Product Data Sheet DV6314/39TDH3AU-105

ebmpapst

The engineer's choice



GREEN TECH

DV6314/39TDH3AU-105

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6.1 General 13

1 General

Fan type	Mixed-flow fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Horizontal/vertical - rotor up	

2 Mechanics

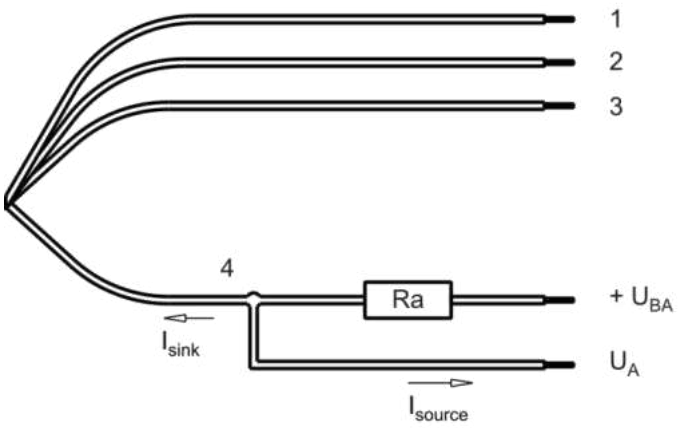
2.1 General

Depth	51 mm	
Diameter	178 mm	
Mass	1,15 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 180 Ncm Remaining corners: 180 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 550 mm +- 10 mm	
Tube length Tolerance	S = 20 mm +- 5 mm	





Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 18	2,2 mm
2	blue	- GND	AWG 18	2,2 mm
3	violet	CONTR	AWG 22	1,35 mm
4	white	Alarm	AWG 22	1,35 mm

Lead wire 1 - 2: AWG20 (Insulation diameter 1,8mm)
Lead wire 3 - 4: AWG22 (Insulation diameter 1,6mm)

