Getting A Fix On Conveyors

Traditionally, conveyors are sensitive pieces of equipment needed frequent alignment, belt replacement, and lubrication. Because reconfigurable modular conveyors are maintenance-free, engineering departments are free to hang the systems without worry about taking down conveyors to work on them.

With the economic outlook today, it would appear that controllers and engineers are in direct opposition when searching for methods to enhance the bottom line. Controllers want to reduce expenditures and engineers continue to seek out the most efficient equipment for production lines. Although the medical equipment and supply manufacturing markets have remained strong despite the economic slowdown, controllers are preparing for the worst and beginning to tighten spending.

It is not that controllers are in opposition to a new piece of equipment that promises long-term financial gain; however, those changes that the new equipment bring to the production flow inevitably mean a change in the conveyor configuration which leaves controllers lamenting, “Not another conveyor.”

Although traditional fixed conveyor systems have been one of the leading factors in lean management over the last two decades, they have lost their luster — not just to those who control the purse strings, but also for engineers who have long dealt with the headaches of inflexible systems, long lead times, and production shut downs while systems are installed.

As conveyors have become a necessity on the plant floor, conveyor manufacturers

have attempted to respond to end users needs for flexibility by creating modular systems. But “most attempts at modular systems fall short in the eyes of engineers who know that once a traditional modular conveyor is taken apart configuration and integrity are lost forever,” says Timm Ducey, engineering sales nanager at Barry Sales Engineering, Inc.

One of the fastest ways a conveyor system becomes obsolete is when a new piece of equipment is added to the process. Although many manufacturers identify their modular conveyor systems as reconfigurable, most of their components need substantial alteration, such as cutting and welding to make them adaptable, and once a component has been cut down, there is no way to lengthen it again and that component becomes scrap.

Comparing modular conveyor systems to reconfigurable modular systems is like comparing Lincoln Logs to Legos. Lincoln Logs come in a limited amount of fixed length pieces with a standard groove that limits configuration choices, whereas Legos come in a variety of lengths, heights, and supplementary pieces that can be snapped together at staggered intervals to achieve the desired result.

Just as Legos provide ultimate reconfigurability, the key factor in a truly reconfigurable modular conveyor system is the ability to connect and reconnect a wide variety of modules and accessory modules that allow engineers the freedom to

tweak production lines when necessary without the cost of a brand new conveyor or the risk of losing the conveyor's integrity

"Standard modular conveyors are never really the same once you take them apart to move them or replace a belt. There are leftover parts, the settings are lost, and they just never seem to be squared up like when they first came from the factory," says Ducey. "True reconfigurable modular conveyors, like the DynaCon system, can be reconfigured over and over again. That's the thing about reconfigurable systems, you can't really mess them up."

The DynaCon modular conveyor system from Dynamic Conveyor Corp. is manufactured with lightweight impact-resistant polycarbonate. Their line of conveyor modules and plug-and-solution solutions, include a variety of widths, lengths, conveyor speeds, and accessory options while staying true to its premise of *true* modularity.

"I deal with a lot of customers in the medical industry, and they specify reconfigurable conveyor systems because the flexible systems allow for quick response to changes in production volume, movement of departments and equipment and the ability to modify the system in house without the additional cost of engineering assistance. Two guys can put a system together in about an hour," says Ducey.

With reconfigurable modular conveyors, changes are made simply by swapping out modules with the release of a few bolts and snapping the modules in or out.

Adding New Equipment to the Process Changes the Configuration

In the medical manufacturing industry, change is pretty much a constant and process engineers are tasked with implementing changes in the most efficient manner with the lowest total cost of ownership. With standard modular conveyors, equipment changes often mean purchasing an entirely new conveyor or major overhauls of the existing system that habitually require downtime and additional engineering expertise from the conveyor manufacturer in order to cut down the unit to fit the new configuration.

One manufacturer of plastic medical supplies had been using three reconfigurable modular conveyors to transfer parts from the injection molding press to printers in different areas of the plant and then to inspection areas, including one that went to a mezzanine, up and over to another conveyor with a 90 degree turn.

After three years, the process was changed and high-speed printers were added to increase production. The entire process was moved down to the production area for convenience which completely changed the configuration.

"If they had been using a standard modular conveyor system, that manufacturer would have had to pretty much purchase a new conveyor system," says Ducey. "But, the company had a DynaCon system so they took the three existing conveyors that no longer met their needs, reconfigured them to make four

conveyors that worked with the new process and all they had to do was buy one motor module to do that."

