

Product Data Sheet 4118N/39H4

ebmpapst

The engineer's choice



4118N/39H4

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1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

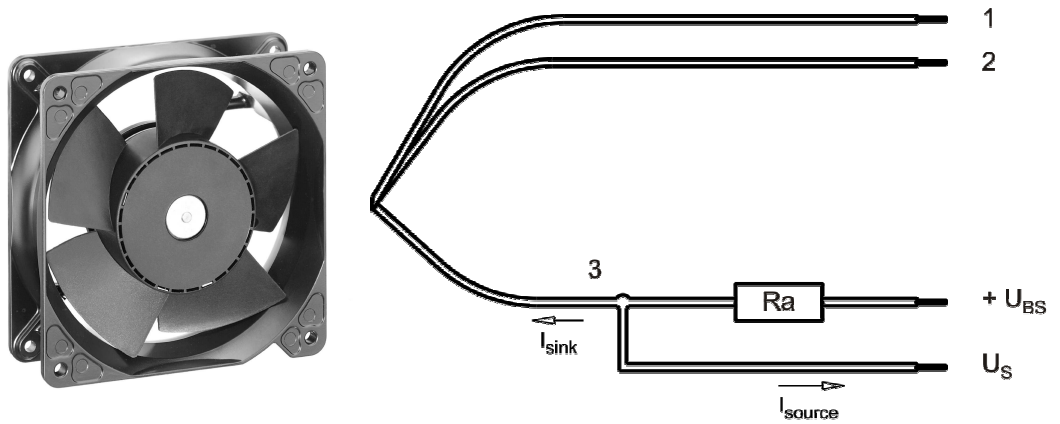
2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,390 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 420 Ncm Remaining corners: 560 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length	L = 310 mm	
Tolerance	+ - 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,7 mm
2	blue	- GND	AWG 22	1,7 mm
3	white	Alarm	AWG 22	1,7 mm

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

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.

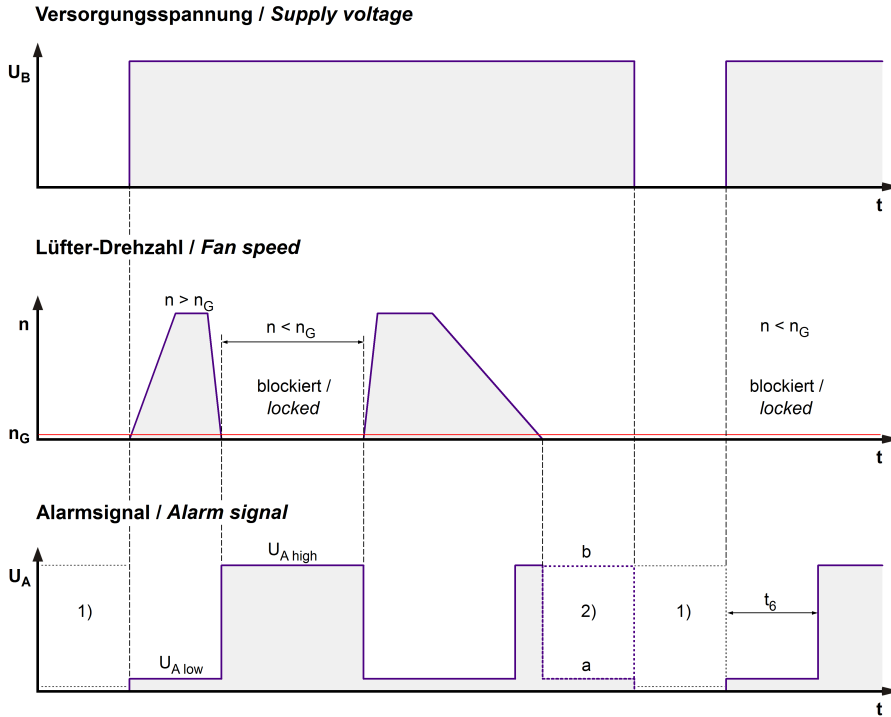
$\Delta p = 0$: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Inrush current: The inrush current is mainly affected by the power supply plus the length and kind of the connecting line. This capacitor is installed: 39uF/100V

