

Specification

Radial Blower U51D2-024KX-6



General Information

Item

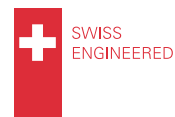
Product type	Radial blower
Part no.	U51D2-024KX-6
Customer	N/A
Project no.	N/A
Modification	Standard product

Description

This low-profile, two-stage, 100% oxygen resistant blower provides highest pressures for medical respiration.

Features

- Static pressure: 84 hPa, freeflow: 590 l/min
- 24 V_{DC} brushless DC-motor
- Small dimensions through slim design
- O₂ resistant material

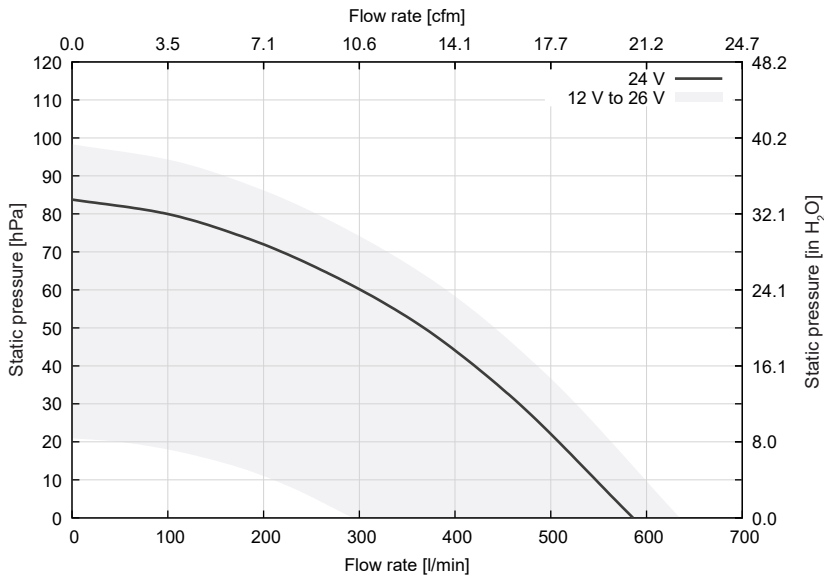


General Conditions

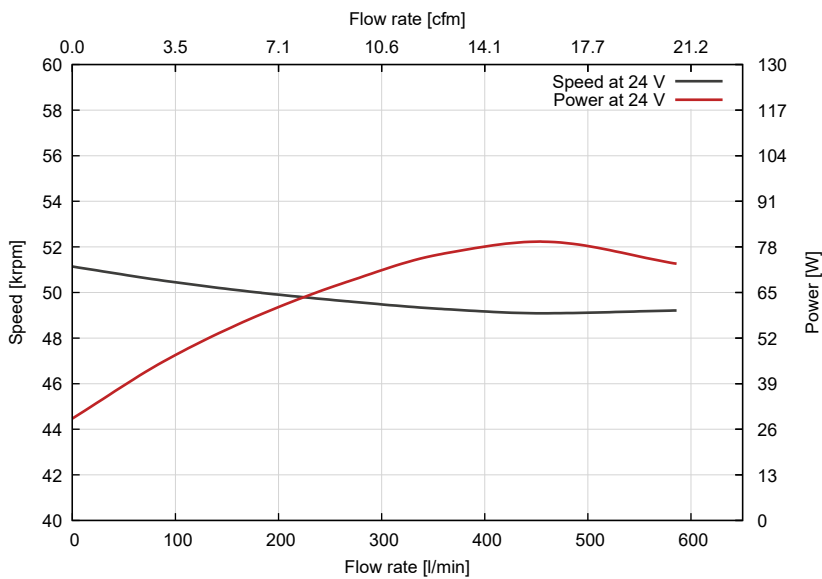
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m³ standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 with standardized 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]	84
Power consumption	[W]	29
Speed	[rpm]	51 100

