Product Data Sheet ACI 4400 /2HHP

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GREEN TECH

ACI 4400 /2HHP

INDEX

1 General 3
2 Mechanics 3
2.1 General 3
2.2 Connections 3
3 Operating Data 5
3.1 Electrical Interface - Input 5
3.2 Electrical Operating Data 6
3.3 Electrical Interface - Output 7
3.4 Electrical Features 8
3.5 Aerodynamics 9
3.6 Sound Data 10
4 Environment 10
4.1 General 10
4.2 Climatic Requirements 11
5 Safety 12
5.1 Electrical Safety 12
5.2 Approval Tests 12
6 Reliability 12
6.1 General 12

1 General

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

2 Mechanics

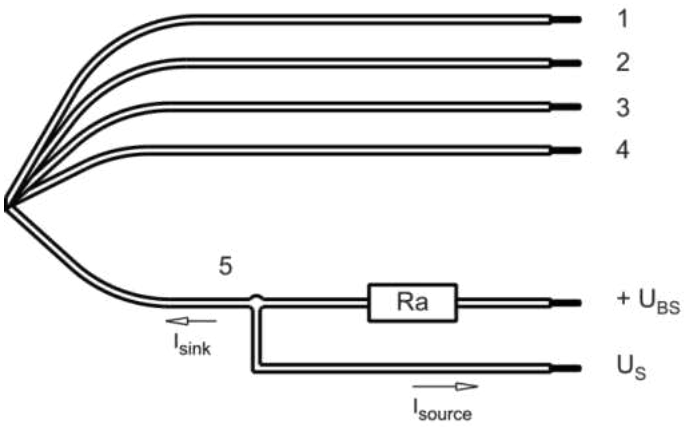
2.1 General

Width	120,0 mm	
Height	120,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Mass	0,275 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 50 Ncm Remaining corners: 80 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	
Rotor protrusion max.	0,6 mm	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	See drawing	
Tube length Tolerance	See drawing	
Wire size (AWG)	24	
Insulation diameter	1,5 mm	
Plug	See drawing	
Contact	See drawing	





Wire	Color	Operation
1	black	L1
2	black	L2
3	violet	PWM
4	blue	- GND PWM
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 Interface - Input

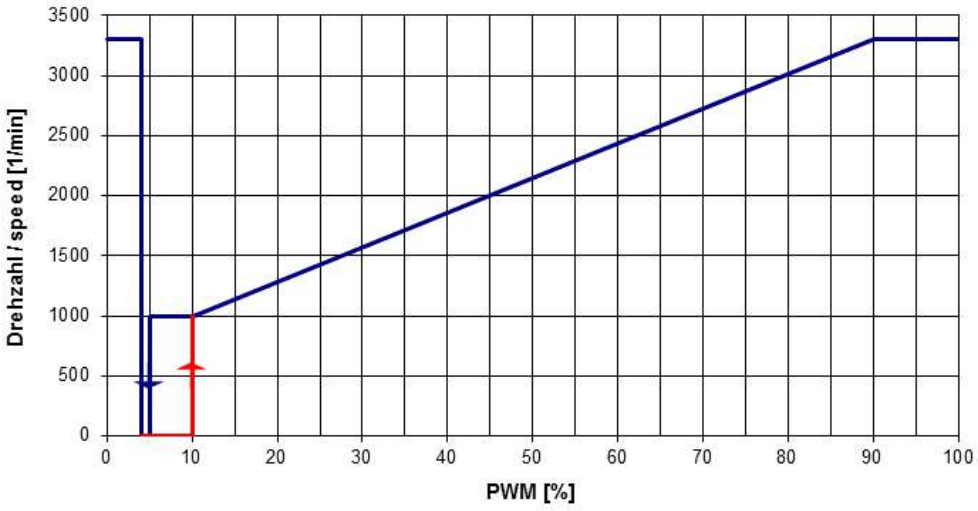
External voltage supply for input and output signals must be SELV conform.

