Product Data Sheet DV6318/2TDH5P

ebmpapst

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GREEN TECH

DV6318/2TDH5P

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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	Any	

2 Mechanics

2.1 General

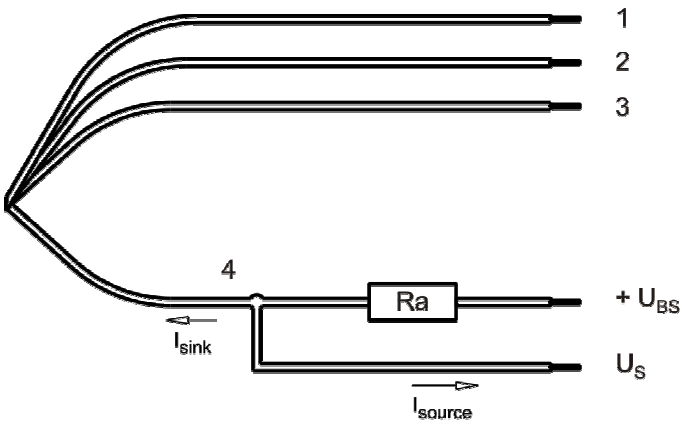
Depth	54 mm	
Diameter	178 mm	
Mass	0,96 kg	
Housing material	Metal	
Impeller material	Plastic	
Rotor protrusion max.	3,9 mm	

Do Not cover the ventilation holes in the flange

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 365 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	PWM	AWG 22	1,35 mm
4	white	Tacho		

The auxilliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

Lead wire 1 - 2: AWG18 (Insulation diameter 2,2m)
Lead wire 3 - 4: AWG22 (Insulation diameter 1,35 mm)

3 Operating Data

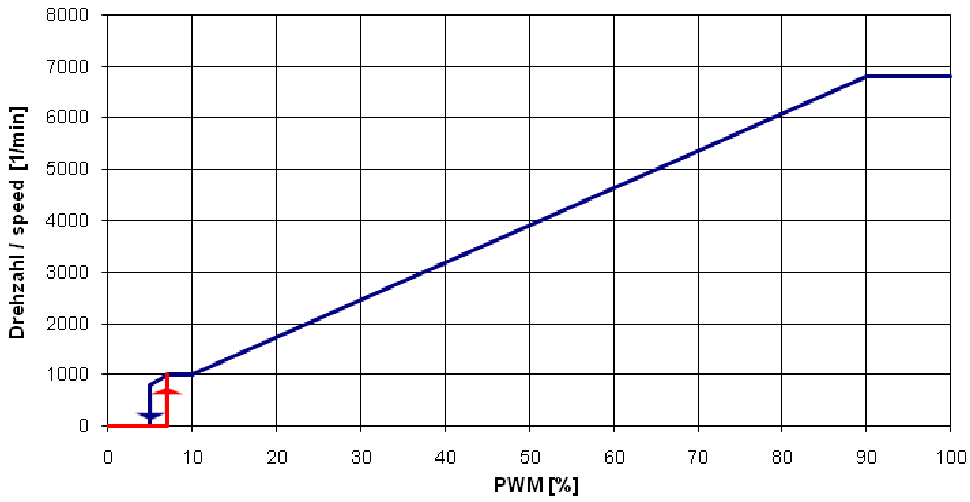
3.1 Electrical Interface - Input

Control input	PWM

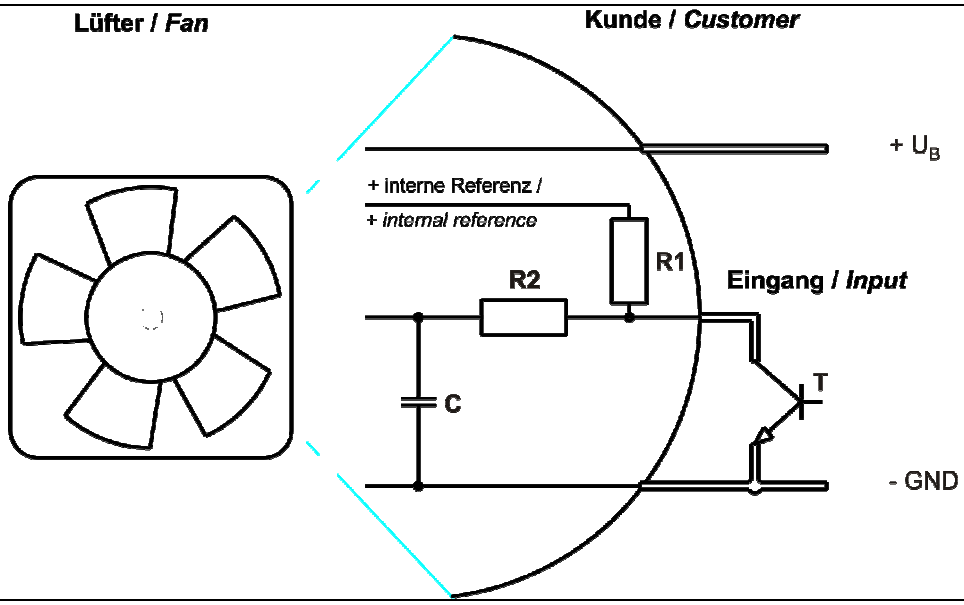
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 10 kHz typical: 2 kHz

