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1 General

Fan type	Blower without chassis with intake nozzle	
Rotational direction looking at rotor	counterclockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Sleeve bearing	
Lubrication	see sectional drawing of the bearing	
Mounting position Tolerance	horizontal	

2 Mechanics

2.1 General

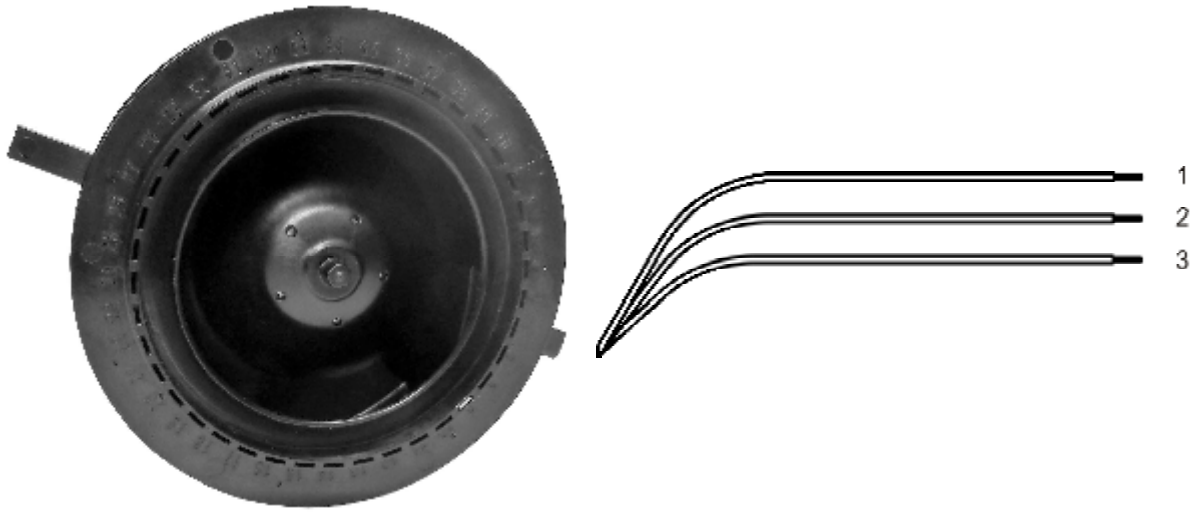
Width	0 mm	
Height	0 mm	
Depth	35 mm	
Diameter	130 mm	
Weight	0,15 kg	
Housing material	Plastic	
Impeller material	Plastic	

2.2 Motor

Operating mode	Continuous duty	
Insulation material class	E	

2.3 Connections

Electrical connection	Wires - Plug	
Length of lead wire Tolerance	see drawing	
Length of tube Tolerance	see drawing	
Wire gauge (AWG)	22	
Insulation diameter	1,63 mm	
Plug	see drawing	
Contact	see drawing	