Control input	PWM

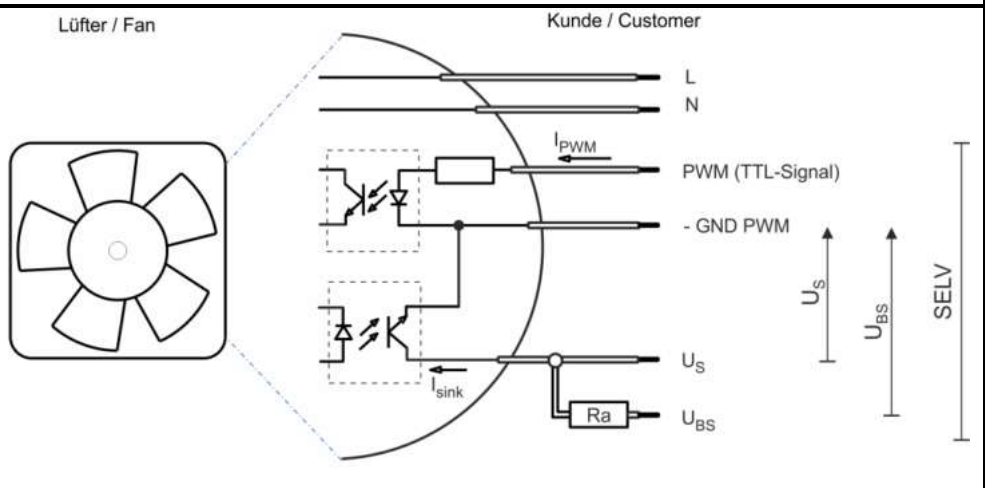
Features

Inpute type	TTL	
PWM - Frequency		1 kHz - 5 kHz
Max. voltage for logic "Low"		0,8 V
Max. voltage for logic "High"	Open circuit voltage	5,25 V

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.

$\Delta p = 0$: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Name	Condition		
PWM 0001	PWM: > 90 %;	f: 1 kHz	f: 5 kHz

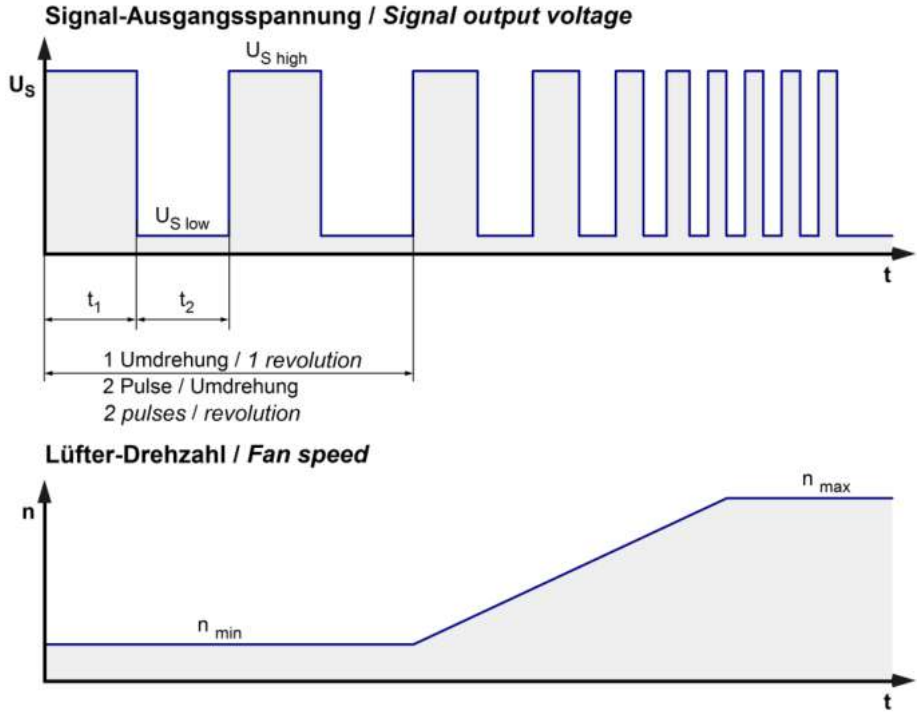
Features	Condition	Symbol	Values			
Voltage range Tolerance		U	100 V -10,0 %			240 V 10,0 %
Nominal voltage		U_N		115 V	230 V	
Frequency		f	50 Hz / 60 Hz			
Power consumption Tolerance	$\Delta p = 0$	P	4,6 W +- 15 %			
Current consumption Tolerance	$\Delta p = 0$	I_{RMS}	70 mA +- 15 %	69 mA +- 15 %	34 mA +- 15 %	40 mA +- 15 %
Speed Tolerance	$\Delta p = 0$	n	3.300 1/min +- 10 %			

) ***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: +- +- 10 %

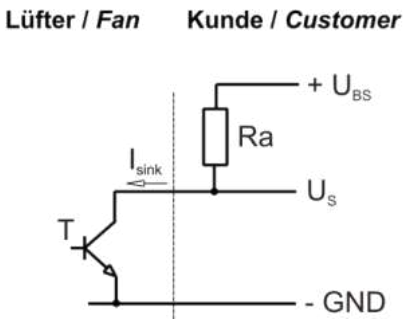
3.3 Electrical Interface - Output

External voltage supply for input and output signals must be SELV conform.

