EC/AC axial fans – AxiCool

version 2013-11

ebmpapst

The engineer's choice

EC/AC axial fans – AxiCool

A breath of fresh air in refrigeration technology

Setting tomorrow's standards today. This principle was key for us in developing the new AxiCool range. AxiCool represents a new market standard for evaporators and coolers which makes customer benefits the utmost priority. The compact fan unit also impresses with top efficiency and simple handling, whilst offering the best conditions for optimal system efficiency thanks to its design features. Convenient service, ease of operation and excellent air throw round off the spectrum of positive features.

Top efficiency

The ErP Directive sets out stringent specifications to come into effect in 2015. So it is reassuring to know that these specifications on binding limit values are already surpassed by ebm-papst and that all the benefits of this superior efficiency are there for customers to enjoy. In a nutshell: AxiCool can reduce power consumption by up to 25 %. What's more, ideal system regulation guarantees highly efficient operation – even at part load. And last but not least, optimised cooling and thawing cycles also help to enhance efficiency.

Innovation meets perfection

Whichever version of the AxiCool series you decide on: You can be sure of making the right choice, as the innovative features incorporated into this product range always produce perfect results. Four versions of the axial fan are available: A standard version, a version with hinge for easier cleaning or with air-guiding system for ideal cold storage air distribution and a high-end version with hinge and air-guiding system offering the full range of advantages.

The fans can be supplied as size 300, 350 and 450 mm models with AC or GreenTech EC motor to suit all requirements: For instance, AxiCool is also available for both air flow directions. In addition,the EC technology permits control by way of two speed settings or regulation via a linear interface.

The adjacent symbols highlight the winning features of the entire AxiCool series at a glance.

Maximum hygiene, optimum food safety

The AxiCool product range has an important function to fulfil: Namely, to keep food in cold storage fresh under hygienic conditions. That's why AxiCool is specially designed to ensure an ideal environment right from the start – with the emphasis on hygiene and food safety.

A high standard of refrigeration is required to maintain the quality of stored products – only minimal temperature fluctuations and drying-out of the refrigerated items is permissible and the thawing cycles must be short. All these conditions are satisfied by the ideal distribution of cold air in the cold store and innovative concepts such as the patented wall ring design. AxiCool is fully equipped to meet special challenges such as cheese maturing processes or the storage of sensitive fruit and vegetables.

With regard to hygiene, AxiCool cuts no corners. AxiCool features a high level of splash water protection (up to IP 54) and smooth surfaces with no visible screws. The great advantage: Dirt cannot get a grip. And the hinge-function ensures easy cleaning of the heat exchanger to HACCP specifications. Simply unfasten the screws, open up the fan and perform cleaning.

Truly sustainable

In our view ecology, sustainability and economical operation are inseparable issues. This "GreenTech" concept is embedded in the ebm-papst philosophy and characterises the entire life cycle: It stands for recycling, waste avoidance, ecological materials, lower emission levels, reduced energy consumption and hence greater efficiency. AxiCool for instance attains just such efficiency with a GreenTech EC motor, which operates at various speed settings or with regulation by way of a linear interface. In addition, the AxiCool product range supports the concept of sustainability with a particularly long service life. It is often possible to preserve resources with simple means: From the outset, AxiCool was designed to have smooth surfaces to facilitate cleaning and so save water.

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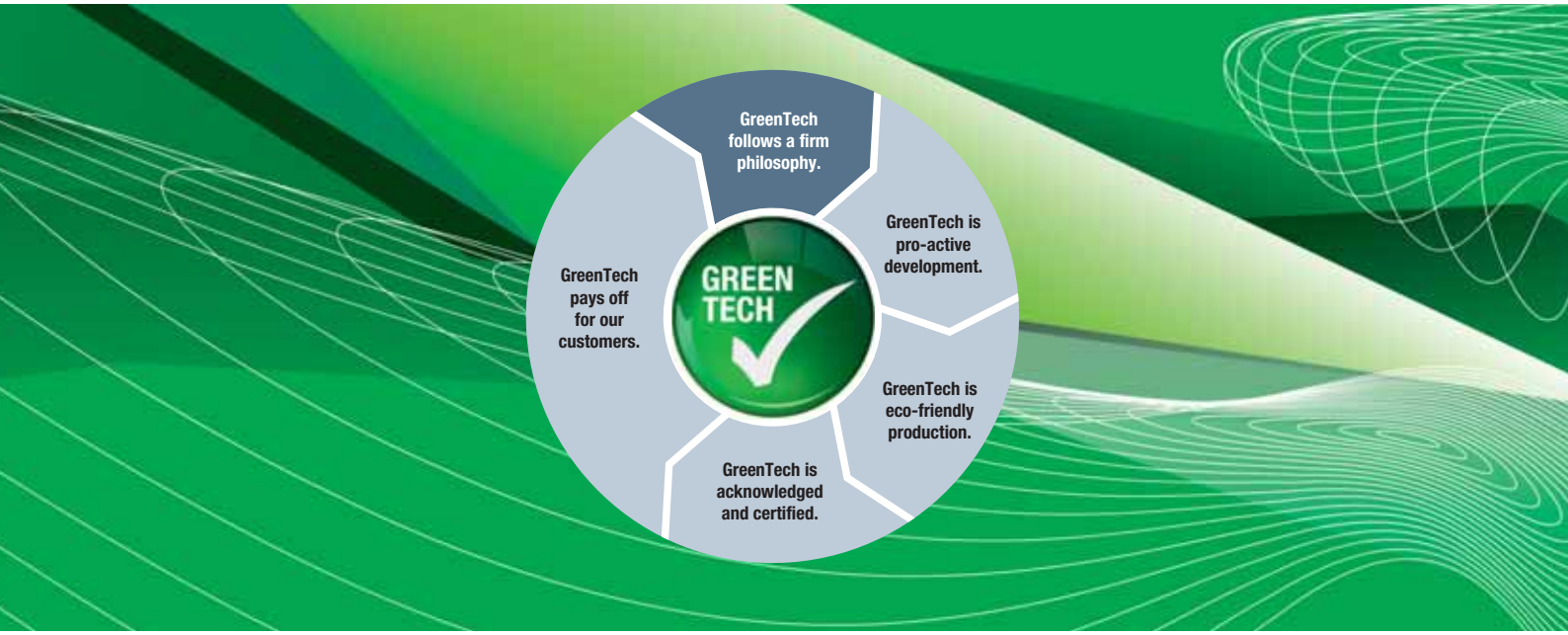
Sustainability is at the centre of our thoughts and actions. Out of conviction!

Eco-friendliness and sustainability have always been at the core of our thoughts and actions. For decades, we have worked according to the simple but strict creed of our co-founder Gerhard Sturm: “Each new product we develop has to be better than the last one in terms of economy and ecology.” GreenTech is the ultimate expression of our corporate philosophy.

GreenTech is pro-active development.
Even in the design phase, the materials and processes we use are optimised for the greatest possible eco-friendliness, 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 significantly reduce energy conumption. Close co-operation with universities and scientific institutes and the professorship we endow in the area of power engineering and regenerative energies allows us to profit from the latest research finings in these fields – and at the same time ensure highly qualified young academics.

GreenTech is eco-friendly production.
GreenTech also stands for maximum energy efficiency in our production processes. There, the intelligent use of industrial waste heat and groundwater cooling, photovoltaics and, of course, our own cooling and ventilation technology are of the utmost importance. Our most modern plant, for instance, consumes 91% less energy than currently specified and required. In this way, our products contribute to protecting the environment, from their origin to their recyclable packaging.



GreenTech is acknowledged and certified.

Every step in our chain of production meets the stringent standards of environmental specialists and the public. The Deutscher Nachhaltigkeitspreis 2012 (German Sustainability Award 2012), where we were given the Top3-award in the category "Germany's most sustainable strategy for the future (company group)" bears testimony to our commitment to sustainability, 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 the fulfillment of 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 – several times over.

Our customers profit from this every day.

The heart of GreenTech is future-oriented EC technology from ebmpapst. The EC technology at the core of our most efficient motors and fans allows efficiency of up to 90%, saves energy at a very high level, significantly extends service life and makes our products maintenance-free. These values pay off not only for the environment, but every cent also pays off for the user! All ebm-papst products – even those for which GreenTech EC technology does not (yet) make sense from an application viewpoint – feature the greatest possible connection of economy and ecology.

Product overview: AxiCool

Overview of types: AxiCool EC versions




Size	Motor	Standard version	Version with hinge	Version with air-guiding system	Version with hinge and air-guiding system
300	M3G 055-CF (2 stages)	W3G 300-JK13-30	W3G 300-TK13-30	W3G 300-UK13-30	W3G 300-WK13-30
350	M3G 074-CF (2 stages)	W3G 350-JN01-30	W3G 350-TN01-30	W3G 350-SN01-30	W3G 350-WN01-30
450	M3G 074-DF (2 stages)	W3G 450-JO02-30	W3G 450-TO02-30	W3G 450-SO02-30	W3G 450-WO02-30
	M3G 084-FA (0-10 V)	W3G 450-JC28-30	W3G 450-TC28-30	W3G 450-SC28-30	W3G 450-WC28-30

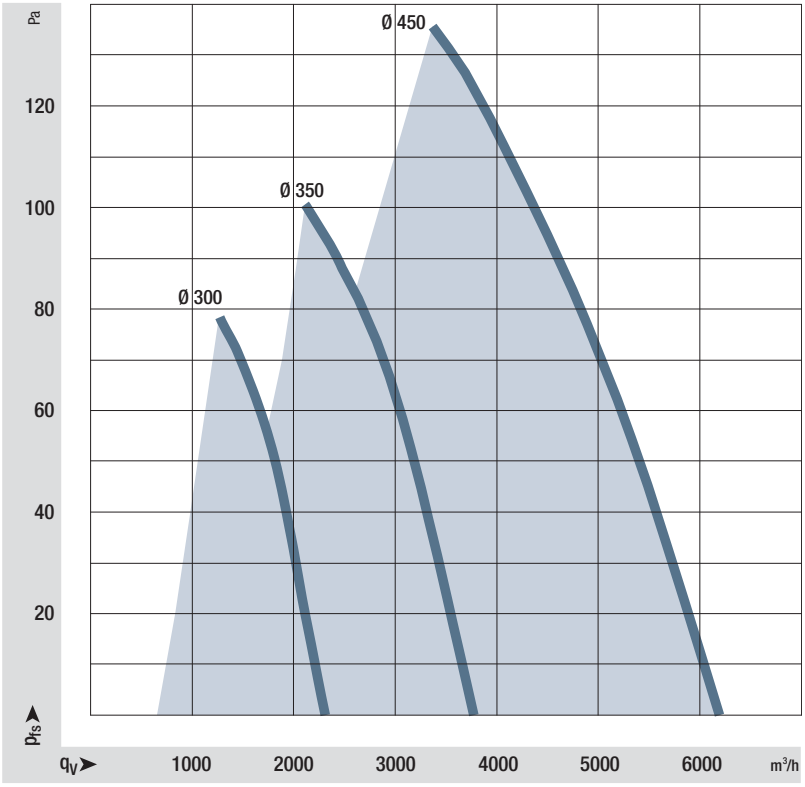
Overview of types: AxiCool AC versions



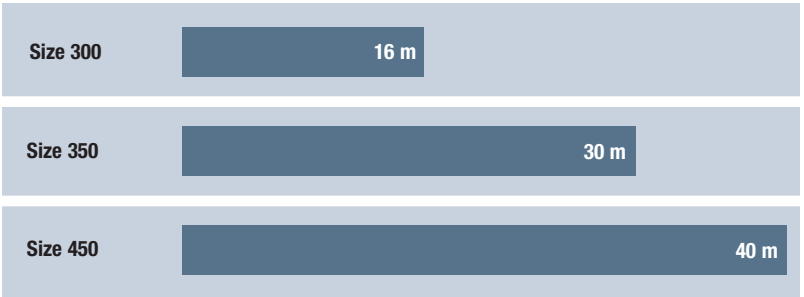

Size	Motor	Standard version	Version with hinge	Version with air-guiding system	Version with hinge and air-guiding system
300	M4E 068-CF	W4E 300-JS72-30	W4E 300-TS72-30	W4E 300-SS72-30	W4E 300-WS72-30
350	M4E 074-DF	W4E 350-JN02-30	W4E 350-TN02-30	W4E 350-SN02-30	W4E 350-WN02-30
450	M4E 074-GA	W4E 450-JP01-30	W4E 450-TP01-30	W4E 450-SP01-30	W4E 450-WP01-30

Overview of characteristic curves: AxiCool

Max. curves of EC versions



Max. air throw



In the maximum thrust range, a remaining air velocity of 0.5 m/s can still be measured.
Thrust ranges depend on the installation situation.

EC axial fans – AxiCool

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EC axial fans – AxiCool

Ø 300, 2 Speed stages

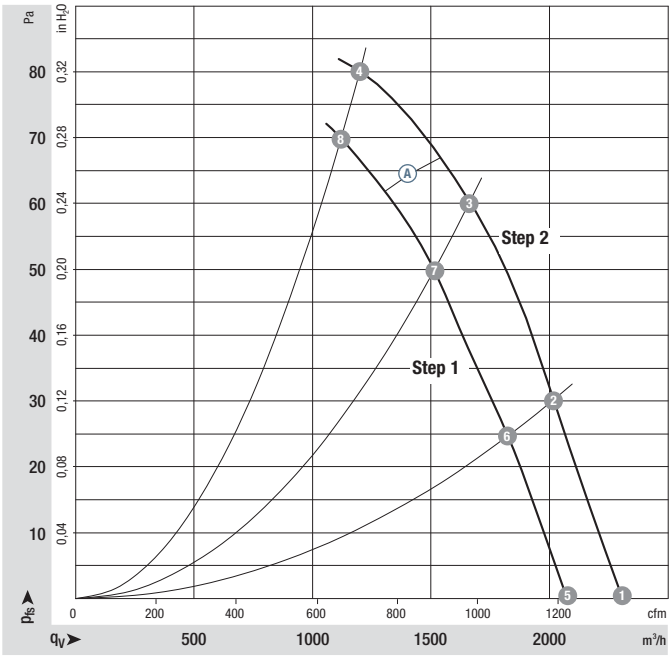
- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Surface thick layer passivated
  Electronics enclosure: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open Rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm(1)	Max. input power(1)	Max. current draw(1)	Max. back pressure	Perm. amb. temp.	Technical features and electr. connection
Type	**Motor**		**VAC**	**Hz**	**rpm**	**W**	**A**	**Pa**	**°C**	
W3G300	M3G055-CF	Ⓐ	1~ 200-240	50/60	1580	83	0,8	80	-40..+40	p. 42 / H3)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

Curves:
2 Speed stages
Standard



		n rpm	Ped W	I A	LWA dB(A)
Ⓐ 1	Step 2	1685	74	0,70	68
Ⓐ 2	Step 2	1635	80	0,75	66
Ⓐ 3	Step 2	1580	83	0,79	64
Ⓐ 4	Step 2	1580	83	0,80	62
Ⓐ 5	Step 1	1515	54	0,53	65
Ⓐ 6	Step 1	1470	59	0,57	64
Ⓐ 7	Step 1	1435	63	0,61	63
Ⓐ 8	Step 1	1390	68	0,65	60

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

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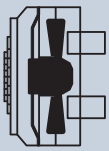
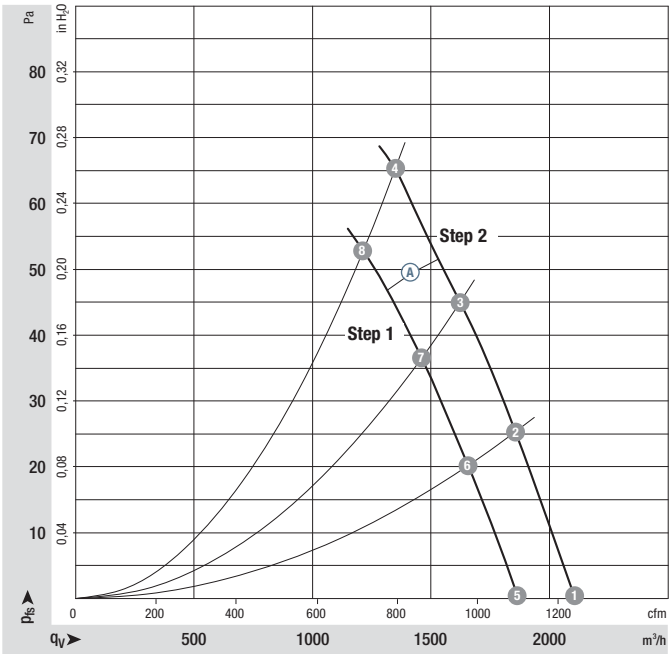
- **Technical features:** See electrical connections p. 42
- **EMC:** Interference emission acc. to EN 61000-6-3
  Interference immunity acc. to EN 61000-6-2
  Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W3G300-JK13 -30**	2,7	**W3G300-TK13 -30**	2,9	**W3G300-UK13 -30**	3,2	**W3G300-WK13 -30**	3,4

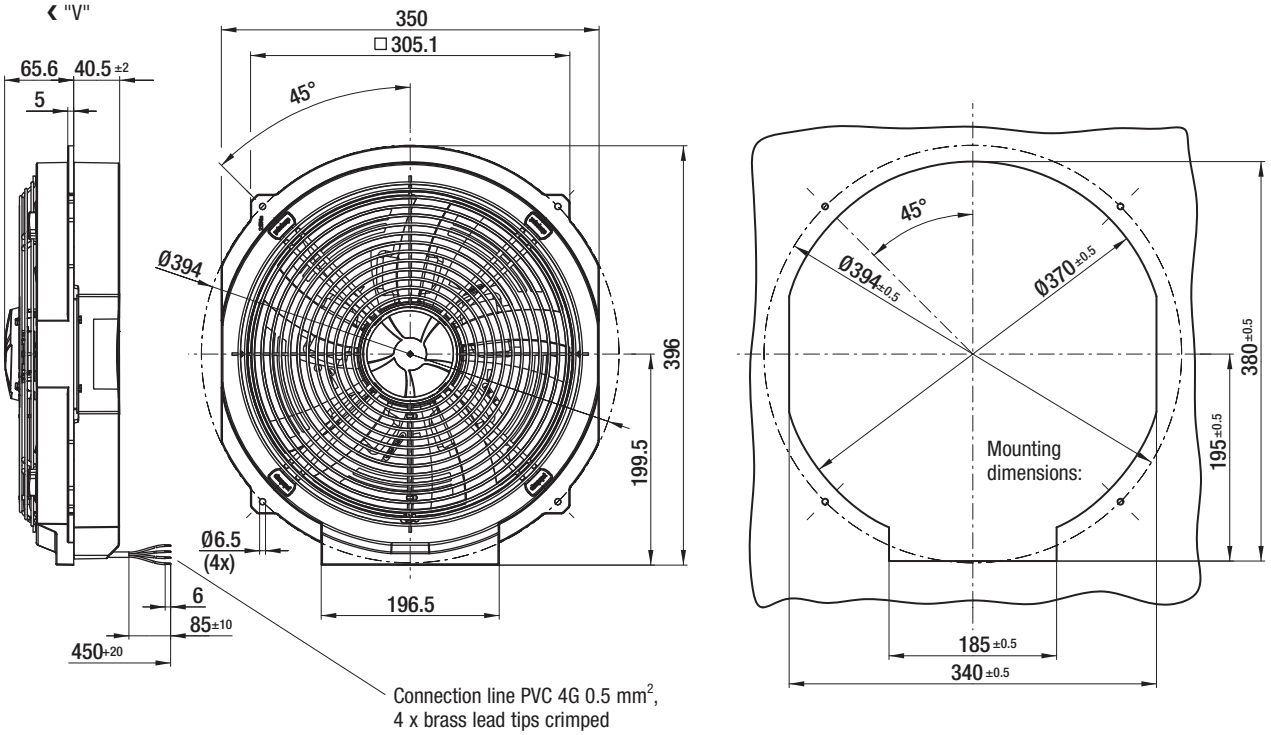
Curves:
2 Speed stages with air-guiding system



