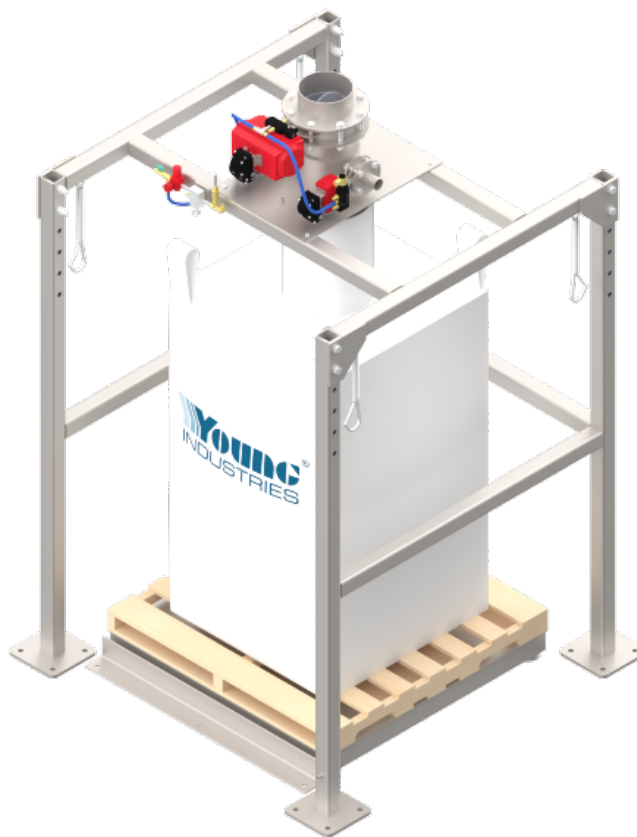


BULK BAG LOADING

Installation, Operation, and Maintenance Manual



**THE
Young®**

INDUSTRIES, INC.
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MUNCY, PA 17756

FOREWORD

Young Industries' bulk bag loaders are furnished as a single bulk bag loading frame. Our bulk bag loaders have earned a reputation for their rugged construction and quality workmanship. Properly installed and maintained, they are guaranteed against defects in material and workmanship for a period of one year from date of shipment.

This manual contains instructions for installation, operation, and maintenance of Young Industries'

Bulk Bag loaders. The care taken during receiving, storage, installation, operation, and continued maintenance will add to the reliable operation and long service life of this equipment.

This manual should be read and understood in its entirety by the operator and the plant safety director prior to performing any work on the loader. Copies of this manual are being supplied with each loader order. Contact Young Industries if you require additional copies to ensure the Loader is operated safely and according to recommended procedures.

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SAFETY

READ AND FULLY UNDERSTAND THIS MANUAL PRIOR TO PERFORMING ANY WORK ON OR OPERATING A YOUNG BULK BAG LOADER.

If you have previously received delivery of a Young Bulk Bag Loader and have just received this latest (updated) manual, insist that the equipment operator and the plant safety director read and fully understand this manual prior to continued use of the bulk bag loader or dismantling the equipment for maintenance.

Notify Young Industries if your Young bulk bag loader does not include safety warning labels or devices recommend within this manual which you believe may be important to improve the safe operation or maintenance of your bulk bag loader installation. Contact the Engineering Manager at (570) 546-3165 or (800) 546-3165, prior to continued use or maintenance, for assistance.

Notify Young Industries if you have sold, leased, rented, or given any Young bulk bag loaders to another user. Your assistance will allow Young Industries to contact the new user with updated safety and/or operational recommendations.

Safety is a fundamental factor that must be considered at all times in the operation and maintenance of mechanical equipment. Use of proper tools and methods can prevent serious accidents that may result in injury to you and your fellow workers.

A number of safety precautions are listed throughout this manual. Study them carefully and follow them; insist that those working with you do the same. Remember, an accident can easily be caused by someone's carelessness or negligence.