Tacho type	/2 (open collector)



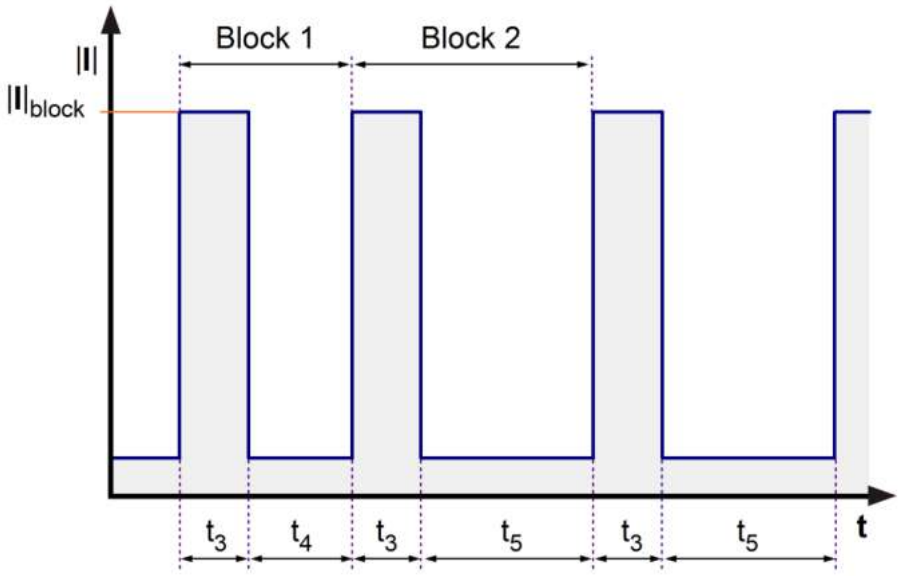
$$Ra = \frac{U_{BS} - U_{S\,low}}{I_{sink}}$$



Features	Note	Values
Tacho operating voltage		<= 60 V
Tacho signal Low *)	I sink: 0,5 mA	<= 0,3 V
Tacho signal High *)	I source: 0 mA	<= 60 V
Maximum sink current		1,5 mA
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency *)	(2 x n) / 60	
Tacho isolated from motor	Yes	

3.4 Electrical Features

Electronic function	Speed-Controlled	
Locked rotor protection	Auto restart	



3.5 Aerodynamics

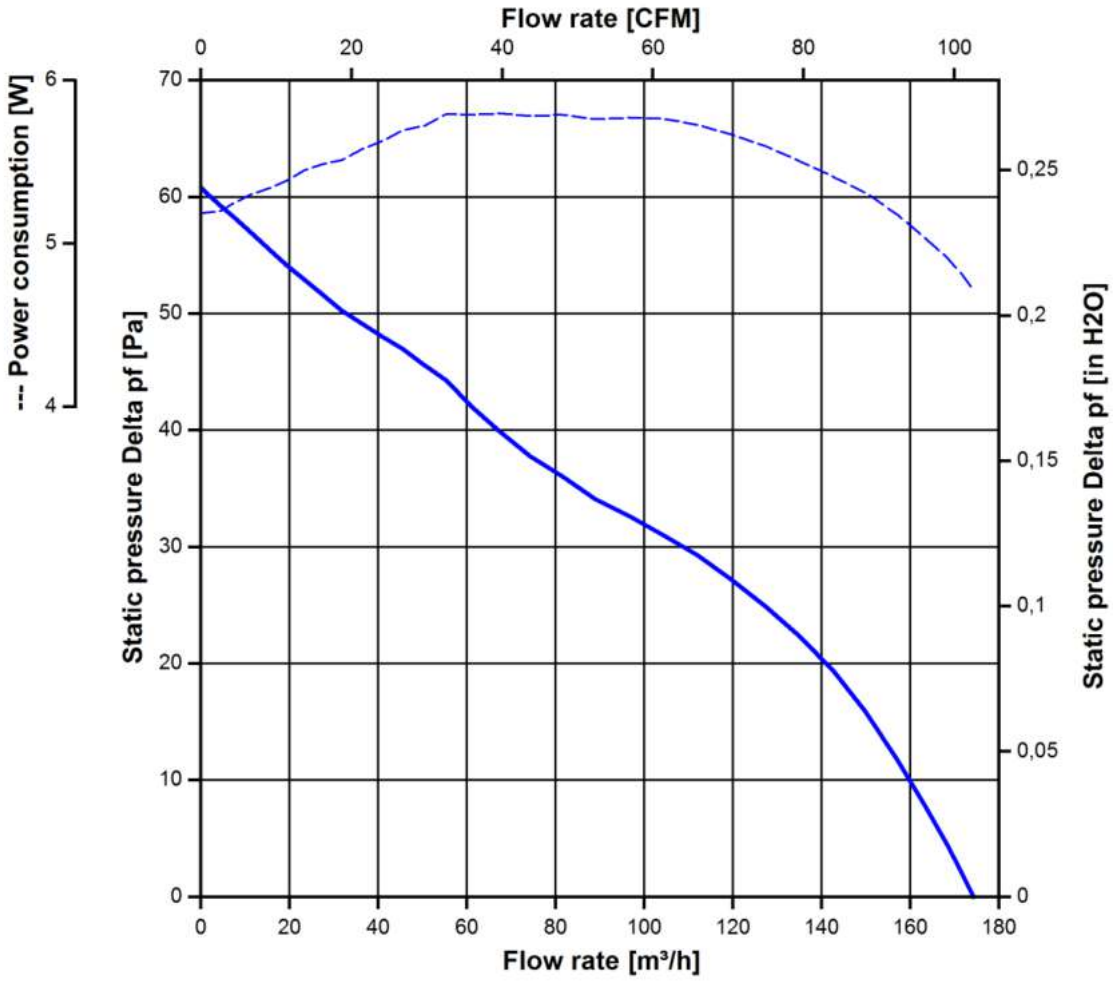
Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified 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:
3.300 1/min at free air flow Frequency: 50 Hz Nominal voltage: 230 V

