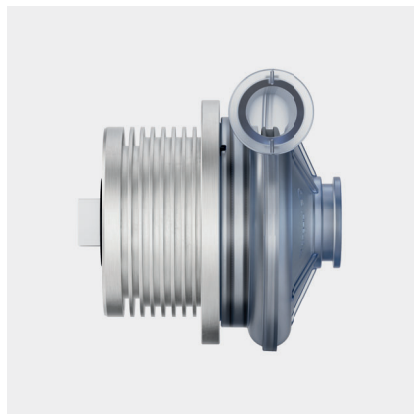


SPECIFICATION

Micronel Radial Blower

U85MX-024KX-4



GENERAL INFORMATION

Item

Product type	Radial blower with integrated electronic motor driver
Article no.	U85MX-024KX-4 U85MX-024KX-41 with inlet port (option) U85MX-024KX-42 with outlet port (option) U85MX-024KX-43 with inlet and outlet port (option)
Manufacturer	Micronel AG
Customer	N/A
Project no.	N/A
Modification	Standard product

APPLICATIONS

The versatile, high-power Micronel blower type U85MX-024KX-4 can be widely used for industrial or medical applications, where highest vacuum or pressure performance is needed, i.e. for cough therapy, dental suction, vacuum handling and many more.

FEATURES

- Pressure: 123 hPa, flow rate: 860 l/min
- 21 V_{DC} brushless DC-motor
- Analog speed control and tacho frequency signal
- Highly efficient, quiet operation
- Aluminum heat sink
- 40 % oxygen resistant airway
- 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.



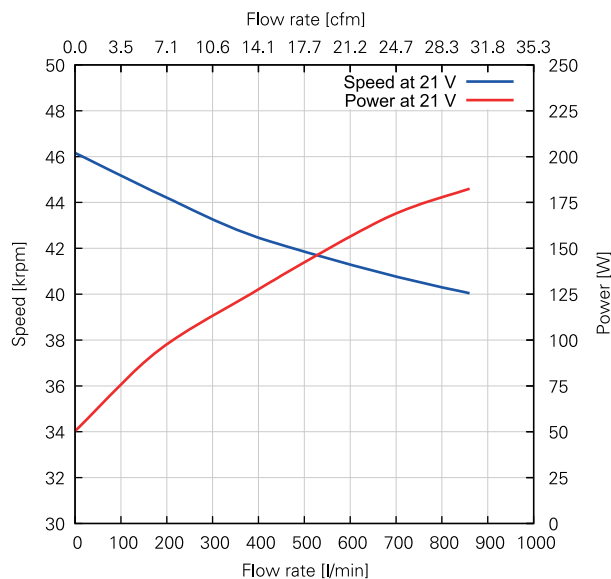
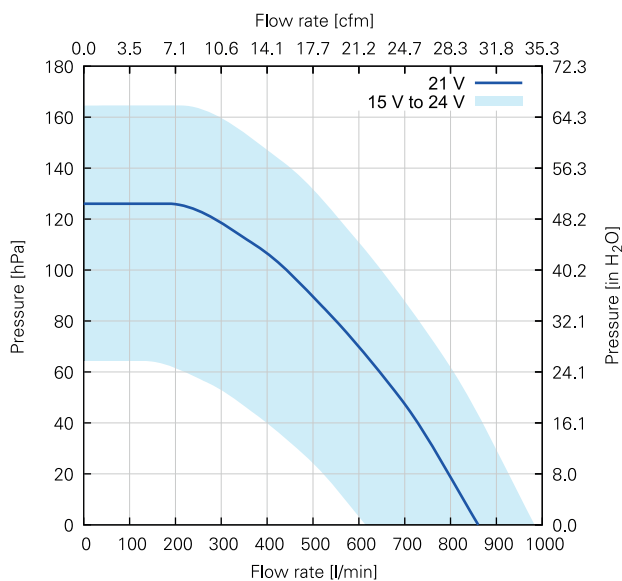
SWISS
ENGINEERED