The various precautions and recommendations detailed within this manual **are not necessarily** all inclusive. Young Industries has attempted to provide SAFETY AND OPERATIONAL GUIDANCE relating to typical installations for which we are familiar. We urge you to review your particular bulk bag loader installation to determine whether there are potential hazards beyond the warnings of this manual.

If you have any safety or operational questions pertaining to the design or application of a Young bulk bag loader as it relates to your particular installation, contact the Young Industries' Engineering Manager.

Most employers are subject to the Federal Occupational Safety and Health Act of 1970, as amended. This act requires an employer to keep abreast of the regulations which will continue to be issued under its authority.

Failure to observe and follow the safety precautions may result in serious personal injury or property damage. Young Industries looks to our customer to achieve a cooperative effort for the purpose of making our bulk bag loader installations as safe for the operator as is reasonably possible and to ensure proper maintenance and operating procedures are followed. Many times, we do not have access to the installation. Therefore, your participation in the safe installation operation and maintenance of our bulk bag loader is critical.

WARNING:
ELECTRICAL GROUNDING AND BONDING IS REQUIRED

Ungrounded machinery presents a potential hazard of fatal electrical shock from electrical power sources. Static electricity may also accumulate on ungrounded/unbonded equipment. Static electricity discharge from ungrounded equipment or between unbonded pieces of equipment may cause explosion or fire if flammable vapor or dust is present.

Electrical equipment must be installed by a certified professional electrician.

SAFETY & SPECIFICATIONS

Before operating the equipment described by this manual or any other equipment in the same processing system, grounding and bonding must be completed in accordance with the National Electrical Code (NFPA 70) published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269-9101, and any other applicable National, State or Municipal codes. Codes for safe control of static electricity must also be observed, including the National Fire Code "Recommended Practice on Static Electricity" (NFPA n) and any other applicable National, State or Municipal codes.

To avoid hazardous static discharge, mobile, movable or portable equipment which may attach to or come near to other equipment and which is not prohibited by codes from being connected to ground must be safely grounded and bonded before close approach or contact is made. This warning also

applies to movable containers such as drums, totes, boxes and bags.

Sections of pipe, duct and gravity spout must be bonded to adjacent sections of pipe, duct, spout or equipment, and must have a conductive path to electrical ground.

Regular periodic safety inspections of electrical systems and grounding/bonding systems are required.

WARNING:
ILLUSTRATIONS IN THIS MANUAL ARE INTENDED TO BE USED AS PARTS IDENTIFICATION AIDS ONLY. ILLUSTRATIONS CONTAINED IN THIS MANUAL ARE NOT INTENDED TO DEPICT RECOMMENDED INSTALLATION OR OPERATION CONDITIONS OF ANY BULK BAG LOADER.

SPECIFICATIONS

(To be filled in by customer)

SIZE _____ MODEL _____ SERIAL NUMBER _____

JOB NUMBER _____ ASSEMBLY DRAWING _____

MAXIMUM ALLOWABLE WORKING CONDITIONS:

INTERNAL PRESSURE _____ TEMPERATURE _____ °F (_____ °C)

MATERIAL OF CONSTRUCTION _____

COMPRESSED AIR USAGE surge _____ plant air _____

SPECIAL FEATURES _____

CUSTOMER NAME _____

CUSTOMER NUMBER _____

INSTALLATION

A. RECEIVING AND INSPECTION

1. Upon receipt of equipment and material from Young Industries the following basic steps should be taken:

a. Use the packing list to determine that all the items shipped have been received. Your equipment order was carefully crated or packaged for safe shipment when given to the carrier. Check for damage.

1. Damage in transit is the responsibility of the carrier. Be sure to have the driver sign a copy of the freight bill with a notation about any damage.

2. If a shipment was sent to you by parcel post, have the postmaster complete a damage claim report.

3. Concealed damage: If equipment or goods are discovered to be damaged by shipment at a later date, contact the carrier and Young Industries immediately.

