

## Specification

### Tube Fan D241P-006KH-4



#### General Information

##### Item

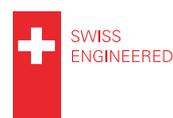
Product type	Tube fan with integrated electronic motor driver
Part no.	D241P-006KH-4 D243P-006KH-4 with flange at outlet (option) D244P-006KH-4 with flange at inlet (option)
Customer	N/A
Project no.	N/A
Modification	Standard product

#### Description

In contrast to the Flat Fans, the Micronel Tube Fans offer increased pressure performance while still maintaining a high volume flow. They all feature extremely quiet and efficient operation while offering extreme reliability and life expectancy.

#### Features

- Static pressure 2.82 hPa, freeflow 120 l/min
- 6 V<sub>DC</sub> brushless DC-motor
- Speed control and tacho frequency signal
- Small dimensions through slim design
- Options for mounting flange with holes

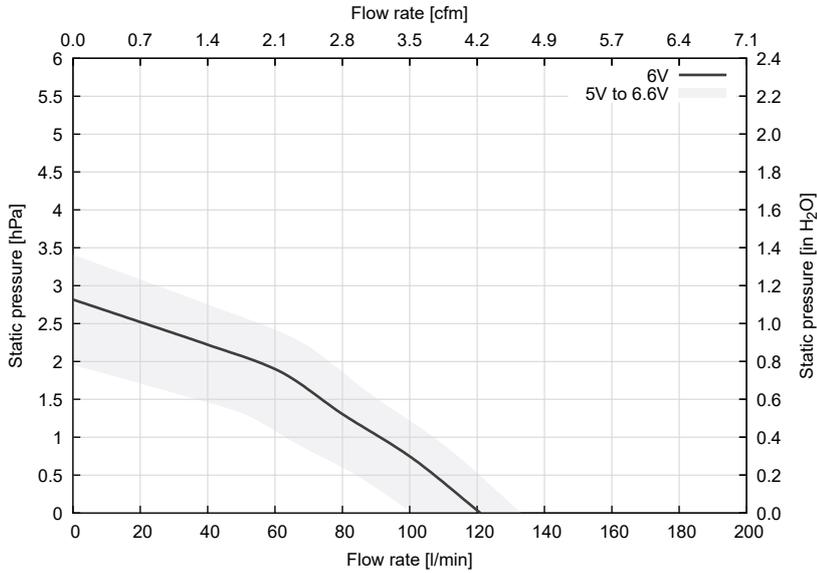


#### General Conditions

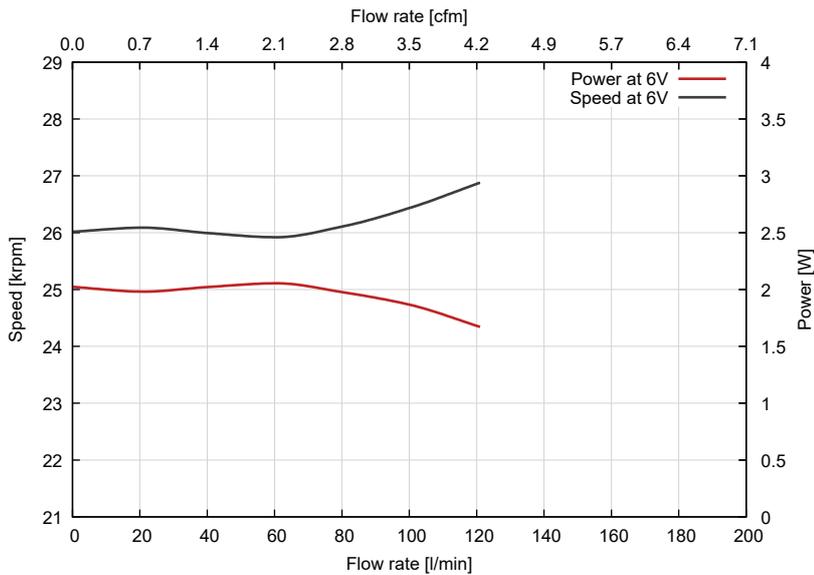
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m<sup>3</sup> standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 with standardized inlet and outlet chambers. Tolerances based on specified speed data according to ISO 13348, grade 4: pressure +/-10 %, power +16 %. Tolerances based on constant voltage: speed +/-10 %, pressure +/-21 %, power +33 %. For continuous blower operation please refer to specified maximum ratings. Performance data outside normal operating range plotted for information only.