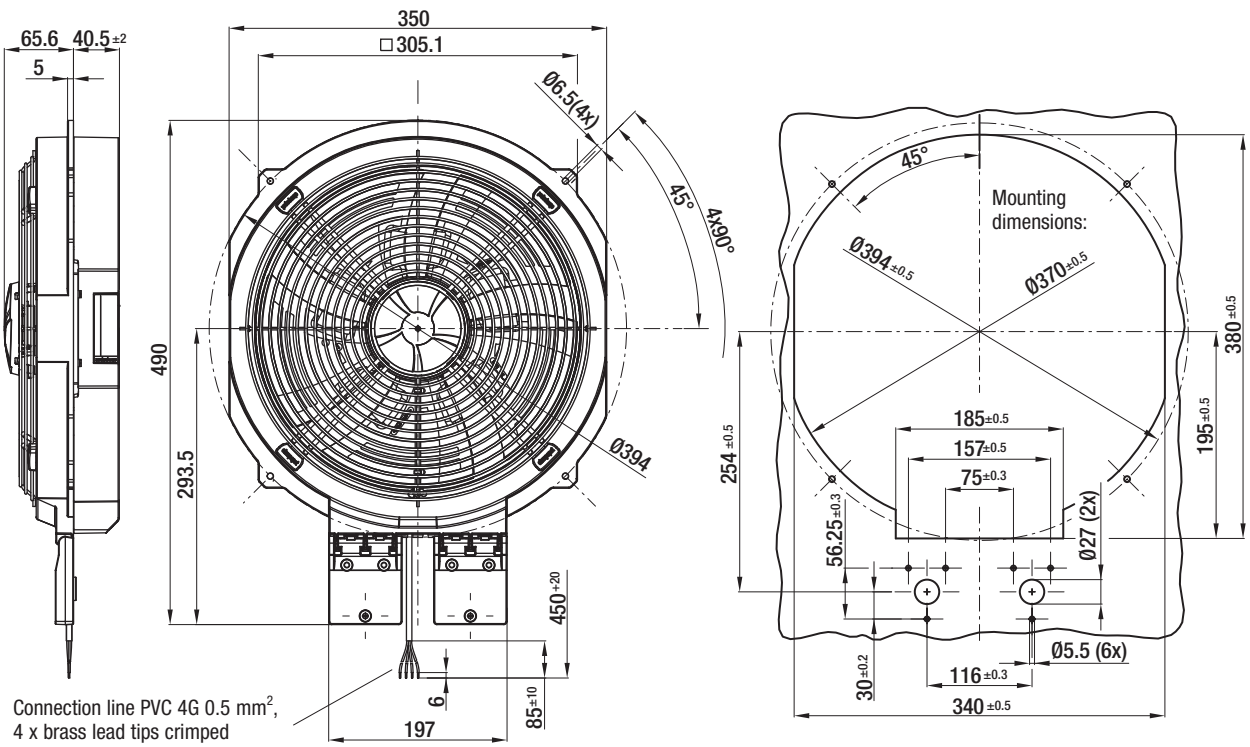
		n rpm	P_{ed} W	I A	L_WA dB(A)
A 1	Step 2	1630	77	0,69	69
A 2	Step 2	1600	81	0,71	68
A 3	Step 2	1580	83	0,72	67
A 4	Step 2	1580	83	0,80	67
A 5	Step 1	1460	55	0,49	66
A 6	Step 1	1435	58	0,53	65
A 7	Step 1	1415	61	0,56	64
A 8	Step 1	1395	63	0,57	65

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

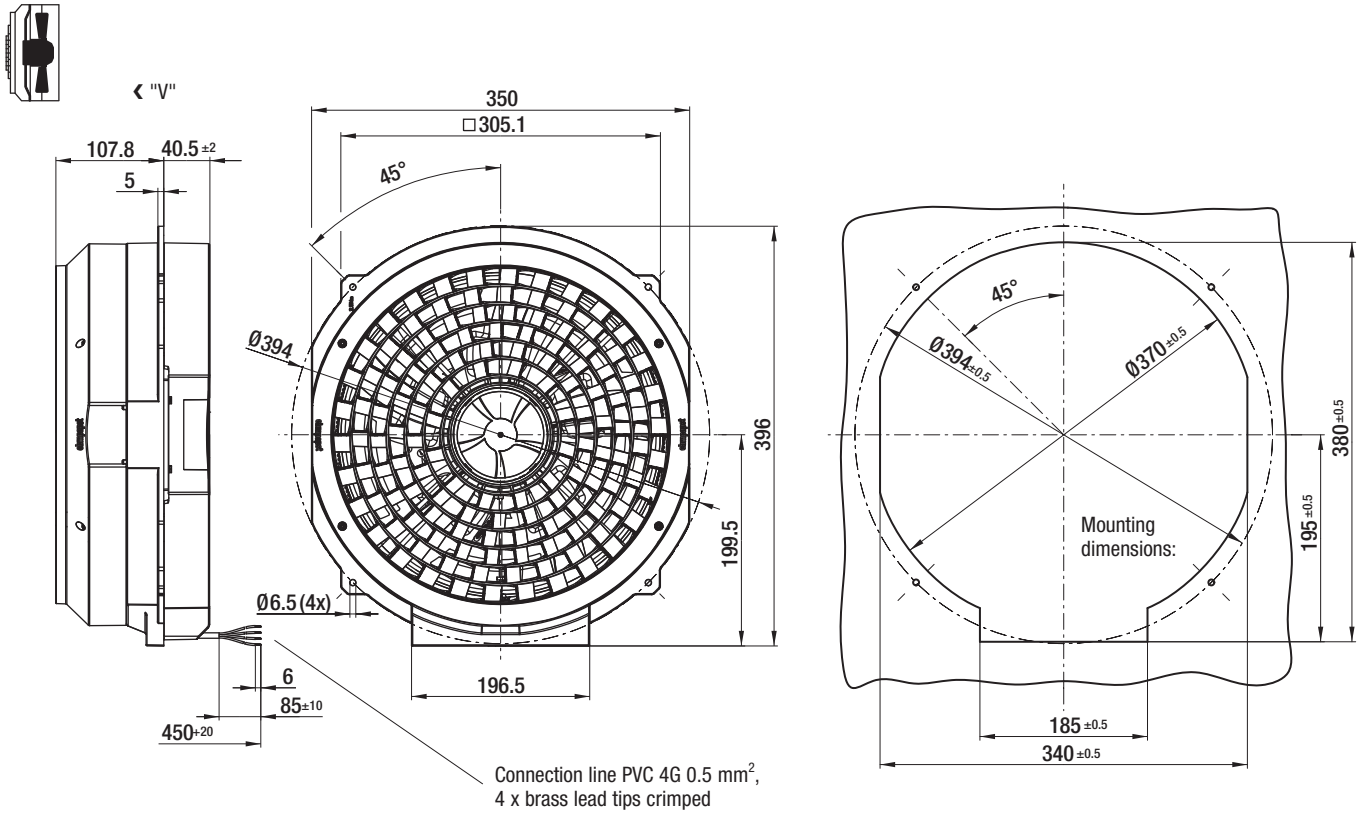
W3G 300-JK13-30 (Standard version)



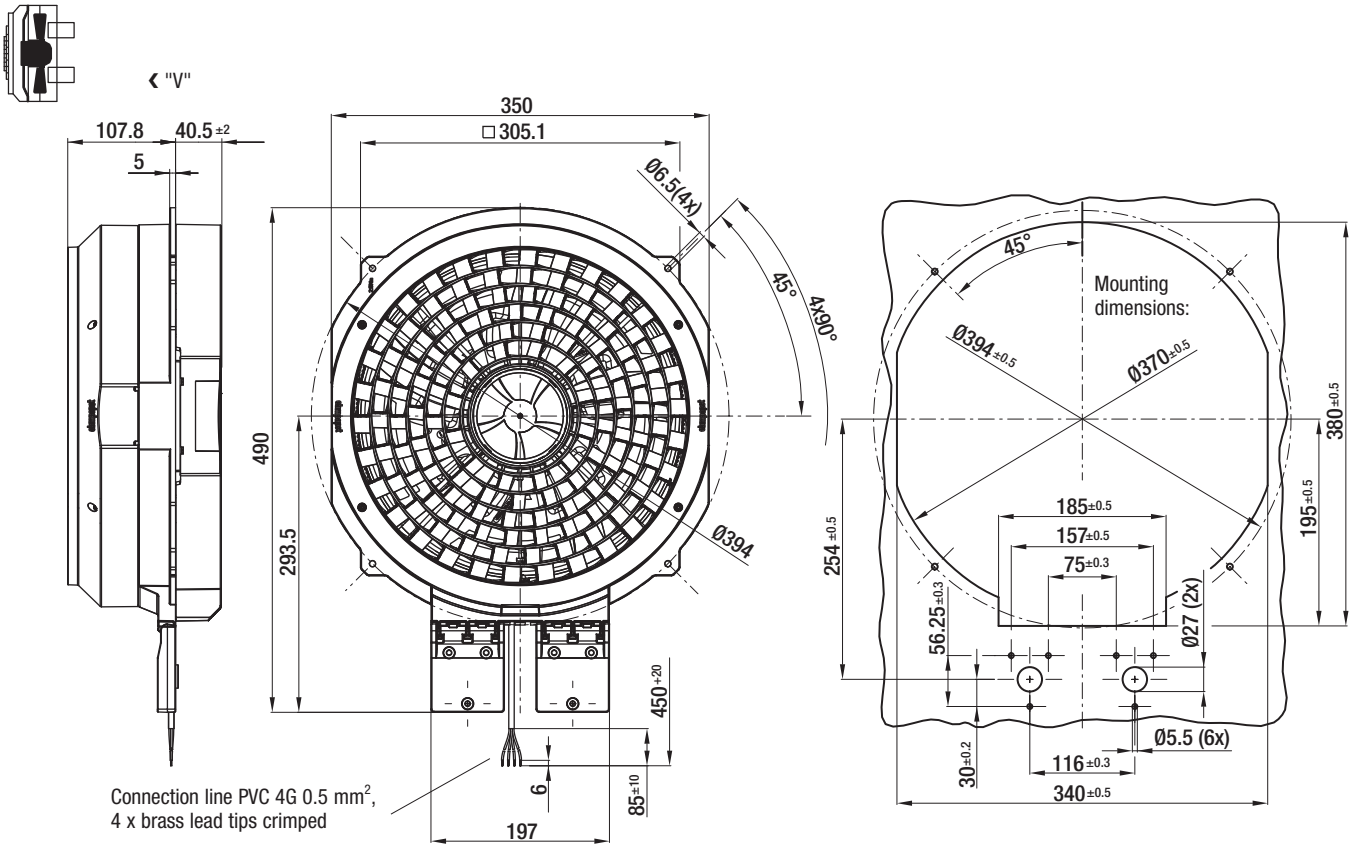
W3G 300-TK13-30 (Version with hinge)



W3G 300-UK13-30 (Version with air-guiding system)



W3G 300-WK13-30 (Version with hinge and air-guiding system)



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EC axial fans – AxiCool

Ø 350, 2 Speed stages

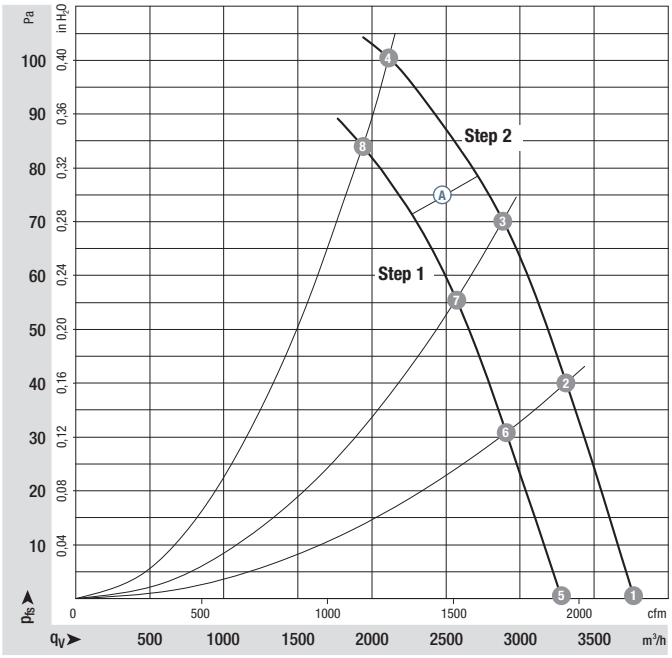
- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Surface thick layer passivated
  Electronics enclosure: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open Rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm(1)	Max. input power(1)	Max. current draw(1)	Max. back pressure	Perm. amb. temp.	Technical features and electr. connection
Type	**Motor**		**VAC**	**Hz**	**rpm**	**W**	**A**	**Pa**	**°C**	
W3G350	M3G074-CF	Ⓐ	1~ 200-240	50/60	1475	165	1,35	100	-40..+40	p. 42 / H3)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

Curves:
2 Speed stages
Standard



		n rpm	Ped W	I A	LWA dB(A)
Ⓐ 1	Step 2	1610	153	1,27	70
Ⓐ 2	Step 2	1585	165	1,35	68
Ⓐ 3	Step 2	1540	165	1,35	67
Ⓐ 4	Step 2	1475	165	1,35	66
Ⓐ 5	Step 1	1405	102	0,87	66
Ⓐ 6	Step 1	1385	112	0,95	65
Ⓐ 7	Step 1	1370	118	1,00	64
Ⓐ 8	Step 1	1350	126	1,06	64

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

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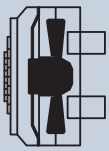
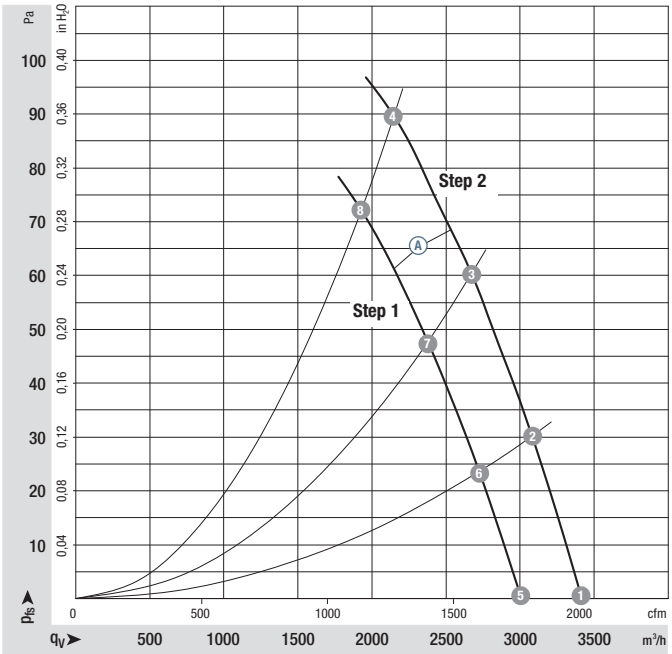
– **Technical features:** See electrical connections p. 42
– **EMC:** Interference emission acc. to EN 61000-6-3
Interference immunity acc. to EN 61000-6-2
On account of the installation conditions, ferritic damping in the connection line may be required for the application.
– **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
– **Cable exit:** Variable
– **Protection class:** I (if customer has provided connection for protective earth)
– **Product conforming to standards:** EN 60335-1, CE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W3G350-JN01 -30**	4,0	**W3G350-TN01 -30**	4,2	**W3G350-SN01 -30**	5,2	**W3G350-WN01-30**	5,4

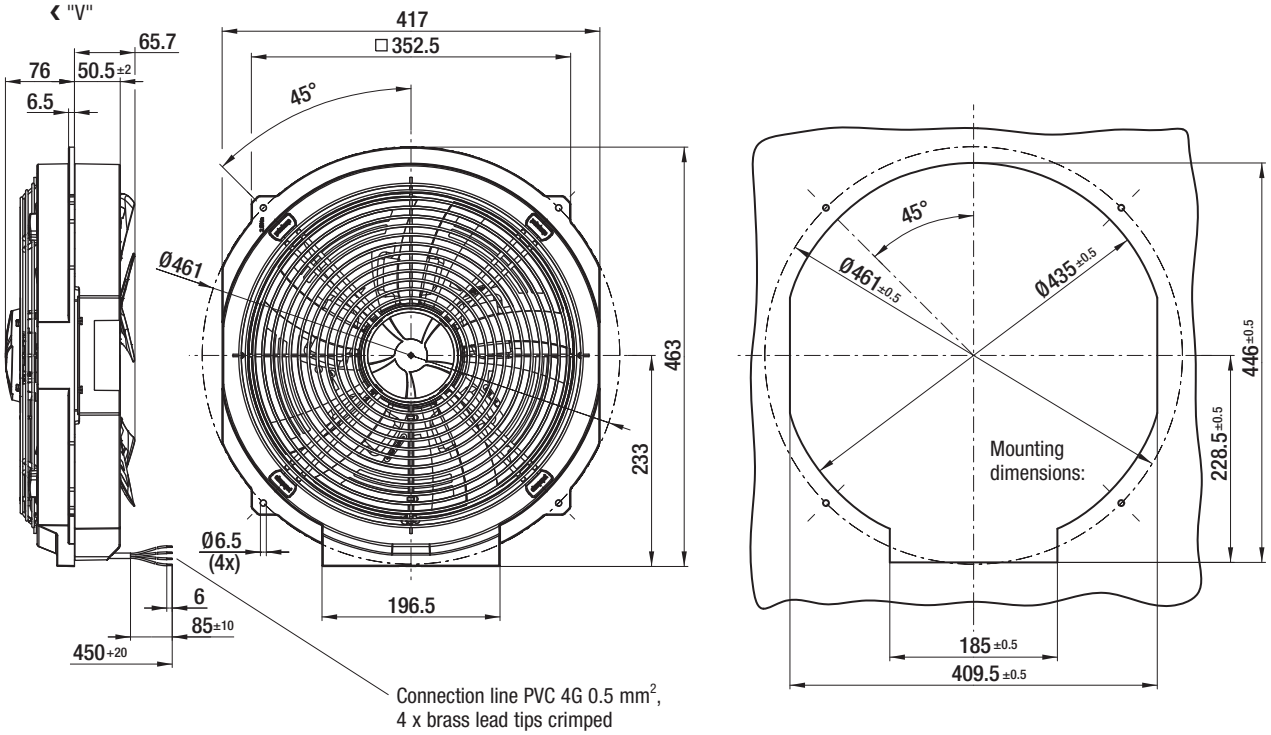
Curves: 2 Speed stages with air-guiding system



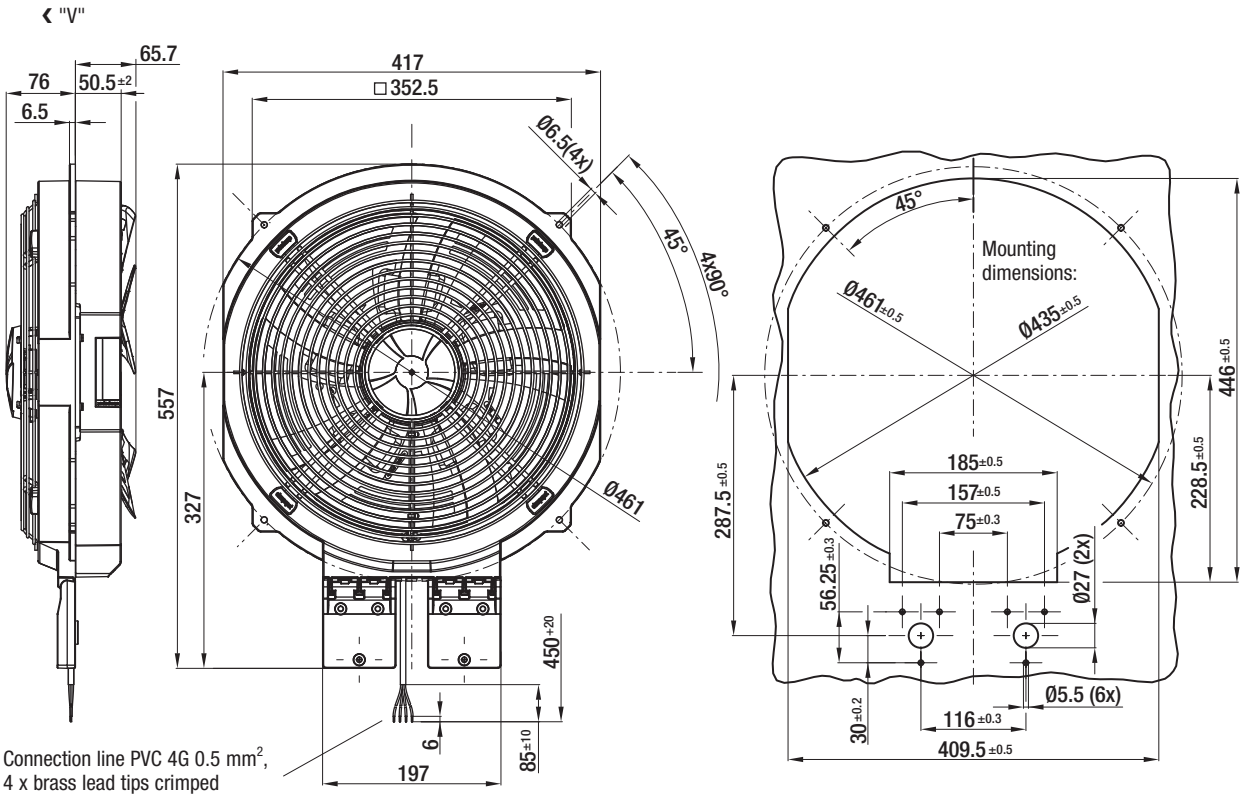
		n rpm	P_{ed} W	I A	L_WA dB(A)
A 1	Step 2	1560	151	1,25	72
A 2	Step 2	1545	159	1,32	71
A 3	Step 2	1520	165	1,35	71
A 4	Step 2	1475	165	1,35	72
A 5	Step 1	1380	105	0,90	69
A 6	Step 1	1365	111	0,94	68
A 7	Step 1	1350	116	0,98	68
A 8	Step 1	1345	118	1,00	69

