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Product Change Notice

Date:	May 7, 2020
Overview:	Production of seven fans has been stopped due to the discontinuation of a component needed to manufacture them
Reason for Change:	UTC has discontinued transistor PN BU941ZL-TA3-T
Affected Part No(s):	G2G085-AB04-10 G2G097-AA26-09 W2G110-AG43-01 W2G110-AK43-31 W2G110-AK43-83 W2G110-AK67-24 W2G115-AG71-12
Design Change Detail:	Production of these fans is stopped indefinitely. We have possible alternatives for three of the fans and are working to see if any of the original fans can be brought back into production with a new PCB & transistor design. We will provide information as it becomes available; however, we strongly recommend moving to the alternatives as we may not be able to produce the original fans again.
Effective Date:	Immediately
Last Time Buy Deadline:	N/A
Pricing:	N/A
ebm-papst employee:	Jeannine Zenobi
Attachments:	Listing of possible alternatives for three of the PNs with corresponding datasheets for reference
Comments:	Always review the application specifications to ensure the best product solution

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Possible Alternatives

	W2G110-AK43-31	4184NXH	4184NXHR
Voltage Range (V)	**16-28**	12-28	12-28
Nominal Speed (RPM)	**4400**	4400	4400
Wattage (W)	**15**	11	11
Blade Material	**Aluminum**	Plastic	Plastic
Housing Material	**Aluminum**	Aluminum	Aluminum
Ambient Temperature (C)	**-25…70**	-30…70	-30…70
Humidity	**H0+**	H0	H1
Size (mm)	**119 x119 x 38**	119 x 119 x 38	119 x 119 x 38

	W2G110-AK43-83	4114NXHR
Voltage Range (V)	**16-28**	12-28
Nominal Speed (RPM)	**4400**	4400
Wattage (W)	**15**	11
Blade Material	**Aluminum**	Plastic
Housing Material	**Aluminum**	Aluminum
Ambient Temperature (C)	**-25…70**	-30…70
Humidity	**H1**	H1
Size (mm)	**119 x 119 x 38**	119 x119 x 38

	W2G115-AG71-12	5214NHH	DV5214NU
Voltage Range (V)	**16-28**	16-30	18-26.4
Nominal Speed (RPM)	**4050**	4900	4930
Wattage (W)	**12**	17.5	19.8
Blade Material	**Aluminum**	Plastic	Plastic
Housing Material	**Aluminum**	Plastic	Plastic
Ambient Temperature (C)	**-25…72**	-20…65	-20…65
Humidity	**H1**	H0	H2
Size (mm)	**127 x 127 x 38**	127 x 127 x 38	127 x 127 x 38

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EC axial compact fan

ebm-papst Mulfingen GmbH & Co. KG
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Phone +49 7938 81-0
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info1@de.ebmpapst.com
www.ebmpapst.com

Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**W2G110-AK43-31**	
Motor	**M2G045-BA**	
Nominal voltage	VDC	24
Nominal voltage range	VDC	16 .. 28
Method of obtaining data		fa
Speed (rpm)	min^{-1}	4400
Power consumption	W	15
Max. back pressure	Pa	100
Max. back pressure	in. wg	0.4
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	72

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

EC axial compact fan

Technical description

Weight	0.49 kg
Size	110 mm
Motor size	45
Rotor surface	Painted black
Blade material	Sheet steel, painted black
Fan housing material	Die-cast aluminum, painted black
Number of blades	5
Airflow direction	A
Direction of rotation	Counterclockwise, viewed toward rotor
Degree of protection	IP22
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H0+
Max. permitted ambient temp. for motor (transport/storage)	+ 80 °C
Min. permitted ambient temp. for motor (transport/storage)	- 25 °C
Installation position	Any
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing
Technical features	- Reverse polarity protection
Electrical hookup	Plug
Motor protection	Reverse polarity and locked-rotor protection
Conformity with standards	EN 60950-1
Approval	UL 507; EAC

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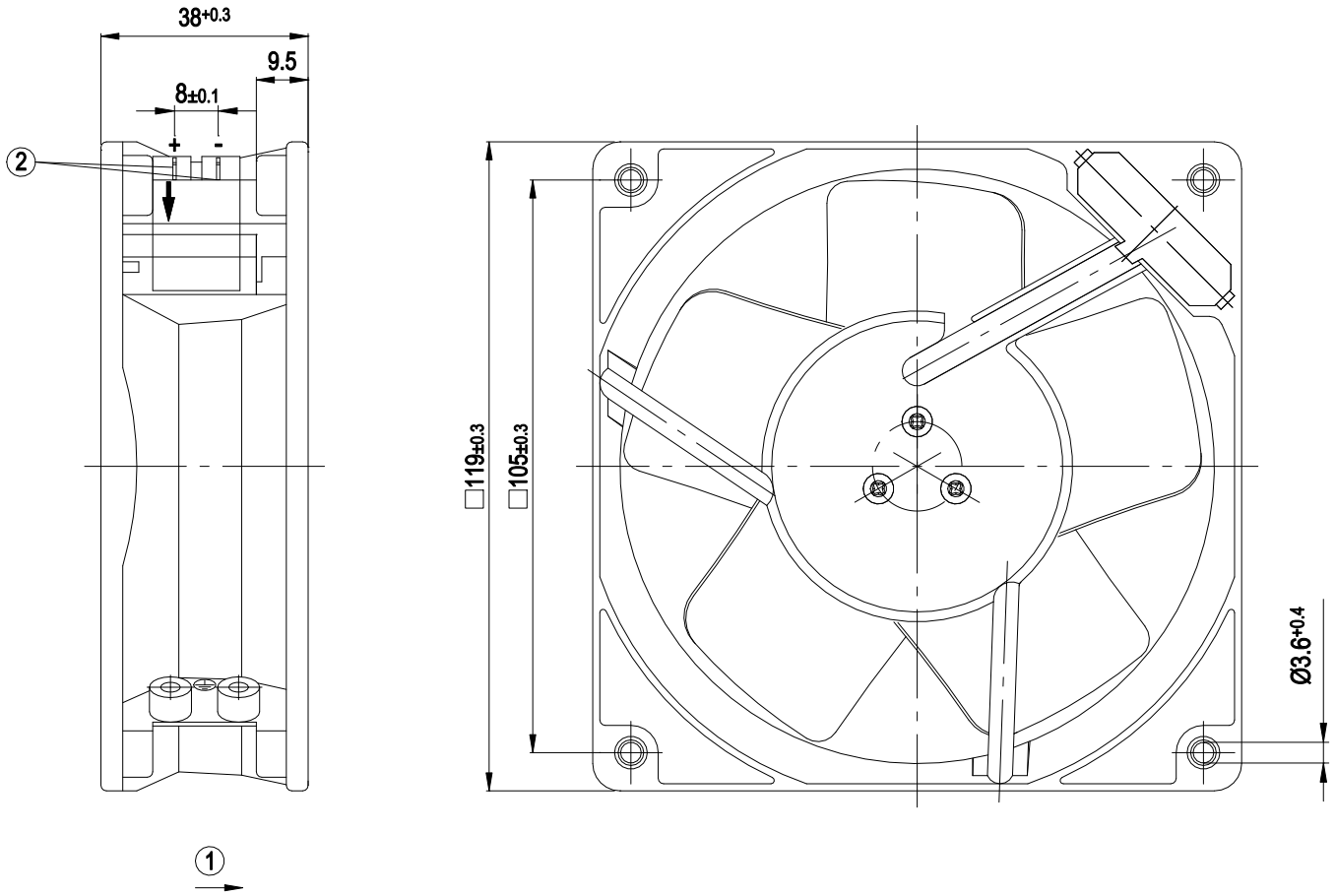
Product drawing



1	Direction of air flow "A"
2	2x flat plug 2.8 x 0.5 (AMP no. 170058-2)

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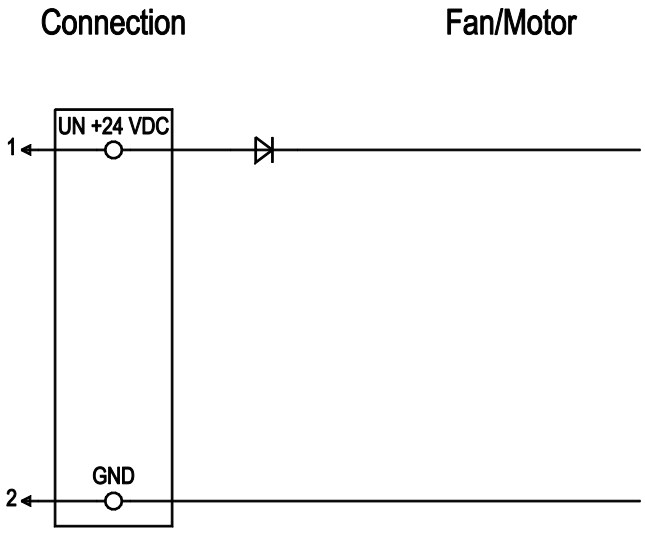
Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1		UN +24 VDC	red	Power supply 24 VDC, see nameplate for voltage range, maximum ripple ±3.5%
2		GND	blue	Reference ground

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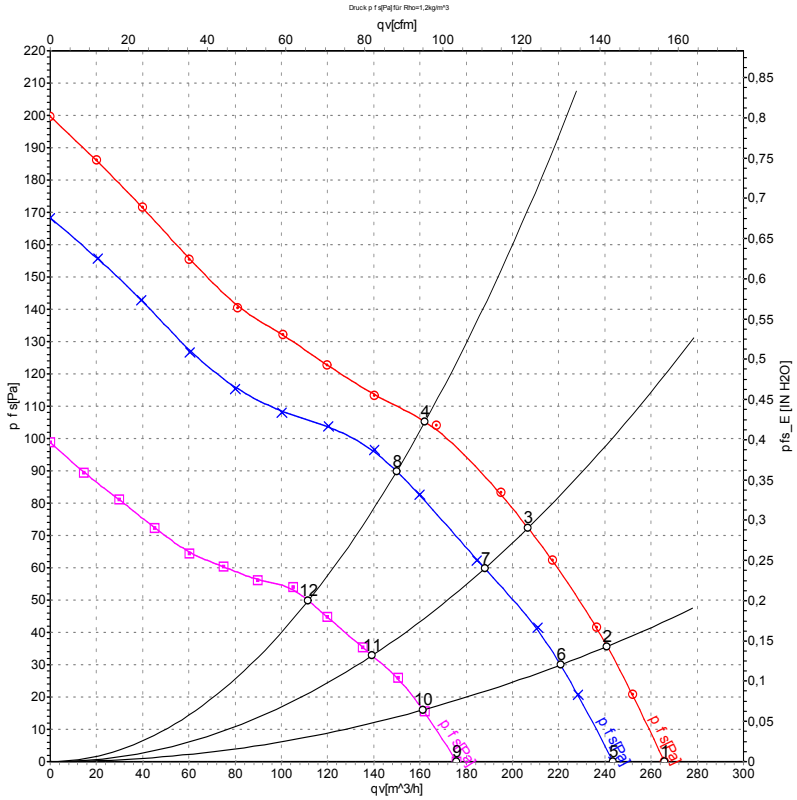
EC axial compact fan

Curves: Air performance



Measurement: LU-77463-1
Measurement: LU-77462-1
Measurement: LU-77464-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	U	n	P_{ed}	I	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	28	4755	21	0.83	265	0	155	0.00
2	28	4635	22	0.87	240	36	140	0.14
3	28	4485	23	0.90	205	72	120	0.29
4	28	4345	24	0.94	160	106	95	0.43
5	24	4400	15	0.62	245	0	145	0.00
6	24	4245	16	0.70	220	30	130	0.12
7	24	4110	17	0.75	190	60	110	0.24
8	24	3990	18	0.80	150	90	90	0.36
9	16	3230	6.3	0.41	175	0	105	0.00
10	16	3160	6.6	0.43	160	16	95	0.06
11	16	3075	6.9	0.45	140	33	80	0.13
12	16	2995	7.2	0.47	110	50	65	0.20

U = Voltage · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · q_V = Air flow · p_{fs} = Pressure increase

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Product Data Sheet

9294310138
VUC0119YUJBS
4184 NXH

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GREEN TECH

4184 NXH

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Lead wire length Tolerance	See drawing	
Plug	See drawing	
Contact	See drawing	

3 Operating Data

3.1 Electrical Operating Data

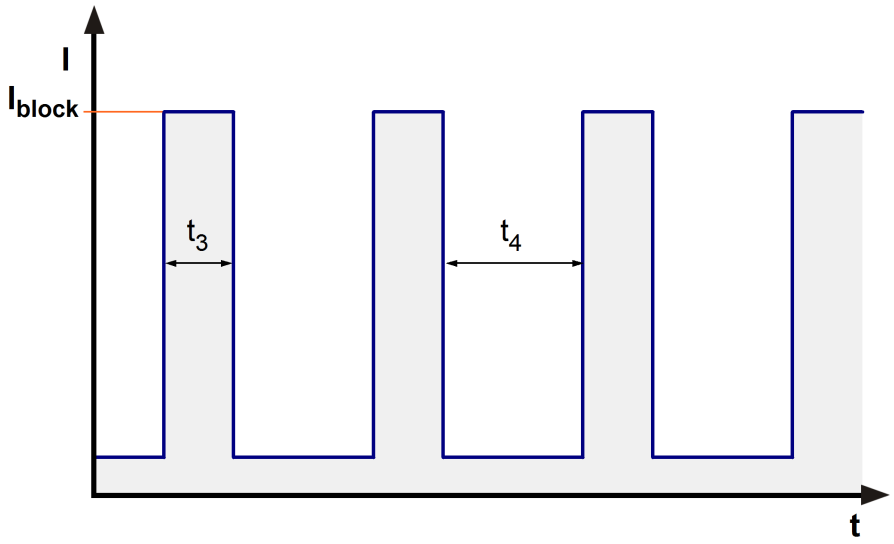
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



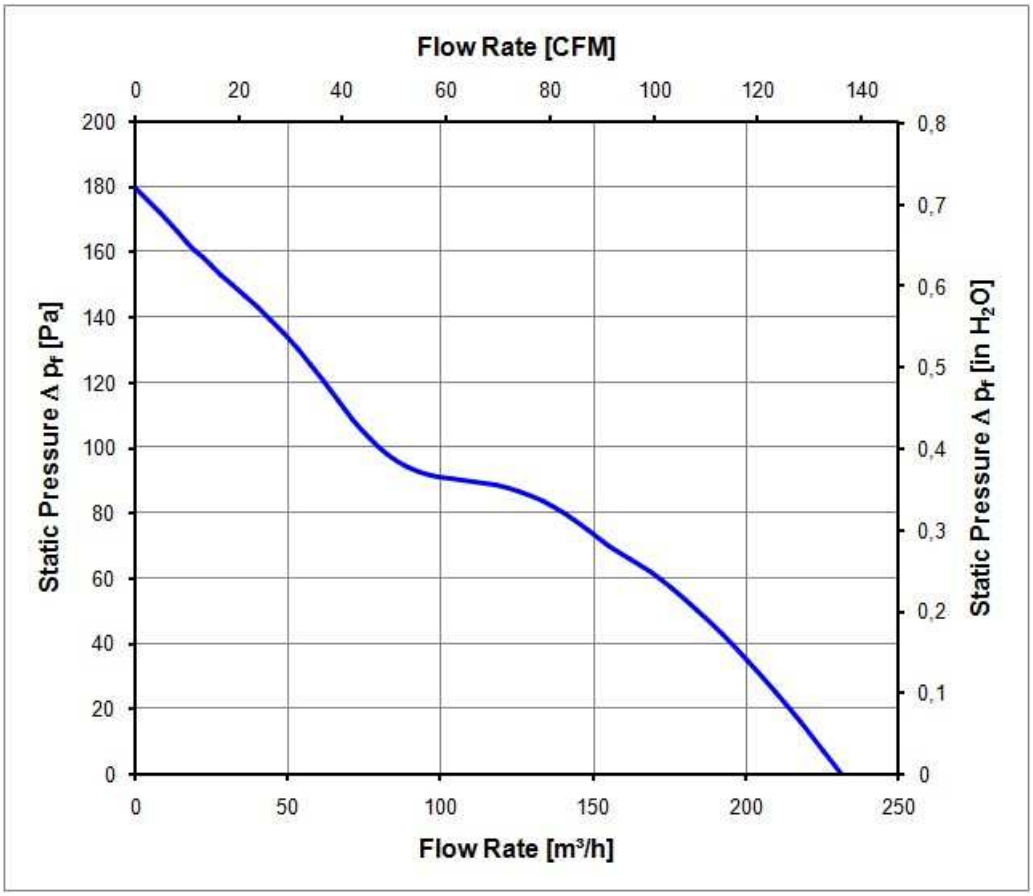
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)
There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

