

Product Data Sheet **9292506485**
VWCD080YKEHS
8418 N/2H

ebm**papst**

engineering a better life



8418 N/2H

INDEX

1	General	3
2	Mechanics	3
2.1	General	3
2.2	Connections	3
3	Operating Data.....	4
3.1	Electrical Interface - Input	4
3.2	Electrical Operating Data	5
3.3	Electrical Interface - Output	6
3.4	Electrical Features	7
3.5	Aerodynamics	8
3.6	Sound Data	9
4	Environment.....	9
4.1	General	9
4.2	Climatic Requirements.....	9
5	Safety.....	10
5.1	Electrical Safety	10
5.2	Approval Tests	10
6	Reliability.....	10
6.1	General	10

1 General

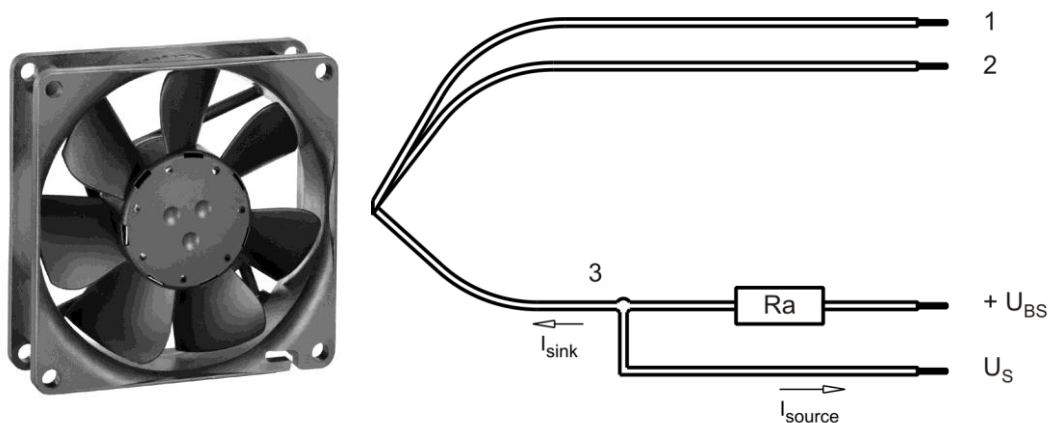
Fan type	Axial	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

2 Mechanics**2.1 General**

Width	80,0 mm	
Height	80,0 mm	
Depth	25,4 mm	
Mass	0,095 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 50 Ncm Remaining corners: 70 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 24	1,55 mm
2	blue	- GND	AWG 24	1,55 mm
3	white	Tacho	AWG 24	1,55 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 Interface - Input

Control input	PWM
---------------	-----

Features

Inpute type	Open collector	
PWM - Frequency		2 kHz - 5 kHz

Characteristics

PWM [%]	Speed [1/min]
0	0
10	1000
20	1500
30	2000
40	2500
50	3000
60	3500
70	3750
80	3750
90	3750
100	3750

Schematics

Lüfter / Fan

Kunde / Customer

+ U_B

+ interne Referenz /
+ internal reference

R2

R1

Eingang / Input

T

- GND

C

ebmpapst

06/03/2024

page 4 of 11

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 chapter aerodynamics)
 I: corresp. to arithm. mean current value

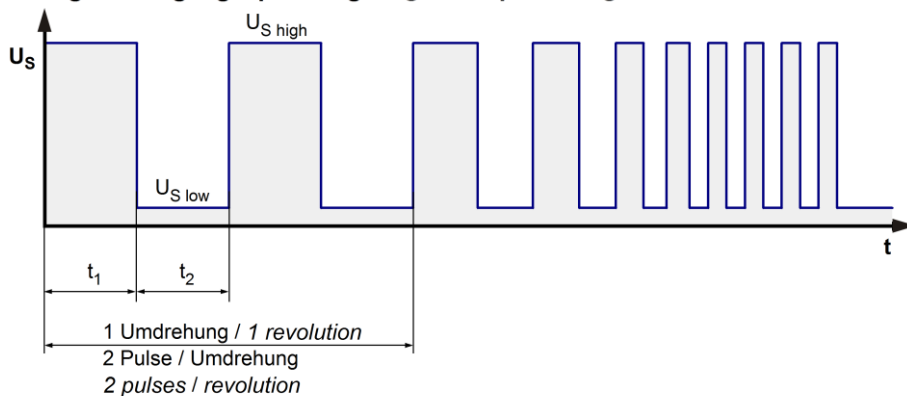
Name	Condition
PWM 0001	PWM: >= 90 %;

