Product Data Sheet RG160-28/14N/19TDHAR-381

ebmpapst

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GREEN TECH

RG160-28/14N/19TDHAR-381
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6.1 General 11

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 - shaft	Any	

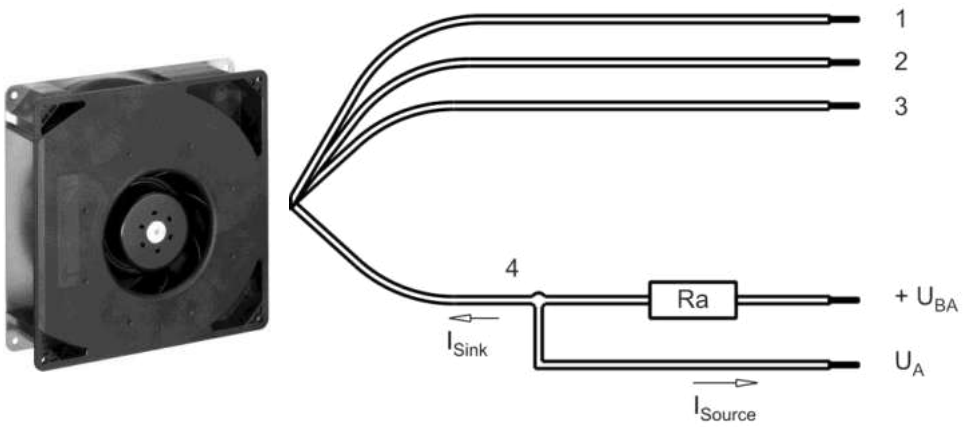
2 Mechanics

2.1 General

Width	220,0 mm	
Height	220,0 mm	
Depth	56,0 mm	
Mass	1,4 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	
Lead wire length Tolerance	L = 325,0 mm +- 10,0 mm	
Tube length Tolerance	S = 25,0 mm +- 5,0 mm	
Wire size (AWG)	22	
Insulation diameter	1,7 mm	
Contact	See drawing	



Wire	Color	Operation
1	red	+ UB
2	blue	- GND
3	violet	CONTR
4	white	Alarm

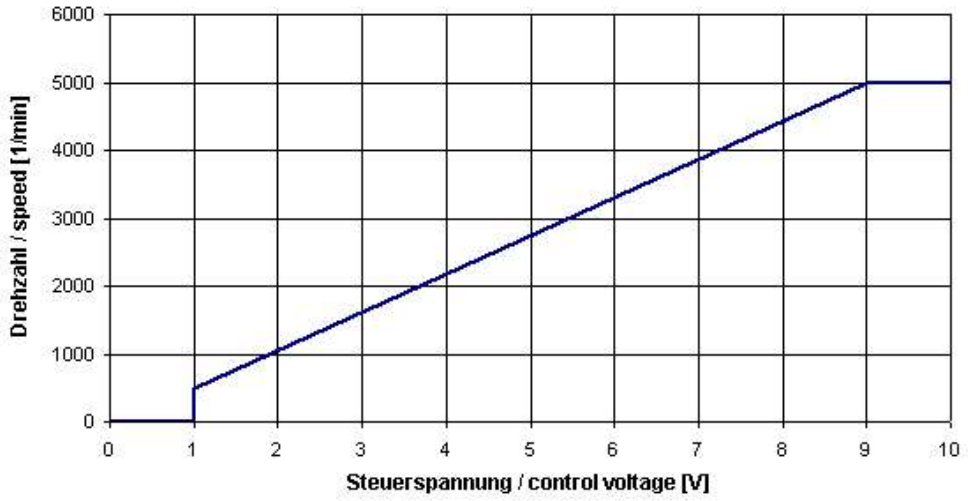
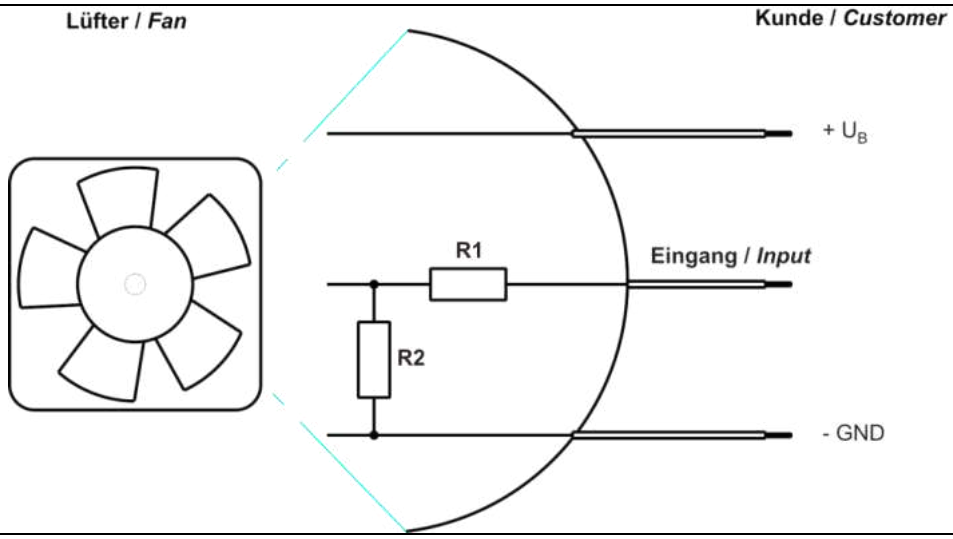
The auxilliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

