

Product Data Sheet 4656 Z-853

ebm**papst**

Die Wahl der Ingenieure



4656 Z-853**INDEX**

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1 General

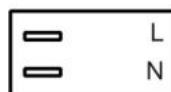
Fan type	Fan
Rotating direction looking at rotor	Clockwise
Airflow direction	Air outlet over struts
Bearing system	Ball bearing
Mounting position	Any
Balancing grade	2,5

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/m³; 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

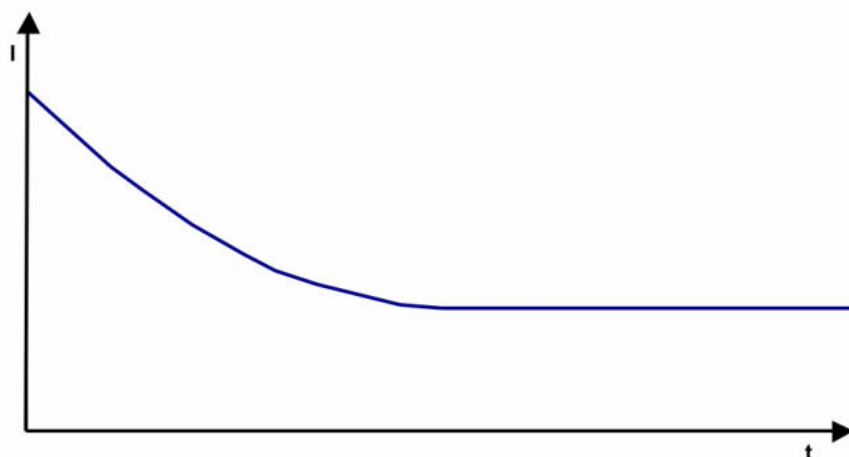
Features	Condition	Symbol	Values	
Frequency	$\Delta p = 0$	f	50 Hz	60 Hz
Nominal voltage	$\Delta p = 0$	U_N	230,0 V	230,0 V
Tolerance			+ 6,0 % - 10,0 %	+ 6,0 % - 10,0 %
Power consumption	$\Delta p = 0$	P	19,0 W	17,0 W
Tolerance			+/- 10,0 %	+/- 10,0 %
Speed	$\Delta p = 0$	n	2.650 1/min	3.100 1/min
Tolerance			+/- 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/m³; 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 ³ /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 ³ /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 ³ /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 ³ /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. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	1500 VAC / 1 Min. 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

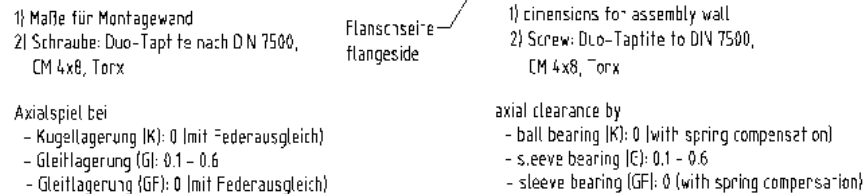
The approval tests are observed to:

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	

[illegible]

