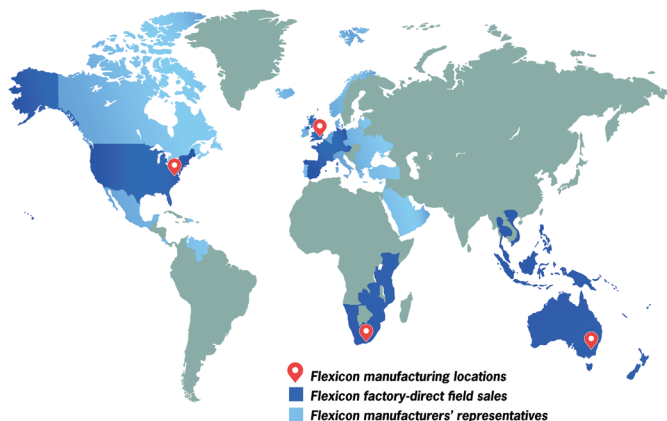




Mobile Flexible Conveyor Cuts Dispersion Time by 30% at Paint Manufacturer

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flexicon®

USA

FLEXICON CORPORATION
Tel: +1 610 814 2400
E-mail: sales@flexicon.com
Web: www.flexicon.com

UK

FLEXICON (EUROPE) LTD
Tel: +44 1227 374710
E-mail: sales@flexicon.co.uk
Web: www.flexicon.co.uk

AUSTRALIA

FLEXICON CORPORATION
(AUSTRALIA) PTY LTD
Tel: +61 7 3879 4180
E-mail: sales@flexicon.com.au
Web: www.flexicon.com.au

SOUTH AFRICA

FLEXICON AFRICA (PTY) LTD
Tel: +27 41 453 1871
E-mail: sales@flexicon.co.za
Web: www.flexicon.co.za

SPAIN

FLEXICON EUROPE SPAIN
Tel: +34 930 020 509
E-mail: ventas@flexicon.es
Web: www.flexicon.es

FRANCE

FLEXICON EUROPE SAS
Tel: +33 7 61 36 56 12
E-mail: ventes@flexicon.fr
Web: www.flexicon.fr

GERMANY

FLEXICON EUROPE GmbH
Tel: +49 173 900 78 76
E-mail: vertrieb@flexiconeurope.de
Web: www.flexicondeutschland.de

SINGAPORE

FLEXICON SINGAPORE PTE LTD
Tel: +65 6778 9225
E-mail: sales@flexicon.com.sg
Web: www.flexicon.com.sg

INDONESIA

FLEXICON SINGAPORE PTE LTD
Tel: +62 81 1103 2400
E-mail: sales@flexicon.co.id
Web: www.flexicon.co.id

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BRIGHTON, MI — A flexible conveyor and hopper on wheels slashed mixing time by 30% to speed throughput in manufacturing Transtar Autobody Technologies, Inc.'s automotive paints and primers. Compared to the previous manual method, the automated conveying arrangement causes five different dry materials to disperse more quickly when added to five high-speed mixers containing solvents and resins.

This manufacturer of automotive after-market paints also gets a dust-free workplace while deploying operators more productively and safely.

Formerly an operator dumped 50-75 lb bags of titanium dioxide, calcium carbonate and two types of talc into the 54- to 60-in diameter high-speed dispersers. The process was slow. The powders and granules would often clump, taking a long time to migrate to the center blade's vortex to fully break down into the desired mix.

Now, the 10-ft long, 45 degree angle portable flexible conveyor deposits the dry material directly from the hopper into the vortex. The material disperses uniformly and quickly, ready to flow to the next step, milling.



Bags Dumped Dust-Free

The 4-1/2-in diameter flexible screw conveyor rides on a 6-ft long cart along with the 36-in square, 9 cu ft capacity hopper. The operator wheels the cart, which carries the bags, to each mixer to deposit the various dry materials. As he empties the bags into the hopper, drop-lines from the plant dust collection system connect to the hopper's dust collection port to siphon off dust. The enclosed flexible conveyor tube further keeps the atmosphere dust-free.

For power, an electric cord from the cart connects to the nearest outlet in an electric raceway in the ceiling. The conveyor's electrics are explosion proof, and the conveyor screw is of non-sparking stainless steel due to the presence of volatiles used in the paint-making process.

The flexible screw conveyor moves the materials through its polyethylene outer tube enclosing a rugged, flexible stainless steel screw, driven by a 3-hp electric motor. Only the inner screw contacts the material. As the flexible screw rotates in the tube, it self-centers to provide clearance between the screw and tube wall.

Materials Pose a Challenge

Collectively, the five materials are particularly difficult to move using one conveyor due to varying bulk densities and the tendency of several to pack, cake, bridge, and otherwise resist flow. They include a free-flowing granular flake resin, a non-free-flowing titanium dioxide powder, two forms of light density semi-free-flowing talc, and a non-free-flowing calcium carbonate.

Flexicon applied its BEV-CON™ style flexible screw, which reduces compression of the material on all screw surfaces except the top surface that propels material in the desired direction, promoting flow of the most difficult-to-handle products.

The hopper configuration is also engineered to prevent non-free-flowing materials from bridging. It employs a steep backwall and diametrically opposed sidewalls having panel sections which are skewed outward on a horizontal axis, forming a trapezoidal area. The divergent angles reduce the ability of non-free-flowing materials to establish a bridge between the hopper sidewalls, instead causing material to topple and flow toward and down the steep backwall.

The hopper walls converge to form a trapezoidal inlet to the conveyor interface adapter, which also employs shear planes and vertical walls, to direct material into a rotating flexible screw more positively than with previous rectangular interface adapters. After conveying the materials to the mixers, the operator cleans the tube by reversing the screw rotation and unscrewing the bottom clean-out cap to remove the remaining material.

Robert Wyrobek, Transtar operations manager, says he considered other flexible conveyors and a continuous tubular disk conveyor, which he concluded was a high maintenance item. He chose Flexicon after Flexicon ran tests on the materials and devised this solution that worked.

Plant to Expand

As production increases, Transtar plans to retool its plant to meet increasing demand. "Our 4-year plan looks to double the sales we have today," Wyrobek says. Flexicon conveyors, having proven their mettle, will figure importantly in realizing that growth.



USA

FLEXICON CORPORATION
Tel: +1 610 814 2400
E-mail: sales@flexicon.com
Web: www.flexicon.com