LEGEND

Baghouse Electrical Install Guide

LOBH-5 / LOBH-7.5 / LOBH-15 Models

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Please see warning on page 2

Section 1: Inrush Currents

Legend brand motors have a high startup current, known as "Inrush Current", that lasts for a brief period, usually less than 10 seconds. When the motor first starts, it will experience up to 8x the FLA of the motor current. This will decrease rapidly until the motor reaches a steady state. If the motor is not turning over or the drive shaft is not rotating, please see Section 4.0 Troubleshooting. Specific NEC electrical codes and standards are outlined in this manual that need to be employed when making electrical connections.

Section 2: Circuit Sizing

Tables 1 and 2 (3-Phase OBH Filter Motor Circuit Sizing Tables) should be used to size the branch circuit conductors and circuit breaker size appropriately. The data in these tables is based on the 2020 NEC and will be used only as recommendations. Final discretion is the responsibility of the licensed electrician, local codes, regulations, and the AHJ.

Due to the inrush current, the fusing/breaker must be larger to protect the wiring in the event of a short-circuit.

The motor overload, not the breaker, provides the motor protection and should be set as close to the motor's FLA (Full-Load Amperage) to maximize motor protection. The minimum conductor size in the table is calculated based on 75 ºC (167 ºF) wire. The wire size must be adjusted accordingly if using a different type of wire or the dust collector is located a significant distance from the main panel.

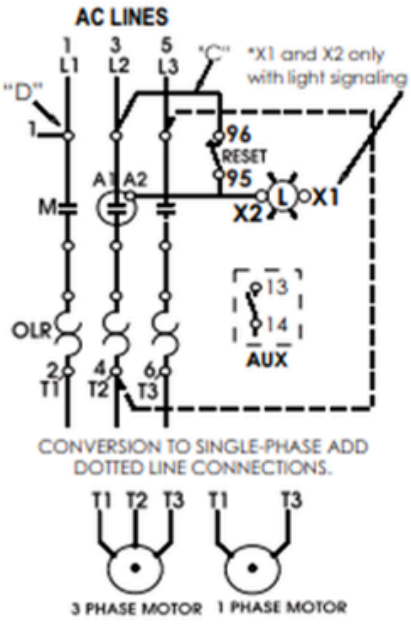
1. *WARNING: All work must be completed by certified industrial electrician.*
2. *WARNING: Failure to follow guidelines could result in fire, damage to equipment and injury to personnel.*
3. *WARNING: End user is responsible to follow NFPA 70 to all local, state and federal codes and guidelines.*
4. *WARNING: Failure to adhere to the procedures outlined in this document VOIDS Legends product warranty.*

v240/208V 15HP only

How to Set Up a Legend Baghouse with QC Hopper:

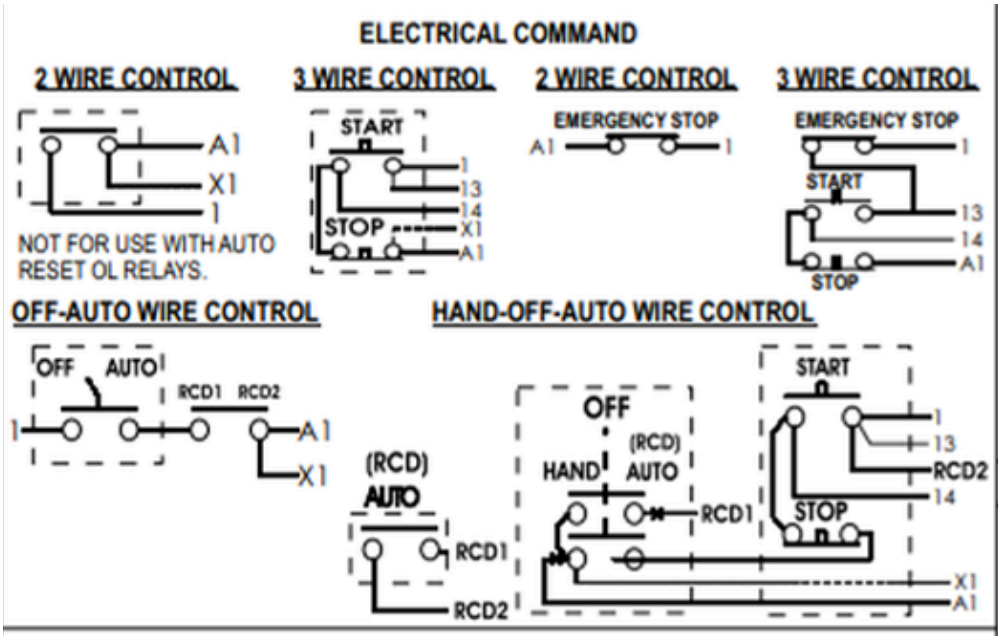
SCAN ME

LEGEND



ATTENTION: FOR SEPARATE CONTROL, REMOVE WIRES "C" AND "D" IF SUPPLIED AND CONNECT SEPARATE CONTROL LINES TO TERMINAL Nº 96 ON THE OVERLOAD RELAY AND TO TERMINAL Nº 13 ON THE AUX. CONTACT BLOCK (FOR 3 WIRE CONTROL) OR TO THE CONTACTOR COIL Nº A1 (FOR 2 WIRE CONTROL).

