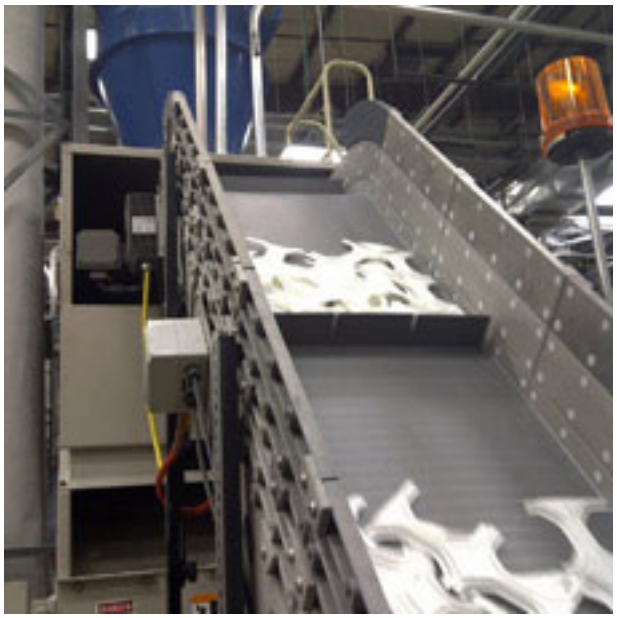
Modular Conveyors: Low Visibility Components in Eco-Efficiency



Since the beginning of the industrial revolution, the focus in the manufacturing arena has been directed towards doing things smarter, cheaper, and faster. Today, with what history may deem the ‘environmental revolution’, manufacturers must also take into account how to get it done faster and smarter while also using fewer resources, creating less pollution and waste, and still finding a way to do it cheaper.

Committed to increasing product value while generating less waste from production processes, minimizing its impact on nature, and reducing energy usage, Rexam, a leading global consumer packaging group serving a number of markets including the beverage, personal care, healthcare, and food markets, has successfully improved year over year in doing more with less.

Although auxiliary equipment is considered a low visibility component in the production process, it can be a hidden gem for cost savings that also lends itself to the achieving eco-efficiency goals by reducing the carbon footprint.

At Rexam’s Union, MO, 24/7 plant that produces 1.2 billion thermal formed high barrier food containers per year, a zero scrap-waste system is in place.

In this facility, modular conveyors transport chopped web scrap from a trim press, through a metal detector module, to the granulator for regrinding into usable size pellets where it is reintroduced to the extruders. DynaCon conveyors, manufactured by Muskegon, MI-based Dynamic Conveyor Corp., have provided the turnkey custom conveyors for the process. “We’ve always been able to reuse our scrap, but

the DynaCon conveyors make it a lot easier," says Mark Borzillo, Plant Manager.

According to Borzillo, "the conveyors are hundreds of pounds lighter than standard metal conveyors making them easier to move around when performing product change-over and placing different equipment in the machines."

Carbon Footprint

Beyond contributing to easy production change-over, the lightweight composition and modularity of the conveyors contribute to the reduction of emissions from transport, and the reduction of whole lifecycle carbon footprint associated with the manufacture and ultimate "end of life cycle" breakdown of more traditional metal conveyors.

According to Borzillo, standard metal conveyors ship fully assembled, and require special crating which take up more space on freight trucks. In contrast, modular conveyors ship partially assembled in a box, not only reducing freight costs, but also contributing to lower transportation CO2 emissions.

Borzillo purchased the first modular conveyor from the company in 2003, and has since increased the number of systems to ten. "The fact that I can reconfigure them is the biggest selling point," he says.

Replacing the obsolete metal conveyors with sustainable conveyors, allows more flexibility on the production floor, the elimination of replacement conveyor costs and the direct reduction of greenhouse gas emissions created as the by-products of industrial production of fixed metal conveyors and their "end of life cycle" breakdown.

Like LEGOs

Within the industrial sector, the EPA's 2011 Draft U.S. Greenhouse Gas Inventory Report identifies iron and steel production as the number one contributor of greenhouse gases, and although CO2 emissions from aluminum production was only slightly higher than plastics production, the use of sustainable modular conveyors yields greater gains toward eco-efficient goals because they can be reconfigured to fit any application.

Borzillo says of the high impact polycarbonate modular conveyors, "they are made from small sections, like LEGOs™, and you just build the conveyors like you want them. If a line changes and I need the conveyor shortened 6 inches, or the slope of an incline changed, I don't need to get rid of a conveyor and buy a new one. I just take a module out, or pop one in and we're good to go."

Similarly, if a forklift hits a sustainable conveyor or someone drops something on it, "you are not going to break the whole thing and need to replace it," he says. "We keep extra generic modules onsite that match the conveyors we have in the facility so if we break a panel, I take the one section out, throw it away and put in another one."

The sustainable model of switching out smaller modules rather than replacing an entire conveyor, allows organizations to remain within their eco-efficient standards and retain smaller carbon footprints, while doing so at lower costs than standard conveyor technology offers.

Belts, Motors

The same sustainable concept applies to the belting on the conveyors. “If I have a standard type conveyor where I have a single belt, and it gets damaged in one spot, or stretches over time, I must replace the entire belt which will cost a minimum of $500 to $600—maybe even more,” Borzillo says. Link style belting addresses this issue and, says Borzillo, “if the belt gets damaged, I pop out a pin, pull out the damaged section and put a new piece in.”

Another item Borzillo keeps on site is motors. They too are modular, with options such as external or internal mounting, and AC or DC. The modular concept allows easy exchange when torque requirements change keeping kilowatt usage to a minimum.

According to the EPA,” the process of generating electricity is the single largest source of CO2 emissions in the United States,” and represents “41 percent of all CO2 emissions.”

Sustainable conveyors use far less power by comparison than traditional conveyors. A traditional 10-foot long conveyor typically uses a .5 horsepower, 480v motor, but a typical DynaCon uses 1/8th of a horsepower and the motors all run on 110v.

Based on each application, conveyors utilize the most energy efficient motors, which range from 1/30 HP to 1 HP. Lowering the kilowatts used not only saves money, but also reduces carbon emissions during the making of electricity.

Turnkey for Life

Where custom fabrication of conveyor equipment was once the standard in giving companies a competitive edge, today, sustainable, turnkey, custom fabrication from standard modules is assisting organizations meet their eco-efficiency goals.

According to Rexam’s corporate website, the company as a whole reduced the CO2 equivalent per unit tonne of raw material converted by seven percent, by focusing on reducing energy consumption and improving process efficiencies.

Borzillo says, “I would never buy another traditional type conveyor for handling scrap. And the evidence shows; once I bought the first one and we liked it, I never looked back.”

For more information, please visit www.dynamicconveyor.com *[1].*

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