

Fans for range hoods

Product Catalogue 2019-10

ebmpapst

the engineer's choice

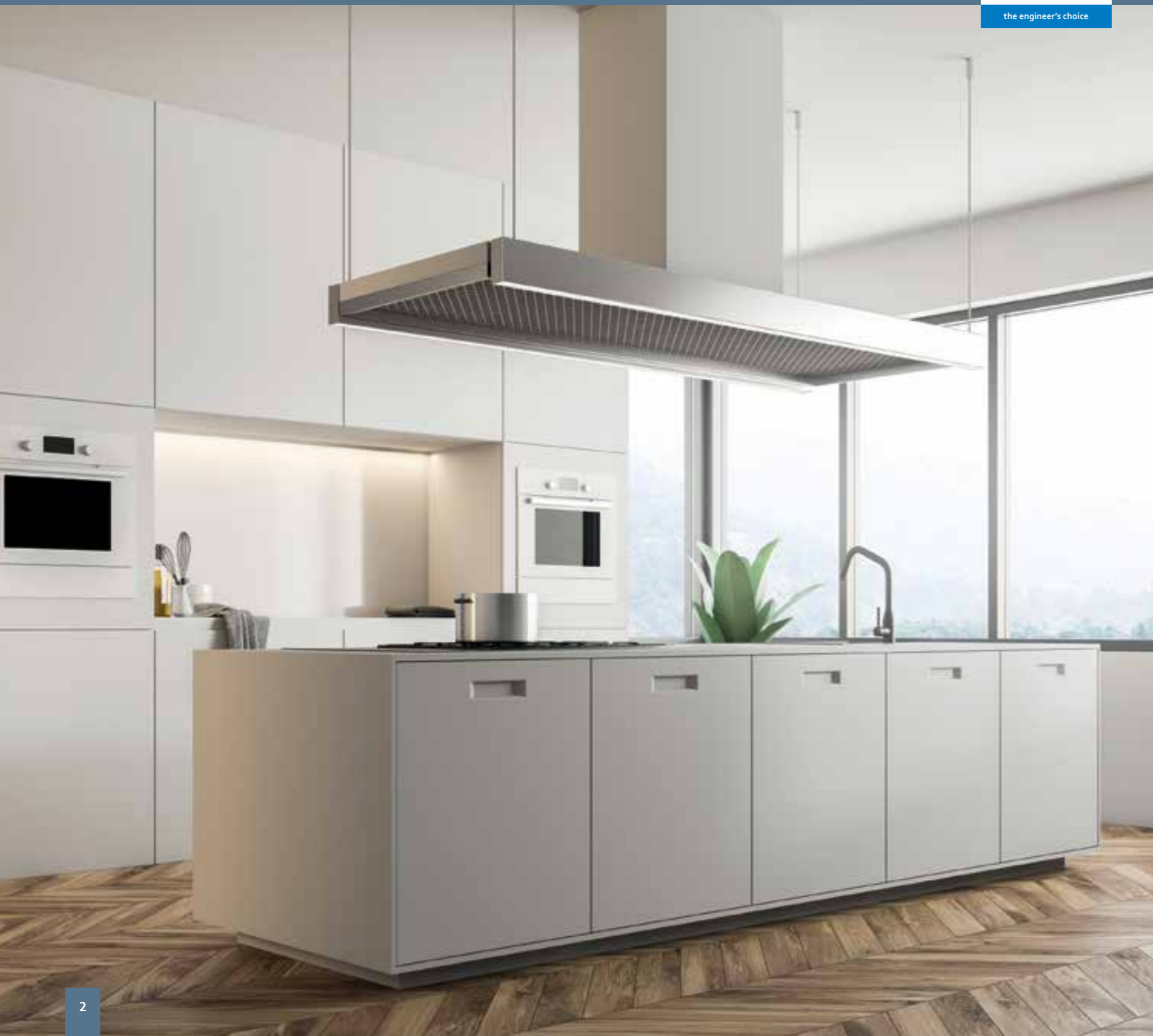


Contents

Fans for range hoods

ebmpapst

the engineer's choice



	Page		Page		
Information	4	Powerful and efficient	4		
		Suitable for all applications	6		
		Example installations	7		
Fans for range hoods	10	AC-Centrifugal fan forward curved Ø 140 - Ø 146 (single-intake)	12		
		EC-Centrifugal fan forward curved Ø 140 - Ø 200 (single-intake)	16		
		AC-Centrifugal fan backward curved Ø 190 - Ø 250	28		
		EC-Centrifugal fan backward curved Ø 190 - Ø 250	34		
		EC-Centrifugal fan forward curved Ø 190 - Ø 250 (with housing)	46		
		AC-Centrifugal fan backward curved Ø 140 - Ø 160 (with housing)	54		
		EC-Centrifugal fan forward curved Ø 146 - Ø 160 (with housing)	66		
		EC-Centrifugal fan forward curved Ø 146 (with housing)	78		
		EC-Centrifugal fan backward curved Ø 190 (with housing)	84		
		AC-Centrifugal fan forward curved Ø 160 (with housing)	90		
		Accessories	94	Cable	96
				Capacitor	97
Guard grills	98				
FlowGrid air inlet grill	100				
One-way flap	101				
Inlet rings	102				
Technology	106	Connection diagram	108		
		Technical parameters & scope	116		
Agents Worldwide	122		122		

Information

Fans for range hoods

Accessories

Technology

Agents

Powerful and efficient

Fans for range hoods

Centrifugal fans from ebm-papst bring a breath of fresh air into the kitchen. High-performance fans provide the necessary air flow, especially where steam and cooking fumes affect indoor air quality.

In combination with the filter, the fan is the most important range hood component when it comes to providing an agreeable atmosphere free of disturbing odors, grease and steam.

Information



The advantages at a glance:

- Easy installation and start-up
- Available in designs with AC or EC technology
- Perfectly matched components
- High efficiency thanks to improved aerodynamics
- High suction power for fresh air in the kitchen
- Noise reduction thanks to optimized impeller
- Small footprint

Forward-looking.

In addition to the possibility of varying the speed and direction of rotation, EC technology from ebm-papst offers further uses for the digital communication of tomorrow.

For example:

- Speed analysis
- Integration of communication via bus systems
- Detection of operating status and display on end devices in networked systems
- Implementation of predictive maintenance based on intelligent data utilization

Other convenience functionality is conceivable. Feel free to contact us to discuss a solution for your particular requirements.



Safe, efficient and quiet

Fans from ebm-papst have a high overall efficiency due to the design of the individual components such as the impeller, the motor and the drive electronics.

$$\text{Formula: } \eta_{\text{Sys}} = \eta_{\text{Ventilator}} \cdot \eta_{\text{Motor}} \cdot \eta_{\text{Antrieb}} \cdot \eta_{\text{Regelung}}$$

The perfect interaction between these components ensures high energy efficiency, long service life and smooth operation. Making fans from ebm-papst the ideal choice for use in household appliances; in addition to the safety requirements specified for the fans used in range hoods in the DIN EN 60335-2-31 standard, range hoods are also subject to increasingly strict energy efficiency requirements.

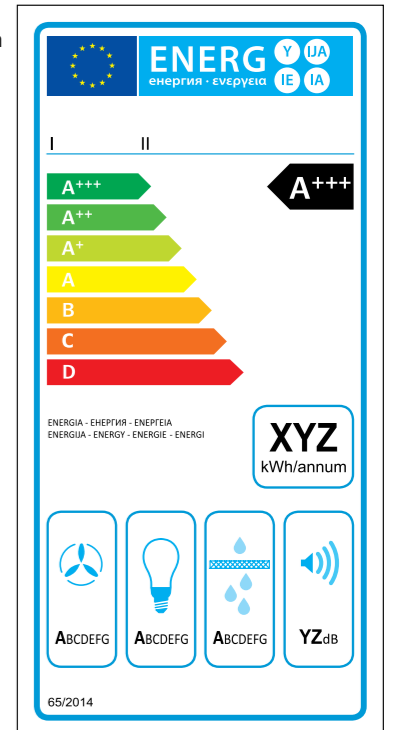
The Ecodesign Directive 2009/125/EC established a framework for the environmentally compatible design of energy-related products. Regulations (EU) No. 65/2014 and 66/2014 on energy labeling and on requirements for the environmentally compatible design of appliances, including range hoods, set out rules for placing labels on hoods with information about characteristics such as their fluid dynamic efficiency (FDE) and their assignment to energy efficiency classes (energy efficiency index – EEI).

The planned tightening of these regulations will come into effect in 2020. The fluid-dynamic efficiency must exceed a value of 8. In addition, the efficiency class A+++ will be added to energy labels and efficiency class E will be discontinued without a replacement.

This will pose serious challenges for the design of both range hoods and the components used in them. Whether they have a housing or not, whether they use forward- or backward-curved impellers, EC fans from ebm-papst enable top suction power with especially low energy consumption, making them the first choice for hoods in the higher energy efficiency classes.

Speed-controlled fans with EC technology offer further potential for savings in partial-load operation, i.e. when the range hoods are not operating at full capacity.

Their optimized impellers also make them especially quiet. In the course of further revisions of the energy label for household appliances, changing requirements can also be expected in the future. With efficient EC technology, you can make your projects future-proof.



Fluid dynamic efficiency classes for household range hoods

Fluid dynamic efficiency classes	Fluid dynamic efficiency (FDE _{hood})
A*	FDE _{hood} > 28
B	23 < FDE _{hood} ≤ 28
C	18 < FDE _{hood} ≤ 23
D	13 < FDE _{hood} ≤ 18
E	8 < FDE _{hood} ≤ 13
F	4 < FDE _{hood} ≤ 8
G**	FDE _{hood} ≤ 4

* Highest efficiency
** Lowest efficiency

Energy efficiency classes for household range hoods

Energy efficiency classes	Energy efficiency index (EEI _{hood})	
	current	from 2020
A+++*		EEI _{hood} < 30
A++	EEI _{hood} < 37	30 ≤ EEI _{hood} < 37
A+	37 ≤ EEI _{hood} < 45	37 ≤ EEI _{hood} < 45
A	45 ≤ EEI _{hood} < 55	45 ≤ EEI _{hood} < 55
B	55 ≤ EEI _{hood} < 70	55 ≤ EEI _{hood} < 70
C	70 ≤ EEI _{hood} < 85	70 ≤ EEI _{hood} < 85
D	85 ≤ EEI _{hood} < 100	EEI _{hood} ≥ 85**
E**	EEI _{hood} ≥ 100	

* Highest efficiency
** Lowest efficiency

Information

Suitable for all applications

The fans described on the following pages are used in wall-mounted, island and built-in hoods equipped with a fan module. ebm-papst also supplies a wide range of suitably adapted fans for other designs such as telescopic, integrated and under-cabinet

hoods. They are extremely compact, enabling not only smaller appliances but completely new design trends as well.



Thanks to their effective design, ebm-papst fans are very easy to install. They also have perfect noise characteristics even at high air performance levels, which are adjustable. Other important characteristics include

tremendous energy efficiency and of course high reliability and long service life. Household appliance manufacturers appreciate not only our technology, but our engineering expertise as well.

As expert engineering partners, we work closely with our customers from the start of a project to help bring innovative and competitive products to market.

Customer-specific solutions

exemplified by BORA.

Since 2007, BORA Lüftungstechnik GmbH, based in the Bavarian town of Raubling, has been developing and selling successful cooktop extractor systems that use patented technology to extract fumes downward. Its innovative BORA Basic, BORA Classic, BORA Professional and BORA Pure product lines are sold in 60 countries worldwide.

ebm-papst has developed an integrated fan assembly for this innovative type of extraction system. In close cooperation with the customer, all components were perfectly matched in terms of functionality, design and modularity. Sophisticated tool design and a suitable production scheme ensure economical production of the fans.

The downdraft principle

Cooking fumes and odors are unable to rise in the first place but are instead sucked downward where they are produced, right on the cooktop, right at the pot, pan or grill.



ebm-papst product:

BORA cooktop extractors suck away fumes right where they are produced. Fans from ebm-papst are at work in the background, whether under the cooktop or in the base unit. They suck the air downward and convey it outside via a duct or, in the case of an air recirculation system, back into the room after filtering.



Example installations

for all designs

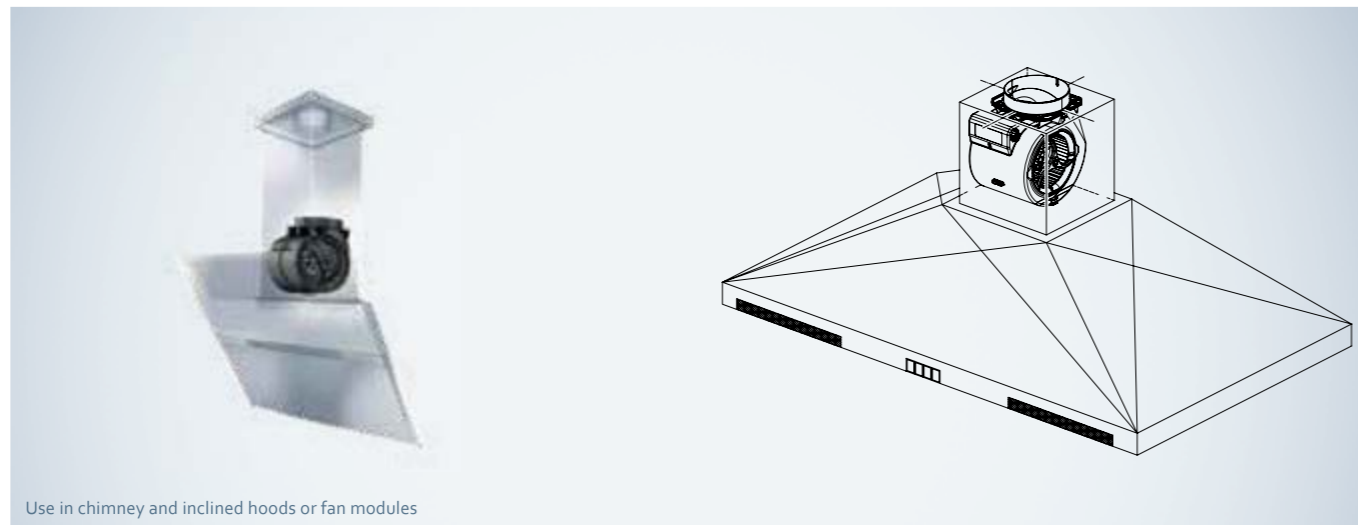
Dual inlet centrifugal fans

One of the main features of this range of fans is the easy of installation. The dual-inlet blower can be installed in an appliance in a few simple steps. Attachment of exhaust ducts and adapters is trouble-free.

For traditional fans with diameters 140mm to 160mm using AC technology, the motor run capacitor is located in the integrated terminal box.

The blower is fully wired for connection to the power grid with a plug. The standard design features four speed levels and covers a wide range of uses.

Modern, innovative EC fans offer smooth speed adjustment and a low noise level. The latest member of this series features integrated contact protection in the housing and bayonet connectors for attaching carbon filters.



Use in chimney and inclined hoods or fan modules

Use in worktop hoods

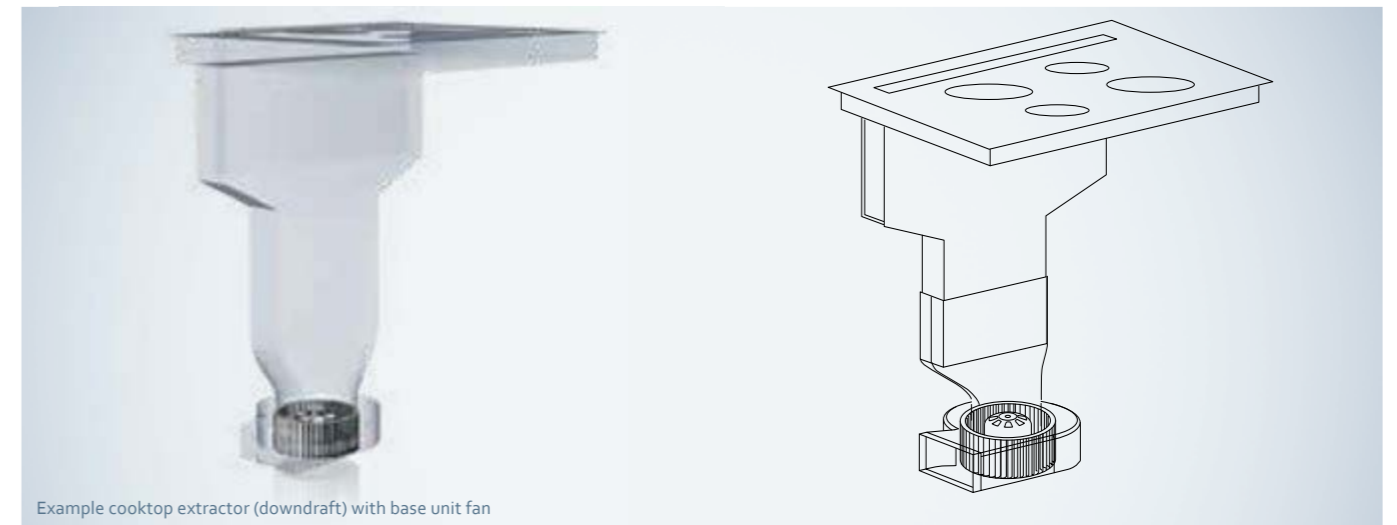
Both forward- and backward-curved fans and also dual-intake fans can be used in this application.



Example of a telescopic design with backward-curved centrifugal fan

Use in a cooktop extractor (downdraft)

The special forward-curved impeller design delivers high air performance with pleasantly low noise emissions. A snail-shaped scroll housing is needed in the hood for the forward-curved centrifugal impeller, so the values provided in the catalog were measured using an ebm-papst die-cast scroll housing.

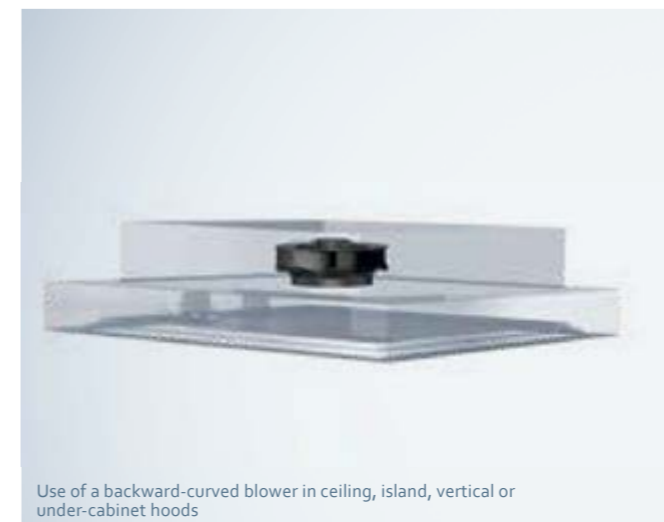


Example cooktop extractor (downdraft) with base unit fan

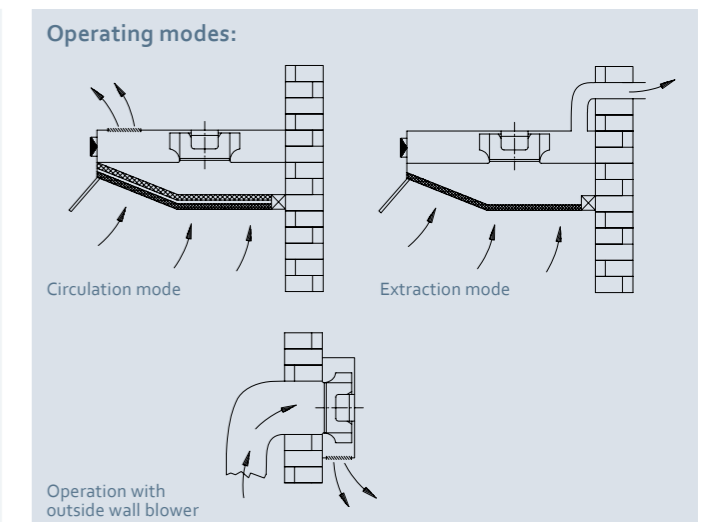
Backward- and forward-curved centrifugal fans

The impeller is pressed directly onto the external rotor motor in centrifugal fans with forward- or backward-curved impellers, enabling a low-profile design. Backward-curved impellers are very efficient, so they are capable of high air flow at high pressures

with relatively small motors. Another advantage of this design is that no special scroll housing is needed.



Use of a backward-curved blower in ceiling, island, vertical or under-cabinet hoods



AC- / EC-Centrifugal fans

forward curved

ebmpapst

the engineer's choice



Page

AC-Centrifugal fan VFS0140 / R2E140	12
AC-Centrifugal fan VFS0146 / R2E146	14
EC-Centrifugal fan VFS0140 / R3G140	16
EC-Centrifugal fan VFS0146 / R3G146	18
EC-Centrifugal fan VFS0160 / R3G160	20
EC-Centrifugal fan VFS0180 / R3G180	22
EC-Centrifugal fan VFS0200 / R3G200	24

AC-Centrifugal fan

forward curved, single-intake, Ø 140 mm



Material/surface

- Impeller: Sheet steel galvanized
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation:
R2E140...-04: Clockwise, viewed toward rotor
R2E140...-06: Counterclockwise, viewed toward rotor
- Degree of protection: IP44, installation- and position-dependent
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

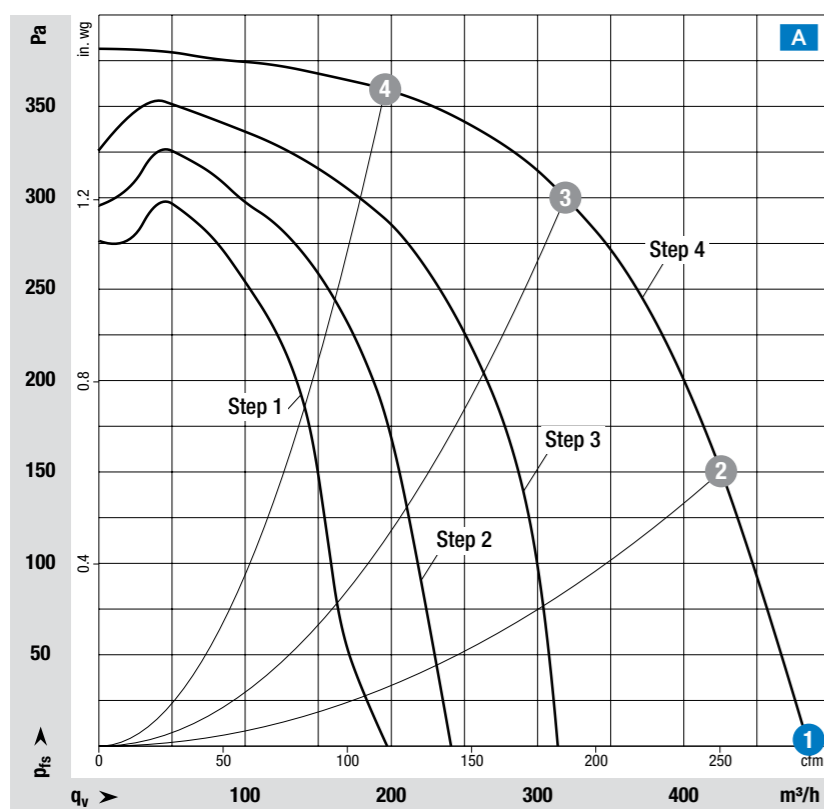
Electrical data

- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: 4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{wA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P_{ed}	Max. input current I	Sound power level L_{wA}	Capacitor (S2)	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	µF/VDB	°C	
Nominal voltage 230 V AC, 50 Hz										
A	1 Step 4	1-230	485	2000	150	0.70	72	3/400		
	2 Step 4	1-230	425	2240	131	0.57	71	3/400		
	3 Step 4	1-230	320	2495	107	0.47	70	3/400	-25...+45	A
	4 Step 4	1-230	195	2680	87	0.38	70	3/400		
Nominal voltage 230 V AC, 60 Hz on request										

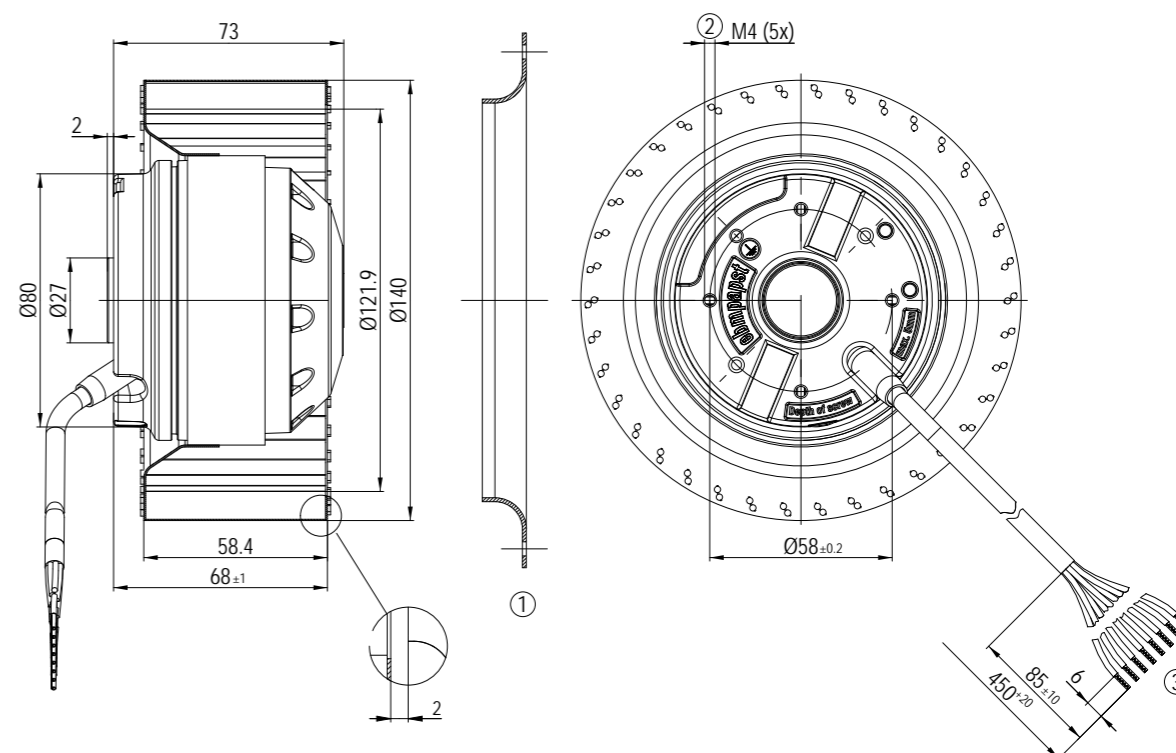
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VFS0140X2MEZ	R2E140AL1404	1.70 kg
	VFS0140X2MEZ	R2E140AL1406	

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 09576-2-4013 not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable ETFE AWG20; 8x crimped splices

AC-Centrifugal fan

forward curved, single-intake, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation:
R2E146...-25: Clockwise, viewed toward rotor
R2E146...-26: Counterclockwise, viewed toward rotor
- Degree of protection: IP44, installation- and position-dependent
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

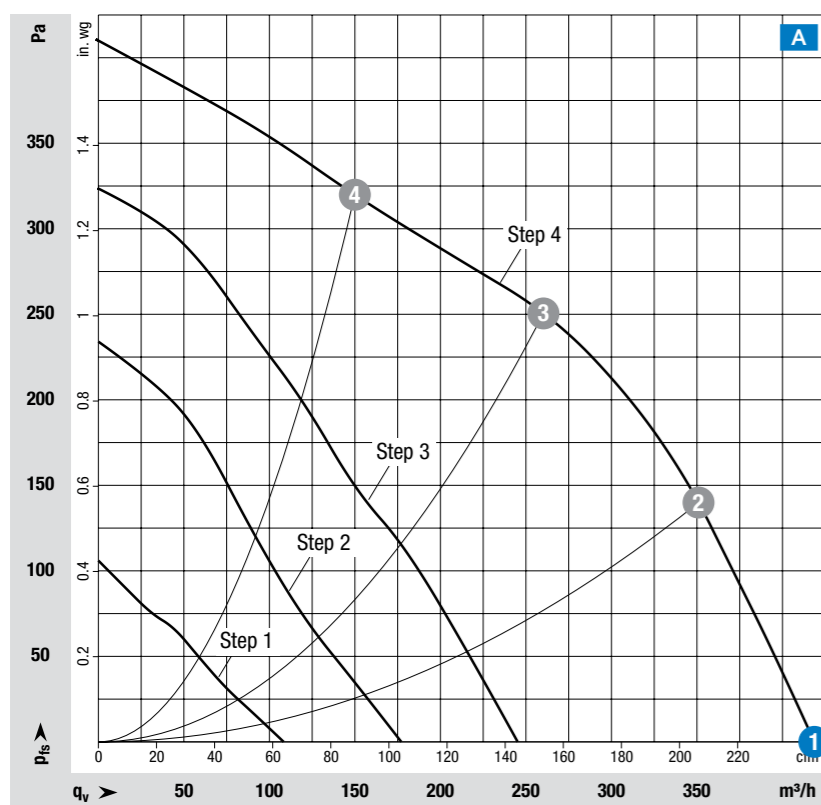
Electrical data

- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: 4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{wA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P_{ed}	Max. Input current I	Sound power level L_{wA}	Capacitor (S2)	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	µF/VDB	Pa	°C	
Nominal voltage 230 V AC, 50 Hz											
A	1 Step 4	1-230	420	1420	107	0.47	55	2/450	100		
	2 Step 4	1-230	355	1790	99	0.43	-	2/450		-25...+30	A
	3 Step 4	1-230	270	2120	88	0.39	-	2/450			
	4 Step 4	1-230	165	2395	77	0.35	-	2/450			
Nominal voltage 230 V AC, 60 Hz on request											

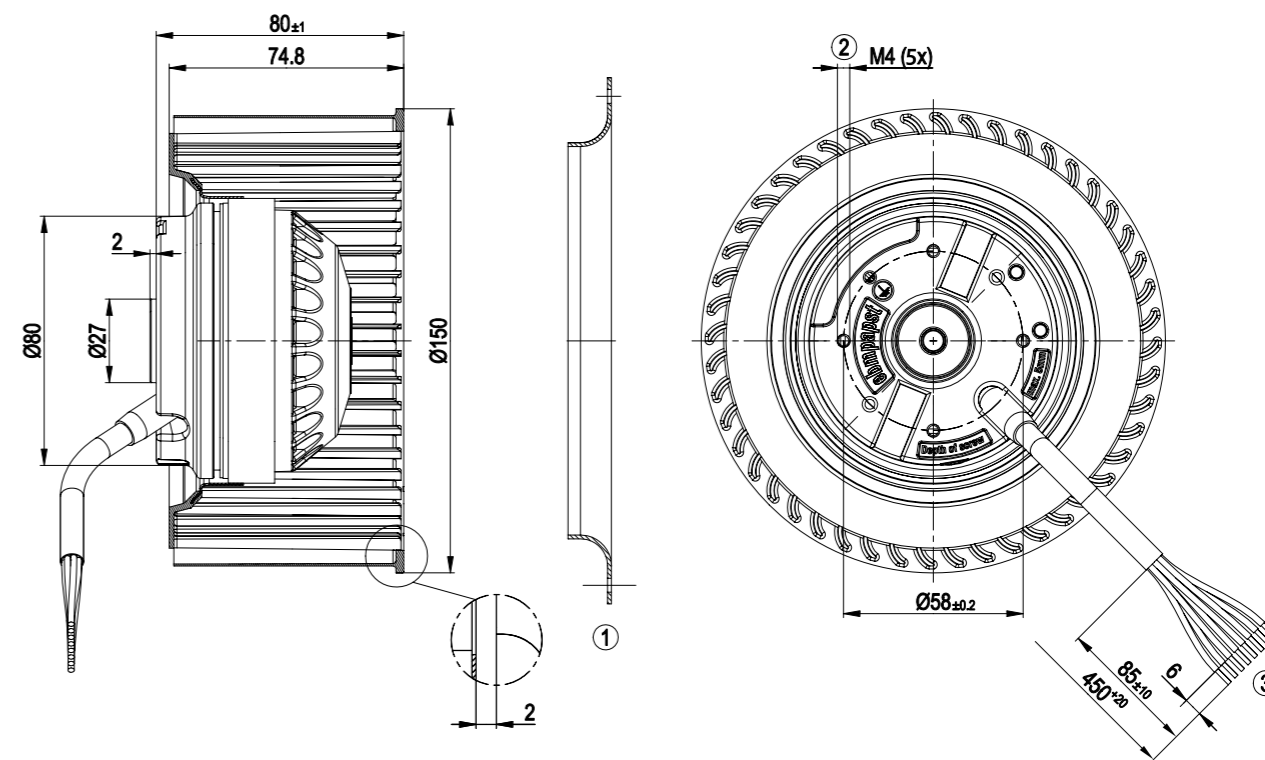
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight kg
A	VFS0146X2MCZ	R2E146BE0825	1.20
	VFS0146X2MCZ	R2E146BE0826	

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 09576-2-4013 not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20; 8x crimped splices

EC-Centrifugal fan

forward curved, single-intake, Ø 140 mm



Material/surface

- Impeller: PP plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation:
 - R3G140...-01: Clockwise viewed toward rotor
 - R3G140...-02: Counterclockwise, viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

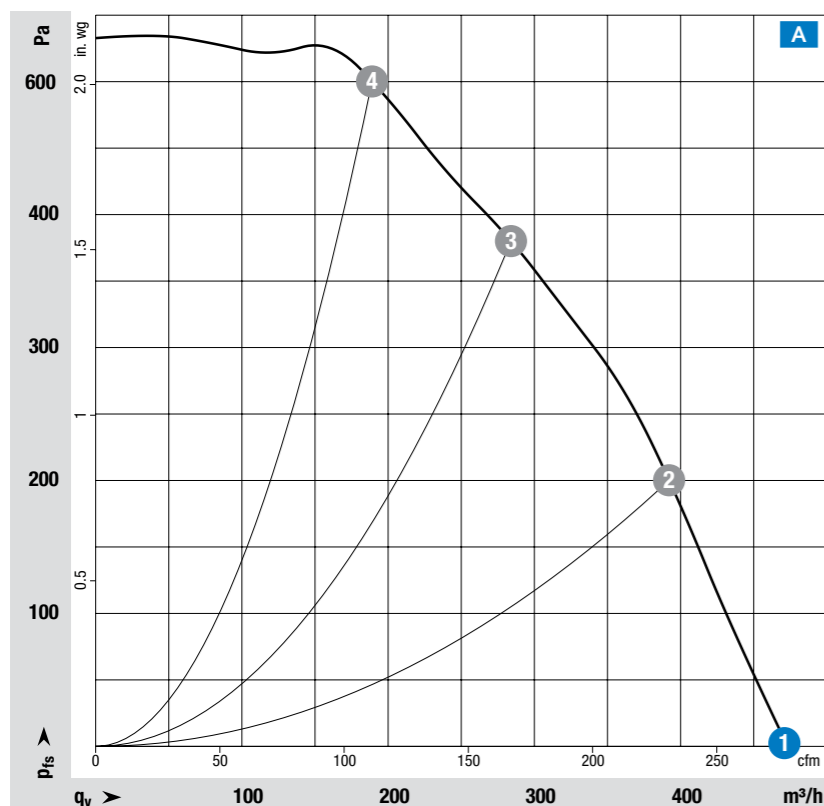
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	475	1800	85	0.73	71	-25...+60	B
	2	1-230	390	2155	85	0.73	70		
	3	1-230	285	2660	85	0.73	70		
	4	1-230	190	3175	85	0.73	74		

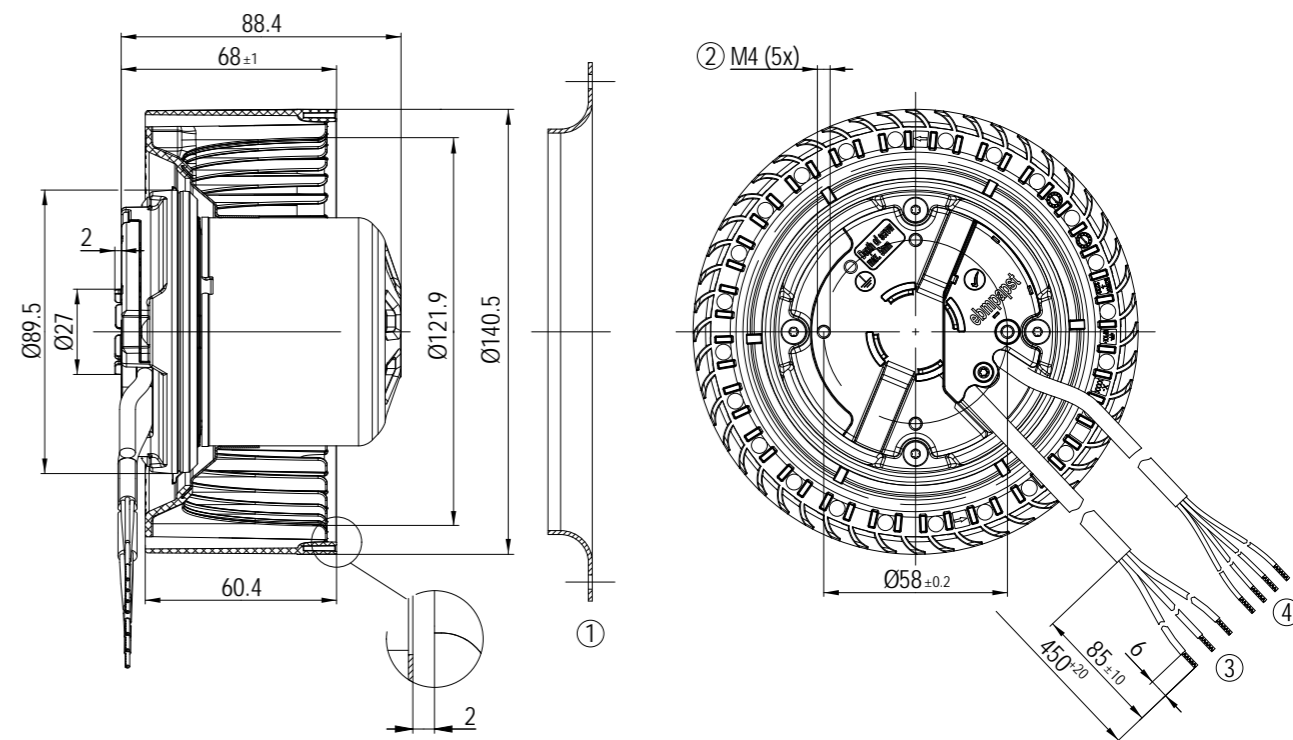
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VFS0140XSLGS	R3G140AH1301	1.40
	VFS0140XSLGS	R3G140AH1302	