ELECTRICAL COMMAND



CWM 9...18	14-10 AWG	15 lb-in	LINE TERMINALS
CWM 25.....32	14-8 AWG	16 lb-in	
CWB9...18	18-10 AWG	15 lb-in	
CWB25...38	14-8 AWG	22 lb-in	
CWB40...80	14-2 AWG	45 lb-in	
CWM40	14-8 AWG	40 lb-in	
CWM50.....80	14-1/0 AWG	40 lb-in	
CWM95....105	10-1/0 AWG	60 lb-in	
RW17D...27D	16-8 AWG	20 lb-in	
RW67D	10-3 AWG	35 lb-in	LOAD TERMINALS
RW117D	6-1/0 AWG	53 lb-in	Use 75°C Copper Conductors only

MECHANICAL ASSEMBLY - CONTACT BLOCKS

NOTE: POSITION 1 OF THE FLANGE OR BBA05 CORRESPONDS TO POSITION **START** OR **AUTO** OF EACH OPERATOR. POSITION 2 OF THE FLANGE OR BBA05 CORRESPONDS TO POSITION **STOP** OR **HAND** OF EACH OPERATOR.

Electrical Installation Chart for WEG PESW-B40V24AX-R70

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General Specifications

- Model: PESW-B40V24AX-R70
- Type: Non-reversing, non-combination across-the-line starter
- Coil Voltage: 208–240V AC (60Hz) / 180–208V AC (50Hz)
- Overload Range: 25.0–40.0A adjustable
- Enclosure: NEMA 4X, non-metallic, suitable for washdown environments
- Contactor: WEG CWB series
- Mounting: Surface mount, dimensions 13" x 7.5" x 5.6" (HWD)
- Agency Approvals: UL Listed File #: E202315
- Weight: 5.2 lbs

Electrical Installation Chart for WEG PESW-B25D39AX-R67

General Specifications

- Model: PESW-B25D39AX-R67
- Type: Non-reversing, non-combination across-the-line starter
- Coil Voltage: 480V AC (50/60Hz)
- Overload Range: 15.0–23.0A adjustable
- Enclosure: NEMA 4X, non-metallic, suitable for washdown environments
- Contactor: WEG CWB series
- Mounting: Surface mount, dimensions 9.03" x 4.48" x 4.43" (HWD)
- Agency Approvals: UL Listed File #: E202315
- Weight: 2.3 lbs

Installation Checklist

1. Verify Coil Voltage: Ensure the control circuit voltage matches the starter's coil voltage rating (208–240V AC).
2. Check Overload Settings: Adjust the thermal overload relay to match the motor's full-load amperage (FLA).
3. Proper Grounding: Confirm that the starter and motor are properly grounded.
4. Wire Sizing: Use wire sizes that comply with NEC ampacity requirements for 480V 3-phase circuits.
5. Safety Precautions: Implement lockout/tagout procedures during installation and maintenance.

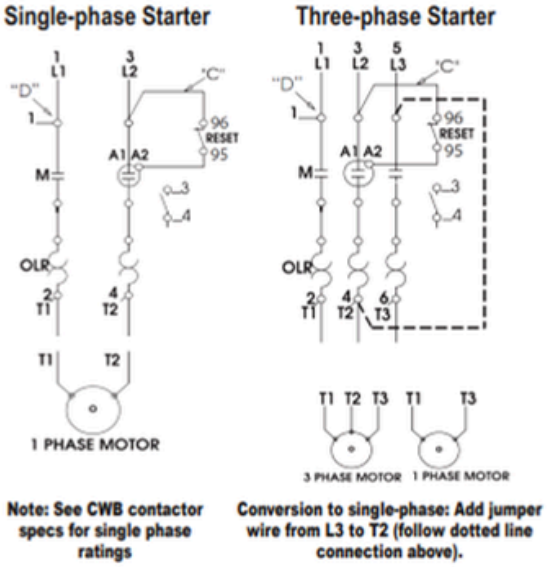
Figures 1.0-1.2 applies to the 15hp 480 only, 5hp 480/240, and 10hp 480/240.