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

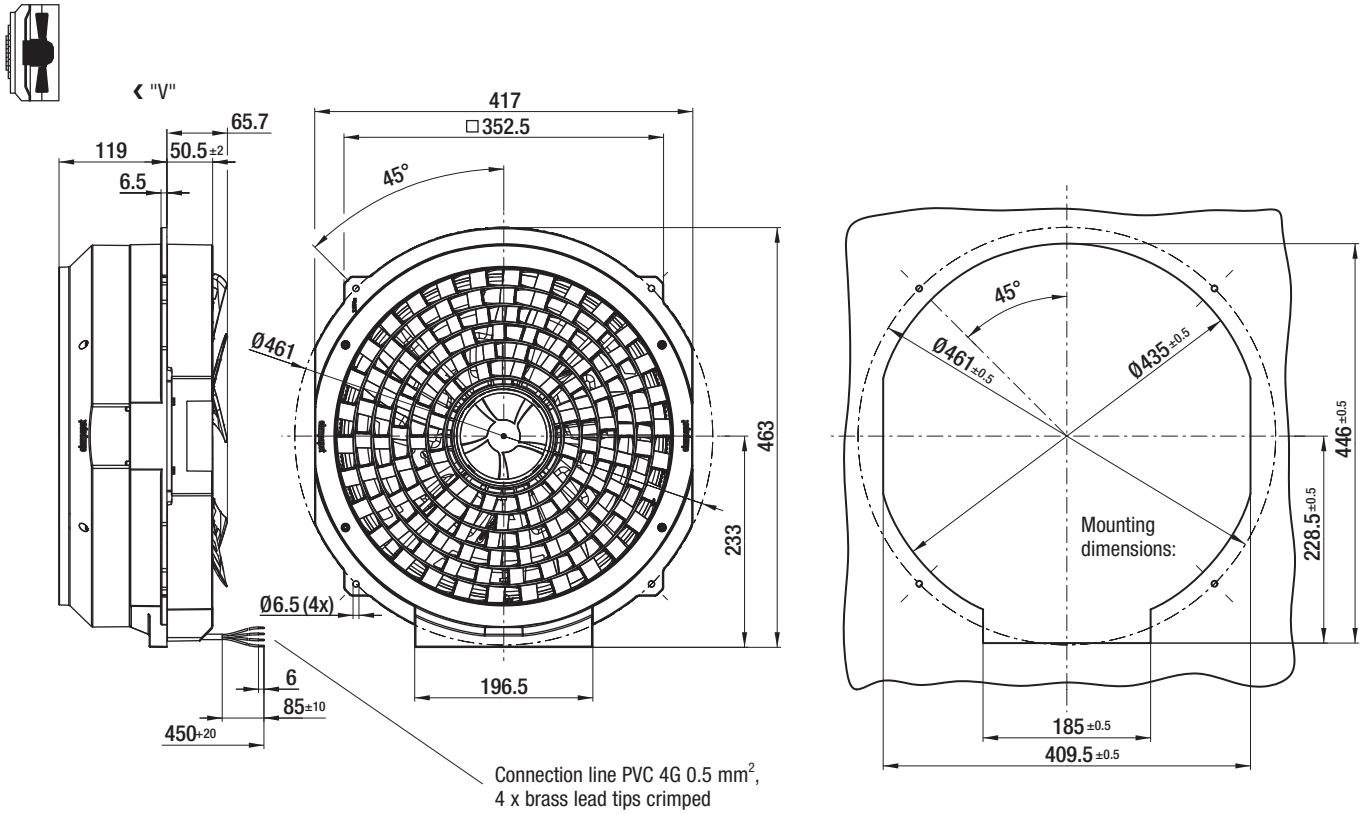
W3G 350-JN01-30 (Standard version)



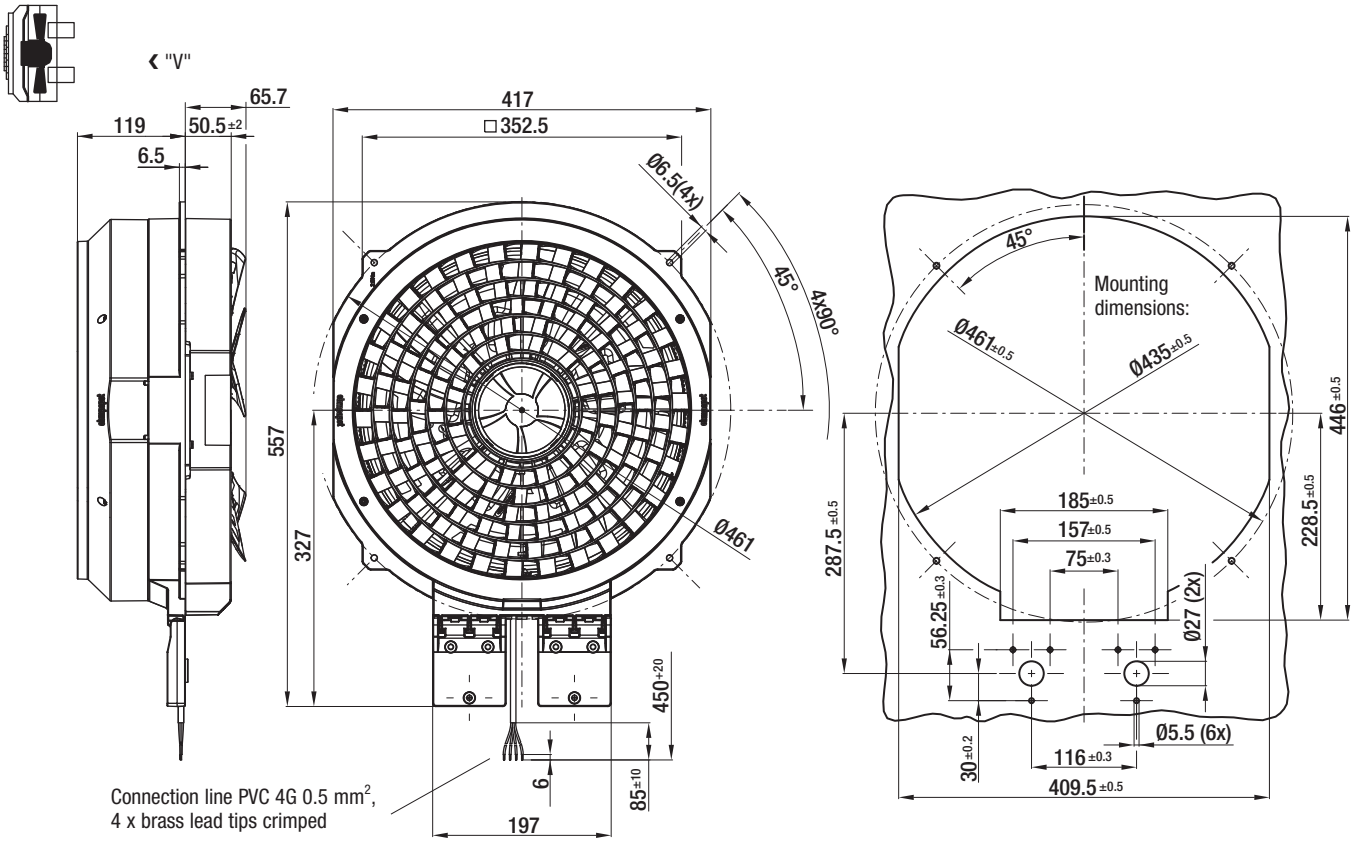
W3G 350-TN01-30 (Version with hinge)



W3G 350-SN01-30 (Version with air-guiding system)



W3G 350-WN01-30 (Version with hinge and air-guiding system)



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EC axial fans – AxiCool

Ø 450, 2 Speed stages

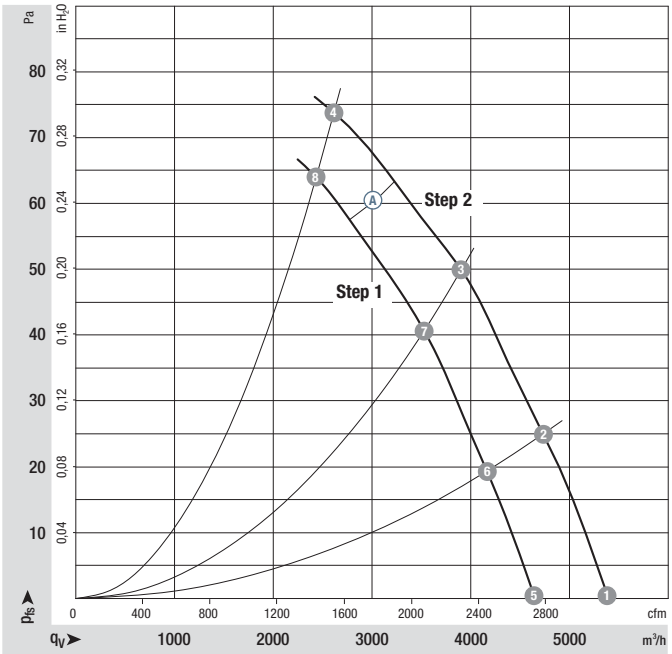
- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Surface thick layer passivated
  Electronics enclosure: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Any
- **Condensate discharges:** None, open Rotor
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm(1)	Max. input power(1)	Max. current draw(1)	Max. back pressure	Perm. amb. temp.	Technical features and electr. connection
Type	**Motor**		**VAC**	**Hz**	**rpm**	**W**	**A**	**Pa**	**°C**	
W3G450	M3G074-DF	Ⓐ	1~ 200-240	50/60	980	163	1,34	74	-40..+40	p. 42 / H3)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

Curves:
2 Speed stages
Standard



		n rpm	Ped W	I A	LWA dB(A)
Ⓐ 1	Step 2	1105	163	1,34	69
Ⓐ 2	Step 2	1055	163	1,34	67
Ⓐ 3	Step 2	1015	163	1,34	63
Ⓐ 4	Step 2	980	163	1,34	68
Ⓐ 5	Step 1	955	104	0,89	65
Ⓐ 6	Step 1	935	114	0,97	63
Ⓐ 7	Step 1	920	121	1,03	61
Ⓐ 8	Step 1	895	129	1,09	67

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

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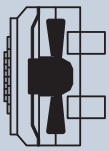
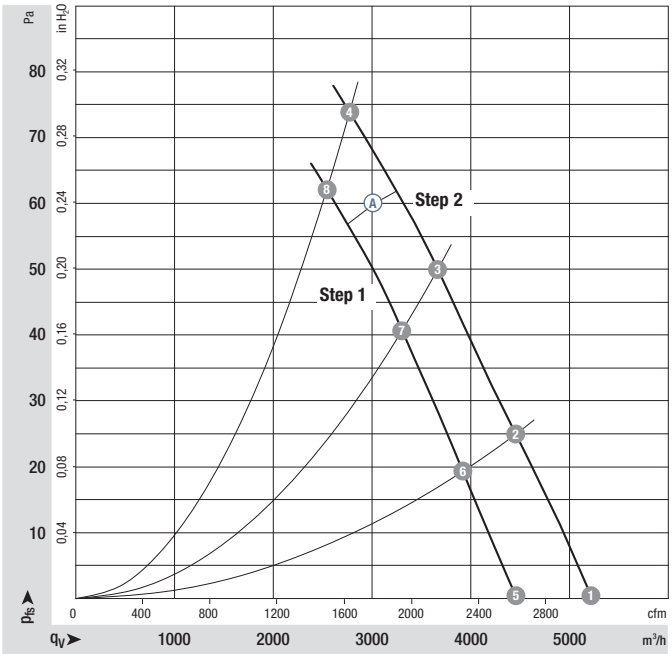
- **Technical features:** See electrical connections p. 42
- **EMC:** Interference emission acc. to EN 61000-6-3
  Interference immunity acc. to EN 61000-6-2
  On account of the installation conditions, ferritic damping in the connection line may be required for the application.
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W3G450-J002 -30**	5,5	**W3G450-T002 -30**	5,7	**W3G450-S002 -30**	8,6	**W3G450-W002-30**	8,8

Curves: 2 Speed stages with air-guiding system



		n rpm	Ped W	I A	LWA dB(A)
A 1	Step 2	1090	163	1,34	70
A 2	Step 2	1045	163	1,34	69
A 3	Step 2	1000	163	1,34	66
A 4	Step 2	980	163	1,34	68
A 5	Step 1	935	104	0,89	66
A 6	Step 1	920	112	0,96	65
A 7	Step 1	905	120	1,02	63
A 8	Step 1	890	127	1,07	65

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_{WA} as per ISO 13347, L_{pA} measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

ErP2015 EXCEEDS THE NORM

EC axial fans – AxiCool

Ø 450, Speed-controlled

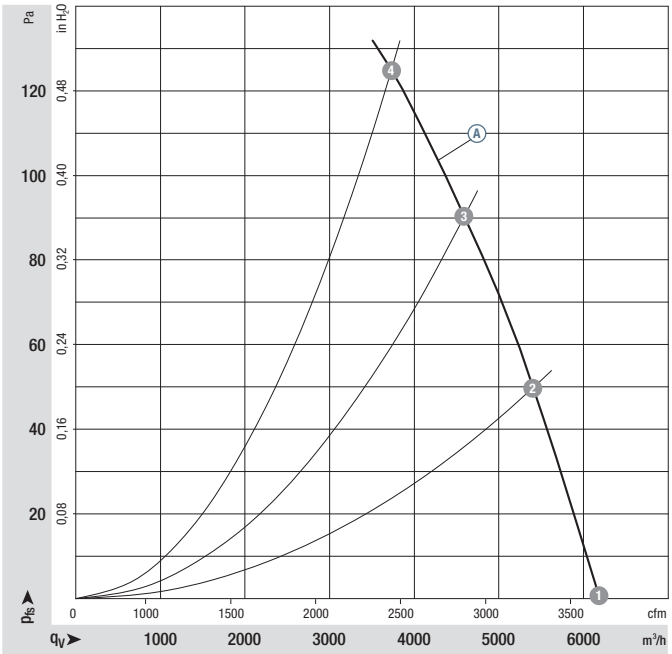
- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Surface thick layer passivated
  Electronics enclosure: Die-cast aluminium
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 54
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** Rotor-side
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

Nominal data		Curve	Nominal voltage range	Frequency	Speed/rpm(1)	Max. input power(1)	Max. current draw(1)	Max. back pressure	Perm. amb. temp.	Technical features and electr. connection
Type	**Motor**		**VAC**	**Hz**	**rpm**	**W**	**A**	**Pa**	**°C**	
W3G450	M3G084-FA	Ⓐ	1~ 200-277	50/60	1300	345	2,2	125	-25..+40	p. 43 / K1)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

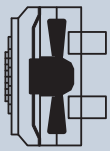
Curves: Speed-controlled Standard



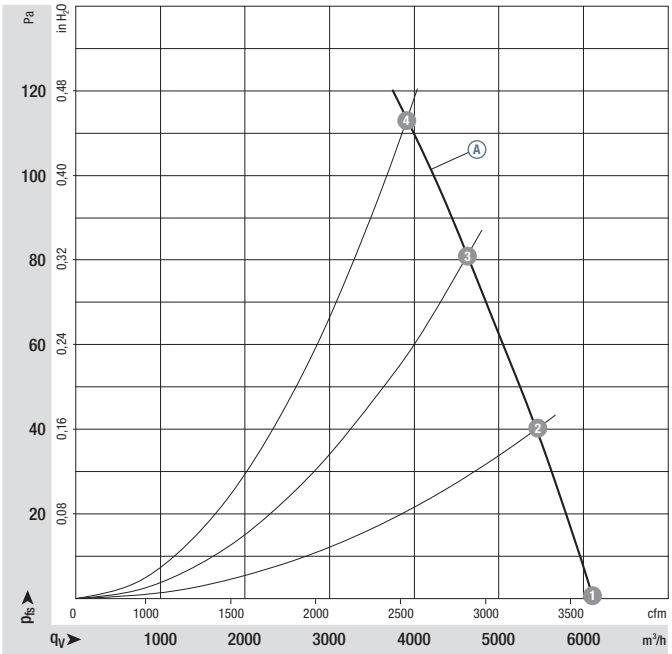
		n rpm	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	1315	265	1,77	70
Ⓐ	2	1310	300	1,99	68
Ⓐ	3	1310	323	2,13	67
Ⓐ	4	1300	345	2,20	69

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

- **Technical features:** See electrical connections p. 43
- **EMC:** Interference emission acc. to EN 61000-6-3
  Interference immunity acc. to EN 61000-6-2
  Harmonics acc. to EN 61000-3-2/3
- **Touch current:** < 3,5 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W3G450-JC28 -30**	7,5	**W3G450-TC28 -30**	7,7	**W3G450-SC28 -30**	10,6	**W3G450-WC28-30**	10,8

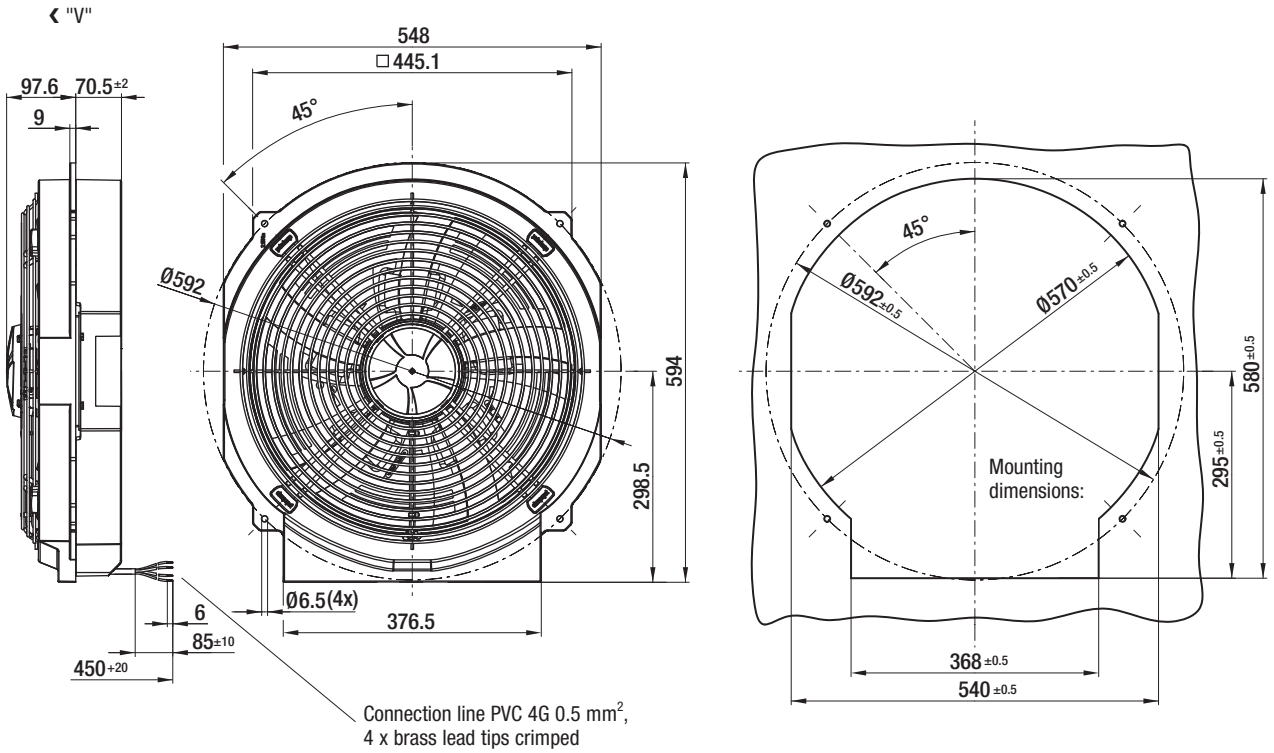
Curves: Speed-controlled with air-guiding system