Characteristics



Schematics



Transistor requirements:
Vce max. >= 12V; Isink max. >= 5mA
Vce sat. <= 0,15V
Information to the curve:

0 % - <7% PWM: 0 1/min
7 % PWM: 1.000 1/min (Fan on, comming from 0% PWM)
7 % - 10% PWM: 1.000 1/min (corresponding to min. speed)
10 % - 90% PWM: linear increasing curve
90 % - 100% PWM: 6.800 1/min (corresponding to max. speed)
7 % - >5 % PWM: linear decreasing curve (comming from 100% PWM)
5 % PWM: 800 1/min or 0 1/min (Fan off, comming from 100% PWM)
Based on the power lifting the maximum speed can be 7500 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

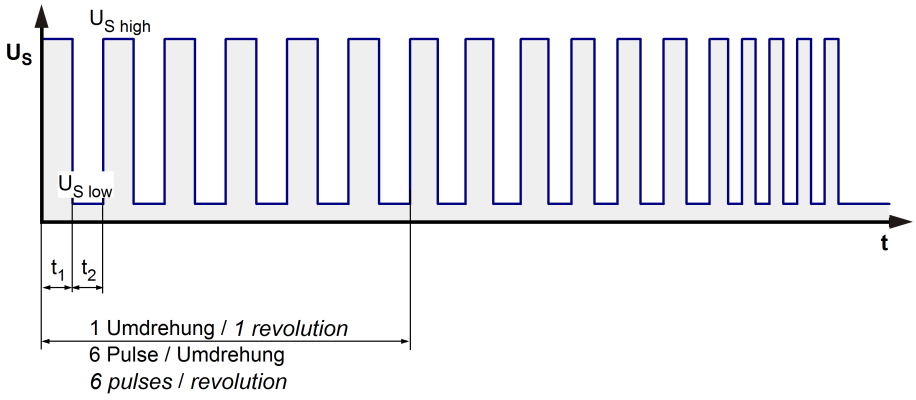
Name	Condition		
PWM 0001	PWM: 100 %; f: 2 kHz		

Features	Condition	Symbol	Values		
Voltage range		U	36,0 V		72,0 V
Nominal voltage		U_N		48,0 V	
Power consumption Tolerance	Δp = 0 PWM 0010	P	200 W +- 10 %	360 W +- 10,0 %	360 W +- 10,0 %
Current consumption Tolerance	Δp = 0 PWM 0010	I	5.500 mA +- 10,0 %	7.500 mA +- 10,0 %	5.000 mA +- 10,0 %
Speed Tolerance	Δp = 0 PWM 0010	n	5.800 1/min +- 5,0 %	6.900 1/min +- 3,0 %	6.900 1/min +- 5,0 %
Starting current consumption				<= 8.000 mA	

3.3 Electrical Interface - Output

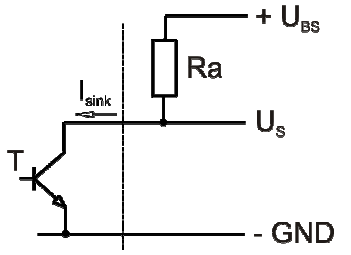
Tacho type	/2 (open collector)

