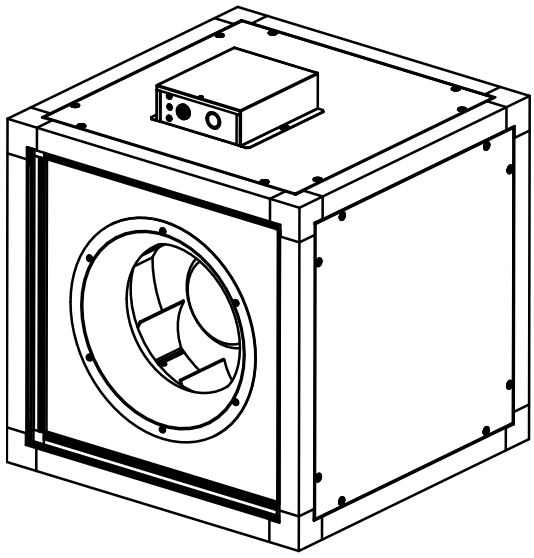
MUB (Multibox) Series

Centrifugal Inline Fans

with integrated speed control



Installation, Operation and Maintenance Manual

C SA® US

Item #404998
Date rev. 052113

General
MUB (multibox) units are specifically designed for inline applications. They are driven by high efficiency, energy saving electronically commutated external rotor motors. MUB fans are available in 3 models (16, 20 & 24) capable of performances up to 6000 cfm (2830 L/s).

Safety Information
All fans are intended for transportation of air in air handling systems. They are meant to be used after installing them into machines or duct systems or after a contact protection grid has been installed. No moving parts shall be accessible after installation. The fans are not to be used in hazardous environments or connected to flue ducts. The fans must not be installed outdoors. Safety accessories (i.e. motor protection, safety grille) may not be dismounted, short cut or disconnected. CAUTION Before servicing or maintenance, switch off power (all-pole circuit breaker) and make sure the impeller has come to a standstill. CAUTION The fans can have sharp edges and corners which may cause injuries.

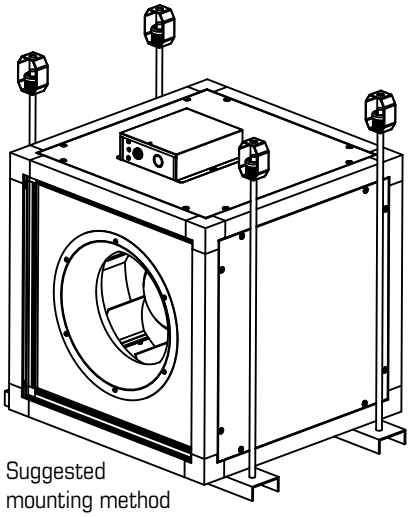
Your ventilation system should be installed in conformance with the appropriate provincial or state requirements or in the absence of such requirements with the current edition of the National Building Code, and / or ASHRAE's " Good Engineering Practices".

Receiving & Inspection of Units
Upon receipt of the unit(s) on the job site, inspect the unit for shipping damage. Open all access panels and inspect the interior and exterior. If any damage exists, do not accept the shipment without written acknowledgement of the damages by the shipper. Report damage to the carrier and to your supplier immediately. Note type of damage on copy of Bill of Lading.

Transportation and Storage
All fans are packaged at the factory to withstand normal transport handling. When handling the goods, use suitable lifting equipment in order to avoid damage to fans and personnel. Do not lift the fans by the connecting cable, connection box, impeller or inlet cone. Store the fans in a dry place protected from weather and dirt until final installation, as changes in temperature can cause condensation in the unit.