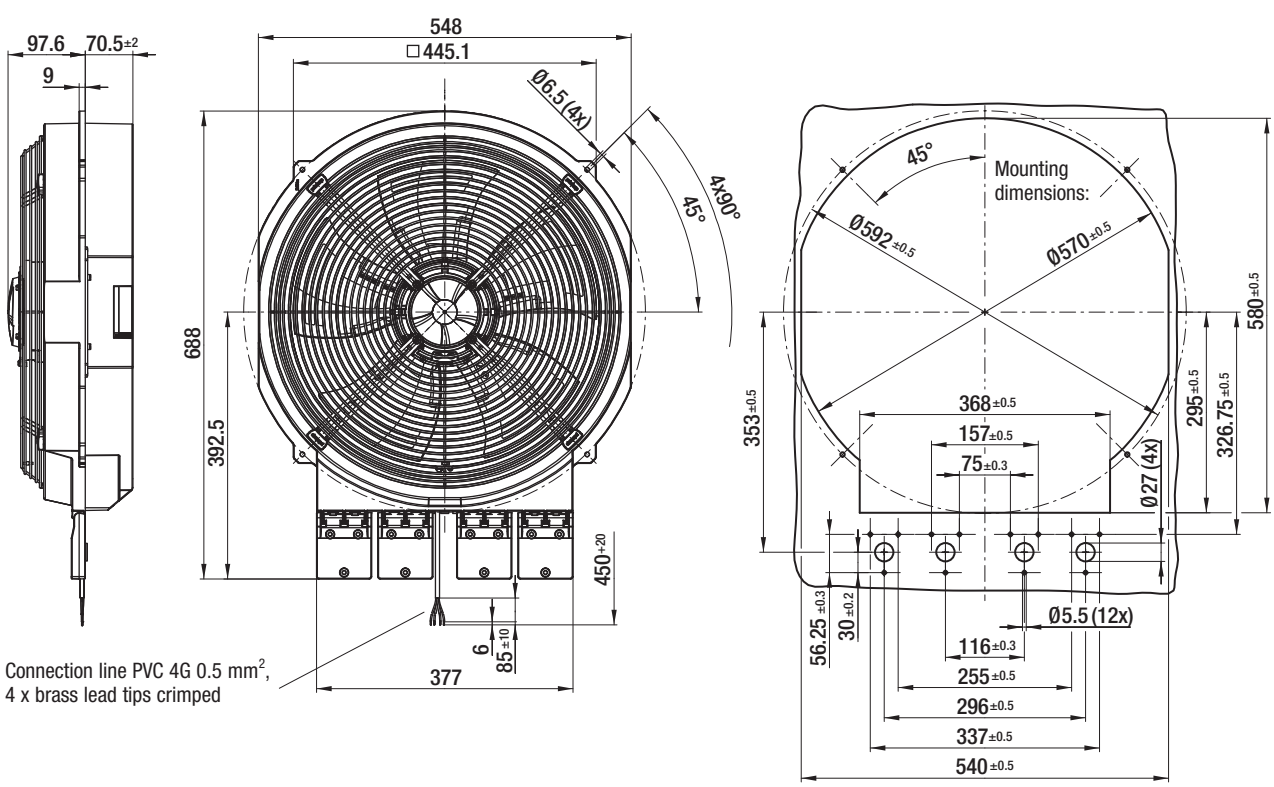
		n rpm	P_{ed} W	I A	L_WA dB(A)
A	1	1300	267	1,77	73
A	2	1300	296	1,96	71
A	3	1300	322	2,12	71
A	4	1300	345	2,20	72

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

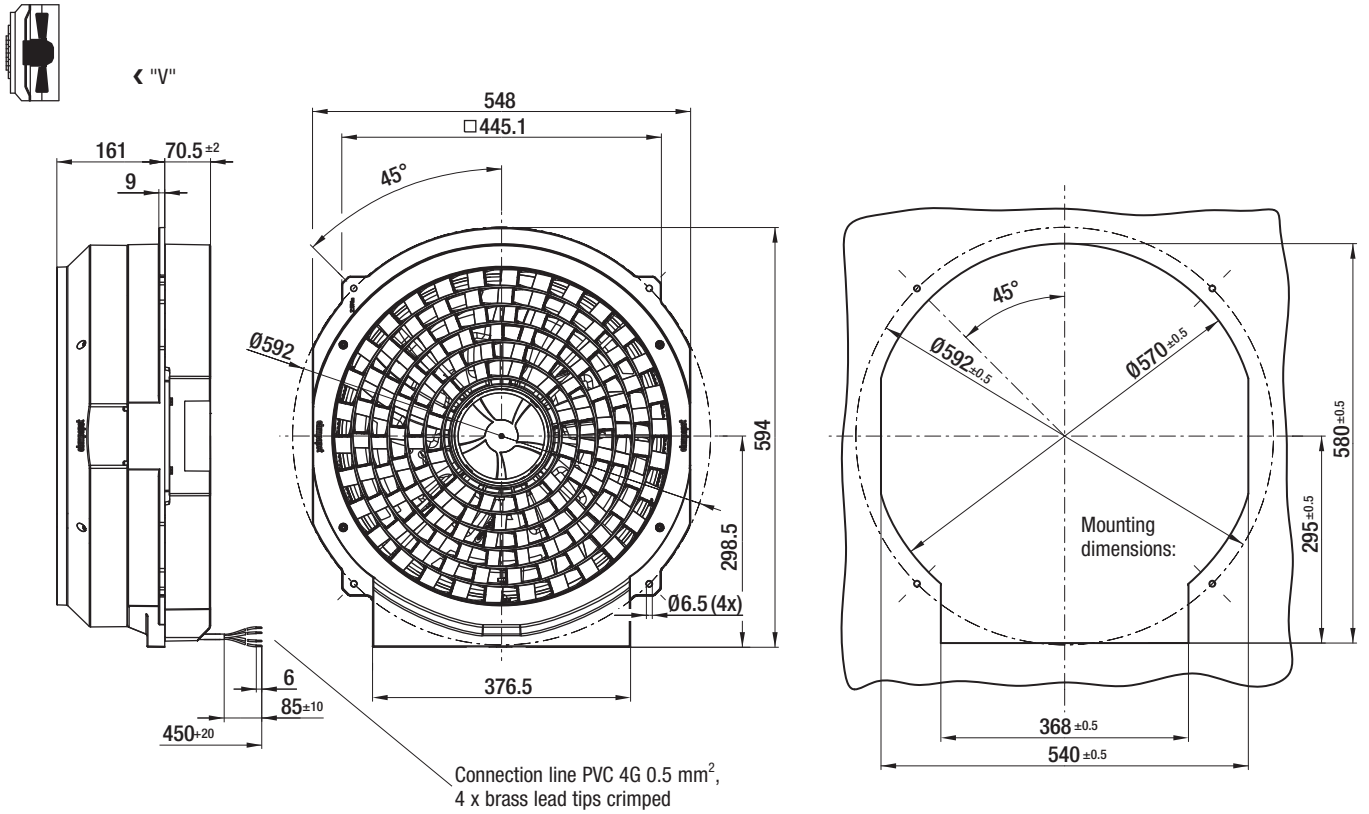
W3G 450-J002-30 (Standard version)



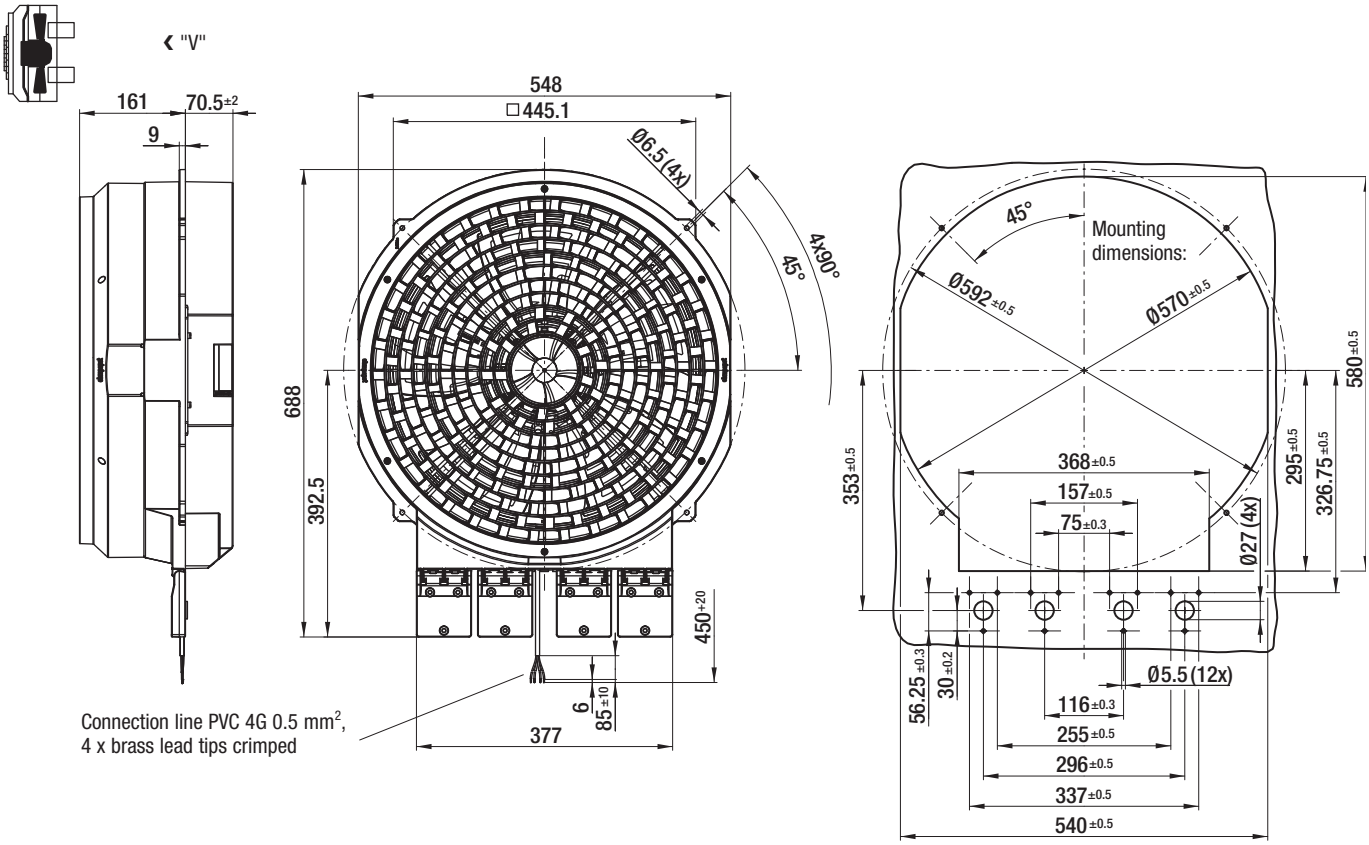
W3G 450-T002-30 (Version with hinge)



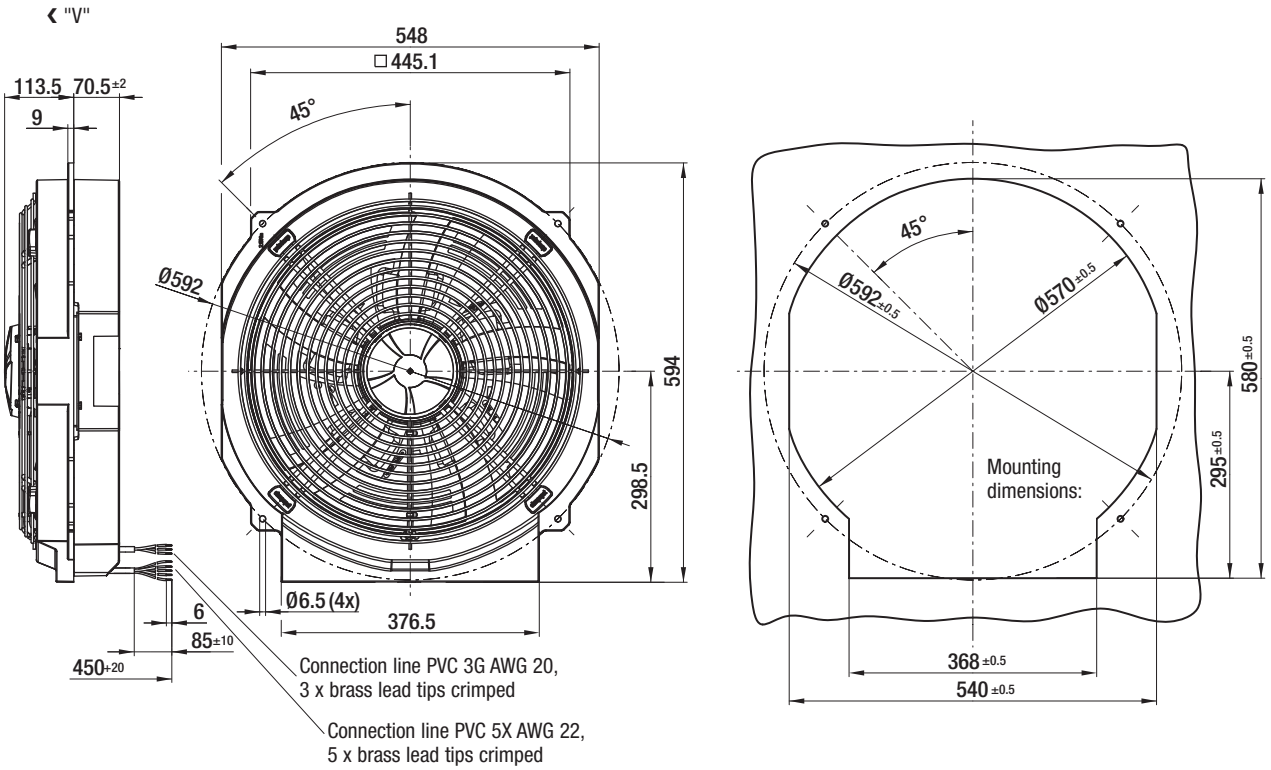
W3G 450-SO02-30 (Version with air-guiding system)



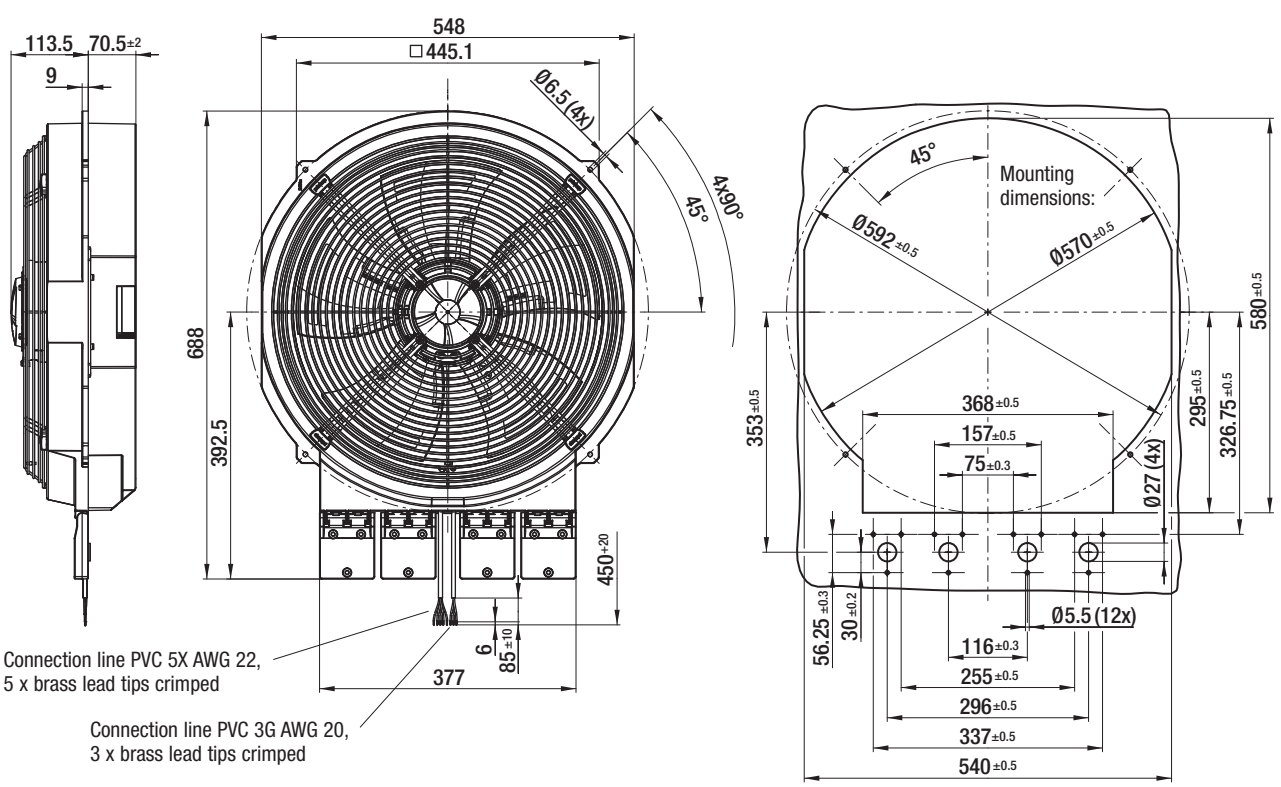
W3G 450-WO02-30 (Version with hinge and air-guiding system)



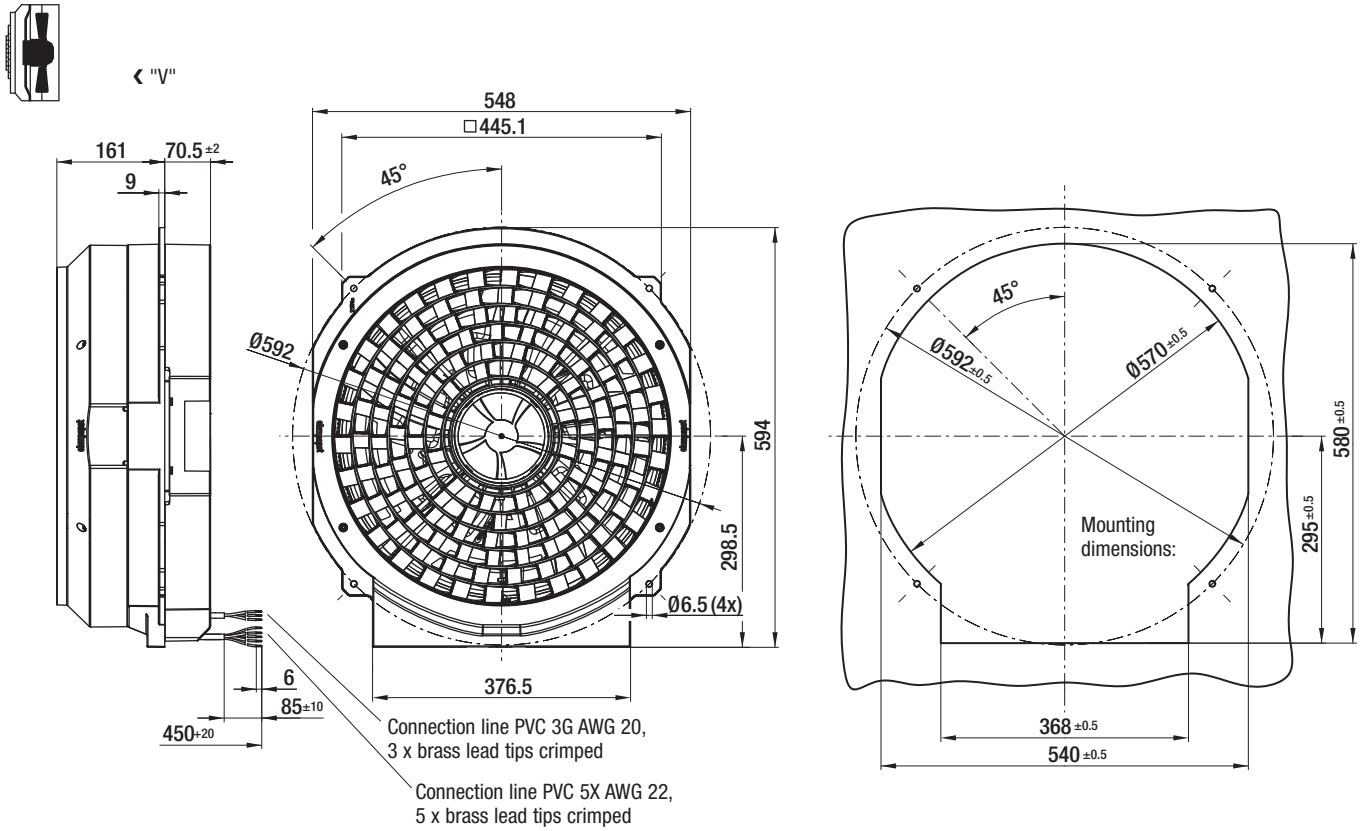
W3G 450-JC28-30 (Standard version)



