Product Data Sheet

9593505002
VBS0040XUGAZ
RV45-3/14S

ebmpapst
The engineer's choice

GREEN TECH

RV45-3/14S

INDEX

1 General

Fan type	Blower	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position - shaft	Any	
Balancing grade G (rotor)	2,5	
Impeller weight	20 g	

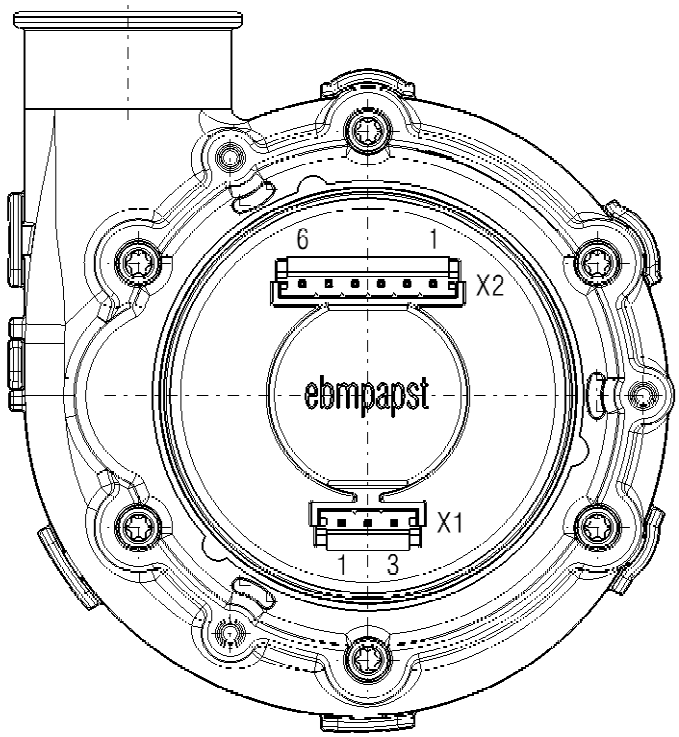
2 Mechanics

2.1 General

Width	64,1 mm	
Height	69,5 mm	
Depth	54,9 mm	
Mass	0,13 kg	
Housing material	Plastic	
Impeller material	Plastic	

2.2 Connections

Electrical connection	Plug with stranded wires	
Lead wire length Tolerance	See drawing	
Tube length Tolerance	See drawing	
Plug	See drawing	



Configuration X1:

Plug connection	Operation	Color
X1 Pin 1	U	n.a.
X1 Pin 2	V	n.a.
X1 Pin 3	W	n.a.

Configuration X2:

Plug connection	Operation	Color
X2 Pin 1	+ 5 V	n.a.
X2 Pin 2	Hall 1	n.a.
X2 Pin 3	Hall 2	n.a.
X2 Pin 4	Hall 3	n.a.
X2 Pin 5	NTC	n.a.
X2 Pin 6	- GND	n.a.

NTC: TSM1C103F3611R

3 Operating Data

3.1 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃; 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

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Features	Condition	Symbol	Values		
Voltage range		U	7 V		30 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	Δp = 0	P		42 W +- 10 %	47 W +- 10 %
Current consumption Tolerance	Δp = 0	I	600 mA +- 12,5 %	1.750 mA	1.550 mA +- 10 %
Speed Tolerance	Δp = 0	n	11.000 1/min +- 5 %	39.200 1/min +- 2 %	40.000 1/min +- 2 %

Operating requires additional control electronics!
Values measured with control electronics "Powermodul RV45(9920640004)"

Attention:
It is not allowed to exceed the max. speed of 50,000 rpm.
The RMS current shall not be higher than 3 A per connector pin.
If Ub > Un = 24 V, the input power P shall not exceed 43 W.

Note: The performance data refers to the blower with control electronics. The control electronics are sensorless, block commuted and have an efficiency of approx. 95%. The ignition angle of the control electronics influences the efficiency of the blower.

