

# Specification

## Tube Fan D481P-024KM-4



### General Information

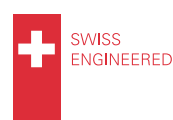
Item	
Product type	Tube fan with integrated electronic motor driver
Part no.	D481P-024KM-4 D483P-024KM-4 with flange at outlet (option) D484P-024KM-4 with flange at inlet (option)
Customer	N/A
Project no.	N/A
Modification	Standard product

### 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 9.3 hPa, freeflow 1080 l/min
- 24 V<sub>DC</sub> brushless DC-motor
- Speed control and tachometer frequency signal
- Small dimensions through slim design
- Options for mounting flange with holes

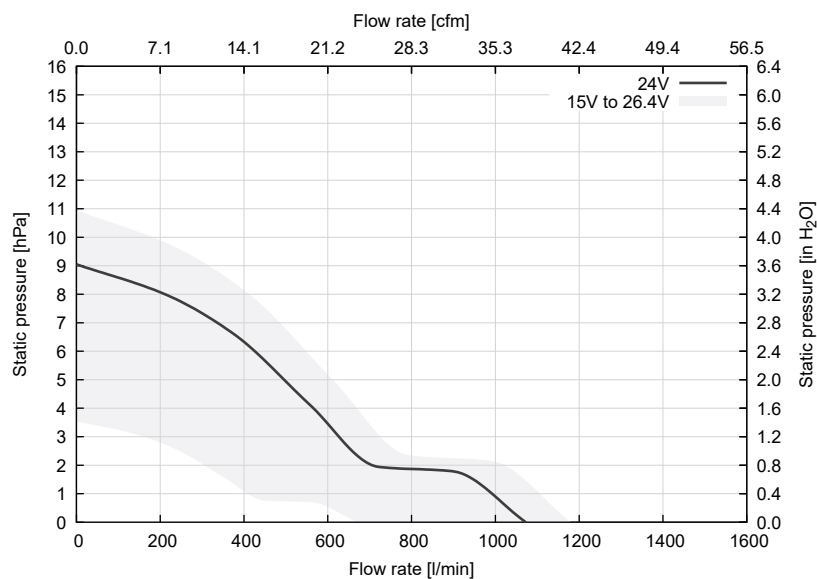


### General Conditions

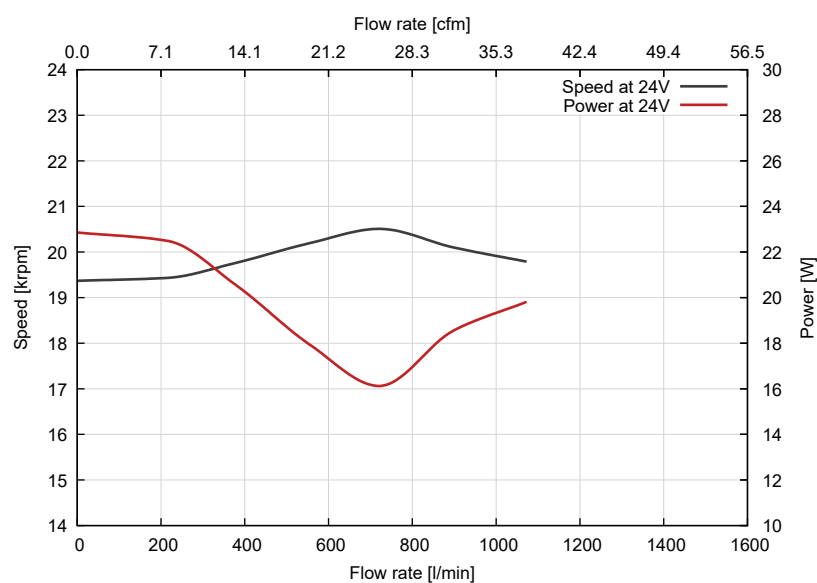
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m<sup>3</sup> standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 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]	9.3
Power consumption	[W]	23.1
Speed	[rpm]	19330