Signal-Ausgangsspannung / *Signal output voltage*

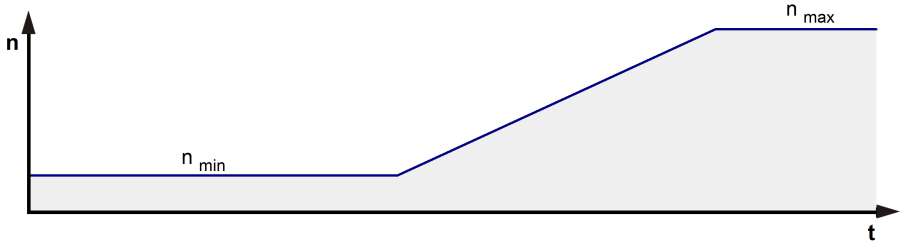


$$Ra = \frac{U_{BS} - U_{S\,low}}{I_{sink}}$$

Lüfter / *Fan* **Kunde / *Customer***



Lüfter-Drehzahl / *Fan speed*

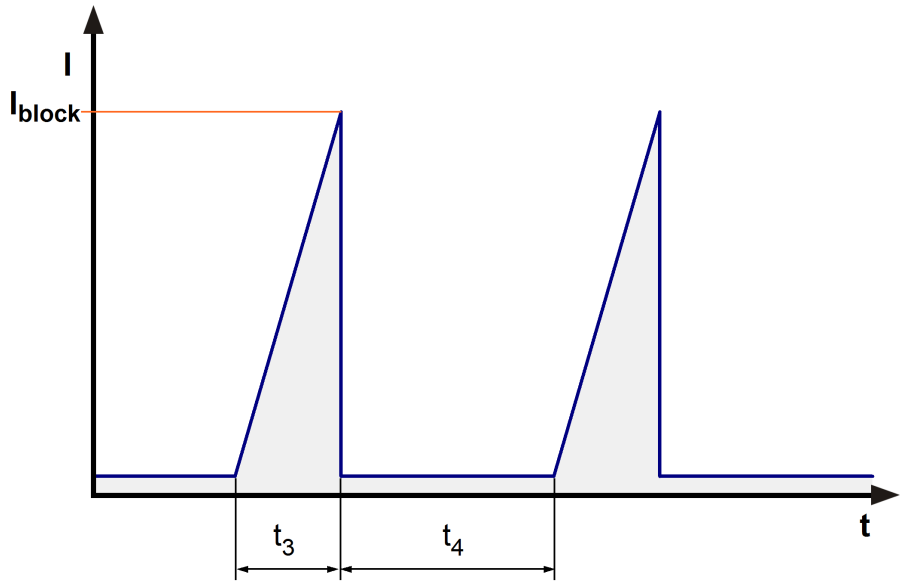


Features		**Note**	**Values**
Tacho operating voltage	U_{BS}		<= 60 V
Tacho signal Low	$U_{S\,low}$	I sink: 2 mA	<= 0,4 V
Tacho signal High	$U_{S\,high}$	I source: 0 mA	<=60 V
Maximum sink current	I_{sink}		<= 20 mA
External resistor		External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency		(6 x n) / 60	680 Hz
Tacho isolated from motor		No	
Slew rate			=> 0,5 V/us

n = revolutions per minute (1/min)

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. 1.500 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	1,00588
Target overall efficiency 2015	34,0 %
Overall efficiency	37,1 %
Efficiency grade	50
Power input	300 W
Speed	6.740 1/min

All values measured in optimum energy efficiency point.

Productiondatecode is printed on the fan label.