## Performance

### Pressure vs. Flow Characteristics



### Speed and Power vs. Flow Characteristics



#### Shut-Off in Pressure Operation (Zero Flow Rate)

	Unit	Value
Static pressure	[hPa]	2.82
Power consumption	[W]	2.03
Speed	[rpm]	26020

#### Free-Air (Zero Static Pressure)

Flow rate	[l/min]	120
Power consumption	[W]	1.68
Speed	[rpm]	26910

## Technical Data

Electrical	Unit	Value
Nominal supply voltage	[V <sub>DC</sub> ]	6
Supply voltage range	[V <sub>DC</sub> ]	5 to 6.6
Minimum power supply current <sup>(1)</sup>	[mA]	400
Maximum start-up time	[s]	2.5
Maximum ripple voltage	[%]	5

### Maximum Ratings for Continuous Operation

Minimum flow rate	[l/min]	N/A
Maximum speed	[rpm]	N/A
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	N/A
Maximum housing surface temperature	[°C]	N/A
Maximum NTC temperature	[°C]	N/A

### Environmental

Ambient temperature (operating)	[°C]	0 to 65
Ambient temperature (storage)	[°C]	0 to 65
Relative humidity (non-condensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration <sup>(2)</sup>	[%]	21%

### Motor

Type		Brushless direct current motor
Winding insulation class		H, 180 °C
NTC type		N/A

### Lifetime

L10 at 25 °C ambient temperature <sup>(3)</sup>	[h]	20 000
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### Acoustics

Sound pressure level <sup>(4)</sup>	[dB(A)]	58.5
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### Leak Tightness

Maximum leak flow rate	[l/min]	N/A
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### Mechanical

Blower weight	[g]	16
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<sup>(1)</sup> Recommended minimum continuous power supply current for proper start-up behavior at nominal voltage. This is an indicative value. Power supply dimensioning, wiring, safety, setup and validation is the customer's responsibility.

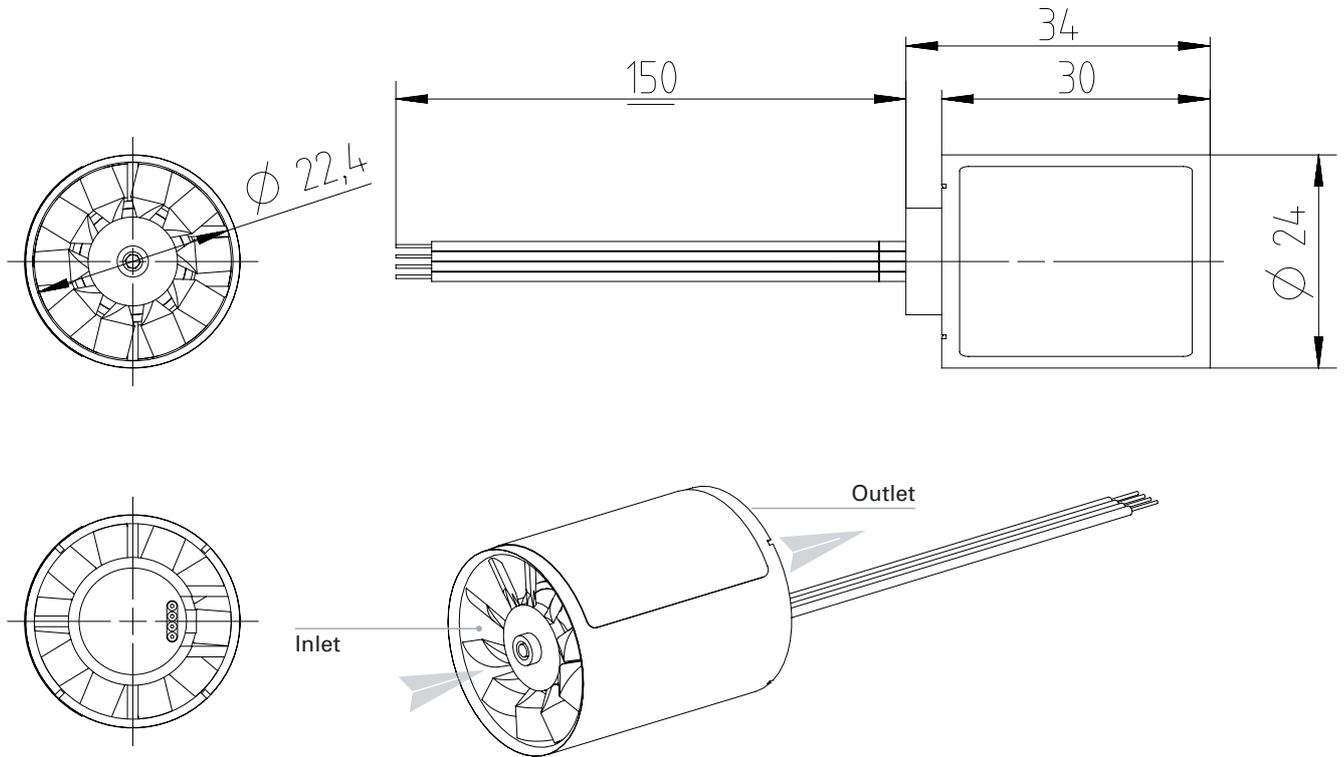
<sup>(2)</sup> Micronel fans are designed for various levels of oxygen compatibility. Further information available on request.

