



Technology in motion

William Hall suggests three simple steps to improve ware handling, reduce downtime and reduce costs in the glass container manufacturing process.

Every bottle must make the trip from the IS machine to the lehr and the condition of the conveying chain that provides that transportation has a significant effect on overall productivity. If chains are in good working order, correctly aligned and properly tensioned, the journey will be a smooth one and bottle production as well as chain life will be optimal. However, poor alignment, worn out conveying chains and chain over tensioning can reduce conveyor life, increase mishandling and drive up costs.

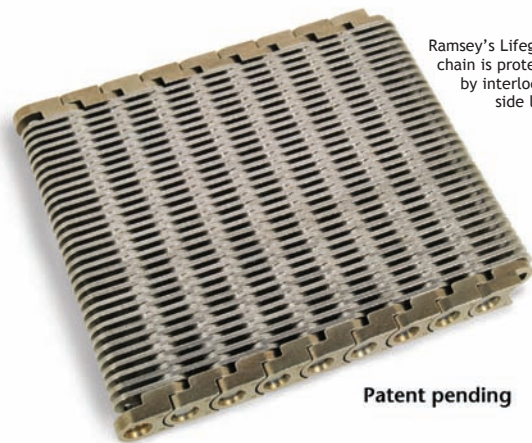
Periodic inspection of conveying chains is a simple way to diagnose and prevent conveying problems. Conveying chains should run

smoothly, with a uniform velocity. Chain surging, wandering or bottle spacing inconsistency may be signs that sprockets are worn or the chain has elongated excessively.

To some extent, chain elongation can be accommodated by tensioning the conveyor. However, great care should be taken not to over tension chains. This is one of the most common causes of accelerated chain wear and reduced life.

As a rule of thumb, Ramsey recommends as little tension as practical for the particular machines being used. Typically, the free spans on the return loop of the conveyor chain will have some sag in a correctly tensioned chain. If the return spans are straight with no sag, it is often a sign of excessive tension.

A chain inspection should also look for signs of unusual wear. If the links at the side of the chain, or the pin heads, are worn excessively, damaged, or missing, the chain will soon need to be replaced and it is important to determine what led to



Ramsey's Lifeguard chain is protected by interlocking side links.

Patent pending

these conditions before installing a replacement chain. Such conditions can often be corrected by assuring correct alignment between head and tail sprockets and machine sections. It is also important to ensure that there are no obstructions along the conveyor path.

WEAR PROTECTED CONVEYING CHAINS

Standard silent chain is very durable and can deliver years of trouble-free service in most production environments. However, in some instances, lateral chain wear is a real problem and wear protected chain can significantly prolong chain life.

Typical conveying chains contain pins that are exposed on both sides of the chain and can be susceptible to several types of wear. They may rub against lateral guides or transfer plates, or snag on protruding edges along the conveyor's path. This can lead to the wearing or chipping away of the pin head. Once the pin head is destroyed, the chain will start to come apart. If that occurs, the conveyor will need to be shut down so the chain can be repaired or replaced.

Wear protected conveying chains guard against lateral chain damage by covering or recessing pin heads in the side plates of the chain. This allows chains to be run in direct contact with lateral guides, without damaging pin wear.

Ramsey offers two different wear protected chain designs – Allguard FX and Lifeguard. Allguard FX protection can be added to any width or style of chain, including side guide, centre guide and multi-guide chains. Chain protection can be provided on just one side, or on both sides of a chain and chains can be constructed to fit almost any existing sprocket.

Ramsey Lifeguard provides an even higher level of



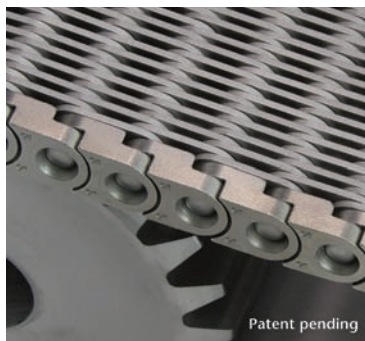
In response to glass industry requests, Ramsey developed Allguard FX to protect conveying chains from lateral wear.



The Ramsey Multi-Guide FX link design protects pins from wear and simplifies chain connection.



In addition to being wear-resistant, Ramsey's Lifeguard chain has special interlocking links that create a smooth, gap-free surface and prevent snagging.



Lifeguard chain (patent pending) provides a continuous, gap-free chain profile and is ideal for small bottle transport.



Ramsey's Allguard FX is designed to prolong chain life in applications where exposed pin heads can wear and cause chain failure.



chain protection. Its side plates greatly reduce the gaps along the side of the chain, forming a smooth, nearly snag-free surface. The close fit of adjacent Lifeguard links also creates an uninterrupted top surface that promotes smooth wear transfer, especially with smaller bottles.

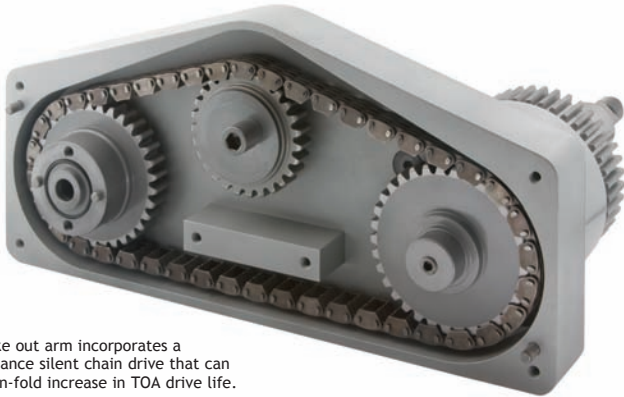
CHAIN-DRIVEN TAKE OUT ARMS

Take out arms sweep bottles on to the machine conveyor chain and depending on their design, they can either 'take out downtime' or 'take out profits'. Many bottle producers have watched their productivity suffer as a direct result of frequent failures

with belt-driven take out arms.

A simple change to a silent chain-driven take out arm can often produce a tenfold increase in take out arm life and a dramatic decrease in maintenance costs. Ramsey take out arm drives utilise high performance RPV silent chain, in place of heat-sensitive drive belts. Because Ramsey drives are made from hardened steel components, stretch is eliminated and precision registration is maintained throughout the life of the drive.

Ramsey offers complete chain driven take out arms, as well as chain drive retrofit kits. The kits are available to fit take out arms from



Ramsey's take out arm incorporates a high performance silent chain drive that can produce a ten-fold increase in TOA drive life.



The Ramsey take out arm retrofit kit offers an economical alternative for bottle manufacturers that wish to upgrade existing take out arm drives.

most manufacturers and offer an economic alternative for producers wishing to upgrade large numbers of existing take out arms.

COMMITTED TO INNOVATION

For more than 85 years, Ramsey Products has focused on the design and manufacture of silent chain. The company remains committed to providing customers with the products and service they need to be leaders in glass bottle manufacture. ■

ABOUT THE AUTHOR:

William Hall is President of Ramsey Products and Chairman of ASME Technical Committee on Silent Chain

FURTHER INFORMATION:

Ramsey Products, Belmont, North Carolina, USA
 tel: +1 704 394 9134
 email: bill@ramseychain.com
 web: www.ramseychain.com