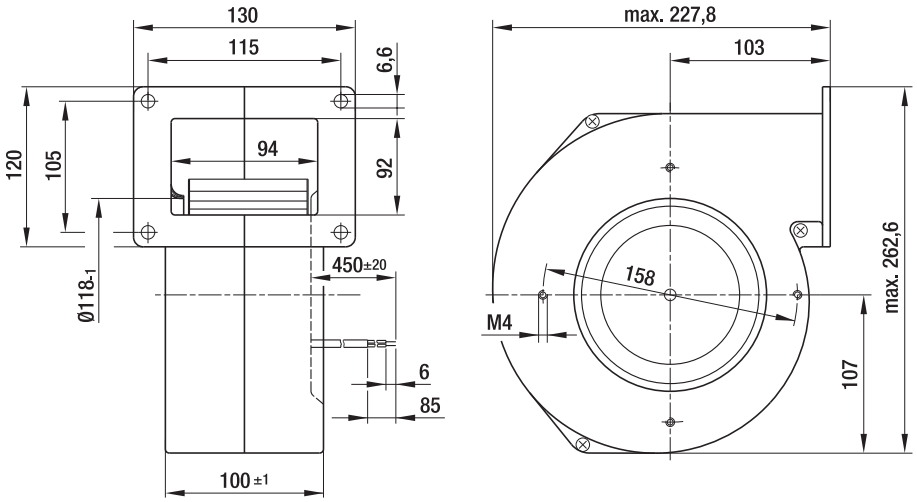
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** Ⓐ (48 VDC) CCC



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 140-AV17 -02	1.0	**G1G 140-AV17 -02**	2.3
R1G 140-AV21 -02	1.0	**G1G 140-AV21 -02**	2.3

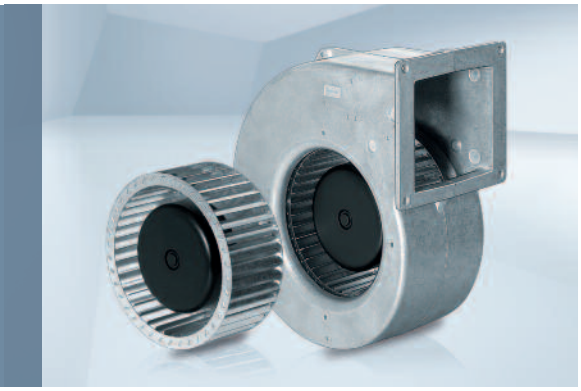




Max. 470 m³/h

DC centrifugal fans and blowers

Ø 146 mm



- **Material:** Housing: Die-cast aluminum
Impeller: Hot-dip galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

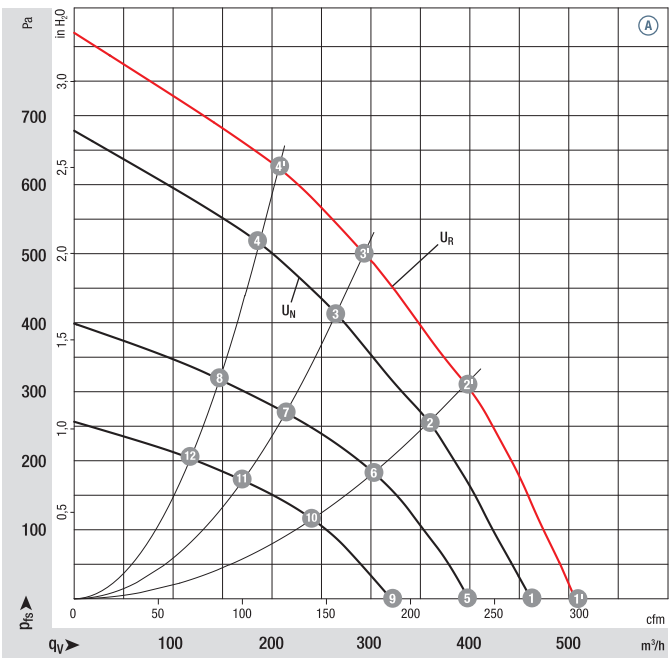
Nominal data		Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
Type	**Motor**		**VDC**	**VDC**	**m³/h**	**rpm⁻¹**	**W**	**A**	**dB(A)**	**Pa**	**°C**	
***1G 146**	M1G074-BF	Ⓐ	24	16-28	470	2200	100	5.00	68	0	-25...+60	p. 259 / G)
***1G 146**	M1G074-BF	Ⓐ	48	36-57	465	2150	100	2.60	67	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

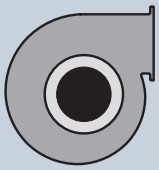


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	2400	140	70	—
Ⓐ 2'	2650	130	67	45
Ⓐ 3'	3000	110	66	49
Ⓐ 4'	3300	100	67	45
Ⓐ 1	2200	100	68	—
Ⓐ 2	2445	90	65	46
Ⓐ 3	2750	84	64	49
Ⓐ 4	3025	77	65	45
Ⓐ 5	1890	68	63	—
Ⓐ 6	2075	57	60	46
Ⓐ 7	2250	48	61	49
Ⓐ 8	2335	41	61	45
Ⓐ 9	1520	37	59	—
Ⓐ 10	1670	32	55	46
Ⓐ 11	1815	27	55	49
Ⓐ 12	1920	23	55	45

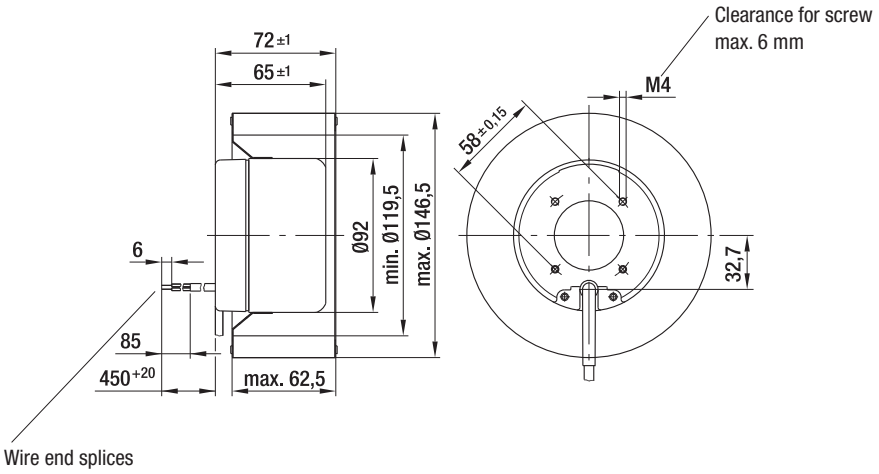
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

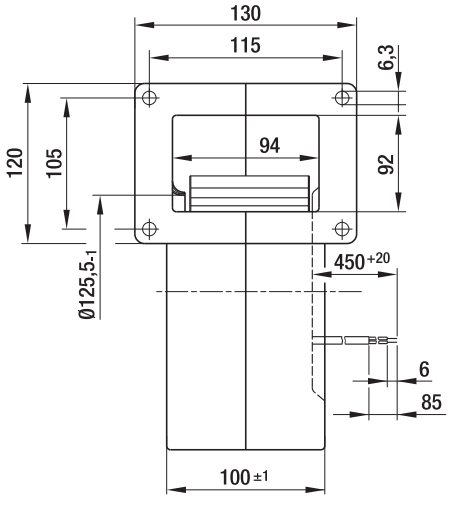
ebmpapst

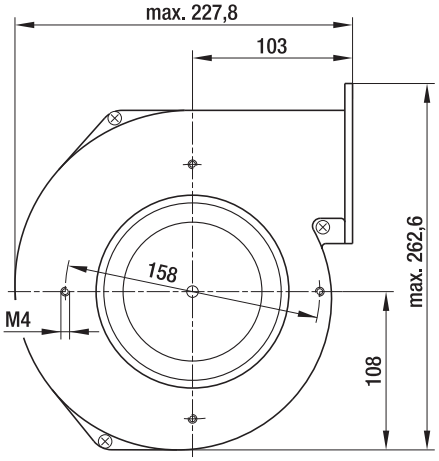
- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA, CCC (only centrifugal blowers)



Centrifugal fans	kg	Centrifugal blowers with flange	kg
R1G 146-AA07 -52	1.4	**G1G 146-BA07 -52**	2.8
R1G 146-AA11 -52	1.4	**G1G 146-BA11 -52**	2.8



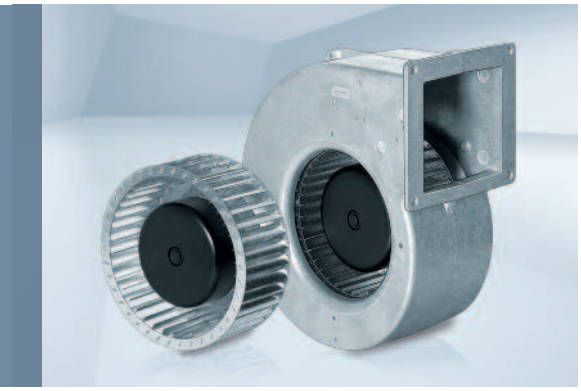




Max. 505 m³/h

DC centrifugal fans and blowers

Ø 160 mm



- **Material:** Housing: Die-cast aluminum
Impeller: Hot-dip galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings

Nominal data

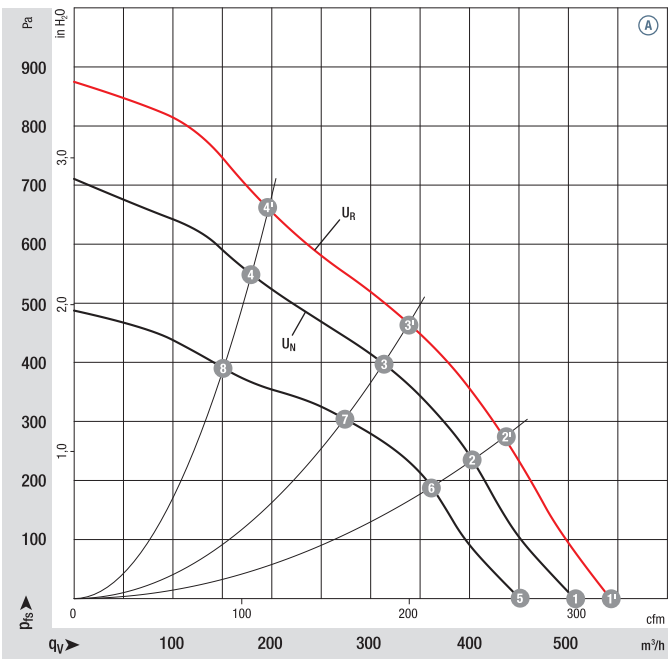
Type	Motor	Curve	Nominal voltage VDC	Nominal voltage range VDC	Air flow m³/h	Nominal speed rpm⁻¹	Power consumption W	Input current A	Sound pressure level dB(A)	Min. back-pressure Pa	Admissible amb. temp. °C	Technical features and connection diagram
***1G 160**	M1G074-BF	Ⓐ	24	16-28	505	1750	105	5.80	67	0	-25...+60	p. 259 / G)
***1G 160**	M1G074-BF	Ⓐ	48	36-57	505	1750	105	2.90	67	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

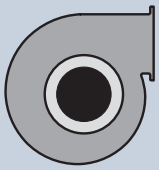


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	1890	134	68	—
Ⓐ 2'	2200	118	67	52
Ⓐ 3'	2500	110	67	57
Ⓐ 4'	2900	102	69	52
Ⓐ 1	1750	105	67	—
Ⓐ 2	2030	95	66	52
Ⓐ 3	2270	90	65	57
Ⓐ 4	2550	81	67	44
Ⓐ 5	1580	72	62	—
Ⓐ 6	1810	66	62	52
Ⓐ 7	2000	58	62	57
Ⓐ 8	2200	48	63	54

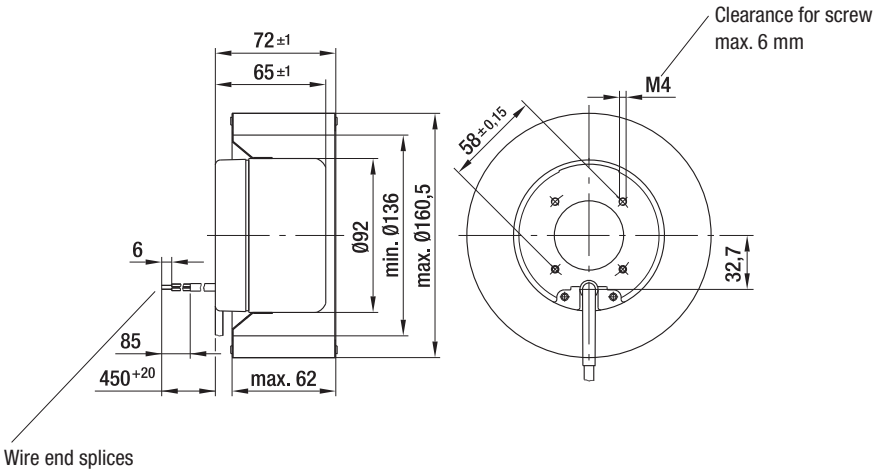
Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, L_pA measured at 1 m distance from fan axis. The values given are applicable only under the specified measuring conditions 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

