

EC axial fans AxiEco

Product Catalog 2022-04

ebmpapst

engineering a better life



Best under pressure: *The pressure-resistant AxiEco series.*

Victorious in the fight against ice formation,
noise and energy losses.

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The new *AxiEco*

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About ebm-papst

As the leading supplier of ventilation and drive technology, ebm-papst is a highly respected engineering partner in many industries. With over 20.000 different products, we provide the right solution for just about any challenge.

As the logical next stage in the development of our high-efficiency GreenTech EC technology, we believe that sustainably oriented industrial digitization offers the greatest future prospects for our customers.

With GreenIntelligence, ebm-papst already offers intelligently interconnected complete solutions that are unrivaled worldwide and save energy costs and emissions.

Six reasons why we are your ideal partner:

Our systems expertise.

Of course you always want the best solution for every project. To get it, you need to consider the ventilation and drive engineering aspects as a whole.

And that is precisely what we do...with **motor technology** that sets standards, highly sophisticated **electronics** and **aerodynamically** optimized designs – all from a single source and perfectly matched.

These system solutions release unique synergies worldwide. What's more: they save you a lot of work. Using them means you can concentrate on your core business.

ebm-papst's spirit of invention.

In addition to offering a wide range of products, we are able to develop customized solutions for you at any time. At our three German locations in Mulfingen, Landshut and St. Georgen, a diverse team of 600 engineers and technicians is ready to work to your specifications. Just get in touch with us to discuss your latest project.

Our cutting-edge technology.

ebm-papst is not only a pioneer in developing highly efficient EC technology. We were also quick to recognize the potential of digitalization. This means we are now able to provide solutions that combine maximum energy efficiency with all the advantages of IoT and digital connectivity.

Proximity to our customers.

ebm-papst has 29 worldwide production facilities, including those in Germany, China, the USA, plus 51 sales offices with an extensive network of sales representatives. You always have a local contact who speaks your language and is familiar with your market.

Our quality standards.

Of course you can rely on the top quality of our products. After all, we employ an uncompromising quality management system at every stage of the process. This is documented by our certification in accordance with the DIN EN ISO 9001 and DIN EN ISO 14001 international standards, and the TS declaration of conformity.

Sustainability as a way of life.

Assuming responsibility – for the environment, our employees and society – is an integral part of our corporate philosophy. That is why we develop products designed for maximum environmental compatibility and produce them using processes that preserve resources.

We support environmental awareness among our junior staff and are actively involved in sporting, cultural and educational activities.

All of which makes us a better partner.

GreenIntelligence

Making Engineers Happy



Why do our customers look so happy? Because when it comes to digitalization and sustainability, we provide them with a clear competitive edge with GreenIntelligence. The intelligent control and networking of fans and drives makes applications more powerful and efficient. Together with a long product life and highly efficient EC technology, we achieve lasting reductions in energy costs and emissions.

For **industrial ventilation technology**, solutions are in demand that ensure top performance and operational reliability in every situation. GreenIntelligence gives you robust fan solutions with intelligent networking capabilities that provide reliable performance data and extensive control and monitoring functions. They ensure high levels of efficiency and system availability while guaranteeing maximum data security.

Modern, functional and reliable solutions are in high demand for **refrigeration and air conditioning**.

GreenIntelligence supplies easy-to-install fan solutions with intelligent networking capabilities and a wide variety of functions that make it possible to exploit the great potential of digitalization right away.

Now you know why ebm-papst makes engineers happy.

Our GreenIntelligence promise:

- Connection to higher-level communication points possible
- Control system tailored to the needs of the plant
- Constantly efficient cooling capacity



Liam uses intelligent technologies to optimize his applications and save time and money.

Top form under pressure

the new AxiEco series

Tough ambient conditions prevail in the ventilation, air conditioning and refrigeration sector as well as in mechanical engineering. If you want to cope with them effectively, you need electrically and mechanically robust solutions that also work at a high level of efficiency. AC axial fans that have been widely used up until now will reach their limits in this contentious area by the time the next stage of the ErP comes into force. Or maybe not.

Because, with the strong AxiEco Protect and AxiEco Perform duo, ebm-papst has managed to develop a series that perfectly adapts to the requirements of evaporators, condensers, air heaters, heat pumps and switch cabinet and generator cooling systems, as well as numerous other applications.

Both axial fans in the AxiEco series impress with their robustness, high performance, low noise levels and economical operation in both the EC and AC versions.

Together they are: **BEST UNDER PRESSURE**. In other words, they always show what they are capable of when they are under high pressure. They are especially effective in combating high back pressures in ventilation, air conditioning and refrigeration applications: they are durable, highly efficient and quiet.

What exactly does that mean for individual sectors and applications ?

Take it from us:

Consistently resists ice formation: the AxiEco series in refrigeration technology.



The AxiEco series exhibits one of its great strengths in evaporator applications. If ice forms on the heat exchanger, the axial fan works with high efficiency for longer despite the increasing back pressure.

The reason for this is its improved performance, which has a much steeper characteristic curve than usual, resulting in an extended evaporator service life, fewer defrosting cycles and a better overall system efficiency.

The AxiEco series innovative design also helps the guard grill to freeze more slowly and the blades do not freeze on.

Conquering new power ranges: the AxiEco series in ventilation and air conditioning technology.



Thanks to aerodynamic improvements, the AxiEco Protect's air performance curve is steeper and the AxiEco Perform's air performance curve is even steeper than that of comparable axial fans. The series therefore covers a significantly larger power range and still works at optimum efficiency even when the back pressure is increasing. A great advantage for ventilation and air conditioning is that fewer fans are required to generate the same power. The reason for this is the power density: the AxiEco Perform in particular achieves a very high air performance per area. Despite its powerful performance, it is extremely quiet, which is apt in residential areas, for example.

Top performance in extremely confined spaces: the AxiEco series in mechanical engineering.



Thanks to a variety of design details, the AxiEco series is ideally adapted to various areas of application within mechanical engineering. In control cabinet construction, for example, the AxiEco Perform axial fan in particular boasts a significantly higher air performance, enabling manufacturers to reduce the total number of devices used.

In all its sizes, the ErP-compliant AxiEco series impresses with its compact design, which can become a decisive competitive advantage considering the confined spaces seen in electronics and compressor cooling systems.

AxiEco stands for...

Realistic performance figures, as the performance data of the entire fan is always measured with the components impeller, guard grill and inlet ring, any air duct, GreenTech EC motor and control electronics.

Effective logistics, because a single AxiEco part number covers all the components required for your ventilation application – that's "one-stop shopping".

Easy commissioning, because all the functions required for operation are already incorporated and coordinated. Simply connect using plug & play: that's it.

By the way: The term AxiEco is made up of "Axi" for axial fans and "Eco" for economical, which also means that it is efficient.

Simple and safe: The electronics and motor form one unit and are perfectly coordinated – this not only saves space, but also ensures easy installation and safe operation. Simple plug & play.

Compact design.

The one-part impeller is mounted directly on the rotor of the external rotor motor. This saves space and allows the entire rotating unit to be balanced in a single clamping operation.

Consistent series.

The fans completely cover all nominal sizes from 300 to 500. The impellers are made of high-quality composite material, manufactured in an injection molding process. The entire series was designed for maximum efficiency with a low noise level at the same time. Sustainable production and resource conservation was also given high importance. This results in the highly efficient GreenTech EC motor without rare earth magnets, for example.

300
350
400
450
500


The AxiEco family

Always offers the right solution



AxiEco Protect

This design has a robust, flow-optimized guard grill made of steel wire, which is resistant to corrosion. With the four tabs on the guard grill, the entire fan unit can be mounted in or on the customer device. Either the customer has the required inlet ring or it can be ordered separately. Thanks to its good noise characteristics, the AxiEco Protect is a very good choice, especially in noise-sensitive applications.



AxiEco Protect with square nozzle plate

This version corresponds to the AxiEco Protect, whereby the inlet ring is already mounted at the factory in the form of a square plate with corrosion-resistant coating.



AxiEco Perform

This design has a plastic housing containing the guard grill and inlet ring. The integrated guide blades provide an additional increase in efficiency and air throw. The special housing design allows several installation options in the customer device. This makes the AxiEco Perform a true plug & play solution.

AxiEco series

Special characteristics

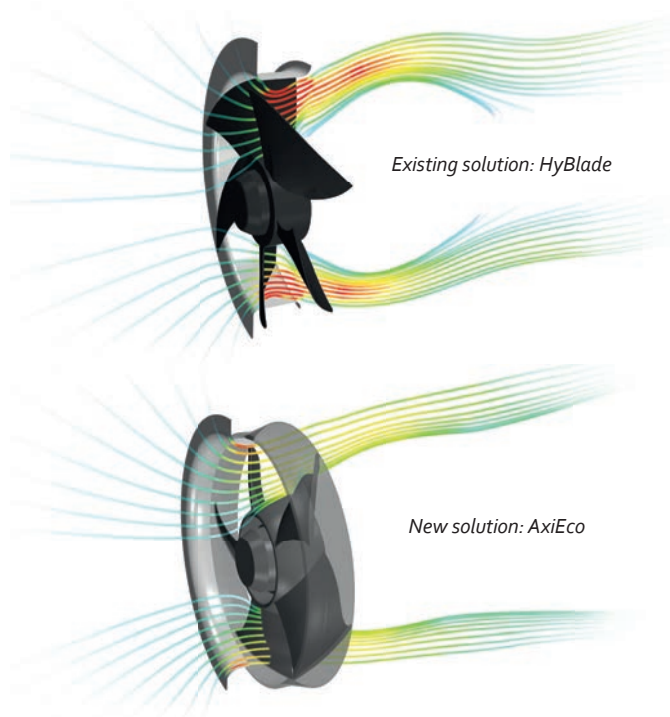


How do I determine whether AxiEco Protect or AxiEco Perform is best for my application ?

The AxiEco Protect fan with guard grill and inlet ring is particularly well-suited to noise-sensitive applications, as its noise emissions are very low. By contrast, the AxiEco Perform fan with housing is recommended in situations that require a ready-to-install fan. With air flows over 12.000 m³/h and pressures of up to nearly 500 Pa, it is ideal for a broad spectrum of applications, ranging from heat pumps and evaporators to industrial ventilation systems and air compressor cooling. The AxiEco Perform can be used to intake or discharge air.

What makes the AxiEco series's outflow characteristics so special ?

The AxiEco series is characterized by its improved flow profile, among other things. This is best shown when comparing it to the flow profile of a common axial fan:



While the air flow of other axial fans spreads outwards, the outflow characteristic of the AxiEco series remains "on course" for longer, even when there are higher back pressures, and retains an axial direction. The flow direction remains constant and the air in the interior is therefore not taken in again.



How does the AxiEco series fight off ice formation ?

Ice formation particularly afflicts evaporators if the humidity precipitates on the heat exchanger as ice at cold ambient temperatures. This means that the air path is restricted and the pressure increases. At higher back pressures, the AxiEco series offers significantly more pressure reserves than other fans. This extends the intervals between defrosting cycles and means that the refrigerating plant can be operated more efficiently for longer periods. In addition, the impeller in the AxiEco series has no tip gap, meaning that the impeller is unlikely to freeze up. What's more, its impeller with integrated diffuser ring has been produced in highly resistant plastic, a material that discourages icing in and of itself.



Why is the AxiEco series's high power density advantageous ?

Since the AxiEco series can be operated at higher speeds, it achieves a higher air performance per area. Compared to other axial fans, this means that fewer fans are required to deliver the same performance. This not only increases the overall efficiency, but also saves space.



How does the AxiEco series increase efficiency ?

More stringent demands will be placed on the efficiency of fans by the time the next stage of the ErP comes into force. The AxiEco series already easily fulfills these criteria: the AxiEco Perform offers a significant increase in efficiency compared to the HyBlade with full nozzle.



Why is the AxiEco Protect so incredibly quiet ?

The AxiEco series is up to 6 dB(A) quieter than the HyBlade (depending on the size). The main reason behind this is that the impeller, integrated diffuser ring and hub form a compact unit. The blade tips seamlessly join the integrated diffuser ring so there is no longer any tip gap between the fan housing and the impeller. This results in hardly any turbulence in the edge area – and therefore also less noise. The integrated diffuser also helps to reduce noise, meaning that the noise level remains pleasantly low even at higher pressure ranges.

ebm-papst FanScout:

click your way to the optimum AxiEco

Our axial fans can be configured individually for each application, and it is important to correctly consider all the relevant aspects when selecting your axial fan. When making your selection, you can rely on our experts' many years of experience, and on our professional fan selection software as well:

With its outstanding user-friendliness and real measured values, the ebm-papst FanScout has more than proven its worth already. It not only measures the performance of the individual fan components but also that of the fan as a complete system. The program allows you to quickly select the best fan for your application, to describe and modify the operating behavior and to document the technical specifications. Factors such as air performance, operating time and installation space can be taken into account in this process. TÜV SÜD has tested the difference between the actual measurements and the data calculated using the software and assigned the accuracy of the calculation to the highest class.

Exact presentation of the life cycle costs:

The costs of operation, acquisition, installation and service can be calculated for a defined period of time.

A practical advantage:

The software can be easily integrated into your device configuration program using the DLL interface.

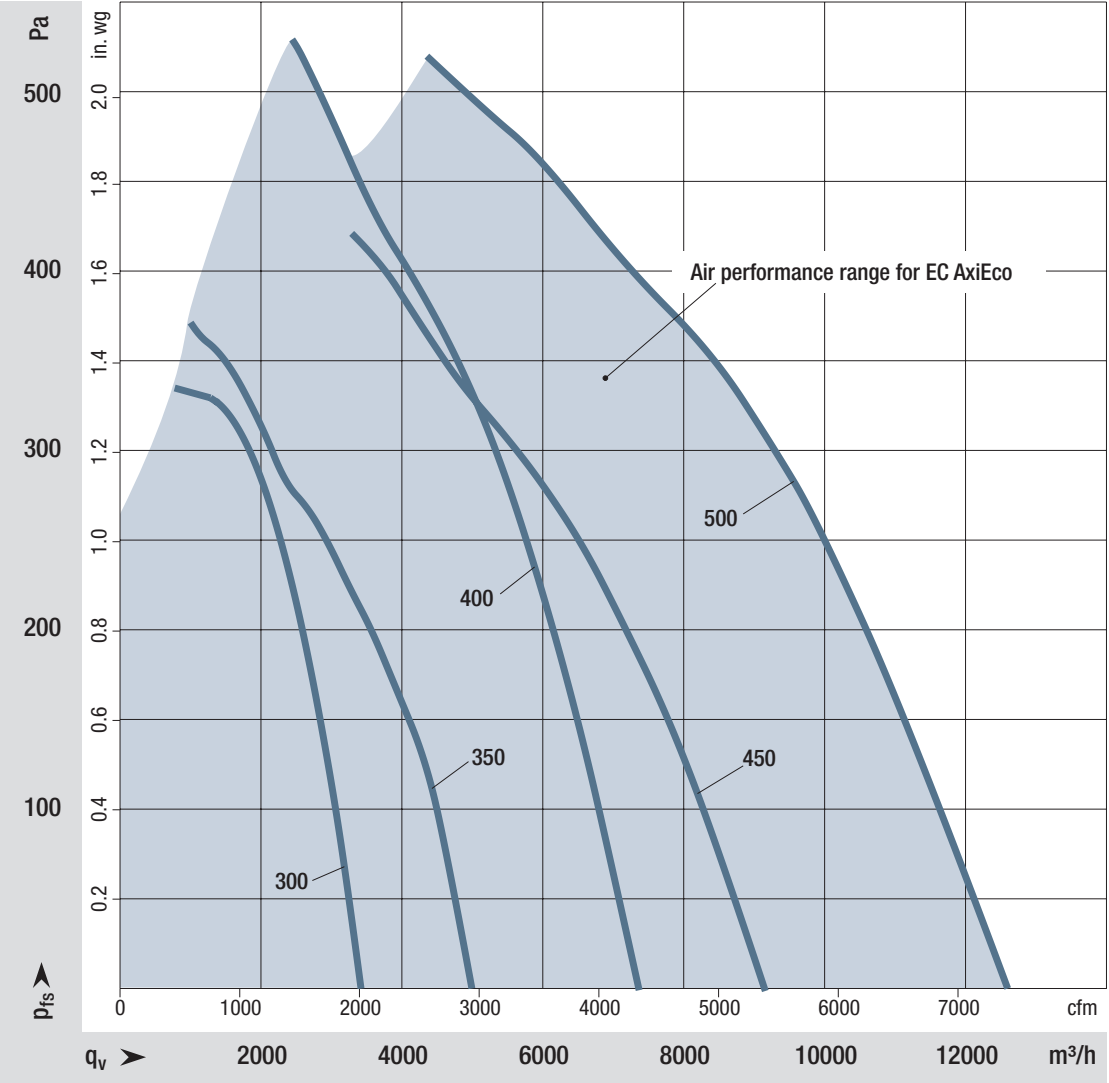
The best part:

ebm-papst pre-selects the products that are suitable for you. This saves you the trouble of searching through the broad product portfolio and helps you configure your application in advance.



Air performance range

EC axial fans - AxiEco 300 - 500



Max. air performance range of the EC-AxiEco series. Max. air performance curves of sizes 300 - 500.