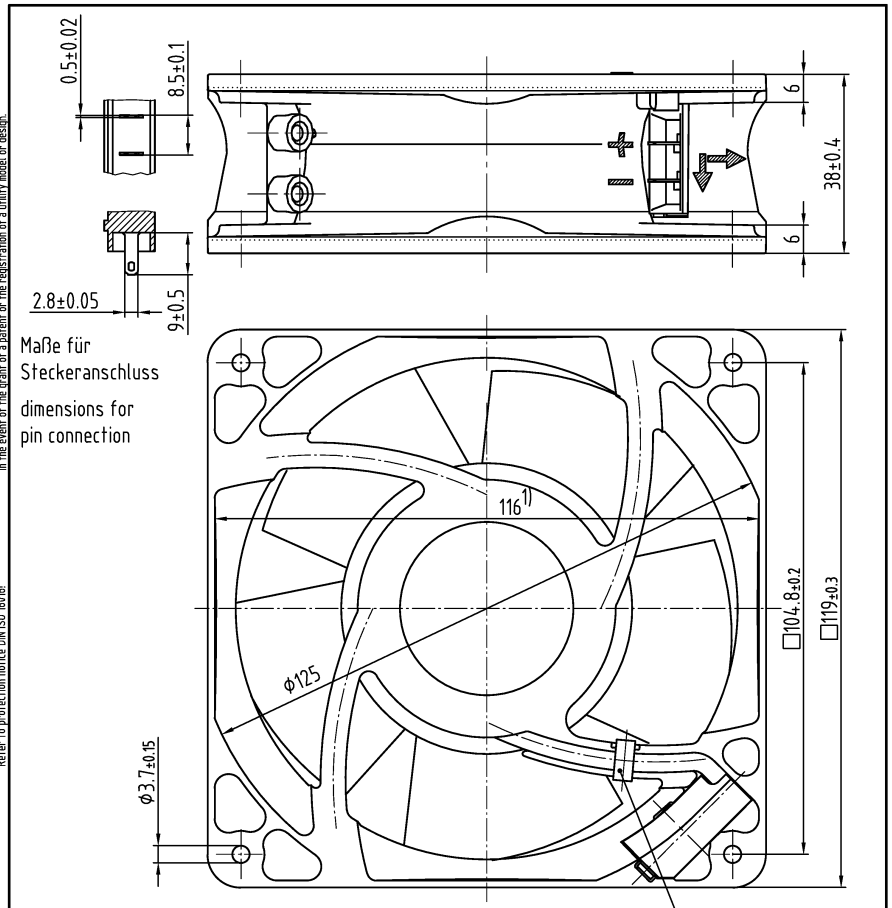
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand
2) wenn in Stückliste enthalten

1) dimensions for assembly wall
2) only if included in bill of material

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

axial clearance by
- ball bearing (K): 0 (with spring compensation)
- sleeve bearing (G): 0.1 - 0.6

			ebmpapst	Werkstoff/Material:	Volumen/Volume (mm^3):	
SAP-Status/State	Aend.-Nr./Change-No.	AutoCAD-System-Version	CAD-Umgebung/ CAD-Enviroment		Gewicht/Mass (g):	
		Datum/Date	Name/Name			
		Bearb./ Drawn		Artikel/Title		
Tolerierung/Tolerances:		Gepr./ Checked				
Allgemeintoleranzen/Gen. tolerances:		Freig./ Releas.				
		ebmpapst		Zchg.-Nr./ Drawing.-No.:	Ers.f.Zchg./ Replaces:	
		ebm-papst St. Georgen GmbH & Co. KG		Dokumenttyp/Type of Document / Teildokument (Blatt/Page) / Index/Index: F / Format/Size: / Massstab/scale: —		

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Product Data Sheet

9294310219
VUC0119YUJBS
4184 NXHR

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GREEN TECH

4184 NXHR

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Lead wire length Tolerance	See drawing	
Plug	See drawing	
Contact	See drawing	

3 Operating Data

3.1 Electrical Operating Data

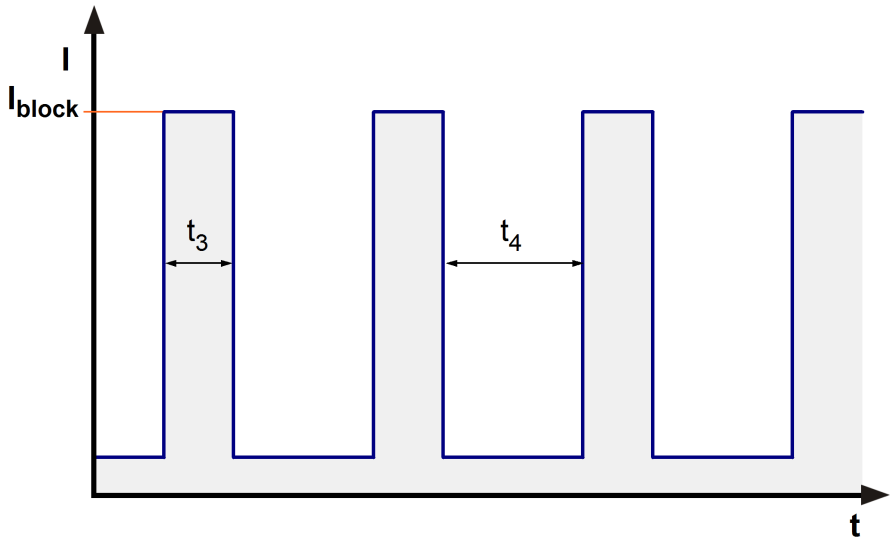
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



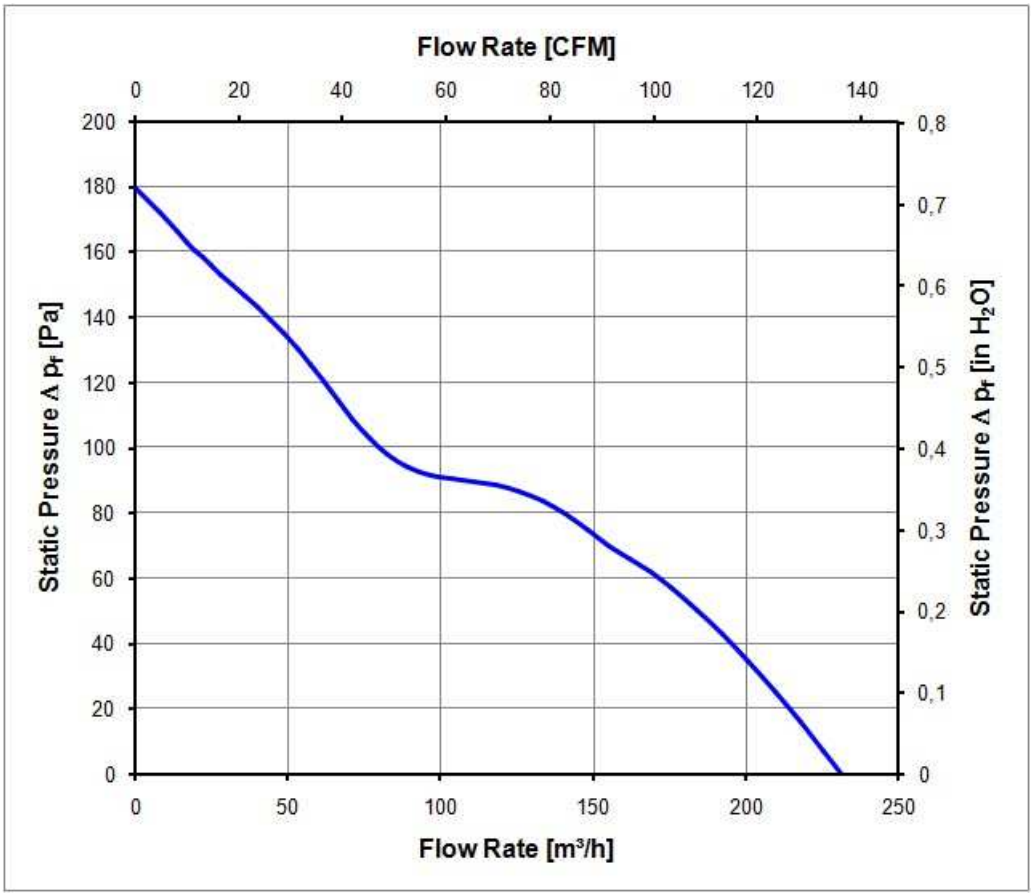
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



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Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

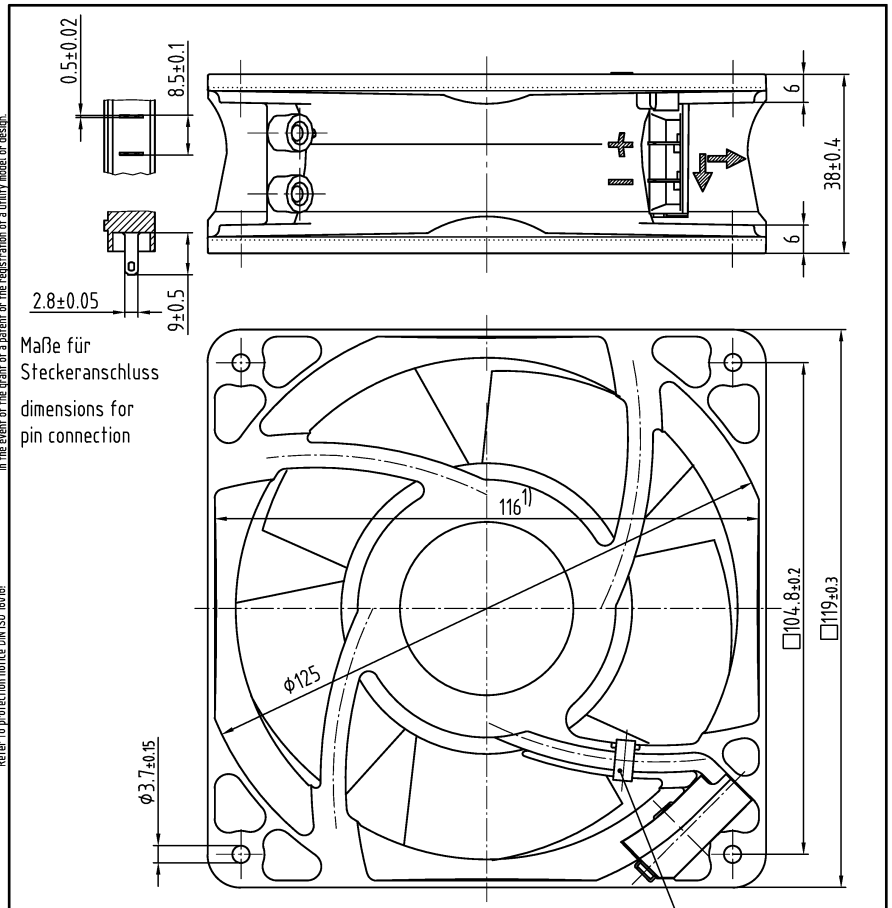
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand
2) wenn in Stückliste enthalten

1) dimensions for assembly wall
2) only if included in bill of material

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

axial clearance by
- ball bearing (K): 0 (with spring compensation)
- sleeve bearing (G): 0.1 - 0.6

			ebmpapst	Werkstoff/Material:	Volumen/Volume (mm^3):	
SAP-Status/State	Aend.-Nr./Change-No.	AutoCAD-System-Version	CAD-Umgebung/ CAD-Enviroment		Gewicht/Mass (g):	
		Datum/Date	Name/Name			
		Bearb./ Drawn		Artikel/Title		
Tolerierung/Tolerances:		Gepr./ Checked				
Allgemeintoleranzen/Gen. tolerances:		Freig./ Releas.				
		ebmpapst		Zchg.-Nr./ Drawing.-No.:	Ers.f.Zchg./ Replaces:	
		ebm-papst St. Georgen GmbH & Co. KG		Dokumenttyp/Type of Document / Teildokument (Blatt/Page) / Index/Index: F / Format/Size: / Massstab/scale: —		

11/09

Product Data Sheet

9294310212
VUC0119YUJBZ
4114 NXHR

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GREEN TECH

4114 NXHR

INDEX

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Fan type	Fan	
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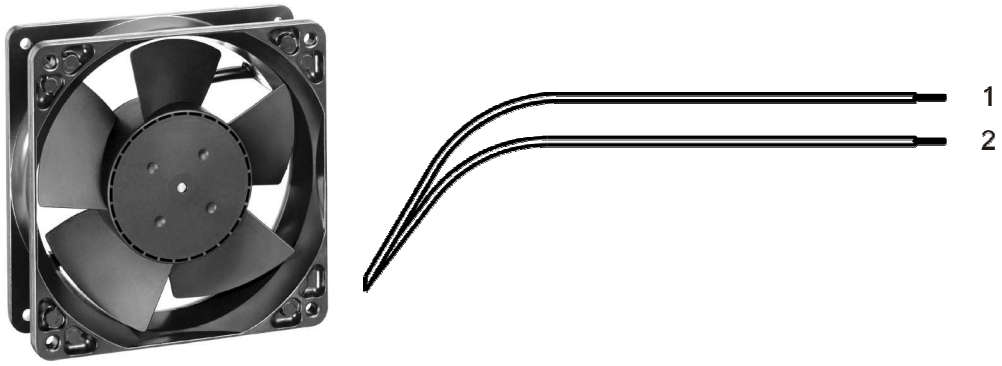
Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,7 mm
2	blue	- GND	AWG 22	1,7 mm

3 Operating Data

3.1 Electrical Operating Data

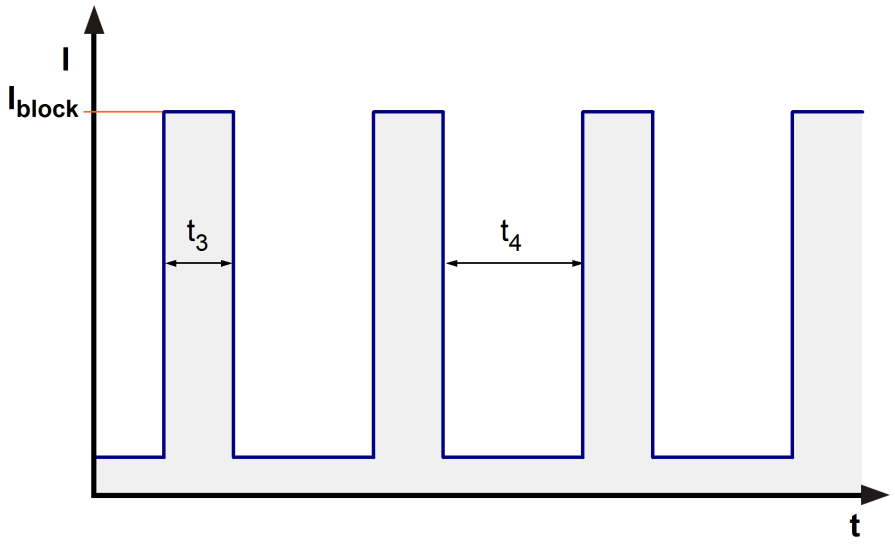
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



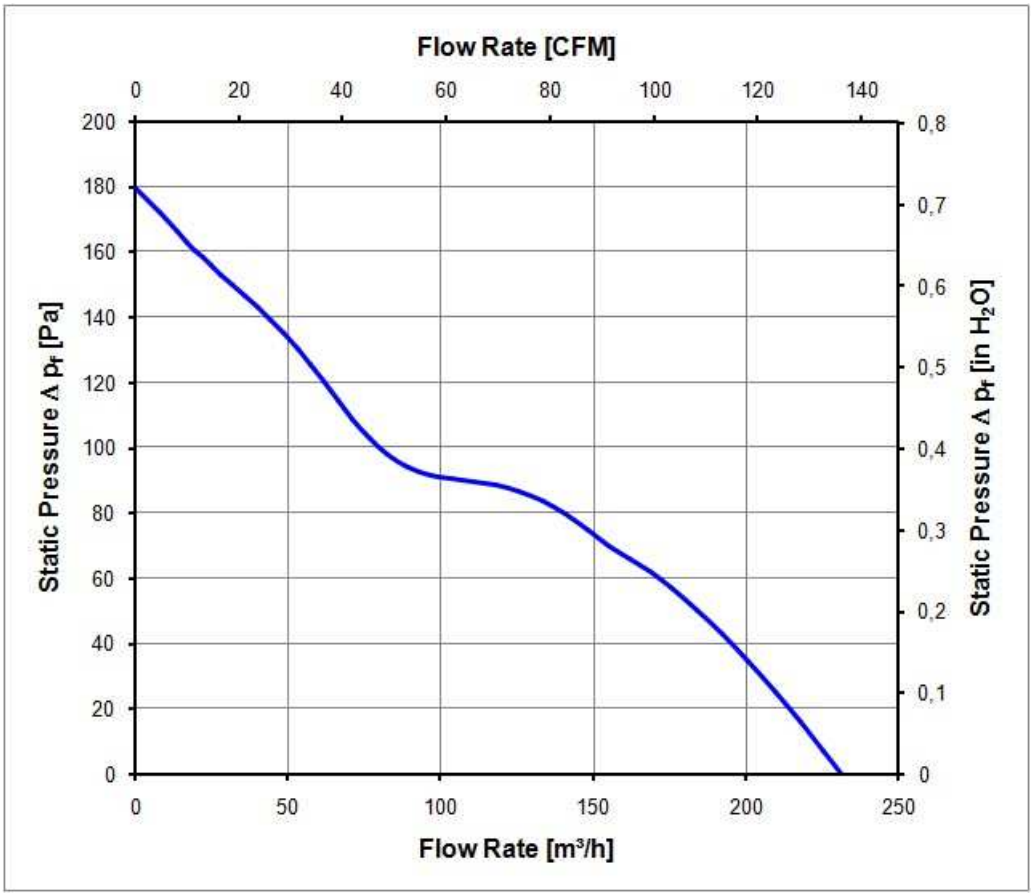
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