Erzeugnis-Nr. product number	Typ	Lagersystem bearing system	Befestigungs- bohrung - Ø D mounting holes Ø D	Steckernotze plug dimensions B/C	Steckerlage plug position	Lage des Erdrä- tes-Anschlusses position the ground wire - connection
924 10' 1 B00	4636 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B01	4630 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B02	4606 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B03	4600 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B26	4636 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B28	4630 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B32	4606 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B33	4600 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B36	4636 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B37	4630 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B40	4586 Z	K	4,3	0,5/8,5	"A"	2
924 10' 1 B41	4580 Z	G	4,3	0,5/8,5	"A"	2
924 10' 1 B53	4636 Z-B53	K	4,3	0,6/8,8	"A"	2
924 10' 1 B54	4630 Z-B54	G	4,3	0,6/8,8	"A"	2
924 10' 1 B55	4606 Z-B55	K	4,3	0,6/8,8	"A"	2
924 10' 1 B56	4600 Z-B56	G	4,3	0,6/8,8	"A"	2
924 10' 1 B59	4636 Z-B59	K	4,3	0,6/8,8	"A"	2
924 10' 1 B80	4630 Z-B80	G	4,3	0,6/8,8	"A"	2
924 10' 1 B81	4586 Z-B81	K	4,3	0,6/8,8	"A"	2
924 10' 1 B82	4580 Z-B82	G	4,3	0,6/8,8	"A"	2
924 10' 1 B83	4586 Z-B83	K	4,3	0,6/8,8	"A"	2
924 10' 1 B84	4580 Z-B84	G	4,3	0,6/8,8	"A"	2
924 10' 1 B85	4636 Z-B85	K	4,3	0,6/8,8	"A"	2
924 10' 1 B86	4630 Z-B86	G	4,3	0,6/8,8	"A"	2
924 10' 1 B87	4606 Z-B87	K	4,3	0,6/8,8	"A"	2
924 10' 1 B88	4600 Z-B88	G	4,3	0,6/8,8	"A"	2
924 10' 1 B89	4636 Z-B89	K	4,3	0,6/8,8	"A"	2
924 10' 1 B90	4630 Z-B90	G	4,3	0,6/8,8	"A"	2
924 10' 1 B91	4606 Z-B91	K	4,3	0,6/8,8	"A"	2
924 10' 1 B92	4600 Z-B92	G	4,3	0,6/8,8	"A"	2
924 10' 1 B93	4636 Z-B93	K	4,3	0,6/8,8	"A"	2
924 10' 1 B94	4630 Z-B94	G	4,3	0,6/8,8	"A"	2
924 10' 1 B95	4606 Z-B95	K	4,3	0,6/8,8	"A"	2
924 10' 1 B96	4600 Z-B96	G	4,3	0,6/8,8	"A"	2
924 10' 1 B97	4636 Z-B97	K	4,3	0,6/8,8	"A"	2
924 10' 1 B98	4630 Z-B98	G	4,3	0,6/8,8	"A"	2
924 10' 1 B99	4606 Z-B99	K	4,3	0,6/8,8	"A"	2
924 10' 1 B00	4600 Z-B00	G	4,3	0,6/8,8	"A"	2
924 10' 1 B01	4636 Z-B01	K	4,3	0,6/8,8	"A"	2
924 10' 1 B02	4630 Z-B02	G	4,3	0,6/8,8	"A"	2
924 10' 1 B03	4606 Z-B03	K	4,3	0,6/8,8	"A"	2
924 10' 1 B04	4600 Z-B04	G	4,3	0,6/8,8	"A"	2
924 10' 1 B05	4636 Z-B05	K	4,3	0,6/8,8	"A"	2