Features	Condition	Symbol	Values		
Voltage range		U	35,0 V		60,0 V
Nominal voltage		U _N		48,0 V	
Power consumption	$\Delta p = 0$	P	0,53 W	3,4 W	3,6 W
Tolerance	PWM 0002		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Current consumption	$\Delta p = 0$	I	50 mA	70 mA	60 mA
Tolerance	PWM 0010		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Speed	$\Delta p = 0$	n	2.950 1/min	3.700 1/min	3.700 1/min
Tolerance	PWM 0010		+/- 12,5 %	+/- 4,0 %	+/- 4,0 %
Starting current consumption				175 mA	

3.3 Electrical Interface - Output

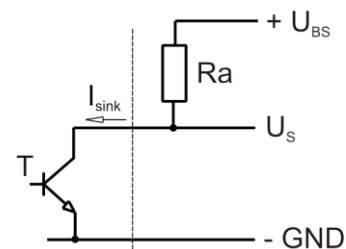
Tacho type	/2 (open collector)
------------	---------------------

Signal-Ausgangsspannung / Signal output voltage

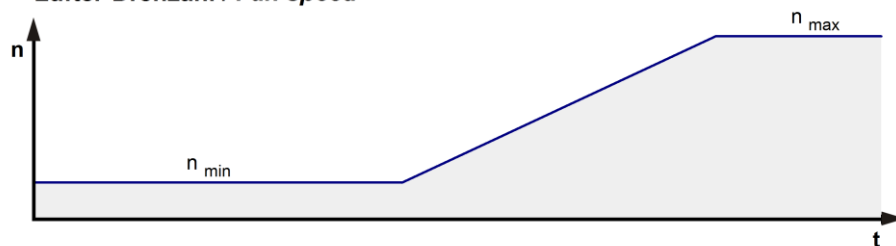


$$R_a = \frac{U_{BS} - U_{S\ low}}{I_{sink}}$$

Lüfter / Fan Kunde / Customer



Lüfter-Drehzahl / Fan speed

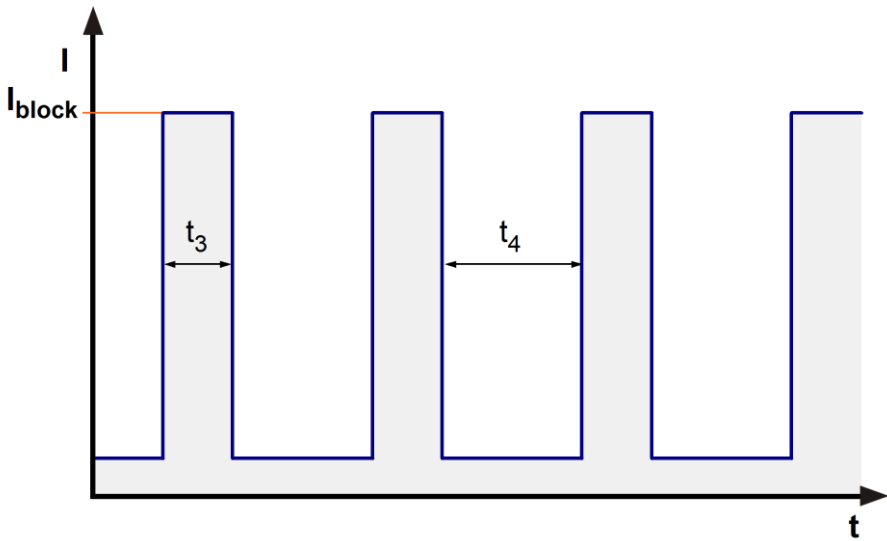


Features	Note	Values
Tacho operating voltage	U_{BS}	$\leq 60\text{ V}$
Tacho signal Low	$U_{S\ low}$	$\leq 0,4\text{ V}$
Tacho signal High	$U_{S\ high}$	$\leq 60\text{ V}$
Maximum sink current	I_{sink}	$\leq 4\text{ mA}$
External resistor	External resistor R_a from U_{BS} to U_S required. All voltages measured to GND.	
Tacho frequency	$(2 \times n) / 60$	123 Hz
Tacho isolated from motor	No	
Slew rate		$\geq 0,5\text{ V/us}$

n = revolutions per minute (1/min)