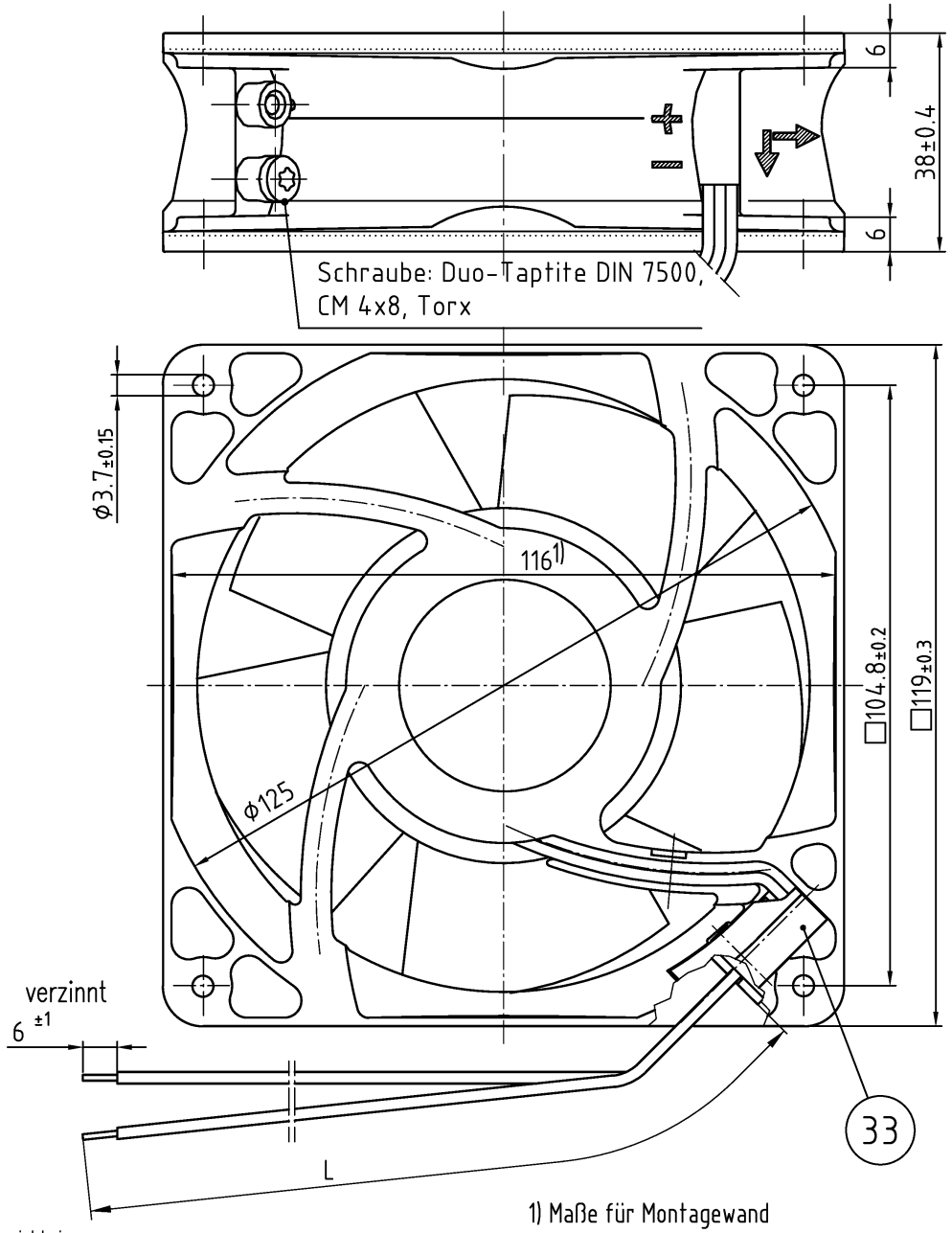
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

Anzahl und Länge der Litzen siehe Bv. Bl. 1

Tolerierung/Tolerances: DIN 7167 Allgemeintoleranzen/ Gen. tolerances: DIN 7167 Längenmaße: Winkel, Form u. Lage: DIN ISO 2768-cL		
	Artikel/Title	Massstab/scale
Bearb./Drawn: Datum/Date Name/Name		
Index/Index Aend.-Nr./Change-No.	Zchg.-Nr./ Dwg.-No.:	Blatt/Page
gepr. u. zur Verwendung freigegeben/Checked for release von/by am/on	ebm-papst St. Georgen GmbH & Co. KG	Ers.f.Zchg./ Replaces: A4

12/03

W2G115-AG71-12

EC axial compact fan

straight blades (A series)

ebm-papst Mulfingen GmbH & Co. KG
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Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**W2G115-AG71-12**	
Motor	**M2G045-BA**	
Nominal voltage	VDC	24
Nominal voltage range	VDC	16 .. 28
Method of obtaining data		fa
Status		prelim.
Speed (rpm)	min^{-1}	4050
Power consumption	W	12
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	72

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

EC axial compact fan

straight blades (A series)

Technical description

Weight	0.55 kg
Size	115 mm
Motor size	45
Rotor surface	Painted black
Blade material	Sheet steel, painted black
Fan housing material	Die-cast aluminum, painted black
Number of blades	7
Airflow direction	V
Direction of rotation	Counterclockwise, viewed toward rotor
Degree of protection	IP22
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
Max. permitted ambient temp. for motor (transport/storage)	+ 80 °C
Min. permitted ambient temp. for motor (transport/storage)	- 40 °C
Installation position	Any
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Reverse polarity protection
Electrical hookup	Plug
Motor protection	Reverse polarity and locked-rotor protection

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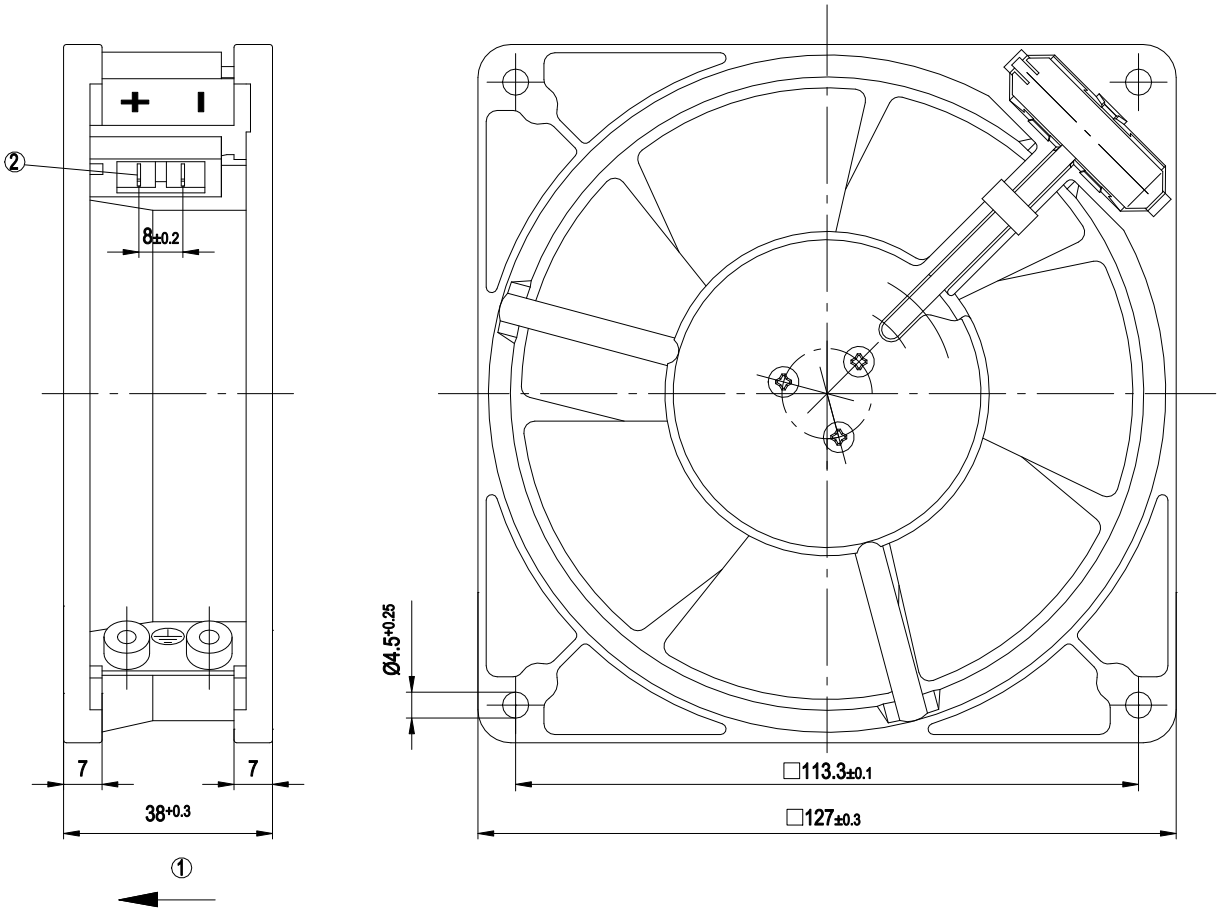
EC axial compact fan

straight blades (A series)

Product drawing



1	Direction of air flow "V"
2	2x flat plug 2.8 x 0.5 (AMP no. 170058-2)

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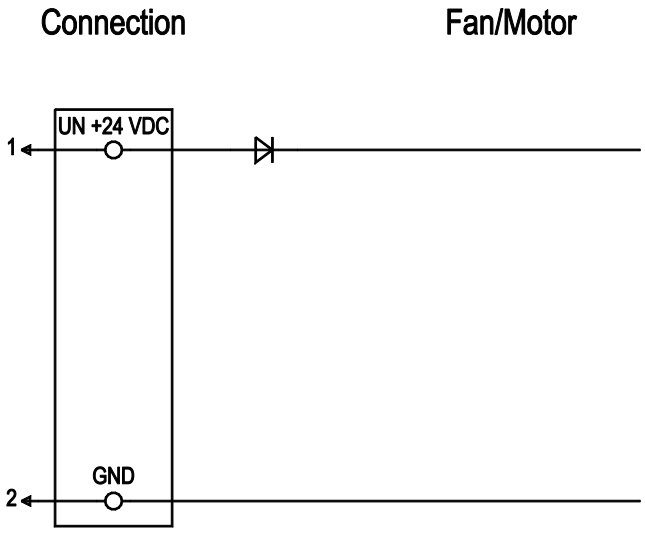
EC axial compact fan

straight blades (A series)

Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1		UN +24 VDC	red	Power supply 24 VDC, see nameplate for voltage range, maximum ripple ±3.5%
2		GND	blue	Reference ground

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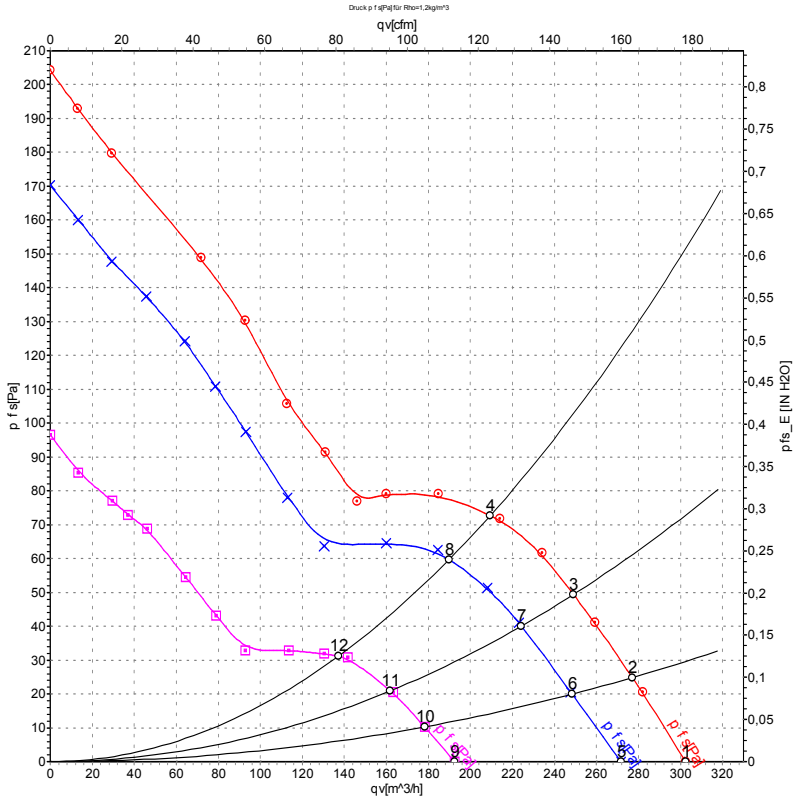
EC axial compact fan

straight blades (A series)

Curves: Air performance



Measurement: LU-17909-1
Measurement: LU-17908-1
Measurement: LU-17910-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	U	n	P_{ed}	I	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	28	4490	17	0.60	300	0	180	0.00
2	28	4370	17	0.60	275	25	165	0.10
3	28	4245	19	0.66	250	49	145	0.20
4	28	4150	17	0.59	210	73	125	0.29
5	24	4050	12	0.51	270	0	160	0.00
6	24	3955	12	0.52	250	20	145	0.08
7	24	3855	14	0.56	225	40	130	0.16
8	24	3750	14	0.58	190	60	110	0.24
9	16	2930	4.3	0.27	195	0	115	0.00
10	16	2860	5.0	0.31	180	10	105	0.04
11	16	2800	4.6	0.29	160	21	95	0.08
12	16	2750	5.4	0.34	135	31	80	0.12

U = Voltage · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · q_V = Air flow · p_{fs} = Pressure increase

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Product Data Sheet

9694320201
VWC0127YUJBS
5214 NHH

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5214 NHH

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	127,0 mm	
Height	127,0 mm	
Depth	38,0 mm	
Mass	0,315 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 10 Ncm Remaining corners: 60 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	
Wire size (AWG)	22	
Insulation diameter	1,70 mm	

Wire	Color	Operation
1	red	+ UB
2	blue	- GND

3 Operating Data

3.1 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

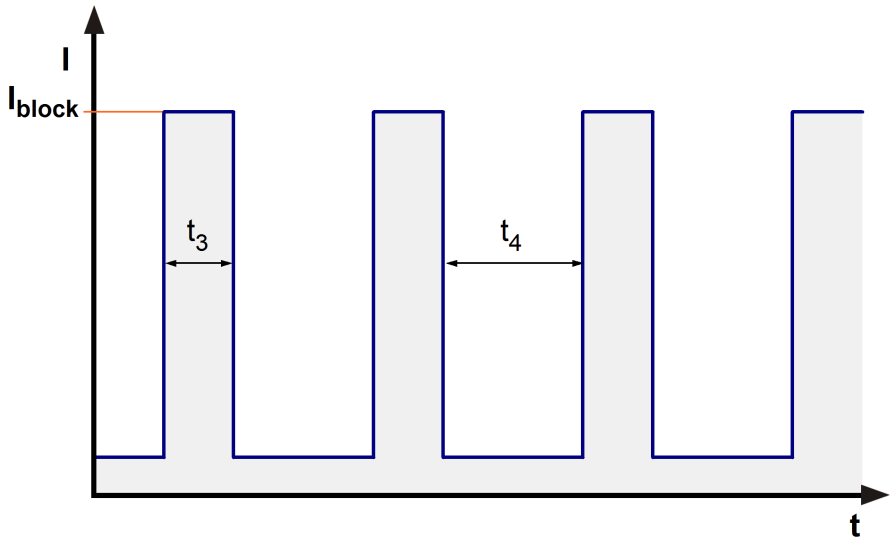
Note:
No inrush current at Unom means:

The internal electrolytic capacitor 120uF/50V has no resistor or inrush current limitation, essentially the power supply and the type and length of the connecting cable is limiting the Inrush current.

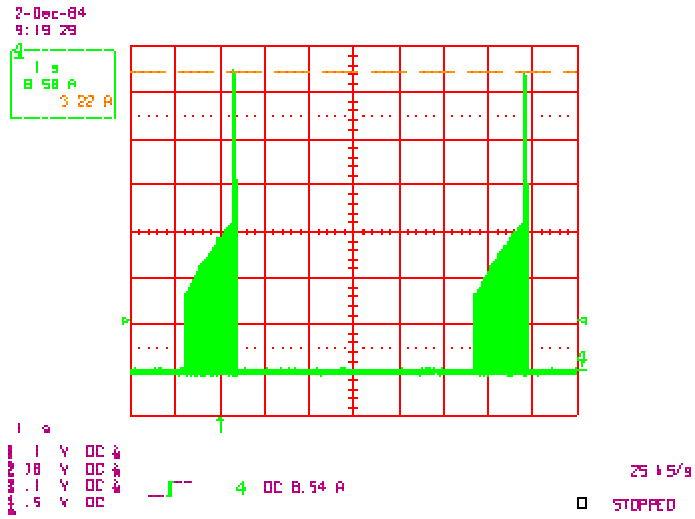
Features	Condition	Symbol	Values		
Voltage range		U	16 V		30,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 0010	P	9,6 W +- 15 %	17,5 W +- 15,0 %	19,5 W +- 15,0 %
Current consumption Tolerance	Δp = 0 0010	I	600 mA +- 15,0 %	730 mA +- 15,0 %	650 mA +- 15,0 %
Speed Tolerance	Δp = 0 0010	n	3.800 1/min +- 10,0 %	4.900 1/min +- 10,0 %	4.900 1/min +- 10,0 %
Starting current consumption				3.300 mA	

3.2 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 3.300 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 1,2 s / 5,0 s	



Internal Fuse:
Littlefuse NANO2(R) FUSE; Very fast acting 451 Series; 3 A (Art.-Nr.: 451003)



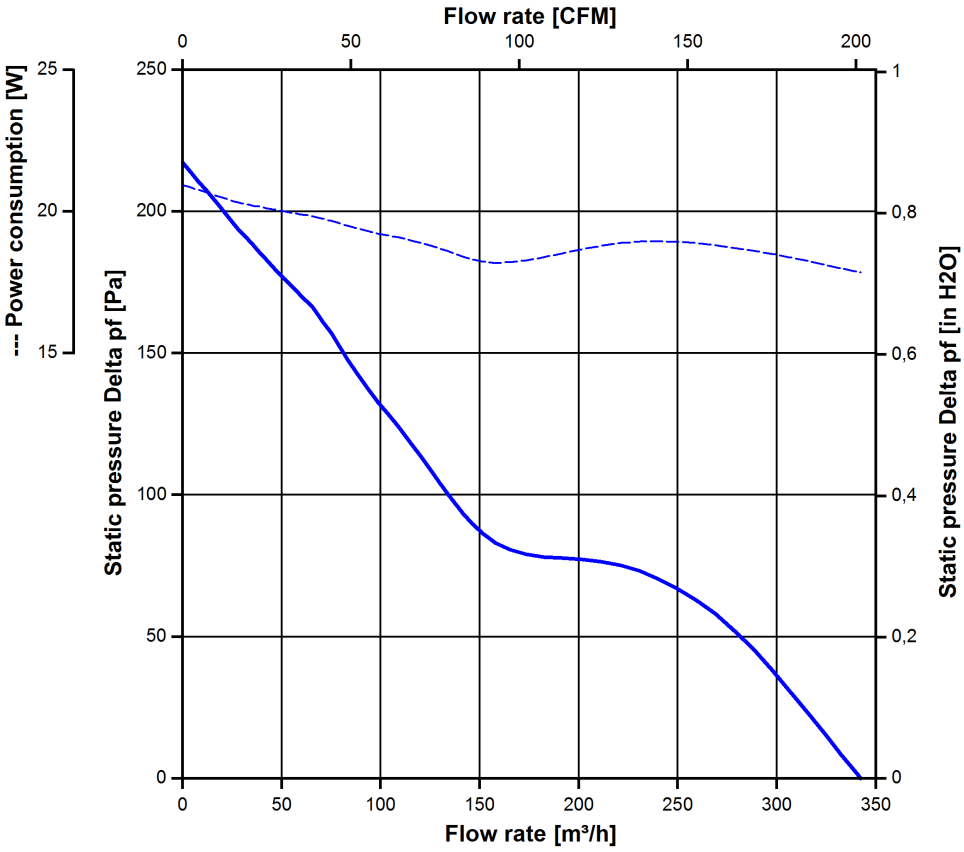
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

