Product Data Sheet RL90-18/14NU-425

ebmpapst

The engineer's choice



GREEN TECH

RL90-18/14NU-425

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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	Stainless steel bearing	
Mounting position	Any	

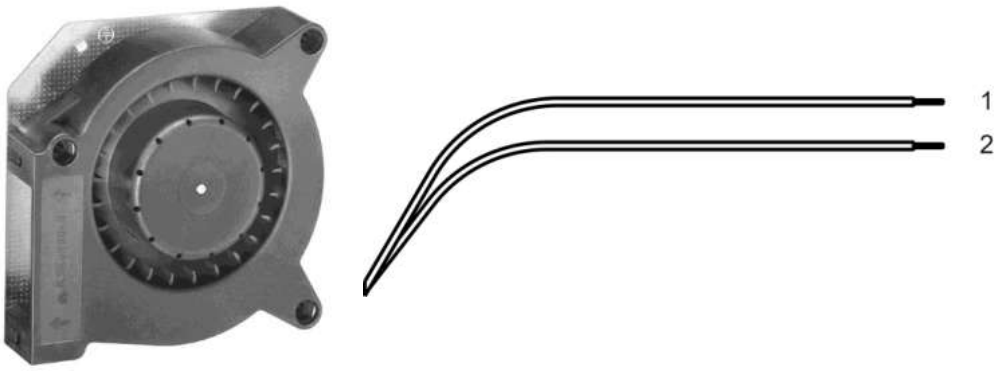
2 Mechanics

2.1 General

Width	120,0 mm	
Height	120,0 mm	
Depth	38,0 mm	
Mass	0,470 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 280 Ncm remaining corners: 280 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires - Plug	
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

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 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.

$\Delta p = 0$: corresp. to free air flow (see section 3.5)
I: corresp. to arithm. mean current value

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	12 V		28,0 V
Nominal voltage	$\Delta p = 0$	U_N		24,0 V	
Power consumption Tolerance	$\Delta p = 0$ 0010	P	1,3 W +- 17,5 %	5,7 W +- 12,5 %	8,0 W +- 15,0 %
Current consumption Tolerance	$\Delta p = 0$ 0010	I	108 mA +- 17,5 %	237 mA +- 12,5 %	286 mA +- 15,0 %
Speed Tolerance	$\Delta p = 0$ 0010	n	1.380 1/min +- 12,5 %	2.500 1/min +- 7,5 %	2.700 1/min +- 10,0 %

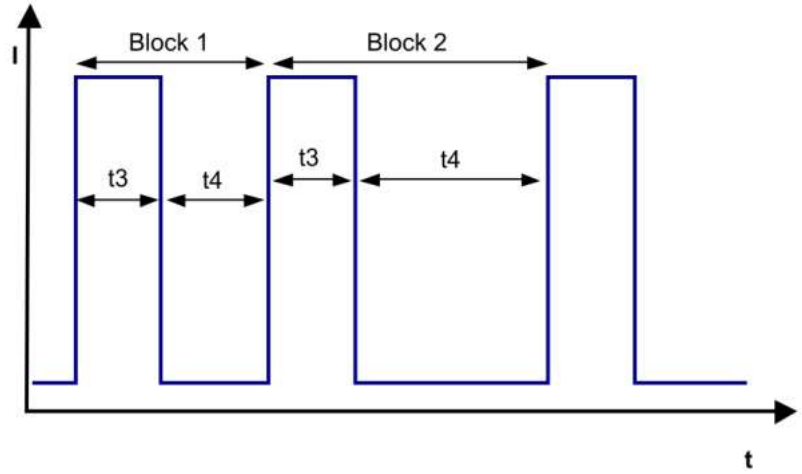
3.3 Operating Data - Electrical Interface - Output

Tacho type	None

Alarm type	None

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at Un	Rectifying diode IF <= 500 uA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 810 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,4 s / 10 s	



Block1: special locked rotor protection: 5 cycles t3 / t4 = 0,6 s / 1 s Block2: locked rotor protection t3 / t4 = 0,6 s / 10 s

