BIN UNLOADING
DRAG CONVEYOR MANUAL

Dealer Name: _____

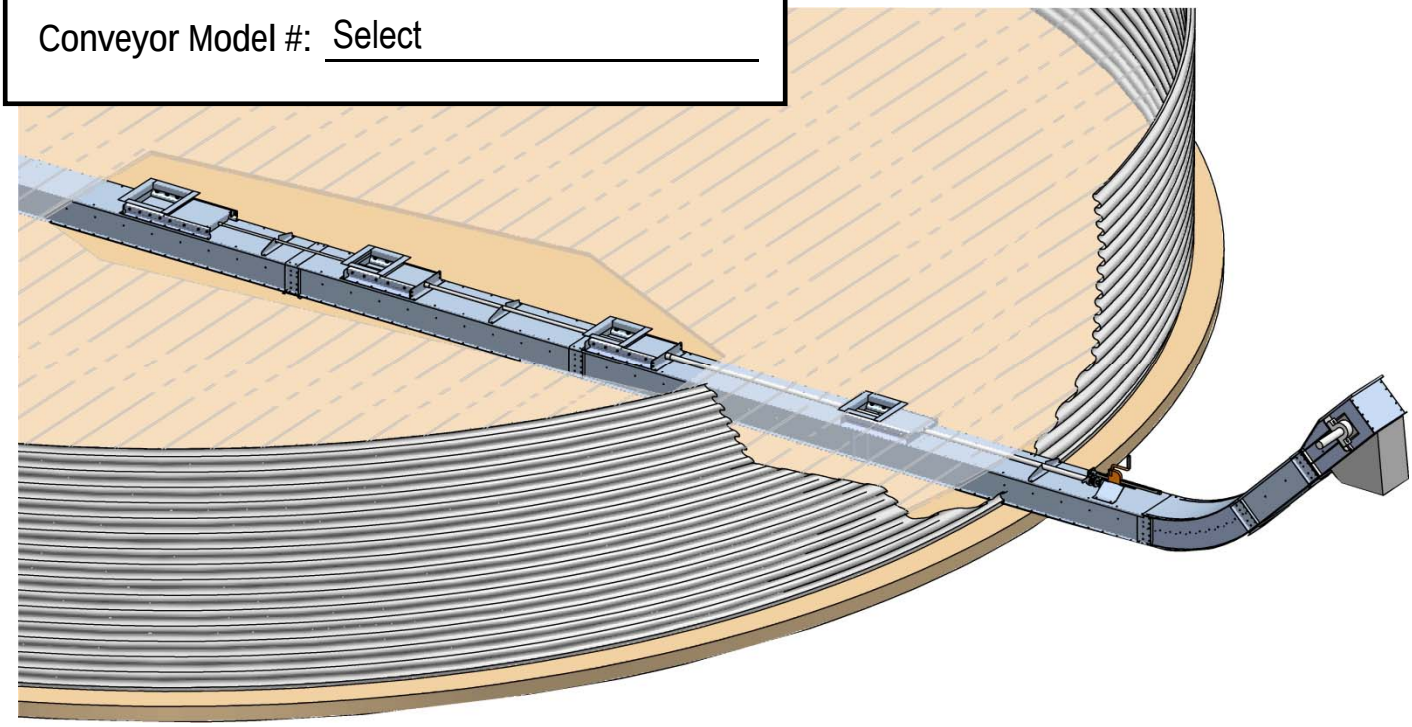
Dealer Order #: _____

Project Name: _____

Honeyville Order #: _____

Conveyor Serial #: _____

Conveyor Model #: Select _____



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HONEYVILLE METAL, INC.
BIN UNLOADING DRAG CONVEYOR

DEALER NAME:

MODEL: Select SERIAL NO:

HORIZONTAL LENGTH: DISCHARGE HEIGHT:

SPROCKETS:

PADDLE SIZE:

HEAD BEARINGS: HEAD SHAFT:

HEAD HUB: HEAD BUSHING:

TAIL BEARINGS: TAIL SHAFT:

TAIL HUB: TAIL BUSHING:

DRIVE INFORMATION: ☐ HMI Supplied ☐ Dealer/Customer Supplied

Model Reducer:

Reducer Sheave:

Motor Sheave:

Belts:

Motor:

WARNINGS AND SAFETY REMINDERS FOR SCREW, DRAG, AND BUCKET ELEVATOR CONVEYORS

CEMA Document: SC 2004-01

APPROVED FOR DISTRIBUTION BY THE SCREW CONVEYOR SECTION OF THE CONVEYOR EQUIPMENT MANUFACTURERS ASSOCIATION ("CEMA")

Honeyville Metal, Inc. ("HMI") does not install conveyors. It is the responsibility of the contractor, installer, owner and user to install, maintain and operate the conveyor, components and, conveyor assemblies in such a manner as to comply with the Williams-Steiger Occupational Safety and Health Act and with all state and local laws and ordinances and the American National Standards Institute (ANSI) B20.1 Safety Code.