Product overview

EC axial fans - AxiEco 300 - 500

AxiEco & AxiEco Perform

Size	Nominal voltage range VAC	Max. input power W	Axial fan AxiEco 		Axial fan AxiEco Perform 		on Page
			Type	Part number	Type	Part number	
300	1~200-240	75	---	---	VWT0300CSLES	8300100070	22
	1~200-240	85	VVY0300CSLES	8300100066	---	---	
	1~200-277	325	---	---	VWT0300CSNGS	W3G300ZG0601	
350	1~200-240	68	---	---	VWT0350CSLFS	8300100080	28
	1~200-240	72	VVY0350CSLFS	8300100081	---	---	
	1~200-277	165	---	---	VWT0350CSNGS	W3G350ZF0301	
	1~200-277	500	---	---	VWT0350CSPGS	W3G350ZH05H1	
400	1~200-277	165	---	---	VWT0400CSNGS	W3G400ZF0301	34
	3~380-480	1150	---	---	VWT0400CTPMS	W3G400ZN12W1	
450	1~200-277	490	---	---	VWT0450CSPKS	W3G450ZI07H1	40
	3~380-480	1050	---	---	VWT0450CTRHS	W3G450ZR7501	
500	1~200-277	650	---	---	VWT0500CSPMS	W3G500ZM03I1	44
	3~380-480	1600	---	--	VWT0500CTRNS	W3G500ZQ1290	

Subject to technical changes. FanScout collection "AxiEco_2022_04"

Product overview

EC axial fans - AxiEco 300 - 500

AxiEco Protect & AxiEco Protect + Inlet ring

Size	Nominal voltage range VAC	Max. input power W	Axial fan AxiEco Protect 		Axial fan AxiEco Protect + Inlet ring 		on Page
			Type	Part number	Type	Part number	
300	1~200-240	85	VMA0300CSLES	8300100067	---	--	22
	1~200-277	320	VMA0300CSNGS	S3G300ZG0601	---	---	
	1~200-277	320	---	---	VWA0300CSNGS	W3G300XG0601	
350	1~200-240	72	VMA0350CSLFS	8300100079	---	---	28
	1~200-277	165	VMA0350CSNGS	S3G350ZF0301	---	---	
	1~200-277	500	VMA0350CSPGS	S3G350ZH05H1	---	---	
	1~200-277	500	---	---	VWA0350CSPGS	W3G350XH05H1	
400	1~200-277	165	VMA0400CSNGS	S3G400ZF0301	---	---	34
	3~380-480	1150	VMA0400CTPMS	S3G400ZN12W1	---	--	
	3~380-480	1150	---	---	VWA0400CTPMS	W3G400XN12W1	
450	1~200-277	500	VMA0450CSPKS	S3G450ZI07H1	---	---	40
	3~380-480	1220	VMA0450CTRHS	S3G450ZR7501	---	---	
	3~380-480	1220	---	---	VWA0450CTRHS	W3G450XR7501	
500	1~200-277	650	VMA0500CSPMS	S3G500ZM03I1	---	---	44
	3~380-480	1950	VMA0500CTRNS	S3G500ZQ1290	---	---	
	3~380-480	1950	---	---	VWA0500CTRNS	W3G500XQ1290	

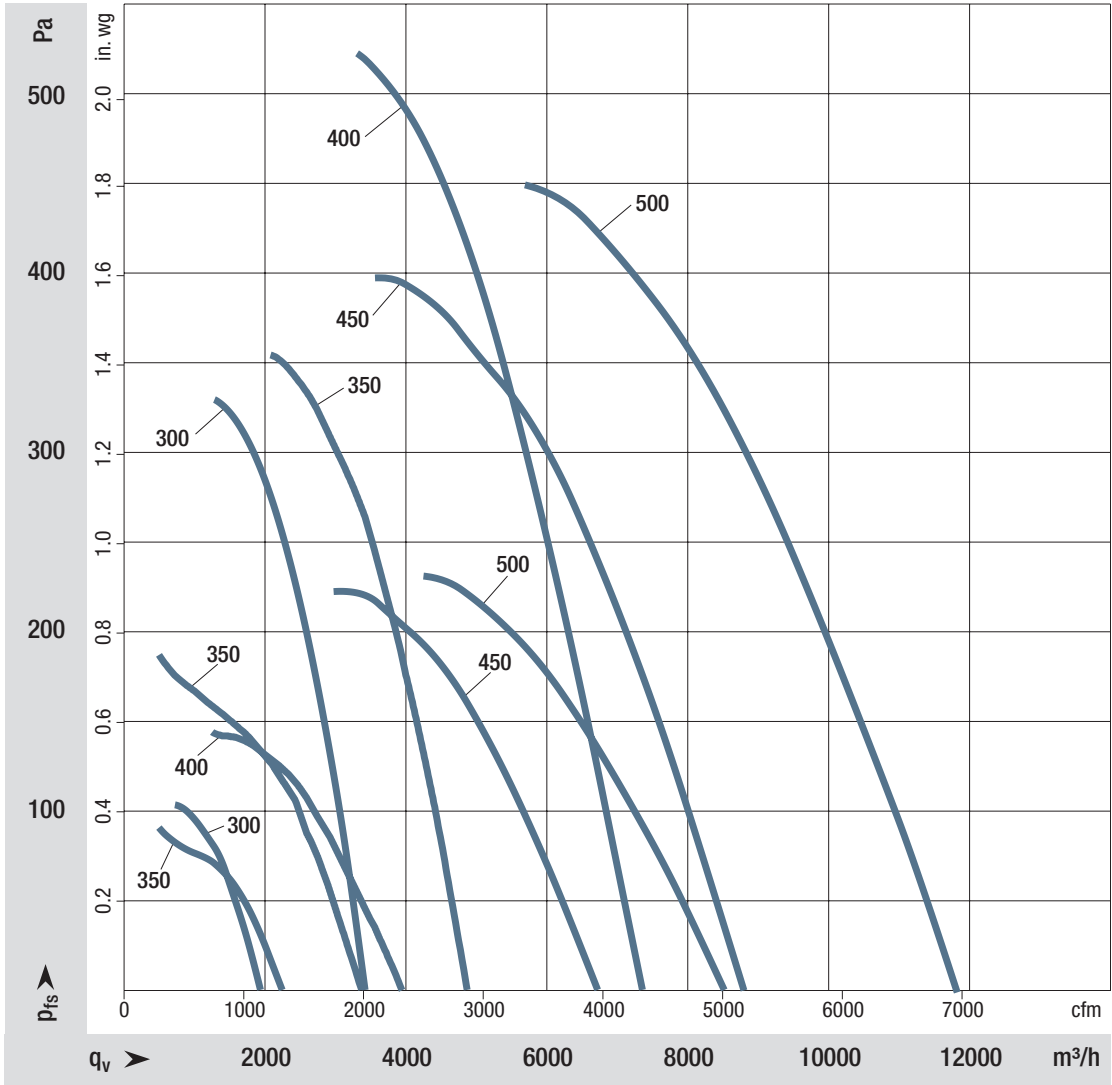
Subject to technical changes. FanScout collection "AxiEco_2022_04"

Characteristics overview

EC axial fans - AxiEco

300 - 500 Perform

Information

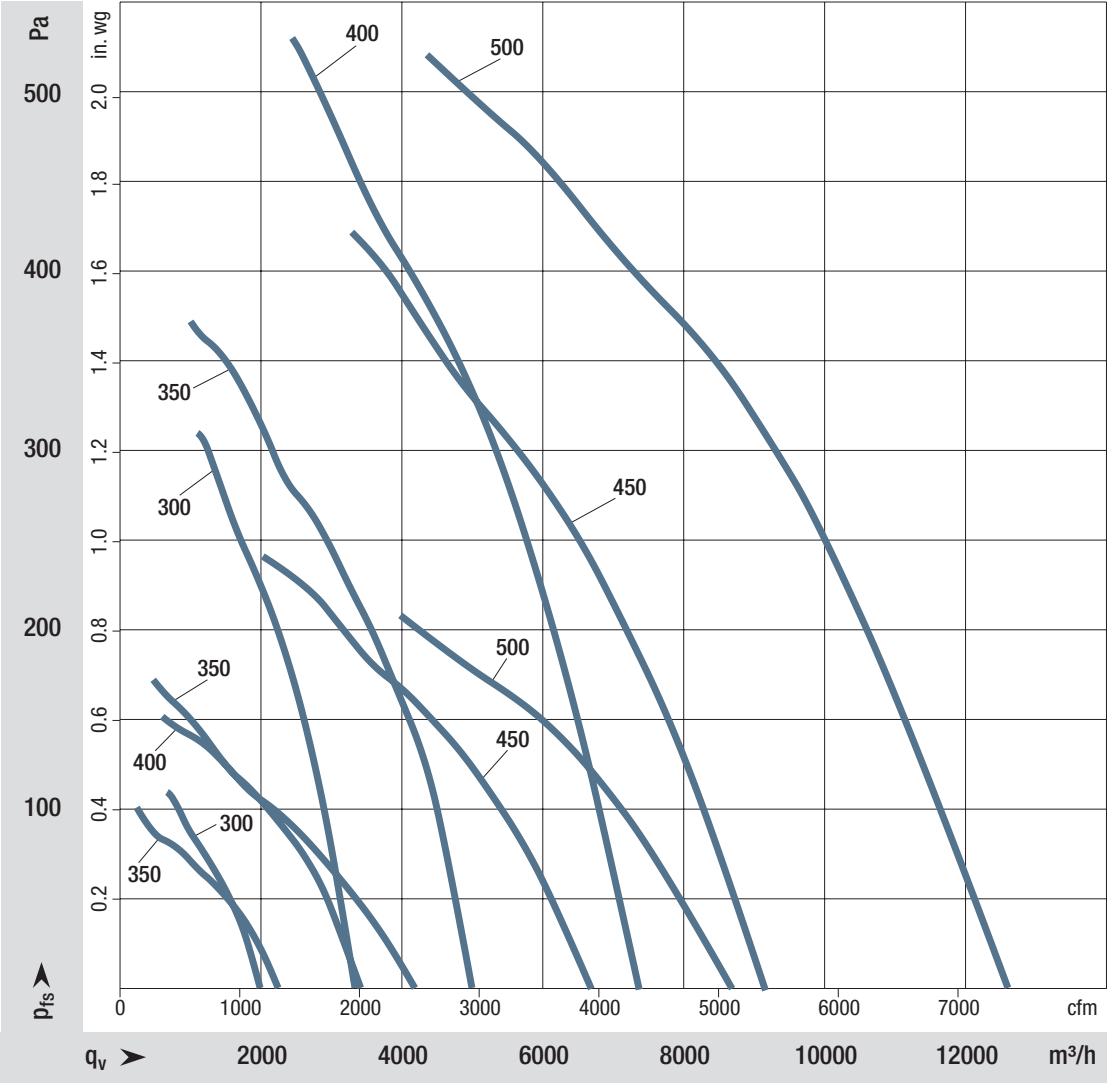


EC axial fans AxiEco Perform. Air performance curves of sizes 300 - 500.

Characteristics overview

EC axial fans - AxiEco

300 - 500 Protect



EC axial fans AxiEco Protect. Air performance curves of sizes 300 - 500.

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EC axial fans



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AxiEco 300 - 500

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Tender specification

EC axial fans - AxiEco

Fan size 300 bis 500

Direct-drive EC axial fans - AxiEco with high-performance axial impeller, built on a GreenTech EC external rotor motor with integrated control electronics.

AxiEco Protect:

Guard grill made of steel and coated with black plastic RAL 9005.

AxiEco Protect with square nozzle plate:

Similar to the AxiEco Protect, but also with an inlet ring immersed in the impeller, galvanized, coated with black plastic RAL 9005, flow-optimized nozzle shape integrated on intake side.

AxiEco Perform:

Housing with guard grill and integrated guide blades made of glass-fiber reinforced PP plastic, inlet ring made of ABS plastic.

One-piece impellers made of glass-fiber reinforced PP plastic, galvanized sheet-metal plate, blades with grooves on the rear for greater mechanical stability.

Motor-impeller statically and dynamically balanced on two planes to balancing grade G 6.3 in accordance with DIN ISO 21940. GreenTech EC external rotor motors achieve or exceed the efficiency specifications as per efficiency class IE5 (IEC TS 60034-30-2:2016), magnets without the use of rare earths, maintenance-free ball bearings with long-term lubrication, theoretical nominal service life of at least 40.000 operating hours.

Installation with horizontal or vertical motor shaft, soft start, integrated current limitation, extended voltage input 1~200-240 V oder 1~200-277 V, 50/60 or 3~380-480 V, 50/60 Hz. The fan can be used with all standard power supply networks with unaltered air performance. Designed for mode S1 continuous operation.

Integrated control electronics, low-noise commutation logic, 100 % speed control, all fans have an RS485/MOD-BUS RTU interface, no shielded cables are required for the power supply. Terminal box made of aluminum/plastic with easily accessible connection area, environment-resistant cable glands.

Any work required for isolation from structure-borne noise is to be performed by the customer.

The fan satisfies the applicable EMC guidelines and requirements with regard to harmonic effects (see applicable data sheet for specific figures).

Documentation and marking in accordance with the applicable EU directives.

Reliable performance data, air performance measurements taken in an intake-side chamber test rig in accordance with ISO 5801. Noise levels determined in low-reflection acoustic test chamber in accordance with ISO 13347.

Integrated protective devices:

- Alarm relay with floating contacts (250 V AC/2 A, $\cos \varphi = 1$)
- Locked-rotor protection
- Phase failure detection
- Soft start of motors
- Line undervoltage detection
- Thermal overload protection for electronics and motor
- Short circuit protection

Optional:

Other requirements and specific requirements on request.

Tender specification

EC axial fans - AxiEco

Fan size 300 bis 500

Technical Data:

Fan type		= _____
Part number		= _____
Air flow	qV	= _____ m³/h, cfm
Stat. pressure increase	pfs	= _____ Pa, in wg
Stat. overall efficiency	η _{esd}	= _____ %
Operating speed	n	= _____ min ⁻¹ , rpm
Motor type		= EC motor
Speed change		= 0-100 % speed control
Motor efficiency class		= IE5
Total power input	P _{ed}	= _____ kW
Specific fan power	SFP	= _____ kW/(m³/s)
Nominal voltage range	U _N	= _____ V
Line frequency	f	= 50 / 60 Hz
Nominal current	I _N	= _____ A
Degree of protection		= IP54
Sound power level	L _{WA} (A, in)	= _____ / L _{WA} (A, out) = _____ dB(A)
Sound pressure level (at 1 m)	L _{pA} (A, in)	= _____ / L _{pA} (A, out) = _____ dB(A)
Perm. ambient temperature	T	= _____ bis _____ °C
Weight of fan	m	= _____ kg



EC axial fans
AxiEco Protect



EC axial fans
AxiEco Protect with
square nozzle plate



EC axial fans
AxiEco Perform

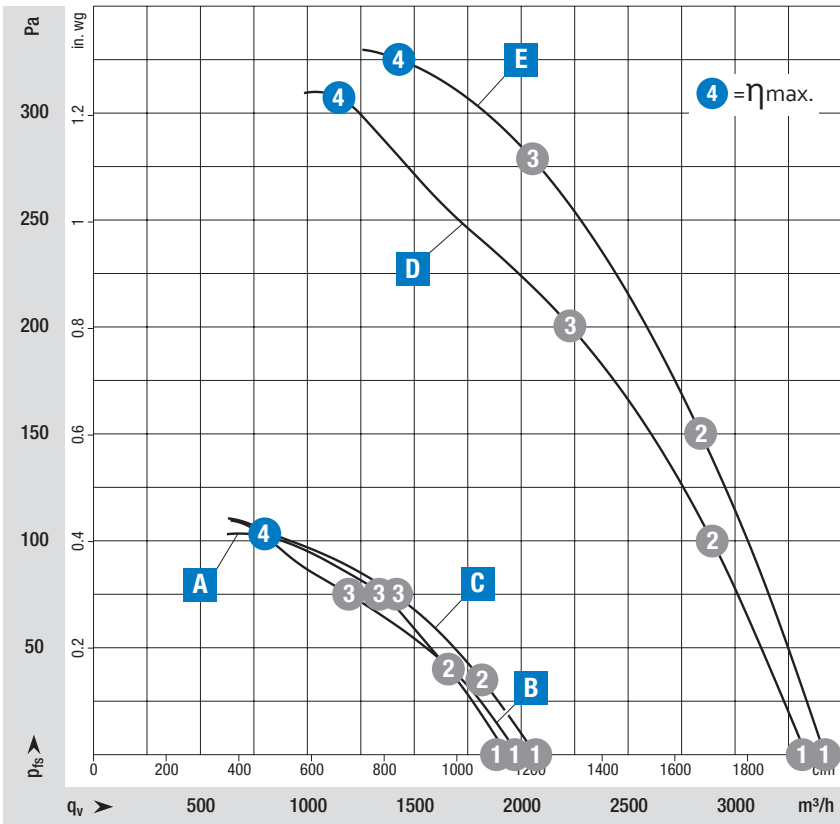
Refer to data sheet for dimensions and wiring.

AxiEco 300

EC axial fans



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from page 50	Accessories
from page 54	Connection diagrams and technical equipment
from page 62	Environment and general conditions
More at	www.ebmpapst.com/worldwide www.ebmpapst.com/



Measuring conditions
Air performance measured after: ISO 5801, installation category A, in ebm-papst full nozzle without contact protection.
Suction-side noise level: LwA according to ISO 13347, LpA measured at a distance of 1 m on the fan axis.
The specifications apply only under the specified measuring conditions and may change due to installation conditions.
In case of deviations from the standard design, the characteristic values must be checked in the installed condition!

Material/Surface

- Guard grille: Steel, coated with black plastic (RAL 9005)
- Wallring: PP plastic
- Impeller: PP plastic, galvanized sheet-metal plate
- Rotor: Thick-film passivated
- Electronics housing: Die-cast aluminum

Mechanical characteristics

- Number of blades: 5
- Direction of rotation: Clockwise, viewed toward rotor
- Installation position: See legend on product drawing
- Condensation drainage holes: On rotor side, None, open rotor (M3G060)
- Mode: S1
- Motor bearing: Ball bearing

Additional Information

- Information about touch current, electrical connection, degree of protection, insulation class, environmental protection class, EMC standards as well as standards and approvals can be found in the product-specific data sheets.

				Characteristic Curve	Operating point	Nominal voltage	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Max. back pressure	Perm. ambient temp.	Protection class	Connection dia- grams and technical equipment
Nominal voltage range 1~ 200-240 VAC, 50/60 Hz						V	rpm	W	A	dB(A)	Pa	°C		
Type	Part number	Fan type												
VWT0300CSLES	8300100070	AxiEco Perform		A	①	230	1.425	58	0,49	65	102	-25...+60	54	Page 59
					②	230	1.425	67	0,56	63				
					③	230	1.425	73	0,61	62				
					④	230	1.425	75	0,64	64				
VMA0300CSLES	8300100067	AxiEco Protect		B	①	230	1.425	59	0,50	64	102	-25...+60	54	Page 59
					②	230	1.425	72	0,61	62				
					③	230	1.425	82	0,68	61				
					④	230	1.425	85	0,70	64				
VY0300CSLES	8300100066	AxiEco axial fan		C	①	230	1.425	55	0,47	65	105	-25...+60	54	Page 59
					②	230	1.425	67	0,57	62				
					③	230	1.425	81	0,67	61				
					④	230	1.425	85	0,70	64				
Nominal voltage range 1~ 200-277 VAC, 50/60 Hz						V	rpm	W	A	dB(A)	Pa	°C		
Type	Part number	Fan type												
VMA0300CSNGS	S3G300ZG0601	AxiEco Protect		D	①	230	2.400	245	1,09	76	310	-25...+60	54	Page 58
					②	230	2.400	281	1,25	73				
					③	230	2.400	305	1,35	72				
VWA0300CSNGS	W3G300XG0601	AxiEco Protect with inlet ring			④	230	2.400	320	1,40	78				
VWT0300CSNGS	W3G300ZG0601	AxiEco Perform		E	①	230	2.520	287	1,27	79	325	-25...+60	54	Page 58
					②	230	2.520	323	1,43	77				
					③	230	2.520	340	1,50	77				
					④	230	2.520	330	1,45	79				

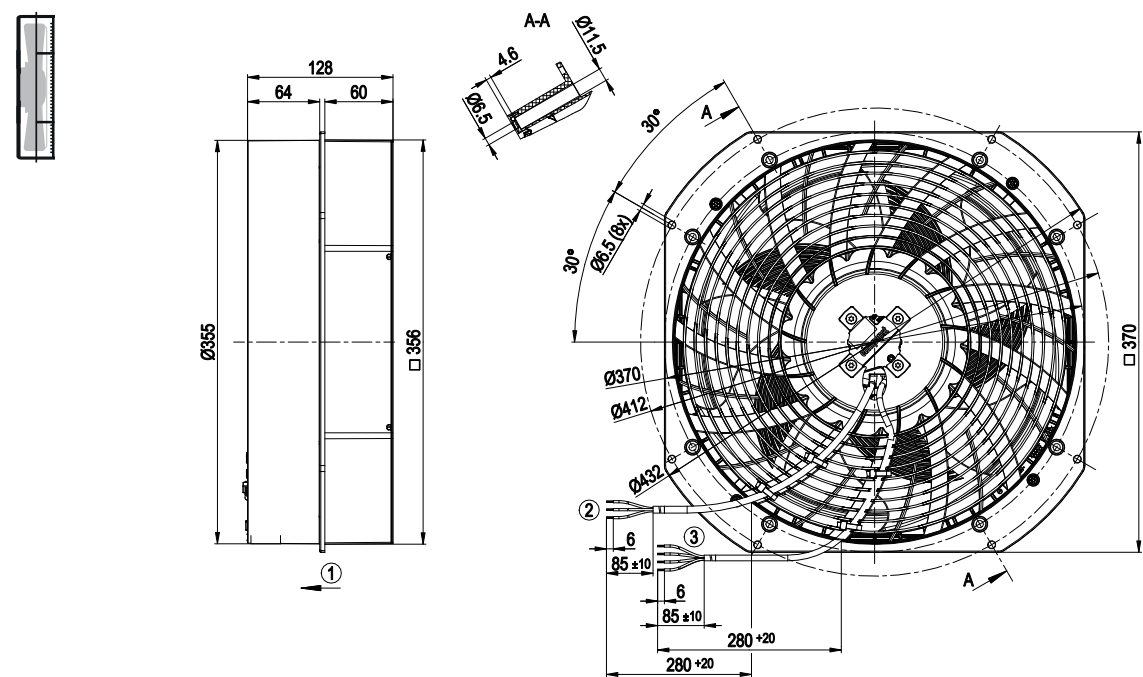
Subject to changes.

Values set in blue are nominal data at the operating point at maximum load.

