

Product Data Sheet DV6424/12

**ebmpapst**

The engineer's choice



DV6424/12

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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	

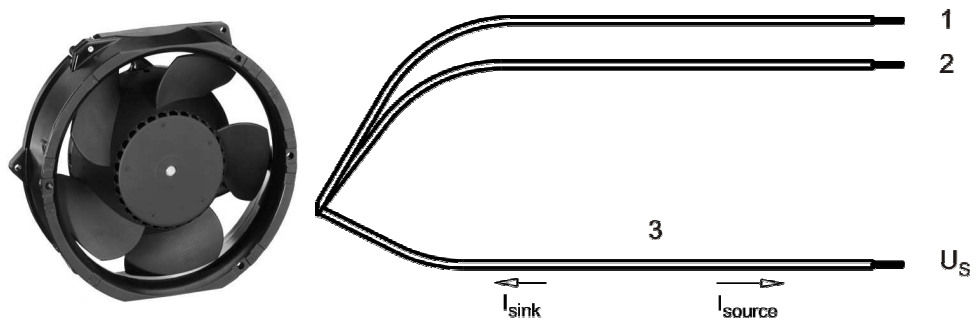
## 2 Mechanics

### 2.1 General

Width	160,0 mm	
Depth	51,0 mm	
Diameter	172,0 mm	
Mass	0,820 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 380 Ncm Remaining corners: 380 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

### 2.2 Connections

Electrical connection	Wires	
Lead wire length	L = 365 mm	
Tolerance	+ - 10,0 mm	
Tube length	S = 15 mm	
Tolerance	+ - 3,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,7 mm
2	blue	- GND	AWG 22	1,7 mm
3	white	Tacho	AWG 22	1,7 mm

### 3 Operating Data

#### 3.1 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; 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

Note:

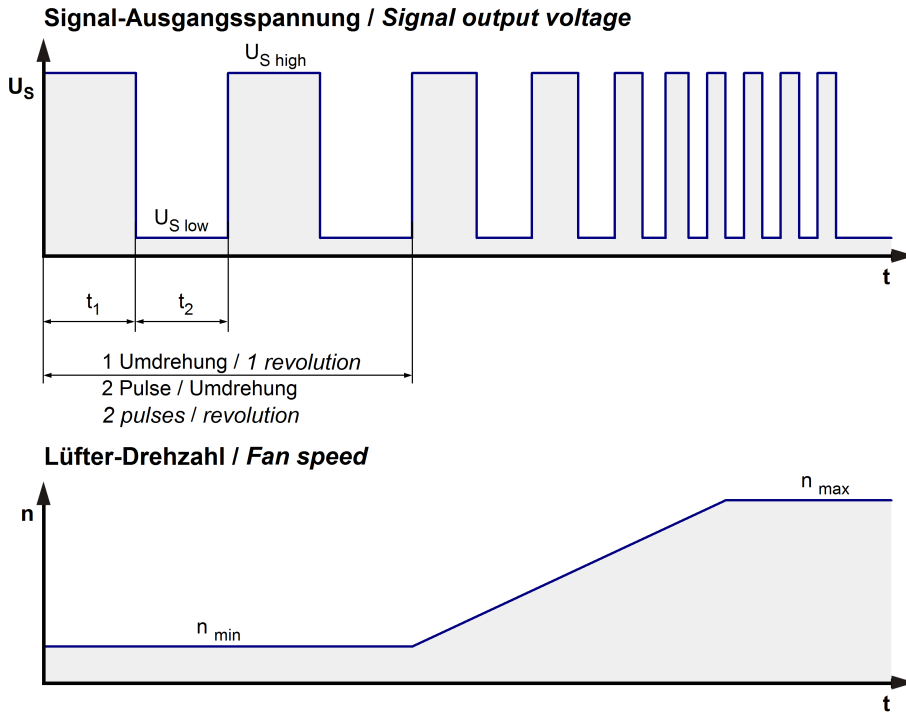
No inrush current at Unom means:

The internal electrolytic capacitor 120uF/50V has no resistor or inrush current limitation, essentially the power supply and the type and length of the connecting cable is limiting the Inrush current.