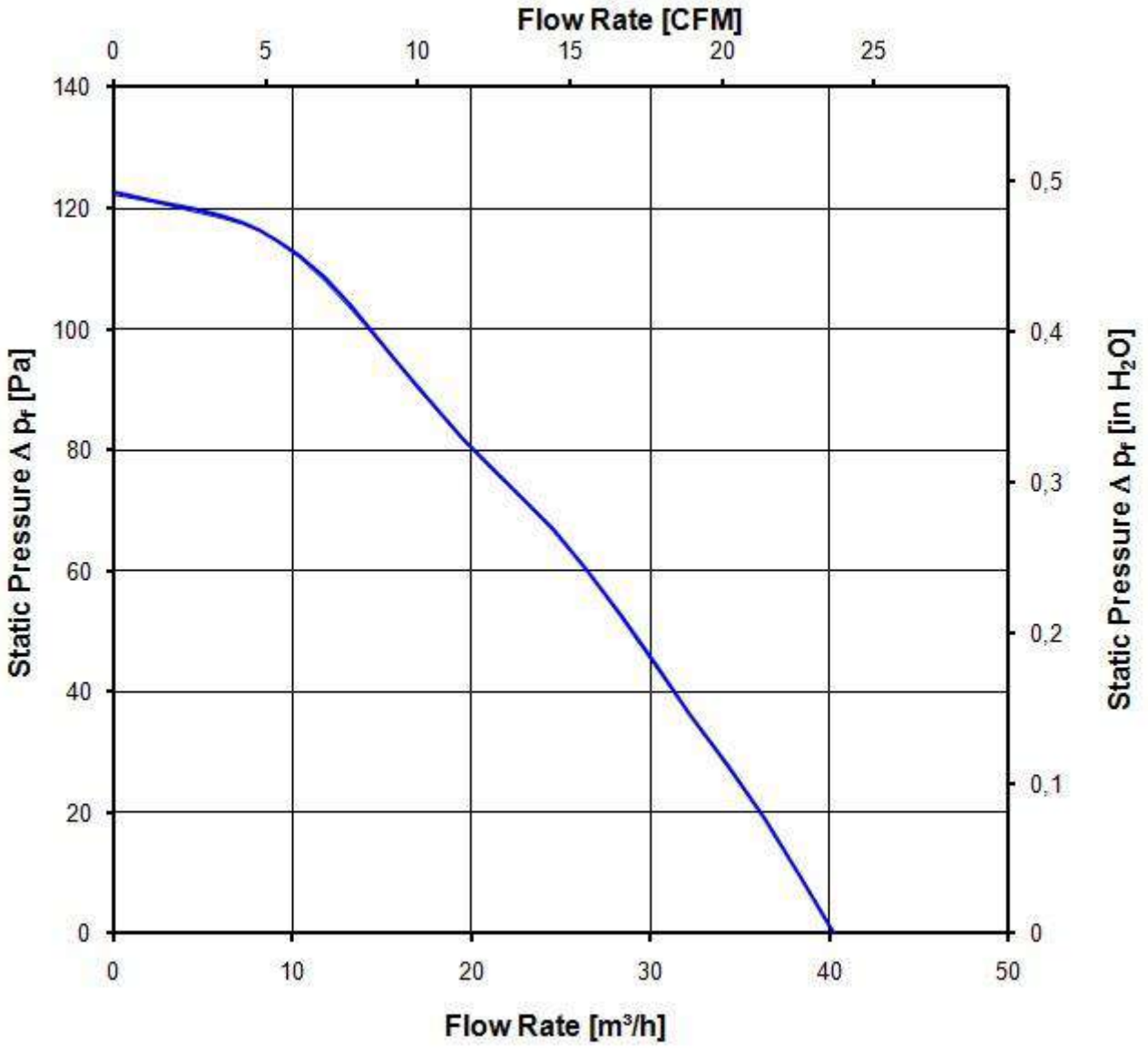
3.5 Aerodynamics

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:

2.500 1/min at free air flow

Max. free-air flow (Δp = 0 / V̇ = max.)	40,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	120 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:

2.500 1/min at free air flow

Optimal operating point	10,0 m3/h @ 100 Pa	
Sound power level at the optimal operating point	5,9 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*)*

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	salt fog, cyclic, in operation; according to DIN EN 60068-2-52, 3 cycle	

*) Permittet application area:
The product is for the use in open and unsheltered areas. Direct exposure to water as well as saline ambient conditions are allowed provided that this does not prevent the normal operation.

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°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	No
VDE	Association for Electrical, Electronic and Information Technologies	No
CSA	Canadian Standards Association	No
CCC	China Compulsory Certification	No