4. If shipped UPS, **DO NOT THROW ORIGINAL CARTON AWAY.** Keep all evidence for the inspector.

5. IN ALL CASES OF DAMAGE IN TRANSIT, CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER AT (570) 546-3165 FOR ASSISTANCE IN DETERMINING WHETHER OR NOT THIS DAMAGE MAY IN ANY WAY AFFECT SAFETY OR PROPER OPERATION OF THE EQUIPMENT.

NOTE:

YOUNG INDUSTRIES CANNOT ASSUME ANY LIABILITY FOR SHORTAGES OR DAMAGED GOODS. CLAIMS MUST BE NEGOTIATED WITH THE CARRIER. CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER AT (570) 546-3165 OR (800) 546-3165 FOR ASSISTANCE IN RECTIFYING ANY SHORTAGE OR DAMAGE AS IT RELATES TO SAFE AND PROPER BULK BAG LOADER OPERATION.

2. Moving the Bulk Bag Loader.

a. Moving and installation should always be performed by trained, experienced personnel, using safe and accepted rigging practices.

b. Care and caution should be exercised to prevent damaging the bulk bag loading frame and subsequent equipment.

CAUTION:

WHEN MOVING A BULK BAG LOADER OR COMPONENT PARTS, BE SURE THAT MOVING PRACTICES USED ARE SAFE FOR BOTH PERSONNEL AND EQUIPMENT. CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER IF THERE ARE ANY QUESTIONS RELATING TO WHAT CONSTITUTES SAFE AND ACCEPTED RIGGING PRACTICES FOR MOVEMENT AND/OR INSTALLATION OF A BULK BAG LOADER.

3. Storing the Bulk Bag Loader.

a. If moved to storage, the equipment should be located in a dry area, preferably inside. Outside storage will require adequate protection from the weather.

b. The Bulk Bag Loader has been shipped with temporary guards or covers over all openings. Do not remove these guards or covers while the loader is in storage.

c. After prolonged storage the Bulk Bag Loader should be inspected by qualified personnel. Contact the Young Industries' Engineering Manager if assistance is required.

CAUTION:
THE STORAGE SITE MUST PROTECT AGAINST FALLING OBJECTS OR DEBRIS FROM DAMAGING THE BULK BAG LOADER.

B. SUPPORTS

1. The Young Industries Bulk Bag Loader is designed to be supported by its structural steel base framework.
2. Bulk Bag Loaders must always be used on flat, smooth and LEVEL surfaces rated to safely support with an adequate safety factor the loader plus its maximum attached bag weight.

C. ASSEMBLY

1. Before readying the Bulk Bag Loader for use, inspect the equipment to determine what trades and equipment will be required.
2. If the Loader is equipped with a weighing system, remove any temporary blocks or restraints which may have been placed to protect the load cells during shipment.
3. If the Loader will be used in the immediate area where it is being assembled, any material conveying extensions may be installed at this time. If the Loader must be moved to another plant area, it may be best to delay installation of conveyor extensions until after the Loader is moved.
4. Remove miscellaneous packing materials, straps, blocks and any other items used for shipping the equipment.
5. Visually inspect the Loader for damage to electrical components, electrical conduit and cables. Any necessary repairs must be made by a qualified electrician.
6. Connect the Loader's control panel to the plant power supply. Unless otherwise marked, the Loader when equipped with a weighing system will require 110/120 Volts, 50/60 Hertz AC power. Maximum load is approximately 250 Watts. Electrical work must be performed only

by a qualified electrician in accordance with all applicable electrical codes and procedures.

7. Inspect the Loader's compressed air system, looking for loose, disconnected or broken fittings and hoses.
8. Connect the Loader's compressed air inlet connection to a source of clean, dry, oil-free instrument quality compressed air or inert gas at 80-100 psig pressure. Compressed air or gas flow rate requirements may vary. Check the order documentation for SCFM requirements.

CAUTION:
PRESSURIZE THE LOADER SLOWLY, LISTENING AND WATCHING FOR SIGNS OF AIR LEAKAGE. ANY LEAKAGE FOUND MUST BE REPAIRED BEFORE PROCEEDING.