Max. free-air flow (Δp = 0 / V̇ = max.)	175,0 m3/h
Max. static pressure (Δp = max. / V̇ =0)	61 Pa

b) Operation condition:
3.300 1/min at free air flow Frequency: 60 Hz Nominal voltage: 115 V

Max. free-air flow (Δp = 0 / V̇ = max.)	
Max. static pressure (Δp = max. / V̇ =0)	



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 chapter aerodynamics.

a) Operation condition:
3.300 1/min at free air flow Frequency: 50 Hz Nominal voltage: 230 V

Optimal operating point	100 m3/h @ 32 Pa	
Sound power level at the optimal operating point	5,3 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	44 dB(A)	

b) Operation condition:
3.300 1/min at free air flow Frequency: 60 Hz Nominal voltage: 115 V

Optimal operating point		
Sound power level at the optimal operating point		
Sound pressure level at free air flow, measured in rubber bands		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °C	
Max. permitted ambient temperature TU max.	75 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

IP-protection type (certified)	IP 20 **)	
Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
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.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

Short description of the IP-protection type:
Solid particle Protection: Protected against solid particles with a diameter of 12.5 mm and larger.
Protection against deliberate contact: Protected against contact to hazardous parts with a finger.
Protection against water: No protection.

5 Safety

5.1 Electrical Safety

A verification of thermal conditions (normal and abnormal operation) as well as the protection against electric shock, ingress of solid foreign objects and water has to be done in conjuction with the appliance.

Test voltage HV type test	3000 V
Unit test voltage	VAC
Time type test HV	1 s
Insulation resistance	RI > 10 MOhm
Protection class	built-in fan