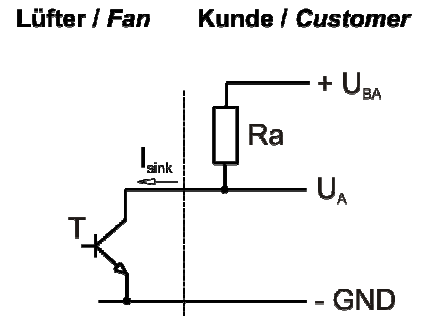
Features	Condition	Symbol	Values		
Voltage range		U	36 V		60 V
Nominal voltage		U_N		48 V	
Power consumption	$\Delta p = 0$	P	18 W	28 W	30,0 W
Tolerance	0010		+/- 15 %	+/- 15 %	+/- 15 %
Current consumption	$\Delta p = 0$	I	500 mA	600 mA	500 mA
Tolerance	0010		+/- 15 %	+/- 15 %	+/- 15 %
Speed	$\Delta p = 0$	n	5.650 1/min	6.800 1/min	6.800 1/min
Tolerance	0010		+/- 10 %	+/- 10 %	+/- 10 %
Starting current consumption				1.700 mA	

3.2 Electrical Interface - Output

Alarm type	/39 (low = ok, open collector)
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$$R_a = \frac{U_{BA} - U_{A\text{low}}}{I_{\text{sink}}}$$

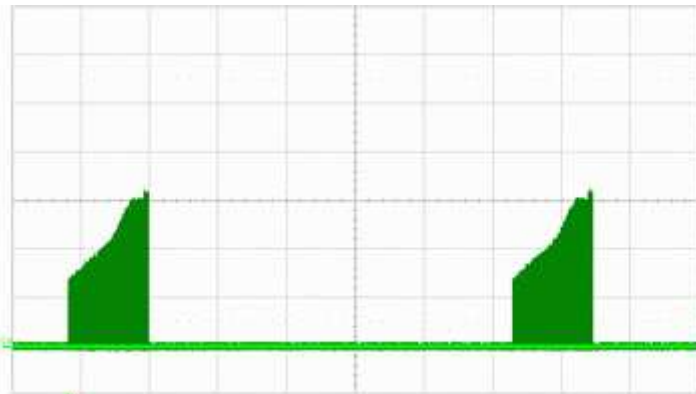
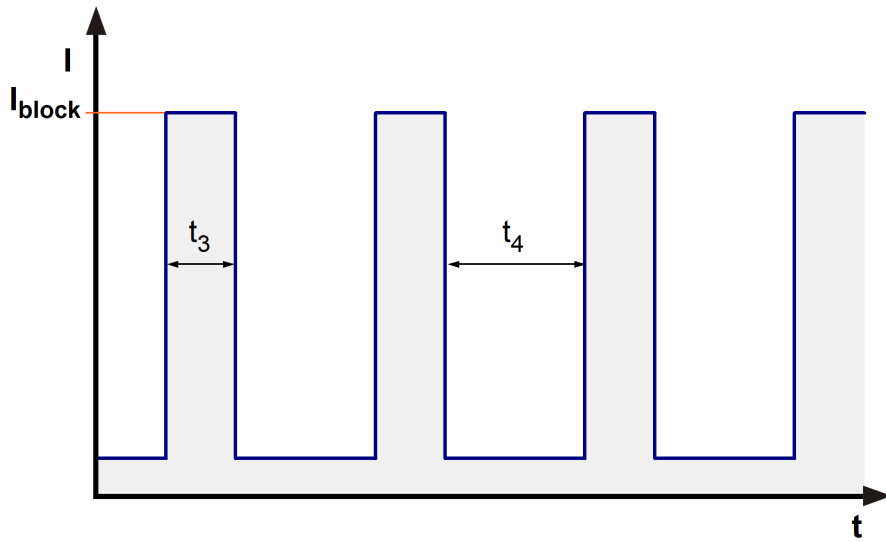


- 1) Wenn der Lüfter abgeschaltet ist, hängt der Zustand des Ausgangssignals U_A von der Kundenapplikation ab.
 When the fan is powered off, the output signal U_A depends on the customer's application.
- 2) Für den gültigen Zustand (a oder b) siehe Alarmunterdrückung in der Tabelle.
 For the valid condition (a or b) see alarm suppression in the table.

