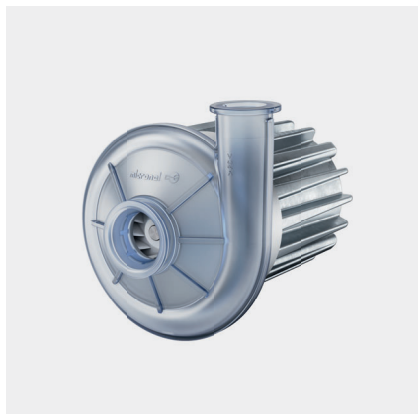


SPECIFICATION

Micronel Radial Blower

U85HL-024KH-4



GENERAL INFORMATION

Item

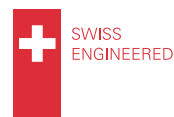
Product type	Radial blower with integrated electronic motor driver
Article no.	U85HL-024KH-4 U85HL-024KH-41 with inlet port (option) U85HL-024KH-42 with outlet port (option) U85HL-024KH-43 with inlet and outlet port (option)
Manufacturer	Micronel AG
Customer	N/A
Project no.	P84356
Modification	Standard product

APPLICATIONS

The versatile, high-power Micronel blower type U85HL-024KH-4 can be used for industrial applications, where highest vacuum or pressure performance is needed, i.e. for particles and liquids suction, pick and place applications and many more.

FEATURES

- Pressure: 129 hPa, flow rate: 880 l/min
- 24 V_{DC} brushless DC-motor
- Speed control and tacho frequency signal
- Highly efficient, quiet operation
- Aluminum heat sink
- Two different mounting possibilities



SWISS
ENGINEERED



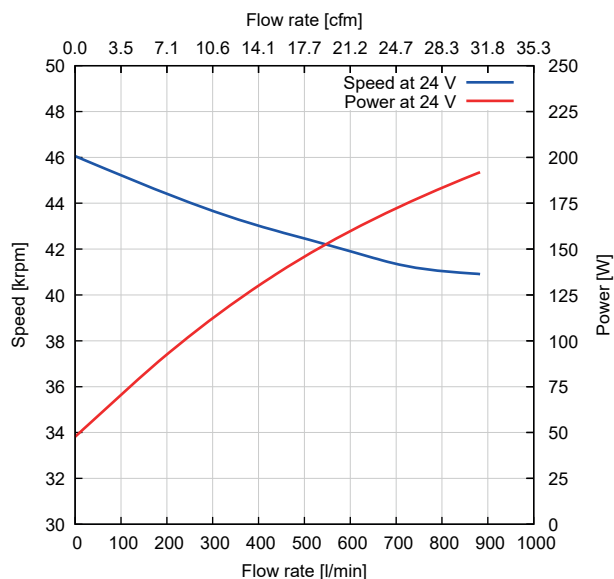
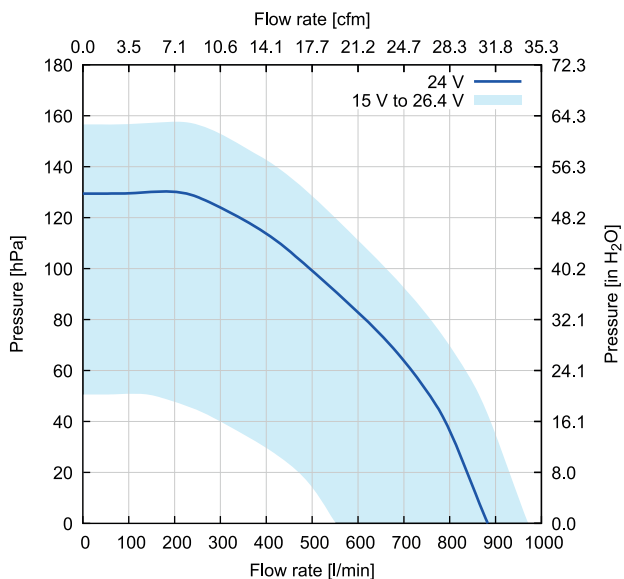
DECLARATION OF
CONFORMITY
NON-USE OF
CONFLICT MINERALS

