Product Data Sheet RG160-28/14NTDH

ebmpapst

Die Wahl der Ingenieure



GREEN TECH

RG160-28/14NTDH

INDEX

1 General 3

2 Mechanics 3

2.1 General 3
2.2 Connections 3

3 Operating Data 3

3.1 Operating Data - Electrical Interface - Input 3
3.2 Electrical Operating Data 4
3.3 Operating Data - Electrical Interface -Output 5
3.4 Electrical Features 5
3.5 Aerodynamic 6
3.6 Sound Data 7

4 Environment 7

4.1 General 7
4.2 Climatic requirements*) 7

5 Safety 8

5.1 Electrical Safety 8
5.2 Approval Tests 8

6 Reliability 8

6.1 General 8

1 General

Fan type	Blower	
Rotational direction looking at rotor	counterclockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position	any	

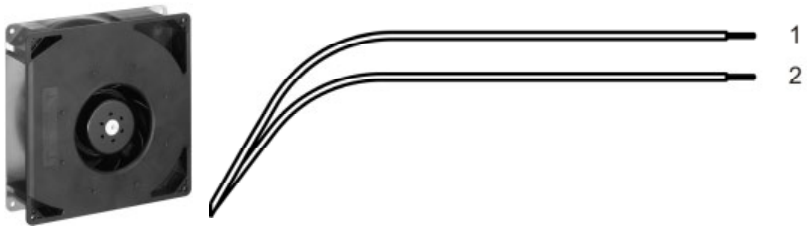
2 Mechanics

2.1 General

Width	220,0 mm	
Height	220,0 mm	
Depth	56,0 mm	
Weight	1,400 kg	
Housing material	Mixed	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges; Metal flange on mounting plate Screw size	wire outlet corner: 70 Ncm remaining corners: 70 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Length of lead wire Tolerance	L = 325 mm +- 10,0 mm	
Length of tube Tolerance	S = 20 mm +- 10,0 mm	
Wire gauge (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	48,0 W +- 15,0 %	101,0 W +- 15,0 %	96,0 W +- 15,0 %
Current consumption Tolerance	Δp = 0 0001	I	3.000 mA +- 15,0 %	4.200 mA +- 15,0 %	3.200 mA +- 15,0 %
Speed Tolerance	Δp = 0 0001	n	4.000 1/min +- 7,5 %	5.000 1/min +- 7,5 %	5.000 1/min +- 7,5 %

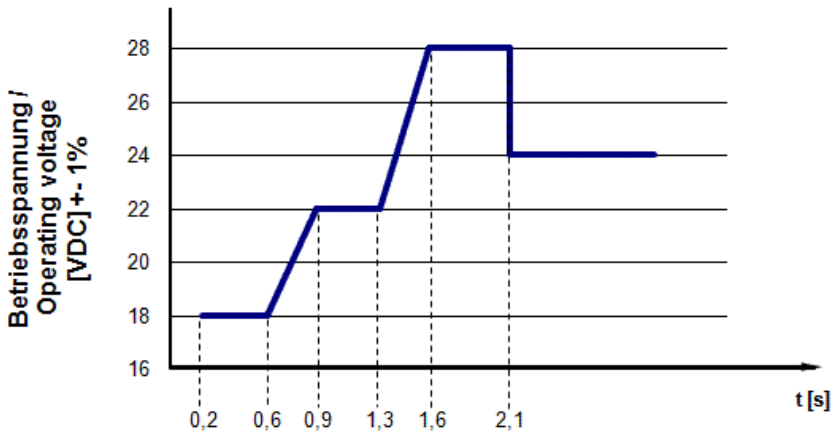
Built into the fan is an additional under- and overvoltage control, which switches the power stage and the fan off if the following conditions are reached.
At U <= 14,0 V and / or U >= 33,0 V is n= 0 1/min

Measured values at .. °C and 1/min:
U ON = ..,. V; U OFF = ..,. V
U ON = 15,2 V; U OFF = 13,5 V

