Product Data Sheet RLF100-11/14

ebmpapst

Die Wahl der Ingenieure



GREEN TECH

RLF100-11/14

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6.1 General 9

1 General

Fan type	Blower	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position	Any	

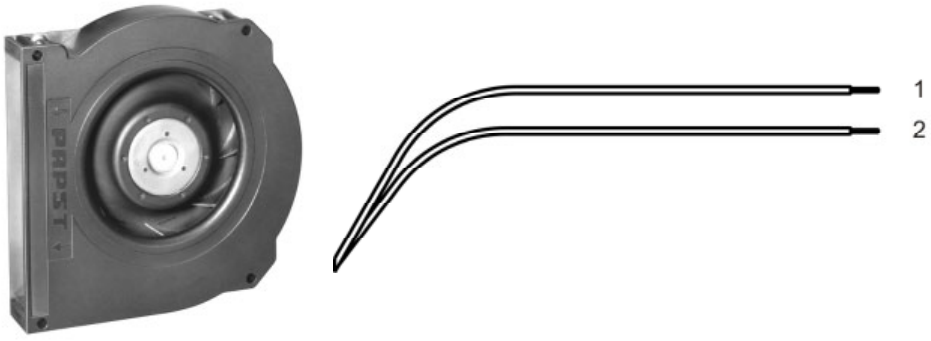
2 Mechanics

2.1 General

Width	127,0 mm	
Height	127,0 mm	
Depth	25,4 mm	
Mass	0,300 kg	
Housing material	Mixed	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 190 Ncm remaining corners: 190 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	
Contact	See drawing	



	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND

3 Operating Data

3.1 Operating Data - Electrical Interface - Input

Control input	None

3.2 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.

Δp = 0: corresp. to free air flow (see section 3.5)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	16,0 V		30,0 V
Nominal voltage	Δp = 0	U_N		24,0 V	
Power consumption Tolerance	Δp = 0 0001	P	3,4 W +- 17,5 %	7,7 W +- 12,5 %	12,3 W +- 15,0 %
Current consumption Tolerance	Δp = 0 0001	I	210 mA +- 17,5 %	320 mA +- 12,5 %	410 mA +- 15,0 %
Speed Tolerance	Δp = 0 0001	n	3.650 1/min +- 12,5 %	5.100 1/min +- 7,5 %	5.900 1/min +- 10,0 %
Starting current consumption				<= 1.050 mA	

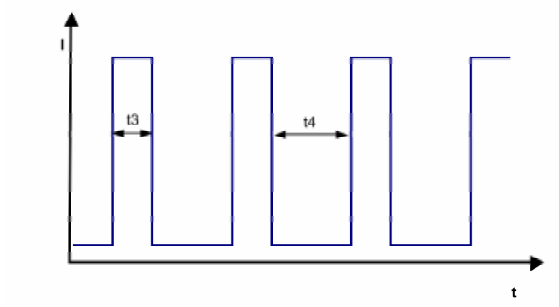
3.3 Operating Data - Electrical Interface - Output

Tacho type	None

Alarm type	None

3.4 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at Un	Rectifying diode IF <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 1.020 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,3 s / 8,2 s t3: 0,17 s... 0,54 s t4: 2,5 s... 29,4 s	



Locked Rotor Protection: Locked Rotor protection by cyclical shut down of the output stage.
Interlock current at Un @ T3