924 10' 1 B06	4630 Z-B06	G	4,3	0,6/8,8	"A"	2
924 10' 1 B07	4606 Z-B07	K	4,3	0,6/8,8	"A"	2
924 10' 1 B08	4600 Z-B08	G	4,3	0,6/8,8	"A"	2
924 10' 1 B09	4636 Z-B09	K	4,3	0,6/8,8	"A"	2
924 10' 1 B10	4630 Z-B10	G	4,3	0,6/8,8	"A"	2
924 10' 1 B11	4606 Z-B11	K	4,3	0,6/8,8	"A"	2
924 10' 1 B12	4600 Z-B12	G	4,3	0,6/8,8	"A"	2
924 10' 1 B13	4636 Z-B13	K	4,3	0,6/8,8	"A"	2
924 10' 1 B14	4630 Z-B14	G	4,3	0,6/8,8	"A"	2
924 10' 1 B15	4606 Z-B15	K	4,3	0,6/8,8	"A"	2
924 10' 1 B16	4600 Z-B16	G	4,3	0,6/8,8	"A"	2
924 10' 1 B17	4636 Z-B17	K	4,3	0,6/8,8	"A"	2
924 10' 1 B18	4630 Z-B18	G	4,3	0,6/8,8	"A"	2
924 10' 1 B19	4606 Z-B19	K	4,3	0,6/8,8	"A"	2
924 10' 1 B20	4600 Z-B20	G	4,3	0,6/8,8	"A"	2
924 10' 1 B21	4636 Z-B21	K	4,3	0,6/8,8	"A"	2
924 10' 1 B22	4630 Z-B22	G	4,3	0,6/8,8	"A"	2
924 10' 1 B23	4606 Z-B23	K	4,3	0,6/8,8	"A"	2
924 10' 1 B24	4600 Z-B24	G	4,3	0,6/8,8	"A"	2
924 10' 1 B25	4636 Z-B25	K	4,3	0,6/8,8	"A"	2
924 10' 1 B26	4630 Z-B26	G	4,3	0,6/8,8	"A"	2
924 10' 1 B27	4606 Z-B27	K	4,3	0,6/8,8	"A"	2
924 10' 1 B28	4600 Z-B28	G	4,3	0,6/8,8	"A"	2
924 10' 1 B29	4636 Z-B29	K	4,3	0,6/8,8	"A"	2
924 10' 1 B30	4630 Z-B30	G	4,3	0,6/8,8	"A"	2
924 10' 1 B31	4606 Z-B31	K	4,3	0,6/8,8	"A"	2
924 10' 1 B32	4600 Z-B32	G	4,3	0,6/8,8	"A"	2
924 10' 1 B33	4636 Z-B33	K	4,3	0,6/8,8	"A"	2
924 10' 1 B34	4630 Z-B34	G	4,3	0,6/8,8	"A"	2
924 10' 1 B35	4606 Z-B35	K	4,3	0,6/8,8	"A"	2
924 10' 1 B36	4600 Z-B36	G	4,3	0,6/8,8	"A"	2
924 10' 1 B37	4636 Z-B37	K	4,3	0,6/8,8	"A"	2
924 10' 1 B38	4630 Z-B38	G	4,3	0,6/8,8	"A"	2
924 10' 1 B39	4606 Z-B39	K	4,3	0,6/8,8	"A"	2
924 10' 1 B40	4600 Z-B40	G	4,3	0,6/8,8	"A"	2
924 10' 1 B41	4636 Z-B41	K	4,3	0,6/8,8	"A"	2
924 10' 1 B42	4630 Z-B42	G	4,3	0,6/8,8	"A"	2
924 10' 1 B43	4606 Z-B43	K	4,3	0,6/8,8	"A"	2
924 10' 1 B44	4600 Z-B44	G	4,3	0,6/8,8	"A"	2
924 10' 1 B45	4636 Z-B45	K	4,3	0,6/8,8	"A"	2
924 10' 1 B46	4630 Z-B46	G	4,3	0,6/8,8	"A"	2
924 10' 1 B47	4606 Z-B47	K	4,3	0,6/8,8	"A"	2
924 10' 1 B48	4600 Z-B48	G	4,3	0,6/8,8	"A"	2
924 10' 1 B49	4636 Z-B49	K	4,3	0,6/8,8	"A"	2
924 10' 1 B50	4630 Z-B50	G	4,3	0,6/8,8	"A"	2
924 10' 1 B51	4606 Z-B51	K	4,3	0,6/8,8	"A"	2
924 10' 1 B52	4600 Z-B52	G	4,3	0,6/8,8	"A"	2
924 10' 1 B53	4636 Z-B53	K	4,3	0,6/8,8	"A"	2
924 10' 1 B54	4630 Z-B54	G	4,3	0,6/8,8	"A"	2
924 10' 1 B55	4606 Z-B55	K	4,3	0,6/8,8	"A"	2
924 10' 1 B56	4600 Z-B56	G	4,3	0,6/8,8	"A"	2
924 10' 1 B57	4636 Z-B57	K	4,3	0,6/8,8	"A"	2