GENERAL CONDITIONS

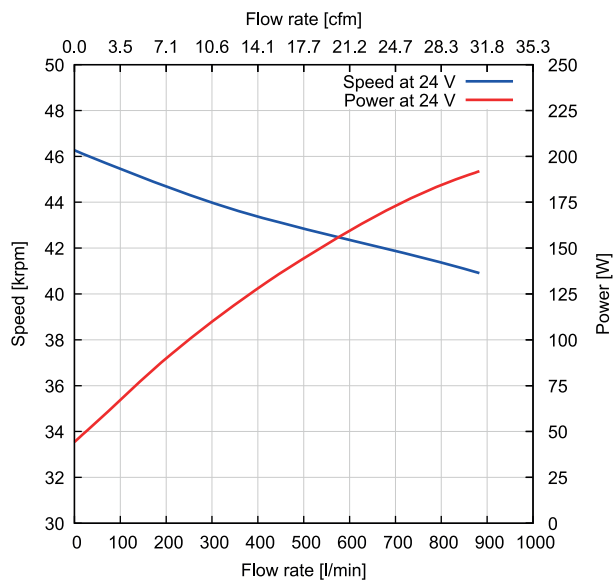
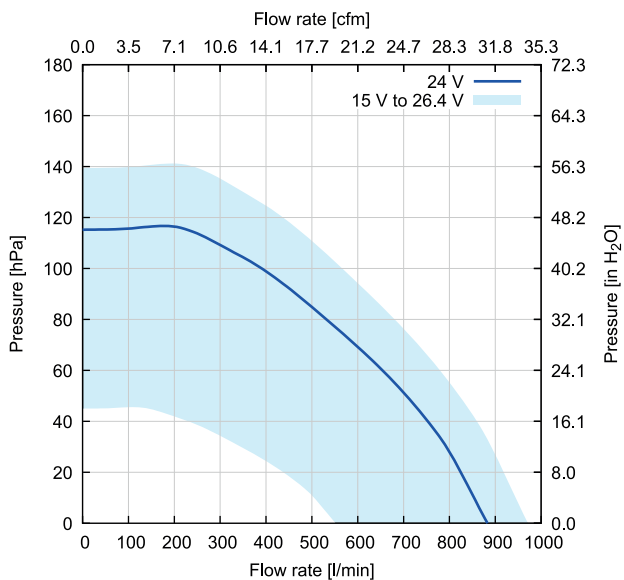
Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m³ standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 with standardized 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]	129
Power consumption	[W]	48
Speed	[rpm]	46 100

Shut-Off in Vacuum Operation (Zero Flow Rate)

Static pressure	[hPa]	115
Power consumption	[W]	44
Speed	[rpm]	46 300

Free-Air (Zero Static Pressure)

Flow rate	[l/min]	880
Power consumption	[W]	190
Speed	[rpm]	40 900

TECHNICAL DATA

Electrical	Unit	Value
Nominal voltage	[V _{DC}]	24
Voltage range	[V _{DC}]	15 to 26.4
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]	46300
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	190
Maximum housing surface temperature	[°C]	65
Maximum NTC temperature	[°C]	N/A
Environmental		
Ambient temperature (operating)	[°C]	0 to 45
Ambient temperature (storage)	[°C]	-20 to 65
Relative humidity (noncondensing)	[%RH]	10 to 85
Ingress protection (EN60529)		IP40
Maximum oxygen concentration	[%]	N/A
Motor		
Type		Brushless direct current motor
Winding insulation class		H, 180 °C
NTC type		TDK NTCG164KF104F -40 °C to 125 °C, 100 kΩ, B _{25/100} = 4508 K
Lifetime		
L10 at 25 °C ambient temperature ⁽²⁾	[h]	20000
Acoustics		
Sound pressure level ⁽³⁾	[dB(A)]	56
Leak Tightness		
Maximum leak flow rate	[l/min]	N/A
Mechanical		
Blower weight	[g]	545
Housing pull-off torque	[Nm]	> 7.15