Shut-Off in Vacuum Operation (Zero Flow Rate)

Static pressure	[hPa]	76
Power consumption	[W]	37
Speed	[rpm]	50 900

Free-Air (Zero Static Pressure)

Flow rate	[l/min]	590
Power consumption	[W]	73
Speed	[rpm]	49 200

Technical Data

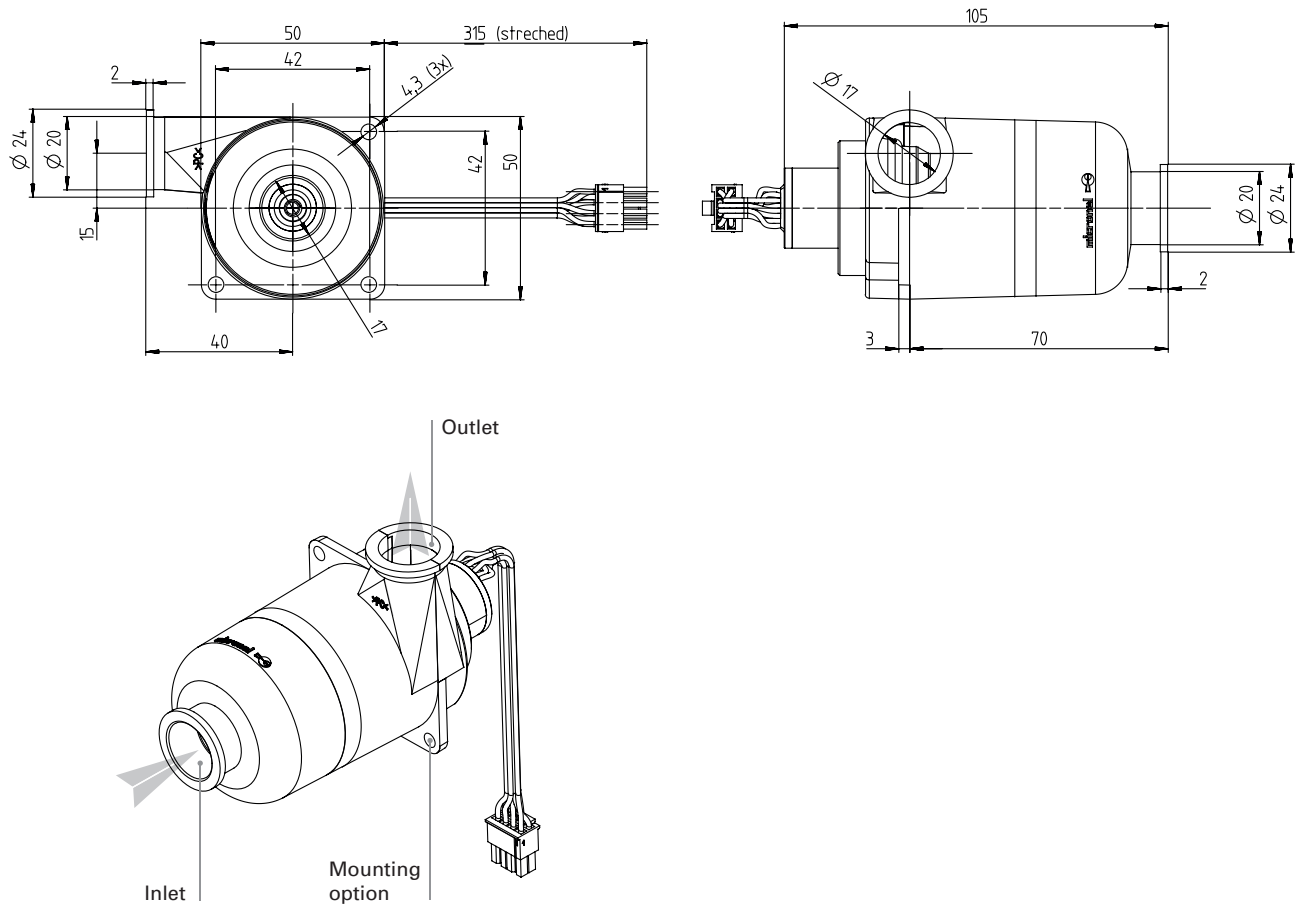
Electrical	Unit	Value
Nominal supply voltage	[V _{DC}]	24
Supply voltage range	[V _{DC}]	12 to 26
Maximum Ratings for Continuous Operation		
Minimum flow rate	[l/min]	50
Maximum speed	[rpm]	51 100
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	80
Maximum housing surface temperature	[°C]	65
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 95
Ingress protection (EN60529)		IP40
Maximum oxygen concentration	[%]	100
Motor		
Type		Brushless direct current motor with Hall sensors
Winding insulation class		F, 155 °C
Phase to phase resistance	[Ω]	0.18
Phase to phase inductance	[mH]	0.01
Speed constant	[rpm/V]	2 124
Torque constant	[mNm/A]	4.49
Number of pole pairs		1
Hall sensor type		Melexis US2881 4.5 - 24 V _{DC}
NTC type		N/A
Lifetime		
L10 at 25 °C ambient temperature ⁽¹⁾	[h]	10 000
Acoustics		
Sound pressure level ⁽²⁾	[dB(A)]	70
Leak Tightness		
Maximum leak flow rate	[l/min]	N/A
Mechanical		
Blower weight	[g]	340
Rotor weight	[g]	52
Rotor moment of inertia	[g/cm ²]	N/A