Features	Condition	Symbol	Values		
Voltage range		U	16 V		28,0 V
Nominal voltage		U <sub>N</sub>		24,0 V	
Power consumption	$\Delta p = 0$	P	17,6 W	41,0 W	56 W
Tolerance	0010		+/- 20 %	+/- 15,0 %	+/- 15,0 %
Current consumption	$\Delta p = 0$	I	1.100 mA	1.700 mA	1.920 mA
Tolerance	0010		+/- 20,0 %	+/- 15,0 %	+/- 15,0 %
Speed	$\Delta p = 0$	n	3.050 1/min	4.300 1/min	4.700 1/min
Tolerance	0010		+/- 10,0 %	+/- 7,5 %	+/- 7,5 %
Starting current consumption				3.500 mA	

### 3.2 Electrical Interface - Output

Tacho type	/12 (TTL)
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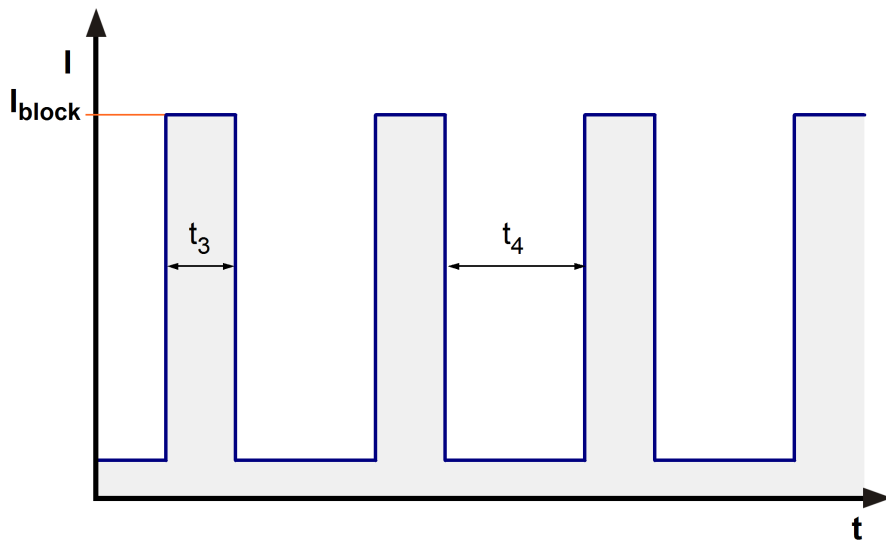
Features	Note	Values
Tacho operating voltage	$U_{BS}$	28,0 V
Tacho signal Low	$U_{S\ low}$	$I\ sink: 12\ mA$ $\leq 0,8\ V$
Tacho signal High	$U_{S\ high}$	$I\ source: 2\ mA$ $\leq 5,3\ V$
Maximum sink current	$I_{sink}$	$\leq 25\ mA$
External resistor	All voltages measured to GND.	
Tacho frequency	$(2 \times n) / 60$	
Tacho isolated from motor	No	
Slew rate		$\Rightarrow 0,5\ V/\mu s$

n = revolutions per minute (1/min)

Tacho High = 4,5 ... 5,25 V

### 3.3 Electrical Features

Electronic function	None	
Reversed polarity protection	Rectifying diode	
Max. residual current at $U_N$	$I_F < 12\ mA$	
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: 1,4 s / 5,3 s	

**Internal Fuse:**

Littlefuse NANO2(R) FUSE; Very fast acting 451 Series; 4 A (Art.-Nr.: 451004.MLR)

### 3.4 Aerodynamics

Measurement conditions:

Measured with a double chamber intake rig acc. to DIN EN ISO 5801.

Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C;

