



The engineer's choice

ebmpapst

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	AERODYNAMIC.....	5
3.4	SOUND DATA.....	6
4	Environment	7
4.1	GENERAL	7
5	Safety	7
5.1	ELECTRICAL SAFETY.....	7
5.2	APPROVAL TESTS.....	8
6	Reliability	8
6.1	GENERAL	8

1 General

Fan type	Fan
Rotational direction looking at rotor	clockwise
Airflow direction	Air intake over struts
Bearing system	Sleeve 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	0,550 kg	
Housing material	Metal	
Impeller material	Metal	
	wire outlet corner: 190 Ncm remaining corners: 310 Ncm	

2.2 Connections

Electrical connection	Plug	
Length of lead wire	see drawing	
Tolerance		
Length of tube	see drawing	
Tolerance		
Wire gauge (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 section 3.4)

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	230,0 V	230,0 V
Tolerance			+ 6,0 % - 10,0 %	+ 6,0 % - 10,0 %
Power consumption	$\Delta p = 0$	P	18,0 W	17,0 W
Tolerance			+ 5,0 % - 10,0 %	+ 5,0 % - 10,0 %
Speed	$\Delta p = 0$	n	2.680 1/min	3.060 1/min
Tolerance			+/- 3,0 %	+/- 3,0 %

3.2 Electrical Features

Locked rotor protection	Impedance
Locked rotor current at U_N	

3.3 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.
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)
 Measured in a semianchoic chamber with a background noise level of $L_p(A) < 5 \text{ dB}(A)$
 For further measurement conditions see section 3.4

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	

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!	
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.	
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!	
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!	
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.	
clearance / creepage distance	2,0 mm / 1,8 mm
Protection class	I

5.2 Approval Tests

CE	No
UL	No
VDE	No
CSA	No
CCC	No

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	

