

IP68 Fans from ebm-papst

Environmental protection of fans

ebm**papst**

The engineer's choice



About ebm-papst North America



Headquarters - Farmington, CT

- » 250,000 sq. ft.
- » 20 Regional offices
- » Acoustic testing chamber
- » Complete air testing lab on site
- » ISO 9001 and ISO 14001 Certifications
- » Distribution centers in Farmington (CT) and Toronto, Canada

With offices in major cities throughout North America, our highly-skilled and experienced team of professionals are ready to tackle your air moving challenges with solutions that meet your requirements. ebm-papst serves all markets including IT & Telecommunications, Ventilation, Air-Conditioning, Refrigeration, Gas & Heating, Household Appliances, LED, Industrial, Drive Systems, Transportation, Agriculture, Medical, and more. Our customers can always count on prompt, courteous service. Customer satisfaction is our number one priority.



Expert support when and where you need it

Knowledgeable field sales professionals are close by for face-to-face meetings. Dedicated inside sales associates fulfill all your ordering requirements. To assist you with order management, our customer service department provides automated services such as shipment notifications, reorder notifications, and invoicing.

Expert design and manufacturing

Beginning with the initial product concept, our application engineers work in tandem with customers to select the best air moving solution to suit specific goals and requirements. Once the prototype has been established, it can then be tested in our state-of-the-art airflow testing chambers, allowing for the optimization of all air moving solutions. Each chamber has been designed to meet AMCA 210 and ISO 5801 requirements. In addition to our airflow testing capabilities, ebm-papst can conduct comparative sound, temperature, and velocity tests. The electrical engineering team can design simple fan controllers for monitoring fan speed, or complex controllers and power supplies, filtering, and specific communication protocols.

Logistics and inventory management programs

We have over 90,000 sq. ft. of climate-controlled warehousing at our facilities offering real-time inventory transactions and bar-coded inventory. Inventory management programs such as Kanban, demand/pull, safety stock, consignment, and local warehousing can be customized to your needs.



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The symbol of our commitment

GreenTech is a name put to the philosophy ebm-papst has used for decades: "each new product that we develop has to be better than its predecessor in terms of economy and ecology." Our company philosophy is not just for designing new and more efficient fans and blowers; it is in practice in the offices and factories, locally and internationally. At the U.S. headquarters, two separate arrays of solar panels have been installed to provide the engineering building with electricity, along with additional renovations that make the facilities even more environmentally friendly.

GreenTech symbolizes our continuous commitment, achievements, and passion to provide customers with high quality products through the use of modern development and production methods, responsible business practices and initiatives that benefit not only the user, but the environment as well.

What is EC Technology?

EC technology is an important factor in our GreenTech philosophy. ebm-papst EC fans use permanent magnet external rotor DC motors with fully integrated electronic commutation (EC) and AC to DC power conversion.

EC motors give the flexibility of connecting to AC mains with the efficiency and simple speed control of a DC motor. With EC fans, the user benefits from the innovative commutation without wear-and-tear on the motor. The EC motor compares to the direct current shunt-wound motor except that the magnetic field is generated by permanent magnets inside the rotor.

With this technology, EC motors and fans can be easily controlled, are maintenance-free, offer outstanding efficiency and have a considerably long service life. The variable speed range possible in EC technology makes using a multitude of individual models a thing of the past.

Our R&D efforts are not only focused on saving energy. In terms of air performance and low noise, our products exceed the toughest specifications. EC technology pays off for every owner or operator, while conserving precious energy resources. When you use intelligent ebm-papst EC technology in your applications, everyone wins - companies, customers, and the environment.



IP68 Defined

Ingress Protection (IP) is a standard protection rating on electrical enclosures that are considered waterproof or dust proof. The importance of an IP68 rating on ebm-papst products is to ensure the highest level of protection of the electronics inside the enclosure against foreign objects and water, while also protecting the user against potentially harmful contact.