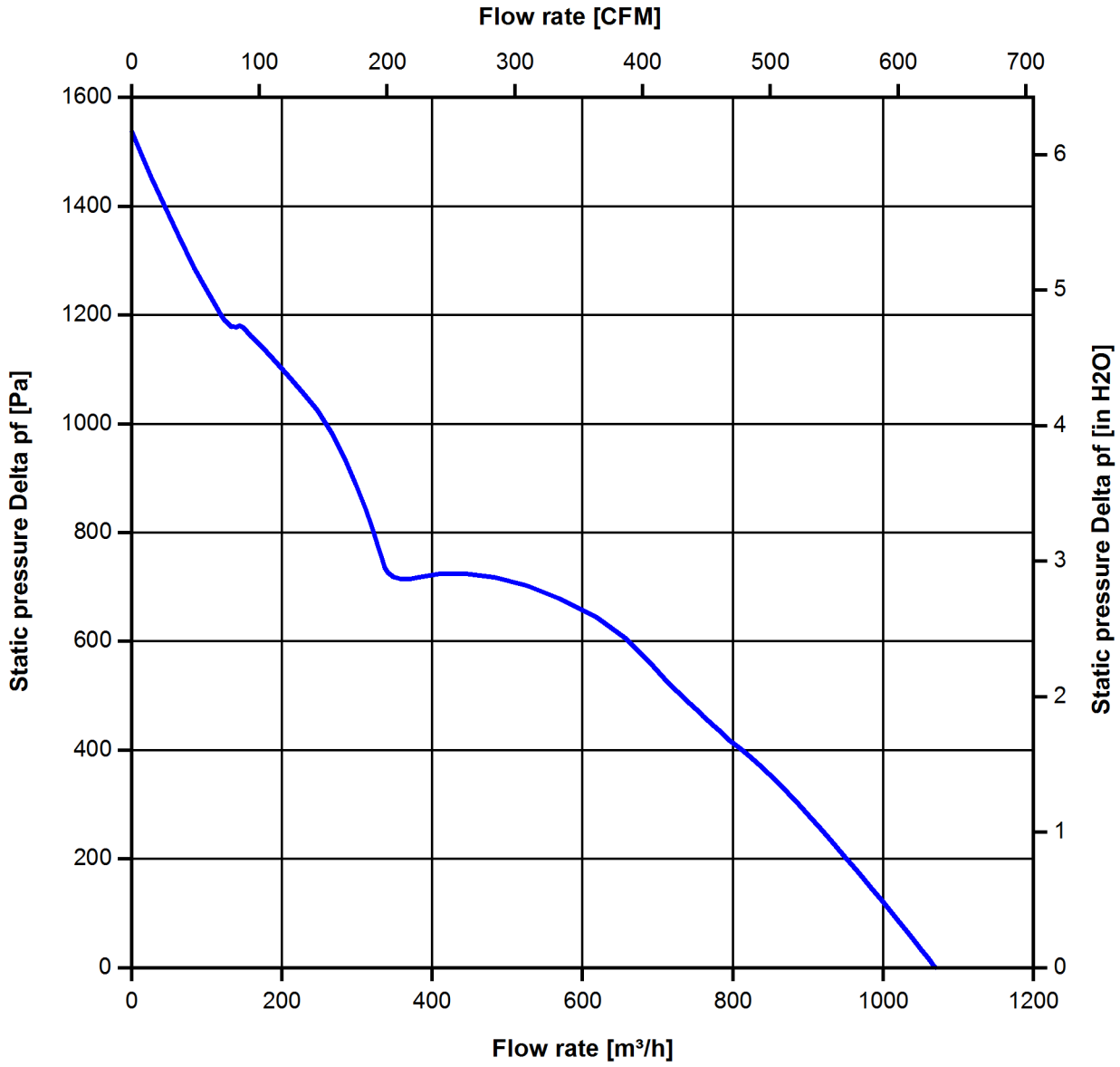
3.6 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; 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:

6.900 1/min at free air flow	PWM 100 %; f: 2 kHz		

Max. free-air flow (Δp = 0 / V̇ = max.)	1.100 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	1.535 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:

6.900 1/min at free air flow	PWM 100 %; f: 2 kHz		

Optimal operating point	570,0 m3/h @ 605 Pa	
Sound power level at the optimal operating point	8,9 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	79,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °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 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25℃. 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. 1700 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,5 mm	
Protection class	I	

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 60950 (VDE 0805) - Information 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