Motor data at Ta = 25℃:
Pole pair number 2p = 1
Winding connection: Y
Winding resistance R_UV = 1.7 Ohm
Max. Motor inductance L_UV_max = 460 µH
Min. Motor inductance L_UV_min = 335 µH
Voltage constant ke = 1920 min^-1/V
ke = 4.54 mVs/rad
Total harmonic distortion = 4%

3.2 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig. 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:
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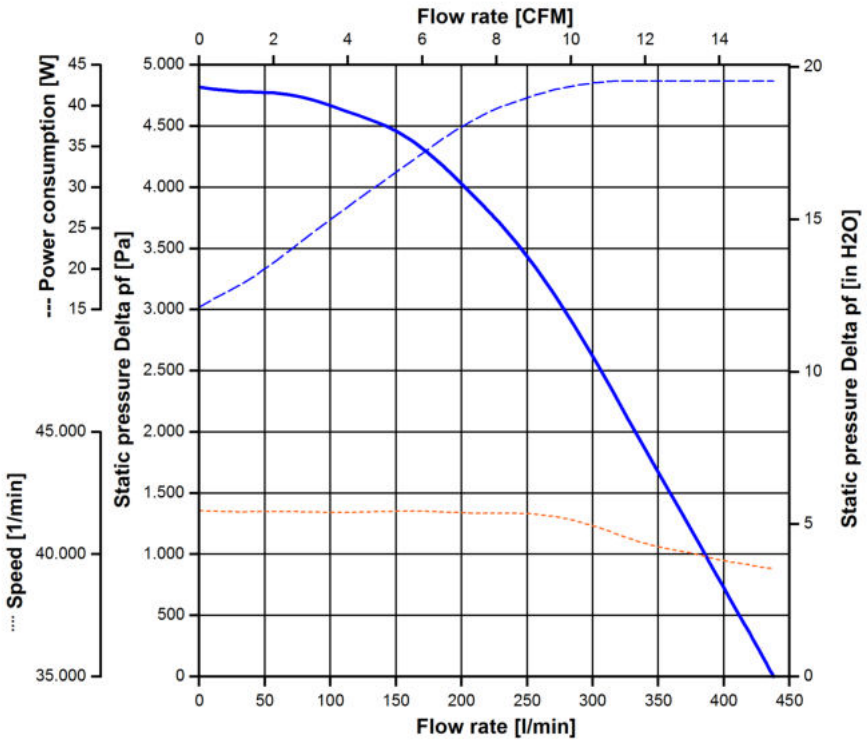
Speed: 39.200 1/min at free air flow

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	438 l/min	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	4.820 Pa	



3.3 Sound Data

b) Operation condition:

Inlet noise @ 1,000 Pa. The blower lays on a 10 cm thick foam, inlet pointing upwards, outlet connected to a hose with normed 4 mm nozzle (acoustically insulated), microphone located 1.0 m above, room noise level < 26 dB(A)

Sound pressure level measurement L_{PA} Inlet noise	51,5 dB(A)	

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.	85 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas requirements	None	
Oxygen requirements	Upon request	

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.

4.3 Mechanical Requirements

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

4.4 Bio compatibility

All air-contacting parts are respiratory-physiologically harmless.

