

Product Data Sheet 4656 Z-853

**ebmpapst**

Die Wahl der Ingenieure



4656 Z-853

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**1 General**

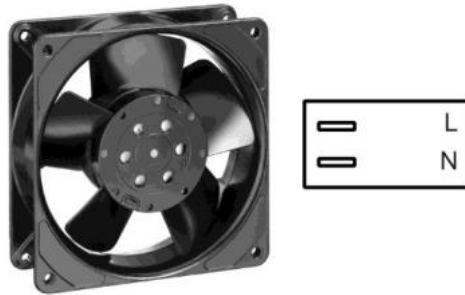
Fan type	Fan
Rotating direction looking at rotor	Clockwise
Airflow direction	Air outlet over struts
Bearing system	Ball bearing
Mounting position	Any
Balancing grade	2,5

**2 Mechanics****2.1 General**

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Mass	0,540 kg	
Housing material	Metal	
Impeller material	Metal	
Max. torque when mounted across both mounting flanges	wire outlet corner: 120 Ncm remaining corners: 350 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

**2.2 Connections**

Electrical connection	Plug	
Lead wire length	See drawing	
Tolerance		
Tube length	See drawing	
Tolerance		
Wire size (AWG)		
Insulation diameter		
Plug	See drawing	
Contact	See drawing	



**3 Operating Data**

**3.1 Electrical Operating Data**

Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C; 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.

$\Delta p = 0$ : corresp. to free air flow (see section 3.4)

I: corresp. to RMS line current

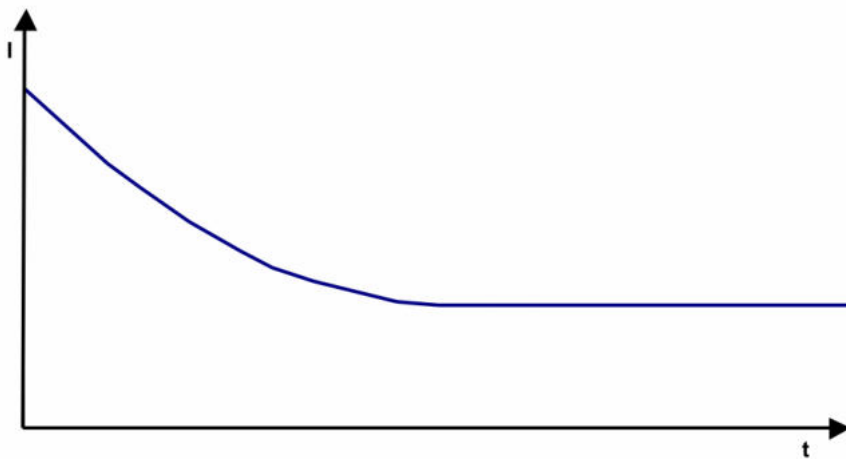
Features	Condition	Symbol	Values	
Frequency	$\Delta p = 0$	f	50 Hz	60 Hz
Nominal voltage	$\Delta p = 0$	$U_N$	230,0 V	230,0 V
Tolerance			+ 6,0 % - 10,0 %	+ 6,0 % - 10,0 %
Power consumption	$\Delta p = 0$	P	19,0 W	17,0 W
Tolerance			+/- 10,0 %	+/- 10,0 %
Speed	$\Delta p = 0$	n	2.650 1/min	3.100 1/min
Tolerance			+/- 3,0 %	+/- 3,0 %

**3.2 Operating Data - Electrical Interface - Output**

Tacho type	None
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**3.3 Electrical Features**

Locked rotor protection	Impedance
Locked rotor current at $U_N$	



**3.4 Aerodynamics**

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C; In the intake and outlet area should not be any solid obstruction within 0,5 m. 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:  
 2.650 1/min at free air flow                      Frequency: 50 Hz

Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	152,0 m <sup>3</sup> /h
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	70 Pa

b.) Operation condition:  
 3.100 1/min at free air flow                      Frequency: 60 Hz

Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	180,0 m <sup>3</sup> /h
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	80 Pa

### 3.5 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  $L_p(A) < 5 \text{ dB(A)}$   
 For further measurement conditions see section 3.4

a.) Operation condition:

2.650 1/min at free air flow

Frequency: 50 Hz

Optimal operating point	130,0 m <sup>3</sup> /h @ 15 Pa	
Sound power level at the optimal operating point	5,1 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	37,0 dB(A)	

b.) Operation condition:

3.100 1/min at free air flow

Frequency: 60 Hz

Optimal operating point	148,0 m <sup>3</sup> /h @ 20 Pa	
Sound power level at the optimal operating point	5,5 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	42,0 dB(A)	

## 4 Environment

### 4.1 General

Min. permitted ambient temperature TU min.	-40 °C / 50 Hz -40 °C / 60 Hz	
Max. permitted ambient temperature TU max.	75 °C / 50 Hz 85 °C / 60 Hz	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	100 °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.