Technical drawing

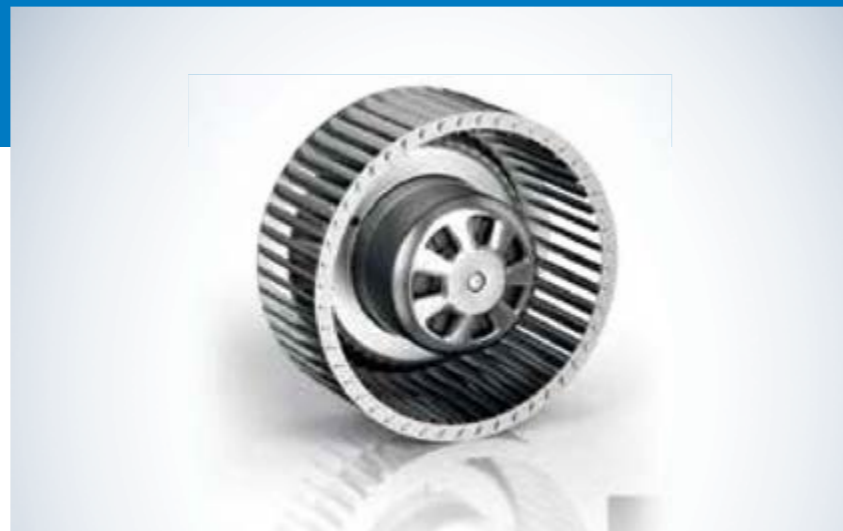
Dimensions in mm



- ① Accessory part: Inlet ring 09576-2-4013, not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20, 3x crimped splices
- ④ Cable PVC AWG22, 4x crimped splices

EC-Centrifugal fan

forward curved, single-intake, Ø 146 mm



Material/surface

- Impeller: Sheet steel galvanized
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation:
R3G146...-03: Clockwise viewed toward rotor
R3G146...-04: Counterclockwise, viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

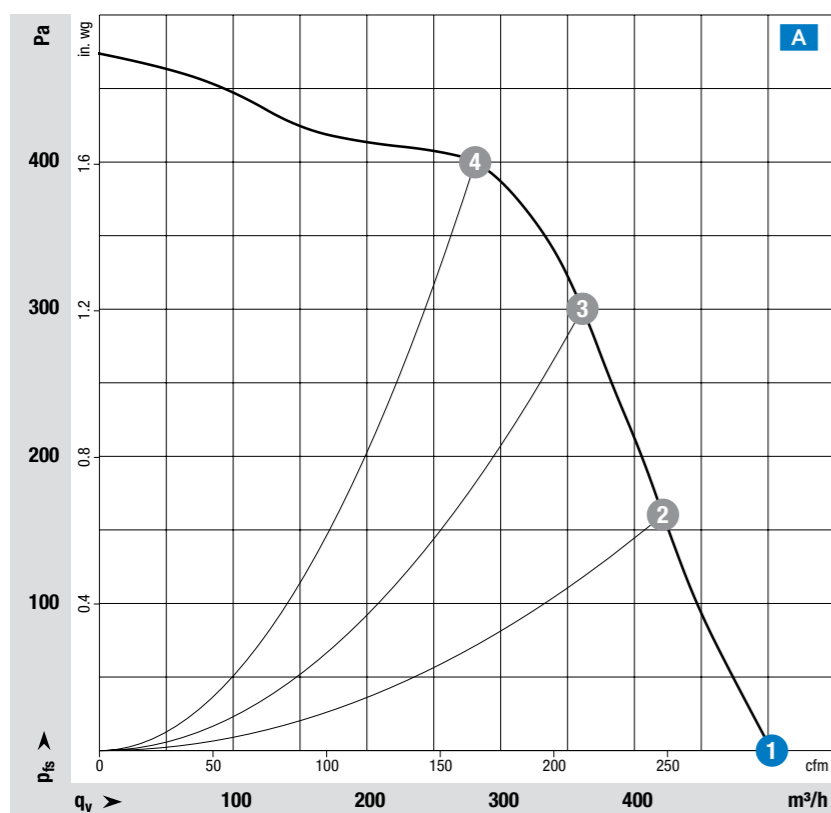
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	505	1830	81	0.70	74	-25...+60	B
	2	1-230	420	2090	81	0.70	70		
	3	1-230	360	2325	81	0.70	69		
	4	1-230	280	2575	81	0.67	70		

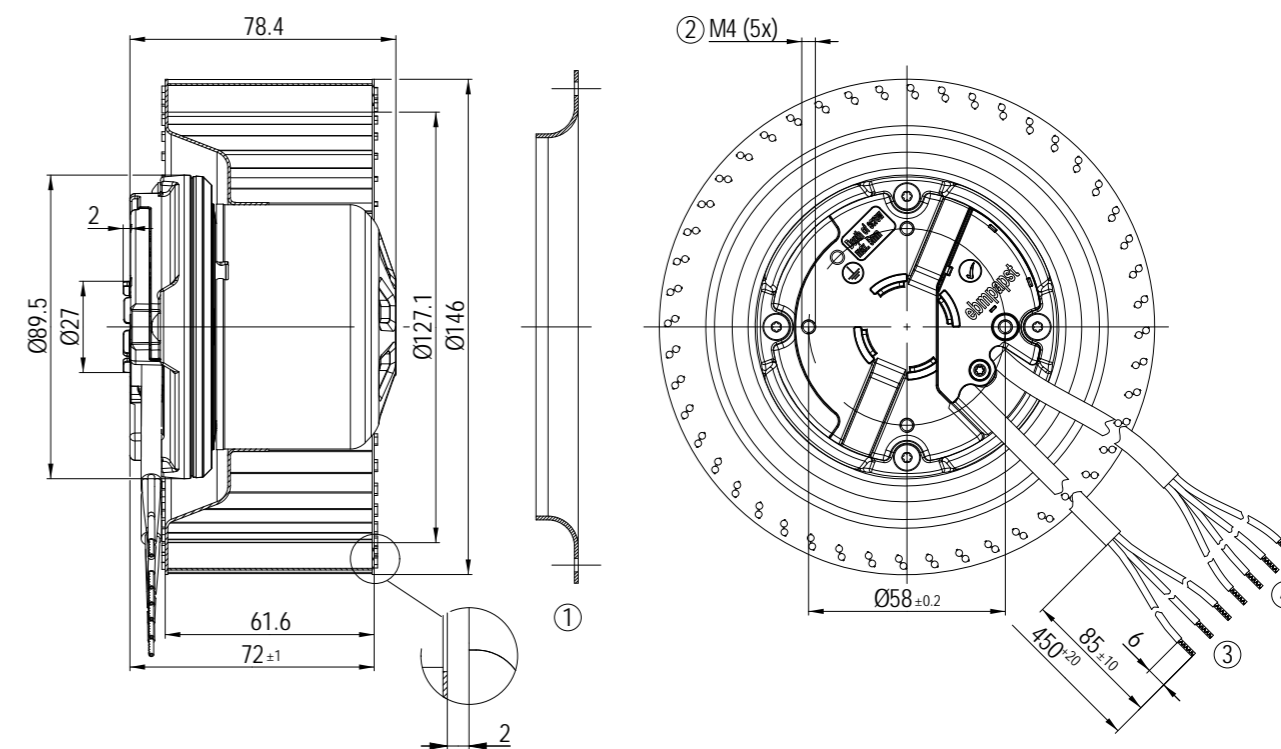
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VFS0146XSLES	R3G146AH2303	1.30
	VFS0146XSLES	R3G146AH2304	

A Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 09576-2-4013, not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20, 3x crimped splices
- ④ Cable PVC AWG22, 4x crimped splices

EC-Centrifugal fan

forward curved, single-intake, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation:
R3G160...-03: Clockwise viewed toward rotor
R3G160...-04: Counterclockwise, viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

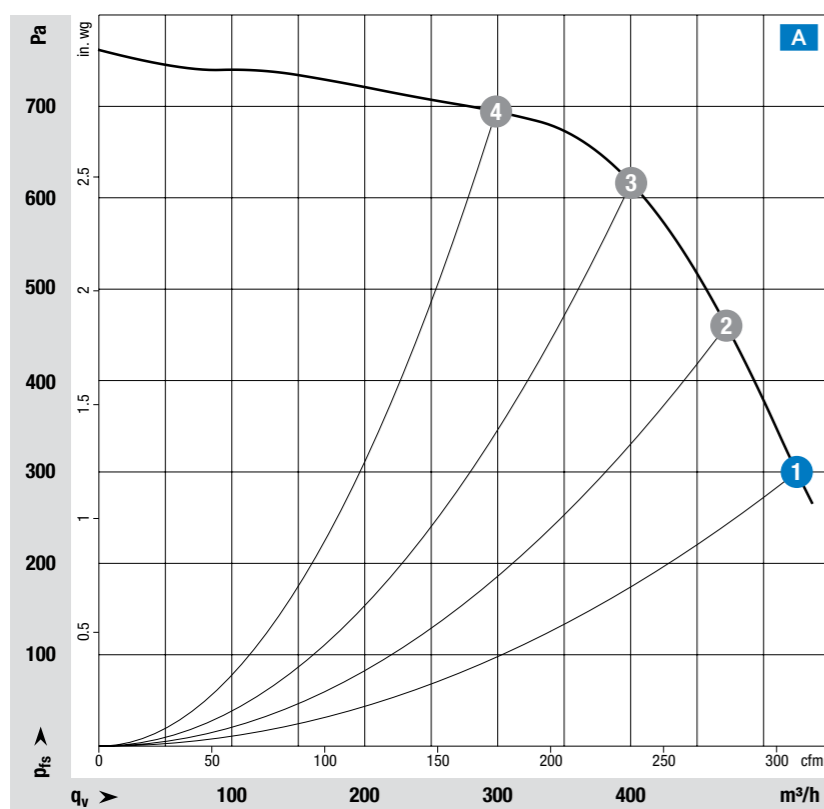
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	Pa	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz										
A	1	1-230	525	2400	170	1.40	75	300		
	2	1-230	470	2600	170	1.40	74		-25...+50	C
	3	1-230	400	2860	170	1.40	76			
	4	1-230	300	3075	145	1.20	77			

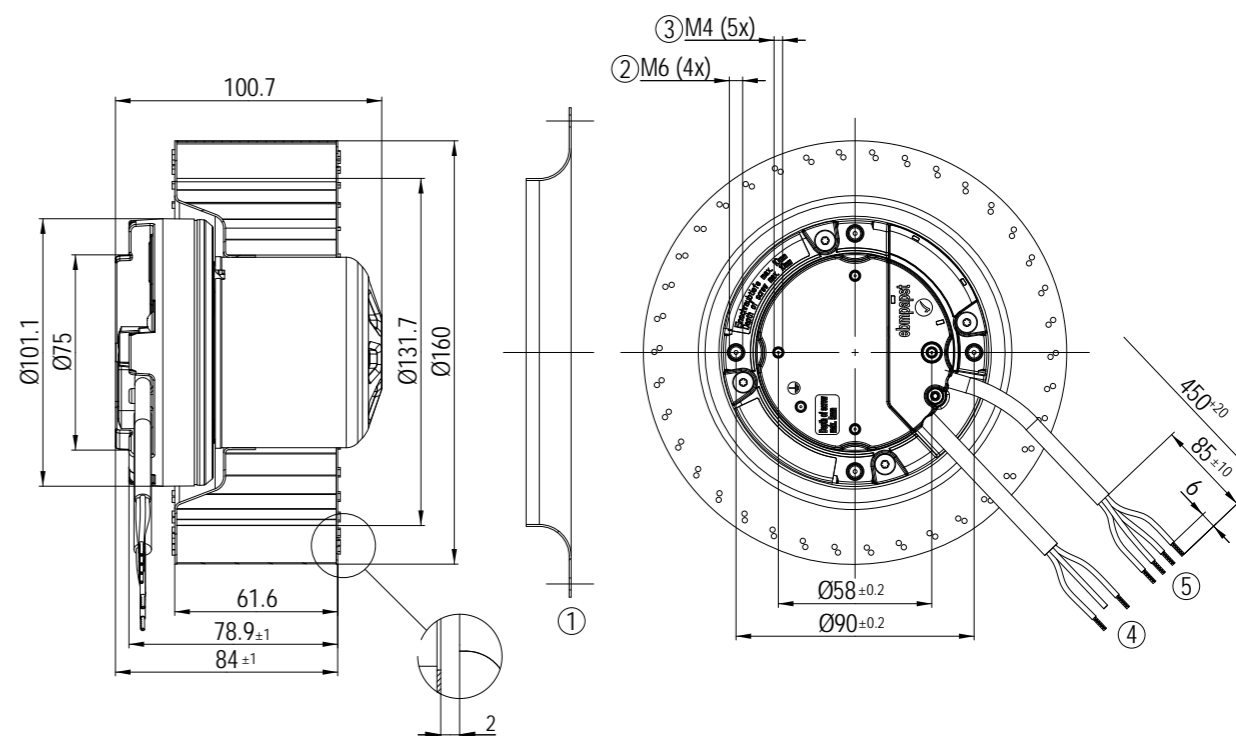
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VFS0160XSLGS	R3G160AZ0703	1.70
	VFS0160XSLGS	R3G160AZ0704	

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring: 09588-2-4013 not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm
- ④ Cable PVC AWG20, 3x crimped splices
- ⑤ Cable PVC AWG22, 4x crimped splices

EC-Centrifugal fan

forward curved, single-intake, Ø 180 mm



Material/surface

- Impeller: Sheet steel galvanized
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

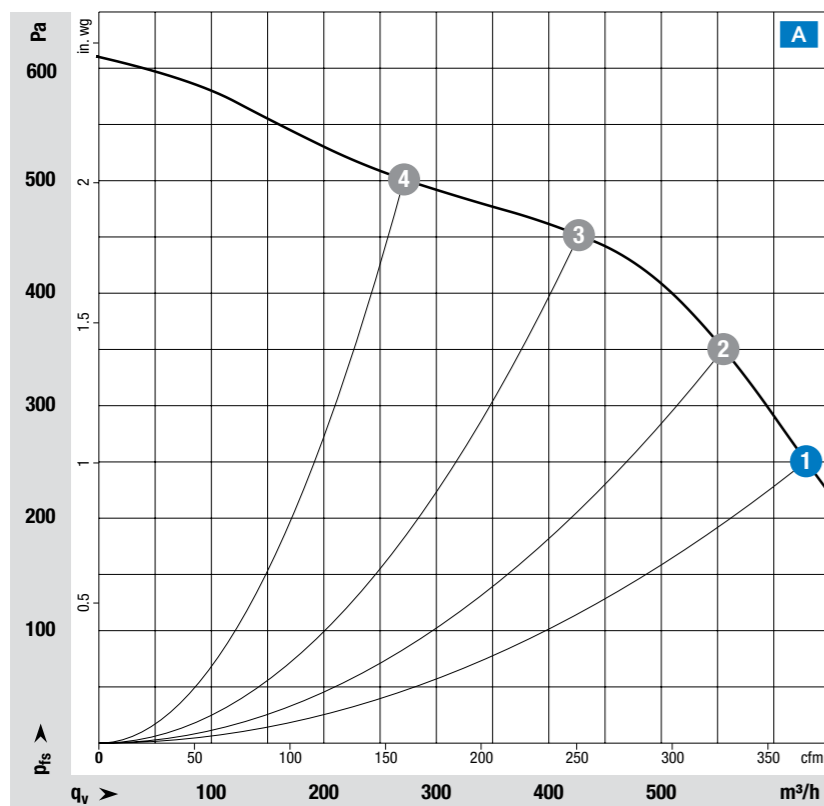
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	Pa	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz										
	1	1-230	630	1750	160	1.30	72	250		
A	2	1-230	555	1915	155	1.27	72		-25...+40	C
	3	1-230	425	2200	146	1.21	72			
	4	1-230	270	2365	115	0.96	73			

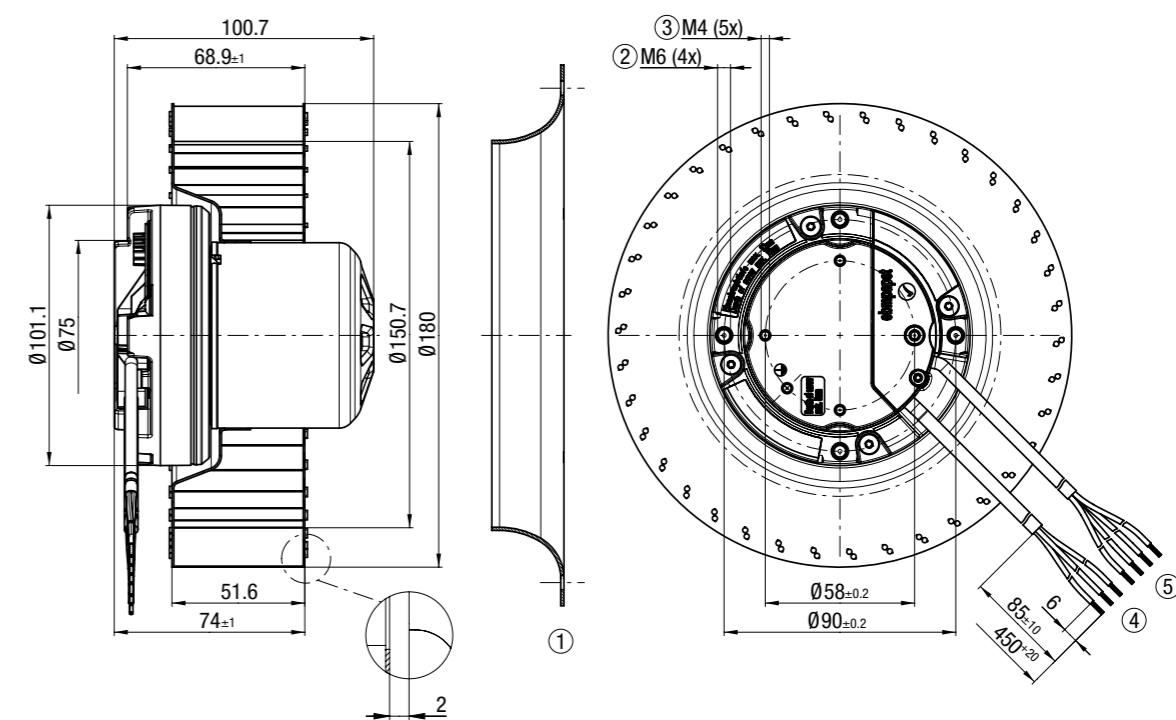
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VFS0180XSLGS	R3G180AS1301	1.70 kg

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring: 09597-2-4013 not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm
- ④ Cable PVC AWG20, 3x crimped splices
- ⑤ Cable PVC AWG22, 4x crimped splices

EC-Centrifugal fan

forward curved, single-intake, Ø 200 mm



Material/surface

- Impeller: Sheet steel galvanized
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

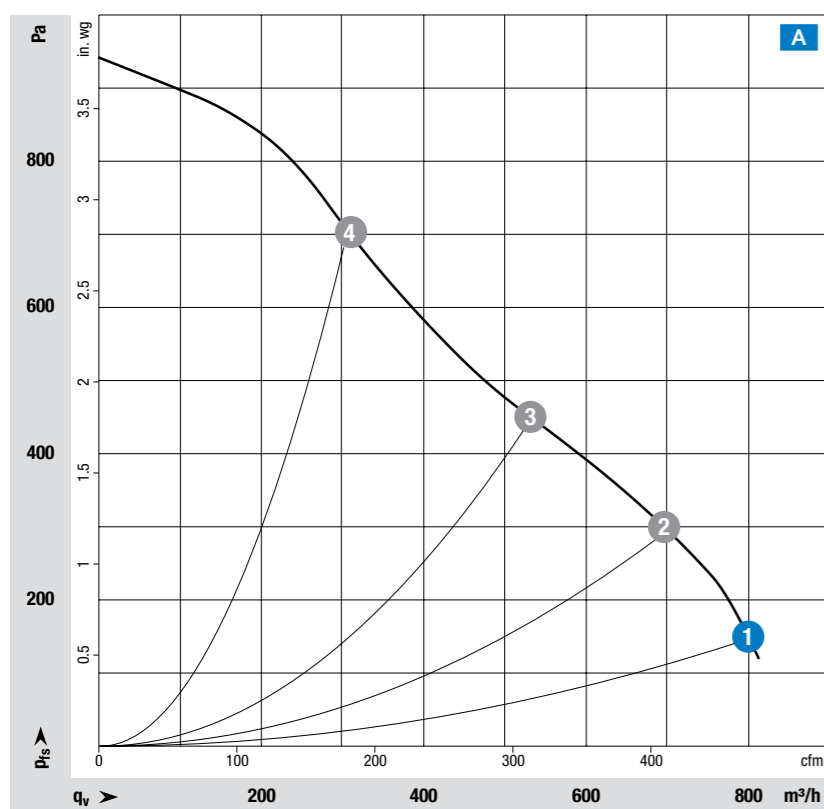
Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

- on Page 96 Accessories
- on Page 102 Connection diagrams and technical features
- More at www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	Pa	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz										
A	1	1-230	800	1560	165	1.30	74	150		
	2	1-230	695	1640	165	1.30	72			
	3	1-230	530	1915	165	1.30	73		-25...+60	C
	4	1-230	310	2380	165	1.30	76			

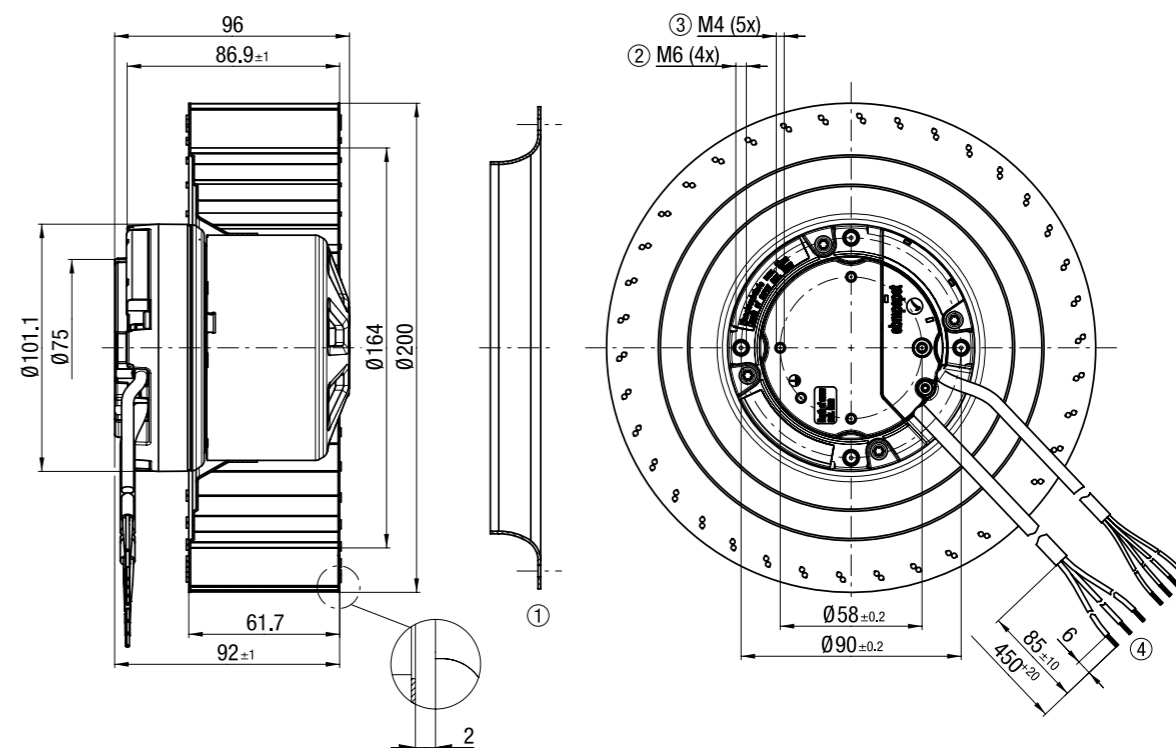
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VFS0200XSNEZ	R3G200AI5302	2.10 kg

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring: 09605-2-4013 not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm
- ④ Cable PVC AWG20, 3x crimped splices
- ⑤ Cable PVC AWG22, 4x crimped splices

AC- / EC-Centrifugal fans

backward curved

ebmpapst

the engineer's choice



	Page
AC-Centrifugal fan VBS0190 / R2E190	28
AC-Centrifugal fan VBS0220 / R2E220	30
AC-Centrifugal fan VBS0250 / R2E250	32
EC-Centrifugal fan VBS0190 / R3G190	34
EC-Centrifugal fan VBS0220 / R3G220	36
EC-Centrifugal fan VBS0225 / R3G225	38
EC-Centrifugal fan VBS0250 / R3G250	42
EC-Centrifugal fan VBH0190 / K3G190	46
EC-Centrifugal fan VBH0220 / K3G220	48
EC-Centrifugal fan VBH0220 / K3G250	50

AC-Centrifugal fan RadiCal

backward curved, Ø 190 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: Depending IP 44, installation- and position EN 60034-5
- Insulation class: B
- Environmental protection class: H0
- Installation position: shaft horizontal or rotor bottom; Rotor on top on request
- Condensation drainage holes: On rotor side
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

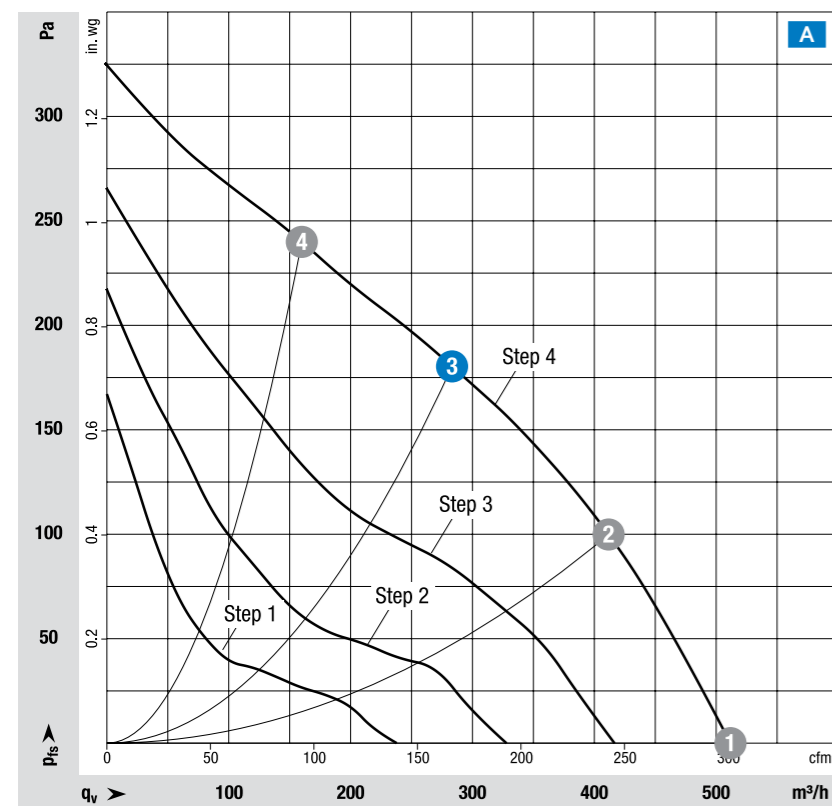
Electrical data

- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: 4

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{WA}	Capacitor (S2)	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz										
A	Step 4	1-230	510	2510	52	0.24	59	1.5/400	-25...+50	A
	Step 4	1-230	410	2445	54	0.24	57	1.5/400		
	Step 4	1-230	285	2400	57	0.25	54	1.5/400		
	Step 4	1-230	160	2475	53	0.24	56	1.5/400		

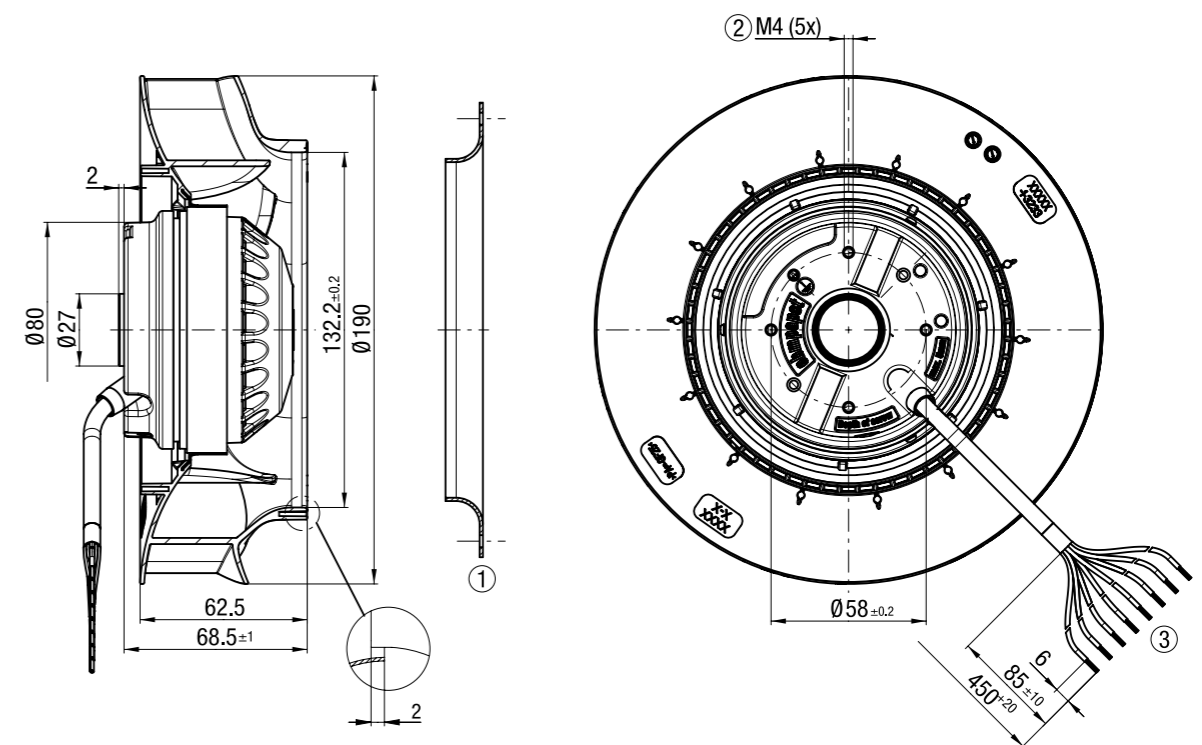
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Centrifugal fan		
	Type	Part number	Weight
A	VBS0190R2MCS	R2E190RA3406	1.20 kg

Technical drawing

Dimensions in mm



① Accessory part: Inlet ring 09576-2-4013, not included in scope of delivery

② Max. clearance for screw 5 mm

③ Cable PVC AWG20; 8x crimped splices

AC-Centrifugal fan RadiCal

backward curved, Ø 220 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: Depending IP 44, installation- and position
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

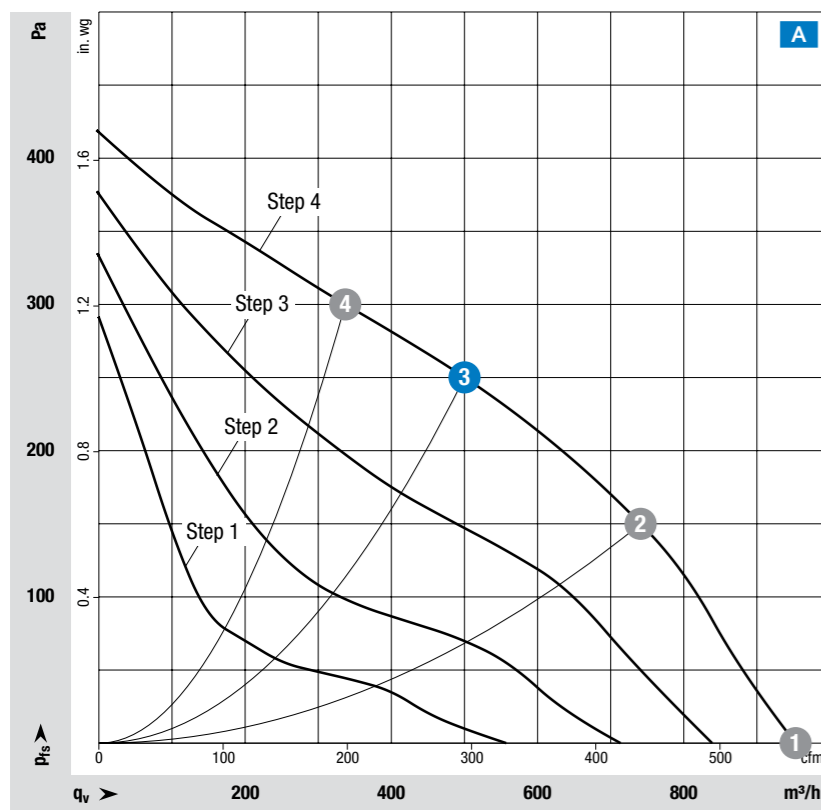
Electrical data

- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: 4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
Intake-side sound level: L_{wA} according to ISO 13347, L_{wA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{wA}	Capacitor (S2)	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz										
A	Step 4	1-230	955	2625	90	0.41	63	2.5/400	-25...+40	A
	Step 4	1-230	740	2565	97	0.44	59	2.5/400		
	Step 4	1-230	500	2500	105	0.46	58	2.5/400		
	Step 4	1-230	335	2550	98	0.44	59	2.5/400		

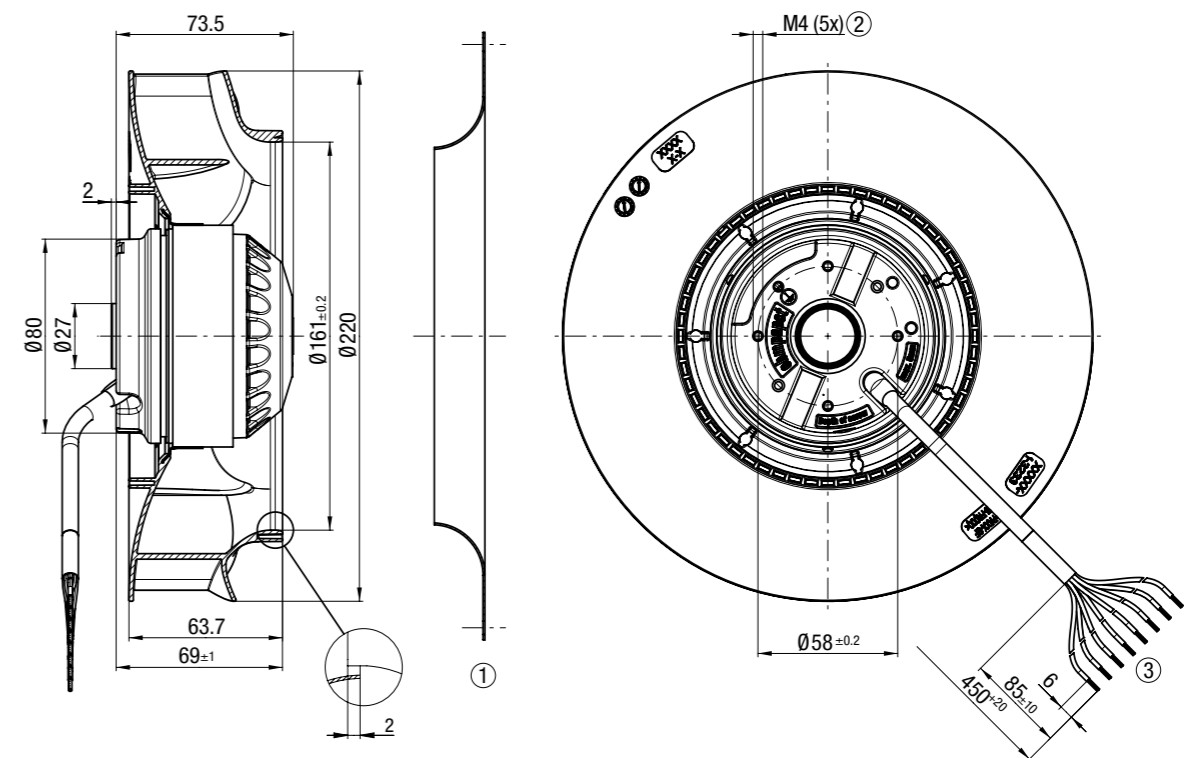
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Centrifugal fan		
	Type	Part number	Weight
A	VBS0220R2MES	R2E220RB1403	1.70 kg

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 09609-2-4013 not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PFA AWG20 (green/yellow AWG18), 8x crimped splices

