Driving the World... and the Future

Innovation in Motion
TSUBAKI

TSUBAKIMOTO CHAIN
Mobility Operations

TSUBAKIMOTO CHAIN CO.

https://www.tsubaki.com/

Released: 2021

Tsubaki Group Website

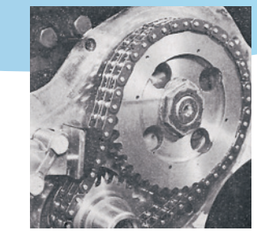
To the Next 100 Years

Tsubakimoto Chain has reached 100 years since its founding, and our mobility business will contribute to society and the environment through “new production that supports the future of mobility”. In addition to our current activities, producing timing chain and transfer case chain, we will take on the challenge of entering three new lines of business.

1917

Tsubakimoto Chain Co. Founding

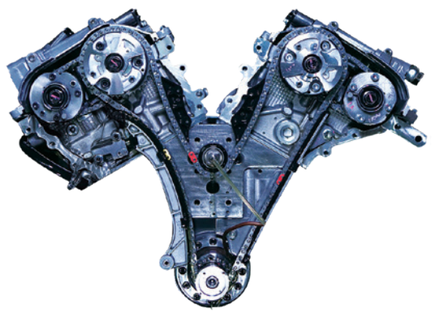
Setsuzo Tsubakimoto founded the company in Osaka’s Oyodo ward (currently Kita ward) and started out with the production of chains for bicycles. The company’s head office is still located in Osaka, where the company was founded.



1957

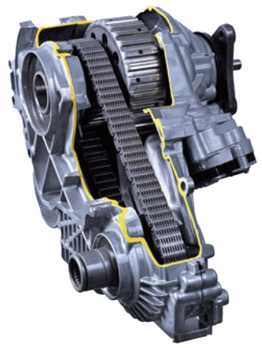
Production of Timing Chains for Automobiles

Started the auto parts business and developed the first Japanese timing chain for automobile engines. Started supply of roller chains (two row, 9.525mm pitch) to Japanese automotive manufacturers in 1957.



2021

To Mobility business



Drivetrain

Contributing to Society and to Clean Energy

To deal with societal mobility goals such as lowering CO_2 emissions and reducing energy loss, we will contribute to society and the environment by creating products that enable next generation drivetrains to be more efficient, lighter weight and smaller in size.

Personal Mobility

Comfort for All

To contribute to the diverse mobility needs of our society, we will first aim at providing one-way clutches that are used in e-bikes and offer compact drive units that can be used in several micro mobility solutions.

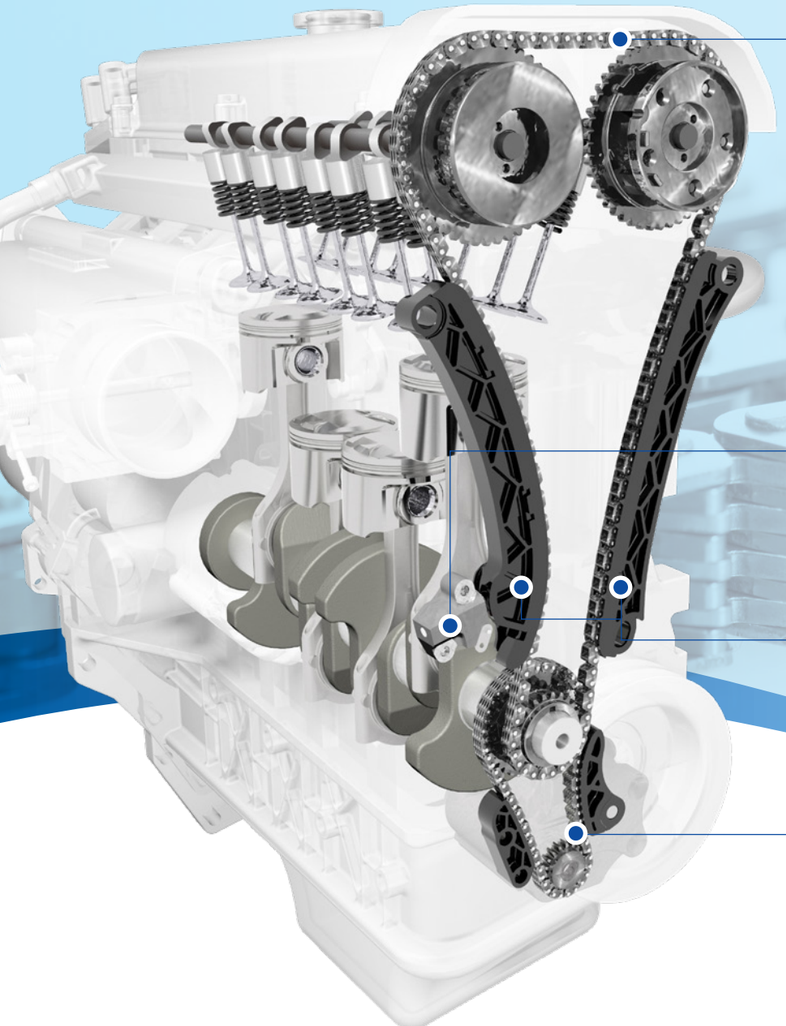
Comfort System

The Creation of a Comfortable Mobility Space

Due to changes in lifestyle, workstyle, and automated driving, etc., we are seeing diversification in the use of in-car space. We will deliver comfort to all mobility users through flexible seat arrangement and seamless opening and closing of doors.