4.900 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	340,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	215 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.900 1/min at free air flow

Optimal operating point	210 m3/h @ 76 Pa	
Sound power level at the optimal operating point	6,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	58,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)
There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

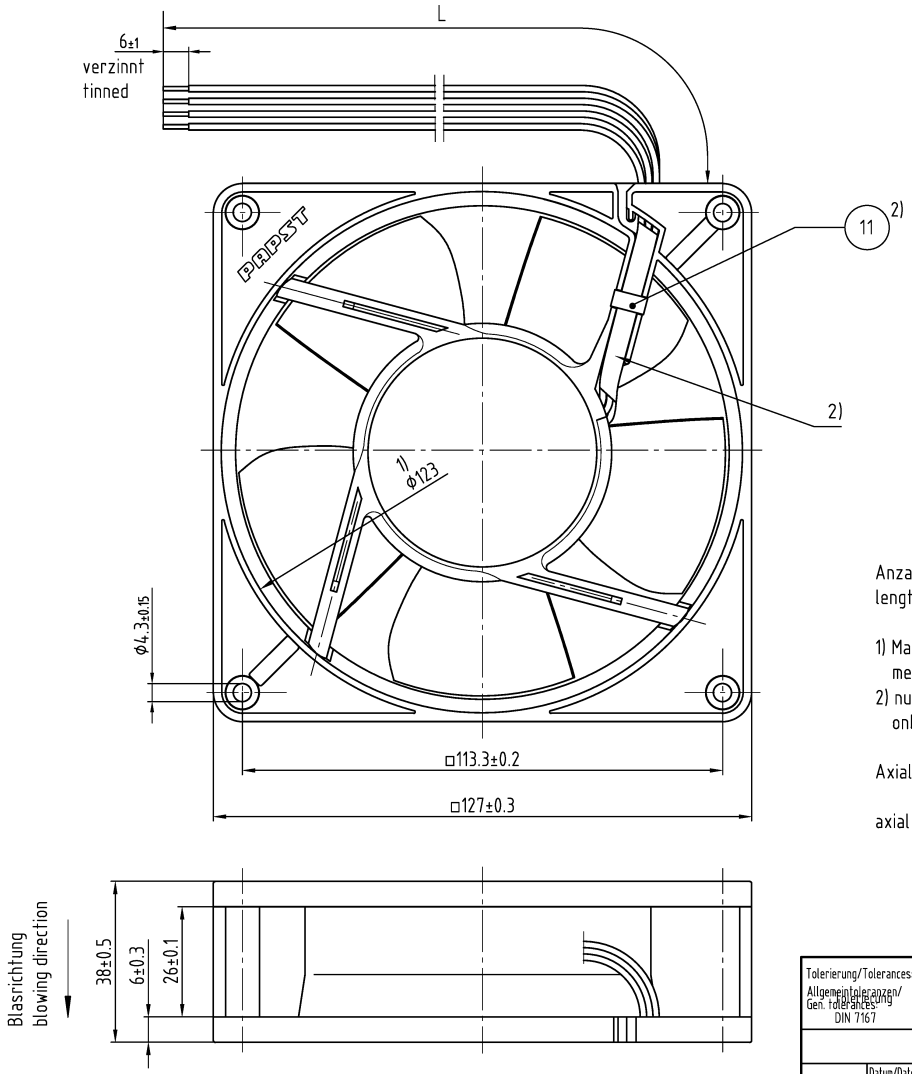
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

The approval tests are observed to:
U approval max.:30,0 V @ TU approval max.: 65,0 ℃

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	45.000 h	
Life expectancy L10 at TU max.	25.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	75.0 00 h	



Anzahl und Länge der Litzen siehe BV-Blatt 1
length and number of wires see design specifications page 1

1) Maße für Montagewand
measures for mounting plate
2) nur, wenn in Stückliste angegeben
only, if included in bill of material

Axialspiel bei Kugellagerung mit Feder spielfrei verspannt
bei Gleitlagerung 0,1 - 0,6 mm
axial tolerance by ball bearing without axial clearance by a preloaded spring
by sleeve bearing 0,1 - 0,6 mm

Tolerierung/Tolerances: DIN 7167 Allgemeintoleranzen/ Gen. tolerances: DIN 7167 Längenmaße: Winkel, Form u. Lage: DIN ISO 2768-mK			
	Datum/Date	Name/Name	Artikel/ Title
Bearb./Drawn:			
	Index/Index	Aend.-Nr./Change-No.	Zchg.-Nr./ Dwg.-No.:
gepr. u. zur Verwendung freigegeben/Checked for release von/ by am/ on			Ers.f.Zchg./ Replaces:
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			Blatt/Page: A3

12/03

Product Data Sheet

9294310809
VKC0127AUJBZ
DV5214NU

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DV5214NU

INDEX

1 General

Fan type	Mixed-flow fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

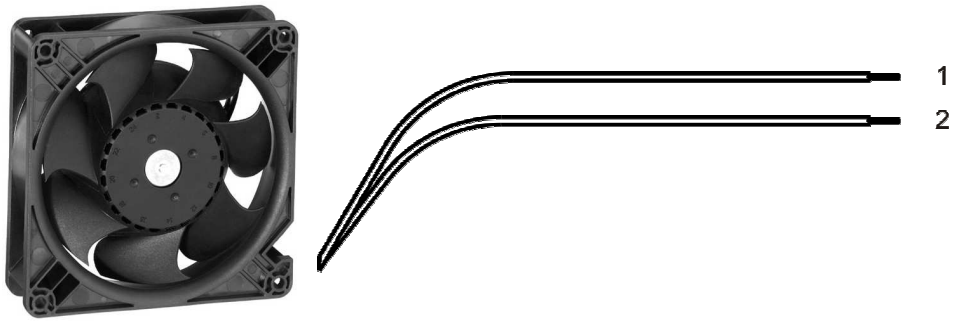
2 Mechanics

2.1 General

Width	127,0 mm	
Height	127,0 mm	
Depth	38,0 mm	
Mass	0,485 kg	
Housing material	Mixed	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 100 Ncm Remaining corners: 120 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,70 mm
2	blue	- GND	AWG 22	1,70 mm

The auxilliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

3 Operating Data

3.1 Electrical Operating Data

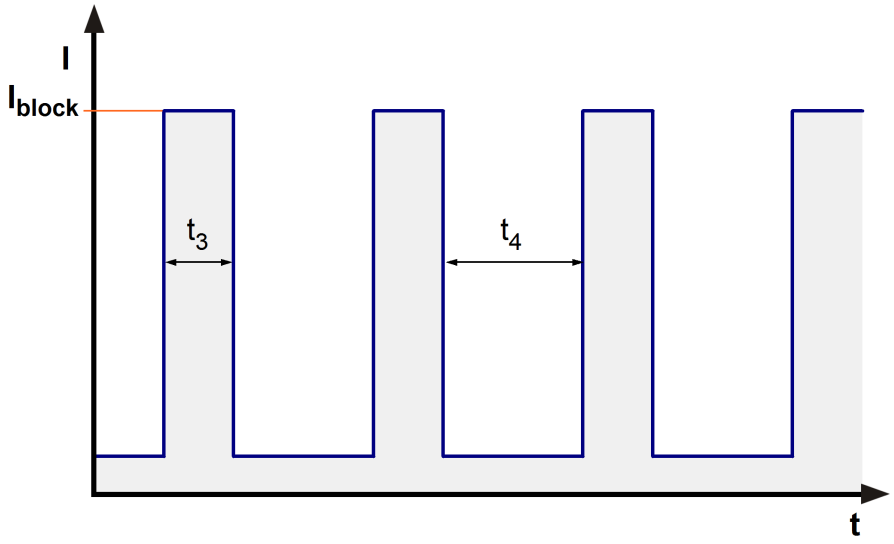
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

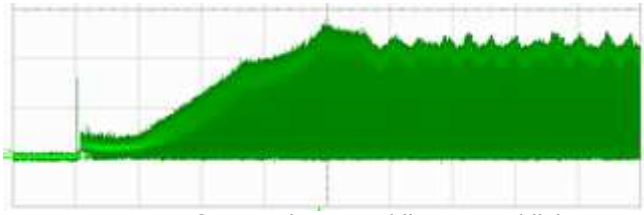
Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	16,0 V		30,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 0010	P	10,2 W +- 15 %	18,5 W +- 15 %	21,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	640 mA +- 15 %	770 mA +- 15 %	710 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	3.900 1/min +- 10 %	5.000 1/min +- 10 %	5.000 1/min +- 10 %

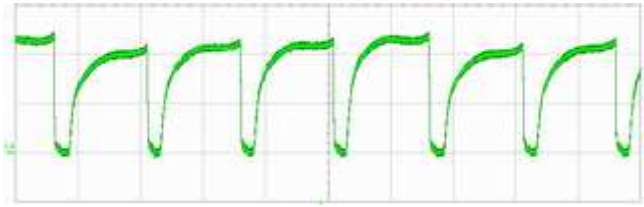
3.2 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 600 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5 s	
Internal fuse	Littelfuse NANO2 > Very Fast-Acting > 451/453 Series 3A / 125V (Art.No.: 0451003.MRL)	





Start-up current @ 24 V (I = 0,5A/div ; t = 2s/div)



Running current @ 24 V (I = 0,5A/div ; t = 2ms/div)

Locked rotor current @ 24 V (I = 0,2A/div ; t = 1s/div)

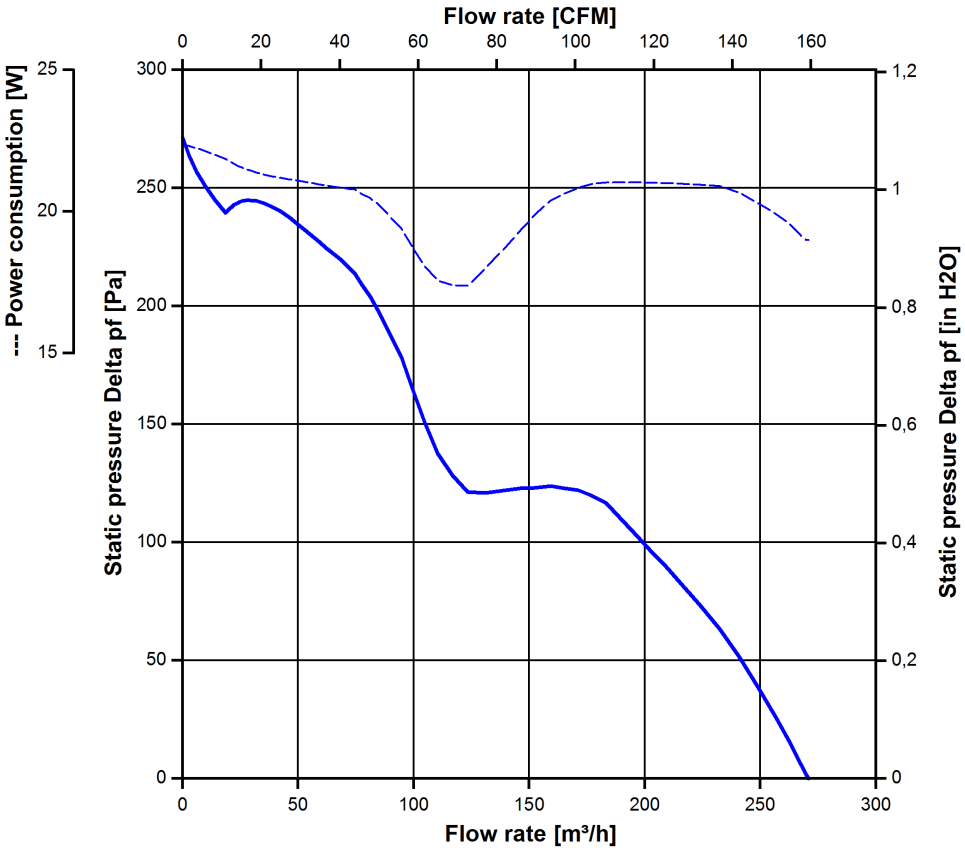
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

5.000 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	270 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	270 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

5.000 1/min at free air flow

Optimal operating point	190 m3/h @ 108 Pa	
Sound power level at the optimal operating point	6,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 ℃	
Max. permitted ambient temperature TU max.	65 ℃	
Min. permitted storage temperature TL min.	-40 ℃	
Max. permitted storage temperature TL max.	80 ℃	

4.2 Climatic Requirements

IP-protection type (certified)	IP 68 (for fan only, not for connector if applicable) **)	
Humidity requirements	humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days	
Salt fog requirements	None	

Permitted application area:
The product is for the use in partial sheltered rooms or open, roofed areas. Direct exposure to water is allowed provided that this does not prevent the normal operation. Saline ambient conditions must be avoided.

Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution which becomes conductive due to condensation.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

Short description of the IP-protection type:
Solid particle Protection: Dust tight.
Protection against deliberate contact: Protected against contact to hazardous parts with a wire.
Protection against water: The fan test according to IP68 (Based on IEC 60529), is conducted in non-operating mode. The fan is tested by a complete immersion in water for a period of 2h at a water-level of 1,2m. Electrical connections are not immersed since they are customer specific.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

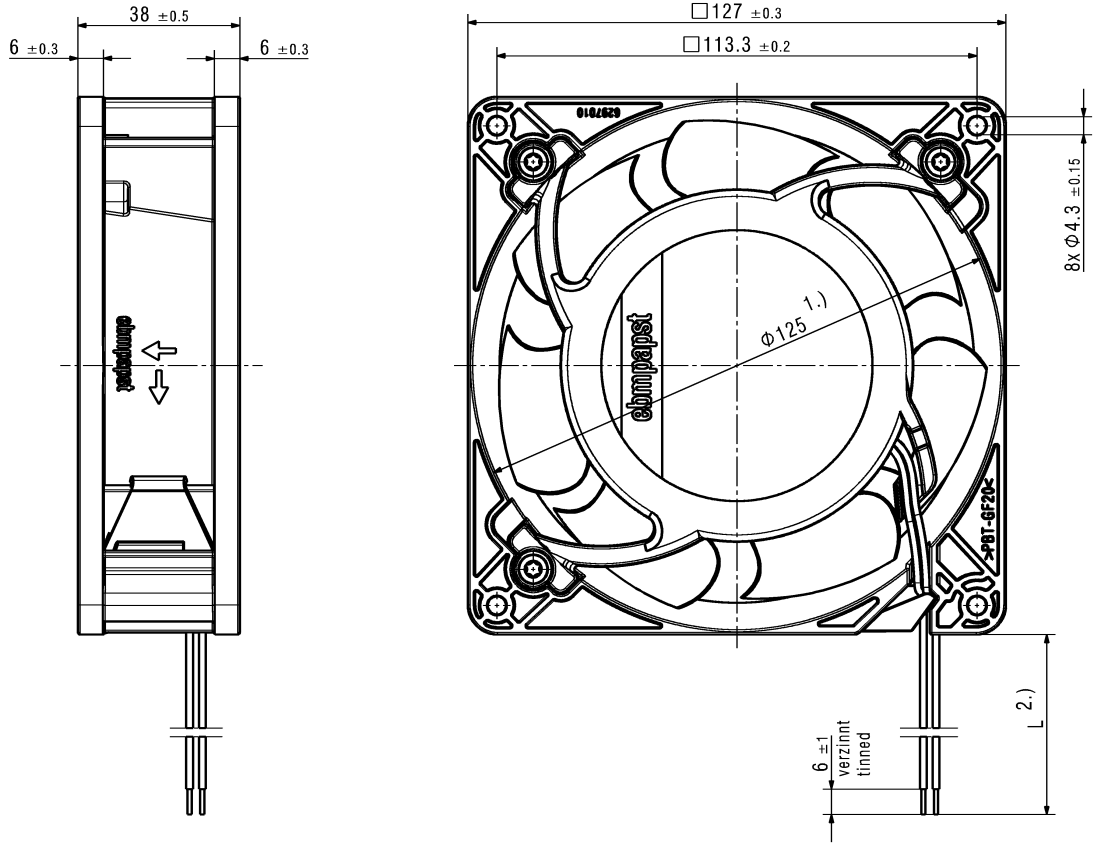
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	40.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	

Schutzvermerk nach DIN ISO 16016 beachten!
Refer to protection notice DIN ISO 16016!



-- Axialspiel mit Feder spielfrei verspannt.
1.) Maße für Montageausschnitt.
2.) Anzahl und Länge der Litzen siehe Produktspezifikation.

-- Ball bearings without axial clearance by a pre-load spring.
1.) Dimensions for mounting cut-out.
2.) Number and length of wires see product specification.

