

Conveying chain wear resistance where needed

The Ramsey technical team presents the company's patented R-Select conveying chain, with which customers are reported to have witnessed a noticeable improvement in chain life.

Over the years, customers have asked "Can you make conveying chains with more wear-resistant steel and also keep the price down?" Most of these customers were interested in finding chains that would be less susceptible to common forms of wear - link tip and link joint wear. Abrasive wear at these locations causes chains to elongate, also known as 'stretch' and link height to decrease. These conditions lead to more frequent maintenance, product breakage and chain replacement. R-Select chains are Ramsey's patented solution to this customer request.

R-Select chains are built with links made from a special wear-resistant steel alloy. But what makes R-Select distinctive is that chains do not need to be made entirely from wear-resistant links. They can be produced using a mixture of wear-resistant links and more economical standard steel links. This allows wear-resistant links to be used in the parts of the chain that are expected to wear the most. Other parts of the chain, which are less subject to wear, can be made with standard links.

Because the chain is not made entirely of more costly wear-resistant links, overall cost can be kept down. Alternatively, customers who are looking for optimum wear characteristics and are less concerned about added cost, can have chains made entirely from R-Select links. The product is covered under US patent 8,474,607, with additional patents pending in Europe.

CUSTOM-ENGINEERED SOLUTION

R-Select allows glassmakers to customise conveying chains for their operation. For example, consider the customer running a multi-guide style chain, as shown in figure 1, who finds the link tips in the central portion of the chain wear more rapidly than the guide links on the outside edges of the chain. Over time, this can create an unwanted dip in the middle of the chain, which can cause bottle tipping.

To address this problem, a chain can be made using R-Select links in the chain's centre to slow the rate of wear. Standard links are used elsewhere and all the chain dimensions will be the same as before. The chain will also be fully compatible with the existing sprockets. The result



R-Select chains are built using a combination of wear-resistant links and more economical standard steel links, making them more wear-resistant while keeping the price down.

is a chain that will wear less rapidly in the centre, with only a slightly higher cost.

In another example, a customer who is most interested in reducing the rate of chain elongation may elect to use R-select links throughout their chain. Chains made entirely of R-Select links will provide the most improvement.

COMPATIBILITY

Almost any style of Ramsey conveying chain can be made using R-Select links. This includes single pin and two pin chains, chains with or without spacers, side guide, centre guide or multi-guide chains.

Lifeguard and Allguard FX chains can also be customised with R-Select to achieve optimum wear resistance.

DEVELOPED FOR AND TESTED BY BOTTLE MAKERS

The development of R-Select required years of research and testing. The process began with the search for a proven wear-resistant steel alloy that was also economical. Consulting with metallurgists and steel suppliers, Ramsey engineers had many options to choose from and the first challenge was to narrow the field. To do this, sample chain links were produced from the alloys under consideration and then subjected to abrasive wear testing at the company's test facility.

Using a standard method for assessing wear resistance, sample links were slid continuously against a steel disc. The disc was made from the same steel that is commonly

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used in conveying system wear plates. Link load and speed were carefully controlled and periodically, link wear was measured. Tests were repeated for each alloy. After hundreds of hours of testing, results showed that links made from one alloy wore at half the rate of typical links. Since this alloy also met cost expectations, it was selected for further evaluation in test chains.

Test chains assembled with the selected wear-resistant links were then installed in numerous glass bottle production plants. Initial

feedback from plant operators was very encouraging; R-Select chains did not elongate nearly as fast as typical chains. This meant that operators did not need to shut down the conveyor as frequently to remove excess chain length. Favourable customer reports continued over the course of several years, with one factory reporting that it was able to run the R-Select chain for twice the time a chain was usually run.

Following these favourable results and the issue of a US patent, Ramsey formally introduced the

R-Select product line. Customers who change to R-Select chains should see a noticeable improvement in chain life. The amount of improvement to be gained in a specific application will depend on many operating variables and the type of chain used. Ramsey can help customers select a chain for optimum results but the actual results can only be determined by running the chain in a particular application. Generally speaking, the more R-Select links built into a chain, the greater the improvement that can be expected. ■

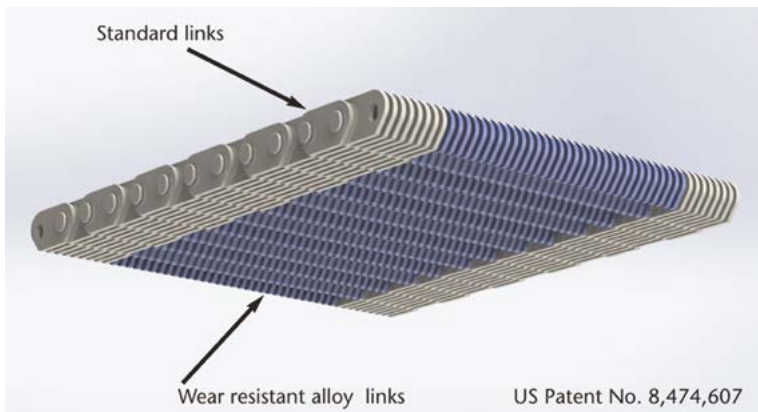
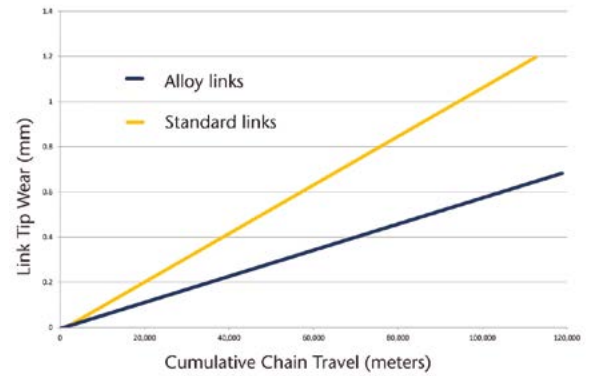


Figure 1: Multi-grade chain with wear-resistant alloy links.



Improved wear resistance of alloy links.

FURTHER INFORMATION:

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