Aeration Fan
Operator's Manual

Table of Contents

1 Sign-Off Form

S3 AIR SYSTEMS follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) American National Standards Institute, Canadian Standards Association, International Organization for Standardization, Occupational Safety and Health Administration (OSHA) and/or others. Anyone operating and/or maintaining the Aeration Fan must read and clearly confirm that they understand ALL Safety, Operating and Maintenance Information presented in this manual.

S3 AIR SYSTEMS recommends all personnel that intend to use the Aeration Fan, read the operators manual and will follow the safety precautions and instructions and will operate and maintain this equipment safely. S3 AIR SYSTEMS recommends that all users "sign off" below which confirms their agreement concerning safety.

Periodic reviews of this manual with all employees should be standard practice. For your convenience, we include this sign-off sheet so you can record your operation safety training and periodic reviews.

DATE	EMPLOYEE NAME	SIGNATURE

Model Number
Serial Number
Line Voltage
Dealer Purchased from
Bin Diameter
Date of Purchase

2 Introduction

Congratulations on your purchase of a S3 AIR SYSTEMS Aeration Fan. Our fans represent the top of the line in Aeration Equipment. This fan has been engineered to provide optimum performance for your aeration needs.

This manual should be read in its entirety as your first source of information about the machine. If all the instructions are followed in this manual, you will mitigate the potential of any premature and unexpected failures.

Keep this manual handy for frequent reference. Contact your local supplier dealer if you need assistance. The following information is necessary for prompt and accurate assistance:

Please read all instructions and warnings thoroughly.
If, after studying this manual, you are unable to install or service your aeration fan, please contact the supplier from which you purchased the unit. Be prepared to provide the information listed on the Serial Plate as well as the details of application, i.e. bin diameter and type, grain depth and type, etc.

If further assistance is required, your dealer will refer you to the S3 AIR SYSTEMS Customer Service Department at 1-844-441-2020 for immediate attention.

3 General Information

S3 AIR SYSTEMS Centrifugal Aeration Fans sold by S3 AIR SYSTEMS are 100% CSA certified fans and components designed primarily for use in grain aeration or grain drying systems. All units are driven by electrical motors which are rated for continuous duty. Both fan housing and frame are fabricated of steel while the rotor is aluminum. The rotor has a unique blade design and is mounted directly to the motor shaft. A concentric circle screen guard covers the air inlet to comply with safety requirements and minimize exposure to any related safety risks.

S3 AIR SYSTEMS reserves the right to modify design of the S3 AIR SYSTEMS Aeration Fan in whole or in part without notice.

4 Safety

In order to operate this equipment safely, a complete understanding of the potential hazards present and the meaning of the warning decals is needed. Safety should be your first priority.

4.1 Safety Alert Symbols

This Safety Alert Symbol identifies important safety messages as posted on the product and referred to in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

- Accidents Disable and Kill
- Accidents Cost Time and Money
- Accidents Can be Avoided

The Key Safety Signal Words below are used in the manual and on the safety decals, along with the Safety Alert Symbol. The appropriate signal word for each message has been selected using the identified definition as a guideline.

⚠ DANGER

DANGER indicates an imminent hazard that, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazard that, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potential hazard that, if not avoided, may result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

4.2 General Safety

YOU are responsible for the SAFE operation and maintenance of your S3 AIR SYSTEMS Aeration Fan. YOU must ensure that you and anyone else who is going to operate, maintain, adjust, disconnect, or work around the Aeration Fan understands all procedures and related SAFETY information contained in this manual.

Remember, YOU are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program.

- It is the equipment owner and the operator's responsibility to read and understand ALL safety instructions, safety decals, and manuals and follow them before operating, or maintaining the Aeration Fan.
- Equipment owners must give instruction and review the information initially and annually with all personnel before allowing them to operate this product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.

- Do not modify your S3 AIR SYSTEMS Aeration Fan in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. Any unauthorized modification to the equipment voids the warranty.
- Disconnect power before servicing.
- Keep hands and other objects away from inlet while the machine is operating. The rotating impeller will cause serious injury if contacted while it is rotating.
- Prior to operating this equipment, be sure to read and understand the operator's manual. If there is any portion you do not understand, or any phase of the machine's operation you do not understand, be sure to contact your dealer or S3 AIR SYSTEMS.
- Have a first-aid kit available for use should the need arise and know how to use it.
- Provide a fire extinguisher for use in case of a fire.
- Store the fan in a highly visible place.
- Wear protective gear. This list includes but is not limited to:
    - Protective shoes with slip resistant soles
    - Protective goggles
    - Work gloves
    - Hearing protection
    - Respirator or filter mask
- Make sure all persons are clear of the equipment when in operation. Failure to follow any of the above warnings may cause serious bodily injury or death.
- Use the Aeration Fan for its intended purposes only.
- Do not allow children, animals, or bystanders within the work area.
- Never operate the Aeration Fan with safety shields/guards removed.
- Never conduct maintenance on the equipment when parts are moving. Be aware of the moving parts.

4.3 Electrical Safety

- The electrical installation must be performed by a certified electrician, in accordance with the appropriate federal and local electrical codes.
- The motor must be connected to protective ground/earth at the terminal provided.
- The control system must include short circuit protection and overload current protection.
- It is recommended to provide ground / earth leakage protection, such as residual current device (RCD) or residual current circuit breaker (RCCB) to provide automatic disconnection from the power in the event of a fault.

NOTICE

Any violation of electrical wiring codes could jeopardize the manufacturer's warranty.

4.4 Operational Safety

⚠ WARNING

Before operating, maintaining, adjusting or disconnecting the Aeration Fan, turn the machine to off, wait for all the moving parts to stop, and unplug the electrical cord. If your aeration fan does not connect via a plug, turn off primary power supply and Lockout- tag out the equipment.

4.5 Emergency Shutdown Procedure:

In case of emergency, immediately shut off the Aeration Fan power source. To minimize the potential of injury, it is recommended that you:

- Read and understand the Operator's Manual and all Safety Signs before operating.
- Do not operate if any of the guards or shields are removed or damaged.
- Do not wear loose fitting clothing that may catch in moving parts.
- Be sure there are no tools or other foreign objects laying on or in the machine or blocking the inlet.
- Do not allow children, spectators, or bystanders within the work area.
- Do not start the machine until you are sure everyone is clear.
- Be sure the machine is mounted properly to the bin.
- Be sure the electrical cords are not damaged in any way.
- Accumulation of dirt or foreign material in the blower rotor may cause imbalance or excessive vibration. Inspect daily, thoroughly clean when necessary.
- Keep hands, feet and clothing away from moving parts, especially the air intake area of the fan.
- Do not clean, adjust or lubricate your equipment while it is running.
- Never sit or stand on this machine while it is in operation.
- Stay clear of fan discharge area.

4.6 Storage

- Store the fan on a firm, level surface.
- Store away from areas of human activity.
- Do not permit children to play on or around the fan.

4.7 Preventing Bin Damage

- Ensure there is enough venting on the bin roof to minimize condensation.
- Only use the fan in a positive aeration system. Do not use the fan on a bin in a suction / negative pressure aeration system.
- Be sure all roof vents are open and unobstructed before fan is started.
- Do not operate fan when conditions may cause roof vent or intake ports to freeze.

4.8 Maintenance Safety

⚠ WARNING

Before operating, maintaining, or disconnecting the fan, turn fan off, disconnect power, and wait for all moving parts to stop, then Lockout- tag out equipment.

⚠ WARNING

Failure to follow all the safety instructions below in Maintenance Safety Section can result in serious injury, death and/or property damage.

Prior to initiating any maintenance, it is critical that the following pre-maintenance protocol is followed:

- Fan can "free wheel" under any air movement even with power off and

disconnected. Ensure the rotor is locked from freewheeling prior to servicing the fan.
- Use only tools, jacks and hoists of sufficient capacity for the job.
- Make sure all the guards and shields are in place and properly secured when the maintenance work is completed.
- Keep body, hair and clothing away from all moving and/or rotating parts.
- Do not allow children, spectators, or bystanders within the work area.
- Use only genuine S3 AIR SYSTEMS replacement parts or equivalent. Replacement parts must meet ASABE standards. Use of unauthorized parts will void warranty. If in doubt, contact your S3 AIR SYSTEMS dealer.
- Remove rotor locking device and replace all guards before re-starting the fan.

4.9 Safety Decals

S3 AIR SYSTEMS reserves the right to update safety decals on new fans without notice to owners of older fans. Safety decals may not be exactly as shown.

4.10 Decal Installation

- Be sure that the installation area is clean and dry.
- Determine the exact position before you remove the backing paper.
- Place the decal over the specified area and carefully press a small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- Small air pockets can be pierced with a pin and smoothed out using the decal backing paper.

4.11 Decal Maintenance

- Keep the safety decals clean and legible at all times.
- Replace any safety decals and signs that are missing or have become illegible.

4.12 Decal Replacement

- Ensure the new equipment components installed during any repair include the current safety decals specified by the component manufacturer to be affixed to the replaced components.
- Replacements for damaged or missing safety decals are available from your authorized dealer or S3 AIR SYSTEMS.
- The complete decal sheet can be found on the following page. The numbers beside each decal coincide with the descriptions in the Decal Locations section.

4.13 Decal Locations

The types of decals and location on the equipment are shown on the following page. A good safety practice requires that you familiarize yourself with the various safety decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

Note: If Safety Decals have been damaged, removed, become illegible or parts are replaced without decals, new decals must be applied.

Note: Decal No. 1 will either read 230 VOLTS, 460 VOLTS or 600 VOLTS, depending on the voltage rating of your fan.

Continued on next page

Decal Locations, *Continued*

1

DANGER
Disconnect electrical supply cord before servicing or repairing this unit

DANGER
Débrancher le cordon d'alimentation électrique avant de réparer ou d'effectuer l'entretien de cette unité

DANGER
230 VOLTS
9005-18-0225

Note:
Decal 9005-18-0026 for fan voltage rating of 480V
Decal 9005-18-0227 for fan voltage rating of 600V

2

WARNING/AVERTISSEMENT
To prevent excessive pressure on grain bins:
- All roof vents must be opened and unobstructed before start up
- If using roof exhaust fans, wire it to start with aeration fan, or start roof fan first
- Do not operate aeration system when conditions may cause roof vent icing

Pour éviter toute pression excessive sur les cellules à grains:
- Tous les aérateurs de toit doivent être ouverts et libres de toute obstruction avant la mise en fonction
- Si des ventilateurs d'échappement de toit sont utilisés, les câbler pour leur mise en fonction avec le ventilateur d'aération ou mettre en fonction le ventilateur de toit d'abord
- Ne pas utiliser le système d'aération s'il y a risque de formation de glace sur les aérateurs de toit

WARNING/AVERTISSEMENT
Do not operate fan unless intake screen guard is securely fastened and air intake is free from foreign restrictions

Ne faire fonctionner le ventilateur que si l'écran de protection est solidement fixé en place et que l'admission d'air est libre de toute obstruction
9005-18-0229

3

WARNING/AVERTISSEMENT

ROTATING BLADE OR WHEEL CAN CAUSE SEVERE INJURY
- Keep guards in place
- Stay clear of fan blade in operation
- Lock out power before removing guard

UNE LAME OU UNE ROUE EN MOUVEMENT PEUT CAUSER DE GRAVES BLESSURES
- Garder les écrans de protection en place
- Rester à l'écart lorsque la pale de ventilateur est en fonction
- Verrouiller l'alimentation électrique avant d'enlever l'écran de protection

WARNING/AVERTISSEMENT
Keep hands and feet clear of blower outlet when fan is not connected to duct work

Garder les mains et les pieds à l'écart de l'ouverture de la soufflante si le ventilateur n'est pas branché aux conduits d'air
9005-18-0228

4

WARNING/AVERTISSEMENT

ROTATING BLADE OR WHEEL CAN CAUSE SEVERE INJURY
- Keep guards in place
- Stay clear of fan blade in operation
- Lock out power before removing guard

UNE LAME OU UNE ROUE EN MOUVEMENT PEUT CAUSER DE GRAVES BLESSURES
- Garder les écrans de protection en place
- Rester à l'écart lorsque la pale de ventilateur est en fonction
- Verrouiller l'alimentation électrique avant d'enlever l'écran de protection

WARNING/AVERTISSEMENT
To prevent excessive pressure on grain bins:
- All roof vents must be opened and unobstructed before start up
- If using roof exhaust fans, wire it to start with aeration fan, or start roof fan first
- Do not operate aeration system when conditions may cause roof vent icing

Pour éviter toute pression excessive sur les cellules à grains:
- Tous les aérateurs de toit doivent être ouverts et libres de toute obstruction avant la mise en fonction
- Si des ventilateurs d'échappement de toit sont utilisés, les câbler pour leur mise en fonction avec le ventilateur d'aération ou mettre en fonction le ventilateur de toit d'abord
- Ne pas utiliser le système d'aération s'il y a risque de formation de glace sur les aérateurs de toit

WARNING/AVERTISSEMENT
Do not operate fan unless intake screen guard is securely fastened and air intake is free from foreign restrictions

Ne faire fonctionner le ventilateur que si l'écran de protection est solidement fixé en place et que l'admission d'air est libre de toute obstruction

WARNING/AVERTISSEMENT
Keep hands and feet clear of blower outlet when fan is not connected to duct work

Garder les mains et les pieds à l'écart de l'ouverture de la soufflante si le ventilateur n'est pas branché aux conduits d'air
9005-43-0231

5

CAUTION/ATTENTION
USE SUPPLY WIRES SUITABLE FOR 75 °C

EMPLOYER DES FILS D'ALIMENTATION ADÉQUATS POUR 75 °C

CAUTION/ATTENTION
HOT SURFACE AVOID CONTACT

SURFACE CHAUDE NE PAS TOUCHER
9005-19-9230

6

CAUTION/ATTENTION
USE SUPPLY WIRES SUITABLE FOR 75 °C

EMPLOYER DES FILS D'ALIMENTATION ADÉQUATS POUR 75 °C
9005-19-9234

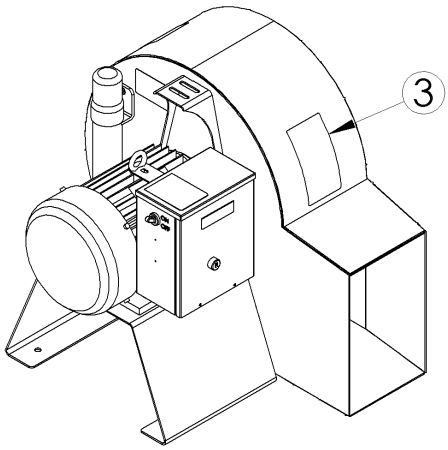
7

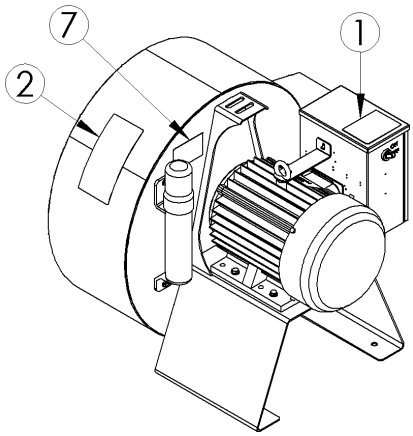
S3 AIR SYSTEMS
Phone 1-844-441-2020
S3airsystems.com
Proudly made in Swift Current, Saskatchewan CANADA

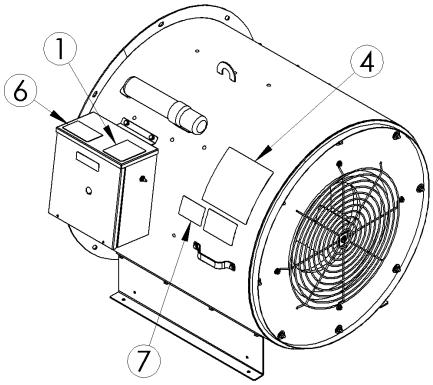
MODEL: XXXXXX
XXHP, XX, XXXX RPM, XX PHASE, XXX/XXX VOLTS, 60HZ
INPUT(A) XX.X
MCA(A) XX.X
MOP(A) XX

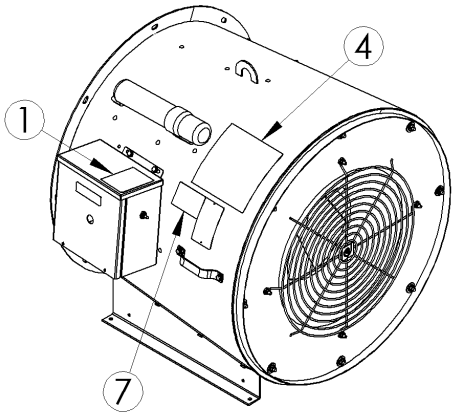
S/N: S3A-XXXXXX- XXXXX
THERMALLY PROTECTED / PROTECTION THERMIQUE
OUTDOOR USE / POUR USAGE À L' EXTÉRIEUR
FOR AGRICULTURAL USE ONLY / POUR UTILISATION À DES FINS AGRICOLES UNIQUEMENT
XXXX
272296
3400-01-XXXX

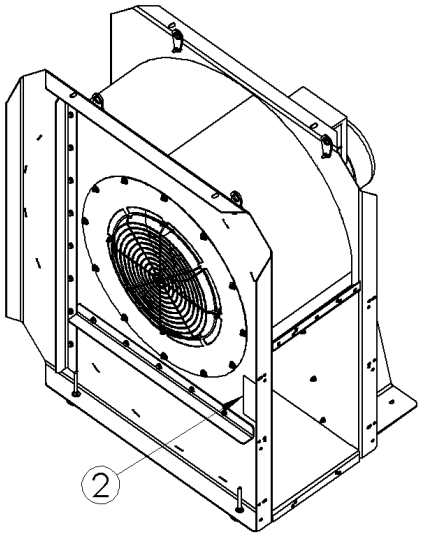
Decal Locations, *Continued*

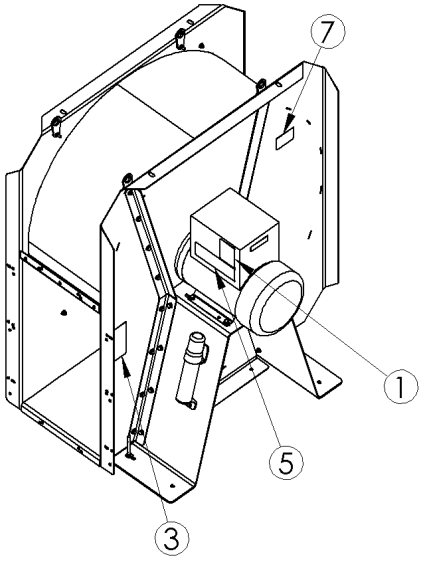












5 General Information

5.1 Electrical

The unit utilizes electricity as the source of energy. When the power is connected properly, and protective covers are in place, the unit poses no direct hazard.