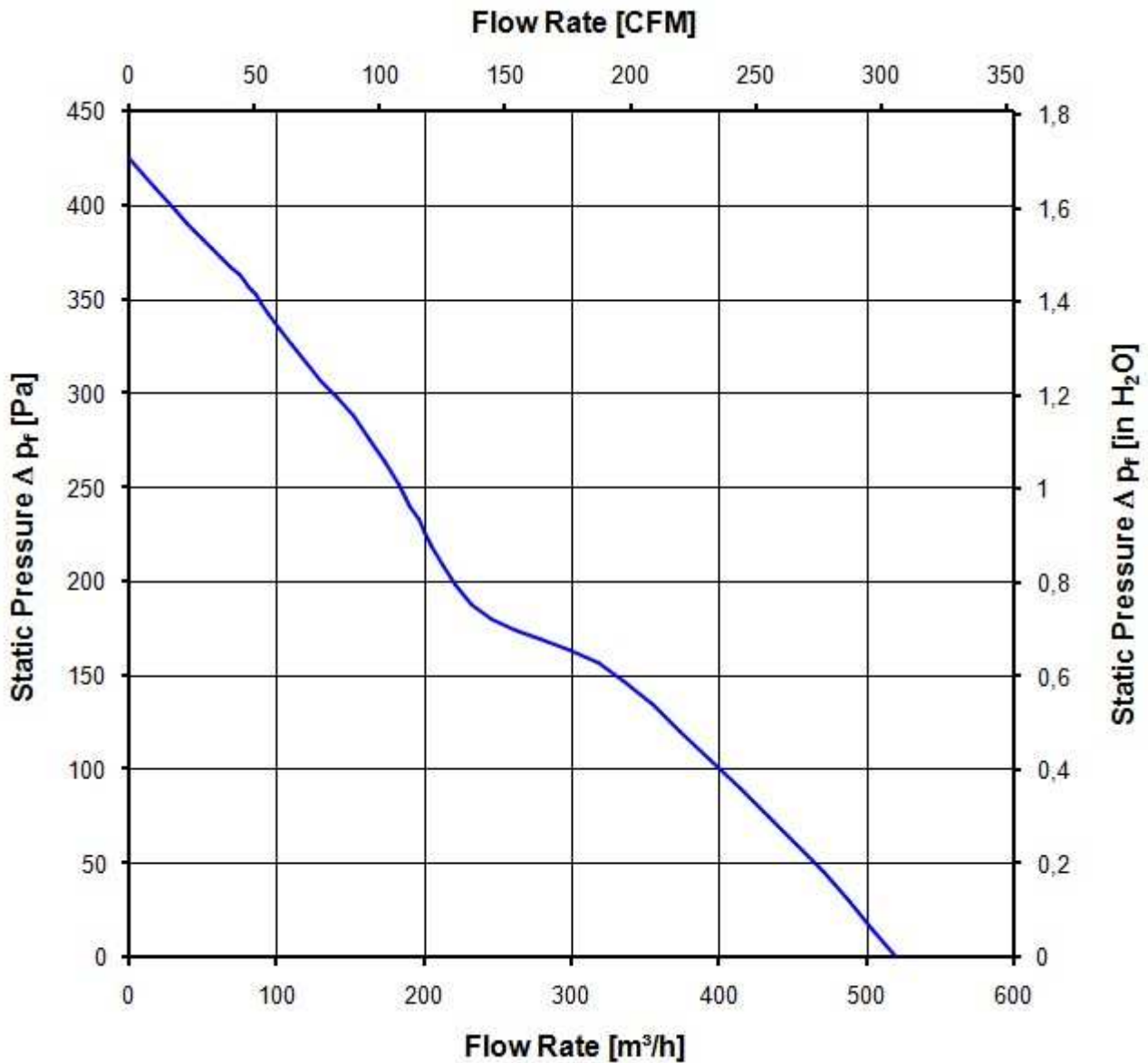
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

4.300 1/min at free air flow

Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	520,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	425 Pa	



**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  $L_p(A) < 5 \text{ dB(A)}$   
 For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

4.300 1/min at free air flow		
Optimal operating point	340,0 m3/h @ 131 Pa	
Sound power level at the optimal operating point	7,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	63,0 dB(A)	

**4 Environment**

**4.1 General**

Min. permitted ambient temperature TU min.	-20 °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**

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.

**4.3 EMC**

<b>Kind</b>	<b>Radiated Emission; 30 MHz - 1000 MHz</b>
According	DIN EN 55032:2016-02
Check accuracy / Limit	Class B
Result	Below limit Class B



<b>Kind</b>	<b>Electrostatic Discharge Immunity Test</b>
According	DIN EN 61000-4-2:2001-12
Check accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Result	B: The monitored function may deviate from designed performance to a specified level during exposure to a disturbance or revert to a fail safe mode or operation, but shall return to normal operation after the disturbance is removed.

**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.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	850 VDC / 1 Sec.	
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 / 1,2 mm	
Protection class	III	

**5.2 Approval Tests**

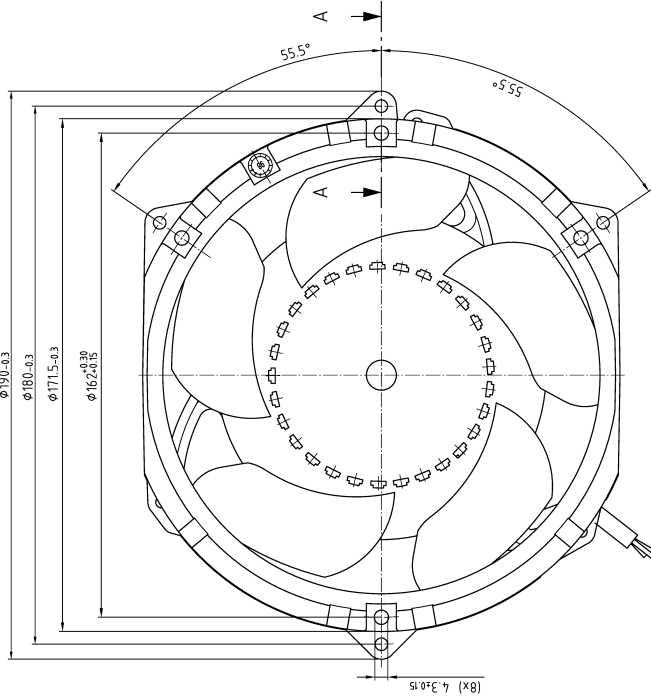
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

