

Specification

Tube Fan D481P-012KM-4



General Information

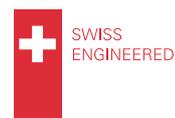
Item	
Product type	Tube fan with integrated electronic motor driver
Part no.	D481P-012KM-4 D483P-012KM-4 with flange at outlet (option) D484P-012KM-4 with flange at inlet (option)
Customer	N/A
Project no.	N/A
Modification	Standard product

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 8.9 hPa, freeflow 1060 l/min
- 12 V_{DC} brushless DC-motor
- Speed control and tacho frequency signal
- Small dimensions through slim design
- Options for mounting flange with holes

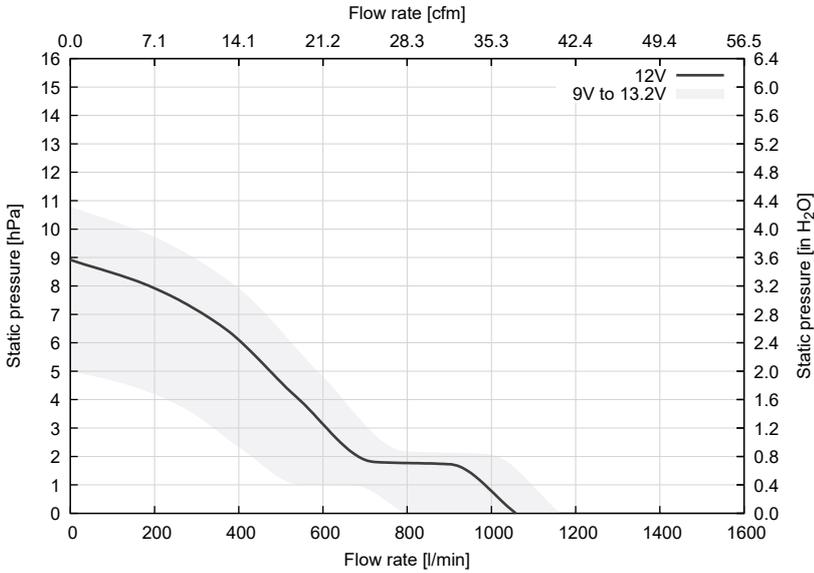


General Conditions

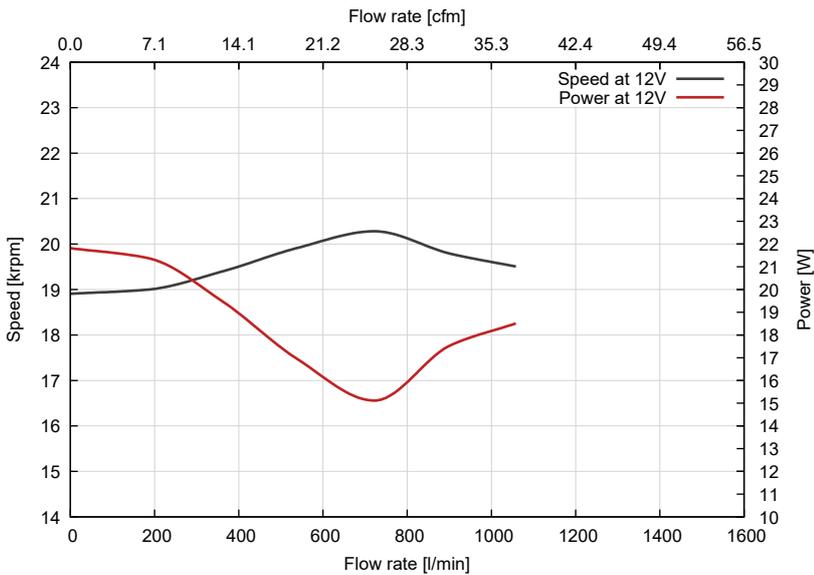
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m³ standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 with standardized 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]	8.9
Power consumption	[W]	21.8
Speed	[rpm]	18910

Free-Air (Zero Static Pressure)

Flow rate	[l/min]	1060
Power consumption	[W]	19.1
Speed	[rpm]	19530

Technical Data

Electrical	Unit	Value
Nominal supply voltage	[V _{DC}]	12
Supply voltage range	[V _{DC}]	9 to 13.2
Minimum power supply current ⁽¹⁾	[A]	2.5
Maximum start-up time	[s]	0.3
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]	-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 ⁽²⁾	[%]	21