AxiEco 300

A VWT0300CSLES 8300100070 EC axial fan - AxiEco

Dimensions in mm

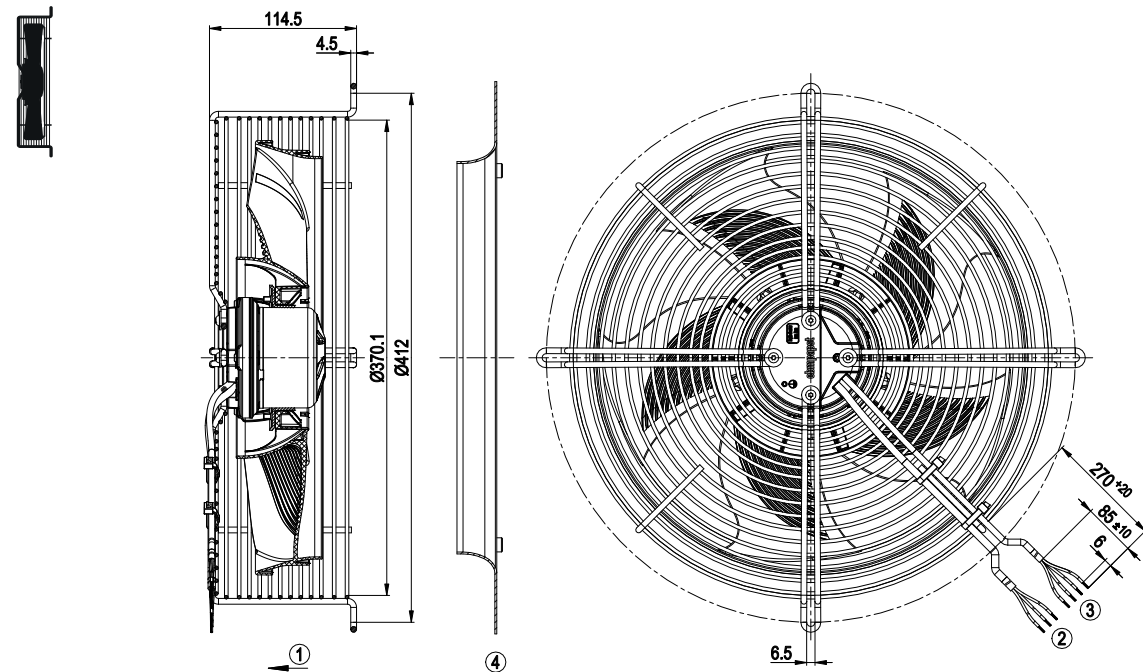


- ① Airflow direction „V“
- ② Cable PVC AWG20
3x splice
- ③ Cable PVC AWG22

Pin assignment: See connection diagram
Mounting position: Any

B VMA0300CSLES 8300100067 EC axial fan - AxiEco

Dimensions in mm

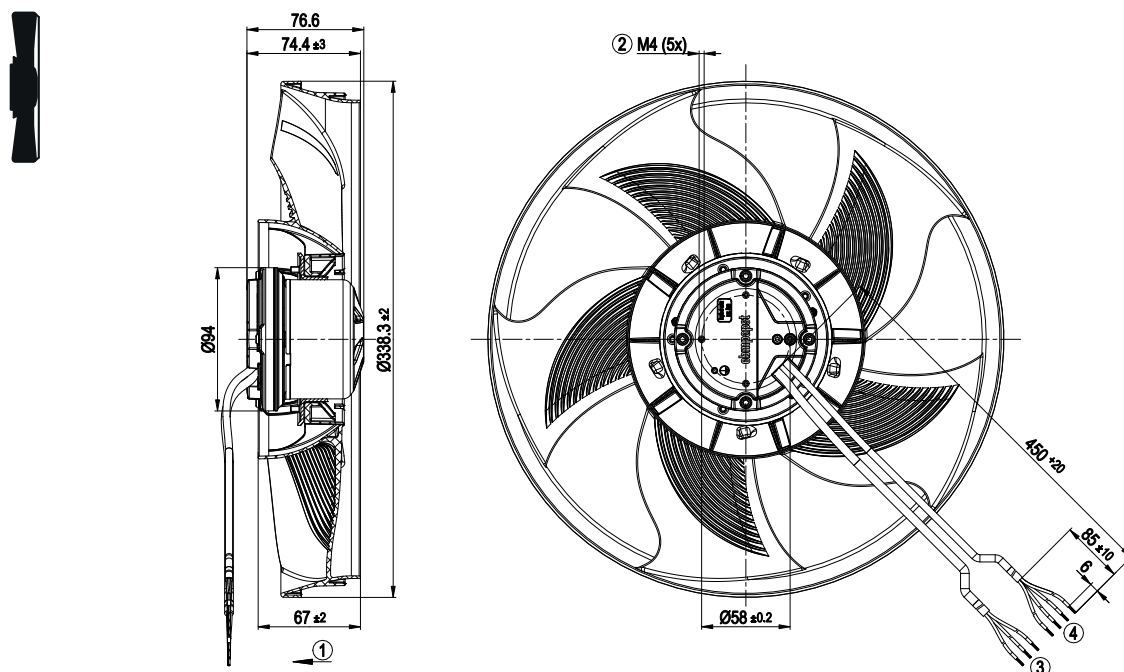


- ① Airflow direction „V“
- ② Cable PVC AWG20
3x splice
- ③ Cable PVC AWG22
- ④ Accessory part: Inlet ring 30100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Any

C VVY0300CSLES 8300100066 EC axial fan - AxiEco

Dimensions in mm

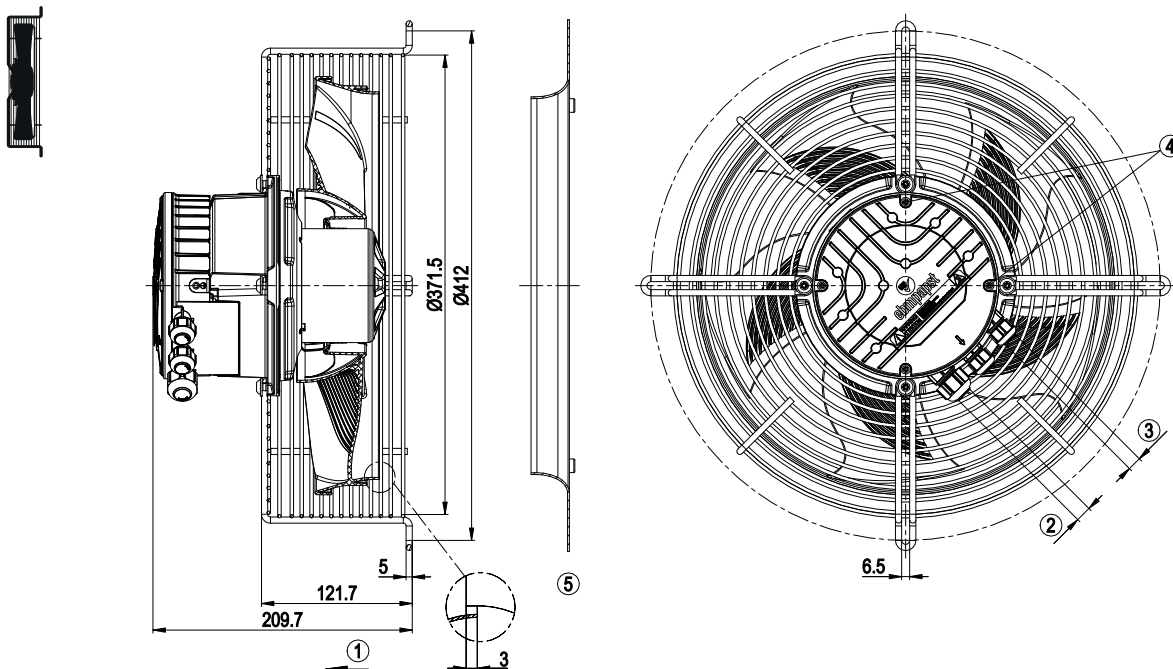


- ① Airflow direction „V“
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20
3x splice
- ④ Cable PVC AWG22

Pin assignment: See connection diagram
Mounting position: Any

D VMA0300CSNGS S3G300ZG0601 EC axial fan - AxiEco

Dimensions in mm

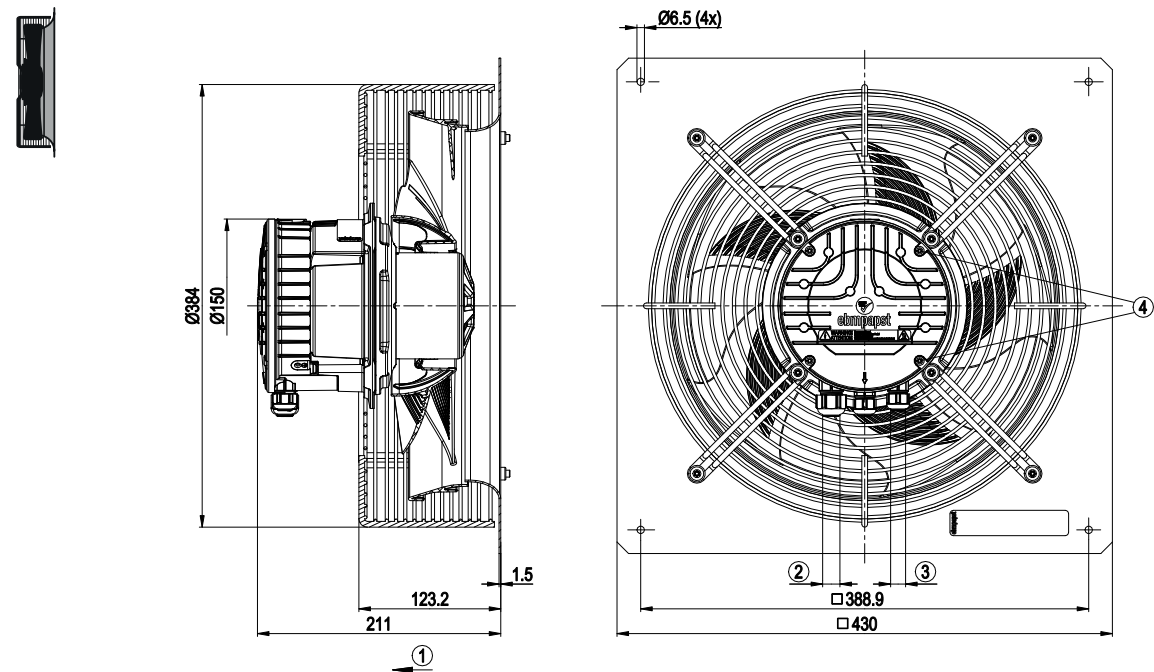


- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 30100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

D VWA0300CSNGS W3G300XG0601 EC axial fan - AxiEco

Dimensions in mm

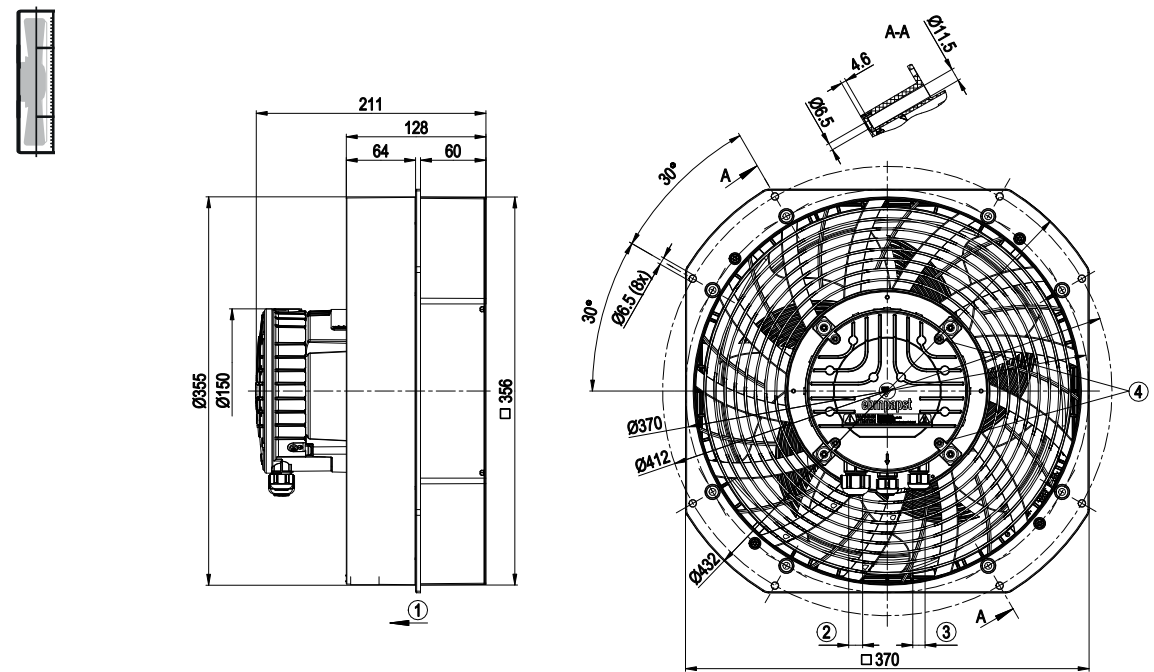


- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

E VWT0300CSNGS W3G300ZG0601 EC axial fan - AxiEco

Dimensions in mm



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

Accessory part: Guard grill 30070-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

AxiEco 350

EC axial fans



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Material/Surface

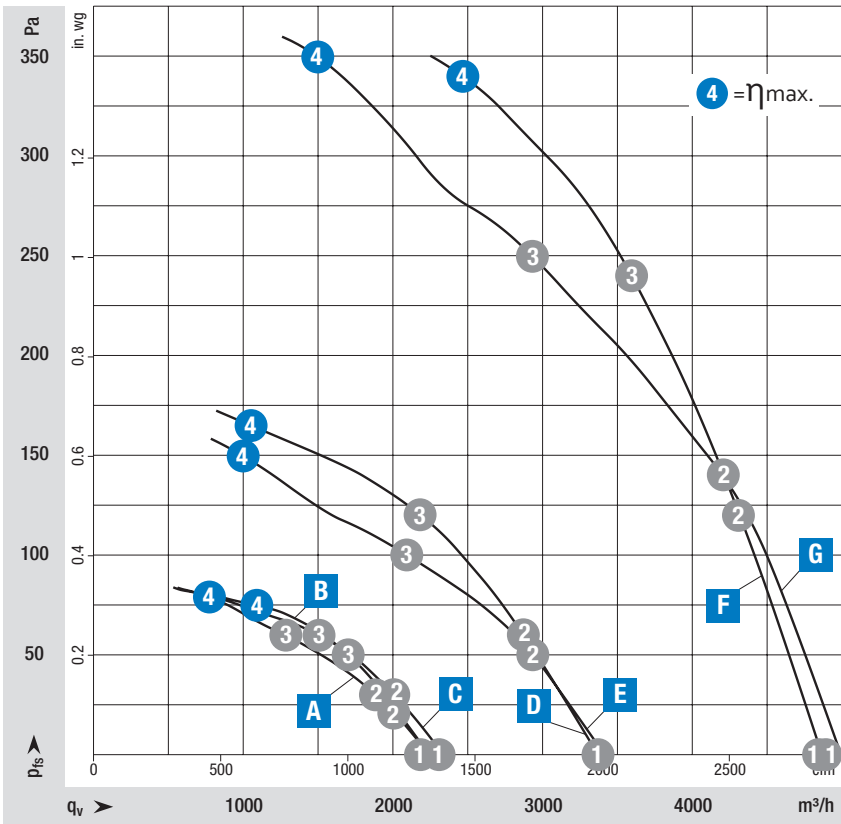
- Guard grille: Steel, coated with black plastic (RAL 9005)
- Wallring: PP plastic
- Impeller: PP plastic, galvanized sheet-metal plate
- Rotor: Thick-film passivated, Painted black
- Electronics housing: Die-cast aluminum, painted black

Mechanical characteristics

- Number of blades: 5
- Direction of rotation: Clockwise, viewed toward rotor
- Installation position: See legend on product drawing
- Condensation drainage holes: On rotor side, None, open rotor (M3G060)
- Mode: S1
- Motor bearing: Ball bearing

Additional Information

- Information about touch current, electrical connection, degree of protection, insulation class, environmental protection class, EMC standards as well as standards and approvals can be found in the product-specific data sheets.



Measuring conditions
 Air performance measured after: ISO 5801, installation category A, in ebm-papst full nozzle without contact protection.
 Suction-side noise level: LwA according to ISO 13347, LpA measured at a distance of 1 m on the fan axis.
 The specifications apply only under the specified measuring conditions and may change due to installation conditions.
 In case of deviations from the standard design, the characteristic values must be checked in the installed condition!

Nominal voltage range 1~ 200-240 VAC, 50/60 Hz			Characteristic Curve	Operating point	Nominal voltage	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Max. back pressure	Perm. ambient temp.	Protection class	Connection diagrams and technical equipment
Type	Part number	Fan type			V	rpm	W	A	dB(A)	Pa	°C		
VWT0350CSLFS	8300100080	AxiEco Perform		A	① 230 ② 230 ③ 230 ④ 230	1.075 1.075 1.075 1.075	51 57 63 68	0,44 0,49 0,54 0,59	63 61 59 61	75	-25...+60	54	Page 59
VMA0350CSLFS	8300100079	AxiEco Protect		B	① 230 ② 230 ③ 230 ④ 230	1.050 1.050 1.050 1.050	51 63 70 72	0,45 0,54 0,60 0,60	61 59 58 62	80	-25...+60	54	Page 59
VVY0350CSLFS	8300100081	AxiEco axial fan		C	① 230 ② 230 ③ 230 ④ 230	1.050 1.050 1.050 1.050	45 57 68 72	0,40 0,50 0,58 0,60	62 59 59 62	80	-25...+60	54	Page 59
VWT0350CSNGS	W3G350ZF0301	AxiEco Perform		D	① 230 ② 230 ③ 230 ④ 230	1.595 1.550 1.515 1.550	150 161 165 165	1,22 1,30 1,35 1,35	73 70 68 76	165	-25...+60	54	Page 60
VMA0350CSNGS	S3G350ZF0301	AxiEco Protect		E	① 230 ② 230 ③ 230 ④ 230	1.595 1.535 1.465 1.450	153 165 165 165	1,36 1,40 1,40 1,40	70 68 66 70	150	-25...+60	54	Page 60
Nominal voltage range 1~ 200-277 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C		
Type	Part number	Fan type											
VWT0350CSPGS	W3G350ZH05H1	AxiEco Perform		F	① 230 ② 230 ③ 230 ④ 230	2.300 2.300 2.300 2.300	412 469 500 500	1,81 2,05 2,30 2,30	82 80 79 82	340	-25...+60	55	Page 58
VMA0350CSPGS	S3G350ZH05H1	AxiEco Protect		G	① 230 ② 230 ③ 230 ④ 230	2.300 2.280 2.215 2.200	435 500 500 500	1,91 2,20 2,20 2,20	79 75 75 81	350	-25...+60	55	Page 58
VWA0350CSPGS	W3G350XH05H1	AxiEco Protect with inlet ring											

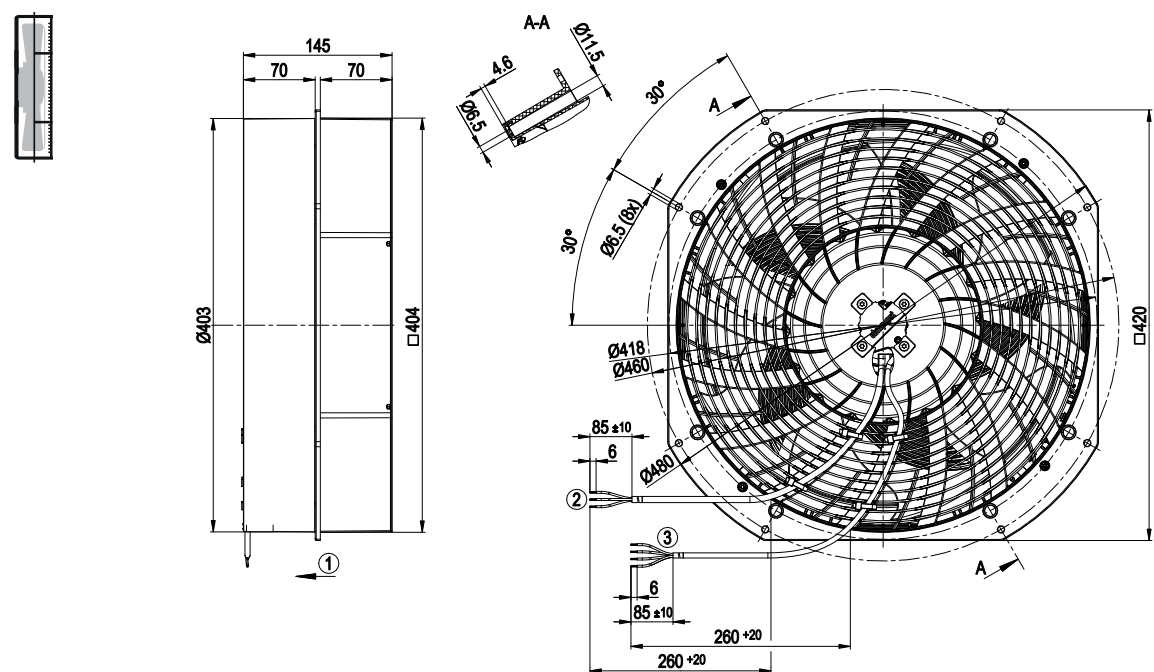
Subject to changes.