AC-Centrifugal fan RadiCal

backward curved, Ø 250 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

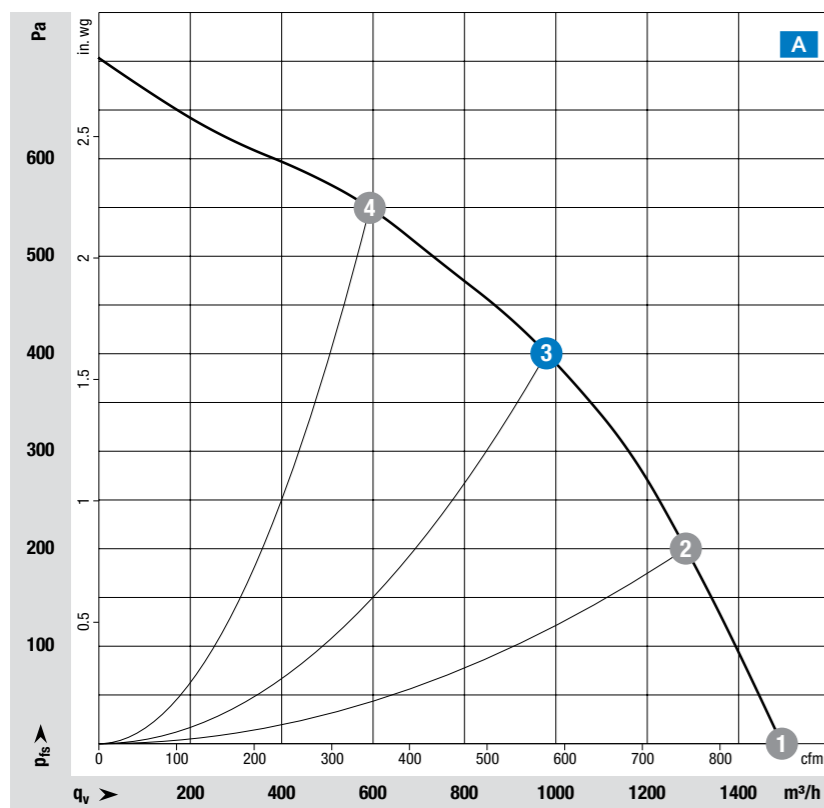
Mechanical data

- Direction of rotation: Clockwise, viewed toward rotor
- Degree of protection: Depending IP 44, installation- and position according to EN60034-5
- Insulation class: F
- Environmental protection class: H0
- Installation position: Shaft horizontal or rotor bottom; Rotor on top on request
- Condensation drainage holes: On rotor side
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Protection class I (with customer connection of protective earth)
 - Cable exit: Variable
- ## Standards and approvals
- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
 - Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements

Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection. Intake-side sound level: L_{wA} according to ISO 13347, L_{wA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{wA}	Capacitor (S2)	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	µF/VDB	°C	
Nominal voltage 230 V AC, 50 Hz										
	1	1-230	1495	2820	212	0.93	78	5/450		
	2	1-230	1285	2790	237	1.04	74	5/450		
A	3	1-230	980	2750	250	1.10	71	5/450	-25...+75	D
	4	1-230	595	2805	223	0.97	75	5/450		
Nominal voltage 230 V AC, 60 Hz on request										

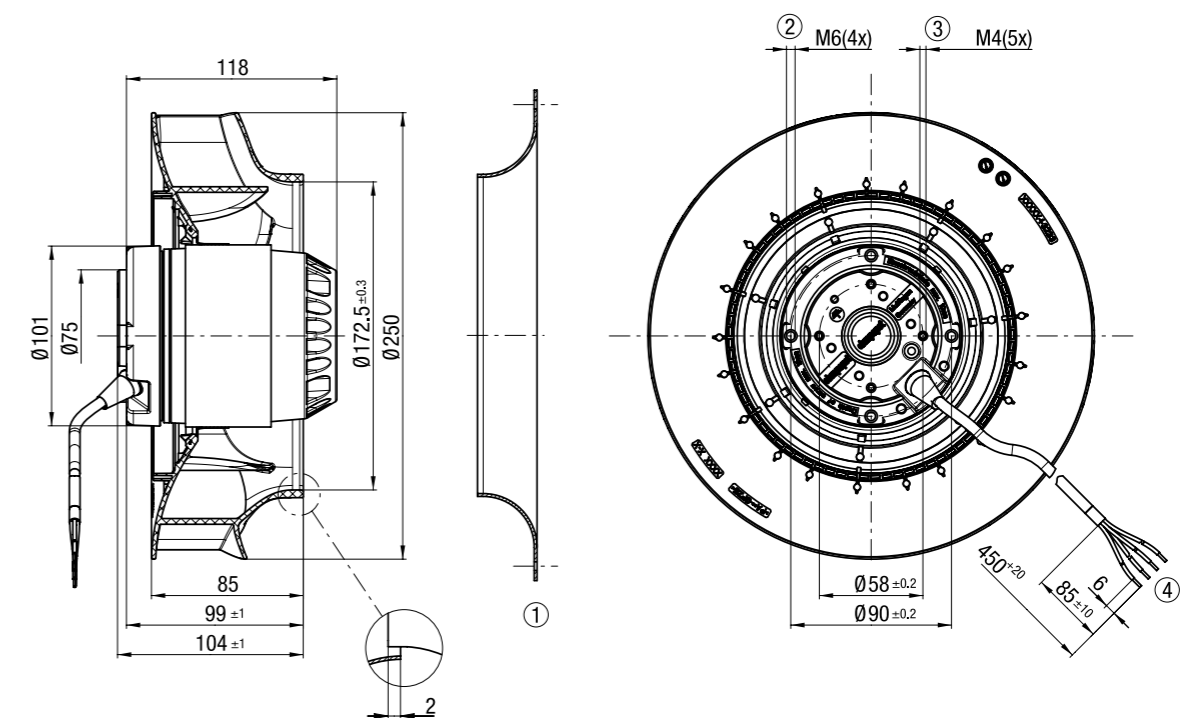
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VBS0250R2NKS	R2E250RB0604	3.15 kg

Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 96359-2-4013 not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm
- ④ Cable Silikon 4G 0,5mm², 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, Ø 220 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

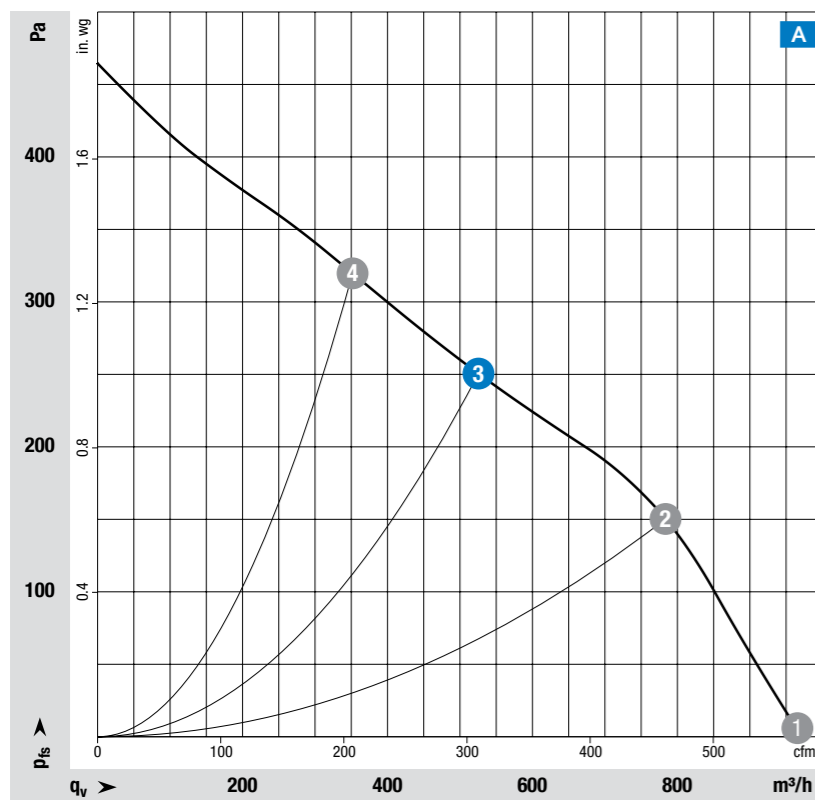
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	970	2695	78	0.69	70	-25...+60	B
	2	1-230	785	2595	85	0.70	67		
	3	1-230	525	2580	85	0.70	65		
	4	1-230	350	2585	85	0.70	67		

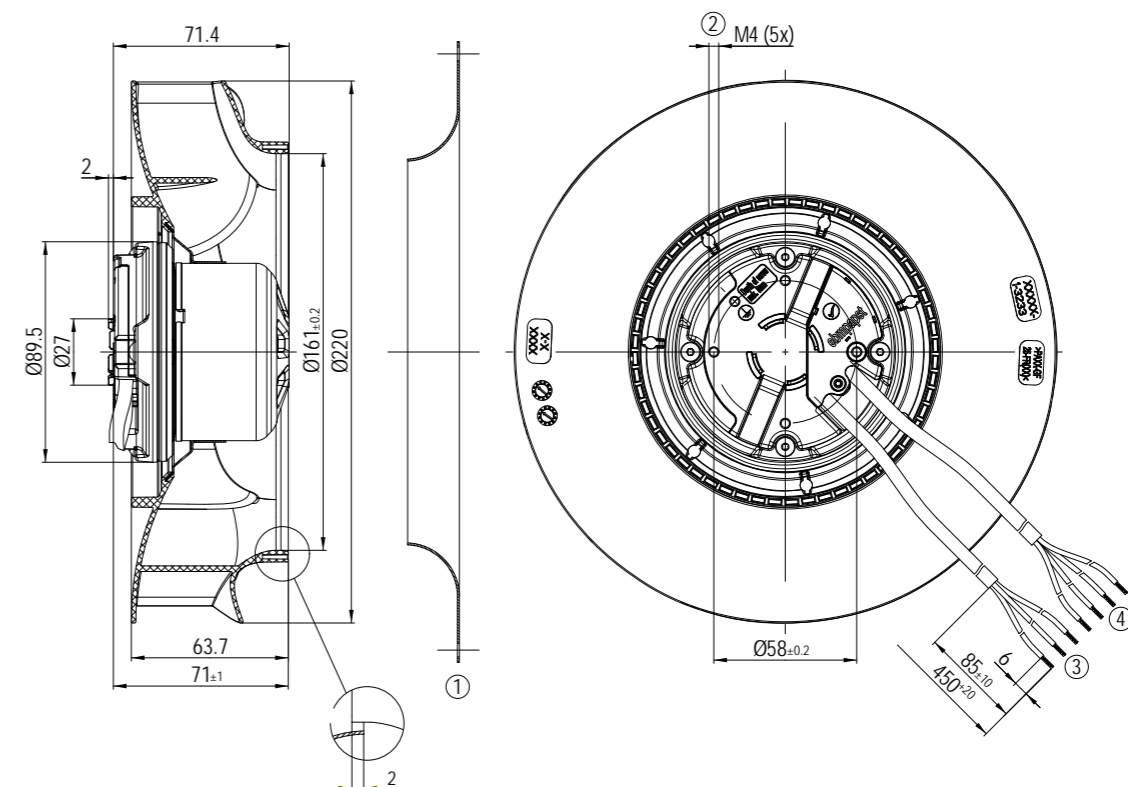
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VBS0220RSLDS	R3G220RC0520	1.20

A Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 09609-2-4013, not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20; 3x crimped splices
- ④ Cable PVC AWG22; 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, Ø 225 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

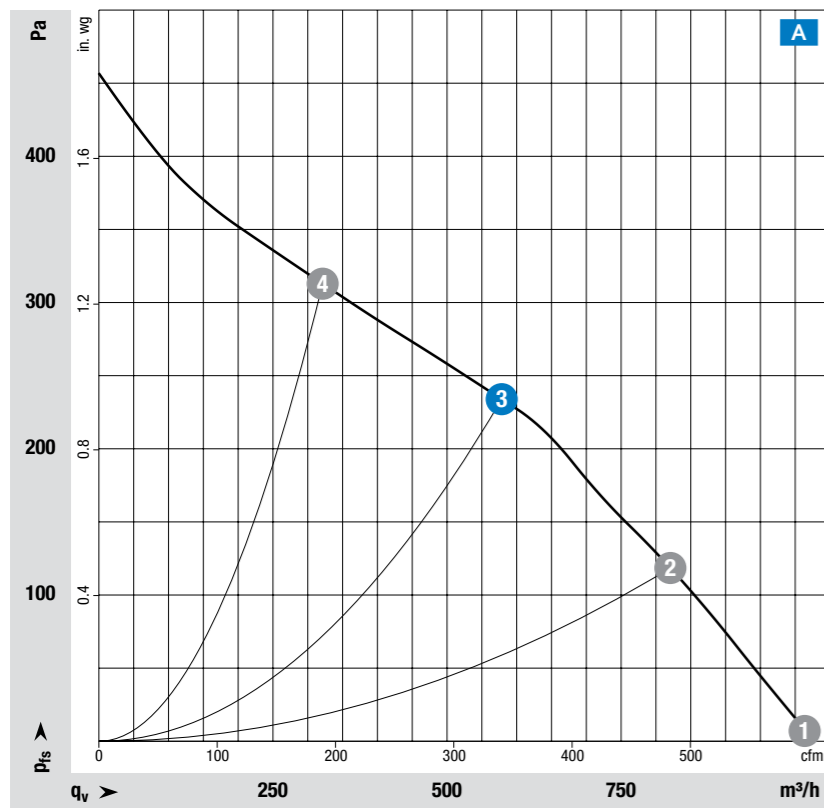
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	1030	2285	70	0.62	69	-25...+60	B
	2	1-230	820	2160	79	0.66	64		
	3	1-230	560	2200	82	0.70	60		
	4	1-230	305	2265	70	0.60	68		

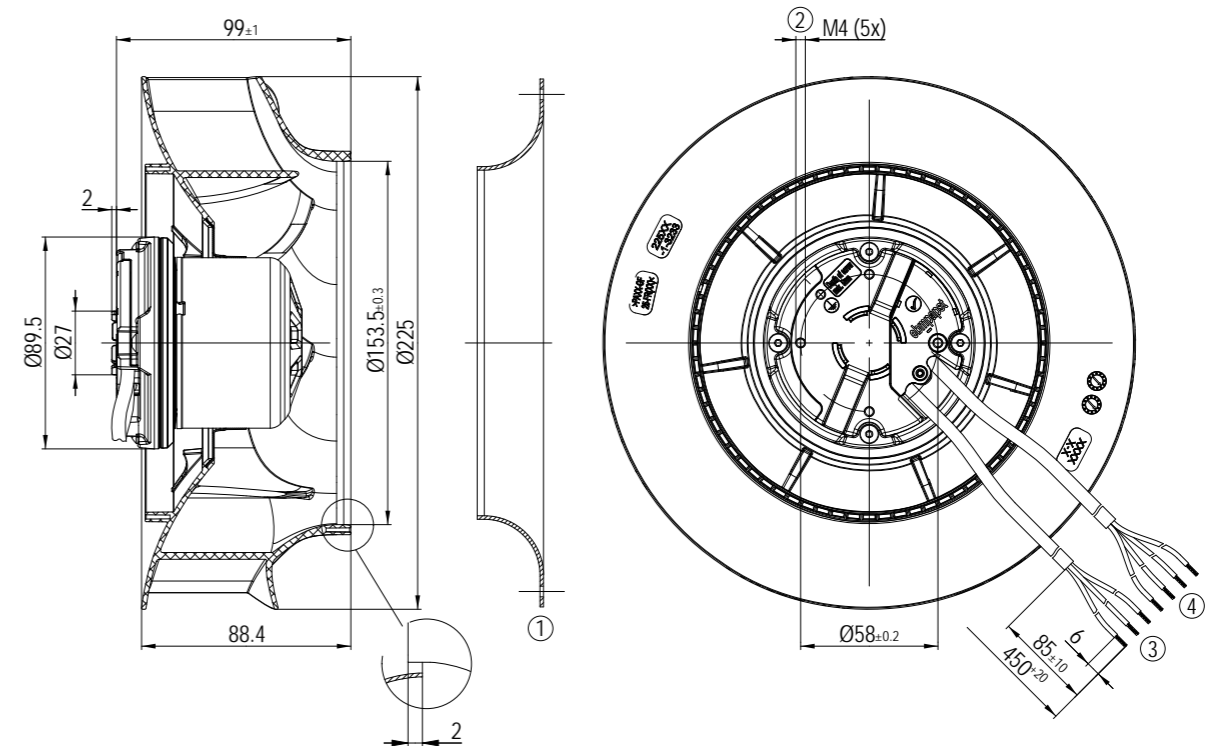
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VBS0225RSLES	R3G225RD0507	1.50

A Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 96358-2-4013, not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20; 3x crimped splices
- ④ Cable PVC AWG22; 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, Ø 225 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

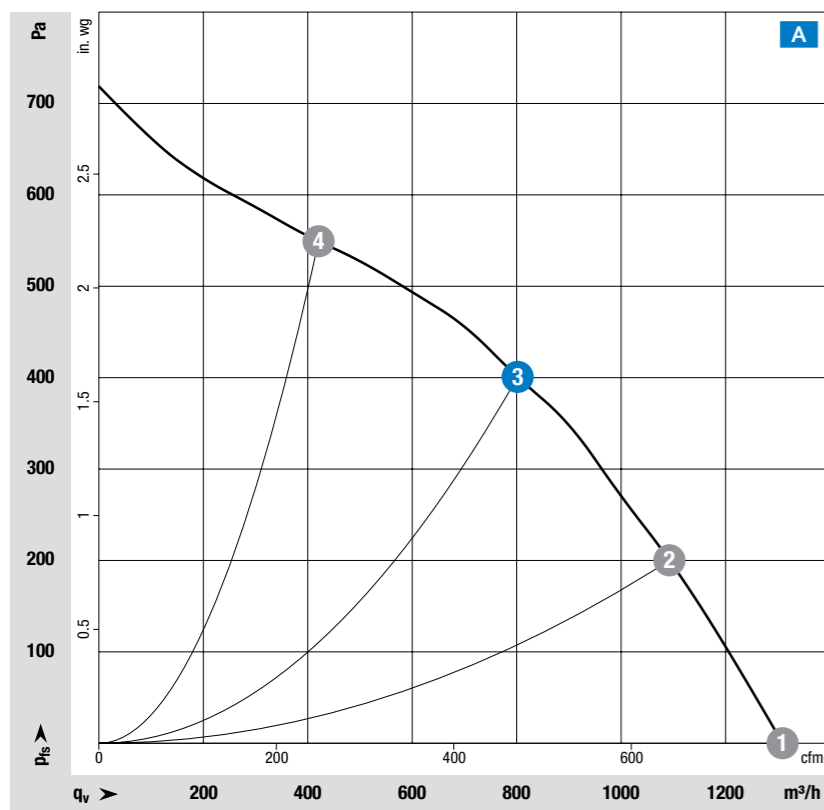
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

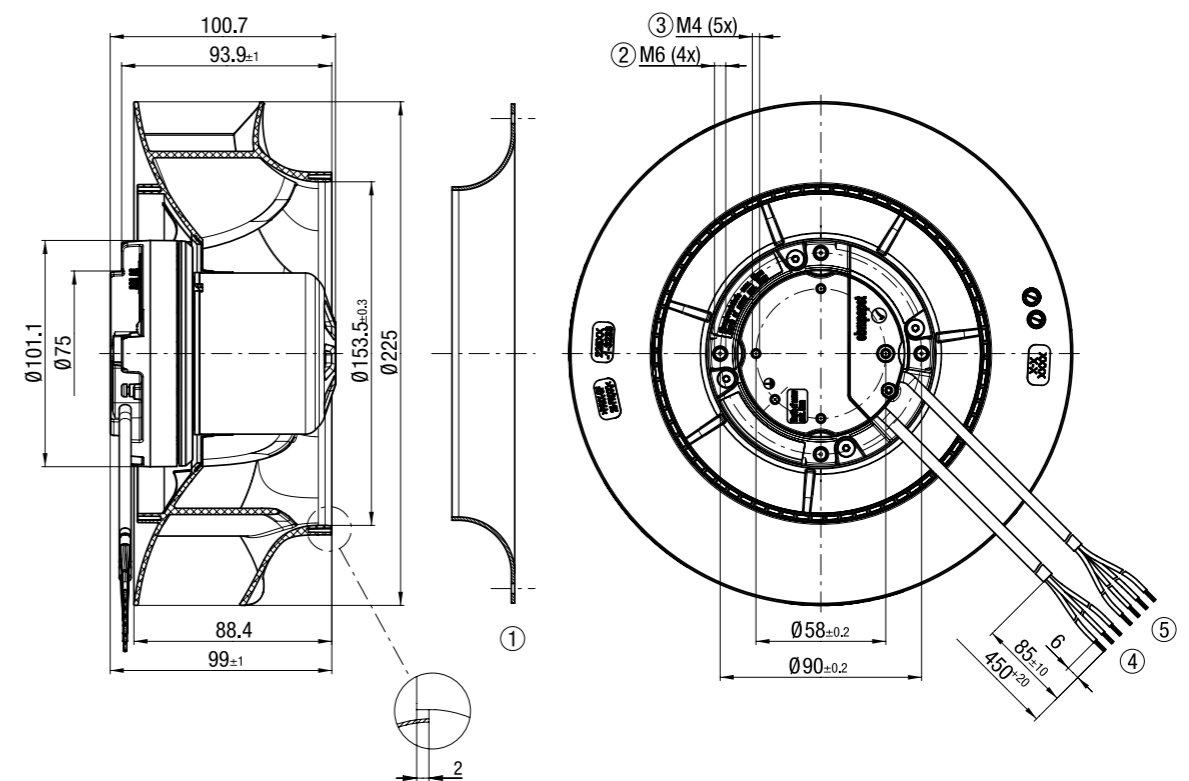
Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	1310	2965	147	1.17	78	-25...+60	C
	2	1-230	1090	2880	170	1.40	74		
	3	1-230	800	2860	170	1.40	68		
	4	1-230	420	2970	149	1.22	74		

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

Subject to change

Curve	Type	Part number	Weight
A	VBS0225RSLGS	R3G225RE0724	1.70 kg

Technical drawing



- ① Accessory part: Inlet ring 96358-2-4013, not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm
- ④ Cable PVC AWG20; 3x crimped splices
- ⑤ Cable PVC AWG22; 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, Ø 250 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

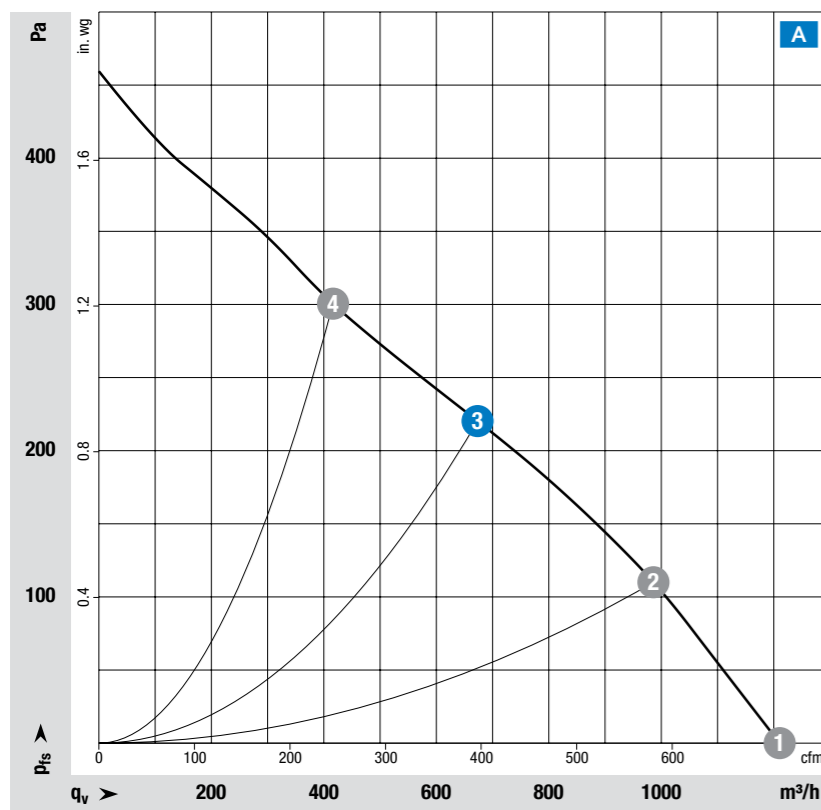
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{wA}	Perm. ambient temp.	Conn. diagram
		VAC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	1210	2195	80	0.70	71	-25...+60	B
	2	1-230	985	2070	80	0.70	66		
	3	1-230	675	1955	80	0.70	62		
	4	1-230	415	2060	80	0.70	68		

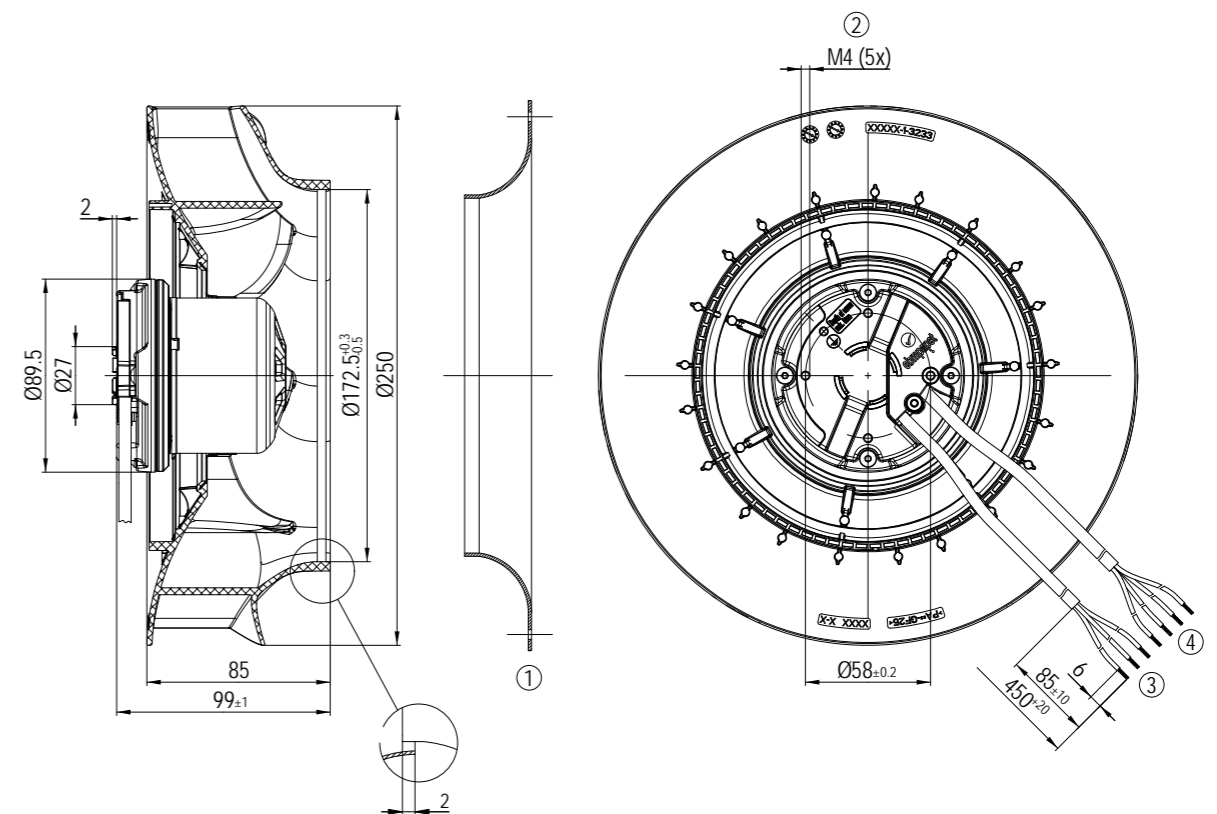
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VBS0225RSLGS	R3G250RD1706	1.60 kg

A Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 96359-2-4013, not included in scope of delivery
- ② Max. clearance for screw 5 mm
- ③ Cable PVC AWG20; 3x crimped splices
- ④ Cable PVC AWG22; 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, Ø 250 mm



Material/surface

- Impeller: PA plastic
- Electronics housing: Die-cast aluminium

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

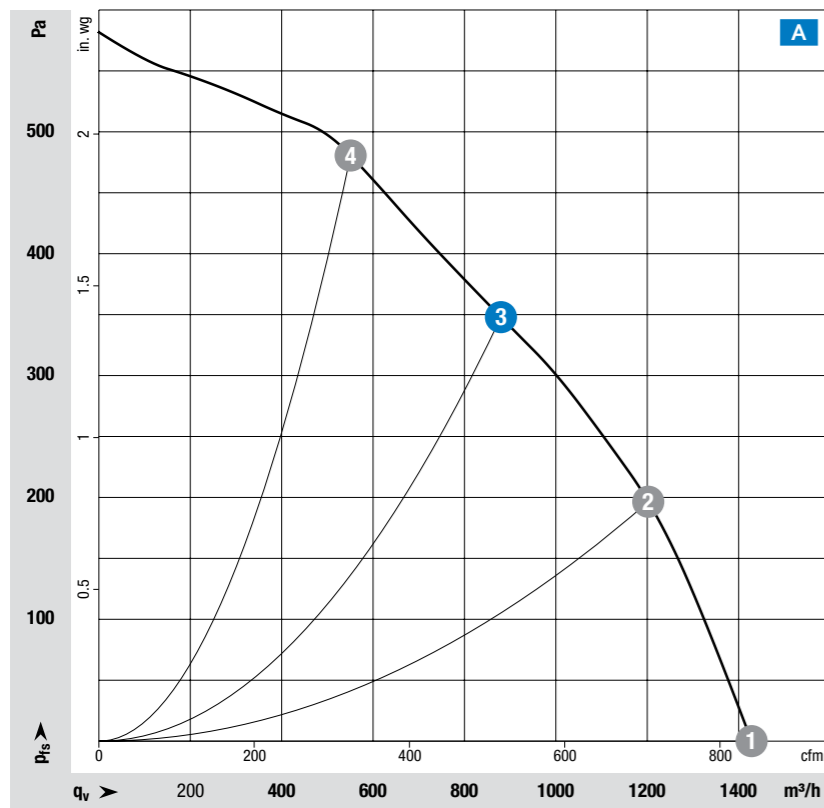
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	1430	2650	143	1.18	77	-25...+60	C
	2	1-230	1200	2625	170	1.40	71		
	3	1-230	850	2510	170	1.40	67		
	4	1-230	500	2650	168	1.39	72		

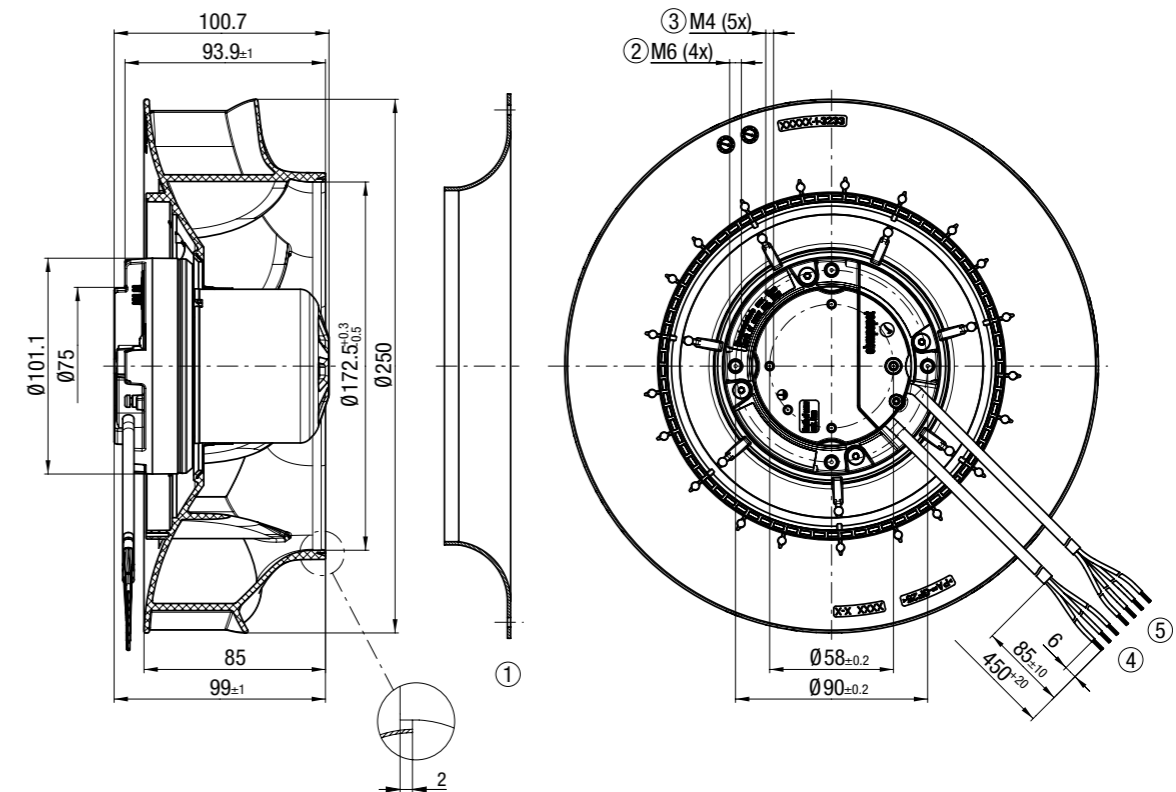
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VBS0250RSLGS	R3G250RE0704	1.90 kg

A Technical drawing

Dimensions in mm



- ① Accessory part: Inlet ring 96359-2-4013, not included in scope of delivery
- ② Max. clearance for screw 10 mm
- ③ Max. clearance for screw 5 mm

- ④ Cable PVC AWG20; 3x crimped splices
- ⑤ Cable PVC AWG22; 4x crimped splices

EC-Centrifugal fan RadiCal

backward curved, with housing, Ø 190mm



Material/surface

- Impeller: PA plastic
- Housing: PA plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

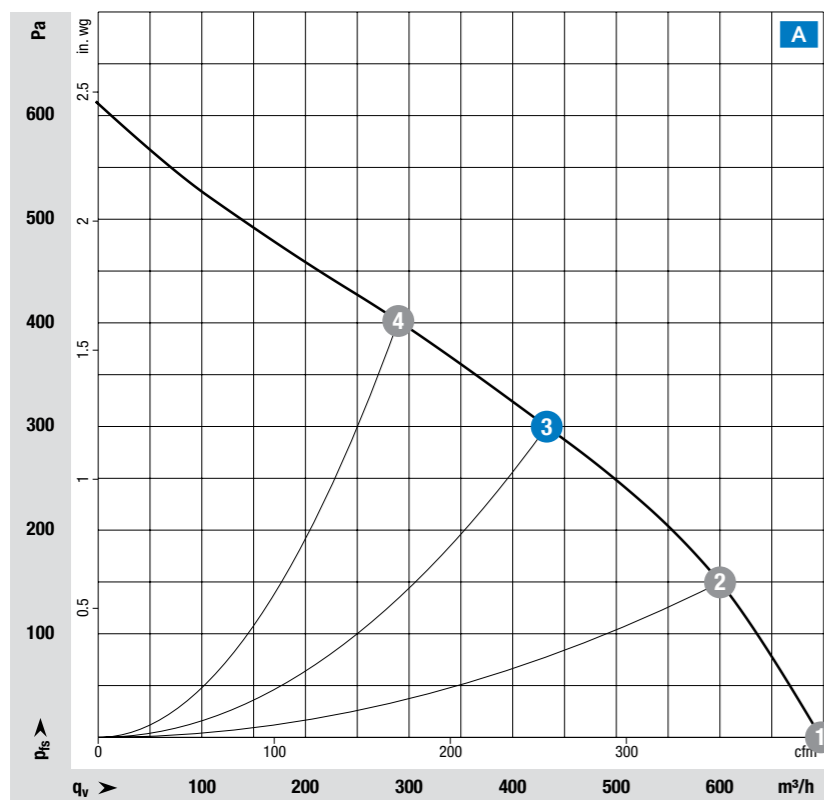
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: UL 1004-7 + 60730, CSA C22.2 Nr. 77 + CAN/CSA-E60730-1, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

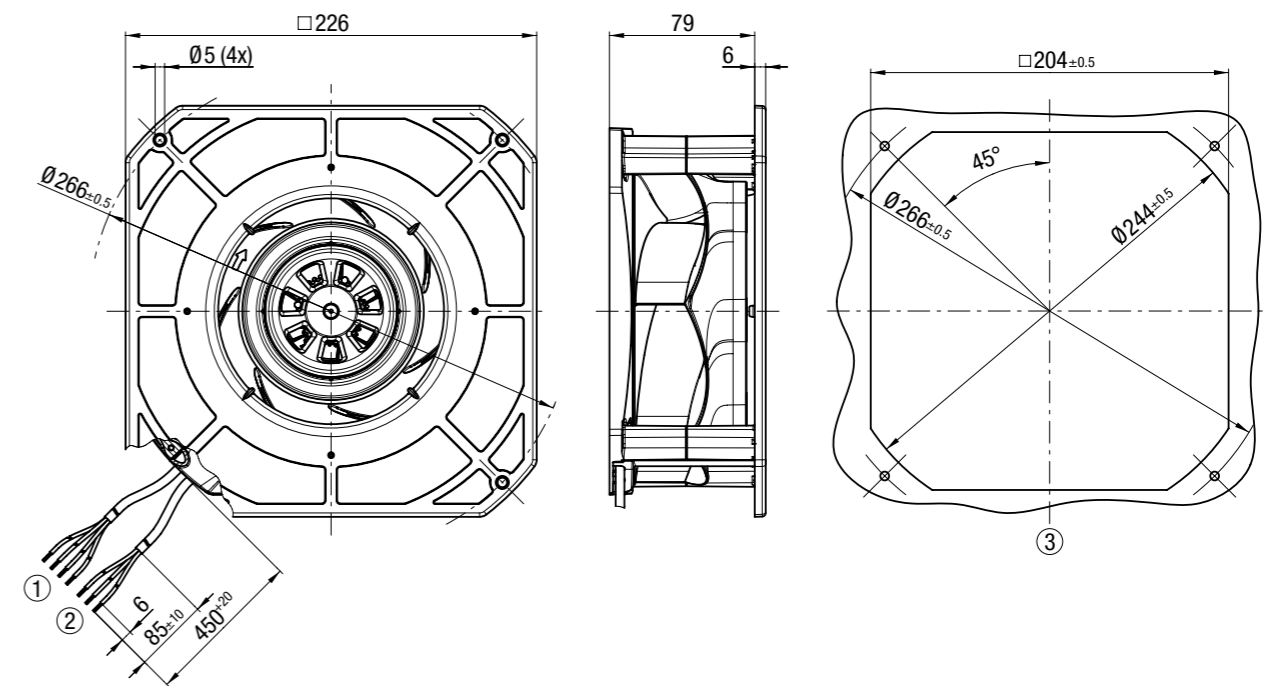
Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	695	3420	75	0.67	73	-25...+60	B
	2	1-230	600	3360	79	0.70	68		
	3	1-230	435	3200	83	0.75	66		
	4	1-230	290	3275	83	0.73	69		