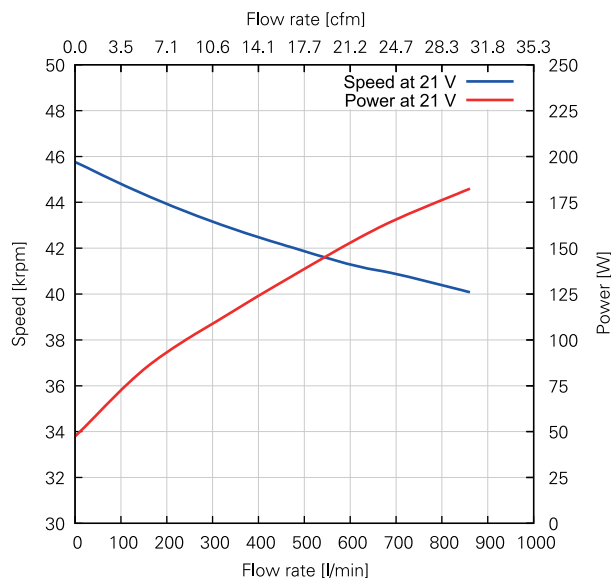
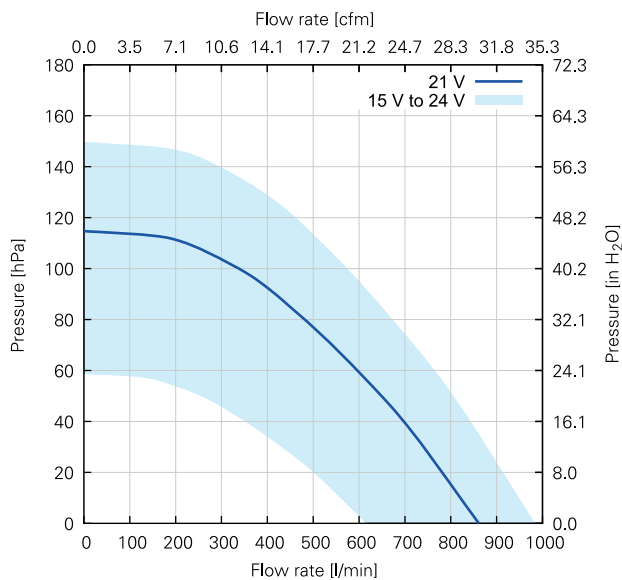
DECLARATION OF
CONFORMITY
NON-USE OF
CONFLICT MINERALS

PERFORMANCE

Pressure Operation at Outlet



Vacuum Operation at Inlet



Shut-Off in Pressure Operation (Zero Flow Rate)

	Unit	Value
Static pressure	[hPa]	123
Power consumption	[W]	51
Speed	[rpm]	46 160

Shut-Off in Vacuum Operation (Zero Flow Rate)

Static pressure	[hPa]	114
Power consumption	[W]	48
Speed	[rpm]	45 760

Free-Air (Zero Static Pressure)

Flow rate	[l/min]	860
Power consumption	[W]	183
Speed	[rpm]	40 040

TECHNICAL DATA

Electrical	Unit	Value
Nominal voltage	[V _{DC}]	21
Voltage range	[V _{DC}]	15 to 24
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]	80
Maximum speed	[rpm]	45 000
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	160
Maximum housing surface temperature	[°C]	65
Maximum NTC temperature	[°C]	N/A
Environmental		
Ambient temperature (operating)	[°C]	-20 to 45
Ambient temperature (storage)	[°C]	-20 to 65
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		F, 155 °C
NTC type		TDK NTCG164KF104F -40 °C to 125 °C, 100 kΩ, B _{25/100} = 4 508 K
Lifetime		
L10 at 25 °C ambient temperature ⁽³⁾	[h]	20 000
Acoustics		
Sound pressure level	[dB(A)]	N/A
Leak Tightness		
Maximum leak flow rate	[l/min]	N/A
Mechanical		
Blower weight	[g]	390
Housing pull-off torque	[Nm]	> 7.15