Motor

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

Lifetime

L10 at 25 °C ambient temperature ⁽³⁾	[h]	20 000
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Acoustics

Sound pressure level ⁽⁴⁾	[dB(A)]	49
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Leak Tightness

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

Blower weight	[g]	136
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⁽¹⁾ 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

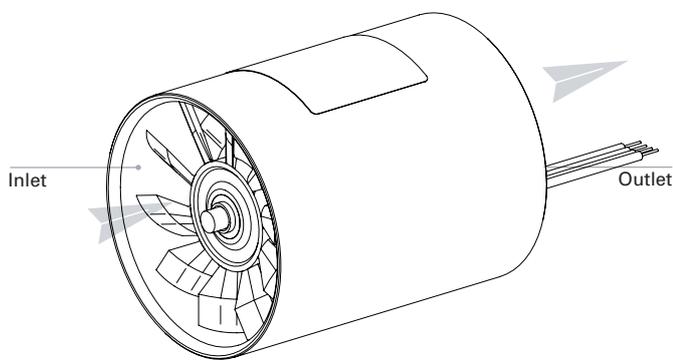
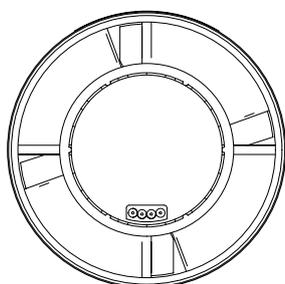
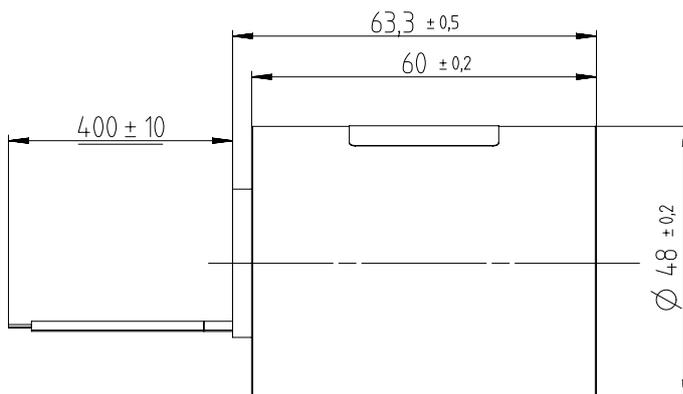
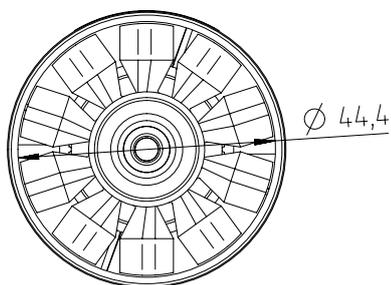
⁽²⁾ Micronel fans are designed for various levels of oxygen compatibility. Further information available on request.

⁽³⁾ 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.

⁽⁴⁾ 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

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Crimp terminal

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Lead wire

Silicone insulated cable
Flammability: UL 3239

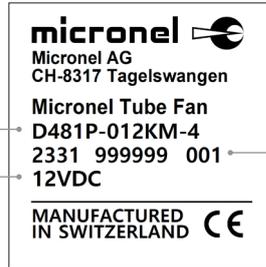
Identification

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_{CC}	24
-	Black	GND	24
-	Yellow	Tachometer output	24
-	Green	Set speed input	24