3 Operating Data

3.1 Operating Data - Electrical Interface - Input

Control input	Analog

Features

Characteristics	
Schematics	

Info zur Kennlinie:

0 V - 1 V:	0 1/min (entspricht min. Drehzahl)
1 V Start-up:	500 1/min
1 V - 9 V:	linear steigende Kennlinie
9 V -10 V:	5.000 1/min (entspricht max. Drehzahl)

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.

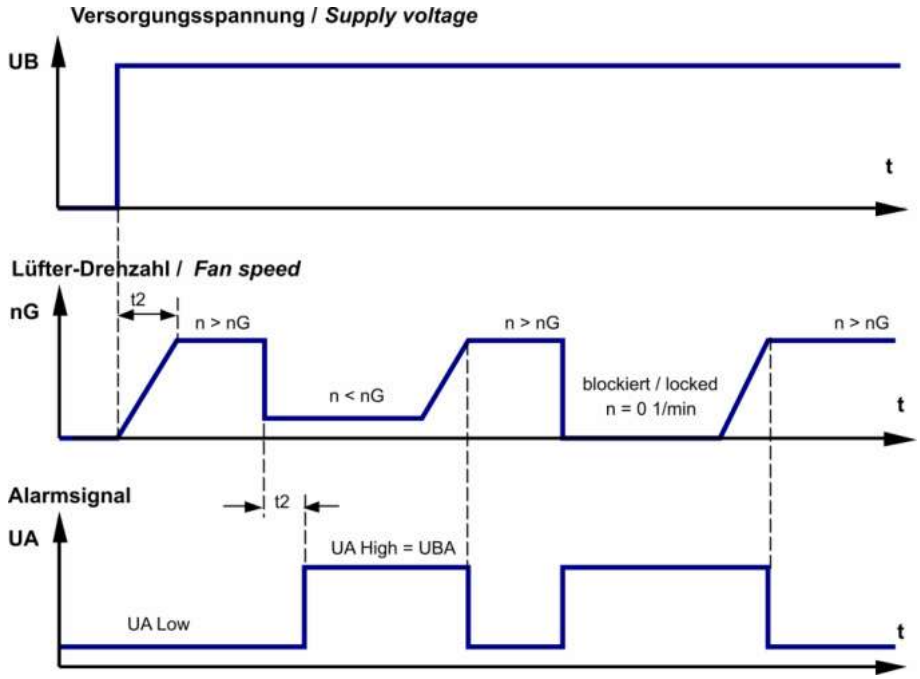
Δp = 0: corresp. to free air flow (see section 3.5)
I: corresp. to arithm. mean current value