Ingress Protection at a glance

Ingress protection is the level of protection against the intrusion of solid objects, liquids, dust, and accidental contact with electrical enclosures inside a mechanical casing. This rating gives users a more detailed understanding of general terms such as waterproof or water-resistant.

The numerical digits represent conformity with the conditions outlined in the table below. For example, an electrical enclosure rated IP68 is completely

protected against dust and can not be damaged or become unsafe during permanent immersion in water.

Applications and target markets

Environmentally protected cooling solutions are highly beneficial to applications within the Alternative Energy, Appliance, Commercial Refrigeration, Heating, IT/Telecom, LED/Lighting and Mobile markets.

IPXX Defined

IP:	Ingress Protection
First Digit:	Rating of protection against solid objects
Second Digit:	Rating of protection against liquids

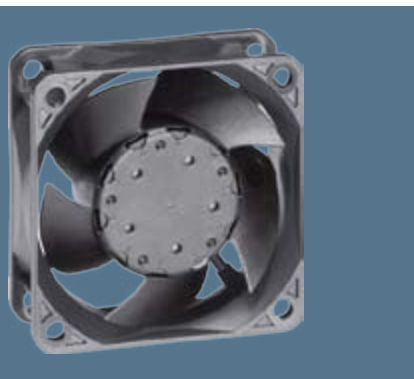
IP (Ingress Protection) Rating - Code Definition

Rating	Solid Protection (first digit)	Rating	Liquid Protection (second digit)
X	No protection	X	No protection
1	Protection against objects > 50mm (hands)	1	Protection against dripping water or condensation
2	Protection against objects > 12mm (fingers)	2	Protection against water spray 15° from vertical
3	Protection against objects > 2.5mm (tools/wires)	3	Protection against water spray 60° from vertical
4	Protection against objects > 1mm (small tools)	4	Protection against water spray from all directions.
5	Protection against dust, limited ingress	5	Protection against low pressure jets of water
6	Complete protection against dust	6	Protection against high pressure water jets and heavy seas
		7	Protection against the effects of immersion (6in- 3.3ft)
		8	Protection against permanent immersion



DC axial fans

Series 630U 60 x 60 x 25 mm



Highlights:

- Very rigid compression curve for high air flow at high back pressure.
- Auto restart locked rotor protection
- Air exhaust over struts
- Connection via 400 mm strands AWG 24 with an insulation diameter of 1.5 mm
- Ingress protection rating of IP68

Material: Fiberglass-reinforced composite

Housing: PBT

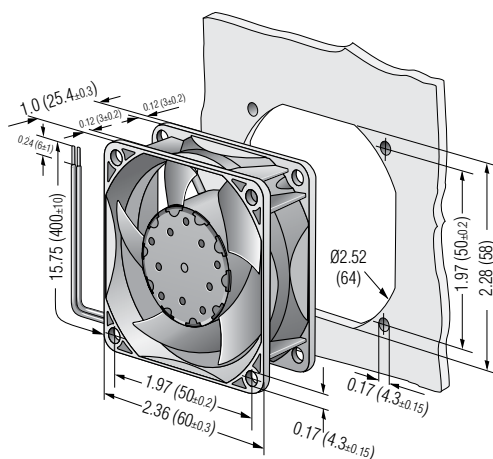
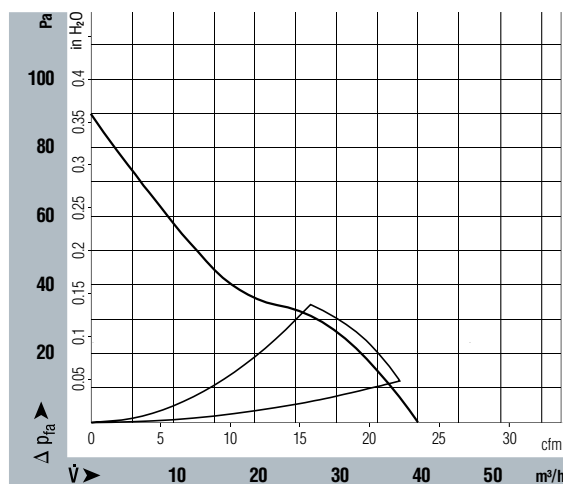
Impeller: PA

