

## Specification

### Radial Blower U51DL-024KK-5

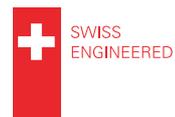


#### General Information

Item	
Product type	Radial blower
Part no.	U51DL-024KK-5
Customer	N/A
Project no.	N/A
Modification	Standard product

#### Description

This versatile and compact 24 VDC blower is the ideal choice for mobile medical respiration devices. It is optionally available with an inlet nozzle.



#### Features

- Static pressure: 45 hPa, freeflow: 460 l/min
- 22 V<sub>DC</sub> brushless DC-motor
- Small dimensions through slim design
- High power density

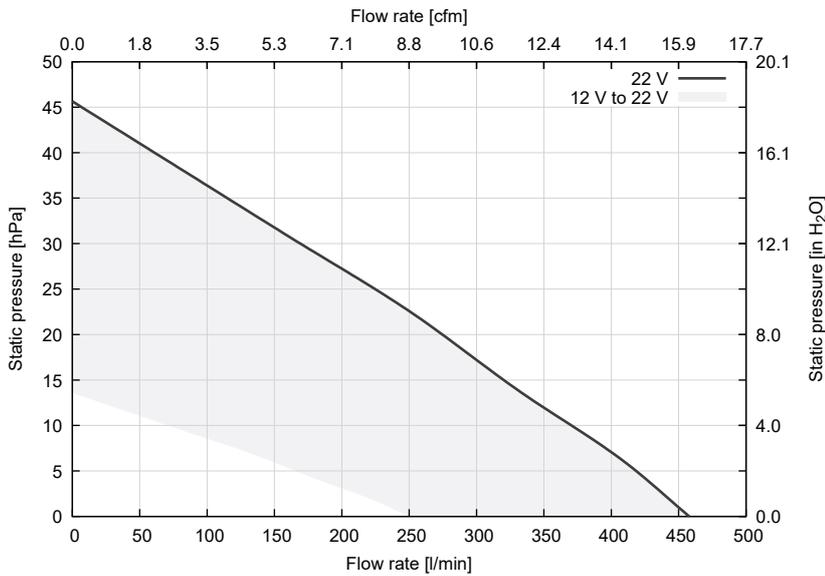


#### General Conditions

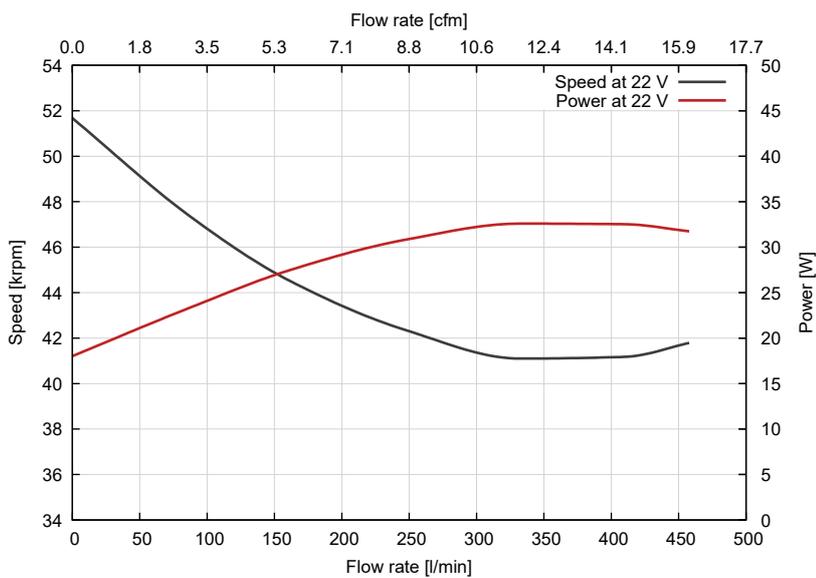
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m<sup>3</sup> standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801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



### Speed and Power vs. Flow Characteristics



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

	Unit	Value
Static pressure	[hPa]	45
Power consumption	[W]	18
Speed	[rpm]	51600

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

Static pressure	[hPa]	37
Power consumption	[W]	23
Speed	[rpm]	48000

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

Flow rate	[l/min]	460
Power consumption	[W]	32
Speed	[rpm]	41800

## Technical Data

Electrical	Unit	Value
Nominal supply voltage	[V <sub>dc</sub> ]	22
Supply voltage range	[V <sub>dc</sub> ]	12 to 22

### Maximum Ratings for Continuous Operation

Minimum flow rate	[l/min]	N/A
Maximum speed	[rpm]	45 000
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	32
Maximum housing surface temperature	[°C]	65
Maximum NTC temperature	[°C]	N/A

