SPECIFICATION

Micronel Tube Fan D481P-012KM-4

GENERAL INFORMATION

Item	
Product type	Tube fan with integrated electronic motor driver
Article no.	D481P-012KM-4 D483P-012KM-4 with flange at outlet (option) D484P-012KM-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.

SWISS ENGINEERED

CE

REACh Compliant

RoHS II Compliant

DECLARATION OF CONFORMITY NON-USE OF CONFLICT MINERALS

FEATURES

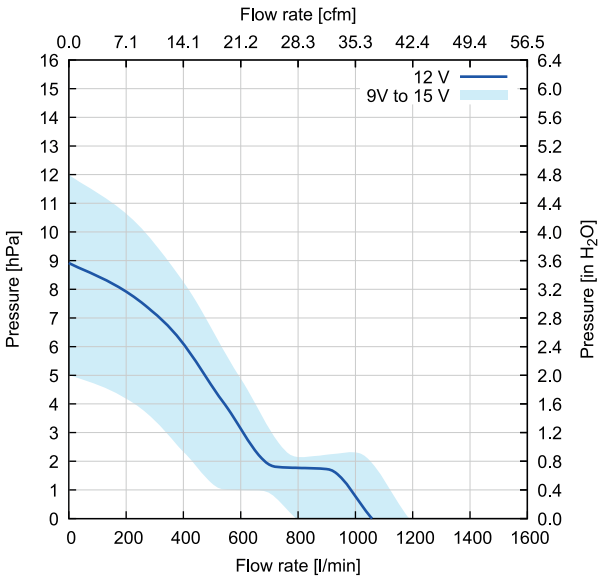
- Pressure 9.1 hPa, flow rate 1060 l/min
- 12 V_{DC} brushless DC-motor
- Speed control and tacho frequency signal
- Small dimensions through slim design
- Options for mounting flange with holes

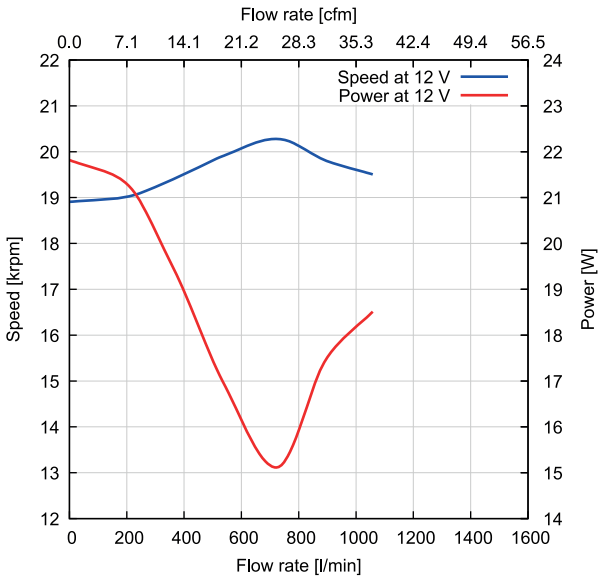
GENERAL CONDITIONS

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.