Perfecting our Current Business

As the automotive industry shifts towards electrification, we will not be satisfied with our position as the world's top supplier of timing chains, but we will deliver on next generation powertrain demands for lighter, quieter, high-efficiency environmentally friendly products.



Timing Chain

Roller Chain/Bush Chain

Silent Chain

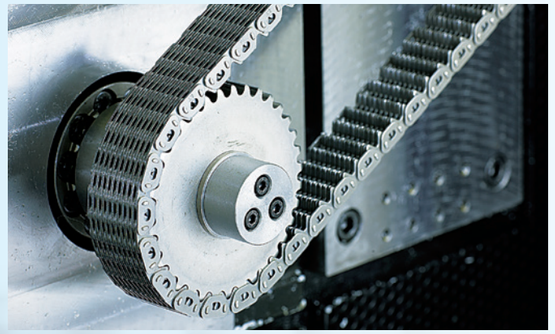
Tensioner

Lever/Guide

Oil Pump Chain

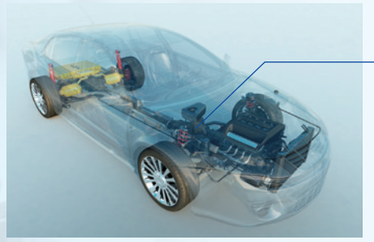
Timing Chain System

The timing chain system controls the correct timing of the air intake/exhaust by transmitting the engine's crankshaft rotation to the camshaft. We have been designing, developing, producing, and supplying systems that support engine performance to global auto makers for over half a century. We have contributed to everchanging engine technology, its environmental performance, have always stood at the forefront with cutting edge technology to meet customer/market demand, and are proud of our position as the global leader in market share, quality, and customer satisfaction.



Chains for Transfer Cases

These chains transfer power from the engine to the wheels within the transfer case. Compared to gears, chain drive is quieter, lighter, more cost effective, offers more packaging flexibility and contributes to the environmental performance, comfort, and cost competitiveness of four-wheel drive vehicles.

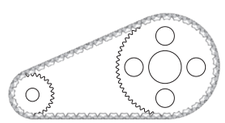


Transfer Case

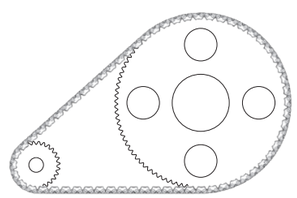
Enedrive® Chain

The Enedrive® Chain series achieves high-speed rotation, high torque transmission, and a high gear reduction gear ratio. Used in place of traditional gears for power transmission, it is an indispensable part of the creation of a highly efficient and versatile system. Using the abundant technology and experience we have gained through the production of chains for transfer cases, we can achieve lighter, quieter and more cost-effective systems that would not be possible with gears. We can propose an optimal solution through a rich variety of tooth patterns, pitch, and width, etc.

Layout Image



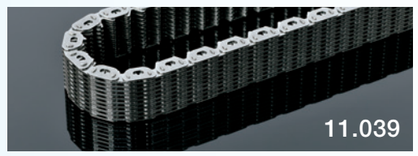
Conventional Layout
[~1 : 2] Velocity Ratio

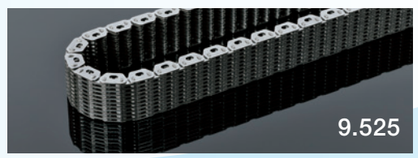


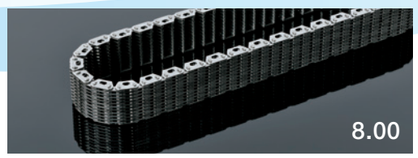
New Layout with the Enedrive® Chain
[~1 : 4~] Velocity Ratio

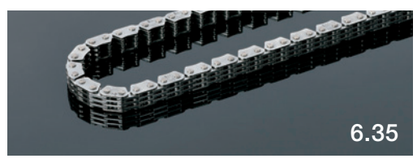
Chain Lineup

Chain Pitch (mm)









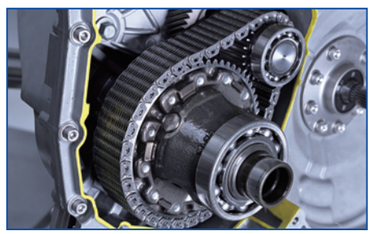
Challenge Three New Business Areas

We will contribute towards a sustainable society, supporting the shift from internal combustion engines to electric vehicles, and the future of a completely new mobility.