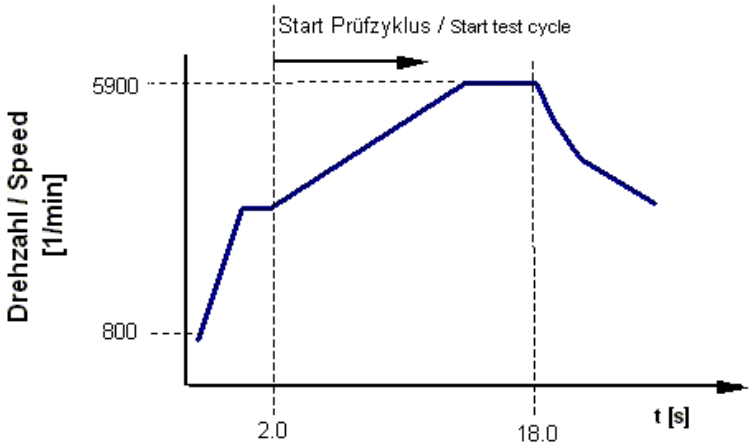
The values depends on temperature and fan speed, i. e. they may differ minimal and provide a basis.

Motor testing
The motor testing relates to a fan, operating with horizontal shaft, at free wir flow. It is possible to run this motor in an uncontrolled state. For some testings the motor may set in a test cycle by connecting to a voltage follower as below mentioned.

Voltage graph to start the test cycle



Speed graph after starting the test cycle



Voltage	24,0 V
Power consumption	105,6 W
Tolerance	+- 15,0 %
Current consumption	4.400 mA
Tolerance	+- 15,0 %
Speed	5.900 1/min
Tolerance	+- 10,0 %

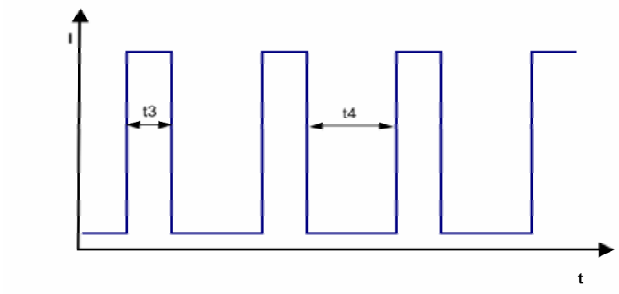
3.3 Operating Data - Electrical Interface -Output

Tacho type	None

Alarm type	None

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at Un	P-CH FET IF <= 20 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un		
Clock signal t3/t4 at locked rotor	Typical: 1,0 s / 3,1 s	