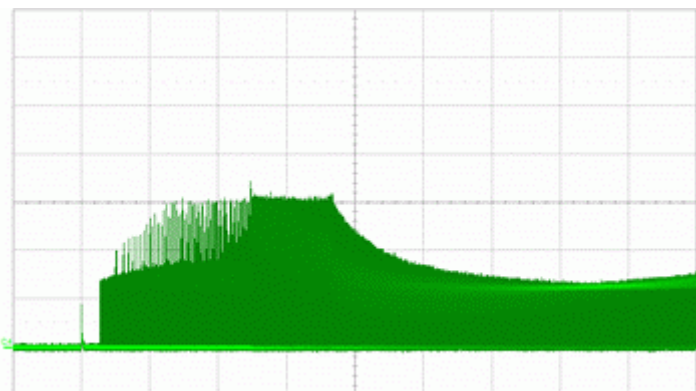
Features	Note	Values
Alarm operating voltage	U_{BA}	$\leq 60 \text{ V}$
Alarm signal Low	$U_{A\text{low}}$	$\leq 0,4 \text{ V}$
Alarm signal High	$U_{A\text{high}}$	60 V
Maximum sink current	I_{sink}	20 mA
External resistor	External resistor R_a from U_{BA} to U_A required. All voltage measured to GND.	
Alarm start-up delay time	t_6	10 s
Alarm trip speed limit	n_G	1.000 1/min $\pm 100 \text{ 1/min}$
Tolerance		
Alarm latch	No	
Alarm isolated from motor	No	

3.3 Electrical Features

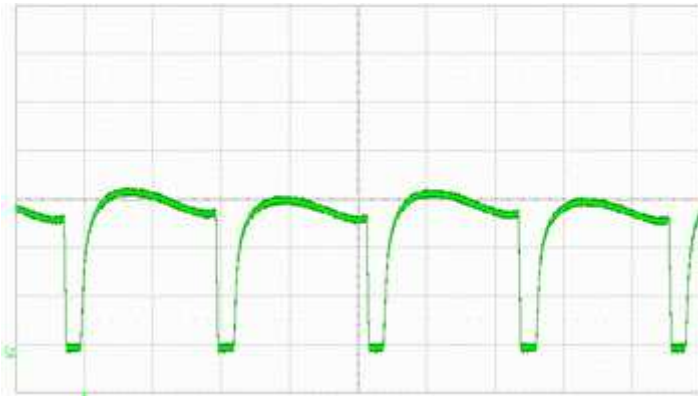
Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 10 \text{ mA}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.700 mA	
Clock signal at locked rotor	t_3 / t_4 typical: $1,1 \text{ s} / 5,2 \text{ s}$	



Locked rotor current @ 48V ($I = 0,5A/div$; $t = 1s/div$)



Start-up current @ 48V ($I = 500mA/div$; $t = 0,5s/div$)



Running current @ 48V (I = 0,2A/div ; t = 1ms/div)

Internal Fuse:

Littelfuse Nano2 Fuse
Very Fast-Acting 451/453 Series
2A / 125V (0451002.MRL)

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;

