

## SPECIFICATION

# Micronel Tube Fan

## D481P-024KM-4



### GENERAL INFORMATION

#### Item

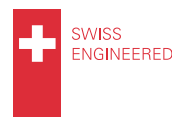
Product type	Tube fan with integrated electronic motor driver
Article no.	D481P-024KM-4 D483P-024KM-4 with flange at outlet (option) D484P-024KM-4 with flange at inlet (option)
Manufacturer	Micronel AG
Customer	N/A
Project no.	P19007
Modification	Standard product

### APPLICATION

Tube fan with high airflow, economic motor and integrated power electronic. Compared to a flat fan, the Micronel D-Line offers much higher pressure and still high volume flow at the same time. Typical applications are cooling and suction, where powerful fans are needed.

### FEATURES

- Pressure 9.4 hPa, flow rate 1080 l/min
- 24 V<sub>DC</sub> brushless DC-motor
- Speed control and tacho frequency signal
- Small dimensions through slim design
- Options for mounting flange with holes



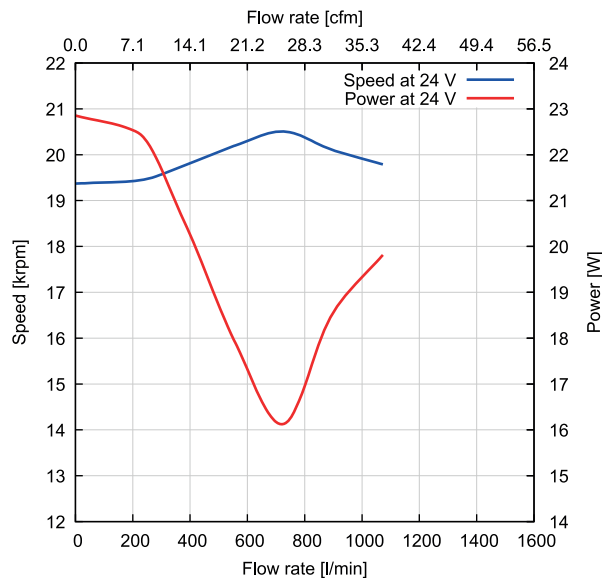
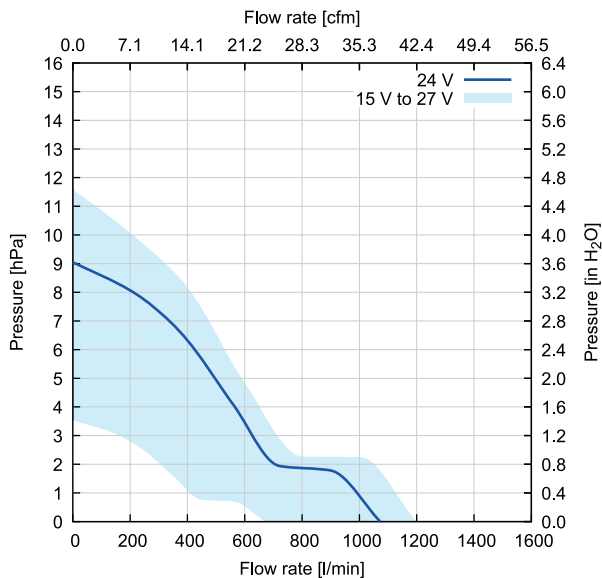
DECLARATION OF CONFORMITY  
NON-USE OF  
CONFLICT MINERALS

