

Product Data Sheet 3252J/2H3PU

ebmpapst

Die Wahl der Ingenieure



3252J/2H3PU

INDEX

1 General 3

2 Mechanics 3

 2.1 General 3

 2.2 Connections 3

3 Operating Data 5

 3.1 Operating Data - Electrical Interface - Input 5

 3.2 Electrical Operating Data 7

 3.3 Operating Data - Electrical Interface - Output 8

 3.4 Electrical Features 9

 3.5 Aerodynamics 10

 3.6 Sound Data 11

4 Environment 11

 4.1 General 11

 4.2 Climatic Requirements*) 11

 4.3 Mechanical Requirements 13

5 Safety 14

 5.1 Electrical Safety 14

 5.2 Approval Tests 14

6 Reliability 14

 6.1 General 14

1 General

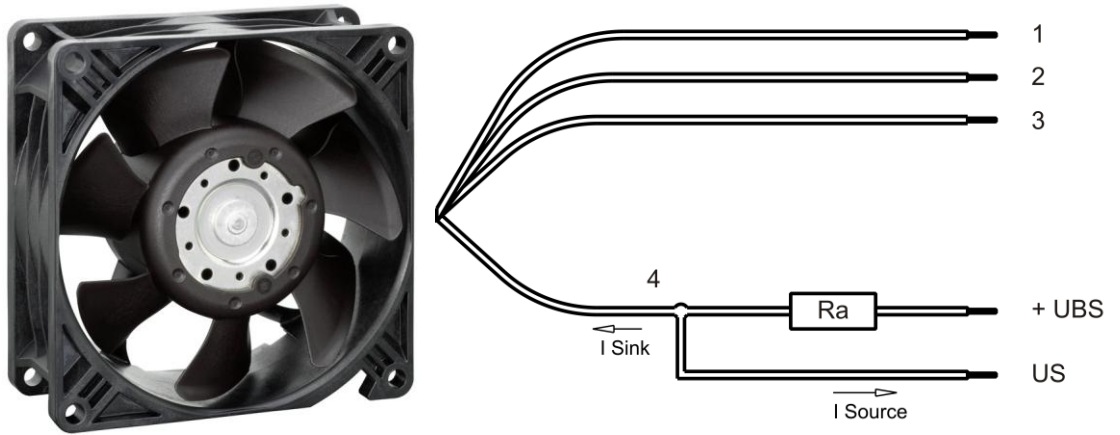
Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position	Any	

2 Mechanics**2.1 General**

Width	92,0 mm	
Height	92,0 mm	
Depth	38,0 mm	
Mass	0,25 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	wire outlet corner: 50 Ncm remaining corners: 110 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 size (AWG)	22	
Insulation diameter	1,7 mm	
Contact	See drawing	



	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND
Wire 3	violet	PWM
Wire 4	white	Tacho

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

3 Operating Data

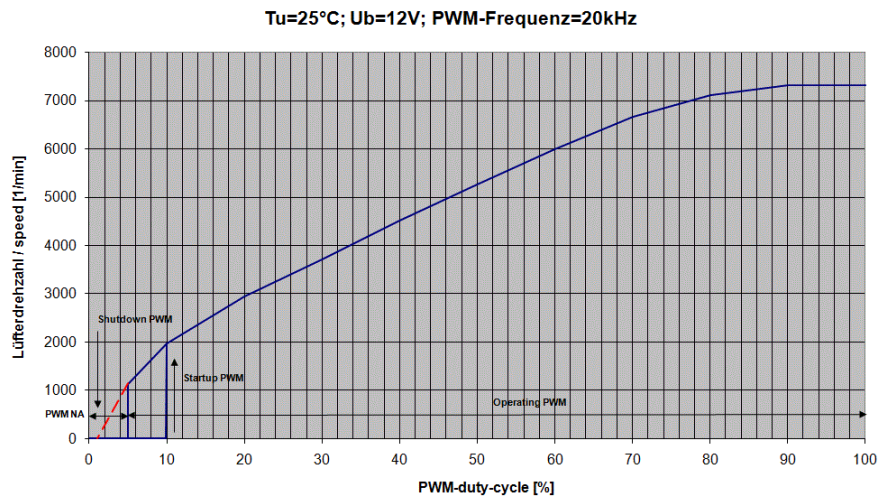
3.1 Operating Data - Electrical Interface - Input