WARNING:
BEFORE WORKING ON THE LOADER, DISCONNECT THE ELECTRICAL POWER AND SHUT OFF AND BLEED THE COMPRESSED AIR OR GAS SYSTEM. BOTH ELECTRICAL POWER AND AIR OR GAS MUST BE LOCKED OUT BEFORE MAINTENANCE. KEEP AWAY FROM THE PRODUCT INLET GATE VALVE UNTIL AIR OR GAS PRESSURE HAS BEEN BLED TO ZERO.

D. PRECOMMISSIONING

1. Before operating or test running the Bulk Bag Loader, and with the power and compressed gas shut off, check internally for cleanliness, using caution to avoid physical harm to personnel and equipment.
2. Inspect the Loader, conveying equipment and system discharge to assure that all equipment is installed properly and mounted securely.
3. Check all flanges, couplings, and fluidizing air or gas piping in the conveying system to assure the system is installed properly.
4. Determine that the electrical power and compressed air supplies are properly installed and operating and have adequate capacity to operate the loader.

5. Check the operation of the bag lifting air cylinder, observing safety warnings posted on the bag support slide. Motion of the bag support slide on the loader mast should be smooth and quiet.
6. Check the operation of the bag neck clamping system observing safety warnings posted on the Loader's structure. The inflatable spout cuff should inflate smoothly and seal the bulk bag opening to the spout.

E. CALIBRATION

1. If the Bulk Bag Loader is equipped with a weighing system, the weighing system must be calibrated before the Loader is placed into service.
2. Some adjustment of the weighing system's digital damping may be required to obtain the best results. Operator observation of smooth, jitter-free yet prompt response of the digital weight readout on the control panel will be the best indicator of proper damping selection. Refer to the weighing system manual for detailed instructions.
3. Refer to the separate manual provided for the weighing system. It is usually best to have calibration performed by a qualified industrial scale technician familiar with the type and manufacture of the weighing system provided with the Bulk Bag Loader.

F. TRIAL RUN OPERATION

With an empty bulk bag installed on the lifting bracket and the bag neck cuffed at the product outlet hopper (see bag installation instructions elsewhere in this manual)

- a. Place about 50 pounds (25 kg) of weight on the Loader's bag hook frame. This weight should be made up of several smaller weights weighing about 10 lbs (4 or 5 kg) each.

- b. On the weighing system control panel, enter a target discharge weight of 20 to 30 pounds (10 to 15 kg). Enter a preact weight of 15 pounds (8 kg).

- c. Press the Start push-button. The product hopper outlet valve will open. Note the weight indicated on the digital weight indicator.

- d. Carefully remove weights from the bag hook frame one at a time. When the amount of weight removed from the frame exceeds the preset target weight minus the preact weight, but is still less than the target weight, the Loader will enter its dribble feed mode, which consists of on/off pulsing of the compressed air supply to the bulk bag. Depending on the weighing system, the on/off pulsing duty cycle can be adjusted through software setpoint or through hardware adjustments. Adjustment of duty cycle is best done after material is introduced into the Loader.

- f. When the amount of weight removed from the bag hook frame equals or exceeds the preset target weight, the fluidizing air supply to the loader's conveyor will shut off and the hopper outlet valve will close.

DANGER:
DO NOT PLACE HANDS OR TOOLS THROUGH, ON OR NEAR THE HOPPER OUTLET VALVE AT ANY TIME WHEN ELECTRICAL POWER AND/OR COMPRESSED AIR OR GAS IS CONNECTED TO THE LOADER. DISCONNECT ELECTRICAL POWER AND COMPRESSED AIR BEFORE WORKING ON THE LOADER. ALWAYS BLEED OFF COMPRESSED AIR OR GAS PRESSURE TO ZERO BEFORE WORKING ON THE LOADER.

OPERATION

A. STARTUP

1. Before actual operation, the operator must become familiar with the method of loading, starting, and stopping the operation of the Bulk Bag Loader.
2. The general appearance of the Loader and the surrounding area should be visually inspected to determine that the Loader can be operated safely and without damage.
3. Guards, doors, covers and all safety interlocks must be in place and working whenever the Loader is in service.