3 Operating Data

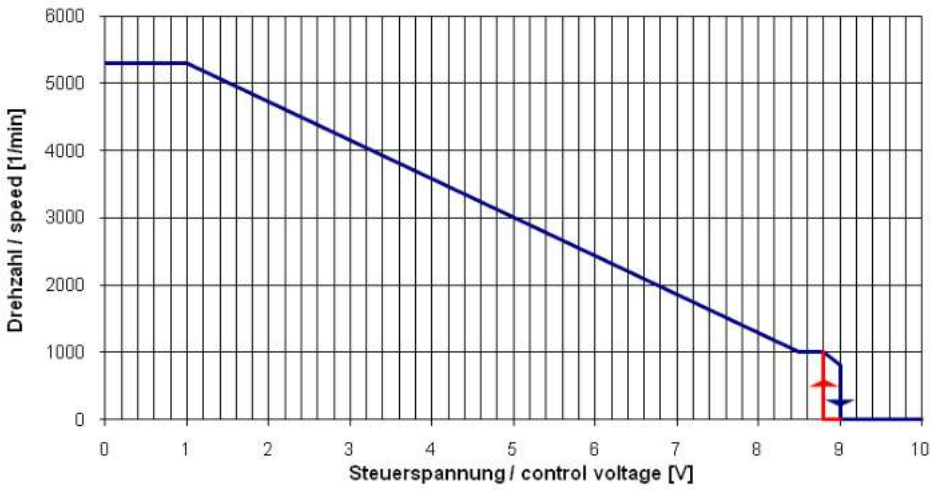
3.1 Electrical Interface - Input

Control input	Analog

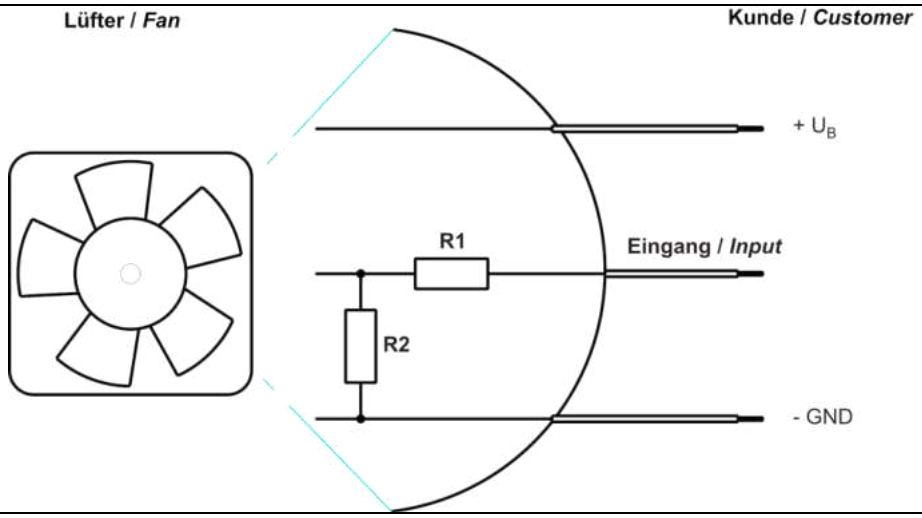
Features

Input voltage range		0 V - 10 V

Characteristics



Schematics



Information to the curve:

0V - 1V: 5.300 1/min (corresponding to maximum speed)
1V - 8,5V: linear falling characteristic (from 10V)
8,5V - 8,8V: 1000 1/min (corresponding to minimum speed.)
8,8V - 9V: linear falling characteristic (at 800 rpm, the fan switches off)
9V - 10V: 0 1/min
10V -> 8,8V 0 1/min
8,8V -> 8,5V 1000 1/min (corresponding to minimum speed)
Based on the power lifting the maximum speed can be 5800 1/min.

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.

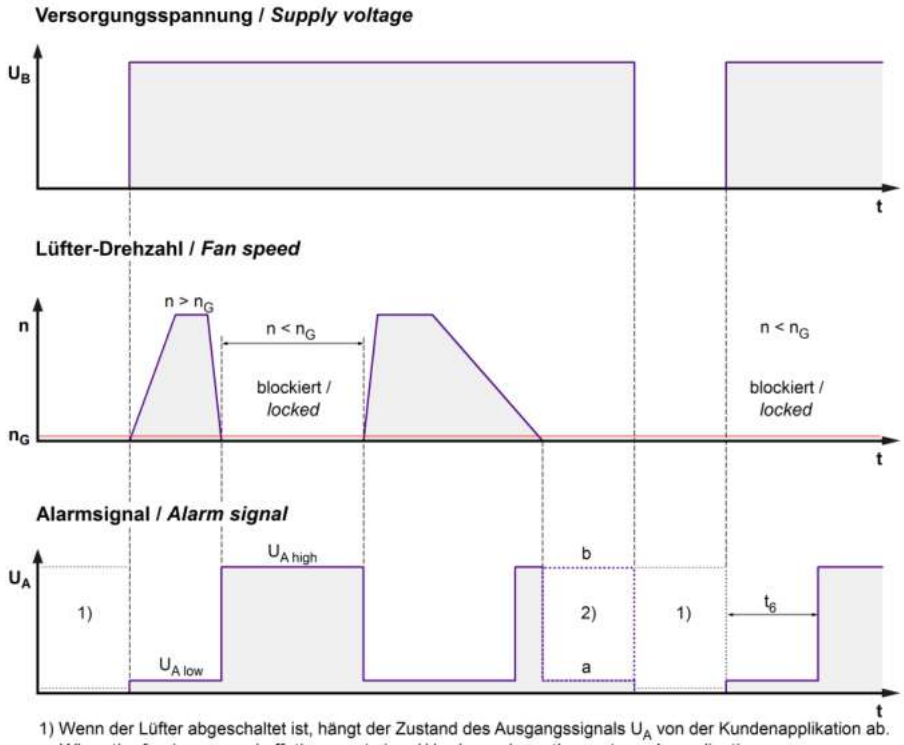
Δp = 0: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Name	Condition		
U Contr. 0001	U Contr.: 0 V		