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 100 \mu A$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 175 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 1,0 s / 10 s	



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;

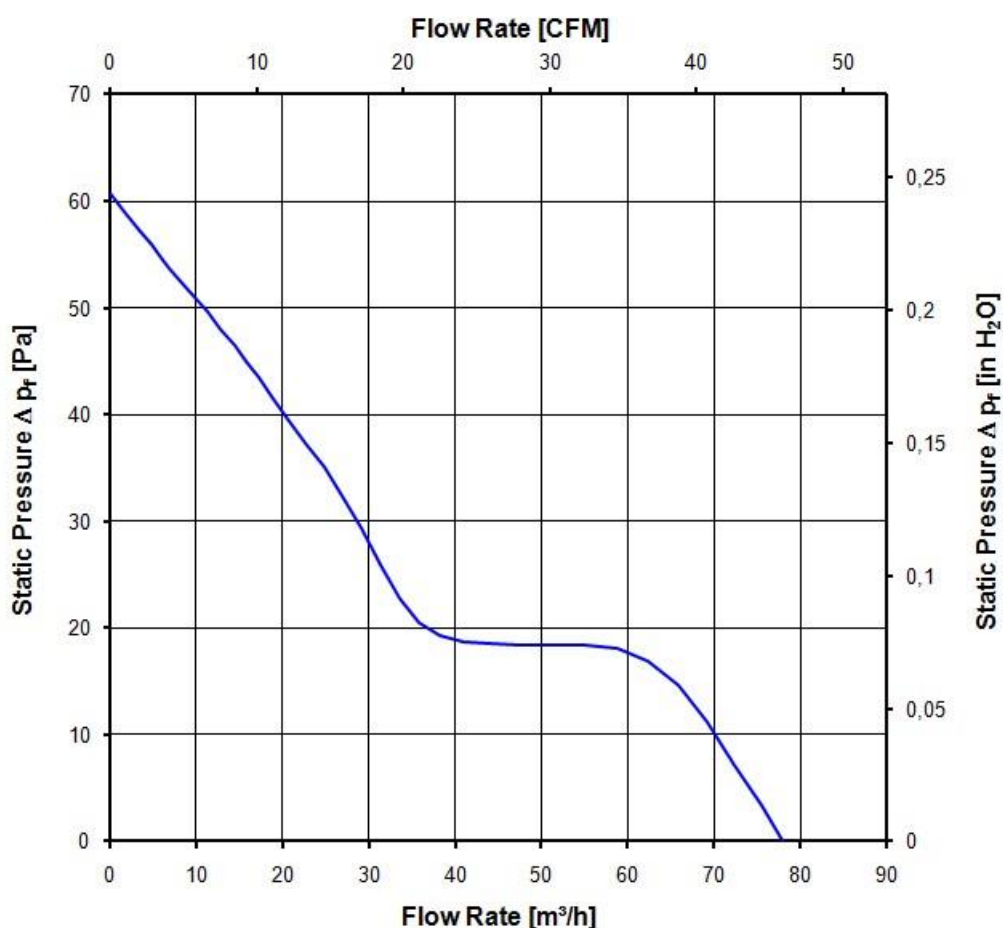
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

3.700 1/min at free air flow	PWM >= 90 %;		
------------------------------	--------------	--	--

Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \text{max.}$)	78,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.}$ / $\dot{V} = 0$)	60 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 semianechoic chamber with a background noise level of $L_p(A) < 5 \text{ dB(A)}$
For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

3.700 1/min at free air flow	PWM $\geq 90 \%$;		
------------------------------	--------------------	--	--

Optimal operating point	66,0 m ³ /h @ 13 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)	