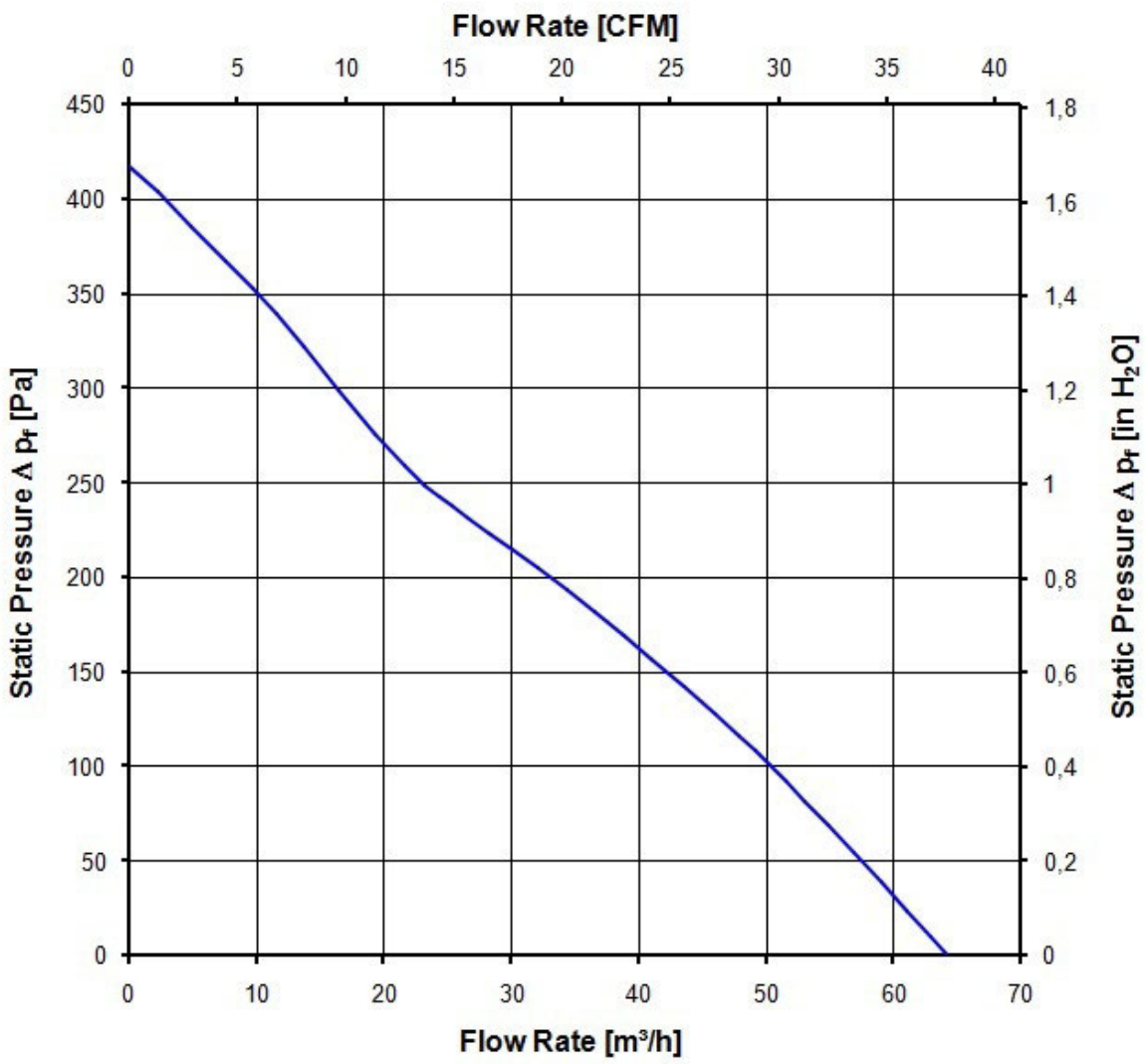
3.5 Aerodynamics

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:

5.100 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	64,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	415 Pa	



3.6 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 section 3.5

a.) Operation condition:

5.100 1/min at free air flow

Optimal operating point	37,0 m3/h @ 160 Pa	
Sound power level at the optimal operating point	6,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	75 °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	

*) Permittet 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

4.3 EMC

Kind	Conducted Emission; Voltage; 150 kHz-30 MHz
According	DIN EN 55022:2007-04
Ceck accuracy / Limit	Class B
Measurement setup - Source	EUT connected with LISN CISPR 16
Operating mode	Operating state with maximum emission within range of normal use, free air flow.
Monitoring	Speed
Result	Below limit Class B

Kind	Radiated Emission; 30 MHz - 1000 MHz
According	DIN EN 55022:2007-04
Ceck accuracy / Limit	Class B
Measurement setup - Source	GHz-TEM-cell
Operating mode	Operating state with maximum emission within range of normal use, free air flow.
Monitoring	Speed
Result	Below limit Class B

Kind	Electrostatic Discharge Immunity Test
According	DIN EN 61000-4-2:2001-12
Ceck accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Operating mode	Operating state within range of normal use (time dominant operating state); free air flow
Monitoring	Speed
Result	B: The monitored function may deviate from designed performance to a specified level during exposure to a disturbance or revert to a fail safe mode or operation, but shall return to normal operation after the disturbance is removed.

Kind	Electromagnetic Field Immunity Test
According	DIN EN 61000-4-3:2006-12
Ceck accuracy / Limit	10 V/m; 80 - 1000 MHz; m = 0,8; f = 1 kHz; 1%; t = 3 s
Measurement setup - Source	GHz-TEM-cell
Operating mode	Operating state within range of normal use (time dominant operating state); free air flow
Monitoring	Speed
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Electrical Fast Transient / Burst Immunity Test
According	DIN EN 61000-4-4:2005-07
Ceck accuracy / Limit	+/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min
Measurement setup - Source	via CDN with 33 nF (inside generator)
Operating mode	Operating state within range of normal use (time dominant operating state); free air flow
Monitoring	Speed
Result	B: The monitored function may deviate from designed performance to a specified level during exposure to a disturbance or revert to a fail safe mode or operation, but shall return to normal operation after the disturbance is removed.

Kind	Immunity to Conducted Disturbances, Induced by RF-Fields
According	DIN EN 61000-4-6:2001-12
Ceck accuracy / Limit	10 Vrms; 150 kHz - 80 MHz; m = 0,8; f = 1 kHz; 1%; t = 3 s
Measurement setup - Source	Test item via CDN
Operating mode	Operating state within range of normal use (time dominant operating state); free air flow
Monitoring	Speed
Result	B: The monitored function may deviate from designed performance to a specified level during exposure to a disturbance or revert to a fail safe mode or operation, but shall return to normal operation after the disturbance is removed.