Values set in blue are nominal data at the operating point at maximum load.

AxiEco 350

A VWT0350CSLFS 8300100080 EC axial fan - AxiEco

Dimensions in mm

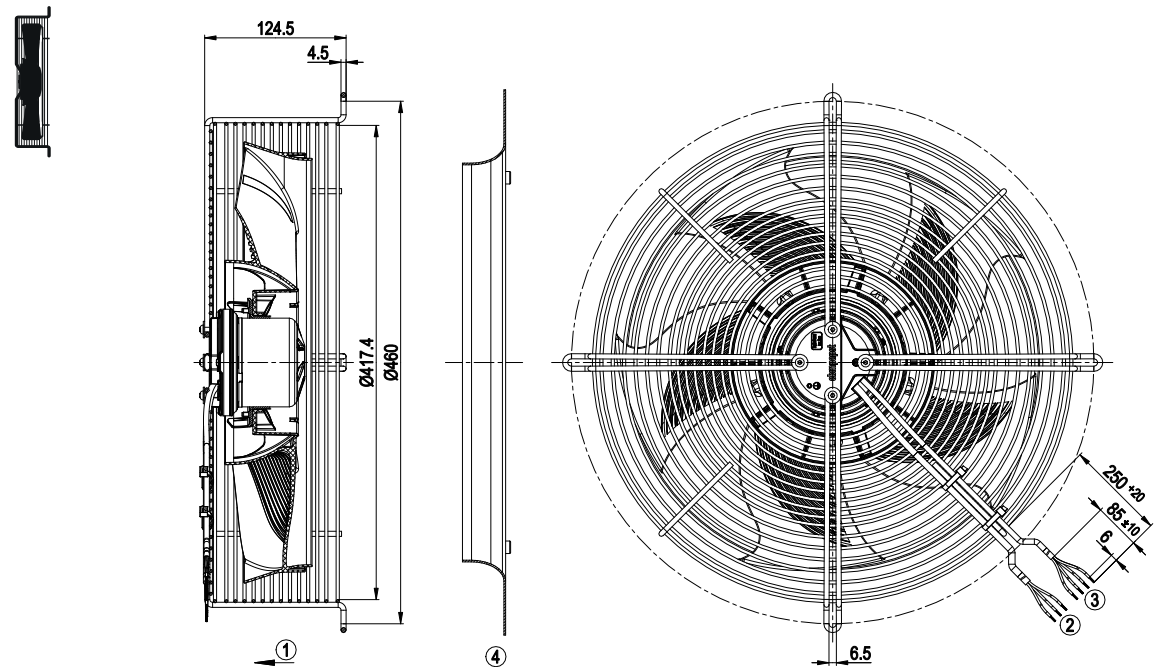


- ① Airflow direction „V“
- ② Cable PVC AWG20
3x splice
- ③ Cable PVC AWG22

Pin assignment: See connection diagram
Mounting position: Any

B VMA0350CSLFS 8300100079 EC axial fan - AxiEco

Dimensions in mm

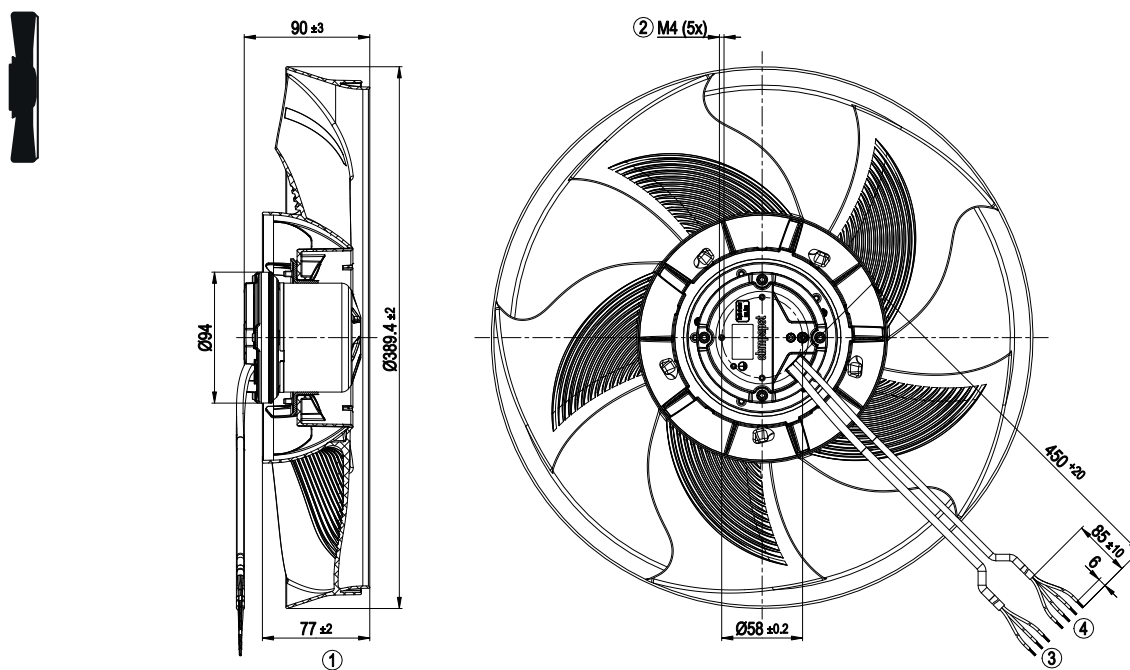


- ① Airflow direction „V“
- ② Cable PVC AWG20
3x splice
- ③ Cable PVC AWG22
- ④ Accessory part: Inlet ring 35100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Any

C VVY0350CSLFS 8300100081 EC axial fan - AxiEco

Dimensions in mm

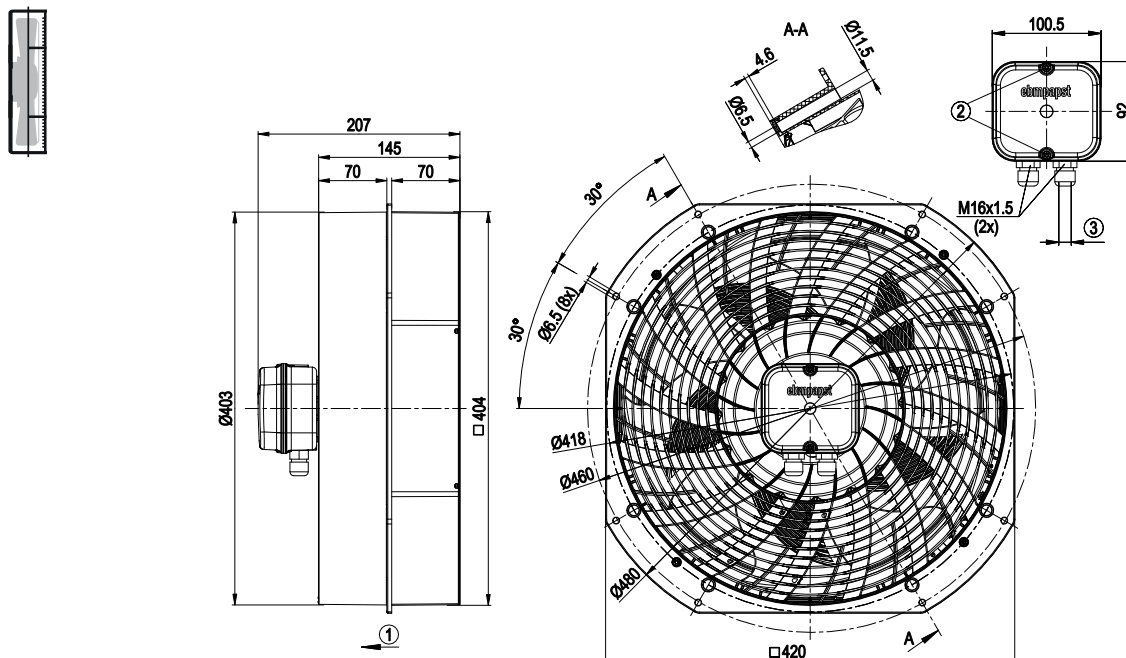


- ① Airflow direction „V“
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20
3x splice
- ④ Cable PVC AWG22

Pin assignment: See connection diagram
Mounting position: Any

D VWT0350CSNGS W3G350ZF0301 EC axial fan - AxiEco

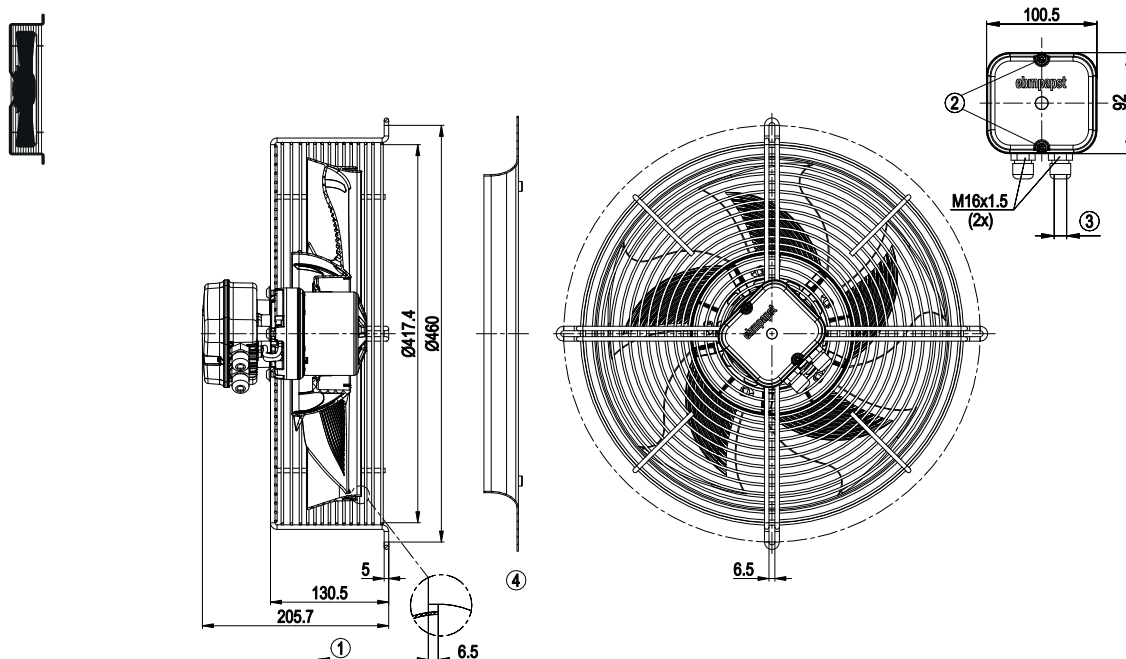
Dimensions in mm



- ① Airflow direction „V“
- ② Tightening torque 1.5 ± 0.2 Nm
- ③ Cable diameter max. 7.5 mm, tightening torque 1.3 ± 0.2 Nm

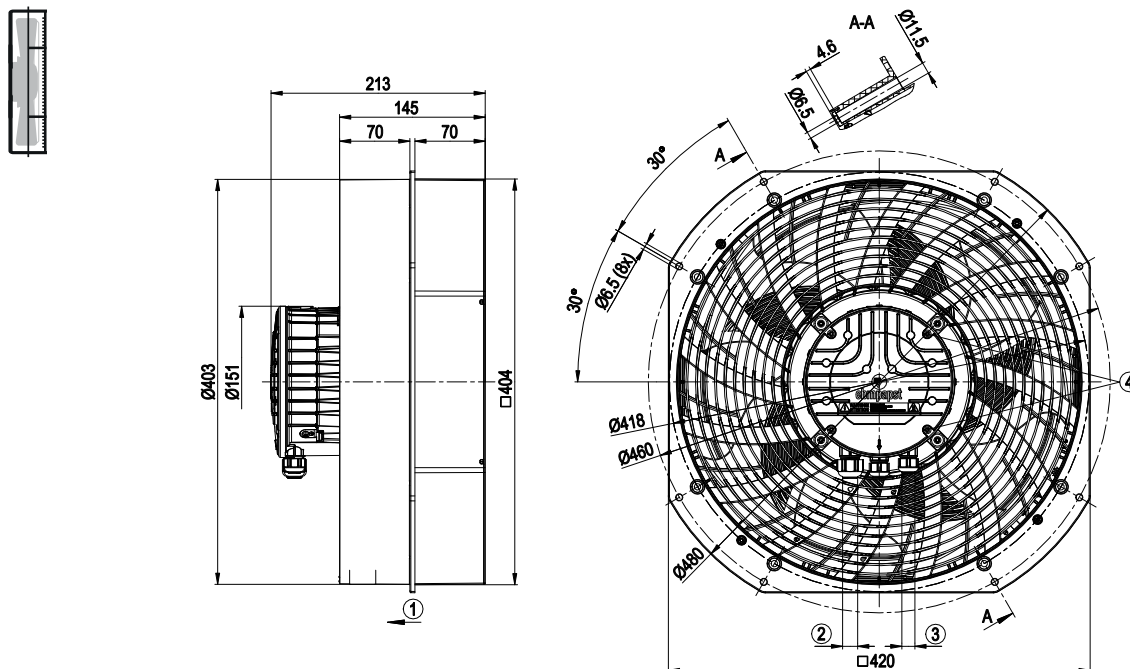
Accessory part: Guard grill 35050-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request



- ① Airflow direction „V“
- ② Tightening torque 1.5 ± 0.2 Nm
- ③ Cable diameter max. 7.5 mm, tightening torque 1.3 ± 0.2 Nm
- ④ Accessory part: Inlet ring 35100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request



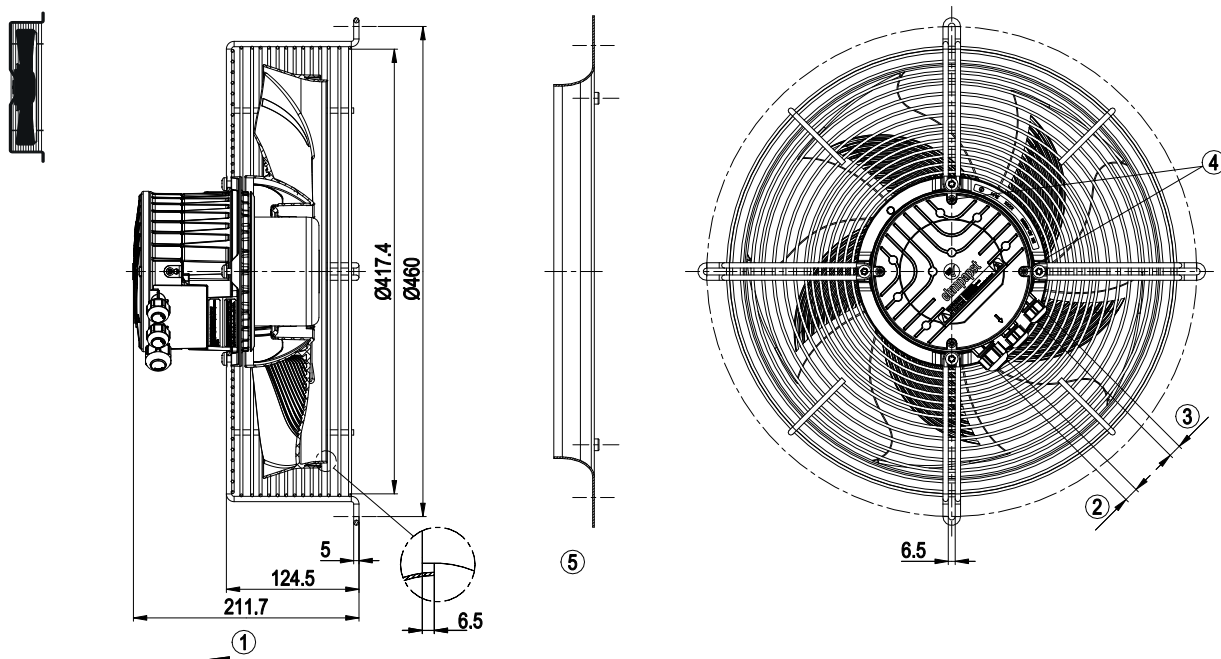
- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Accessory part: Guard grill 35050-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

G VMA0350CSPGS S3G350ZH05H1 EC axial fan - AxiEco

Dimensions in mm

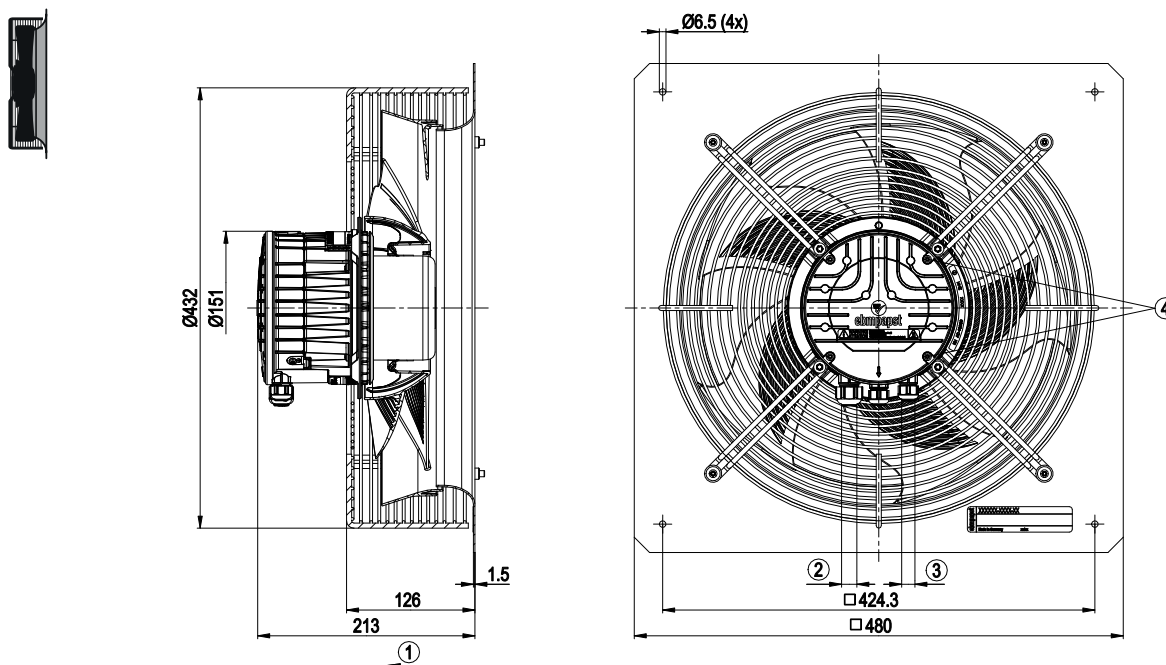


- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 35100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

G VWA0350CSPGS W3G350XH05H1 EC axial fan - AxiEco

Dimensions in mm



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

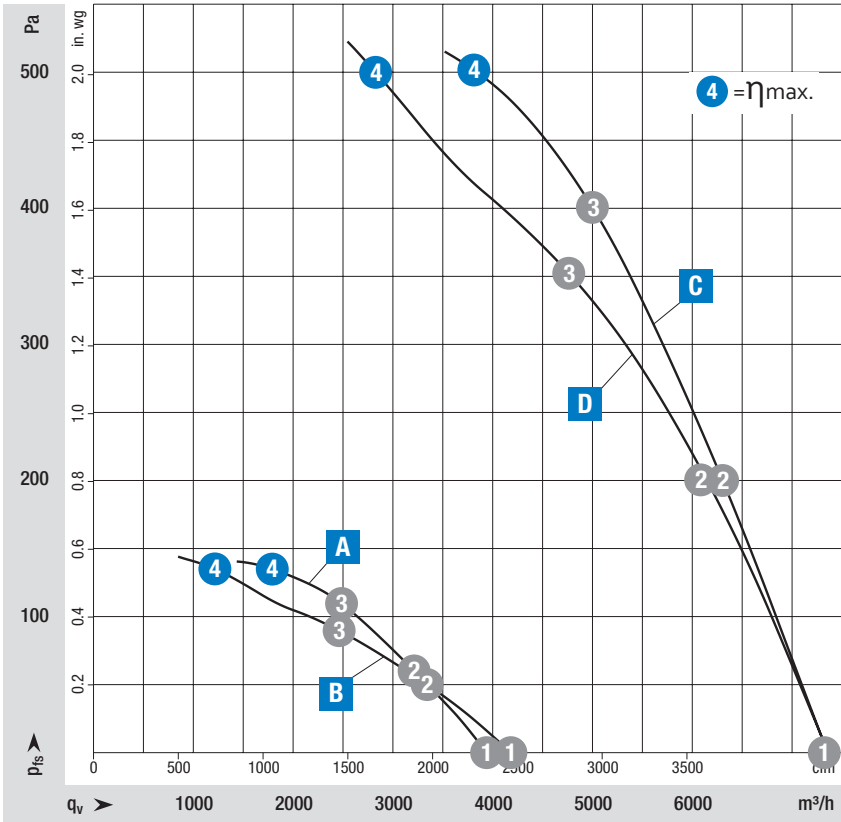
Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

AxiEco 400

EC axial fans



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from page 50	Accessories
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from page 62	Environment and general conditions
More at	www.ebmpapst.com/worldwide www.ebmpapst.com/



Measuring conditions
 Air performance measured after: ISO 5801, installation category A, in ebm-papst full nozzle without contact protection.
 Suction-side noise level: LwA according to ISO 13347, LpA measured at a distance of 1 m on the fan axis.
 The specifications apply only under the specified measuring conditions and may change due to installation conditions.
 In case of deviations from the standard design, the characteristic values must be checked in the installed condition!