⚠ WARNING

WHEN INSTALLING OR SERVICING THE ELECTRICAL COMPONENTS, ALWAYS SHUT THE POWER OFF AT THE FAN DISCONNECT AND LOCKOUT- TAG OUT THE FAN DISCONNECT IN THE OFF POSITION SO NO POWER CAN BE DELIVERED TO THE FAN WHILE YOU ARE SERVICING THE UNIT.

⚠ WARNING

IF PERFORMING ELECTRICAL CHECKS WITH THE POWER ON, USE A VOLTMETER AND BE CAREFUL NOT TO CONTACT LIVE PARTS.

5.2 Fan Blade

The unit has a fan blade rotating turning at high speed while it is in operation. When guarded with the screen guard it poses no direct hazard.

⚠ WARNING

MAKE SURE THE SCREEN GUARD IS SECURELY ATTACHED AND FASTENED IN PLACE.

⚠ WARNING

WHEN SERVICING THE FAN BLADE, MAKE SURE THE ELECTRICAL POWER IS SHUT OFF AT THE FAN DISCONNECT, AND LOCK THE FAN DISCONNECT IN THE OFF POSITION.

6 List of Features

6.1 General Features

6.1.1 Inline Centrifugal Aeration Fan

The Inline Centrifugal Fan has been designed for applications that require airflow at high static pressures. The Inline Centrifugal Fan utilizes a centrifugal rotor and inlet specifically designed for smooth, quiet, efficient operation. The fan incorporates the following features:

- 100% CSA Certified fan and components.
- Heavy gauge steel housing with platform feet
- Inlet Bell for high efficiency
- Air straighteners to efficiently align the air stream
- Baffles to increase efficiency
- Aluminum fan rotor for a lightweight efficient design and corrosion resistance
- Powder coated body and zinc-plated screen for long life
- Internal motor that is 100% CSA Certified and thermally protected
- Rain-tight control enclosure

6.1.2 Full Speed Centrifugal Aeration Fan

The Full speed Centrifugal Aeration Fan has been designed for applications that require high static pressures. The Full speed Centrifugal Aeration Fan utilizes a centrifugal rotor which spins at a nominal 3450 rpm. The fan incorporates the following features:

- 100% CSA Certified fan and components.
- Heavy gauge steel housing with platform feet
- Heavy duty support over center of gravity for easy and strong suspended install style.
- Inlet Bell for high efficiency
- Tapered exhaust to fit tight into bin aeration inlets.

- Aluminum fan rotor for a lightweight efficient design and corrosion resistance
- Powder coated body and zinc-plated screen for long life
- Internal motor that is 100% CSA Certified and thermally protected
- Rain-tight control enclosure

6.1.3 Low Speed Centrifugal Aeration Fan

The Low speed Centrifugal Aeration Fan has been designed for applications that require very high flow and pressure. The Low speed Centrifugal Aeration Fan utilizes a centrifugal rotor spinning at a nominal 1750 rpm. The fan incorporates the following features:

- 100% CSA Certified fan and components
- Heavy gauge steel housing and mounting platform
- Heavy duty lifting lugs for easy and strong suspended install style
- Cone inlet for high efficiency
- Aluminum fan rotor for a lightweight efficient design and corrosion resistance
- Powder coated body and zinc-plated screen for long life
- Internal motor thermal protection
- Rain tight control enclosure

6.1.4 Motor Features

The electric motors used in S3 AIR SYSTEMS Aeration Fans comply with applicable CSA standards and incorporate the following features:

- Internal thermal protection
- Sealed capacitor motor starter built for trouble free operation
- Energy efficient operation
- Cool operation
- Unequalled dependability
- Quick start-up
- Sealed bearings for long life

All S3 AIR SYSTEMS Aeration Fans electric motors are available in both single-phase and three-phase configurations and offer the following specifications:

- 230 VAC / 460 VAC / 600VAC
- 60 Hz
- Integral connection leads or a standard plug in version in available as an option
- Base mounted to frame using 4 bolts

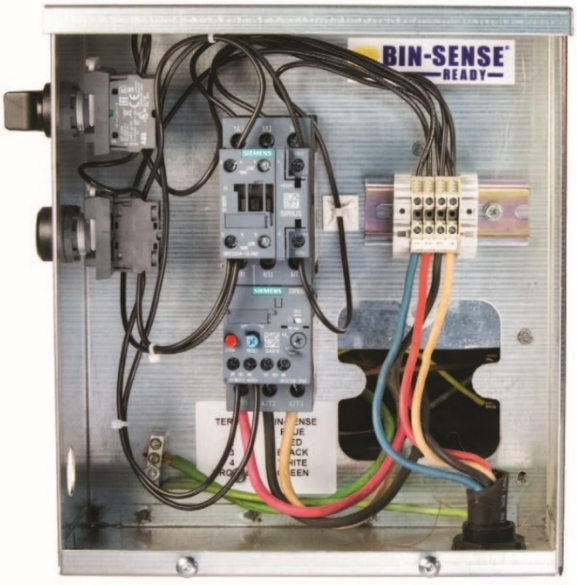
All S3 AIR SYSTEMS fans are certified by the Canadian Standards Association.

6.1.5 BIN-SENSE Ready

BIN-SENSE® is an electronic sensor device by IntraGrain Technologies Inc. in Regina, Saskatchewan. It monitors the conditions inside the grain bin and live updates can be monitored & controlled wirelessly as well as managed through predefined optimal settings, which starts/stops the fan accordingly.

Bin-Sense ready fans are equipped with easy to install switch/circuitry for Bin-Sense. This results in a huge advantage while installing the Bin-Sense unit on fans in terms of ease of installation and time saved.

All fans are Bin-Sense ready except 3 & 5 HP FC-single phase fans. Upon request, S3 AIR SYSTEMS can provide a quote to have these fans Bin-Sense ready.



6.1.6 Fan Weights & Motor Data

Full Centrifugal Fan Weights & Motor Data								
Fan	Motor Data							Fan Weight (lbs)
	Enclosure	Frame	Full Load Amps	RPM	Service Factor	Class of Insulation	Protection	
3HP 1PH 230V	TEFC	145TZ	14.5	3450	1.35	F	Thermal Protection in Motor	175
3HP 3PH 230V	TEFC	182T	8	3450	1.4	F	Thermal Protection in Starter	185
3HP 3PH 480V	TEFC	182T	4	3450	1.4	F	Thermal Protection in Starter	185
3HP 3PH 600V	TEFC	182T	3.2	3450	1.4	F	Thermal Protection in Starter	185
5HP 1PH 230V	TEFC	184TZ	20	3450	1.5	F	Thermal Protection in Motor	215
5HP 3PH 230V	TEFC	184T	12.4	3450	1.4	F	Thermal Protection in Starter	230
5HP 3PH 480V	TEFC	184T	6.2	3450	1.4	F	Thermal Protection in Starter	230
5HP 3PH 600V	TEFC	184T	5	3450	1.3	F	Thermal Protection in Starter	230
7.5HP 1PH 230V	TEFC	215Z	30.5	3450	1.33	F	Thermal Protection in Motor	290
7.5HP 3PH 230V	TEFC	213T	17	3450	1.3	F	Thermal Protection in Starter	320
7.5HP 3PH 480V	TEFC	213T	8.5	3450	1.3	F	Thermal Protection in Starter	320
7.5HP 3PH 600V	TEFC	213T	6.8	3450	1.3	F	Thermal Protection in Starter	320
10HP 1PH 230V	TEFC	215Z	40	3450	1.15	H	Thermal Protection in Motor	325
10HP 3PH 230V	TEFC	215T	22.8 23.5	3450	1.3 1.15	F	Thermal Protection in Starter	355
10HP 3PH 480V	TEFC	215T	11.4 11.8	3450	1.3 1.15	F	Thermal Protection in Starter	355
10HP 3PH 600V	TEFC	215T	9.1 9.4	3450	1.3 1.15	F	Thermal Protection in Starter	355

Continued on next page

Fan Weights & Motor Data, *Continued*

Inline Aeration Fan Weights & Motor Data							
Fan	Motor Data						Fan Weight (lbs)
	Enclosure	Full Load Amps	RPM	Service Factor	Class of Insulation	Protection	
3HP 1PH 230V	DPAO TEAO	19 18.5	3450	1.5/1.0 1	F	Thermal Protection in Motor Thermal Protection In Starter	135
3HP 3PH 230V	TEAO	12	3450	1	H	Thermal Protection in Starter	160
3HP 3PH 480V	TEAO	6	3450	1	H	Thermal Protection in Starter	160
5HP 1PH 230V	DPAO TEAO	28	3450	1.4/1.0 1	F H	Thermal Protection in Starter	210
5HP 3PH 230V	DPAO TEAO	19.5 18	3450	1	F	Thermal Protection in Starter	220
5HP 3PH 480V	DPAO TEAO	9.75 9	3450	1	F	Thermal Protection in Starter	220
5HP 3PH 600V	DP TEAO	7.45	3450	1	F	Thermal Protection in Starter	220
7.5HP 1PH 230V	DPAO TEAO	42 38	3450	1.3/1.0 1	F	Thermal Protection in Starter	230
7.5HP 3PH 230V	DPAO TEAO	23.5 23	3450	1	F	Thermal Protection in Starter	220
7.5HP 3PH 480V	DPAO TEAO	11.7 11.5	3450	1	F	Thermal Protection in Starter	220
7.5HP 3PH 600V	DPAO TEAO	9.4	3450	1	F	Thermal Protection in Starter	220
10HP 1PH 230V	DP TEAO	61.5 61	3450	1.15/1.0 1	F	Thermal Protection in Starter	315
10HP 3PH 230V	DP DPAO OPEN	40 40 36	3450	1.15/1.0 1.15/1.0 1	B F F	Thermal Protection in Starter	260
10HP 3PH 480V	DP DPAO OPEN	20 20 18	3450	1.15/1.0 1.15/1.0 1	B F F	Thermal Protection in Starter	260
10HP 3PH 600V	DPAO OPEN	15.3	3450	1.5/1.0 1	F	Thermal Protection in Starter	260
15HP 1PH 230V	DP TEAO	61.5 61	3450	1.15/1.0 1	F	Thermal Protection in Starter	325
15HP 3PH 230V	DP DPAO OPEN	40 40 36	3450	1.15/1.0 1.15/1.0 1	B F F	Thermal Protection in Starter	270
15HP 3PH 480V	DP DPAO OPEN	20 20 18	3450	1.15/1.0 1.15/1.0 1	B F F	Thermal Protection in Starter	270
15HP 3PH 600V	DPAO OPEN	15.3	3450	1.5/1.0 1	F	Thermal Protection in Starter	270
*Note: For motors without inherent overheating protection, these motors are coupled with a motor starter box that has thermal protection circuitry – with separate motor overload and overheating protection which complies with the Canadian Electrical Code, Part 1.							

Continued on next page

Fan Weights & Motor Data, *Continued*

Turbo Fan Weights & Motor Data							
Fan	Motor Data						Fan Weight (lbs)
	Enclosure	Full Load Amps	RPM	Service Factor	Class of Insulation	Protection	
3HP 1PH 230V	DPAO	19	3450	1.5/1.0	F	Thermal Protection in Motor	140
	TEAO	18.5		1		Thermal Protection in Starter	
5HP 1PH 230V	DPAO	28	3450	1.4/1.0	F	Thermal Protection in Starter	210
	TEAO			1	H		
5HP 3PH 230V	DPAO	19.5	3450	1	F	Thermal Protection in Starter	210
	TEAO	18					
5HP 3PH 480V	DPAO	9.75	3450	1	F	Thermal Protection in Starter	210
	TEAO	9					
5HP 3PH 600V	DP	7.45	3450	1	F	Thermal Protection in Starter	210
	TEAO						
7.5HP 1PH 230V	DPAO	42	3450	1.3/1.0	F	Thermal Protection in Starter	235
	TEAO	38		1			
7.5HP 3PH 230V	DPAO	23.5	3450	1	F	Thermal Protection in Starter	235
	TEAO	23					
7.5HP 3PH 480V	DPAO	11.7	3450	1	F	Thermal Protection in Starter	235
	TEAO	11.5					
7.5HP 3PH 600V	DPAO	9.4	3450	1	F	Thermal Protection in Starter	235
	TEAO						
*Note: For motors without inherent overheating protection, these motors are coupled with a motor starter box that has thermal protection circuitry – with separate motor overload and overheating protection which complies with the Canadian Electrical Code, Part 1.							

Continued on next page

Fan Weights & Motor Data, *Continued*

High Speed Fan Weights & Motor Data								
Fan	Motor Data							Fan Weight (lbs)
	Enclosure	Frame	Full Load Amps	RPM	Service Factor	Class of Insulation	Protection	
20HP 3PH 230V	TEFC	256T	46 45.8	3600	1.15 1.3	F	Thermal Protection in Starter	600
20HP 3PH 480V	TEFC	256T	23 22.9	3600	1.15 1.3	F	Thermal Protection in Starter	600
20HP 3PH 600V	TEFC	256T	18.4 18.3	3600	1.15 1.2	F	Thermal Protection in Starter	600
25HP 3PH 230V	TEFC	284TS	57.6 59	3600	1.15 1.2	F	Thermal Protection in Starter	640
25HP 3PH 480V	TEFC	284TS	28.8 29.5	3600	1.15 1.2	F	Thermal Protection in Starter	640
25HP 3PH 600V	TEFC	284TS	23 23.6	3600	1.15 1.2	F	Thermal Protection in Starter	640
30HP 3PH 230V	TEFC	284TS	70 70.4	3600	1.15 1.2	F	Thermal Protection in Starter	680
30HP 3PH 480V	TEFC	286TS	35 35.2	3600	1.15 1.2	F	Thermal Protection in Starter	680
30HP 3PH 600V	TEFC	286TS	27.7 28.2	3600	1.15 1.2	F	Thermal Protection in Starter	680
40HP 3PH 480V	TEFC	324TS	46 45	3600	1.15	F	Thermal Protection in Starter	775
40HP 3PH 600V	TEFC	324TS	37 36	3600	1.15	F	Thermal Protection in Starter	775

Continued on next page

Weights & Motor Data, *Continued*

Low Speed Fan Weights & Motor Data								
Fan	Motor Data							Fan Weight (lbs)
	Enclosure	Frame	Full Load Amps	RPM	Service Factor	Class of Insulation	Protection	
10HP 1PH 230V	TEFC	215T	40	1750	1	F	Thermal Protection in Motor	530
10HP 3PH 230V	TEFC	215T	25.7 25	1750	1.15 1.3	F	Thermal Protection in Starter	570
10HP 3PH 480V	TEFC	215T	12.3 12.5	1750	1.15 1.3	F	Thermal Protection in Starter	570
10HP 3PH 600V	TEFC	215T	10.3 10	1750	1.3	F	Thermal Protection in Starter	570
15HP 3PH 230V	TEFC	254T	36 34.6	1750	1.15 1.3	F	Thermal Protection in Starter	750
15HP 3PH 480V	TEFC	254T	18 17.3	1750	1.15 1.3	F	Thermal Protection in Starter	750
15HP 3PH 600V	TEFC	254T	14.5 13.8	1750	1.15 1.3	F	Thermal Protection in Starter	750
20HP 3PH 230V	TEFC	256T	47 45.8	1750	1.15 1.2	F	Thermal Protection in Starter	800
20HP 3PH 480V	TEFC	256T	23.7 22.9	1750	1.15 1.2	F	Thermal Protection in Starter	800
20HP 3PH 600V	TEFC	256T	18.9 18.3	1750	1.15 1.2	F	Thermal Protection in Starter	800
25HP 3PH 230V	TEFC	284T	58.4 61	1750	1.15 1.2	F	Thermal Protection in Starter	890
25HP 3PH 480V	TEFC	284T	29.2 30.5	1750	1.15 1.2	F	Thermal Protection in Starter	890
25HP 3PH 600V	TEFC	284T	23.3 24.4	1750	1.15 1.2	F	Thermal Protection in Starter	890
30HP 3PH 230V	TEFC	286T	70 75	1750	1.15 1.2	F	Thermal Protection in Starter	960
30HP 3PH 480V	TEFC	286T	35 37.5	1750	1.15 1.2	F	Thermal Protection in Starter	960
30HP 3PH 600V	TEFC	286T	28.1 30	1750	1.15 1.2	F	Thermal Protection in Starter	960

7 Packing List

This shipment should contain the following items: Check carefully when unpacking and before installing. In case of any shortage or damage while in shipment, file a claim with the carrier.

