

Automotive manufacturers double conveyor chain service life with Tsubaki

The automotive production line is a high-pressure environment, where downtime costs thousands of euros a minute. Despite the sky-high costs of poor reliability, many manufacturers are still specifying the chain that drives their conveyors as a commodity product – basing buying decisions on price rather than performance. In many cases such a strategy is a false economy as the correctly specified chain may last many times longer than the budget option and also improve the efficiency of the production line.

Most automotive production plants are expected to operate continuously with only occasional opportunities for planned maintenance throughout the year. In most cases, the car parts are moving constantly through the assembly process on overhead conveyors, taking them from one workstation to the next.

As such, it is easy to see how the conveyor systems that transport the vehicle body parts through the factory represent a vital part of the production flow. Should the conveyor chain break, or malfunction in any way, then a large proportion of the production line will come to a literal standstill. Without ample redundancy or backup, this could quickly spread through to the other production processes from sub-assembly to cabin fit-out, paint spraying and function testing. It can also disrupt goods inwards, dispatch and just about every other activity on site.

It is perhaps surprising then, that conveyor chain is often viewed as a commodity product, rather than an engineered component. This is a common approach that is based on a false premise that all chain offers similar service life, so value can only be found at the point of purchase. It's understandable why production engineers and facilities managers who have only ever experienced poor performance would think this. The reality is that specialist chains can often survive several times longer than conventional chain, particularly in heavy duty applications.

For example, one of the UK's largest automotive assembly plants found that it was having to replace its conveyor chain at least once every 12 months. The problem was made worse by the fact that maintenance was scheduled quarterly, so the chain could only be lubricated every 3 months. The chain became stiff and difficult to articulate and airborne particles were causing contamination to build up in the chain and cause wear. The chain would typically break inside of 12 months, so, to prevent unscheduled downtime the chain had to be replaced every third quarter.

The plant's managers were keen to look for ways to improve chain management and thereby increase productivity, so they invited chain experts from Tsubaki to suggest an alternative solution.

It was soon established that the OE chain in use was not suited to the heavy-duty operation and Tsubaki suggested that a better quality chain would offer a longer working life. However, to add value to the production line, the new chain would need to offer a demonstrably lower Total Cost of Ownership (TCO). Tsubaki recommended its maintenance-free, Lambda series of self-lubricated chain. This would eliminate the need for manual lubrication while extending the overall operation life of the chain: cutting maintenance costs, reducing downtime and minimising the cost of replacement chain.

To further enhance the service life, Tsubaki's engineers developed a special top plate, which was fitted to every second link. This works to reduce chain contamination and protect the chain from wear. Also, on Tsubaki's recommendation, the rivets used to secure the top plates were replaced with special, high tensile screws that are secured into position with thread locking adhesive.

The net result of the switch to Tsubaki's Lambda chain is a conveyor system that typically operates reliably for in excess of 2 years – more than doubling the service life of the OE chain. This means that the plant is spending less on chain each year, while also saving on maintenance costs and lost production.

Photo Captions:

Photo 1: Car parts are moving constantly through the assembly process on overhead conveyors, taking them from one workstation to the next.

Photo 2: Tsubaki recommended its maintenance-free, Lambda series of self-lubricated chain.

About Tsubaki

Established in 1917, Tsubakimoto Chain Company is the world's premier manufacturer of power transmission products with strong market positions in premium quality industrial drive & conveyor chains and associated power transmission components such as cam clutches, reducers & linear actuators. With a turnover exceeding \$1,5 Billion US Dollars & 6,500 employees, the Tsubaki group includes 40 manufacturing locations and 75 group companies worldwide. Our production and sales networks are now more developed than ever.

Tsubakimoto Europe B.V. serves Power Transmission customers in the Pan-European market, Africa and the Middle East from European headquarters located in Dordrecht, the Netherlands, along with a local subsidiary based in Nottingham, serving the UK market & Ireland and from the office in Unterföhring, Germany customers in Germany, Austria and Switzerland are served. Customers in Spain and Portugal are served by our office in Madrid, Spain.

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