Material/Surface

- Guard grille: Steel, coated with black plastic (RAL 9005)
- Wallring: PP plastic
- Impeller: PP plastic, galvanized sheet-metal plate
- Rotor: Thick-film passivated, Painted black
- Electronics housing: Die-cast aluminum, painted black

Mechanical characteristics

- Number of blades: 5
- Direction of rotation: Clockwise, viewed toward rotor
- Installation position: See legend on product drawing
- Condensation drainage holes: On rotor side
- Mode: S1
- Motor bearing: Ball bearing

Additional Information

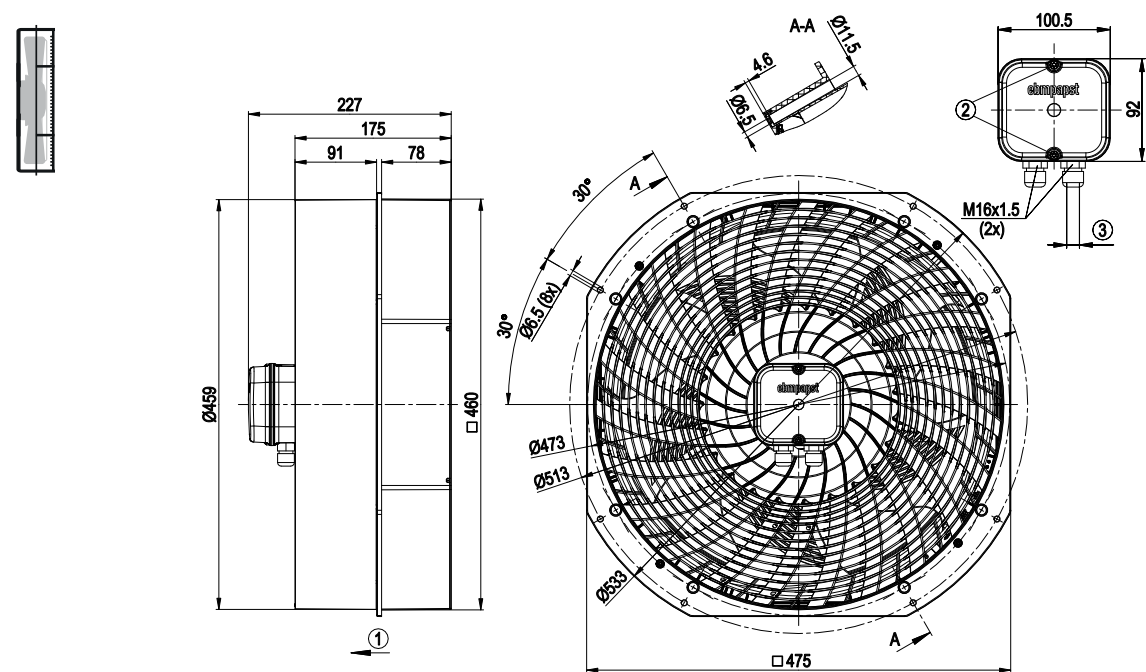
- Information about touch current, electrical connection, degree of protection, insulation class, environmental protection class, EMC standards as well as standards and approvals can be found in the product-specific data sheets.

			Characteristic Curve	Operating point	Nominal voltage	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Max. back pressure	Perm. ambient temp.	Protection class	Connection diagrams and technical equipment	
Nominal voltage range 1~ 200-240 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VWT0400CSNGS	W3G400ZF0301	AxiEco Perform		A	①	230	1.380	165	1,30	69	135	-25...+60	54	Page 60
					②	230	1.325	165	1,30	66				
					③	230	1.300	165	1,30	65				
					④	230	1.300	165	1,30	67				
VMA0400CSNGS	S3G400ZF0301	AxiEco Protect		B	①	230	1.370	165	1,30	68	135	-25...+60	54	Page 60
					②	230	1.285	165	1,30	64				
					③	230	1.240	165	1,30	63				
					④	230	1.200	165	1,30	68				
Nominal voltage range 3~ 380-480 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VWT0400CTPMS	W3G400ZN12W1	AxiEco Perform		C	①	400	2.550	923	1,43	84	500	-40...+60	55	Page 57
					②	400	2.550	1.045	1,61	82				
					③	400	2.550	1.126	1,73	83				
					④	400	2.550	1.150	1,80	85				
VMA0400CTPMS	S3G400ZN12W1	AxiEco Protect		D	①	400	2.400	760	1,19	82	500	-40...+60	55	Page 57
					②	400	2.400	955	1,48	79				
					③	400	2.400	1.063	1,64	78				
					④	400	2.400	1.150	1,80	84				
VWA0400CTPMS	W3G400XN12W1	AxiEco Protect with inlet ring												
Subject to changes.					Values set in blue are nominal data at the operating point at maximum load.									

AxiEco 400

A VWT0400CSNGS W3G400ZF0301 EC axial fan - AxiEco

Dimensions in mm



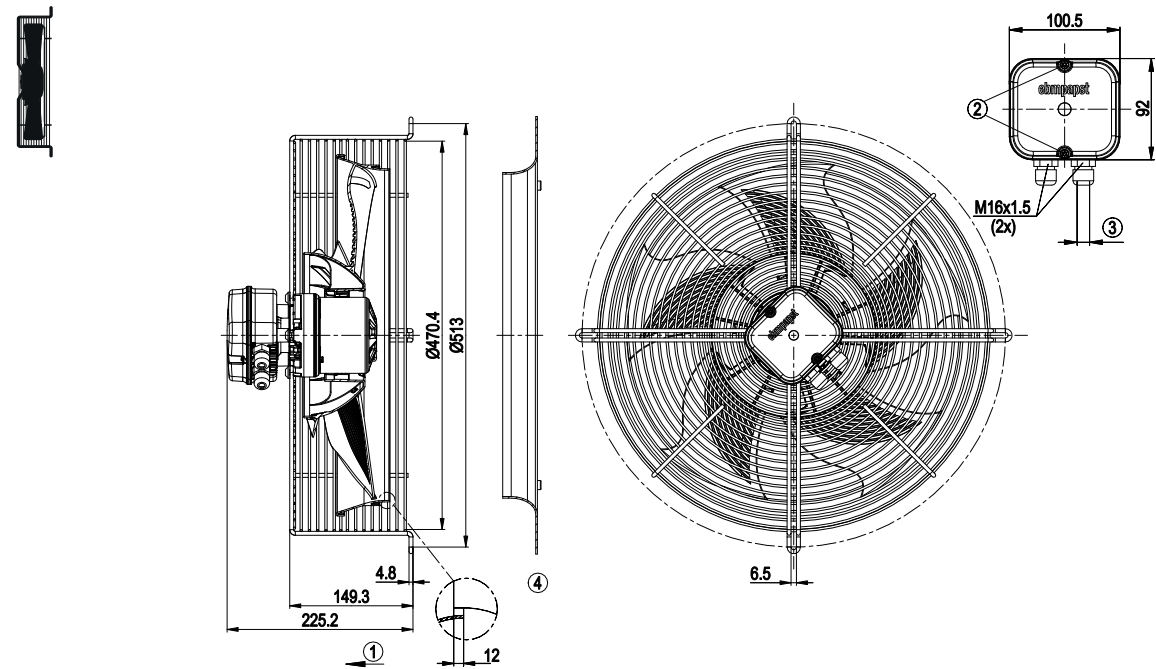
- ① Airflow direction „V“
- ② Tightening torque 1.5 ± 0.2 Nm
- ③ Cable diameter max. 7.5 mm, tightening torque 1.3 ± 0.2 Nm

Accessory part: Guard grill 40070-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

B VMA0400CSNGS S3G400ZF0301 EC axial fan - AxiEco

Dimensions in mm

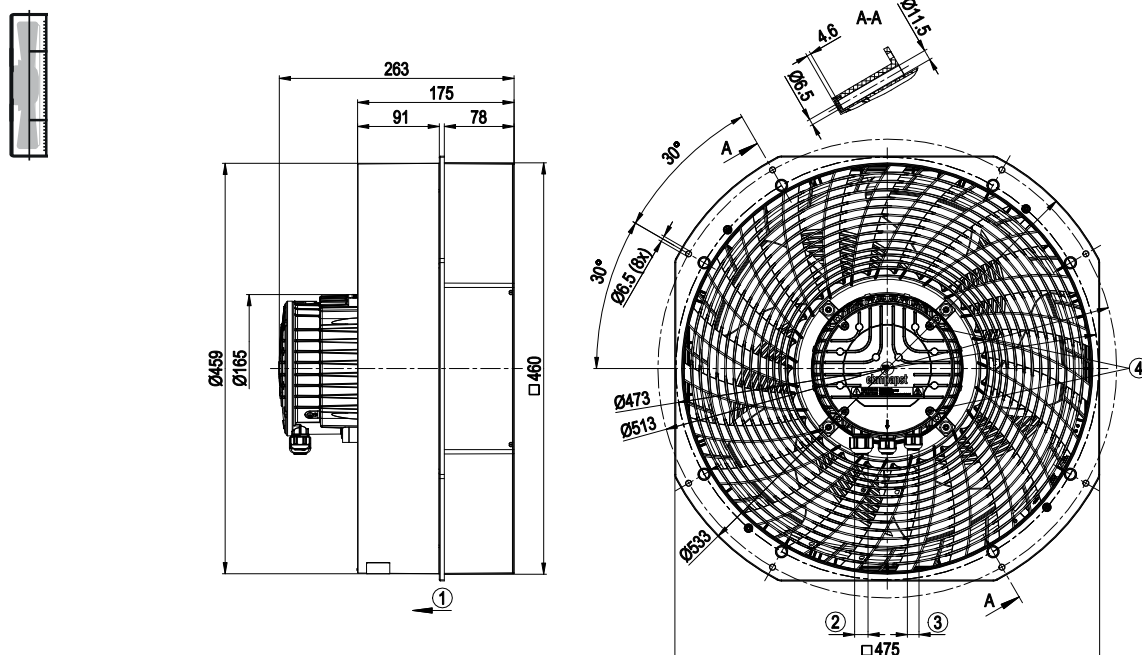


- ① Airflow direction „V“
- ② Tightening torque 1.5 ± 0.2 Nm
- ③ Cable diameter max. 7.5 mm, tightening torque 1.3 ± 0.2 Nm
- ④ Accessory part: Inlet ring 40100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

C VWT0400CTPMS W3G400ZN12W1 EC axial fan - AxiEco

Dimensions in mm



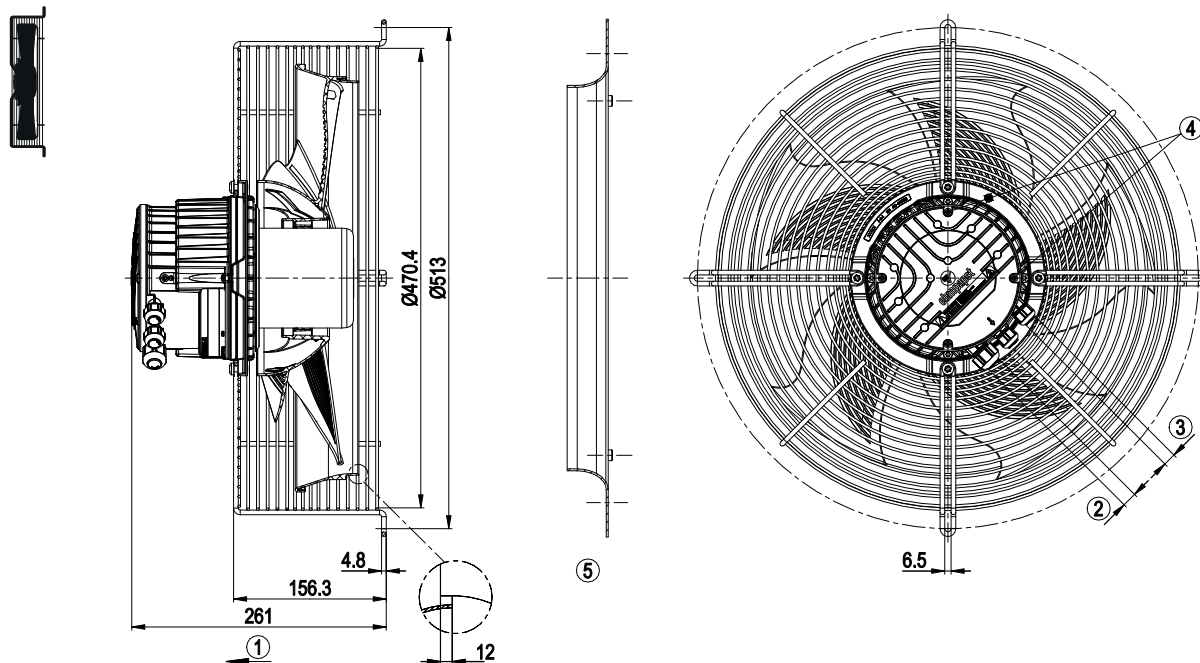
- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Accessory part: Guard grill 40070-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

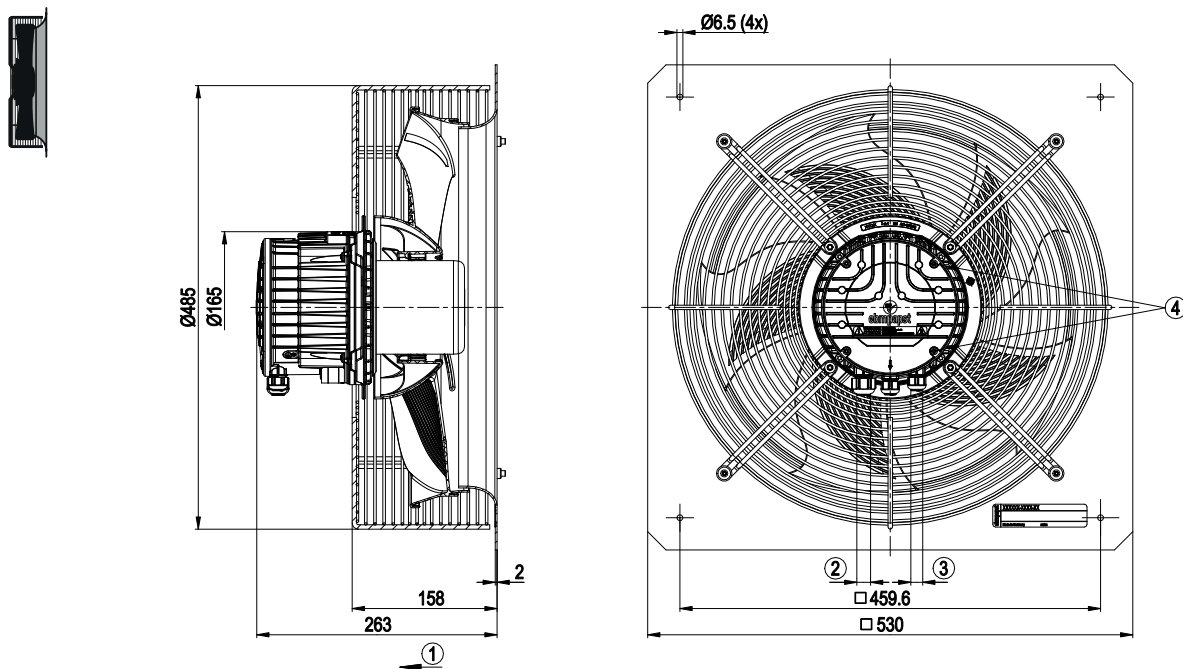
D VMA0400CTPMS S3G400ZN12W1 EC axial fan - AxiEco

Dimensions in mm



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 40100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram

Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

AxiEco 450

EC axial fans



from page 40	Drawings
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from page 54	Connection diagrams and technical equipment
from page 62	Environment and general conditions
More at	www.ebmpapst.com/worldwide www.ebmpapst.com/

Material/Surface

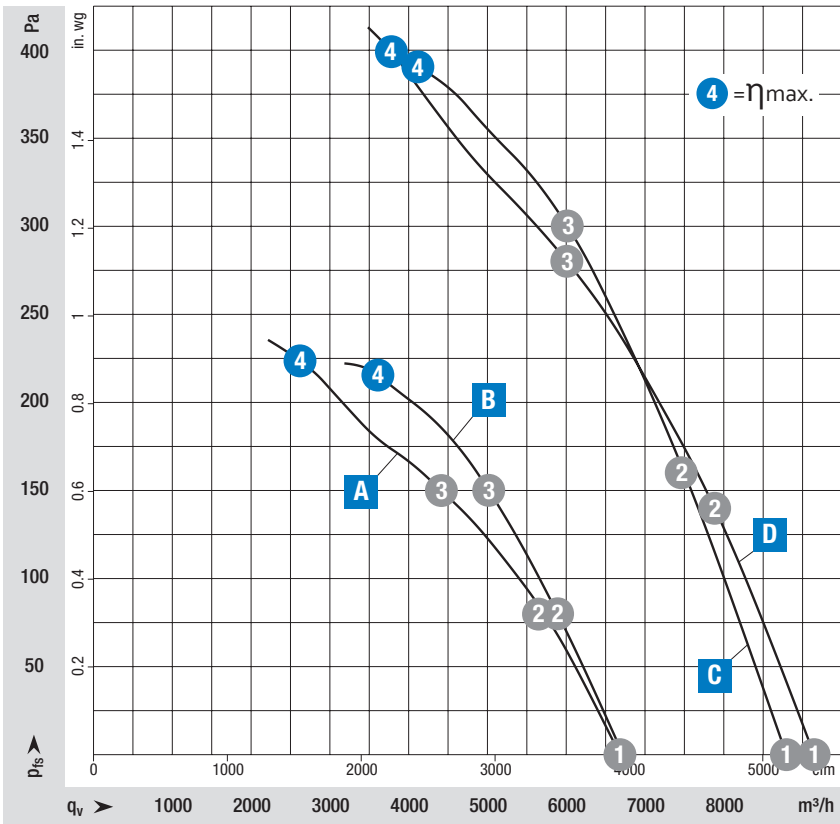
- Guard grille: Steel, coated with black plastic (RAL 9005)
- Wallring: PP plastic
- Impeller: PP plastic, galvanized sheet-metal plate
- Rotor: Thick-film passivated, Painted black
- Electronics housing: Die-cast aluminum, painted black

Mechanical characteristics

- Number of blades: 5
- Direction of rotation: Clockwise, viewed toward rotor
- Installation position: See legend on product drawing
- Condensation drainage holes: On rotor side
- Mode: S1
- Motor bearing: Ball bearing

Additional Information

- Information about touch current, electrical connection, degree of protection, insulation class, environmental protection class, EMC standards as well as standards and approvals can be found in the product-specific data sheets.