Installation
Refer to Safety Information above. Installation, electrical connection and commissioning are only to be carried out by authorised personnel and in accordance with local requirements and laws. Electrical connections should be wired according to the wiring diagram in the terminal box, markings on terminal blocks or on cable. CAUTION Do not use metal compression gland fittings with plastic terminal boxes. Use a dummy plug seal for the compression gland fitting as well. Fans with thermal contacts with external leads (TK) must always be connected to external motor protection. Assemble the fan in the direction of airflow (see arrow on unit's nameplate). Ensure that there is a distance of at least 2.5 times the wheel diameter between the inlet/outlet and any elbows or transitions in the duct. The fan must be installed so that vibrations are not transmitted to duct systems or frame of building. Make sure the assembly of the fan is firmly fixed and stable. The fan can be mounted in any direction unless stated otherwise (See Figure 2). The fans must be assembled so that service and maintenance can be performed easily and safely. Disturbing noise can be avoided by installing silencer (available accessory).

Mounting
Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, level, and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.



Suggested mounting method

Operation
Before initial operation, check the following:
- Electrical wiring has been properly completed.
- Fan is connected to the proper voltage and amperage (as per nameplate).
- Electrical protection (fuses, breakers) have been properly sized and installed.
- Electrical box cover has been installed.
- Safety devices in place (protection grid)
- Packaging materials and foreign materials have been removed from the casing.
- While the power is turned OFF, manually rotate the fan to verify that there is no rubbing against the motor casing.
- For AC models, verify that fan rotation follows the arrow as shown on the unit's nameplate. If the fan is rotating in the wrong direction, use the following procedure:
  - For single phase units, rewire the motor per the instructions on the motor.
  - For three phase units, interchanges any two power leads.
- Turn on the unit and adjust the unit to the desired speed using the potentiometer on the side of the electrical box.

When putting into operation, check the following:
- That the motor protection is functional.
- Smoothness of motor operation (no abnormal noises).

Maintenance, Service and Repair
Before maintenance, service or repair make sure that:
- Power supply is disconnected and locked out (all-pole circuit breaker).
- Fan impeller has come to a complete standstill
- Observe personnel safety regulations!

The fan should be cleaned when necessary (at least once per year) to avoid imbalance and unnecessary damage to the bearings. A filter will prolong the time interval between each cleaning of the fan. (It is sometimes recommended to install a filter guard). Do not use a high-pressure cleaner (steam jet) when cleaning the fan. Make sure the fan impeller's balance weights are not moved or the fan impeller distorted. Listen for abnormal operating noise.

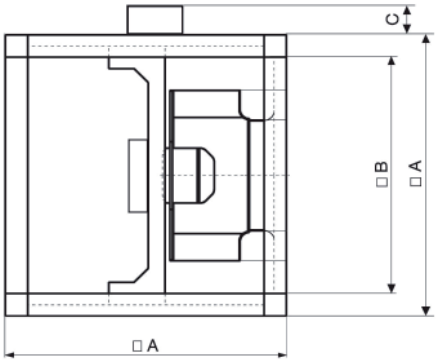
Thermal Overload Protection
Automatic thermal trips reset themselves after the motor has cooled.

Make sure the fan has not been blocked or that the motor protection has not tripped. Contact the supplier if the motor does not start after cooling.

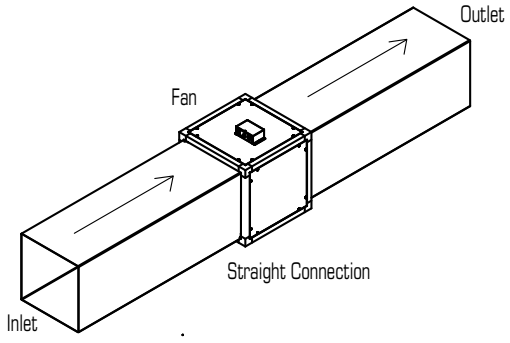
Dimensions

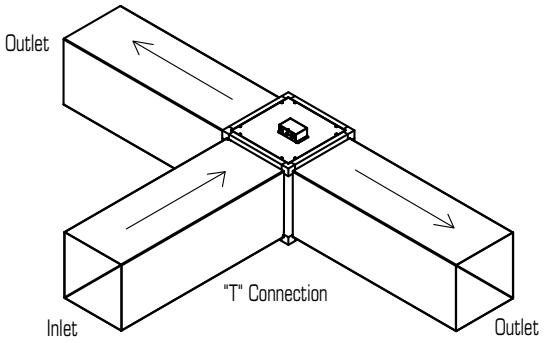
DIM.	A	B	C
MUB 16	500 (19 5/8")	420 (16 1/2")	60 (2 3/8")
MUB 20	600 (23 5/8")	520 (20 1/2")	60 (2 3/8")
MUB 24(H)	700 (27 5/8")	620 (24 1/2")	60 (2 3/8")