	Colour	Operation
Wire 1	brown	+ UB
Wire 2	white	- GND
Wire 3	green	PWM

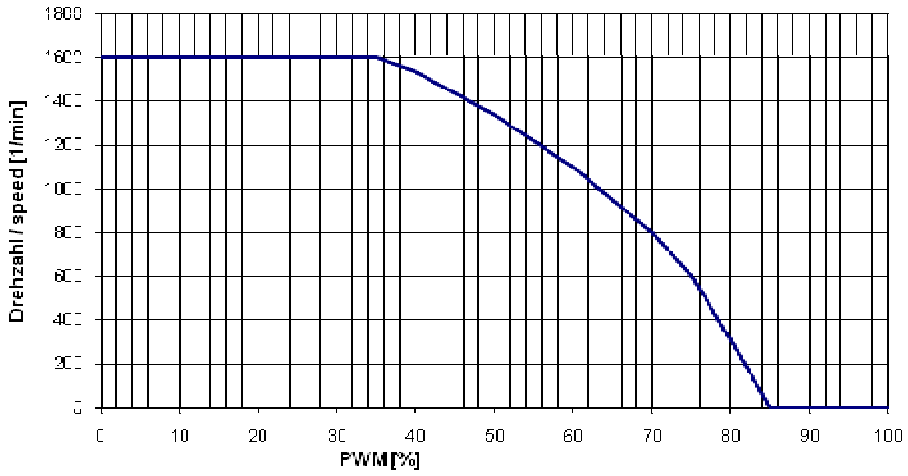
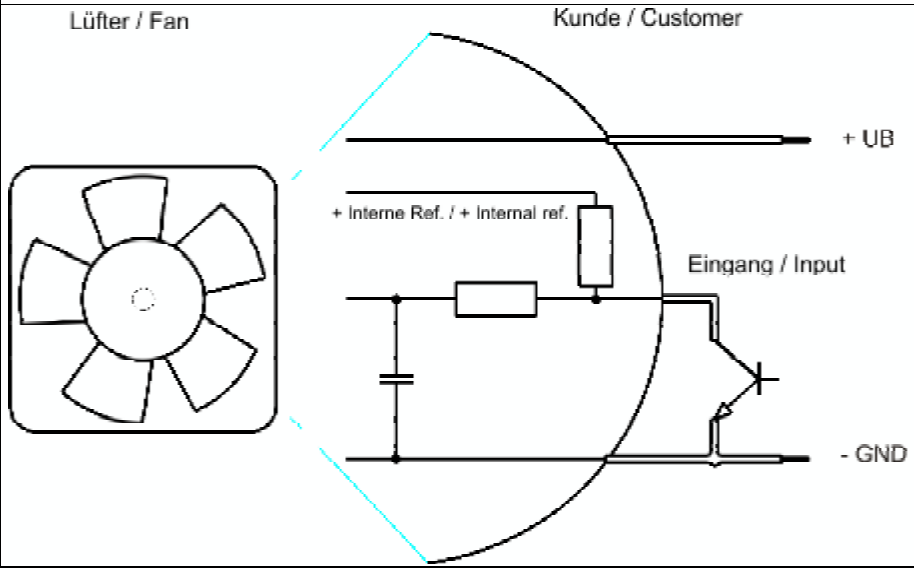
3 Operating Data

3.1 Operating Data - Electrical Interface - Input

Control input	PWM

Features

Inpute type	Open collector	
PWM - Frequency		90 Hz - 200 Hz Typical: 100 Hz

Characteristics	
Schematics	

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.

Δp = 0: corresp. to free air flow (see section 3.5)
I: corresp. to arithm. mean current value

Name	Condition		
PWM 0001	PWM: 0 %; f: 100 Hz	f: 90 Hz	f: 200 Hz

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	8,5 V		10,0 V
Nominal voltage	Δp = 0	U_N		9,0 V	
Power consumption Tolerance	Δp = 0 PWM 0001	P	1,0 W +- 17,5 %	1,1 W +- 12,0 %	1,45 W +- 15,0 %
Current consumption Tolerance	Δp = 0 PWM 0001	I	115 mA +- 17,5 %	120 mA*) +- 12,0 %	145 mA +- 15,0 %
Speed Tolerance	Δp = 0 PWM 0001	n	1.550 1/min +- 12,5 %	1.600 1/min*) +- 7,5 %	1.750 1/min +- 10 %
Starting current consumption				<= 350 mA	
Inrush current				160 mA	

Name	Condition		
PWM 0002	PWM: 50 %; f: 100 Hz	f: 90 Hz	f: 200 Hz

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	8,5 V		10,0 V
Nominal voltage	Δp = 0	U_N		9,0 V	
Power consumption Tolerance	Δp = 0 PWM 0002	P	0,58 W +- 17,5 %	0,58 W +- 17,5 %	0,58 W +- 15,0 %
Current consumption Tolerance	Δp = 0 PWM 0002	I	68 mA +- 17,5 %	65 mA*) +- 12,0 %	58 mA +- 15,0 %
Speed Tolerance	Δp = 0 PWM 0002	n	1.300 1/min **)	1.300 1/min*) **)	1.300 1/min **)

