

G7 Roller Chain

**Media Release Issue:**



**Review:**

**TSUBAKI'S NEW G7 SERIES ANSI RS® ROLLER CHAIN OFFERS UNIQUE FEATURES NEVER SEEN BEFORE IN THE INDUSTRY:**

Tsubaki's groundbreaking (SEVENTH GENERATION = G7) ANSI standard roller chain uses the latest technology in Innovative manufacturing, taking a concept and design and applying our 90 years of experience to set new standards and benchmarks for the others to follow.

The G7 ANSI Roller Chain employs and innovative "LUBE GROOVE" bushing system (Patent Pending) technology to improve greatly the operating performance of the roller chain to a staggering 100% wear life increase over previous generations of chain.



In combination with this the development seen significant increases in the kW rating of the chain, with exhaustive testing confirming a 33% higher kW rating over previous generation for the most common size drive chains in the industrial heavy load and drive systems (RS80 to RS140).

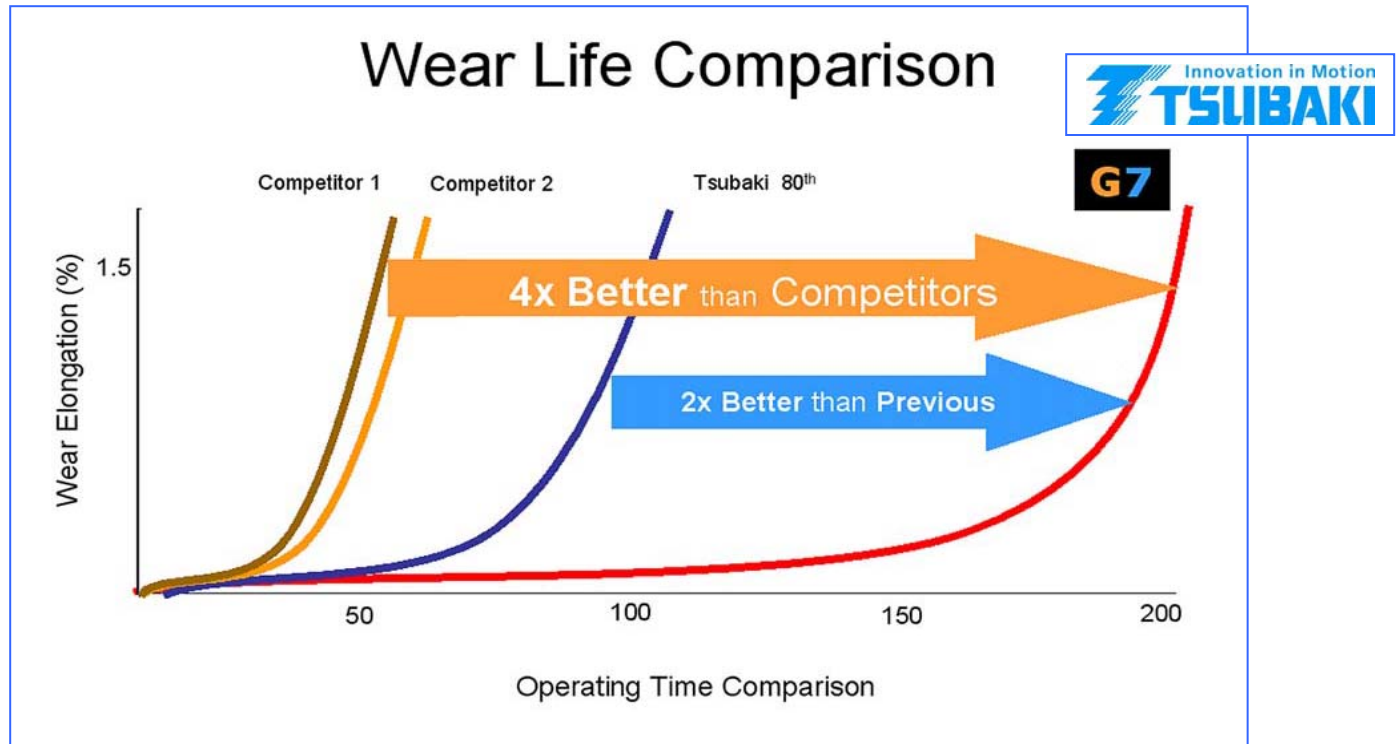
This significant enhancement has been under development with our R&D facility for ten years taking into consideration the requirements from the market and the engineering developments required being at the forefront of technology for the industry.

Independent testing and field data show that wear in the pin/bushing joint is usually the limiting factor in overall chain life, particular in the externally lubricated chain types such as ANSI standard roller chain. (The chain bushing is located between the solid bearing pin and external roller). Tsubaki has committed a significant amount of its research and development resources to making improvements in this area, to reduce wear and effectively prevent chain elongation over a longer period. The result is 'G7'. A Patent Pending Lube Groove Bushing, the grooves themselves providing an internal reservoir for lubricant where the chain needs it most, which has a dramatic effect on both chain performance and longevity.