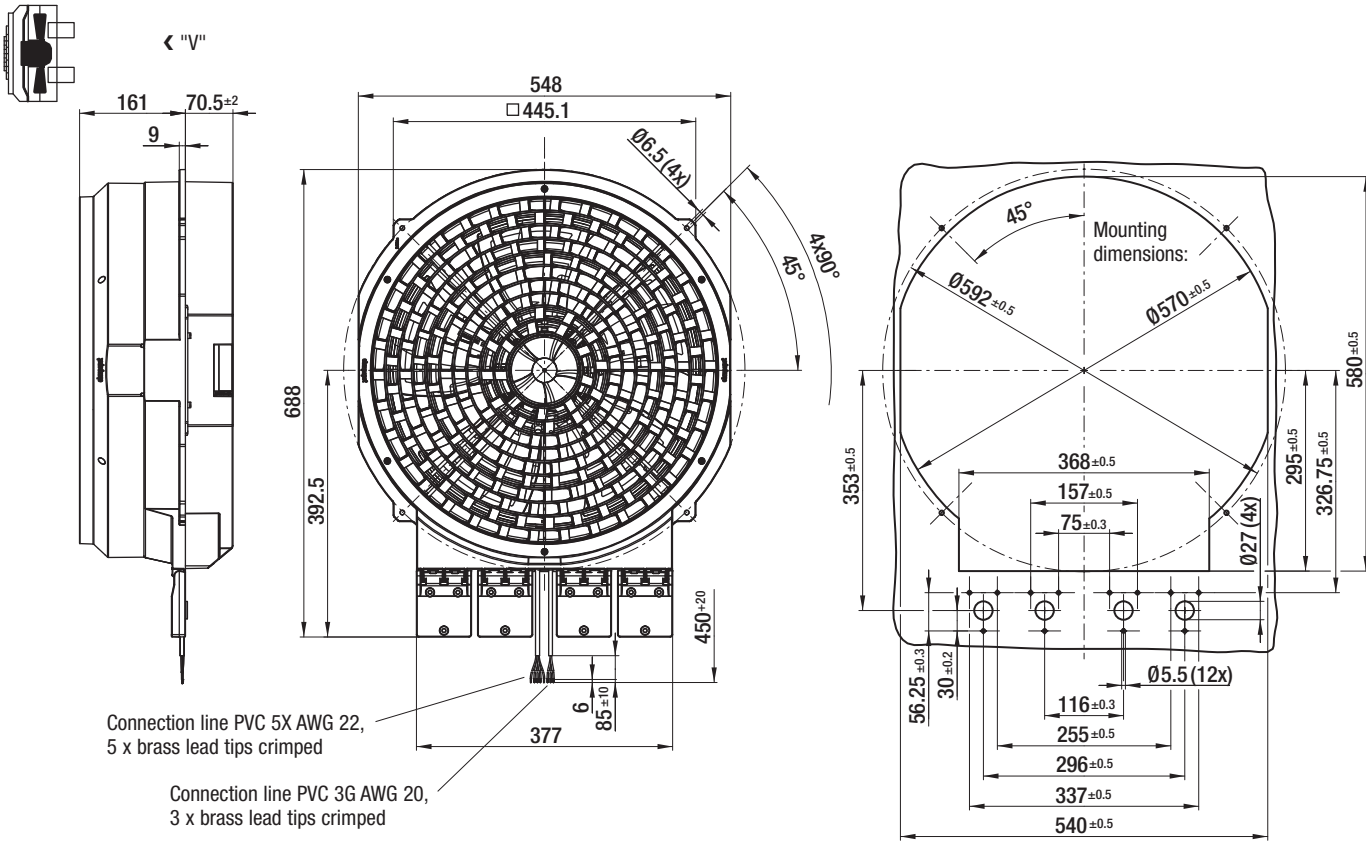
W3G 450-TC28-30 (Version with hinge)



W3G 450-SC28-30 (Version with air-guiding system)



W3G 450-WC28-30 (Version with hinge and air-guiding system)



AC axial fans – AxiCool

ErP2015 EXCEEDS THE NORM

AC axial fans – AxiCool

Ø 300

- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Coated in black
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position (acc. to EN 60034-5)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

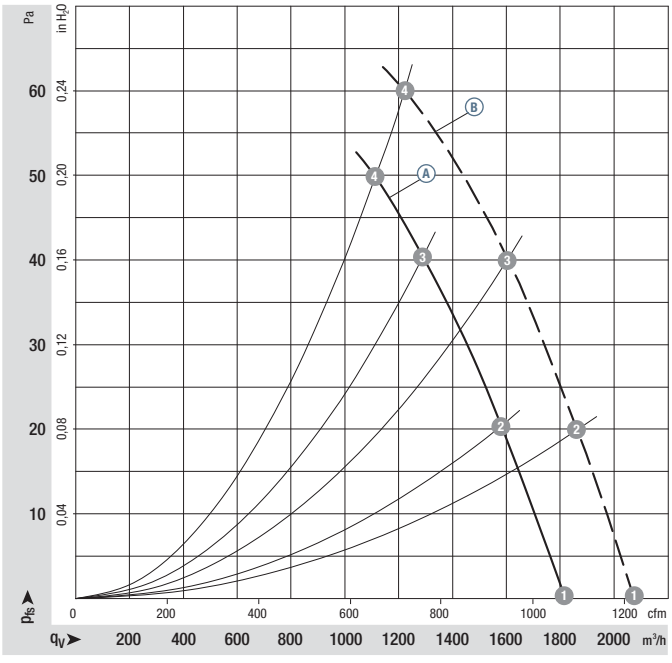
Nominal data

Type	Motor	Curve	Nominal voltage VAC	Frequency Hz	Speed/rpm(1) rpm	Max. input power(1) W	Max. current draw(1) A	Capacitor µF/VDB	Max. back pressure Pa	Perm. amb. temp. °C	Electr. connection
W4E 300	M4E 068-CF	Ⓐ	1~230	50	1320	72	0,32	2,0/400	50	-40..+50	p. 44 / A1)
		Ⓑ	1~230	60	1500	90	0,40	2,0/400	60	-40..+50	

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

Curves: Standard

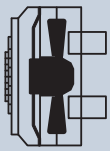


		n rpm	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	1370	62	0,29	61
Ⓐ	2	1350	65	0,30	60
Ⓐ	3	1325	69	0,31	59
Ⓐ	4	1320	72	0,32	59
Ⓑ	1	1570	78	0,34	65
Ⓑ	2	1535	83	0,36	64
Ⓑ	3	1500	87	0,38	62
Ⓑ	4	1500	90	0,40	61

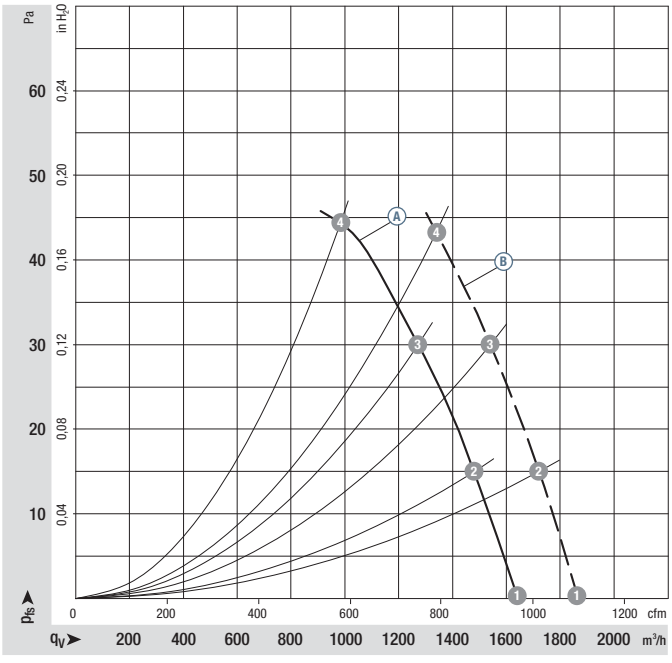
Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

ebmpapst

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W4E 300-JS72 -30**	4,5	**W4E 300-TS72 -30**	4,7	**W4E 300-SS72 -30**	5,0	**W4E 300-WS72 -30**	5,2

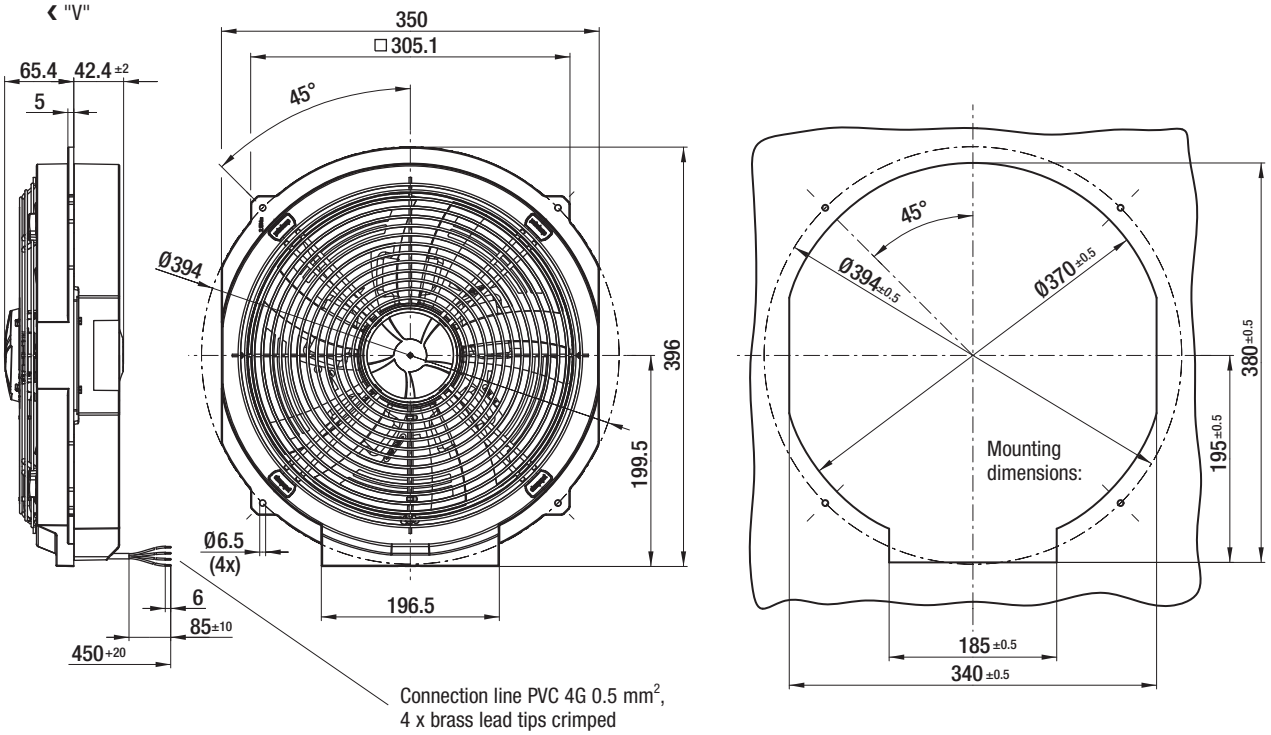
Curves: with air-guiding system



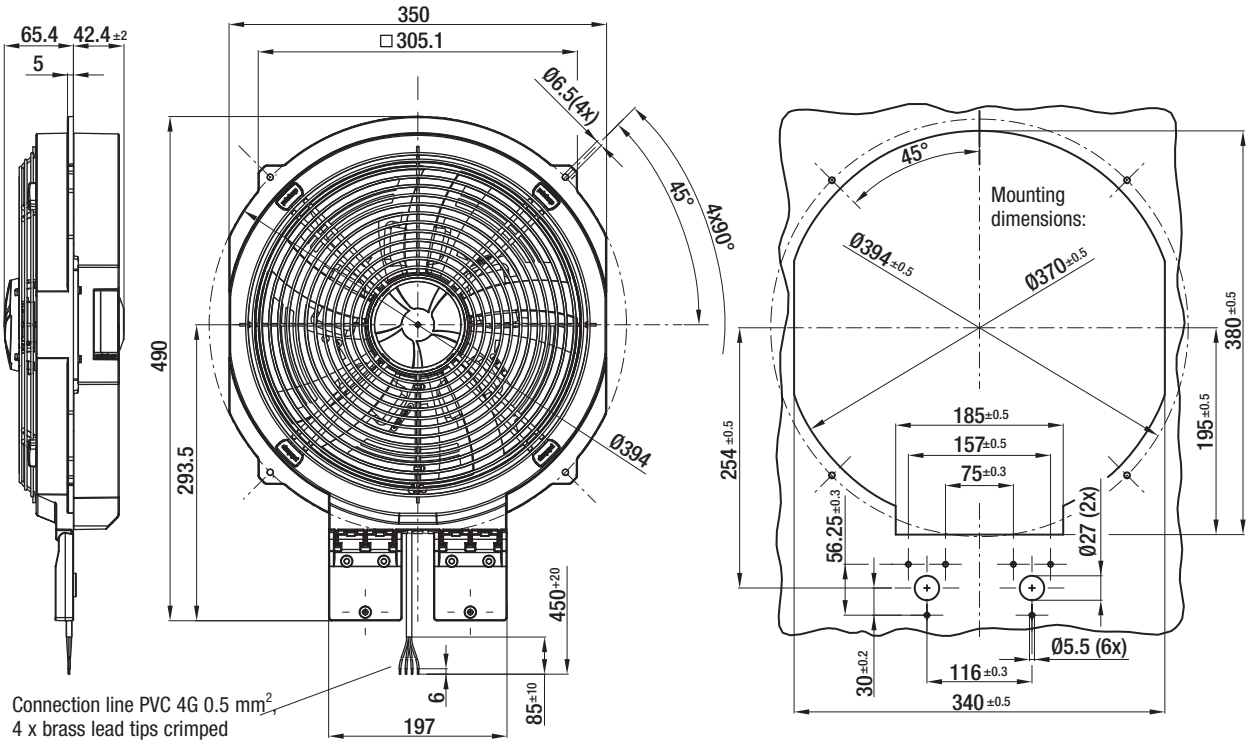
		n rpm	P_{ed} W	I A	L_WA dB(A)
A	1	1355	65	0,29	63
A	2	1345	66	0,30	62
A	3	1330	68	0,31	62
A	4	1320	72	0,32	64
B	1	1530	84	0,36	66
B	2	1515	85	0,37	65
B	3	1500	87	0,38	65
B	4	1500	90	0,40	65

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

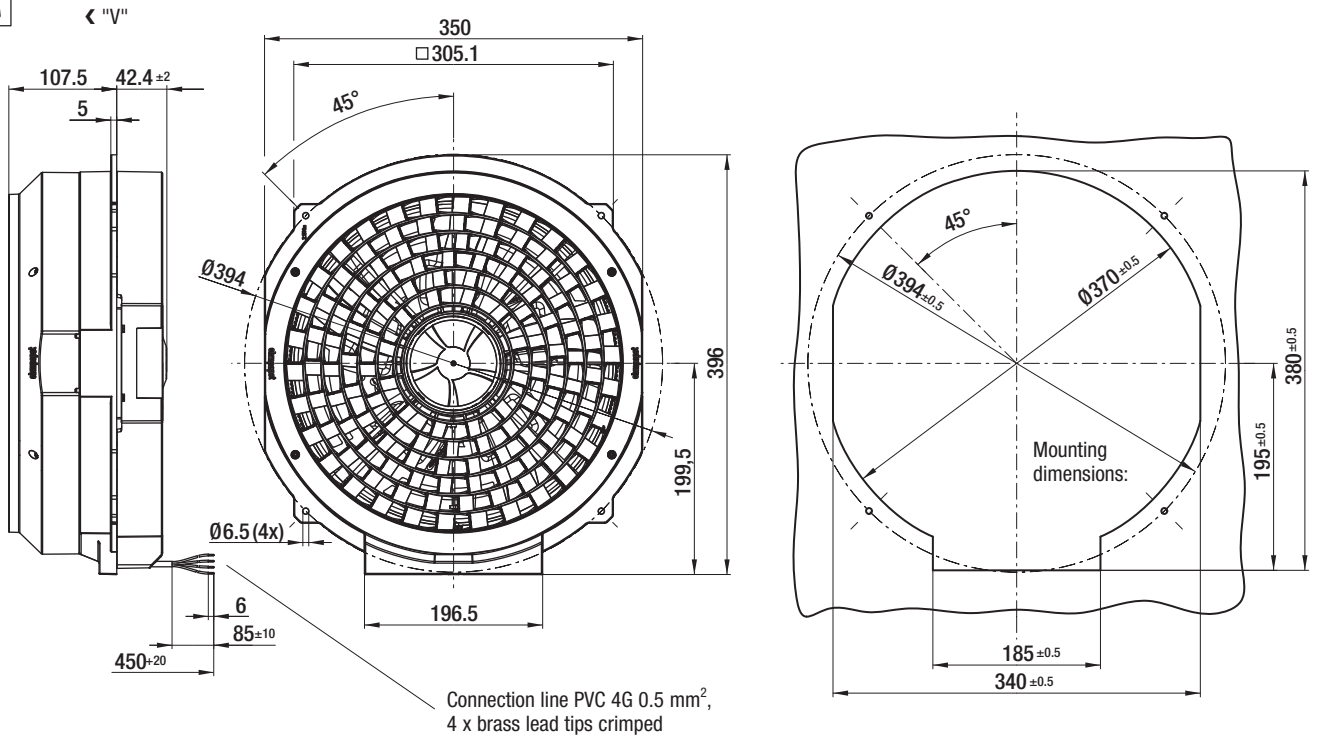
W4E 300-JS72-30 (Standard version)



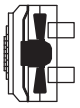
W4E 300-TS72-30 (Version with hinge)