924 10' 1 B58	4630 Z-B58	G	4,3	0,6/8,8	"A"	2
924 10' 1 B59	4606 Z-B59	K	4,3	0,6/8,8	"A"	2
924 10' 1 B60	4600 Z-B60	G	4,3	0,6/8,8	"A"	2
924 10' 1 B61	4636 Z-B61	K	4,3	0,6/8,8	"A"	2
924 10' 1 B62	4630 Z-B62	G	4,3	0,6/8,8	"A"	2
924 10' 1 B63	4606 Z-B63	K	4,3	0,6/8,8	"A"	2
924 10' 1 B64	4600 Z-B64	G	4,3	0,6/8,8	"A"	2
924 10' 1 B65	4636 Z-B65	K	4,3	0,6/8,8	"A"	2
924 10' 1 B66	4630 Z-B66	G	4,3	0,6/8,8	"A"	2
924 10' 1 B67	4606 Z-B67	K	4,3	0,6/8,8	"A"	2
924 10' 1 B68	4600 Z-B68	G	4,3	0,6/8,8	"A"	2
924 10' 1 B69	4636 Z-B69	K	4,3	0,6/8,8	"A"	2
924 10' 1 B70	4630 Z-B70	G	4,3	0,6/8,8	"A"	2
924 10' 1 B71	4606 Z-B71	K	4,3	0,6/8,8	"A"	2
924 10' 1 B72	4600 Z-B72	G	4,3	0,6/8,8	"A"	2
924 10' 1 B73	4636 Z-B73	K	4,3	0,6/8,8	"A"	2
924 10' 1 B74	4630 Z-B74	G	4,3	0,6/8,8	"A"	2
924 10' 1 B75	4606 Z-B75	K	4,3	0,6/8,8	"A"	2
924 10' 1 B76	4600 Z-B76	G	4,3	0,6/8,8	"A"	2
924 10' 1 B77	4636 Z-B77	K	4,3	0,6/8,8	"A"	2
924 10' 1 B78	4630 Z-B78	G	4,3	0,6/8,8	"A"	2
924 10' 1 B79	4606 Z-B79	K	4,3	0,6/8,8	"A"	2
924 10' 1 B80	4600 Z-B80	G	4,3	0,6/8,8	"A"	2
924 10' 1 B81	4636 Z-B81	K	4,3	0,6/8,8	"A"	2
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924 10' 1 B05	4636 Z-B05	K	4,3	0,6/8,8	"A"	2
924 10' 1 B06	4630 Z-B06	G	4,3	0,6/8,8	"A"	2
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924 10' 1 B11	4606 Z-B11	K	4,3	0,6/8,8	"A"	2
924 10' 1 B12	4600 Z-B12	G	4,3	0,6/8,8	"A"	2
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924 10' 1 B16	4600 Z-B16	G	4,3	0,6/8,8	"A"	2
924 10' 1 B17	4636 Z-B17	K	4,3	0,6/8,8	"A"	2
924 10' 1 B18	4630 Z-B18	G	4,3	0,6/8,8	"A"	2
924 10' 1 B19	4606 Z-B19	K	4,3	0,6/8,8	"A"	2
924 10' 1 B20	4600 Z-B20	G	4,3	0,6/8,8	"A"	2
924 10' 1 B21	4636 Z-B21	K	4,3	0,6/8,8	"A"	2
924 10' 1 B22	4630 Z-B22	G	4,3	0,6/8,8	"A"	2
924 10' 1 B23	4606 Z-B23	K	4,3	0,6/8,8	"A"	2
924 10' 1 B24	4600 Z-B24	G	4,3	0,6/8,8	"A"	2
924 10' 1 B25	4636 Z-B25	K	4,3	0,6/8,8	"A"	2
924 10' 1 B26	4630 Z-B26	G	4,3	0,6/8,8	"A"	2
924 10' 1 B27	4606 Z-B27	K	4,3	0,6/8,8	"A"	2
924 10' 1 B28	4600 Z-B28	G	4,3	0,6/8,8	"A"	2
924 10' 1 B29	4636 Z-B29	K	4,3	0,6/8,8	"A"	2
924 10' 1 B30	4630 Z-B30	G	4,3	0,6/8,8	"A"	2
924 10' 1 B31	4606 Z-B31	K	4,3	0,6/8,8	"A"	2
924 10' 1 B32	4600 Z-B32	G	4,3	0,6/8,8	"A"	2
924 10' 1 B33	4636 Z-B33	K	4,3	0,6/8,8	"A"	2
924 10' 1 B34	4630 Z-B34	G	4,3	0,6/8,8	"A"	2
924 10' 1 B35	4606 Z-B35	K	4,3	0,6/8,8	"A"	2
924 10						

[illegible]