

Permanent Magnet Synchronous Motor (PMS Motor) 3 Speed Positioning Model DS(V21)

- Energy savings up to 80%
- Suitable for retro fit on existing fan coil units
- Motor efficiency: IE4 and exceed the proposed IE5 standard
- Low noise, long lifespan
- suitable for most thermostats, best results using Micronics Intelligent Touch Screen Thermostat
- Ingress protection: IP44, option for IP54

BERIS-H120-DS(V21)



- 3 speed control (high, medium, low)
- Adjustable speed range: 400-1200rpm
- Input Voltage: Single Phase 220V, 50/60Hz
- Power Output: 120W
- Voltage: 220 - 240V VAC 50/60Hz
- Power Factor: 0.99 at full output
- Insulation: Class B
- CE, LVD, EMC and 3C Certified



Nomenclature

BERIS-H120-DS(V21)

Brand Name	Power 120W	Motor Control	Version
		3 Speed Positioning	V21
		DS	

(500 -D1) -H4 -T3 -L

Shaft	Shaft Diameter	Rack Height	Axle	Shaft Direction
Single Shaft 307	12mm D1	90mm H1	12mm Ferrite T1	Left L
Dual Shaft 500	12.7mm D2	95mm H2	15mm Ferrite T2	Right R
	14mm D3	100mm H3	15mm Neodymium Magnet T3	
		105mm H4		

MODEL NO.	Speed Level	Max Speed	Max Power	Feature	Dimensions	
Beris-H120-DS	High	1350 rpm	120 W	3 Speed Control (Double Axis Motor)	Standard Shaft Length	500mm
	Med	1100 rpm	60 W		Overall Height w/ H2(a) **	200mm
					Overall Height w/ H2(b) **	195mm
					Overall Height w/ H2(c) **	190mm
					Overall Height w/ H2(d) **	185mm
Low	750 rpm	27 W				

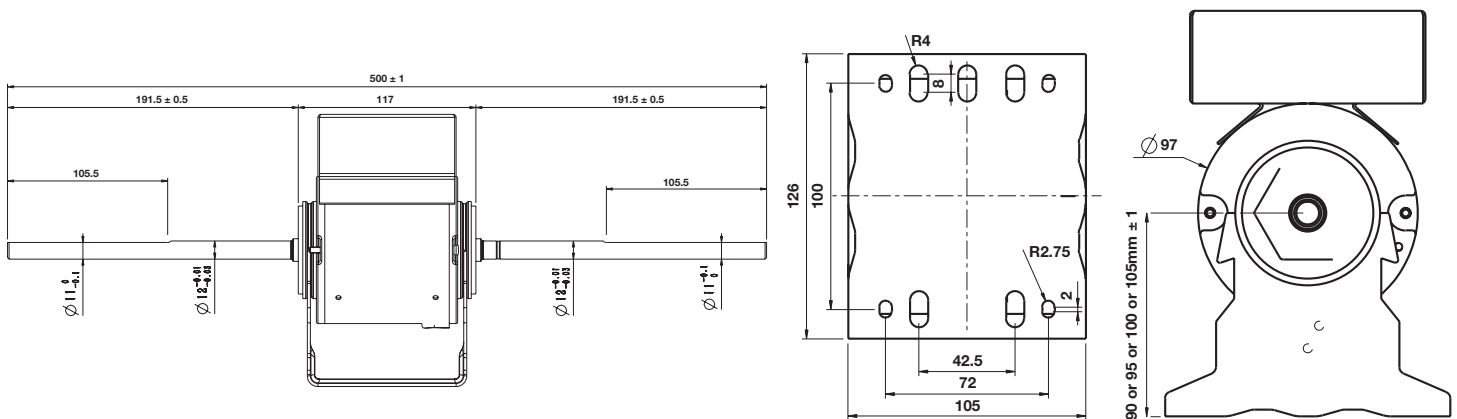
** Overall height (H1) = the Height after motor installed into the stand.