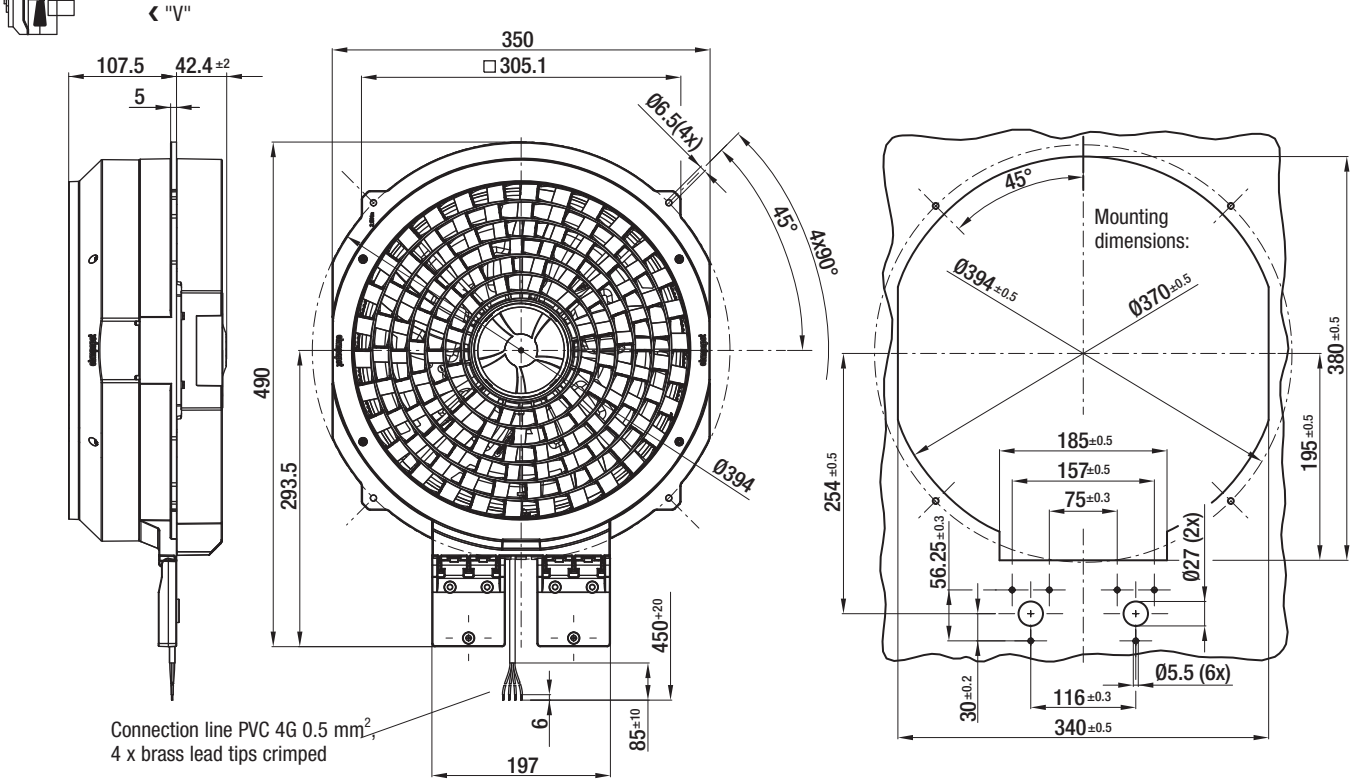


W4E 300-SS72-30 (Version with air-guiding system)



W4E 300-WS72-30 (Version with hinge and air-guiding system)





AC axial fans – AxiCool

Ø 350

- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring, air-guiding system and blades: Plastic PP
  Rotor: Coated in black
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position (acc. to EN 60034-5)
- **Insulation class:** "B"
- **Mounting position:** Shaft horizontal or rotor on bottom; rotor on top on request
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

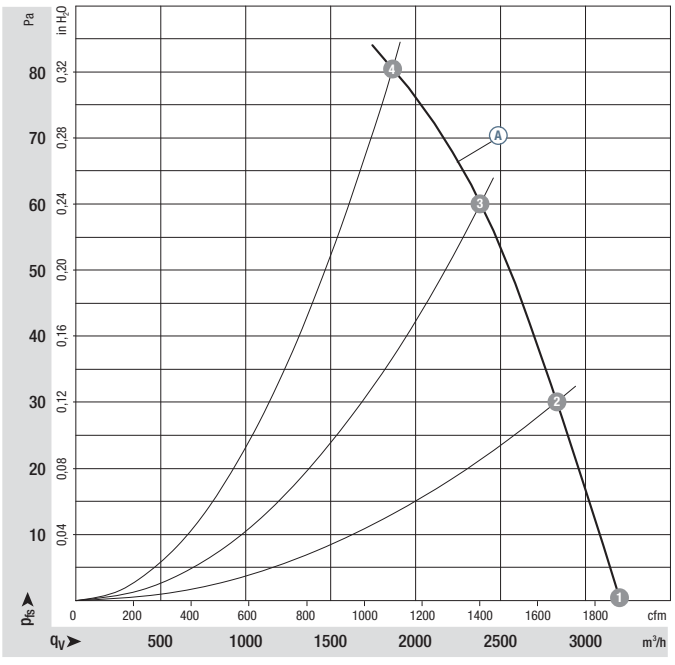
Nominal data

Type	Motor	Curve	Nominal voltage VAC	Frequency Hz	Speed/rpm(1) rpm	Max. input power(1) W	Max. current draw(1) A	Capacitor µF/VDB	Max. back pressure Pa	Perm. amb. temp. °C	Electr. connection
W4E 350	M4E 074-DF	Ⓐ	1~230	50	1340	165	0,73	4,0/400	80	-40..+45	p. 44 / A1)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

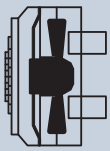
Curves: Standard



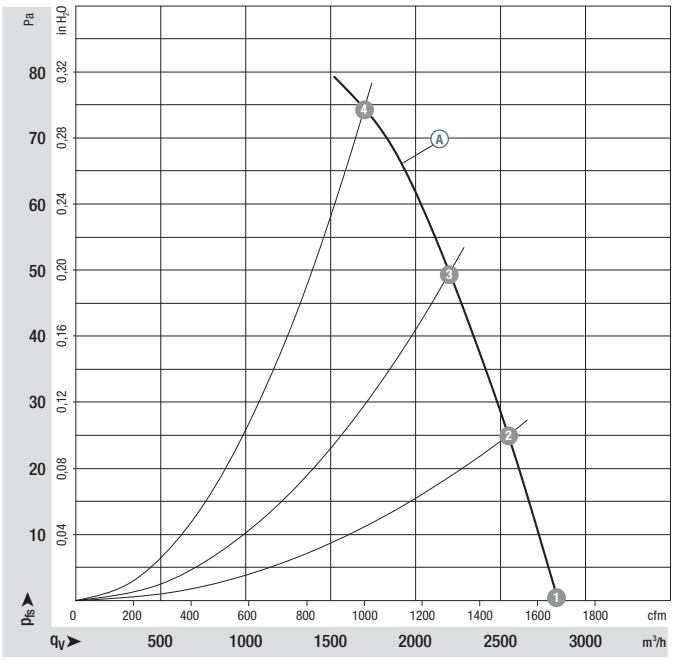
		n rpm	Ped W	I A	LWA dB(A)
Ⓐ	1	1400	127	0,57	67
Ⓐ	2	1385	137	0,61	66
Ⓐ	3	1365	146	0,64	63
Ⓐ	4	1340	165	0,73	63

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE

Direction of air flow		Mass Standard		Mass with hinge		Mass with air-guiding system		Mass with hinge and air-guiding system
	❮ "V"		❮ "V"		❮ "V"		❮ "V"	
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W4E 350-JN02 -30**	5,3	**W4E 350-TN02 -30**	5,5	**W4E 350-SN02 -30**	6,2	**W4E 350-WN02-30**	6,4

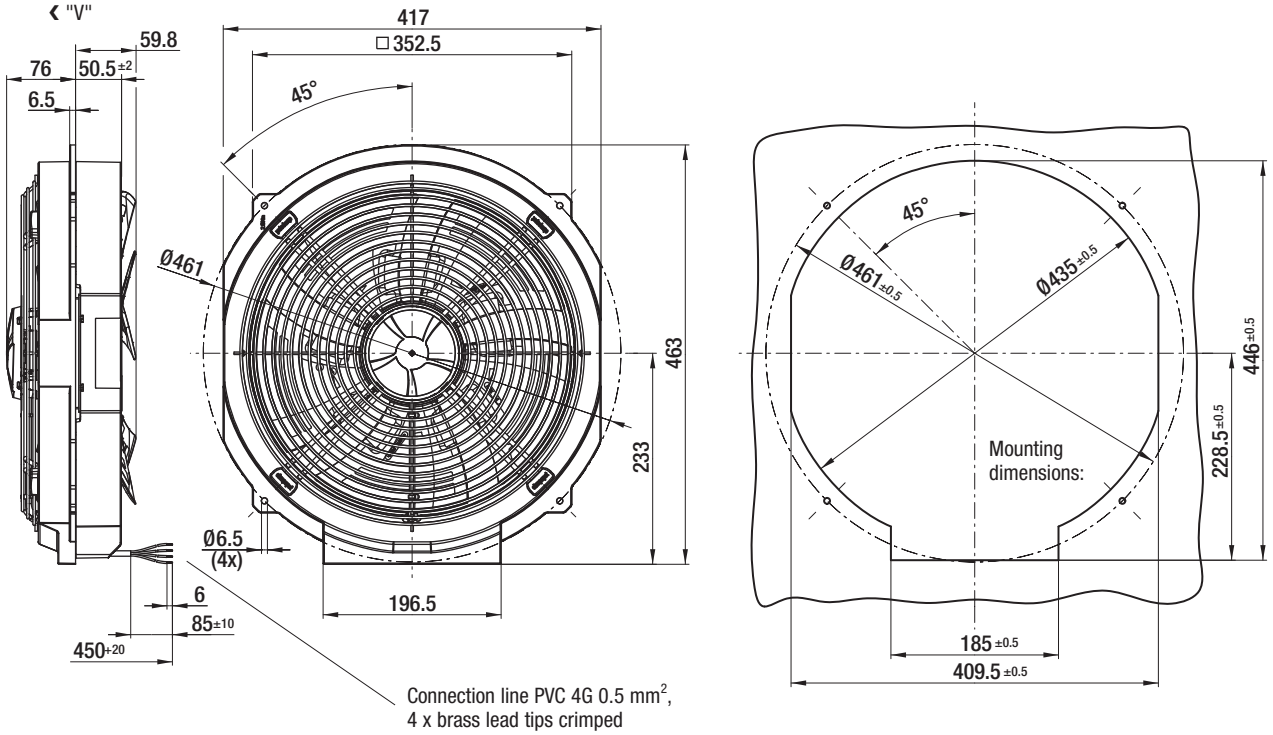
Curves: with air-guiding system



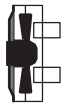
		n rpm	P_{ed} W	I A	L_WA dB(A)
A	1	1375	138	0,61	71
A	2	1365	144	0,63	70
A	3	1355	149	0,65	69
A	4	1340	165	0,73	70

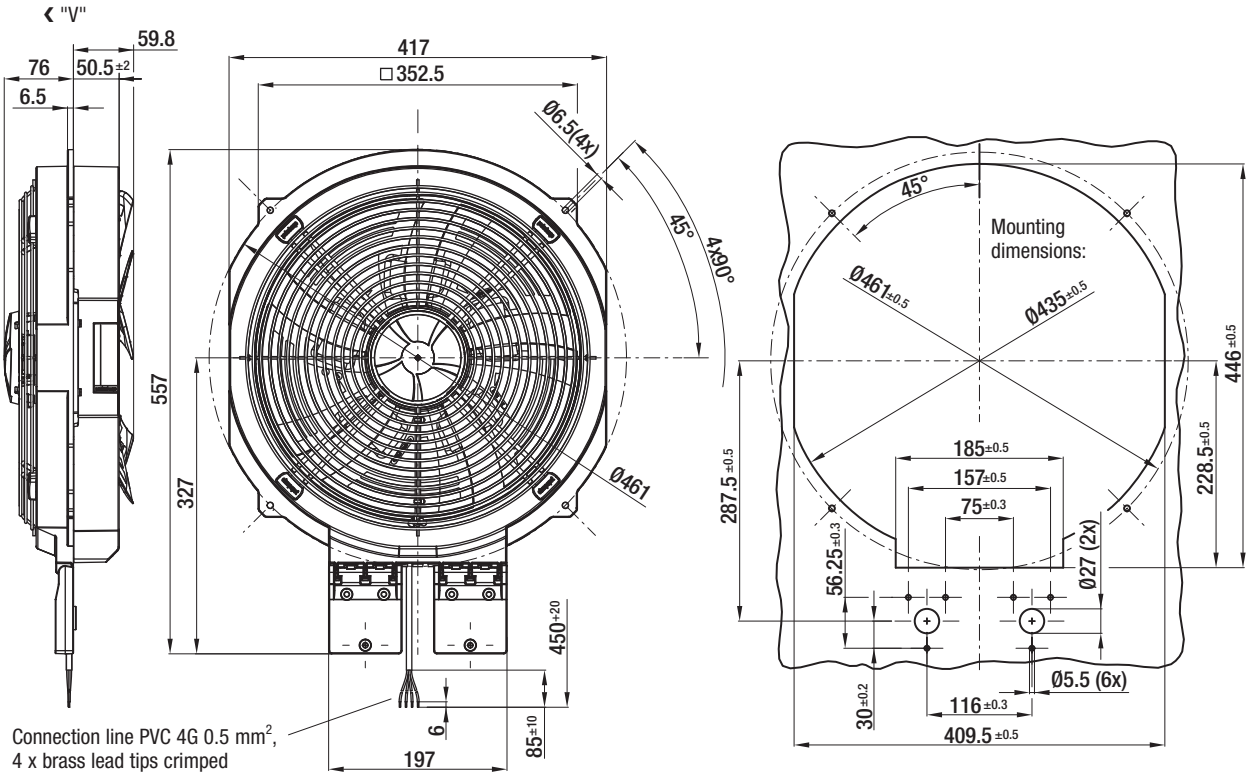
Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

W4E 350-JN02-30 (Standard version)

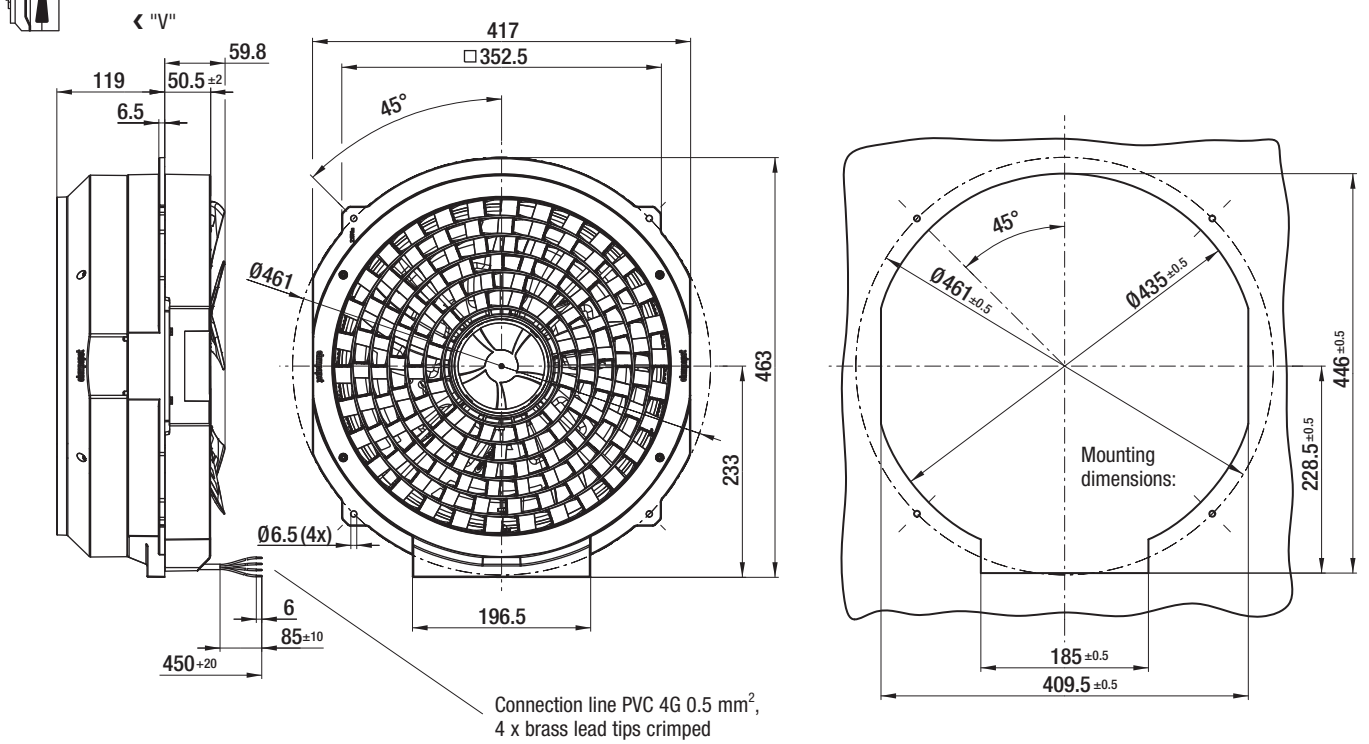


W4E 350-TN02-30 (Version with hinge)

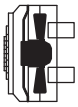


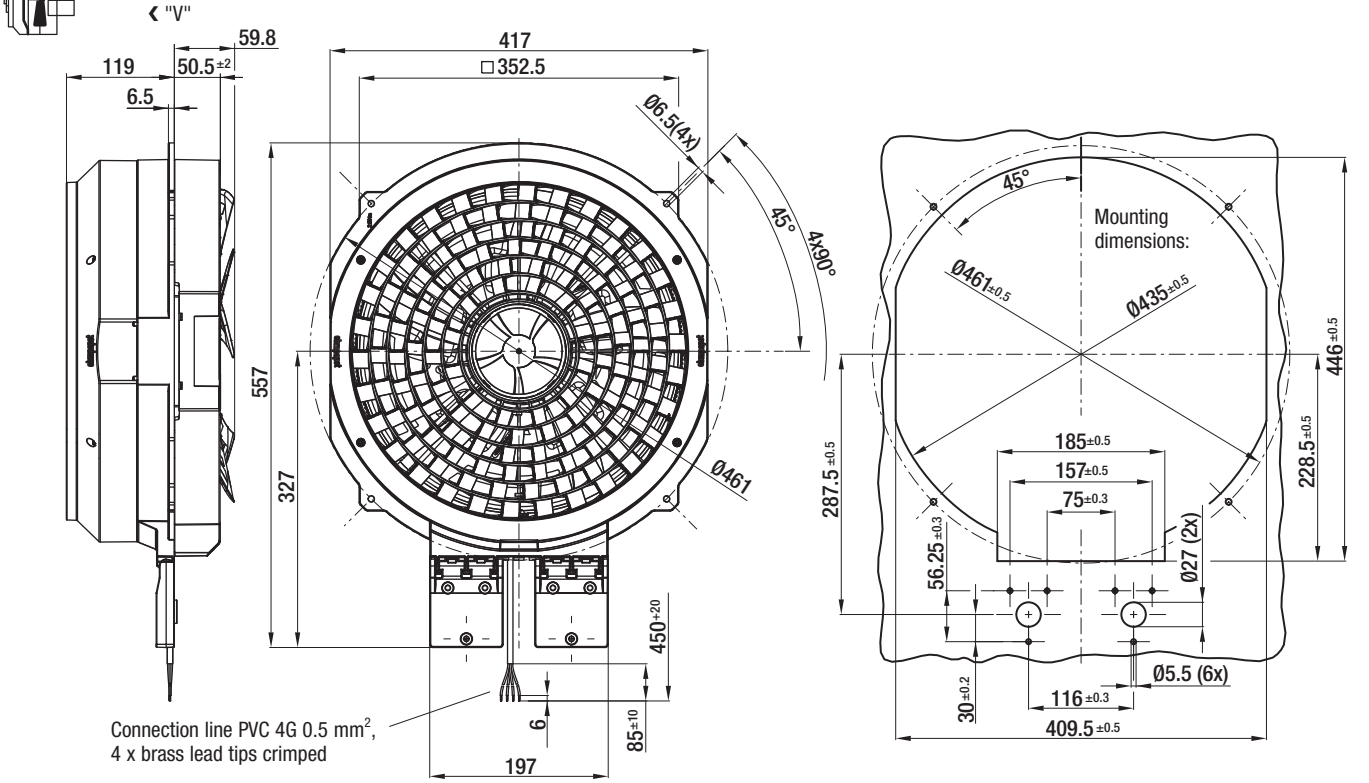


W4E 350-SN02-30 (Version with air-guiding system)



W4E 350-WN02-30 (Version with hinge and air-guiding system)





AC axial fans – AxiCool

Ø 450

- **Material:** Guard grille / support bracket: Steel, phosphated and coated in black (RAL 9005)
  Wall ring and air-guiding system: Plastic PP
  Blades: Sheet steel, coated in Black
  Rotor: Coated in black
- **Number of blades:** 5
- **Direction of rotation:** Counter-clockwise, seen on rotor
- **Type of protection:** IP 44, depending on installation and position (acc. to EN 60034-5)
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings with low-temperature grease

