

4656 ZH

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1 General

Fan type	Fan
Rotational direction looking at rotor	clockwise
Airflow direction	Air outlet over struts
Bearing system	Ball bearing
Mounting position	any
Balancing grade	2,5

2 Mechanics

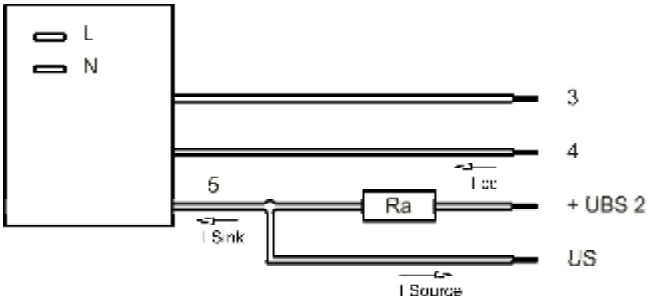
2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Weight	0,540 kg	
Housing material	Metal	
Impeller material	Metal	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 120 Ncm remaining corners: 350 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Plug	
Length of lead wire Tolerance	310,0 mm +- 10,0 mm	
Length of tube Tolerance	see drawing	
Wire gauge (AWG)	22	
Insulation diameter	1,20 mm	
Plug	see drawing	
Contact	see drawing	





	Colour	Operation
Wire 3	violet	- GND Tacho
Wire 4	red	+ UB Tacho
Wire 5	white	Tacho

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 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.

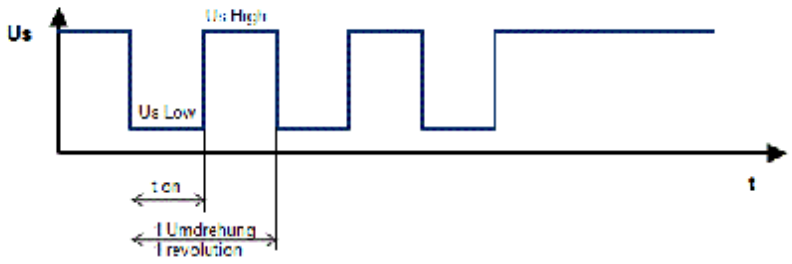
Δp = 0: corresp. to free air flow (see section 3.4)
I: corresp. to RMS line current

Features	Condition	Symbol	Values	
Frequency	Δp = 0	f	50 Hz	60 Hz
Nominal voltage Tolerance	Δp = 0	U_N	230,0 V + 6,0 % - 10,0 %	230,0 V + 6,0 % - 10,0 %
Power consumption Tolerance	Δp = 0	P	19,0 W +- 10,0 %	17,0 W +- 10,0 %
Speed Tolerance	Δp = 0	n	2.650 1/min +- 3,0 %	3.100 1/min +- 3,0 %

3.2 Operating Data - Electrical Interface -Output

Tacho type	Special-Tacho

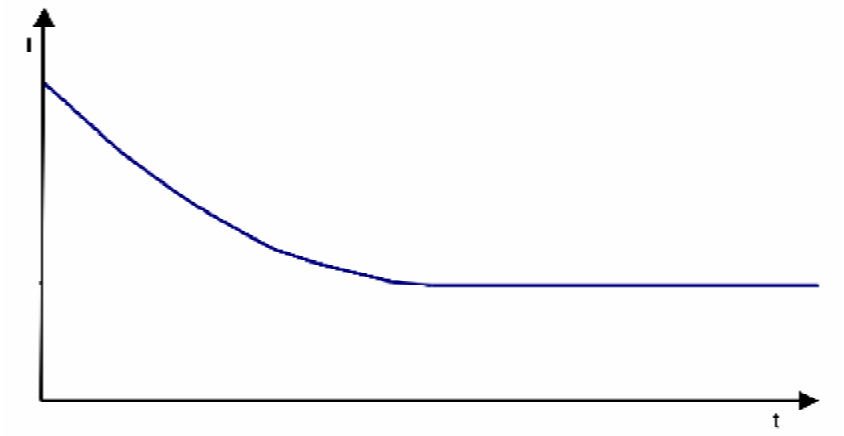
Signal-Ausgangsspannung / Signal output voltage



Features	Note	Values
Tacho operating voltage (UBS)		4,5... 24 V
Tacho operating current (I cc at max. UBS 1)		<= 10 mA
Tacho nominal voltage (UBS 2)		< 30 VDC
Tacho signal Low	I sink: 15 mA	<= 0,4 V
Tacho signal High	I source: 0 mA	30 V
Maximum sink current		<= 20 mA
tacho pulse time		Min: 0,28 s Max.: 1,5 s
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency	n/50	
Tacho isolated from motor	Yes	

3.3 Electrical Features

Locked rotor protection	Impedance
Locked rotor current at Un	



3.4 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.

a.) Operation condition:
2.650 1/min at free air flow Frequency: 50 Hz

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	152,0 m3/h
Max. static pressure (Δp = max. / $\dot{V}$ =0)	70 Pa