In order to avoid an unsafe or hazardous condition, the assemblies or parts must be installed and operated in accordance with the following minimum provisions.

1. Conveyors shall not be operated unless all covers and/or guards for the conveyor and drive unit are in place. If the conveyor is to be opened for inspection cleaning, maintenance or observation, the electric power to the motor driving the conveyor must be LOCKED OUT in such a manner that the conveyor cannot be restarted by anyone; however remote from the area, until conveyor cover or guards and drive guards have been properly replaced.
2. If the conveyor must have an open housing as a condition of its use and application, the entire conveyor is then to be guarded by a railing or fence in accordance with ANSI standard B20.1. (Request current edition and addenda)
3. Feed openings for shovel, front loaders or other manual or mechanical equipment shall be constructed in such a way that the conveyor opening is covered by a grating. If the nature of the material is such that a grating cannot be used, then the exposed section of the conveyor is to be guarded by a railing or fence and there shall be a warning sign posted.
4. Do not attempt any maintenance or repairs of the conveyor until power has been LOCKED OUT.
5. Always operate conveyor in accordance with these instructions and those contained on the caution labels affixed to the equipment.
6. Do not place hands, feet, or any part of your body, in the conveyor.
7. Never walk on conveyor covers, grating or guards.
8. Do not use conveyor for any purpose other than that for which it was intended.
9. Do not poke or prod material into the conveyor with a bar or stick inserted through the openings.
10. Keep area around conveyor drive and control station free of debris and obstacles.
11. Eliminate all sources of stored energy (materials or devices that could cause conveyor components to move without power applied) before opening the conveyor.
12. Do not attempt to clear a jammed conveyor until power has been LOCKED OUT.
13. Do not attempt field modification of conveyor or components.
14. Conveyors are not normally manufactured or designed to handle materials that are hazardous to personnel. These materials which are hazardous include those that are explosive, flammable, toxic or otherwise dangerous to personnel. Conveyors may be designed to handle these materials. Conveyors are not manufactured or designed to comply with local, state or federal codes for unfired pressure vessels. If hazardous materials are to be conveyed or if the conveyor is to be subjected to internal or external pressure, manufacturer should be consulted prior to any modifications.

CEMA and HMI insist that disconnecting and locking out the power to the motor driving the unit provides the only real protection against injury. Secondary safety devices are available; however, the decision as to their need and the type required must be made by the owner-assembler as we have no information regarding plant wiring, plant environment, the interlocking of the screw conveyor with other equipment, extent of plant automation, etc. Other devices should not be used as a substitute for locking out the power prior to removing guards or covers. We caution that use of the secondary devices may cause employees to develop a false sense of security and fail to lock out power before removing covers or guards. This could result in a serious injury should the secondary device fail or malfunction.

There are many kinds of electrical devices for interlocking of conveyors and conveyor systems such that if one conveyor in a system or process is stopped other equipment feeding it or following it can also be automatically stopped.

Electrical controls, machinery guards, railings, walkways, arrangement of installation, training of personnel, etc., are necessary ingredients for a safe working place. It is the responsibility of the contractor, installer, owner and user to supplement the materials and services furnished with these necessary items to make the conveyor installation comply with the law and accepted standards.

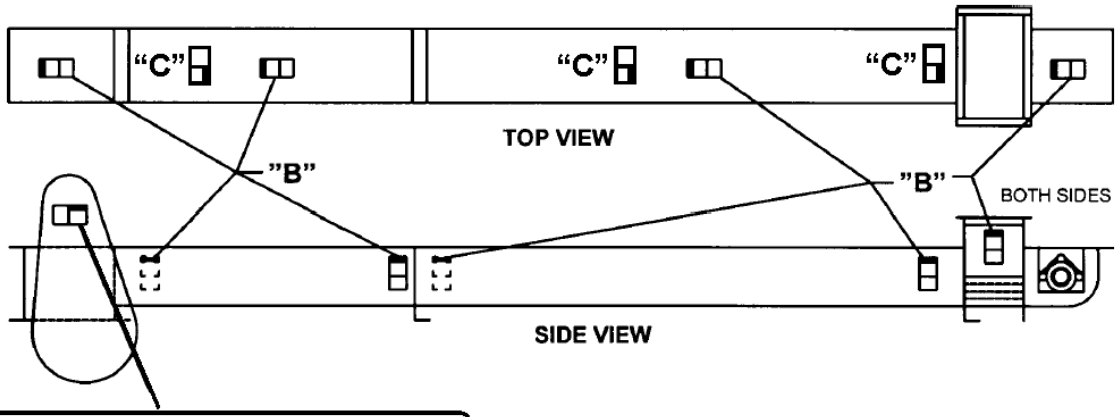
Conveyor inlet and discharge openings are designed to connect to other equipment or machinery so that the flow of material into and out of the conveyor is completely enclosed.