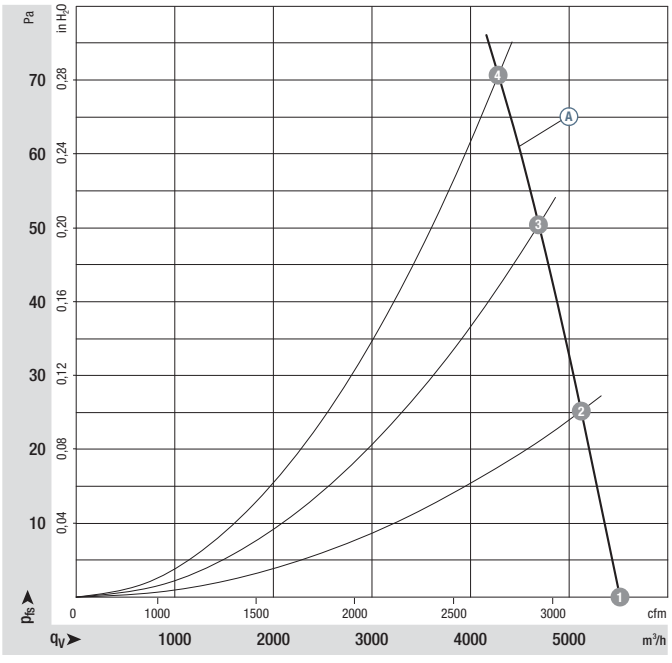
Nominal data

Type	Motor	Curve	Nominal voltage VAC	Frequency Hz	Speed/rpm(1) rpm	Max. input power(1) W	Max. current draw(1) A	Capacitor µF/VDB	Max. back pressure Pa	Perm. amb. temp. °C	
W4E 450	M4E 074-GA	Ⓐ	1~230	50	1340	300	1,32	8,0/400	70	-40..+40	p. 44 / A1)

subject to alterations

(1) Nominal data in operating point with maximum load and 230 VAC

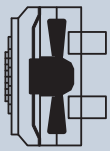
Curves: Standard



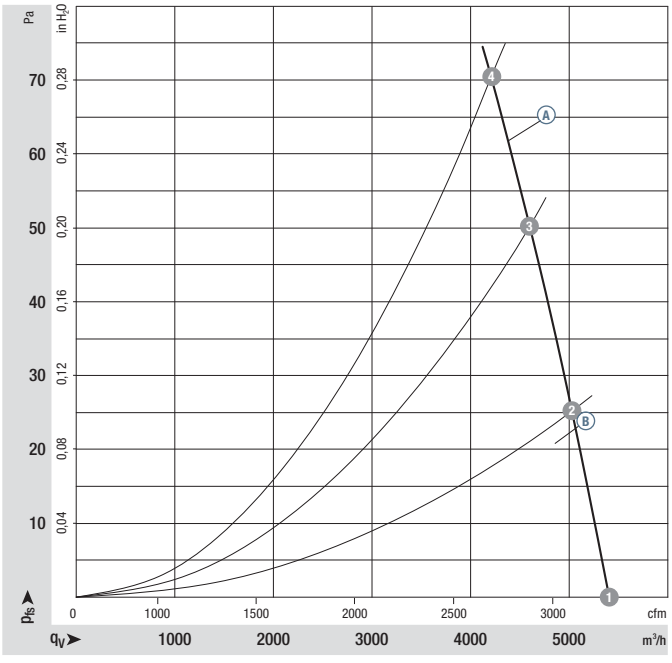
		n rpm	P_{ed} W	I A	L_WA dB(A)
Ⓐ	1	1400	245	1,10	76
Ⓐ	2	1380	260	1,17	73
Ⓐ	3	1365	278	1,24	72
Ⓐ	4	1340	300	1,32	71

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

- **Motor protection:** TOP wired internally
- **Touch current:** < 0,75 mA acc. to IEC 60990 (test circuit, illustration 4)
- **Cable exit:** Variable
- **Protection class:** I (if customer has provided connection for protective earth)
- **Product conforming to standards:** EN 60335-1, CE
- **Approvals:** VDE

Direction of air flow	 ❮ "V"	Mass Standard	 ❮ "V"	Mass with hinge	 ❮ "V"	Mass with air-guiding system	 ❮ "V"	Mass with hinge and air-guiding system
	Standard version	**kg**	**Version with hinge**	**kg**	**Version with air-guiding system**	**kg**	**Version with hinge and air-guiding system**	**kg**
"V"	**W4E 450-JP01 -30**	9,5	**W4E 450-TP01 -30**	9,7	**W4E 450-SP01 -30**	10,8	**W4E 450-WP01 -30**	11,0

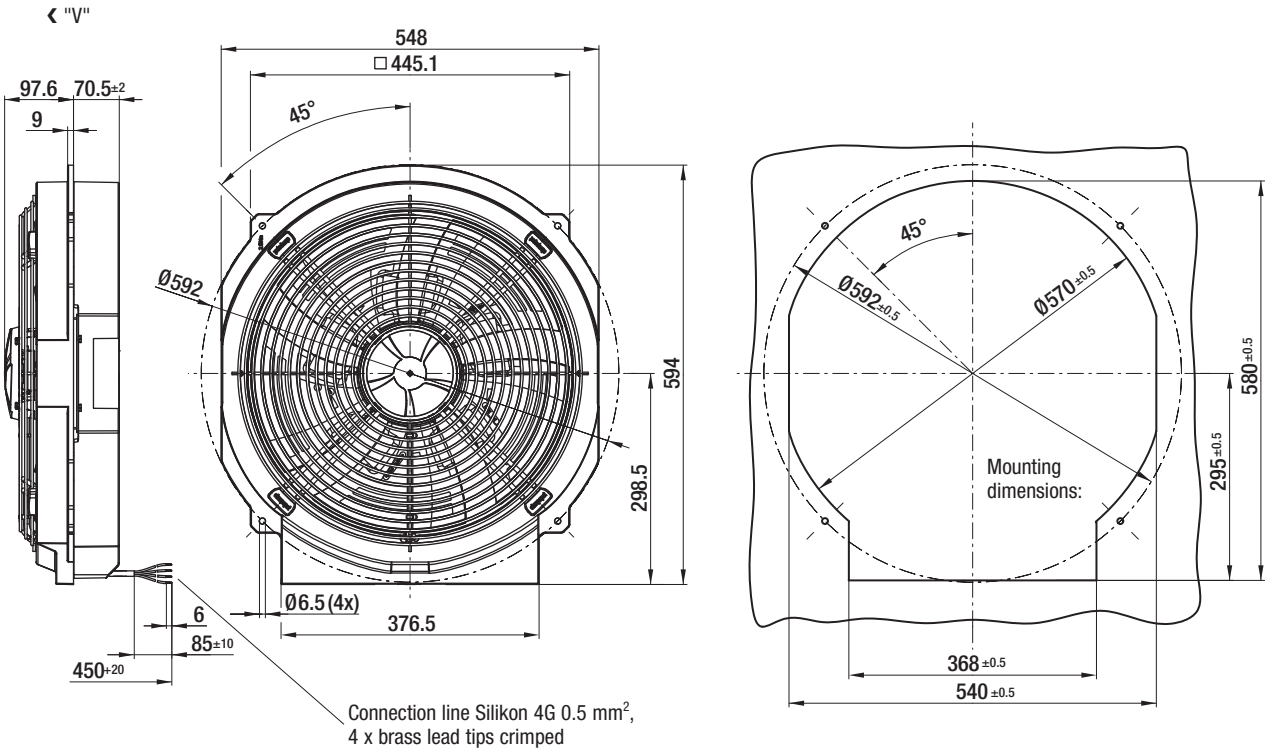
Curves: with air-guiding system



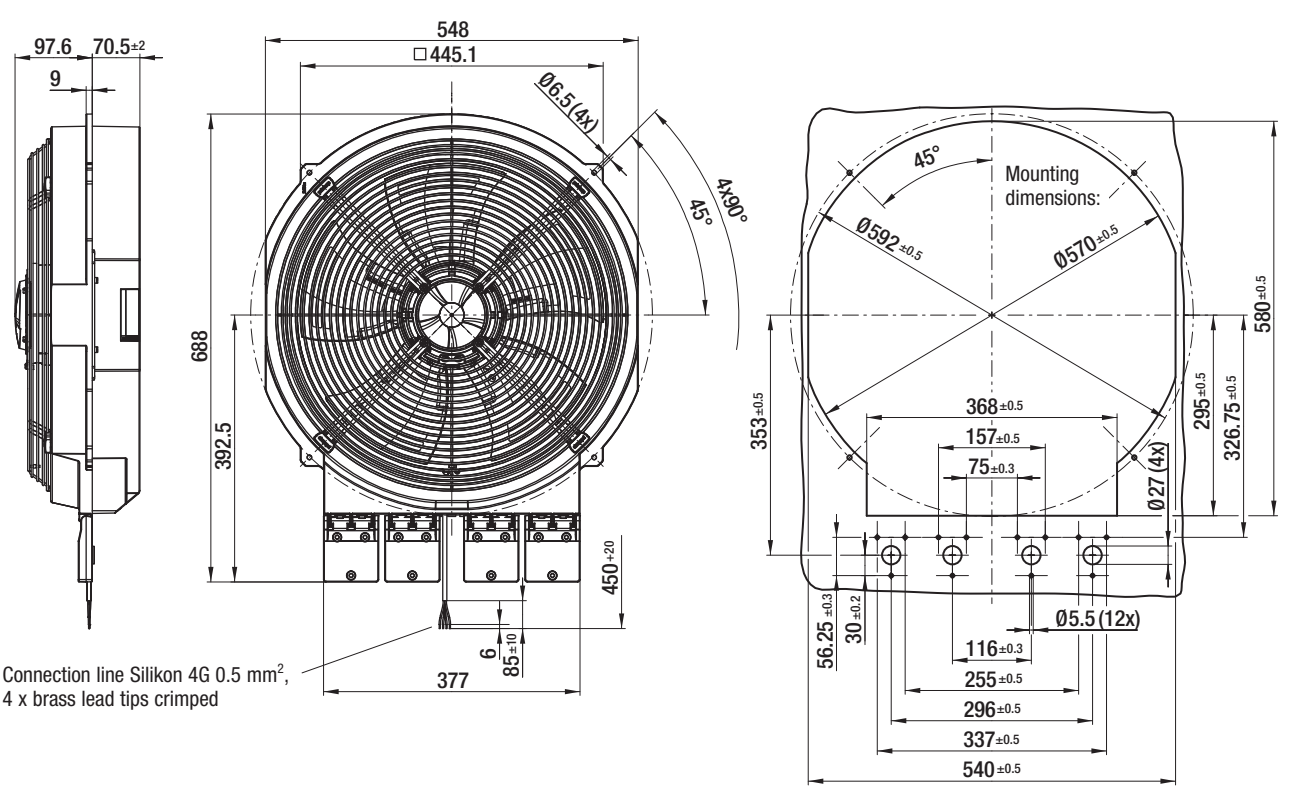
		n rpm	P_{ed} W	I A	L_WA dB(A)
A	1	1400	245	1,10	75
A	2	1360	267	1,20	74
A	3	1345	284	1,26	73
A	4	1340	300	1,32	72

Air performance measured as per: ISO 5801, Installation category A, in ebm-papst full nozzle and without protection against accidental contact. Suction-side noise levels: L_WA as per ISO 13347, L_pA measured at 1 m distance to fan axis. The acoustic values given are only valid under the measurment conditions listed and may vary depending on the installation situation. With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted! For detailed information see page 46 ff.

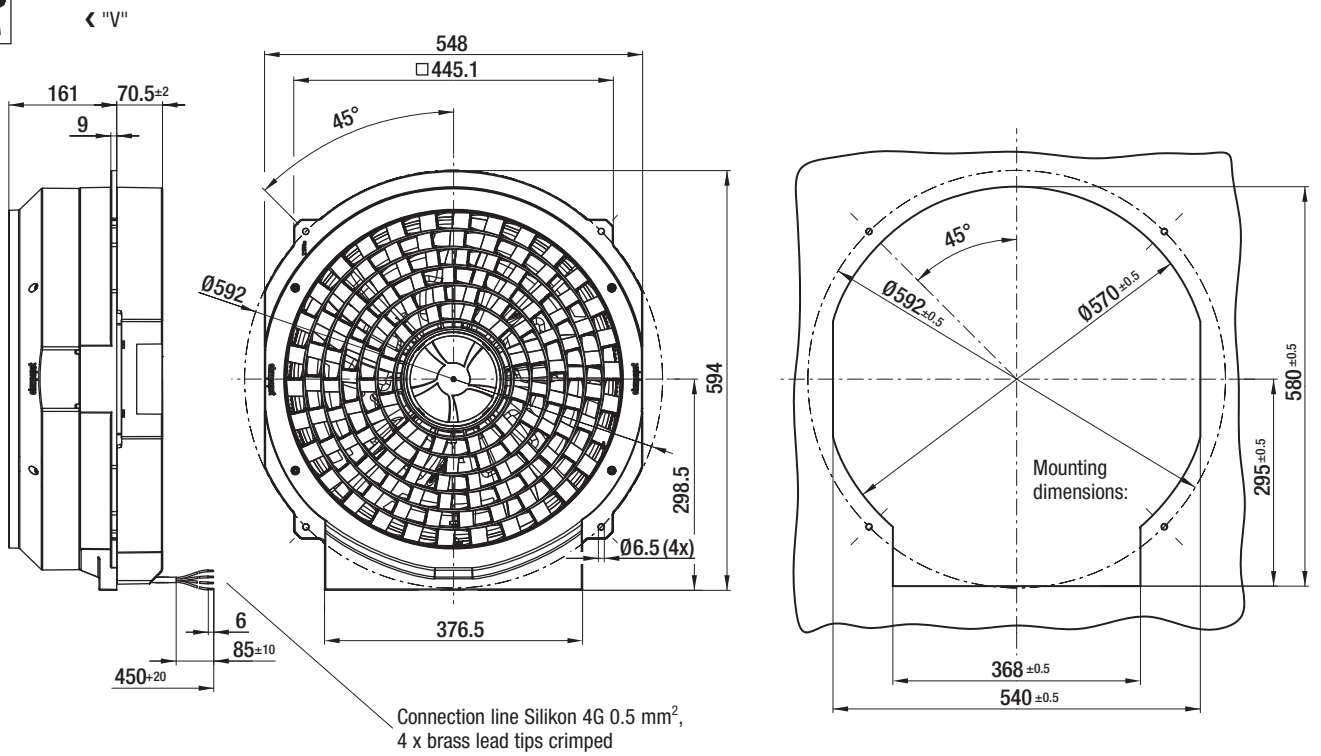
W4E 450-JP01-30 (Standard version)



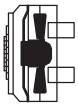
W4E 450-TP01-30 (Version with hinge)

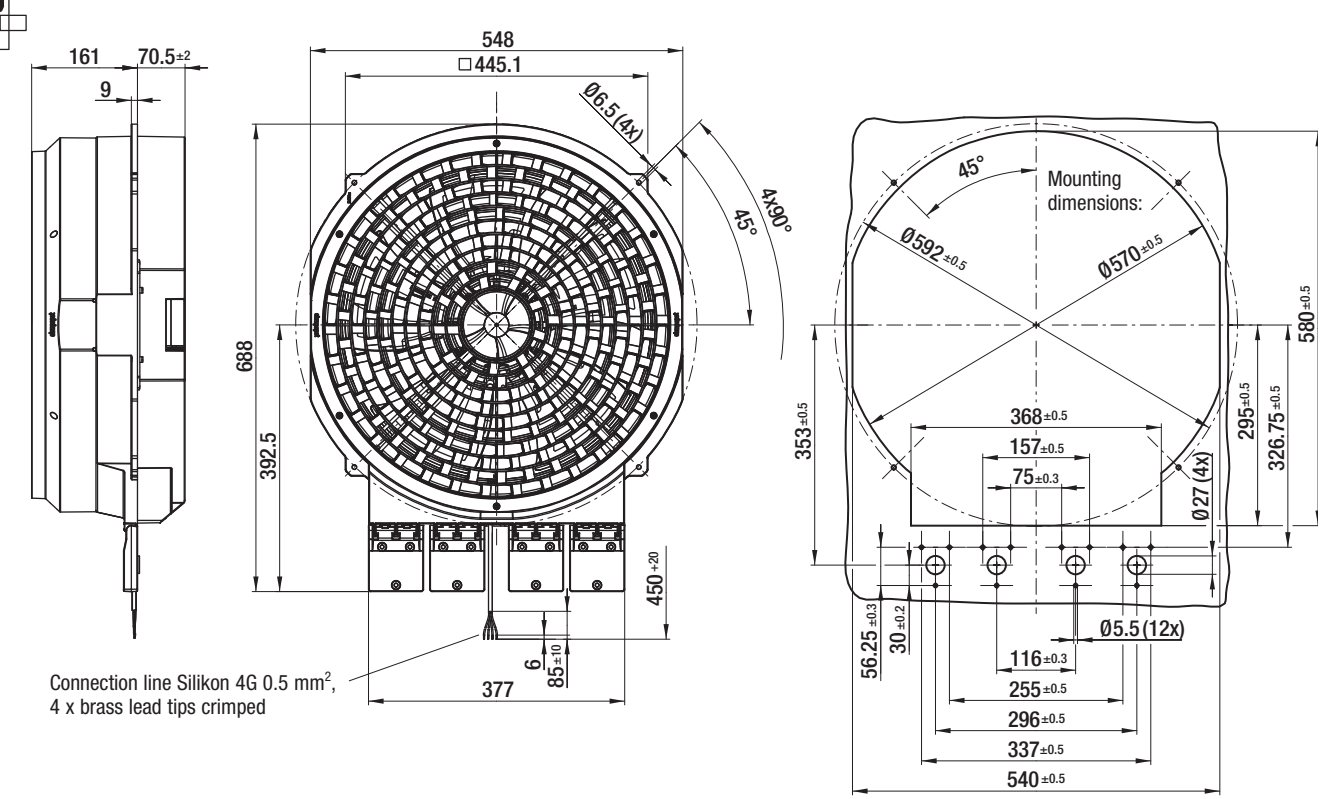


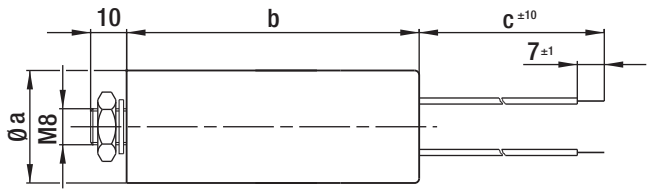
W4E 450-SP01-30 (Version with air-guiding system)



W4E 450-WP01-30 (Version with hinge and air-guiding system)





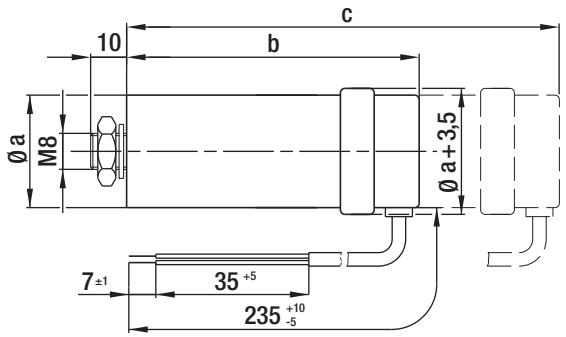


- **Material:** Housing made of thermoplastic resin
- **Connection line:** Multi-lead PVC cable 0.5 mm² with brass lead tips
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
  400 V; -25 to +85°C; 30,000 hrs; class A
  450 V; -25 to +85°C; 10,000 hrs; class B

MKP motor capacitors P0 (without fuse)

Part no.	Capacity	a	b (max.)	c
99283-4-7320	2,0 µF	25-28	58,0	235,0
99284-4-7320	4,0 µF	28-32	58,0	235,0
99286-4-7320	8,0 µF	35-40	72,0	235,0

subject to alterations

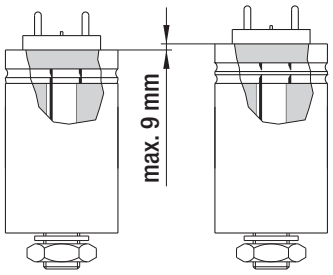


- **Material:** Plastic cap, aluminium cup
- **Designation:** FPU or P2 according to IEC 252 (non-flammable, non-explosive, circuit-breaking)
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
  420 V; -25 to +85°C; 30,000 hrs; class A
  470 V; -25 to +85°C; 10,000 hrs; class B
  500 V; -25 to +85°C; 3,000 hrs; class C

MKP motor capacitors FPU or P2 (with fuse)

Part no.	Capacity	a	b (max.)	c (max.)
02156-4-7320	2,0 µF	25,0	77,0	92,0
02161-4-7320	4,0 µF	25-30	104,0	135,0
02165-4-7320	8,0 µF	30-35	102,0	111,0

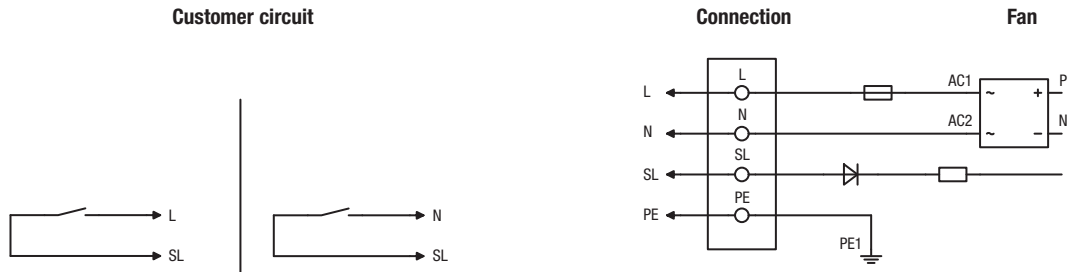
subject to alterations



- **Pull-off protector:** The housing expands by max. 9 mm. The protector responds to overload by the generated excess pressure snapping off the internal lead in a predetermined breaking point.
- **Mounting:** c is the overall dimension of the capacitor which has to be taken into account when mounting the part. The capacitor design, however, depends on the manufacturer. The expansion (9 mm) is either added to dimension b, or it is already integrated in the capacitor.