7.1 Inline Centrifugal Fans

Component	Description	Quantity
Inline Aeration Fan	Inline Fan Assembly	1
Manual	Installation, Operation & Maintenance	1
Motor Service Bulletin	Motor Service Centres	1
Warranty	Motor Warranty	1

7.2 Centrifugal Aeration Fans

Component	Description	Quantity
Full Centrifugal Aeration Fan	Full Centrifugal Fan Assembly	1
Manual	Installation, Operation & Maintenance	1
Motor Service Bulletin	Motor Service Centres	1
Warranty	Motor Warranty	1

7.3 Low/HIgh Speed Centrifugal Fans

Component	Description	Quantity
Low/High Speed Aeration Fan	Low/High Speed Fan Assembly	1
Manual	Installation, Operation & Maintenance	1
Motor Service Bulletin	Motor Service Centres	1
Warranty	Motor Warranty	1

7.4 Turbo Aeration Fans

Component	Description	Quantity
Turbo Aeration Fan	Turbo Fan Assembly	1
Manual	Installation, Operation & Maintenance	1
Motor Service Bulletin	Motor Service Centres	1
Warranty	Motor Warranty	1

8 Fan Model Specifications

8.1 Centrifugal Aeration Fans

Fan ID	Wt. (lbs)	Description
Full Centrifugal Fans (Single Phase)		
0312FC	175	3HP Full Centrifugal Fan (230, 1 Phase)
0512FC	215	5HP Full Centrifugal Fan (230, 1 Phase)
0712FC	290	7.5HP Full Centrifugal Fan (230, 1 Phase)
1012FC	345	10HP Full Centrifugal Fan (230, 1 Phase)
Inline Fans (Single Phase)		
0312IL	135	3HP Inline Centrifugal Fan (230, 1 Phase)
0512IL	230	5HP Inline Centrifugal Fan (230, 1 Phase)
0712IL	260	7.5HP Inline Centrifugal Fan (230, 1 Phase)
1012IL	350	10HP Inline Centrifugal Fan (230, 1 Phase)
1512IL	324	15HP Inline Centrifugal Fan 230, 1 Phase)
Turbo Fans (Single Phase)		
0312T	135	3HP Turbo Fan (230, 1 Phase)
0512T	230	5HP Turbo Fan (230, 1 Phase)
0712T	260	7.5HP Turbo Fan (230, 1 Phase)
Low Speed Fans (Single Phase)		
1012LS	515	10HP Low Speed Centrifugal Fan (230, 1 Phase)

Continued on next page

Centrifugal Aeration Fans, *Continued*

Fan ID	Wt. (lbs)	Description
Full Centrifugal Fans (Three Phase)		
0332FC	185	3HP Full Centrifugal Fan (230, 3 Phase)
0334FC	185	3HP Full Centrifugal Fan (460/480, 3 Phase)
0336FC	185	3HP Full Centrifugal Fan (575/600, 3 Phase)
0532FC	230	5HP Full Centrifugal Fan (230, 3 Phase)
0534FC	230	5HP Full Centrifugal Fan (460/480, 3 Phase)
0536FC	230	5HP Full Centrifugal Fan (575/480, 3 Phase)
0732FC	340	7.5HP Full Centrifugal Fan (230, 3 Phase)
0734FC	340	7.5HP Full Centrifugal Fan (460/480, 3 Phase)
0736FC	340	7.5HP Full Centrifugal Fan (575/600, 3 Phase)
1032FC	385	10HP Full Centrifugal Fan (230, 3 Phase)
1034FC	385	10HP Full Centrifugal Fan (460/480, 3 Phase)
1036FC	385	10HP Full Centrifugal Fan (575/600, 3 Phase)
High Speed Fans (Three Phase)		
2532FC	615	25HP Full Centrifugal Fan (230, 3 Phase)
2534FC	615	25HP Full Centrifugal Fan (460/480, 3 Phase)
2536FC	615	25HP Full Centrifugal Fan (575/600, 3 Phase)
4032FC	735	40HP Full Centrifugal Fan (230, 3 Phase)
4034FC	735	40HP Full Centrifugal Fan (460/480, 3 Phase)
4036FC	735	40HP Full Centrifugal Fan (575/600, 3 Phase)

Continued on next page

Centrifugal Aeration Fans, *Continued*

Fan ID	Wt. (lbs)	Description
Inline Fans (Three Phase)		
0332IL	160	3HP Inline Centrifugal Fan (230, 3 Phase)
0334IL	160	3HP Inline Centrifugal Fan (460/480, 3 Phase)
0532IL	220	5HP Inline Centrifugal Fan (230, 3 Phase)
0534IL	220	5HP Inline Centrifugal Fan (460/480, 3 Phase)
0536IL	220	5HP Inline Centrifugal Fan (575/600, 3 Phase)
0732IL	195	7.5HP Inline Centrifugal Fan (230, 3 Phase)
0734IL	195	7.5HP Inline Centrifugal Fan (460/480, 3 Phase)
0736IL	195	7.5HP Inline Centrifugal Fan (575/600, 3 Phase)
1032IL	260	10HP Inline Centrifugal Fan (230, 3 Phase)
1034IL	260	10HP Inline Centrifugal Fan (460/480, 3 Phase)
1036IL	260	10HP Inline Centrifugal Fan (575/600, 3 Phase)
1532IL	260	15HP Inline Centrifugal Fan (230, 3 Phase)
1534IL	260	15HP Inline Centrifugal Fan (460/480, 3 Phase)
1536IL	260	10HP Inline Centrifugal Fan (575/600, 3 Phase)

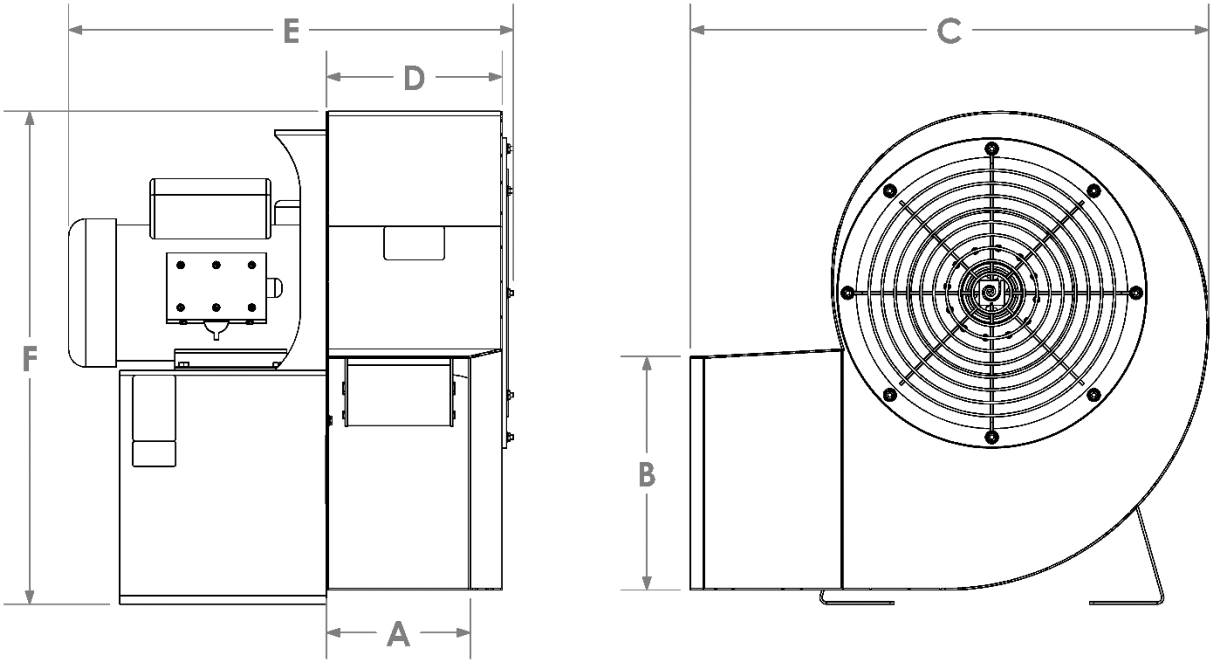
Fan ID	Wt. (lbs)	Description
Low Speed Fans (Three Phase)		
1032LS	515	10HP Low Speed Centrifugal Fan (230, 3 Phase)
1034LS	545	10HP Low Speed Centrifugal Fan (460/480, 3 Phase)
1036LS	545	10HP Low Speed Centrifugal Fan (575/600, 3 Phase)
1532LS	770	15HP Low Speed Centrifugal Fan (230, 3 Phase)
1534LS	770	15HP Low Speed Centrifugal Fan (460/480, 3 Phase)
1534LS	770	15HP Low Speed Centrifugal Fan (575/600, 3 Phase)
2032LS	840	20HP Low Speed Centrifugal Fan (230, 3 Phase)
2034LS	840	20HP Low Speed Centrifugal Fan (460/480, 3 Phase)
2034LS	840	20HP Low Speed Centrifugal Fan (575/600, 3 Phase)
2532LS	950	25HP Low Speed Centrifugal Fan (230, 3 Phase)
2534LS	950	25HP Low Speed Centrifugal Fan (460/480, 3 Phase)
2534LS	950	25HP Low Speed Centrifugal Fan (575/600, 3 Phase)
3032LS	1055	30HP Low Speed Centrifugal Fan (230, 3 Phase)
3034LS	1055	30HP Low Speed Centrifugal Fan (460/480, 3 Phase)
3036LS	1055	30HP Low Speed Centrifugal Fan (575/600, 3 Phase)

8.2 Full Speed Centrifugal Fan Specifications and Data

All S3 AIR SYSTEMS Full Speed Centrifugal Aeration Fans are designed with a tapered exhaust which fits into the corresponding bin inlet duct.

Models 3 HP, 5 HP, and 7.5 HP are designed to fit in a bin duct which is 9" wide and 14" tall. The 10 HP Full Centrifugal fan is designed to fit a bin duct which is 12" wide and 17" tall.

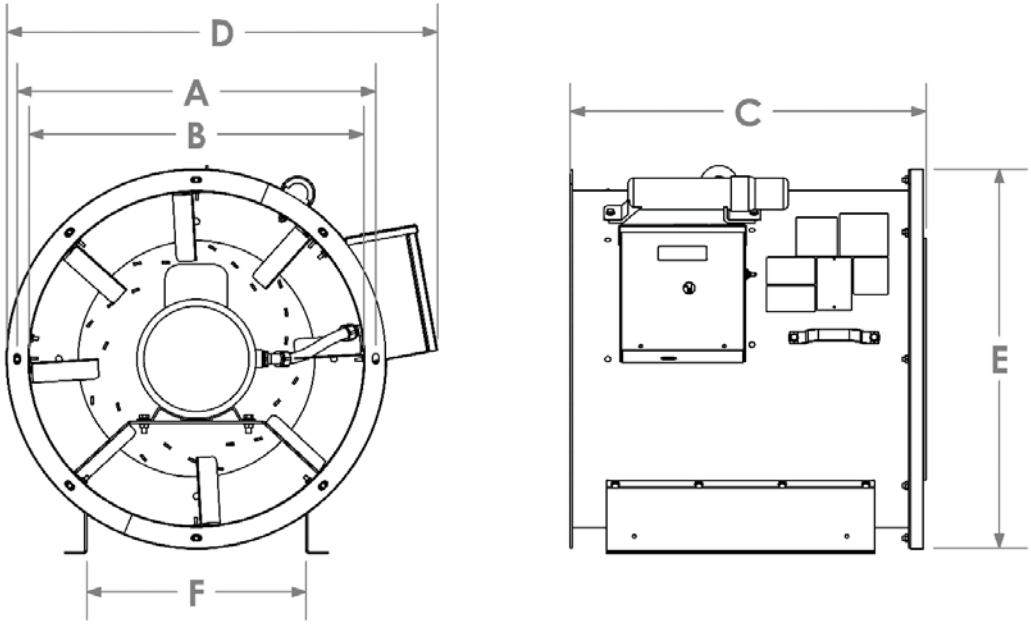
Overall dimensions of the FC line of fans are shown in the following images:



Fan Dimension	3HP	5HP	7.5HP	10HP
A (Outlet Width)	8 5/16	8 11/32	8 11/32	11 13/16
B (Outlet Height)	13 13/32	13 9/16	13 5/8	17 3/32
C (Length)	28 21/32	30 3/32	33 13/32	36 5/8
D (Body Width)	9 7/32	10 7/32	10 7/32	13 23/32
E (Width)	23 5/32	25 13/16	28 7/32	32 3/16
F (Height)	24 19/32	28 19/32	32 21/32	38 3/32

8.3 Inline Centrifugal Fan Specifications and Data

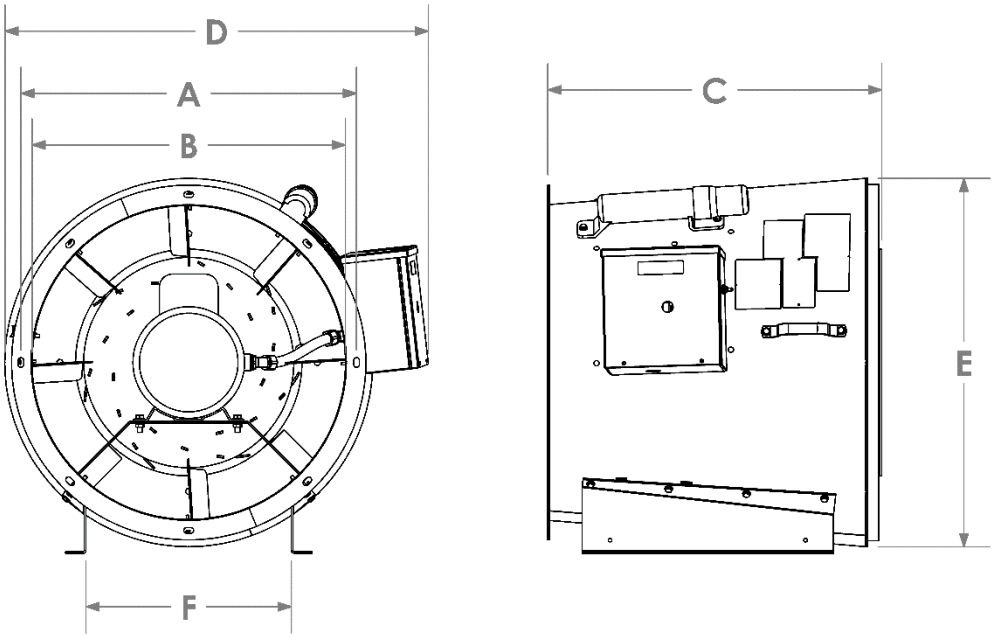
The mounting outlet on S3 AIR SYSTEMS Inline Centrifugal Aeration Fans has a circular 8-hole flange with the dimensions shown in the following images:



Fan Dimension	3HP	5HP	7.5HP	10HP	15HP
A (Outlet B.C.D.)	19 3/4	25 3/4	25 3/4	29 3/4	29 3/4
B (Outlet I.D.)	18 1/2	24 1/16	24 1/16	28 1/8	28 1/8
C (Length)	25 5/8	25 9/16	25 9/16	29 3/8	29 3/8
D (Width)	25 5/16	31	31	35 3/4	35 3/4
E (Height)	23 3/8	27 11/16	27 11/16	31 11/16	31 11/16
F (Foot Separation)	12 1/16	15 3/4	15 3/4	18 1/4	18 1/4

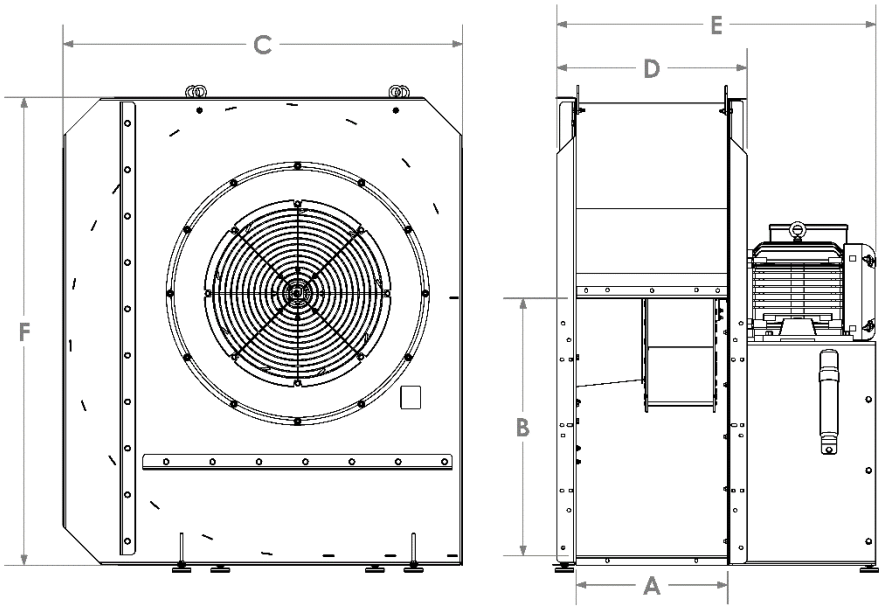
8.4 Turbo Fan Specifications and Data

The mounting outlet on S3 AIR SYSTEMS Turbo Aeration Fans has a circular 8-hole flange with the dimensions shown in the following images:



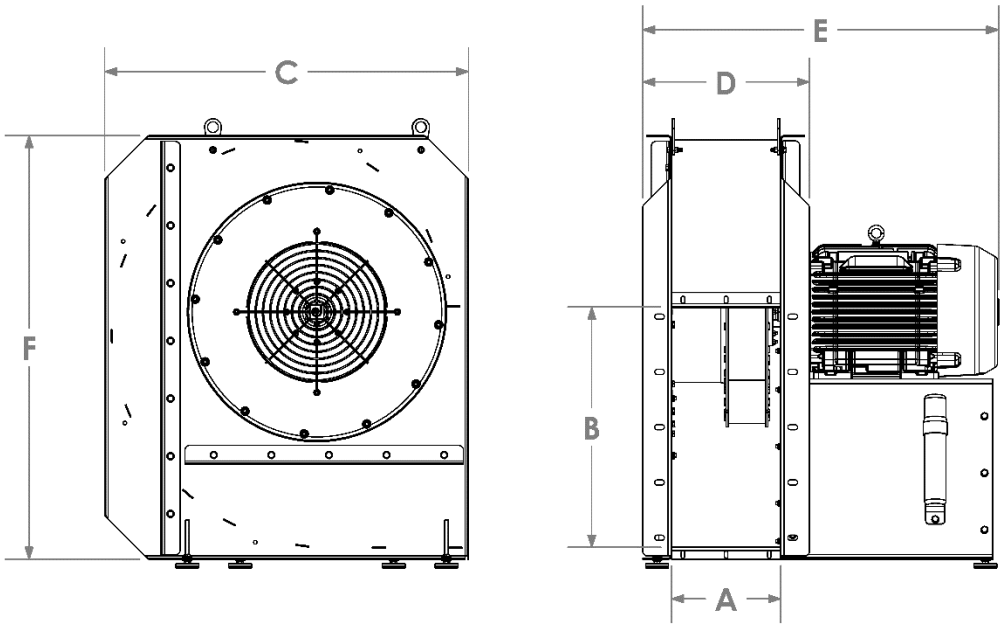
Fan Dimension	3HP	5HP	7.5HP	10HP	15HP
A (Outlet B.C.D.)	19 3/4	25 3/4	25 3/4	29 3/4	29 3/4
B (Outlet I.D.)	18 1/2	24 1/16	24 1/16	28 1/8	28 1/8
C (Length)	25 5/8	25 9/16	25 9/16	29 3/8	29 3/8
D (Width)	25 5/16	31	31	35 3/4	35 3/4
E (Height)	23 3/8	27 11/16	27 11/16	31 11/16	31 11/16
F (Foot Separation)	12 1/16	15 3/4	15 3/4	18 1/4	18 1/4

8.5 Low Speed Centrifugal Fan Specifications and Data



LS					
Fan Dimension	10HP	15HP	20HP	25HP	30HP
A (Outlet Width)	16	18	19 5/8	22	22
B (Outlet Height)	29 5/8	29 3/4	33 1/4	33 1/4	33 1/4
C (Length)	46	46	51 11/16	51 7/8	54 3/4
D (Body Width)	22	24	24 5/8	27	27
E (Width)	36 1/2	40 1/16	41 1/4	48 9/16	48

8.6 High Speed Fan Specifications and Data



FC (High **Speed)**				
Fan Dimension	20HP	25HP	30HP	40HP
A (Outlet Width)	11 3/8	11 3/8	14	14
B (Outlet Height)	25	25	25	25
C (Length)	37 15/16	37 15/16	37 15/16	37 15/16
D (Body Width)	17 3/8	17 3/8	20	20
E (Width)	36 5/8	37 1/8	40 7/16	41 3/4

9 Performance

Development and testing of S3 AIR SYSTEMS fans is done on a lab test stand, and all results are reported at standard air (1) conditions. Performance under actual operating conditions may differ from these results depending on such variables as temperature, barometric pressure, humidity, and elevation above sea level. The data below shows static pressure (2) over a full range of air flow rates (4) (CFM).

1. Standard Air is the condition of air with a density of 0.0750 lb/ft^3 at 68 degrees F (20 degrees C), 50% humidity, and barometric pressure of 29.92 inches Hg.
2. Static Pressure is the increase in pressure created inside an aerated enclosure over outside air pressure.
3. Static Efficiency is the ratio of output power to input power expended in creating static pressure.
4. Air Flow Rates is the rate of air movement measured in cubic feet per minute (CFM)

Inline Centrifugal Aeration Fan					
Static Pressure (inches)	Airflow (CFM) @ 3450 RPM				
	3 HP	5 HP	7 1/2 HP	10 HP	15 HP
4	3030	4790	6345	7410	7900
6	2260	4150	5550	6930	7350
8		3180	4425	6210	6700
10			2280	5120	5800
12				3700	4200

Full Centrifugal Aeration Fan				
Static Pressure (inches)	Airflow (CFM) @ 3450 RPM			
	3 HP	5 HP	7 1/2 HP	10 HP
4	3060	4100	5325	6300
6	2690	3520	4820	5700
8	2170	3060	4280	4900
10	1300	2470	3510	4200
12		1760	2300	3300

Turbo Aeration Fan			
Static Pressure (inches)	Airflow (CFM) @ 3450 RPM		
	3HP	5HP	7.5HP
3	3850	5100	
4	3600	4800	6400
5	3250	4450	6100
6	2800	4100	5700
7	2350	3700	5200
8	1200	3200	4700
9		2100	4200
10			3300

Continued on next page

Performance, *Continued*

Low Speed Centrifugal Aeration Fan					
Static Pressure (inches)	Airflow (CFM) @ 1750 RPM				
	10HP	15HP	20HP	25HP	30HP
1	13500	17000	20750	23500	25100
2	12800	16200	20000	22500	24300
3	11850	15250	19000	21350	23300
4	10700	14400	18100	20250	22250
5	9400	13400	17000	19100	21000
6	8200	12100	15500	18000	19750
7	7200	10500	14000	17000	18600

10 Installation Instructions

10.1 Mechanical Check

⚠ CAUTION

MAKE SURE FAN IS NOT PLUGGED IN and or that its power supply is Lockout tag out at its power source.

Before the fan is attached to the bin it should be checked to ensure that there is no interference between its rotating and static components. To check this, manually rotate the fan rotor by reaching into the fan outlet. Ensure that the fan rotor turns freely and does not rub on the bell inlet. Contact between these two parts will result in severe damage to the fan. If there is interference, the bell inlet will need to be loosened from its mounting bolts and repositioned until the rotor turns freely without interference from the bell inlet. If this is not possible, contact the dealership or S3 AIR SYSTEMS. Check all the fasteners on the fan to make sure they are tight. If any are loose, check for proper clearance and retighten.

NOTICE

Clearance of high efficiency fans are very small. If the fan is dropped or impacted, misalignment of the rotor could occur; this check should be repeated periodically. Always check the power source is disconnected.

10.2 Foundation as Required For Fan

For proper operation of the fan, the unit may be mounted on a level pad. The fan should not be anchored to the pad but allowed to float on the pad. The fan pad should be at the same elevation as the floor of the bin or building. The minimum recommended thickness for the fan pad is 3-½" of stable foundation materials.
The fan should be securely fastened to the bin's duct flange or inlet, but not anchored to the foundation. If the fan is placed on the ground, it should be set on a firm wooden foundation or a cement pad.

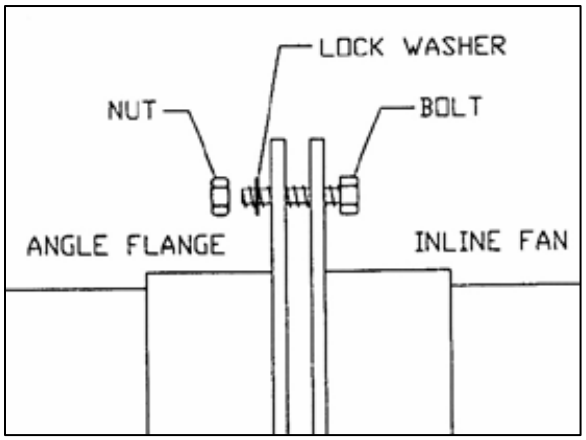
NOTICE

Foot mounted machines should be mounted to a rigid foundation to prevent excessive vibration. The fan base should sit evenly on the concrete pad for smooth trouble free operation. If not, use shims under the fan leg, so that the fan cannot generate a natural frequency to vibrate.

10.3 Installation of the Fan

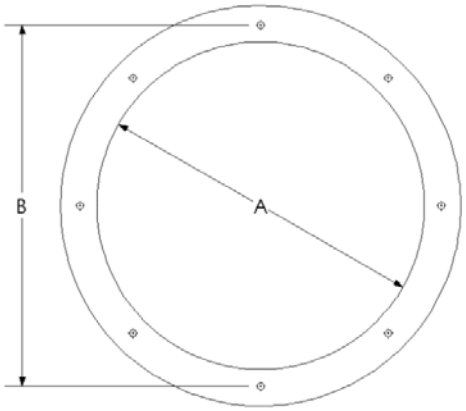
10.3.1 Fastening the Aeration Fan to a Flanged Adapter

When attaching the fan to a flanged adapter, the fan is secured to the transition or aeration wall adapter with the following fasteners: 8 each of - 5⁄16" x ¾" cap screws, 5⁄16" nuts and 5⁄16" washers. The Inline Centrifugal Fan is attached to the angle flange of the transition or wall adapter as illustrated by the following image:



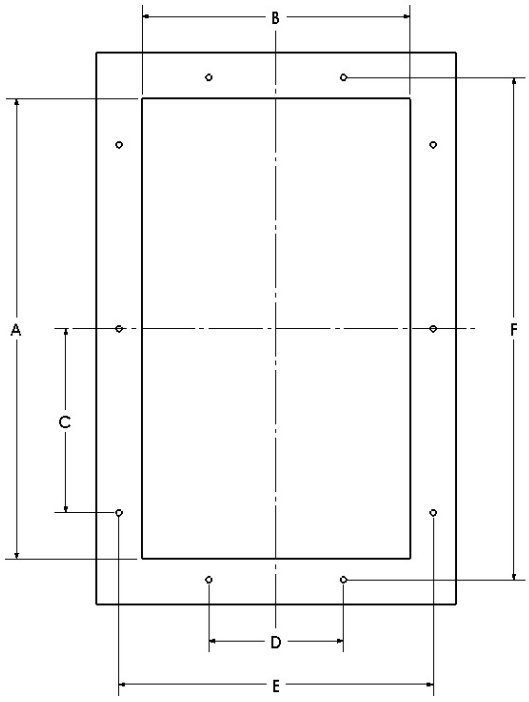
10.3.2 Inline Centrifugal & Turbo Fan Installation

The mounting outlet on S3 AIR SYSTEMS Inline Centrifugal Aeration Fan has a circular 8-hole flange with the dimensions are illustrated by the following tables and images on section 8.3.



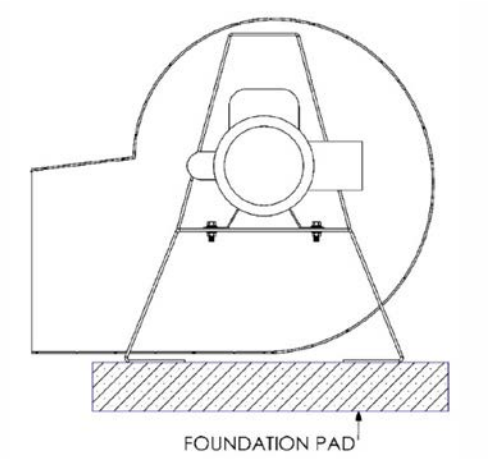
10.3.3 Low Speed Fan Installation

Low Speed Centrifugal Fans					
Dims	10HP	15HP	25HP	25HP	30HP
A	29 5/8	29 3/4	33 1/4	33 1/4	33 1/4
B	16	18	19 5/8	22	22
C	11	11	11	11	11
D	8 1/2	8 1/2	11 1/2	11 1/2	11 1/2
E	19	20 1/2	21 1/2	23 1/2	23 1/2
F	31 1/2	31 1/2	35	35	35



10.3.4 Full Speed Centrifugal Fan Installation

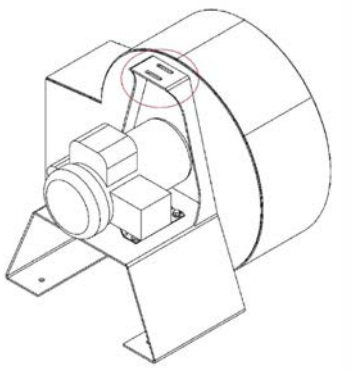
The full speed centrifugal aeration fan has a tapered exhaust designed to fit tightly into the bin duct. The fan has been designed in such a way that it can be installed by resting with its feet on a level pad. It also may be installed on some hopper bins using a chain, cable, or strap to suspend the unit and pull it snug into the bin's duct.



⚠ WARNING

Aeration fans are heavy. A fan that is not securely suspended can cause serious injury or death if it falls on someone. Whether chain, cable, straps, or any other system is used for suspension of the fan, ensure that it is designed to carry the load of the fan during operation. Keep in mind that the fan will have some vibration, as this can weaken supports or loosen fasteners over time. Be sure that the hopper bin has a suitable, strong lug that can support the weight of the suspended fan.

The lifting point on the fan is shown here.



10.4 Electrical Installation

10.4.1 General Instructions

⚠ CAUTION

This is only a guide. Electrical rotating equipment can result in property damage, serious injury or death when improperly installed. The electrical installation must be performed by a certified electrician, in accordance with the appropriate national and local electrical codes.

NOTICE

Any violation of electrical wiring codes could jeopardize the manufacturer's warranty.

10.4.2 Electrical Service Installation

NOTICE

Check the type of electrical service and make sure the fan to be wired is manufactured to operate on the electrical service to match the fan motor's phase and voltage.

10.4.3 Motor Safety

1. The machine must be grounded in accordance with the National Electrical Code and local code.
2. Permanently guard machine against accidental contact of body parts, clothing and moving parts.
3. Do not apply power to the motor until the motor is securely mounted by its mounting holes. This motor must only be connected to the proper line voltage, line frequency and load size.
4. Disconnect all power services and stop the motor before servicing.
5. For single phase motors, discharge the start and/or run capacitors before servicing.
6. Do not by-pass or render inoperative any safety device.
7. Mounting bolts should be high tensile steel. Be sure to use a suitable locking device on each bolt (spring washer or thread lock compound).

10.4.4 Motor Enclosure

ODP, open drip proof motors are intended for use in clean, dry locations with adequate supply of cooling air. These motors should not be used in the presence of flammable or combustible materials. Open motors can emit flame and/or molten metal in the event of insulation failure.

TEFC, totally enclosed motors are intended for use where moisture, dirt and/or corrosive materials are present in indoor and outdoor locations. Explosion proof motors are intended for use in hazardous areas as specified by the NEC.

10.4.5 Electrical Connection at the Fan

NOTICE

If connected to a circuit protected by fuses use time delay fuses marked D. Connect the machine in accordance with furnished connection diagram. The wiring, fusing and grounding must be in accordance to the National Electrical Code and any local codes.

NOTICE

Ensure that the motor is connected properly and that the motor spins the correct direction. The rotor should turn in the clockwise direction for full centrifugal fan and counter clockwise for Inline, Turbo & Low speed fans when looking at the inlet of the fan.

NOTICE

It is recommended that the motor current be checked after it has been operating for a short time and compared against the motor nameplate current.

10.4.6 Wiring

Connect the motor as shown in the motor's schematic in the motor manufacturer's specific Motor Installation / Maintenance Manual diagram. The wiring, fusing and grounding must comply with the National Electrical Code and local codes. When the motor is connected to the load for proper direction of rotation and started, it should start quickly and run smoothly. If not, stop the motor immediately and determine the cause. Possible causes are: low voltage at the motor, motor connections are not correct or the load is too heavy. Check the motor current after a few minutes of operation and compare the measured current with the nameplate rating.

10.4.7 Installation of Accessories

For proper installation of accessories, refer to the installation instructions provided with each accessory.

11 Operating Instructions

11.1 Before Starting the Fan

When the fan is to be started for the first time, or after the fan has been idle for months, the following checks should be made prior to starting the fan:

1. Review the fan's operation manual.
2. With the power OFF, and Lockout / tag out, rotate the fan blade to make sure it revolves easily and does not rub on the orifice.
3. Check all fasteners to make sure they are tight. If any are loose, check for proper clearance and retighten fasteners. Make sure the screen guard is fastened securely.
4. Be sure that the fan is properly mounted to the bin.
5. With the power OFF, and Lockout / tag out, check all electrical connections to make sure they are tight. Inspect the current carrying wires to make sure they are not grounded or damaged. Make sure the control enclosure cover is secured in place.
6. Inspect the motor according to the motor manufacturer's Installation Maintenance Instructions. Instructions for maintenance can be found in the lubrication section.

11.2 Starting the Fan

3 HP and 5 HP full centrifugal single phase fans are equipped with switches to turn them ON and OFF. To turn these fans on, simply flip the switch to the 'ON' position. To turn the fan off, flip the switch to the 'OFF' position.

All the other fans are equipped with magnetic starters. To turn these fans on, flip and hold the switch in the 'ON' position for a short period of time. Release the switch. The fan should start and run. To turn these fans off, flip the switch to the 'OFF' position.

All Bin Sense Ready fans have magnetic starters, which can be operated as follows:

1. Manually as described earlier.
2. Remotely (If Bin Sense device is installed).
3. With Bin Sense, predefine the settings which will starts/stops the fan automatically. Live updates can be monitored and settings can be modified wirelessly as well.