### GENERAL CONDITIONS

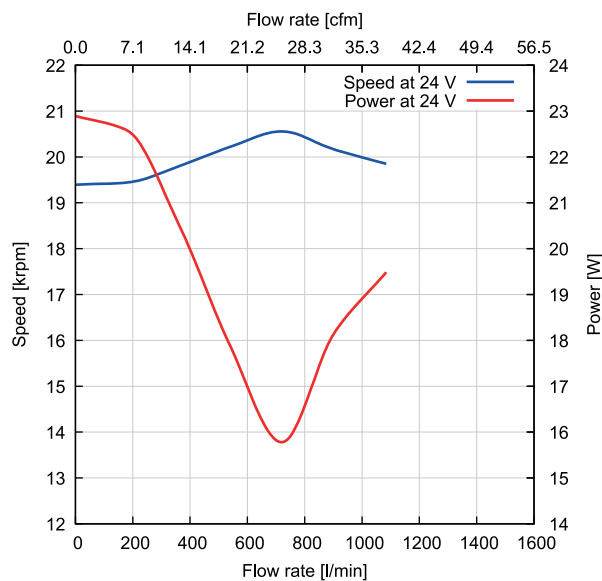
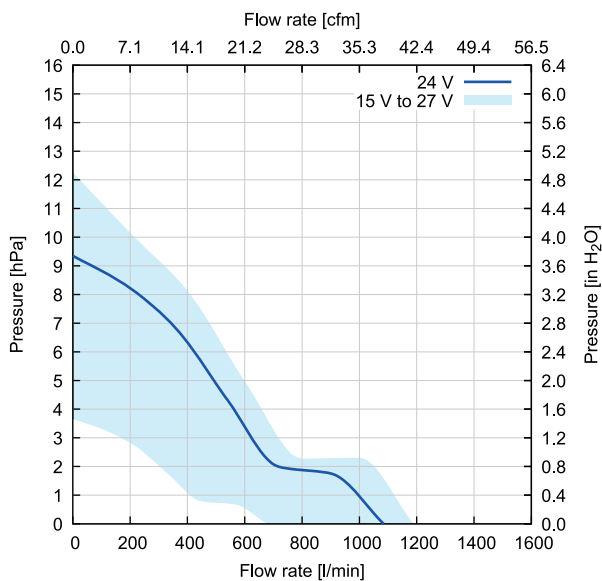
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m<sup>3</sup> standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 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 Operation at Outlet**



**Vacuum Operation at Inlet**



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

	Unit	Value
Static pressure	[hPa]	9.3
Power consumption	[W]	23.1
Speed	[rpm]	19330

**Shut-Off in Vacuum Operation (Zero Flow Rate)**

Static pressure	[hPa]	9.4
Power consumption	[W]	22.8
Speed	[rpm]	19400

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

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

**TECHNICAL DATA**

<b>Electrical</b>	<b>Unit</b>	<b>Value</b>
Nominal voltage	[V <sub>DC</sub> ]	24
Voltage range	[V <sub>DC</sub> ]	15 to 27
Minimum power supply current <sup>(1)</sup>	[A]	N/A
Maximum start-up time	[s]	N/A
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 (noncondensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration <sup>(2)</sup>	[%]	N/A
<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]	20000
<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.

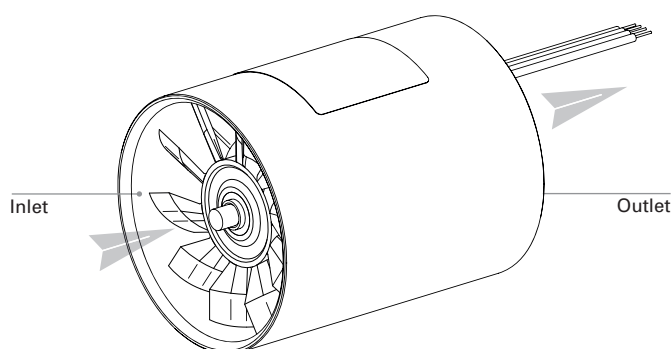
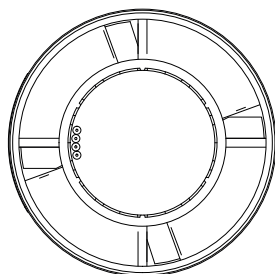
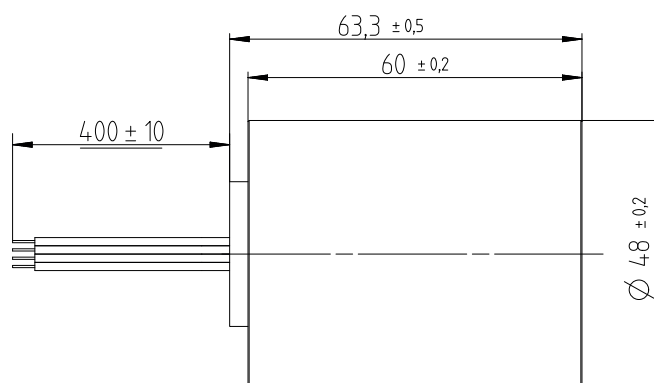
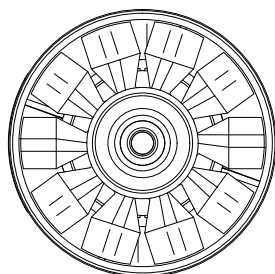
<sup>(2)</sup> Micronel blowers are designed for various levels of oxygen compatibility. Further information available on request.