Name	Condition		
U Contr. 0001	U Contr.: 10 V		

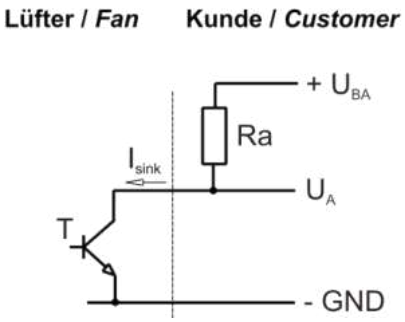
Features	Condition	Symbol	Values		
Voltage range		U	16 V		28,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 U Contr. 0010	P	52,8 W +- 10 %	101 W +- 10,0 %	96,6 W +- 10,0 %
Current consumption Tolerance	Δp = 0 U Contr. 0010	I	3.300 mA +- 10,0 %	4.200 mA +- 10,0 %	3.450 mA +- 10,0 %
Speed Tolerance	Δp = 0 U Contr. 0010	n	4.000 1/min +- 5,0 %	5.000 1/min +- 5,0 %	5.000 1/min +- 5,0 %

3.3 Operating Data - Electrical Interface - Output

Alarm type	/19 (low = ok, open collector inverse)



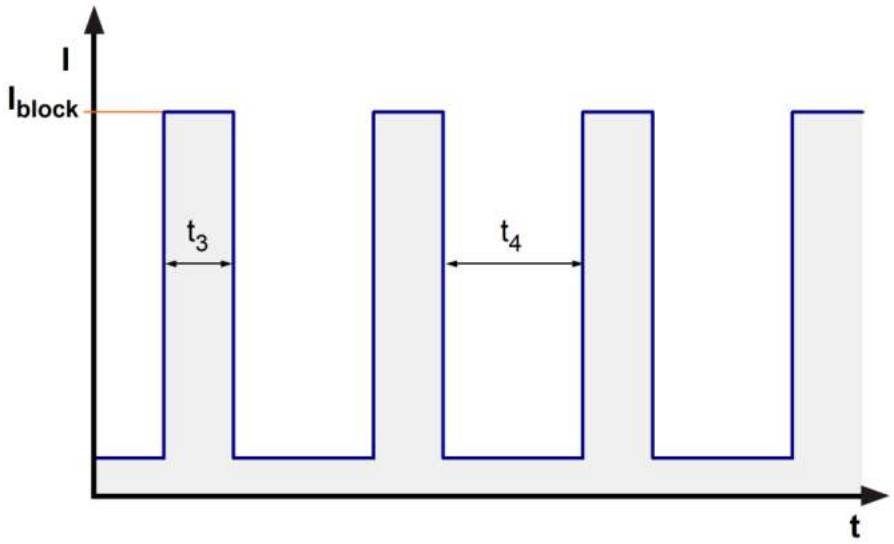
$$Ra = \frac{U_{BA} - U_{A\,low}}{I_{sink}}$$



Features	Note	Values
Alarm operating voltage		Min.: 4,0 V Max.: 28,0 V
Alarm signal Low *)	I sink: 2 mA	>= 0,4 V
Alarm signal High *)	I source: 0 mA	28,0 V
Maximum sink current		>= 20 mA
Maximum source current		0 mA
External resistor	External resistor Ra from UBA to UA required. All voltage measured to GND.	
Alarm start-up delay time Tolerance		<= 10,0 s +- 2,0 s
Alarm trip speed limit of the nominal Speed		75 %

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	P-CH FET I_F >= 5 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 450 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5,0 s	