Features	Condition	Symbol	Values		
Voltage range		U	16 V		36 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 U Contr. 0010	P	65 W +- 15 %	152 W +- 10,0 %	152 W +- 15 %
Current consumption Tolerance	Δp = 0 U Contr. 0010	I	4.100 mA +- 15 %	6.300 mA +- 15 %	4.200 mA +- 15 %
Speed Tolerance	Δp = 0 U Contr. 0010	n	4.000 1/min +- 10 %	5.300 1/min +- 10 %	5.300 1/min +- 10 %
recommended slew rate of the input voltage			ΔU / Δt = 100 V / sec.		
max. allowed input voltage ripple (within the specified voltage range)			+- 3 %		
max. allowed input voltage ripple (within the specified voltage range)			>= 50 Hz		

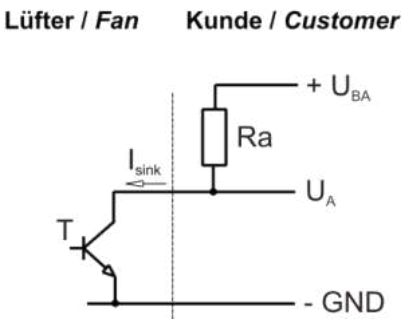
3.3 Electrical Interface - Output

Alarm type	/39 (low = ok, open collector)



1) Wenn der Lüfter abgeschaltet ist, hängt der Zustand des Ausgangssignals U_A von der Kundenapplikation ab.
When the fan is powered off, the ouput signal U_A depends on the customer's application.
2) Für den gültigen Zustand (a oder b) siehe Alarmunterdrückung in der Tabelle.
For the valid condition (a or b) see alarm suppression in the table.

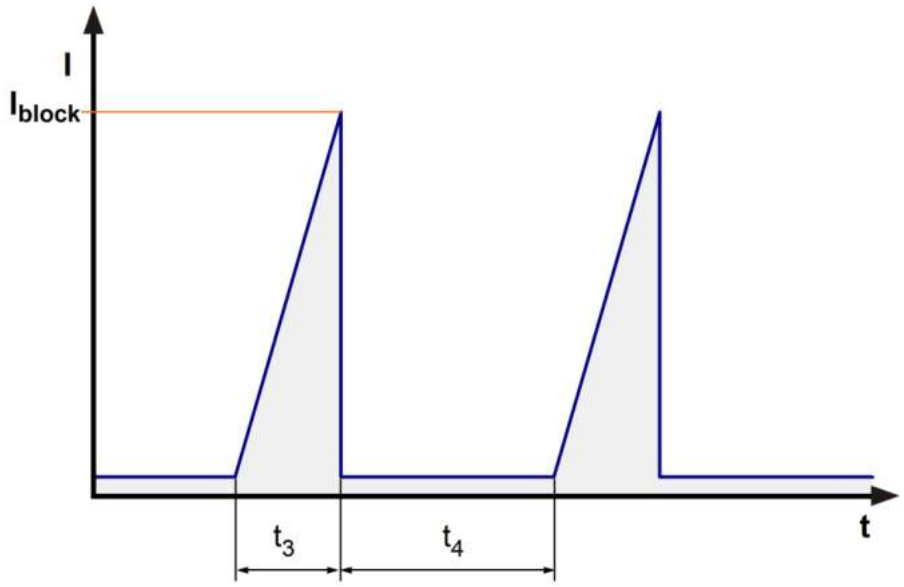
$$Ra = \frac{U_{BA} - U_{A\,low}}{I_{sink}}$$



Features		Note	Values
Alarm operating voltage	U_{BA}		<= 32 V
Alarm signal Low	$U_{A\,low}$	I sink: 2 mA	<= 0,4 V
Alarm signal High	$U_{A\,high}$	I source: 0 mA	<= 32 V
Maximum sink current	I_{sink}		<= 20 mA
External resistor		External resistor Ra from UBA to UA required. All voltage measured to GND.	
Alarm start-up delay time Tolerance	t_6		= 10 s +- 3 s
Alarm trip speed limit	n_G		850 1/min
Alarm isolated from motor		No	