<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

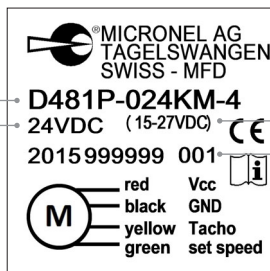
**IDENTIFICATION**

**Label**

Design

Article number

Nominal voltage



Voltage range

Identification number:  
 • Year, calendar week (YYWW)  
 • Fabrication number (6 digits)  
 • Serial number (3 digits)

**BLOWER PINOUT**

Pin	Color	Description	AWG
1	Red	V <sub>CC</sub>	24
2	Black	GND	24
3	Yellow	Tachometer output	24
4	Green	Set speed input	24

**ELECTRONIC FUNCTIONS**

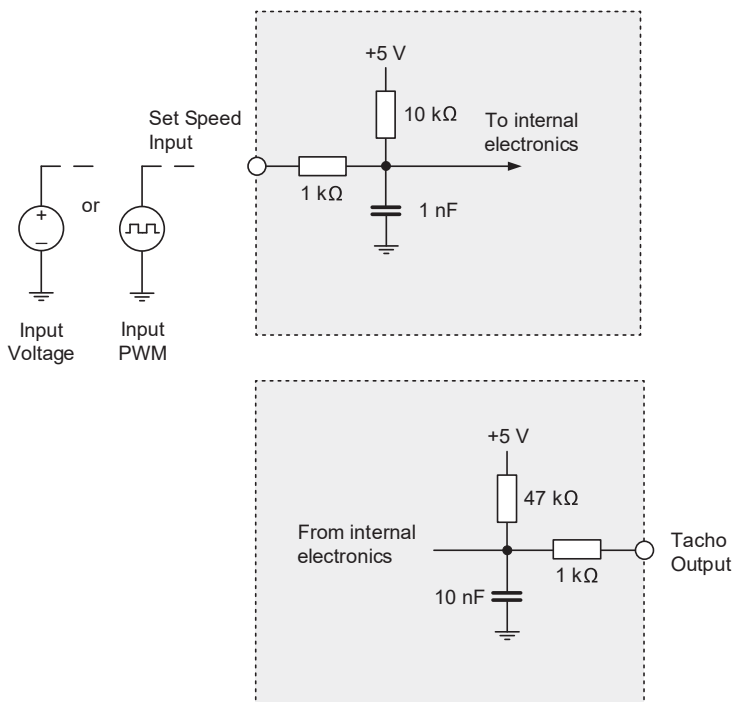
**Integrated Electronic Motor Driver**

Type

Brushless direct current motor driver

Features

- Integrated speed control (PWM / voltage)
- Tachometer frequency signal
- Locked rotor protection
- Over current protection



**Speed Control Input**

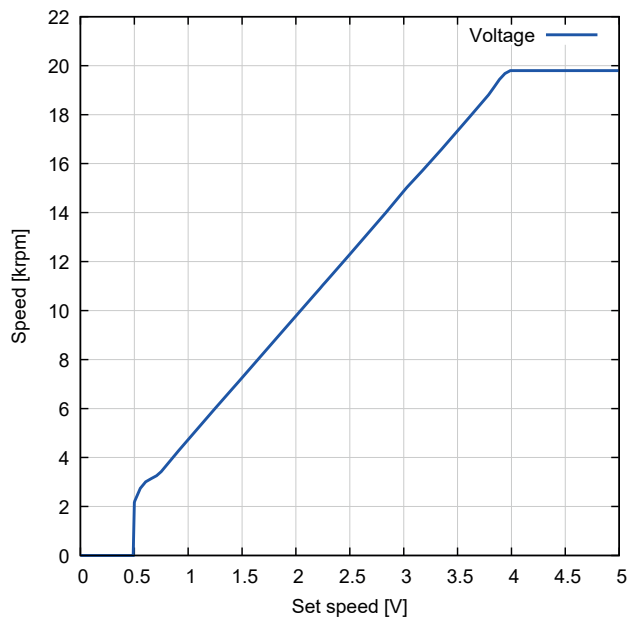
The blower speed can be controlled either by input voltage or PWM. See „Set Speed Input“ table for further details.