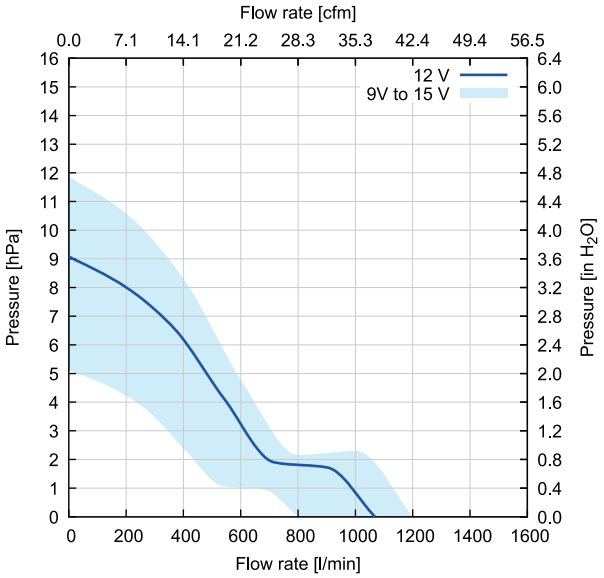
PERFORMANCE

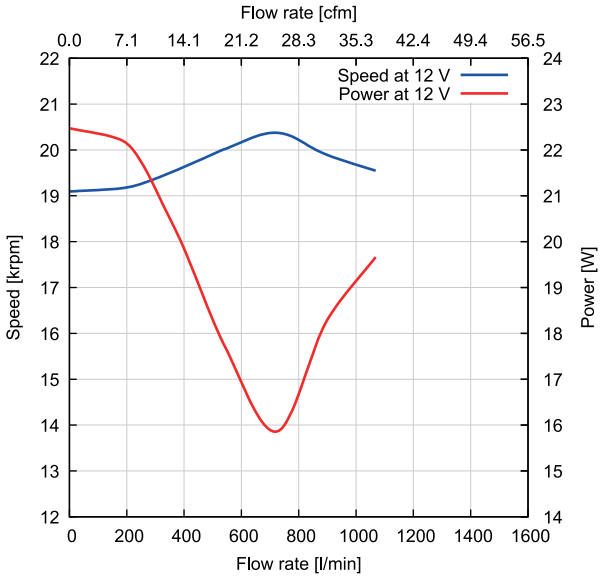
Pressure Operation at Outlet





Vacuum Operation at Inlet





Shut-Off in Pressure Operation (Zero Flow Rate)	Unit	Value
Static pressure	[hPa]	8.9
Power consumption	[W]	21.8
Speed	[rpm]	18910

Shut-Off in Vacuum Operation (Zero Flow Rate)		
Static pressure	[hPa]	9.1
Power consumption	[W]	22.5
Speed	[rpm]	19100

Free-Air (Zero Static Pressure)		
Flow rate	[l/min]	1060
Power consumption	[W]	19.1
Speed	[rpm]	19530

TECHNICAL DATA

Electrical	Unit	Value
Nominal voltage	[V_{DC}]	12
Voltage range	[V_{DC}]	9 to 15
Minimum power supply current(1)	[A]	N/A
Maximum start-up time	[s]	N/A
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 (noncondensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration(2)	[%]	N/A
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]	20000
Acoustics		
Sound pressure level(4)	[dB(A)]	49
Leak Tightness		
Maximum leak flow rate	[l/min]	N/A
Mechanical		
Blower weight	[g]	136

(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

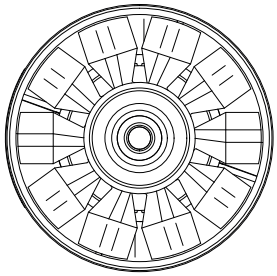
(2) Micronel blowers are designed for various levels of oxygen compatibility. Further information available on request.

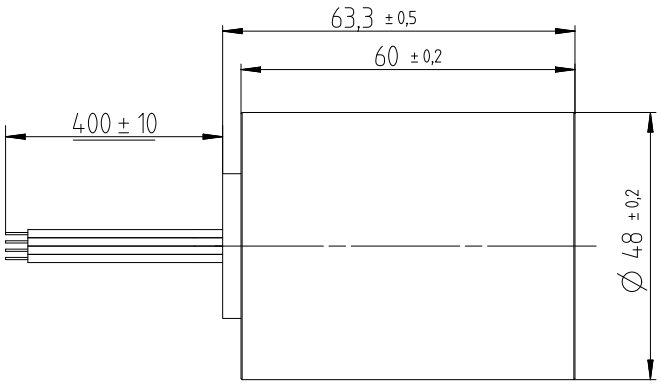
(3) Accelerated aging test at 45 °C ambient temperature, operation cycle 11.5 h ON, 0.5 h OFF, normal cleanliness according to ISO 281. Temperature dependency of lifetime according to IPC-9591: factor 1.5 per 10 °C.

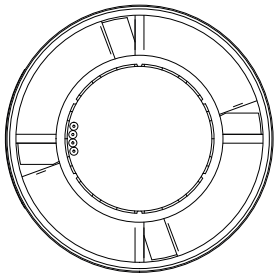
(4) Measured at distance of 1 meter to the fan, with hose connected to inlet and outlet.