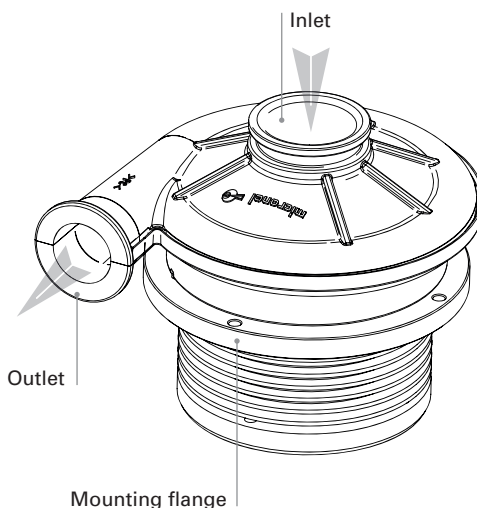
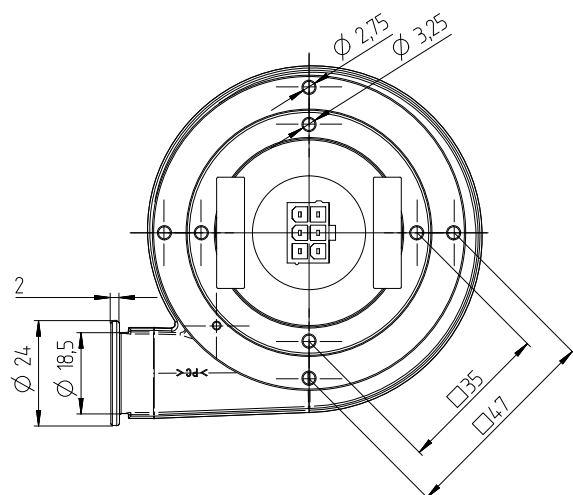
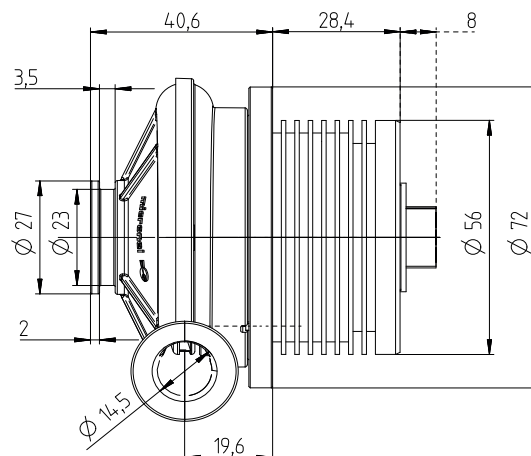
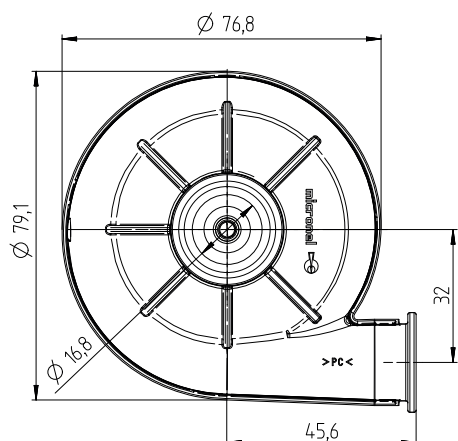
⁽¹⁾ Recommended minimum continuous power supply current for proper start-up behavior at nominal voltage. This is an indicative value. Power supply dimensioning, wiring, safety, setup and validation is the customer's responsibility.

⁽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, continuous operation, flow control with 4.5 mm diameter orifice plate at outlet, normal cleanliness according to ISO 281. Temperature dependency of lifetime according to IPC-9591: factor 1.5 per 10 °C.

DRAWINGS

Dimensions in mm



Orientations

Direction of rotation

↻ Counter-clockwise (view on inlet)

Mounting position

Any direction

MATERIALS

Components

Material

Fan housing

Polycarbonate (PC)
 Flammability: 850 °C /
 1 mm (IEC 60695-2-12)
 Biocompatibility: USP Class VI / ISO 10993

Impeller

Polyamide (PA6)

Hub

Stainless steel

Motor housing

Zinc die cast
 Aluminum, anodized, natural color

Label

Polyester,
 Flammability: UL 969

Connector

Molex 46015-0603
 Flammability: UL 94V-0

Crimp terminal

N/A

Lead wire

N/A

IDENTIFICATION

Label

Design



Article number
Nominal voltage

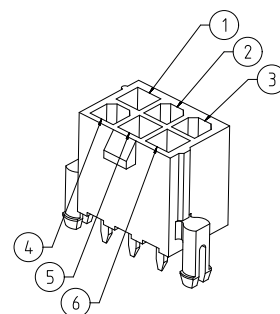


Identification number:

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

BLOWER PINOUT

Pin	Color	Description	AWG
1	-	GND	-
2	-	Tachometer output	-
3	-	NTC	-
4	-	V _{CC}	-
5	-	Set speed input	-
6	-	NTC	-