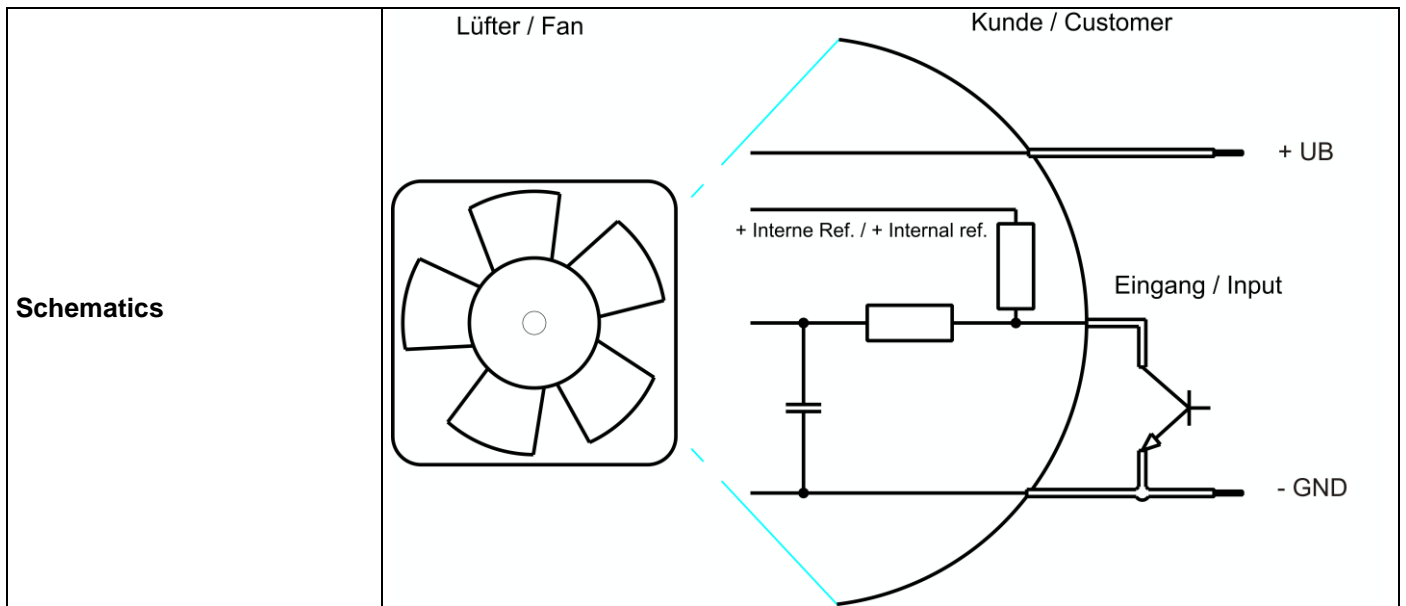
Control input	PWM
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Features

Input type	Open collector	
PWM - Frequency		1 kHz - 30 kHz Typical: 25 kHz
Max. voltage for logic "Low"		0,2 V
Maximum source current	short circuit current	≤ 1 mA
Typical time until warm restart	After shutdown by PWM	~ 9 s

Characteristics





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

Name	Condition		
PWM 0001	PWM: 100 %; f: 25 kHz	f: 1 kHz	f: 30 kHz

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	7 V		13,2 V
Nominal voltage	$\Delta p = 0$	U_N		12 V	
Power consumption	$\Delta p = 0$	P	11,2 W +- 20 %	33,7 W +- 15 %	41 W +- 15 %
Tolerance	PWM 0001				
Current consumption	$\Delta p = 0$	I	1.600 mA +- 20 %	2.810 mA +- 15 %	3.100 mA +- 15 %
Tolerance	PWM 0001				
Speed	$\Delta p = 0$	n	4.900 1/min +- 15 %	7.450 1/min +- 10 %	7.850 1/min +- 15 %
Tolerance	PWM 0001				
Starting current consumption				<= 5.000 mA	