One or more warning labels should be visible on conveyor housings, conveyor covers and elevator housings. If the labels attached to the equipment become illegible, please order replacement warning labels from HMI or CEMA.

CEMA has produced an audio-visual presentation entitled "Safe Operation of Screw Conveyors, Drag Conveyors, and Bucket Elevators." CEMA and HMI encourage the acquisition and use of this source of safety information to supplement your safety program.

CEMA Safety Label Placement Guidelines

Equipment: Drag Conveyor

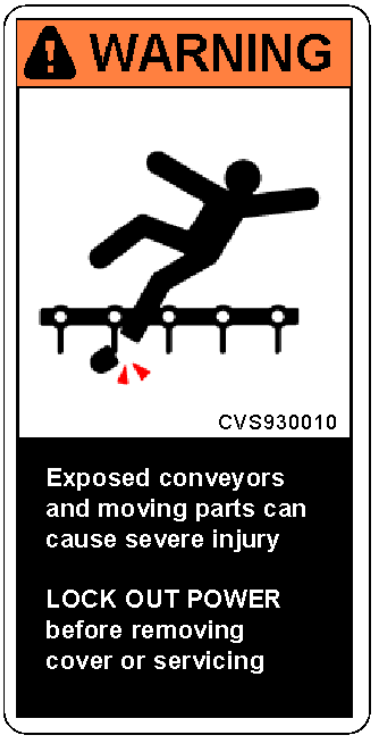


"A"

To be placed on removable guards to warn that operation of the machinery with guards removed would expose chains, belts, gears, shafts, pulleys, couplings, etc. which create hazards

To be placed on inlets and discharges, troughs, covers, and inspection doors of screw conveyors to provide warning against exposed moving parts while in operation.

"C"



"B"

NEAR SIDE

FAR SIDE

USE LABEL "A" ON BELT GUARD
USE LABEL "B" ON ENDS OF TROUGH, MIDDLE OF COVERS AND AT INLET OPENING.
USE LABEL "C: ON TOP OF COVERS

Note: Labels alone do not substitute for a thorough in-plant safety training program centered on the hazards associated with operating your installed equipment. Contact CEMA (www.cemanet.org) or Honeyville Metal, Inc. for replacement labels.

INSTALLATION INSTRUCTIONS

Following are some basic installation tips:

I. Inspection upon Delivery

- HMI Bin Unloading Drag Conveyors can either be picked up uncrated or be shipped by HMI truck or commercial truck transport. If your conveyor was picked up by your own truck, you will have made certain that the load was properly secured to insure that no parts were damaged. If your unit was shipped via, commercial transport, be sure to examine the shipment carefully for damaged parts. Also make certain that all the parts that are listed on the delivery receipt are received. If a damaged part or shortage is noted please contact HMI or the delivering truck driver immediately so that a claim may be filed.

II. Check of Components

- All HMI Conveyors are shipped in a maximum of 10' sections. The Head, Tail, and Bend Section (if applicable) are shipped as individual units. Conveyor Chain with Paddles are shipped on skids in 10’ sections.
- Now that you have located all the major components, there may also be an additional shipment of accessories which you ordered. This may include such items as motors, manual roller type slide gates, NPT pipe, and/or a R&P power assist.

III. Advise of any Shortages

- Although every effort is made to see that your order is shipped complete and in all the correct sizes, mistakes do occur. If you have a shortage or mistake on your order, please accept our apology and notify us at once and we will do everything possible to correct the situation.