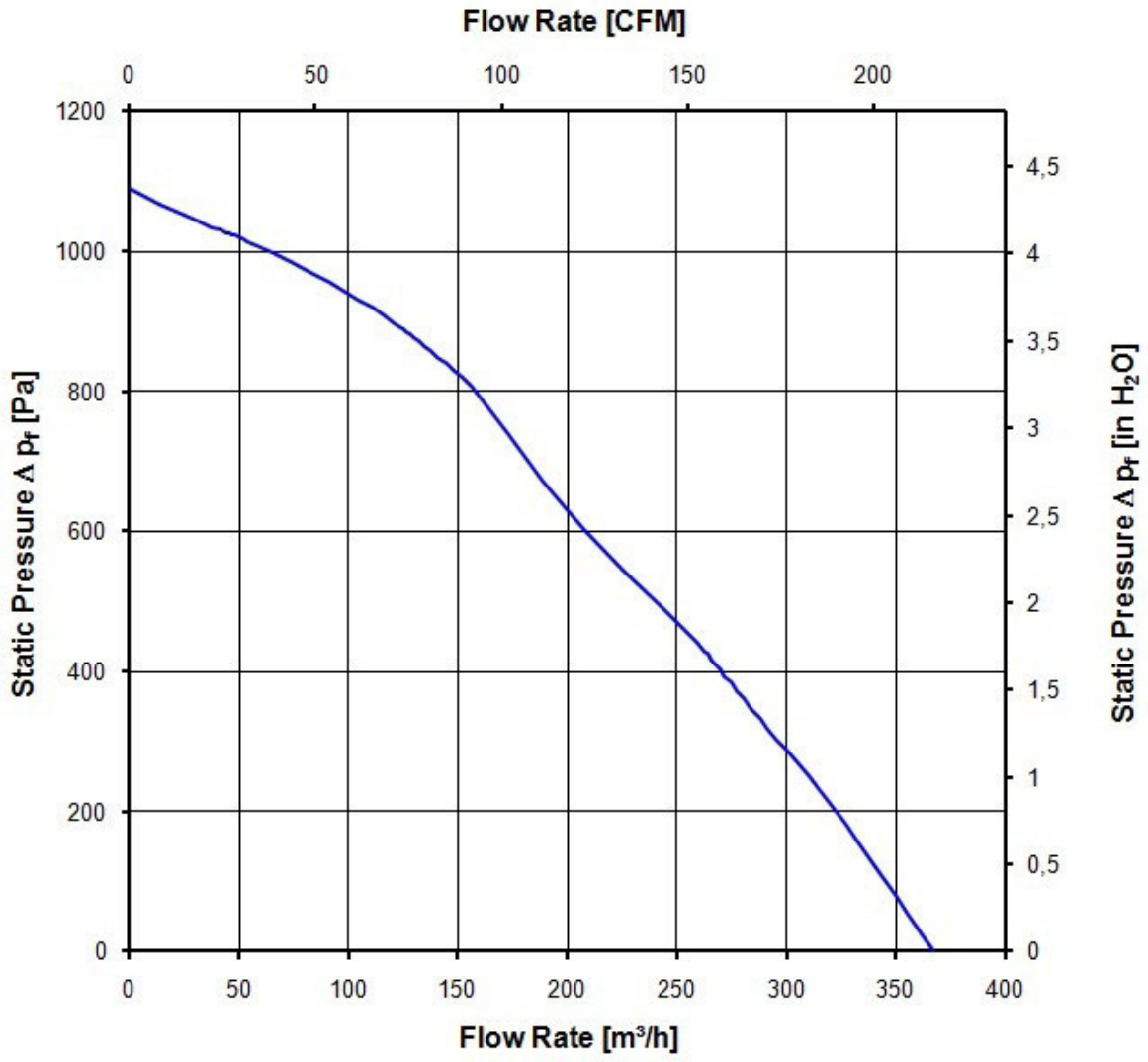
3.5 Aerodynamic

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:

5.000 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	365,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	1.080 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:

5.000 1/min at free air flow

Optimal operating point	270,0 m3/h @ 360 Pa	
Sound power level at the optimal operating point	8,0 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.	60 °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

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.:28,0 V @ TU approval max.: 60,0 °C