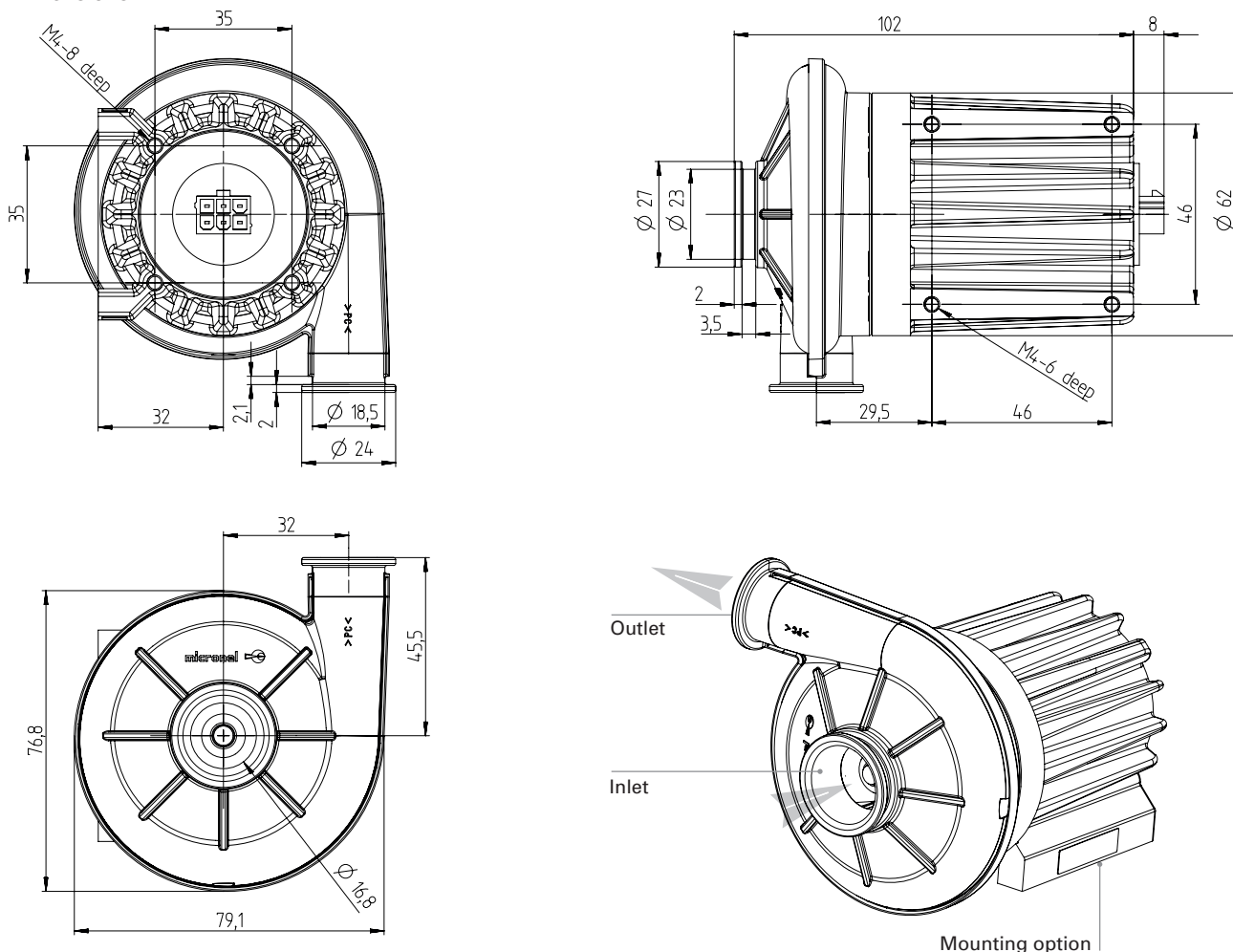
⁽¹⁾ Recommended minimum continuous power supply current for proper start-up behavior at nominal voltage. This is an indicative value. Power supply dimensioning, wiring, safety, setup and validation is the customer's responsibility.

⁽²⁾ 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.

⁽³⁾ Measured at distance of 1 meter from inlet, with hose connected to inlet and outlet.

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	Stainless steel
Motor housing	Aluminum
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

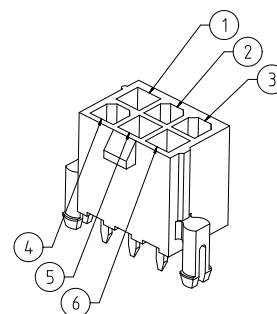


Identification number:

- 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

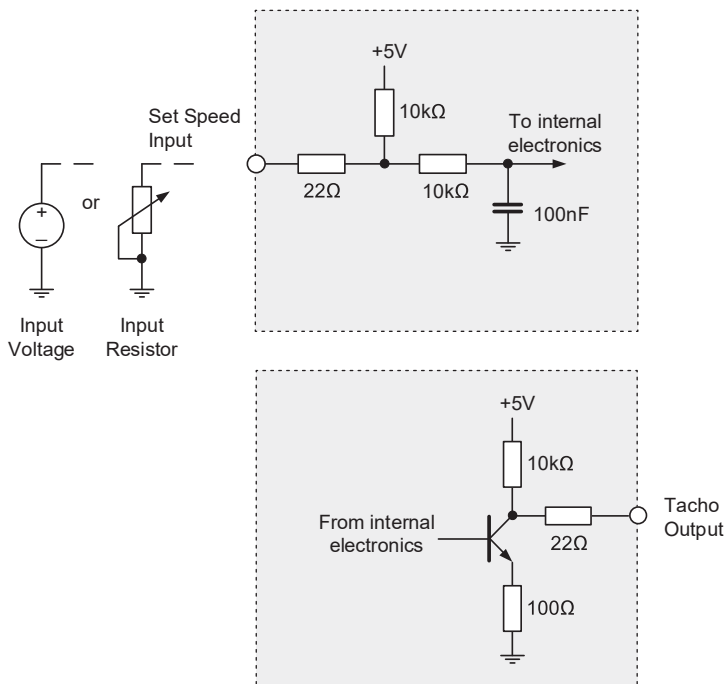
Integrated Electronic Motor Driver

Type

Micronel brushless direct current motor driver

Features

- Integrated speed control (voltage / resistor)
- Tachometer frequency signal
- Locked rotor protection
- No polarity protection