Name	Condition		
PWM 0003	PWM: 100 %; f: 100 Hz	f: 90 Hz	f: 200 Hz

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	8,5 V		10,0 V
Nominal voltage	Δp = 0	U_N		9,0 V	
Power consumption Tolerance	Δp = 0 PWM 0003	P	<= 0,1 W	<= 0,1 W	<= 0,1 W

Current consumption Tolerance	Δp = 0 PWM 0003	I	<= 10 mA	<= 10 mA*)	<= 10 mA
Speed Tolerance	Δp = 0 PWM 0003	n	0 1/min **)	0 1/min*) **)	0 1/min **)

) Vario Pro:	Unless otherwise specified in the table a general fan speed tolerance applies, relating to the maximum value of the required characteristic curve. Tolerance:+- 7,5 %

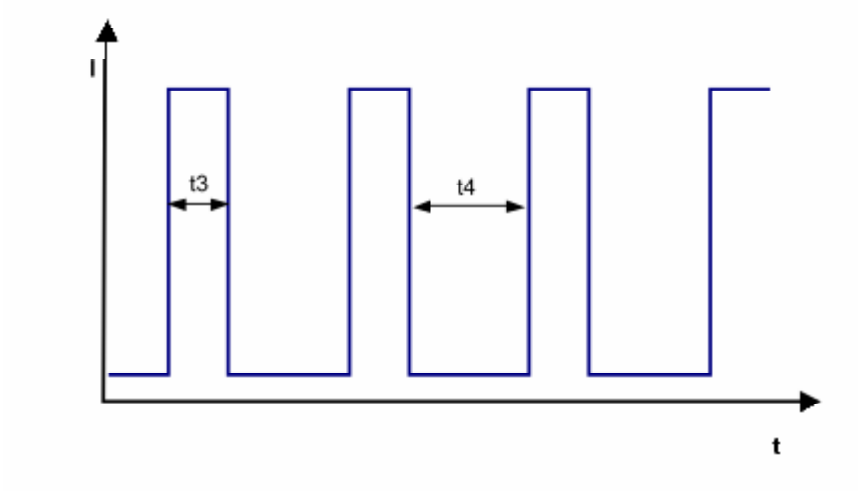
3.3 Operating Data - Electrical Interface -Output

Tacho type	None

Alarm type	None

3.4 Electrical Features

Electronic function	None	
Reversed polarity protection Max. residual current at Un	None	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 300 mA	
Clock signal t3/t4 at locked rotor	Typical: 2,8 s / 25 s	



3.5 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.