ELECTRONIC FUNCTIONS

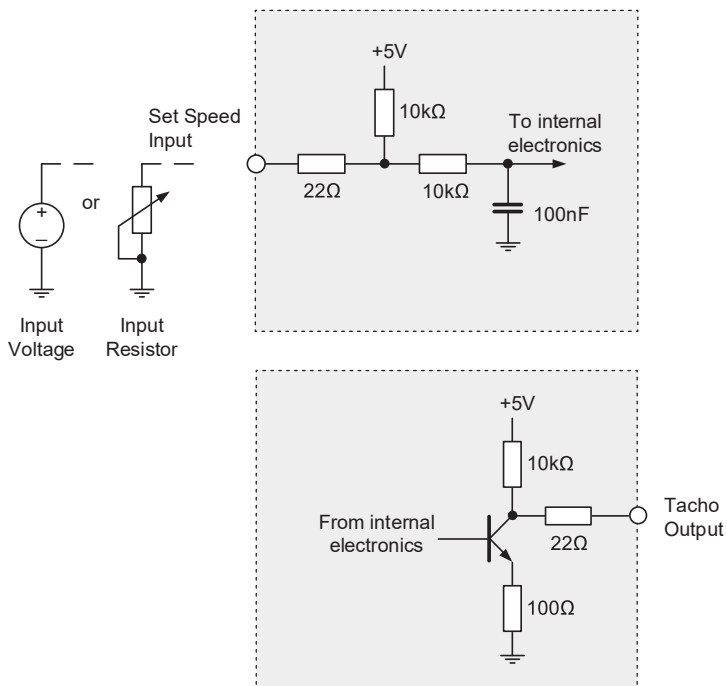
Integrated Electronic Motor Driver

Type

Micronel brushless direct current motor driver

Features

- Integrated speed control (analog / resistive)
- Tachometer frequency signal
- Locked rotor protection
- No polarity protection



Speed Control Input

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

Tachometer Output

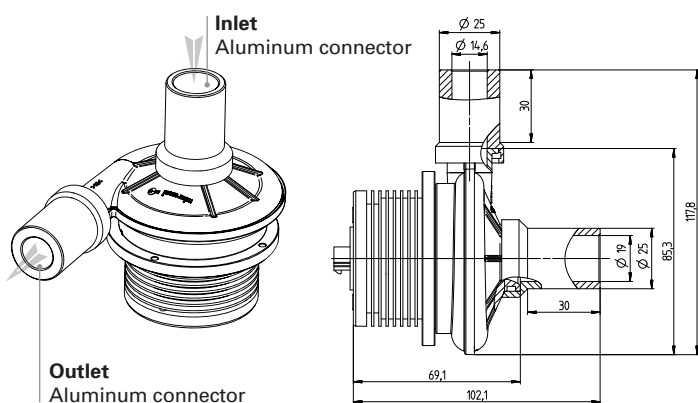
Tachometer frequency:
3 pulses per revolution
 $n = 20 \cdot f$
n Rotation speed [rpm]
f Tacho frequency [Hz]

ELECTRONIC FUNCTIONS

Set Speed Input Voltage [V _{DC}]	Operation Mode
Set speed not connected	Blower speed at 100 %
< 0.0	Not allowed
0.0 to 0.2	Stop
0.2 to 1.5	Not defined, blower might run or stop
2.0	Minimum start-up voltage
1.5 to 4.0 (after start-up)	Blower speed dependent on external voltage
4.0 to 5.0	Blower speed at 100 %
> 5.0	Not allowed

Set Speed Input Resistor [kΩ]	Operation Mode
Set speed not connected	Blower speed at 100 %
0.0 to 0.5	Stop
0.5 to 4.3	Not defined, blower might run or stop
6.7	Minimum start-up resistance
4.3 to 39 (after start-up)	Blower speed dependent on external resistance
> 39 or open input	Blower speed at 100 %

OPTIONS FOR INLET AND OUTLET CONNECTIONS*



Article no. with options	Inlet	Outlet
U85MX-024KX-4		
U85MX-024KX-41	●	
U85MX-024KX-42		●
U85MX-024KX-43	●	●

* The drawings show inlet and outlet connectors. Both options are independent of each other.

No application of forces on connectors allowed!

ACCESSORIES

Not included!



Micronel Conector-Set M450X-527A9

Suitable for blower

Micronel Radial Blower
U85MX-024KX-4



Handle in power-off conditions only!
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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