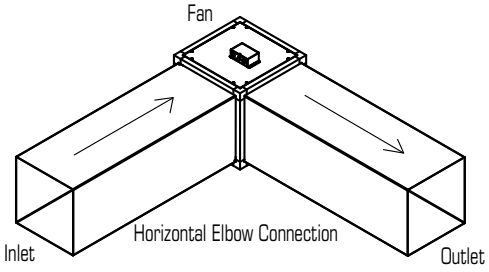
Dimensions are in mm (inches)

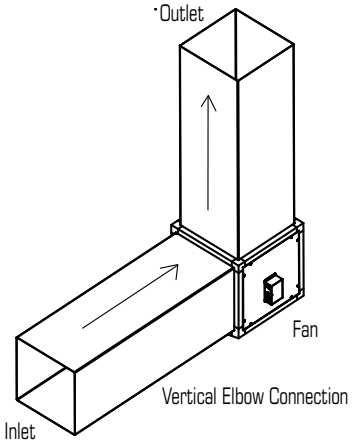


Possible Airflow Configurations









Troubleshooting

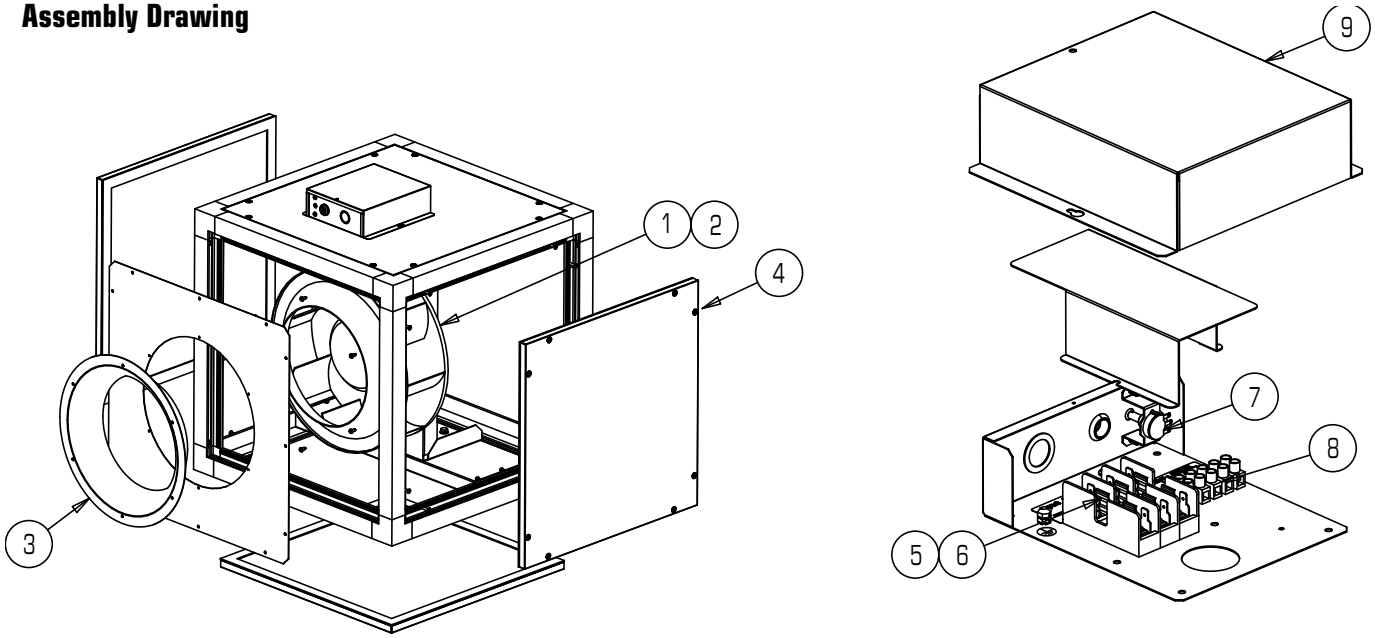
⚠ WARNING

Before performing any maintenance to the unit, ensure that the unit's power is disconnected and locked out.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Reduced airflow	Elevated pressure in duct system.	Check duct system for obstructions.
		Clean dirty filters.
	Potentiometer speed control is set too low.	Adjust potentiometer.
	Excessive buildup of debris on wheel.	Clean wheel.
	Motor is rotating in wrong direction.	Adjust wheel rotation as shown under "Operation" (see Page 2).
	Wheel is not aligned properly.	Adjust wheel so it is centered on inlet.
Excessive noise/vibration	Wheel is not balanced.	Clean all debris from wheel. Verify wheel balance and contact supplier if necessary.
	Wheel is not aligned properly and rubbing against casing.	Adjust wheel so it is centered on inlet.
	Foreign objects are located inside the wheel or casing.	Remove objects. Verify wheel balance and check for possible damage. Contact supplier if necessary.
Fan has stopped	Incorrect supply voltage or current.	Verify that supply voltage/current match nameplate values.
	Fuse has blown	Replace with a new fuse. Verify that the new fuse is sized correctly.