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	N-CH FET I_F <= 5 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 4.000 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 6,0 s / 10,0 s	



3.5 Data According ErP Directive

Installation / Efficency category	A / static
Speed control	integrated
Specific ratio	1,00423
Target overall efficiency 2015	30,5 %
Overall efficiency	40,5 %
Efficiency grade	50
Power input	139,6 W
Speed	5.240 1/min

All values measured in optimum energy efficiency point.

Productiondatecode is printed on the fan label.

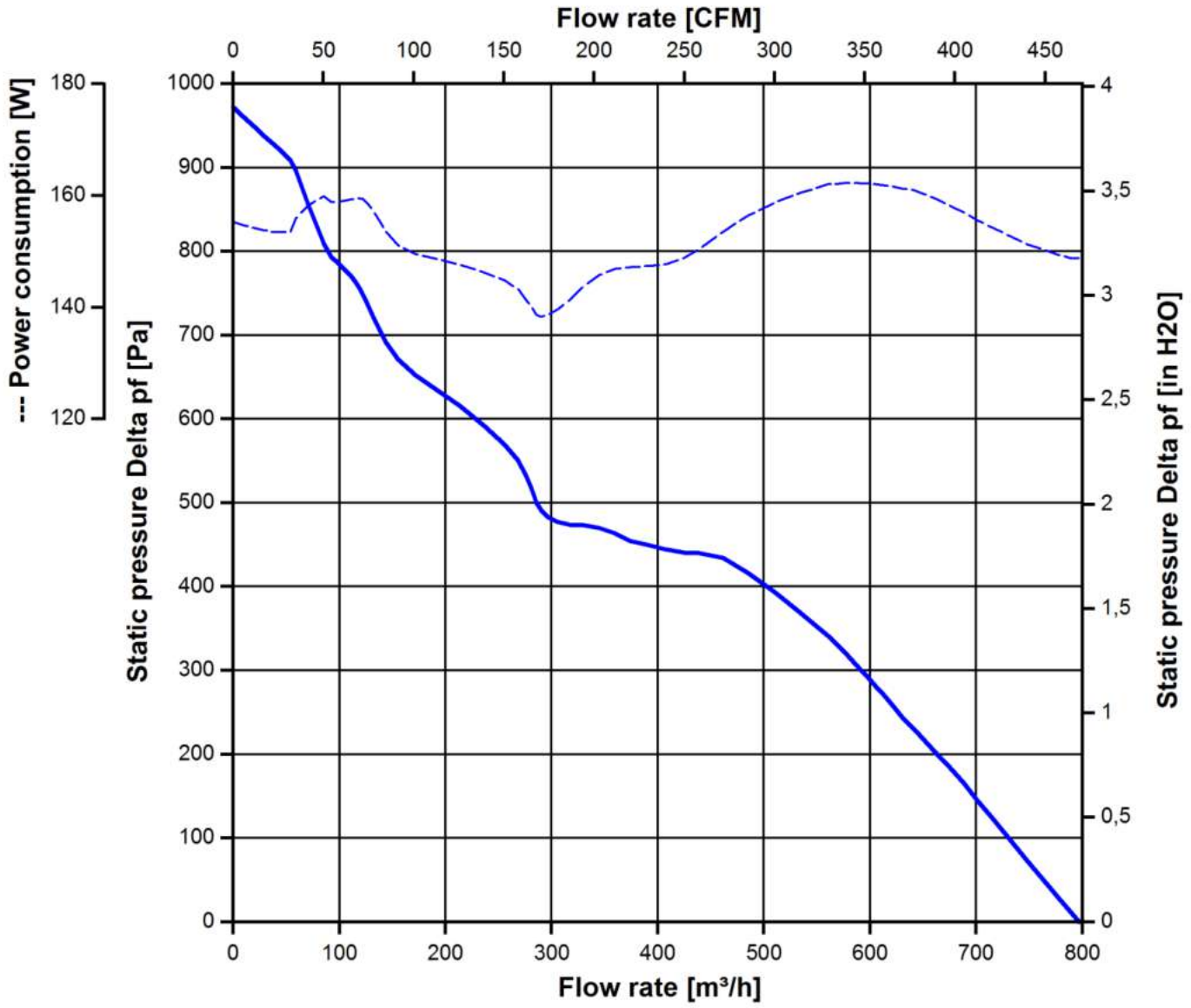
3.6 Aerodynamics

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. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

5.300 1/min at free air flow	U Contr. 0 V		

Max. free-air flow (Δp = 0 / V̇ = max.)	800,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	970 Pa	



3.7 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:

5.300 1/min at free air flow	U Contr. 0 V		

Optimal operating point	480,0 m3/h @ 286 Pa	
Sound power level at the optimal operating point	8,3 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	74,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	55 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days	
Water exposure	Immersion test IPX8; according to DIN EN 60529 VDE 0470, not certified	
Dust requirements	Dust check IP6X; according to DIN EN 60529 VDE 0470, not certified	
Salt fog requirements	Salt fog, constant (Bellcore II-R); according to DIN EN 60068-2-11; 30 days; operation at minimal speed	

Permitted application area:
The product is for the use in open and unsheltered areas. Direct exposure to water as well as saline ambient conditions are allowed provided that this does not prevent the normal operation.