WARNING:

DO NOT PLACE HANDS OR TOOLS THROUGH, ON OR NEAR THE HOPPER OUTLET VALVE AT ANY TIME WHEN ELECTRICAL POWER AND/OR COMPRESSED AIR OR GAS IS CONNECTED TO THE LOADER. DISCONNECT ELECTRICAL POWER AND COMPRESSED AIR BEFORE WORKING ON THE LOADER. ALWAYS BLEED OFF COMPRESSED AIR OR GAS PRESSURE TO ZERO BEFORE WORKING ON THE LOADER

4. If your installation has an unsafe condition unforeseen by Young Industries and beyond typical operating conditions, CEASE FURTHER OPERATION of the Bulk Bag Loader and immediately notify both your safety committee and the Chief Engineer at Young Industries, telephone 570-546-3165. The Young Industries' Chief Engineer can assist you in speeding the return of your Loader to its recommended operating condition.

B. LOADING

1. Attach the bag lifting loops to the bag hooks, making sure the hooks are fully closed.
2. Slide the opening of the bulk bag over the outlet of the product hopper through the cuff. Once the bulk bag is in place, inflate the cuff and ensure that the spout is sealed.

3. Using the hoist, raise the bulk bag to its upper limit. Be absolutely certain that no part of the bulk bag (tie cords, bag outlet neck, outer wrapper, etc.) is caught before lifting.

NOTICE:

OPERATIONAL DETAILS MAY VARY ACCORDING TO THE TYPE OF BULK BAG WHICH IS BEING LOADED. THE INSTRUCTIONS PRESENTED HERE ARE REPRESENTATIVE ONLY AND ARE NOT NECESSARILY COMPLETE FOR ALL STYLES OF BULK BAGS.

C. FILLING BULK BAGS

1. Install an empty bulk bag on the Loader as described by the instructions above.
2. Start loading by pressing the "Start" push-button. A steady and dense stream of material should flow from the product hopper's outlet.
3. Monitor the weight of the bulk bag to avoid overfilling. An automatic shut off should close the product hopper outlet valve when the target weight is reached.

CAUTION:

DISCONNECT POWER, SHUT OFF COMPRESSED GAS, BLEED SYSTEM AND LOCK OUT BEFORE SERVICING.

D. REMOVING A BULK BAG FROM THE LOADER

1. PARTLY FILLED BULK BAGS - The Bulk Bag Loader is designed to COMPLETELY fill bulk bags. It is not normally intended to have a partly filled bulk bag removed. Removing a partly filled bulk bag requires extra special care, operator risk and equipment not supplied with the Loader. IF REMOVAL OF PARTLY FULL BULK BAGS IS A POSSIBILITY, MAKE ARRANGEMENTS TO EMPTY THE BAG INTO ANOTHER BAG OR A STORAGE HOPPER. YOUNG INDUSTRIES DOES NOT RECOMMEND TRYING TO REMOVE A PARTLY FILLED BULK BAG FROM THE BULK BAG LOADER.

2. **COMPLETELY FULL BULK BAGS-** Carefully tie off the Inlet spout of the completely full bag. Move the hoist down so that the bag's weight is fully removed from the bag hooks, and the bag is fully supported by the pallet beneath it. Remove

the bag loops from the hooks.

Handle the full bulk bag as required based on safety and sanitation requirements.

MAINTENANCE

A. LUBRICATION

1. DO NOT use lubricated compressed air to supply the Loader.

B. GENERAL INSPECTION

1. If the loader is equipped with a knife gate valve, check for signs of leakage at the gate packing gland. Tighten the packing or repack the gland if required.
2. Check the condition of the bag hooks for excessive wear and bending. Replace the hooks at once if ANY damage or wear is apparent.
3. Inspect the compressed air hoses and fittings. Replace immediately any hose or fitting which appears worn, is leaking or is otherwise damaged.
4. Inspect all safety equipment, guards, covers and labels to assure the Loader and auxiliary equipment can be operated safely. If an unsafe condition is observed, cease further operation of the Loader and immediately notify your safety committee and the Chief Engineer at Young Industries, telephone 570-546-3165.