**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°C. No arcing or breakdown is allowed! All connections together to ground.	1500 VAC / 1 Min.
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	1500 VAC / 1 Sec.
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	RI > 50 MOhm
clearance / creepage distance	2,0 mm / 1,8 mm
Protection class	I

**5.2 Approval Tests**

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
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	Yes / GB 12350 Safety Requirements for small Power Motors

The approval tests are observed to:

U approval max.: 230 V / f: 60 Hz @ TU approval max.: 85 °C

**6 Reliability**

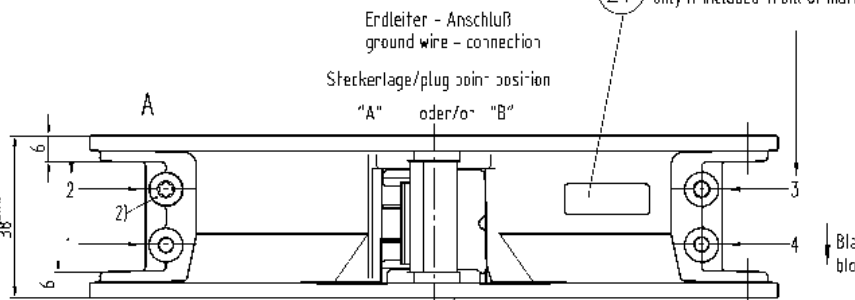
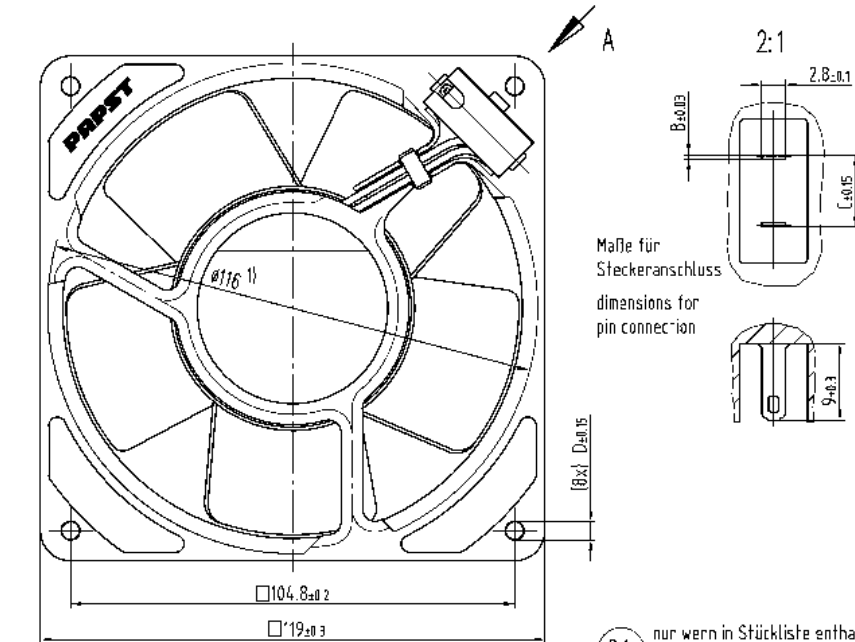
**6.1 General**

Life expectancy L10 at TU = 40 °C	37.500 h / 50 Hz 40.000 h / 60 Hz	
Life expectancy L10 at TU max.	17.500 h / 50 Hz 15.000 h / 60 Hz	



1) If the document is not clearly legible, please refer to the complete manual. The complete manual is available at the website of the manufacturer: www.ebmpapst.com

2) Schraubenmarken nach DIN 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



- 1) Maße für Montagewand
- 2) Schraube: Duo-Taptite nach DIN 7500, CM 4x8, Torx

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

- 1) dimensions for assembly wall
- 2) Screw: Duo-Taptite to DIN 7500, CM 4x8, Torx

