

# Improving conveyor chain life

William Hall summarises the latest options for reducing wear and improving the life of glass conveying chains.



Figure 1: Allguard FX chain.



Figure 3: LifeGuard chain.

In most bottle production environments, standard inverted tooth conveying chains perform admirably and can deliver years of trouble-free service. However, in some situations, conveying chains can be exposed to conditions that create unusual wear, disrupt bottle transport and lead to premature chain failure.

Bottle producers that experience these problems can often realise significant productivity gains by replacing standard conveyor chains with the latest wear protected chains that are designed to reduce, or prevent, specific types of chain wear.

## ARGUMENTS IN FAVOUR

Typical conveying chains contain pins that are riveted, or headed, on the ends. Since these pin heads are exposed on both sides of the chain, they can be susceptible to several types of wear. They may rub against lateral guides or transfer plates, which can result in the gradual wearing of pin heads. Alternatively, the exposed pin heads may snag or hang up on any protruding edges along the conveyor's path.

This snagging can lead to conveyor surging, glass breakage and the chipping or shearing away of the pin head. Once the pin head is worn away or sheared off, there is nothing holding the chain together and it will



Figure 2: Allguard FX link.

start to come apart. If that occurs, the conveyor will need to be shut down so the chain can be repaired or replaced.

## WEAR PROTECTION

Wear protected glass conveying chains are designed to prolong chain life by guarding exposed pin heads against wear and by preventing chain snagging. There are a number of different chain designs that accomplish this.

One approach is to recess the pin head below the surface of a special link that is used on the side of the chain. This is the approach employed in Ramsey's Allguard FX conveying chains (see figures 1 and 2). As the illustrations show, the pin head is completely below the surface of the link, where it is fully protected against abrasive wear and chipping.

The rounded contour of the links, with no exposed sharp edges, also reduces the possibility of link snagging on lateral guides.



Figure 4: LifeGuard Isometric.

Another method of protection utilises special interlocking side links that not only guard against pin head wear but also greatly reduce the size of gaps between adjacent side plates. With smaller gaps between the links, the potential for snagging on lateral guides is significantly reduced. This is the design employed in Ramsey's LifeGuard chains (figures 3 and 4).

Each of these guarding methods is effective in preventing pin head wear and reducing chain snagging. Also, each method of pin head guarding can be built into one side or both sides of a chain, depending on the buyer's preference.

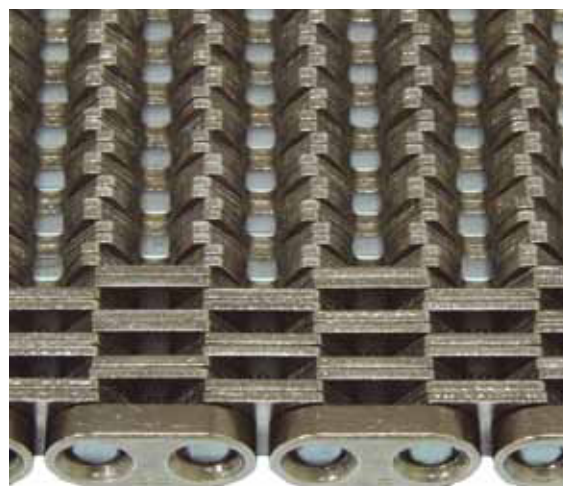


Figure 5: Double stacked link assembly.

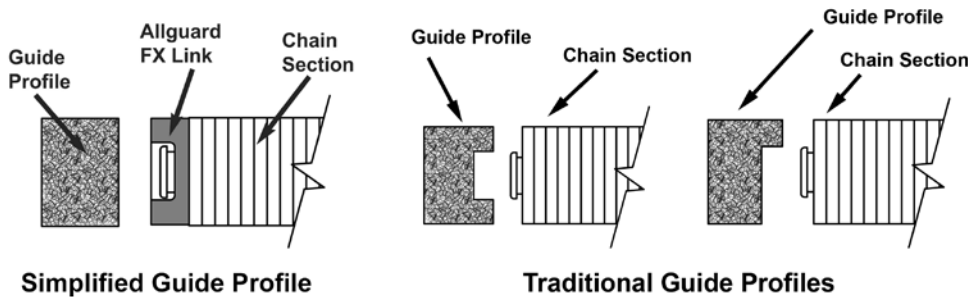


Figure 6: Conveyor chain guide profiles.

When deciding which style is best for a particular application, it is most often a simple matter of customer preference; that being said, it is advisable to examine chain samples from the chain manufacturer and enquire about key details such as cost and availability.

**ADDITIONAL OPTIONS**

Wear protected conveying chains can be manufactured to accommodate a wide range of conveying systems. They are available in widths ranging from less than 1in to over 20in. Chains can be assembled with all links, to maximise surface area, or they can be produced from links and

spacers to reduce overall weight and enhance cooling. Links can also be double stacked within the chain to achieve better air flow and chain cooling (figure 5).

Chains are also available to accommodate three different types of sprocket guiding: Multi guide, side guide and centre guide. For applications requiring an especially smooth conveying surface, the top of the conveyor chain may be ground and polished.

**RESOLVING PROBLEMS**

Although protected chains can resolve many problems, they are not the answer for every situation. Generally speaking, if a glassmaker is satisfied with the performance of a standard chain, there is little justification for incurring the added expense of wear protected chain.

If a conveying chain is showing signs of excessive pin head wear or chipping, the first thing to do is to inspect the conveyor for loose guides or sharp edges that are damaging

the chain. Alignment should also be verified. If these corrections have been made and the chain heads are still wearing, it is probably time to consider a protected chain.

Another reason to consider a wear protected chain is the potential for simplifying and reducing the cost of chain guides. Typical chains are often guided along the conveyor by 'guide' strips that are specially machined to support the chain while not making contact with the pin heads (figure 6). Since wear protected chains have recessed pin heads, it is not necessary to machine special guide shapes. Instead, simpler, less costly, rectangular guides can be utilised. ■

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