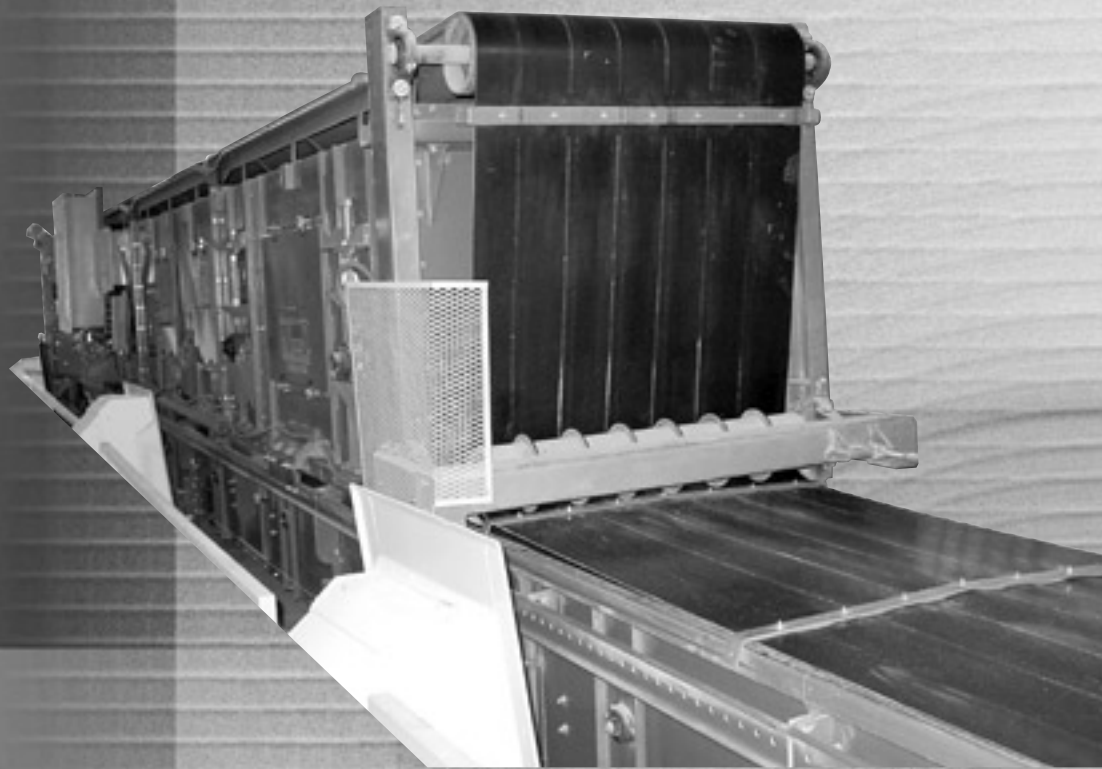


CONSIGNOR

Enclosed Movable Tripper



Invest

in

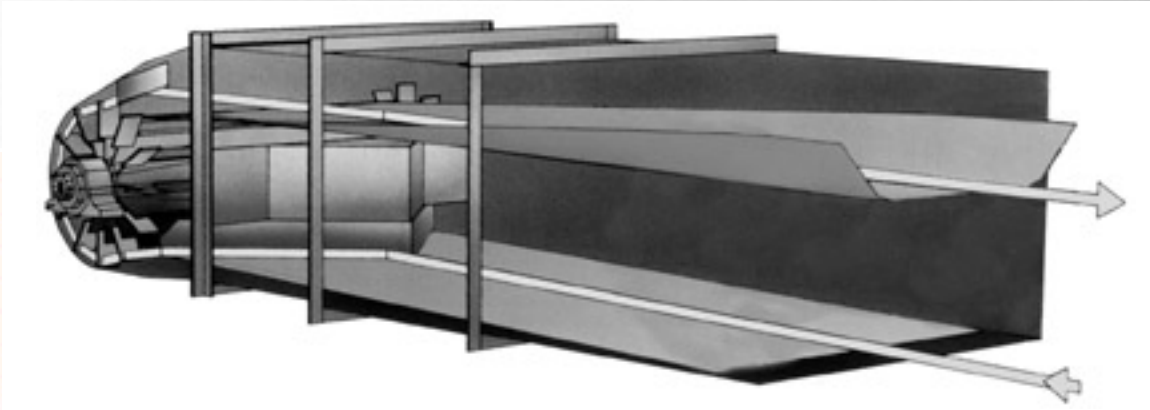
efficiency.