In the medical manufacturing industry, changes as drastic as above don't have to occur to render a conveyor obsolete. Replacing older equipment with more efficient machines that don't have the exact footprint of the existing equipment creates major headaches for engineers when traditional modular systems are in use.

With modular conveyor systems, changes are made by swapping out modules with the release of a few bolts and snapping the modules in or out. Because the belt is also modular in design, links can easily be changed with the release of a few pins.

"A couple of inches makes a big difference," says Ducey. "With standard systems, a few inches increases a company's downtime significantly because they have to have someone come out and fabricate a module on location. With a reconfigurable system like Dynamic Conveyor's where unprecedented 6 inch modules are available, the change can happen in 15 minutes."

Reconfigurable Systems Allow For Customization on the Fly

Often conveyor systems, even so-called modular systems, come with standard internal drives and motors, forcing engineers to battle with getting the controls to work within their own system. With complex modular systems, the conveyor is speced out at the factory and is virtually inadaptable to new equipment.

Reconfigurable modular systems offer drive systems and motors that are external, allowing engineers the option to purchase motors with or without the drive system, giving them the flexibility to use their existing controls to manipulate the conveyors.

When drives and motors fail on traditional conveyor systems, it is not uncommon that replacements for a particular model are unavailable. "When that happens the engineering department is left with a conveyor that has a wire hanging from it

which is totally useless," says Ducey.

Reconfigurable modular systems accommodate engineering departments' desire to purchase AC or DC motors as modules that integrate with their system. "Sometimes engineers want to spec their own motors in order to have equipment that is common to the systems in their facility. It allows them to have replacements on hand without having to store a lot of extra equipment and the reconfigurable modular systems fit that need."

Lightweight Maintenance-Free Systems Ultimate in Flexibility

For process and production engineers, flexibility is crucial when deciding on plant layout. The ability to liberate floor space by hanging lightweight reconfigurable modular conveyors from the ceiling does more than just save space, it also reduces trip hazards and allows for other machinery or pallets to be pulled under them.

Traditionally, conveyors are sensitive pieces of equipment needing frequent belt realignment, belt replacement, and lubrication. "With traditional conveyors, belts often need to be replaced every 18 months. Over ten years that can mean an additional $4,000 to $5,000 in equipment cost, not to mention the downtime and labor to replace the belt," says Ducey. "One of my clients, who suspended a DynaCon system from the ceiling, had a system in place for 8 years and never once had to perform maintenance. The system only came down when they reconfigured their system after changing their process."

The DynaCon system uses impact-grade polypropylene link-style belting that is self-tensioning, requires no maintenance, and is warrantied for five years. If ever a portion of the belt is damaged, there is no need to take apart the conveyor or replace the entire belt. With the release of a few pins, the damaged links are removed and new links are replaced.

Belting options, including a variety of flat top, perforated, and friction designs are

available in widths from 4” to 72”. Drive flights (cleats) may be installed at any location along the belt, and are available in 1”, 2”, and 3-in. heights for all belt widths.

These belting options give manufacturers solutions to common problems, such as small plastics parts being pinched between flights. Because the belt is also modular in design and links can be easily changed with the release of a couple pins one manufacturer was able to solve this issue by staggering the cleats left right left right, eliminating the gap.

Accidents Happen

Just as only damaged sections of belts need to be replaced, with a truly reconfigurable modular conveyor system, the same is true for the modules themselves.

When damage occurs to traditional metal conveyors, the entire conveyor commonly needs to be replaced because metal remains stiff and doesn’t give when impact occurs; and, waiting for a replacement of a traditional conveyor could effect production for weeks.

When a manufacturer of plastic medical supplies was setting up and locating a reconfigured system to hang from the ceiling, a 40-foot section of conveyor fell in the process. “If it had been any other system beside a DynaCon, they would have been ordering a new conveyor, but because the system is made from flexible impact resistant polycarbonate, there was no damage,” says Ducey. “Even if there had been damage, most of those modules can be purchased and replaced within 24 hours.”

Unless medical manufacturers are significantly expanding their line, engineers need never go to the controller again requesting the funds for a new conveyor system. Many a controller has been brought down to production floors by engineers to prove that this reconfigured system they fought so hard for is still the same system they purchased years ago. Reconfigurable modular conveyors allow manufacturers to streamline their operations, at will, at no cost or minimal cost — most of which are put through the system as standard maintenance charges.

For more information about modular DynaCon conveyor solutions, contact Dynamic Conveyor Corporation at their web site: www.dynamicconveyor.com *[1].*

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