Measuring conditions
Air performance measured after: ISO 5801, installation category A, in ebm-papst full nozzle without contact protection.
Suction-side noise level: LwA according to ISO 13347, LpA measured at a distance of 1 m on the fan axis.
The specifications apply only under the specified measuring conditions and may change due to installation conditions.
In case of deviations from the standard design, the characteristic values must be checked in the installed condition!

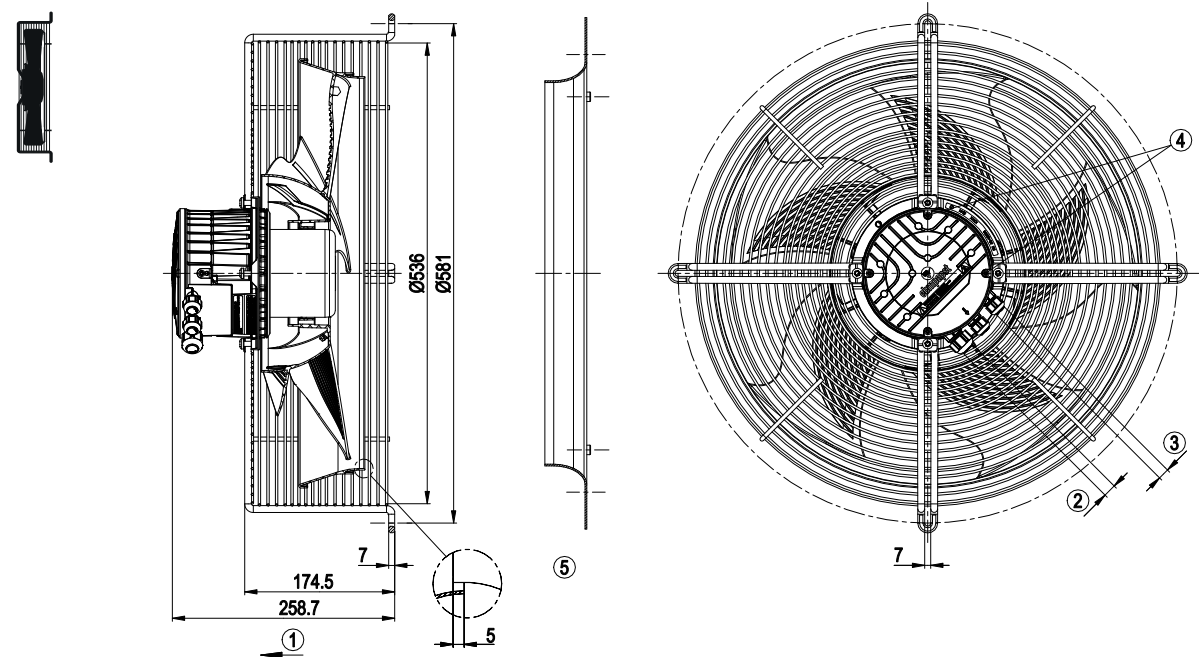
			Characteristic Curve	Operating point	Nominal voltage	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Max. back pressure	Perm. ambient temp.	Protection class	Connection dia-grams and technical equipment	
Nominal voltage range 1~ 200-277 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VMA0450CSPKS	S3G450ZI07H1	AxiEco Protect		A	①	230	1.390	352	1,56	73	225	-25...+60	55	Page 58
					②	230	1.390	425	1,87	69				
					③	230	1.390	477	2,09	69				
					④	230	1.390	500	2,20	75				
VWT0450CSPKS	W3G450ZI07H1	AxiEco Perform		B	①	230	1.460	374	1,65	75	215	-25...+60	55	Page 58
					②	230	1.460	426	1,87	74				
					③	230	1.460	458	2,01	73				
					④	230	1.460	490	2,10	75				
Nominal voltage range 3~ 380-480 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VWT0450CTRHS	W3G450ZR7501	AxiEco Perform		C	①	400	1.910	812	1,27	82	390	-40...+60	55	Page 57
					②	400	1.910	930	1,44	80				
					③	400	1.910	996	1,54	80				
					④	400	1.910	1.050	1,60	84				
VMA0450CTRHS	S3G450ZR7501	AxiEco Protect		D	①	400	1.910	849	1,32	81	400	-40...+60	55	Page 57
	②	400	1.910		1.011	1,56	77							
	③	400	1.910		1.125	1,73	76							
VVA0450CTRHS	W3G450XR7501	AxiEco Protect with inlet ring			④	400	1.910	1.220	1,90	83				

Subject to changes.

Values set in blue are nominal data at the operating point at maximum load.

A VMA0450CSPKS S3G450ZI07H1 EC axial fan - AxiEco

Dimensions in mm

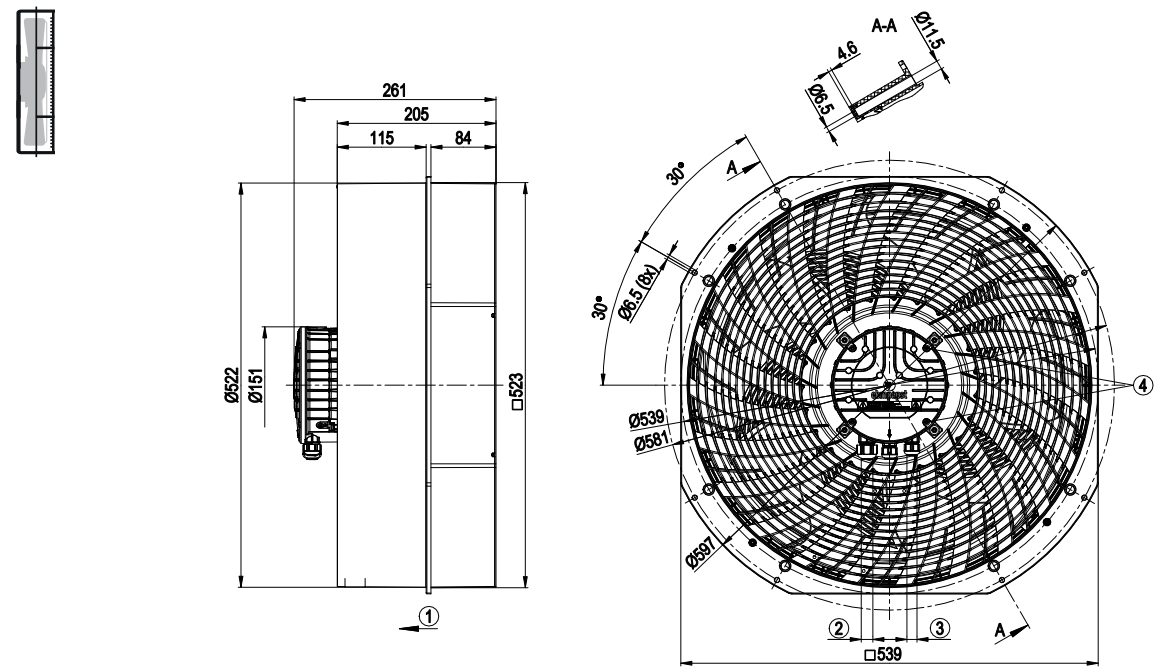


- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 45100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

B VWT0450CSPKS W3G450ZI07H1 EC axial fan - AxiEco

Dimensions in mm



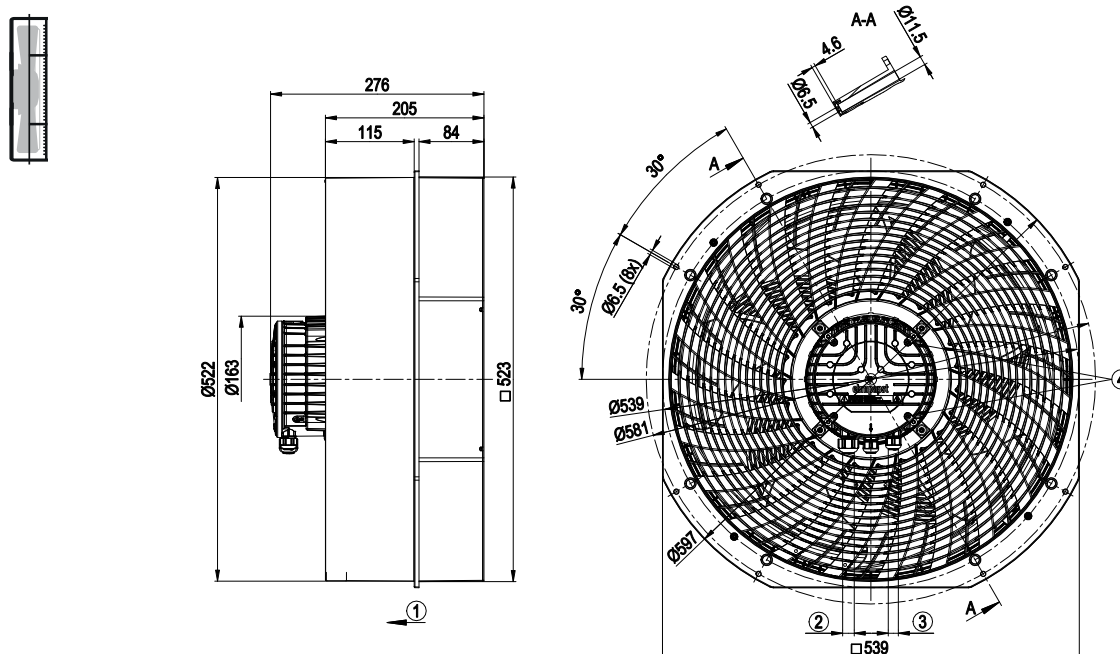
- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided); Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Accessory part: Guard grill 45050-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

C VWT0450CTRHS W3G450ZR7501 EC axial fan - AxiEco

Dimensions in mm



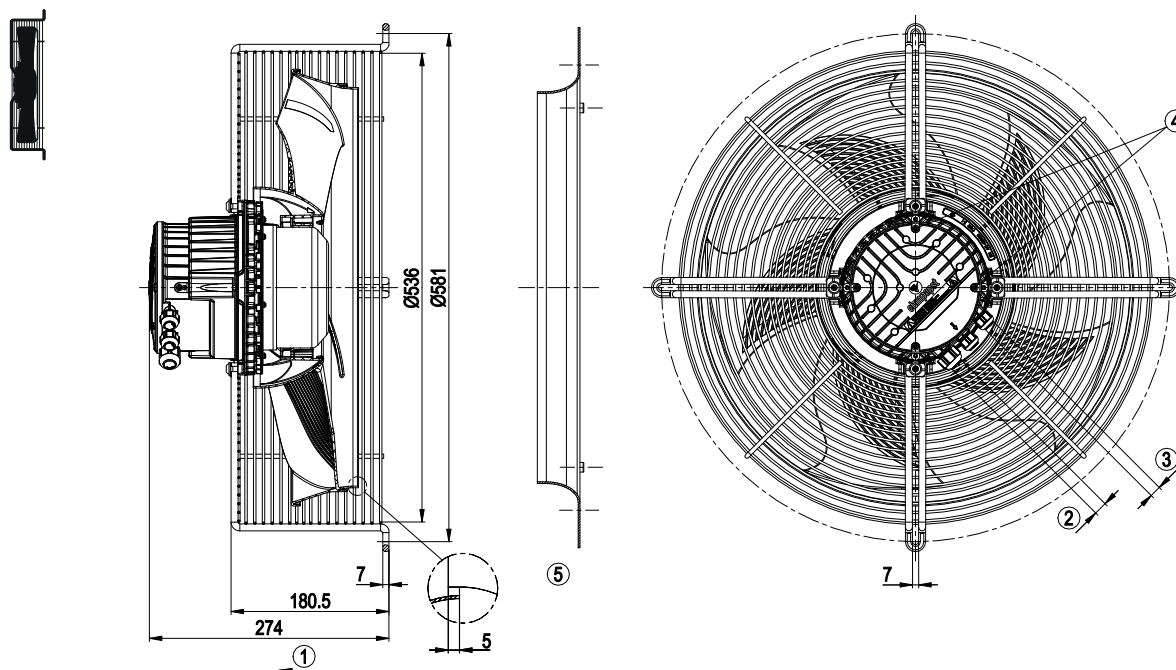
- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Accessory part: Guard grill 45050-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

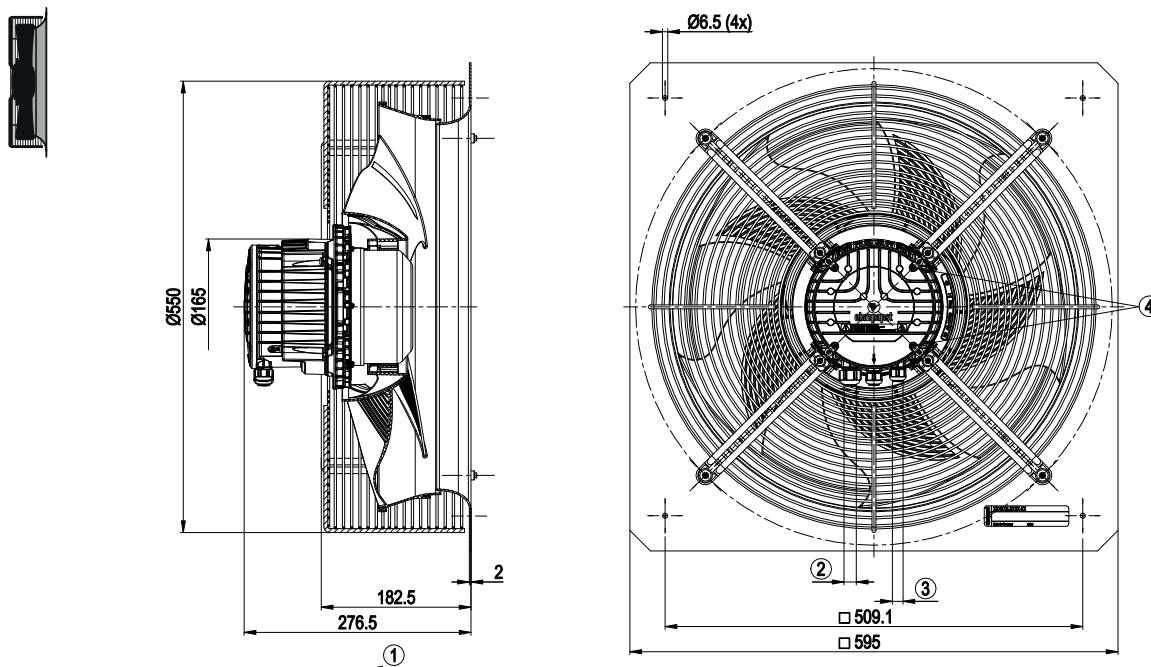
D VMA0450CTRHS S3G450ZR7501 EC axial fan - AxiEco

Dimensions in mm



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 45100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram

Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

AxiEco 500

EC axial fans



Material/Surface

- Guard grille: Steel, coated with black plastic (RAL 9005)
- Wallring: PP plastic
- Impeller: PP plastic, galvanized sheet-metal plate
- Rotor: Thick-film passivated, Painted black
- Electronics housing: Die-cast aluminum, painted black, Die-cast aluminum, painted gray

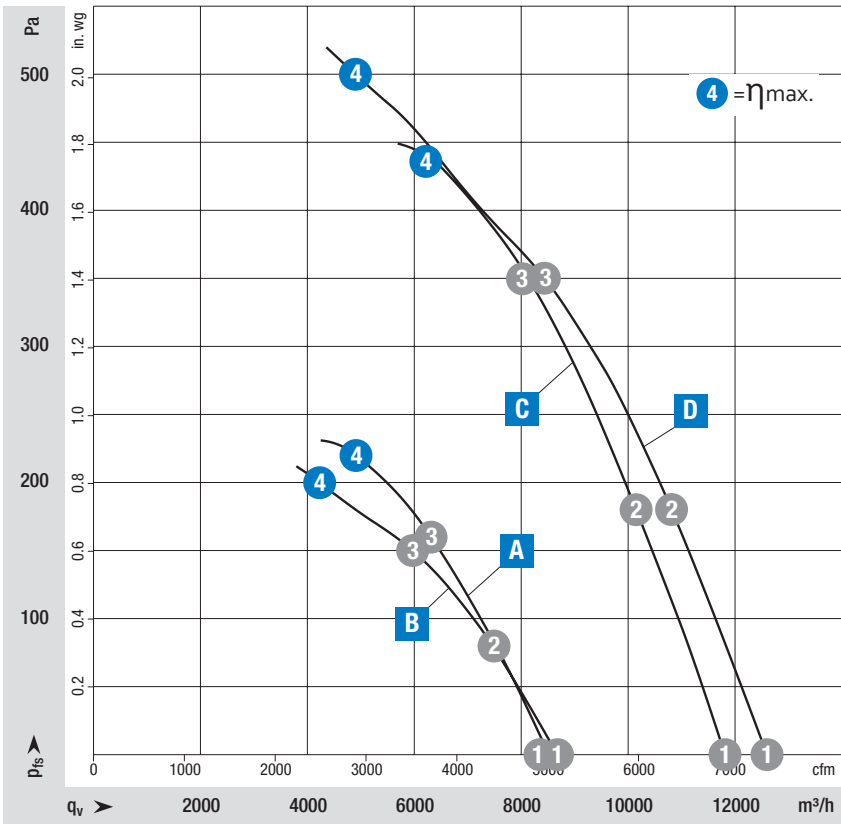
Mechanical characteristics

- Number of blades: 5
- Direction of rotation: Clockwise, viewed toward rotor
- Installation position: See legend on product drawing
- Condensation drainage holes: On rotor side
- Mode: S1
- Motor bearing: Ball bearing

Additional Information

- Information about touch current, electrical connection, degree of protection, insulation class, environmental protection class, EMC standards as well as standards and approvals can be found in the product-specific data sheets.

from page 46	Drawings
from page 50	Accessories
from page 54	Connection diagrams and technical equipment
from page 62	Environment and general conditions
More at	www.ebmpapst.com/worldwide www.ebmpapst.com/

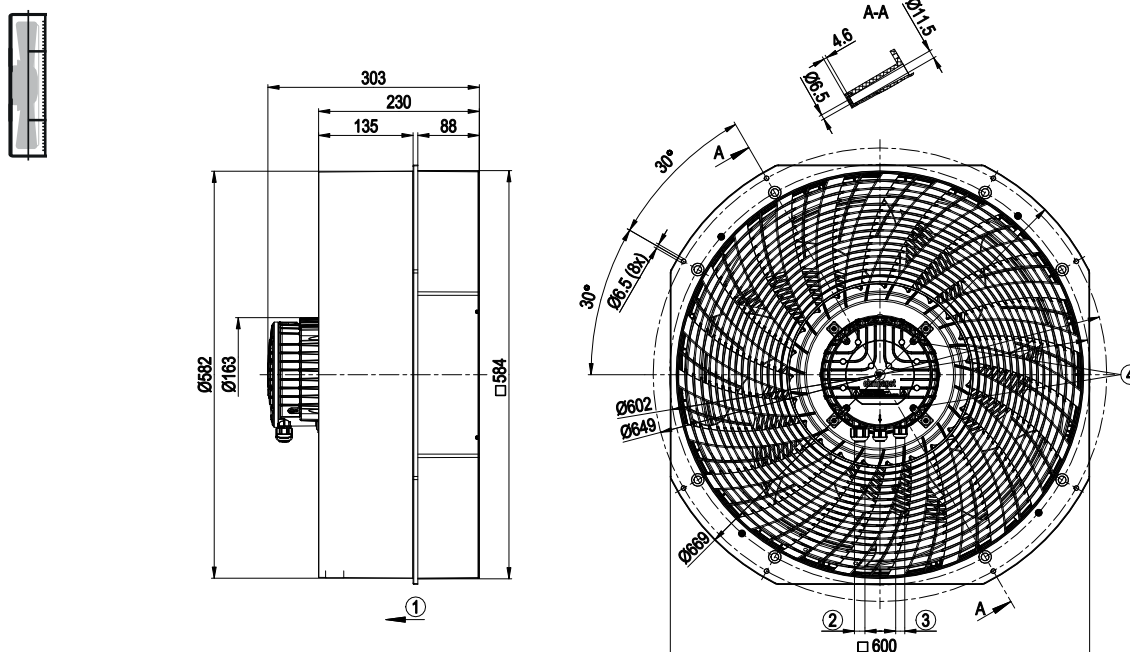


Measuring conditions
Air performance measured after: ISO 5801, installation category A, in ebm-papst full nozzle without contact protection.
Suction-side noise level: LwA according to ISO 13347, LpA measured at a distance of 1 m on the fan axis.
The specifications apply only under the specified measuring conditions and may change due to installation conditions.
In case of deviations from the standard design, the characteristic values must be checked in the installed condition!