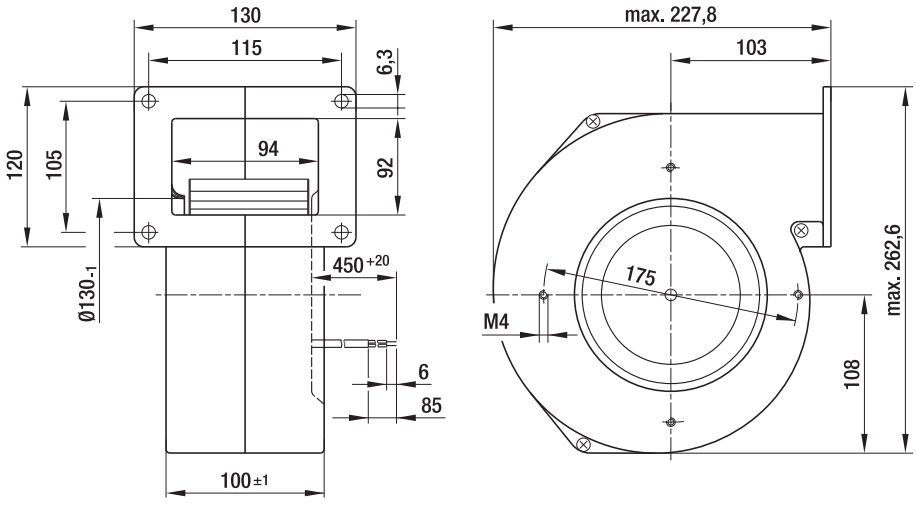
ebmpapst

- **Technical features:** See connection diagram p. 259
- **Cable exit:** Axial
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA



Centrifugal fans	Weight centrifugal fans kg	Centrifugal blowers with flange	Weight centrifugal blowers kg
R1G 160-AH29 -52	1.4	**G1G 160-BH29 -52**	2.8
R1G 160-AH39 -52	1.4	**G1G 160-BH39 -52**	2.8





Max. 700 m³/h

DC centrifugal blowers

Ø 133 mm

- **Material:** Housing: Galvanized sheet steel
Impeller: Galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** SAL motor mounted with vibration damping on both sides
- **Bearings:** Maintenance-free ball bearings

Nominal data

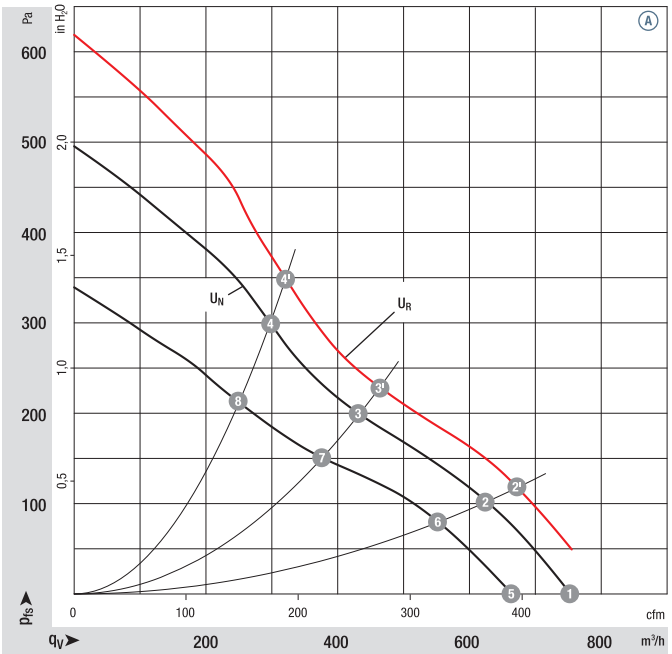
Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	Pa	°C	
D1G 133	M1G 074-BF	Ⓐ	24	16-28	700	1780	105	5.60	62	50	-25...+60	p. 259 / G)
D1G 133	M1G 074-BF	Ⓐ	48	36-57	700	1780	105	2.80	62	50	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)



		n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ	1'	—	—	—	—
Ⓐ	2'	2050	121	63	49
Ⓐ	3'	2490	106	62	41
Ⓐ	4'	2820	100	62	37
Ⓐ	1	1780	105	62	—
Ⓐ	2	1900	97	61	49
Ⓐ	3	2310	86	59	41
Ⓐ	4	2630	80	60	37
Ⓐ	5	1500	73	59	—
Ⓐ	6	1720	67	57	49
Ⓐ	7	2020	58	56	41
Ⓐ	8	2230	49	56	37

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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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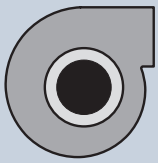
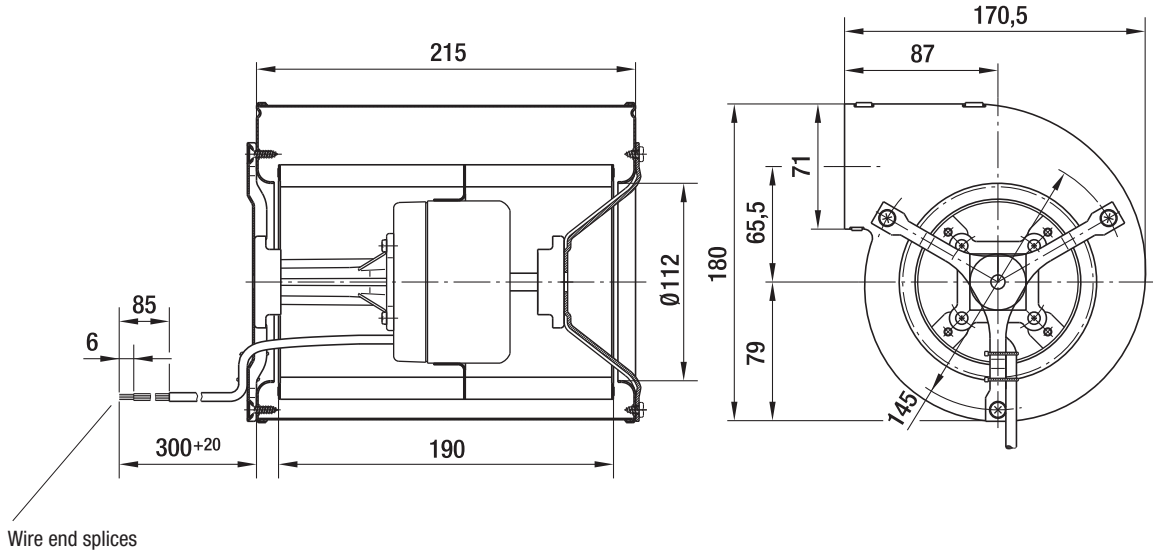
- **Technical features:** See connection diagram p. 259
- **Cable exit:** Variable
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA; Ⓐ (48 VDC) also CCC



Centrifugal blowers without flange	Weight centrifugal blowers kg
D1G 133-AB29 -52	3.3
D1G 133-AB39 -52	3.3



Max. 1020 m³/h

DC centrifugal blowers

Ø 133 mm

- **Material:** Housing: Galvanized sheet steel
Impeller: Galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** SAL motor mounted with vibration damping on both sides
- **Bearings:** Maintenance-free ball bearings

Nominal data

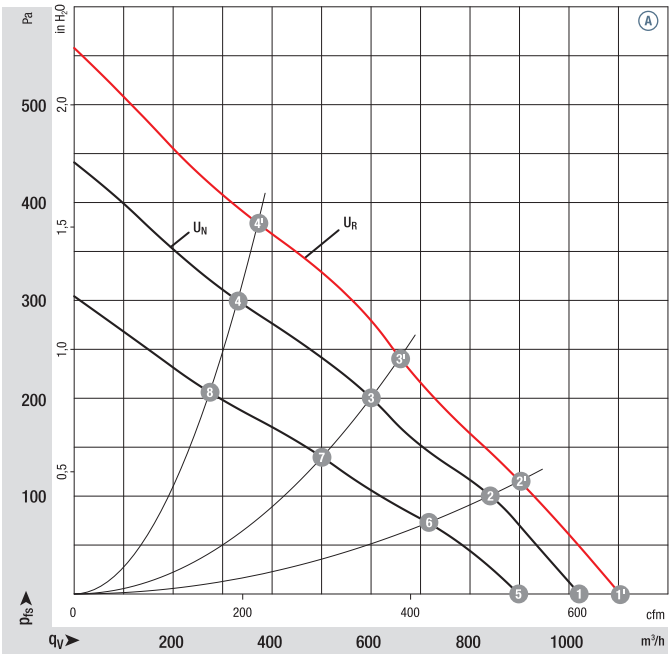
Type	Motor	Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
			VDC	VDC	m³/h	rpm⁻¹	W	A	dB(A)	Pa	°C	
D1G 133	M1G 074-BF	Ⓐ	24	16-28	1020	1580	118	6.00	64	0	-25...+60	p. 259 / G)
D1G 133	M1G 074-BF	Ⓐ	48	36-57	1020	1580	118	3.00	64	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)



	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	1700	145	65	—
Ⓐ 2'	1930	133	62	38
Ⓐ 3'	2290	122	59	41
Ⓐ 4'	2700	99	61	32
Ⓐ 1	1580	118	64	—
Ⓐ 2	1790	107	61	38
Ⓐ 3	2100	95	57	41
Ⓐ 4	2410	73	58	32
Ⓐ 5	1400	78	60	—
Ⓐ 6	1580	70	56	38
Ⓐ 7	1760	56	53	41
Ⓐ 8	2000	44	53	32

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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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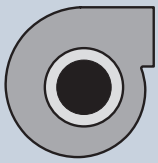
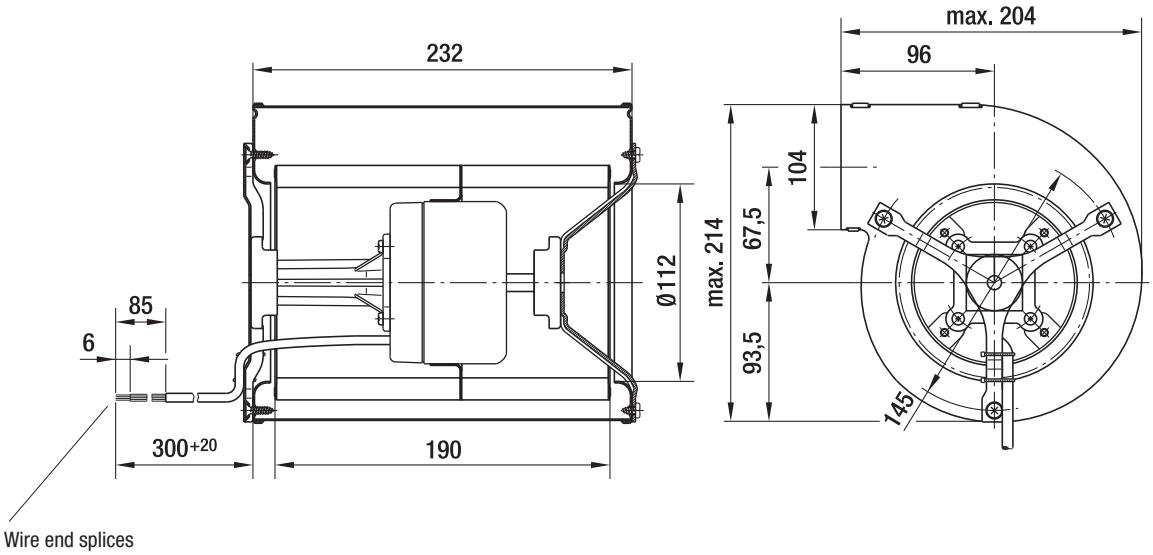
- **Technical features:** See connection diagram p. 259
- **EMC (24 VDC):** Interference emission acc. to EN 55022, class B
  Immunity to interference acc. to EN 61000-6-2
- **Cable exit:** Variable
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA



Weight centrifugal blowers

Centrifugal blowers without flange	kg
D1G 133-DC13 -52	3.4
D1G 133-DC17 -52	3.4



Max. 1000 m³/h

DC centrifugal blowers

Ø 146 mm

- **Material:** Housing: Galvanized sheet steel
Impeller: Galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Clockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** SAL motor mounted with vibration damping on both sides
- **Bearings:** Maintenance-free ball bearings

Nominal data

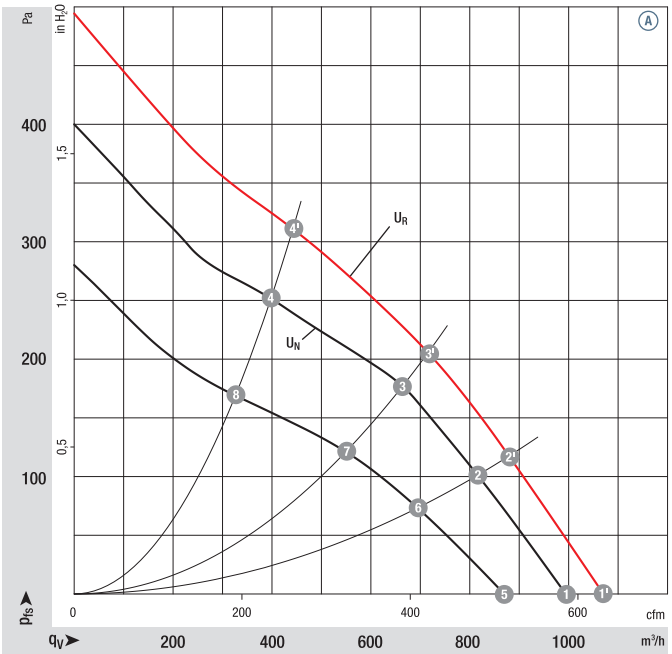
Type	Motor	Curve	Nominal voltage VDC	Nominal voltage range VDC	Air flow m³/h	Nominal speed rpm⁻¹	Power consumption W	Input current A	Sound pressure level dB(A)	Min. back-pressure Pa	Admissible amb. temp. °C	Technical features and connection diagram
D1G 146	M1G 074-CF	Ⓐ	24	16-28	1000	1350	105	5.10	61	0	-25...+60	p. 259 / G)
D1G 146	M1G 074-CF	Ⓐ	48	36-57	1000	1350	105	2.60	61	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)