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

Subject to change

Curve	Type	Part number	Weight
			kg
A	VBH0190RSLDZ	K3G190RC0528	1.50

A Technical drawing



- ① Cable PVC AWG22; 4x crimped splices
- ② Cable PVC AWG20; 3x crimped splices
- ③ Mounting dimensions

EC-Centrifugal fan RadiCal

backward curved, with housing, Ø 220mm



Material/surface

- Impeller: PA plastic
- Housing: PA plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

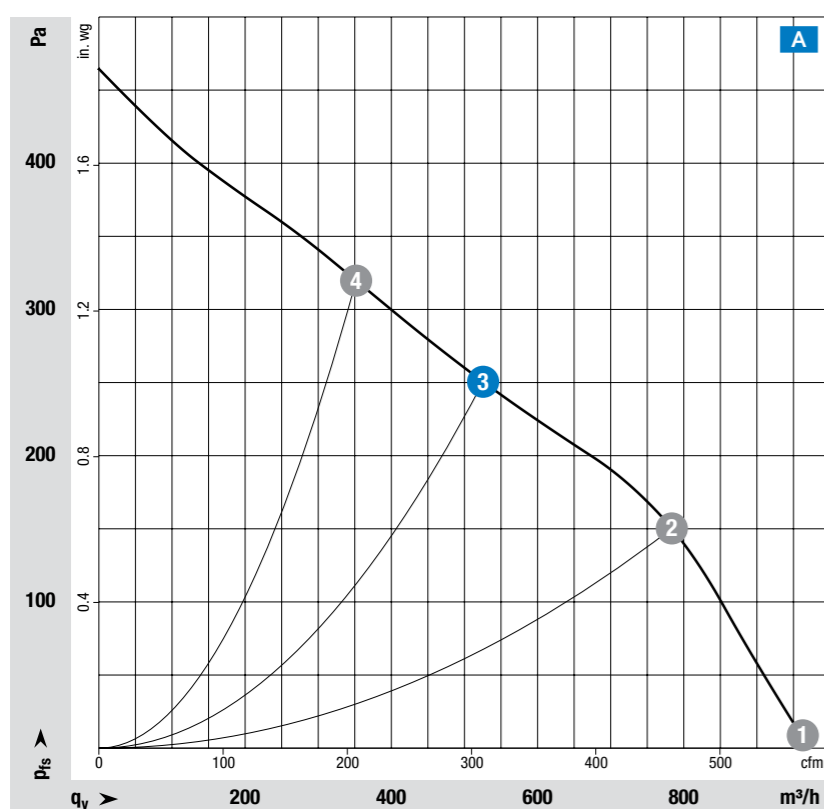
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: UL 1004-7 + 60730, CSA C22.2 Nr. 77 + CAN/CSA-E60730-1, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

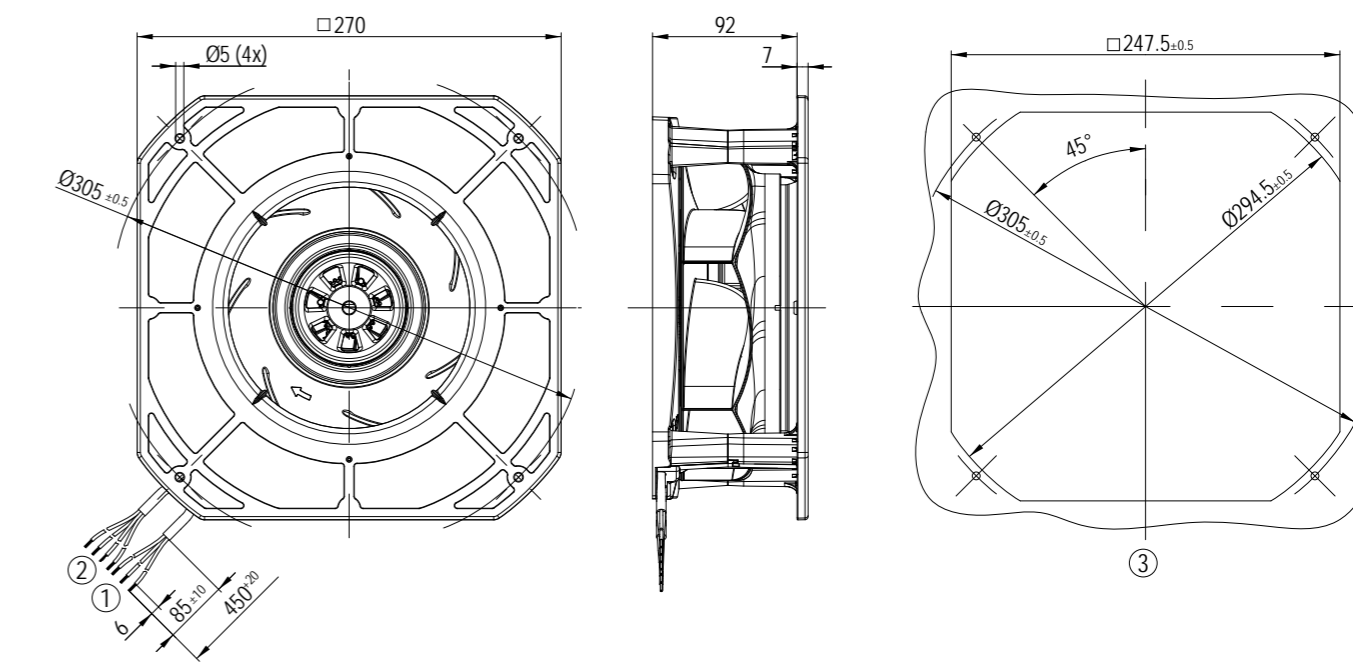
Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	970	2695	78	0.69	70	-25...+60	B
	2	1-230	785	2595	85	0.70	67		
	3	1-230	525	2580	85	0.70	65		
	4	1-230	350	2585	85	0.70	67		

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

Subject to change

Curve	Type	Part number	Weight
			kg
A	VBH0220RSLDZ	K3G220RC0511	1.80

A Technical drawing



- ① Cable PVC AWG20; 3x crimped splices
- ② Cable PVC AWG22; 4x crimped splices
- ③ Mounting dimensions

EC-Centrifugal fan RadiCal

backward curved, with housing, Ø 250mm



Material/surface

- Impeller: PA plastic
- Housing: PA plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

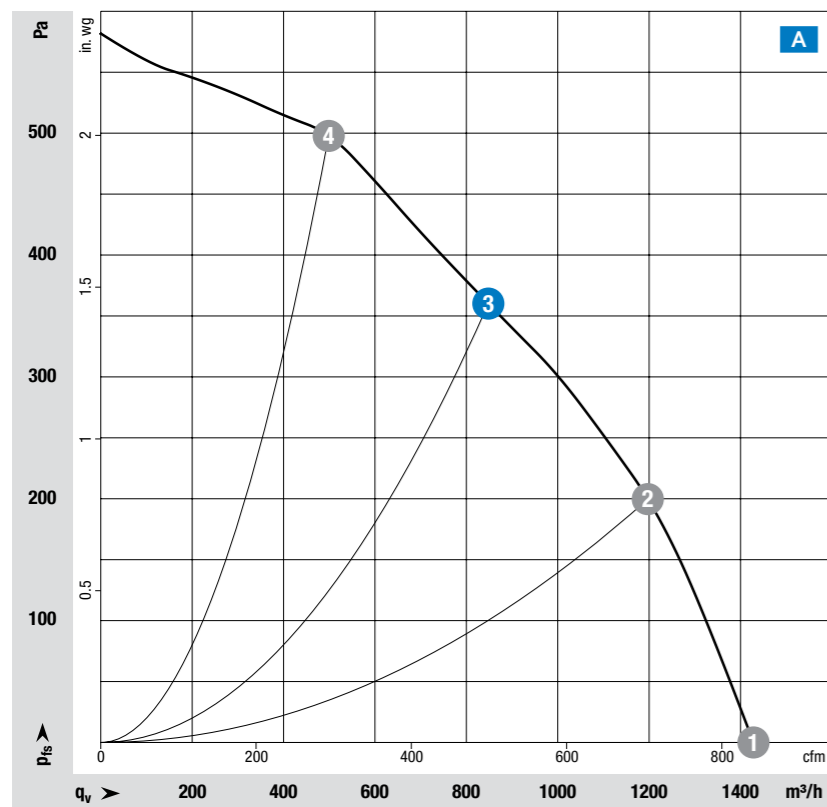
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

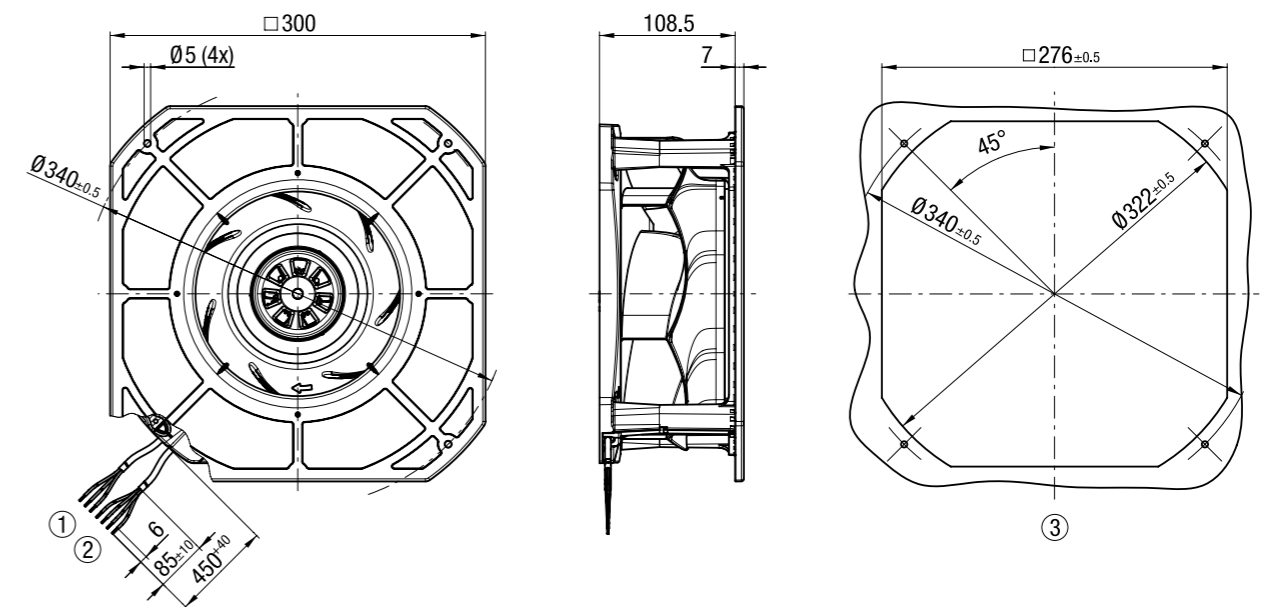
Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
A	1	1-230	1430	2650	143	1.18	77	-25...+60	C
	2	1-230	1200	2625	170	1.40	71		
	3	1-230	850	2510	170	1.40	67		
	4	1-230	500	2650	168	1.39	72		

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

Subject to change

Curve	Type	Part number	Weight
A	Centrifugal fan		
A	VBH0250RTLGS	K3G250RE0704	2.70 kg

A Technical drawing Dimensions in mm



- ① Cable PVC AWG20; 3x crimped splices
- ② Cable PVC AWG22; 4x crimped splices
- ③ Mounting dimensions

AC- / EC-Centrifugal fans

forward-curved, dual-intake, with housing

ebmpapst

the engineer's choice



Seite

AC-Centrifugal fan VHD0140 / D2E140	54
AC-Centrifugal fan VHD0146 / D2E146	56
EC-Centrifugal fan VHD0160 / D2G160	62
EC-Centrifugal fan VHD0160 / D1G146	66
EC-Centrifugal fan VHD0146 / D3G146	70
EC-Centrifugal fan VHD0160 / D3G160	74

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 140 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 44
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

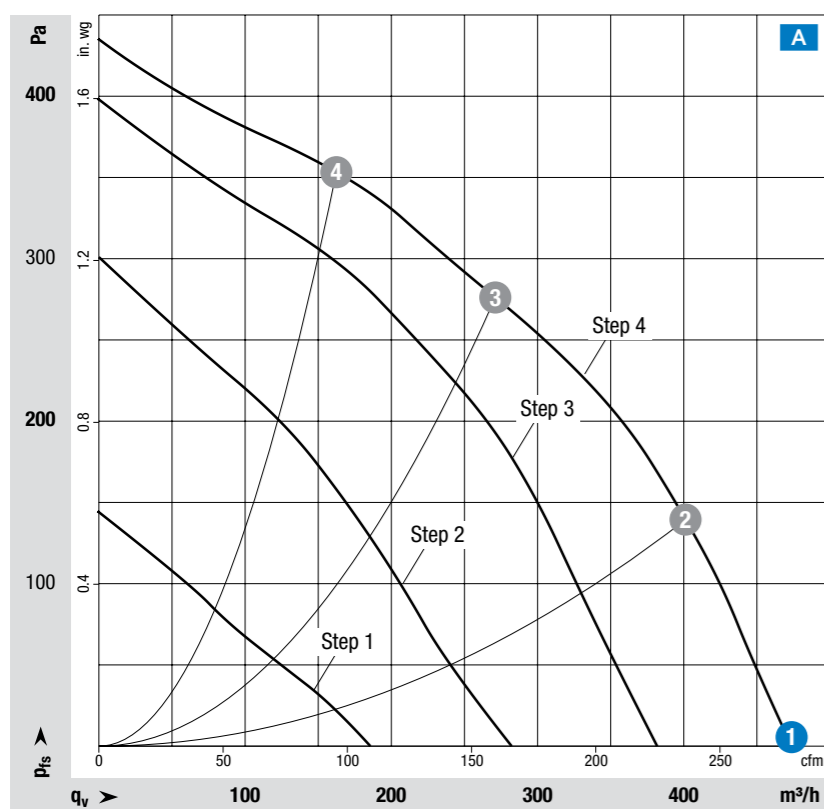
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC, CCC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz									
A	1 Step 4	1-230	475	1150	130	0.58	70	-25...+40	E
	2 Step 4	1-230	400	1705	117	0.51	69		
	3 Step 4	1-230	275	2220	100	0.43	71		
	4 Step 4	1-230	165	2390	92	0.40	72		
Nominal voltage 230 V AC, 60 Hz on request									

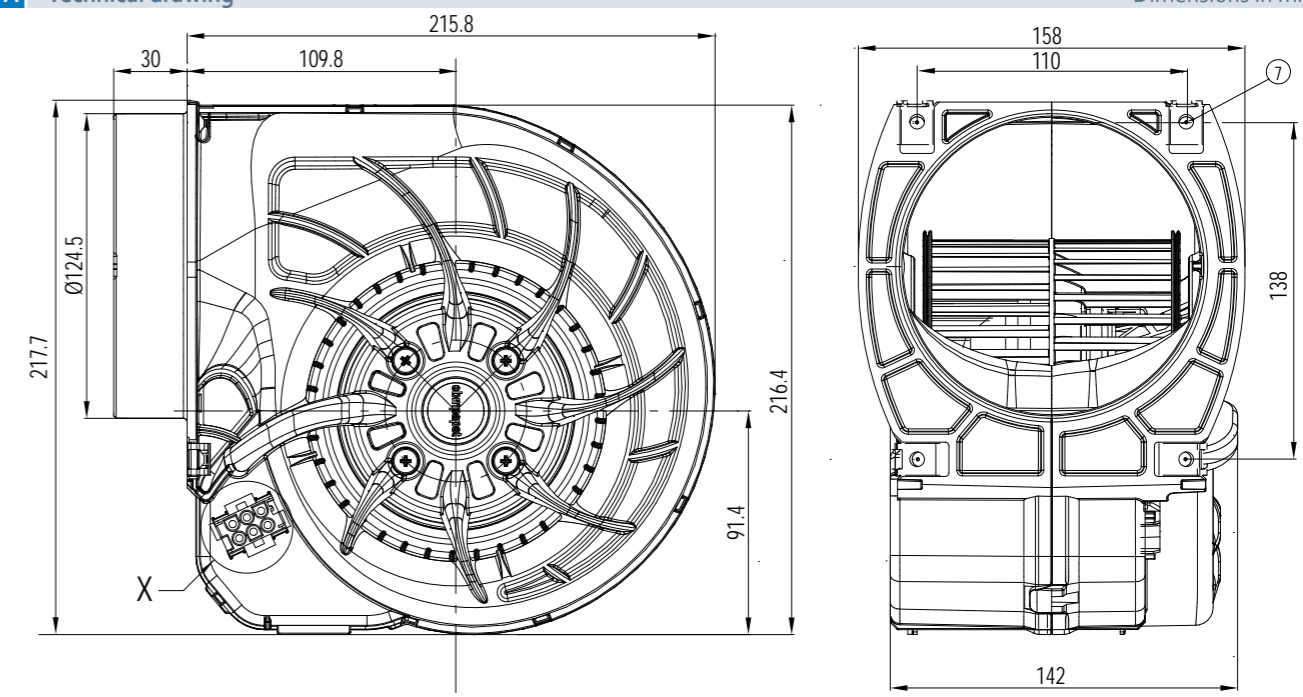
Values set in blue are nominal data at operating point with maximum load.

Subject to change

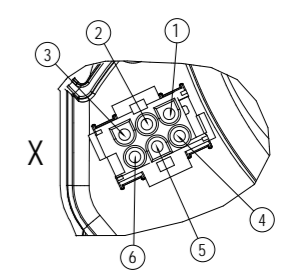
Curve	Centrifugal fan		
	Type	Part number	Weight kg
A	VHD0140X2MES	D2E140HR9707	2.30

A Technical drawing

Dimensions in mm



- Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1**
- ① L = Step 1
 - ② L = Step 2
 - ③ L = Step 3
 - ④ L = Step 4
 - ⑤ N
 - ⑥ PE
 - ⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment)



AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

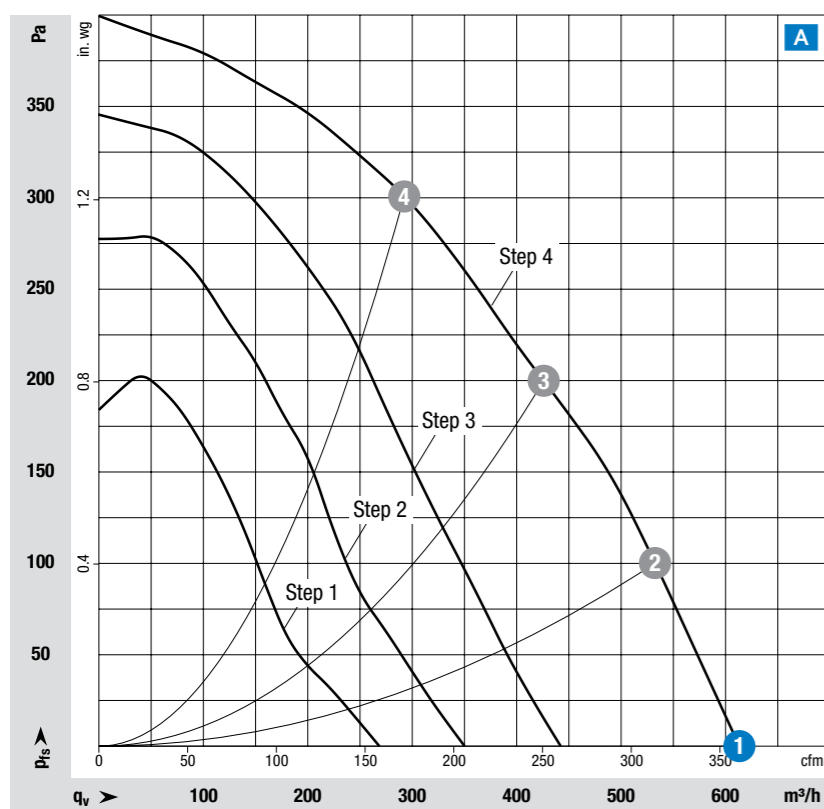
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: VDE, EAC, CCC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{pA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage 230 V AC, 50 Hz									
A	1 Step 4	1-230	615	1030	140	0.62	60		
	2 Step 4	1-230	535	1425	133	0.58	60		
	3 Step 4	1-230	435	1840	125	0.55	62	-25...+50	E
	4 Step 4	1-230	310	2220	112	0.50	67		
Nominal voltage 230 V AC, 60 Hz on request									

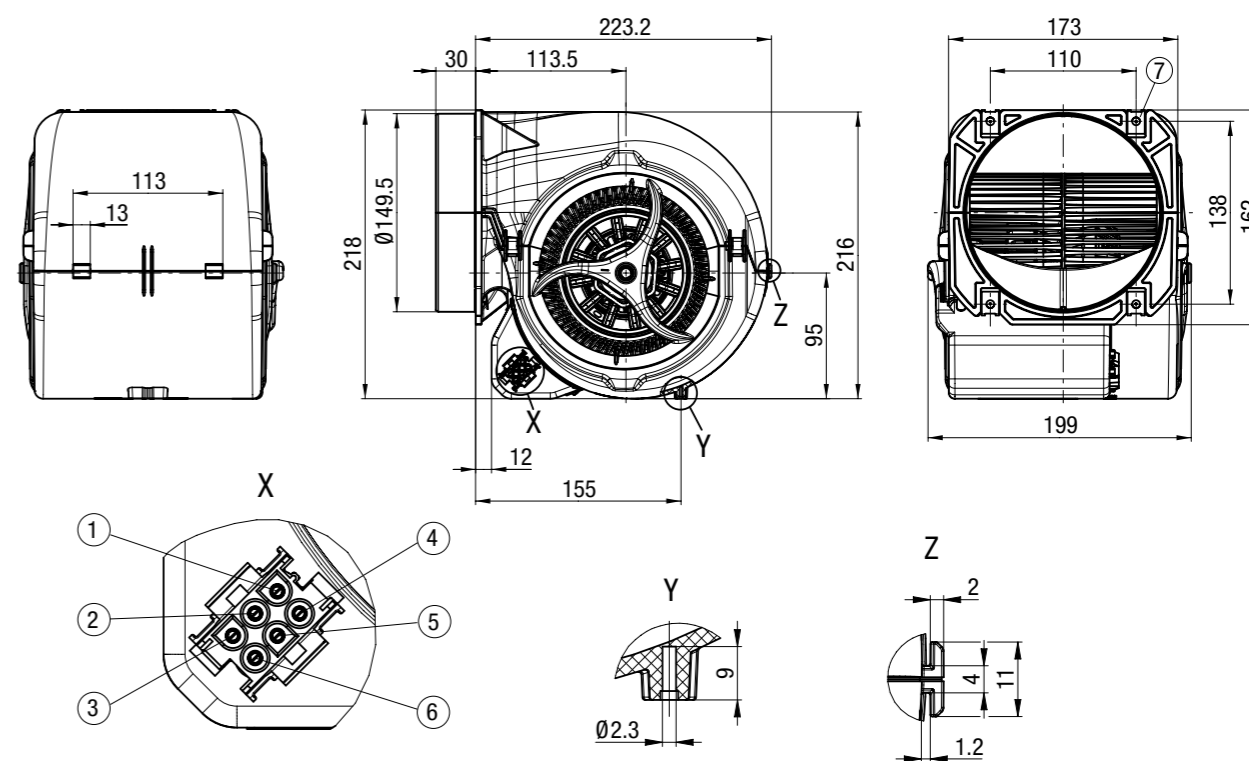
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146X2MES	D2E146HR93A1	2.60 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- | | | |
|--------------|--------------|---|
| ① L = Step 1 | ④ L = Step 4 | ⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment) |
| ② L = Step 2 | ⑤ N | |
| ③ L = Step 3 | ⑥ PE | |

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

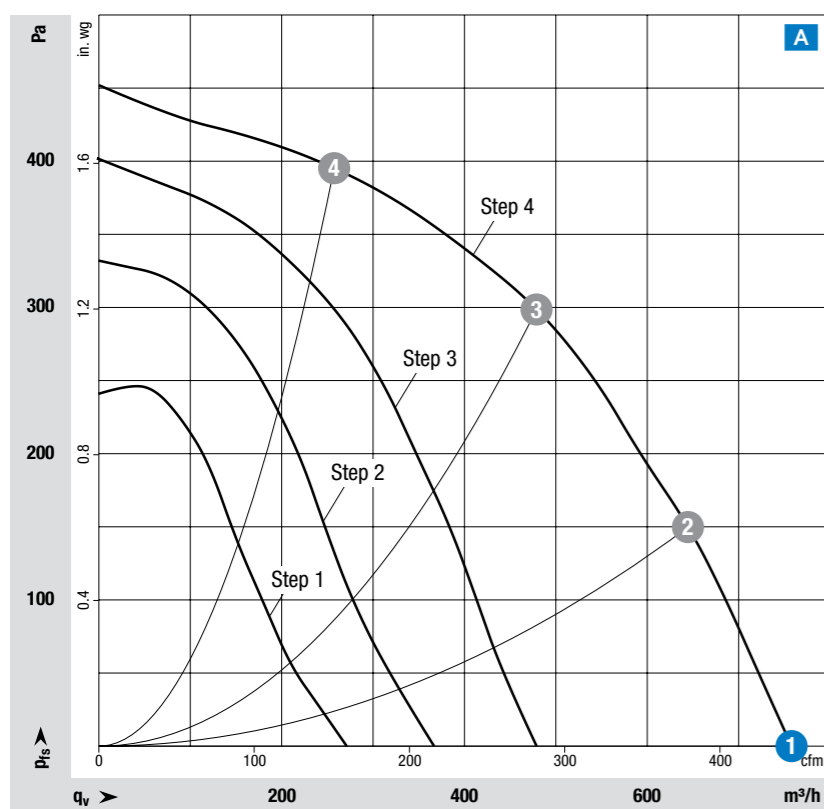
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: VDE, EAC, CCC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz									
A	1 Step 4	1-230	760	1350	195	0.86	65		
	2 Step 4	1-230	645	1795	185	0.81	65		
	3 Step 4	1-230	480	2200	169	0.75	67	-25...+50	E
	4 Step 4	1-230	260	2520	146	0.65	70		
Nominal voltage 230 V AC, 60 Hz on request									

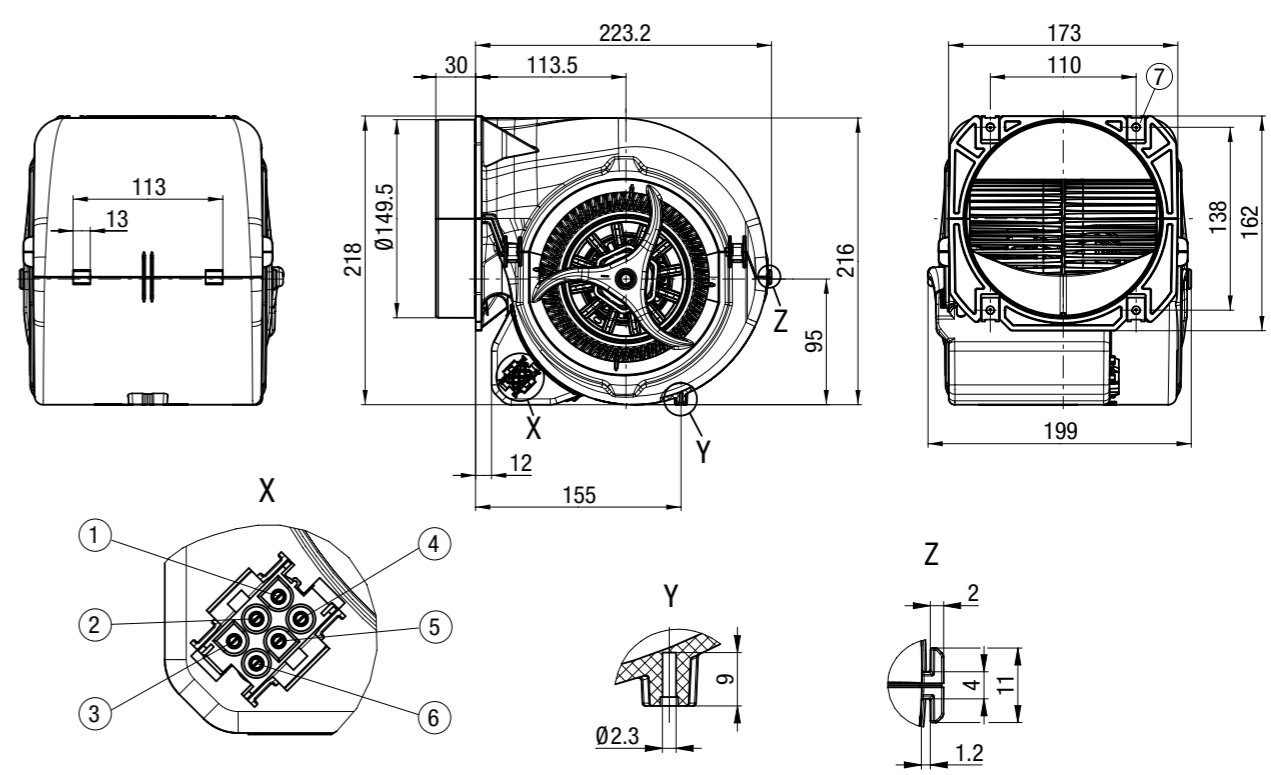
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Centrifugal fan		
	Type	Part number	Weight kg
A	VHD0146X2MGS	D2E146HS9703	3.00

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

① L = Step 1	④ L = Step 4	⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment)
② L = Step 2	⑤ N	
③ L = Step 3	⑥ PE	

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

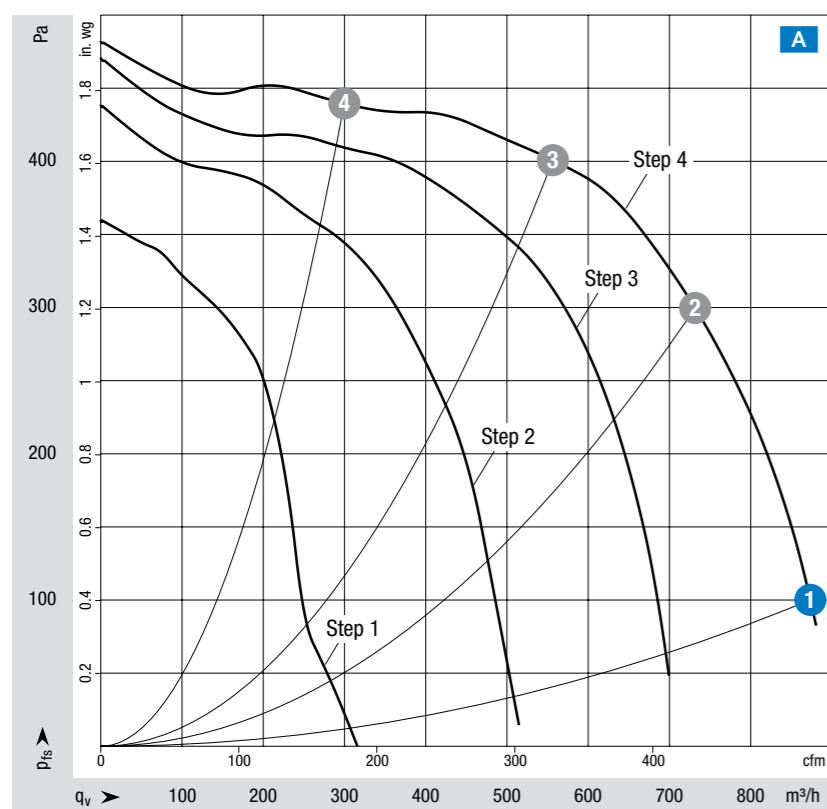
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: VDE,EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage 230 V AC, 50 Hz									
A	1 Step 4	1-230	875	1800	275	1.20	73	-25...+50	E
	2 Step 4	1-230	730	2250	229	1.00	72		
	3 Step 4	1-230	555	2480	194	0.85	72		
	4 Step 4	1-230	300	2690	151	0.66	75		
Nominal voltage 230 V AC, 60 Hz on request									

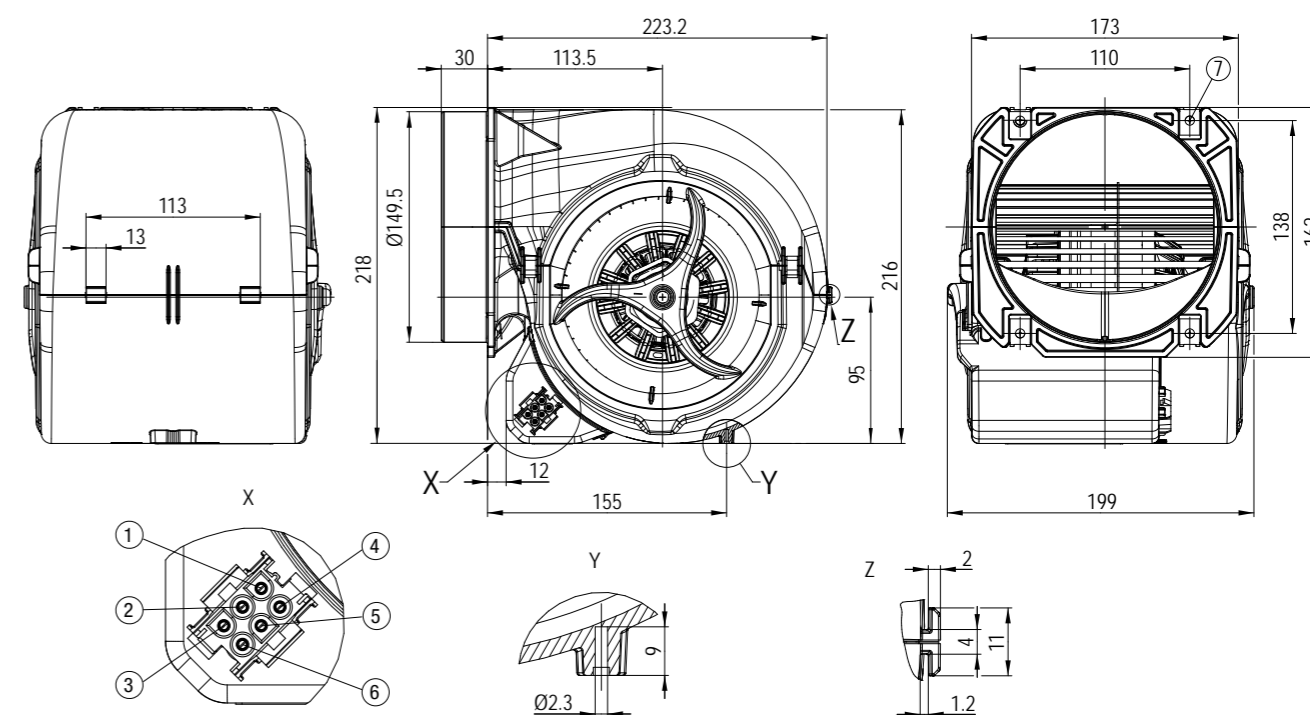
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146X2MJS	D2E146HT5902	3.40 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- ① L = Step 1
- ② L = Step 2
- ③ L = Step 3
- ④ L = Step 4
- ⑤ N
- ⑥ PE
- ⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment)

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: Depending IP44; installation and position
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

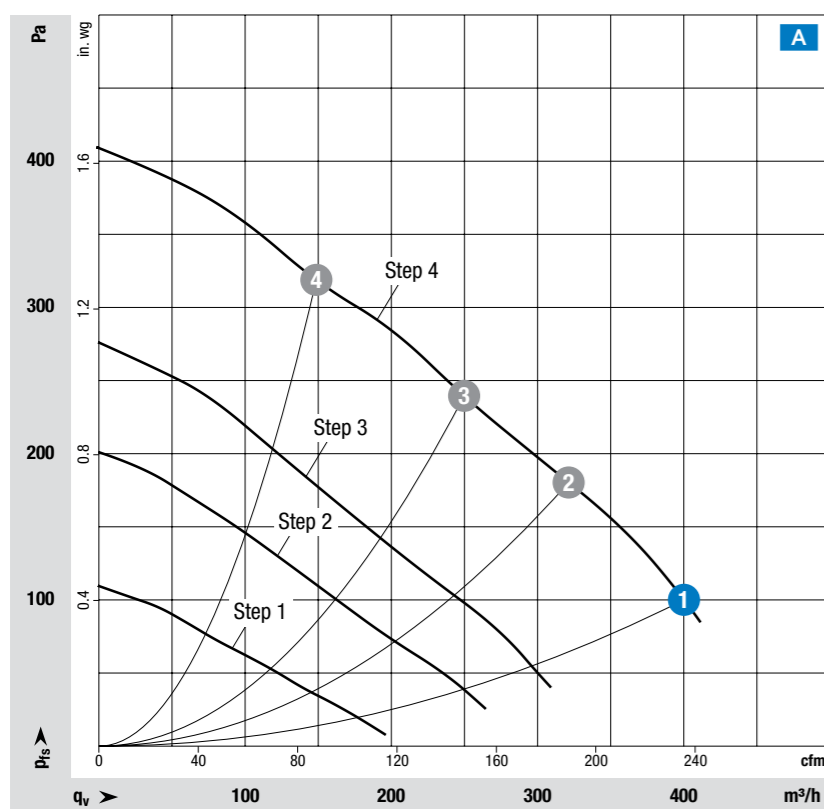
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_{pA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	Pa	°C	
Nominal voltage 230 V AC, 50 Hz										
A	1 Step 4	1-230	400	1170	110	0.49	60	100		
	2 Step 4	1-230	320	1480	106	0.46	62			
	3 Step 4	1-230	250	1720	102	0.44	66		-25...+45	E
	4 Step 4	1-230	150	1950	99	0.43	70			