MANUAL ROLLER TYPE SLIDE GATES

I. Installation Tips

- With the exception of the center Primary Gate A, the gate locations are chosen by the installer.
- Gates should not be located directly above a drop-through in the center divider or in a conveyor joint.
- The ½" NPT control pipe to Primary Gate A is a very critical component. A ½" NPT threaded pipe coupler does not fit inside the 1" NPT control pipe used for Gate B. When a ½" pipe joint falls inside a 1" pipe section, we recommend that you do not use the ½" NPT threaded pipe coupling but rather make a welded pipe joint as described below.
    - Cut a 6" long section of 5/8" round bar and insert 3" inside the ½" control pipe with a raw cut end (not a threaded end) and weld it to the ½" pipe.
    - You will now have a 3" length of the 5/8" round bar exposed to insert into the next section of ½" control pipe then weld the second pipe end joint.
    - This process should be repeated for each ½" control pipe joint that falls inside of the 1" control pipe for Gate B.
- The 1" NPT control pipe for Gate B should be coupled with the standard 1" NPT threaded pipe couplings. These couplings will slide inside the 1½" control pipe for Gates C and D with a 3/32" tolerance gap.
    - If the 1" NPT threaded pipe coupling will be in a position that will travel through the same area where the 1½" pipe is coupled with a threaded coupling, the ends of the 1½" pipe are typically a smaller diameter due to the cutting and threading process. Ream out the 1½" pipe to insure that the 1" pipe couplings will slide freely in that area.
- The control pipes should be cut to length as required and the discs welded on-site as shown in Image 1.