Direction of rotation: Clockwise, seen on rotor

Nominal Data	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval
Type	CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g		
634NU-004	23.5	24	12...30	34	5.1	Yes	1.6	5900	-20...70	70	IP68	Yes

(1) Nominal data at maximum load.

Curves





DC axial fans

Series 8400NU 80 x 80 x 25 mm



Highlights:

– Ingress protection rating of IP68

Material: Fiberglass-reinforced composites

Impeller: PA

Electronic housing: PBT

– Fully integrated electronic commutation

– Protected against reverse polarity and locking

– Connection via single strands AWG 24, TR 64, bared and tin-plated

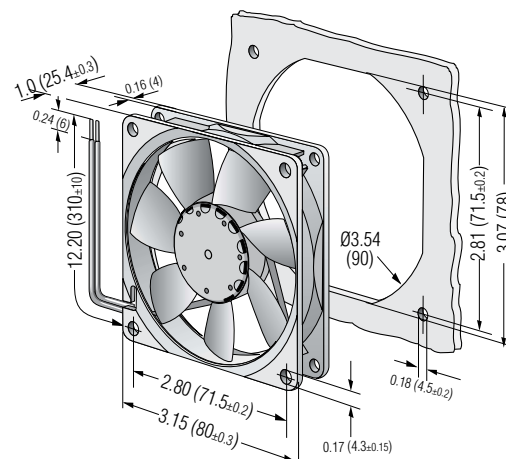
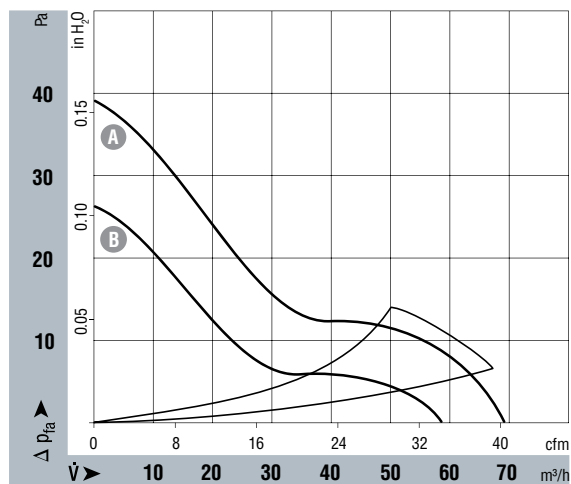
– Air exhaust over struts

Direction of rotation: Counter clockwise, seen on rotor

Nominal Data		Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval	Curves
Type		CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g			
8412NU		40.6	12	8...15	32	4.7	Yes	2.0	3,100	-20...70	95	IP68	Yes	A
8414NMU		34.1	24	18...28	27	4.4	Yes	1.4	2,600	-20...70	95	IP68	Yes	B

(1) Nominal data at maximum load.

Curves





DC axial fans

Series 8300U 80 x 80 x 32 mm



Highlights:

– Ingress protection rating of IP68

Material: Fiberglass-reinforced composites

Impeller: PA

Electronic housing: PBT

– Fully integrated electronic commutation

– Protected against reverse polarity and locking

– Connection via single strands AWG 22, TR 64, bared and tin-plated

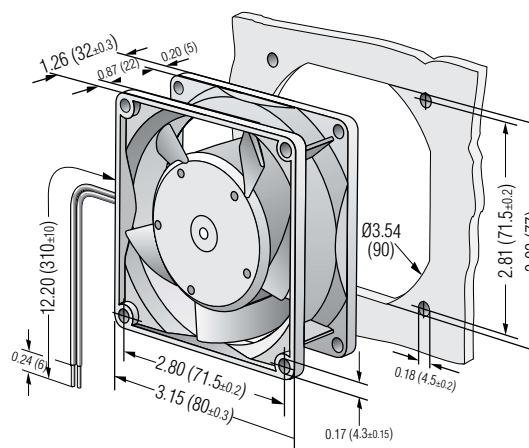
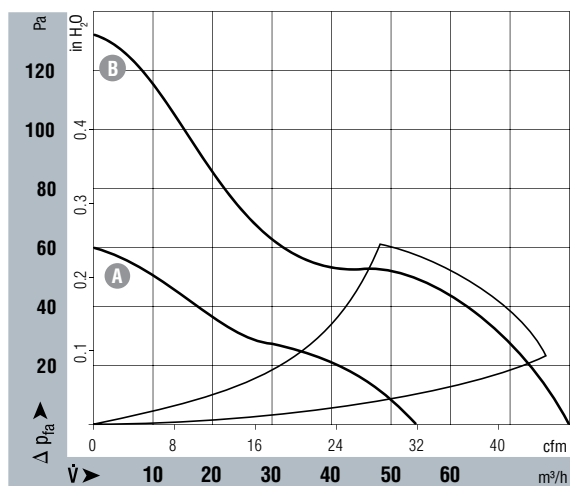
– Air exhaust over struts

Direction of rotation: Clockwise, seen on rotor

Nominal Data	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval	Curves
Type	CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g			
8314U	31.8	24	12...31.5	36	5.2	Yes	2.7	3,300	-20...75	170	IP68	Yes	A
8314HU	47.1	24	12...28	48	6.2	Yes	6.0	5,000	-20...75	170	IP68	Yes	B

(1) Nominal data at maximum load.

Curves





DC axial fans

Series 3300U 92 x 92 x 32 mm



Highlights:

– Ingress protection rating of IP68

Material: Fiberglass-reinforced composite

Impeller: PA

Electronic housing: PBT

– Fully integrated electronic commutation

– Protected against reverse polarity and locking

– Connection via single strands AWG 22, TR 64, bared and tin-plated

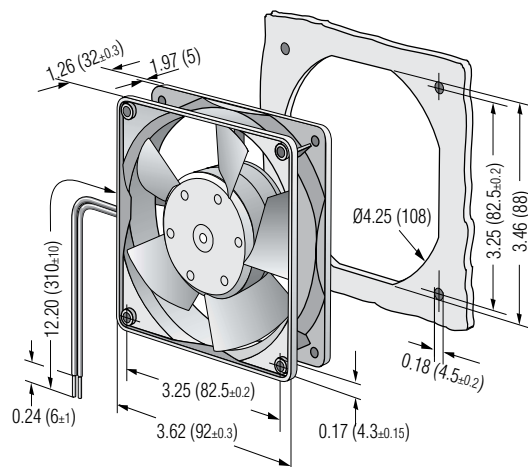
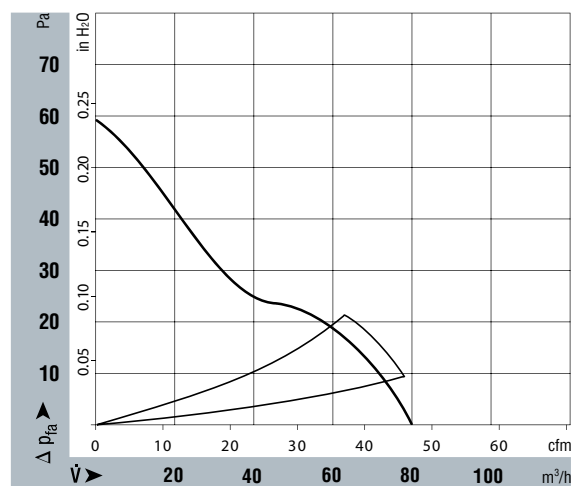
– Air exhaust over struts