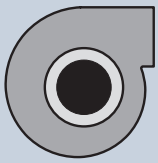


	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	1460	129	63	—
Ⓐ 2'	1680	119	60	53
Ⓐ 3'	1890	111	58	61
Ⓐ 4'	2240	95	59	55
Ⓐ 1	1350	105	61	—
Ⓐ 2	1570	95	58	53
Ⓐ 3	1750	88	56	61
Ⓐ 4	2010	70	57	55
Ⓐ 5	1210	70	56	—
Ⓐ 6	1360	60	54	53
Ⓐ 7	1460	53	52	61
Ⓐ 8	1670	42	51	55

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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

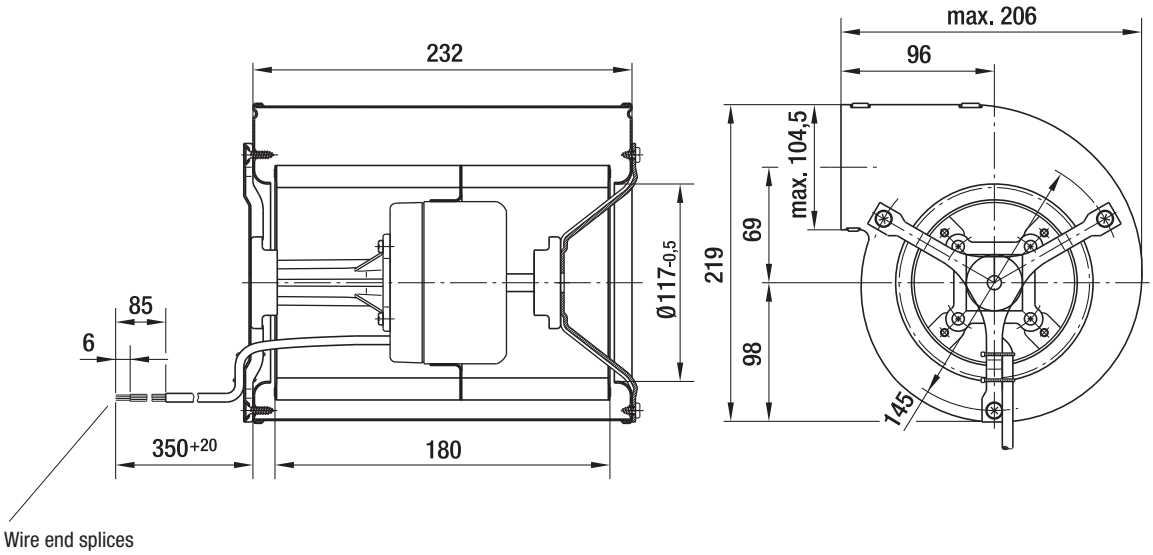
ebmpapst

- **Technical features:** See connection diagram p. 259
- **EMC (24 VDC):** Interference emission acc. to EN 55022, class B
  Immunity to interference acc. to EN 61000-6-2
- **Cable exit:** Variable
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA



Weight centrifugal blowers

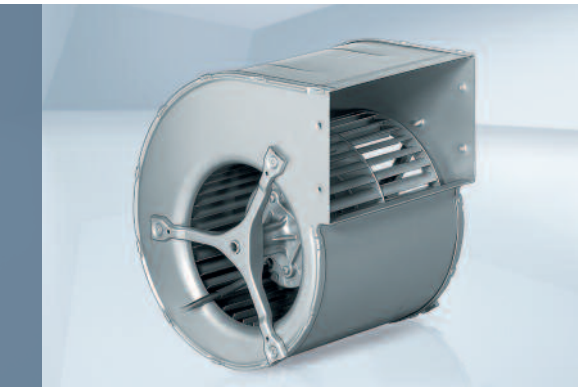
Centrifugal blowers without flange	kg
D1G 146-AA19 -52	3.5
D1G 146-AA33 -52	3.5



Max. 980 m³/h

DC centrifugal blowers

Ø 160 mm



- **Material:** Housing: Galvanized sheet steel
Impeller: Galvanized sheet steel
Rotor: Painted black
- **Direction of rotation:** Counterclockwise, looking towards rotor
- **Degree of protection:** IP 42
- **Insulation class:** "B"
- **Installation position:** Any
- **Condensation drainage holes:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** SAL motor mounted with vibration damping on both sides
- **Bearings:** Maintenance-free ball bearings

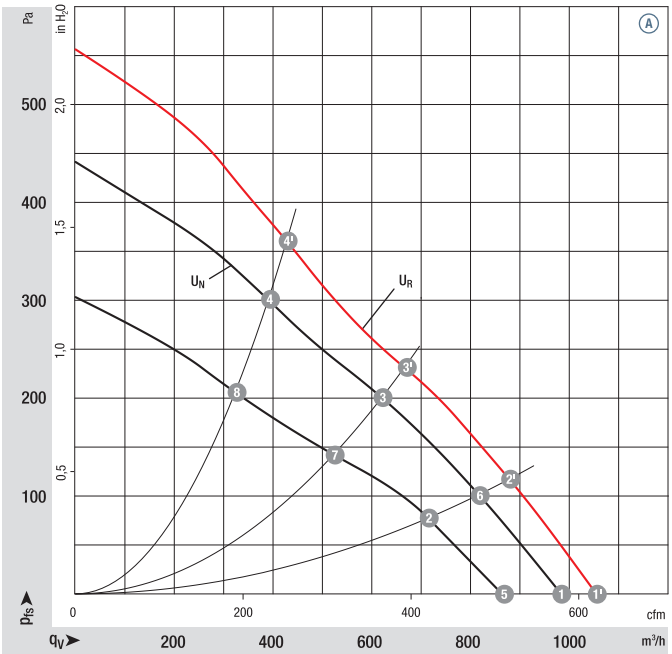
Nominal data		Curve	Nominal voltage	Nominal voltage range	Air flow	Nominal speed	Power consumption	Input current	Sound pressure level	Min. back-pressure	Admissible amb. temp.	Technical features and connection diagram
Type	**Motor**		**VDC**	**VDC**	**m³/h**	**rpm⁻¹**	**W**	**A**	**dB(A)**	**Pa**	**°C**	
D1G 160	M1G 074-CF	Ⓐ	24	16-28	980	1250	112	5.60	60	0	-25...+60	p. 259 / G)
D1G 160	M1G 074-CF	Ⓐ	48	36-57	980	1250	112	2.90	60	0	-25...+60	p. 259 / G)

Subject to change

Curves:

U_N = nominal voltage (24 V /48 V)

U_R = over-voltage (28 V / 57 V)



	n rpm⁻¹	P_{ed} W	Lp_A dB(A)	η_{tL} %
Ⓐ 1'	1330	142	63	—
Ⓐ 2'	1520	128	61	64
Ⓐ 3'	1790	115	59	66
Ⓐ 4'	2090	105	60	60
Ⓐ 1	1250	112	60	—
Ⓐ 2	1420	102	59	64
Ⓐ 3	1660	92	58	66
Ⓐ 4	1900	80	58	60
Ⓐ 5	1100	75	58	—
Ⓐ 6	1250	69	56	64
Ⓐ 7	1420	58	54	66
Ⓐ 8	1580	47	53	60

Air performance measured according to: ISO 5801, Installation category A, with ebm-papst scroll housing without contact protection. Suction-side noise levels: L_WA according to ISO 13347, 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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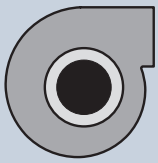
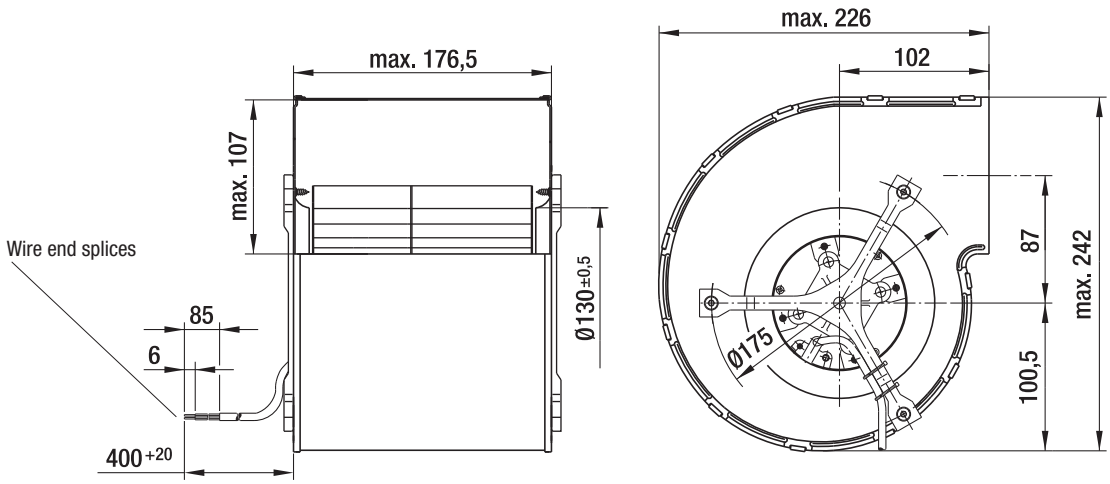
- **Technical features:** See connection diagram p. 259
- **Cable exit:** Variable
- **Protection class:** I
- **Conformity with standard(s):** EN 60950-1
- **Approvals:** UL, CSA



Centrifugal blowers without flange	Weight centrifugal blowers kg
D1G 160-DA19 -52	3.6
D1G 160-DA33 -52	3.6

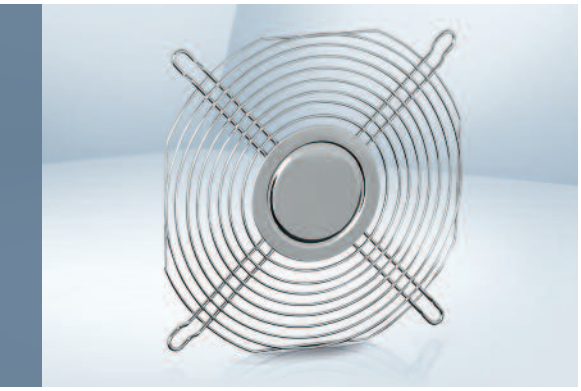


Accessories

ebm-papst offers a comprehensive selection of accessories for optimum fan operation, from temperature sensors for speed-controlled fans, to finger guards for all variants, to cables, filters, and screens, to spacers and installation parts. Even in the case of very special parts, you can be sure: We will assist you every way possible. The sales experts at ebm-papst will be happy to assist you with your question concerning fan installation and use.

From selection to accessories:
Insist on the efficient and reliable service provided by ebm-papst.

Finger guards



- **Material:** Galvanized or nickel-plated steel wire
- **Note:** Finger guard according to DIN EN ISO 13857 (previously EN 294).
  Additional finger guards that do not satisfy DIN EN ISO 13857 available on request.
  Our finger guards are designed specifically to be uses with ebm-papst fans.
  They combine the highest degree of safety with minimum effect on the operating noise. Please note that the safety-related clearances cannot be guaranteed when finger guards made by other manufacturers are used.

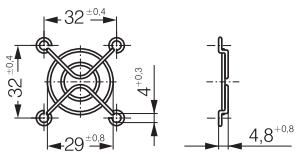
Fan series	Part no.
400	**LZ29-1**
420 J	**LZ29-1**
500	**LZ31**
600	**LZ28-1**
3000	**LZ23-1**
8000	**LZ32-4 / LZ22-2**
9000	**LZ30-4 / LZ 30 / LZ 30-3**
4000	**LZ30-4 / LZ 30 / LZ 30-3**

Fan series	Part no.
5100	**LZ25**
5600	**LZ25**
5200	**LZ35**
5300	**LZ53**
5900	**LZ35**
7000	**LZ36**
6300	**LZ37**
6400	**LZ38**

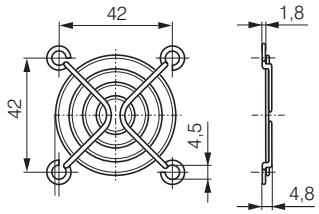
Fan series	Part no.	Side
2200 F	**LZ22**	
DV 4100	**LZ30-4**	Intake/outlet
DV 5200	**LZ35**	Intake/outlet
DV 6300 TD	**LZ37**	Intake side
DV 6300 TD	**LZ52**	Outlet side
DV 6400	**LZ38**	Intake side
DV 6400	**LZ39**	Outlet side

