Introduction to Made-to-Order Sprockets

At Tsubaki, our commitment is to bring you the highest value in the industry today. Period. And as a full line supplier of power transmission products this commitment extends to our complete line of Made-to-Order Sprockets as well.


Our capabilities include CNC machining for special machined tooth profiles, heat-treating and a variety of finishes. Our CAD delivery capabilities allow us to provide highly customized solutions for almost any application.

Our sprockets are built from top-grade carbon steel to offer long wear life, resist abrasion, and withstand heavy shock loads. Alloy and stainless steel sprockets are also available for extra corrosion resistance and food-grade applications.

You get long service life and reliable performance, turn after turn, time after time. And it's all part of the Tsubaki Advantage: reliable premium products that don't just perform, they outperform the competition. All the while saving you money.
Our Capabilities

- Made-to-Order capabilities: Specializing in high quality Roller Chain and Engineering Class sprockets.
- Short lead times.
- Expedited Same Day/Next Day shipping for breakdowns.
- Over 30 years of manufacturing experience.
- Heat treating: Induction, flame, carburizing/case hardening, etc.
- CNC machining for special machined tooth profiles.
- Robotic and submerged arc welding.
- Flame and laser cutting.
- Finishes including paint, powder coat, black oxide and plating.
- Serving the North American marketplace.

Custom Products

- Solid, welded, and custom machined sprockets.
- Mounting, lightening, adjustment, and safety lockout holes.
- Split and Segmental Rim Sprockets.
- Mounting methods including straight bores, taper bushing styles, drum mountings, splines, Power-Locks and other keyless devices, and much more.
Materials and Coatings

• On request, we can manufacture any sprocket from alloy steels, brass, bronze, and other materials.
• Coatings for anti-corrosion and anti-wear are available, including nickel, zinc, chrome, and others.

Shipping Methods

• Special shipping methods can be provided, such as custom crates and kits.

Engineering Class Sprocket Teeth Options

• All Engineering Class sprockets can be provided with “gap tooth” profiles in order to accommodate chain attachments.
• Tsubaki’s standard Engineering Class non-drive style sprockets are manufactured with “Low Profile” teeth. The teeth are not higher than the chain sidebar height to allow for chain attachments. Special flat profile teeth can be designed to clear attachments on long pitch sprockets.
• “High Profile”, or “Long Tooth” sprockets are available on request. The sprocket teeth project out through the top of the chain.
Engineering Class Traction Wheels
• The same bore mountings that can be put into sprockets are also available in Traction Wheels.
• Made to your specifications.

Custom Manufactured Sprocket Assemblies
• Sprockets and other components can be incorporated into the design. For example: shrink discs, mounting collars, torque limiters, etc.
Bore Options
Plain Bore and Finished Bore Sprockets

• Plain Bore Sprockets: Straight bore or straight bore with set screws.
  
  *Options:
  • Inch and metric bore sizes.
  • Set screws: Quantity, type, location and size.

• Finished Bore Sprockets: Straight bore with standard keyway and two set screws.
  
  *Options:
  • Inch and metric bore sizes.
  • Non-standard keyways and setscrews.
  • Non-standard set screw positions.
  • Multiple keyways and tapered keyways.
  • Cup, Cone, or Dog point setscrews.

Bore Options
Tapered Bushing Bore and Bearing/Bushing Idler Sprockets

• Tapered Bushing Bore Sprockets: Designed for “Split Taper”, “QD” Style, and “Taper-Lock” style bushings.
  
  *Options:
  • Keyway Centerline of Sprocket Tooth for bushing.
  • Custom bushing styles and mountings on request.

• Bearing and Bushing Idler Sprockets: Supplied with or to suit pressed bushings or bearings.
  
  *Options:
  • Bushing materials include: Bronze, Oilite, Plastics, and more.
  • Bearings can be press fit or ring retained.
  • Grease grooves and grease nipples available.
Bore Options
Power-Locks and Spline Bore Sprockets
(for high torque applications)

- Power-Lock Sprockets: Supplied with or to suit Tsubaki Power-Lock Keyless Locking System.
  
  Options:
  
  - Inch or metric series Power-Locks.
  - Self-centering Power-Locks.

- Spline Bore Sprockets:
  
  - Made-To-Order: ANSI series and custom splines can be Made-to-Order for heavy-duty power transmission applications.

Bore Options
Custom Bores

Options:
- Tapered bores.
- Square bores.
- Hex bores.
- Spline bores.
- Other custom combination bores.
Split Sprockets

Split sprockets allow for easy maintenance of sprockets and machinery because the sprocket can be removed from the shaft without having to disassemble everything around the sprocket.

