



Ramsey:

# WEAR RESISTANT GLASS BOTTLE

# CONVEYING CHAINS

**F**or many years, silent chain, also known as inverted tooth chain, has been used to transport glassware in both hot-end and cold-end applications. Providing a flat, stable, smooth, and heat resistant surface, such chains are available in many “standard” styles and sizes. In most production environments, these standard chain designs perform admirably and

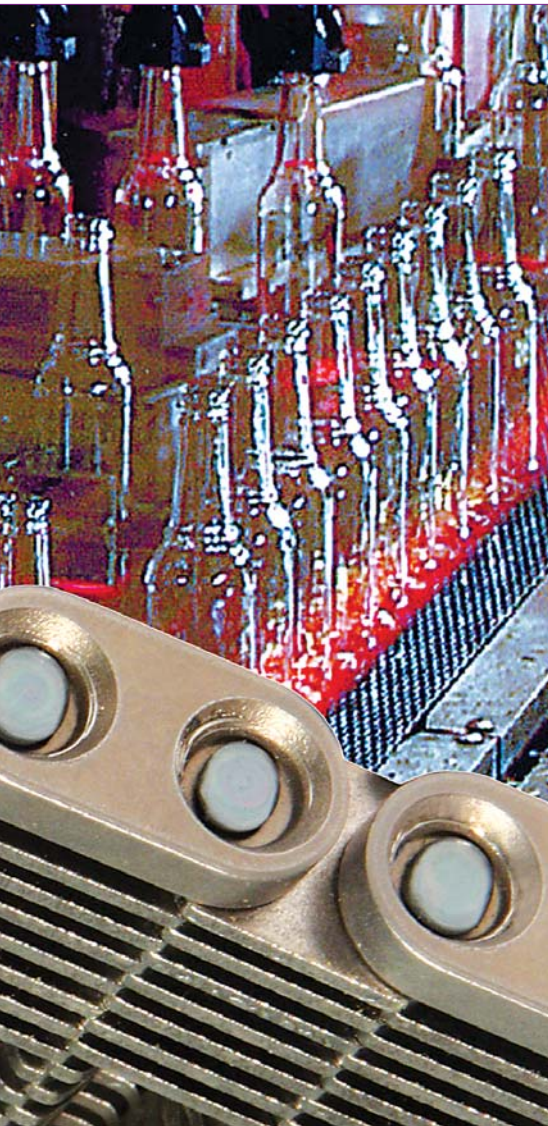
can deliver years of trouble free service. In some situations, however, conveying chains can be exposed to conditions that create unusual wear, disrupt bottle transport, and lead to pre-mature chain failure.

Bottle producers experiencing these problems can often realize significant productivity gains by replacing standard conveyors with wear resistant conveying chains.

## THE PROBLEM

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. Or, the exposed pin heads may snag or hang up on any protruding edges





Glass bottle manufacturers around the globe continue to explore every opportunity to improve production and reduce costly downtime. A key step in the quest for maximum production is optimizing the performance of chain conveying systems on IS machines and cross conveyors.

In this article, Ramsey Products, a chain manufacturer specializing in glass conveyors for more than 50 years, discusses innovations in conveying chain design that can improve conveyor performance, reduce downtime, and extend operating life.

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#### **In standard chains, exposed pin heads can be susceptible to wear**

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

#### **THE SOLUTION: HOW WEAR RESISTANT CHAINS WORK**

Wear resistant conveying chains are designed to prolong chain life by guarding exposed pin heads against wear and chipping. There



## PRODUCTION IMPROVEMENTS

are several 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. As the illustration shows, the pin head is completely below the surface of the link, where it is fully protected against abrasive wear and chipping.

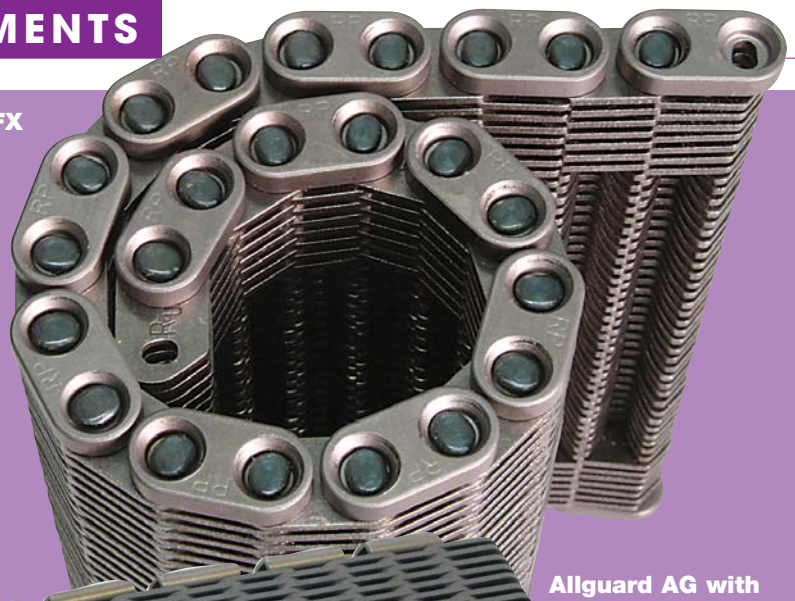
Another method of guarding pin heads is to cover the pin heads with a hardened steel surface. Ramsey's patented *Allguard AG* conveying chains (US Patent No. 7600632) utilize this approach.