Dokument-Status / Document-State	CATIA-Version/ CATIA-Version	CAD-Umgebung/ CAD-Environment		Werkstoff / Material:	Volumen / Volume (mm^3):
Aend.-Nr./ Change-No.	92943108O5 CPR000A				Gewicht / Mass (g):
	3D-Referenzmodell / 3D-Referencemodel			Titel / Title:	
Tolerierung / Tolerances:	Datum	Name			
	Bearb./ Drawn				
Allgemeintoleranzen / Gen. Tolerances:	Gepr./ Checked			Zchg.-Nr./ Drawing No:	Ers.f.Zchg. / Replaces:
	Freig./ Releas.				
ebmpapst	ebm-papst St.Georgen GmbH & Co KG		Dokumenttyp / Type of Document	Teildokument (Blatt/Page)	Index / Index: -	Format / Size:	Massstab/Scale

Product Data Sheet

9294310212
VUC0119YUJBZ
4114 NXHR

ebmpapst
The engineer's choice

GREEN TECH

4114 NXHR

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

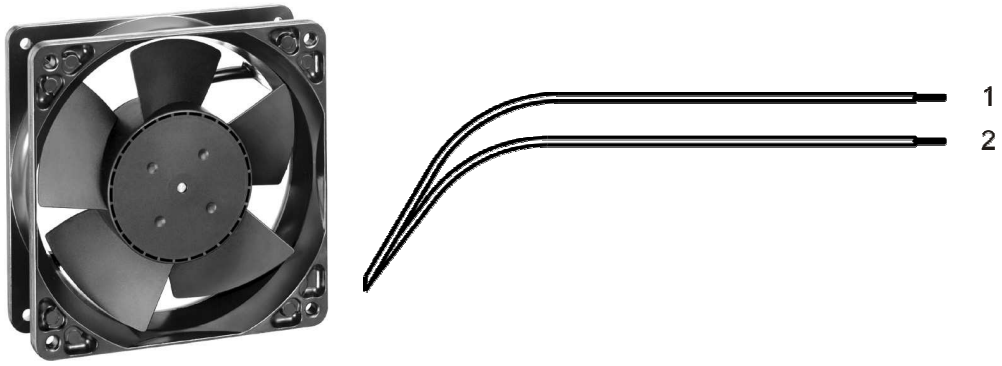
2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,7 mm
2	blue	- GND	AWG 22	1,7 mm

3 Operating Data

3.1 Electrical Operating Data

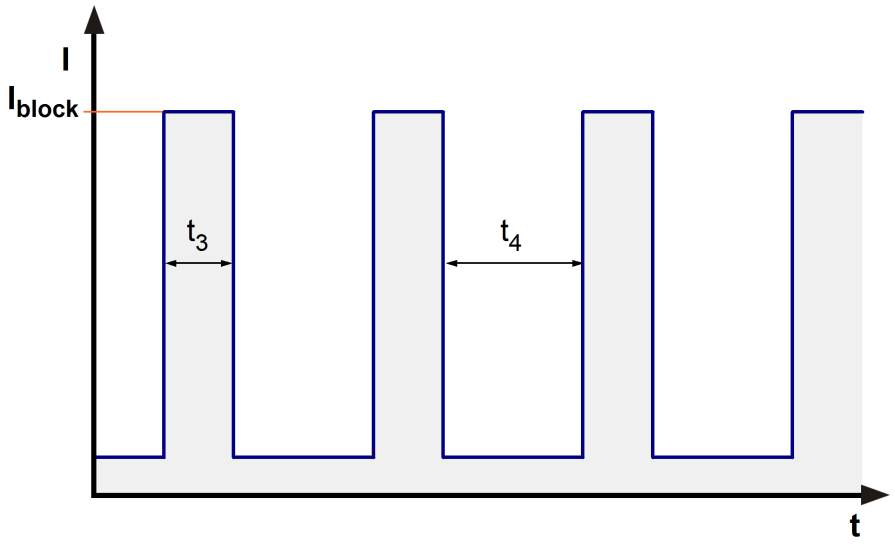
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



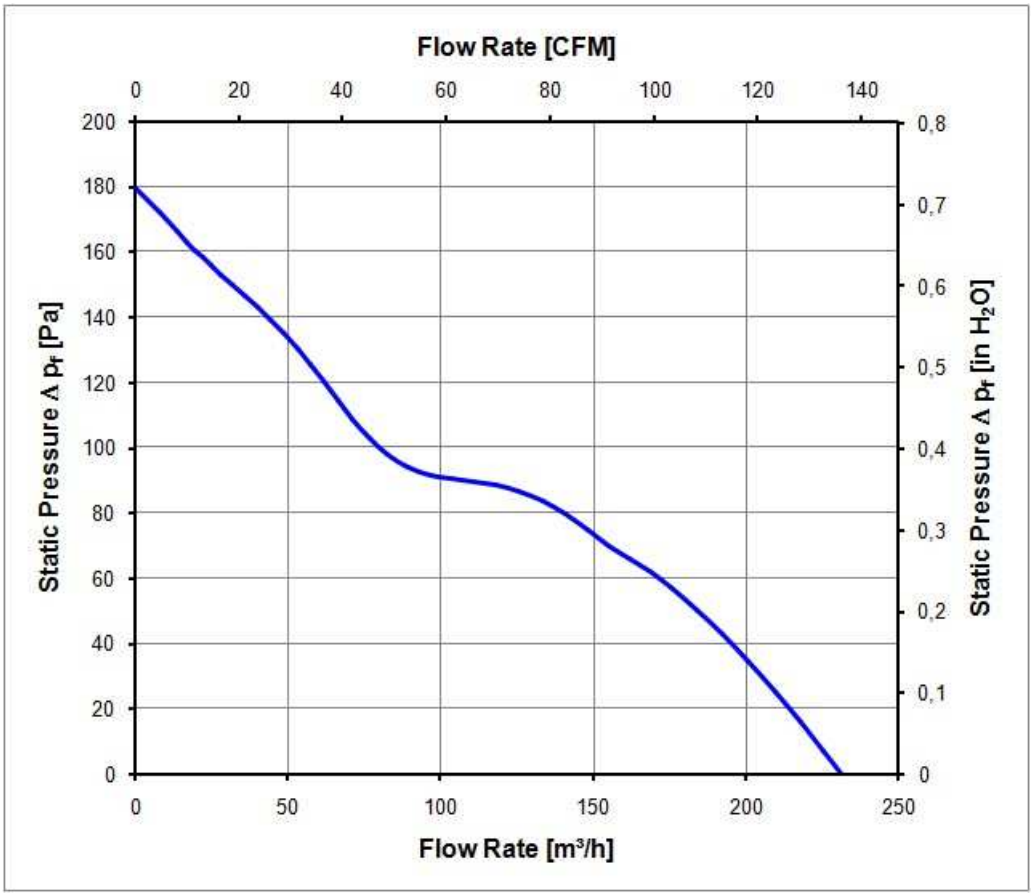
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

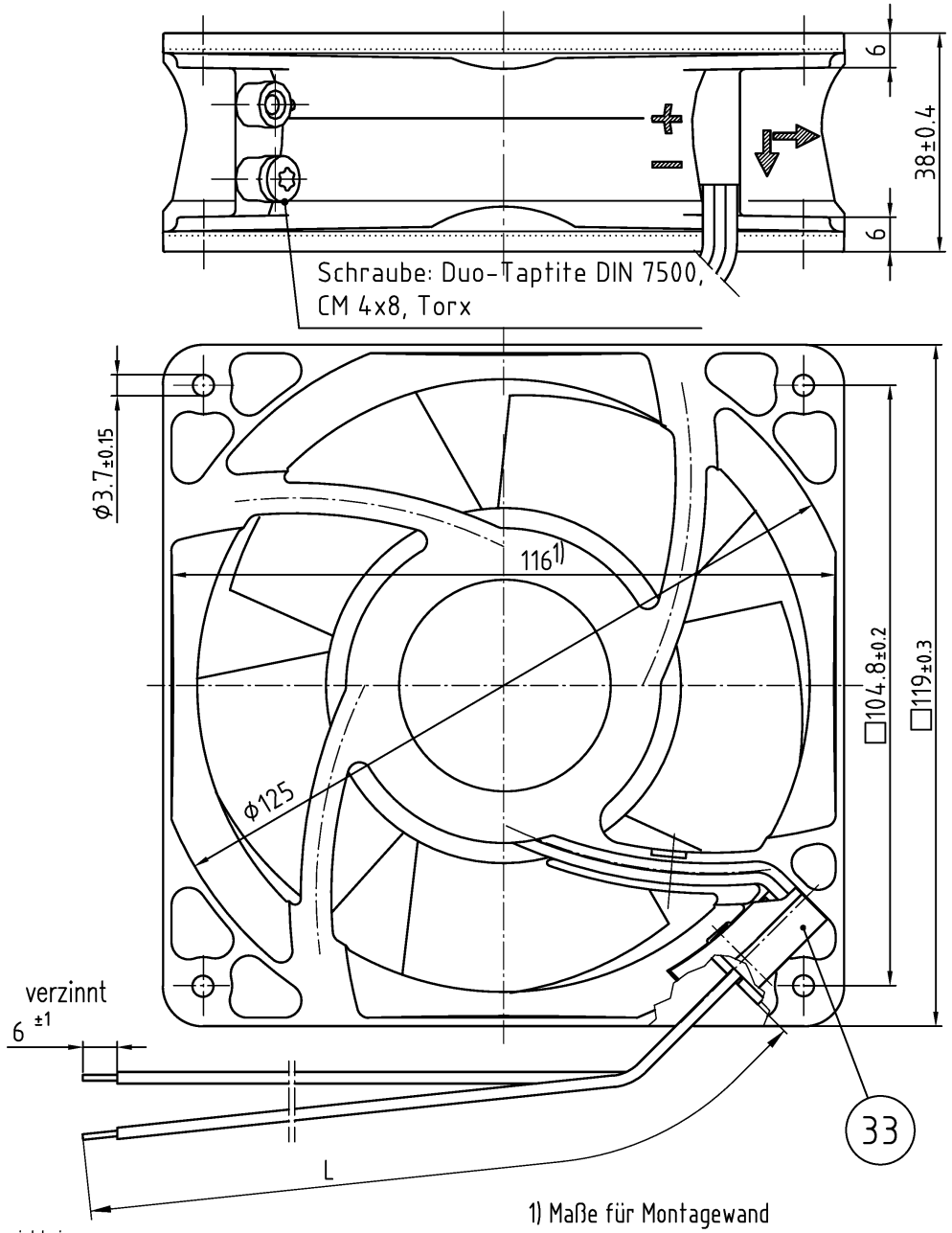
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

Anzahl und Länge der Litzen siehe Bv. Bl. 1

Tolerierung/Tolerances: DIN 7167 Allgemeintoleranzen/ Gen. tolerances: DIN 7167 Längenmaße: Winkel, Form u. Lage: DIN ISO 2768-cL		
	Artikel/Title	Massstab/scale
Bearb./Drawn: Datum/Date Name/Name		
Index/Index Aend.-Nr./Change-No.	Zchg.-Nr./ Dwg.-No.:	Blatt/Page
gepr. u. zur Verwendung freigegeben/Checked for release von/by am/on	ebm-papst St. Georgen GmbH & Co. KG	Ers.f.Zchg./ Replaces: A4

12/03

Product Data Sheet

9294310219
VUC0119YUJBS
4184 NXHR

ebmpapst
The engineer's choice

GREEN TECH

4184 NXHR

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Lead wire length Tolerance	See drawing	
Plug	See drawing	
Contact	See drawing	

3 Operating Data

3.1 Electrical Operating Data

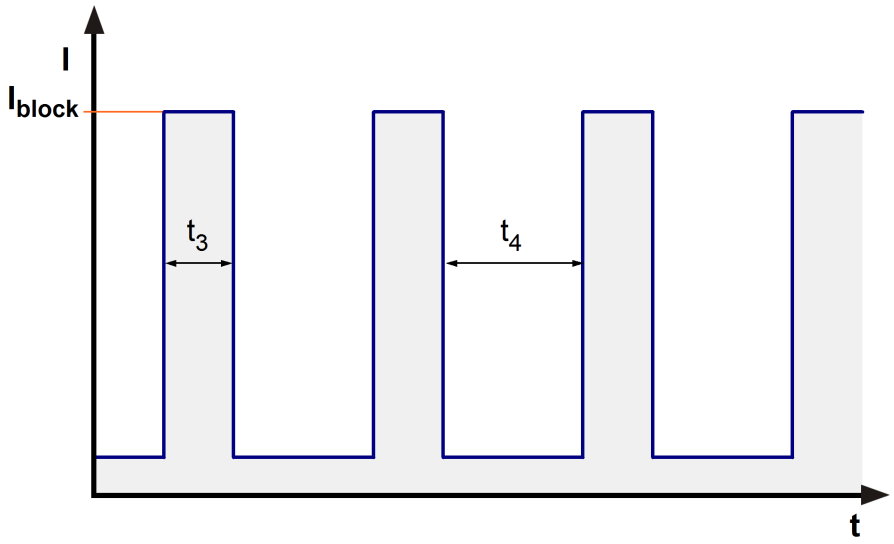
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



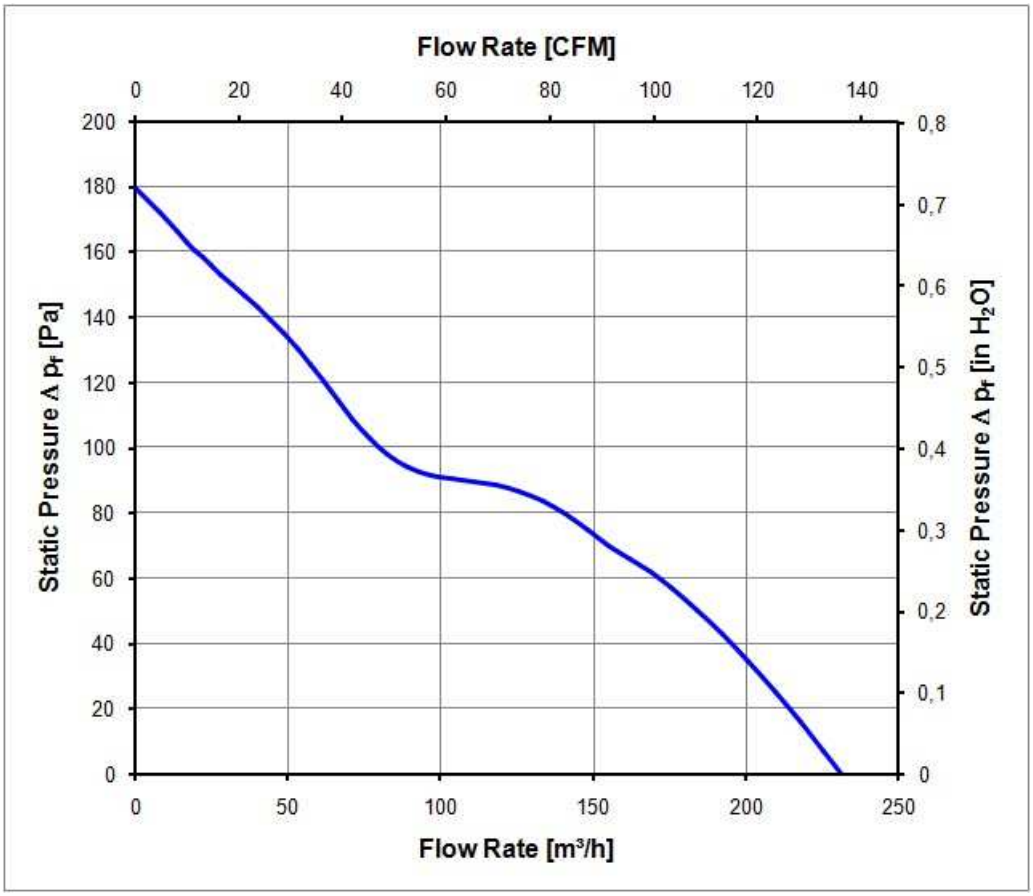
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

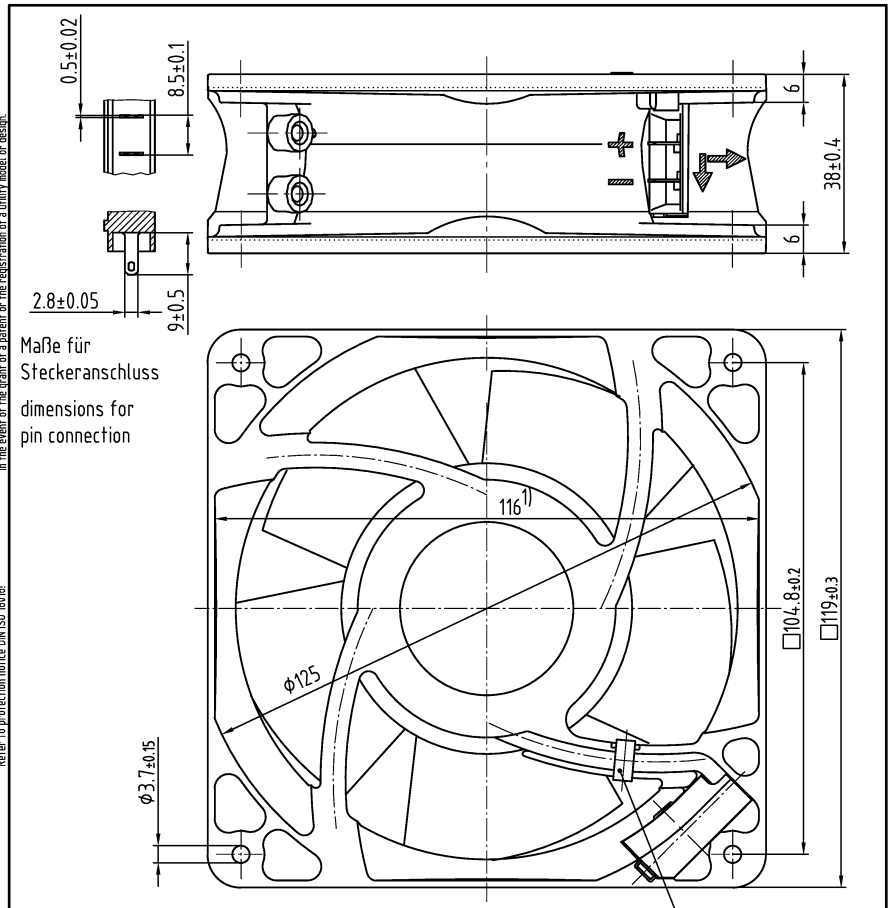
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand
2) wenn in Stückliste enthalten