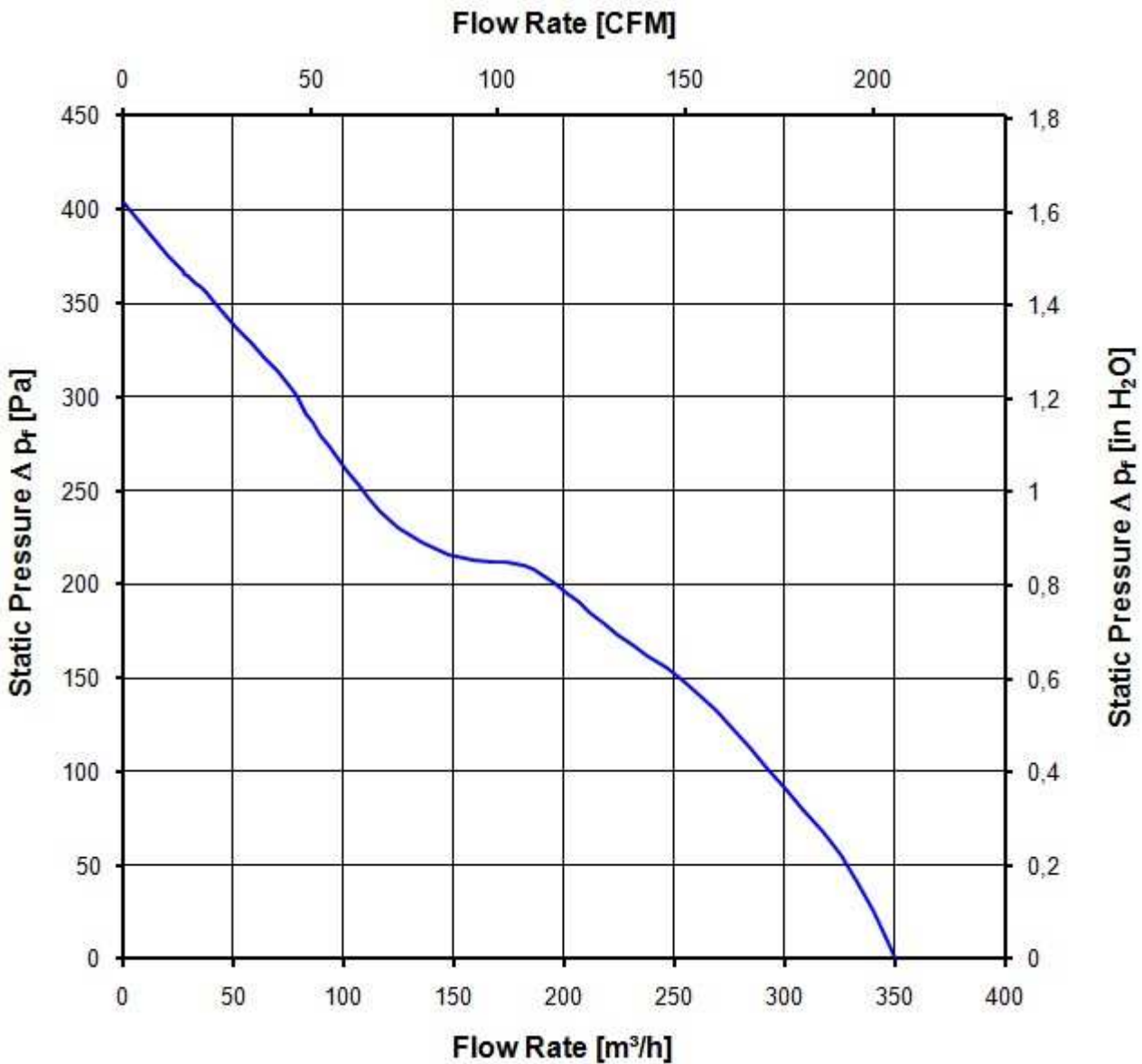
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

6.800 1/min at free air flow

Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	350 m ³ /h	
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	400 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 chapter aerodynamics.

a.) Operation condition:

6.800 1/min at free air flow		
Optimal operating point	250 m ³ /h @ 140 Pa	
Sound power level at the optimal operating point	7,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	67,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °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	

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.

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.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	850 VDC / 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	Yes / GB 12350 Safety Requirements for small Power Motors

The approval tests are observed to:

U approval max.:60,0 V @ TU approval max.: 65,0 °C

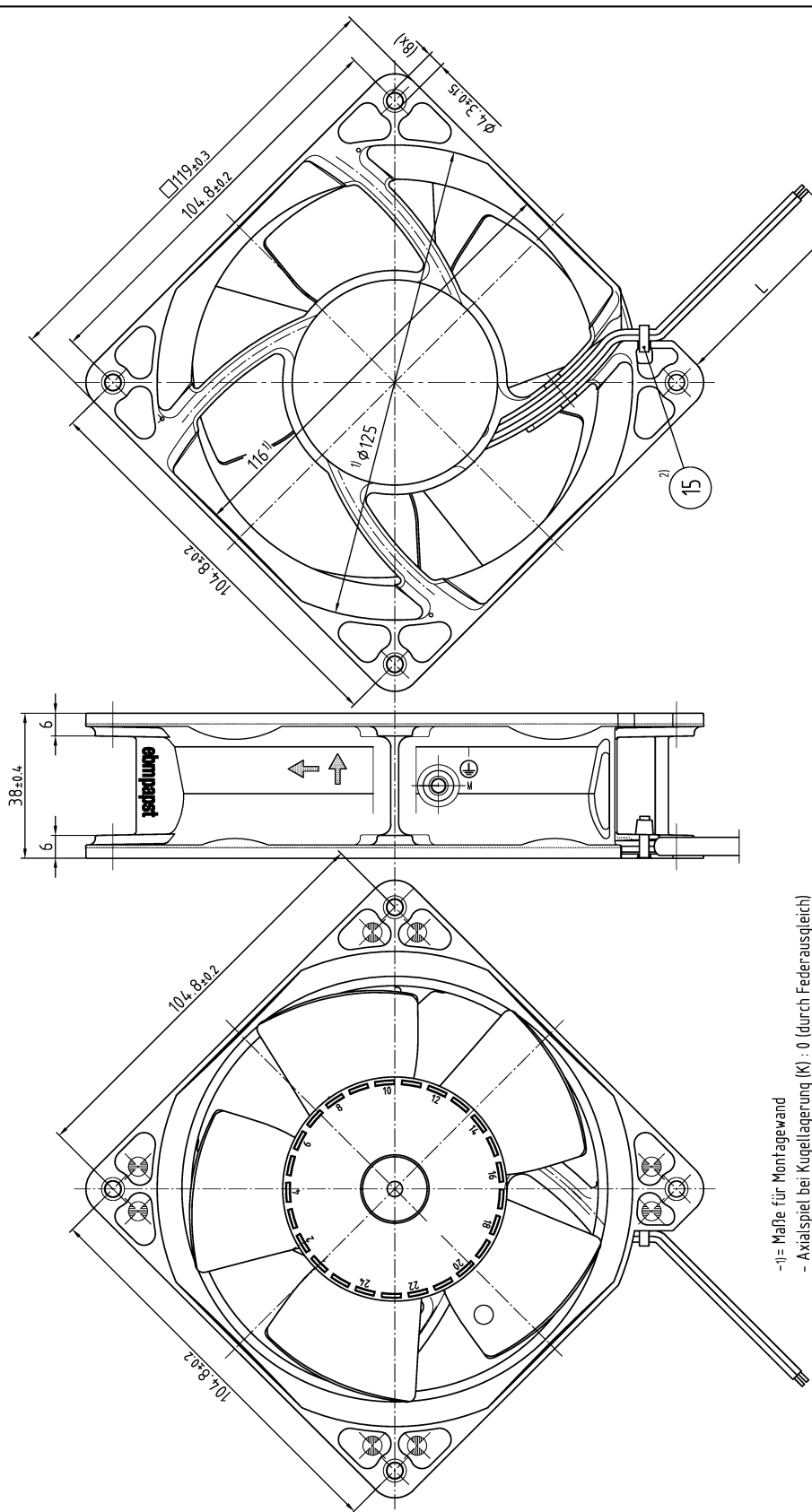
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	62.500 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	105.000 h	

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Schutzmerk nach DIN ISO 1676 beachtend
 Refer to protection notice DIN ISO 1676



- 1) = Maße für Montagewand
- Axialspiel bei Kugellagerung (K) : 0 (durch Federausgleich)
- Axialspiel bei Gleitlagerung (G) : 0,1 bis 0,6
- 2) = Mit Handhabungswerkzeug montieren.

Kopf darf nach Montage nicht über Außenkontur des Lüftergehäuses stehen

- 1) = Measures for prefab wall
 - Axial play with ball bearing (K) : 0 (by spring compensation)
 - Axial play with sleeve bearing (G) : 0,1 to 0,6
 - 2) = With handling tool installed,
- Head may not stand over outer contour of the fan housing after assembly

Leitungslänge siehe Produktspezifikation
 For conduit length see product specification

SP-Symbol/Date	Best.-Nr./Change-No.	Art./Mod.-Symbole/Name	Werkstoff/Material	Volumen/Volume (mm ³)
		Art./Mod.-Symbole/Name		Gewicht/Mass (g)
Toleranz/Tolerances		Artikel/Title		
Allgemeintoleranzen/Tolerances		axial compact fan		
DIN ISO 2768-1 u. 2-mK		Zug-/Nr./Drawing-No.		
		Durchm./Type of Boremt		
		Leiter/No.		
		Teilname/Part/Part		
		Formel/Size		
		Maßstab/Scale		
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