

Chains: reducing long-term cost with the best choices for harsh environments

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Exposure to challenging environmental conditions is when the ultimate performance and durability of an industrial chain is really tested. From corrosive atmospheres to washdown environments, a chain correctly specified for its application will increase lifespan, reduce burden of maintenance and minimise downtime. In such applications it often possible to reduce total cost of ownership by installing specialty chain.

Jake Yamamoto, Sales & Marketing Director for Tsubakimoto Europe B.V., looks at the impact of industrial environments on chain performance.

With the high-cost implications of chain failure, and the impact that a chain can have on the quality of the process its driving, a chain is integral to operational success in most industrial processes. The demands of each application vary according to its environment, so working with a supplier who can help identify the challenges and offer engineered solutions is key to specifying chain that will offer long-life and reduced operating costs.

Abrasive environments

In harsh industrial environments such as metal working, sawmills or cement processing, dust and abrasive particles are unavoidable. Dust infiltrates moving parts that can accelerate wear and reduce a chain's lifespan. Even before that stage, grit and abrasive elements will reduce the efficiency and control of power transmission.

Tsubaki Titan was specially developed to operate in these conditions. The chain's pins have a hard coated, low friction surface for increased wear and corrosion resistance.

Its seamless bushes are perfectly cylindrical, ensuring smooth operation and increasing wear resistance in areas where tight tolerances are crucial. These seamless bushes also include Lube Grooves that hold the oil between the pin and the bush, the point of greatest contact, maintaining lubrication.

Corrosive environments

With a presence of water there's the potential of corrosion that will rapidly deteriorate the chain. Corrosion is particularly prevalent if the area undergoes chemical cleaning or where the water contains high levels of salt such as in marine environments.

Resistance to corrosion requires a chain with adequate coating to repel the effects while maintaining strength. Tsubaki's Neptune chain is designed for use in corrosive environments and includes a two-stage coating including an outer resin that provides high corrosion and chemical resistance.

Heavy impact use

Chain durability and performance is significantly challenged in applications that involve shock loads, or where high power transmission or heavier loads are required. Compact applications, for example where larger double stranded chains cannot be used, also face similar challenges.

Tsubaki's Heavy Duty chain range is designed for increased load capabilities and includes higher tensile strength. As well as providing the performance for these demanding applications, the Heavy-Duty range gives longer life with features such as increased plate thickness and through-hardened pins for greater fatigue strength.

Clean environments and lube-free chains

In clean environments, such as food and beverage or pharmaceutical production, it's essential that the chain does not cause contamination. In these situations, lubrication can't be used for the potential of dispersal. For other applications, lubrication might not be easy or possible because of where the chain is located.

Tsubaki's Lambda lube-free chain ensures long-term use with sintered bushes, impregnated with food-grade lubricant, combined with a special coated pin enhancing internal lubrication.

The right chain saves cost

Matching a chain to its environment not only optimises the performance and efficiency of the chain for long term use, it maximises its lifetime. The danger of treating all applications and environments the same, and of considering the chain as a replaceable commodity, ultimately increases cost.

The right chain for the conditions will not only make the life of an MRO engineer easier, it will save costs in maintenance and most critically, it will reduce the cost of downtime – planned or otherwise.

Image captions:



Image 1: Tsubaki Titan was specially developed to operate in harsh industrial environments such as metal working, sawmills or cement processing.



Image 2: The Titan chain's pins have a hard coated, low friction surface for increased wear and corrosion resistance. The seamless bushes also include Lube Grooves that hold the oil between the pin and the bush, the point of greatest contact, maintaining lubricati



Image 3: Tsubaki's Neptune chain is designed for use in corrosive environments and includes a two-stage coating including an outer resin that provides high corrosion and chemical resistance.



Image 4: Tsubaki's Lambda lube-free chain ensures long-term use with sintered bushes, impregnated with food-grade lubricant, combined with a special coated pin enhancing internal lubrication.

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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 41 manufacturing locations and 81 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 Ismaning, 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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