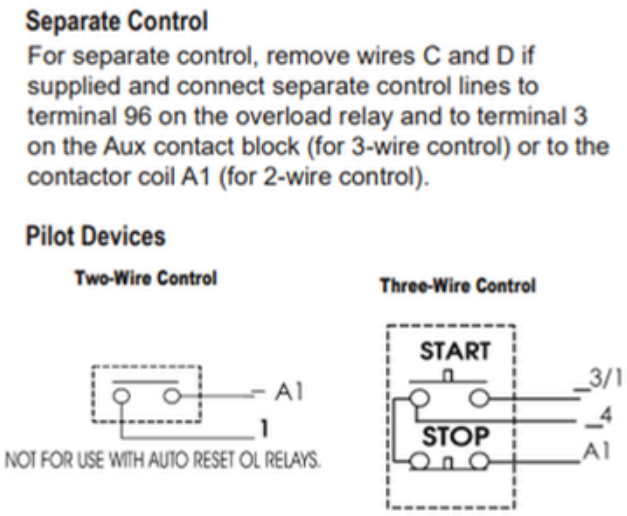
Figure 1.0

Figure 1.1

Wiring Diagram

Figure 1.2





Wiring Diagram Overview

Line Voltage (480V AC, 3-Phase):

- L1, L2, L3: Incoming 480V AC three-phase power lines
- T1, T2, T3: Output terminals to motor

Control Circuit:

- Coil Terminals: Connected to the control circuit for energizing the contactor
- Start Button: Normally open (NO) contact, closes to energize the coil
- Stop Button: Normally closed (NC) contact, opens to de-energize the coil
- Overload Relay: Integrated with the contractor to protect the motor from overloads

Notes:

1. *Ensure proper grounding of the starter and motor to comply with local electrical codes.*
2. *Use appropriately rated wire sizes for both line and control circuits.*
3. *Verify coil voltage compatibility with your control circuit voltage.*

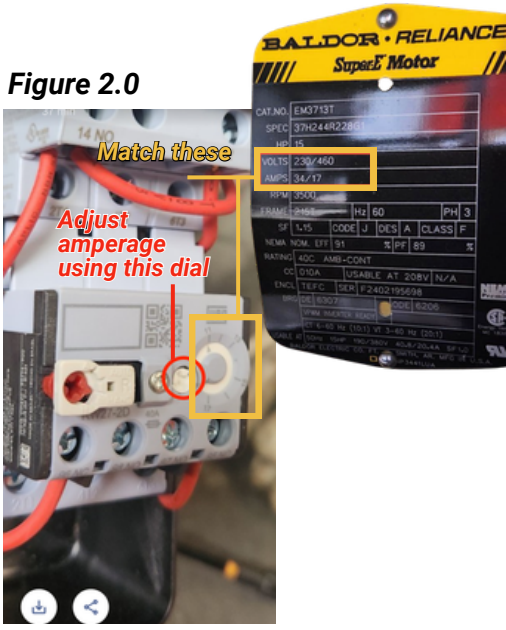
Legend Baghouse Amperage Variances				
Starter part number	Voltage	HP	Breaker size	AWG
PESW-B25D39AX-R67	480V	15	25	8
PESW-B50v24AX-R71	240V/208V	15	40	6
PESW-B18D39AX-R66	480V	10	20	8
PESW-B40V24AX-R70	240V/208V	10	25	8
PESW-B9D39AX-R63	480V	5	10	8
PESW-B25V24AX-R67	240V/208V	5	20	8

Note: The starter comes pre-wired to the motor. The only need is to wire your starter into a 240/208/480V power supply.

Troubleshooting

1. Baghouse trips the electrical breaker during start up or fails to start up.
   a. Check the ground for the starter
   b. Ensure the starter is correct for the power source.
   c. Check the breaker to ensure it is large enough to handle the load. A dedicated circuit is recommended.
   d. If the overload continues to trip, check your overload setting and make sure the amperage matches the motor's amperage (see figure 2.0)
2. Baghouse does not suck up debris after installation.
   a. Reverse the wiring as it is likely backwards.
   b. Check for any blockages in the system.
3. Fan is making a horrible noise at start up.
   a. Check the clearance between the fan and the housing to ensure no damage occurred during transit.
   b. Check for large objects stuck in the fan. Use an inline separator if this is a common occurrence.