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

Flow rate	[l/min]	1080
Power consumption	[W]	19.6
Speed	[rpm]	19830

## Technical Data

Electrical	Unit	Value
Nominal supply voltage	[V <sub>DC</sub> ]	24
Supply voltage range	[V <sub>DC</sub> ]	15 to 26.4
Minimum power supply current <sup>(1)</sup>	[A]	1.5
Maximum start-up time	[s]	0.3
Maximum ripple voltage	[%]	5
<b>Maximum Ratings for Continuous Operation</b>		
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
<b>Environmental</b>		
Ambient temperature (operating)	[°C]	-20 to 60
Ambient temperature (storage)	[°C]	-20 to 60
Relative humidity (non-condensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration <sup>(2)</sup>	[%]	21
<b>Motor</b>		
Type		Brushless direct current motor
Winding insulation class		H, 180 °C
NTC type		N/A
<b>Lifetime</b>		
L10 at 25 °C ambient temperature <sup>(3)</sup>	[h]	20 000
<b>Acoustics</b>		
Sound pressure level <sup>(4)</sup>	[dB(A)]	50
<b>Leak Tightness</b>		
Maximum leak flow rate	[l/min]	N/A
<b>Mechanical</b>		
Blower weight	[g]	136

<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.

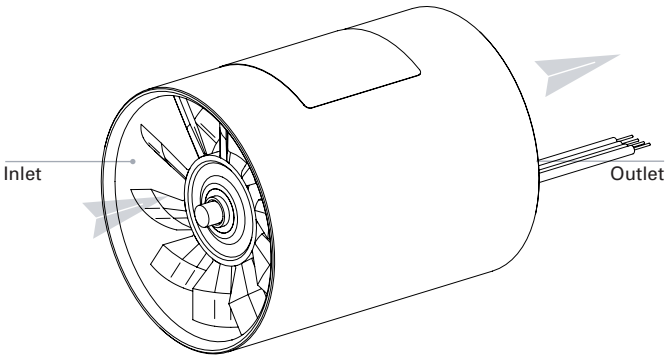
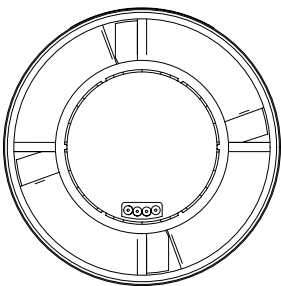
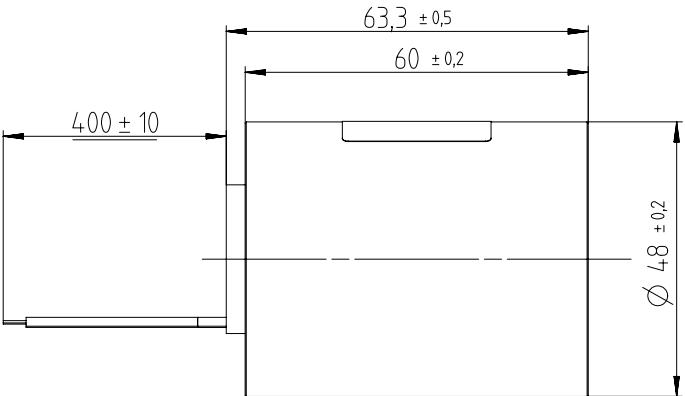
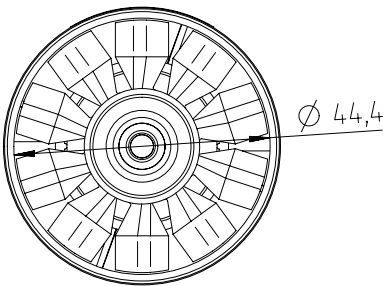
<sup>(2)</sup> Micronel fans are designed for various levels of oxygen compatibility. Further information available on request.

<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 to the fan, with hose connected to inlet and outlet.

**Drawings**

Dimensions in mm



**Orientations**

Direction of rotation

↻ Clockwise (view on inlet)