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.	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**

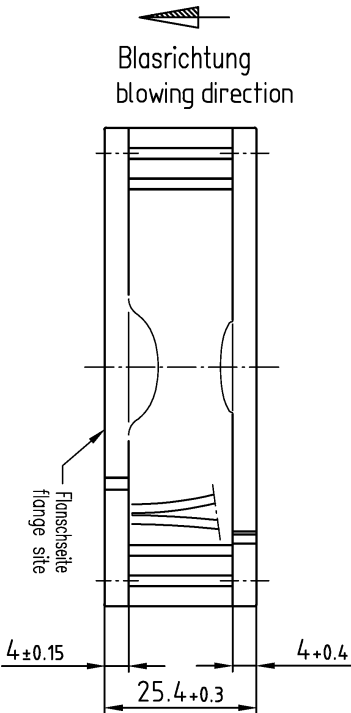
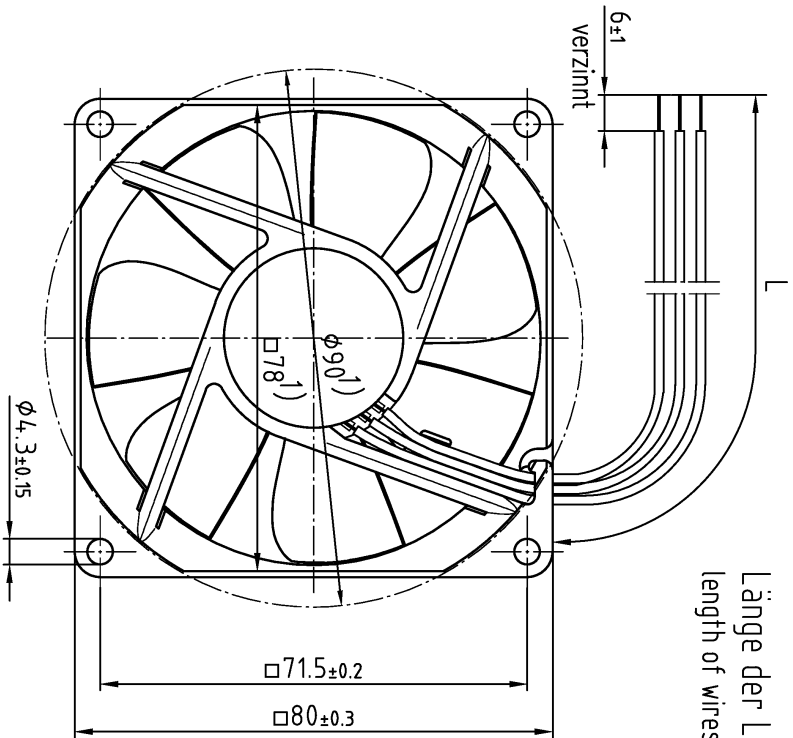
Dielectric strength DIN EN 62368 and DIN EN 60335 A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	Not applicable Not applicable	
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 E38324
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 62368 - Audio/video, information and communication 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

6 Reliability**6.1 General**

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	117.500 h	



1) Maße für Montagewand

Axialspiel bei

- Kugellagerung (K): 0 (mit Federausgleich)
- Gleitlagerung (G): 0.1 - 0.9

1) dimensions for assembly wall

axial clearance by

- ball bearing (K): 0 (with spring compensation)
- sleeve bearing (G): 0.1 - 0.9

				eblmpapst		Werkstoff/Material:		Volumen/Volume (mm³)	
SAP-Status/State		Änd.-Nr./Change-Nr.		AutoCAD-System-Version		{ CAD-Umgebung/ CAD-Environment }		Gewicht/Mass (g):	
		Datum/Date		Name/Name					
		Bearb./ Drawn				Artikel/Title			
		Gepr./ Checked							
		Freig./ Released							
Tolerierung/Tolerances:									
Allgemeintoleranzen/Gen. tolerances:									
eblmpapst		Zchg.-Nr./Drawing-No.:				Ers.f.Zchg./Replaces:			
		Document type/Type of document		Teilendement (Part/Partel)		Index/Index		Format/Size	
								Massstab/scale	