Direction of rotation: Clockwise, seen on rotor

Nominal Data	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval
Type	CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g		
3312U	47.1	12	6...15	37	5.2	Yes	2.4	3,000	-20...75	190	IP68	Yes
3314U	47.1	24	12...28	37	5.2	Yes	2.6	3,000	-20...75	190	IP68	Yes

(1) Nominal data at maximum load.

Curves





DC axial fans

Series 4300U 119 x 119 x 32 mm



Highlights:

– Ingress protection rating of IP68

Material: Fiberglass-reinforced composite

Impeller: PA

Electronic housing: PBT

– Fully integrated electronic commutation

– Protected against reverse polarity and locking

– Connection via single strands AWG 22, TR 64, bared and tin-plated

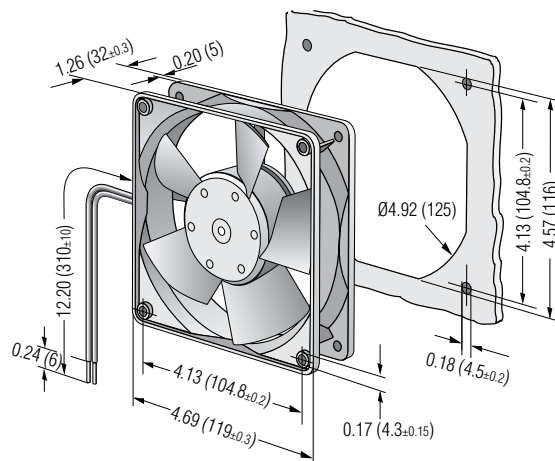
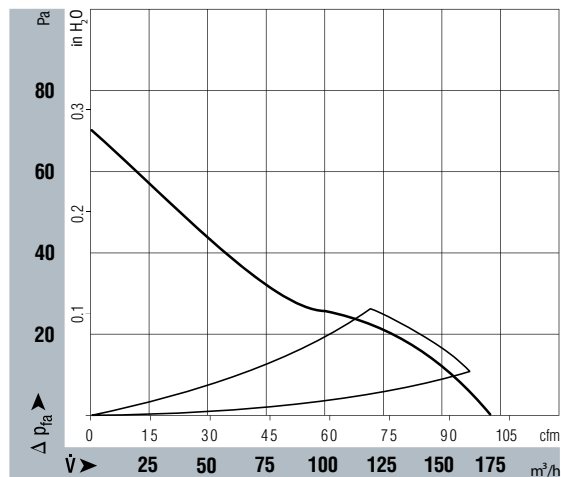
– Air exhaust over struts

Direction of rotation: Clockwise, seen on rotor

Nominal Data	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval
Type	CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g		
4312U	100.1	12	6...15	45	5.8	Yes	5.0	2,800	-20...75	220	IP68	Yes
4314U	100.1	24	12...28	45	5.8	Yes	5.0	2,800	-20...75	220	IP68	Yes

(1) Nominal data at maximum load.

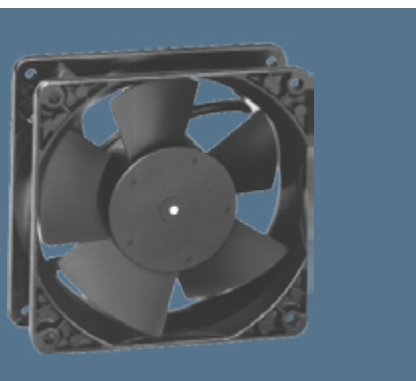
Curves





DC axial fans

Series 4100NU 119 x 119 x 38 mm



Highlights:

– Ingress protection rating of IP68

Material: Housing: Aluminum

Impeller: Fiberglass-reinforced PA composite

– Fully integrated electronic commutation, external rotor motor

– Protected against reverse polarity, overloading and locking

– Electrical connection via 2 leads AWG 22 TR 64, 310mm long

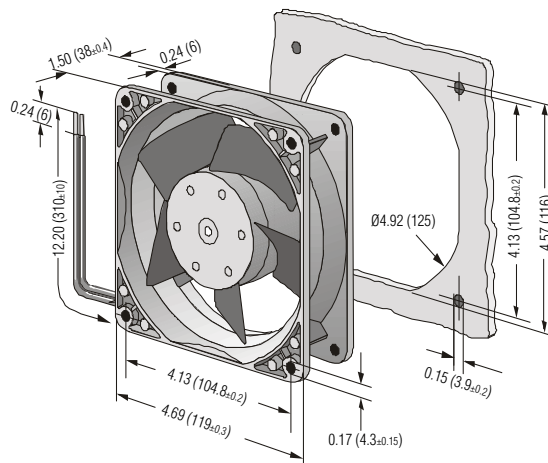
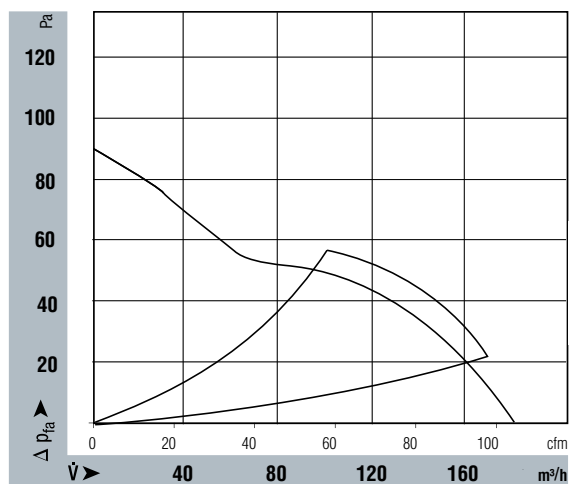
– Air intake over struts

Direction of rotation: Clockwise, seen on rotor

Nominal Data	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Ball bearings	Power input	Speed (1)	Temperature range (1)	Mass	Ingress Protection Rating	UL Approval
Type	CFM	VDC	VDC	dB(A)	Bel(A)		Watts	RPM	°C	g		
4114NU	105.9	24	12...29	48.5	5.7	Yes	4.5	3,200	-30...75	390	IP68	Yes

(1) Nominal data at maximum load.

Curves





- Ingress protection rating of IP68

Material: Housing: Aluminum

Impeller: Fiberglass-reinforced composite PA

- Fully integrated electronic commutation
- Protected against reverse polarity and locking
- Electrical connection with flat plugs 3 x 0.5 mm.
- Air exhaust over struts

Direction of rotation: Counter clockwise, seen on rotor

(1) Nominal data at maximum load.

Technical drawing of a fan assembly showing dimensions for the fan and its mounting plate. The fan has a diameter of $\varnothing 6.75$ (171.5 ± 0.5). The mounting plate has a diameter of $\varnothing 6.38$ (162) with a tolerance of $+0.15/-0.3$. The fan is mounted on the plate with four screws, each with a diameter of $\varnothing 0.17$ (4.3 ± 0.15). The distance between the screws is 2 (50.8 ± 0.3). The total height of the assembly is 5.91 (150 ± 0.5). The distance from the fan center to the mounting plate edge is 0.18 (4.5 ± 0.2). The fan has a central hole with a diameter of $\varnothing 6.53$ (166).

**ebm-papst Inc.
Farmington**

100 Hyde Road
Farmington, CT 06034
Phone + 1 860-674-1515
Fax + 1 860-674-8536
sales@us.ebmpapst.com

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Website :

Welcome to visit www.ameya360.com

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com