1) dimensions for assembly wall
2) only if included in bill of material

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

axial clearance by
- ball bearing (K): 0 (with spring compensation)
- sleeve bearing (G): 0.1 - 0.6

			ebmpapst	Werkstoff/Material:	Volumen/Volume (mm^3):	
SAP-Status/State	Aend.-Nr./Change-No.	AutoCAD-System-Version	CAD-Umgebung/ CAD-Enviroment		Gewicht/Mass (g):	
		Datum/Date	Name/Name			
		Bearb./ Drawn		Artikel/Title		
Tolerierung/Tolerances:		Gepr./ Checked				
Allgemeintoleranzen/Gen. tolerances:		Freig./ Releas.				
		ebmpapst		Zchg.-Nr./ Drawing.-No.:	Ers.f.Zchg./ Replaces:	
		ebm-papst St. Georgen GmbH & Co. KG		Dokumenttyp/Type of Document / Teildokument (Blatt/Page) / Index/Index: F / Format/Size: / Massstab/scale: —		

11/09

Product Data Sheet

9294310138
VUC0119YUJBS
4184 NXH

ebmpapst
The engineer's choice

GREEN TECH

4184 NXH

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 170 Ncm Remaining corners: 300 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Lead wire length Tolerance	See drawing	
Plug	See drawing	
Contact	See drawing	

3 Operating Data

3.1 Electrical Operating Data

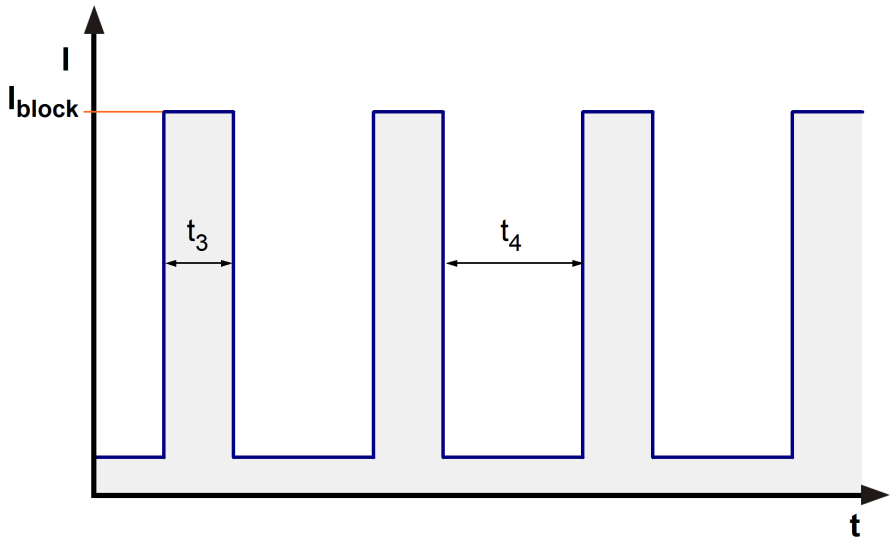
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	12 V		28 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0 0010	P	2,5 W +- 17,5 %	11 W +- 12,5 %	15,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	210 mA +- 17,5 %	460 mA +- 12,5 %	545 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	2.500 1/min +- 12,5 %	4.400 1/min +- 7,5 %	4.750 1/min +- 10 %
Starting current consumption				1.900 mA	

3.2 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,6 s / 10 s	



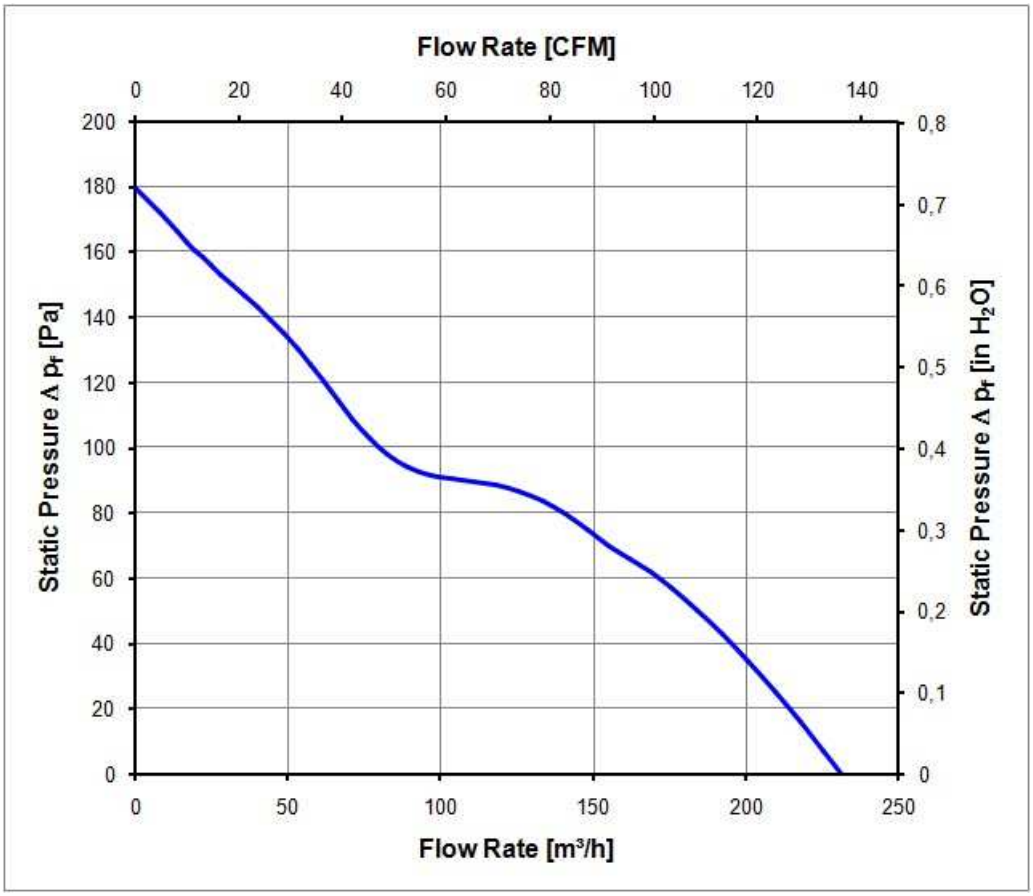
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

4.400 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	227,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	180 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.400 1/min at free air flow

Optimal operating point	130,0 m3/h @ 79 Pa	
Sound power level at the optimal operating point	6,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-30 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)
There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

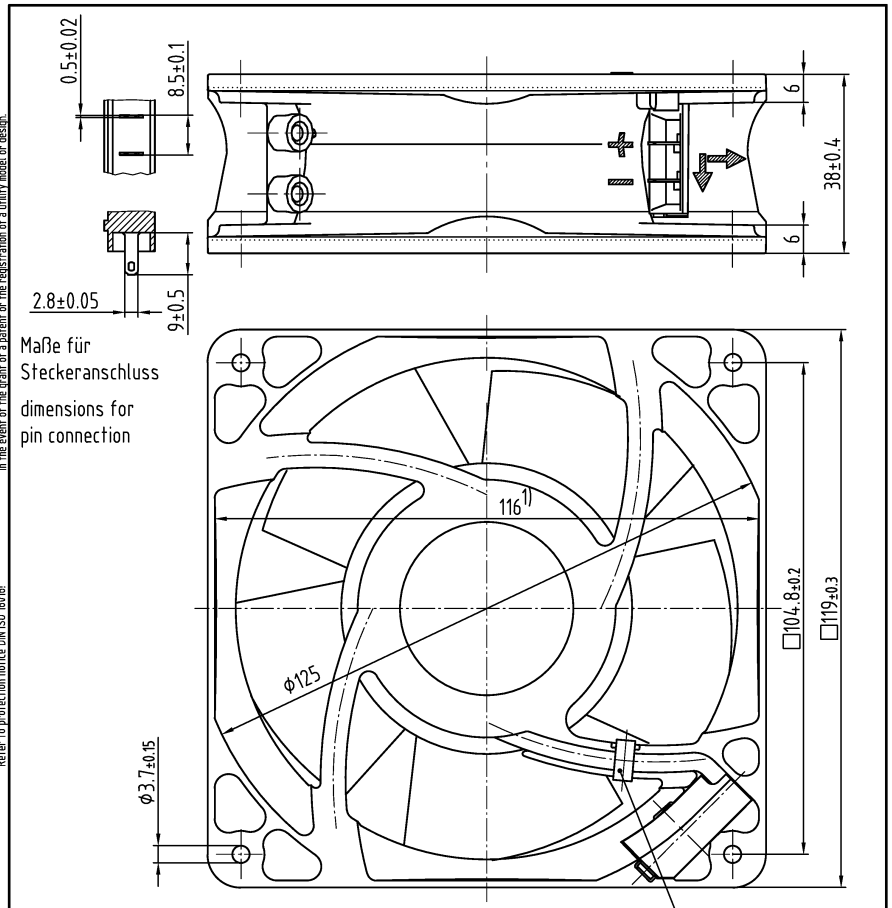
5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	



1) Maße für Montagewand
2) wenn in Stückliste enthalten

1) dimensions for assembly wall
2) only if included in bill of material

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.6

axial clearance by
- ball bearing (K): 0 (with spring compensation)
- sleeve bearing (G): 0.1 - 0.6

			ebmpapst	Werkstoff/Material:	Volumen/Volume (mm^3):	
SAP-Status/State	Aend.-Nr./Change-No.	AutoCAD-System-Version	CAD-Umgebung/ CAD-Enviroment		Gewicht/Mass (g):	
		Datum/Date	Name/Name			
		Bearb./ Drawn		Artikel/Title		
Tolerierung/Tolerances:		Gepr./ Checked				
Allgemeintoleranzen/Gen. tolerances:		Freig./ Releas.				
		ebmpapst		Zchg.-Nr./ Drawing.-No.:	Ers.f.Zchg./ Replaces:	
		ebm-papst St. Georgen GmbH & Co. KG		Dokumenttyp/Type of Document / Teildokument (Blatt/Page) / Index/Index: F / Format/Size: / Massstab/scale: —		

11/09

Product Data Sheet

9694320201
VWC0127YUJBS
5214 NHH

ebmpapst
The engineer's choice

GREEN TECH

5214 NHH

INDEX

1 General

Fan type	Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics

2.1 General

Width	127,0 mm	
Height	127,0 mm	
Depth	38,0 mm	
Mass	0,315 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 10 Ncm Remaining corners: 60 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	
Wire size (AWG)	22	
Insulation diameter	1,70 mm	

Wire	Color	Operation
1	red	+ UB
2	blue	- GND

3 Operating Data

3.1 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

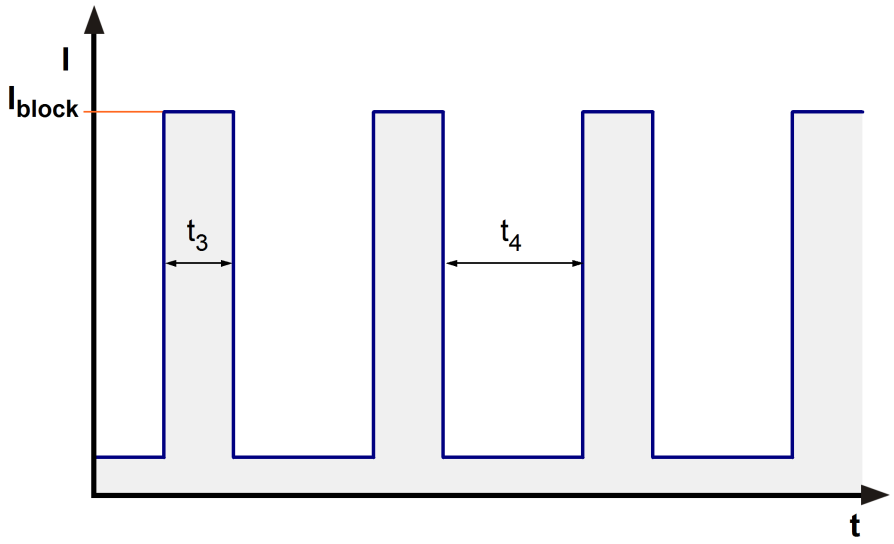
Note:
No inrush current at Unom means:

The internal electrolytic capacitor 120uF/50V has no resistor or inrush current limitation, essentially the power supply and the type and length of the connecting cable is limiting the Inrush current.

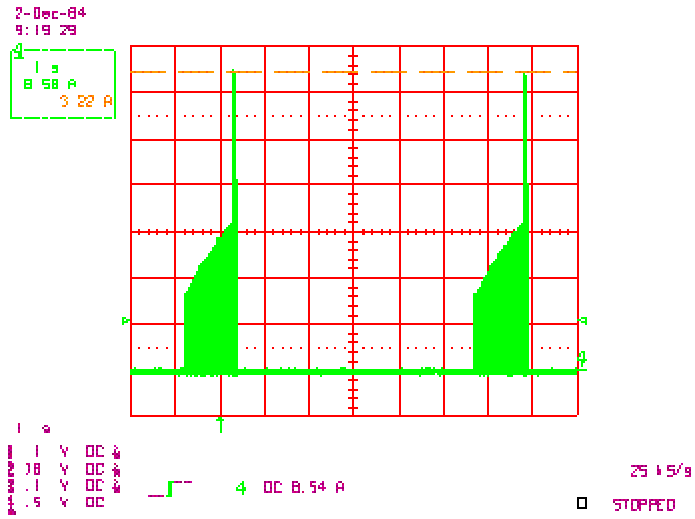
Features	Condition	Symbol	Values		
Voltage range		U	16 V		30,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 0010	P	9,6 W +- 15 %	17,5 W +- 15,0 %	19,5 W +- 15,0 %
Current consumption Tolerance	Δp = 0 0010	I	600 mA +- 15,0 %	730 mA +- 15,0 %	650 mA +- 15,0 %
Speed Tolerance	Δp = 0 0010	n	3.800 1/min +- 10,0 %	4.900 1/min +- 10,0 %	4.900 1/min +- 10,0 %
Starting current consumption				3.300 mA	

3.2 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 3.300 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 1,2 s / 5,0 s	



Internal Fuse:
Littlefuse NANO2(R) FUSE; Very fast acting 451 Series; 3 A (Art.-Nr.: 451003)



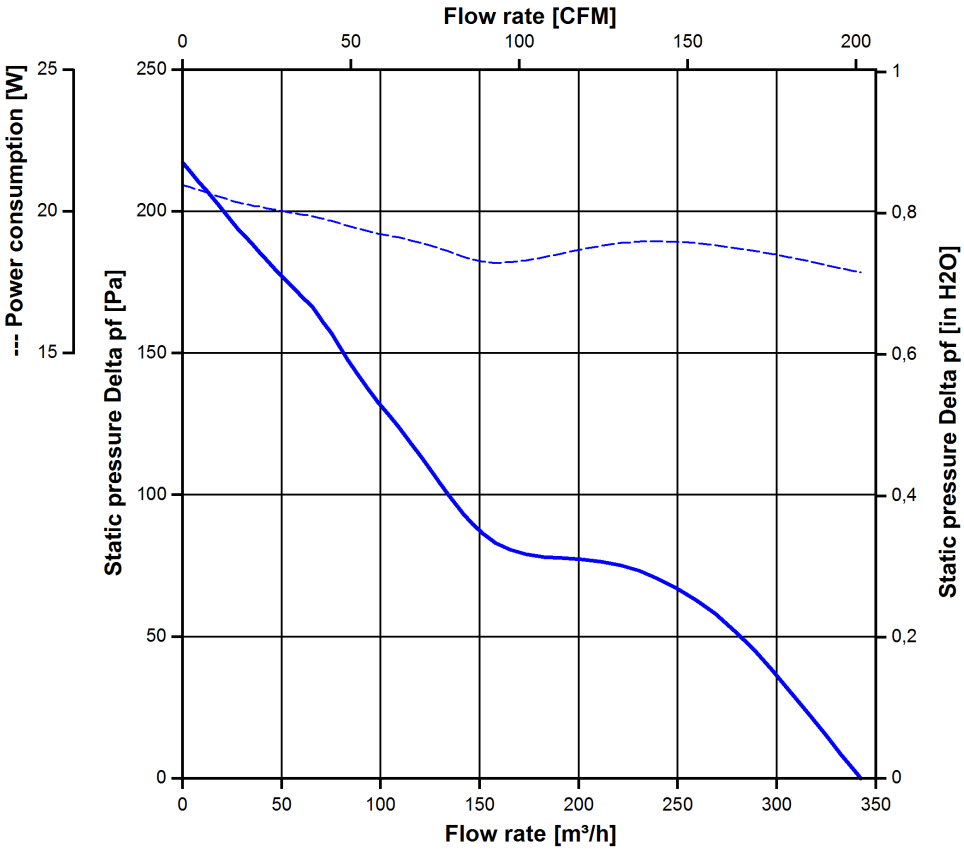
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

4.900 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	340,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	215 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.900 1/min at free air flow

Optimal operating point	210 m3/h @ 76 Pa	
Sound power level at the optimal operating point	6,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	58,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)
There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