Each of the above methods of guarding is effective in preventing pin head wear. Moreover, each method of pin head guarding can be built into one side, or both sides of a chain, depending on the buyer's preference. 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 inquire about key details such as cost and availability.

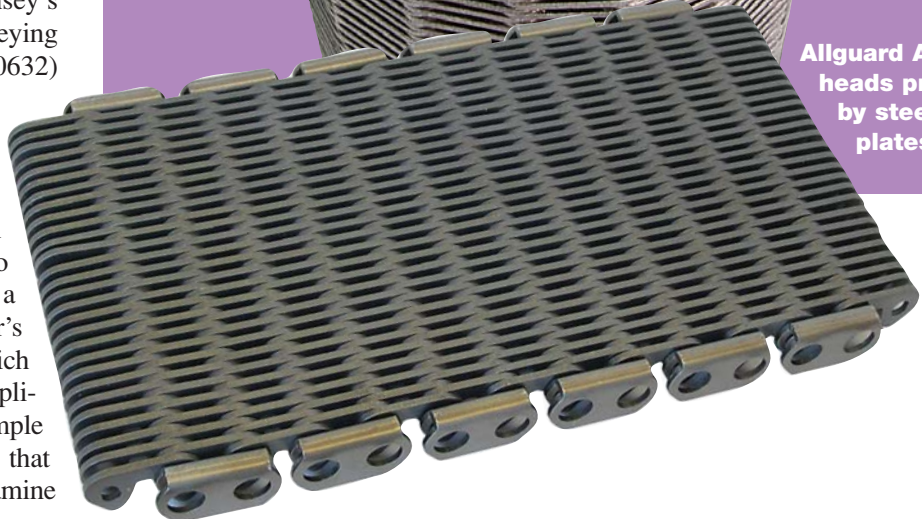
### ADDITIONAL OPTIONS

Wear protected conveying chains can be manufactured to accommodate a very wide range of conveying systems. They are available in widths ranging from less than one

**Allguard FX with recessed pin heads**



**Allguard AG with heads protected by steel outer plates**



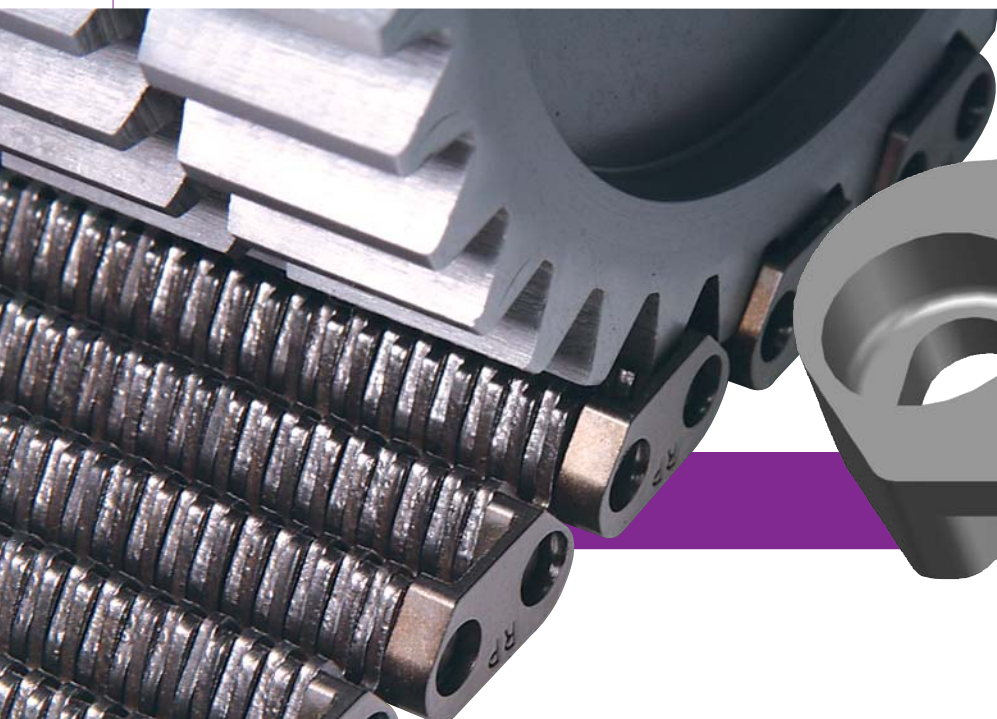
inch, to over 20 inches. Chains can be assembled with all links, to maximize surface area, or they can be produced from links and spacers to reduce overall weight and enhance cooling. Chains are also available to accommodate three different types of sprocket guiding: *Multi Guide*, *Side Guide*, and *Center*

*Guide*. For applications requiring an especially smooth conveying surface, the top of the conveyor chain may be ground and polished.