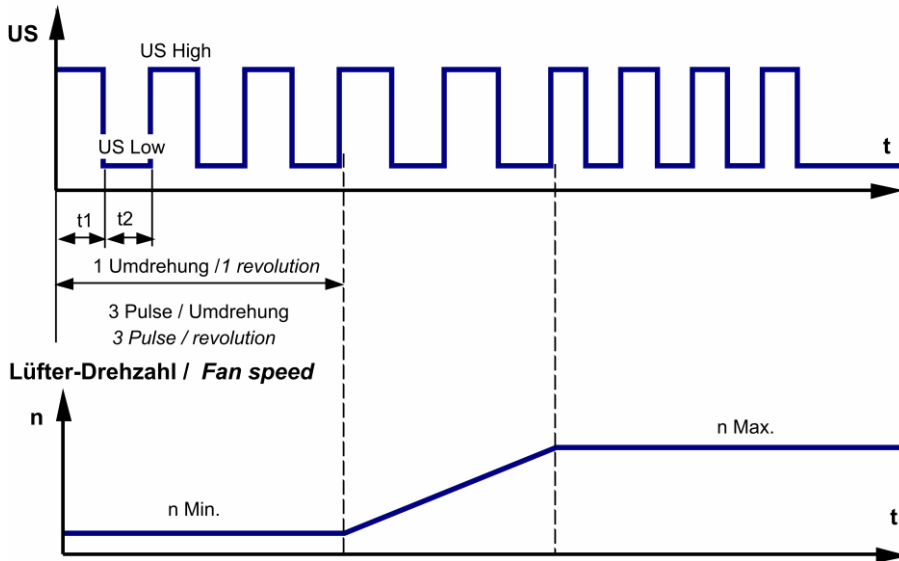
Name	Condition		
PWM 0002	PWM: 50 %; f: 25 kHz	f: 1 kHz	f: 30 kHz

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	7 V		13,2 V
Nominal voltage	$\Delta p = 0$	U_N		12 V	
Power consumption	$\Delta p = 0$	P	4,1 W	15,6 W	19,8 W
Tolerance	PWM 0002		+/- 25 %	+/- 20 %	+/- 20 %
Current consumption	$\Delta p = 0$	I	590 mA	1.300 mA	1.500 mA
Tolerance	PWM 0002		+/- 25 %	+/- 20 %	+/- 20 %
Speed	$\Delta p = 0$	n	3.200 1/min	5.470 1/min	5.450 1/min
Tolerance	PWM 0002		+/- 20 %	+/- 15 %	+/- 20 %

3.3 Operating Data - Electrical Interface - Output

Tacho type	/2 (open collector)
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Signal-Ausgangsspannung / Signal output voltage



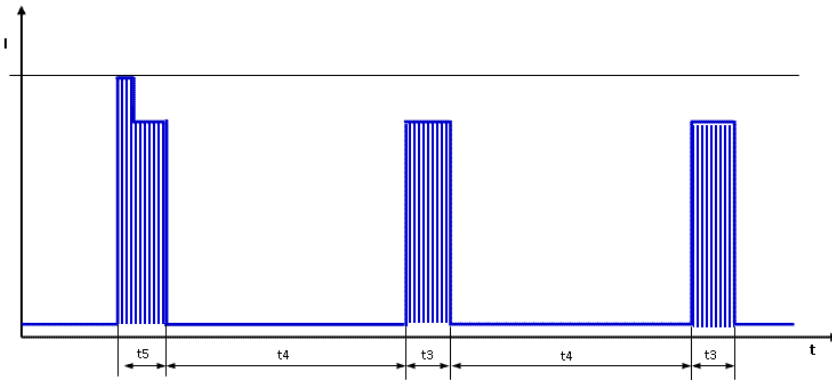
$$R_a = \frac{U_{BS} - U_{S\ Low}}{I_{Sink}}$$

Features	Note	Values
Tacho operating voltage (UBS)		$\leq 60 \text{ V}$
Tacho signal Low	I sink: 2 mA	$\leq 0,4 \text{ V}$
Tacho signal High	I source: 0 mA	60 V
Maximum sink current		$\leq 4 \text{ mA}$
External resistor	External resistor R_a from UBS to US required. All voltages measured to GND.	
Tacho frequency	$(3 \times n) / 60$	
Tacho isolated from motor	No	
Slew rate		$\Rightarrow 0,5 \text{ V/us}$

Alarm type	None
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3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_n	$I_F \leq 200 \text{ uA}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_n	approx. 4.500 mA	
Clock signal t_3/t_4 at locked rotor	Typical: 1 s / 9 s t_3 : 0,7 s... 1,3 s t_4 : 6,5 s... 11,5 s	



First pulse t_5 typical 1,6s (1,3 .. 1,9s) followed by t_4 . Afterwards cyclical t_3/t_4 .