5 Safety

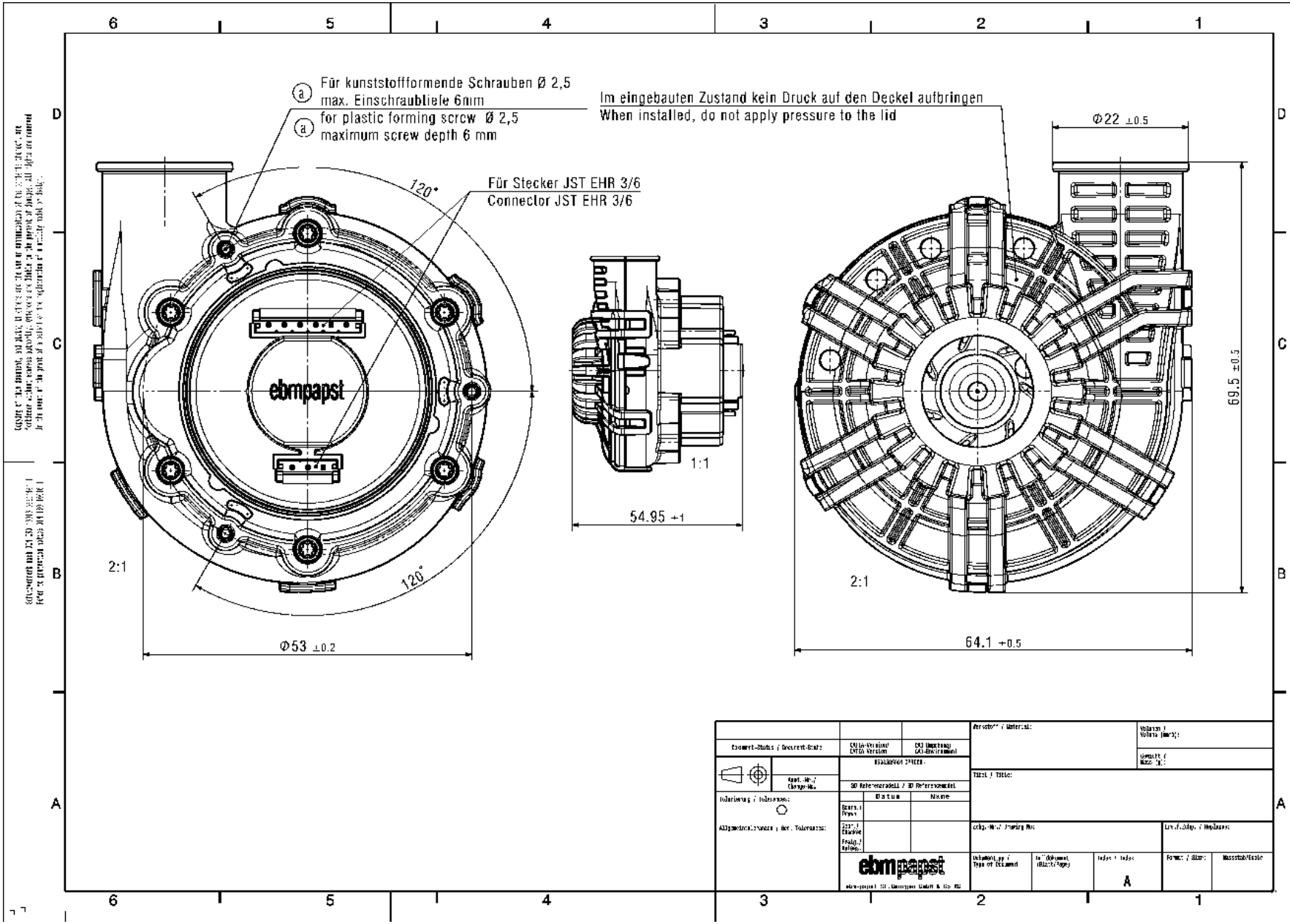
5.1 Electrical Safety

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.

6 Reliability

6.1 General

Life expectancy L10 at TU = 25 °C	22.500 h	
Life expectancy L10 at TU = 40 °C	17.500 h	
Life expectancy L10 at TU max.	7.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 25 °C	50.0 00 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	27.5 00 h	


a Für kunststoffformende Schrauben Ø 2,5
max. Einschraubtiefe 6mm
a for plastic forming screw Ø 2,5
maximum screw depth 6 mm
Im eingebauten Zustand kein Druck auf den Deckel aufbringen
When installed, do not apply pressure to the lid
Für Stecker JST EHR 3/6
Connector JST EHR 3/6
120°
120°
ebmpapst
2:1
Ø53 ±0.2
1:1
54.95 +1
Ø22 ±0.5
69.5 ±0.5
2:1
64.1 +0.5