Product Data Sheet RER160-28/18NTDI

ebmpapst

The engineer's choice

GREEN TECH

RER160-28/18NTDI

INDEX

1 General

Fan type	Blower without chassis with intake nozzle	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

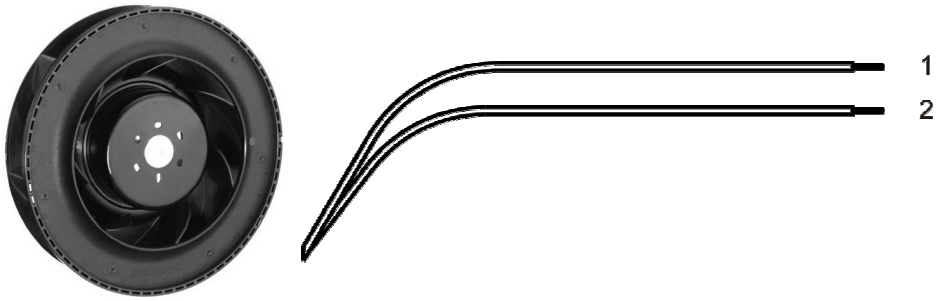
2 Mechanics

2.1 General

Depth	50,3 mm	
Diameter	165,0 mm	
Mass	0,600 kg	
Housing material		
Impeller material	Plastic	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 425 mm +- 10 mm	
Tube length Tolerance	S = 119 mm +- 5 mm	



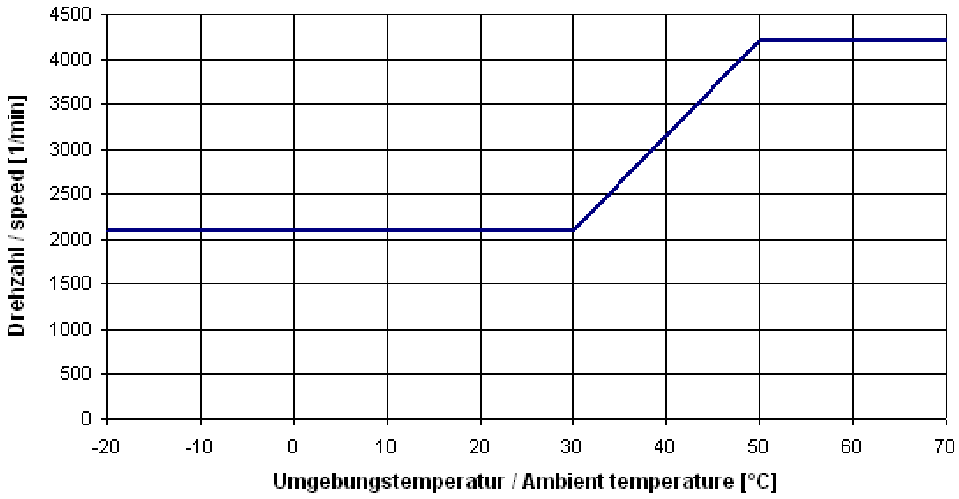
Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,70 mm
2	blue	- GND	AWG 22	1,70 mm