Tsubaki's 'G7' bushings utilise a new production technique to enable a series of grooves to be incorporated on the inner surface of a cold forged, extruded bush. The new process results in a very precise cylindrical profile for better surface contact between the pin and bushing, and improved lubricant retention.

The patent pending design lube groove (LG) bush ensures that the chain is optimally lubricated, particularly in real world conditions where inconsistent external lubrication is a factor.

The result is a chain that lasts significantly longer in the field. When tested, ‘G7’ chain lasted twice as long as the Tsubaki’s previous generation ANSI chain – and up to 4 times longer than some comparatively price alternatives from leading US and European competitors. (See graph below)

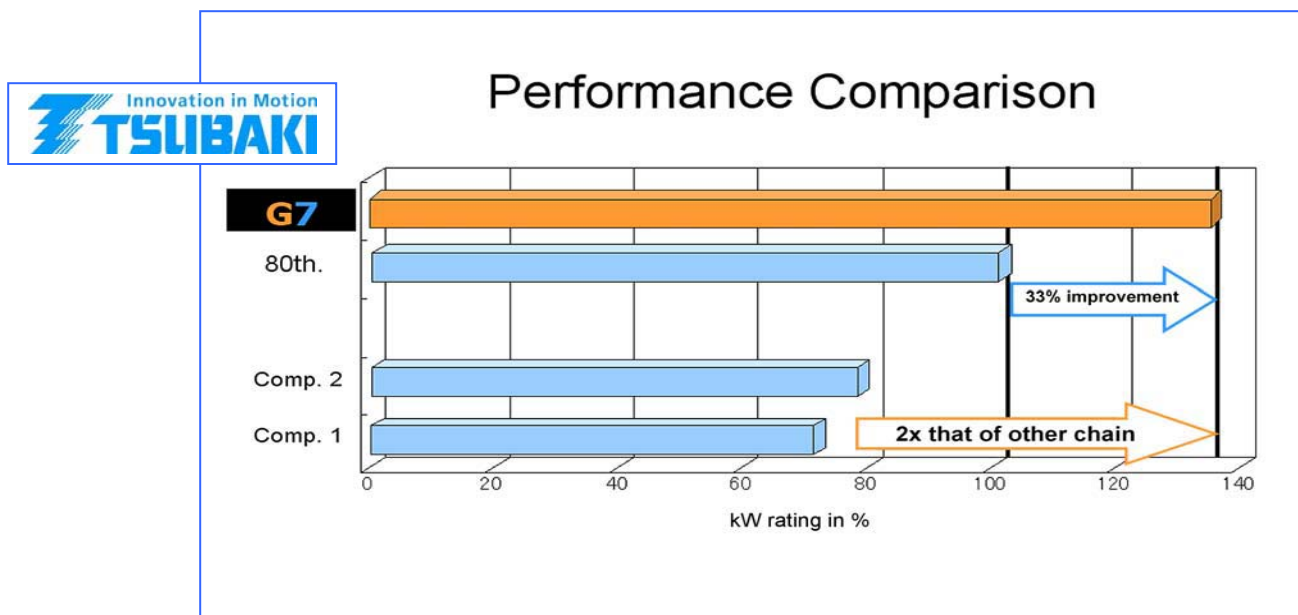


The benefits of increased wear life equate to lower maintenance costs, reduced downtime and increased reliability. *Overall Equipment Efficiency* (OEE) costs are also reduced since the purchase cost is offset over a longer period of time the price of ‘G7’ chain is unchanged over that of the previous generation.

As OEE costs feature more frequently in company thinking the evidence is building up to, show that the cheapest chain is not always the cheapest solution and that higher quality products can significantly reduce costs.

Rigorous testing has also resulted in an increased kW rating – 33% higher for all chain sizes in the range from Rs80 to RS240. Only recently have ISO standards for fatigue testing link plates included a cyclic fatigue test, rather than a test just for linear tensile strength. ISO requires a Five (5) Million cycle test, Tsubaki test to **Ten (10) Million Cycles**, resulting in higher kW rating for the Tsubaki ‘G7’ chain.

Customers can now benefit from enhance power handling capability and an extended service life, or in some circumstances a more compact and less costly chain installation, the former being of more relevance to maintenance and replacement applications and the latter to OEMs. (See below Graph)



A number of other Innovations also contributed to this performance improvement. Rollers are heat-treated and shot peened to give added durability and fatigue life in high-speed applications. Link plates have wider waists for greater fatigue strength and are orientated in assembly, pins are made from high-quality alloy steel, that is then heat-treated for greater tensile strength, whilst connecting links are manufactured with our Patented **RING-COIN** process to give a connecting link of equal strength to that of the base chain and finally we Pre-lubricate & Load our chains to reduce initial wear and take up requirements.



## The Fundamentals of Experience:

To develop a chain that meets the demands of tomorrow today Tsubaki have again lead the field in R&D to seek out the best in all aspects of roller chain design.

