

Product development leads to longer lasting conveyors

William Hall summarises recent product developments that have led to longer lasting and more durable glass conveyors.

A leading manufacturer of silent conveying chains for 90 years, Ramsey Products Corp has worked with glass equipment manufacturers and bottle producers in every part of the world. This experience, coupled with internal research and development work, has led to product improvements that reduce the likelihood of conveyor failure and significantly extend conveyor service life.

CONSISTENT PERFORMANCE

Ultralife chain was developed in response to industry requests for conveying chains that are extremely consistent, with closely controlled dimensions and uniform chain pitch. By utilising advanced link stamping techniques and improved chain finishing and assembly processes, Ramsey engineers were able to develop a chain that fully satisfies these requirements. The resulting product line, which bears the trade name Ultralife, has become a favorite of high speed bottle producers, who demand consistent chain speed and performance.

An added advantage of Ultralife chain is significantly improved chain life. Field tests that were conducted

in a high production bottling plant for more than two years (figure 1) show that Ultralife chain elongated much less rapidly than a competitive chain product. In the words of one hot end engineer who tested the chain: "After 33 years in the glass business, the Ultralife chain is the finest conveyor chain I've ever worked with."

PROLONGED CHAIN LIFE

Allguard chains (figure 2) have been engineered to prolong chain life by protecting the exposed pin heads at the sides of the chain and by preventing chain snagging. This is achieved by recessing the pin heads below the surface of the Allguard FX side links, thereby protecting them against abrasive wear or chipping.

Allguard FX links also have rounded contours, with no exposed sharp edges. The smooth contours minimise the likelihood that the link will hang or snag on lateral guides or obstructions. The net result is that chain failure due to lateral wear is virtually eliminated and service life is improved.

WEAR PROTECTION INNOVATION

Ramsey's Lifeguard chain (patent pending) incorporates the latest wear protection technology, coupled with

the head protection found in Allguard chains (figure 3). The design utilises innovative, interlocking side plates that mesh closely together to reduce the size of gaps between adjacent links. Pin heads are also fully recessed in large, tapered counter bores.

With the gaps between links reduced and the pin heads recessed, there is little opportunity for the chain to snag on lateral obstructions. Also, the smooth, gap-free side profile minimises vibration and promotes smooth ware transfer to and from the conveyor. This is especially beneficial in the transport of small bottles. As a net result of these features, Lifeguard chains are extremely durable and chain life is rarely limited by lateral chain wear.

SIMPLIFIED CHAIN GUIDING

With the introduction of Allguard and Lifeguard chains, conveyor chain guiding has also become simplified and less costly. Historically, it has been common practice for conveyor builders to use specially grooved or profiled

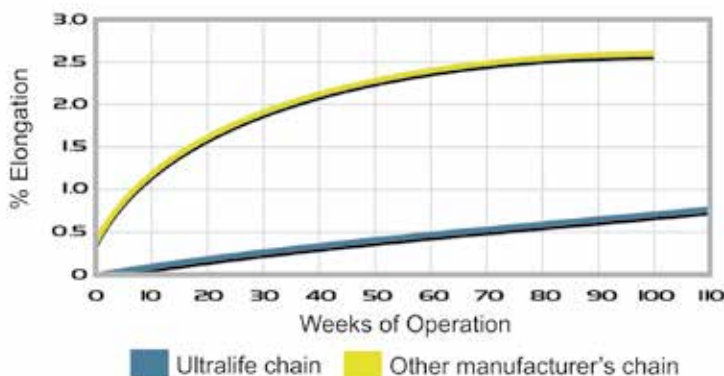


Figure 1: Ultralife chain elongation compared to another manufacturer's published data.



Figure 2: Allguard FX chain close up.



Figure 3: Lifeguard chain close up.

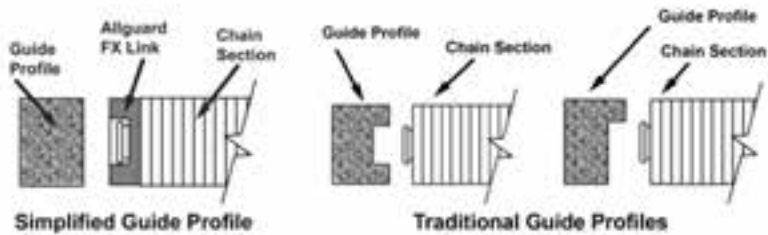


Figure 4: Simplified chain guides.

guide strips to protect a chain’s pin heads from rubbing against guides. Since the pin heads in Allguard and Lifeguard are recessed and protected, it is not necessary to use specially profiled guide strips. Instead, more economic, solid guide strips can be used (figure 4). This simplifies conveyor construction and reduces the number of obstacles that can interfere with smooth chain operation and shorten chain life.

WEAR-RESISTANT MATERIALS

In the quest for longer lasting chains, Ramsey conducts ongoing research into alternative chain materials. Materials that offer promise for better conveyor life in the harsh conditions associated with glass conveying are

carefully evaluated in the company’s testing laboratory.

Those materials that are economically viable and have the desired strength and wear characteristics are then used to produce prototype chains, which are then subjected to run testing. This research has produced significant advances in chain wear resistance. Figure 5 depicts one such material innovation, which wears at half the rate of material used in typical conveyor chains.

In addition to material research, Ramsey is also exploring innovative ways to optimise chain life through special chain assemblies. One such approach, with patents pending in the USA and Europe, uses highly

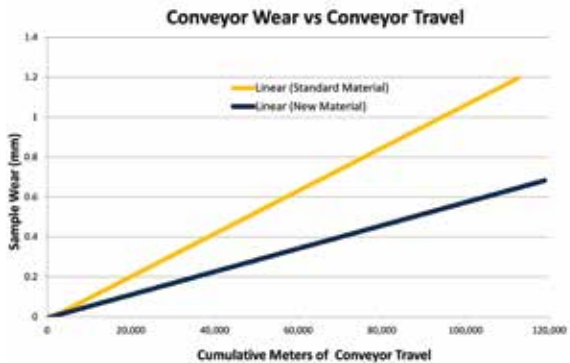


Figure 5: Recently developed materials offer improved wear resistance.

wear-resistant links deployed throughout the chain. This product, which could provide the next leap forward in conveyor performance, will become commercially available in the summer of 2012. ■

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