Figure 2.0



Glossary

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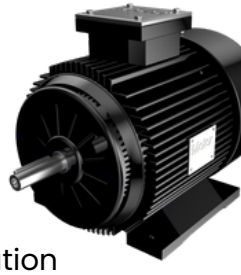
1. **AWG (American Wire Gauge)** - A standardized system for identifying wire sizes. The larger the AWG number, the smaller the wire diameter—and vice versa.
2. **Back EMF (Back Electromotive Force)** – The voltage generated by a brushless motor as it rotates. Acts like a generator, producing resistance (EMF) that is proportional to motor speed. It can be used to determine the motor's RPM.
3. **Dual Element or Time Delay Fuse** – A fuse that allows short current surges (e.g., motor startup) without blowing, while still protecting against sustained overloads.
4. **FLA (Full Load Amperage)** – The current a motor draws at its rated voltage and load, as listed on the nameplate. Also known as running amps or rated amps.
5. **FLC (Full Load Current)** – Theoretical value of current drawn by a motor running at full load and rated voltage. Used to size conductors and protective devices. Found in the National Electrical Code (NEC).
6. **GND (Ground)** – A safety path for electrical current to flow back to the earth in case of a fault. Helps prevent electric shock and equipment damage.
7. **Inrush Current** – A short burst of high current when a device is first turned on, caused by charging components like capacitors. Also called input surge.
8. **Inverse Time Breaker (Thermal-Magnetic Breaker)** – Trips faster as current rises higher. The trip time is inversely proportional to the level of overcurrent.
9. **Megger** – An instrument that measures electrical insulation resistance, typically used to detect breakdowns or leaks in wiring.
10. **MTR (Motor)** – Abbreviation commonly used in wiring diagrams and electrical documentation to refer to a motor.
11. **NEC Code** – A standardized code (NFPA 70) that regulates safe electrical installation practices in the U.S. Used by electricians, inspectors, and engineers.
12. **Non-Time-Delay Fuse** – A fuse that blows immediately when current exceeds the rated limit. It does not tolerate temporary inrush currents, offering immediate protection against overload.
13. **Overload** (O/L) – Occurs when too much current flows through equipment, usually due to excessive mechanical load, causing overheating or damage. Triggers protection devices.
14. **Single Phase** – A type of AC power where current flows through a single conductor. Typically consists of one hot (phase) wire and one neutral. Power delivery fluctuates with the voltage wave.
15. **Three (3) Phase** – A power system using three conductors, each carrying current with a phase difference of 120°. Provides consistent voltage and power.
16. **Trip Class** – Indicates how fast an overload relay trips. For example, Class 10 trips in 10 seconds or less. Higher classes trip more slowly.
17. **Voltage (Residential Voltage)**– varies and constant power isn't delivered.



Check with: NEC National Electrical Code www.nfpa.org/79 and
NFPA National Fire Protection Association www.nfpa.org

FAQs

1. **Question: "My motor is pulling really high amperage when turned on. Is this normal?"**
    a. **Answer:** Yes, that's normal. At startup, a motor can draw up to 8 times its Full Load Amps (FLA). This is called inrush current and should quickly drop as the motor accelerates past the locked rotor stage to steady-state operation.
2. **Question: "Why is the breaker sized so high for the motor?"**
    a. **Answer:** Breaker sizing follows NFPA 70, Table 430.52, which gives the maximum allowable rating for motor short-circuit and ground-fault protection. It's intentionally sized high enough not to trip during startup, when inrush current is at its peak. See ***Circuit Sizing*** for more detail.
3. **Question: "What should I do if the breaker trips during startup?"**
    a. **Answer:** First, verify the ground for the motor starter is correct.
    b. Then, confirm the starter matches the power source
    c. Next, ensure the breaker is correctly sized (see NEC Table 430.52)
    d. Lastly, a dedicated circuit is recommended
4. **Question:** "Why is my baghouse not picking up debris after install?"
    a. **Answer:** The motor wiring may be reversed — try switching two power leads
    b. Check for blockages in the duct or equipment
5. **Question: "The fan makes a loud noise when starting. Is something wrong?"**
    a. **Answer:** Inspect the clearance between the fan and housing for damage from shipping
    b. Look for foreign objects inside the fan housing
    c. Consider adding an inline separator to catch large debris if this is recurring
6. **Question:** "Do I need to adjust the overload settings?"
    a. **Answer:** Yes — always set the thermal overload relay to match the motor's Full Load Amperage (FLA) on the nameplate. This protects the motor from sustained overcurrent and overheating.
7. **Question:** "Can I use a different wire size than listed?"
    a. **Answer:** Only if it's calculated correctly. The listed wire sizes assume 75°C wire. If using another type or the motor is far from the panel, wire gauge must be increased.
8. **Question:** "Who is responsible for following code?"
    a. **Answer:** The end user and installer are responsible for adhering to NFPA 70, local, state, and federal codes. All electrical work must be performed by a certified industrial electrician.

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