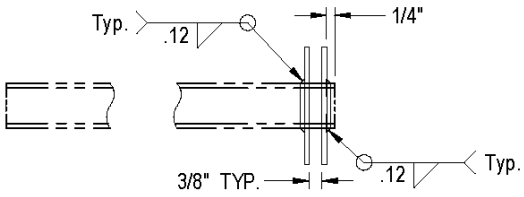


Image 1

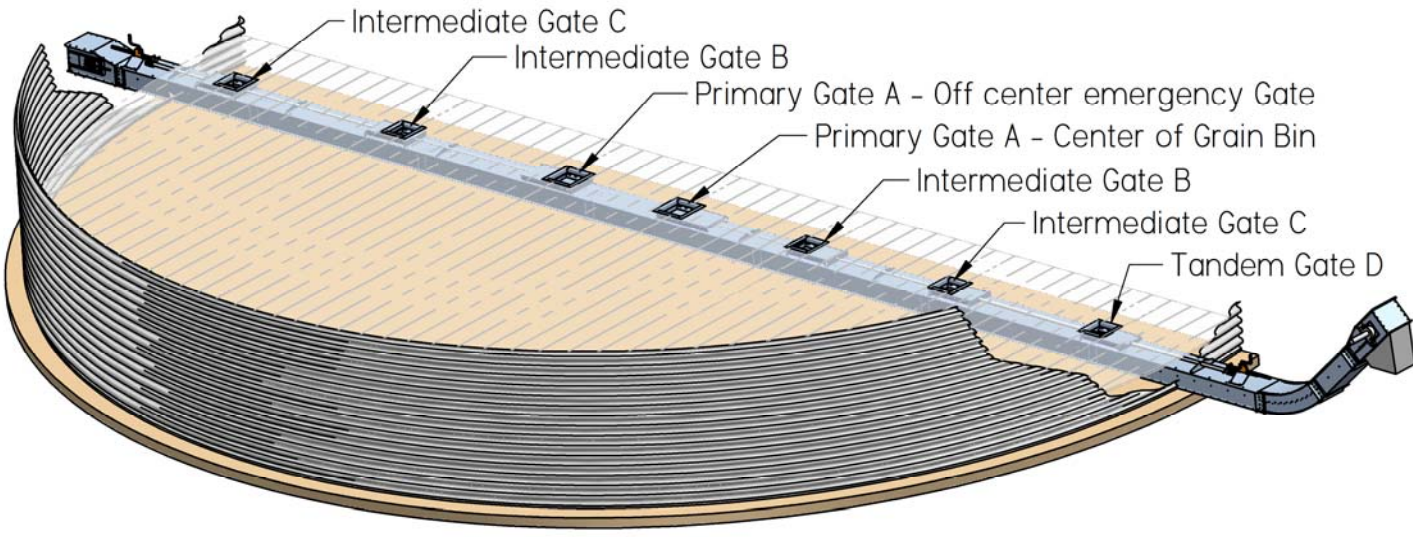


Image 2

II. Standard NPT Pipe Controller Orientations (see Image 2)

- Two (2) Gates in line, center to outer wall of a Grain Bin (Half of the Bin diameter only)
  - Primary Gate A (center of Grain Bin): Has a coupling for ½" control pipe.
  - Intermediate Gate B: Has a coupling for 1" control pipe.
  - When outfitting the 2nd half (opposite side) of the Grain Bin, it would become a 3 or 4 gate system by starting with another Primary Gate A and adding an Intermediate Gate B if needed.
- Three (3) Gates in line, center to outer wall of a Grain Bin (Half of the Bin diameter only)
  - Primary Gate A (center of Grain Bin): Has a coupling for ½" control pipe.
  - Intermediate Gate B: Has a coupling for 1" control pipe.
  - Intermediate Gate C: Has a coupling for 1½" control pipe.
  - When outfitting the 2nd half (opposite side) of the Grain Bin, it would become a 5 or 6 gate system by starting with another Primary Gate A and adding Intermediate Gates B and C as needed.
- Four (4) Gates in line, center to outer wall of a Grain Bin (Half of the Bin diameter only)
  - Primary Gate A (center of Grain Bin): Has a coupling for ½" control pipe.
  - Intermediate Gate B: Has a coupling for 1" control pipe.
  - Intermediate Gate C: Has a coupling for 1½" control pipe.
  - Tandem Gate D: Has a U-bolt to clamp around the 1½" control pipe that operates Intermediate Gate C, and the two gates work in tandem.
  - When outfitting the 2nd half (opposite side) of the Grain Bin, it would become a 7 or 8 gate system by starting with another Primary Gate A and adding Intermediate Gates B and C and Tandem Gate D as needed.

III. Slide Gate Operation: The following steps should be followed when operating the conveyor slide gates.

- Step 1: With the conveyor running, open Primary Gate A. Gates should only be opened wide enough to achieve grain flow at the conveyor's rated capacity. With dry grain and an unobstructed opening, full capacity may at times be achieved with the gate open less than 50% of its full width.

- Step 2: After grain has stopped flowing from Primary Gate A, continue opening each successive gate (Gate B, Gate C, etc.), opening only one gate at a time. The next gate should not be opened until grain has stopped flowing from the gates that are already open.

- Step 3: After completing a load out, all gates should be closed and the conveyor should be run until it is empty.

R & P POWER ASSIST MULTI SLIDE GATE CONTROLLER

Image 3 and Image 4 below provide important information for installation of the R & P Power Assist.