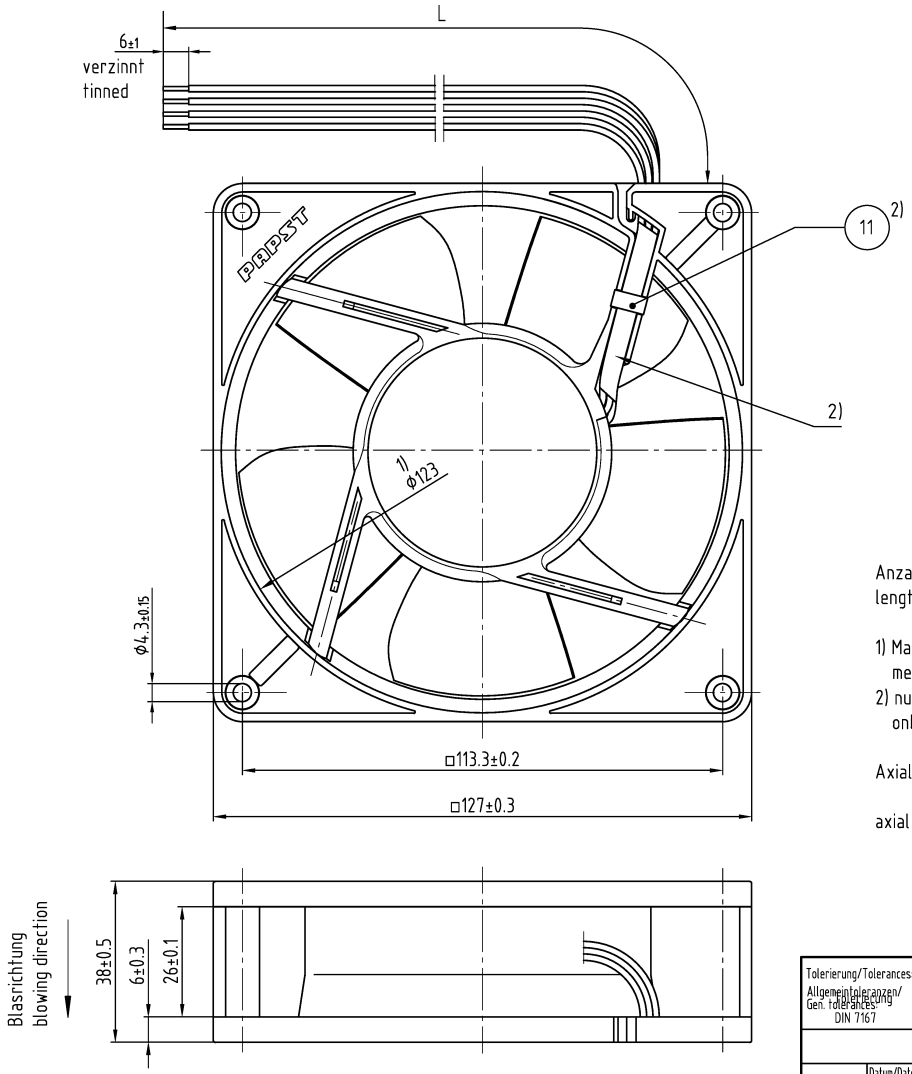
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

The approval tests are observed to:
U approval max.:30,0 V @ TU approval max.: 65,0 ℃

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	45.000 h	
Life expectancy L10 at TU max.	25.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	75.0 00 h	



Anzahl und Länge der Litzen siehe BV-Blatt 1
length and number of wires see design specifications page 1

1) Maße für Montagewand
measures for mounting plate
2) nur, wenn in Stückliste angegeben
only, if included in bill of material

Axialspiel bei Kugellagerung mit Feder spielfrei verspannt
bei Gleitlagerung 0,1 - 0,6 mm
axial tolerance by ball bearing without axial clearance by a preloaded spring
by sleeve bearing 0,1 - 0,6 mm

Tolerierung/Tolerances: DIN 7167 Allgemeintoleranzen/ Gen. tolerances: DIN 7167 Längenmaße: Winkel, Form u. Lage: DIN ISO 2768-mK			
	Datum/Date	Name/Name	Artikel/ Title
Bearb./Drawn:			
	Index/Index	Aend.-Nr./Change-No.	Zchg.-Nr./ Dwg.-No.:
gepr. u. zur Verwendung freigegeben/Checked for release von/ by am/ on			Ers.f.Zchg./ Replaces:
ebmpapst	ebm-papst St. Georgen GmbH & Co. KG		Massstab/scale:
			Blatt/Page: A3

12/03

Product Data Sheet

9294310809
VKC0127AUJBZ
DV5214NU

ebmpapst
The engineer's choice

GREEN TECH

DV5214NU

INDEX

1 General

Fan type	Mixed-flow fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

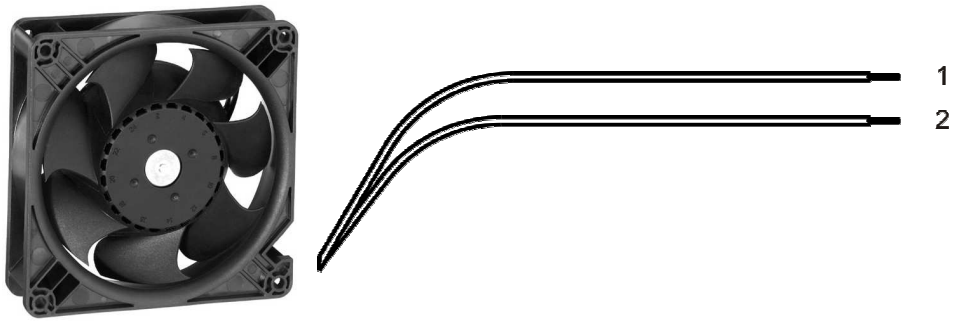
2 Mechanics

2.1 General

Width	127,0 mm	
Height	127,0 mm	
Depth	38,0 mm	
Mass	0,485 kg	
Housing material	Mixed	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 100 Ncm Remaining corners: 120 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 310 mm +- 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,70 mm
2	blue	- GND	AWG 22	1,70 mm

The auxilliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

3 Operating Data

3.1 Electrical Operating Data

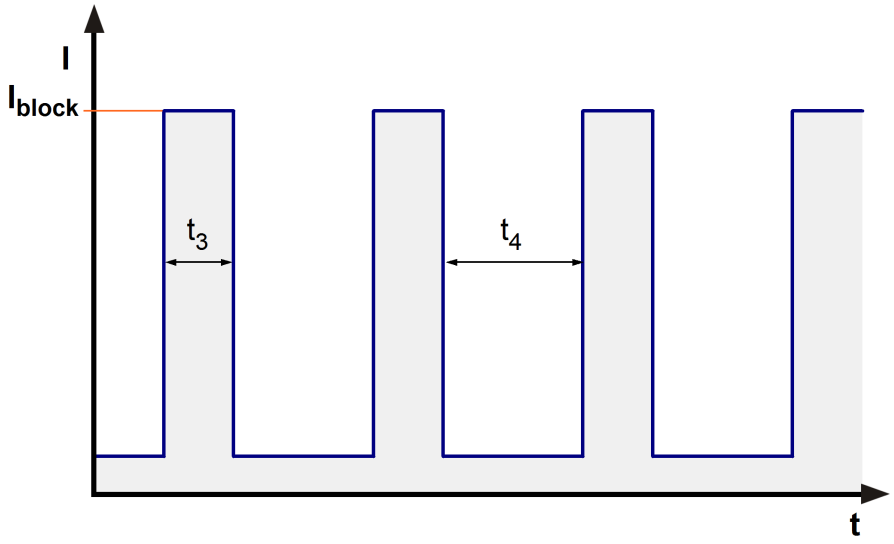
Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

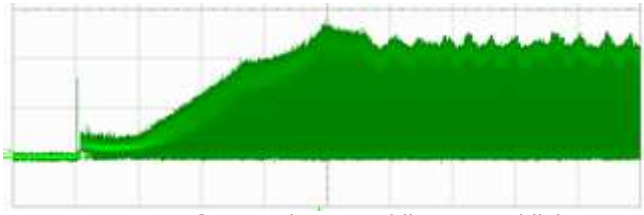
Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range		U	16,0 V		30,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 0010	P	10,2 W +- 15 %	18,5 W +- 15 %	21,3 W +- 15 %
Current consumption Tolerance	Δp = 0 0010	I	640 mA +- 15 %	770 mA +- 15 %	710 mA +- 15 %
Speed Tolerance	Δp = 0 0010	n	3.900 1/min +- 10 %	5.000 1/min +- 10 %	5.000 1/min +- 10 %

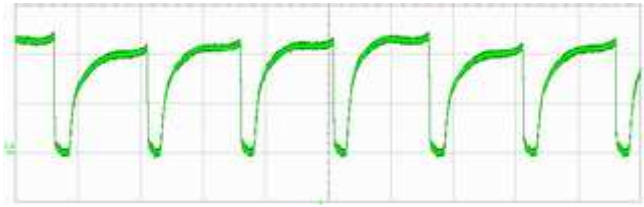
3.2 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 600 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5 s	
Internal fuse	Littelfuse NANO2 > Very Fast-Acting > 451/453 Series 3A / 125V (Art.No.: 0451003.MRL)	





Start-up current @ 24 V (I = 0,5A/div ; t = 2s/div)



Running current @ 24 V (I = 0,5A/div ; t = 2ms/div)

Locked rotor current @ 24 V (I = 0,2A/div ; t = 1s/div)

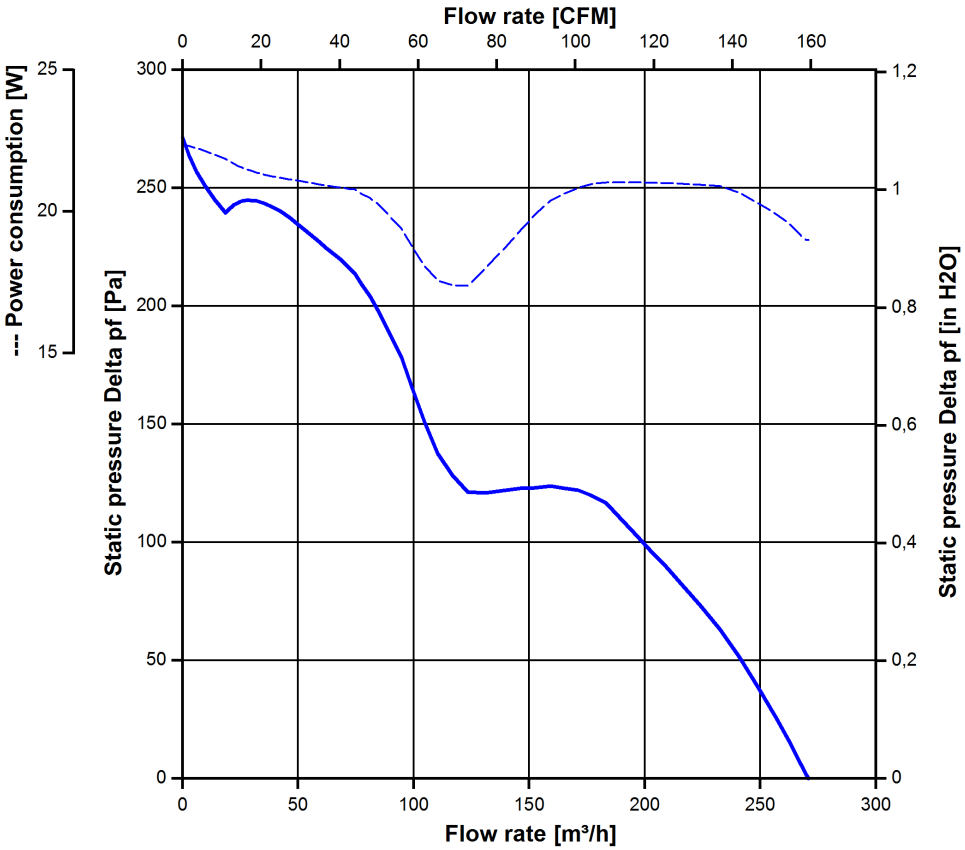
3.3 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

5.000 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	270 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	270 Pa	



3.4 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

5.000 1/min at free air flow

Optimal operating point	190 m3/h @ 108 Pa	
Sound power level at the optimal operating point	6,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 ℃	
Max. permitted ambient temperature TU max.	65 ℃	
Min. permitted storage temperature TL min.	-40 ℃	
Max. permitted storage temperature TL max.	80 ℃	

4.2 Climatic Requirements

IP-protection type (certified)	IP 68 (for fan only, not for connector if applicable) **)	
Humidity requirements	humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days	
Salt fog requirements	None	

Permitted application area:
The product is for the use in partial sheltered rooms or open, roofed areas. Direct exposure to water is allowed provided that this does not prevent the normal operation. Saline ambient conditions must be avoided.

Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution which becomes conductive due to condensation.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

Short description of the IP-protection type:
Solid particle Protection: Dust tight.
Protection against deliberate contact: Protected against contact to hazardous parts with a wire.
Protection against water: The fan test according to IP68 (Based on IEC 60529), is conducted in non-operating mode. The fan is tested by a complete immersion in water for a period of 2h at a water-level of 1,2m. Electrical connections are not immersed since they are customer specific.

Please require severity levels and specification parameters from the responsible development departments.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

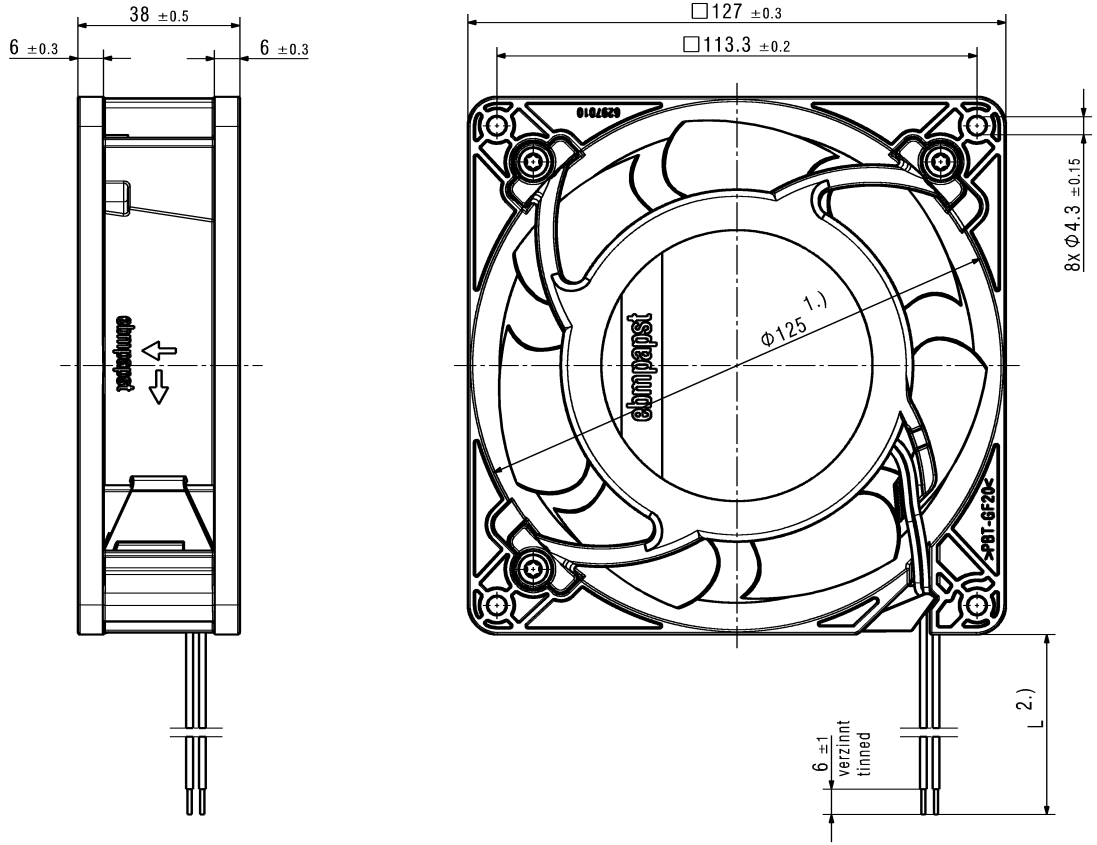
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 ℃	70.000 h	
Life expectancy L10 at TU max.	40.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	117. 500 h	

Schutzvermerk nach DIN ISO 16016 beachten!
Refer to protection notice DIN ISO 16016!



-- Axialspiel mit Feder spielfrei verspannt.
1.) Maße für Montageausschnitt.
2.) Anzahl und Länge der Litzen siehe Produktspezifikation.

-- Ball bearings without axial clearance by a pre-load spring.
1.) Dimensions for mounting cut-out.
2.) Number and length of wires see product specification.