Subject to change

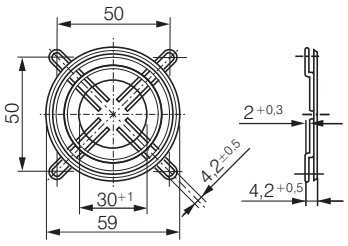
LZ29-1 — **Fan size 40 x 40**



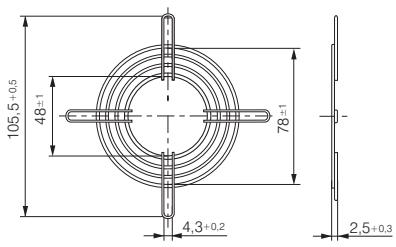
LZ31 — **Fan size 50 x 50**



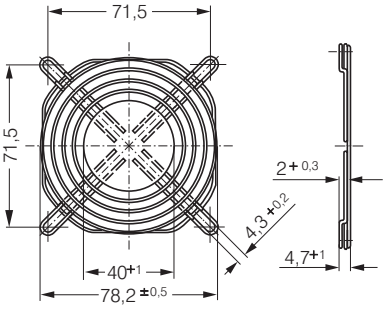
LZ28-1 — **Fan size 60 x 60**



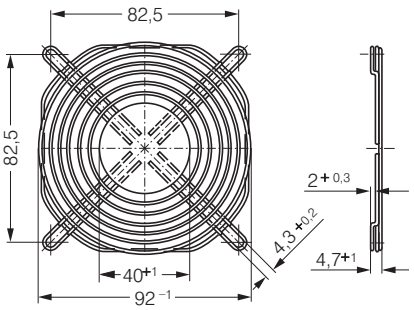
LZ22-2 — **Fan size 80 x 80**



LZ32-4 — **Fan size 80 x 80**



LZ23-1 — **Fan size 92 x 92**



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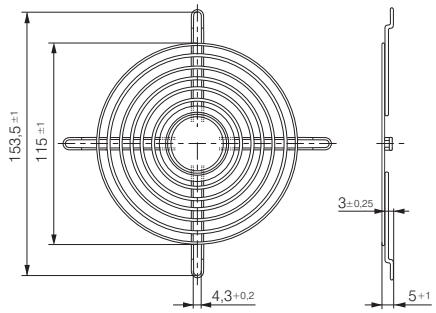
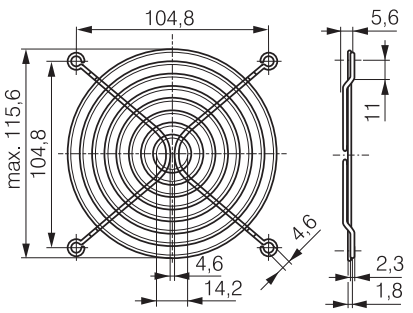
LZ30 — Fan size 119 x 119

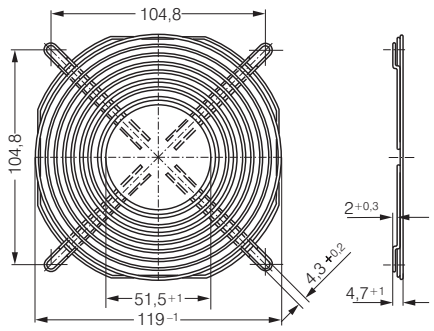


LZ30-3 — Fan size 119 x 119

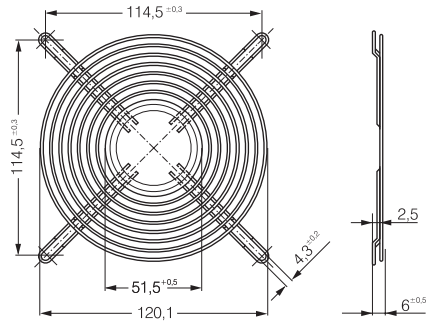


Also called LZ 30
for North America only.

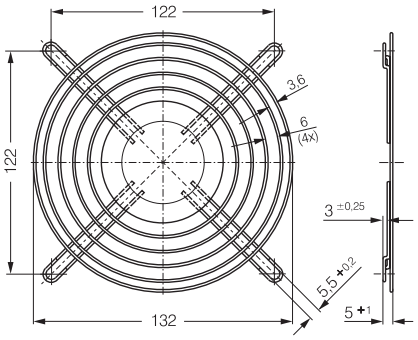
LZ30-4 — Fan size 119 x 119



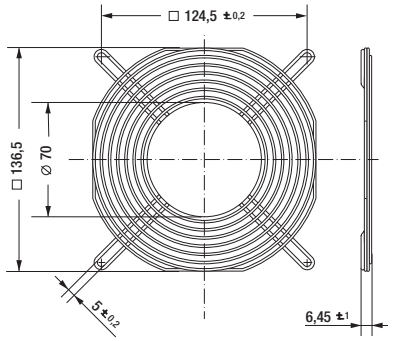
LZ35 — Fan size 127 x 127



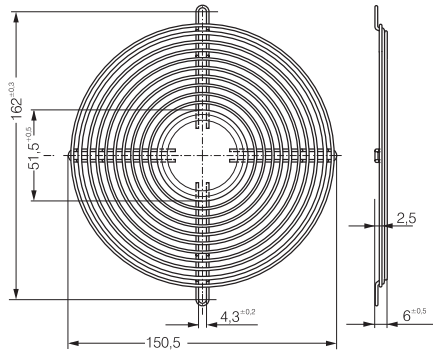
LZ25 — Fan size 135 x 135



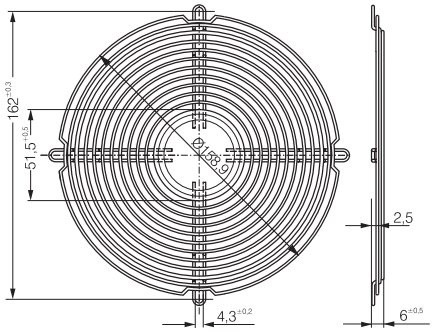
LZ53 — Fan size 140 x 140



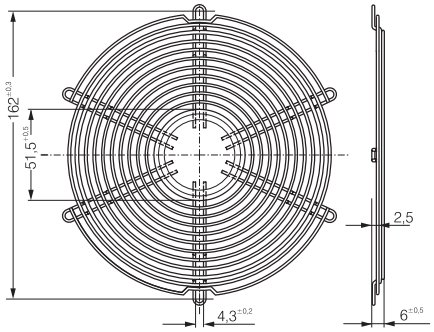
LZ36 — Fan size 150 x 172



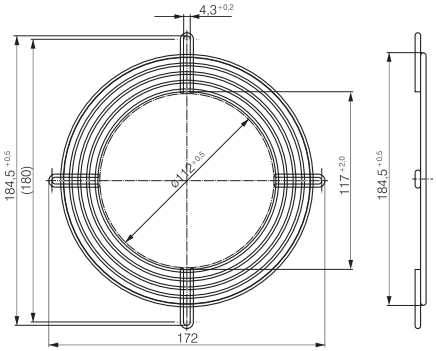
LZ37 — Fan size 172 x 51



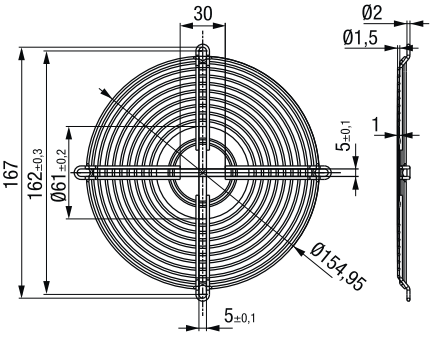
LZ38 — Fan size 172 x 51



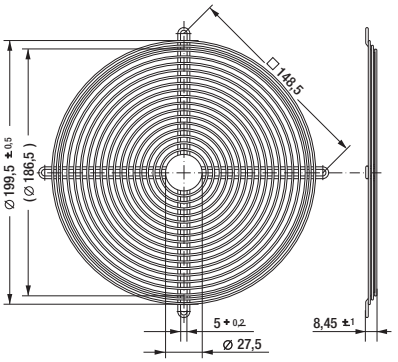
LZ39 — Fan size 172 x 51



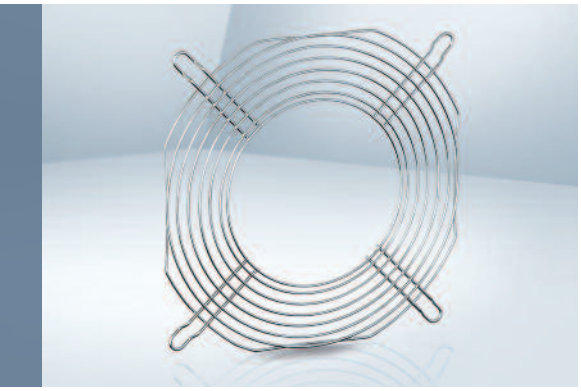
LZ52 — Fan size 172 x 51



LZ22 — Fan size 200 x 51



Finger guards



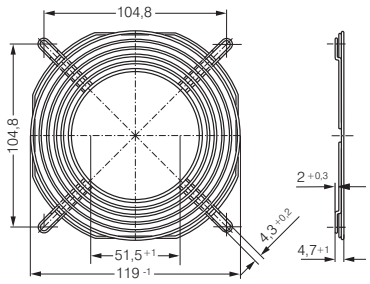
- **Material:** Galvanized or nickel-plated steel wire
- **Note:** Finger guard according to DIN EN ISO 13857 (previously EN 294).
  The finger guard detailed on this page are intended specifically for the ACmaxx / GreenTech EC tubeaxial fan ranges and are mounted on the outlet side.

Fan series	Part no.	Side
AC 8300 H	**LZ32-4**	Intake
AC 8300 H	**LZ32-7**	Outlet
AC 3200 J	**LZ23-1**	Intake
AC 3200 J	**LZ23-6**	Outlet
AC 4400 FN	**LZ30-4**	Intake
AC 4400 FN	**LZ30-9**	Outlet
AC 4300	**LZ30-4**	Intake
AC 4300	**LZ30-9**	Outlet

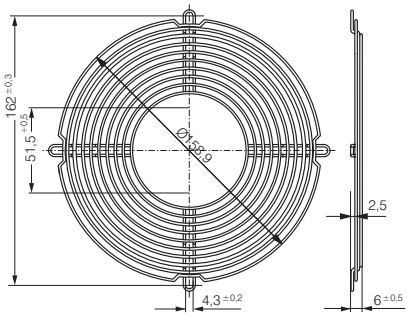
Fan series	Part no.	Side
ACi 4400	**LZ30**	Intake
ACi 4400	**LZ30**	Outlet
AC 6200 N	**LZ37**	Intake
AC 6200 N	**LZ37-2**	Outlet

* Outlet-side guards on request

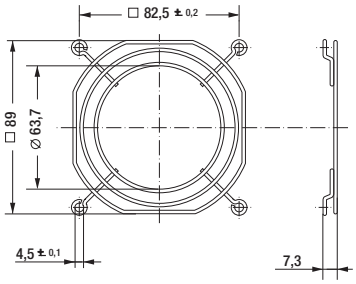
LZ30-9 Fan size 119 X 119



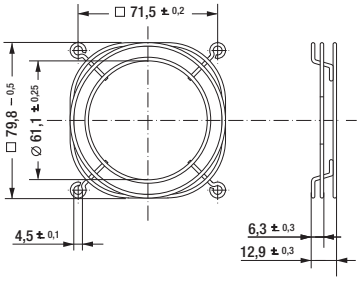
LZ37-2 Fan size Ø 172 X 51



LZ23-6 Fan size 92 x 92

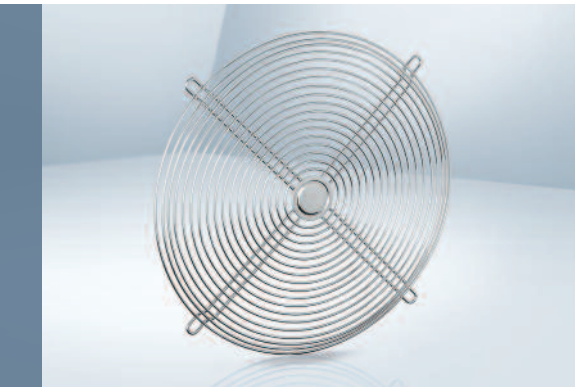


LZ32-7 Fan size 80 x 80



ebmpapst

Finger guards

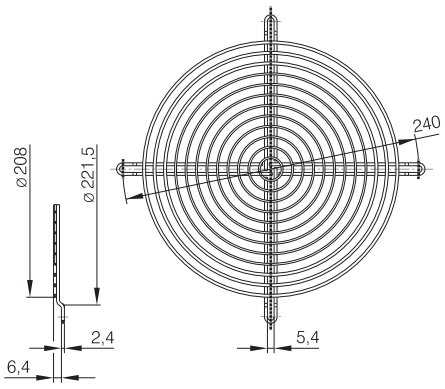


– **Material:** Steel wire, plastic-coated, with silver-metallic gloss

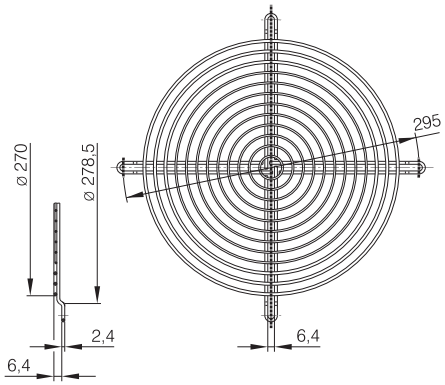
Fan series	Part no.
W3G 200	**78128-2-4039**