Electronic Functions

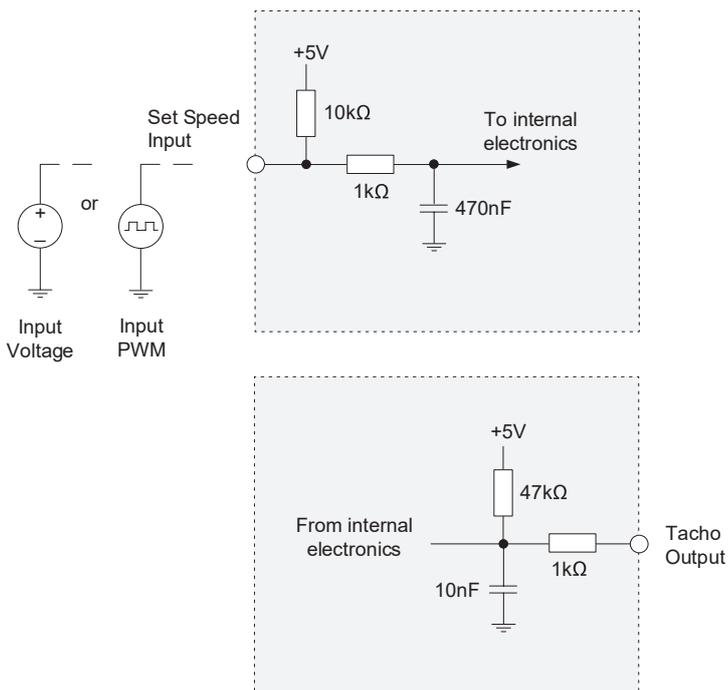
Integrated Electronic Motor Driver

Type

Sensored brushless direct current motor driver

Features

- 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 _{DC}]	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

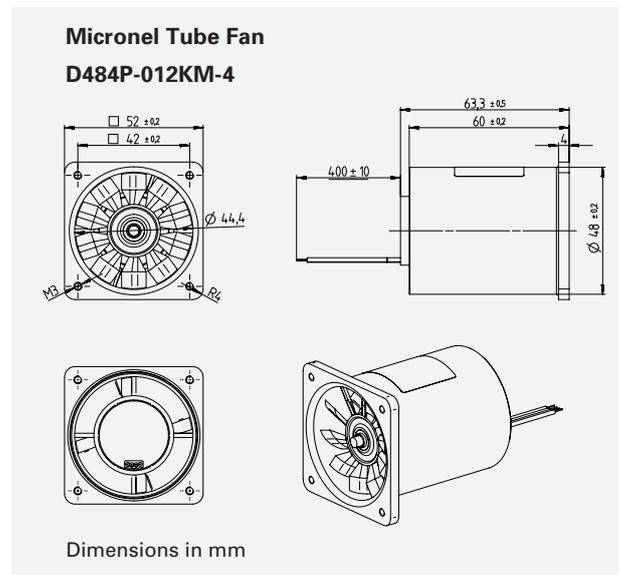
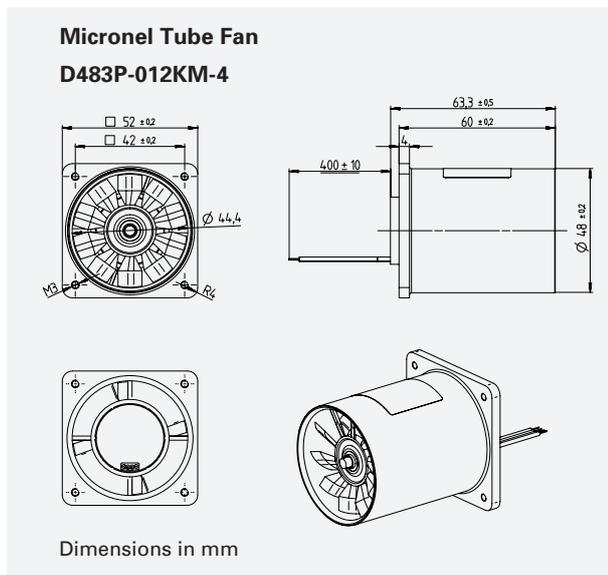
Set Speed Input PWM [%]	Operation Mode
Set Speed not connected	Fan speed at 100 %
Set Speed to ground	Stop
0.0 to 8.0	Stop
8.0 to 10.0	Not defined, fan might run or stop
10.0	Minimum start-up
10.0 to 80.0 (after start-up)	Fan speed depending on duty cycle
80.0 to 100.0	Fan speed at 100 %

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

Options for Mounting

Product no. with option	Flange Inlet	Flange Outlet
Micronel Tube Fan D481P-012KM-4		
Micronel Tube Fan D483P-012KM-4*		●
Micronel Tube Fan D484P-012KM-4*	●	

* The drawings show versions of flange.



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.