HI ROLLER[®]
ENCLOSED BELT CONVEYORS

The Problem Solver

Hi Roller Enclosed Belt Conveyors are designed for the safe, gentle, and efficient handling of dry, bulk materials. This unique, totally enclosed belt conveyor contains dust and spilled material *and* automatically reloads that material back on to the belt.

The arrow shows the flow of dust and spilled material back to the tail section where it is directed into reloading vanes, then thrown and deflected back on to the top belt.

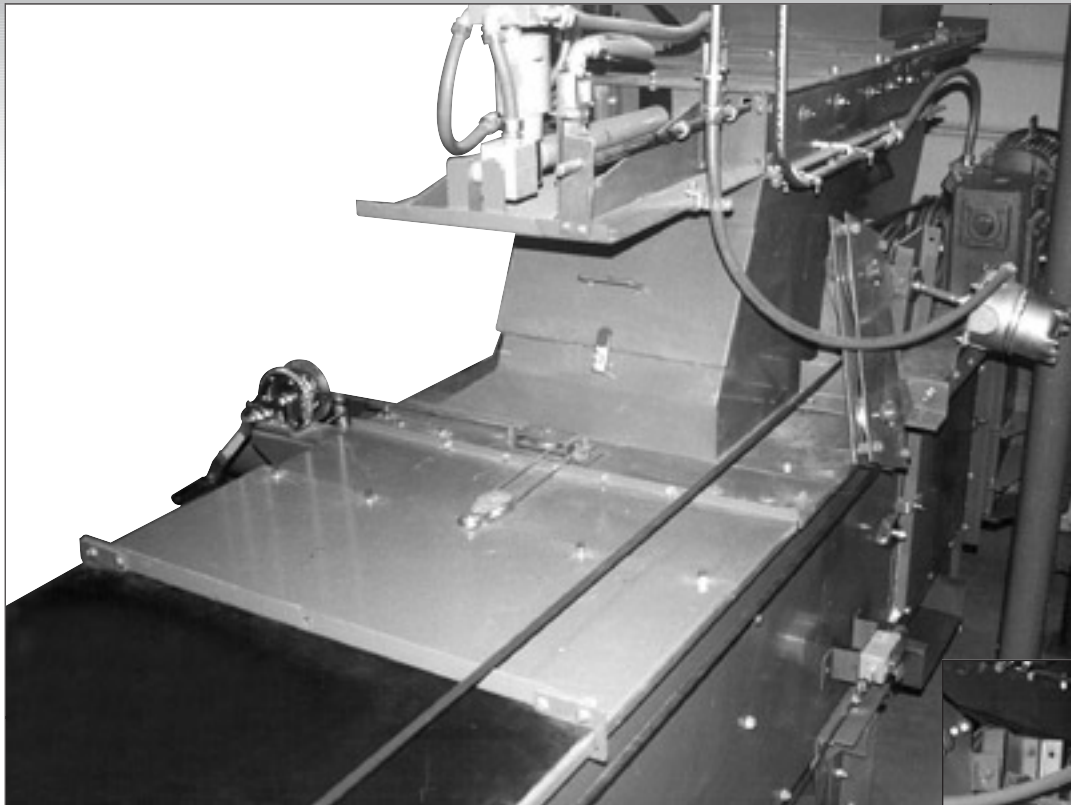


Continuing upon this theme, we set out to develop a revolutionary new piece of equipment to discharge or consign product into multiple storage points. The **Consignor** was designed with two main goals in mind:

1. First, to be a totally enclosed and self-cleaning movable tripper with all bearings and controls isolated to the exterior of the housing.
2. Second, to be completely operational from a remote separate control room.



A full scale prototype was developed and installed in Hi Roller's test facility in Sioux Falls, South Dakota, USA. The prototype system was designed to convey 18,500 cubic feet per hour of material. The system used a PLC and computer to control the system. Numerous on-board monitoring devices were incorporated in this design. The prototype was a great success! Since that time, several customer installations have been completed with different capacities, conveyor lengths, and degrees of automation.