Fan series	Part no.
W1G 250	**09418-2-4039**
W3G 250	**09418-2-4039**

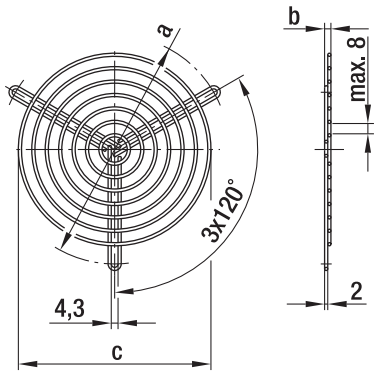
78128-2-4039 **Fan size 200**



09418-2-4039 **Fan size 250**



Finger guards

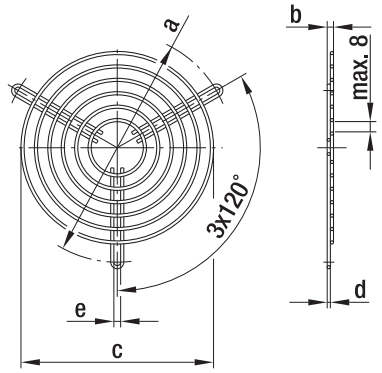


– **Material:** Steel wire

Finger guards for centrifugal blowers with dual inlet

Part no.	Fan size	a	b	c	Coating
83319-2-4039	097 (1)	96.0	3.5	71.0	Phosphated, plastic-coated in RAL no. 9005
09485-2-4039	097 (2)	114.0	3.5	88.0	Phosphated, plastic-coated in RAL no. 9005
09500-2-4039	133 / 146	145.0	4.0	122.0	Phosphated, plastic-coated in RAL no. 9005

Subject to change (1) for D2E097-CH (2) for D2E097-B*



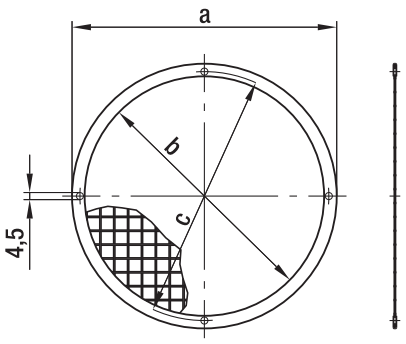
– **Material:** Phosphated steel wire, plastic-coated, silver-metallic gloss

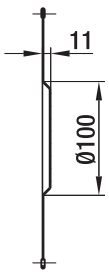
Finger guards for centrifugal blowers with dual inlet (versions with EW motor)

Part no.	Fan size	a	b	c	d	e
35000-2-4039	160	182.0	12.0	144.0	2.4	4.5

Subject to change

Finger guards





[4] Fan size 160

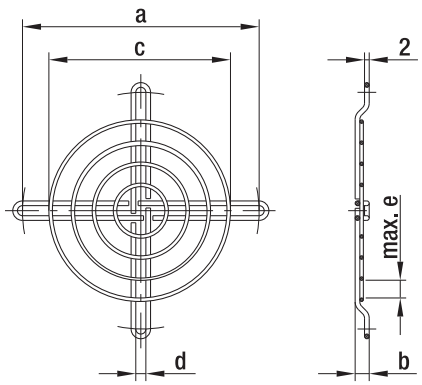
– **Material:** Welded screens made of hot-dip galvanized steel, border made of tin (0.4 mm thick)

Finger guards for centrifugal blowers with single inlet

Part no.	Fan size	a	b	c
09489-2-4039	085 [3]	90.0	74.0	84.0
09490-2-4039	108	126.0	110.0	118.0
09494-2-4039	120	140.0	124.0	132.0
09492-2-4039	140 / 146	168.0	152.0	158.0
09503-2-4039	160 [4]	183.0	170.0	175.0

Subject to change

(3) 3 drilled holes staggered by 120°



– **Material:** Steel wire

Finger guards for centrifugal blowers with single inlet

Part no.	Fan size	a	b	c	d	e	Coating
09603-2-4039	076 / 085	101.0	6.0	79.0	4.3	8.0	Plastic coated, silver-metallic gloss
98214-2-4039	108	120.0	3.5	88.0	4.3	8.0	Plastic coated, silver-metallic gloss
25028-2-4039	140 / 146	162.0	8.5	139.0	4.3	8.0	Galvanized, chromatized in blue
17729-2-4039	160	175.0	3.5	139.0	4.6	7.0	Galvanized, chromatized in blue

Subject to change

Finger guards

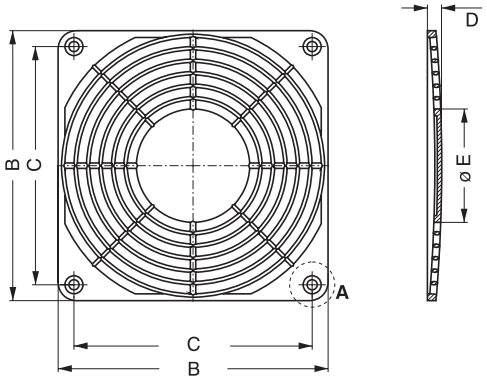
- **Material:** Fiberglass-reinforced plastic
- **Note:** Finger guard according to DIN EN ISO 13857 (previously EN 294).
  Plastic guards may not be used for the following models:
  8200 JH3 / JH4
  3200 JH3 / JH4
  4100 NH5 - NH8

Part no.	Mounting	B	C	D	E
LZ28-3	A3	$60^{-0.5}$	$50.0^{\pm0.2}$	3.0	24
LZ32-2	A1	$80^{-0.5}$	$71.5^{\pm0.2}$	7.0	34
LZ32-3	A3	$80^{-0.5}$	$71.5^{\pm0.2}$	7.0	34
LZ23-2	A1	$92.5^{-0.5}$	$82.5^{\pm0.2}$	6.5	46
LZ23-3	A3	$92.5^{-0.5}$	$82.5^{\pm0.2}$	6.5	46

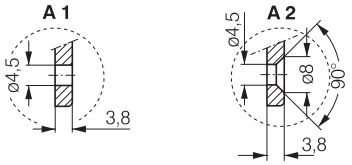
Part no.	Mounting	B	C	D	E
LZ30-5	A2	$119^{-0.5}$	$105^{\pm0.2}$	6.5	50
LZ30-6	A4	$119^{-0.5}$	$105^{\pm0.2}$	6.5	50
LZ33-1	A2	$127^{-0.5}$	$113.5^{\pm0.2}$	6.5	50
LZ33-2	A4	$127^{-0.5}$	$113.5^{\pm0.2}$	6.5	50

Subject to change

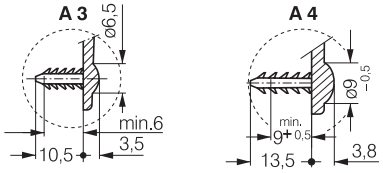
LZ28-3	Fan size 60 x 60
LZ32-2 / LZ32-3	Fan size 80 x 80
LZ23-2 / LZ23-3	Fan size 92 x 92
LZ30-5 / LZ30-6	Fan size 119 x 119
LZ33-1 / LZ33-2	Fan size 127 x 127



Screw connection

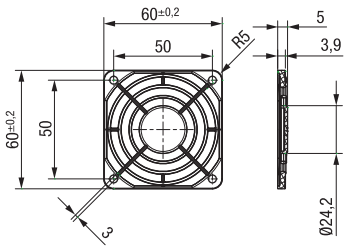


Barbed inserts

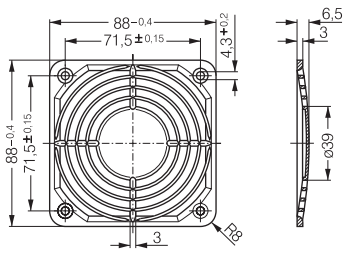


Only suitable for bore hole diameter ⁻4.3 - ⁻4.7.

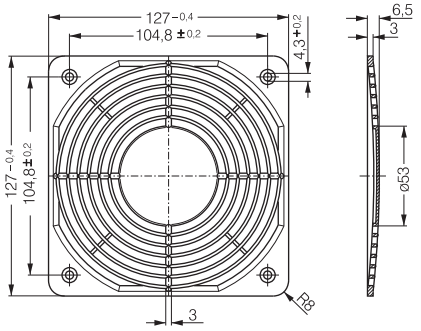
LZ28-3	Fan size 60 x 60



LZ32P	Fan size 80 x 80



LZ30P	Fan size 119 x 119



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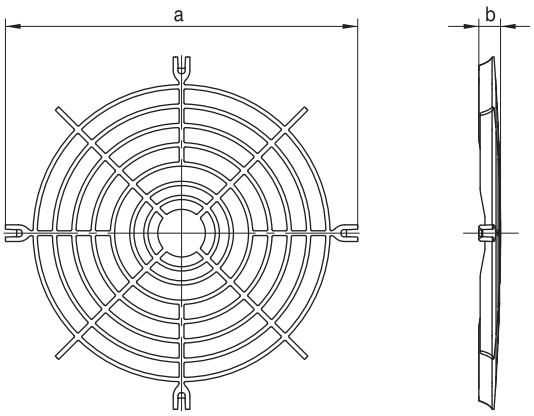
Finger guards

For compact centrifugal modules

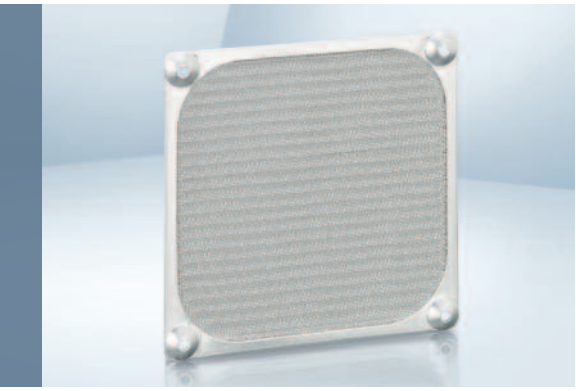
- **Material:** PA plastic, fiberglass-reinforced
- **Highlights:** Flame protection class in line with UL 94V-0

Fan series	Part no.	a	b
RG 190	**LZ46-1**	133	9.0
RG 220	**LZ47-1**	166	8.7
RG 225	**LZ48-1**	158	8.7

Subject to change

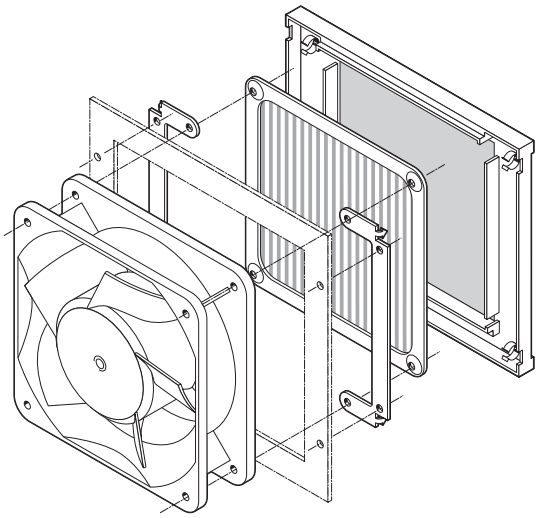


Filter fan guards

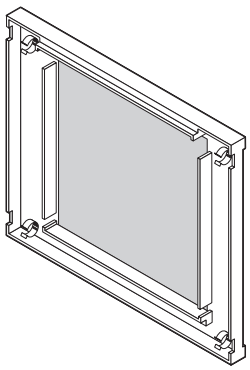


– **Material:** Filter guard LZ40 N: black, fiberglass-reinforced plastic with inserted wire mesh LZ60.
Coarse filter LZ60: stainless steel wire mesh
Mounting lug LZ40-1 for mounting

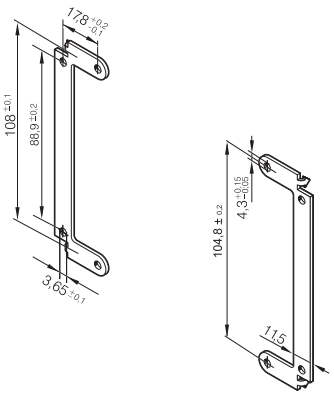
DC fan series	AC fan series
4400 F	AC 4300
4400 FN	9900
4300	4000 N
4400	4000 Z
4100 N	Subject to change



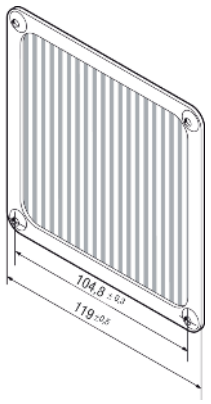
LZ40N Filter guard



LZ40-1 Mounting lug



LZ60 Coarse filter



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Filter fan guards

- **Material:** Guard cover: Injection-molded polycarbonate (PC) with mat surface.
  Mounting plate: wire mesh with black powder coating
  Filter pad: white, synthetically bonded fibers
- **Note:**
  Filter fan guards suitable for fitting on axial fan series in sizes:
  60 mm, 80 mm, 92 mm, 119 mm, ø 172 mm. All filter units fit directly on the existing mounting holes of the fans.
  Filter fan guards consisting of 3 parts: external guard cover, internal mounting plate, and replaceable filter pad.
  The filter pad can be replaced quickly and easily via a quick release on the guard cover.
  The filter pads can be replaced even while the fan is running, as protection is provided by the welded wire mesh.

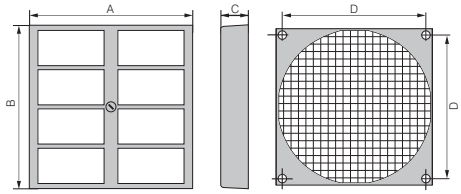
Part no.	Fan size	A	B	C	D	Part no. Replacement filter*
FF60	60 x 60 mm	65	65	13.5	50.0	**RF 60**
FF80	80 x 80 mm	85	85	14.0	71.5	**RF 80**
FF92	92 x 92 mm	125	105	17.5	82.5	**RF 92**
FF119	119 x 119 mm	162	136	18.5	104.5	**RF 119**
FF172	ø 172 mm	226	190	19.5	162.0	**RF 172**

Subject to change

* Replacement filter available only in packages of 5.