WARNING:
GENERAL SAFETY INSTRUCTIONS
SERIOUS PERMANENT DISABLING INJURY
OR DEATH IS POSSIBLE.

Safe “Lock out/Tag out” procedures must be followed before servicing any machine. This applies to electrical power, compressed air, mechanical and hydraulic power sources.

Disconnect, lock out and tag the power source of the equipment which may cause a safety hazard if operated during maintenance of the equipment to be serviced.

Tie off and remove, or otherwise make safe any load of product which may be on the machine being serviced or which is in upstream equipment and could be accidentally released to the equipment being serviced.

If the equipment to be serviced is equipped with control voltage powered devices such as limit switches, solenoids, solenoid-operated control valves, motion switches or other devices, the source of power to these devices must be disconnected and locked out as well.

Equipment purged by compressed gas or having cylinders or actuators powered by compressed gas or a hydraulic system must have the source of pressure shut off or valved out and locked out and be safely bled to zero pressure before servicing is begun.

The process in which the equipment to be serviced is installed must be shut down or safely isolated from the equipment to be serviced. The individuals performing the maintenance work must be protected from toxic or suffocating process gases or vapors and other hazardous process materials which may be present during servicing.

C. CLEANING

1. If cleaning becomes necessary, the Loader may be cleaned either dry or by washing with water.

WARNING:
WEAR PROTECTIVE CLOTHING AND
EQUIPMENT WHEN CLEANING THE LOADER.
WEAR A RESPIRATOR TO AVOID INHALING
DUST AND PROTECTIVE GLOVES.

2. DRY CLEANING
 Using a dry, nylon bristle brush, brush down the interior of the inlet hopper. Scoop or vacuum up the brushed-off material. Vacuum up as much material as possible around the inlet valve. Scoop or vacuum any spilled material present in the spill pan surrounding the inlet hopper. Brush off and collect any material spilled onto the frame and bag hook frame of the Loader. Be sure a dust control system or fabric filter bag is used to collect dusty air from the product outlet.

3. WASHDOWN CLEANING
 After removing as much material as possible using the dry-cleaning method, Maximum

cleanliness can be accomplished by water washing if the material in the Loader is chemically compatible with water and if mixing the material with water will not cause a dangerous chemical reaction or a wastewater disposal problem. Appropriately sized cylindrical brushes having nylon bristles and an extended handle can help with detail cleaning inside the product inlet tube. A radial-spray nozzle (Spraying Systems Co. "Spiraljet small capacity") on the end of a 3/8" pipe wand can be used for washing and rinsing the inside of the product inlet tube as well.

D. TROUBLE SHOOTING

1. When properly installed, operated and maintained, your Young industries' Bulk Bag Loader will give you years of service. Table ONE, "Trouble Shooting Bulk Bag Loaders" gives symptoms, causes, and remedies for most problems that may be encountered.

E. SPARE PARTS

1. When ordering spare parts, please provide the Young industries' job number or equipment's serial number. This information will be stamped on the serial number tag on the Loader. Contact the Spare Parts Department Manager at Young Industries, telephone (570) 546-3165 for assistance.

TABLE 1 – TROUBLE SHOOTING BULK BAG LOADERS

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
Dusting from product inlet valve	Packing loose or worn.	Adjust packing or repack the valve.
Dusting from the bulk bag	Inflatable spout cuff is not secure.	Deflate the spout cuff, smooth out the bulk bag inlet spout, and reinflate the cuff.
Inaccurate weighments	Weigh system requires adjustment	<p>Check scale calibration and zero (can be done using known weights placed on bag hook frame).</p> <p>Adjust scale damping, preact weight or pulse duty cycle timing.</p> <p>Check for even flow of material at product outlet. Flow should be strong and steady, not intermittent.</p>