3 Operating Data

3.1 Electrical Interface - Input

Control input	Internal Temperature Sensor

Features

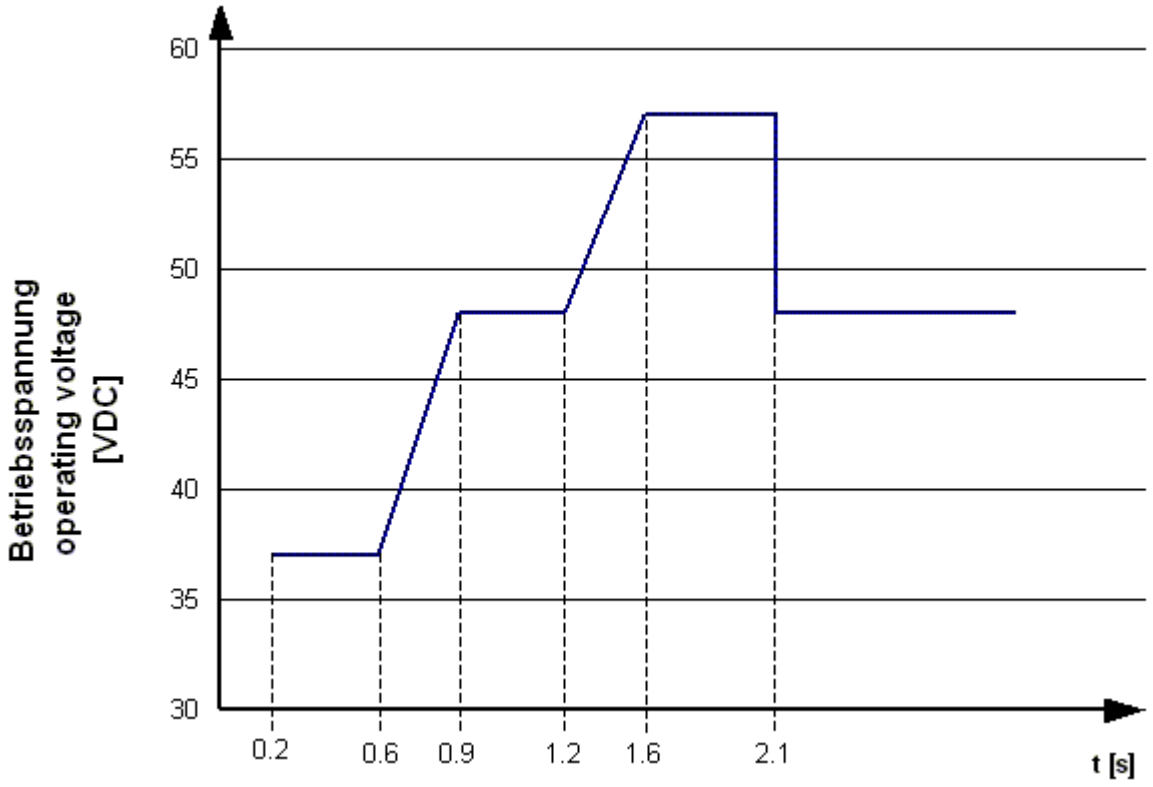
Characteristics	

3.2 Electrical Operating Data

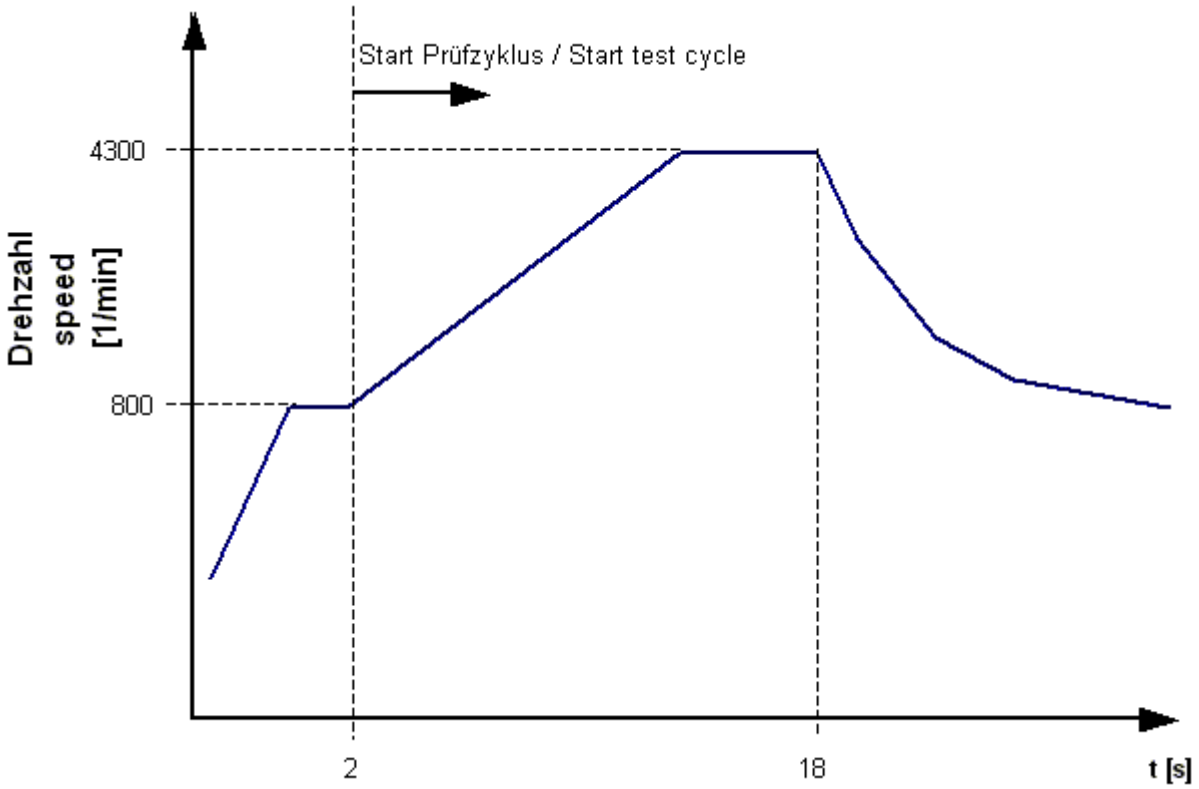
Motor testing

The motor testing relates to a fan, operating with horizontal shaft, at free wir flow. It is possible to run this motor in an uncontrolled state. For some testings the motor may set in a test cycle by connecting to a voltage follower as below mentioned.

Voltage graph to start the test cycle