4 applicable height of stand : H2(a) = 105mm, H2(b) = 100mm, H2(c) = 95mm, H2(d) = 90mm,

Standard Shaft Diameter = 12mm, Optional 12.7mm/14mm/15mm

FAN SPEED

Model	Speed Coding	0	1	2	3	4	5	6	7	8	9
Max RPM											
DS	LOW	0	430	500	500	500	550	600	650	700	750
	MED	0	600	680	720	720	780	780	850	1000	1100
	HIGH	0	700	800	850	900	950	1100	1200	1300	1350



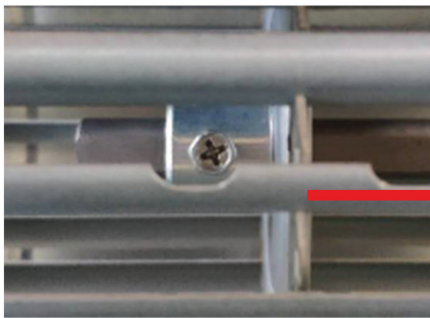
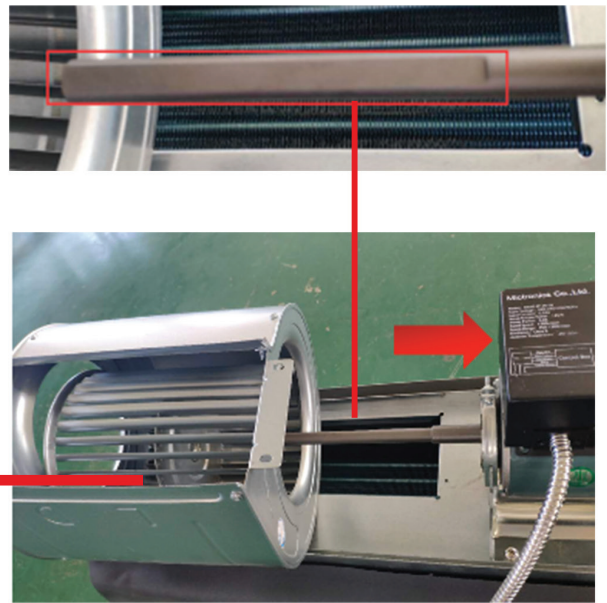
Before any installation or modification, please disconnect the power supply and wear suitable PPE for the work. Only qualified personnel shall carry out the power disconnection

Step 1: Use a screwdriver to unscrew both sides of the wind blower.

Step 2: Align the mounting holes of the base with the screw holes on the rear panel of the motor.

Step 3: Add metal washers to the four mounting holes of the base of the motor

Step 4: Install the wind blower on the motor shaft according to the direction shown below. When installing, pay attention to whether the direction of the wind wheel is correct. The fixing screw of the wind blower should be aligned with the plane on the motor shaft.



Step 5: Fix the position of the wind blower on the rotating shaft, pay attention to install the wind wheel in the centre of the volute as much as possible. The shaft should be close to the mounting hole of the wind blower. if there is too much gap, check whether the hole diameter of the wind blower and motor correspond.

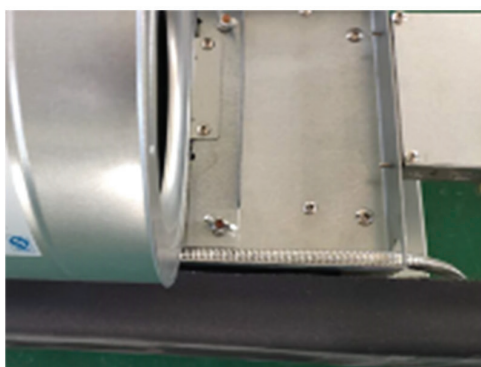


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Step 6: Install the volute air outlet to the coil air inlet, align the screw holes.

Step 7: Before installing the screw of the volute, turn the wind blower gently by hand to check whether it is smooth and correct, then install the screw to fix the volute.

Step 8: Install the power cord of the motor to the fan power box according to the wiring requirements at the pper end of the drive box to complete the motor installation.