The information to the EMC corresponding only to a summary of a comprehensive test report.

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.	500 VAC / 1 Min. 500 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 > 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
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	No

The approval tests are observed to:
U approval max.:30,0 V @ TU approval max.: 75,0 °C

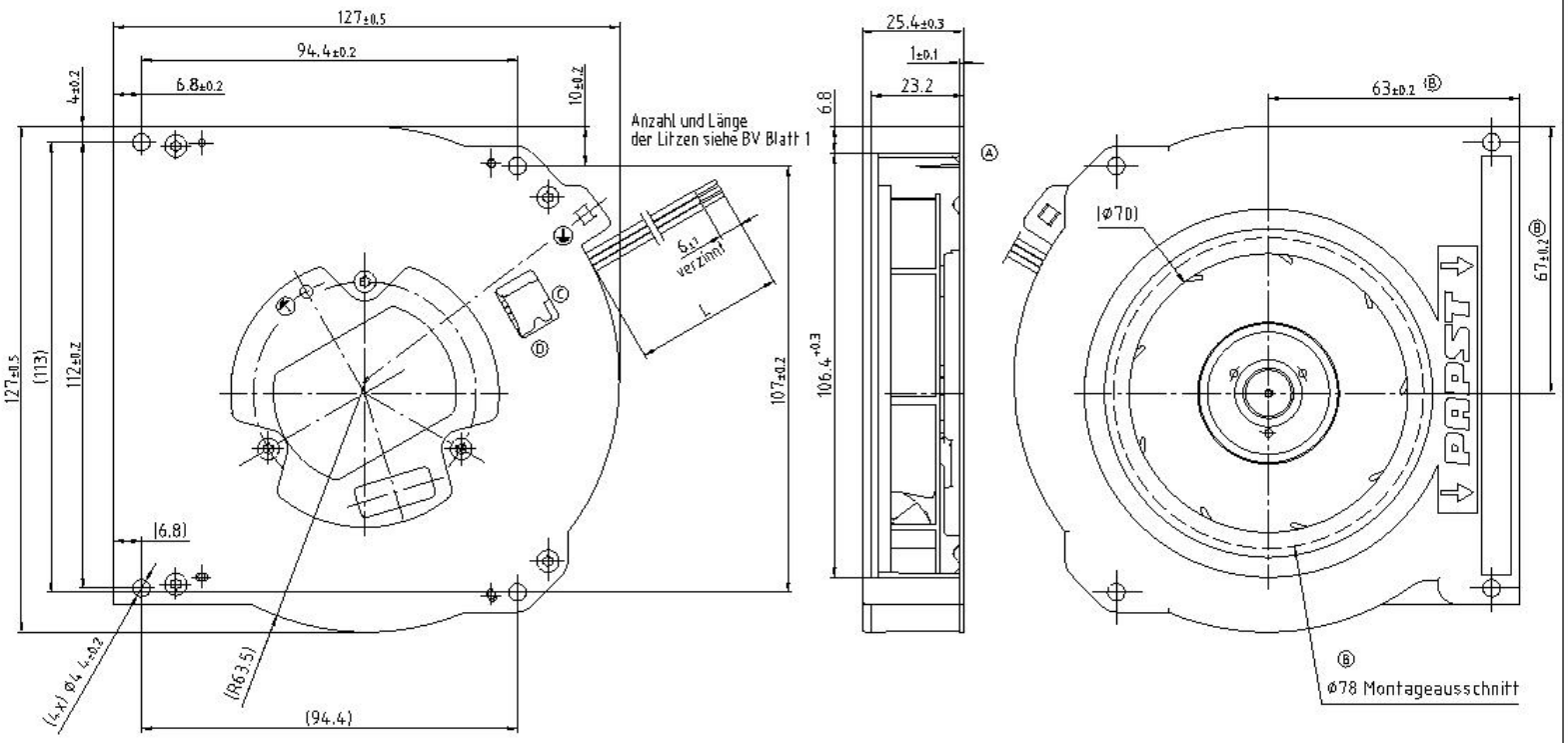
6 Reliability

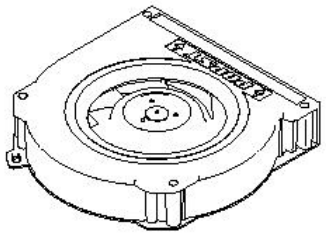
6.1 General

Life expectancy L10 at TU = 40 °C	80.000 h	
Life expectancy L10 at TU max.	32.500 h	
Life expectancy L10 Delta (40 °C)	160.000 h	

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Schutzvermerk nach DIN ISO 16016 beachten





Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)

Toleranzierung: DIN 7167 Allgemeintoleranzen: DIN ISO 2768-mK			
	Datum	Name	Artikel
Bearbeitet			
	Index	Aend.-Nr.	Zchg.-Nr.
Geprueft u. zur Verwendung freigegeben von		zu	Ers.f.Zchg.:

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Maßstab

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