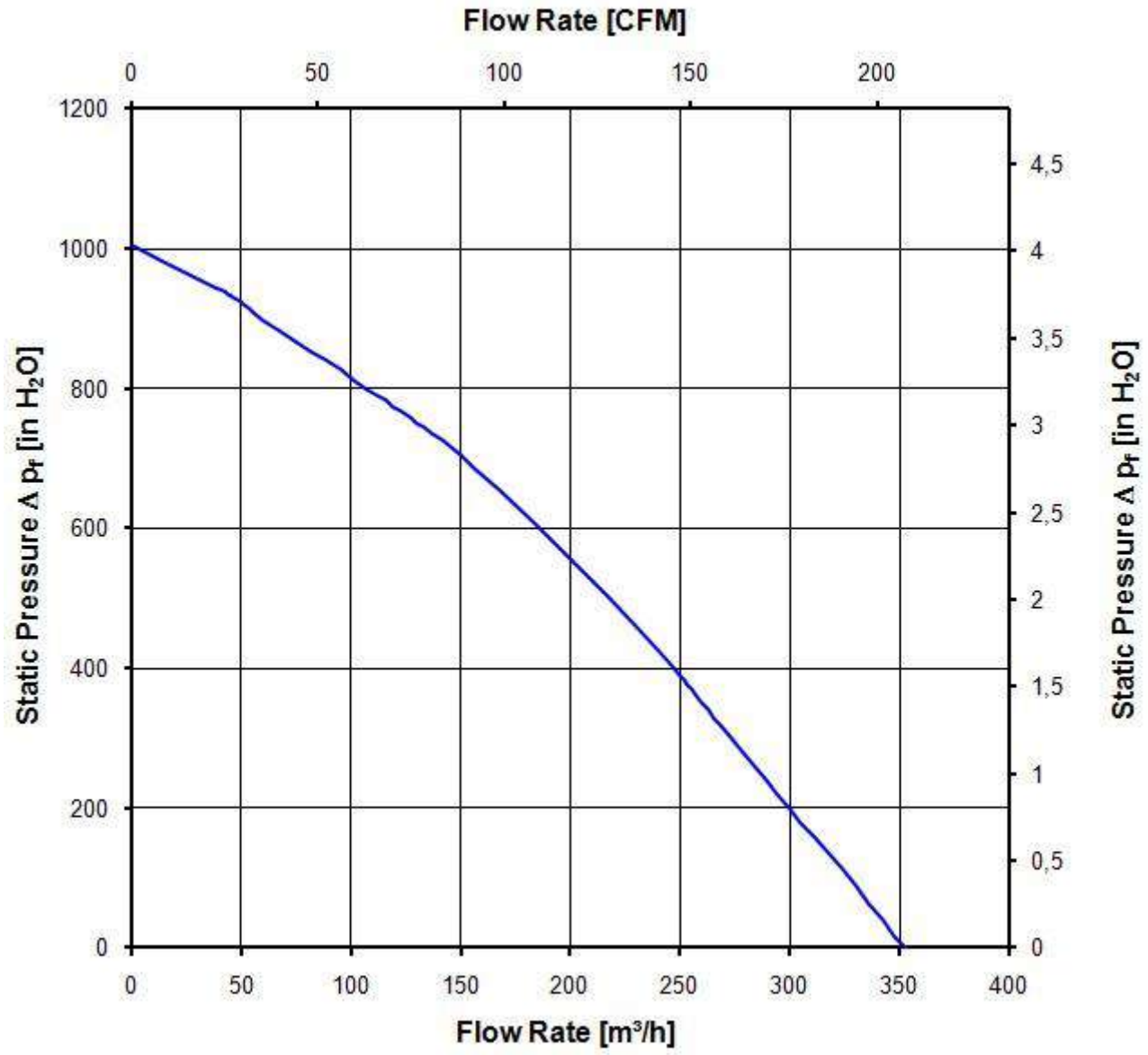
3.5 Aerodynamics

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:

5.000 1/min at free air flow	U Contr. 10 V		

Max. free-air flow (Δp = 0 / V̇ = max.)	350,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	1.000 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	U Contr. 10 V		

Optimal operating point	180,0 m3/h @ 556 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, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occasionally, temporary conductivity caused by condensation occurs.