⁽¹⁾ Accelerated aging test at 45 °C ambient temperature, continuous operation, normal cleanliness according to ISO 281.
Temperature dependency of lifetime according to IPC-9591: factor 1.5 per 10 °C.

⁽²⁾ Measured at distance of 1 meter from inlet, with open inlet, outlet connected to breathing tube and 4 mm orifice in sound cancellation box at 1 kPa.

Drawings

Dimensions in mm



Orientations

Direction of rotation	↻ Counter-clockwise (view on inlet)
Mounting position	Any direction

Materials

Components	Material
Blower housing	Polycarbonate (PC), LEXAN HPS1 Flammability: 850 °C / 1 mm (IEC 60695-2-12) Biocompatibility: Suitable for EtO, steam and gama sterilisation / FDA approved USP Class 6
Impeller	Polyamide (PA 6), biocompatible Flammability: UL 94 VV1
Hub	Brass
Motor housing	Aluminum without anodization
Label	Plastic
Connector	Molex 43025-0800 Polyamid (PA6) Flammability: UL 94 V-2
Crimp terminal	N/A
Lead wire	Silicone insulated cable Flammability: UL 3132

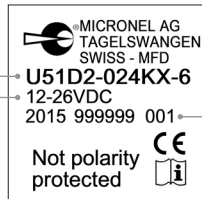
Identification

Label

Design

Part number

Voltage Range

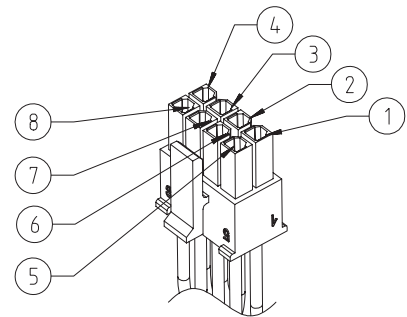


Identification number:

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

Blower Pinout

Pin	Color	Description	AWG
1	Blue	Hall Sensor 1	24
2	Black	Hall Sensor 2	24
3	Yellow	V_{Hall}	24
4	Orange	Motor Winding W	24
5	Grey	Hall Sensor 3	24
6	Green	Ground	24
7	Brown	Motor Winding U	24
8	Red	Motor Winding V	24



Notice



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.

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