NOTICE

The unit will need to be checked for proper rotation. Provide power to the fan controls and start the fan momentarily. Make sure that the blade rotation is clockwise direction for full centrifugal fan and counter clockwise for Inline, Turbo & Low Speed fans when looking through the inlet into the rotor. If the rotor is rotating the wrong direction, have your electrician correct the problem.

NOTICE

The fan should get to operating speed within 10 – 15 seconds after the switch is turned on. However, if the fan begins to slow or does not reach the operating speed within 10 - 15 seconds after turning on the switch, shut off the switch there is likely a problem which needs to be fixed. Review the Troubleshooting Section or talk to a qualified electrician to inspect the fan.

NOTICE

Do not continue short multiple starts as overheating of the motor could result in its damage.

⚠ CAUTION

After turning the fan off, let the fan spin freely until it stops. If you are going to service the fan, ensure that the fan rotor has stopped moving. When shutting the fan off for the season, shut off the power at the fan disconnect rather than at the controls to provide additional protection from unauthorized personnel operating the fan. Refer to the Maintenance Section for Off-Season operation recommendations.

12 Maintenance

12.1 Inspection

The frame, housing and intake screen should be checked for structural damage and integrity. Ensure the motor is unplugged / disconnected and remove the intake screen to ensure there is no foreign material or obstruction inside the fan. Be sure the rotor turns freely by hand and that there is approximately ⅛" clearance between the intake and the rotor.

12.2 Fan Operation in Off-Season

During the off-season, the fan blades should be allowed to turn freely. Also, during the off-season, operate the fan for approximately 30 minutes every three weeks. The operation of the fan keeps the lubricant more evenly distributed within the bearing cavity and dries out any condensation that could be in the motor.

During the off-season, make sure the control enclosure cover is secured to the control enclosure. Before operating, the switch should be inspected. If the switch appears pitted or the wires have been degraded, replace faulty parts. Complete a full component check.

12.3 Fan Motor Maintenance

⚠ CAUTION

Motor eye bolts, lifting lugs or lifting openings, if provided, are intended only for lifting the motor and motor mounted standard accessories not exceeding, in total 30% of the motor weight. These lifting provisions should never be used when lifting or handling the motor and drive equipment. Eye bolt lifting capacity rating is based on a lifting alignment coincident with eye bolt center line. Eye bolt capacity reduces as deviation from this alignment is increased. Be sure eye bolts are tight and prevented from turning before lifting.

⚠ CAUTION

Do not touch electrical connections before you ensure that power has been disconnected. Electrical shock can cause serious or fatal injury.

⚠ CAUTION

Be sure the system is properly grounded before applying power. Electrical shock can cause serious or fatal injury.

⚠ CAUTION

Surface temperatures of motor enclosures may reach temperatures which can cause discomfort or injury to personnel accidentally coming into contact with hot surfaces. Protection should be provided by the user to protect against accidental contact with hot surfaces. Failure to observe this precaution could result in bodily injury.

12.4 Drain Plugs

One or more condensation drain plugs are provided on each endplate for various motor mounting configurations. For wash-down and totally enclosed, fan cooled or non-ventilated motors, the plugs in the lowest portion of the ends shields should be removed for operation (unless the motor has special stainless steel drains). All drains are located in the lowest portion of the ends shields.

12.5 Motor Lubrication

The life of a motor is very dependent on the life of the bearings. Before lubricating the bearings, inspect the bearings to make sure they are in good condition. If not the bearings will need to be replaced. Consult S3 AIR SYSTEMS for service.

12.6 Lubrication Information

Refer to motor nameplate for recommended lubricant. If none is shown, the recommended lubricant for anti- friction bearings (-15°F to 120°) is POLYREX EM. For Minimum Start Temperature -100°F use AEROSHELL #7. For roller bearings use ExxonMobil SHC-220.

Motor shafts are mounted on ball bearings. The bearings have been lubricated at the factory. Motors that do not have re-grease capability are factory lubricated for the normal life of the bearings.

(For motors with re-grease capability)

New motors that have been stored for a year or more should be re-lubricated. Lubrication is also recommended at Table 1 intervals.

12.7 Lubrication Instructions

Cleanliness is important in lubrication. Any grease used to lubricate anti friction bearings should be fresh and free from contamination. Properly clean the grease inlet area of the motor to prevent grease contamination.

12.8 Lubrication Procedure

Bearings should be lubricated while stationary and the motor is warm.

1. Locate the grease inlet, clean the area, and replace the pipe plug with a grease fitting.
2. Locate and remove the grease drain plug, if provided.
3. Add the recommended volume of the recommended grease.
4. Replace the grease inlet plug and run the motor for 15 minutes.
5. Replace the grease drain plug.

12.9 Lubrication Intervals

Recommended re-lubrication intervals are shown below. It is important to realize that the recommended intervals of are based on average use.

Full Speed Centrifugal Aeration Fan

Motor	3 HP	5 HP	7.5 HP	10 HP	25 HP	40 HP
Frame Size	215TZ	215TZ	215TZ	215TZ	284TS	324TS
Bearing	DE6205 ODE6203	DE6206 ODE6205	DE6206 ODE6306	DE6206 ODE6306	6310-J/C3 6310-J/C3	6311-J/C3 6311-J/C3
Normal Grease Interval (Hours)	5500	5500	3600	3600	2880	2880
Severe Use Grease Interval (Hours)	2750	2750	1800	1800	1440	1440
Amount of Grease (cubic inches)	0.3	0.3	0.6	0.6	0.6	0.6

Continued on next page

Lubrication Intervals, *Continued*

Inline, Turbo & Low Speed Centrifugal Aeration Fan

Motor	3 HP	5 HP	7.5 HP	10 HP	15 HP
Frame Size	145TZ	184TZ	184TZ	215TZ	215TZ
Bearing	DE6205 ODE6203	DE6206 ODE6205	DE6206 ODE6205	DE6206 ODE6205	DE6307 ODE6206
Normal Grease Interval (Hours)	5500	5500	3600	3600	3600
Severe Use Grease Interval (Hours)	2750	2750	1800	1800	1800
Amount of Grease (cubic inches)	0.3	0.3	0.6	0.6	0.6

NOTICE

Different grease types are generally incompatible and should not be mixed. Mixing different types can cause lubricant and bearing failure. Thoroughly clean bearing and cavity before changing grease type.

Some motor designs use different bearings on each motor end. This is normally indicated on the motor nameplate. In this case, the larger bearing is installed on the motor's drive endplate. For best re-lubrication results, only use the appropriate amount of grease for each bearing size (not the same for both).

NOTICE

Do not over lubricate the bearings as the lubricant will work its way into the motor and can cause premature motor failure.

NOTICE

Do not strike the rotor to dislodge debris, as this may cause it to go out of balance, making vibration worse.

12.10 Fan Rotor Cleanliness

Once a year, or if vibration develops, clean the fan rotor surfaces so the unit runs smoothly. To do this, Lockout- tag out all power sources, remove the screen. With the fan rotor accessible, clean it with a suitable cleaner and wipe it with a cloth. If necessary, scrape it gently with a suitable tool.

13 Troubleshooting

When servicing the fan, switch the power OFF at the fan disconnect switch and Lock Out and Tagged Out this switch. Activate power only when a check is being made. The following items will help you pinpoint a possible malfunction of the fan unit and explain the corrective action to take.

⚠ CAUTION

BE CAREFUL WHEN WORKING WITH ELECTRICITY. USE A VOLTMETER TO MAKE THE NECESSARY CHECK.

13.1 Troubleshooting Scenarios

13.1.1 Turn on toggle switch & nothing happens.

1. Make sure the power is available to the fan unit.
2. Check the motor thermostat to determine if the thermostat is open or closed. (If the thermostat is open, take the motor to your local Authorized Service Centre. Make sure the motor has time to cool, if hot.)
3. Check the toggle switch. (If switch is defective, replace it.)
   - The toggle switch circuit should be checked in the OFF, and ON positions.

13.1.2 The fan hums when turned on.

1. Check to make sure that all leads of your power source have voltage present. If fan unit is not receiving power on all leads, check for a blown fuse, broken wire, or loose connections.
2. If power is available at all the motor leads and the motor still hums, then the motor should be taken to an Authorized Service Centre for repair or replacement.
3. The power can be hooked directly to the motor leads, if the motor hums, replace or repair the motor.

13.1.3 The fan starts and operates for a while and then shuts off.

1. Check the supply voltage. Voltage should be within 10% of rated voltage. For example, a motor rated at 230 Volts should operate in a voltage range of 207 to 253 Volts.
2. Check the supply wires required for the fan unit.
3. Check the load on the main circuit to make sure other items on the main circuit are not overloading the fan circuit.
4. Check the amperage of the fan, if the unit is pulling above nameplate amperage, take the motor to an Authorized Service Centre.

13.1.4 The fan only comes up to ½ speed.

Take the motor to an Authorized Service Centre for repair or replacement.

14 Parts List

This manual contains a part list for your machine. Since it covers many different fans, please be sure to locate your model number, so that the proper information is used.

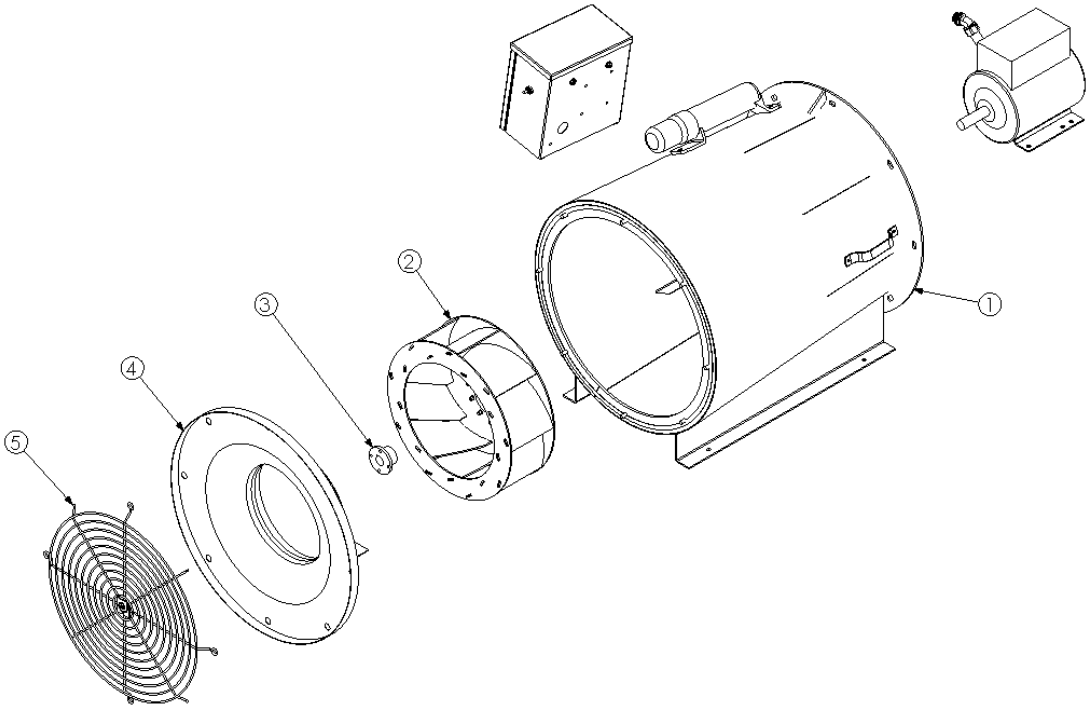
14.1 Ordering Parts

Always give your dealer the Model and Serial Number of your machine to assist in ordering and obtaining the correct parts. Use the exploded view and tubular listing to exactly identify the required part.

All S3 AIR SYSTEMS Aeration Fans are supplied completely assembled with all components as listed below.

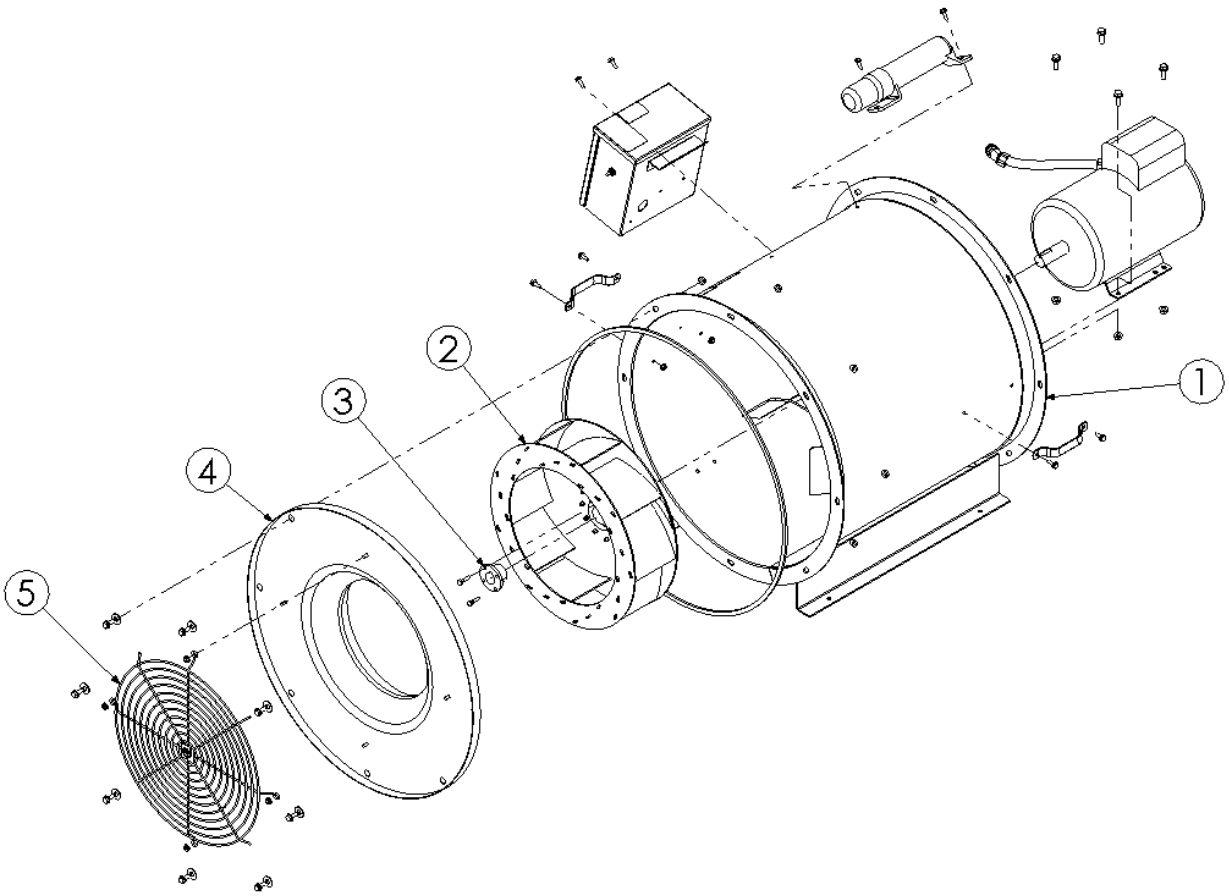
14.2 Turbo Fans

Ref. #	Part #			Description
	3 HP	5 HP	7.5 HP	
1	43-117336-XX	43-117337-XX	43-117337-XX	Fan Housing
2	43-109961	43-117309	43-113806	Fan Rotor
3	7000-02-0875	7000-02-1125	7000-02-1125	Split Taper Bushing
4	43-114069-1	43-114070-1	43-114071-1	Bell/Cone Inlet
5	0080-01-0025	0080-01-0025	0080-01-0025	Inlet Screen



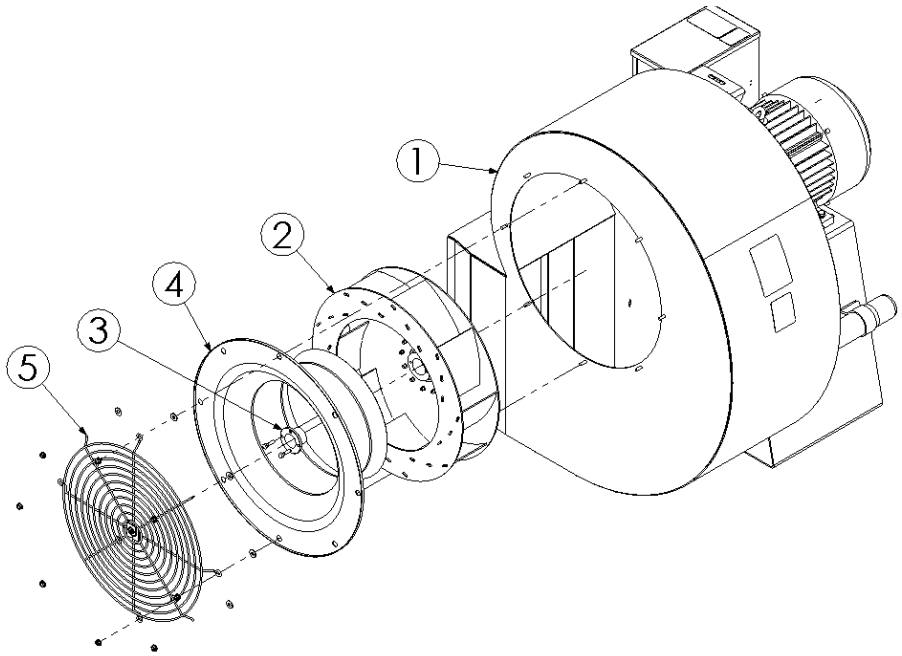
14.3 Inline Centrifugal Fans

Ref. #	Part #					Description
	3 HP	5 HP	7.5 HP	10HP	15HP	
1	43-115450-XX	43-115451-XX	43-115451-XX	43-115452-XX	43-115452-XX	Fan Housing
2	43-109961	43-114162	43-113539	43-113550	43-113950	Fan Rotor
3	7000-02-0875	7000-02-1125	7000-02-1125	7000-02-1125	7000-02-1125	Split Taper Bushing
4	43-114069-1	43-114070-1	43-114071-1	43-114071-1	43-114071-1	Bell/Cone Inlet
5	0080-01-0025	0080-01-0025	0080-01-0025	0080-01-0025	0080-01-0025	Inlet Screen