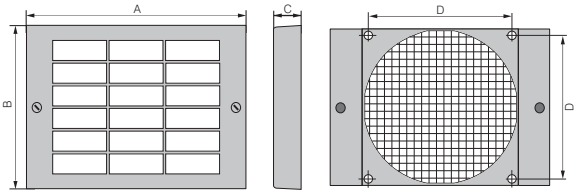
FF60 / FF80

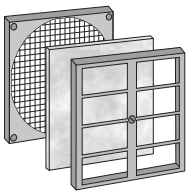
Fan size: 60 x 60 mm
80 x 80 mm



FF92 / FF 119

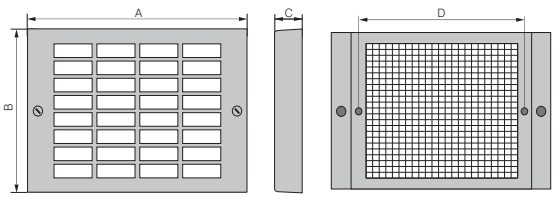
Fan size: 92 x 92 mm
119 x 119 mm





FF 172

Fan size: Ø 172 mm

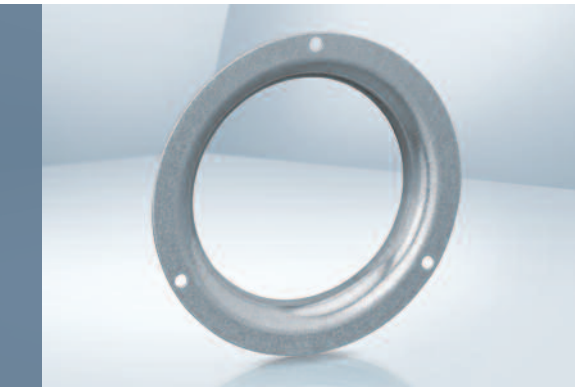


Filter performance

The filter fan guard filters 75% of dust particles with a size of 5-10 microns and can withstand temperatures of up to 100 °C. Filter class G3 according to DIN EN 779. Flame-retardant according to DIN 53438, class F1. When a clean filter is installed, a reduction of air flow of 20-30% is possible.

Inlet rings

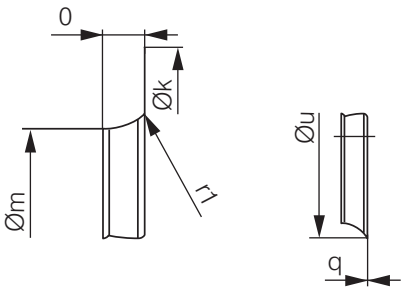
For centrifugal fans



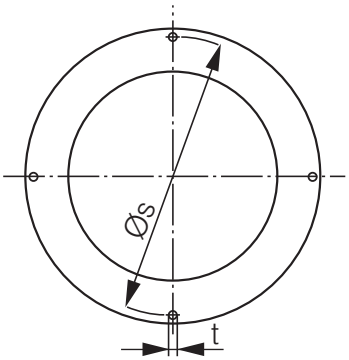
– **Material:** Galvanized sheet steel

Fan		Part no.	k	m	o	q	r_1	s	t	u	Vers.
RET 97	(S)	**LZ 1000-097**	116,0	80,0	10,0	0,80	10,0	108,0	3x4,5	–	1
RER 120	(K)	**LZ 1000-120**	146,0	94,4	18,0	0,80	16,0	134,0	4x4,5	126,0	1
RER 133	(K)	**LZ 1000-133**	129,0	87,0	13,0	1,00	8,0	118,0	4x4,5	103,0	1
RER 160	(S)	**LZ 1000-160**	142,0	100,0	9,0	1,00	8,0	132,0	4x4,5	–	1
RER 175 / 190	(K)	**LZ 1000-175**	170,0	125,5	14,0	1,25	10,0	158,0	4x4,5	146,0	1
RER 220	(K)	**LZ 1000-220**	252,0	155,0	21,0	0,80	22,0	–	–	199,0	2
RER 225	(K)	**LZ 1000-225**	223,0	146,0	28,0	1,50	25,0	210,0	4x4,5	196,0	1

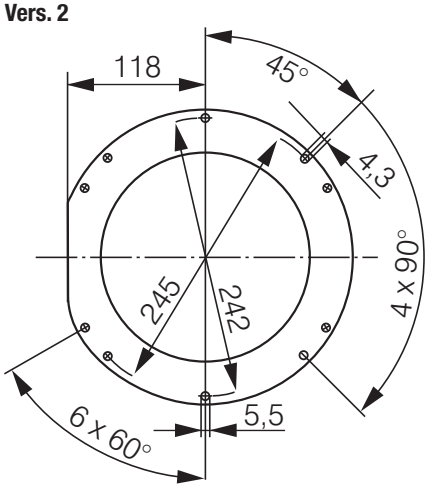
(P) = plastic, (S) = galvanized sheet steel



Vers. 1



Vers. 2



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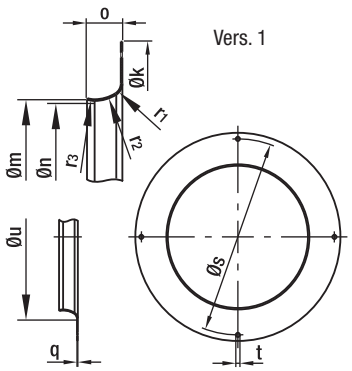
Inlet rings

For centrifugal fans

Vers. 1



– **Material:** Galvanized sheet steel

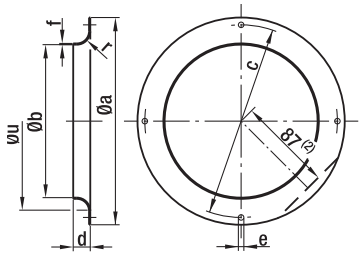
Inlet rings for backward curved centrifugal fans

Part no.	Fan size(1)	Vers.	k	m	n	o	q	r_1	r_2	r_3	s	t	u
96120-2-4013	120 (P)	1	146.0	94.4	—	18.0	0.80	16.0	—	—	134.0	4x4.5	126.0

Subject to change

(1) Fan size with key for impeller material: (P) = plastic, (S) = sheet steel, (A) = aluminum

Vers. 1



– **Material:** Galvanized sheet steel

Inlet rings for forward curved centrifugal fans

Part no.	Fan size	Vers.	a	b	c	d	e	f	r	u
09560-2-4013	085 (1)	1	92.0	63.4	84.0	6.0	3x4.2	0.80	6.8	—
09563-2-4013	097 (1)	1	116.0	80.0	108.0	10.0	3x4.5	0.80	10.0	—
09566-2-4013	108	1	129.0	87.0	118.0	13.0	4x4.5	1.00	8.0	—
09569-2-4013	120	1	142.0	100.0	132.0	9.0	4x4.5	1.00	8.0	—
09572-2-4013	133	1	150.0	112.0	142.0	12.0	4x4.5	1.00	10.0	—
09576-2-4013	140 / 146	1	170.0	125.5	158.0	14.0	4x4.5	1.25	10.0	—
09588-2-4013	160	1 (2)	185.0	130.0	175.0	17.0	4x4.5	0.75	12.0	—

Subject to change

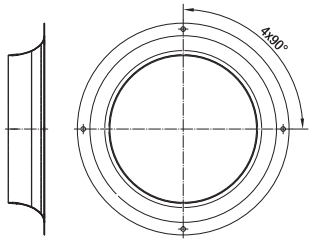
(1) 3 drilled holes staggered by 120°

(2) only for 09588-2-4013

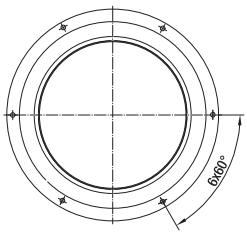
Inlet rings / air filter

For centrifugal fans

Vers. 1



Vers. 2

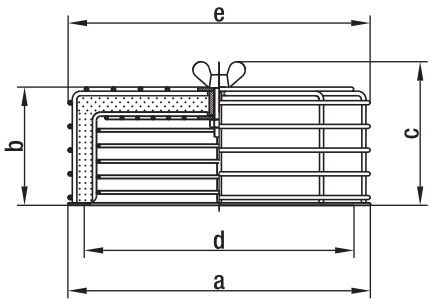


Material: Galvanized sheet steel

Inlet rings without measuring device for backward curved centrifugal fans

Part no.	Fan size	Vers.	Dimensions
09576-2-4013	190	1	See corresponding product page
09609-2-4013	220	2	See corresponding product page
96358-2-4013	225	1	See corresponding product page
96359-2-4013	250	1	See corresponding product page
28000-2-4013	280	1	See corresponding product page
31000-2-4013	310	1	See corresponding product page

Subject to change



- **Material:** Steel wire or sheet steel, plastic coated in RAL no. 9005, black
- **Filter:** Viledon filter type R: PSB / 29 OS (according to DIN 24185)
  Separation capacity: < 86%
  Efficiency: < 20%
  Dust binding capacity: 650 g/m²

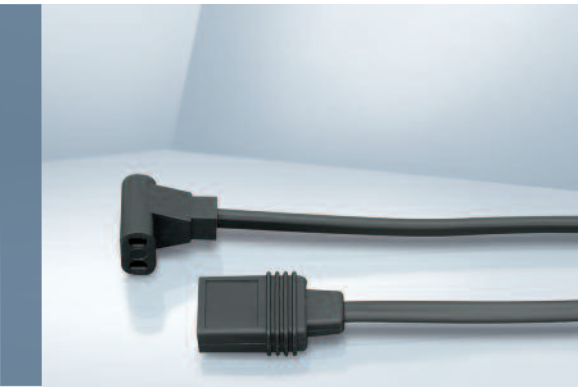
Air filters for centrifugal blowers (with die-cast aluminum housing)

Part no.	Fan size	a	b	c	d	e	Replacement filter
95777-1-5171	108 / 120	142.0	66.0	83.0	118-132	145.0	95779-1-5171
95778-1-5171	140 / 146 / 160	185.0	74.0	91.0	158-175	185.0	95780-1-5171

Subject to change

ebmpapst

Cables

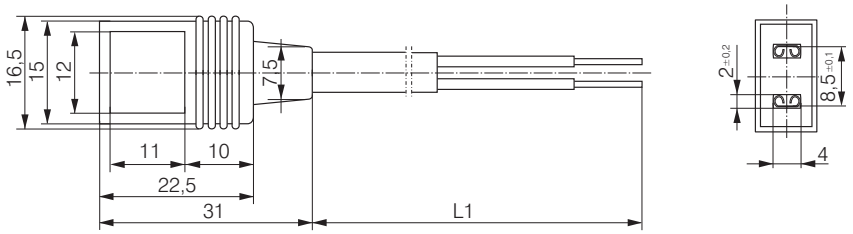


- Cable with molded plug connection in varying lengths.
- Wire end with wire end ferrules, crimped ferrules, or tin-plated.
- Straight or angled plug.
- For all fan types with flat plug 2.8 / 3.0 x 0.5.

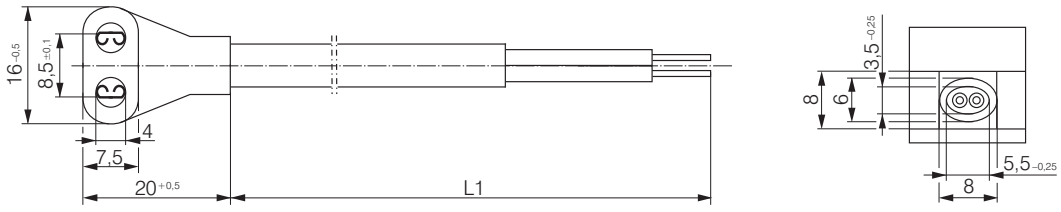
Part no.	L1 (mm)	Wires	Plug	Wire end	Flat push-on receptacle	Application
LZ120	610	0.5 mm²	G	C	2.8 x 0.5	AC
LZ120-4	2 000	0.5 mm²	G	A	2.8 x 0.5	AC
LZ120-5	380	0.5 mm²	W	B	2.8 x 0.5	DC
LZ120-6	610	0.5 mm²	W	B	2.8 x 0.5	DC
LZ120-11	2 000	0.5 mm²	G	A	2.8 x 0.5	DC
LZ120-16	800	0.5 mm²	G	B	2.8 x 0.5	AC
LZ120-18	4 000	0.5 mm²	G	A	2.8 x 0.5	AC
LZ126	1 000	0.5 mm²	G	C	2.8 x 0.5	AC
LZ127	1 600	0.5 mm²	G	B	2.8 x 0.5	AC
LZ130-1	610	0.82 mm²	G	C	2.8 x 0.5	AC *
LZ140	610	0.73 mm²	G	B	2.8 x 0.8	AC

* UL-approved

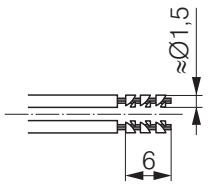
Cable **Straight plug (G)**



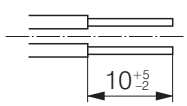
Cable **Angled plug (W)**



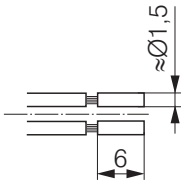
Wire end ferrules **Wire end A**



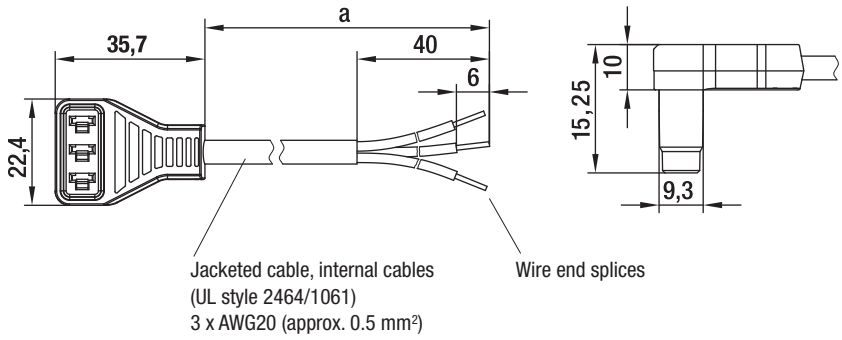
Tin-plated **Wire end B**



Wire end ferrules **Wire end C**



Cable (ESM) / Handheld Programmer



– **Design:** Cable conforms to UL standards sealed plug. Customized cables on request.