### Environmental

Ambient temperature (operating)	[°C]	-20 to 40
Ambient temperature (storage)	[°C]	-20 to 40
Relative humidity (non-condensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration	[%]	21

### Motor

Type		Brushless direct current motor
Winding insulation class		F, 155 °C
Phase to phase resistance	[Ω]	1.65
Phase to phase inductance	[mH]	0.83
Speed constant	[rpm/V]	2825
Torque constant	[mNm/A]	3.38
Number of pole pairs		1
Hall sensor type		N/A
NTC type		N/A

### Lifetime

L10 at 25 °C ambient temperature <sup>(1)</sup>	[h]	10 000
---	-----	--------

### Acoustics

Sound pressure level	[dB(A)]	58
----------------------	---------	----

### Leak Tightness

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

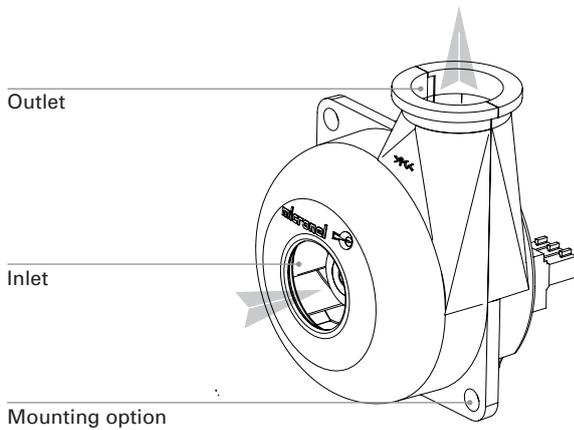
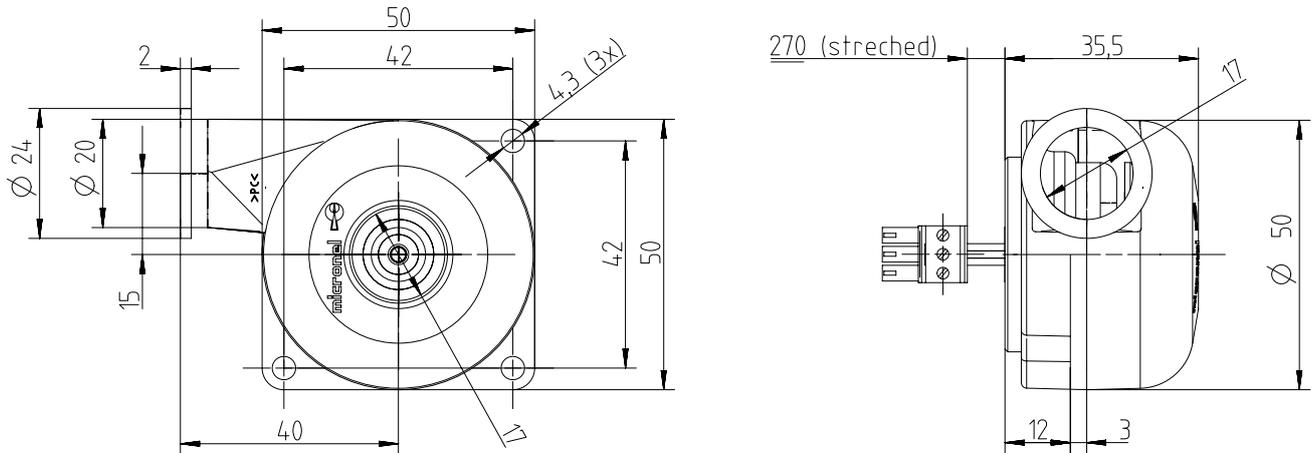
### Mechanical

Blower weight	[g]	90
Rotor weight	[g]	19.5
Rotor moment of inertia	[g · cm <sup>2</sup> ]	9.3

<sup>(1)</sup> 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.

## Drawings

Dimensions in mm



### Orientations

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

### Materials

Components	Material
Blower housing	Polycarbonate (PC), transparent Flammability: 850 °C / 1 mm (IEC 60695-2-12) Biocompatibility: USP Class VI / ISO 10993
Impeller	Polyamide (PA 6), white
Hub	Brass
Motor housing	Aluminum anodised, natural colour
Label	PET
Connector	Phoenix MC 1.5-3, PA, UL94 V0
Crimp terminal	N/A
Lead wire	PVC Flammability: UL 1007

## Identification

### Label

Design

Part number

Nominal voltage

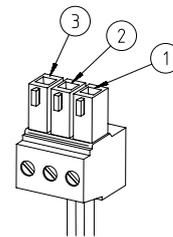


Identification number:

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

## Blower Pinout

Pin	Color	Description	AWG
1	Brown	Motorwinding U	24
2	Red	Motorwinding V	24
3	Orange	Motorwinding W	24



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.  
© 2024 by Micronel AG. All rights reserved.