

# Upgrading The Components Side Of Material Transfer

Rachel Leisemann Immel, Associate Editor, IMPO

*This article first appeared in IMPO's [November/December 2012](#) [1]issue.*

That “the whole is greater than the sum of its parts” certainly rings true when considering industrial conveying systems. The components side of material transfer can be the lifeline of a manufacturer, ensuring that parts get safely and efficiently from point A to point B — saving workers strenuous and expensive labor — and going where forklifts and other material handling solutions might not be able to go. Able to move a variety of shapes, sizes, weights, and materials, conveyor systems are evolving as automated operations demand 24/7 capabilities, more sustainable options, and expanding choices as the industrial sectors continue to grow.

One of the newest material handling solutions to debut is a new and improved conveyor for metal cutting machine tool chip removal, says John D’Amico, co-principal and head of sales for Jorgensen. “So often in high demand applications today, the conveyor just fails to pass the chips and stringers through to the discharge point and chips jam up at the lower transition and elevating sections,” he says. The new hinged steel belt conveyors employ a unique stacked conveyor arrangement at the lower curve and throughout the incline and chip discharge of the system, compared to a traditional horizontal hinged belt load section that transitions to the incline when a second hinged steel belt conveyor mounted above the primary conveyor is running the belt in the same direction as the primary belt. “The new hinged steel belt conveyors are designed specifically to handle heavy chip loads and large stringy chips and balls of chips generated in milling and turning applications where high work piece stock removal rates exist,” he explains. Both of the belts are designed with carrying cleats. As the chips and “stringy balls of chips” go through the transition at the lower curve, the chips and chip balls are “literally sucked in and pinched between the two moving belts through the incline and discharge area,” D’Amico says. “Chips are effectively compressed and trapped until they are forced off the discharge end of the conveyor.” He adds that this design can be fitted into most of today’s CNC lathes and machining centers, and has little to no effect on the required space.

Compact conveyor design is a concern for many of today’s manufacturers, agrees John Kuhn, director of marketing at Dorner. “The impact for manufacturers is significant,” he says, “The conveyor sized to carry heavier loads has been reduced significantly.” One such conveyor features cogged belting with corded reinforcement. “The belting is able to run over a very small pulley, allowing for a very compact conveyor design,” Kuhn explains. These cogged belts can run over a 1.25-inch pulley versus a traditional cogged belting running on a 3.5-inch pulley, and increase the flexibility of the smaller pulley diameter conveyors, he says. This belting is ideal for the precision movement required in automated assembly, robotic

## **Upgrading The Components Side Of Material Transfer**

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

---

pick-n-place, or timed sequencing — and allows for the transmission of power, Kuhn stresses. “This enables conveyor manufacturers to run multiple conveyors with one drive for slave, common, and gang driven applications. This reduces the cost of implementing a conveyance solution by eliminating the number of drives, reducers, and mounting hardware required.”

### **Advancing Conveying Options**

The trend to automation and 24/7 machining means the conveyor system needs to continue the trend of becoming more and more sophisticated — and this includes the belting, and electronic monitoring for performance and element diagnostics. “The conveyors need to be more reliable and even capable of clearing minor jams without human intervention,” stresses D’Amico. He adds that the “green/environmental” push is also driving sophisticated conveyor requirements.

“Some of the trends in metalworking manufacturing are definitely driving requirements in coolant management and chip handling,” D’Amico explains. “Chips need to be dry before they leave the shop for recycling. Conveyors and filters need to be designed and controlled with a higher sensitivity to energy consumption than ever before.” Coolant life and coolant quality also needs to be maximized in green operations, since spent coolant is a hazardous waste stream item. Today, there are eco-conveyor control options available to help address energy-efficient operations of conveyor systems in an “in-attended” machine operation, he adds.

“The current 24/7 high speed machining environment, coupled with new cutting tool technology enabling the machining of harder materials, creates the need for chip removal conveyor systems that are more durable and wear-resistant as conveyors see more chips that are more abrasive to the conveyor.” D’Amico stresses. He foresees the oil and energy sector in America as being a “big long term growth sector” for the metal cutting machine tool industry, which will involve more large parts turning. “Long, nasty, stringy chips and large ‘birds nest’ balls of chips often seen in these machining processes present definite challenges to the conveyor system operation.” The increase in the use of composite materials, such as titanium or nickel alloy, for parts across the industry will continue to drive the need for high wear systems capable of handling an array of larger, tougher chips — as well as finer lighter particulates, escalating the need for chip removal systems that will be able to handle these increased demands.

### **Upgrades: How, When, Why**

Kuhn says the upgrade program is a two pronged approach for manufacturers looking to improve their conveyor systems in the face of more and more demanding operations. The “first strategy is to alert the user to the wear items and recommend spares of the conveyors they are considering,” he says. Conveyor suppliers can identify and quote critical wear parts along with the conveyor, and provide the milestones for critical item inspections. “Our manual has the parts list broken down by critical parts to normal parts,” Kuhn stresses. “The safest and most effective way to keep production lines running is having the right wear part on the shelf.”

## Upgrading The Components Side Of Material Transfer

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

---

The second strategy, he says, is an upgrade program. "From time to time, there are innovations or changes in design that enhance the component performance of conveyor solutions." To let manufacturers know about these upgrades before they change out their conveyor components, Kuhnz says all of the part numbers for every conveyor utilizing that component, "whether it was sold yesterday or five years ago," will be updated in the operation software. "The next time the customer orders that wear component, the new higher performing component will be sent on its way." Technical notices also are sent to customers notifying them of component upgrades, he adds, "in case they would benefit from immediate implementation of the new item."

### Source URL (retrieved on 10/24/2014 - 9:01am):

<http://www.impomag.com/articles/2012/11/upgrading-components-side-material-transfer>

### Links:

[1] [http://e-ditionsbyfry.com/Olive/ODE/IMP/Default.aspx?href=IMP/2012/11/01&amp;?EmailAddr=@%7Bdelivery\\_email%7D@](http://e-ditionsbyfry.com/Olive/ODE/IMP/Default.aspx?href=IMP/2012/11/01&amp;?EmailAddr=@%7Bdelivery_email%7D@)