Betriebsspannung
operating voltage
[VDC]
60
55
50
45
40
35
30
0.2
0.6
0.9
1.2
1.6
2.1
t [s]

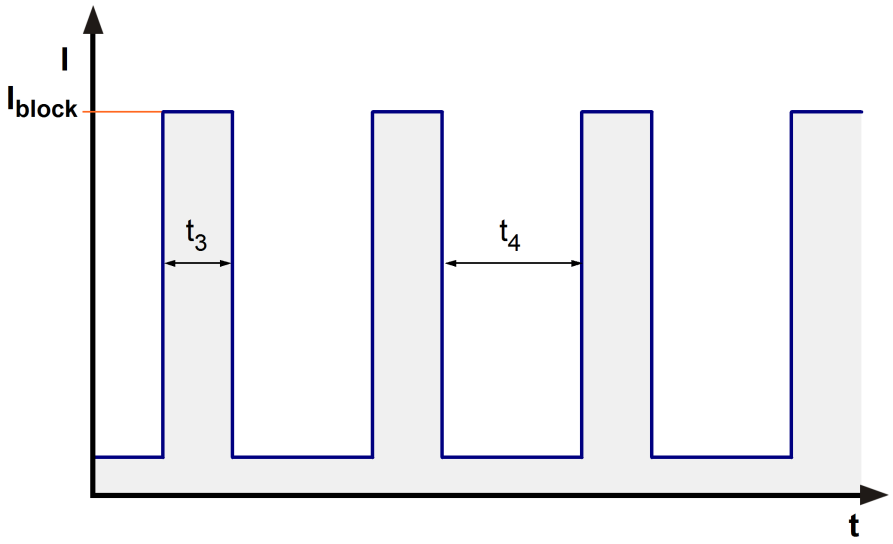
Speed graph after starting the test cycle



Voltage	48,0 V
Power consumption	52,8 W
Tolerance	+- 15,0 %
Current consumption	1.100 mA
Tolerance	+- 15,0 %
Speed	4.770 1/min
Tolerance	+- 7,5 %

3.3 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 20 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block}	
Clock signal at locked rotor	t_3 / t_4 typical: 1,0 s / 3,1 s	