	Breaker has tripped.	Reset the breaker.
	Motor has overheated.	See "Thermal Overload Protection" (Page 2).
	Motor is blocked.	See "Thermal Overload Protection" (Page 2).

Service & Replacement Parts

Assembly Drawing



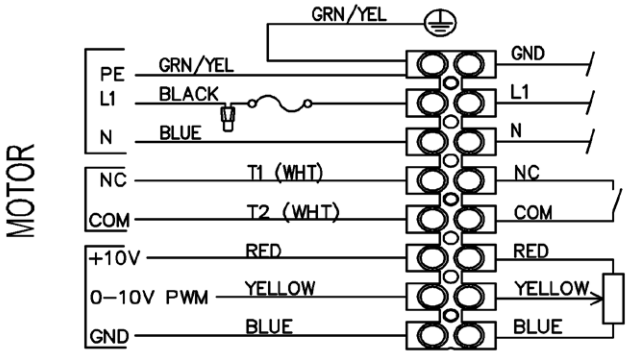
Replacement Parts List

		Models									
	Description	MUB16-120-1	MUB16-240-1	MUB20-120-1	MUB20-240-1	MUB20-230-3	MUB20-460-3	MUB24-230-3	MUB24-460-3	MUB24H-230-3	MUB24H-460-3
1	Motor	413427	413428	413451	413430	413431	413432	413504	413434	413435	413436
2	Motor Bolt	410036	410036	410036	410036	410349	410349	410349	410349	410350	410350
3	Inlet Ring	412323	412323	100142	100142	100142	100142	450823	450823	413519	413519
4	Panel Screw	479000	479000	479000	479000	479000	479000	479000	479000	479000	479000
5	Fuse Block	410591	410591	410591	410591	413491	413491	413491	413491	413491	413491
6	Fuse*	410961	410695	410961	410959	410973	410970	410973	410970	410978	410975
	Fuse Size(Amp)	8	5	8	6	6	3.5	6	3.5	15	8
7	Potentiometer	413416	413416	413416	413416	413416	413416	413416	413416	413416	413416
8	Terminal	483511	483511	483511	483511	450016	450016	450016	450016	450016	450016
9	Box Cover	404973	404973	404973	404973	405341	405341	405341	405341	405341	405341

*Fuse sizes are shown on the unit nameplate
**Contact your supplier for pricing information