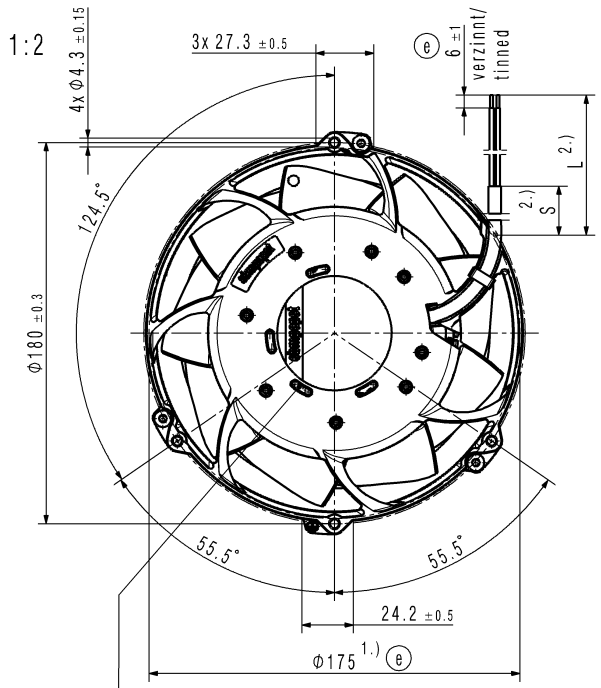
6 Reliability

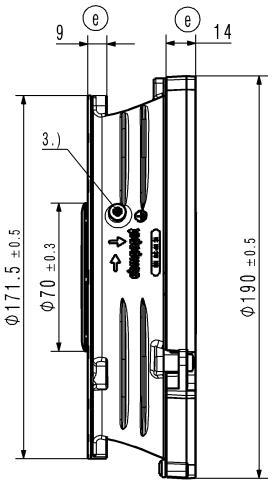
6.1 General

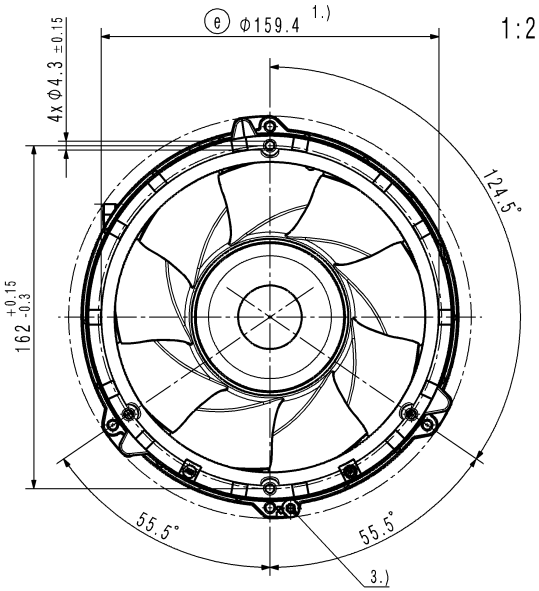
Life expectancy L10 at TU = 40 ℃	40.000 h	
Life expectancy L10 at TU max.	22.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	67.5 00 h	

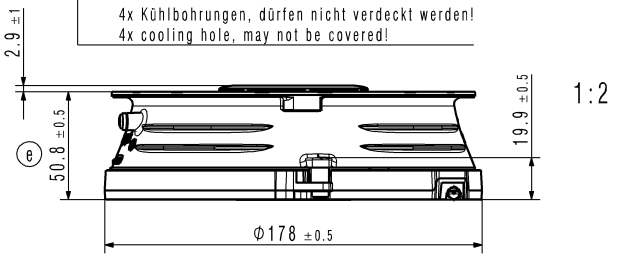
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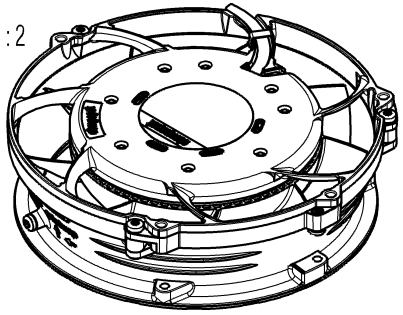
Schutzvermerk nach DIN ISO 16016 beachten!
Refer to protection notice DIN ISO 16016!

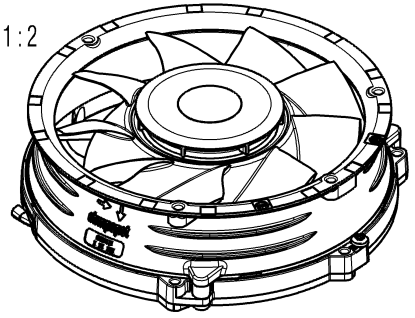












1.) Maße für Montageausschnitt
2.) Anzahl und Länge der Litzen/Schlauch siehe Produktspezifikation
3.) Erdungsschraube nach DIN 7500; CM4x8; Torx, nur wenn in Stückliste enthalten
--- Axialspiel der Kugellager mit Feder spielfrei gelagert

1.) measures for mounting cut out
2.) length and number of wires/tube see product specification
3.) grounding screw according to DIN 7500; CM4x8; Torx, only if included in bill of material
--- ball bearing without clearance by a pre-load spring

SAP-Status/State	Aend.-Nr./ Change-No.	CATIA-System-Version/ CATIA-System-Version	CAD-Umgebung/ CAD-Environment	Werkstoff / Material: -	Volumen / Volume (mm^3):
		9295420100 CPR000E			Gewicht / Mass (g):
		3D-Referenzmodell / 3D-Referencemodel		Artikel / Title:	
Tolerierung / Tolerances: ○		Datum	Name		
	Bearb./ Drawn				
Allgemeintoleranzen / Gen. Tolerances:	Gepr./ Checked			Zchg.-Nr./ Drawing No:	Ers.f.Zchg. / Replaces:
	Freig./ Release.				

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