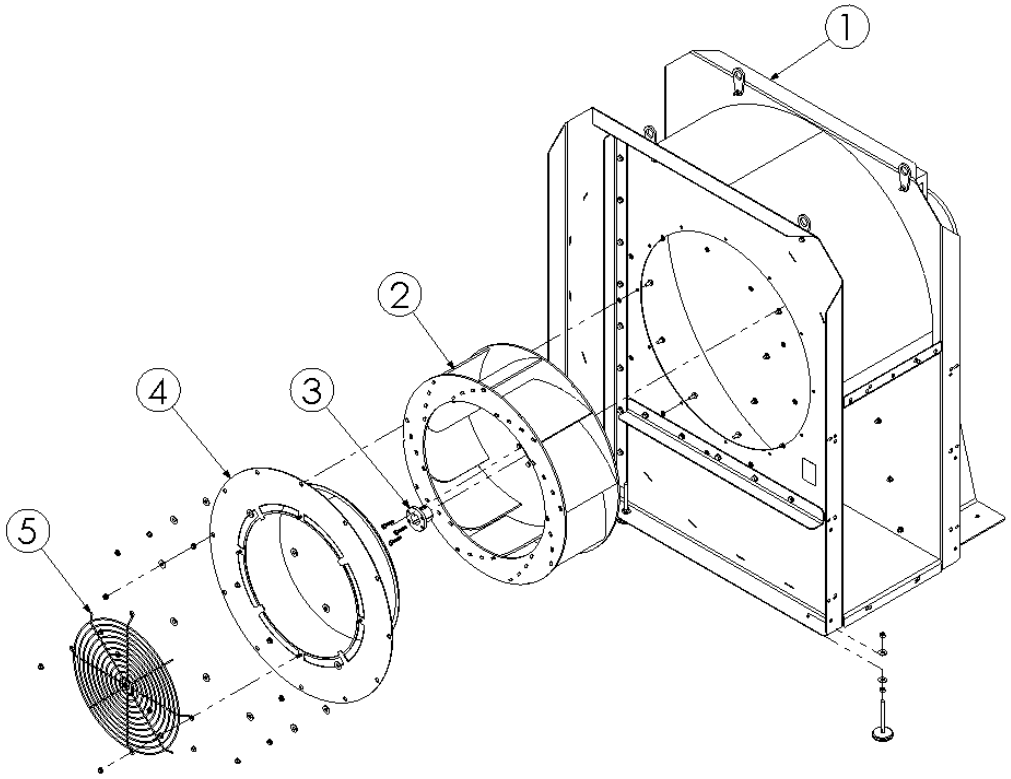
14.4 Full Centrifugal

Ref. #	Part #				Description
	3 HP 1PH	3HP 3 PH	5 HP 1 PH	5 HP 3 PH	
1	18-114055-XX	18-114056-XX	18-114057-XX	18-114057-XX	Fan Housing
2	18-113486	18-113723	18-114160	18-114160	Fan Rotor
3	7000-02-0875	7000-02-1125	7000-02-0875	7000-02-1125	Split Taper Bushing
4	18-114065-1	18-114065-1	18-114066-1	18-114066-1	Bell/Cone Inlet
5	0080-01-0026	0080-01-0026	0080-01-0026	0080-01-0026	Inlet Screen
Ref. #	Part #				Description
	7.5 HP 1 PH	7.5 HP 3 PH	10 HP 1PH	10 HP 3 PH	
1	18-114058-XX	18-114058-XX	18-114157-XX	18-114157-XX	Fan Housing
2	18-114161	18-114161	18-113506	18-113506	Fan Rotor
3	7000-02-1125	7000-02-1375	7000-02-1125	7000-02-1375	Split Taper Bushing
4	18-114067-1	18-114067-1	18-114158-1	18-114158-1	Bell/Cone Inlet
5	0080-01-0025	0080-01-0025	0080-01-0025	0080-01-0025	Inlet Screen



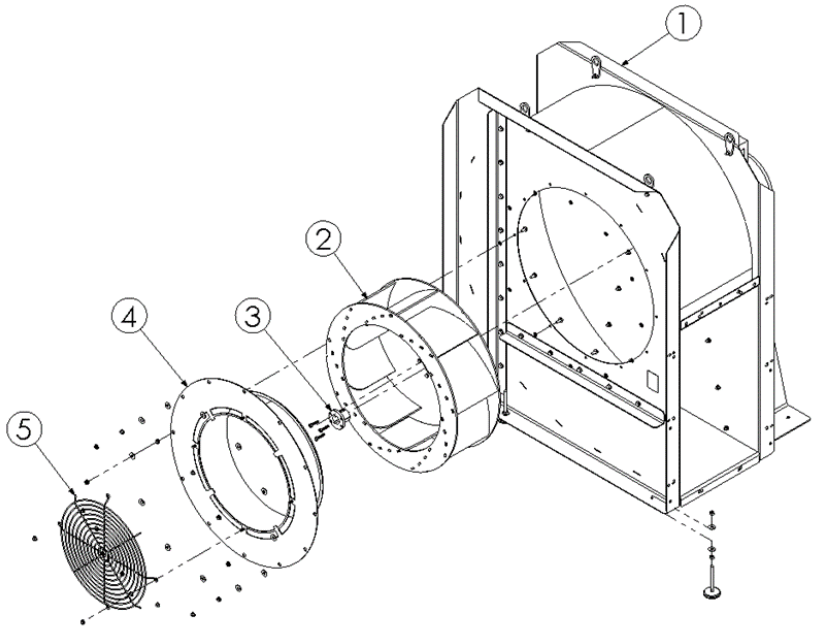
14.5 Low Speed Centrifugal Fans

Ref. #	Part #					Description
	10 HP	15 HP	20 HP	25HP	30HP	
1	18-115081-XX	18-113680-XX	18-113688-XX	18-113695-XX	18-113702-XX	Fan Housing
2	18-113425	18-113684	18-113691	18-113698	18-113705	Fan Rotor
3	7000-03-1375	7000-03-1625	7000-03-1625	7001-05-1875	7001-05-1875	Split Taper Bushing
4	18-113912-1	18-113686-1	18-113693-1	18-113700-1	18-113707-1	Bell/Cone Inlet
5	0080-01-0025	18-114116-1	18-114116-1	18-114116-1	18-114116-1	Inlet Screen



14.6 High Speed Fans

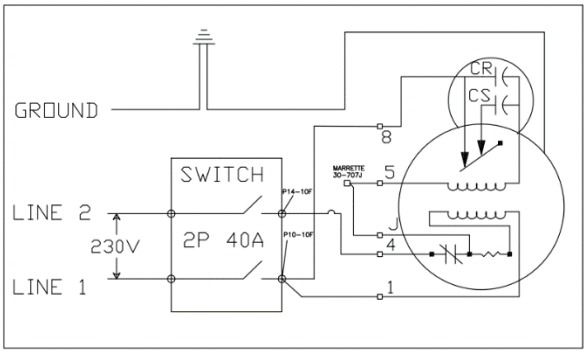
Ref. #	Part #		Description
	25HP	40HP	
1	18-115415-XX	18-115428-XX	Fan Housing
2	18-115422	18-115436	Fan Rotor
3	7000-03-1625	7001-05-1875	Split Taper Bushing
4	18-115418-1	18-115432-1	Bell/Cone Inlet
5	0080-01-0026	0080-01-0026	Inlet Screen



15 Wiring Diagrams

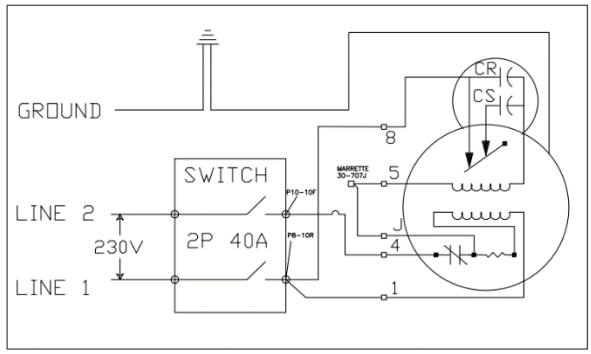
15.1 3HP Full Centrifugal Fan (230V, 1PH)

DIRECTION FACING SHAFT	LINE 1	LINE 2	TOGETHER
CW	1,8	4	J,5
CCW	1,5	4	J,8

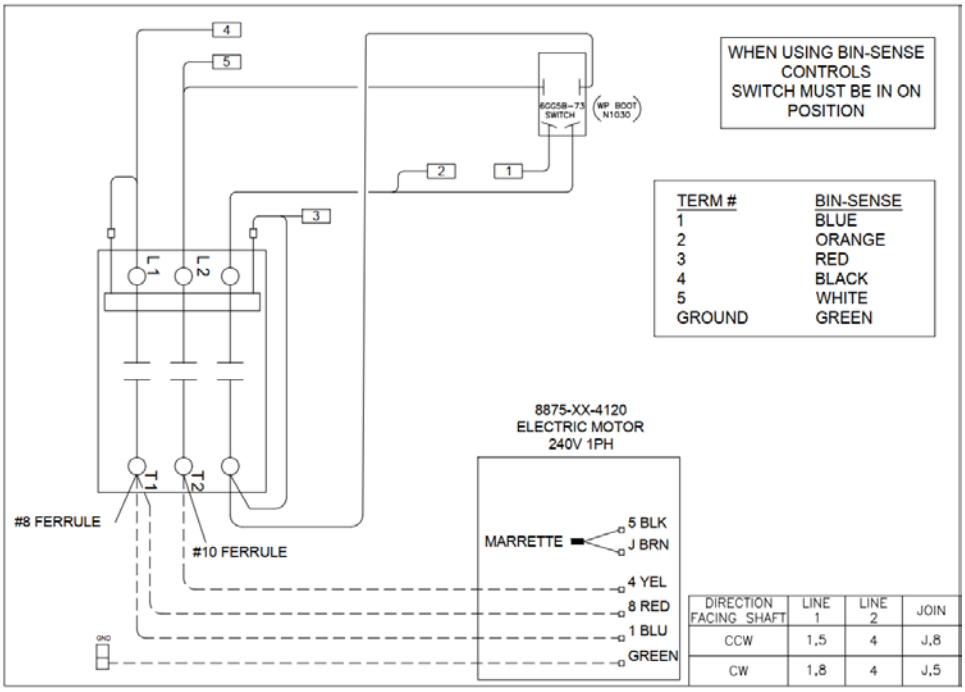


15.2 5HP Full Centrifugal Fan (230V, 1PH)

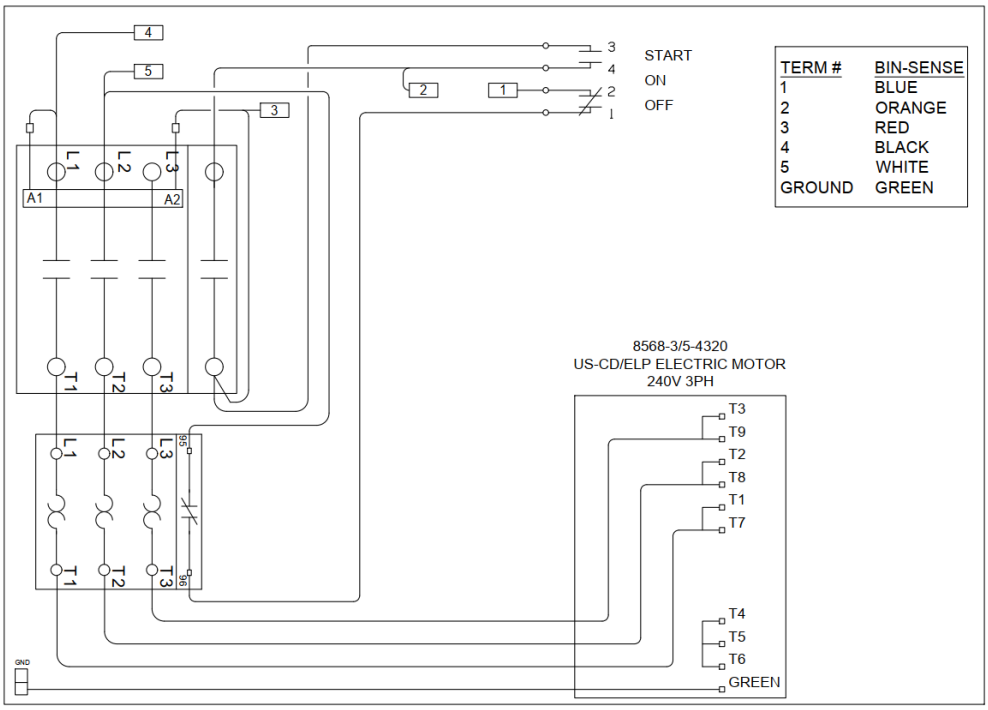
DIRECTION FACING SHAFT	LINE 1	LINE 2	TOGETHER
CW	1,8	4	J,5
CCW	1,5	4	J,8



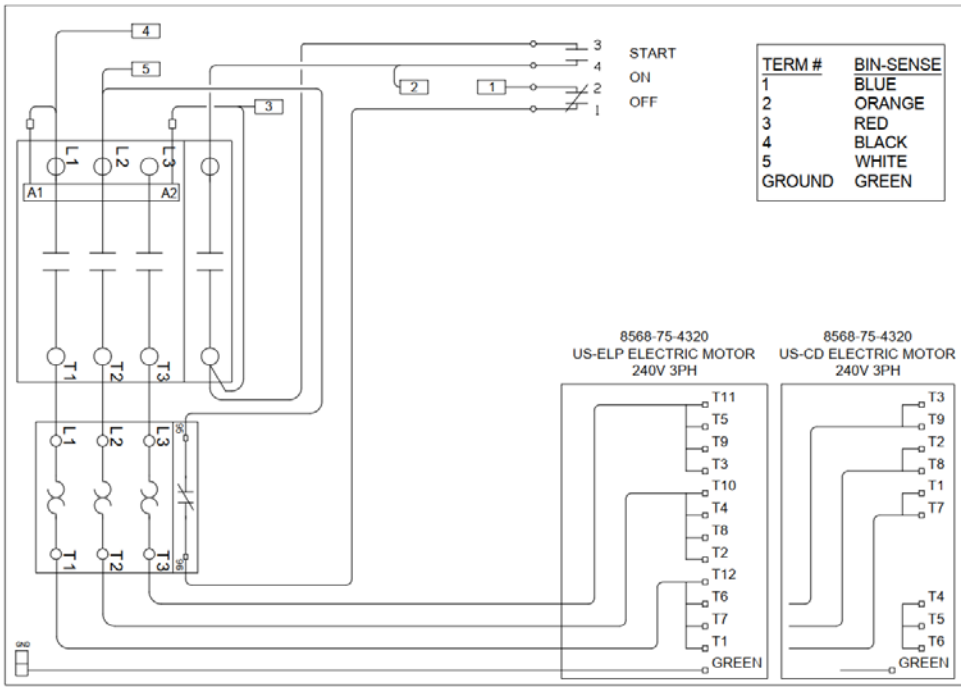
15.3 7.5 & 10HP Full Centrifugal Fan (230V, 1PH)



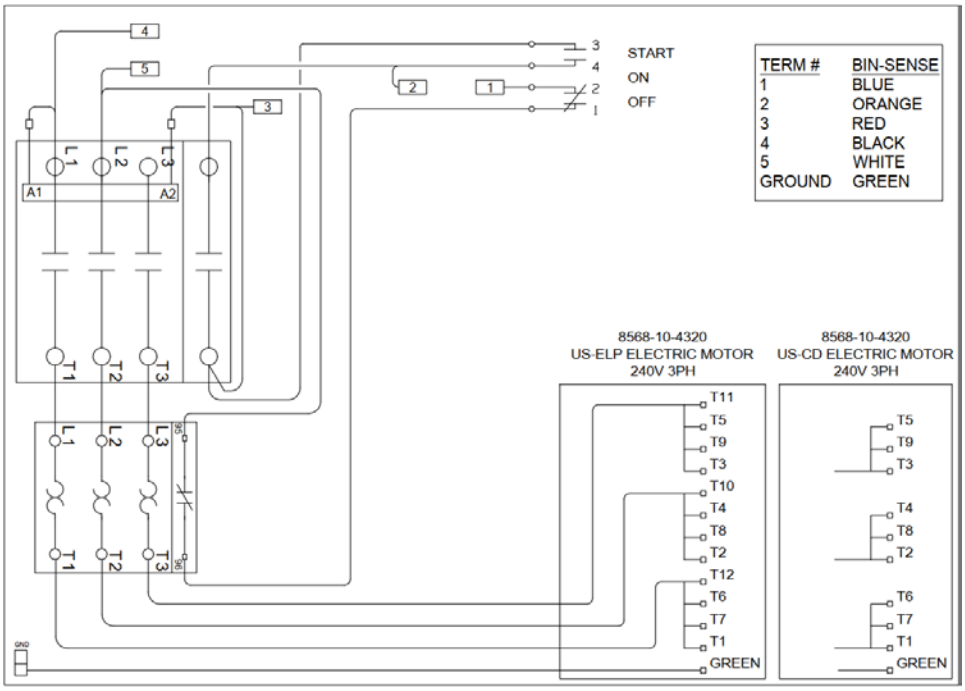
15.4 3HP & 5HP Full Centrifugal Fan (230V, 3PH)



