

Product Data Sheet 4650 N-465

ebm**papst**

The engineer's choice



4650 N-465**INDEX**

1	General	3
2	Mechanics	3
2.1	GENERAL.....	3
2.2	CONNECTIONS	4
3	Operating Data.....	5
3.1	ELECTRICAL OPERATING DATA	5
3.2	ELECTRICAL FEATURES	5
3.3	AERODYNAMICS	5
3.4	SOUND DATA	6
4	Environment.....	6
4.1	GENERAL.....	6
4.2	CLIMATIC REQUIREMENTS*).....	6
5	Safety.....	7
5.1	ELECTRICAL SAFETY	7
5.2	APPROVAL TESTS	7
6	Reliability.....	7
6.1	GENERAL.....	7

1 General

Fan type	Fan
Rotating direction looking at rotor	Clockwise
Airflow direction	Air intake over struts
Bearing system	Sleeve bearing
Mounting position - shaft	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	
Mass	0,550 kg	
Housing material	Metal	
Impeller material	Metal	
	Wire outlet corner: 190 Ncm Remaining corners: 310 Ncm	

2.2 Connections

Electrical connection	Plug	
Lead wire length	See drawing	
Tolerance		
Tube length	See drawing	
Tolerance		
Wire size (AWG)		
Insulation diameter		
Plug	See drawing	
Contact	See drawing	



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 RMS line current

Features	Condition	Symbol	Values	
Frequency	$\Delta p = 0$	f	50 Hz	60 Hz
Nominal voltage	$\Delta p = 0$	U_N	230 V	230 V
Tolerance			+ 6 % - 10 %	+ 6 % - 10 %
Power consumption	$\Delta p = 0$	P	19 W	18 W
Tolerance			+ 5 % - 10 %	+ 5 % - 10 %
Speed	$\Delta p = 0$	n	2.680 1/min	3.060 1/min
Tolerance			+/- 3 %	+/- 3 %

3.2 Electrical Features

Locked rotor protection	Impedance
Locked rotor current at	

3.3 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:

2.680 1/min at free air flow

Frequency: 50 Hz

Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \max.$)	157,7 m ³ /h
Max. static pressure ($\Delta p = \max.$ / $\dot{V} = 0$)	72 Pa

b.) Operation condition:

3.060 1/min at free air flow

Frequency: 60 Hz

Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \max.$)	179,3 m ³ /h
Max. static pressure ($\Delta p = \max.$ / $\dot{V} = 0$)	68 Pa

3.4 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) 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:

2.680 1/min at free air flow

Frequency: 50 Hz

Optimal operating point	@ 35 Pa	
Sound power level at the optimal operating point	5,7 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	46,0 dB(A)	

b.) Operation condition:

3.060 1/min at free air flow

Frequency: 60 Hz

Optimal operating point	@ 41 Pa	
Sound power level at the optimal operating point	6,0 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	50,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-10 °C / 50 Hz -10 °C / 60 Hz	
Max. permitted ambient temperature TU max.	55 °C / 50 Hz 60 °C / 60 Hz	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements*)

not specified

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.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	
Clearance / creepage distance	2,0 mm / 1,8 mm
Protection class	I

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.: 230 V / f: 60 Hz @ TU approval max.: 60 °C