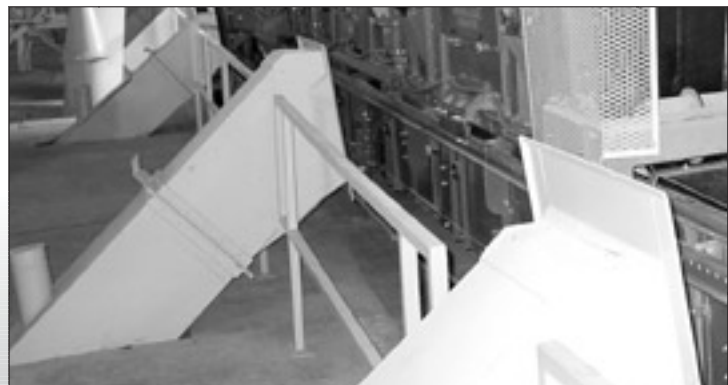


The Consignor moves via a variable speed electric winch.

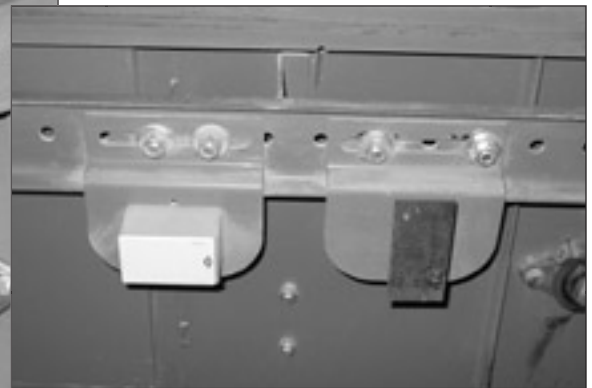
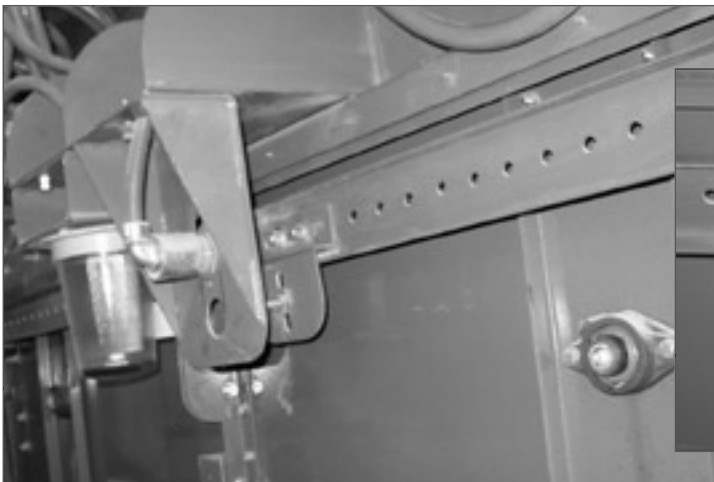
The Encoder is an electronic tape measure that controls positioning.



Discharge Gates & Seals are incorporated into the design of the **Consignor**. Many optional types of Discharge Gates, "Y" Spout Gates, Spout Seals, Silo/Bin Top Cover Seals, and other requirements can be included in the design of the system. Hi Roller Conveyors designers can work with the customer's design team to meet the installation design requirements.



An on-board generator and batteries provides power for the electric motors and electronics of the **Consignor**. The on-board PLC communicates with the wall mounted and hard wired PLC by means of a Wireless Ethernet, a Wi-Fi Network.



Position is confirmed and verified with a RFID tag Reader. The RFID Tag Reader verifies the exact position and Bin/Silo Number of the location of the **Consignor**. The position and Bin/Silo Number is verified in triplicate:

1. Encoder - determines the position of the movement of the **Consignor** Winch System.
2. Mechanical Lock - mechanically locks the **Consignor** the position.
3. RFID Tag Reader - verifies the exact position and Bin/Silo Number.



We invite all customers to visit our website for additional information. We have an excellent CDR Video Program that shows one of our customer's installation of the **Consignor**. Please call to get a copy of the program.
www.hiroller.com

Sequence:

- After systems are powered up, the operator selects the desired discharge point.
- The **Consignor** backs away from position and stops.
- Mechanical lock is disengaged.
- **Consignor** accelerates to full speed.
- Electric Winch incorporates an encoder that slows and stops the **Consignor** just short of the new position.
- Mechanical Lock is lowered and the **Consignor** creeps forward to lock engagement at the new position and stops.
- **Consignor** verifies its exact position using the RFID Tag Reader.
- **Consignor** moves all gates and valves to the proper position and verifies their position.
- **Consignor** recalibrates the exact location on the Encoder.
- After confirming position, the **Consignor** permits product flow.