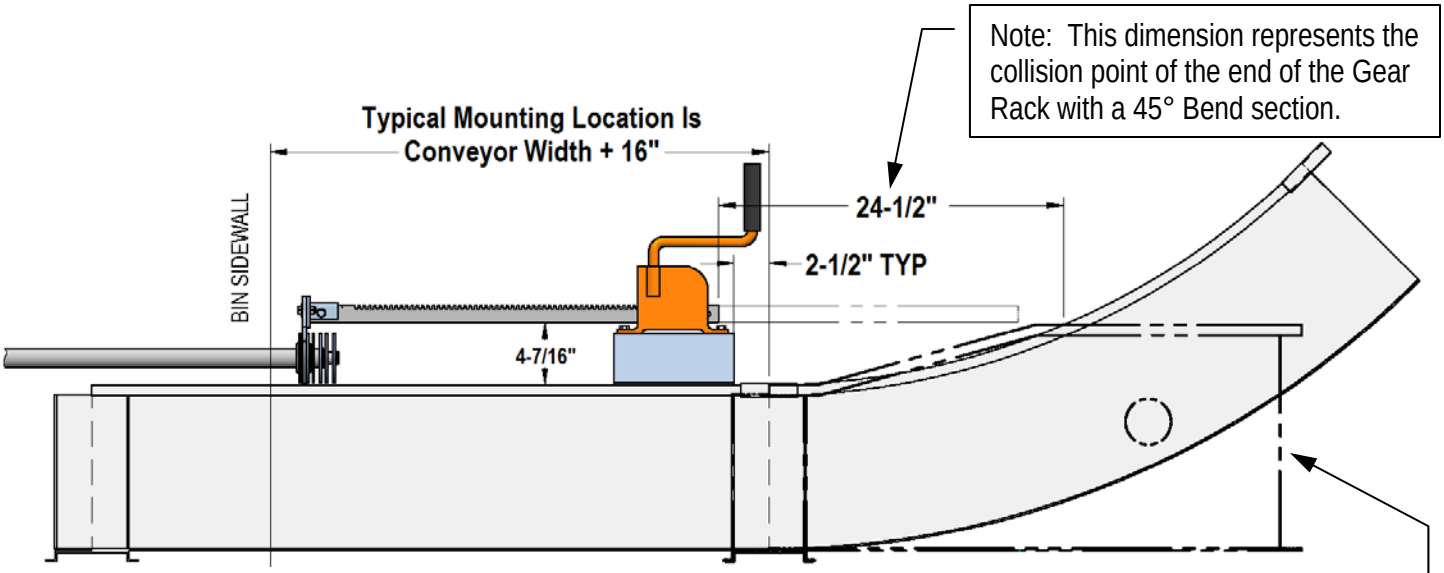


Image 3

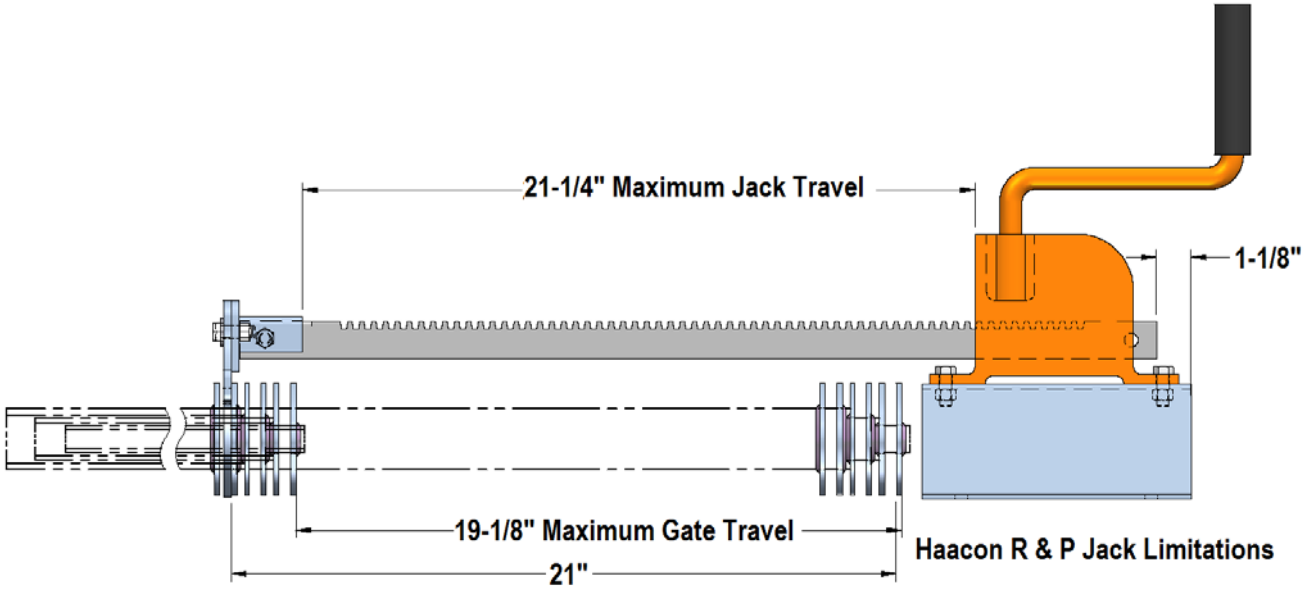


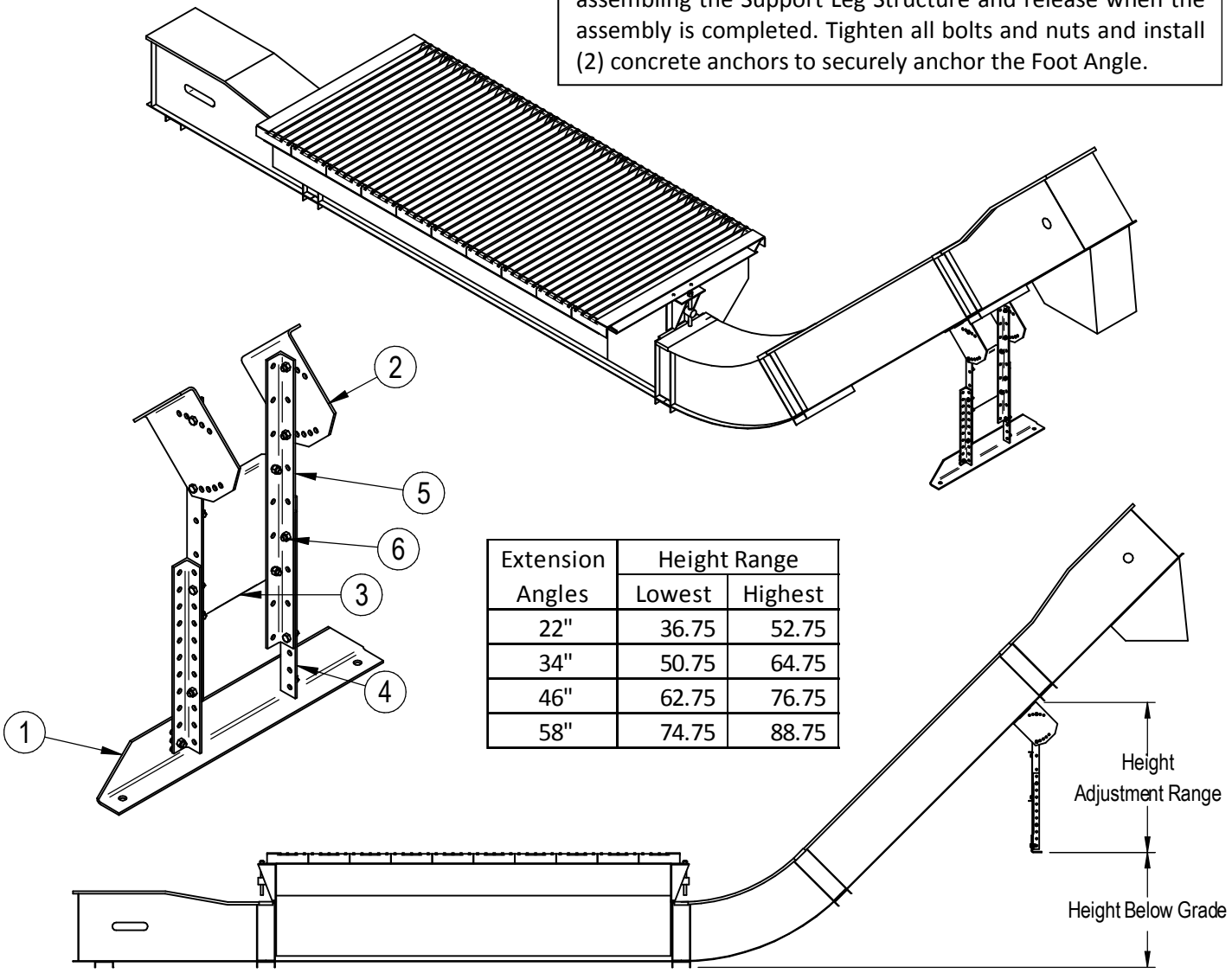
Image 4

Honeyville Incline Drag Conveyor

The Adjustable Support Leg Structure is designed to accommodate Incline Drag Conveyors with varying discharge heights. Each Drag Conveyor assembly is supplied with an all bolted adjustable Support Leg Structure that can be installed at any point along the bottom of the Drag Conveyor Incline Section other than at the location of the Trunk Section Splice Channels.

Assembly instructions:

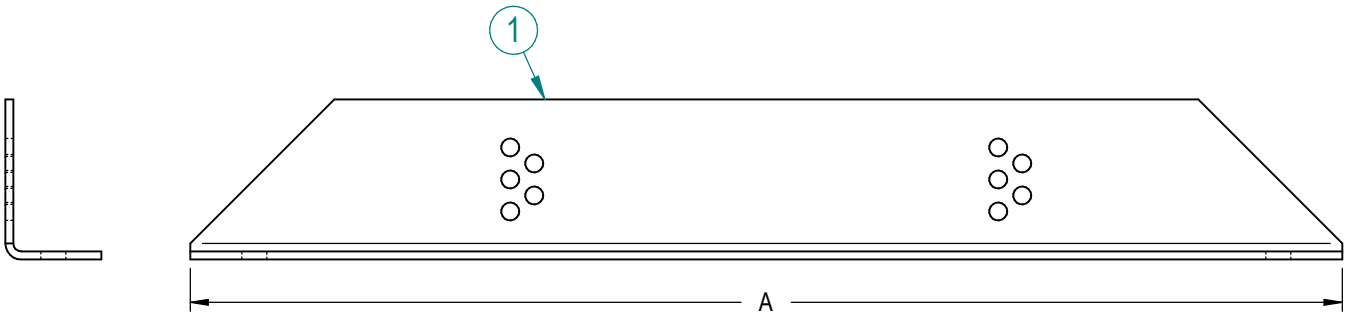
Attach the Main Brackets (Item 2) and determine which pivot bolt holes that you will be using based on the degree of the incline. Next attach the Main Angles (Item 5) and install the Brace Plate (Item 3) to create a stabilized upper assembly. The remaining space below this assembly is a variable and with the Extension Angles (Item 4) you will complete the connection onto the Foot (Item 1). With the 2" hole spacing on the Extension Angles and the 1/2" hole spacing on the Foot you can achieve a proper fit of the Leg Structure. You may want to use a hydraulic jack to apply some lift pressure under the Conveyor Head Section while assembling the Support Leg Structure and release when the assembly is completed. Tighten all bolts and nuts and install (2) concrete anchors to securely anchor the Foot Angle.