<sup>(3)</sup> Accelerated aging test at 45 °C ambient temperature, operation cycle 11.5 h ON, 0.5 h OFF, normal cleanliness according to ISO 281. Temperature dependency of lifetime according to IPC-9591: factor 1.5 per 10 °C.

<sup>(4)</sup> Measured at distance of 1 meter from inlet, with open inlet and outlet.

**Drawings**

Dimensions in mm



**Orientations**

Direction of rotation	 Clockwise (view on inlet)
Mounting position	Any direction

**Materials**

Components	Material
Fan housing	Polyphenylenoxide (PPO) Flammability: UL 94V-1
Impeller	Polyphenylenoxide (PPO) Flammability: UL 94V-1
Hub	-
Motor housing	-
Label	Plastic (26 x 26 mm) Flammability: UL 969
Connector	-
Crimp terminal	-
Lead wire	Silicone insulated cable Flammability: UL 3239

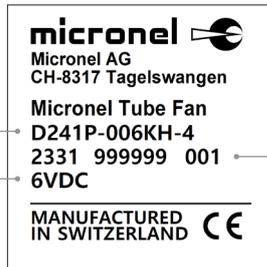
## Identification

### Label

Design

Part number

Nominal voltage



Identification number:

- Year, calendar week (YYWW)
- Fabrication number (6 digits)
- Serial number (3 digits)

## Blower Pinout

Pin	Color	Description	AWG
-	Red	V <sub>CC</sub>	28
-	Black	GND	28
-	Yellow	Tachometer output	28
-	Green	Set speed input	28

## Electronic Functions

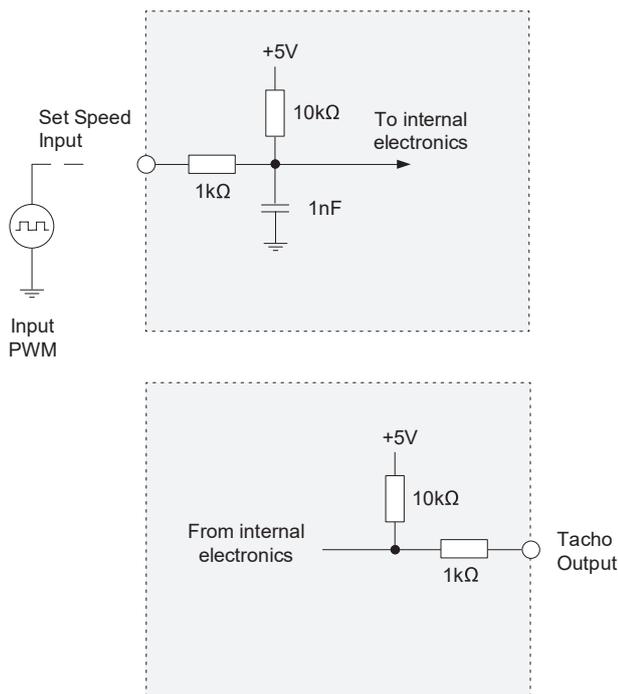
### Integrated Electronic Motor Driver

Type

Sensorless brushless direct current motor driver

Features

- Integrated speed control (PWM)
- Tachometer frequency signal
- Locked rotor protection
- No polarity protection