Wiring

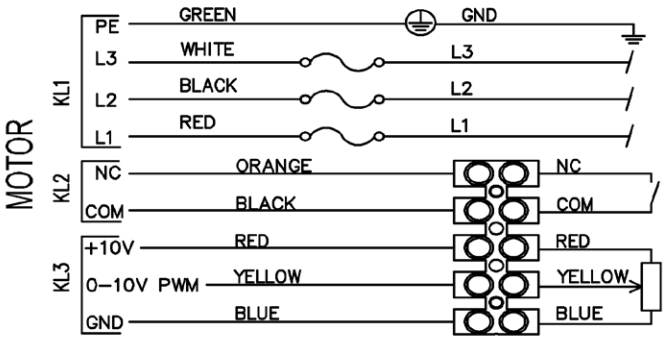
1 phase motor



MODEL	FUSE
MUB16-120-1	8A
MUB16-240-1	5A

MODEL	FUSE
MUB20-120-1	8A

3 phase motor



MODEL	FUSE
MUB20-230-3	6A
MUB20-460-3	3.5A
MUB24-230-3	6A

MODEL	FUSE
MUB24-460-3	3.5A
MUB24H-230-3	15A
MUB24H-460-3	8A

Controls

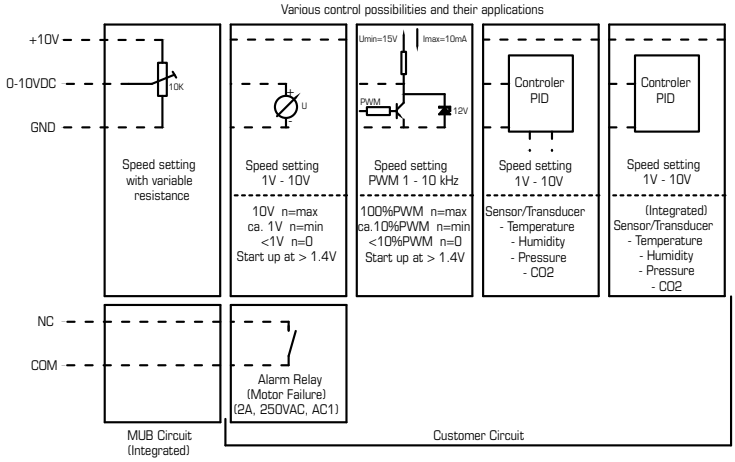
MUBs can be controlled by various methods:

Various control possibilities and their applications

Voltage Range for EC models

Nominal Voltage	Nominal Voltage Range*
120V/ 1~	100 - 130V
240V/ 1~	200 - 277V
230V/ 3~	200 - 240V
460V/ 3~	380 - 480V

**Fan performance will not vary within this voltage range.*



MUB MAINTENANCE CHART

Maintenance Required	Recommended Frequency	Date Maintenance Performed					
Clean Supply/Exhaust Air Hood Pre-filter	Every 3 months or if dirty						
Clean the wheel, see "Maintenance" (Page 2)	Annually						
Check Fan for proper rotation/operation.	Annually						

* Schedule may be altered to meet your own needs. More frequent servicing may be required depending on the severity of your installation's indoor and outdoor environments.

Contractor	Telephone Number	Date Serviced

Limited Warranty

- The fan is backed by a 3-year limited warranty from the purchase date. The limited warranty covers defects in material, workmanship and parts including: bearings and motors.
- The fans found in all Systemair MUBs require no lubrication, and are factory balanced to prevent vibration and promote silent operation.
- The limited warranty covers normal use. It does not apply to any defects, malfunctions or failures as a result of improper installation, abuse, mishandling, misapplication, fortuitous occurrence or any other circumstances outside Systemair's control.
- Inappropriate installation or maintenance may result in the cancellation of the warranty.
- Any unauthorized work will result in the cancellation of the warranty.
- Systemair is not responsible for any incidental or consequential damages incurred in the use of the ventilation system.
- Systemair is not responsible for providing an authorized service centre near the purchaser or in the general area.
- Systemair reserves the right to supply refurbished parts as replacements.
- Transportation, removal and installation fees are the responsibility of the purchaser.
- The purchaser is responsible for adhering to all codes in effect in his area.

* This warranty is the exclusive and only warranty in effect relative to the ventilation system and all other warranties either expressed or implied are invalid.

Systemair Inc. reserves the right to make changes and improvements to the contents of this manual without prior notice.

systemair

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