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	180,0 m3/h
Max. static pressure (Δp = max. / $\dot{V}$ =0)	80 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 Lp(A) < 5 dB(A) For further measurement conditions see section 3.4

a.) Operation condition:
2.650 1/min at free air flow Frequency: 50 Hz

Optimal operating point	130,0 m3/h @ 15 Pa	
Sound power level at the optimal operating point	5,1 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	37,0 dB(A)	

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

Optimal operating point	148,0 m3/h @ 20 Pa	
Sound power level at the optimal operating point	5,5 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	42,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °C / 50 Hz -40 °C / 60 Hz	
Max. permitted ambient temperature TU max.	75 °C / 50 Hz 85 °C / 60 Hz	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	100 °C	

4.2 Climatic requirements*)

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas requirements	None	

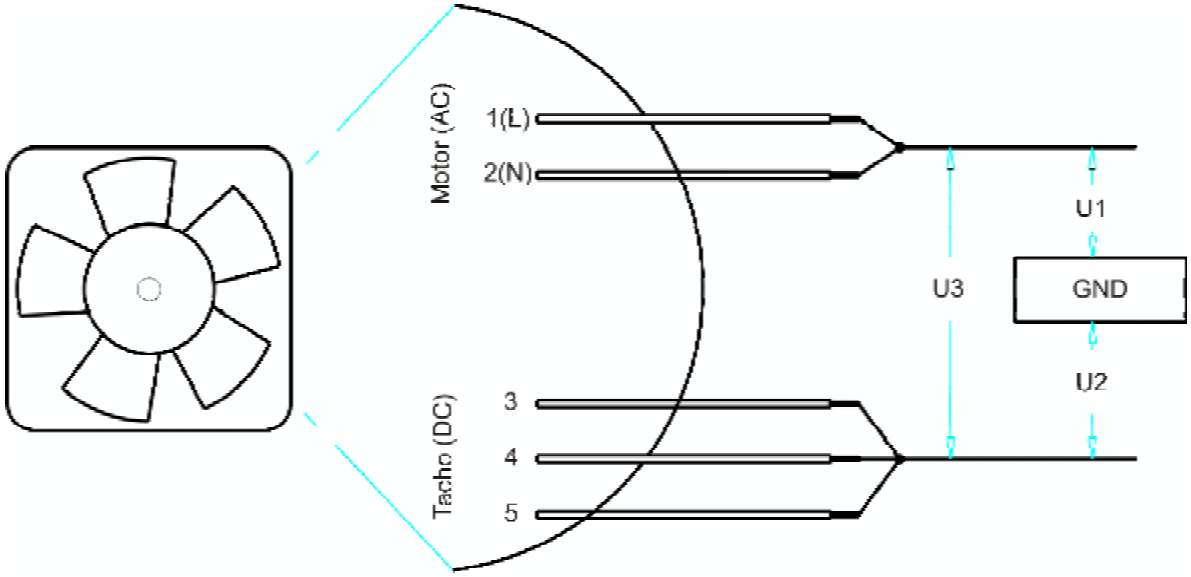
*) Permittet application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

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.

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test (Motor to ground U1) Measuring conditions: After 48 h of storage at 95% r. h. and 25°C. No arcing or breakdown is allowed! All motor connections together to ground! B.) Routine test (Motor to ground U1) Measuring conditions: At indoor climate.No arcing or breakdown is allowed! All motor connections together to ground!	 1500 VAC / 1 Min. 1500 VAC / 1 Sec.
Insulation resistance (Motor to ground U1) Measuring conditions: After 48 h of storage at 95% r. h. and 25°C measured with U = 500 VDC for 1 min.	RI > 10 MOhm
C.) Type test (Tacho to ground U2) Measuring conditions: After 48 h of storage at 95% r. h. and 25°C. No arcing or breakdown is allowed! All tacho connections together to ground! D.) Routine test (Tacho to ground U2) Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All tacho connections together to ground!	500 VAC / 1 Min. 600 VAC / 1 Sec.
E.) Type test (Tacho to Motor U3) Measuring conditions: After 48 h of storage at 95% r. h. and 25°C. No arcing or breakdown is allowed! All tacho connections together to all motor connections! F.) Routine test (Tacho to Motor U3) Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All tacho connections together to all motor connections!	3750 VAC / 1 Min. 4200 VAC / 1 Sec.
Insulation resistance (Tacho to Motor U3) Measuring conditions: After 48 h of storage at 95% r. h. and 25°C measured with U = 1000 VDC for 1 min.	RI > 20 MOhm
Air and leakage distances	2,0 mm / 1,8 mm
Protection class	I



5.2 Approval Tests

CE	Yes
UL	Yes / UL507, Electric Fans
VDE	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Yes / C22.2 No. 113 Fans and Ventilators
CCC	Yes / GB 12350 Safety Requirements for small Power Motors