Mounting position

Any direction

**Materials**

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

Identification

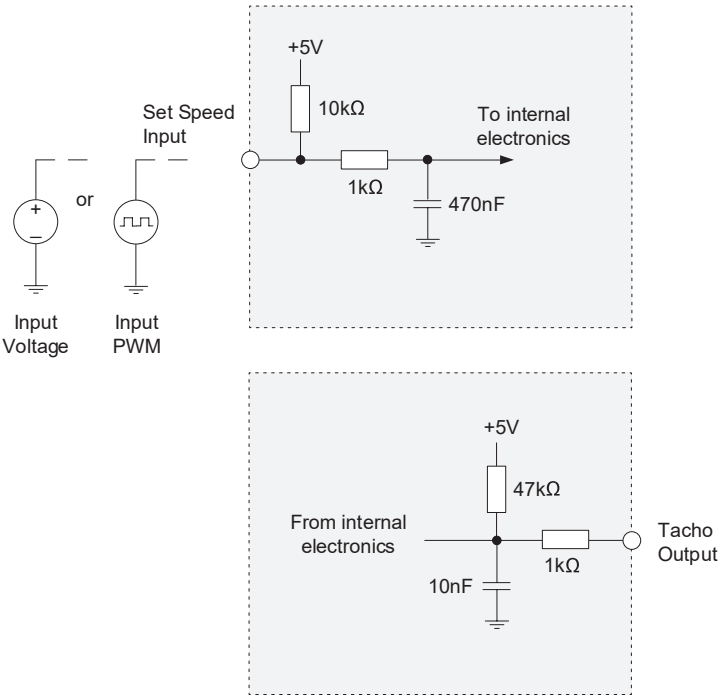
Label		
Design		
Part number	<div><div><div><div><div></div><div>Micronel AG</div><div>CH-8317 Tagelswangen</div><div>Micronel Tube Fan</div><div>D481P-024KM-4</div><div>2331 999999 001</div><div>24VDC</div><div>MANUFACTURED IN SWITZERLAND</div><div></div></div></div></div></div>	Identification number: <ul style="list-style-type: none"><li>• Year, calendar week (YYWW)</li><li>• Fabrication number (6 digits)</li><li>• Serial number (3 digits)</li></ul>
Nominal voltage		

Blower Pinout

Pin	Color	Description	AWG
-	Red	V <sub>cc</sub>	24
-	Black	GND	24
-	Yellow	Tachometer output	24
-	Green	Set speed input	24

Electronic Functions

Integrated Electronic Motor Driver	
Type	Sensored brushless direct current motor driver
Features	<ul style="list-style-type: none"><li>• Integrated speed control (PWM / voltage)</li><li>• Tachometer frequency signal</li><li>• Locked rotor protection</li><li>• Over current protection</li></ul>



Speed Control Input

The blower speed can be controlled either by input voltage or 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 Voltage [V <sub>DC</sub> ]	Operation Mode
Set Speed not connected	Fan speed at 100 %
Set Speed to ground	Stop
< 0.0	Not allowed
0.0 to 0.3	Stop
0.3 to 0.5	Not defined, fan might run or stop
0.5	Minimum start-up voltage
0.5 to 4.0	Fan speed depending on input voltage
4.0 to 5.0	Fan speed at 100 %
> 5.0	Not allowed

Set Speed Input PWM [%]	Operation Mode
Set Speed not connected	Fan speed at 100 %
Set Speed to ground	Stop
0.0 to 8.0	Stop
8.0 to 10.0	Not defined, fan might run or stop
10.0	Minimum start-up
10.0 to 80.0 (after start-up)	Fan speed depending on duty cycle
80.0 to 100.0	Fan speed at 100 %

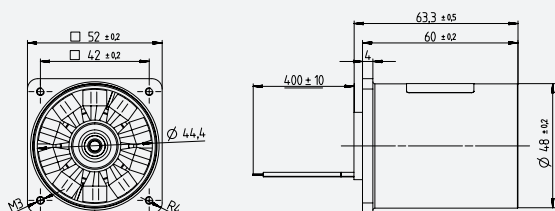
Frequency 15 kHz – 25 kHz; (TYP 20 kHz)

## Options for Mounting

Product no. with option	Flange Inlet	Flange Outlet
Micronel Tube Fan D481P-024KM-4		
Micronel Tube Fan D483P-024KM-4*		
Micronel Tube Fan D484P-024KM-4*		

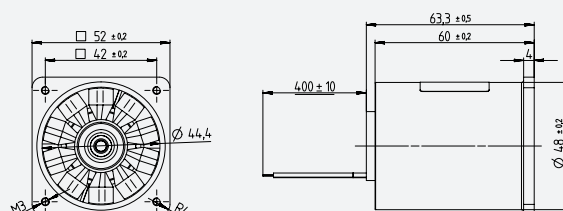
\* The drawings show versions of flange.

**Micronel Tube Fan  
D483P-024KM-4**



Dimensions in mm

**Micronel Tube Fan  
D484P-024KM-4**



Dimensions in mm

## Notice



Handle in power-off conditions only!  
No application of forces on inlet and  
outlet ports!  
Read operating manual!



Please see separate accessories list or contact  
Micronel Sales for a full list of options and  
accessories.