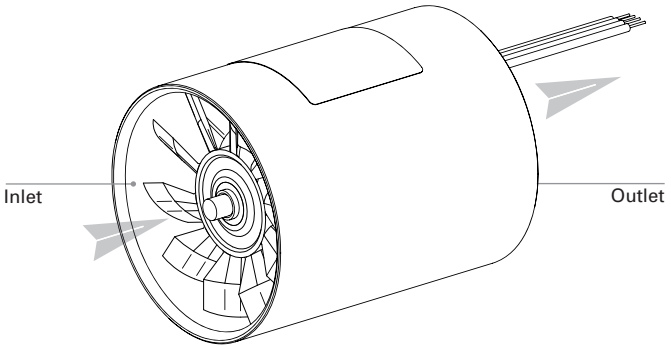
DRAWINGS

Dimensions in mm









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

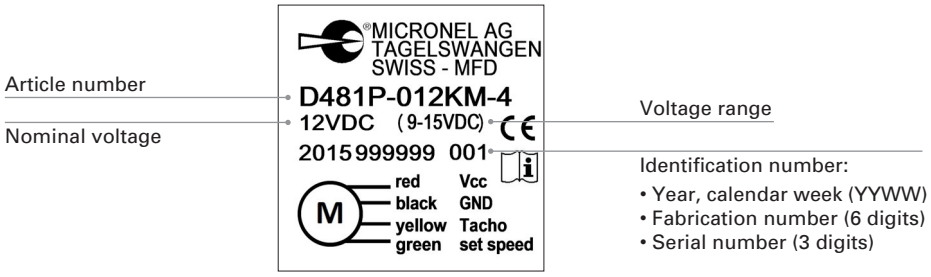
MATERIALS

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	-
Crimp terminal	-
Lead wire	Silicone insulated cable Flammability: UL 3239

IDENTIFICATION

Label

Design



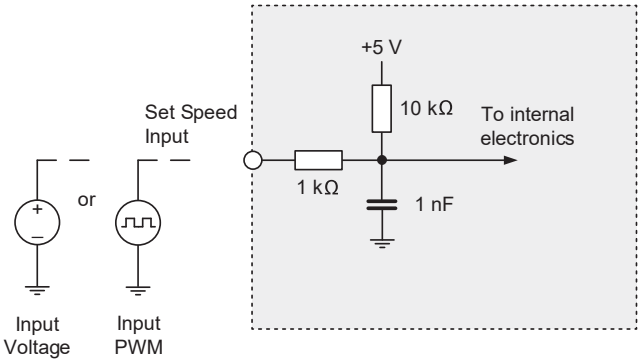
BLOWER PINOUT

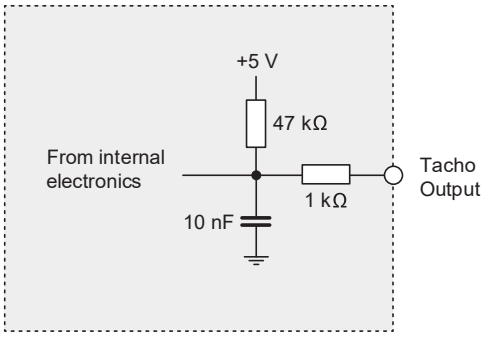
Pin	Color	Description	AWG
1	Red	V_{cc}	24
2	Black	GND	24
3	Yellow	Tachometer output	24
4	Green	Set speed input	24