Pollution degree 4 (according DIN EN 60664-1)
It occurs permanent conductivity caused by conductive dust, rain or moisture.

4.3 Mechanical Requirements

severity level	Railroad application	
1 IEC 61373 Category 1 Class B	Random vibration in use IEC 60068-2-64 Frequency range / ASD G_{RMS} Axes of vibration Test duration	 Random vibration 5 - 20 Hz : 2,0 m^2 / s^3 20- 150 Hz : - 3 dB / Oct 0,83 G 3 3 x 5 h
	Shock in use IEC 60068-2-27 Shock spectrum Acceleration Duration Number of bumps (+X, -X, -Y, +Y, -Z, +Z) Total bumps	 Shock half sine 7 G 18 ms 10 in each direction 60

4.4 EMC

Kind	Conducted Emission; Voltage; 150 kHz-30 MHz
According	DIN EN 55022:2007-04
Ceck accuracy / Limit	Class A
Result	Below limit Class A

Kind	Radiated Emission; 30 MHz - 1000 MHz
According	DIN EN 55022:2007-04
Ceck accuracy / Limit	Class A
Result	Below limit Class A

Kind	Electrostatic Discharge Immunity Test
According	DIN EN 61000-4-2:2001-12
Ceck accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Electromagnetic Field Immunity Test
According	DIN EN 61000-4-3:2006-12
Ceck accuracy / Limit	10 V/m; 80 - 1000 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Electrical Fast Transient / Burst Immunity Test
According	DIN EN 61000-4-4:2005-07
Ceck accuracy / Limit	+/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Immunity to Conducted Disturbances, Induced by RF-Fields
According	DIN EN 61000-4-6:2001-12
Ceck accuracy / Limit	10 Vrms; 150 kHz - 80 MHz; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

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. 750 VAC / 1 Min.	
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	