Speed Control Input

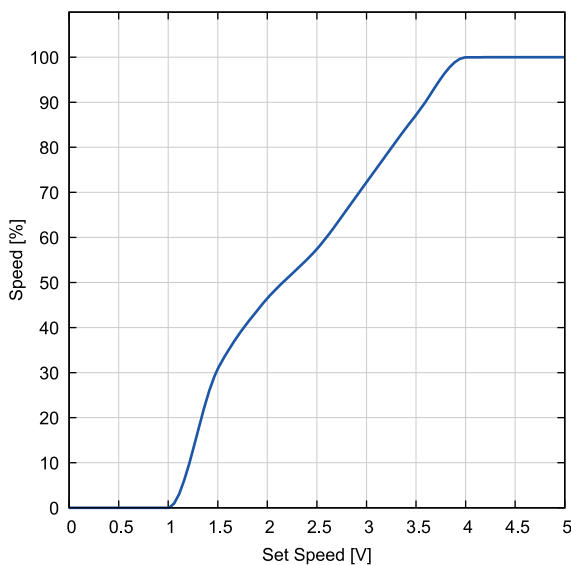
The blower speed can be controlled either by input voltage or input resistor value. See „Set Speed Input“ table for further details.

Tachometer Output

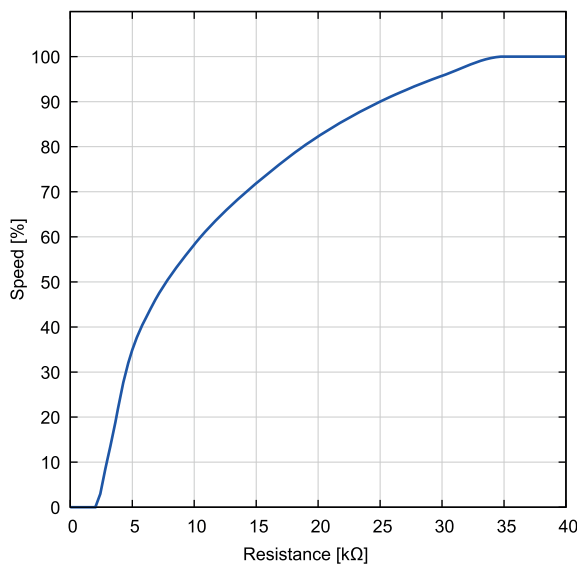
Tachometer frequency:
3 pulses per revolution
 $n = 20 \cdot f$
n Rotation speed [rpm]
f Tacho frequency [Hz]

ELECTRONIC FUNCTIONS

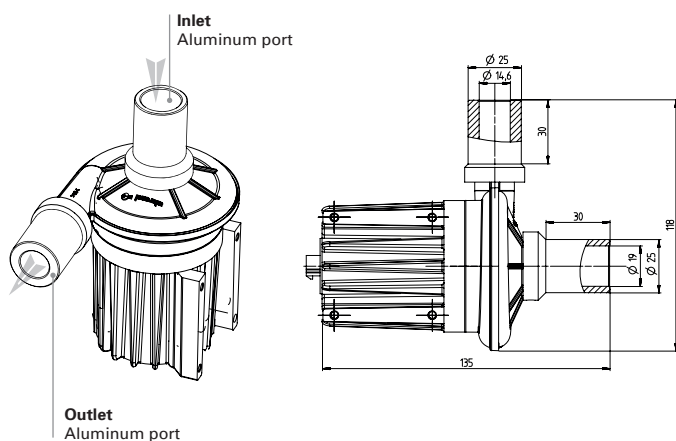
Set Speed Input Voltage [V _{DC}]	Operation Mode
Set speed not connected	Blower speed at 100 %
Set speed to ground	Stop
0.0 to 0.2	Stop
0.2 to 1.5	Not defined, blower might run or stop
2.0	Minimum start-up voltage
1.5 to 4.0 (after start-up)	Blower speed depends on input voltage
4.0 to 5.0	Blower speed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



Set Speed Input Resistor [kΩ]	Operation Mode
Set speed not connected	Blower speed at 100 %
Set speed to ground	Stop
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 35 (after start-up)	Blower speed depends on resistor value
> 35 or open input	Blower speed at 100 %



OPTIONS FOR INLET AND OUTLET PORTS*



Article with options	Inlet port	Outlet port
Radial Blower U85HL-024KH-4		
Radial Blower U85HL-024KH-41	●	
Radial Blower U85HL-024KH-42		●
Radial Blower U85HL-024KH-43	●	●

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

No application of forces on ports allowed!

ACCESSORIES

Not included!

**Micronel Conector-Set M450X-527A9****Suitable for blower**Micronel Radial Blower
U85HL-024KH-4Handle 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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