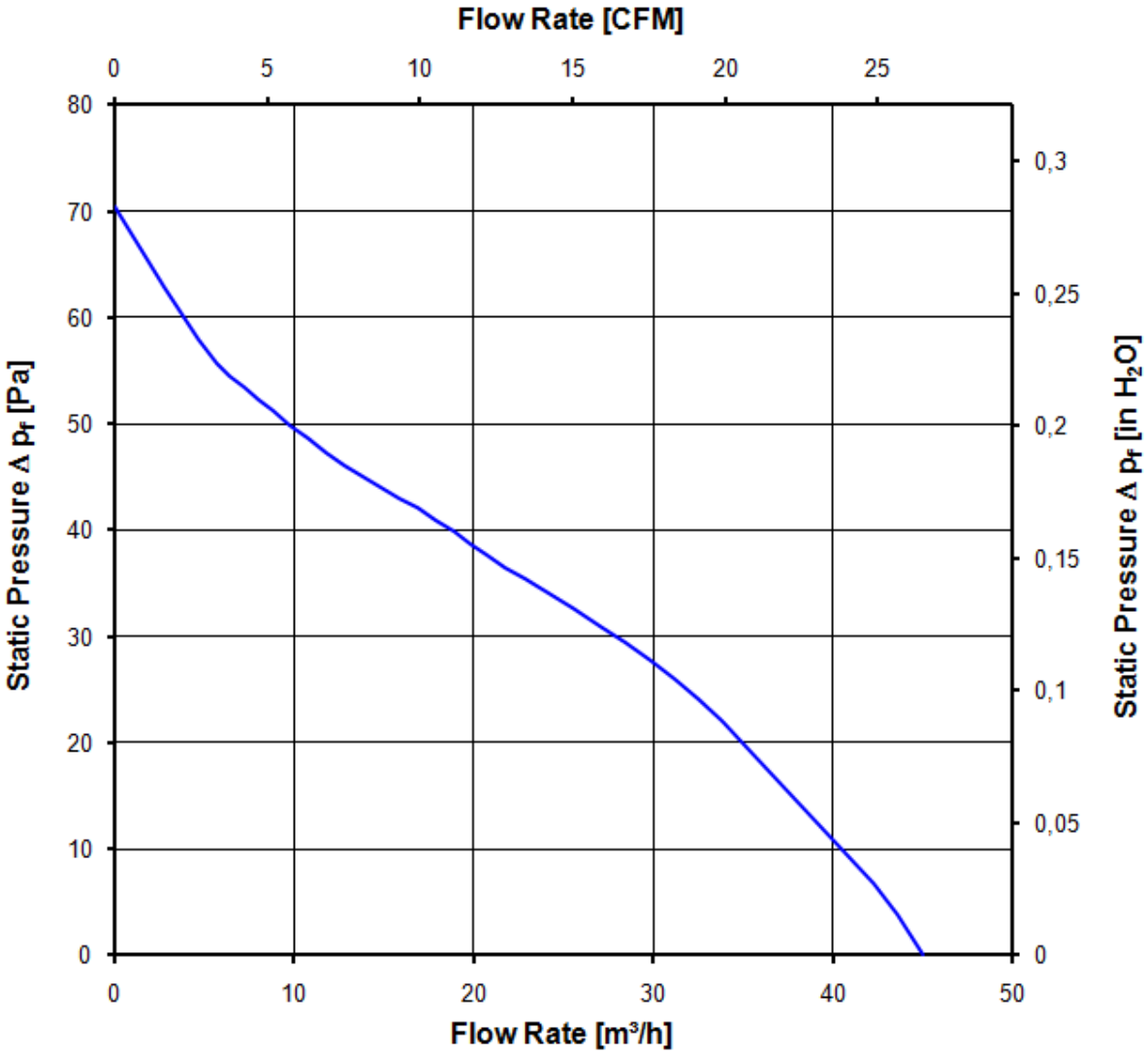
Measurement setup:	Measured with an aperture plate
Steel plate:	280 mm x 280 mm
Intake nozzle:	D: 67,3 mm; R: 10 mm
Distance between bottom and top plate:	38 mm
Overlapping impeller / nozzle:	

a.) Operation condition:

at free air flow	

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	45,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	70 Pa	

at free air flow	
at free air flow	



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:

at free air flow	

The operating point is specified by the customer.
At the operating point 20 m3/h at 11 Pa, is a sound power level of 34 dB(A) +/- 0.7 dB(A).

at free air flow	
at free air flow	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	43 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution occurs that becomes conductive due to condensation.

4.2 Climatic requirements*)

None - special customer climatic requirements

4.3 Mechanical requirements

Please require severity levels and specification parameters from the responsible development departments

4.4 EMC

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.	 1000 VAC / 1 Min. 1000 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		

Protection class: II

5.2 Approval Tests

CE	Yes
UL	No
VDE	Yes / Approval acc. to EN 60335 (VDE 0700) - Safety for household and similar electrical appliances
CSA	No
CCC	No

6 Reliability

6.1 General

Customer requirement for L10 value @20m3/11Pa : 80,000 h at -20.0 °C.

6.2 Additional Data

not specified