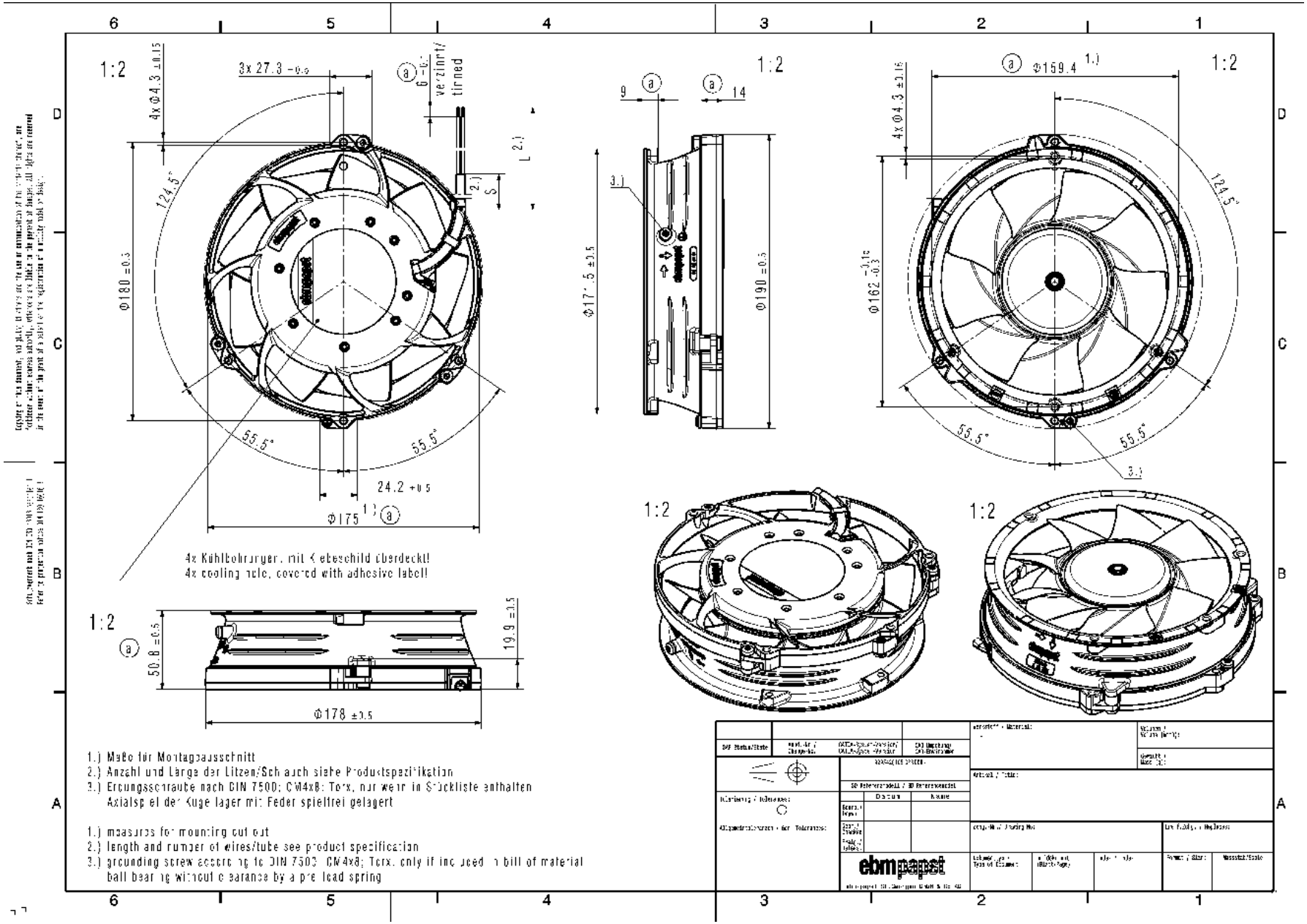
5.2 Approval Tests

CE	EC Declaration of Conformity	No
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	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU max.	45.000 h	



1.) Maße für Montageausschnitt
2.) Anzahl und Länge der Litzen/Schlauch siehe Produktspezifikation
3.) Erdungsschraube nach DIN 7500; CW4x8; Torx; nur wenn in Stückliste enthalten
Axialspiel der Kugellager mit Feder spielfrei gelagert

1.) measures for mounting cut out
2.) length and number of wires/tube see product specification
3.) grounding screw according to DIN 7500; CW4x8; Torx; only if included in bill of material
ball bearing without clearance by a pre load spring

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