Cables for energy-saving motors 115/230 VAC

Part no.	a
13060-4-1040	450
13061-4-1040	1500

Subject to change

– **Easy speed programming**
– **Battery operated**
– **User-friendly navigation menu**
– **Protective cover with folding stand**

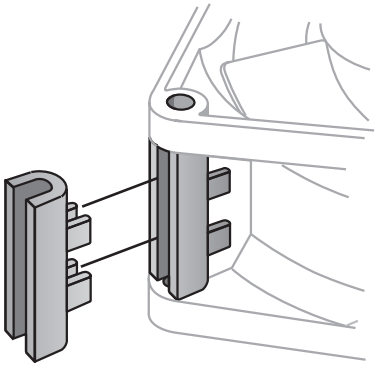
For Energy Saving Motor (ESM) based products

Part no.
CBC 000-AF08-01

Subject to change

Makes quick work of programming the two ESM adjustable operating speeds. Eliminates the need for a PC, software adapter and second cable. Especially for use in production or by sales representatives. Automatic shut-off function for extended battery life.
Mini USB plug for downloading software updates. Batteries, programming cable, and operating instructions included in scope of delivery.

Accessories

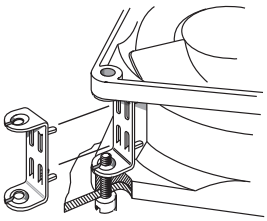


In addition to the accessories and installation parts listed here, ebm-papst also supplies a number of additional, sometimes very special parts for fans. Our company sales team is happy to offer you their expert assistance with all your questions regarding the installation and use of our fans.

Fan series	Part no.
8300	**LZ212 / LZ260**
8400 N	**LZ261**
3400 N	**LZ261**
9000	**LZ210**
4000	**LZ210**
4300	**LZ212 / LZ260**

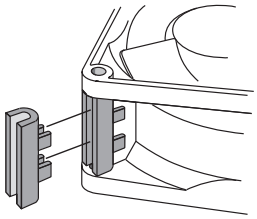
Fan series	Part no.
5100	**LZ210**
5600	**LZ210**
5200	**LZ210**
5900	**LZ210**
7000	**LZ210**
VARIOFAN	**LZ370**

LZ212



Screw clip of rustproof spring steel.
For mounting fans with threaded pin 3.5 DIN EN ISO 1478 (7970).

LZ260/LZ261

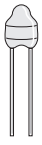


Spacer of fiberglass-reinforced plastic.
For mounting with screws through both fan mounting flanges.

LZ210

Screw clip of hardened steel.
For mounting fans with threaded pin 6-32 UNC or 3.5 DIN 7970.

LZ370

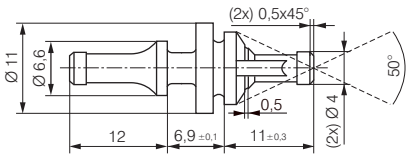


Required performance data:

R_{25}	= 100 KΩ ±5% @25°C
B-value	= 4190 ±2%
P_{max}	= 0,25 W

Temperature sensor for speed-controlled fan operation. Temperature range 30...50 °C.

LZ550

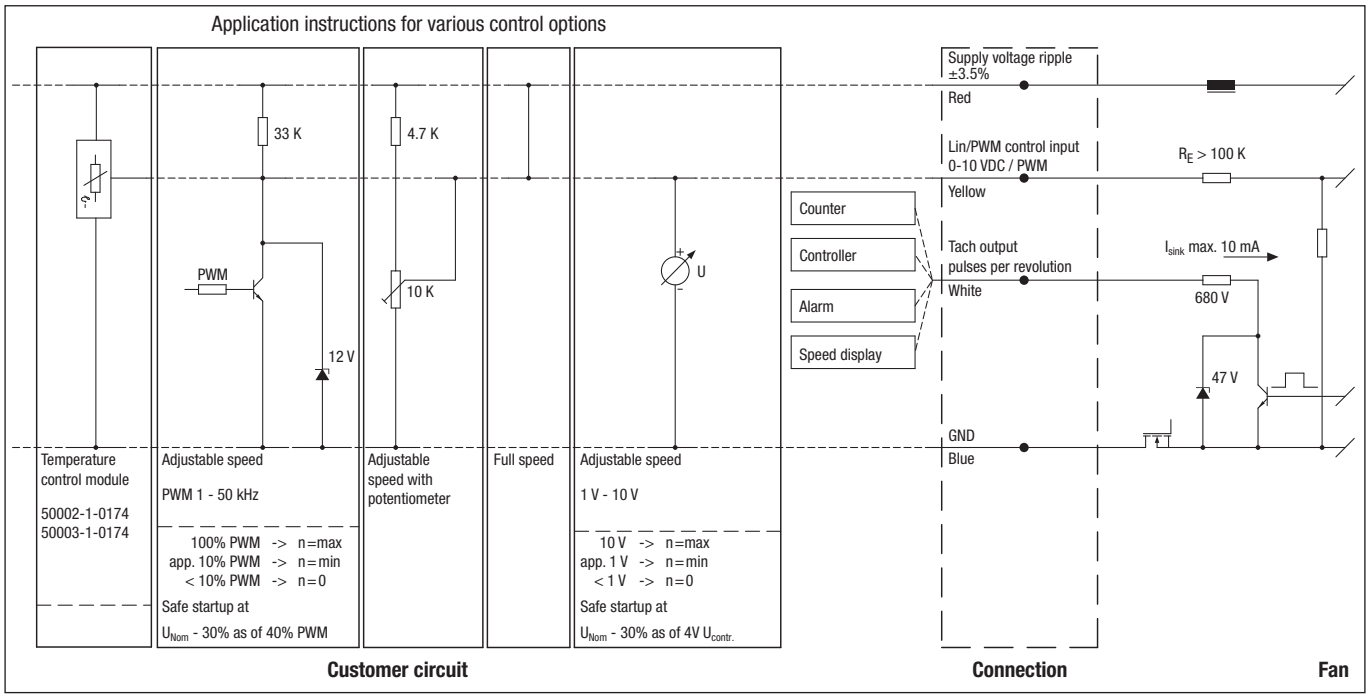


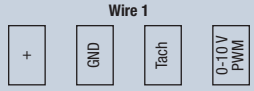
Rubber anti-vibration mounts
for fans with a hole ø of 4.3 ±0.2 mm and flange thickness of 3 to 5.5 mm.
For a carrier plate with a hole ø of 6.5 ±0.15 mm and plate thickness of 1 to 2 mm.

Connection diagrams EC E)

Technical features (nominal voltage 24 / 48 VDC)**:**

- Control input 0-10 VDC / PWM
- Tach output
- Reverse polarity and locked-rotor protection
- Motor current limitation
- Voltage-dependent derating
- Thermal overload protection electronics
- Soft startup





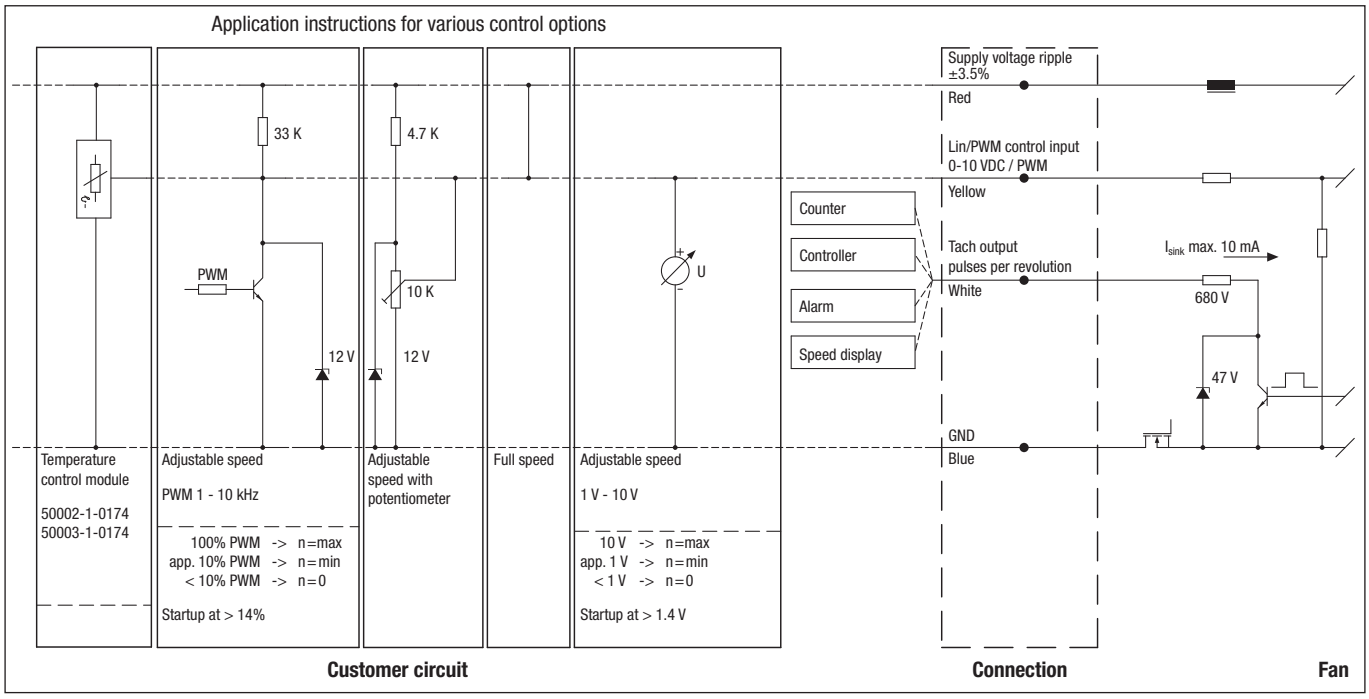
Wire	Connection	Color	Assignment/function
1	+	Red	Supply voltage ripple ±3.5%
	GND	Blue	GND

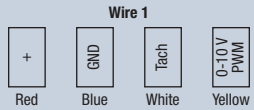
Wire	Connection	Color	Assignment/function
1	Tach	White	Tach output:
	0-10 V / PWM	Yellow	Control input

Connection diagrams EC G)

Technical features (nominal voltage 24 / 48 VDC)**:**

- Control input 0-10 VDC / PWM
- Tach output
- Reverse polarity and locked-rotor protection





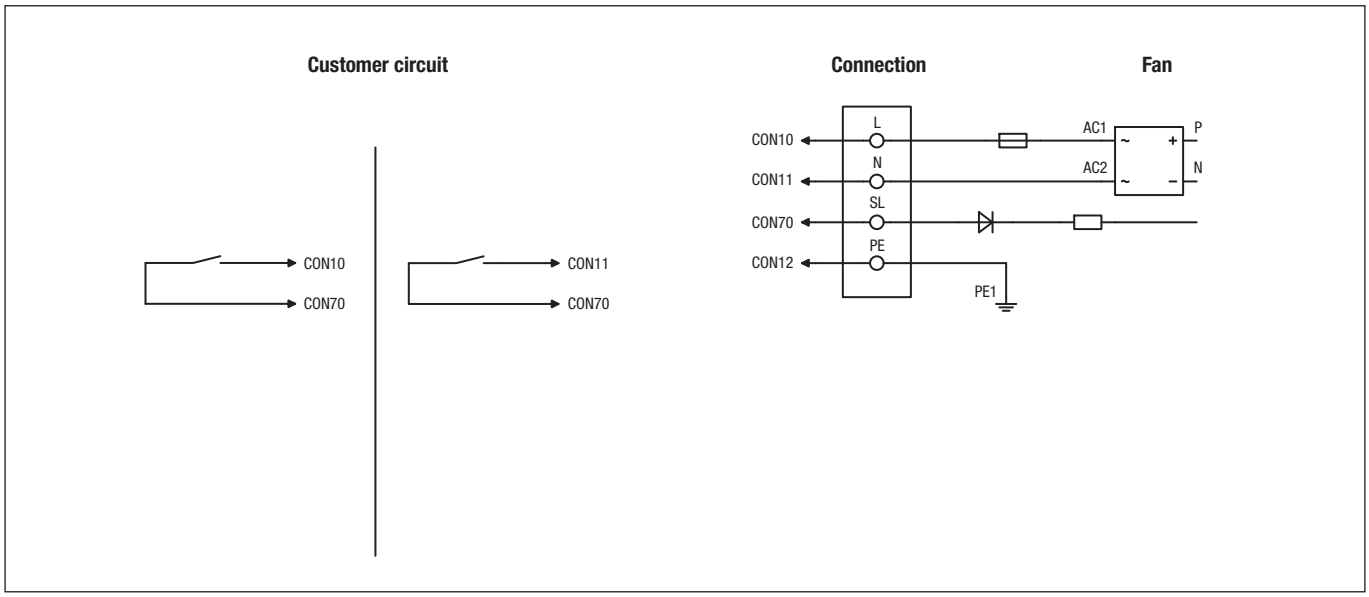
Wire	Connection	Color	Assignment/function
1	+	Red	Supply voltage ripple ±3.5%
	GND	Blue	GND