**6 Reliability**

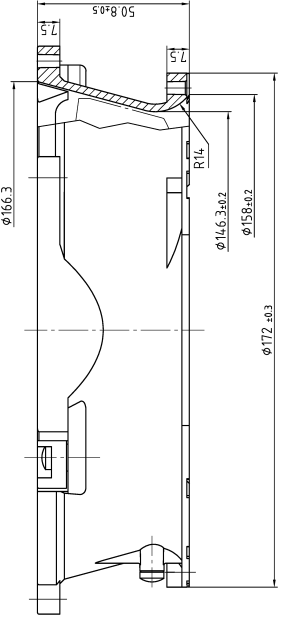
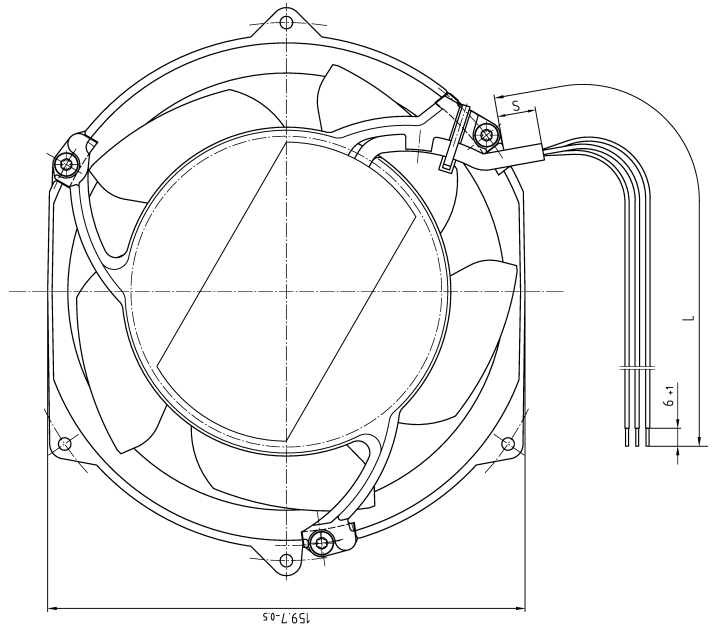
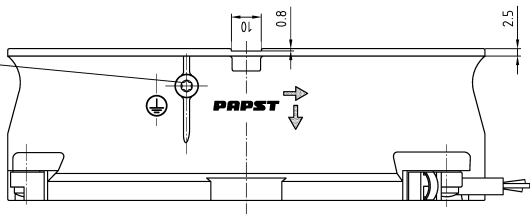
**6.1 General**

Life expectancy L10 at TU = 40 °C	90.000 h	
Life expectancy L10 at TU max.	45.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	152. 500 h	

Skizzen sind als Maßstabentwurf für die Produktion nach DIN ISO 9000. Die Angabe von Maßen ist verbindlich. Die Angabe von Toleranzen ist die Angabe der Genauigkeit. Die Angabe von Oberflächenrauheiten ist die Angabe der Oberflächenbeschaffenheit. Die Angabe von Ankerlöchern ist die Angabe der Ankerlöchergröße.



Schraube: Due-Tapflite nach DIN 7500, CH 4x8, Torx  
 Screw: Due-Tapflite according to DIN 7500, CH 4x8, Torx



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

Anzahl und Länge der Litzen (L)  
 sowie Länge Schlauch (S) siehe BY Bl. 1  
 Length (L) and number of wires and length (S)  
 of tube see design specification page 1

Produktdaten: Product data: Gen. Features: General features:		DIN 7167 DIN ISO 2768-mk-E		Artikel/Titel: Part/Title:	
Bearbeiter:	Name/Name:	ebmpapst ebm-papst SE, Georg-Löhner-Str. 10, 73249 Gerlingen, Germany		Zeich.-Nr./ Drawing No./	
Gezeichnet:	Gezeichnet am:			Zeich.-Bl./ Drawing Sheet/	
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