**Tachometer Output**

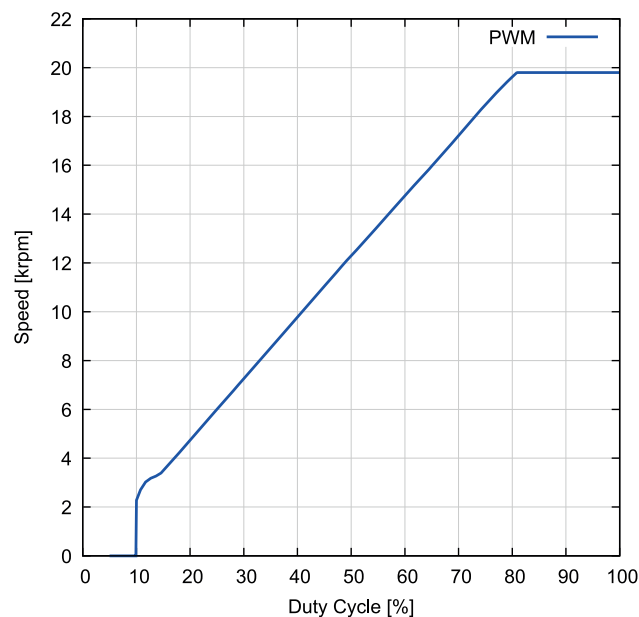
Tachometer frequency:  
 1 pulse per revolution  
 $n = 60 \cdot f$   
 n Rotation speed [rpm]  
 f Tacho frequency [Hz]

**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 0.49	Stop
0.5	Minimum start-up voltage
0.5 to 4.0	Fan speed depends 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 0.9	Stop
10.0	Minimum start-up
10.0 to 80.0 (after start-up)	Fan speed depends on duty cycle
80.0 to 100.0	Fan speed at 100 %



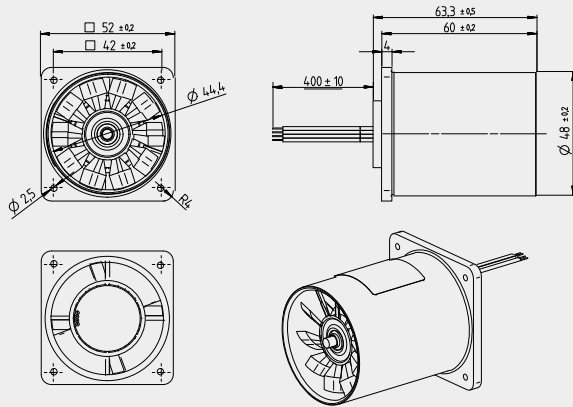
PWM-Frequency
10 kHz – 60 kHz; (typical 10 kHz)

**OPTIONS FOR MOUNTING**

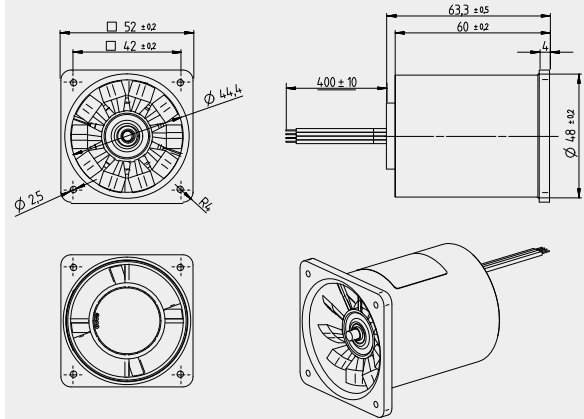
Product no. with option	Flange Inlet	Flange Outlet
Micronel Tube Fan D481P-024KM-4		
Micronel Tube Fan D483P-024KM-4*		●
Micronel Tube Fan D484P-024KM-4*	●	

\* The drawings show versions of flange.

## OPTIONS FOR MOUNTING

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


Dimensions in mm

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


Dimensions in mm



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.

All data are subject to change without advanced notice.  
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