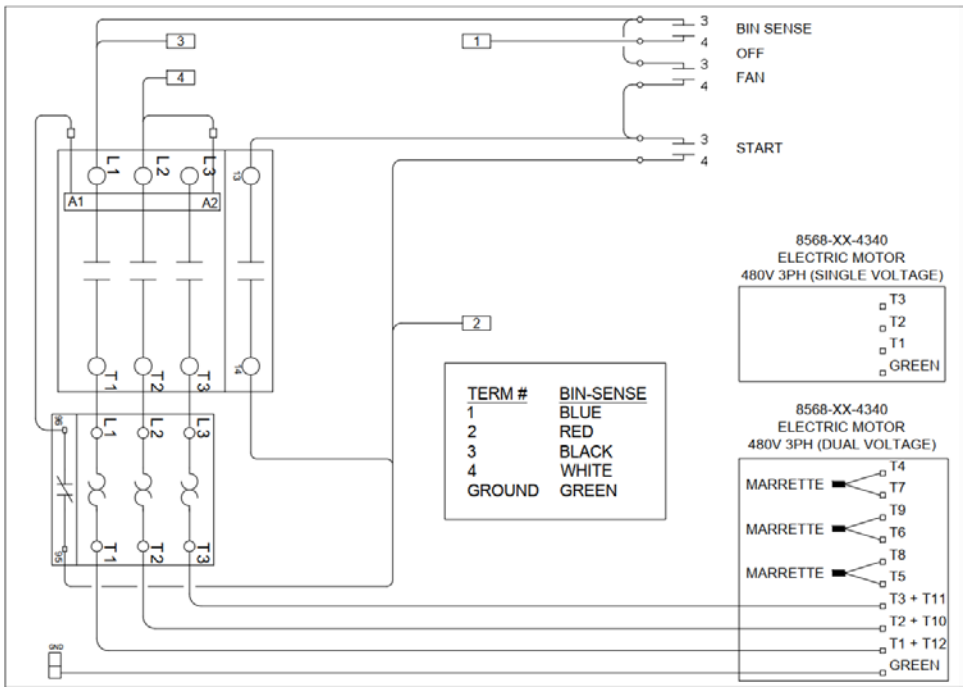
15.5 7.5HP Full Centrifugal Fan (230V, 3PH)



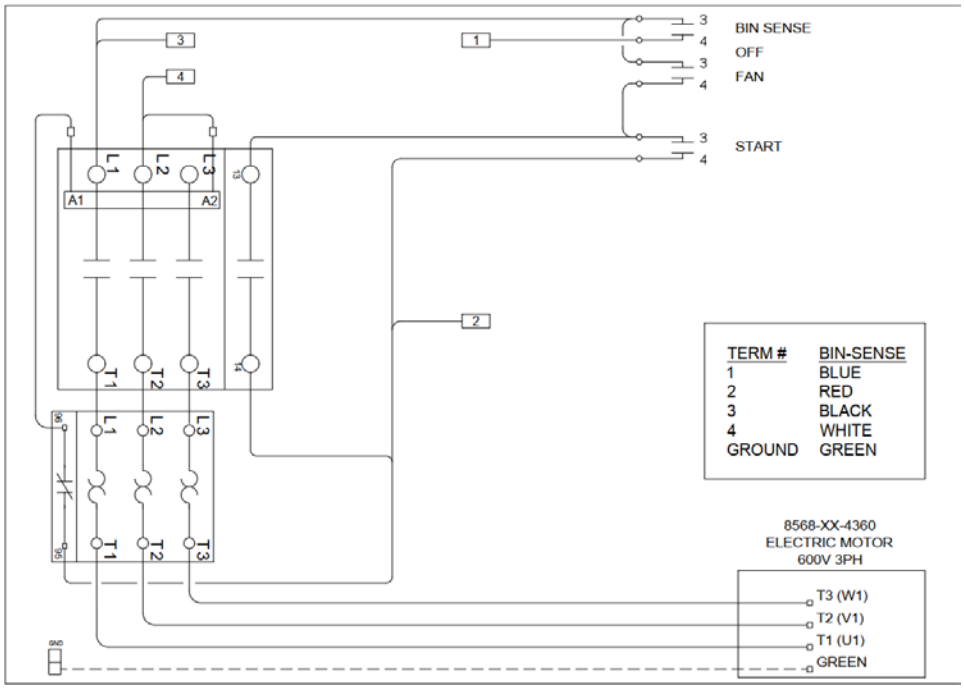
15.6 10HP, 15HP, 20HP, 25HP, 30HP & 40HP Full Centrifugal Fan (230V, 3PH)



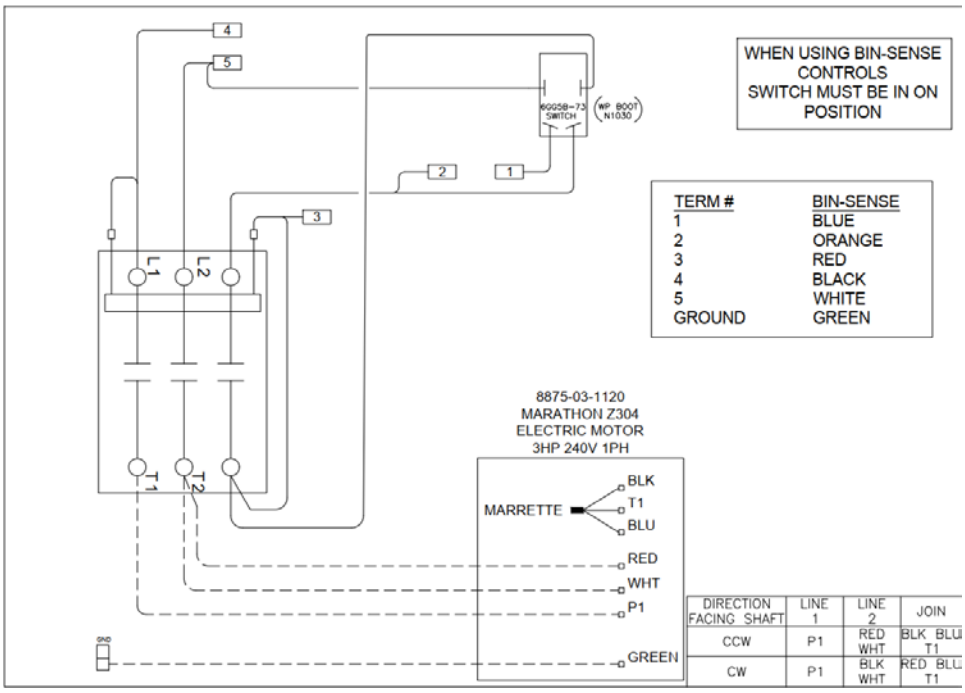
15.7 3HP, 5HP, 7.5HP, 10HP, 15HP, 20HP, 25HP, 30HP & 40HP Full Centrifugal Fan (480V, 3PH)

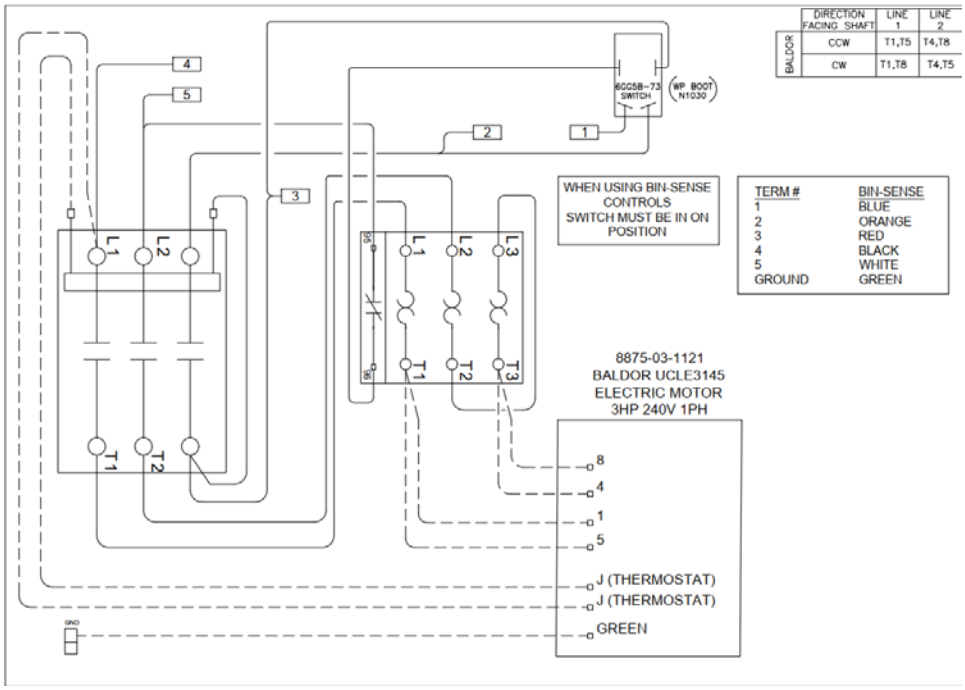


15.8 3HP, 5HP, 7.5HP, 10HP, 15HP, 20HP, 25HP, 30HP & 40HP Full Centrifugal Fan (600V, 3PH)

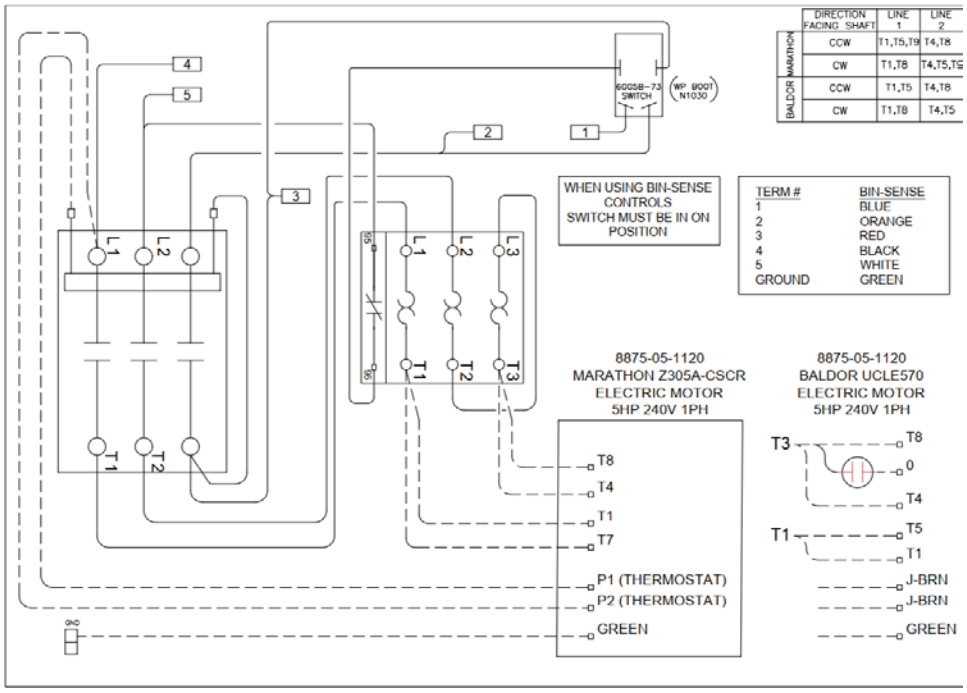


15.9 3HP Inline & Turbo Centrifugal Fan (230V, 1PH) (2 Options: Marathon or Baldor)

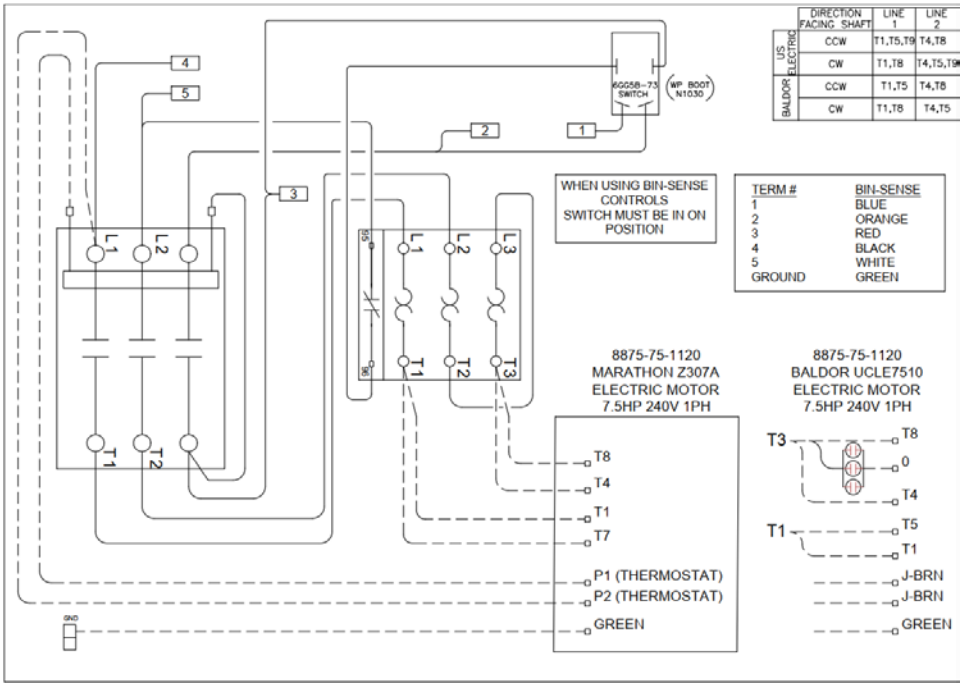




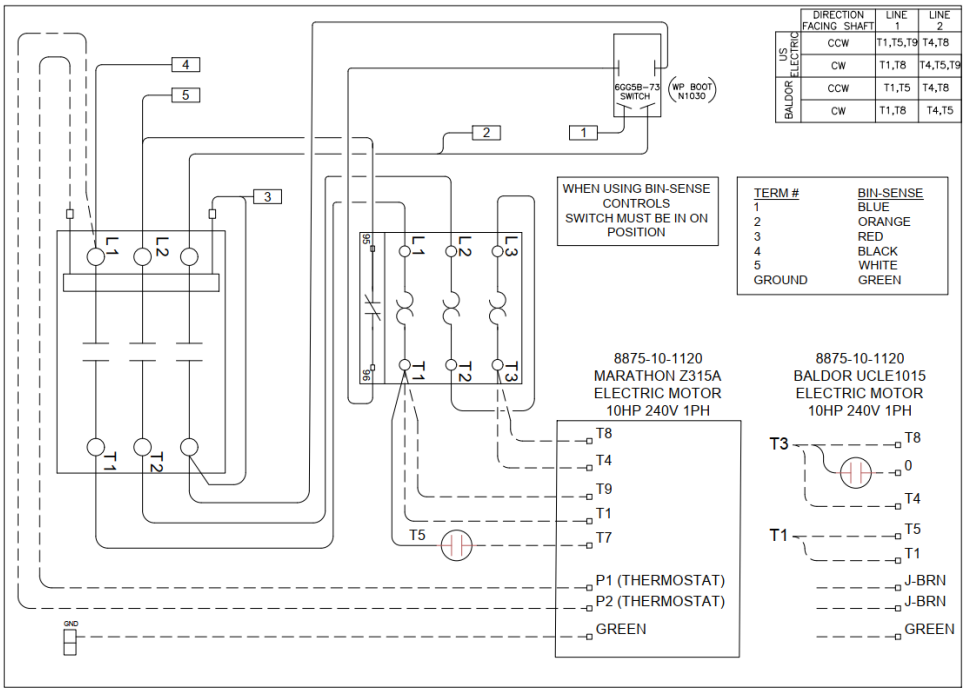
15.10 5HP Inline & Turbo Centrifugal Fan (230V, 1PH) (2 Options: Marathon or Baldor)



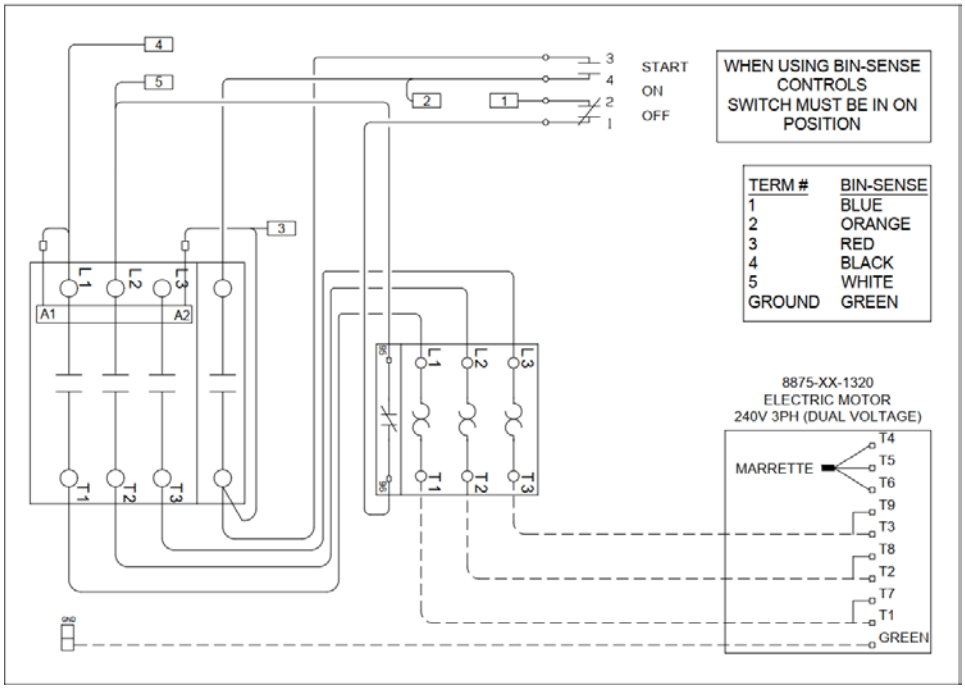
15.11 7.5HP Inline & Turbo Centrifugal Fan (230V, 1PH) (2 Options: Marathon or Baldor)