The approval tests are observed to:
U approval max.: 230 V / f: 60 Hz @ TU approval max.: 85 °C

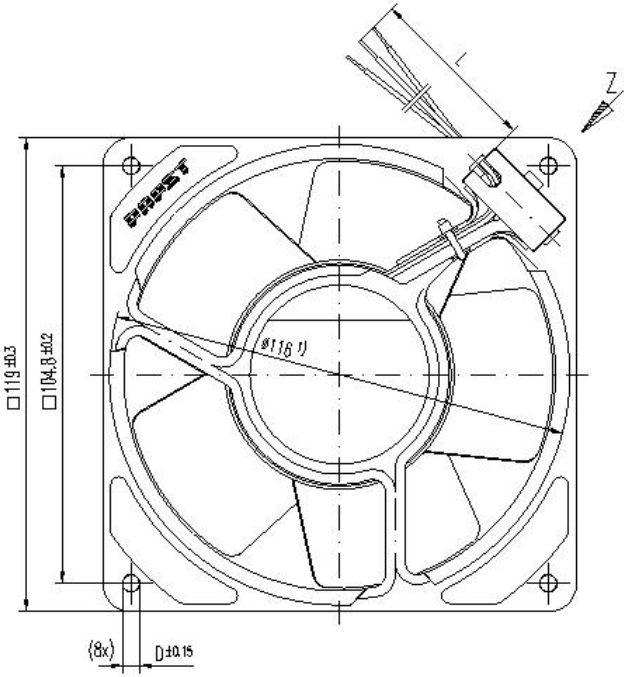
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	37.500 h / 50 Hz 40.000 h / 60 Hz	
Life expectancy L10 at TU max.	17.500 h / 50 Hz 15.000 h / 60 Hz	

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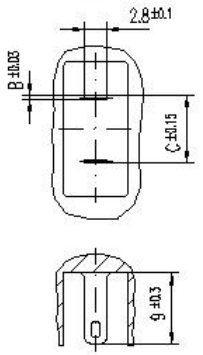
Schutzvermerk nach DIN 34 beachten

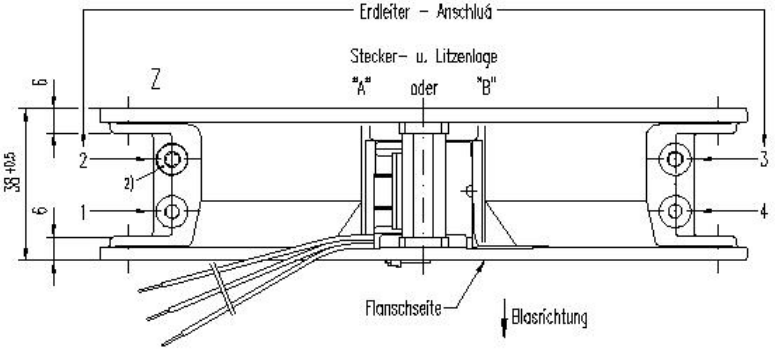


	Erzeugnis-Nr.	Typ	Lagersystem K=Kugellager G=Gleitlager GF=Gleitlag. +Feder	Befestigungs-loch – ø D	Stecker-maße B/C	Stecker- u. Litzenlage	Lage des Erdleiter-Anschlusses	Litzenlänge L
	924 4014 870	4656 ZH	K	4.3	0.5/8.5	"A"	2	310 ±10
	924 4014 878	4606 ZH	K	4.3	0.5/8.5	"A"	2	310 ±10
	924 4014 888	4586 ZH-888	K	4.3	0.5/8.5	"A"	2	420 ±10
	924 4014 969	4600 ZH	G	4.3	0.5/8.5	"A"	2	310 ±10
①	924 4014 010	4536 ZH-010	K	4.3	0.5/8.5	"A"	2	950 ±10 ②

Maße f?r Steckeranschluß

2:1





1) = Maß f?r Montagewand

2) = Schraube: Duo-Taptite nach DIN 7500, CM 4xB, Torx

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 – 0.6
- Gleitlagerung (GF): 0 (mit Federausgleich)

082
210
232
235
240
516
319x

Allgemeintoleranzen: DIN ISO 2768-mK

Index	Änd.-Nr.	Datum	Geändert von
g	97554	18.09.97	Kieninger
f	Ergänzung	10.06.97	Vogt. W-D
e	63/97	31.01.97	Nuber J.
d	446/96	24.09.96	Nuber J.
c	024/96	19.01.96	Kieninger

Zur Verwendung im Verteiler freigegeben von Wrobel G. am 06.10.97

	Datum	Name
Erstellt	06.05.95	Kieninger A.
Geprüft	26.07.95	Wrobel G.

PAPST

PAPST-MOTOREN GmbH & Co KG
D-78112 St.Georgen
Germany

Artikel: Axiall?fter

Maßstab: 1:1 (2:1)

Zchg.-Nr.: 924 4014 870

Blatt 2

Ers.f.Zchg.:

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