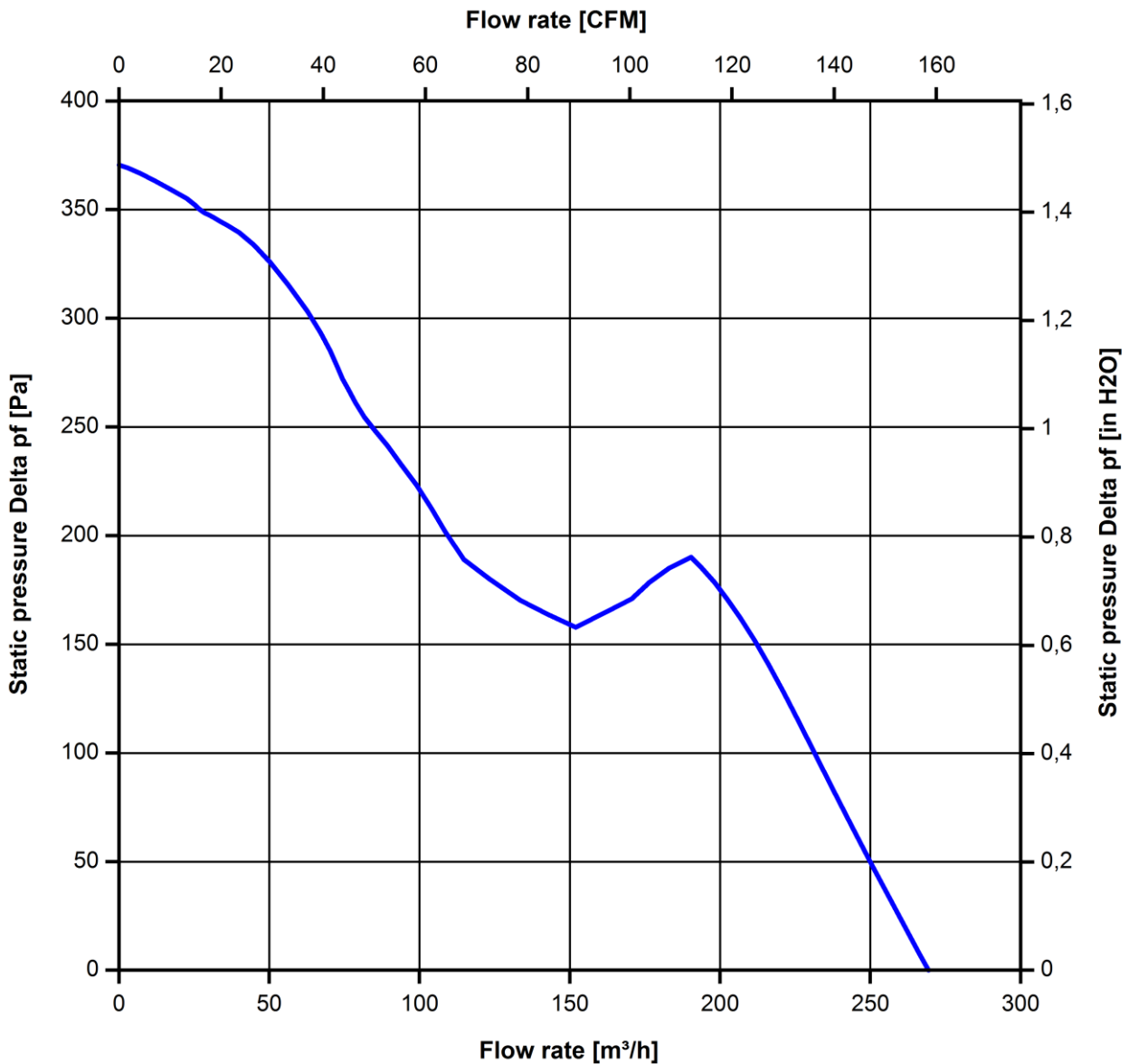
3.5 Aerodynamics

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:

7.450 1/min at free air flow	PWM 100 %; f: 25 kHz	f: 1 kHz	f: 30 kHz
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Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	270,0 m ³ /h
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	370 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:

7.450 1/min at free air flow	PWM 100 %; f: 25 kHz	PWM min.: ; f: 1 kHz	PWM max.:; f: 30 kHz
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Optimal operating point	191,0 m3/h @ 176 Pa	
Sound power level at the optimal operating point	7,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	64,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	70 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	85 °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	

*) Permitted 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.