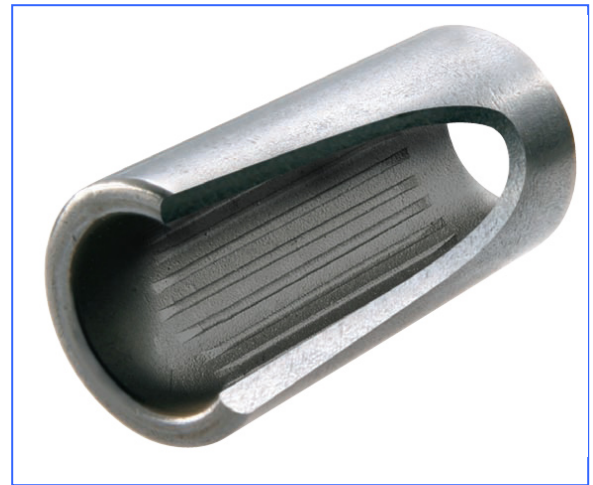
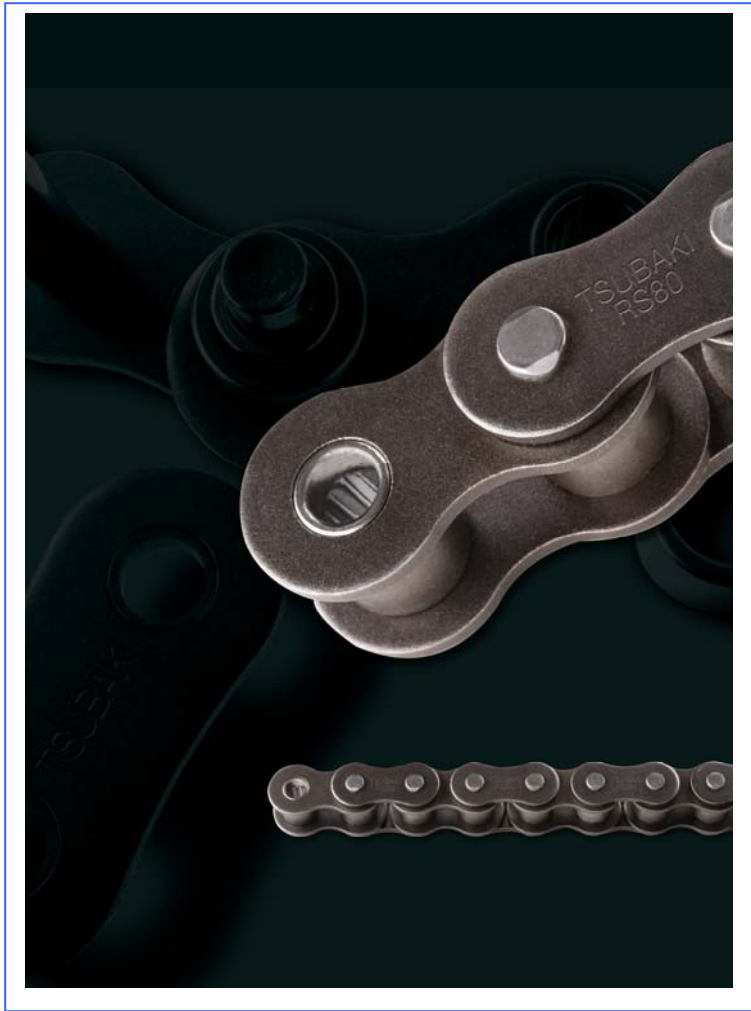
Connecting links can also be a point of failure on roller chains, and so this aspect of the chain design has received the benefits of Tsubaki's R&D investment. The result is a patented Ring-Coining process that creates plastic deformation of the metal structure around the hole in the connecting link, making up for the added stress on this point because the pin is not fixed to the outer link plate. The benefit is increased fatigue strength of the connecting link, equivalent to that of the rest of the chain, something that no other manufacturer offers, hence Tsubaki chain last longer and does not have to be de-rated due to the connecting link. Which is sometimes over looked when selecting chains as most people refer to the base chain rating in the catalogue and forget the connecting link capacity?

Tsubaki is also conscious of its responsibility to the environment. The outer packaging of 'G7' uses environmentally friendly recycled paper and natural biodegradable Soya ink at the printing stage. Staff within Tsubaki's environment division are continuing to collate and evaluate production data on 'G7' chain, in line with Life Cycle Assessment (LCA) in order to analyse and thus reduce the impact on the environment through Co2 gas output. To ensure maintenance engineers know Tsubaki is fitted to their machines, the "Tsubaki" name and trademark "RS"® inscription is stamped on the link plates of the chain.

In keeping with our philosophy of continual improvement, we have manufactured our packaging with wave edges to protect stores and maintenance staff during packing / handling and installation.



**Pictures Tell The Story:**



Marketing Department December 2006