I
I_{block}
t_3
t_4
t

3.4 Aerodynamics

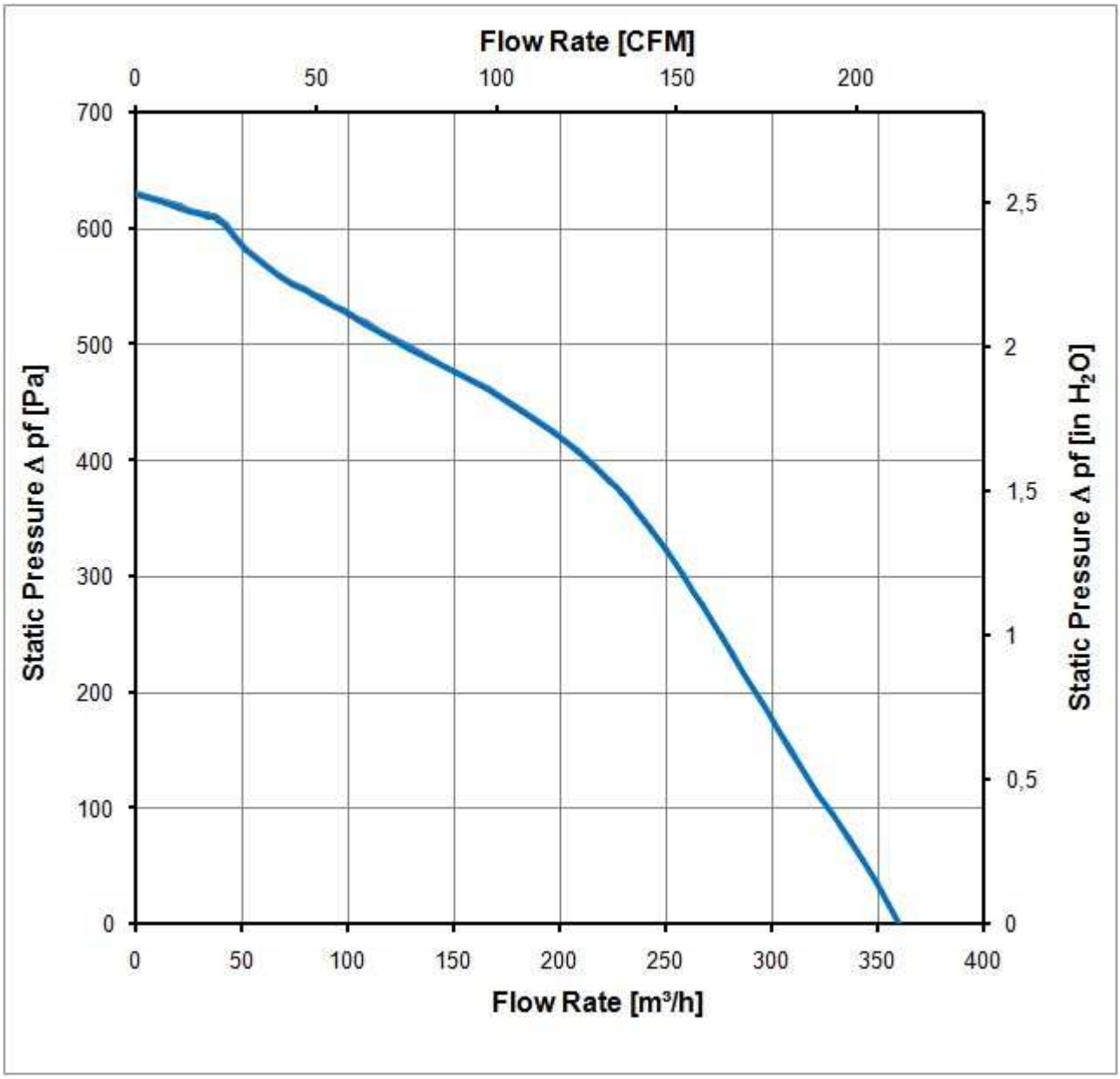
Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified 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.

Measurement setup:	Measured between two steel plates
Steel plate:	260 mm x 260 mm
Intake nozzle:	D: 100,0 mm; R: 5,0 mm
Distance between bottom and top plate:	52,6 mm
Overlapping impeller / nozzle:	2,0 mm

a.) Operation condition:

at free air flow	

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	360,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	630 Pa	
at free air flow		
at free air flow		


Flow Rate [CFM]
0
50
100
150
200
700
600
500
400
300
200
100
0
Static Pressure Δ pf [Pa]
2,5
2
1,5
1
0,5
0
Static Pressure Δ pf [in H2O]
0
50
100
150
200
250
300
350
400
Flow Rate [m³/h]

3.5 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:

at free air flow	

Optimal operating point	225,0 m3/h @ 333 Pa	
Sound power level at the optimal operating point	7,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands		

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.	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 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.	500 VAC / 1 Min. 850 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	III	