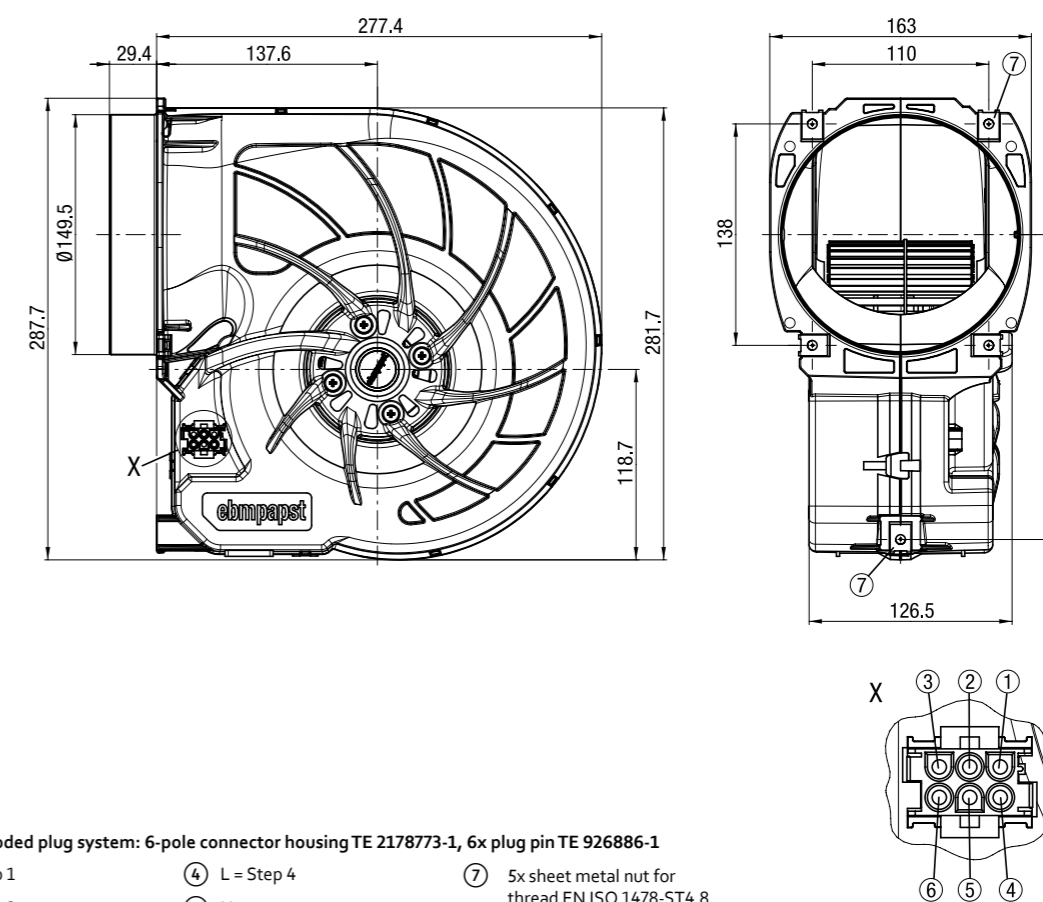
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0160X2MCS	D2E160F0101	2.60 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- | | | |
|--------------|--------------|---|
| ① L = Step 1 | ④ L = Step 4 | ⑦ 5x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment) |
| ② L = Step 2 | ⑤ N | |
| ③ L = Step 3 | ⑥ PE | |

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: Depending IP44; installation and position
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

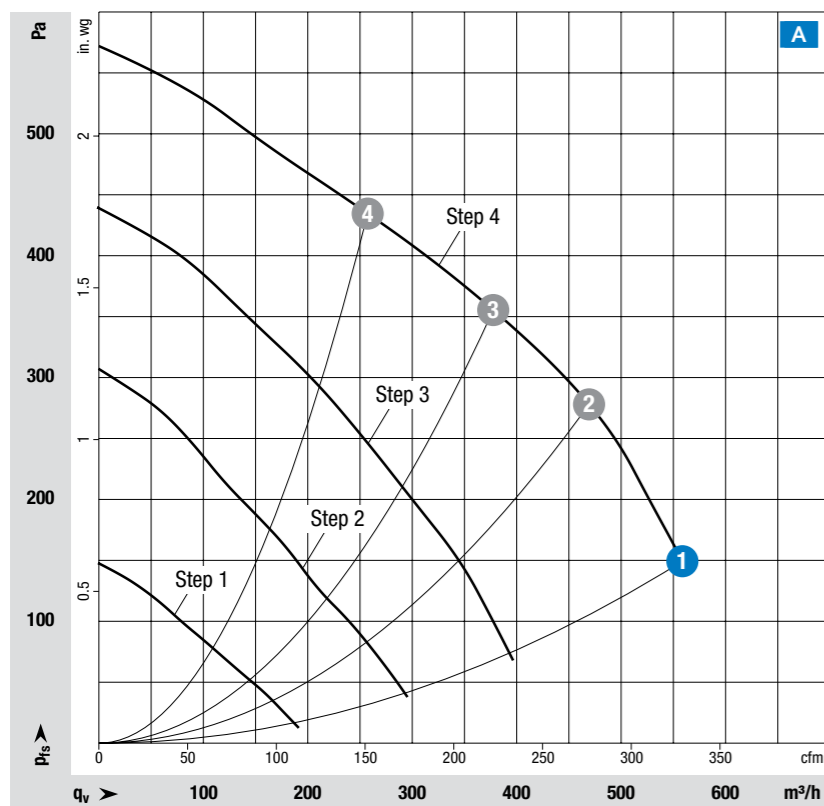
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	Pa	°C	
Nominal voltage 230 V AC, 50 Hz										
A	1 Step 4	1-230	560	1400	180	0.80	69	150		
	2 Step 4	1-230	470	1780	166	0.72	71			
	3 Step 4	1-230	380	2035	158	0.68	73		-25...+40	E
	4 Step 4	1-230	260	2260	146	0.63	75			

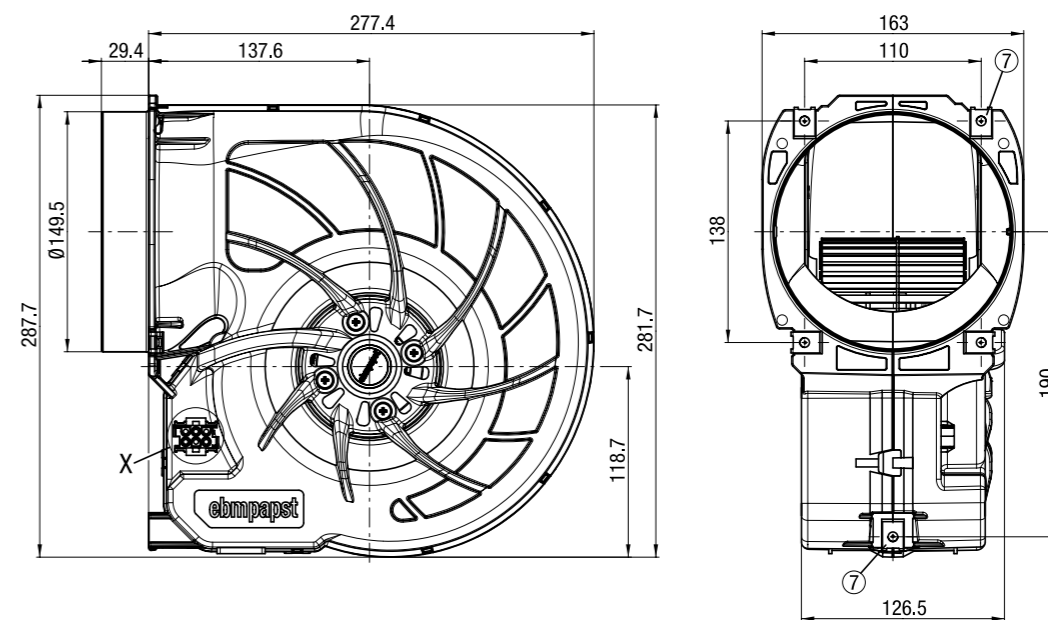
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0160X2MES	D2E160FK1102	3.10 kg

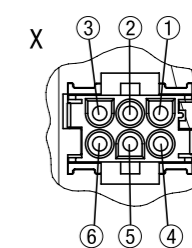
Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- ① L = Step 1
- ② L = Step 2
- ③ L = Step 3
- ④ L = Step 4
- ⑤ N
- ⑥ PE
- ⑦ 5x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment)



EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP 20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 1-core
- Protection class: Built-in component, protection class results from installation according to intended use
- Speed levels: Stepless controllable
- Electrical hookup: Via permanently mounted connector

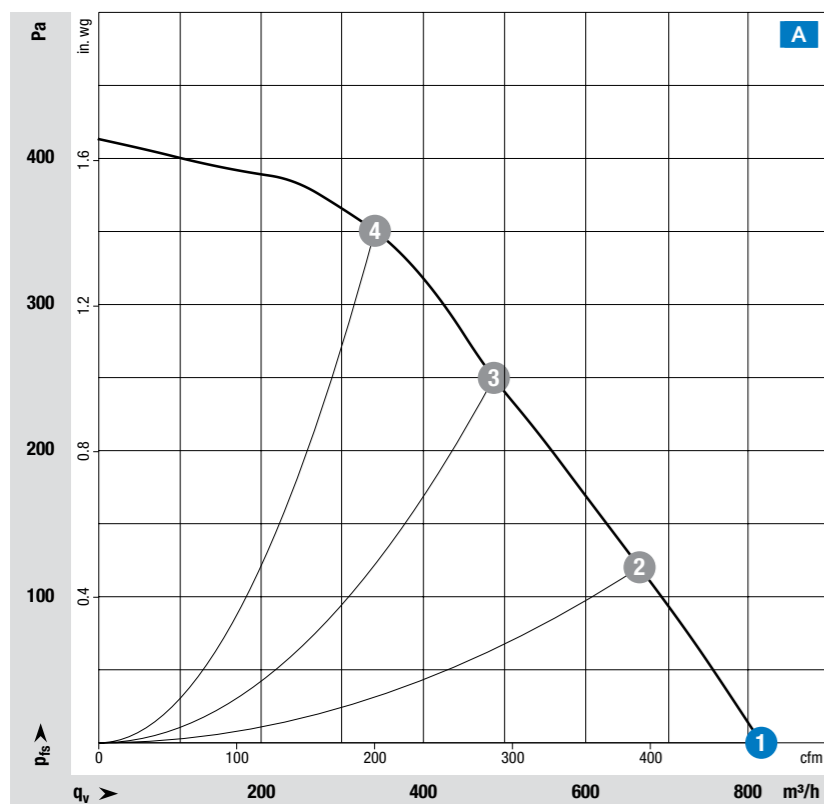
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	815	1410	100	0.80	68		
A	2	1-230	665	1735	100	0.80	66	-25...+50	G
	3	1-230	485	2150	100	0.80	67		
	4	1-230	340	2445	92	0.72	70		

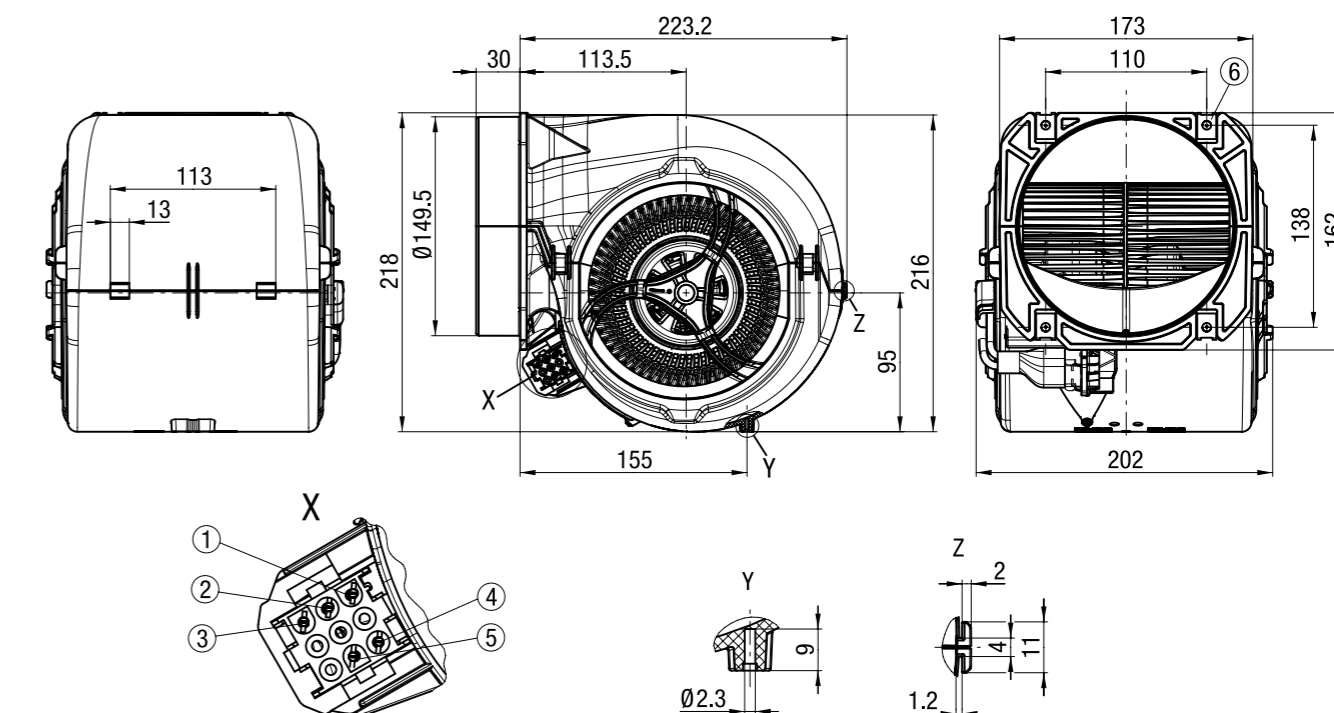
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLES	D1G146HS0104	1.80 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 9-pole connector housing TE 927231-7, 5x plug pin TE 926887-1
Mating connector (not in scope of delivery): 9-pole connector housing TE 1-1863003-2, socket TE 926884-1

- ① L (brown)
- ② N (blue)
- ③ FE (green/yellow)
- ④ PWM (yellow)
- ⑤ GND (blue)
- ⑥ 4 x Sheet metal nut for thread EN ISO 1478-ST4.8 via terminal box

EC-Centrifugal fan

forward-curved, dual-intake with, housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP 20
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 1-core
- Protection class: Built-in component, protection class results from installation according to intended use
- Speed levels: Stepless controllable
- Electrical hookup: Via permanently mounted connector

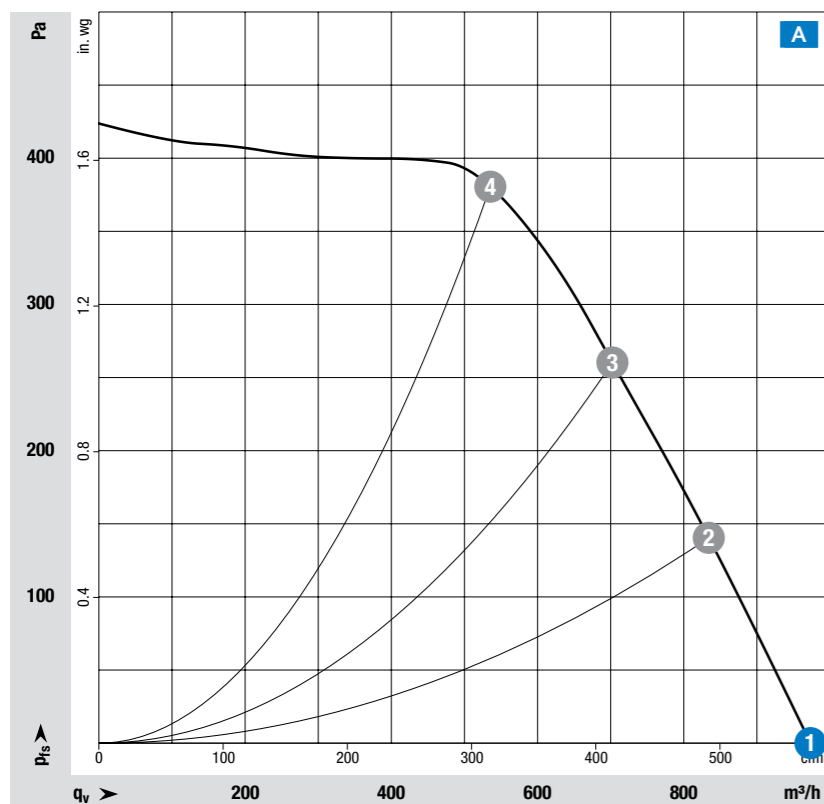
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_{wA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P_{ed}	Max. Input current I	Sound power level L_{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	975	1675	170	1.20	73		
A	2	1-230	835	1970	170	1.20	72	-25...+50	G
	3	1-230	700	2265	170	1.20	72		
	4	1-230	535	2570	150	1.10	72		

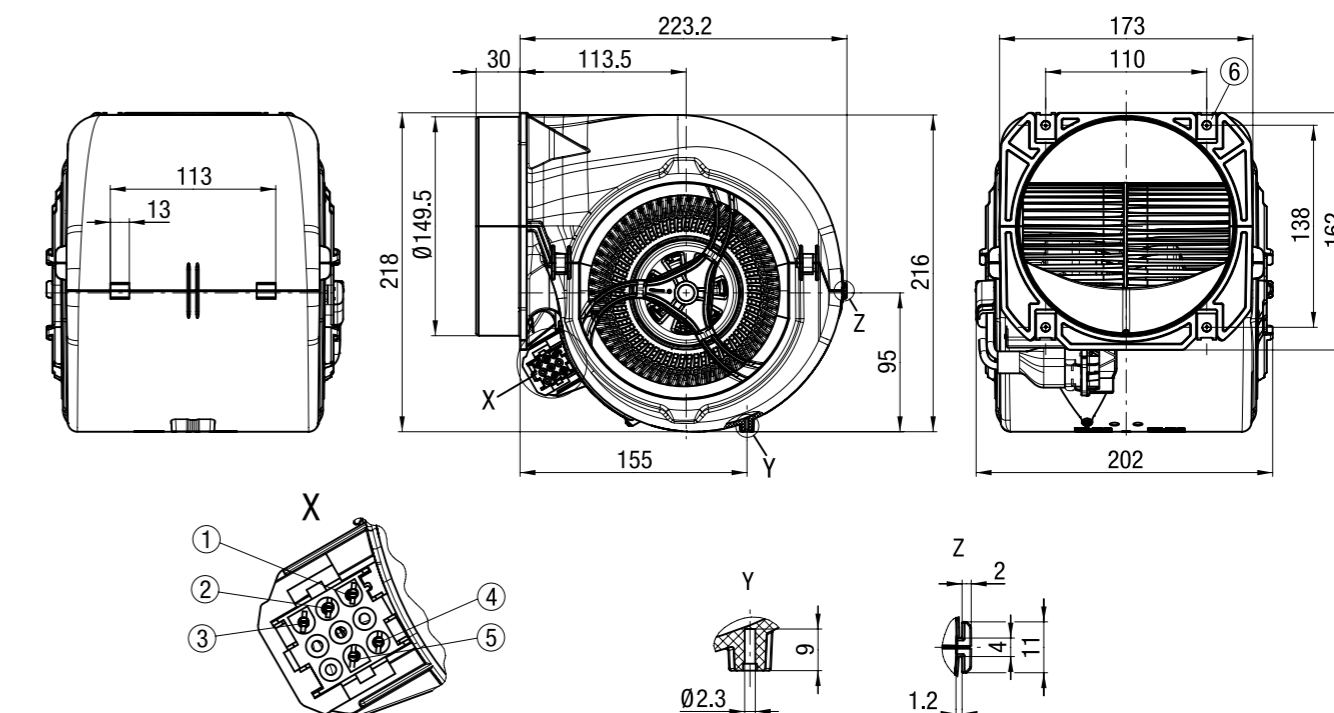
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLGS	D1G146HQ0304	1.90 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 9-pole connector housing TE 927231-7, 5x plug pin TE 926887-1
Mating connector (not in scope of delivery): 9-pole connector housing TE 1-1863003-2, socket TE 926884-1

- ① L (brown)
- ② N (blue)
- ③ FE (green/yellow)
- ④ PWM (yellow)
- ⑤ GND (blue)
- ⑥ 4 x Sheet metal nut for thread EN ISO 1478-ST4.8 via terminal box

EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP 20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 3-core
- Protection class: I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable
- Electrical hookup: Plug; via terminal box

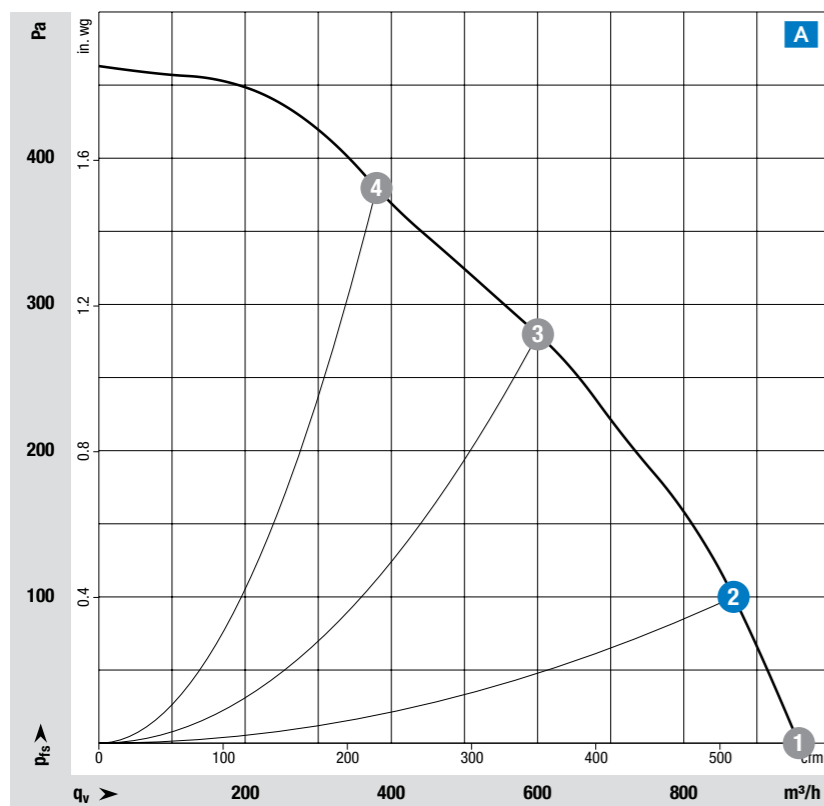
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{wA} according to ISO 13347, L_{wA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	955	1610	165	1.30	69		
A	2	1-230	875	1830	165	1.30	68	-25...+50	I
	3	1-230	630	2165	134	1.06	67		
	4	1-230	415	2445	110	0.89	70		

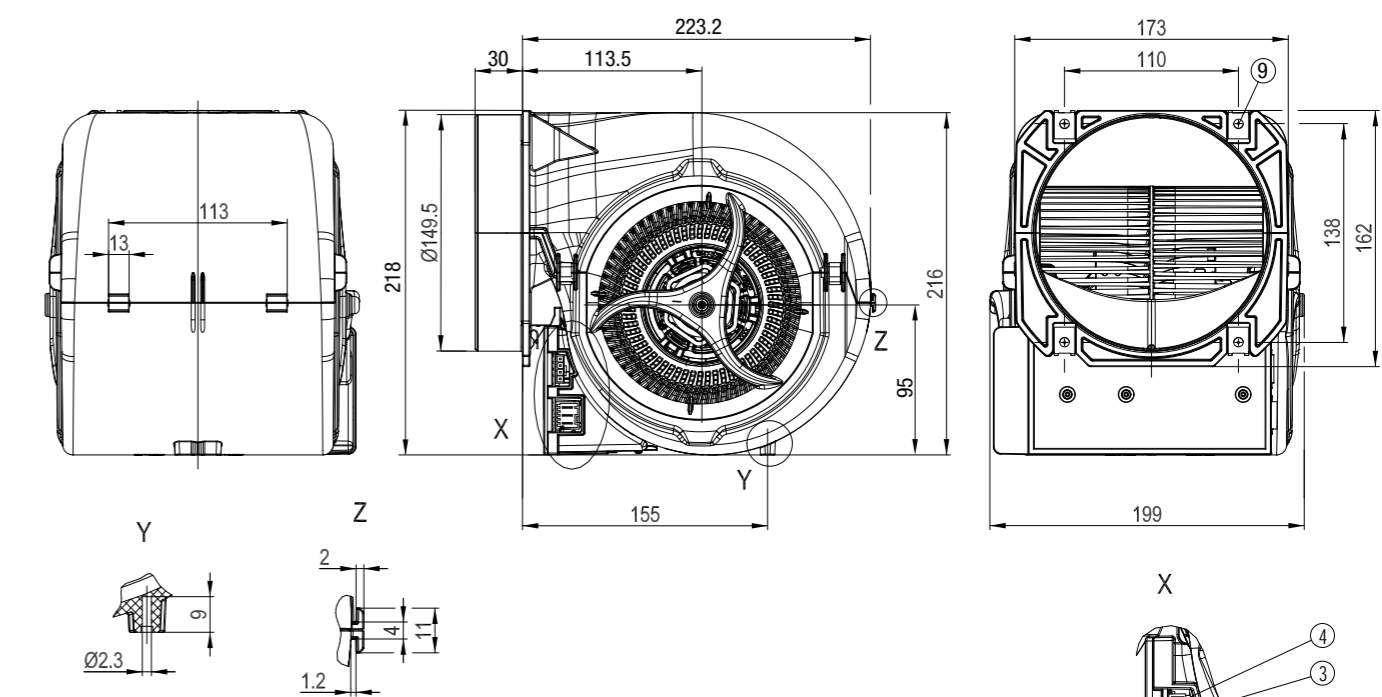
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLGS	D3G146HQ0137	2.40 kg

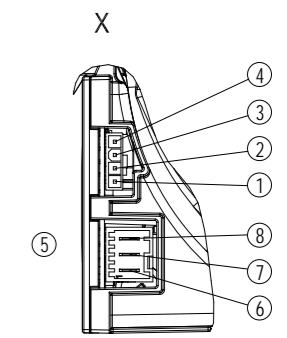
Technical drawing

Dimensions in mm



Detail X – Header Stocko MSLO 7708-004-003-960 pluggable with Stocko EH 705-004-003-960 + RBB 8230.120 Ms

- | | |
|---|---|
| ① 10 V | ⑥ L |
| ② Tacho | ⑦ N |
| ③ 0 – 10 V / PWM | ⑧ PE |
| ④ GND | ⑨ 4x sheet metal nut for thread EN ISO 1478-ST4.8 |
| ⑤ Macromodul connector Stocko MSLO 9404-003-00A-960 pluggable with Stocko MFMP 9761-003-50A-960 | |



EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP 20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 3-core
- Protection class: I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable
- Electrical hookup: Plug; via terminal box

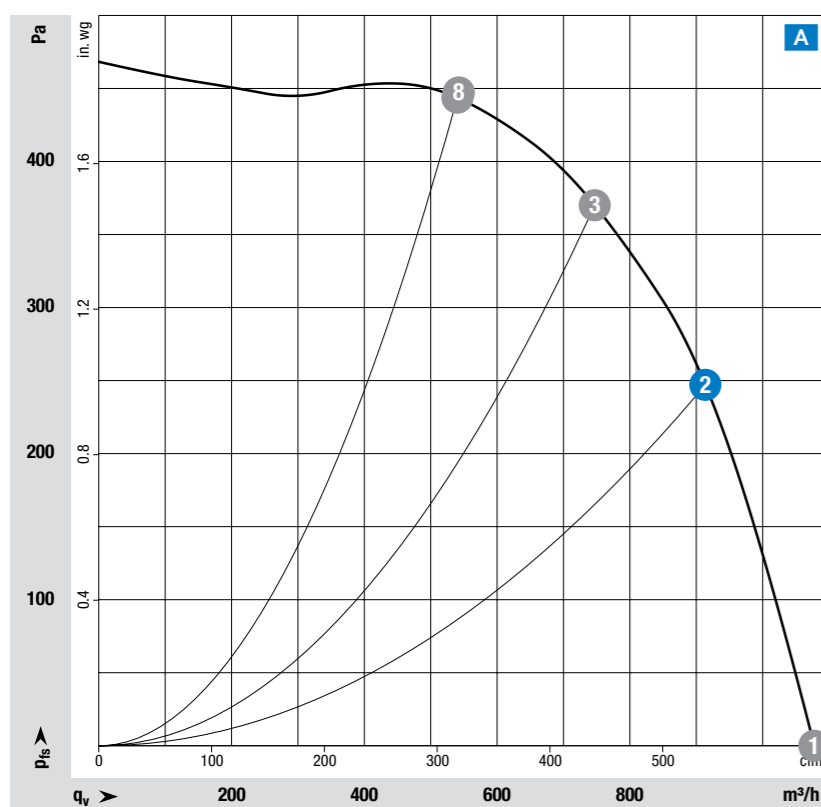
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96 Accessories
 on Page 102 Connection diagrams and technical features
 More at www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{pA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P_{ed}	Max. input current I	Sound power level L_{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	1080	1790	189	1.47	74		
A	2	1-230	920	2400	230	1.80	73	-25...+50	I
	3	1-230	755	2535	206	1.61	72		
	4	1-230	550	2705	164	1.30	72		

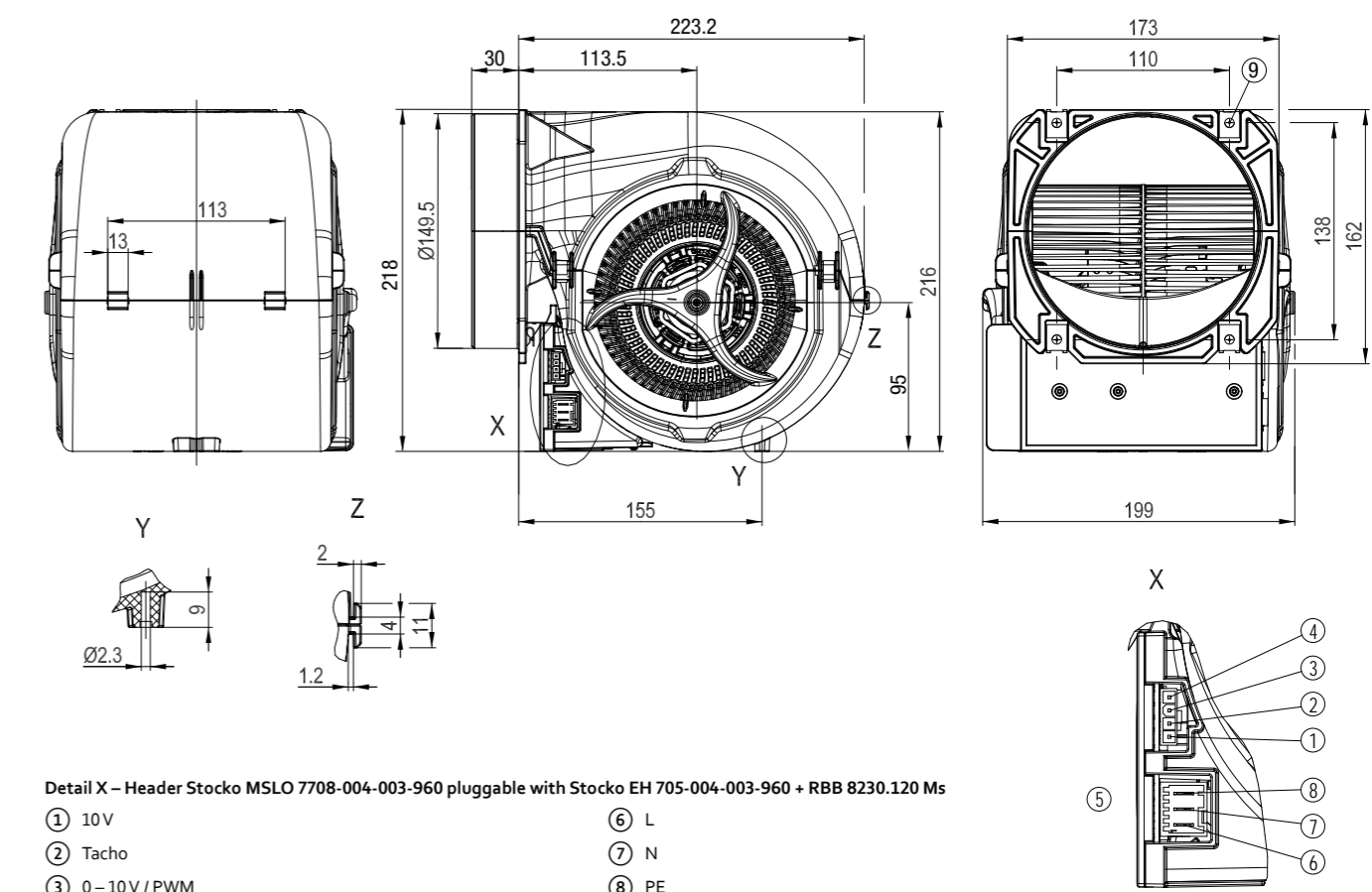
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLGS	D3G146HQ1334	2.40 kg

Technical drawing

Dimensions in mm



Detail X – Header Stocko MSLO 7708-004-003-960 pluggable with Stocko EH 705-004-003-960 + RBB 8230.120 Ms

- ① 10 V
- ② Tacho
- ③ 0 – 10 V / PWM
- ④ GND
- ⑤ Macromodul connector Stocko MSLO 9404-003-00A-960 pluggable with Stocko MFMP 9761-003-50A-960
- ⑥ L
- ⑦ N
- ⑧ PE
- ⑨ 4x sheet metal nut for thread EN ISO 1478-ST4.8

EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class: I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable
- Electrical hookup: Plug; via terminal box

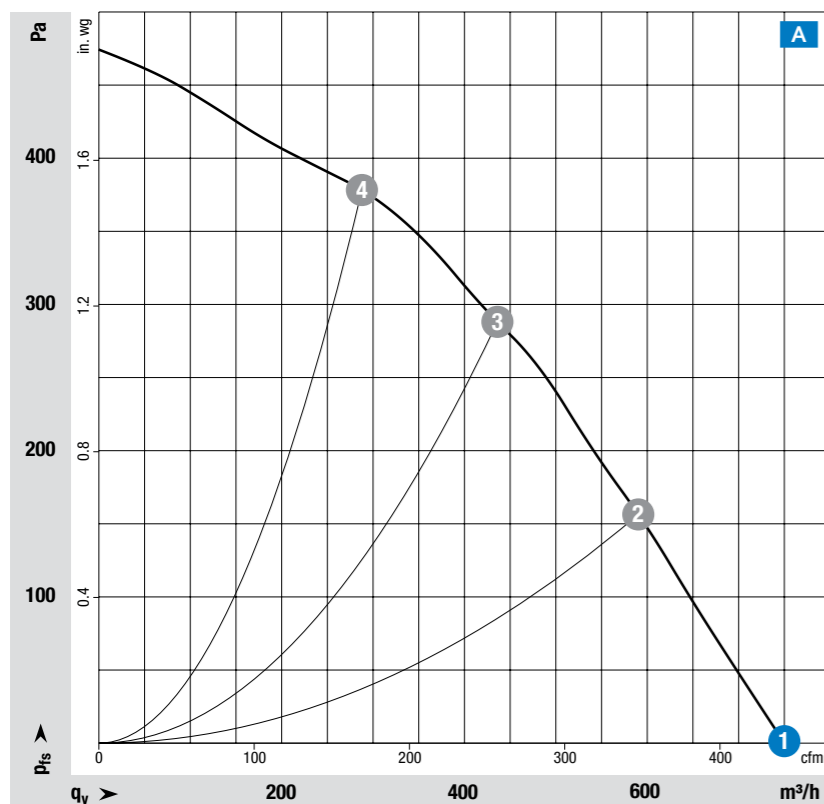
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	750	1125	82	0.70	70		
A	2	1-230	595	1520	82	0.70	67	-25...+40	B
	3	1-230	445	1870	82	0.70	69		
	4	1-230	295	2180	80	0.70	71		

