



10252 Decoursey Pike
Covington, KY. 41015
(859) 356-5145 Fax: (859) 356-5146
www.conveyorservicesinc.com

De-burring metal edges with a Brush Conveyor

Problem:

A Cincinnati company came to Conveyor Services, Inc. with a formed and pressed cover requesting the sharp edges be removed from the open side. The process they were currently using was completely manually. CSI made an on-site visit to the customer's facility to see the operation and determine what could be done to automate the process while the product was being conveyed.

Key Issues to Solve:

The issues with removing sharp edges from the open side of a form pressed metal part while it was moving on the conveyor lines were:

1. Orientate parts in a straight line on the conveyor.
2. Separate parts into 5 conveyor lanes.
3. De-bur the conveyed edge of the metal part on all sides.
4. Maintain product flow rate through the brush conveyor.
5. Hold product to keep the brush conveyor from spinning or tipping the product while it was being de-burred.
6. Maintain a smooth conveyor transfer from tabletop belt to tabletop belt.

Solution:

Conveyor Services put together a cost proposal for a brush conveyor de-burring machine. Once the customer reviewed proposal, our engineering/design department created a concept drawing for the de-burring equipment and in turn the customer issued a purchase order.

The Design:

The brush conveyor was built with 5 lanes of 3-1/2" tabletop steel belt. The brushes for de-burring parts were 10" diameter wire wheels. There were 114 wire wheels – 57 per carriage. The carriages were custom made to be lowered for removal and brush replacement. Two 20HP motors power the brush carriages with the brushes reaching speeds up to 21MPH. The tabletop belt had lugs welded to it in order to grab and carry the part to the brushes. Belt speed was approximately 10 feet per minute. The brush conveyor also had adjustable hold-downs to keep part from tipping over. All hold-downs had been adjusted for the different part sizes.

Result:

Once the Autocad drawing was completed and approved by customer, our engineering detailed the drawings and forwarded to our shop for fabrication. The de-bur machine was fabricated out of structural steel, steel tubing and machined hubs. Upon completion the customer was invited to our shop for testing. The customer requested additional Lexan guarding on the sides and a crossover platform above the equipment with a maintenance ladder on either side. Conveyor Services, installed the de-bur conveyor at the customer's plant in Cincinnati, Ohio during a weekend shut-down. Later in the year the customer decided to relocate the machine and requested we add an incline to the in-feed side. We fabricated the new extension and modified the existing gravity conveyors to feed onto the new extension piece which loaded the de-bur conveyor. After running and testing the de-bur conveyor in production the customer decided to buy 2 new wire brush carriages for a quick change-out, allowing the customer to put new brushes in other carriages without any down time.

The de-bur conveyor kept the product in line, significantly reduced manually handling time and increased overall productivity.