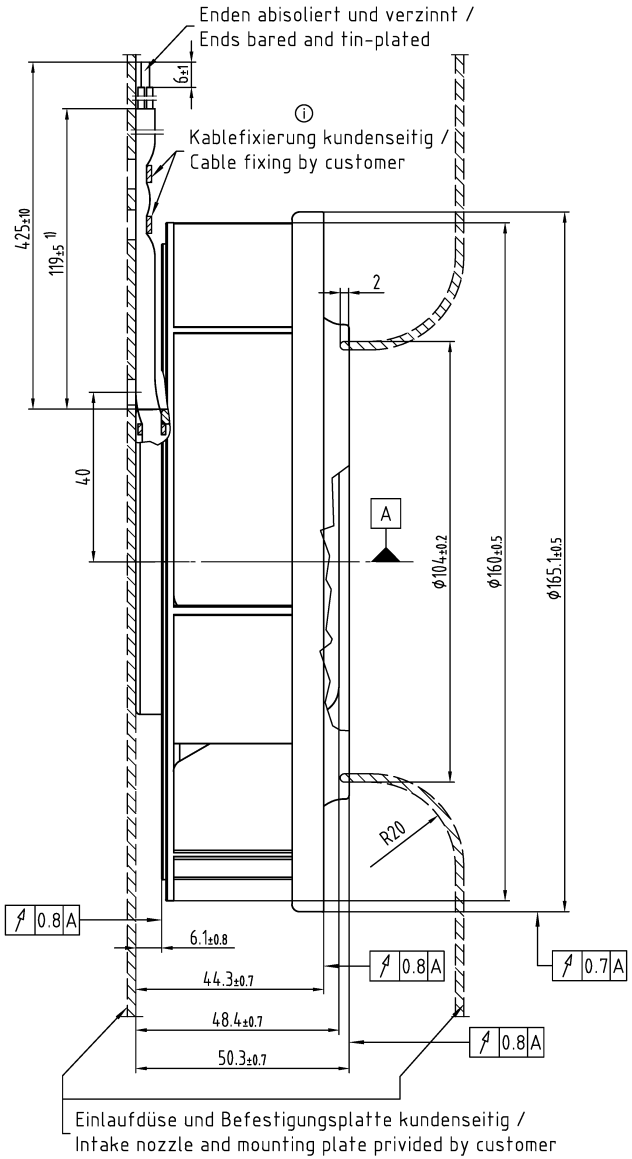
5.2 Approval Tests

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

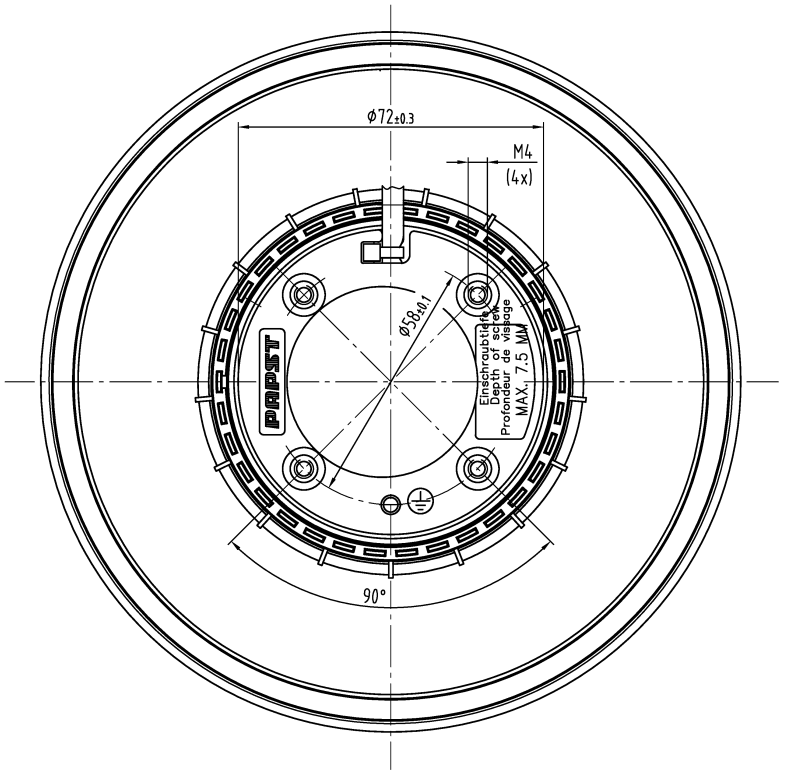
6.1 General

Life expectancy L10 at TU = 40 ℃	55.000 h	
Life expectancy L10 at TU max.	27.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	92.5 00 h	



1) = Schlauchlänge ausgehend vom Flanschrand gemessen /
Tube lenght outgoing from the edge of flange measured

- Axialspiel: mit Feder spielfrei verspannt /
Without axial clearance by a pre-loaded spring



			ebmpapst	Werkstoff/Material:	Volumen/Volume (mm³):
SAP-Status/State	Aend.-Nr./Change-No.	AutoCAD-System-Version	CAD-Umgebung/ CAD-Enviroment		Gewicht/Mass (g):
		Datum/Date	Name/Name		
Tolerierung/Tolerances:		Bearb./ Drawn		Artikel/Title	
		Gepr./ Checked			
Allgemeintoleranzen/Gen. tolerances:		Freig./ Relebs.			
ebm-papst St. Georgen GmbH & Co. KG				Zchg.-Nr./ Drawing.-No.:	Ers.f.Zchg./ Replaces:
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11/09