4.3 Mechanical Requirements

severity level	stationary use		
1	storage / transportation	Random vibration not in use IEC 60068-2-64 Frequency range / ASD G_{RMS} Axes of vibration Test duration	Random vibration 5 - 20 Hz : $1,0 \text{ m}^2 / \text{s}^3$ 20 - 500 Hz : - 3 dB / Oct 0,91 G 3 3 x 30 min
	storage / transportation	Bump not in use IEC 60068-2-29 Shock spectrum Acceleration Duration Number of bumps (+X, -X, -Y, +Y, -Z, +Z) Total bumps	Bump half sine 18 G 6 ms 100 in each direction 600
	stationary use	Random vibration in use IEC 60068-2-64 Frequency range / ASD G_{RMS} Axes of vibration Test duration	Random vibration 5 - 10 Hz : +6 dB / Oct 10 - 50 Hz : $1,0 \text{ m}^2 / \text{s}^3$ 50 - 200 Hz : - 6 dB / Oct 0,65 G 3 3 x 30 min
	stationary use	Bump in use IEC 60068-2-29 Shock spectrum Acceleration Duration Number of bumps (+X, -X, -Y, +Y, -Z, +Z) Total bumps	Bump half sine 5 G 11 ms 100 in each direction 600

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

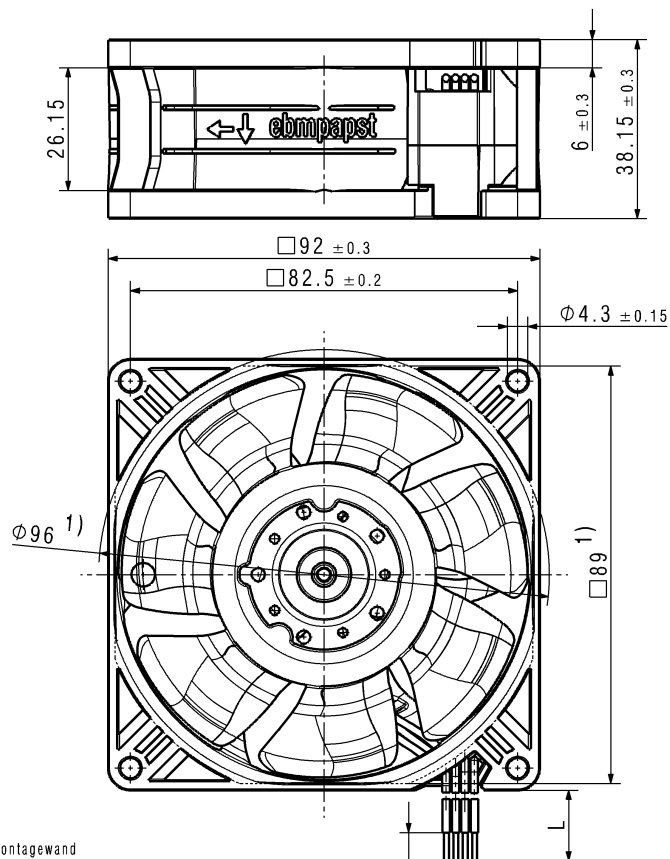
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	85.000 h	
Life expectancy L10 at TU max.	42.500 h	

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Refer to protection notice DIN ISO 6916!



1) Maße für Montagewand
1) dimension for worktop mounting

-Anzahl und Länge der Litzen siehe Produktspezifikation
number and length of the wires, look at the product specification

-Kein Axialspiel bei Kugellager durch Federausgleich
no axial clearance of ball bearings conditional on a pre-load spring

6 +1
verzinkt/
tin-plated

SAP-Status/State		Änd.-Nr./ Change-No.		CATIA-System-Version/ CATIA-System-Version		CAD-Umgebung/ CAD-Environment		Werkstoff / Material:		Volumen / Volume (cm ³):	
				929512001 CPR000				Artikel / Title:		Gewicht / Mass (g):	
Tolerierung / Tolerances:		3D-Referenzmodell / 3D-Referenzmodell		Datum		Name		Zchg.-Nr. / Drawing No:		Ers.f.Zchg. / Replaces:	
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