			Characteristic Curve	Operating point	Nominal voltage	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Max. back pressure	Perm. ambient temp.	Protection class	Connection diagrams and technical equipment	
Nominal voltage range 1~ 200-277 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VWT0500CSPMS	W3G500ZM03I1	AxiEco Perform		A	①	230	1.330	511	2,25	78	220	-25...+60	55	Page 58
					②	230	1.330	580	2,54	76				
					③	230	1.330	617	2,71	75				
					④	230	1.330	650	2,90	76				
VMA0500CSPMS	S3G500ZM03I1	AxiEco Protect		B	①	230	1.270	474	2,09	73	200	-25...+60	55	Page 58
					②	230	1.270	573	2,52	71				
					③	230	1.270	650	2,85	70				
					④	230	1.270	650	2,85	72				
Nominal voltage range 3~ 380-480 VAC, 50/60 Hz					V	rpm	W	A	dB(A)	Pa	°C			
Type	Part number	Fan type												
VWT0500CTRNS	W3G500ZQ1290	AxiEco Perform		C	①	400	1.870	1.344	2,18	85	440	-40...+60	55	Page 56
					②	400	1.870	1.492	2,40	84				
					③	400	1.870	1.577	2,52	84				
					④	400	1.870	1.600	2,60	86				
VMA0500CTRNS	S3G500ZQ1290	AxiEco Protect		D	①	400	1.870	1.350	2,20	84	500	-40...+60	55	Page 56
	②	400	1.870		1.588	2,54	80							
	③	400	1.870		1.774	2,81	80							
	④	400	1.870		1.950	3,00	87							
VWA0500CTRNS	W3G500XQ1290	AxiEco Protect with inlet ring												

Subject to changes.

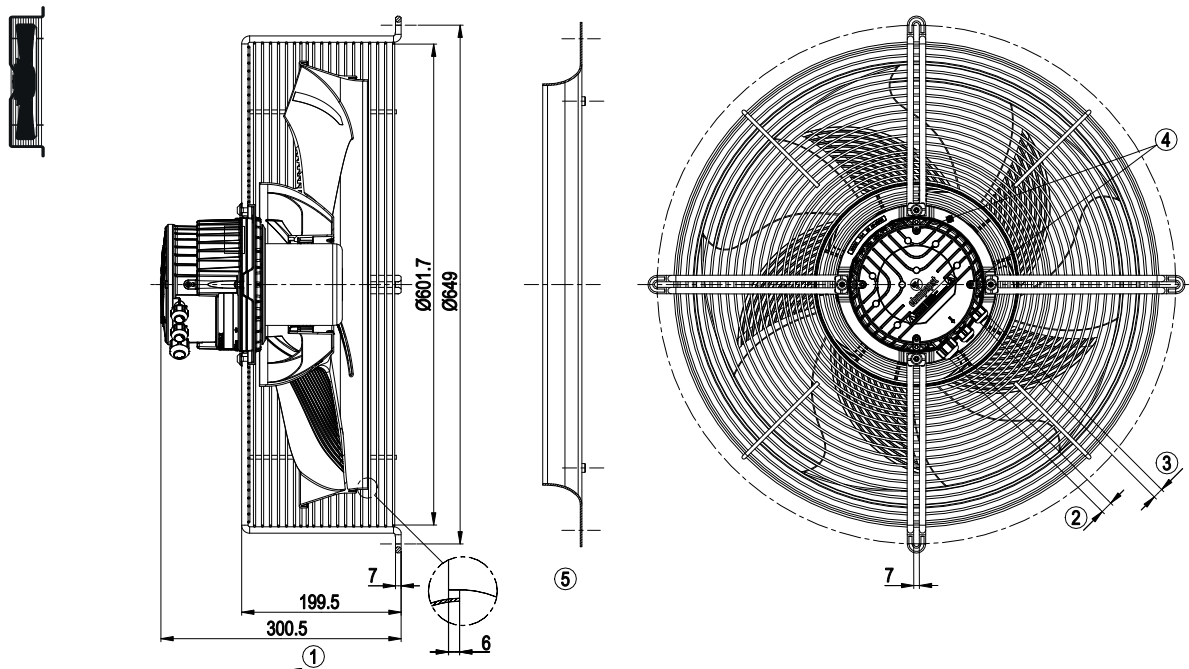
Values set in blue are nominal data at the operating point at maximum load.



- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm

Accessory part: Guard grill 50070-2-4039 with oval head screw 60080-7-6201 (4x), can be fitted on the intake side.; Not included in scope of delivery.

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

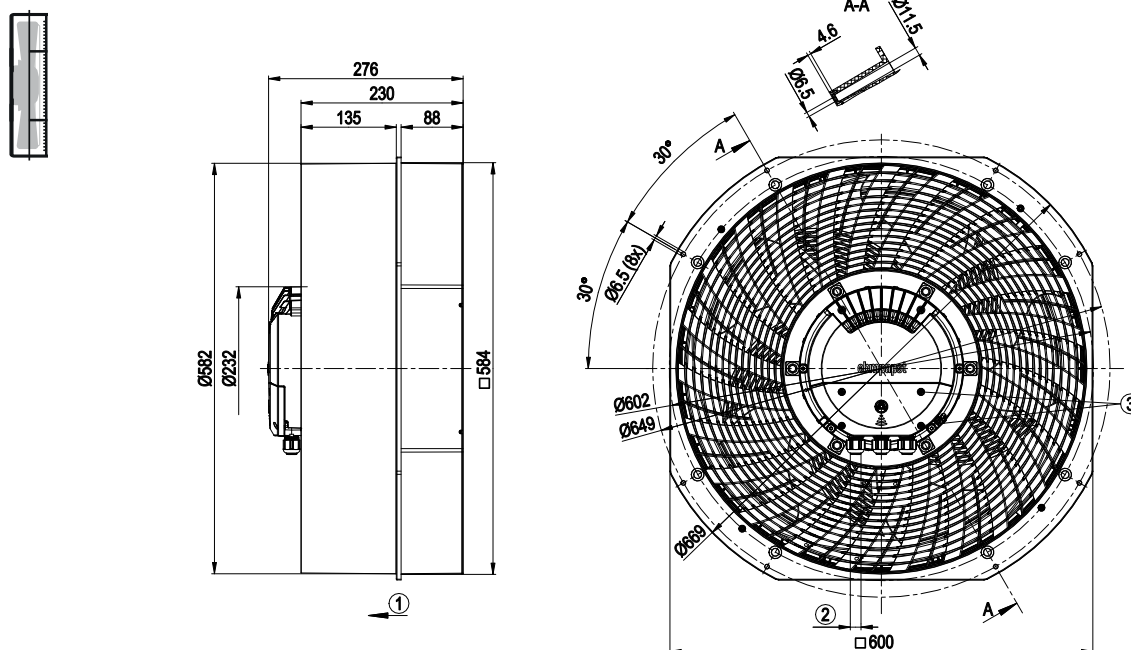


- ① Airflow direction „V“
- ② Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
- ③ Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided);
Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
- ④ Tightening torque 1.5 ± 0.2 Nm
- ⑤ Accessory part: Inlet ring 50100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

C VWT0500CTRNS W3G500ZQ1290 EC axial fan - AxiEco

Dimensions in mm

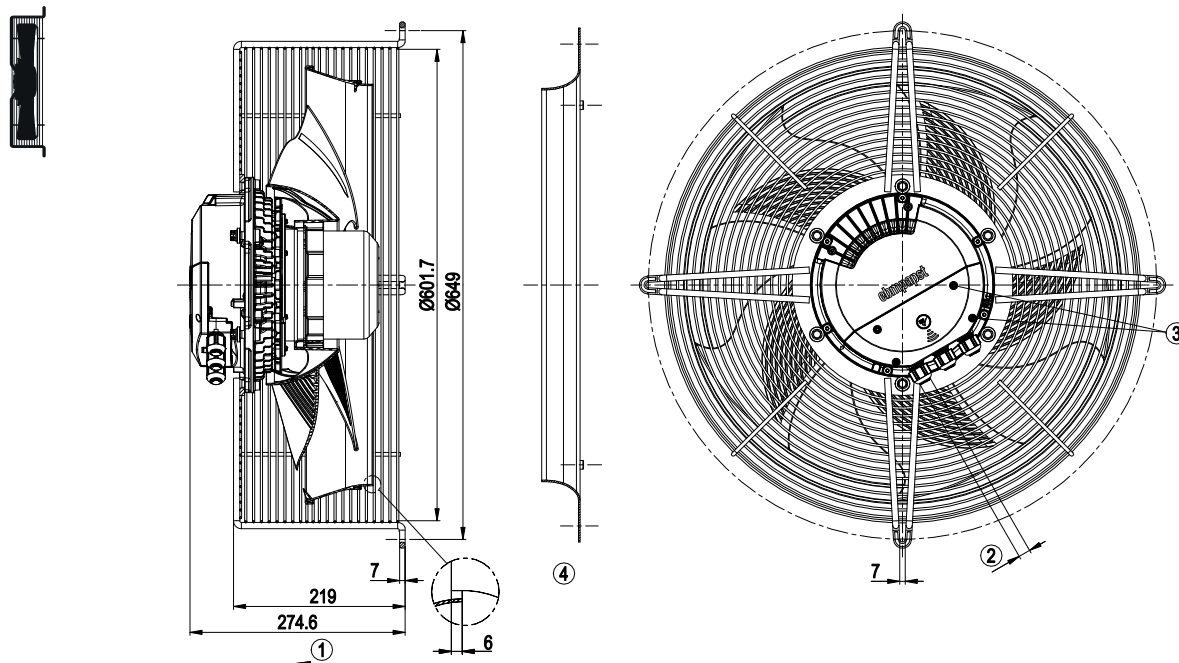


- ① Airflow direction „V“
- ② Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
- ③ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request

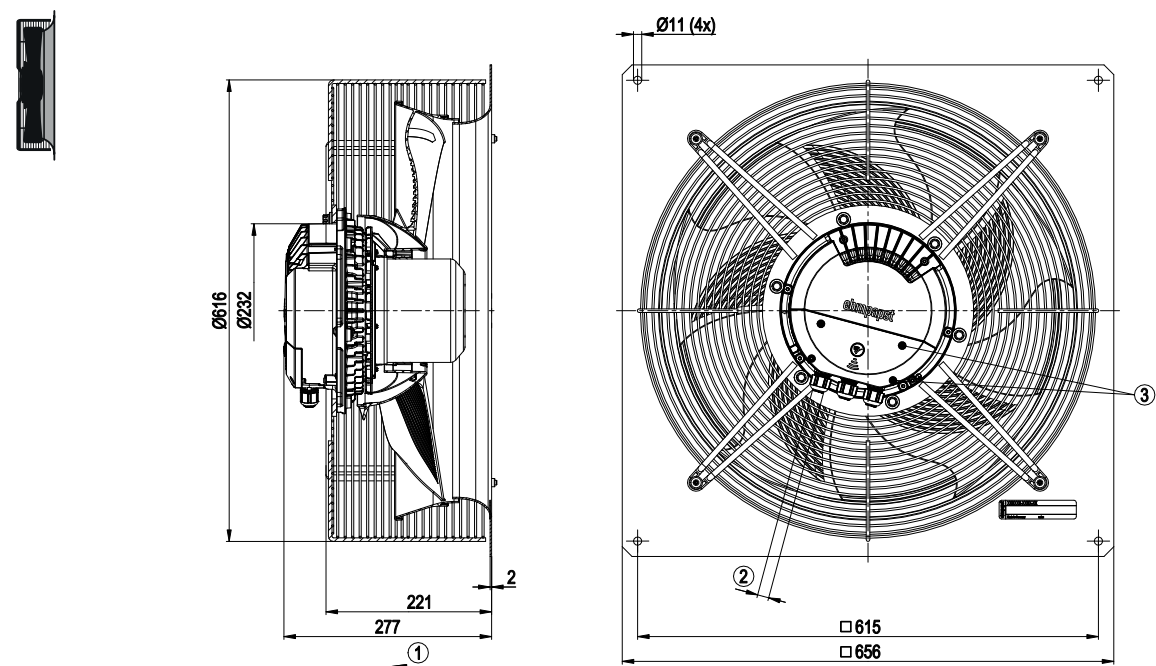
D VMA0500CTRNS S3G500ZQ1290 EC axial fan - AxiEco

Dimensions in mm



- ① Airflow direction „V“
- ② Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
- ③ Tightening torque 1.5 ± 0.2 Nm
- ④ Accessory part: Inlet ring 50100-2-4013 not included in scope of delivery

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or rotor on bottom; rotor on top on request



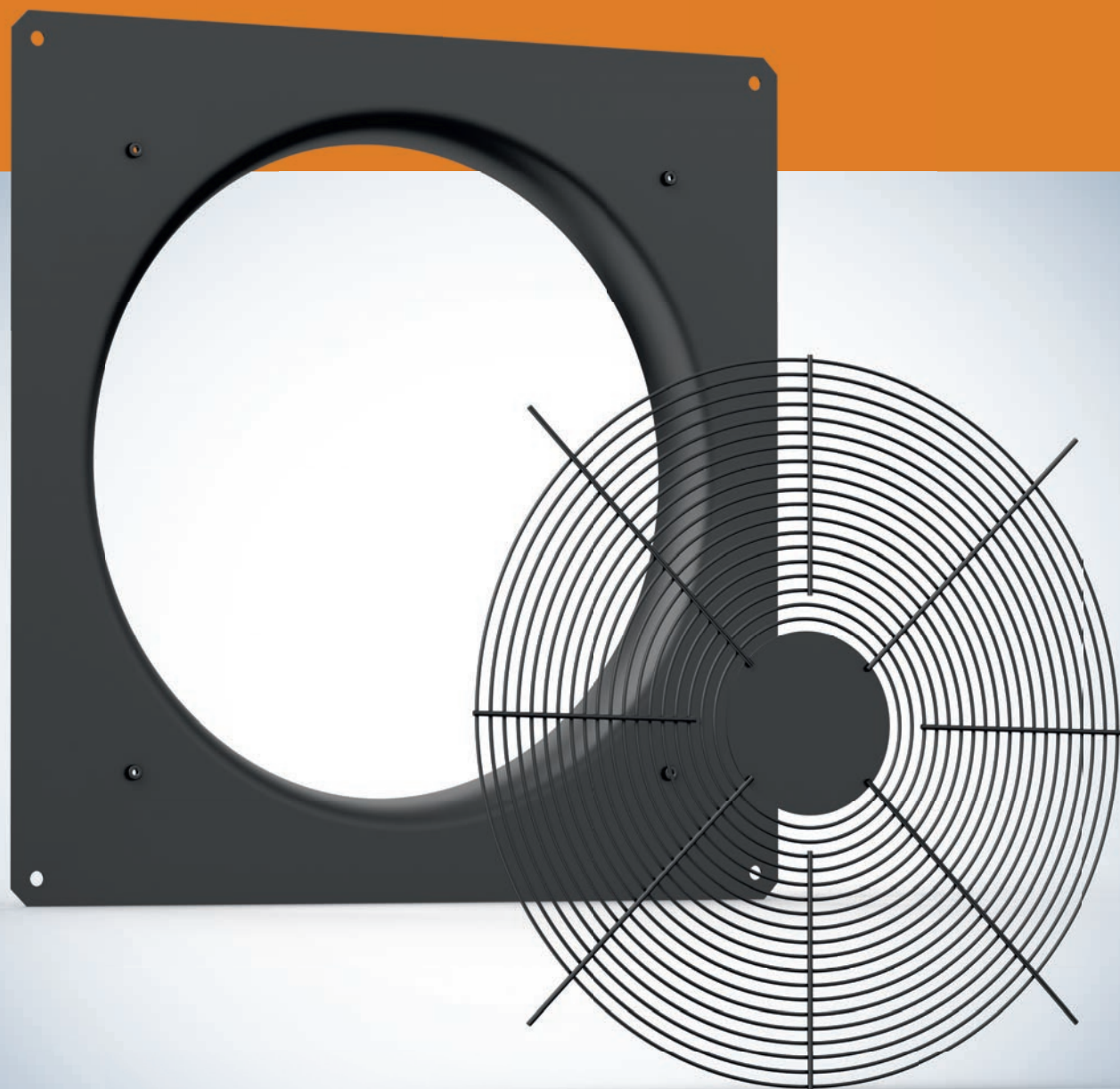
- ① Airflow direction „V“
- ② Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
- ③ Tightening torque 1.5 ± 0.2 Nm

Pin assignment: See connection diagram
Mounting position: Shaft horizontal or
rotor on bottom; rotor on top on request

ebm-papst

EC axial fans

AxiEco Accessories



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Accesories 300 - 500

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Intake-side guard grill & fastening screw	53

Square nozzle plate

AxiEco



– **Material:** Steel, painted black

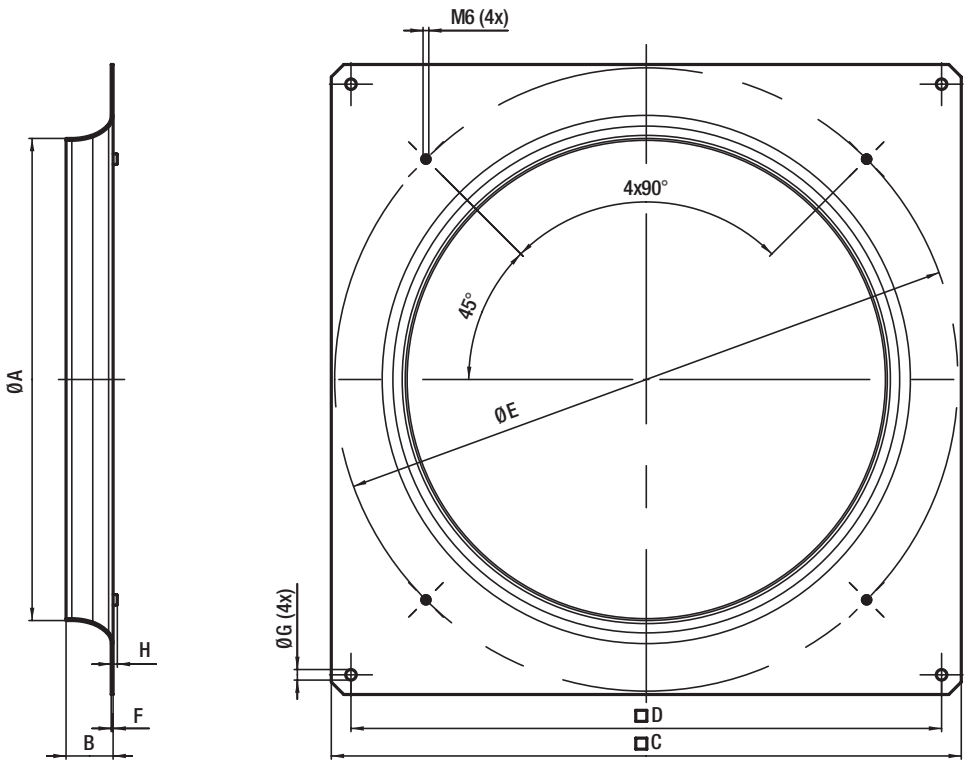
– **Fastening:** The nozzle plate is fastened to the customer device using four fastening screws.