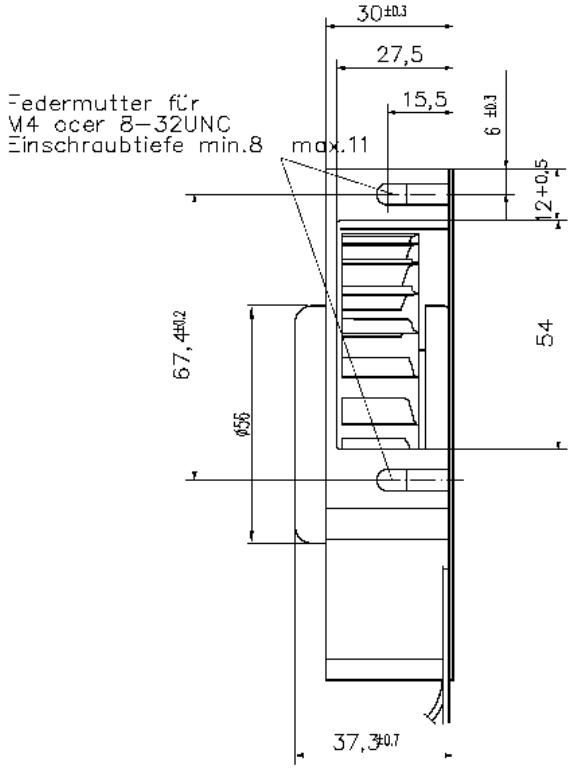
6 Reliability

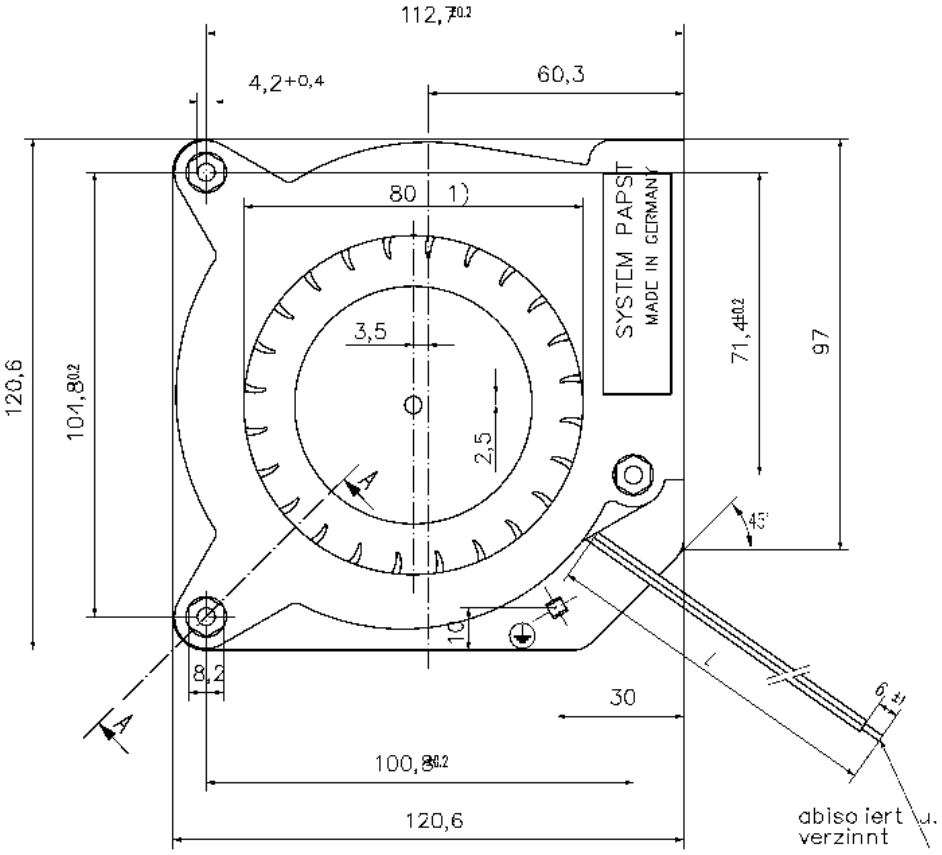
6.1 General

Life expectancy L10 at TU = 40 °C	62.500 h	
Life expectancy L10 at TU max.	27.500 h	
Life expectancy L10 Delta (40 °C)	112.500 h	

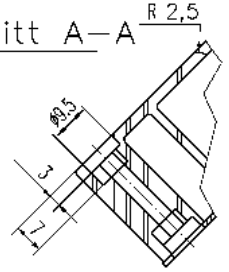
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Federmutter für
M4 oder 8–32UNC
Einschraubtiefe min.8 max.11





Schnitt A–A



1) Öffnung in der Montagewand ≥ 86mm

④ Axialspiel bei
Kugellager : 0(mit Federausgleich)
Gleitlager : 0,1 –0,5

Ⓕ Anzahl und Länge der Litzen s. Bv. Bl. 1

Allgemeintoleranzen: ISO 2768 – m								
					Datum	Name	Artikel	Maßstab
a				Erstellt				
b				Geprüft				
c								
Index	Änd.-Nr.	Datum	Geändert von	PAPST			Zchg. Nr.	Blatt
Zur Verwendung m. Vermerk freigegeben von		am		PAPST-MOTOREN GmbH & Co KG D-78112 St.Georgen Germany			Erst.Zchg:	

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