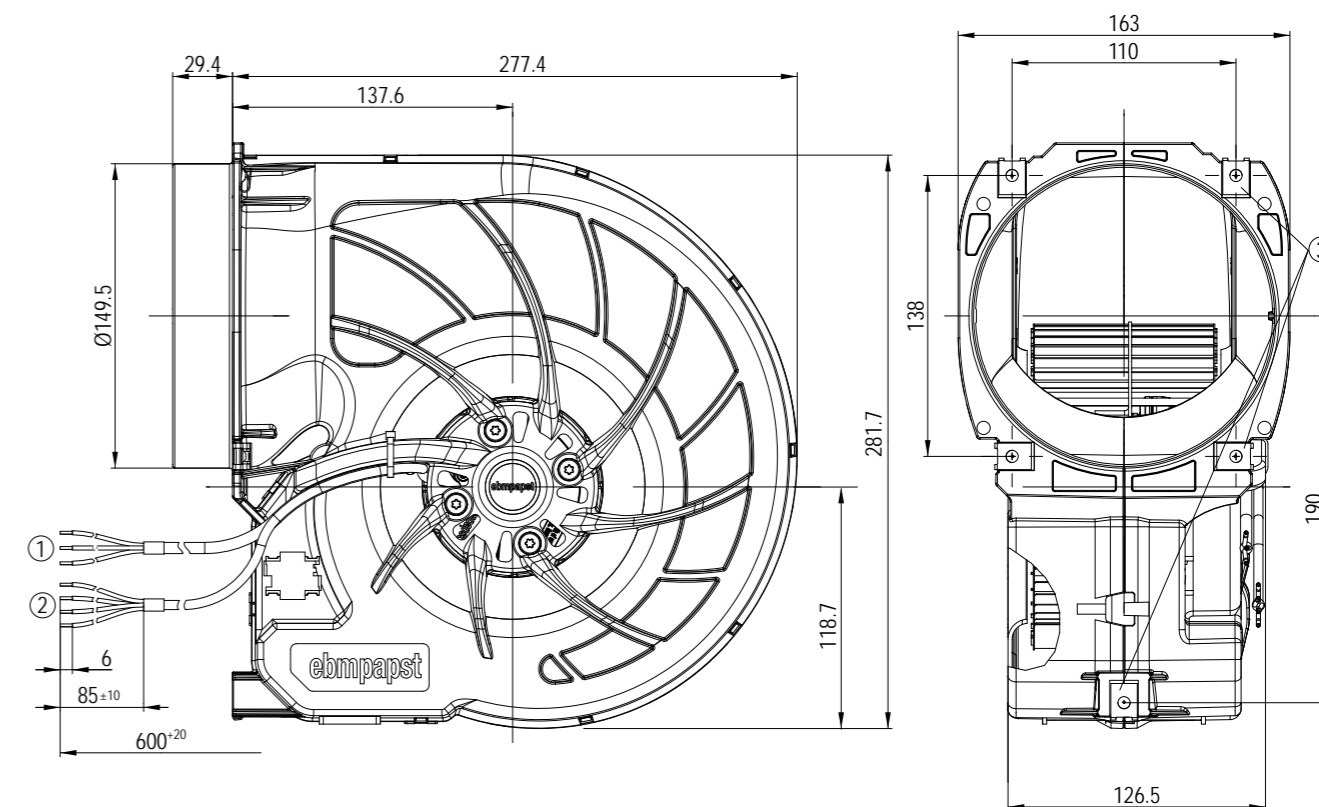
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VHD0160XSLEZ	D3G160FQ1705	2.60

A Technical drawing

Dimensions in mm



- ① Cable PVC AWG20; 3x crimped splices
- ② Cable PVC AWG22; 4x crimped splices
- ③ 5x Sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment)

EC-Centrifugal fans

forward-curved, with housing

ebmpapst

the engineer's choice



Page

EC-Centrifugal fan VHD0146 / D1G146

78

EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 1-core
- Protection class: II
- Speed levels: Controllable by PWM
- Electrical hookup: Via switch connection

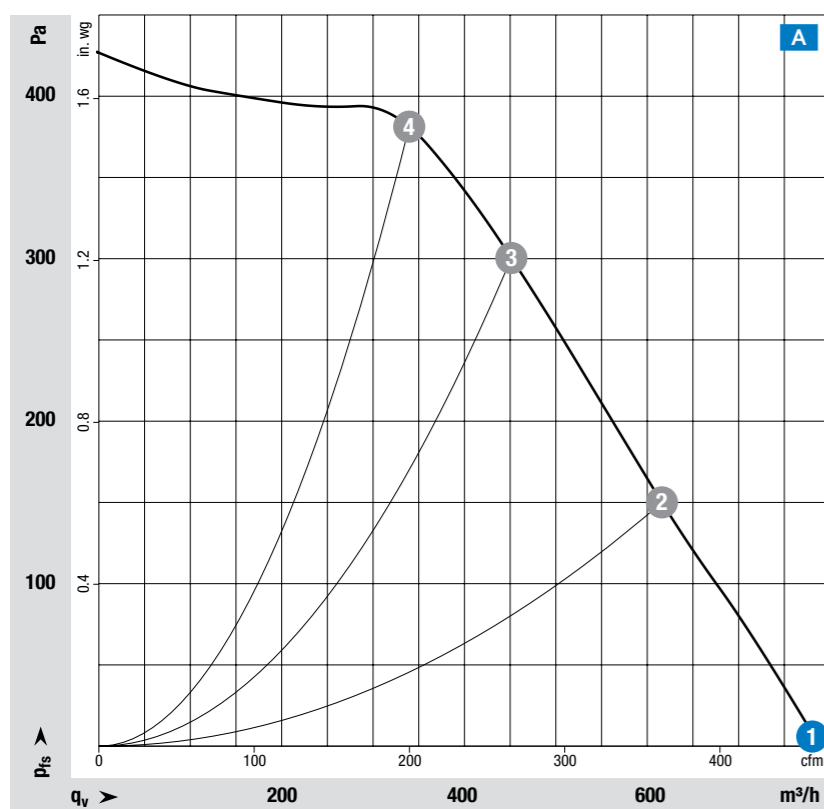
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE, EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_{pA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P_{ed}	Max. Input current I	Sound power level L_{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	800	1500	100	0.80	69		
A	2	1-230	615	1855	100	0.80	68	-25...+50	H
	3	1-230	450	2290	100	0.80	68		
	4	1-230	340	2555	92	0.72	70		

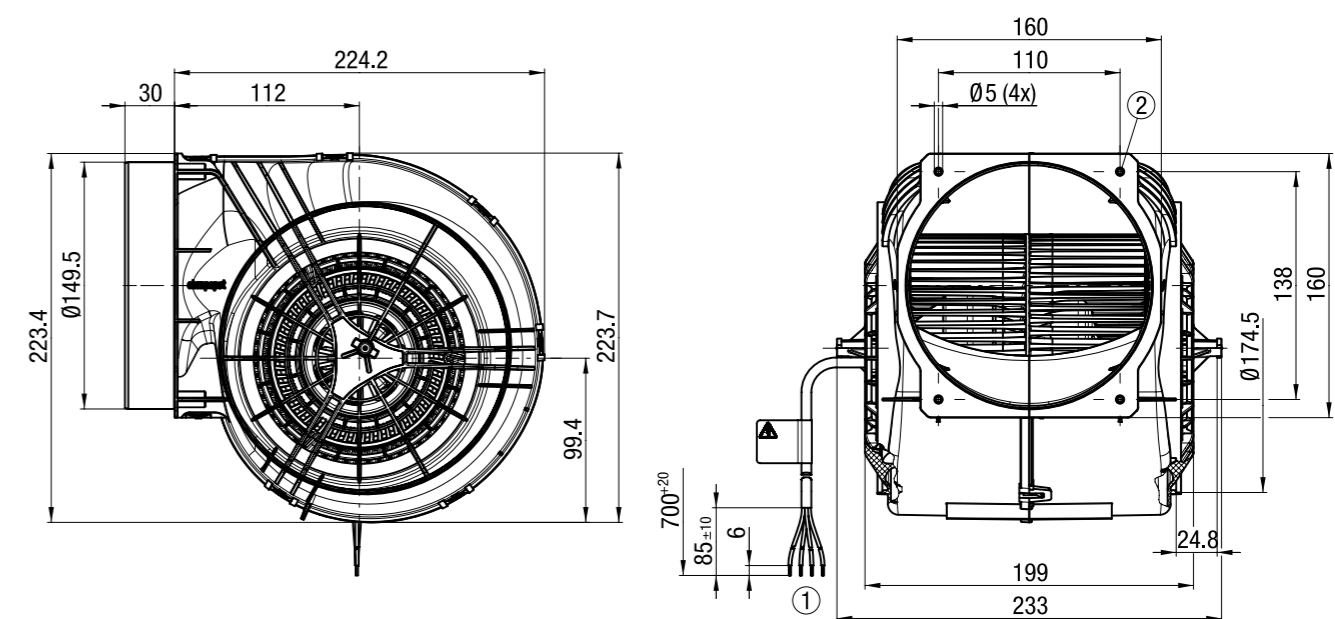
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLES	D1G146HT0102	1.80 kg

A Technical drawing

Dimensions in mm



- ① Cable PVC 4x 0,5 mm², 4 x crimped splices
- ② Tapping hole prepared for self-tapping screw for fastening plastics (Remform) dia. 5 mm, clearance for screw max. 16 mm. Recommended tightening torque 2±0.3 Nm. A non-return valve (10000-2-4054) can be installed in the outlet. Attaching activated carbon filters to the intakes. Adaptation tailored to activated carbon filter such as type D186 from Resett Engineering Srl.

EC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 146 mm



Material/surface

- Impeller: PP plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

Electrical data

- Motor: 1-core
- Protection class: II
- Speed levels: Controllable by PWM
- Electrical hookup: Via switch connection

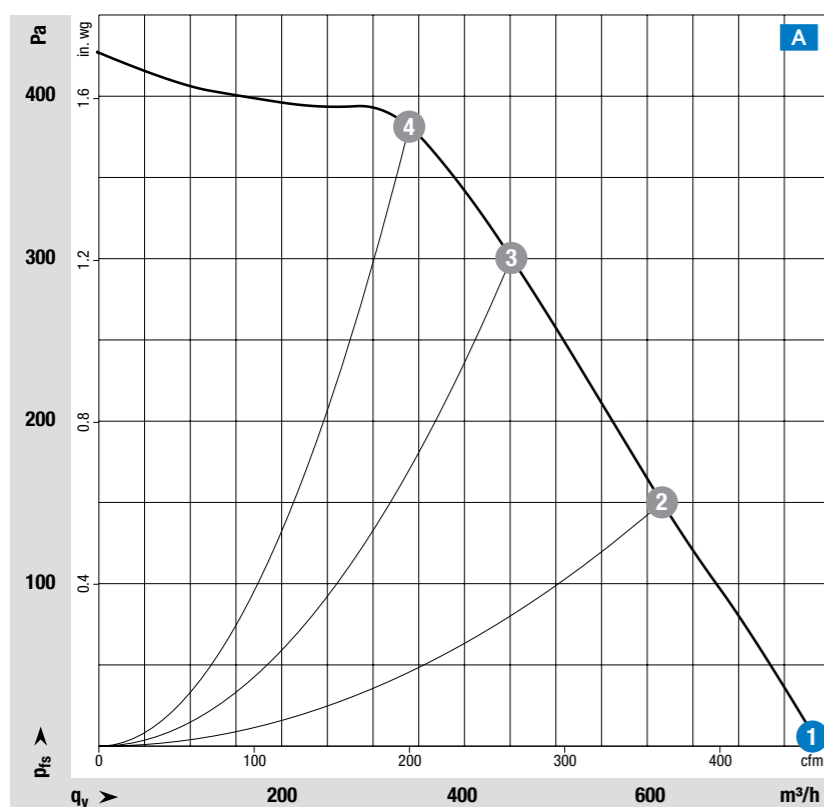
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: VDE

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	800	1500	100	0.80	69		
A	2	1-230	615	1855	100	0.80	68	-25...+50	H
	3	1-230	450	2290	100	0.80	68		
	4	1-230	340	2555	92	0.72	70		

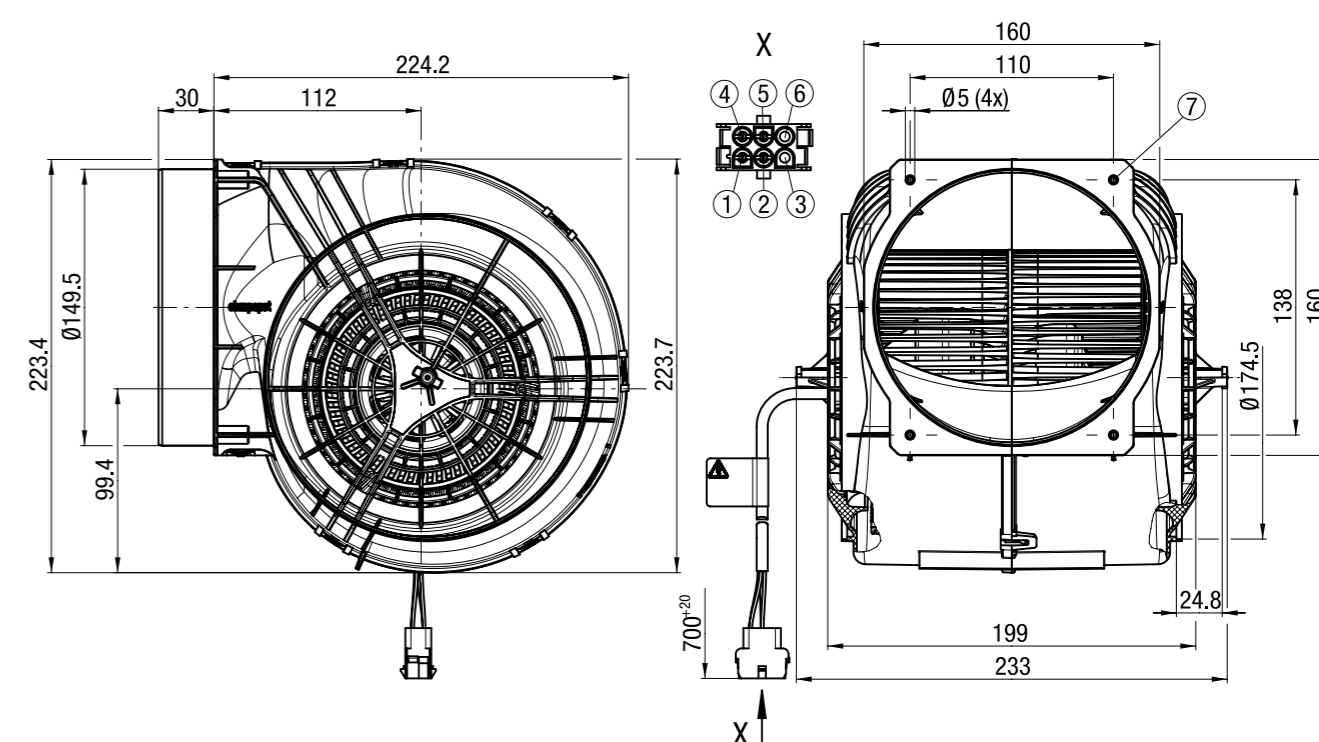
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
A	VHD0146XSLES	D1G146HT0104	1.80 kg

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 4x plug pin TE 926886-1
Mating connector (not included in scope of delivery): 6-pole connector housing TE 1-1644055-3, 4x socket TE 926884-1

- ① L (black)
- ② N (blue)
- ③ -
- ④ GND (gray)
- ⑤ PWM (brown)
- ⑥ -
- ⑦ Tapping hole prepared for self-tapping screw for fastening plastics (Remform) dia. 5 mm, clearance for screw max. 16 mm. Recommended tightening torque 2±0.3 Nm. A non-return valve (10000-2-4054) can be installed in the outlet. Attaching activated carbon filters to the intakes. Anbau von Aktivkohlefiltern an den Ansaugöffnungen. Adaptation tailored to activated carbon filter such as type D186 from Resett Engineering Srl.

EC-Centrifugal fan RadiCal

backward curved, with housing

ebmpapst

the engineer's choice



Page

EC-Centrifugal fan RadiCal VCS0190 / G3G190

84

EC-Centrifugal fan RadiCal

backward curved, with housing, Ø 190 mm



Material/surface

- Impeller: PA plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronic

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

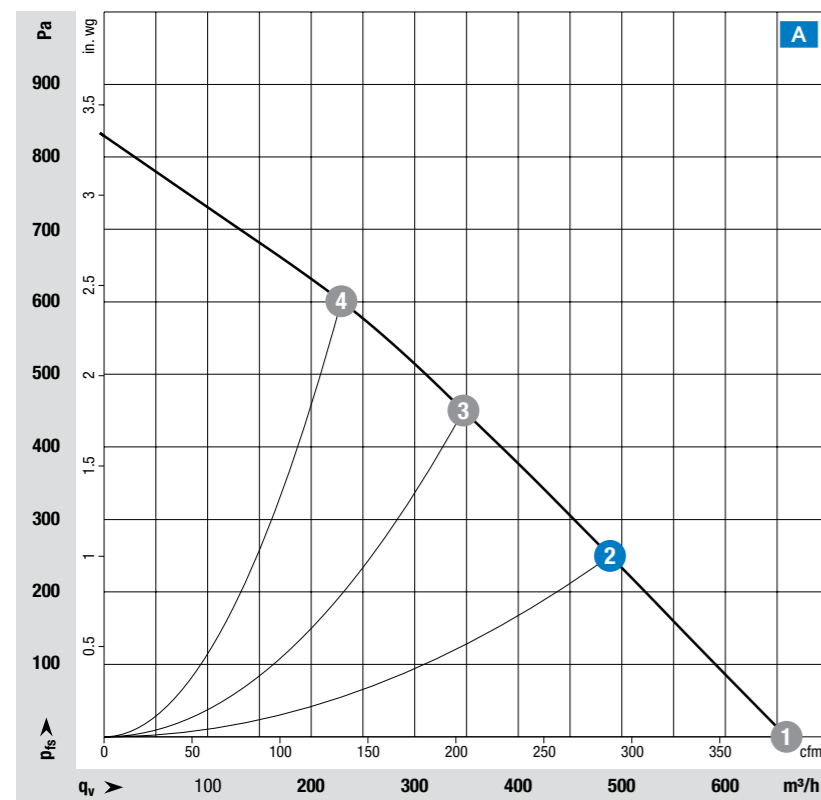
EMC

- Immunity to interference: According to EN 61000-6-2
- Circuit feedback: According to EN 61000-3-2/3
- Interference emission: According to EN 61000-6-3

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_{pA} according to ISO 13347, L_{pA} measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

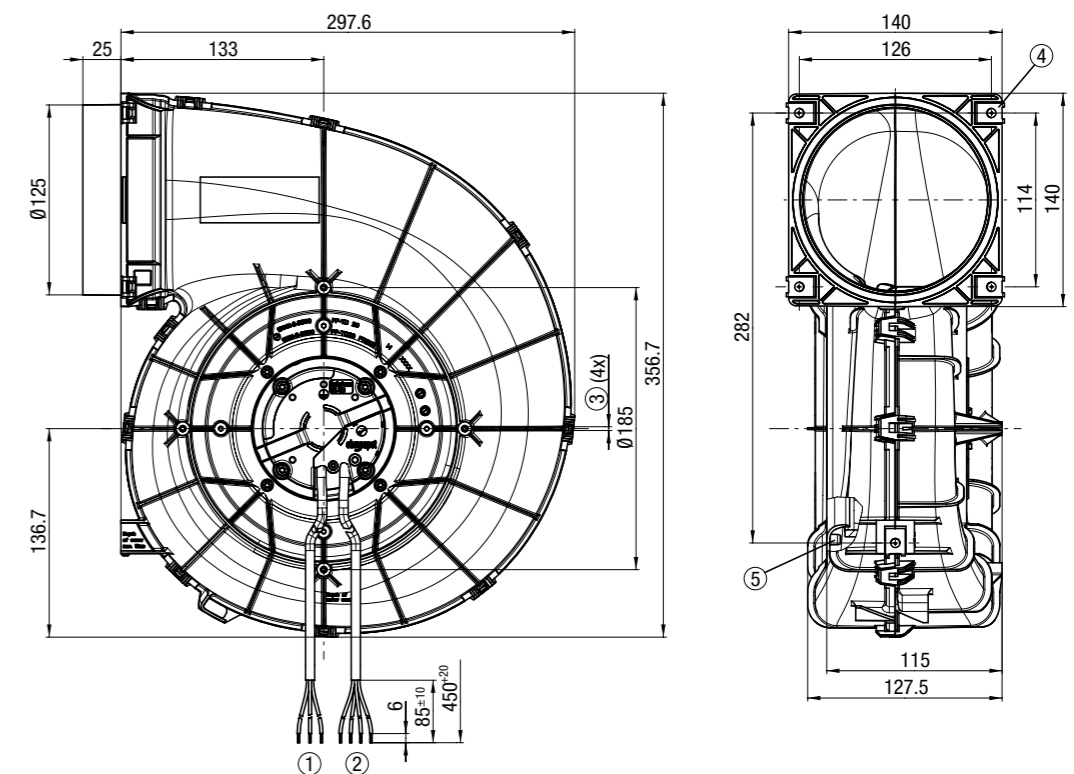
Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P_{ed}	Max. Input current I	Sound power level L_{wA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	660	3355	83	0.75	73		
A	2	1-230	490	3200	83	0.75	68	-25...+60	B
	3	1-230	345	3230	83	0.75	68		
	4	1-230	230	3380	83	0.75	71		

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

Subject to change

Curve	Type	Part number	Weight
A	VCS0190RSLDS	G3G190RC0504	1.80 kg

Technical drawing



- ① Cable PVC AWG20; 3x crimped splices
- ② Cable PVC AWG22; 4x crimped splices
- ③ Tapping hole prepared for self-tapping screw for fastening plastics (Remform) dia. 4 mm; clearance for screw max. 15 mm
- ④ 5x sheet metal nut for thread EN ISO 1478-ST4.8 (max. screw length 16 mm plus thickness of mounting material)
- ⑤ Screw-on domes are only permissible for Flowgrid!

EC-Centrifugal fan RadiCal

backward curved, with housing, Ø 190 mm



Material/surface

- Impeller: PA plastic
- Housing: PP plastic

Mechanical data

- Direction of rotation: Clockwise viewed toward rotor
- Degree of protection: IP 54
- Insulation class: B
- Environmental protection class: H1
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Elektronik

Electrical data

- Motor: 3-core
- Protection class I (with customer connection of protective earth)
- Cable exit: Variable
- Speed levels: Stepless controllable

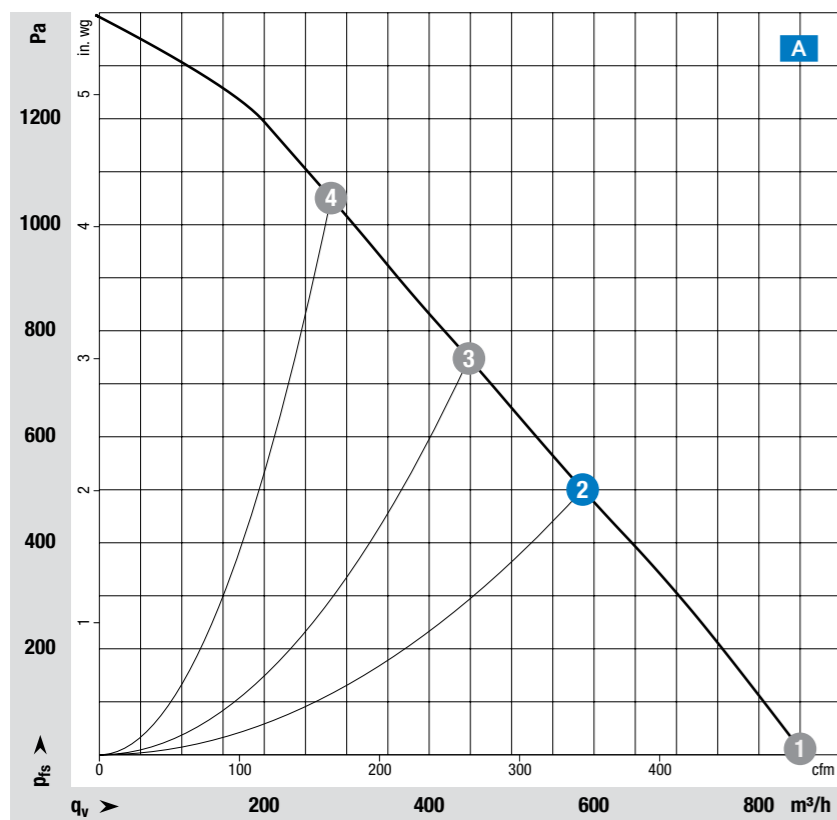
EMC

- Immunity to interference: According to EN 61000-6-2
- Interference emission: According to EN 61000-6-4

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31, CE
- Approvals: EAC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst inlet ring without contact protection.
 Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. Input power P _{ed}	Max. Input current I	Sound power level L _{WA}	Perm. ambient temp.	Conn. diagram
		V AC	m³/h	rpm	W	A	dB (A)	°C	
Nominal voltage range 200 - 240 V AC, 50/60 Hz									
	1	1-230	855	4335	170	1.35	80		
A	2	1-230	585	4100	170	1.35	74	-25...+60	C
	3	1-230	450	4165	170	1.35	74		
	4	1-230	280	4440	170	1.35	79		

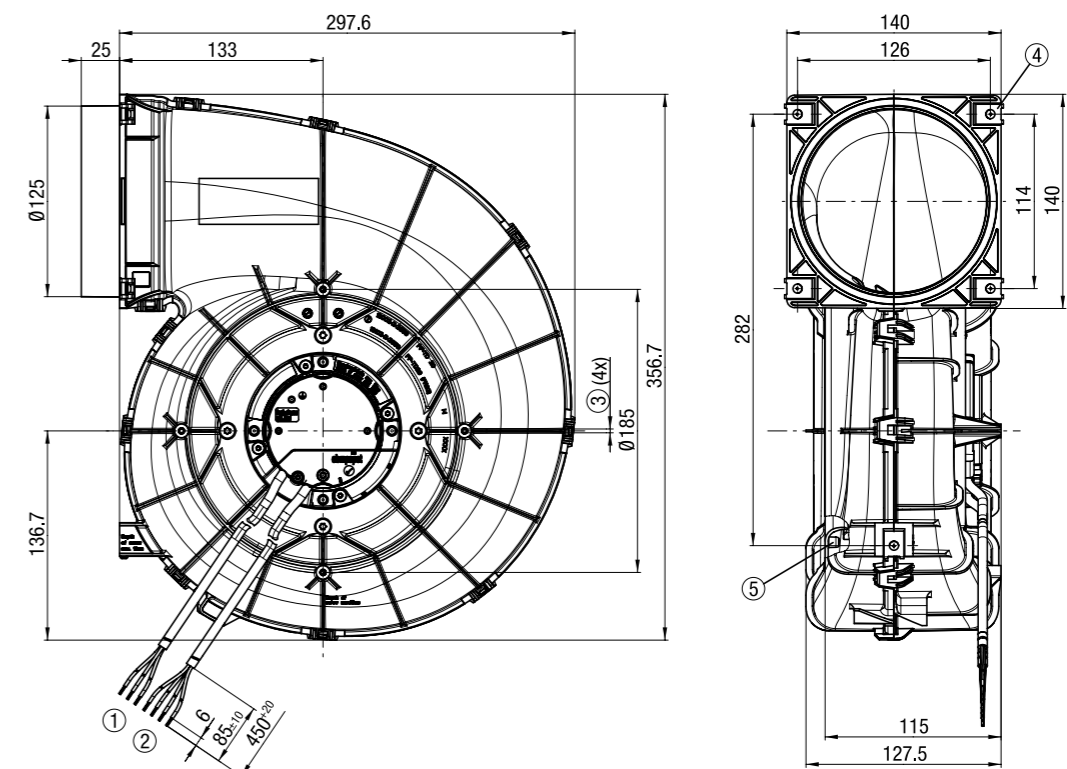
Values set in blue are nominal data at operating point with maximum load.

Subject to change

Curve	Type	Part number	Weight
			kg
A	VCS0190RSLES	G3G190RD4504	2.10

Technical drawing

Dimensions in mm



- ① Cable PVC AWG20; 3x crimped splices
- ② Cable PVC AWG22; 4x crimped splices
- ③ Tapping hole prepared for self-tapping screw for fastening plastics (Remform) dia. 4 mm, clearance for screw max. 15 mm
- ④ 5x sheet metal nut for thread EN ISO 1478-ST4.8 (max. screw length 16 mm plus thickness of mounting material)
- ⑤ Screw-on domes are only permissible for Flowgrid

AC-Centrifugal fans

forward-curved, dual-intake, with housing

Product for sale in countries/markets outside of EU only

ebmpapst

the engineer's choice



Page

AC-Centrifugal fan VHD0160 / D2E160

90

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

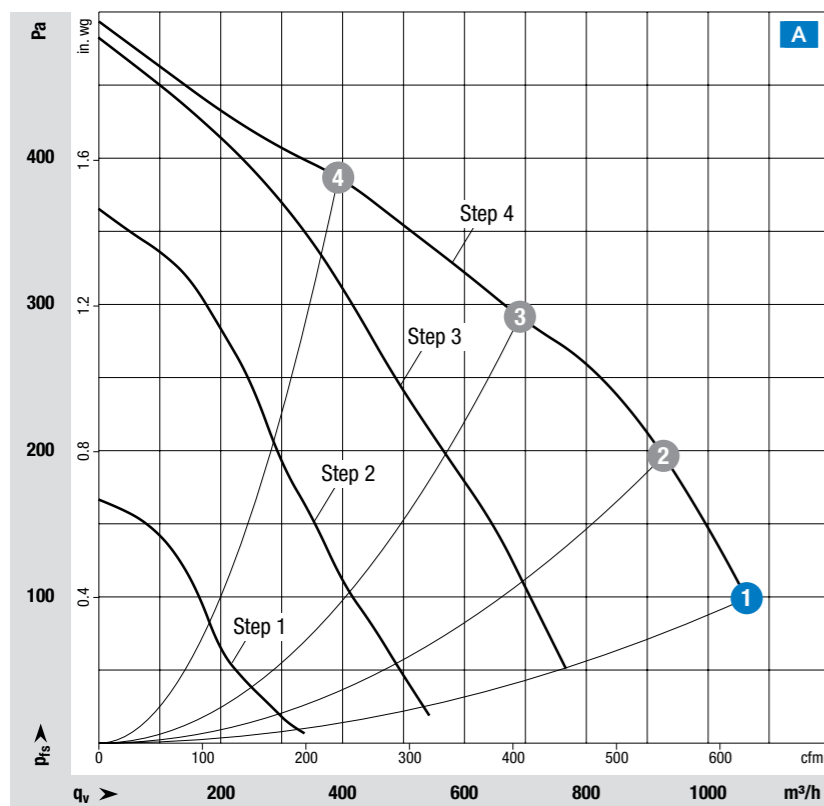
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; Via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN60335-2-31

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz										
A	1 Step 4	1-230	1070	1400	340	1.49	67	100		
	2 Step 4	1-230	935	1645	337	1.47	67			
	3 Step 4	1-230	700	1985	329	1.45	69		-25...+45	E
	4 Step 4	1-230	400	2280	312	1.39	73			

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

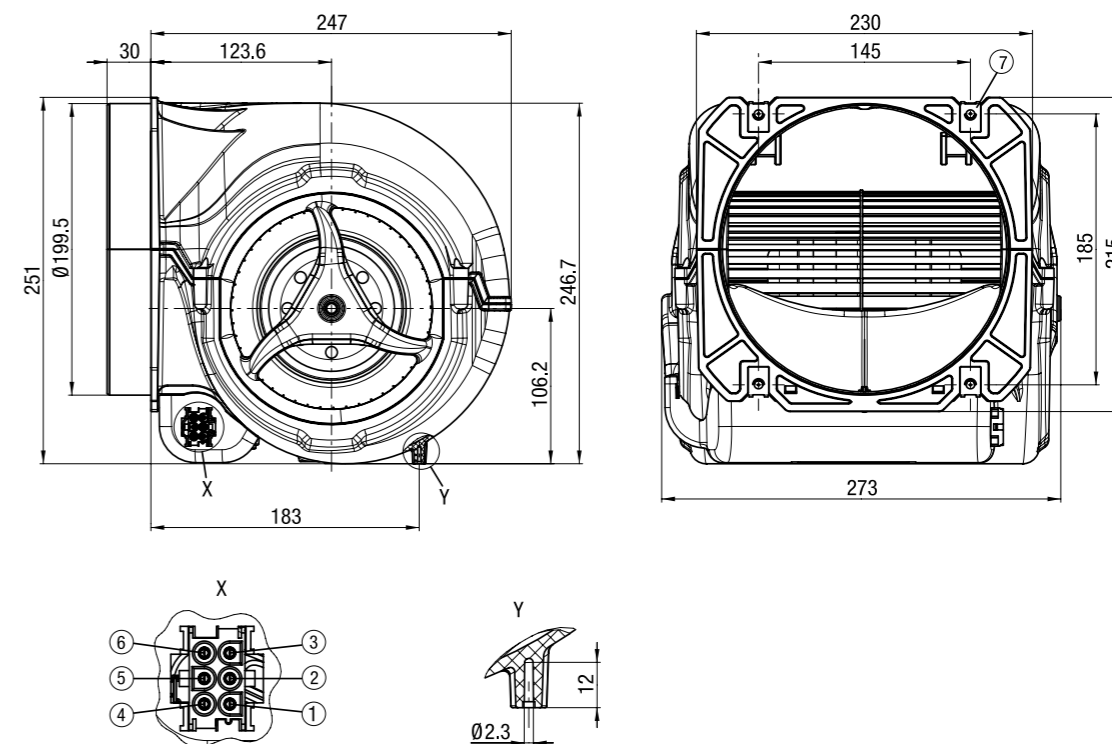
Subject to change

Curve	Centrifugal fan		
	Type	Part number	Weight
A	VHD0160X2MJS ¹⁾	D2E160GM9301 ¹⁾	4.50 kg

¹⁾ Product for sale in countries/markets outside of EU only

A Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- | | | |
|--------------|--------------|---|
| ① L = Step 1 | ④ L = Step 4 | ⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment) |
| ② L = Step 2 | ⑤ N | |
| ③ L = Step 3 | ⑥ PE | |

AC-Centrifugal fan

forward-curved, dual-intake, with housing, Ø 160 mm



Material/surface

- Impeller: Sheet steel galvanized
- Housing: PP plastic

Mechanical data

- Direction of rotation: Counterclockwise, viewed toward rotor
- Degree of protection: IP20
- Insulation class: F
- Environmental protection class: H0
- Installation position: Any
- Mode: S1
- Mounting: Ball bearing
- Motor protection: Thermal overload protector internally connected

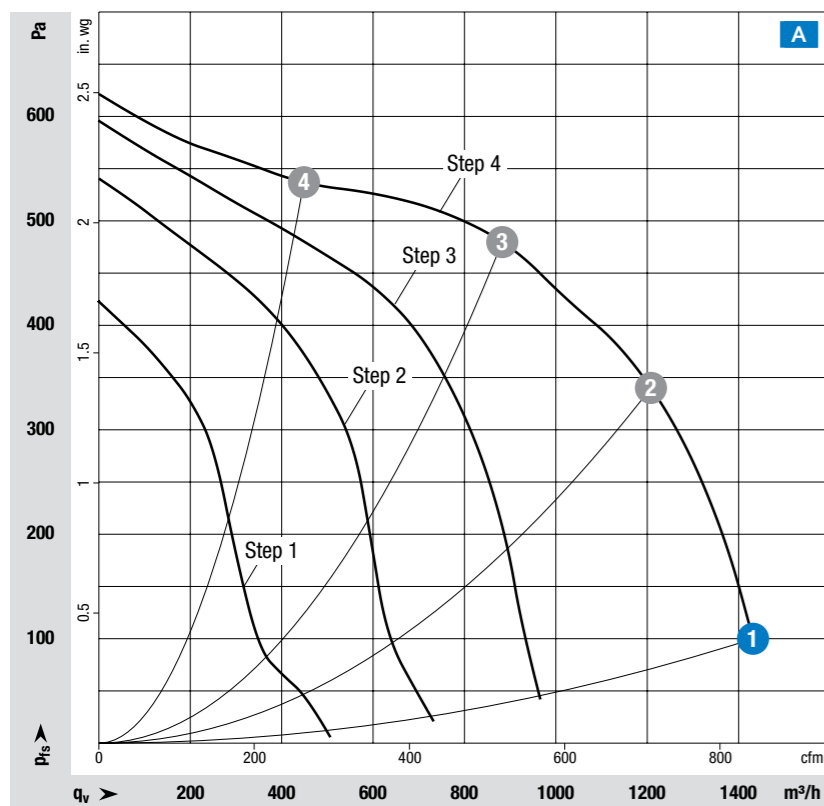
Electrical data

- Protection class I (with customer connection of protective earth)
- Speed levels: 4
- Electrical hookup: Plug; Via terminal box, capacitor integrated and connected

Standards and approvals

- Conformity with standards: EN 60335-1, EN 60335-2-31
- Approvals: EAC, CCC

on Page 96	Accessories
on Page 102	Connection diagrams and technical features
More at	www.ebmpapst.com



Measuring requirements
 Air performance measured according to: ISO 5801, installation category A, with ebm-papst scroll housing without contact protection. Intake-side sound level: L_A according to ISO 13347, L_A measured at 1 m distance from fan axis. The values given are only applicable under the specified measuring conditions and may differ depending on the installation conditions. In the event of deviation from the standard configuration, the parameters must be checked in installed condition.

Curve	Operating point	Nominal voltage	Air flow	Speed n	Max. input power P _{ed}	Max. input current I	Sound power level L _{WA}	Min. Back pressure	Perm. ambient temp.	Conn. diagram
Nominal voltage 230 V AC, 50 Hz										
A	1 Step 4	1-230	1430	1700	470	2.06	75	100		
	2 Step 4	1-230	1210	2195	436	1.93	74			
	3 Step 4	1-230	885	2525	367	1.69	75	-25...+50	E	
	4 Step 4	1-230	450	2700	309	1.52	77			

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

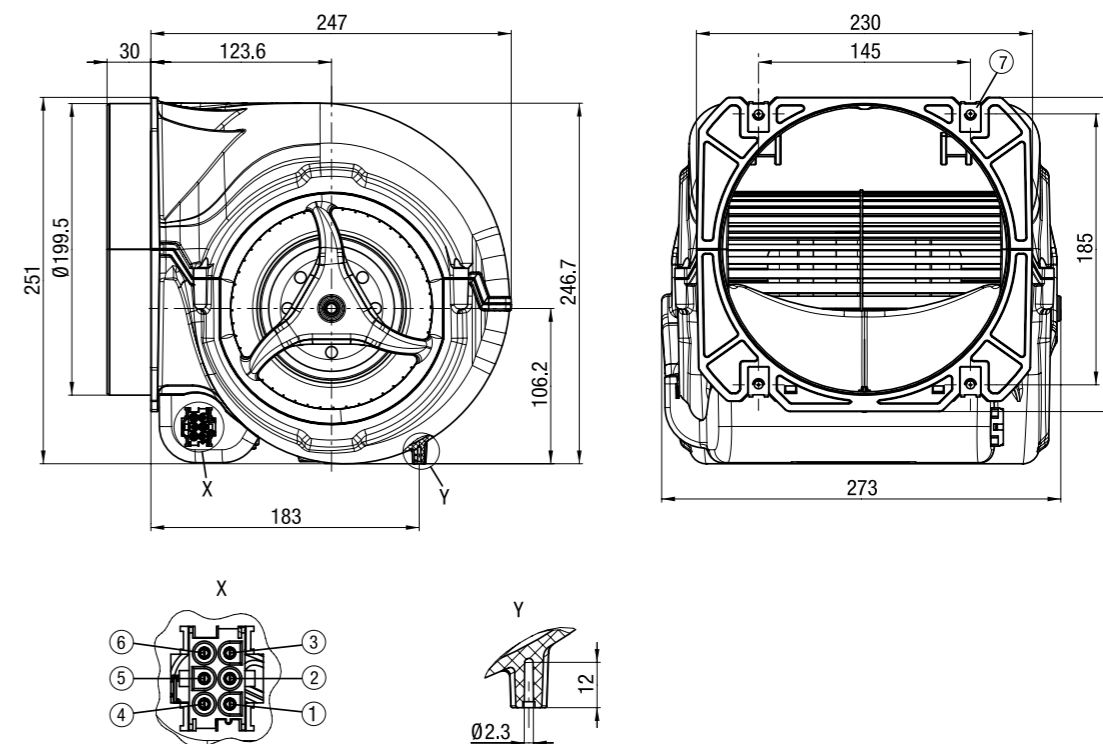
Subject to change

Curve	Centrifugal fan		
	Type	Part number	Weight
A	VHD0160X2NMS ¹⁾	DZE160GL0701 ¹⁾	6.80 kg

¹⁾ Product for sale in countries/markets outside of EU only.