Square nozzle plate for EC axial fans - AxiEco Protect

Part number	Fan size	Ø A	B	C	D	Ø E	F	Ø G	H
30100-2-4013	300	305,5 mm	31,0 mm	430 mm	388,9 mm	412 mm	1,5 mm	6,5 mm	5,9 mm
35100-2-4013	350	351,0 mm	38,0 mm	480 mm	424,3 mm	460 mm	1,5 mm	6,5 mm	5,9 mm
40100-2-4013	400	394,5 mm	42,0 mm	530 mm	460,0 mm	513 mm	2,0 mm	6,5 mm	6,4 mm
45100-2-4513	450	448,0 mm	41,7 mm	595 mm	509,0 mm	581 mm	2,0 mm	6,5 mm	6,4 mm
50100-2-4013	500	502,0 mm	49,0 mm	656 mm	615,0 mm	649 mm	2,0 mm	11,0 mm	6,4 mm

Subject to changes.

Accessories



Intake-side guard grill

AxiEco

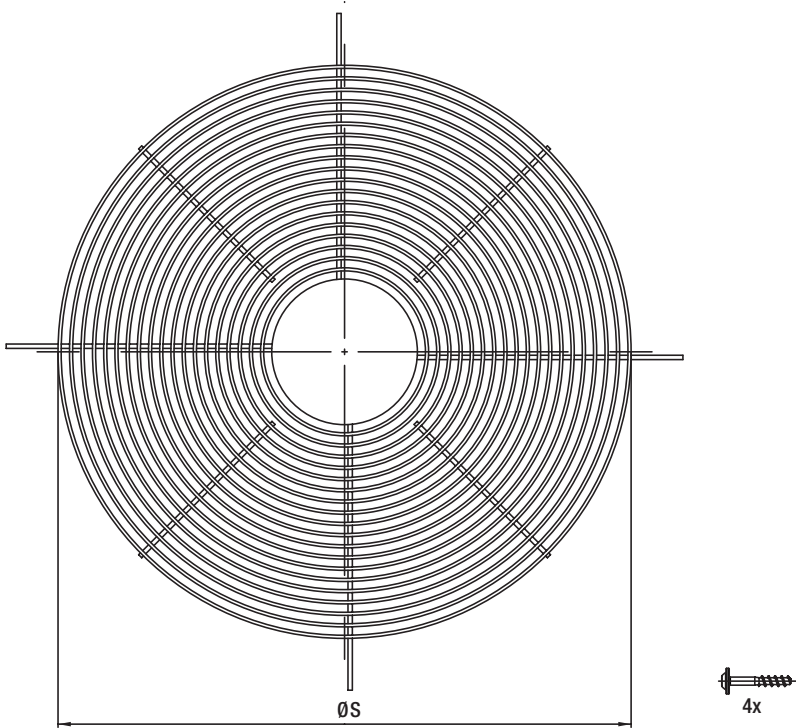


- **Material:** Steel, painted black
- **Fastening:** The guard grill is fastened to the fan device using four fastening screws.

Intake-side guard grill for EC axial fans - AxiEco Perform

Part number	Fan size	Ø S	Fastening screw for guard grill
30070-2-4039	300	300 mm	60080-7-6201 (4 pcs per guard grill required)
35050-2-4039	350	350 mm	60080-7-6201 (4 pcs per guard grill required)
40070-2-4039	400	397 mm	60080-7-6201 (4 pcs per guard grill required)
45050-2-4039	450	450 mm	60080-7-6201 (4 pcs per guard grill required)
50070-2-4039	500	512 mm	60080-7-6201 (4 pcs per guard grill required)

Subject to changes.



ebm-papst
EC axial fans
AxiEco Technology



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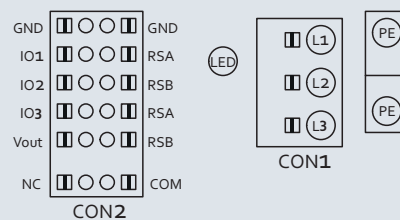
Technology 300 - 500

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Technical parameters & scope	62

Connection diagrams

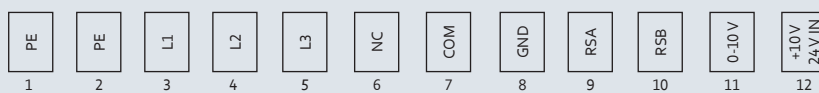
Technical features:

- Operation and fault indicator with LED
- External 15-50 VDC input (parameterization)
- Alarm relay
- Integrated PI controller
- Configurable inputs/outputs (I/O)
- MODBUS V6.3
- Motor current limitation
- RS 485 MODBUS-RTU
- Soft start
- Voltage output 3,3-24 VDC, Pmax = 800 mW
- Control interface with SELV potential safely disconnected from supply
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection



Technical features:

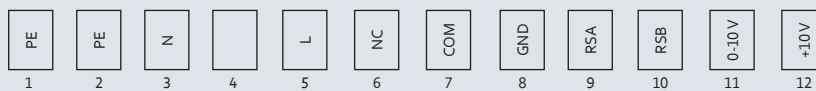
- Output 10 VDC max. 10 mA
- Operation and fault indicator
- External 24 V input (parameterization)
- Alarm relay
- Integrated PI controller
- Motor current limitation
- PFC, passiv
- RS 485 MODBUS-RTU
- Soft start
- EEPROM write cycles: 100.000 maximum
- Control input 0-10 VDC / PWM
- Control interface with SELV potential safely disconnected from supply
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection



Connection diagrams

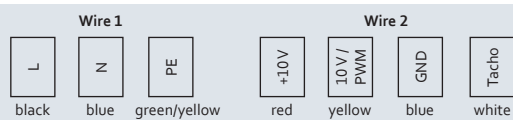
Technical features:

- Output 10 VDC max. 10 mA
- Operation and fault indicator
- Alarm relay
- Integrated PI controller
- Power limitation
- Motor current limitation
- PFC, active
- RS 485 MODBUS-RTU
- Soft start
- Control input 0-10 VDC / PWM
- Control interface with SELV potential safely disconnected from supply
- Thermal overload protection for electronics/motor
- Undervoltage/phase failure detection



Technical features:

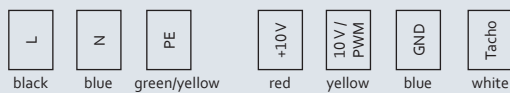
- Output 10 VDC max. 1,1 mA
- Locked-rotor detection
- Tach output
- Speed control
- Power limitation
- Motor current limitation
- Soft start
- Control input 0-10 VDC / PWM
- Control interface with SELV potential safely disconnected from supply
- Overvoltage detection
- Thermal overload protection for electronics/motor
- Undervoltage detection



Connection diagrams

Technical features:

- Output 10 VDC max. 10 mA
- Tach output
- Power limitation
- Motor current limitation
- Soft start
- Control input 0-10 VDC / PWM
- Control interface with SELV potential safely disconnected from supply
- Overvoltage detection
- Thermal overload protection for electronics/motor
- Undervoltage detection





Technical parameters & scope

High standards for all ebm-papst products

Here at ebm-papst, we constantly strive to further improve our products in order to be able to offer you the best possible product for your application. Careful monitoring of the market ensures that technical innovations are reflected in the improvements of our products. Based on the technical parameters listed below and the ambience you want our product to operate in, we here at ebm-papst can always work out the best solution for your specific application.

General performance parameters

Any deviations from the technical data and parameters described here are listed on the product-specific data sheet.

Degree of protection

The type of protection is specified in the product-specific data sheets.

Insulation class

The insulation class is specified in the product-specific data sheets.

Installation position

The mounting position is specified in the product-specific data sheets.

Condensate discharge holes

Information on the condensate discharge holes is provided in the product-specific data sheets.

Mode of operation

The mode of operation is specified in the product-specific data sheets.

Protection class

The protection class is specified in the product-specific data sheets.

Tightening torques for fan assembly

Please consult your ebm-papst contact for questions about which tightening torque to use.

Service life

The service life of ebm-papst products depends on two main factors:

- The service life of the insulation system
- The service life of the bearing system

The service life of the insulation system is essentially governed by the voltage level, the temperature and the ambient conditions such as humidity and condensation.

The service life of the bearing system is primarily governed by the thermal load on the bearings. For the majority of our products we use maintenance-free ball bearings which can be fitted in any installation position. Sleeve bearings can alternatively be employed, as described in the product-specific data sheets.

As a rough guide (depending on the general conditions), the ball bearings have a life expectancy L10 of approx. 40.000 hours of operation at an ambient temperature of 40 °C.

We will gladly provide you with a life expectancy calculation based on your specific usage conditions.

Motor protection/thermal protection

Information on motor protection and thermal protection is provided in the product-specific data sheets.

The following protection methods are provided depending on the type of motor and area of application:

- Thermal overload protector with electronic diagnostics
- Current limitation via electronics

If use is made of an external thermal overload protector, a commercially available tripping unit must be connected by the customer for shut-off. Motor protection conforming to the applicable standard must be fitted for products not provided with a built-in thermal overload protector and not protected against improper use.

Mechanical strain/performance parameters

All ebm-papst products are subjected to comprehensive testing in conformity with the normative specifications and also incorporating the extensive experience of ebm-papst.

High voltage and insulation testing

If high voltage or insulation testing is carried out in the application, then all connection lines from the fan must be disconnected in advance.

Vibration testing

Vibration testing is performed as follows:

- Vibration test in operation according to DIN EN 61373:2010 Category 1
- Vibration test at standstill according to DIN EN 61373:2010 Category 1

Shock load

Shock load testing is performed as follows:

- Shock load according to DIN EN 60068-2-27

Balancing grade

Balancing grade testing is performed as follows:

- Residual imbalance according to DIN ISO 1940
- Standard balancing quality level G 6.3

Should your particular application require a higher level of balancing, please contact us and specify the details in your order.

Chemical and physical strain/performance parameters

Please consult your ebm-papst contact for any questions regarding chemical and physical strain.

Areas of use, industries & applications

Our products are used in a variety of industries and for numerous applications:

Ventilation, air conditioning and refrigeration technology, clean room technology, automotive and railway engineering, medical and laboratory technology, electronics, computer and office systems, telecommunications, household appliances, heating systems, machinery and installations, drive engineering.

Our products are not intended for use in the aerospace or military industries!

Legal and normative specifications

The products described in this catalog are developed and manufactured in accordance with the standards applying to the particular product and, if known, in accordance with the conditions of the particular area of application.

Standards

Information on standards is provided in the product-specific data sheets.

EMC

Information on EMC standards is provided in the product-specific data sheets. Compliance with EMC standards has to be assessed on the final product, as EMC properties may change under different installation conditions.

Touch current

Information on touch current is provided in the product-specific data sheets. Measurement is performed according to IEC 60990.

Approvals

Please contact us if you require a specific type of approval (VDE, UL, GOST, CCC, CSA, etc.) for your ebm-papst product. Most of our products can be supplied with the applicable approval. Information on existing approvals is provided in the product-specific data sheets.

Air performance measurements

All air performance measurements are conducted on intake-side chamber test rigs conforming to the requirements of ISO 5801 and DIN 24163. The fans under test are attached to the measuring chamber with free air intake and exhaust (installation category A) and operated at nominal voltage, with alternating current also at nominal frequency.

As required by the standards, the air performance curves shown are referenced to an air density of 1,15 kg/m³.

Technical parameters & scope

Acoustic

Air and sound measurement conditions

Measurements on ebm-papst products are taken under the following conditions:

- Axial and diagonal fans in airflow direction "V" or "A" in full nozzle
- Backward-curved centrifugal fans, free-running with inlet ring
- Forward-curved single and dual-inlet centrifugal fans with housing
- Backward-curved dual-inlet centrifugal fans with housing

Sound measurements

All sound measurements are taken in anechoic rooms with reverberant floor. ebm-papst acoustic test chambers meet the requirements of accuracy class 1 as per DIN EN ISO 3745.

For sound measurement, the fans being tested are positioned in a reverberant wall and operated at nominal voltage, with alternating current also at nominal frequency.

Sound pressure and sound power level

All acoustic values are determined in accordance with ISO 13347, DIN 45635 and ISO 3744/3745 as per accuracy class 2 and given in A-rated form.

For measurement of the sound pressure level L_p the microphone is located on the intake side of the fan being tested, generally at a distance of 1 m on the fan axis.

For measurement of the sound power level L_w 10 microphones are distributed over an enveloping surface on the intake side of the fan being tested (see graphic). The measured sound power level can be roughly calculated from the sound pressure level by adding 7 dB.

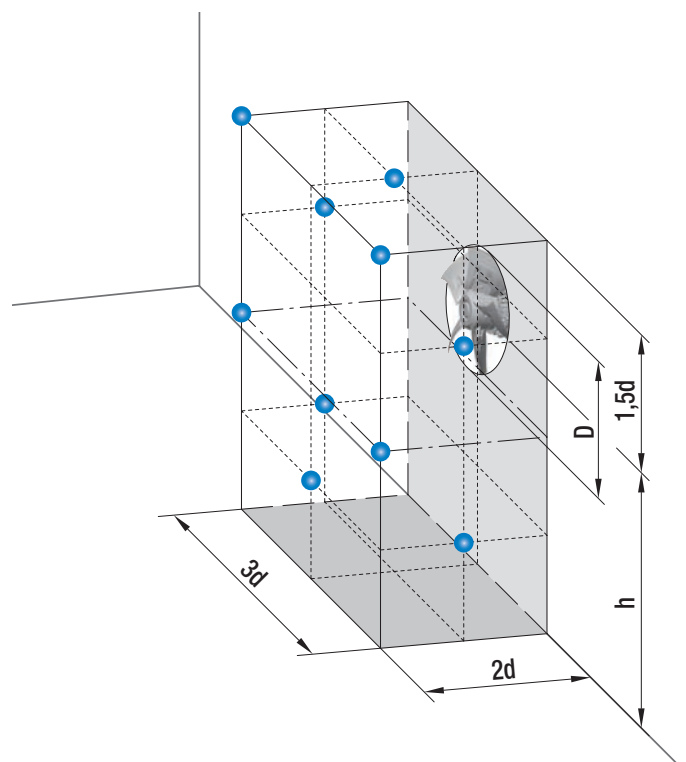
Measurement set-up according to ISO 13347-3 and DIN 45635-38:

- 10 measuring points

$d \geq D$

$h = 1,5d \dots 4,5d$

Measurement area $S = 6d^2 + 7d(h + 1,5d)$

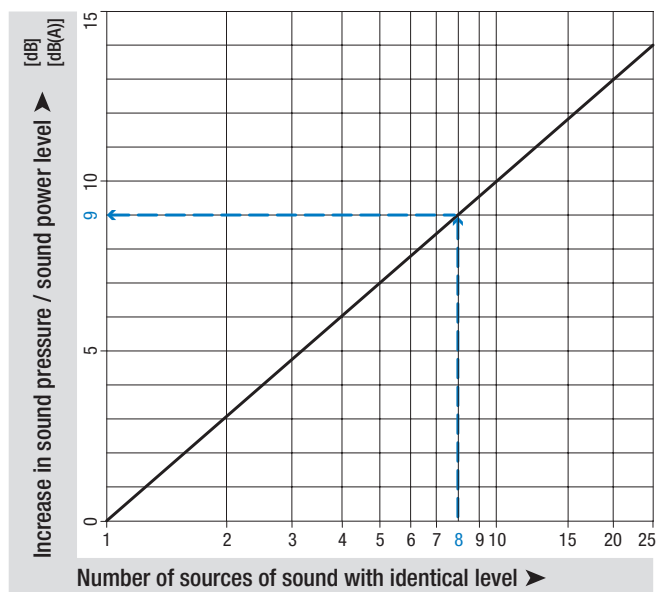


Cumulative level of several sound sources with the same level

The addition of two sound sources with the same level produces a level increase of approx. 3 dB.

The noise characteristics of several identical fans can be predicted on the basis of the sound values specified in the data sheet. This is shown in the adjacent graph.

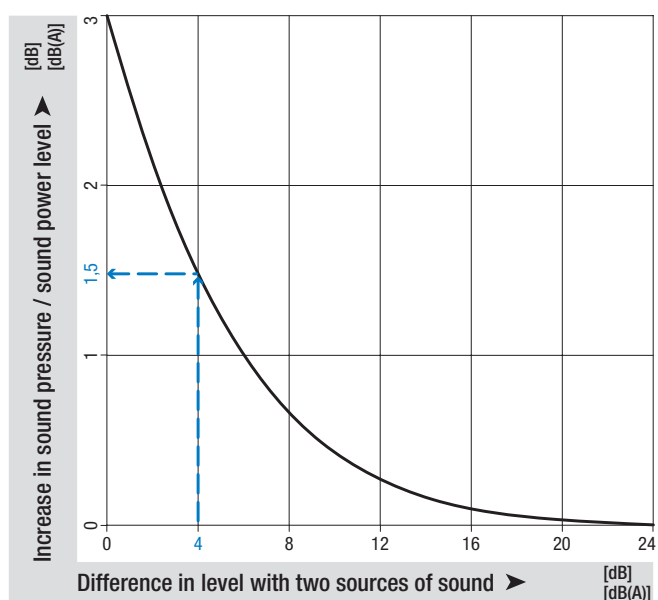
Example: There are 8 fans on a device. According to the data sheet, the sound pressure level of one fan is 75 dB(A). The level increase determined from the graph is 9 dB. This means that a total level of 84 dB(A) is to be expected for the installation.



Cumulative level of two sound sources with different levels

The noise characteristics of two different fans can be predicted on the basis of the sound values specified in the data sheet. This is shown in the adjacent graph.

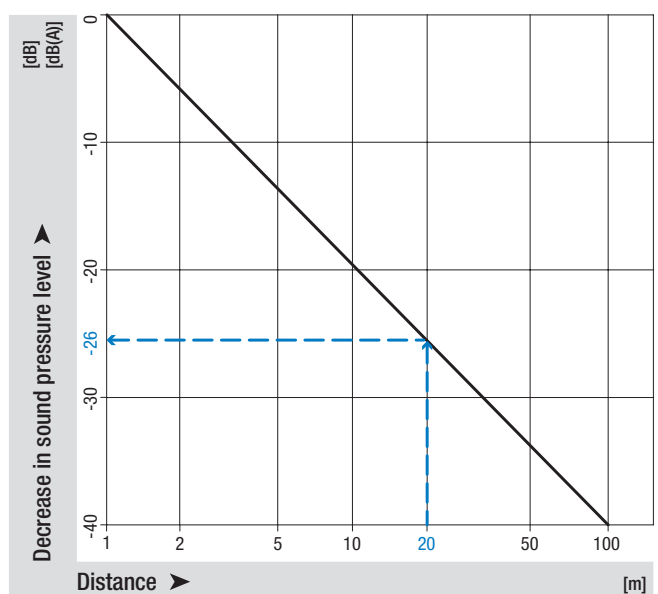
Example: In a ventilation unit, there is one fan with a sound pressure level of 75 dB(A) at the point of operation and one fan with 71 dB(A). The difference in level is 4 dB. The level increase of approx. 1.5 dB can now be read off the graph. This means that a total level of 76.5 dB(A) is to be expected for the unit.



Distance laws

The sound power level is not governed by the distance from the noise source. By contrast, the sound pressure level decreases with increasing distance from the sound source. The adjacent graph shows the decrease in level under far field conditions. Far field conditions apply if there is a considerable distance between the microphone and the fan in relation to the fan diameter and the wavelength under consideration. On account of the complexity of the topic, literature should be consulted for more detailed information on far fields. The level in the far field decreases by 6 dB each time the distance is doubled. Different relationships apply in the near field of the fan and the level may decrease to a far lesser extent. The following example only applies to far field conditions and may vary considerably as a result of installation effects:

For a fan, a sound pressure level of 65 dB(A) was measured at a distance of 1 m. From the adjacent graph, this would yield a reduction of 26 dB at a distance of 20 m, i.e. a sound pressure level of 39 dB(A).



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