The power cord passes through the bottom of the volute and passes through the wire hole

The wires go through the hole of hte power box and installed on the terminal



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- Check and record fan current and voltage
- Check all fan motors for excessive noise or excessive temperature
- Check for control voltage
- Check the associated electric and temperature control system
- Check power connections
- Check fan motors, controls, winding insulation, cable terminals, and cables for damages or deterioration
- If motor is found to be faulty, please remove and contact supplier for warranty replacement or parts
- If converter is found to be faulty remove the 4 screws in diagram 1, pull the connector attaching the motor from the inverter as shown in diagram 2 to separate the two components
- Contact supplier for converter replacement under warranty

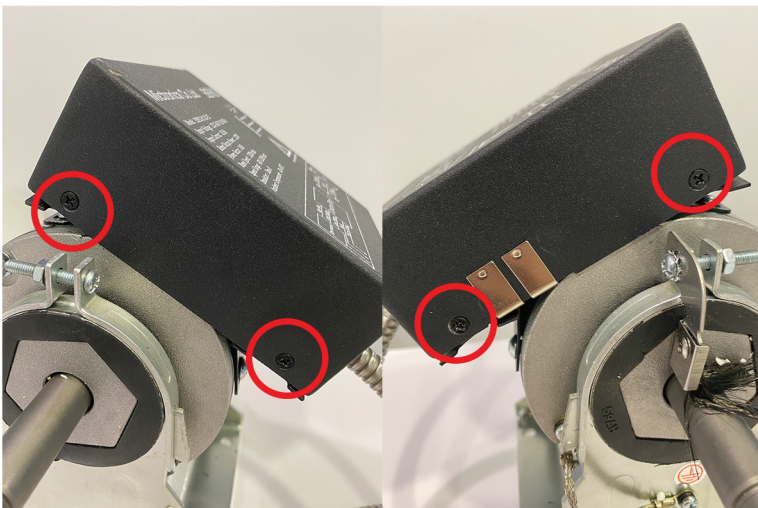


Diagram 1

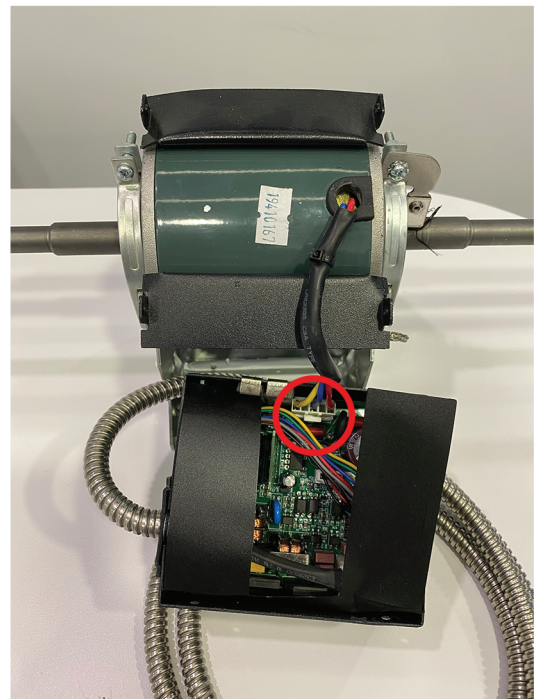


Diagram 2

The PMSM driver has the below built-in protections:

1. Overload protection: the motor will stop working if it is overloaded by 120% where the shaft power is over 150 W.
2. Over voltage protection: the motor will stop working if the input voltage is higher than or equals to 265 VAC, or under 200 V AC.
3. Blocking protection: the motor will stop working if it is detected that the fan is blocked or in contact with the blower.
4. The motor has a built-in 105°C thermal fuse to protect the motor. When the internal temperature goes beyond 105°C, the thermal fuse will cut off power to the motor.
5. If the PMSM is found faulty, please first check the electrical power connection. When electrical power is connected to the PMSM driver, the indicator LED lamp is lit up. If the LED is not on, the 220 V AC power supply may not have been well connected.
6. Use the voltmeter to check the input voltage at the electrical connection box located at one side of the FCU to ensure the 220 V AC power supply is well connected and the voltage must be within the range from 200V to 265V.
7. If the power connection is checked healthy but the PMSM is not working, cut off the power first, and then check the physical condition of the fan blower. If the fan blades are blocked or in contact with the blower, the protection circuitry will protect the motor by not sending an operating voltage and signal to drive the motor. Remove the fan blower and fix the physical problem to enable the fan moving forward and backward freely inside the blower. Reconnect the electrical power supply to the motor driver. The motor shall then work normally.
8. If both power supply and fan blower condition are found normal, the PMSM is still not working. The driver shall be faulty and need replacement. Disconnect the electrical power first, remove the faulty driver and replace it with a new one.
9. The whole set of motor and driver is warranted for three years. The driver can be purchased separately.