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

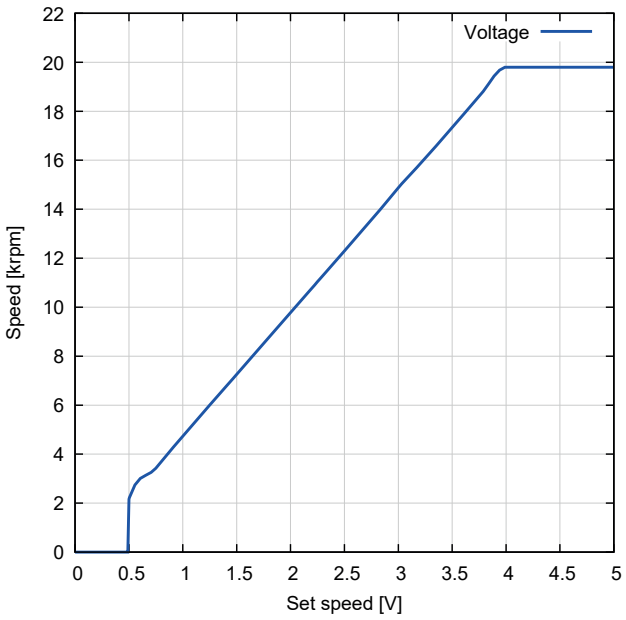
Tachometer frequency:
1 pulse per revolution

n = 60 • f

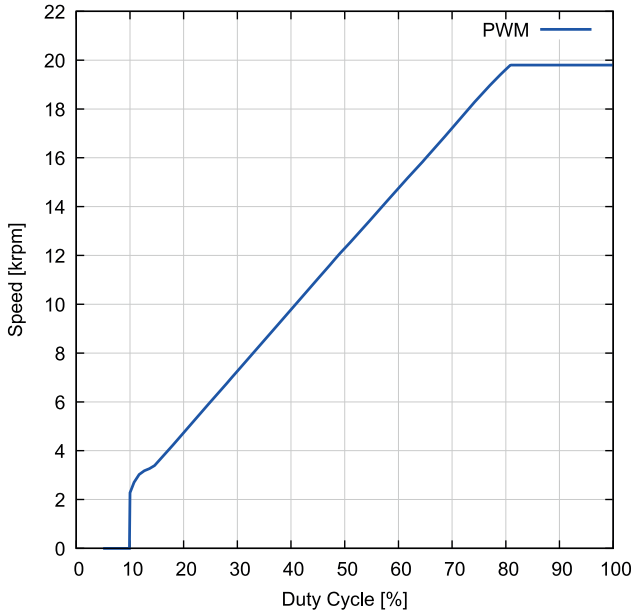
n Rotation speed [rpm]
f Tacho frequency [Hz]

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 0.49	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)

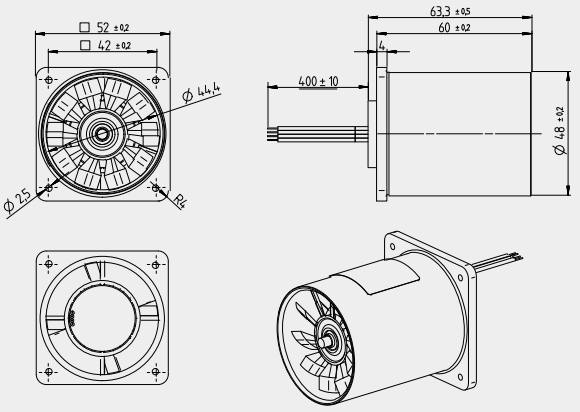
OPTIONS FOR MOUNTING

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

* The drawings show versions of flange.

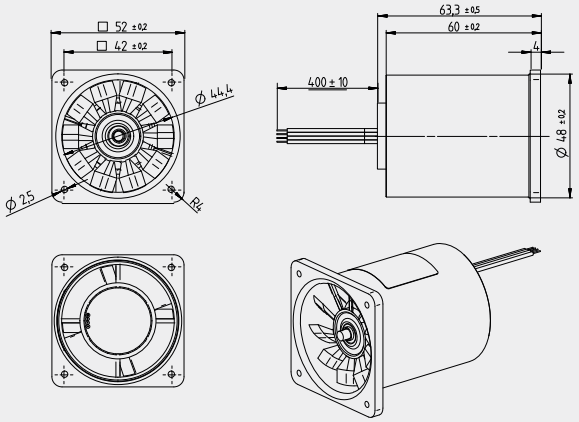
OPTIONS FOR MOUNTING

Micronel Tube Fan
D483P-012KM-4



Dimensions in mm

Micronel Tube Fan
D484P-012KM-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.

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Miniature Fan & Blower Technology

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