Wire	Connection	Color	Assignment/function
1	Tach	White	Tach output:
			2 pulses/revolution (M1G045/M1G055)
			3 pulses/revolution (M1G074/M1G084)
	0-10 V / PWM	Yellow	Control input (impedance 100 kV)

Connection diagrams EC H3)

Technical features (M3G 055 with 2 speed stages)**:**

- Speed setting input (230V)
- Thermal overload protection electronics / motor
- Motor current limitation
- Locked-rotor protection
- Soft startup

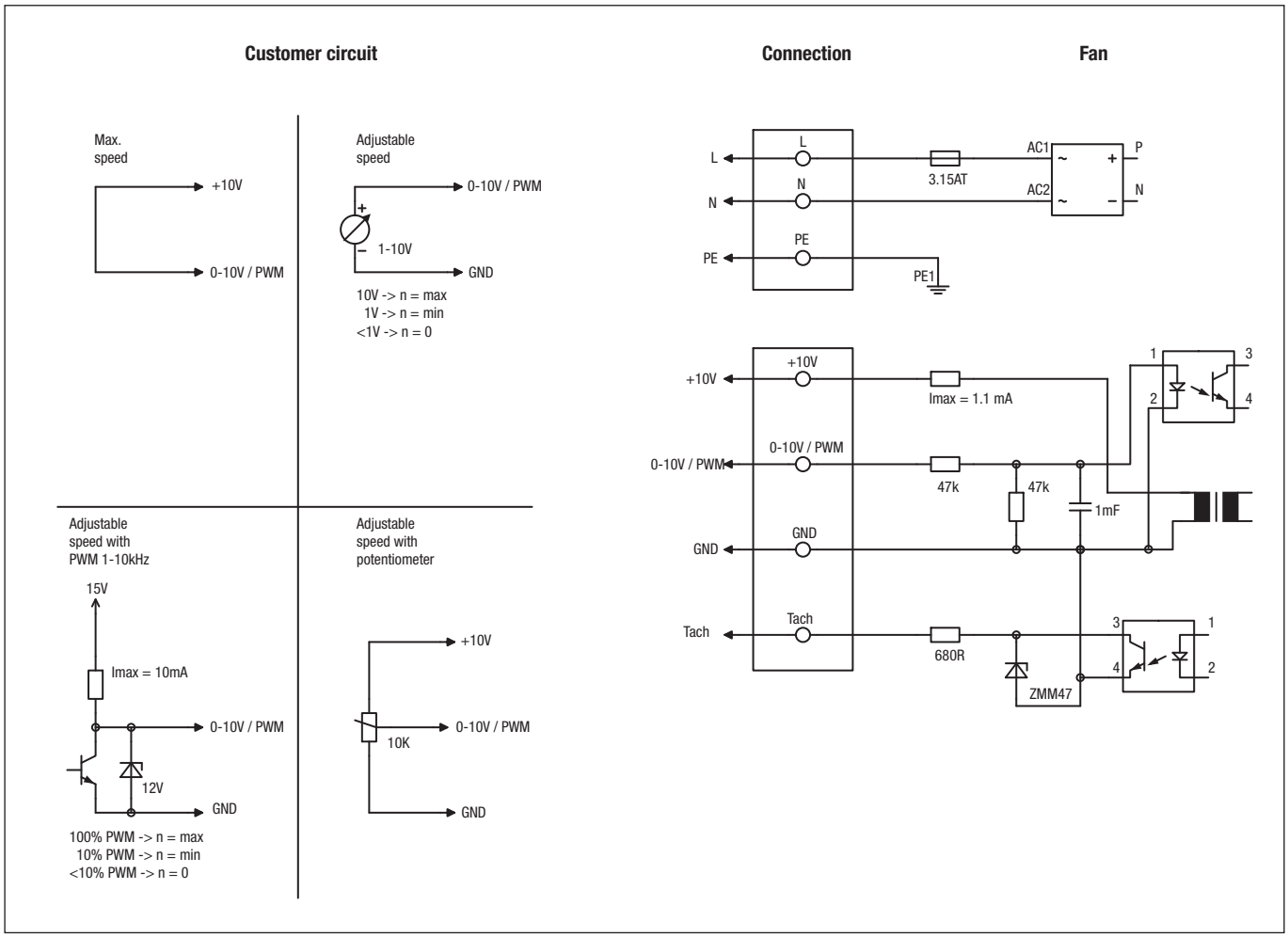


Wire	Connection	Color	Function / assignment
CON10	L	Black	Power supply 230 VAC, 50 - 60 Hz, see type plate for voltage range
CON11	N	Blue	Neutral conductor
CON12	PE	Green/yellow	Ground conductor
CON70	SL	brown	Speed selection: switch open = speed 1; switch closed = speed 2

Connection diagrams EC H4)

Technical features (M3G 055 speed-controlled):

- Output 10 VDC Max. 1.1 mA
- Tach output
- Thermal overload protection electronics / motor
- Motor current limitation
- Soft startup
- Locked-rotor protection
- Control input 0-10 VDC / PWM
- Control interface with SELV potential safely disconnected from the mains



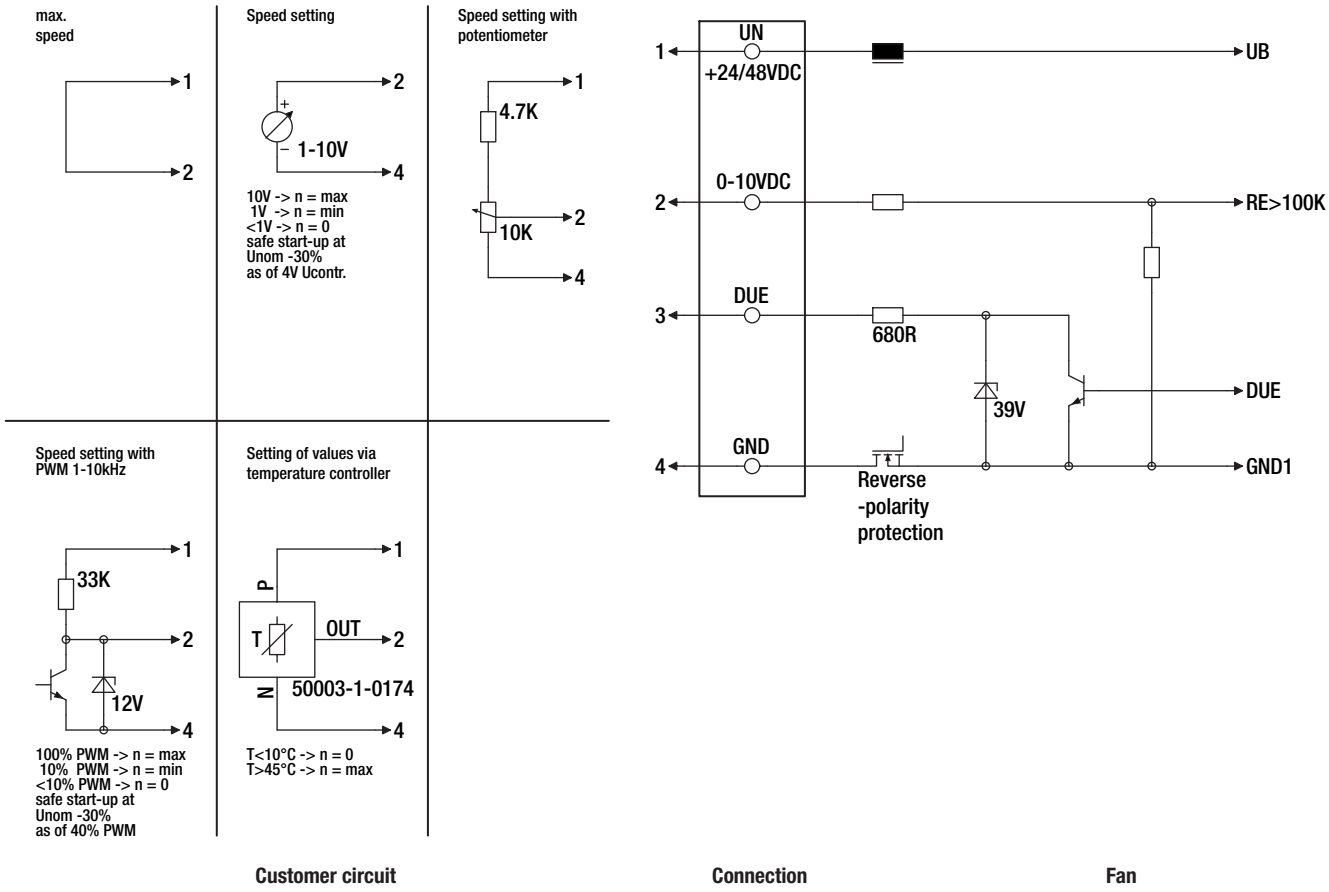
Connection	Color	Function / assignment
L	Black	Power supply 115/230 VAC, 50 - 60 Hz, see type plate for voltage range
N	Blue	Neutral conductor
PE	Green/yellow	Ground conductor
+10V/max.1.1mA	Red	Voltage output +10 V / 1.1 mA, electrically isolated, not short-circuit-proof
Tach	White	Tach output: Open collector, 1 pulse per revolution, electrically isolated
0-10V / PWM	Yellow	Control input 0-10 V or PWM, electrically isolated
GND	Blue	GND - Connection for control interface

Connection diagrams EC J5)

Technical features (nominal voltage 24 / 48 VDC):

- Control input 0-10 VDC / PWM
- Tach output
- Reverse polarity and locked-rotor protection
- Motor current limitation
- Line undervoltage detection
- Soft startup

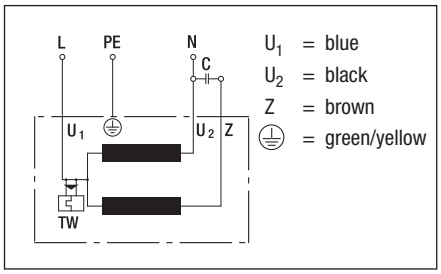
Application instructions for various control options



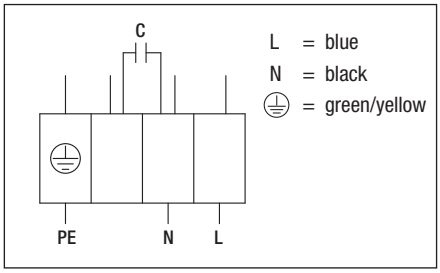
Wire	Connection	Color	Assignment/function
1	UN +24/48 VDC	Red	Power supply 24/48 VDC, supply voltage ripple ± 3.5 %
2	0-10 VDC	Yellow	Control input Re >100 K
3	Tach	White	Tach output, 3 pulses per revolution, Isink max. = 10 mA
4	GND	Blue	Reference ground

Connection diagrams AC A1) / A3) / C2)

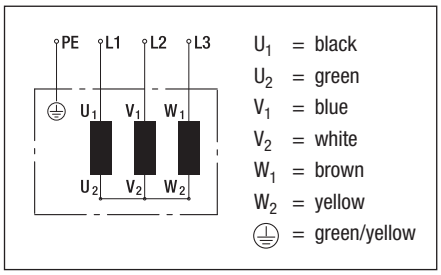
A1) Single-phase capacitor motor (1~ 115/230 VAC power line)
with thermal overload protector wired internally



A3) Single-phase capacitor motor (1~ 115/230 VAC power line)
with thermal overload protector wired internally

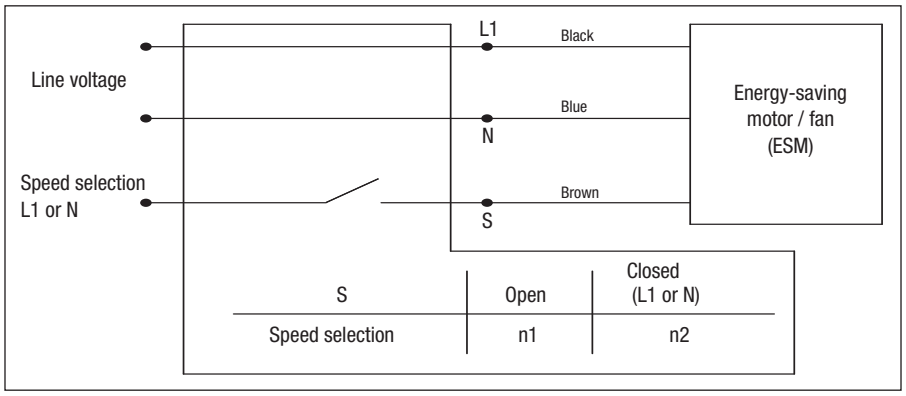


C2) Star connection (3~ 400 VAC power line)
without thermal overload protector



Connection diagrams AC
J7)

J7) Energy-saving motor (ESM) (1~ 115/230 VAC power line)



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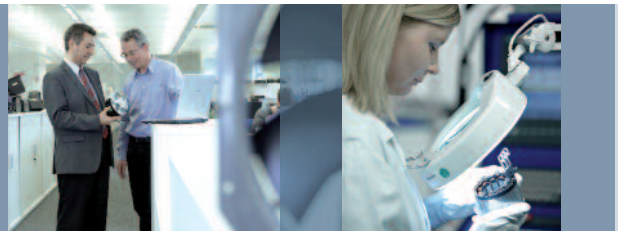

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