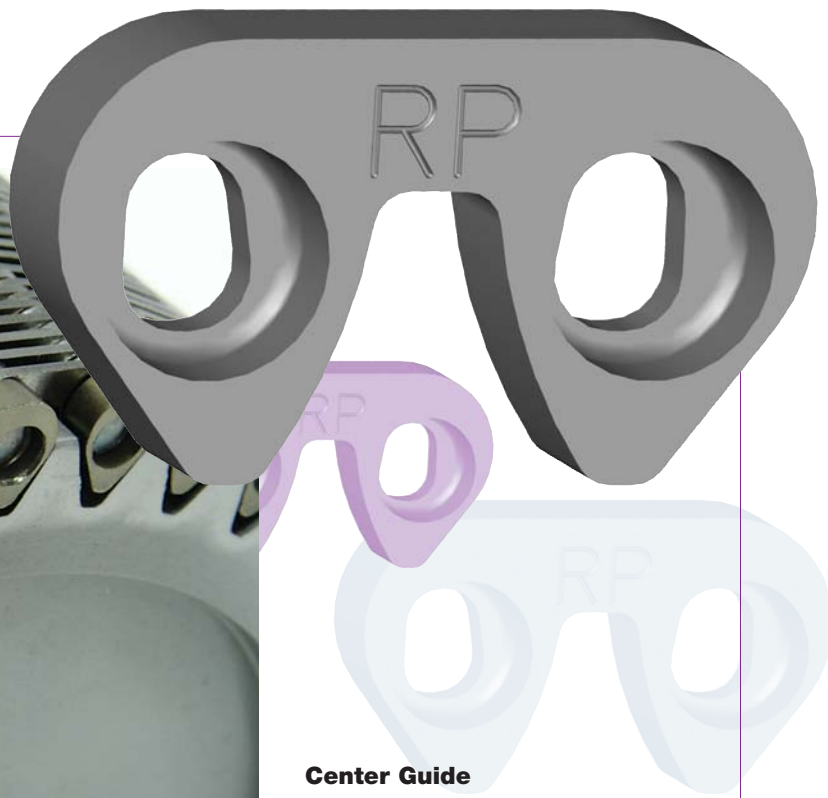
### DO YOU NEED A WEAR RESISTANT CHAIN?

Although wear resistant chains can resolve many problems, they

#### Side Guide







**Center Guide**

are not the answer for every situation. Generally speaking, if you are satisfied with the performance of a standard chain then there is little justification for incurring the added expense of wear resistant 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 may be 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 wear resistant 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. Since wear guarded chains have protected pin heads it is not necessary to machine special guide shapes. Instead, simpler, less costly, rectangular guides can be utilized.

**SUMMARY**

Wear resistant conveying chains can be a valuable tool in improving productivity and reducing overall costs, especially in situations where pin head wear is a problem, or it is desirable to simplify chain guiding. Such chains are available in a wide variety of widths and styles, so they can be fitted to almost any conveying system. For glass producers that

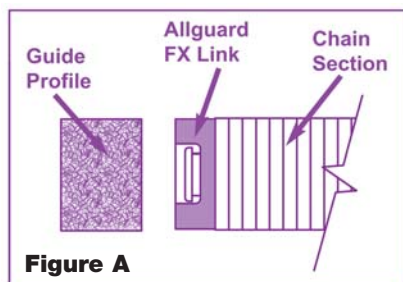
would like to learn more, Ramsey’s technical sales staff can provide details about all aspects of chain selection and installation. ■



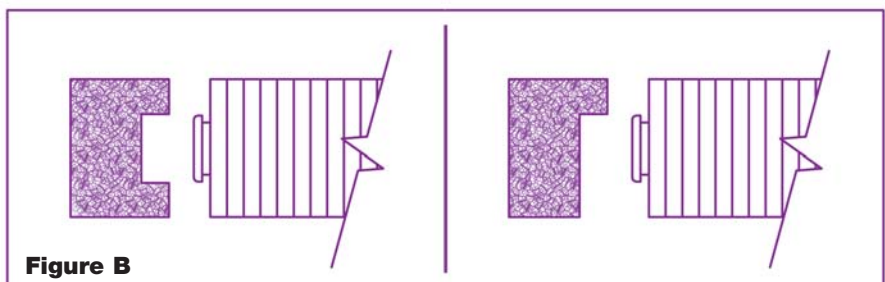
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**Figure A**



**Figure B**

**Fig. A - Simplified guide profile with Allguard FX chain**  
**Fig. B - Guide profiles commonly used with standard chain**