#### Speed Control Input

The blower speed can be controlled by PWM. See „Set Speed Input“ table for further details.

#### Tachometer Output

Tachometer frequency:  
1 pulse per revolution

$$n = 60 \cdot f$$

**n** Rotation speed [rpm]

**f** Tacho frequency [Hz]

## Electronic Functions

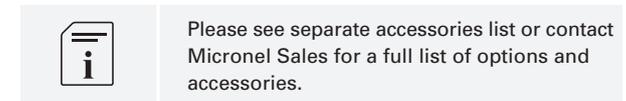
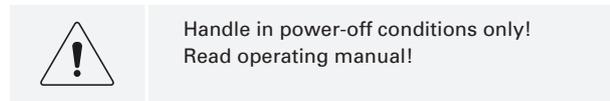
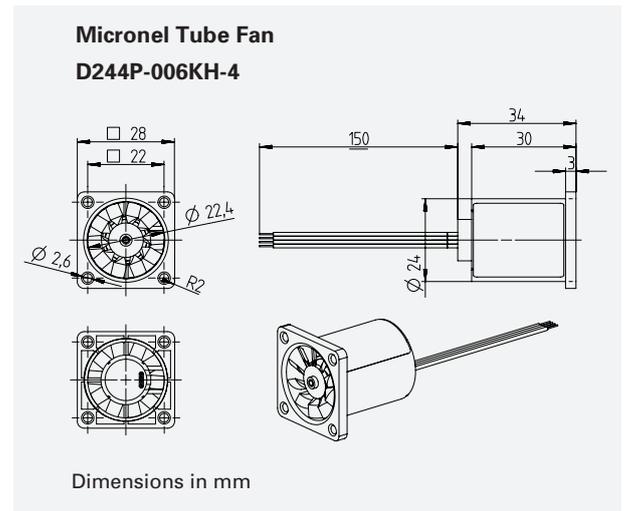
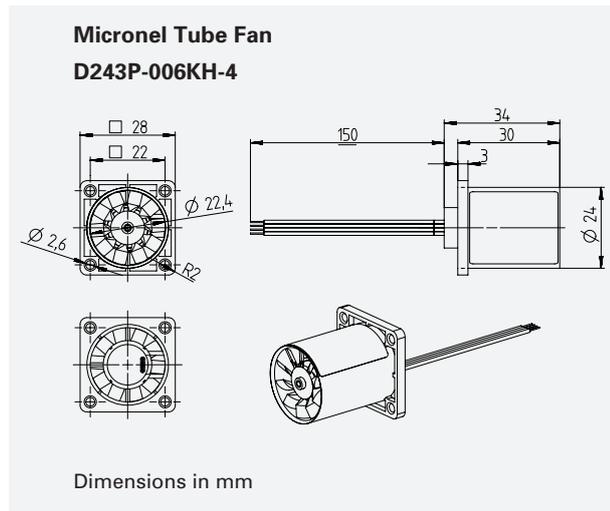
Set Speed Input PWM [%]	Operation Mode
Set speed not connected	Fan speed at 100 %
0.0	Stop
0.1 to 9.0	Not defined, fan might run or stop
10.0	Minimum start-up
10.0 to 100.0 (after start-up)	Fan speed depending on duty cycle

Frequency 15 kHz – 25 kHz; (TYP 20 kHz)

## Options for Mounting

Product no. with options	Flange Inlet	Flange Outlet
MicroneI Tube Fan D241P-006KH-4		
MicroneI Tube Fan D243P-006KH-4*		●
MicroneI Tube Fan D244P-006KH-4*	●	

\* The drawings show versions of flange.



All data are subject to change without advanced notice.  
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