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

24 nur wenn in Stückliste enthalten  
 only if included in bill of material

Erzeugnis-Nr. product number	Typ	Lagersystem bearing system	Befestigungs- bohrung - # 0 mounting holes ø D	Steckergröße plug dimensions ø/C	Steckerlage plug position	Lage des Erdleiters -Anschlusses position the ground wire - connection
924 40'4 800	4636 Z	K	4,3	0,5/8,5	"A"	2
924 40'4 801	4630 Z	G	4,5	0,5/8,5	"A"	2
924 40'4 802	4606 Z	K	4,5	0,5/8,5	"A"	2
924 40'4 803	4600 Z	G	4,3	0,5/8,5	"A"	2
924 40'4 804	4836 Z	K	4,3	0,5/8,5	"A"	2
924 40'4 805	4830 Z	G	4,3	0,5/8,5	"A"	2
924 40'4 806	4806 Z	K	4,3	0,5/8,5	"A"	2
924 40'4 807	4800 Z	G	4,5	0,5/8,5	"A"	2
924 40'4 808	4536 Z	K	4,3	0,5/8,5	"A"	2
924 40'4 809	4530 Z	G	4,3	0,5/8,5	"A"	2
924 40'4 810	4506 Z	K	4,3	0,5/8,5	"A"	2
924 40'4 811	4500 Z	G	4,5	0,5/8,5	"A"	2
924 40'4 812	4536 Z-853	K	4,3	0,8/8,8	"A"	2
924 40'4 813	4530 Z-854	G	4,5	0,8/8,8	"A"	2
924 40'4 814	4606 Z-855	K	4,3	0,8/8,8	"A"	2
924 40'4 815	4600 Z-856	G	4,3	0,8/8,8	"A"	2
924 40'4 816	4836 Z-857	K	4,3	0,8/8,8	"A"	2
924 40'4 817	4830 Z-858	G	4,3	0,8/8,8	"A"	2
924 40'4 818	4806 Z-859	K	4,3	0,8/8,8	"A"	2
924 40'4 819	4800 Z-860	G	4,5	0,8/8,8	"A"	2
924 40'4 820	4536 Z-861	K	4,5	0,8/8,8	"A"	2
924 40'4 821	4530 Z-862	G	4,3	0,8/8,8	"A"	2
924 40'4 822	4506 Z-863	K	4,3	0,8/8,8	"A"	2
924 40'4 823	4500 Z-864	G	4,3	0,8/8,8	"A"	2
924 40'4 824	4036 ZR-873	K	4,5	0,5/8,5	"A"	2
924 40'4 825	4636 Z-875	K	4,5	0,5/8,5	"A"	2
924 40'4 826	4630 Z-876	G	4,3	0,5/8,5	"A"	2
924 40'4 827	4606 Z-877	K	4,3	0,5/8,5	"A"	2
924 40'4 828	4600 Z-880	K	4,3	0,5/8,5	"A"	2
924 40'4 829	4600 Z-881	G	4,3	0,8/8,8	"A"	2
924 40'4 830	4836 ZR-894	K	4,3	0,5/8,5	"A"	2
924 40'4 831	4830 ZR-895	K	4,5	0,5/8,5	"A"	2
924 40'4 832	4636 Z-896	K	4,3	0,5/8,5	"A"	2
924 40'4 833	4630 Z-901	K	4,3	0,5/8,5	"A"	2
924 40'4 834	4636 Z-905	K	4,3	0,8/8,8	"A"	2
924 40'4 835	4630 Z-906	K	4,3	0,8/8,8	"A"	2
924 40'4 836	4636 ZR-913	K	4,5	0,5/8,5	"A"	2
924 40'4 837	4630 ZR-914	K	4,5	0,5/8,5	"A"	2
924 40'4 838	4636 ZR-915	K	4,3	0,5/8,5	"A"	2
924 40'4 839	4630 ZR-916	K	4,3	0,5/8,5	"A"	2
924 40'4 840	4636 ZR-921	K	4,3	0,5/8,5	"A"	2
924 40'4 841	4630 ZR-922	K	4,3	0,5/8,5	"A"	2
924 40'4 842	4636 ZR-923	K	4,3	0,5/8,5	"A"	2
924 40'4 843	4630 ZR-924	K	4,3	0,5/8,5	"A"	2
924 40'4 844	4636 ZL-925	K	4,3	0,5/8,5	"A"	2
924 40'4 845	4630 ZL-926	K	4,3	0,5/8,5	"A"	2

	2D Zeichnung 2D Drawing	3D Zeichnung 3D Drawing	ebmpapst Marken-/Zulassung Brand/Approval			Wertespannung Voltage
2D Zeichnung 2D Drawing	3D Zeichnung 3D Drawing	2D Zeichnung 2D Drawing	ebmpapst Marken-/Zulassung Brand/Approval			Wertespannung Voltage
2D Zeichnung 2D Drawing	3D Zeichnung 3D Drawing	2D Zeichnung 2D Drawing	Marken-/Zulassung Brand/Approval	Marken-/Zulassung Brand/Approval	Marken-/Zulassung Brand/Approval	Marken-/Zulassung Brand/Approval