Dokument-Status / Document-State	CATIA-Version/ CATIA-Version	CAD-Umgebung/ CAD-Environment		Werkstoff / Material:	Volumen / Volume (mm^3):
Aend.-Nr./ Change-No.	92943108O5 CPR000A				Gewicht / Mass (g):
	3D-Referenzmodell / 3D-Referencemodel			Titel / Title:	
Tolerierung / Tolerances:	Datum	Name			
	Bearb./ Drawn				
Allgemeintoleranzen / Gen. Tolerances:	Gepr./ Checked			Zchg.-Nr./ Drawing No:	Ers.f.Zchg. / Replaces:
	Freig./ Releas.				
ebmpapst	ebm-papst St.Georgen GmbH & Co KG		Dokumenttyp / Type of Document	Teildokument (Blatt/Page)	Index / Index: -	Format / Size:	Massstab/Scale

EC axial compact fan

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Fax +49 7938 81-110
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www.ebmpapst.com

Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**W2G110-AK43-31**	
Motor	**M2G045-BA**	
Nominal voltage	VDC	24
Nominal voltage range	VDC	16 .. 28
Method of obtaining data		fa
Speed (rpm)	min^{-1}	4400
Power consumption	W	15
Max. back pressure	Pa	100
Max. back pressure	in. wg	0.4
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	72

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

EC axial compact fan

Technical description

Weight	0.49 kg
Size	110 mm
Motor size	45
Rotor surface	Painted black
Blade material	Sheet steel, painted black
Fan housing material	Die-cast aluminum, painted black
Number of blades	5
Airflow direction	A
Direction of rotation	Counterclockwise, viewed toward rotor
Degree of protection	IP22
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H0+
Max. permitted ambient temp. for motor (transport/storage)	+ 80 °C
Min. permitted ambient temp. for motor (transport/storage)	- 25 °C
Installation position	Any
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing
Technical features	- Reverse polarity protection
Electrical hookup	Plug
Motor protection	Reverse polarity and locked-rotor protection
Conformity with standards	EN 60950-1
Approval	UL 507; EAC

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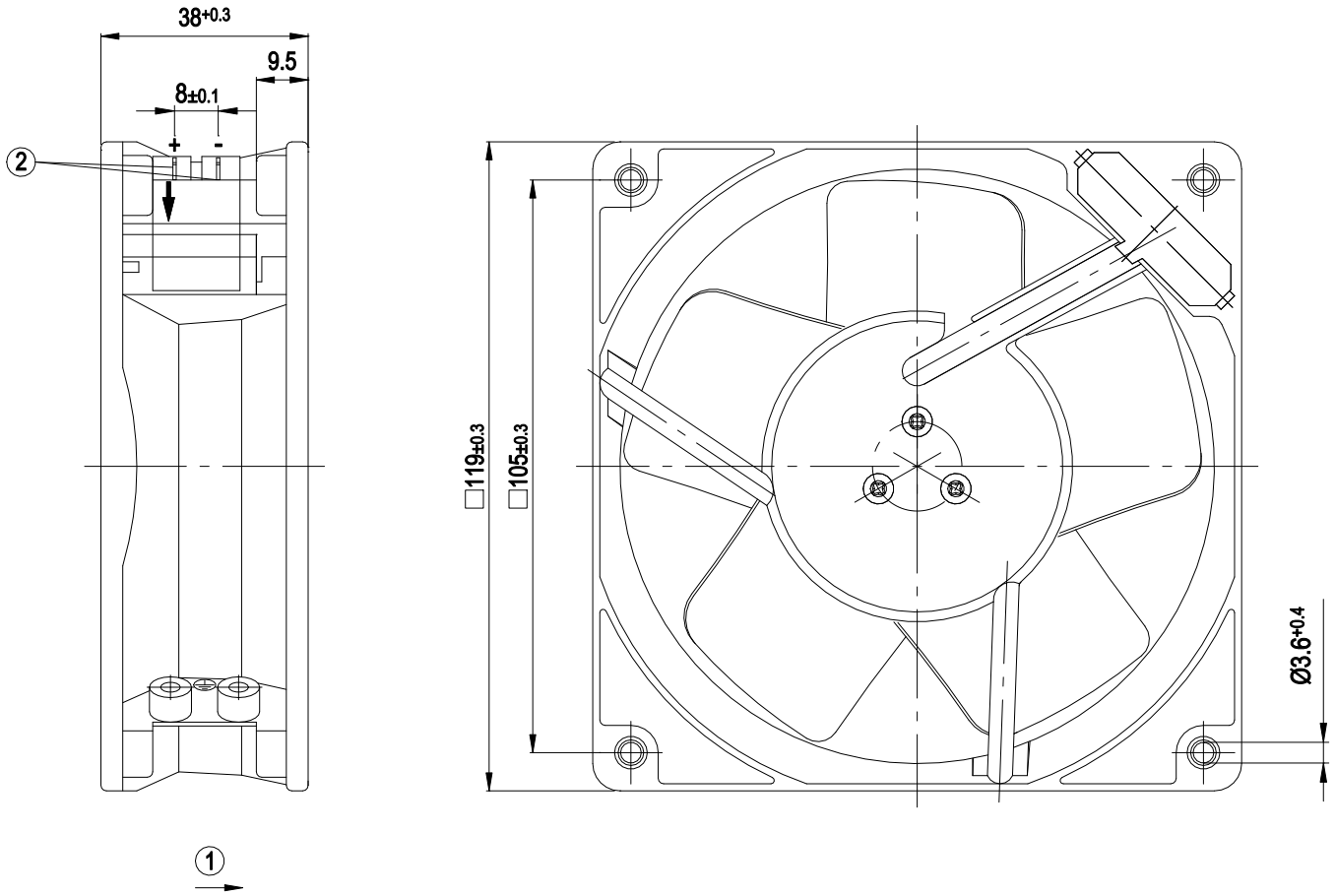
Product drawing



1	Direction of air flow "A"
2	2x flat plug 2.8 x 0.5 (AMP no. 170058-2)

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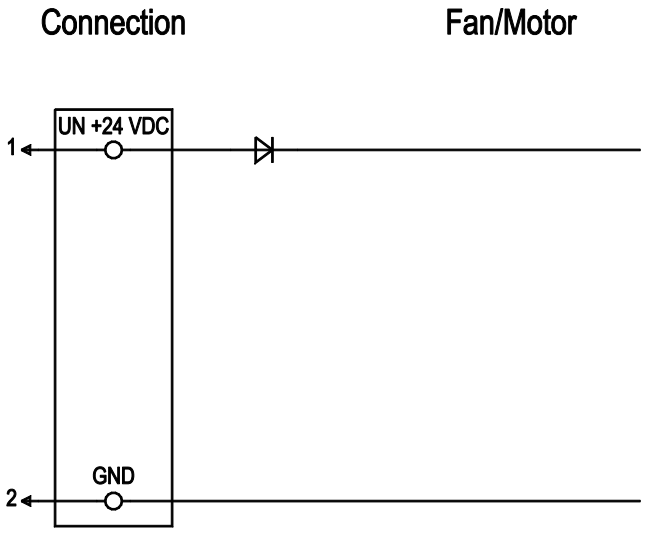
Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1		UN +24 VDC	red	Power supply 24 VDC, see nameplate for voltage range, maximum ripple ±3.5%
2		GND	blue	Reference ground

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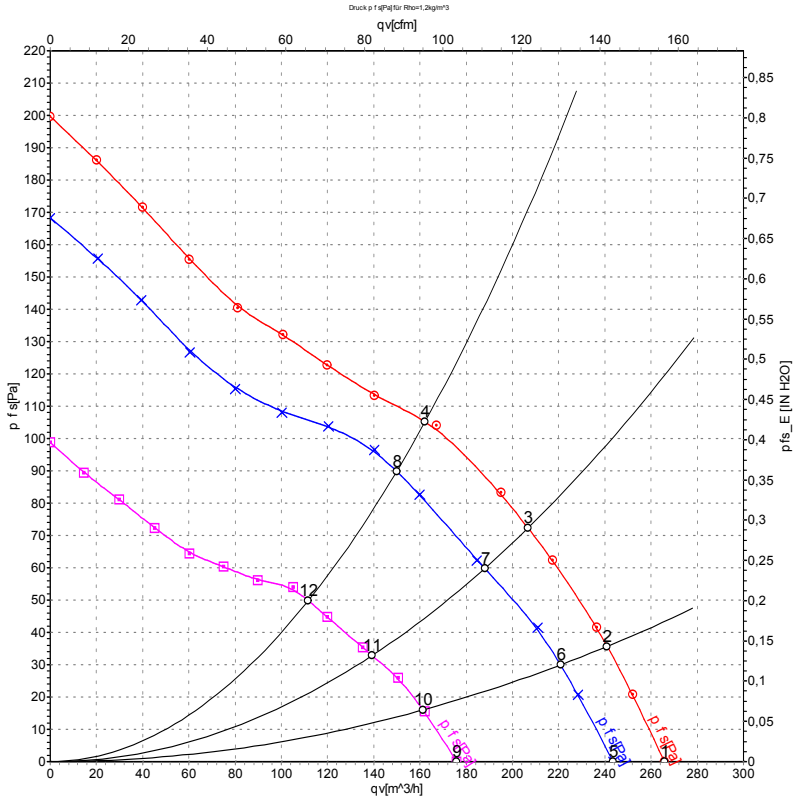
EC axial compact fan

Curves: Air performance



Measurement: LU-77463-1
Measurement: LU-77462-1
Measurement: LU-77464-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	U	n	P_{ed}	I	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	28	4755	21	0.83	265	0	155	0.00
2	28	4635	22	0.87	240	36	140	0.14
3	28	4485	23	0.90	205	72	120	0.29
4	28	4345	24	0.94	160	106	95	0.43
5	24	4400	15	0.62	245	0	145	0.00
6	24	4245	16	0.70	220	30	130	0.12
7	24	4110	17	0.75	190	60	110	0.24
8	24	3990	18	0.80	150	90	90	0.36
9	16	3230	6.3	0.41	175	0	105	0.00
10	16	3160	6.6	0.43	160	16	95	0.06
11	16	3075	6.9	0.45	140	33	80	0.13
12	16	2995	7.2	0.47	110	50	65	0.20

U = Voltage · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · q_V = Air flow · p_{fs} = Pressure increase

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W2G115-AG71-12

EC axial compact fan

straight blades (A series)

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Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**W2G115-AG71-12**	
Motor	**M2G045-BA**	
Nominal voltage	VDC	24
Nominal voltage range	VDC	16 .. 28
Method of obtaining data		fa
Status		prelim.
Speed (rpm)	min^{-1}	4050
Power consumption	W	12
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	72

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

EC axial compact fan

straight blades (A series)

Technical description

Weight	0.55 kg
Size	115 mm
Motor size	45
Rotor surface	Painted black
Blade material	Sheet steel, painted black
Fan housing material	Die-cast aluminum, painted black
Number of blades	7
Airflow direction	V
Direction of rotation	Counterclockwise, viewed toward rotor
Degree of protection	IP22
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
Max. permitted ambient temp. for motor (transport/storage)	+ 80 °C
Min. permitted ambient temp. for motor (transport/storage)	- 40 °C
Installation position	Any
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Reverse polarity protection
Electrical hookup	Plug
Motor protection	Reverse polarity and locked-rotor protection

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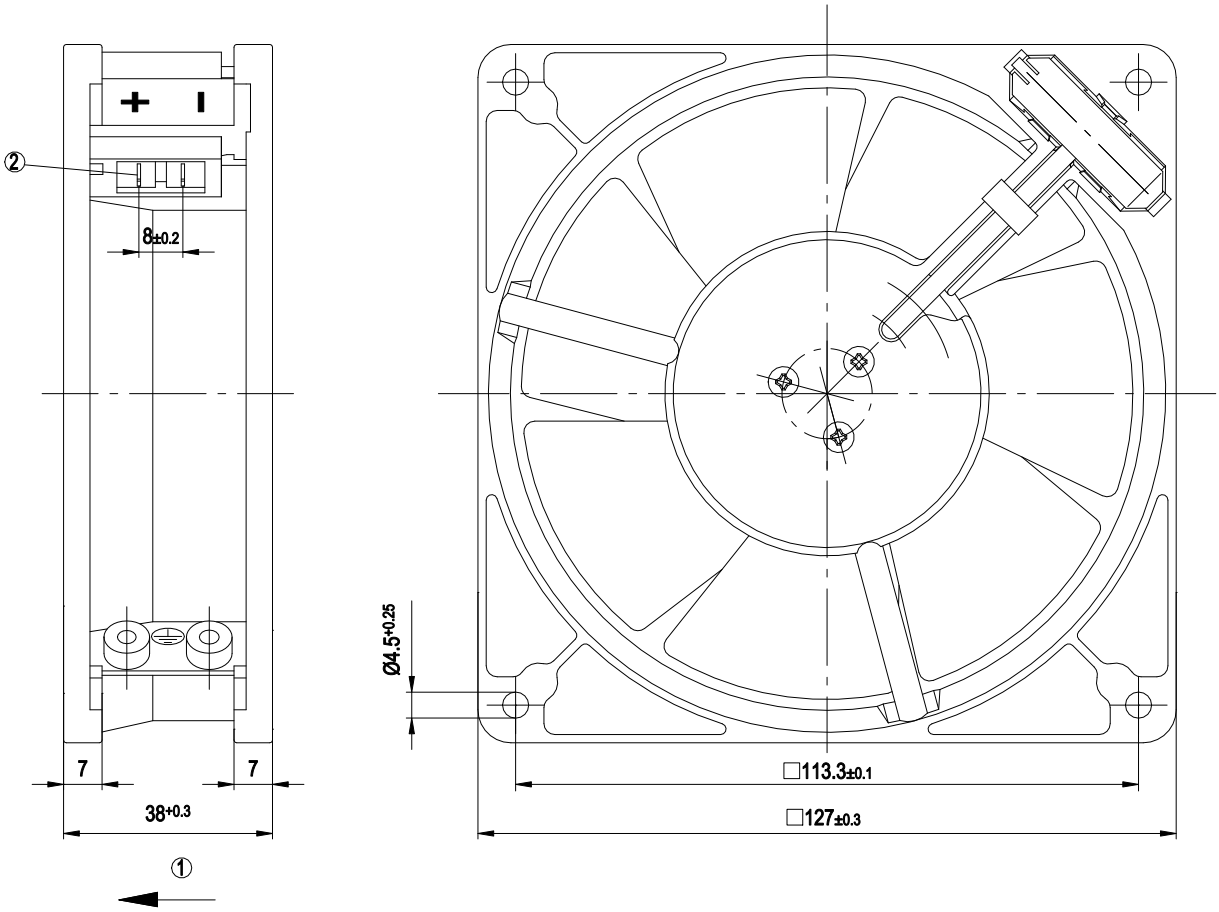
EC axial compact fan

straight blades (A series)

Product drawing



1	Direction of air flow "V"
2	2x flat plug 2.8 x 0.5 (AMP no. 170058-2)

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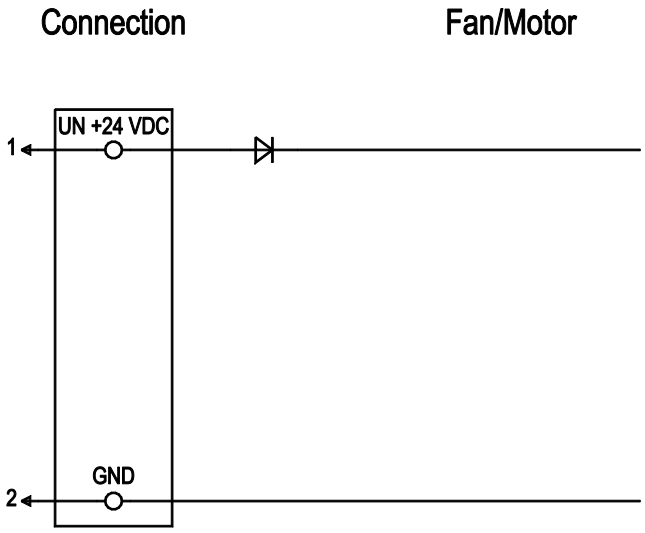
Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1		UN +24 VDC	red	Power supply 24 VDC, see nameplate for voltage range, maximum ripple ±3.5%
2		GND	blue	Reference ground

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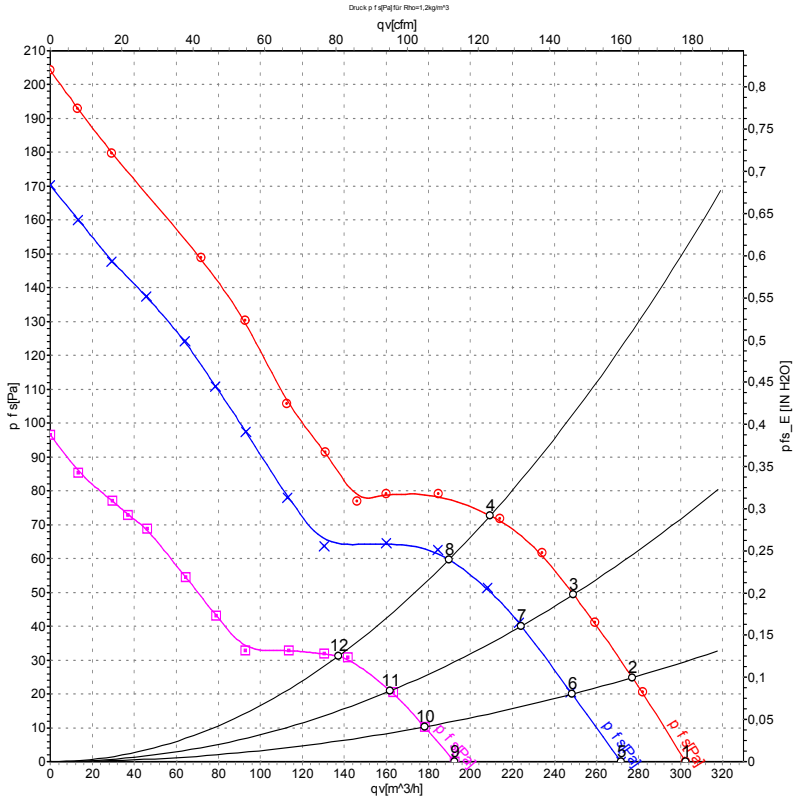
EC axial compact fan

straight blades (A series)

Curves: Air performance



Measurement: LU-17909-1
Measurement: LU-17908-1
Measurement: LU-17910-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	U	n	P_{ed}	I	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	28	4490	17	0.60	300	0	180	0.00
2	28	4370	17	0.60	275	25	165	0.10
3	28	4245	19	0.66	250	49	145	0.20
4	28	4150	17	0.59	210	73	125	0.29
5	24	4050	12	0.51	270	0	160	0.00
6	24	3955	12	0.52	250	20	145	0.08
7	24	3855	14	0.56	225	40	130	0.16
8	24	3750	14	0.58	190	60	110	0.24
9	16	2930	4.3	0.27	195	0	115	0.00
10	16	2860	5.0	0.31	180	10	105	0.04
11	16	2800	4.6	0.29	160	21	95	0.08
12	16	2750	5.4	0.34	135	31	80	0.12

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