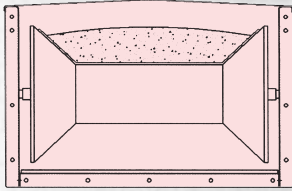
The **Consignor** incorporates a movable tripper that travels along the length of the conveyor discharging at predetermined locations. As the **Consignor** travels along the conveyor, a flexible cover allows it to pass under—providing a constant dusttight seal.

A slight negative pressure is maintained within the enclosure during operation. This seals the cover to the conveyor trunking and prevents dust leakage. The conveyor trunking acts as the ductwork for the aspiration system. The objective is to keep the dust within the enclosure and have it reloaded to be discharged with the conveyed product.

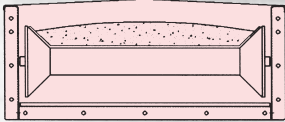
A Few of the Benefits:

- The **Consignor** is a totally enclosed system. The dusttight enclosure nearly eliminates the need for housekeeping in enclosed galleries.
- All controls and bearings are isolated to the exterior of the housing—away from dust and contamination.
- The **Consignor** is fully automated and can be integrated into the customer's existing automation systems. It is also available with a stand alone computer or a total manual system.
- The on-board PLC is capable of monitoring bearing heat sensors, gate positioning, bin floor door openings and many other required functions. The on-board PLC communicates with the wall mounted hard wired PLC so these monitoring points can be communicated to the total automation and control system.
- Consignment is verified in triplicate:
 - Encoder - determines the position of the movement of the **Consignor** Winch System.
 - Mechanical Lock - mechanically locks the **Consignor** to the position.
 - RFID Tag Reader - verifies the exact position and Bin/Silo Number.
- Encoder is automatically recalibrated each time the consignment position is verified.
- Aspiration costs are minimized. A slight negative pressure is all that is required on the system. The conveyor trunking acts as the ductwork for the aspiration system.
- Troubleshooting can be done remotely with a computer link.
- Belt conveyors are the most gentle and efficient way to convey product.

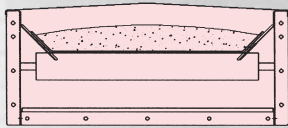
Hi Roller Conveyors are custom built to your specific requirements. Some of our more popular models include:



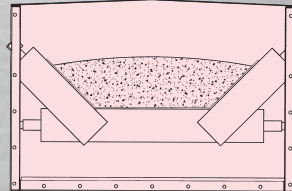
Hi Roller: Available in belt widths from 18" to 54", this is our original and most popular model. The unique bell-shaped carrying idler provides the trough for the belt and utilizes two external bearings as opposed to the six internal bearings associated with a conventional idler. The bell-shaped idler also has built-in self-aligning characteristics for both single and bi-directional conveyors.



Mini Roller: Available in belt widths from 16" to 36", the Mini Roller includes all the benefits of the Hi Roller in a lower profile design.



Lo Roller: Available in belt widths from 16" to 36", the Low Roller utilizes a flat carrying idler to support the loaded weight of the belt and relies on the UHMW side slides to form a trough for the belt. This design provides continuous belt support and creates a seal at the edges.



Hi Life: Available in belt widths from 18" to 72", the Hi Life utilizes possibly the heaviest, longest life, most reliable conveyor idler available. Resembling a conventional conveyor idler, the Hi Life idler is much thicker, the bearings are much larger and there are no brackets or bearings exposed to the internal atmosphere of the conveyor housing.

Specials: Tailored to your specific application, we can customize conveyors to meet your needs such as the Hi Bulk. The Hi Bulk is an en masse belt conveyor designed to move large quantities of material in limited space. Many other special configurations can be utilized to meet your design requirements. We offer many different types of Inlet/Loaders, Special Discharge Sections, Gradual Inclines, Sharp Up-Bend Inclines, Two-Way Discharge Valves, and many others. We can supply you with an integrated catwalk and walkway for longer spans between supports.



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ENCLOSED BELT CONVEYORS

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Belt
Conveyors
have long
been known
as the
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of conveying
materials.