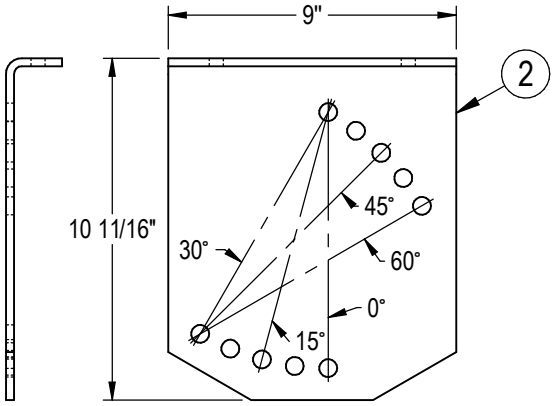


Extension Angles	Height Range	
	Lowest	Highest
22"	36.75	52.75
34"	50.75	64.75
46"	62.75	76.75
58"	74.75	88.75

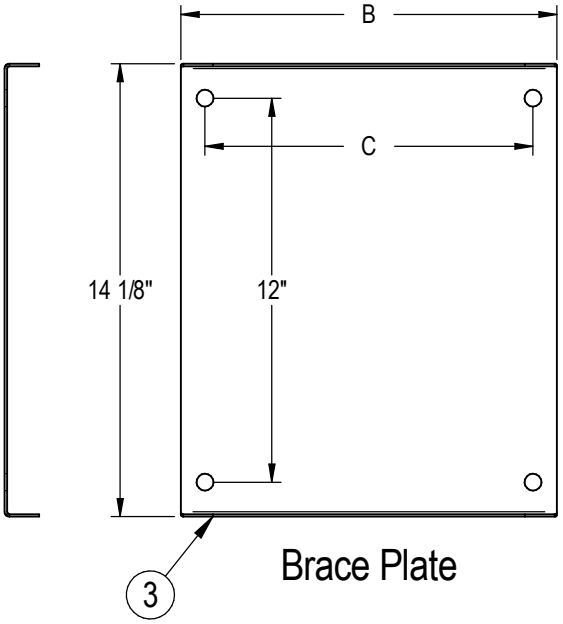
Item	Description	HD-F13IC	HD-F16IC	HD-F22IC
1	Foot: 1/4" HR	A = 36"	A = 39"	A = 45"
2	Main Bracket: 1/4" HR	(1) Right Hand and (1) Left Hand		
3	Brace Plate: 14 Ga Galv.	B = 11¾", C = 10¼"	B = 14¾", C = 13¼"	B = 20¾", C = 19¼"
4	Extension Angles *	(2) 2" x 2" x 1/4" x 22"		
5	Main Angles	(2) 2" x 2" x 1/4" x 34"		
6	1/2" x 1¼" Bolt & Nut	(14) Required		
7	Height Below Grade	33" w/Grates	33" w/Grates	40" w/Grates

* Extension Angles available in the following lengths: 22", 34", 46" & 58"

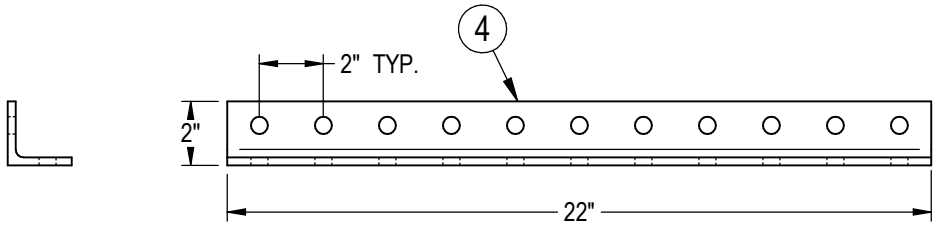




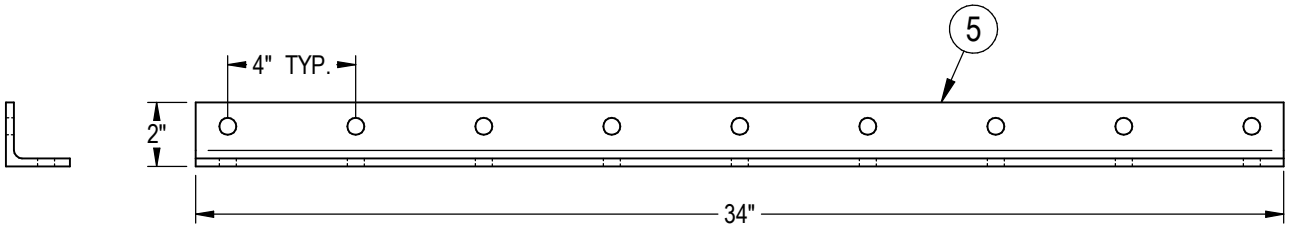
Main Bracket



Brace Plate



Extension Angle



Main Angle