Technical drawing

Dimensions in mm



Detail X – Coded plug system: 6-pole connector housing TE 2178773-1, 6x plug pin TE 926886-1

- | | | |
|--------------|--------------|---|
| ① L = Step 1 | ④ L = Step 4 | ⑦ 4x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus material thickness of attachment) |
| ② L = Step 2 | ⑤ N | |
| ③ L = Step 3 | ⑥ PE | |



	Page
Cable	96
Capacitor	97
Guard grilles	98
FlowGrid air inlet grill	100
One-way flap	101
Inlet rings for centrifugal fans	102

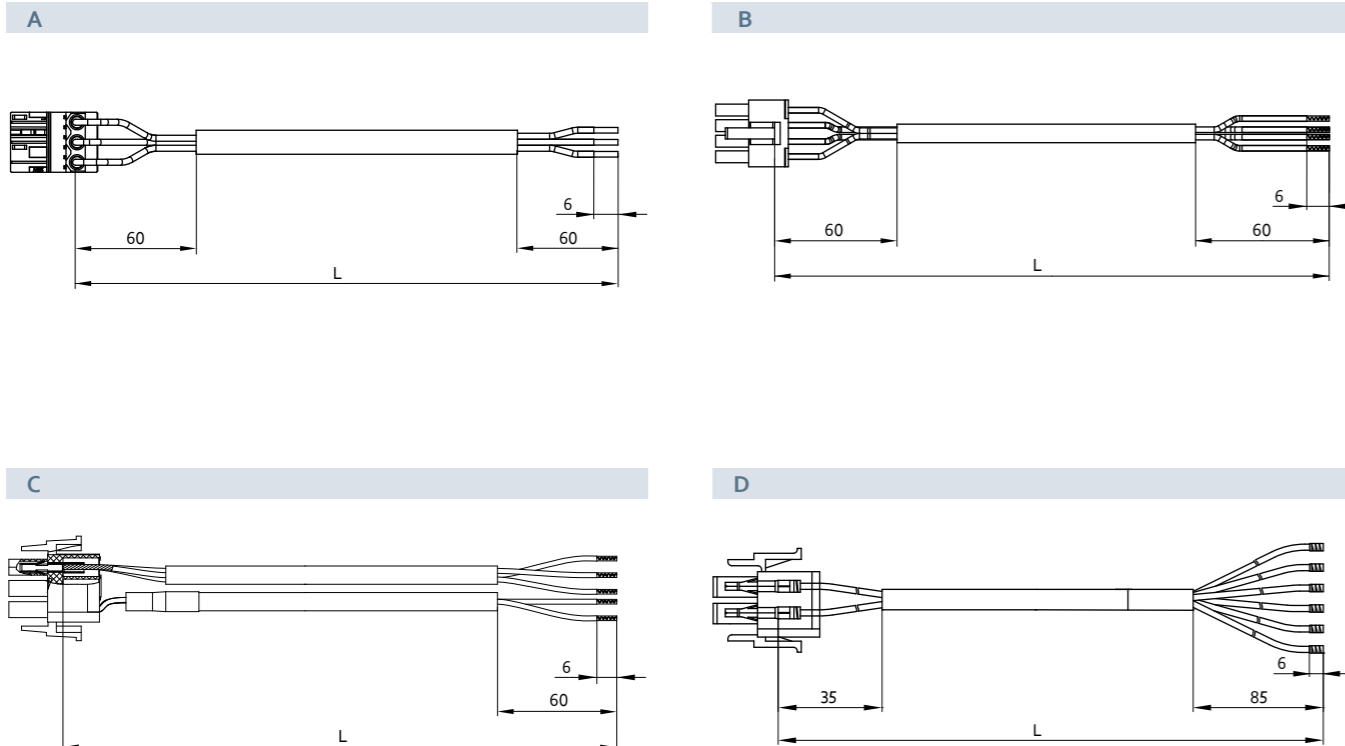
Cable

for centrifugal fans

Cable in different lengths.
Strand end with wire end ferrules.

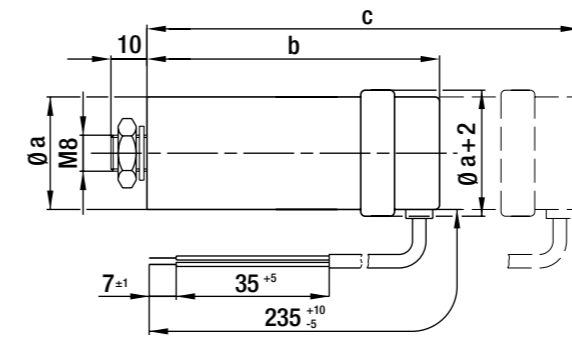
Cable					
Illustration	Part number	Length (L) mm	suitable for	connection side	
A	power supply cable	35786-4-1029	1050	D3G146-HQ13-34 D3G146-HQ01-37	
		35785-4-1029	450		
B	control line	15572-4-1029	1050	D1G146-HS01-04 D1G146-HQ03-04	See codierung connector system on the product pages
		15571-4-1029	450		
D	power supply cable	21956-4-1040	300	D2E140-HR97-07; D2E146-HR93-A1 D2E146-HS97-03; D2E146-HT59-02 D2E160-FI01-01; D2E160-FK11-02 D2E160-GM93-01; D2E160-GL07-01	
		21957-4-1040	450		
		21958-4-1040	650		
		21959-4-1040	1000		

Subject to alteration



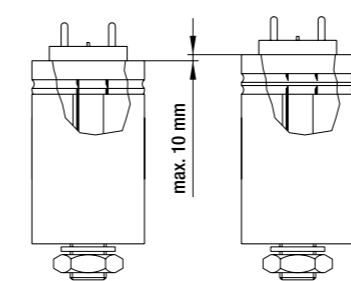
Capacitor

for centrifugal fans



- Material/surface**
 - Aluminum can, aluminum cover
- Connection lead**
 - FPU or S2: According to DIN EN 60252-1 (flameproof, burst-proof, circuit-breaking)
- Life expectancy**
 - 420 VDB; -25...+85°C, 30,000 Std; class A
 - 470 VDB; -25...+85°C, 10,000 Std; class B
 - 500 VDB; -25...+85°C, 1,000 Std; class C
- Standards and approvals**
 - Approvals: VDE: According to DIN EN 60252-1 (VDE 0560-8)

Capacitor				
Part number	Capacity μF	a mm	b (max.) mm	c (max.) mm
02155-4-7320	1.5	25	77	85
02156-4-7320	2.0	25	77	85
02159-4-7320	2.5	30	77	82
02160-4-7320	3.0	30	77	82
02162-4-7320	5.0	25	105	112
02163-4-7320	6.0	30	107	112



- Anti-ripping protection**
 - The housing length is increased by a maximum of 10 mm. The protection device reacts to an overload by interrupting the internal lead at a pre-determined overload level.
- Installation**
 - c is the overall dimension of the capacitor that needs to be taken into account for installation. However, the capacitor design varies from manufacturer to manufacturer. Either 9 mm elongation is added to dimension b, or this elongation is already integrated in the capacitor dimension.

Guard grills

for dual-intake centrifugal fans



Guard grills:
According to EN60335-1,
made of plastic, black

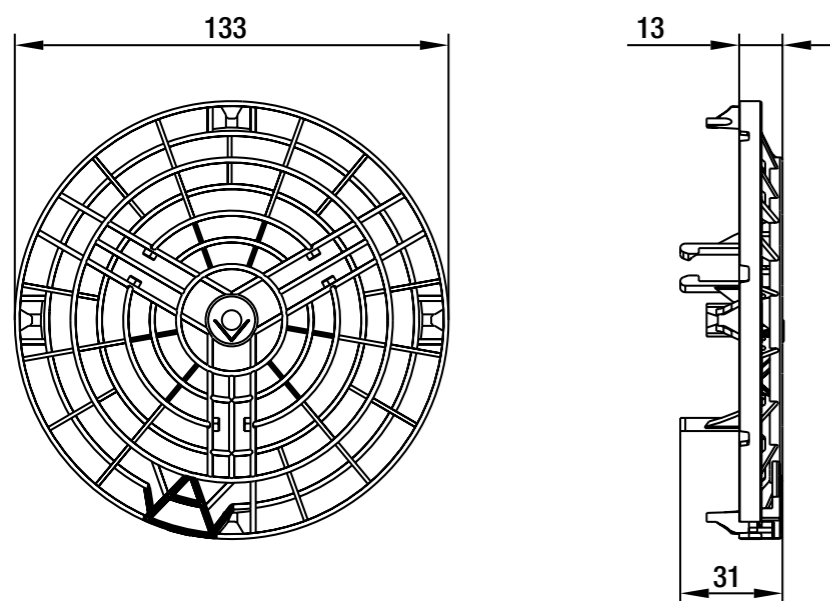
Our protective Guard grills are specially designed for use with ebm-papst fans. Attention was paid to the highest level of safety with minimal impact on operating noise. Please note that when using protective Guard grills from other manufacturers, compliance with safety-relevant distances is not always given.

Guard grilles

Part number ¹⁾	Mounting side	Suitable for
34265-2-2929	Side of cable exit	D2E 146; D3G146
38182-2-2929	Opposite of cable exit side	

Subject to alteration

¹⁾ The delivery always includes both part numbers



Guard grills

for dual-intake centrifugal fans



Guard grills:
According to EN60335-1,
made of plastic, black

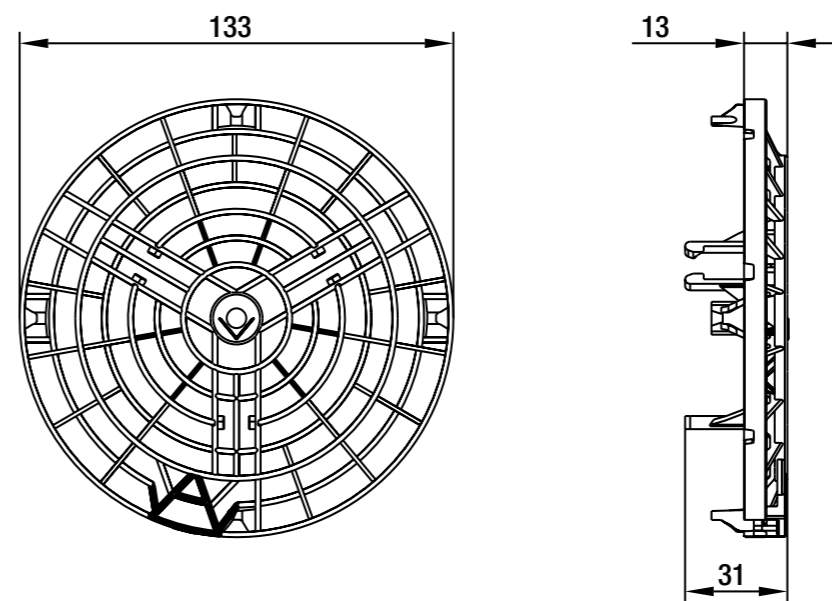
Our protective Guard grills are specially designed for use with ebm-papst fans. Attention was paid to the highest level of safety with minimal impact on operating noise. Please note that when using protective Guard grills from other manufacturers, compliance with safety-relevant distances is not always given.

Guard grilles

Part number ¹⁾	Mounting side	Suitable for
34275-2-2929	Side of cable exit	D1G146HS; D1G146HQ
38192-2-2929	Opposite of cable exit side	

Subject to alteration

¹⁾ The delivery always includes both part numbers



FlowGrid air inlet grill

efficient noise reduction



The air performance of ebm-papst fans is not the only thing measured in our in-house state-of-the-art test laboratory. The acoustic behavior of the fans is also examined and the measuring results are included in the technical documentation. Please note that the measurements are taken under ideal conditions with undisturbed inflow and outflow. If the fans are later installed in applications where limited space is available, the noise information listed in the documentation will probably not be applicable.

In order to minimize the negative impact of the installation situation, ebm-papst offers the FlowGrid airinlet guard shown here. It is mounted on the fan's intake side and effectively reduces the noise in the fan's overall frequency range; especially the disturbing tonal noise in the low frequency range. The result is a far lower sound pressure level and pleasant running noise. Since the level of noise reduction is dependent on the installation circumstances, it is not possible to provide generally applicable information here.

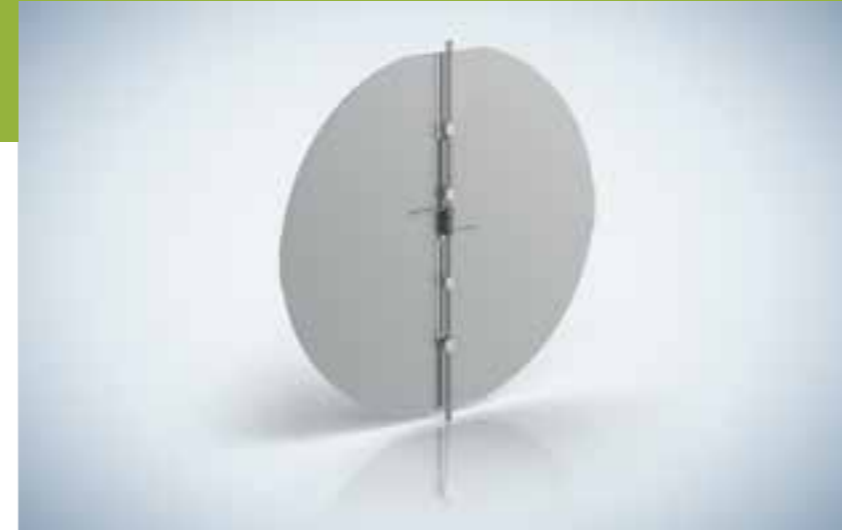
FlowGrid air inlet grill

Part number	fan size	Ø B (mm)	Ø C (mm)	Ø E (mm)	S (mm)	H (mm)	N ²⁾ (mm)
00191-2-2957 ¹⁾	175 190	170	155 -160	4.5	2.0	30	2 ± 0.5 Nm
00251-2-2957 ¹⁾	220 225 250	205	192 -194	4.5	2.0	38	2 ± 0.5 Nm
20281-2-2957	220 225 250 280	280	245 -261	4.5	3.5	40	2 ± 0.5 Nm

Subject to change
¹⁾ FlowGrid is completely closed / Guard grill function
²⁾ Recommended tightening torque for fastening screws

One-way flap

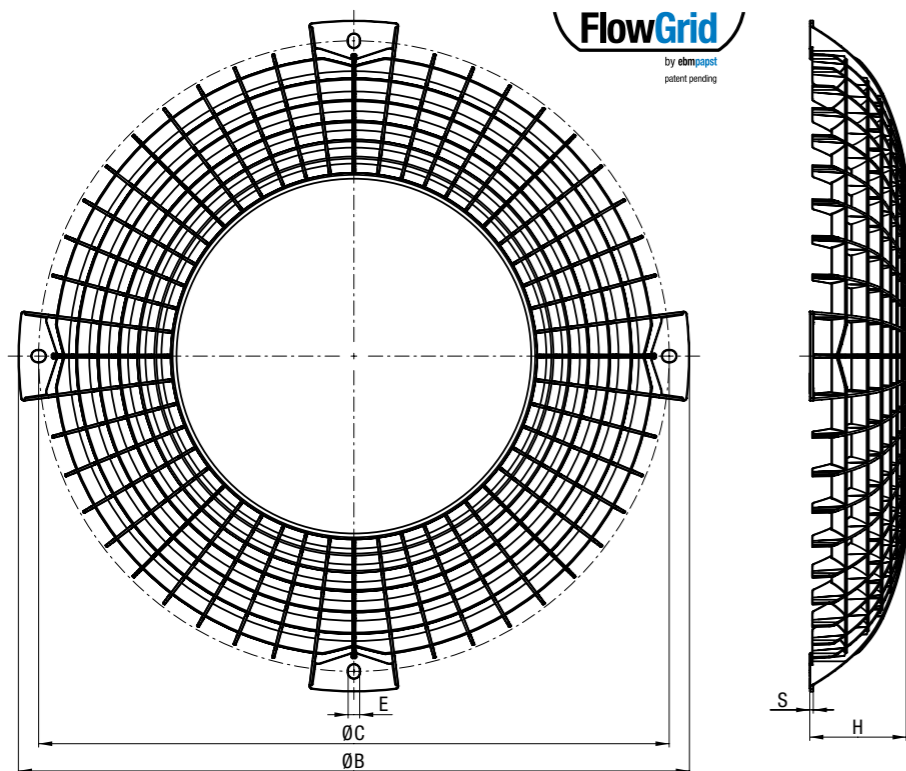
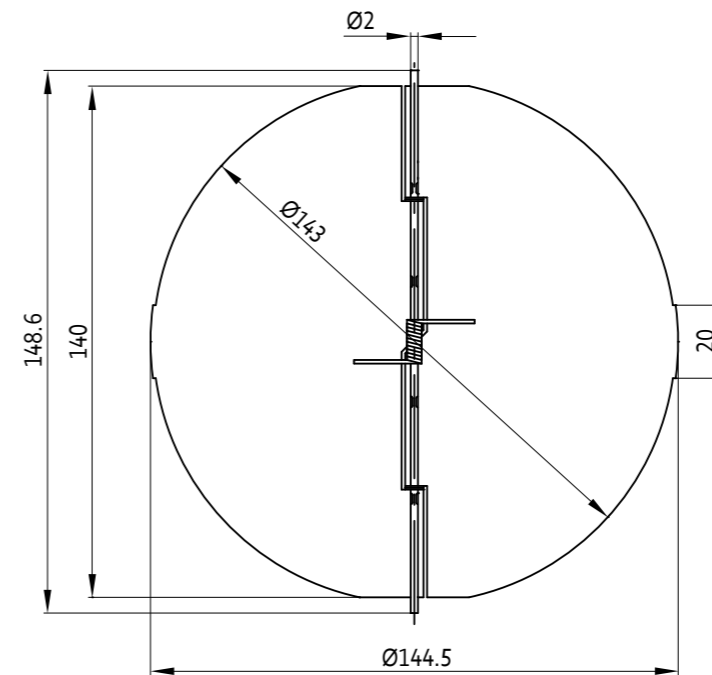
for centrifugal fans



One-way flap

Part number	fan size	suitable for
10000-2-4054	146	VHD0146 / D1G146; D2E146; D3G146

Anderungen vorbehalten



Would you like to find out more?

If you need an installation guide or more information about the dimensions, go to:

www.ebmpapst.com/flowgrid-manual

or scan the QR code below:

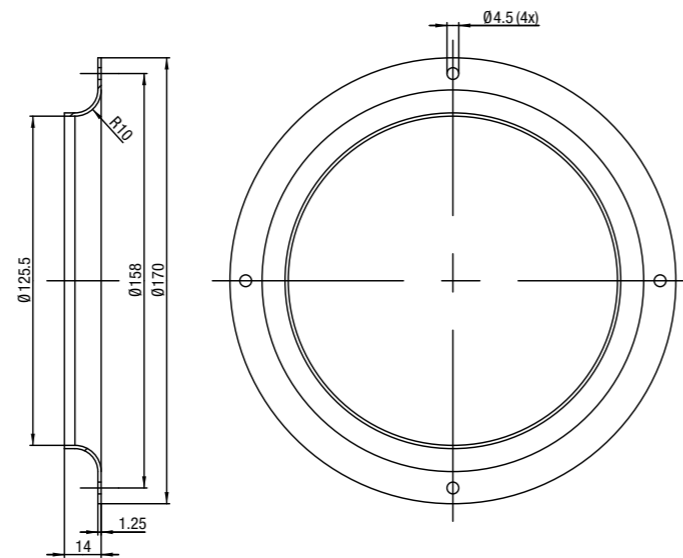


Inlet rings

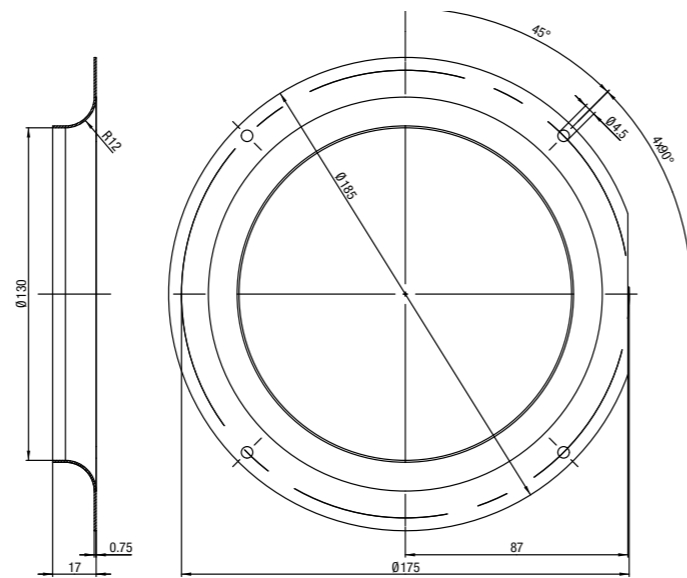
for centrifugal fans



n size	Part number
140/146/160/190	09576-2-4013



n size	Part number
160	0958824013

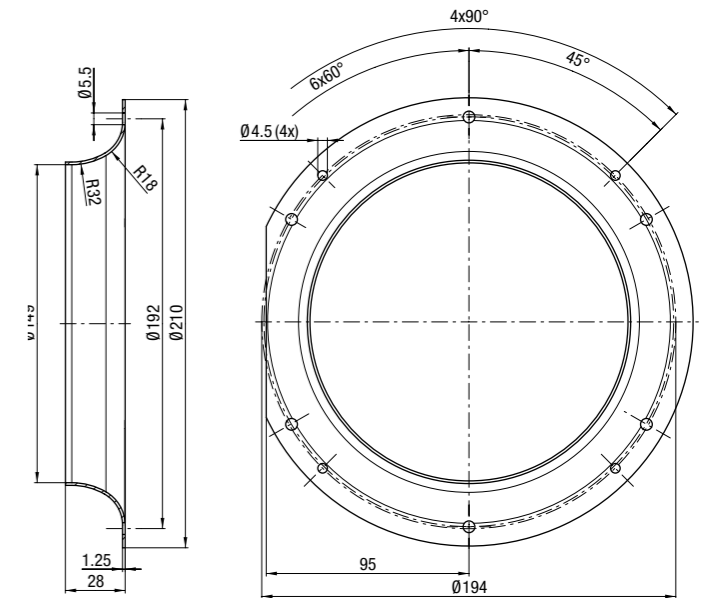


Inlet rings

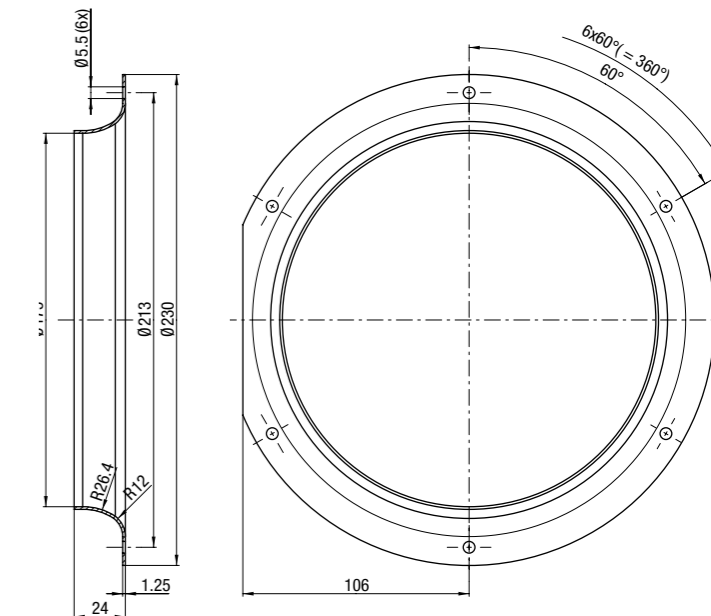
for centrifugal fans



n size	Part number
180	09597-2-4013



n size	Part number
200	0960524013

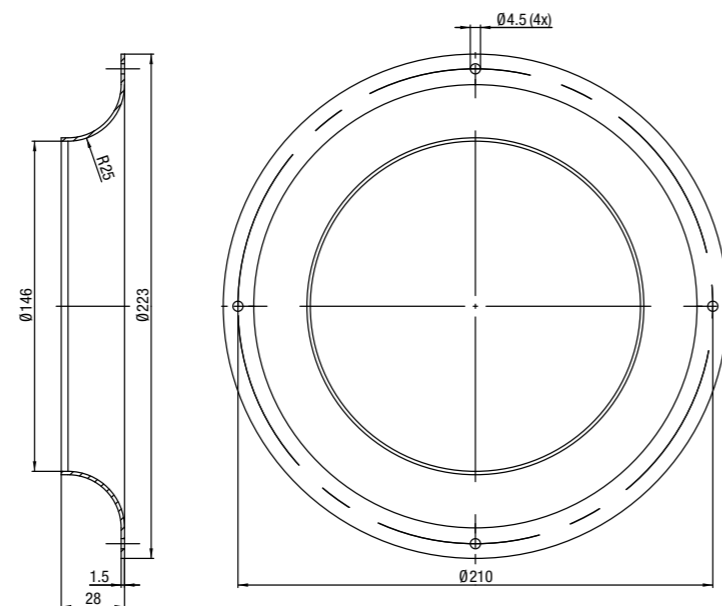
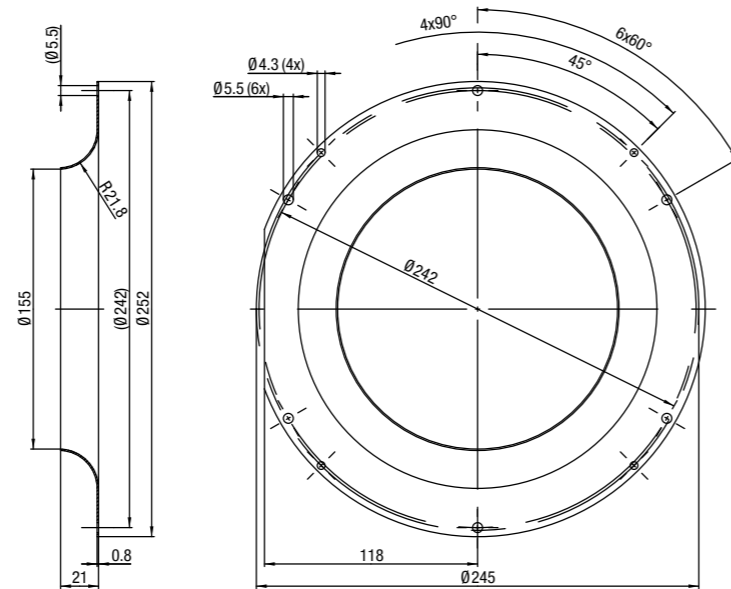


Inlet rings

for centrifugal fans



n size	Part number
220	09609-2-4013



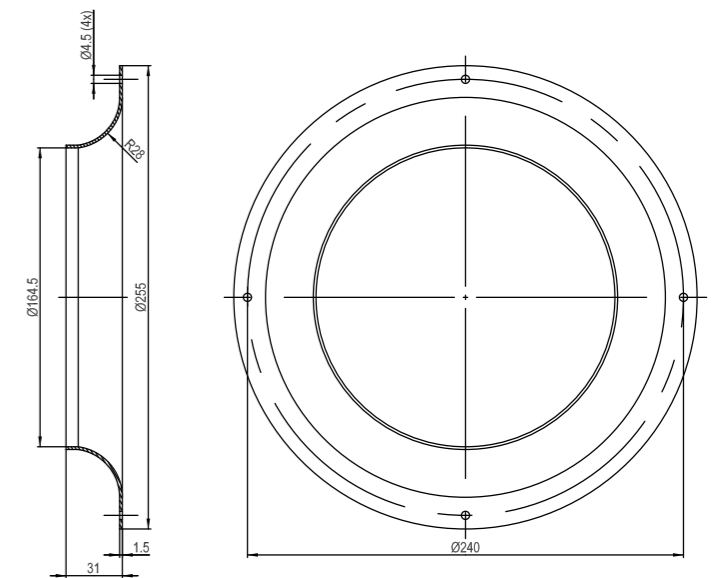
n size	Part number
225	96358-2-4013

Inlet rings

for centrifugal fans



n size	Part number
250	96359-2-4013



ebmpapst

the engineer's choice

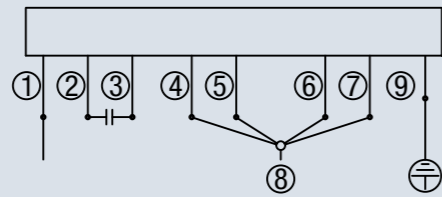


	Page
Connection diagram	108
Technical parameters & scope	116

Connection diagram: A)

Technical features

- Thermal overload protector internally connected
- The switch must interrupt the circuit when switching

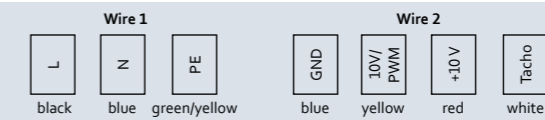


Wire	Designation	Colour
1	N	blue
2	-	brown
3	-	yellow
4	Step I black 1	white
5	Step II black 2	red
6	Step III black 3	gray
7	Step IV black 4	black
8	L1	
9	PE	green/yellow

Connection diagram: B)

Technical features

- Control input 0-10 VDC / PWM
- Output 10 VDC, max. 1.1 mA
- Output limit
- Soft start
- Motor current limiter
- Tach output
- Control interface with SELV potential safely disconnected from the mains
- Overvoltage detection
- Over-temperature protected electronics / motor
- Overvoltage detection
- Motor protection electronic



Wire	Designation	Colour	Assignment / function
1	L	black	Power supply, voltage range see nameplate
	N	blue	Neutral conductor
	PE	green/yellow	Protective earth
2	GND	blue	GND-Connection of Control interface
	0-10V / PWM	yellow	Control input 0-10V or PWM, electrically isolated
	+10 V	red	Voltage output 10 VDC 1.1 mA, electrically isolated, short-circuit-proof
	Tacho	white	Tach output: Open collector, 1 impuls per revolution, electrically isolated

Connection diagram: C)

Technical features

- Control input 0-10VDC / PWM
- Output 10 VDC, max. 10 mA
- Output limit
- Soft start
- Motor current limiter
- Tach output
- Control interface with SELV potential safely disconnected from the mains
- Overvoltage detection
- Over-temperature protected electronics / motor
- Overvoltage detection
- Motor protection electronic

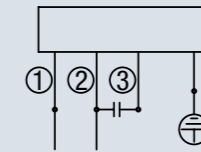


Wire	Designation	Colour	Assignment / function
1	L	black	Supply connection, power supply, phase, voltage range see name plate
	N	blue	Supply connection, power supply, neutral conductor, phase, voltage range see name plate
	PE	green/yellow	Protective earth
2	0-10V / PWM	yellow	0-10V / PWM Control input, Ri 100K Ω , SELV
	Tacho	white	Tacho output, open collector, 1 impuls per revolution, Isink max = 10mA, SELV
	+10V	red	Fixed voltage output 10 VDC +/-3%, I _{max} 10 mA, short-circuit-proof, power supply for ext. equipment (e.g. pot), SELV
	GND	blue	Reference ground for Control interface, SELV

Connection diagram: D)

Technical features

- Thermal overload protector internally connected

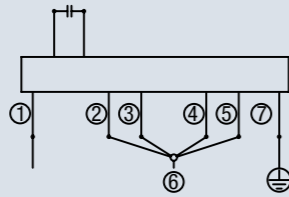


Wire	Designation	Colour
1	L	blue
2	N	black
3	Capacitor	brown
4	PE	green/yellow

Connection diagram: E)

Technical features

- Thermal overload protector internally connected
- The switch must interrupt the circuit when switching

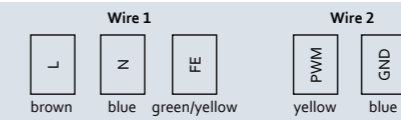


Wire	Designation	Colour
1	N	blue
2	Step I black 1	white
3	Step II black 2	red
4	Step II black 3	gray
5	Step II black 4	black
6	L1	
7	PE	green/yellow

Connection diagram: G)

Technical features

- Motor current limiter
- Soft start
- Control input PWM
- Control interface with SELV potential safely disconnected from the mains
- Thermal overload protection motor
- Thermal overload protector internally connected

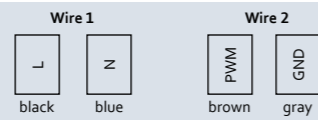


Wire	Designation	Colour	Assignment / function
1	L	brown	Power supply, phase, voltage range see name plate
	N	blue	Power supply, neutral conductor, phase, voltage range see name plate
	FE	green/yellow	Functional earth conductor
2	PWM	yellow	Control input PWM, Impedanz 1kΩ, SELV
	GND	blue	Reference ground for Control interface, SELV

Connection diagram: H)

Technical features

- Motor current limiter
- Soft start
- Control input PWM
- Thermal overload protection motor
- Thermal overload protector internally connected

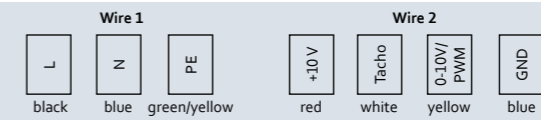


Wire	Designation	Colour	Assignment / function
1	L	black	Power supply, phase, voltage range see name plate
	N	blue	Power supply, Neutral conductor, phase, voltage range see name plate
2	PWM	brown	Control input PWM, not electrically isolated
	GND	gray	Reference ground for Control interface

Connection diagram: I)

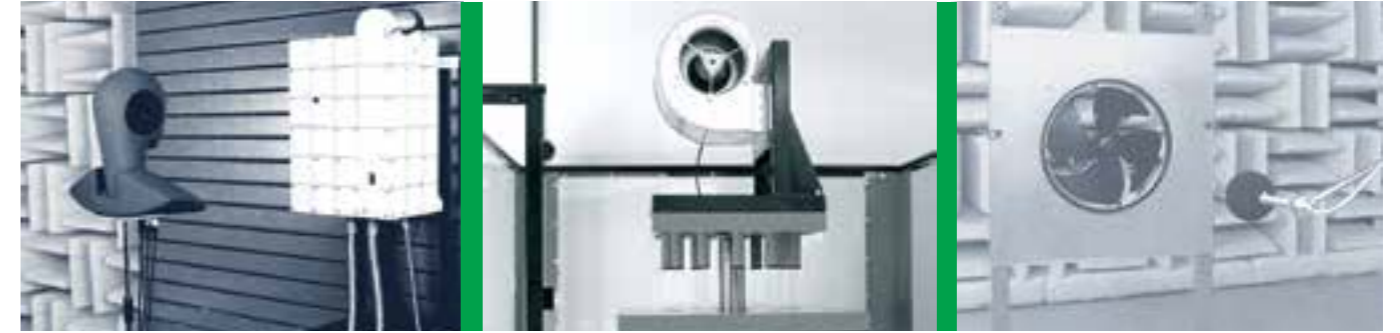
Technical features

- Control input 0-10 VDC / PWM
- Output 10 VDC, max. 1.1 mA
- Tach output
- Soft start
- Motor current limiter
- Thermal overload protector internally connected
- Control interface with SELV potential safely disconnected from the mains
- Thermal overload protection motor



Wire	Designation	Colour	Assignment / function
1	L	black	Power supply, voltage range see nameplate
	N	blue	Neutral conductor
	PE	green/yellow	Protective earth
2	+10V	red	Voltage output 10V / 1.1 mA, electrically isolated
	Tacho	white	Tach output: Open collector, 1 impuls per revolution, electrically isolated, Isink max. = 10mA
	0-10 V PWM	yellow	Control input 0-10 V oder PWM, electrically isolated
	GND	blue	GND- Connection of Control interface

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 solution 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.

Service life

The service life of ebm-papst products depends:

- 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 L_{10} 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 protector, connected
- PTC/NTC with electronic evaluation
- Current limiting using electronics

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.

High voltage and insulation testing

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

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: The products in this catalogue have been specifically configured for use in the range hoods!

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.

Approvals

In case you require a specific approval for your ebm-papst product (e1, UL, 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 1.15 kg/m³.

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 grill
- 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 grill.