Most Tsubaki sprockets can be supplied as A, B or C Style (hub combinations) split sprockets. Split A Style sprockets (without hubs) can be supplied with bolt holes or mounting brackets to attach to shafts or drums. B and C style (with one or two hubs) are supplied with Tsubaki’s standard Type I or Type II split hubs, or custom Made-to-Order hubs.

Split sprockets that cannot be welded are made with oversized hubs to allow for the bolts that hold the sprocket together. Welded split sprockets are manufactured with Tsubaki’s standard or custom split hubs.
Segmental Rim Sprockets
Segmental rim sprockets and traction wheels are split rings (two or more pieces) that generally fasten by bolting to a standard hub body. Segmental rims are usually applied when ease of replacement is desired because the chain, shaft, and bearings do not have to be disturbed during sprocket replacement. When downtime is critical in an operation, consider segmental rim sprockets and traction wheels. Adjustable rim sprockets are also available from Tsubaki. The adjustability of these sprockets allows for precise alignment of multiple sprockets along a shaft.

Segmental rims are made of special steel plate material and may be heat treated (option) to high hardness levels to achieve long service life. Hardened teeth resist abrasive wear common in operation. Consult Tsubaki Technical Support when material being conveyed is cement, ash, or other high hardness material. Special sprocket tooth hardness is necessary to resist wear from such hard abradants.

Adjustable Segmental Rim Sprockets

Slots for Adjustment Bolts

Segmental Rim Sprocket
Sprocket Hardening and Materials
Tsubaki can manufacture sprockets to meet your specific needs. The results are sprockets designed to maximize the life of your chain. Chains and sprockets must work together, so buying them from the same source makes sense. When chains and sprockets articulate correctly, the life of the chain is extended. That means long term savings and real value for your application.

Tsubaki sprockets can be made in a variety of grades of carbon, stainless, and alloy steels, as well as other metals. Since chain loadings are distributed over all engaged sprocket teeth, tooth breakage or distortion is not normally a problem. It is seldom necessary to use special high strength material. Diameter, pitch, and the number of strands of the sprocket determine the specific grade of carbon steel used. Many of our wide range of carbon steel sprockets are heat treated as a standard. For other sprockets, heat-treating can be specified as an option. Heat-treated carbon steel provides long wear life and resists abrasion.

The hardening process of small diameter, small pitch sprockets is usually a one step procedure using electrical induction heat-treating. Large diameter, large pitch sprockets are usually heat-treated using direct flame hardening. These methods are used to provide high hardness at the wear areas of each tooth maintaining a ductile tooth core that is tough and resilient. The hubs and bore remain soft to permit reworking.

Tsubaki stock sprocket hardness is:
Rockwell A Scale: 68-76
Rockwell C Scale: 35-50
Tighter ranges, or higher hardness can be supplied at your request.
Custom Modeling Software

- Tsubaki can help you to design your custom Made-to-Order sprocket through the use of SolidWorks modeling software.
- The SolidWorks platform allows Tsubaki designers to configure sprocket solutions and to provide customers with 2D approval drawings and 3D models.
- Tsubaki’s integration of the SolidWorks platform also allows end users and original equipment manufacturer (OEM) designers to use drawings and models in their application designs.

Design Support/Reverse Engineering

- Tsubaki’s Production Designers can reverse engineer almost any sprocket and then recreate it.
- We also have the ability to resolve manufacturing and design issues, making improvements where necessary to offer you the best possible sprocket solution.
- Tsubaki can also suggest alternative manufacturing methods (e.g. develop less expensive welded sprockets from cast sprocket drawings).
- With our advances in sprocket design, we are manufacturing much more complicated sprockets for our customers.

Industries Served by Tsubaki Sprockets

Tsubaki manufactures custom-made and standard sprockets for varied industries. We make sprockets for both end users and original equipment manufacturers. Tsubaki sprockets are reliable and built to withstand the rigorous demands of industry. Some of the select industries served by Tsubaki custom and standard sprockets are:

- Oilfield
- Amusement Parks
- Mining
- Forestry
- Pulp & Paper
- Automotive
- Water Treatment
- Food Processing
- Cement Plants
- Distribution & Material Handling
- Agriculture
- Bottling
NOTE: In accordance with the policy of Tsubaki to consistently improve its products, the specifications in this catalog are subject to change without notice. Please contact Tsubaki for current prices.

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