Electrical connections EC H3)

Technical features (M3G 055 / M3G 074 with 2 Speed stages)**:**
- Speed adjustment input (230V)
- Over-temperature protected electronics / motor
- Motor current limitation
- Locked-rotor protection
- Soft start

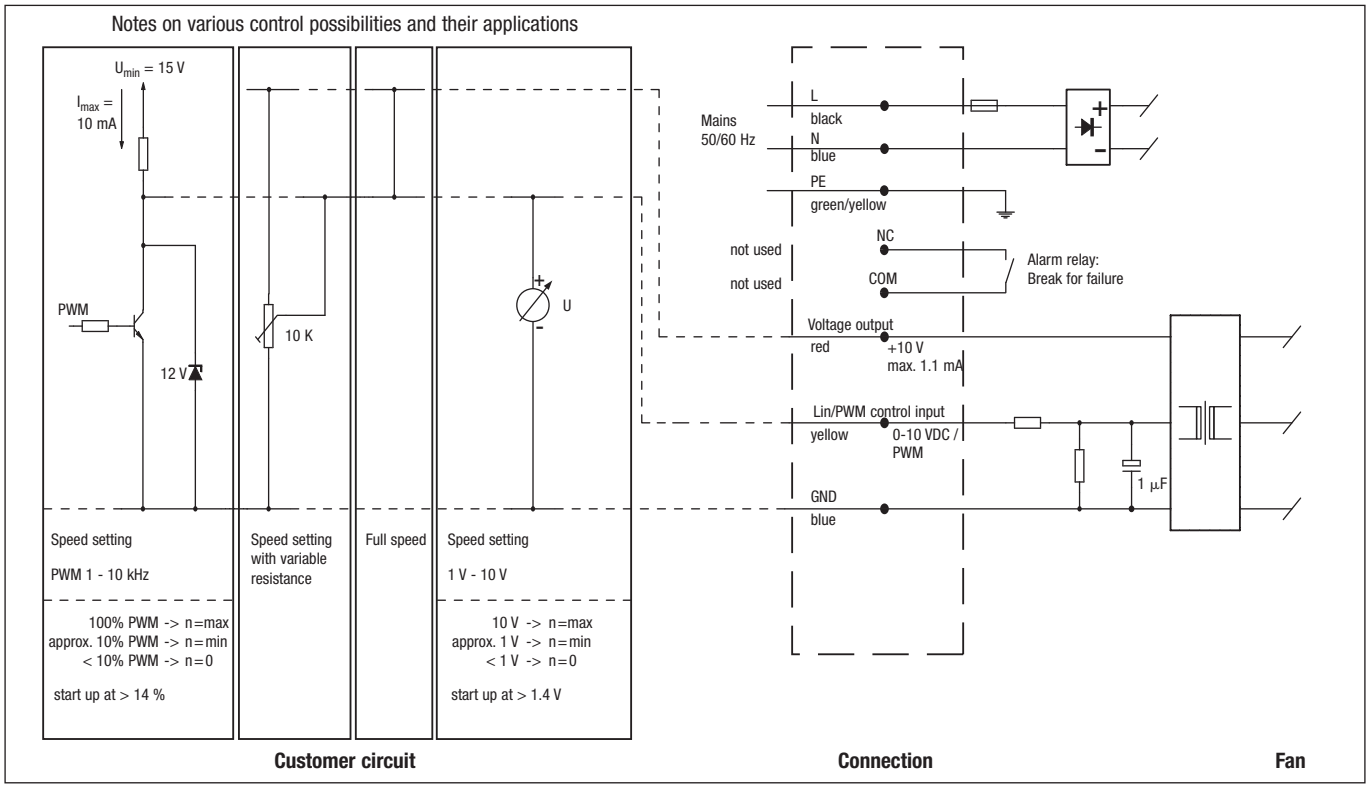


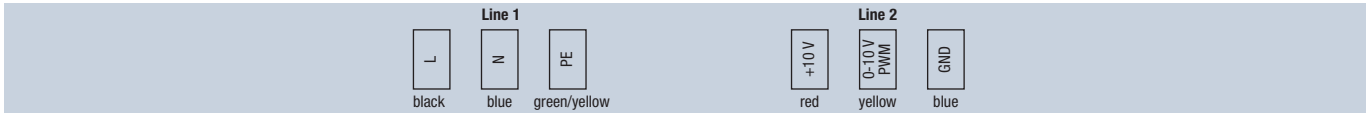
Connection	Colour	Assignment / function
L	black	Power supply 230 VAC, 50 - 60 Hz
N	blue	Neutral conductor
PE	green/yellow	Protective earth
SL	brown	Speed selection: switch open = step 1; switch closed = step 2

Electrical connections EC K1)

Technical features:

- PFC (passive)
- Control input 0-10 VDC / PWM
- Output 10 VDC max. 1,1 mA
- Over-temperature protected electronics / motor
- Line undervoltage detection
- Motor current limitation
- Soft start
- Control interface with SELV potential safely disconnected from the mains



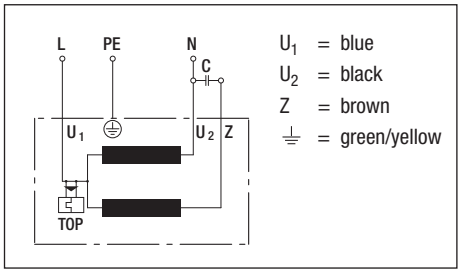


Line	Connection	Colour	Assignment / function
1	L	black	Mains 50/60 Hz, phase
	N	blue	Mains 50/60 Hz, neutral
	PE	green/yel	Protective earth

Line	Connection	Colour	Assignment / function
2	+10 V	red	Voltage output +10 V max. 1.1 mA
	0-10 V / PWM	yellow	Control input (Impedance 100 kΩ)
	GND	blue	GND

Electrical connections AC
A1)

A1) Single-phase capacitor motor (1~ 230 VAC power line)
with TOP wired internally



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.

Type 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.

Mounting 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.

Service life

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

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

The service life of the insulation system mainly depends on voltage level, temperature and ambient conditions, such as humidity and condensation.
The service life of the bearing system depends mainly on the thermal load on the bearing.

The majority of our products use maintenance-free ball bearings for any mounting position possible.
The service life L10 of the ball bearings can be taken as approx. 40,000 operating hours at an ambient temperature of 40 °C, yet this estimate can vary according to the actual ambient conditions.
We will gladly provide you with a lifetime calculation taking into account your specific operating conditions.

Motor protection / thermal protection

Information on motor protection and thermal protection is provided in the product-specific data sheets.
Depending on motor type and field of application, the following protective features are realised:

– Thermal overload protection (TOP), either in-circuit or external
– PTC with electronic diagnostics
– Impedance protection
– Thermal overload protection (TOP) with electronic diagnostics
– Current limitation via electronics

If an external TOP is connected, the customer has to make sure to connect a conventional trigger device for switching it off.
Products without fitted TOP and without protection against improper use, a motor protection complying with the valid standards has to be installed.

Mechanical strain / performance parameters

All ebm-papst products are subjected to comprehensive tests complying with the normative specifications. In addition to this, the tests also reflect the vast experience and expertise of ebm-papst.

Vibration test

Vibration tests are carried out in compliance with

– Vibration test in operation according to DIN IEC 68, parts 2-6
– Vibration test at standstill according to DIN IEC 68, parts 2-6

Shock load

Shock load tests are carried out in compliance with

– Shock load according to DIN IEC 68, parts 2-27

Balancing quality

Testing the balancing quality is carried out in compliance with

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

Should you require a higher balancing quality level for your specific application, please let us know and specify this when ordering your product.

Chemo-physical strain / performance parameters

Should you have questions about chemo-physical strain, please direct them to your ebm-papst contact.

Fields of application, industries and applications

Our products are used in various industries and applications:
Ventilation, air-conditioning and refrigeration technology, clean room technology, automotive and rail technology, medical and laboratory technology, electronics, computer and office technology, telecommunications, household appliances, heating, machines and plants, drive engineering.
Our products are not designed for use in the aviation and aerospace industry!

Legal and normative directives

The products described in this catalogue are designed, developed and produced in keeping with the standards in place for the relevant product and, if known, the conditions governing the relevant fields 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.
Complying with the EMC standards has to be established on the final appliance, as different mounting situations can result in changed EMC properties.

Leakage current

Information on the leakage current is provided in the product-specific data sheets.
Measuring is according to IEC 60990.

Approvals

In case you require a specific approval for your ebm-papst product (VDE, UL, GOST, CCC, CSA, etc.) please let us know.
Most of our products can be supplied with the relevant approval.
Information on existing approvals is provided in the product-specific data sheets.

Air performance measurements

All air performance measurements are carried out on suction side and on chamber test beds conforming to the specifications as per ISO 5801 and DIN 24163. The fans under test are installed in the measuring chamber at free air intake and exhaust (installation category A) and are operated at nominal voltage, with AC also at nominal frequency, and without any additional components such as guard grilles.
As required by the standard, the air performance curves correspond to an air density of 1.2 kg/m^3.

Technical parameters & scope

Measurement conditions for air and noise measurement

ebm-papst products are measured under the following conditions:

– Axial and diagonal fans in direction of rotation “V” in full nozzle and without guard grille
– Backward curved centrifugal fans, free-running and with inlet nozzle
– Forward curved single and dual inlet centrifugal fans with housing

Noise measurements

All noise measurements are carried out in low-reflective test rooms with reverberant floor. Thus the ebm-papst acoustic test chambers meet the requirements of precision class 1 according to DIN EN ISO 3745. For noise measurement, the fans being tested are placed in a reverberant wall and operated at nominal voltage (for AC, also at nominal frequency) without additional attachments such as the guard grille.

Sound pressure level and sound level

All acoustic values are established according to ISO 13347, DIN 45635 and ISO 3744/3745 to accuracy class 2 and given in A-rated form.

When the sound pressure level (L_p) is measured, the microphone is on the intake side of the fan being tested, usually at a distance of 1 m on the fan axis.

To measure 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 sound power level measured can be roughly calculated from the sound pressure level by adding 7 dB.

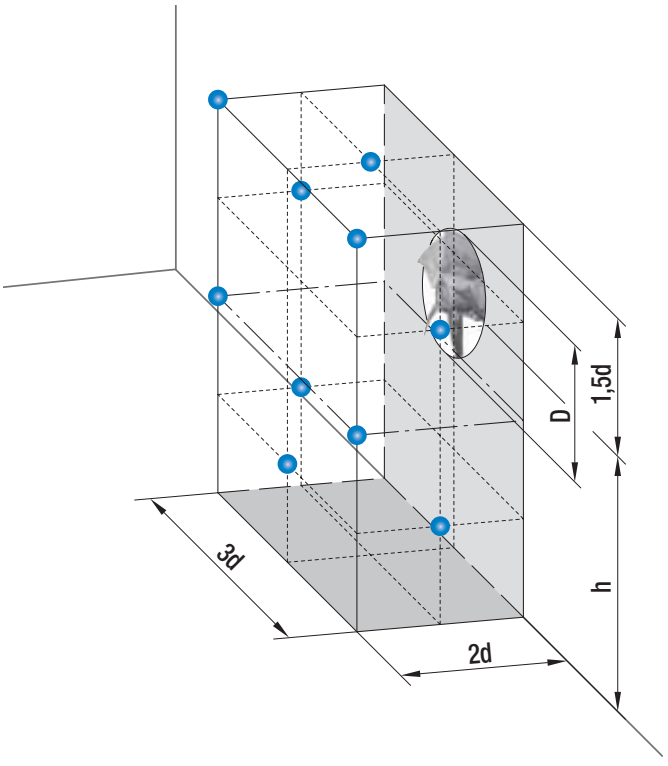
Measuring configuration as per ISO 13347-3 respectively DIN 45635-38:

● 10 measuring points

$d \geq D$

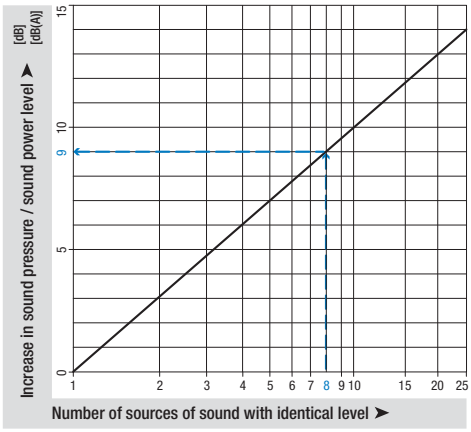
$h = 1{,}5d \ldots 4{,}5d$

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



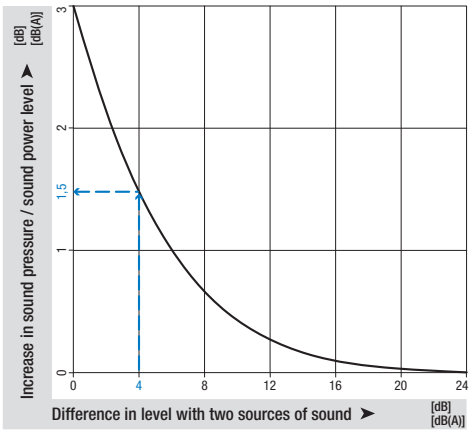
Combined level of multiple same-level sound sources

Adding 2 noise sources with the same level results in a level increase of approx. 3 dB.
The noise characteristics of multiple identical fans can be determined in advance based on the noise values specified in the data sheet. This is shown in the diagram opposite.
Example: 8 A3G800 axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 75 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 84 dB(A).



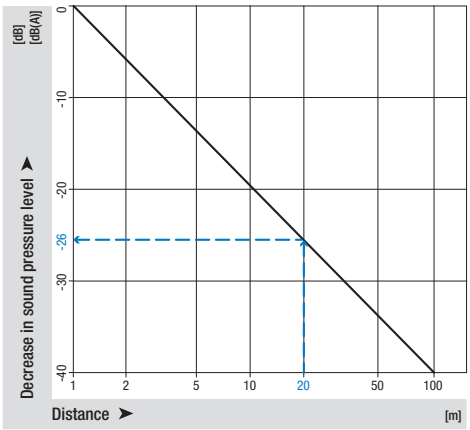
Combined level of two different-level sound sources

The acoustic performance of two different fans can be predetermined based on the sound levels given in the data sheet. This is shown in the diagram opposite.
Example: There is an axial fan A3G800 with a sound pressure level of 75 dB(A) at the operating point and an axial fan A3G710 with 71 dB(A) in a ventilation unit. The level difference is 4 dB. The level increase can now be read in the diagram as approx. 1.5 dB. This means that the overall sound level of the unit can be expected to be 76.5 dB(A).



Distance laws

Sound power level is independent of distance to the sound source. In contrast to this, sound pressure level decreases the further away the noise source is. The adjacent diagram shows the decrease in level under far sound field conditions. Far sound field conditions apply whenever the distance between microphone and fan is big when compared to fan diameter and wavelength to be considered. For more information on far sound field, please consult the relevant literature on this complex topic. Per doubling of distance, the level in the far sound field decreases by 6 dB. In the near field of the fan, other correlations apply and the decrease in levels can be considerably smaller. The following example only applies to far sound field conditions and can vary strongly depending on the installation effects:
With an axial fan A3G300, a sound pressure level of 65 dB(A) was measured at a distance of 1 m. According to the adjacent diagram, at a distance of 20 m we would get a reduction by 26 dB, i.e. a sound pressure level of 39 dB(A).



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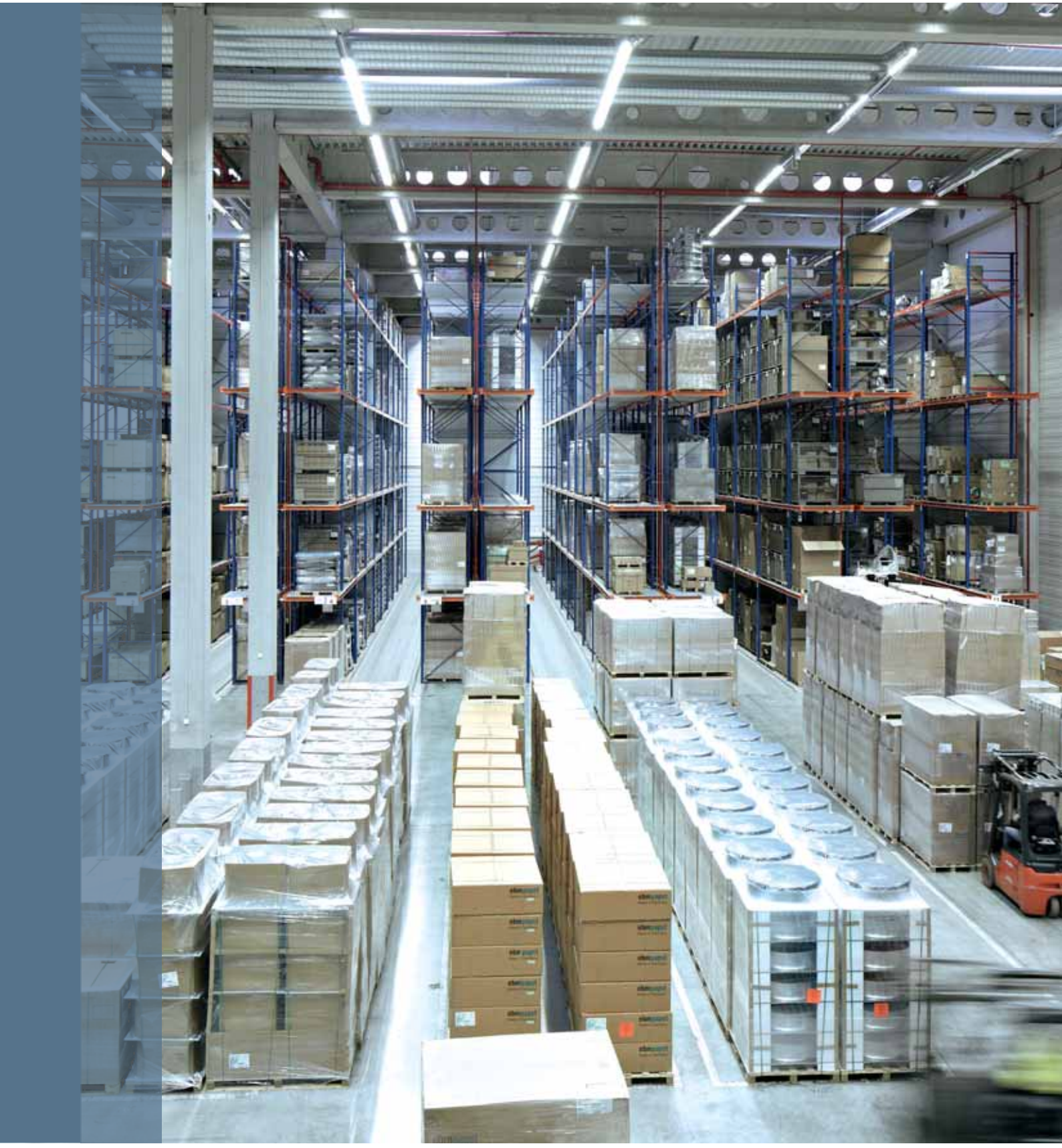

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