5.2 Approval Tests

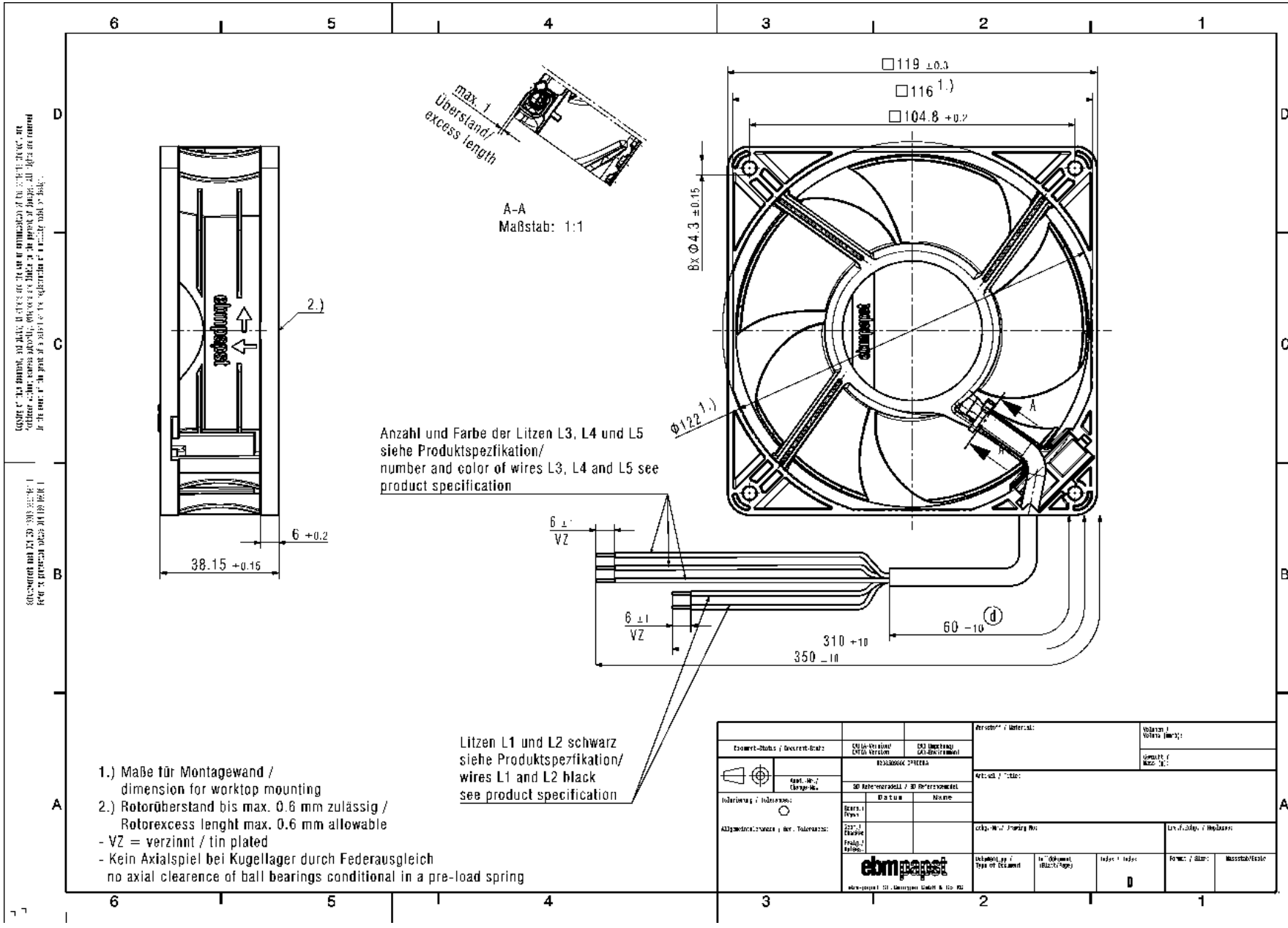
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60335 (VDE 0700) - Safety for household and similar electrical appliances
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors

According to the guidelines on the application of Directive 2006/95/EC, chapter III: Scope of the "low voltage" directive, paragraph: Are "components" included in the scope? the following has to be applied:
However, some types of electrical devices, designed and manufactured for being uses as basic components to be incorporated into other electrical equipment, are such that their safety to a very large extent depends on how they are integrated into the final product and the overall characteristics of the final product. These basic components include electronic and certain other components.
Taking into account these objectives of the "Low Voltage" Directive, such basic components, the safety of which can only, to a very large extend, be assessed taking into account, how they are incorporated and for which a risk assessment cannot be undertaken, then they are not covered as such by the Directive. In particular, they must not be CE marked unless covered by other Community legislation that requires CE marking.

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU max.	30.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	110.000 h	


□119 ±0.3
□116 1.)
□104.8 +0.2
8x Ø4.3 ±0.15
Ø122 1.)
max. 1
Überstand/
excess length
A-A
Maßstab: 1:1
2.)
6 +0.2
38.15 +0.15
Anzahl und Farbe der Litzen L3, L4 und L5
siehe Produktspezfikation/
number and color of wires L3, L4 and L5 see
product specification
6 ±1
VZ
6 ±1
VZ
310 +10
350 -10
60 -10
Litzen L1 und L2 schwarz
siehe Produktspezfikation/
wires L1 and L2 black
see product specification
1.) Maße für Montagewand /
dimension for worktop mounting
2.) Rotorüberstand bis max. 0.6 mm zulässig /
Rotorexcess lenght max. 0.6 mm allowable
- VZ = verzinnt / tin plated
- Kein Axialspiel bei Kugellager durch Federausgleich
no axial clearence of ball bearings conditional in a pre-load spring
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