Sound pressure level and sound level

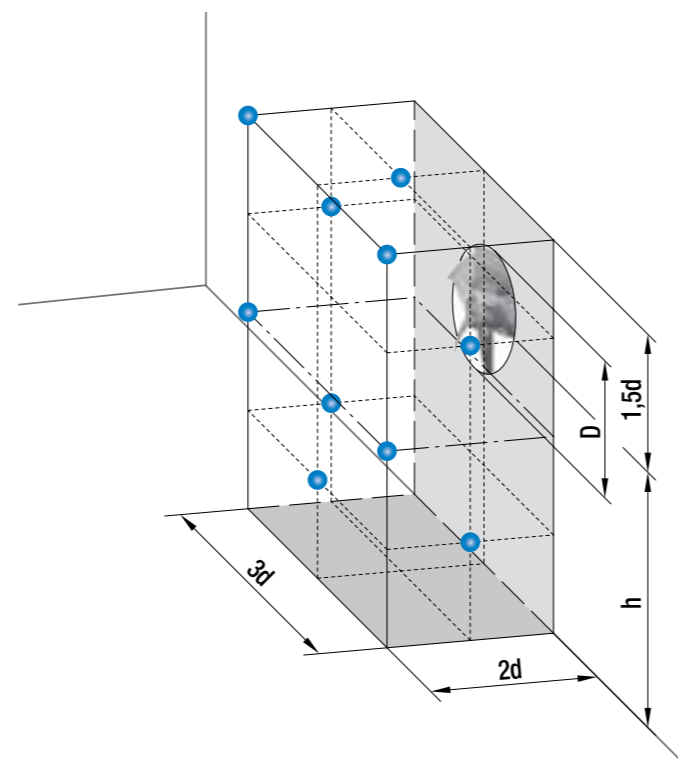
All acoustic values are established according to ISO 13347, DIN 45635 and ISO 3744/3745 to accuracy class 2 and given in A-rated form.

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 diagram below). 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 bzw. DIN 45635-38:

- 10 measuring points
- $d \geq D$
- $h = 1,5d \dots 4,5d$
- Measurement area $S = 6d^2 + 7d(h + 1,5d)$

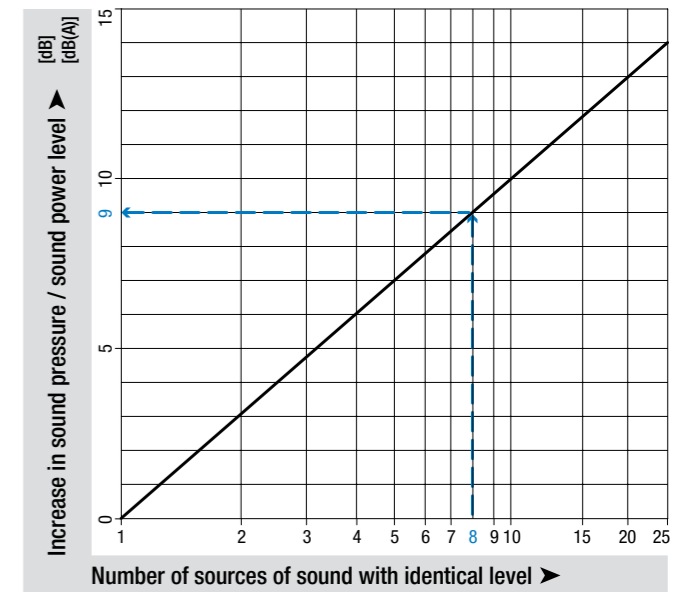


Combined level of multiple same-level sound sources

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.

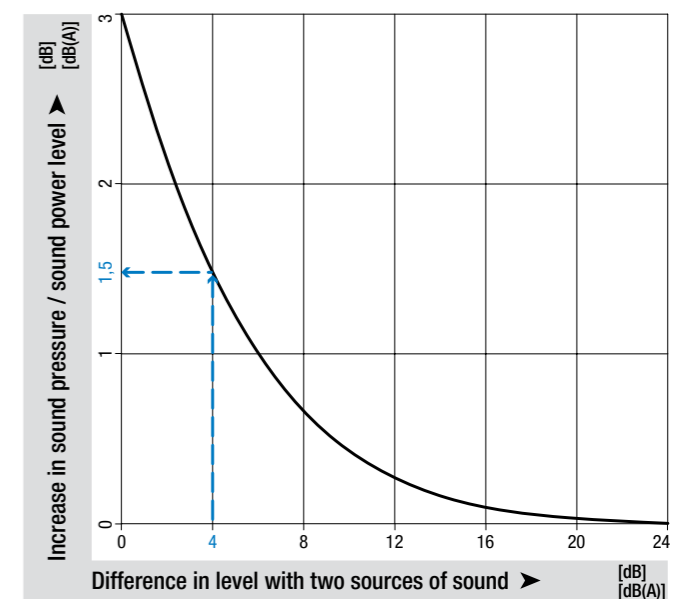
Example: 8 A3G800 axial fans are on a condenser. According to the data sheet, the sound pressure level of a fan is approximately 75 dB(A). The level increase measured from the diagram is 9 dB. Thus the overall sound level of the installation can be expected to be 84 dB(A).



Combined level of two different-level sound sources

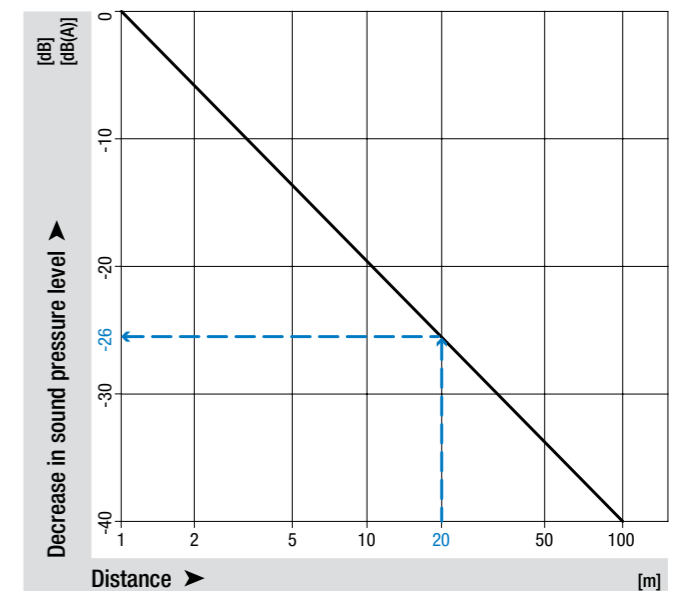
The acoustic performance of two different fans can be predetermined based on the sound levels given in the data sheet. This is shown in the diagram opposite.

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).



Technical parameters & scope

Aerodynamics fundamentals:

Further information can be found in our brochure "Technology - Basic principles"

Axial fan operating range:

To the right of the saddle point (right section of the air performance curve):

- Maximum efficiency
- Minimum noise

To the left of the saddle point (left section of the air performance curve):

- Stall
- Irruptive efficiency
- Noise suddenly increases

The fan's optimal range of use is highlighted in green in the adjoining performance curve.

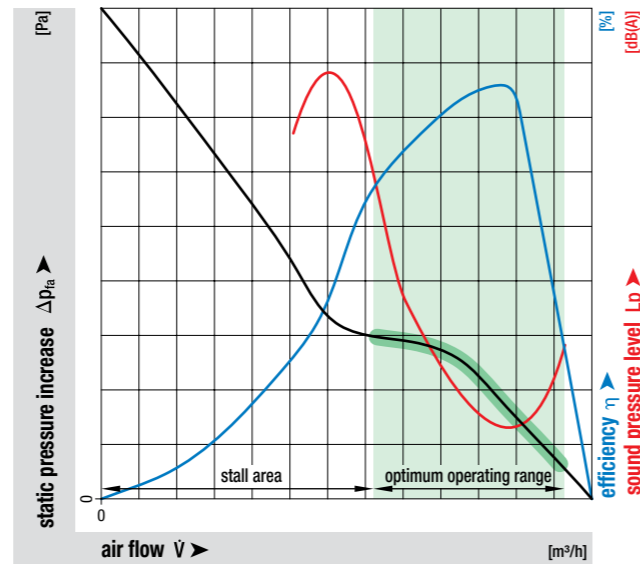
Effects of guard grill:

Installing a guard grill reduces the axial fan's air performance.

The pressure loss in Pa can be roughly calculated using the following equation:

$$\Delta p_{SG} = \epsilon_{SG} \cdot 10^{-8} \cdot \dot{V}^2 \quad \dot{V} \text{ in } [m^3/h]$$

For the guard grill that ebm-papst use, the correction factor ϵ_{SG} dependent on impeller diameter D can be found in the adjoining table.



Diameter D	Correction factor ϵ_{SG}
400	90
450	55
500	35

Centrifugal fan operating range:

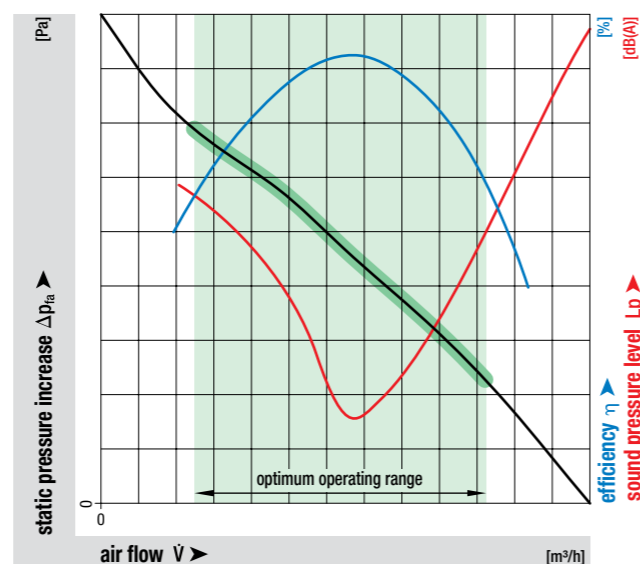
Middle section of the air performance curve:

- Maximum efficiency
- Minimum noise

To the left and right of the middle section of the air performance curve:

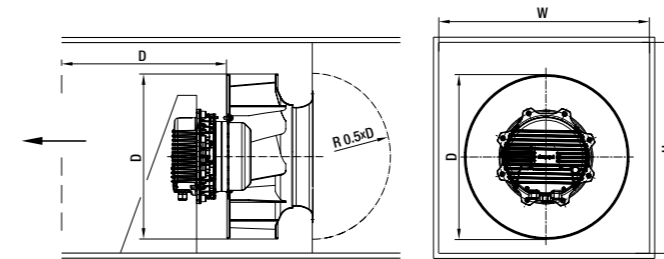
- Reduced efficiency
- Increasing noise

The fan's optimal range of use is highlighted in green in the adjoining performance curve.

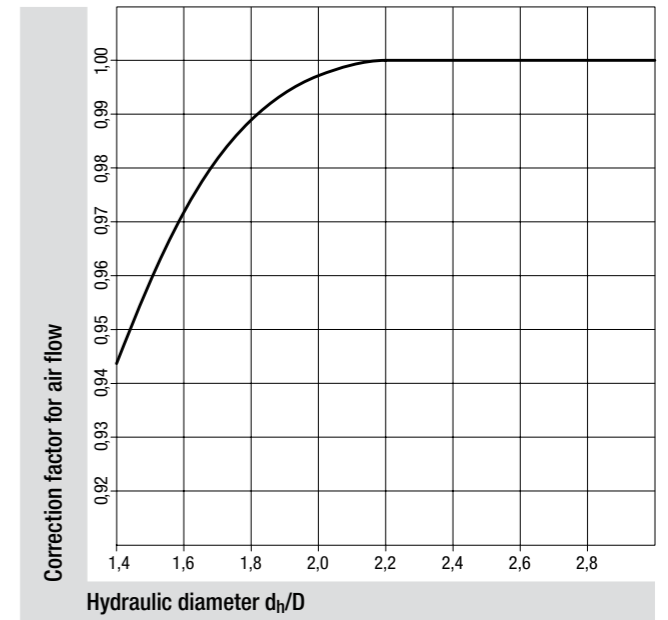


Effects of installation space

Installation in a square box may cause a reduction of the air performance.



- d_h = hydraulic diameter
Formula: $d_h = 2 \times W \times H / (W + H)$
- W = Width of the box
- H = Height of the box
- D = Outside diameter of the fan



Airflow determination for inlet rings with pressure tap:

The differential pressure method compares the static pressure upstream of the inlet ring with the static pressure in the inlet ring. The airflow can be calculated from the differential pressure (between the static pressures) according to the following equation:

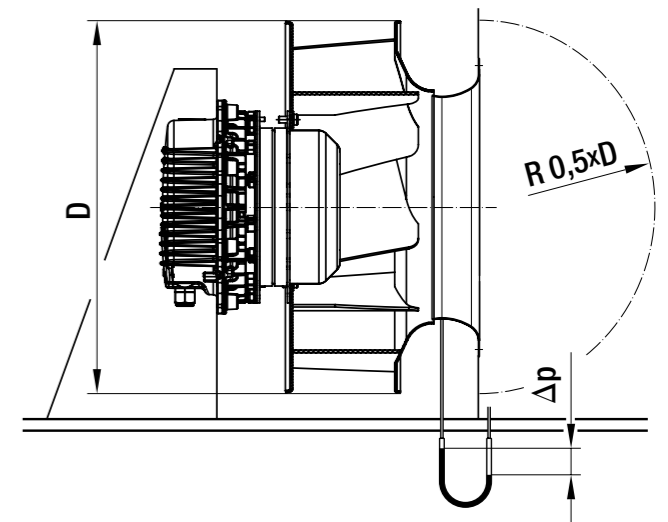
$$q_V = k \cdot \sqrt{\Delta p} \quad q_V \text{ in } [m^3/h] \text{ and } \Delta p \text{ in } [Pa]$$

If the airflow is to be regulated to remain constant, the inlet pressure must be kept constant:

$$\Delta p = q_V^2 : k^2$$

k takes the specific properties of the inlet ring into account.

The pressure is tapped at 1 (4) point(s) on the circumference of the inlet ring. The customer connection consists of a built-in T-shaped hose fitting. The hose fitting is suitable for pneumatic hoses with an inside diameter of 4 mm.

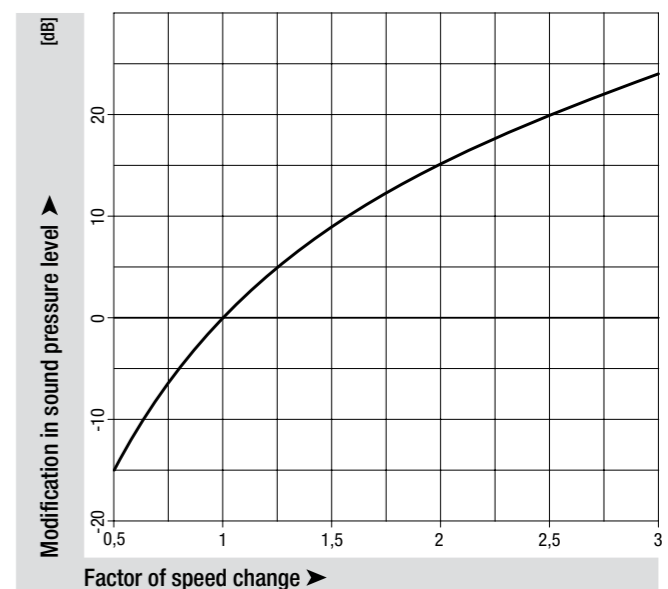


Influence of speed n on the sound power level Lw:

The sound power level for changes in speed can be approximately determined based on the adjoining diagram and the following formula:

$$Lw_2 - Lw_1 = 50 \text{ dB} \cdot \log(n_2 : n_1)$$

- Lw_1 = Sound power level after speed change
- Lw_2 = Sound power level before speed change
- n_1 = Changed speed
- n_2 = Initial speed



Agents Worldwide

ebmpapst

the engineer's choice

ebm-papst Mulfingen GmbH & Co. KG

Bachmühle 2
74673 Mulfingen
GERMANY
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com



ebm-papst St. Georgen GmbH & Co. KG

Hermann-Papst-Straße 1
78112 St. Georgen
GERMANY
Phone +49 7724 81-0
Fax +49 7724 81-1309
info2@de.ebmpapst.com





ebm-papst Landshut GmbH


Hofmark-Aich-Straße 25
84030 Landshut
GERMANY
Phone +49 871 707-0
Fax +49 871 707-465
info3@de.ebmpapst.com




	Page
ebm-papst in Germany	124
ebm-papst in Europe	125
ebm-papst in America and Africa	127
ebm-papst in Asia	128
ebm-papst in Oceania	129

 **Berlin**
Dipl.-Ing. (TH) Jens Duchow
Händelstraße 7
16341 Panketal
GERMANY
Phone +49 30 944149-62
Fax +49 30 944149-63
Jens.Duchow@de.ebmpapst.com


 **Bielefeld**
Dipl.-Ing. (FH) Wolf-Jürgen Weber
Niehausweg 13
33739 Bielefeld
GERMANY
Phone +49 5206 91732-31
Fax +49 5206 91732-35
Wolf-Juergen.Weber@de.ebmpapst.com


 **Dortmund**
Dipl.-Ing. (FH) Hans-Joachim Pundt
Auf den Steinern 3
59519 Möhnese- Völlinghausen
GERMANY
Phone +49 2925 800-407
Fax +49 2925 800-408
Hans-Joachim.Pundt@de.ebmpapst.com


 **Frankfurt**
Dipl.-Ing. Christian Kleffmann
Dr.-Hermann-Krause-Straße 23
63452 Hanau
GERMANY
Phone +49 6181 1898-12
Fax +49 6181 1898-13
Christian.Kleffmann@de.ebmpapst.com


 **Halle**
Dipl.-Ing. (TU) Michael Hanning
Lercheneck 4
06198 Salzatal / OT Lieskau
GERMANY
Phone +49 345 55124-56
Fax +49 345 55124-57
Michael.Hanning@de.ebmpapst.com


 **Hamburg**
Ingenieurbüro Breuell GmbH
Ing. Dirk Kahl
Elektroingenieur
Oststraße 96
22844 Norderstedt
GERMANY
Phone +49 40 538092-19
Fax +49 40 538092-84
Kahl@breuell-hilgenfeldt.de


 **Heilbronn / Heidelberg**
Wolfgang Richter
Büttelsbergweg 18
97980 Bad Mergentheim-Rengershausen
GERMANY
Phone +49 7937 32200-33
Fax +49 7938 81-110
Wolfgang.Richter@de.ebmpapst.com


 **Kassel**
Dipl.-Ing. (FH) Ralph Brück
Hoherainstraße 3 b
35075 Gladenbach
GERMANY
Phone +49 6462 4071-10
Fax +49 6462 4071-11
Ralph.Brueck@de.ebmpapst.com


 **Koblenz**
Winfried Schaefer
Hinter der Kirch 10
56767 Uersfeld
GERMANY
Phone +49 2657 16-96
Fax +49 2657 16-76
Winfried.Schaefer@de.ebmpapst.com

 **Munich**
Dipl.-Wirt.-Ing. (FH) Jens Peter
Schelmenäcker 14
74427 Fichtenberg
GERMANY
Phone +49 7971 91909-49
Fax +49 7971 91909-51
Jens.Peter@de.ebmpapst.com

 **Nuremberg**
Dipl.-Wirt.-Ing. (FH) Axel Resch
Dr.-August-Koch-Str. 1
91639 Wolframs-Eschenbach
GERMANY
Phone +49 9875 9783-170
Fax +49 9875 9783-171
Axel.Resch@de.ebmpapst.com


 **Offenburg**
Dipl.-Ing. (FH) Ralf Braun
Hubeneck 21
77704 Oberkirch
GERMANY
Phone +49 7802 9822-52
Fax +49 7802 9822-53
Ralf.Braun@de.ebmpapst.com

 **Stuttgart**
Dipl.-Ing. (FH) Rudi Weinmann
Hindenburgstraße 100/1
73207 Plochingen
GERMANY
Phone +49 7153 9289-80
Fax +49 7153 9289-81
Rudi.Weinmann@de.ebmpapst.com

 **Ulm**
M.Sc. Reinhard Sommerreißer
Einsteinstraße 7a
86674 Baar / Schwaben
GERMANY
Phone +49 8276 5899-775
Fax +49 7938 81-110
Reinhard.Sommerreisser@de.ebmpapst.com


Distributors

 **F ankfurt**
R.E.D. Handelsgesellschaft mbH
Gutenbergstraße 3
63110 Rodgau - Jügesheim
GERMANY
Phone +49 6106 841-0
Fax +49 6106 841-111
info@red-elektromechanik.de
www.red-elektromechanik.de

 **Hamburg**
Breuell + Hilgenfeldt GmbH
Oststraße 96
22844 Norderstedt
GERMANY
Phone +49 40 538092-20
Fax +49 40 538092-84
info@breuell-hilgenfeldt.de


 **Munich**
A. Schweiger GmbH
Ohmstraße 1
82054 Sauerlach
GERMANY
Phone +49 8104 897-0
Fax +49 8104 897-90
info@schweiger-gmbh.de
www.schweiger-gmbh.com


● **Express Service-Center** (1 to 5 pieces)

 **North**
Breuell + Hilgenfeldt GmbH
Oststraße 96
22844 Norderstedt
GERMANY
Phone +49 40 538092-20
Fax +49 40 538092-84
info@breuell-hilgenfeldt.de


 **South**
HDS Ventilatoren Vertriebs GmbH
Glaswiesenstraße 1
74677 Dörzbach
GERMANY
Phone +49 7937 80355-20
Fax +49 7937 80355-25
info@hds-gmbh.net
www.hds-gmbh.net


Europe

 **Austria**
ebm-papst Motoren & Ventilatoren GmbH
Straubingstraße 17
4030 Linz
AUSTRIA
Phone +43 732 321150-0
Fax +43 732 321150-20
info@at.ebmpapst.com
www.ebmpapst.at

 **Belarus**
ebm-papst Bel AgmbH
4th Montazhnikov side street
House 6, Office 332
BY-220019 Minsk
BELARUS
Phone +375 17 2015216
Fax +375 17 2015216
info@by.ebmpapst.com
www.ebmpapst.by

 **Belgium**
ebm-papst Benelux B.V.
Sales office Belgium-Luxemburg
Romeinsestraat 6/0101
Research Park Haasrode
3001 Heverlee-Leuven
BELGIUM
Phone +32 16 396-200
Fax +32 16 396-220
info@be.ebmpapst.com
www.ebmpapst.be


 **Bulgaria**
ebm-papst Romania S.R.L.
Str. Tarnavei No. 20
500327 Brasov
ROMANIA
Phone +40 268 331859
Fax +40 268 312805
dudasludovic@xnet.ro

 **Croatia**
ebm-papst Industries Kft.
Ezred u. 2.
1044 Budapest
HUNGARY
Phone +36 1 8722-190
Fax +36 1 8722-194
office@hu.ebmpapst.com

 **Cyprus**
Helcoma
E. Rota and Co. OE
Davaki 65
17672 Kallithea-Attiki
GREECE
Phone +30 210 9513-705
Fax +30 210 9513-490
contact@helcoma.gr
www.helcoma.gr

 **Czech Republic / Slovakia**
ebm-papst CZ s.r.o.
Kaštanová 34a
620 00 Brno
CZECH REPUBLIC
Phone +420 544 502-411
Fax +420 547 232-622
info@ebmpapst.cz
www.ebmpapst.cz


 **Denmark**
ebm-papst Denmark ApS
Vallensbækvej 21
2605 Brøndby
DENMARK
Phone +45 43 631111
Fax +45 43 630505
mail@dk.ebmpapst.com
www.ebmpapst.dk

 **Estonia**
ebm-papst Oy, Eesti Filiaal
Kesk tee 21
Aaviku küla, Jüri Tehnopark
75301 Rae Vald, Harjumaa
ESTONIA
Phone +372 65569-78
www.ebmpapst.ee

 **F nland**
ebm-papst Oy
Puistotie 1
02760 Espoo
FINLAND
Phone +358 9 887022-0
Fax +358 9 887022-13
mailbox@ebmpapst.fi
www.ebmpapst.fi

 **F ance**
ebm-papst sarl
Parc d'Activités Nord
1 rue Mohler – BP 62
67212 Obernai Cedex
FRANCE
Phone +33 3 88 66 88 03
info@it.ebmpapst.com
www.ebmpapst.fr

 **Greece**
HELLCOMA
HELLAS IKE
65, Davaki street
17672 Kallithea-Attiki
GREECE
Phone +30 210 9513-705
Fax +30 210 9513-490
contact@helcoma.gr
www.helcoma.gr


 **Hungary**
ebm-papst Industries Kft.
Ezred u. 2.
1044 Budapest
HUNGARY
Phone +36 1 8722-190
Fax +36 1 8722-194
office@hu.ebmpapst.com

 **Iceland**
RJ Engineers
Stangarhyl 1a
110 Reykjavik
ICELAND
Phone +354 567 8030
Fax +354 567 8015
rj@rj.is
www.rj.is

 **Ireland**
ebm-papst UK Ltd.
Chelmsford Business Park
Chelmsford Essex CM2 5EZ
UNITED KINGDOM
Phone +44 1245 468555
Fax +44 1245 466336
sales@uk.ebmpapst.com
www.ebmpapst.co.uk

 **AuBren Limited**
Portlaoise Business & Technology Park
Mountrath Road
Portlaoise, Co. Laois
IRELAND
Phone +353 57 8664343
Fax +353 57 8664346
sales@ie.aubren.com
www.aubren.com


 **Italy**
ebm-papst Srl
Via Cornaggia 108
22076 Mozzate (Co)
ITALY
Phone +39 0331 836201
Fax +39 0331 821510
info@it.ebmpapst.com
www.ebmpapst.it

 **Macedonia**
 ebm-papst Industries Kft.
 Ezred u. 2.
 1044 Budapest
 HUNGARY
 Phone +36 1 8722-190
 Fax +36 1 8722-194
 office@hu.ebmpapst.com


 **Netherlands**
 ebm-papst Benelux B.V.
 Polbeemd 7 - 5741 TP Beek en Donk
 P.O. Box 140 - 5740 AC Beek en Donk
 NETHERLANDS
 Phone +31 492 502-900
 Fax +31 492 502-950
 verkoop@nl.ebmpapst.com
 www.ebmpapst.nl


ebm-papst Heating Systems B.V.
 Van Veldekeade 360
 5216 KT 's-Hertogenbosch
 NETHERLANDS
 Phone +31 73 648 89 00
 Fax +31 73 648 89 11
 info@ebmpapst-hs.nl
 www.ebmpapst-hs.nl


 **Norway**
 ebm-papst AS
 P.B. 173 Holmlia
 1203 Oslo
 NORWAY
 Phone +47 22 763340
 Fax +47 22 619173
 mailbox@ebmpapst.no
 www.ebmpapst.no


 **Poland**
 ebm-papst Polska Sp. z o.o.
 ul. Annopol 4A
 03236 Warszawa
 POLAND
 Phone +48 22 6757819
 Fax +48 22 6769587
 office@ebmpapst.pl
 www.ebmpapst.pl


 **Portugal**
 ebm-papst (Portugal), Lda.
 Centro Empresarial de Alverca
 Rua de Adarse, Vale D'Ervas
 Corpo D / Fração 3
 2615-178 Alverca do Ribatejo
 PORTUGAL
 Phone +351 218 394 880
 Fax +351 218 394 759
 info@pt.ebmpapst.com
 www.ebmpapst.pt

 **Romania**
 ebm-papst Romania S.R.L.
 Str. Tarnavei Nr. 20
 500327 Brasov
 ROMANIA
 Phone +40 268 331859
 Fax +40 268 312805
 dudasludovic@xnet.ro

 **Russia**
 ebm-papst Rus GmbH
 Olimpiyskiy prospect 29A, office 418
 141006 Mytistschi, Oblast Moskau
 RUSSIA
 Phone +7 495 9807524
 Fax +7 495 5140924
 info@ebmpapst.ru
 www.ebmpapst.ru

 ebm-papst Ural GmbH
 Posadskaja-Strasse, 23(E), 3
 620102 Ekaterinburg
 RUSSIA
 Phone +7 343 2338000
 Fax +7 343 2337788
 Konstantin.Molokov@ru.ebmpapst.com
 www.ebmpapst.su


 **Serbia & Montenegro**
 ebm-papst Industries Kft.
 Ezred u. 2.
 1044 Budapest
 HUNGARY
 Phone +36 1 8722-190
 Fax +36 1 8722-194
 office@hu.ebmpapst.com

 **Spain**
 ebm-papst Ibérica S.L.
 Avda. del Sistema Solar, 29
 28830 San Fernando de Henares (Madrid)
 SPAIN
 Phone +34 91 6780894
 Fax +34 91 6781530
 ventas@ebmpapst.es
 www.ebmpapst.es


 **Sweden**
 ebm-papst AB
 Äggelundavägen 2
 17562 Järfälla
 SWEDEN
 Phone +46 10 4544400
 Fax +46 8 362306
 info@ebmpapst.se
 www.ebmpapst.se

 **Switzerland**
 ebm-papst AG
 Rütisbergstrasse 1
 8156 Oberhasli
 SWITZERLAND
 Phone +41 44 73220-70
 Fax +41 44 73220-77
 verkauf@ebmpapst.ch
 www.ebmpapst.ch

 **Turkey**
 Akantel Elektronik San. Tic. LTD. Sti.
 Atatürk Organize Sanayi
 Bölgesi 10007 SK. No.:6
 35620 Cigli-Izmir
 TURKEY
 Phone +90 232 3282090
 Fax +90 232 3280270
 akantel@akantel.com.tr
 www.ebmpapst.com.tr

 **Ukraine**
 ebm-papst Ukraine LLC
 Lepse Boulevard, 4, Building 21
 03067 Kiev
 UKRAINE
 Phone +38 044 2063091
 Fax +38 044 2063091
 mail@ebmpapst.ua
 www.ebmpapst.ua

 **United Kingdom**
 ebm-papst UK Ltd.
 Chelmsford Business Park
 Chelmsford Essex CM2 5EZ
 UNITED KINGDOM
 Phone +44 1245 468555
 Fax +44 1245 466336
 sales@uk.ebmpapst.com
 www.ebmpapst.co.uk

 ebm-papst Automotive & Drives (UK) Ltd.
 The Smithy
 Fidlers Lane
 East Ilsley, Berkshire RG20 7LG
 UNITED KINGDOM
 Phone +44 1635 2811-11
 Fax +44 1635 2811-61
 A&Dsales@uk.ebmpapst.com
 www.ebmpapst-ad.com

America


 **Argentina**
 ebm-papst Argentina S.A.
 Parque Industrial Canning Etapa II - Nave
 61A, Perito Moreno 845, Canning (1804),
 Buenos Aires
 ARGENTINA
 Phone +54 11 46576135
 Fax +54 11 46572092
 ventas@ar.ebmpapst.com
 www.ebmpapst.com.ar

 **Brazil**
 ebm-papst Motores Ventiladores Ltda.
 Av. José Giorgi, 301 Galpões B6+B7
 Condomínio Logical Center
 06707-100 Cotia - São Paulo
 BRAZIL
 Phone +55 11 4613-8700
 Fax +55 11 4777-1456
 vendas@br.ebmpapst.com
 www.ebmpapst.com.br

 **Canada**
 ebm-papst Canada Inc.
 419 King Street West, Suite 603A
 Oshawa, ON, L1J2K5
 CANADA
 Phone +1 905 420-3533
 Fax +1 905 420-3772
 sales@ca.ebmpapst.com
 www.ebmpapst.ca


 **Mexico**
 ebm Industrial S. de R.L. de C.V.
 Paseo de Tamarindos 400-A-5to Piso
 Col. Bosques de las Lomas
 Mexico 05120, D.F.
 MEXICO
 Phone +52 55 3300-5144
 Fax +52 55 3300-5243
 sales@mx.ebmpapst.com
 www.ebmpapst.com.mx

USA

 ebm-papst Inc.
 P.O. Box 4009
 100 Hyde Road
 Farmington, CT 06034
 UNITED STATES
 Phone +1 860 674-1515
 Fax +1 860 674-8536
 sales@us.ebmpapst.com
 www.ebmpapst.us

 ebm-papst Inc.
 Automotive & Drives Business Unit
 3200 Greenfield Road, Suite 130
 Dearborn, MI 48120
 UNITED STATES
 Phone +1 313 406-8080
 Fax +1 313 406-8081
 automotive@us.ebmpapst.com
 www.ebmpapst-automotive.us

Africa

 **South Africa**
 ebm-papst South Africa (Pty) Ltd.
 P.O. Box 3124
 1119 Yacht Avenue
 2040 Honeydew
 SOUTH AFRICA
 Phone +27 11 794-3434
 Fax +27 11 794-5020
 info@za.ebmpapst.com
 www.ebmpapst.co.za



Asia

China
 ebm-papst Ventilator (Shanghai) Co., Ltd.
 No. 418, Huajing Road
 WaiGaoQiao Free Trade Zone
 No. 2001, Yang Gao (N) Road
 200131 Shanghai
 P.R. of CHINA
 Phone +86 21 5046-0183
 Fax +86 21 5046-1119
 sales@cn.ebmpapst.com
 www.ebmpapst.com.cn

Hong Kong
 ebm-papst Hong Kong Ltd.
 Room 17E, MG Tower
 133 Hoi Bun Road, Kwun Tong
 Hong Kong
 P.R. of CHINA
 Phone +852 2145-8678
 Fax +852 2145-7678
 info@hk.ebmpapst.com

India
 ebm-papst India Pvt. Ltd.
 26/3, G.N.T. Road, Erukkencherry
 Chennai-600118
 INDIA
 Phone +91 44 25372556
 Fax +91 44 25371149
 sales@in.ebmpapst.com
 www.ebmpapst.in

Indonesia
 ebm-papst SEA Pte. Ltd.
 Representative Office - Indonesia
 Graha Telkomsigma, 4th Floor, Suite 4470
 Jl. Kapt. Subijanto Dj. Bumi Serpong Damai
 15321 Tangerang
 INDONESIA
 Phone +62 21 5376250-52
 Fax +62 21 5388305
 sales@id.ebmpapst.com

Israel
 Polak Bros. Import Agencies Ltd.
 9 Hamefalsim Street
 Kiryat Arie, Petach-Tikva 49514
 ISRAEL
 Phone +972 3 9100300
 Fax +972 3 5796679
 polak@polak.co.il
 www.polak.co.il

Japan
 ebm-papst Japan K.K.
 Attend on Tower 13F
 Shinyokohama 2-8-12, Kohoku-ku
 222-0033 Yokohama-City, Kanagawa
 JAPAN
 Phone +81 45 47057-51
 Fax +81 45 47057-52
 info@jp.ebmpapst.com
 www.ebmpapst.jp

Korea
 ebm-papst Korea Co. Ltd.
 A-13F, Doosan The Land Tower
 152, Magokseo-ro
 Gangseo-gu
 Seoul 07788
 KOREA
 Phone +82 2 366213-24
 Fax +82 2 366213-26
 info@kr.ebmpapst.com
 www.ebmpapst.co.kr

Malaysia
 ebm-papst SEA Pte. Ltd.
 Representative Office - Malaysia
 No. 16-1, Jalan Putra Mahkota 7/5A
 Putra Heights
 Selangor Darul Ehsan
 47650 Subang Jaya
 MALAYSIA
 Phone +60 3 5192-7688
 Fax +60 3 5614-3078
 sales@my.ebmpapst.com

Philippines
 ebm-papst SEA Pte. Ltd.
 Representative Office - Philippines
 Coherco Financial Tower
 Trade Street Corner Investment Drive
 Unit 1101 Madrigal Business Park
 Ayala Alabang / Muntinlupa City
 Phone +63 02 8042747
 Fax +63 02 8042757
 sales@ph.ebmpapst.com

Singapore
 ebm-papst SEA Pte. Ltd.
 10 Changi South Street 2
 #01-01/02
 Singapore 486596
 SINGAPORE
 Phone +65 65513789
 Fax +65 68428439
 sales@sg.ebmpapst.com

Taiwan
 ETECO Engineering & Trading Corp.
 10F-I, No. 92, Teh-Wei Str.
 Tsow-Inn District, Kaohsiung
 TAIWAN
 Phone +886 7 557-4268
 Fax +886 7 557-2788
 eteco@ms22.hinet.net
 www.ebmpapst.com.tw

Thailand
 ebm-papst Thailand Co., Ltd.
 99/9 Moo 2, Central Chaengwattana Tower
 8th Floor, Room 801-802
 Chaengwattana Road Bangtarad, Pakkret
 11120 Nonthaburi
 THAILAND
 Phone +66 2 8353785-7
 Fax +66 2 8353788
 sales@th.ebmpapst.com

United Arab Emirates
 ebm-papst Middle East FZE
 PO Box 17755
 Jebel Ali Free Zone / FZS1 / AP05
 Dubai
 UNITED ARAB EMIRATES
 Phone +971 4 88608-26
 Fax +971 4 88608-27
 info@ae.ebmpapst.com
 www.ebmpapst.ae

Vietnam
 ebm-papst SEA Pte. Ltd.
 Representative Office - Vietnam
 Floor M, Phuong Long Building,
 506 Nguyen Dinh Chieu Street,
 Ward 4, District 3,
 Ho Chi Minh City
 VIETNAM
 Phone +84 28 3929 0699
 Fax +84 28 3929 0669
 sales@vn.ebmpapst.com

Oceania

Australia
 ebm-papst A&NZ Pty Ltd.
 10 Oxford Road
 Laverton North, Victoria, 3026
 AUSTRALIA
 Phone +61 3 9360-6400
 Fax +61 3 9360-6464
 sales@ebmpapst.com.au
 www.ebmpapst.com.au

New Zealand
 ebm-papst A&NZ Pty Ltd.
 61 Hugo Johnston Drive, Unit H
 Penrose 1061, Auckland
 NEW ZEALAND
 PO Box 112278,
 Penrose 1642, Auckland
 Phone +64 9 525-0245
 Fax +64 9 525-0246
 sales@ebmpapst.com.au
 www.ebmpapst.com.au



ebmpapst

the engineer's choice

ebm-papst
Mulfingen GmbH & Co. KG

Bachmühle 2
74673 Mulfingen
Germany
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com

ebm-papst
Landshut GmbH

Hofmark-Aich-Straße 25
84030 Landshut
Germany
Phone +49 871 707-0
Fax +49 871 707-465
info3@de.ebmpapst.com