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 / 1,5 mm	
Protection class	III	

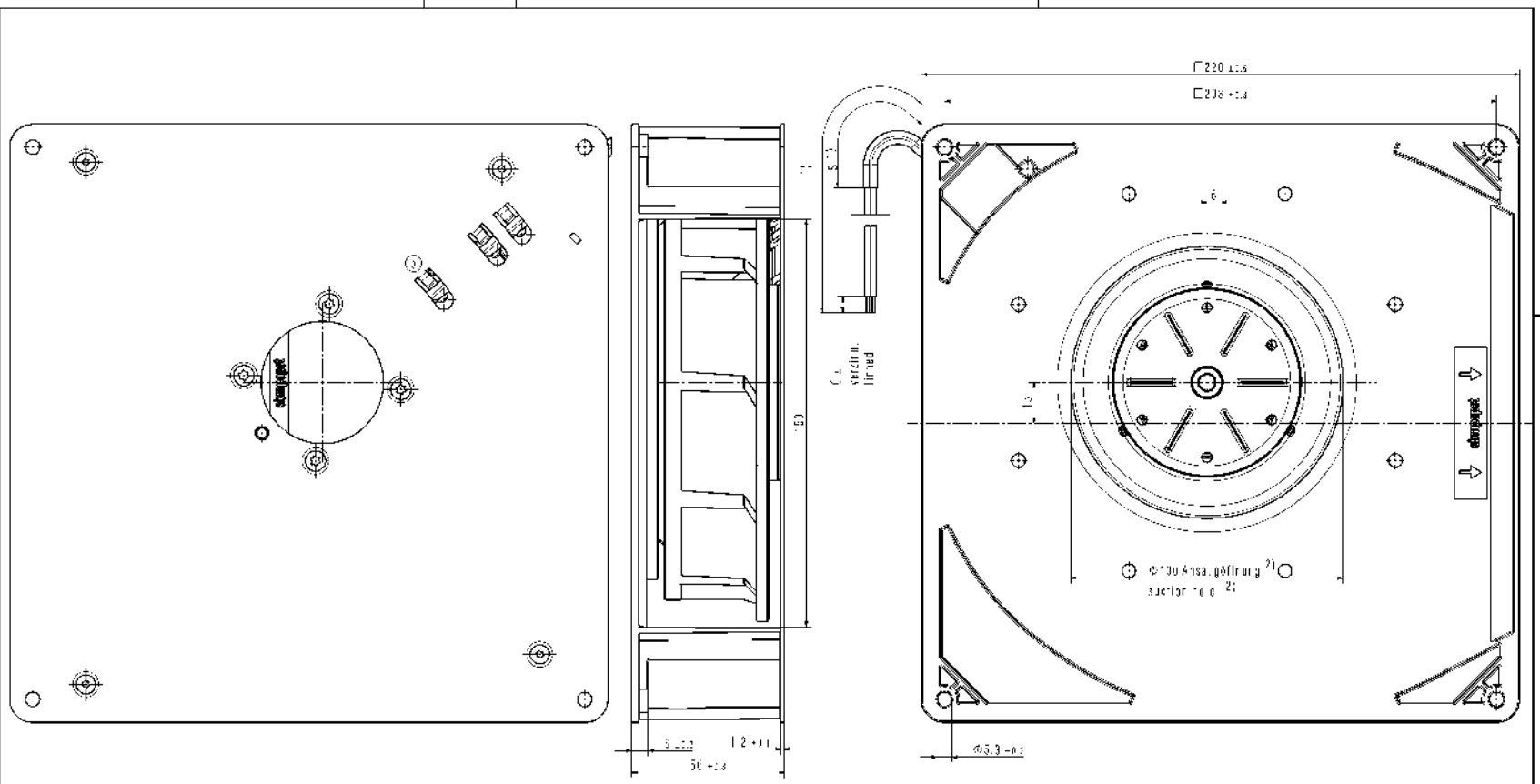
5.2 Approval Tests

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

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 acc. to IPC 9591 at TU = 40 °C	85.000 h	



1) Anzahl und Länge der Litzen sowie Länge des Schleuniches an Flanschrahmenkante siehe Produktspezifikation
2) Öffnung für Montagewand ≥116 mm
- Axialspiel durch Federvorspannung

1) length and number of wires and length of the frame flange edge see design specification
2) Opening for mounting plate ≥ 116 mm
- without axial clearance by spring preloading