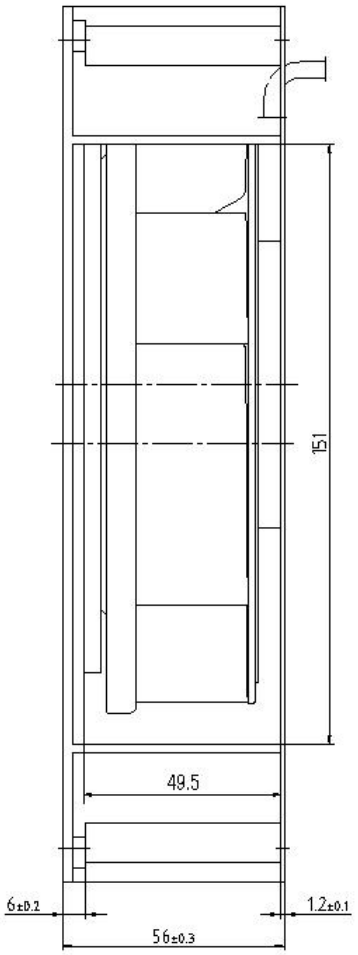
6 Reliability

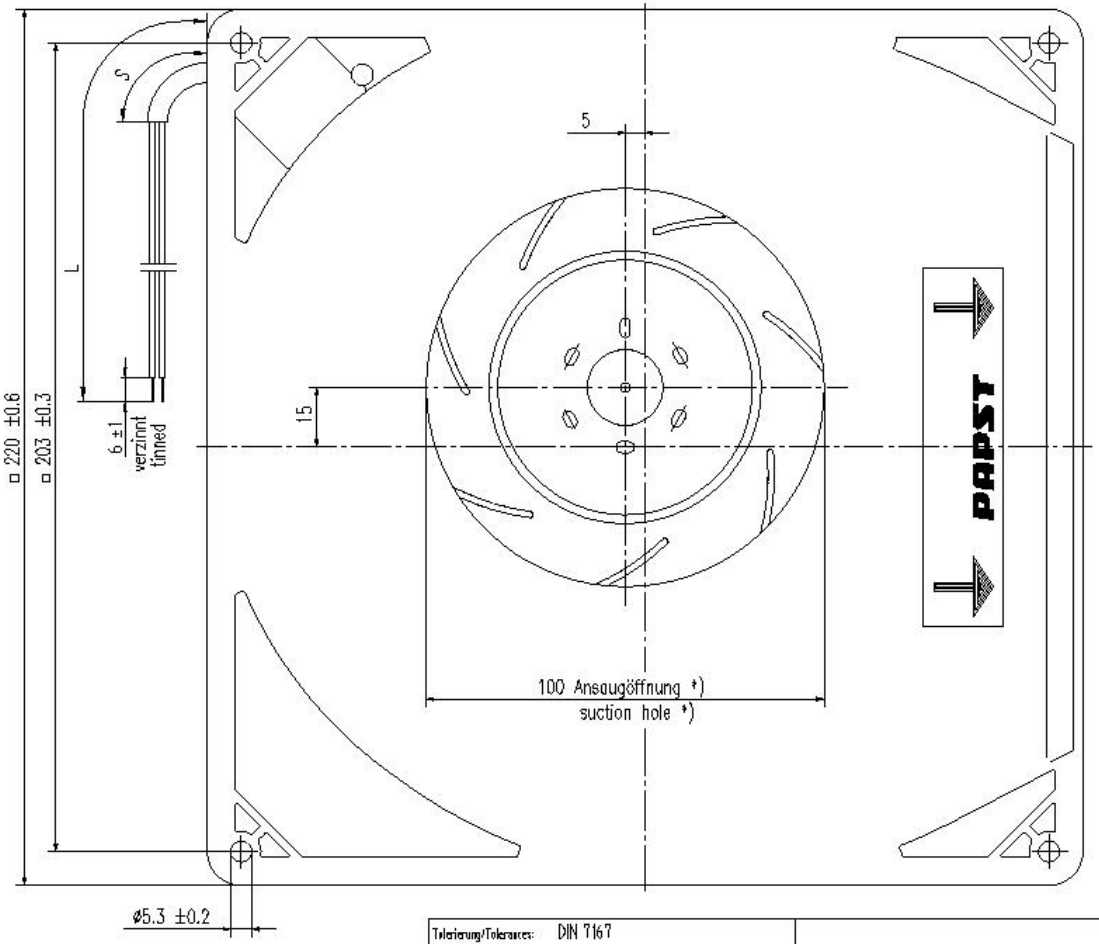
6.1 General

Life expectancy L10 at TU = 40 °C	50.000 h	
Life expectancy L10 at TU max.	32.500 h	
Life expectancy L10 Delta (40 °C)	102.500 h	

Copying of this document, and giving it to others and the use or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

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





Anzahl und Länge der Litzen
sowie Länge Schlauch siehe BV Bl. 1

Length and number of wires and length
of tube see design specification page 1

Axialspiel: mit Feder spielfrei verspannt.
without axial clearance by a pre-loaded spring

*) Öffnung f. Montagewand ≥ 115
*) Opening for mounting plate ≥ 115

Toleranzen/Tolerances: DIN 7167 Allgemeintoleranzen/ Gen. tolerances: DIN ISO 2768-mK-E		
Datum/Date / Name/Name Bearb./Drawn	ebmpapst	Artikel/Title
Index/Index / Anmk.-Nr./Change-No.		Zchg.-Nr./ Dwg.-No.:
gepr. u. zur Verwendung freigegeben/Checked for release von / by / am / on	ebm-papst St. Georgen GmbH & Co. KG	Ers./Zchg./ Replaces:

Maßstab/scale

Blatt/Page

A3