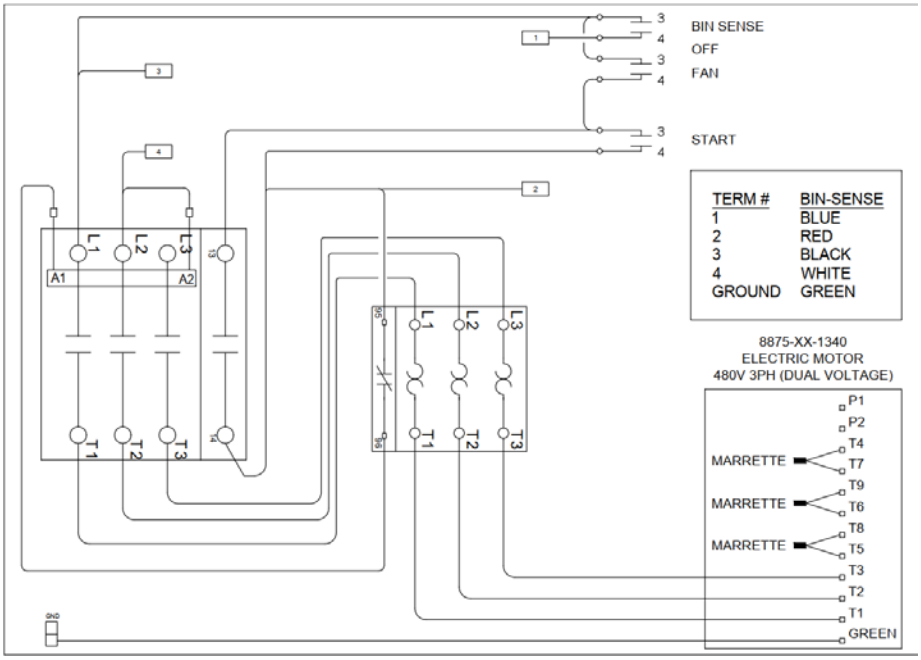
15.12 10HP & 15HP Inline Centrifugal Fan (230V, 1PH) (2 Options: Marathon or Baldor)



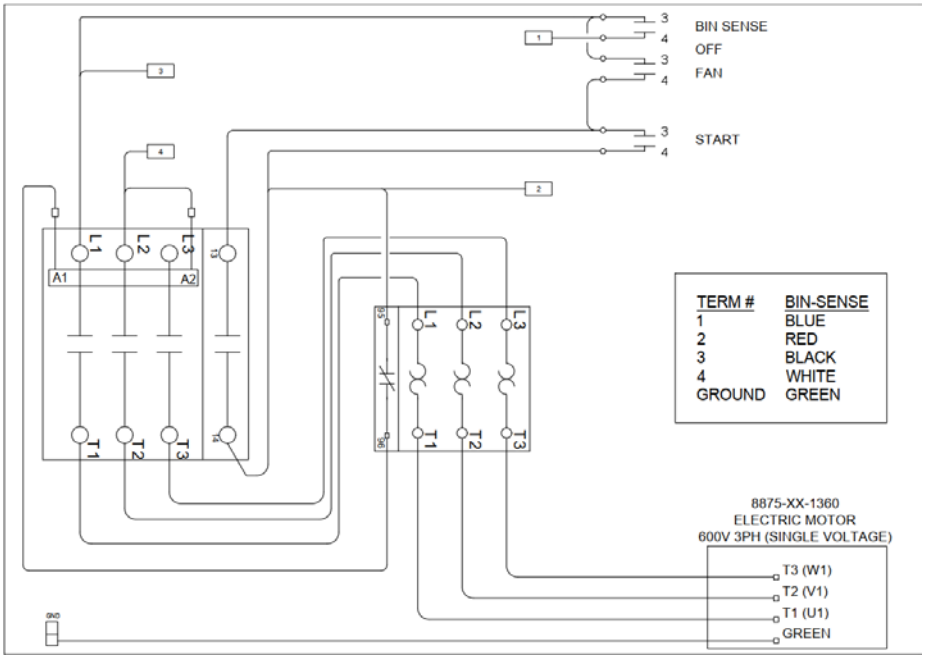
15.13 3HP, 5HP, 7.5HP Inline & Turbo Centrifugal Fan 10HP & 15HP Inline Centrifugal Fan (230V, 3PH)



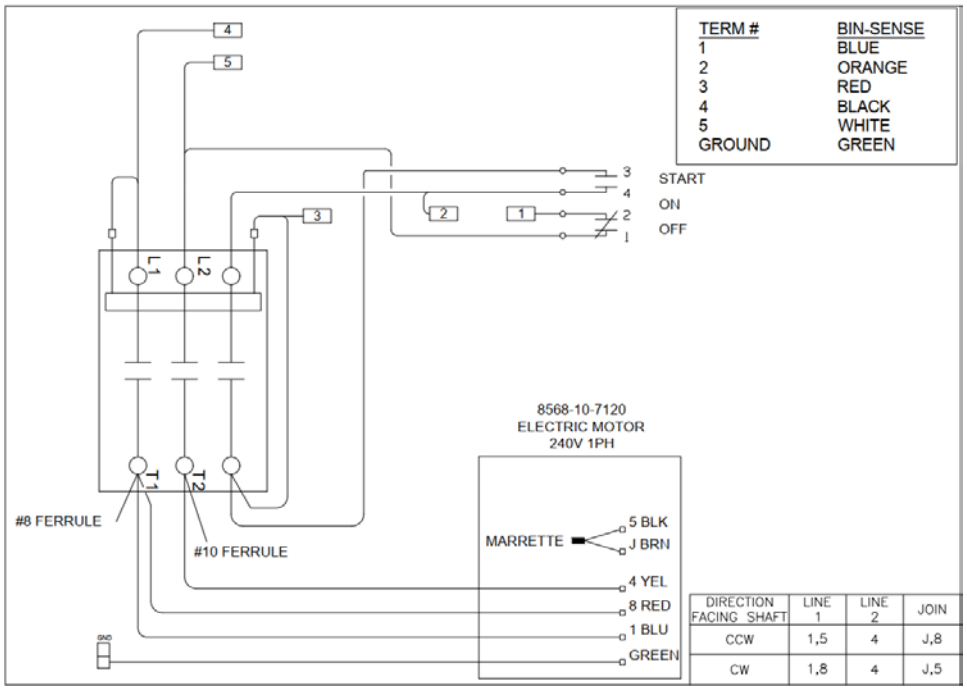
15.14 3HP, 5HP, 7.5HP Inline & Turbo Centrifugal Fan 10HP & 15HP Inline Centrifugal Fan (480V, 3PH)



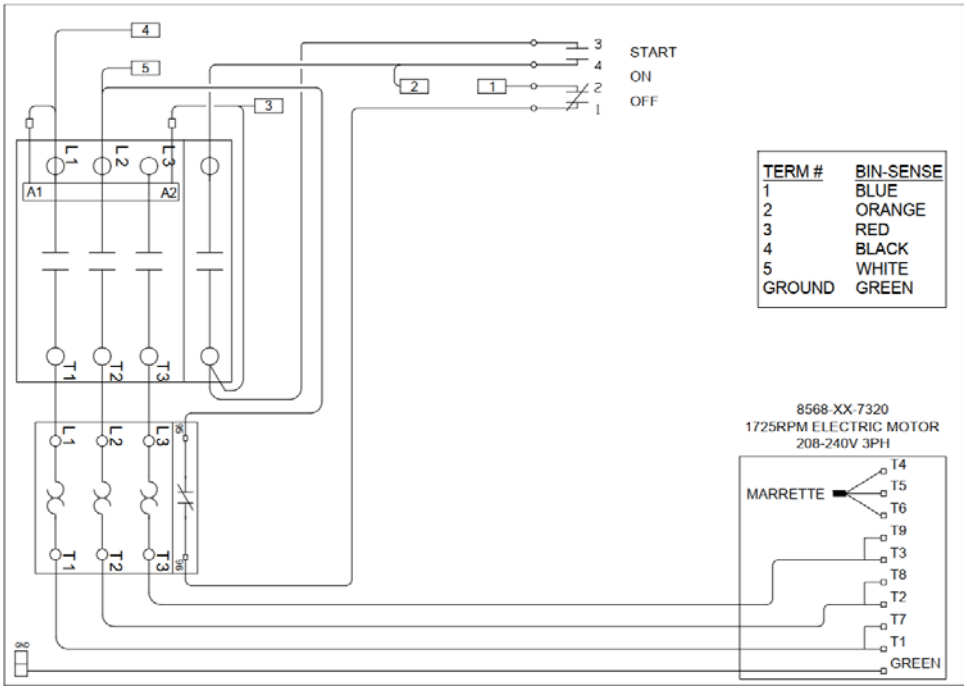
15.15 3HP, 5HP, 7.5HP Inline &Turbo Centrifugal Fan 10HP & 15HP Inline Centrifugal Fan (600V, 3PH)



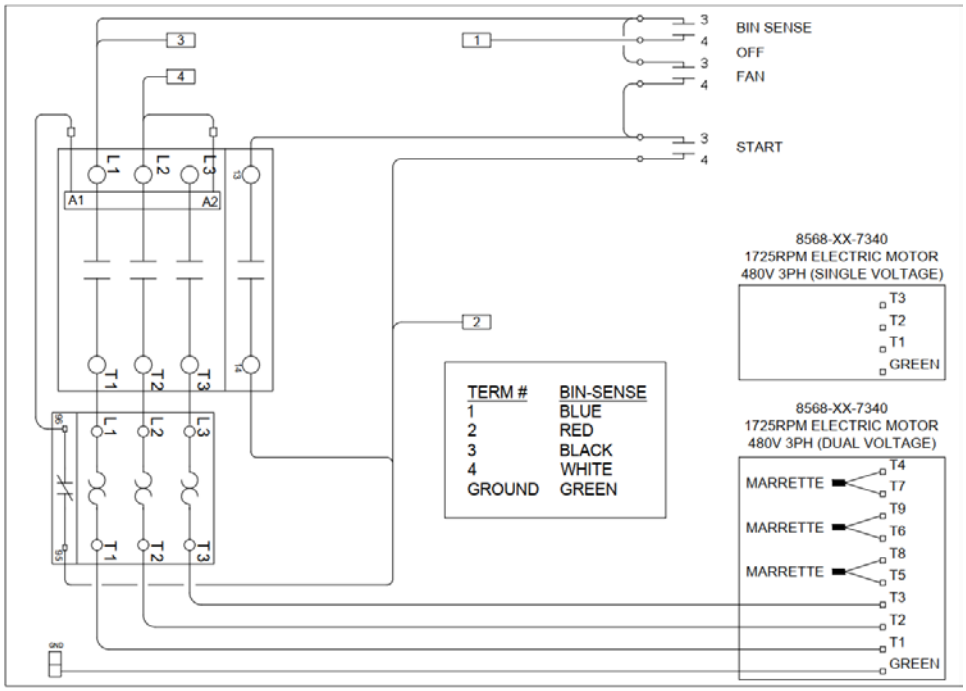
15.16 10HP Low Speed Centrifugal Fan (230V, 1PH)



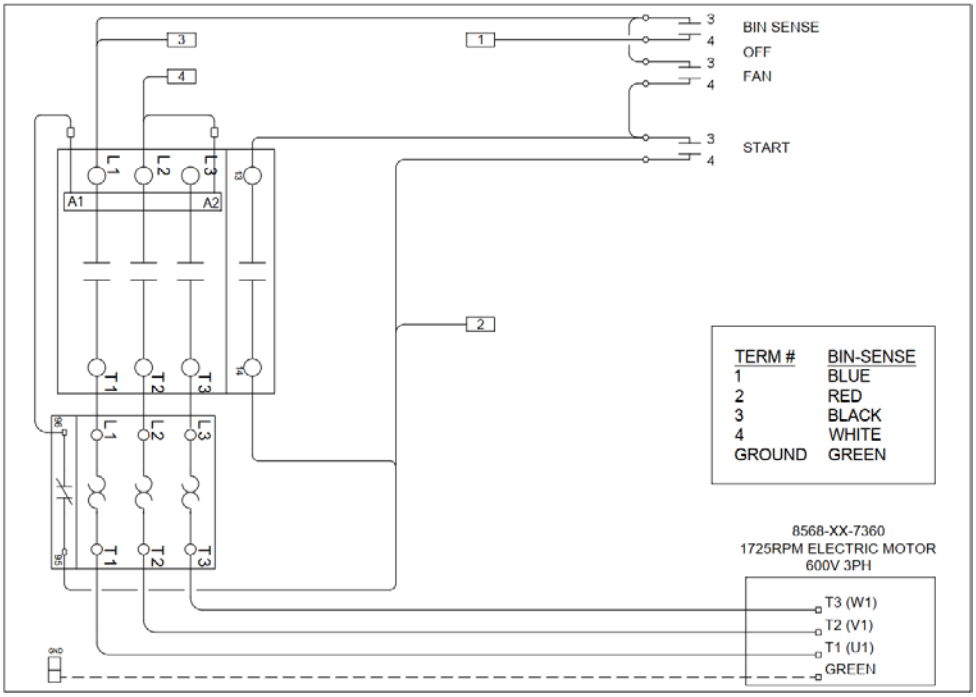
15.17 10HP, 15HP, 20HP, 25HP, 30HP Low Speed Centrifugal Fan (230V, 3PH)



15.18 10HP, 15HP, 20HP, 25HP, 30HP Low Speed Centrifugal Fan (480V, 3PH)



15.19 10HP, 15HP, 20HP, 25HP, 30HP Low Speed Centrifugal Fan (600V, 3PH)



16 Accessories

16.1 Bin Transitions

Transition	Fan Discharge	Bin Inlet	S3 Part Number
	18" O.D.	9" X 14"	18-115500-1
	18" O.D.	24" O.D.	18-115501-1
	24" O.D.	9" X 14"	18-115502-1
	24" O.D.	12" X 17"	18-115510-1
	24" O.D.	18" O.D.	18-115503-1
	24" O.D.	28" O.D.	18-115508-1
	28" O.D.	12" X 17"	18-115511-1
	28" O.D.	18" O.D.	18-115557-1

Continued on next page

Bin Transitions, ***Continued***

Transition	Fan Discharge	Bin Inlet	S3 Part Number
	28" O.D.	24" O.D.	18-115509-1
	9" x 14"	18" O.D.	18-115504-1
	9" x 14"	24" O.D.	18-115505-1
	9" x 14"	28" O.D.	18-115506-1
	12" x 17"	18" O.D.	18-117284-1
	12" x 17"	24" O.D.	18-115513-1
	9" x 14"	12" X 17"	18-115512
	12" x 17"	9" x 14"	18-115507

Other sizes available upon request.

16.1.1 Low Speed Bin Transitions

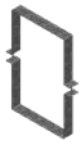
Transition	Description	Transition Outlet	S3 Part Number
	10HP	11" X 40"	18-115549
	20HP	9" X 36"	18-117408
	25HP	10" X 36"	18-117407
	30HP	10" X 82"	18-117483

16.2 Fan Socks

Fan Side	Bin Side	S3 Part Number
18" O.D.	9" X 14"	3005-00-0003
18" O.D.	18" O.D.	3005-00-0004
18" O.D.	24" O.D.	3005-00-0005
24" O.D.	9" X 14"	3005-00-0006
24" O.D.	18" O.D.	3005-00-0007
24" O.D.	24" O.D.	3005-00-0008
28" O.D.	9" X 14"	3005-00-0009
28" O.D.	24" O.D.	3005-00-0010
9" X 14"	9" X 14"	3005-00-0011
9" X 14"	18" O.D.	3005-00-0012
9" X 14"	24" O.D.	3005-00-0013
28" O.D.	28" O.D.	3005-00-0014
12" X 17"	12" X 17"	3005-00-0015

- Standard sock length is 12 feet.
- Socks with round ends come complete with a quick strap buckle for In-Line Fans.
- Socks with rectangular ends require a clamp for Full Centrifugal Fans.
- More sizes and lengths are available upon request.

16.2.1 Fan Sock Clamps

Sock Clamp	Fan Outlet	S3 Part Number	Hardware
	9" x 14"	6190-00-0022	Qty 16-3/16" X 3/4" Self-tapping screws
	9" x 14"	6190-00-0023	Qty 16-3/16" X 2" bolts Qty 16-3/16" Ny-lock nuts

Socks with rectangular ends, require a clamp for Full Centrifugal Fans.

16.3 Rover Aeration Fan Cart

- The Rover gives you flexibility to move your aeration fan to where you need it the most. Hook up to an ATV, a garden tractor or simply move by hand.
- Load Capacity of 350 lbs.
- Powder-coated steel construction.
- Simply assembly.

S3 Part Number - 18-117302

Aeration Fan

Operator's Manual

Revised: Feb 2024

2180 Oman Drive
Swift Current, SK S9H 4J8
Toll Free: 844-441-2020
S3airsystems.com