

Controlling the costs of bottle conveying

MANY OF TODAY'S BOTTLE PRODUCERS DEPEND ON INVERTED TOOTH CONVEYOR CHAIN TO TRANSPORT BOTTLES. WILLIAM C HALL EXPLAINS HOW THE COSTS OF OPERATING SUCH SYSTEMS CAN BE MINIMISED BY FOLLOWING SOME KEY GUIDELINES

For more than 70 years bottle producers have relied on inverted tooth conveyor chains, also known as silent chains, to transport bottles in both hot end and cold end applications. These chains offer many benefits in glass conveying; they are durable, smooth running, heat resistant and provide a flat, uniform, non-slip conveying surface. When properly sized, sourced, installed and maintained they can provide years of trouble-free conveying.

Ramsey Products has manufactured silent chain for more than 80 years and engineers have identified the factors that can drive up the costs associated with chain conveying. In most bottling applications there are three factors that influence total conveying cost:

- Downtime due to chain and sprocket maintenance, replacement and repair
- Product loss or breakage due to flawed conveyor operation
- Purchase price of chain and sprockets.

Here are four steps that can be taken to minimise the costs in each of these areas.

BUY GOOD QUALITY CHAIN AND SPROCKETS

Not all chains and sprockets are equal. There are no common industrial standards that regulate conveyor chain and sprocket manufacture and the overall quality and consistency of products can vary greatly between manufacturers. Low quality chain and sprockets may have a lower initial purchase price, but they can require more frequent adjustment, repair and replacement. They also increase the likelihood of product misfeeds and breakage. The resulting downtime and product loss can dramatically increase overall costs.

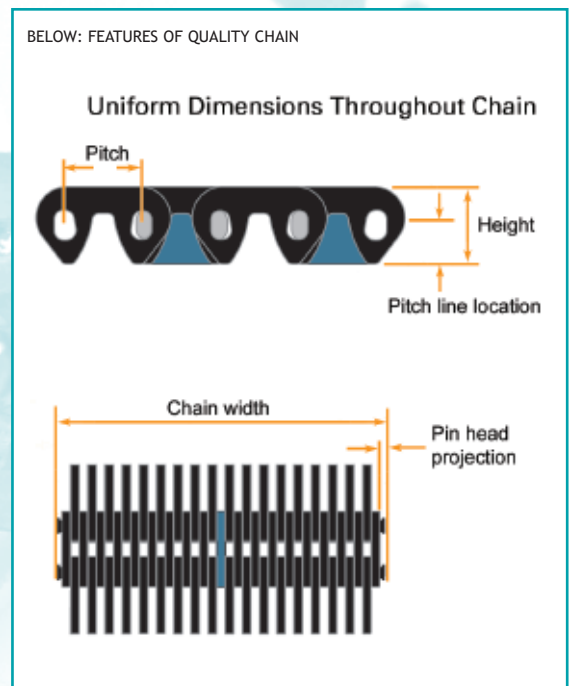
The first step in assuring that you are purchasing quality conveying components is to buy from an established reputable chain and sprocket supplier. It is also good practice to ask for references and chain samples before ordering for the first time from a supplier.

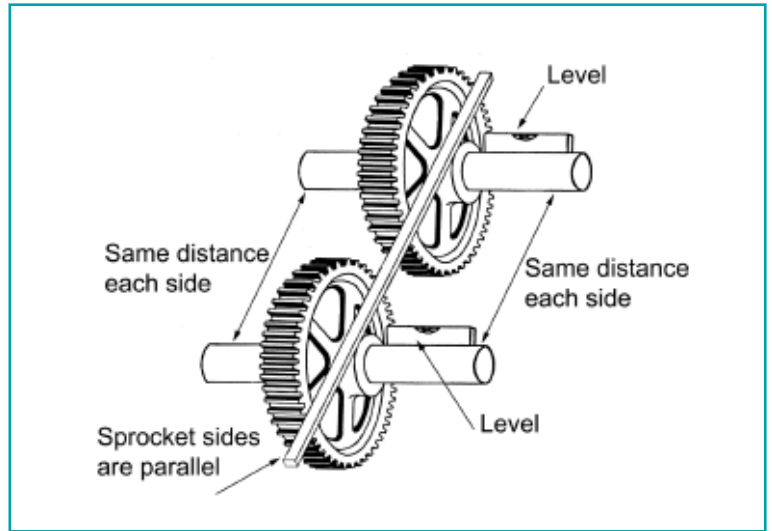
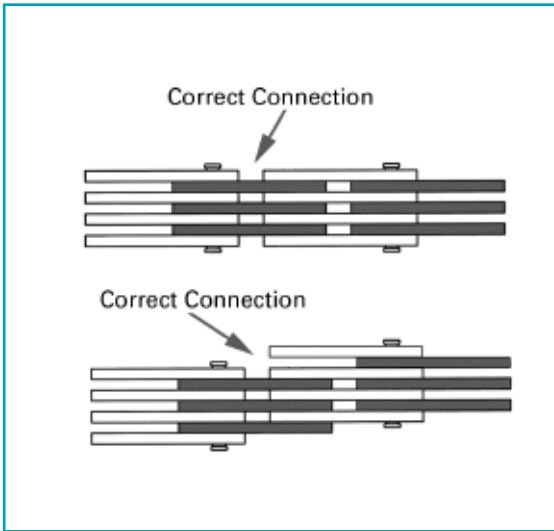
When receiving and installing chain, look for these important quality indicators:

- Uniform dimensions and pin heads
- Uniform link and sprocket hardness

- Uniform pin projection from the chain
- Consistent pitch and velocity
- Straight line tracking between sprockets
- Smooth chain-sprocket engagement.

Chains and sprockets with these characteristics will provide more trouble-free operation, last longer and cause less downtime. Typically, the resultant cost saving justifies the incremental higher purchase price of good quality components.





INSTALL CHAIN AND SPROCKETS CORRECTLY

Time invested in correct installation will produce substantial savings over time and most chain manufacturers provide detailed instructions and recommendations on how to best install their products. In virtually all conveying applications it is critical that the following areas be addressed:

- Chain must be properly connected and not over tensioned
- Sprockets should be aligned and secured with their shafts parallel
- Lateral chain guides should be aligned and parallel to the chain path.

PERFORM PERIODIC INSPECTIONS

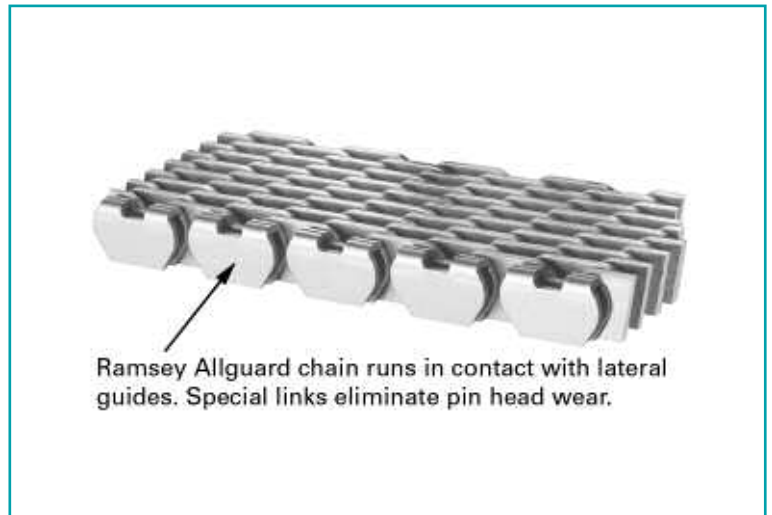
Periodic examination of chain and sprockets is very important for the early detection and correction of problems. In order to perform a safe, detailed inspection, it is advisable to stop the conveyor for a short time. However, keep in mind that if a conveyor is shut down for more than a few hours it may be necessary to apply oil to prevent the chain from stiffening. Some of the most important things to look for during an inspection include:

- Wear on chain link tips and pin heads
- Cracked or damaged pin heads
- Chain surging or jerking during operation
- Stiff chain joints
- Inconsistent chain velocity

ABOVE LEFT: CHAIN CONNECTION TIP

ABOVE RIGHT: SPROCKET INSTALLATION TIP

RIGHT: ALLGUARD CHAIN ELIMINATES PIN HEAD WEAR



- Sprocket movement or looseness on shafts.

If any of these conditions exist it is important to promptly determine their cause and take corrective action before conditions further deteriorate and costs escalate.

CONSULT YOUR CHAIN SUPPLIER FOR ASSISTANCE

Chain manufacturers often provide technical assistance in troubleshooting and proper chain selection. They may also offer a range of products that are designed to accommodate specific conveying needs. For instance, there are chains that have been specially developed for high-speed bottling operations. There are also chains designed to operate in direct contact with lateral guides; these chains have special 'guard' links that prevent pin heads from being

damaged. Products like these can greatly improve conveyor life in some bottle-making applications. Partnering with an experienced chain supplier is one key to understanding these options and controlling the costs of bottle conveying. ■

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FURTHER INFORMATION

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