Drivetrain

Contributing to Society and to Clean Energy

We have concentrated our technical strengths in order to contribute to the improved efficiency of next-generation drivetrains. As the automotive market shifts to electrification, we plan on using the Enedrive® Chain in place of gears to enable high-speed rotation, high-torque transmission, and wide speed ratio while making the unit/system more efficient, lighter, and smaller. Furthermore, due to the demand for combining and selecting between several power sources, we will use various versatile clutches that are slim, have on and off switches, overload protection, etc.



Personal Mobility

Comfort for All

We will contribute to the ever-evolving mobility market with drive units for sporting bicycles used on E-bikes, mobility scooters for assisting seniors, and wheelchairs, etc. We will offer a one-way clutch that improves drive unit efficiency, is lighter and smaller, and improves drivability.

Comfort System

The Creation of a Comfortable Mobility Space

Due to changes in lifestyle, workstyle, and automated driving, etc., we are seeing diversification in the use of in-car space. To enhance mobility comfort, we have concentrated our technical strengths to contribute to unique seating arrangements, the opening and closing of doors, and the optimum use of in-car space.

Solutions through Cutting-Edge Technology

As the timing chain supplier with the top market share in the world, we will utilize analytic tools and evaluation equipment that we have built based on our vast knowledge and the latest technology to provide optimal proposals and products in a timely manner.

Our Technology and The Process for Providing the Optimal Solution for Next-Generation Mobility Needs

Customer Requirement

Design Technology (from components to a system)

System Design

Analytic Technology

Components Design

Optimal Design Technology

Prototype

Component Evaluation Technology

Components Evaluation

System Evaluation Technology

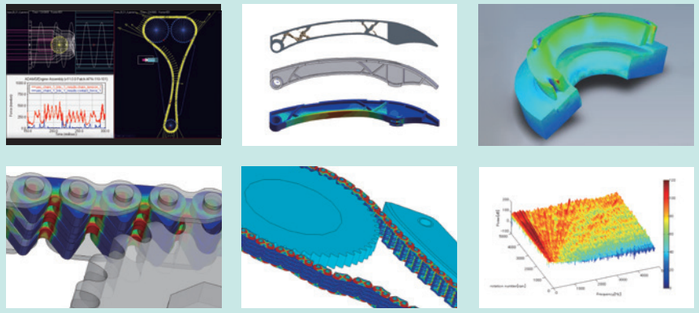
Evaluation Technology for Sound and Vibration

System Evaluation

Detail investigation technology for durability tested and marketplace returned parts

User Evaluation

Simulation-Based Evaluation Technology



We will provide a product that has optimal packaging, durability and creates minimal noise/vibration and friction as demanded by the next-generation mobility markets. Using our original TSUBAKI-developed software, through CAE analysis, we can conduct dynamic simulations on chain tension, running stress, etc. and other important factors. From components to a full system, with such simulation-based evaluation technology, we are able to conduct optimal design, and contribute to a lighter, more robust and more cost-effective product, as well as shorten development time.

Actual Product Evaluation Technology

We have automotive labs in Japan and the USA equipped with advanced evaluation and design technology to enable us to improve, develop, and evaluate, new products, new technologies, new production methods and manufacturing engineering technologies. With our “Mother Plant”, the “Saitama Plant”, as the central point of development, we support our global development organization. We fully utilize functional evaluation equipment, such as firing test bench or NV measurement test bench much like vehicle manufacturers, as well as our original advanced evaluation and measurement equipment to conduct comprehensive evaluations on components and entire systems.

Global Network

Our mobility business has 19 sales/production sites worldwide and is supporting global mobility companies in real time. Through global optimized production, optimized procurement, and a global quality assurance organization, we provide quality, service and price at a global uniform level.

Tsubakimoto Chain (Tianjin) Co., Ltd.

Tsubakimoto Automotivee (Shanghai) Co., Ltd.

Tsubaki Deutschland GmbH

Tsubakimoto Europe B.V.

Tsubakimoto UK Ltd.

Tsubaki Automotive Czech Republic s.r.o.

Tsubaki India Power Transmission Private Limited

Tsubakimoto Automotive (Thailand) Co., Ltd.

Taiwan Tsubakimoto Co.

Tsubakimoto Automotive Korea Co., Ltd. Seoul Office

Tsubakimoto Automotive Korea Co., Ltd. Changwon Plant

Tsubakimoto Chain Co., Saitama Plant

Kyotanabe Plant, Hyogo Plant, Okayama Plant

U.S. Tsubaki Automotive, LLC Chicopee Plant (MA)

U.S. Tsubaki Automotive, LLC Detorit Office (MI)

U.S. Tsubaki Automotive, LLC Portland Plant (TN)

Tsubakimoto Automotive Mexico S.A. de C.V.

- Production Plant
- Sales & Engineering Office