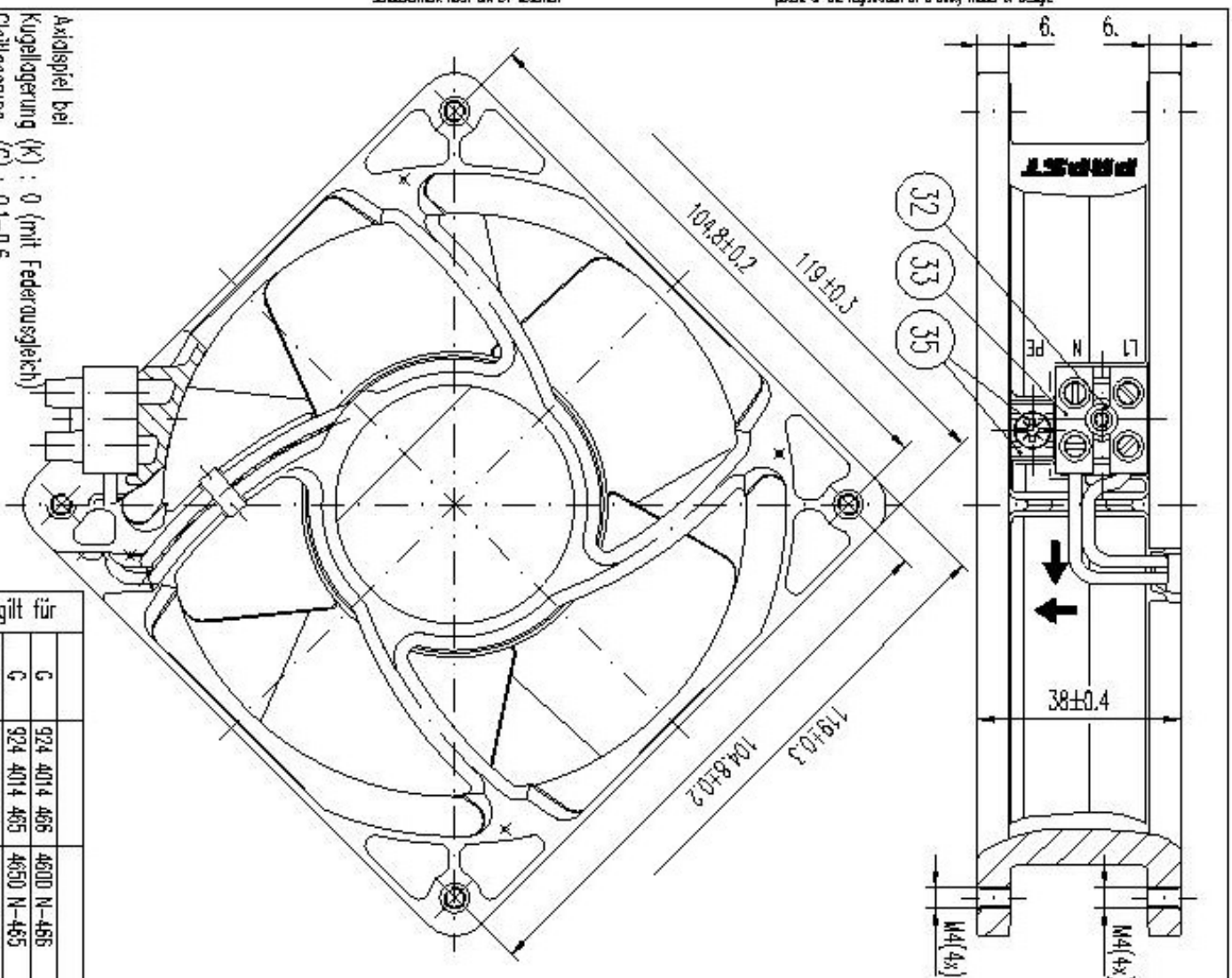
6 Reliability

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.	27.500 h / 50 Hz 25.000 h / 60 Hz	

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.

Schutzmerk nach DIN 24 beschrieben



Axialspiel bei
Kugellagerung (K) : 0 (mit Federausgleich)
Gleißlagerung (G) : 0,1-0,6

gilt für			
G	924 4014 466	4600 N-466	
G	924 4014 465	4650 N-465	
Lagersystem	Erzeugnis-Nr.	Typ	

Allgemeinabzeichen

DIN ISO 2768-mK

Antrieb		Nabenstich	
Datum	Name		
Erstellt	Nuber J.		
Geprüft			
Zug.-Nr.		Bauteil	
Zur Verwendung im Vertrieb freigegeben			
von Wöbel G. am			

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

Zug.-Nr.		Bauteil
Ers./Zug.-	1	