

Power to the World!

Tsubaki Corrosion-Resistant Chains and Sprockets

Selection Guide

For Drives and Small Conveyors



Tsubaki Corrosion-Resistant Chains and Sprockets— Meet Your Ever-Changing Needs

Basic Style

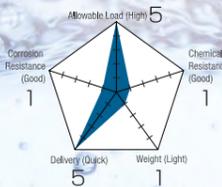
Standard Chains and Sprockets

Corrosion resistant, chemical resistant, heat resistant

Corrosion resistant, lube-free

Corrosion resistant, weather resistant

Special environments



Stainless Steel Style

These chains and sprockets take advantage of the features of stainless steel.
(SS Series, AS Series, NS Series)



- Application Areas
- Food industry
 - Pharmaceutical industry
 - Light electrical/semiconductor industries
 - Packaging industry
 - Inside furnaces

Hybrid Style

This clean chain combines stainless steel and engineering plastic for long, lube-free life.
(LSC Series, Poly Steel Chain, Poly Steel Chain SY Series)



- Application Areas
- Pharmaceutical/medical device industries
 - Amusement industry
 - Papermaking industry
 - Printing industry
 - Office/OA equipment

Coating Style

These chains and sprockets take advantage of steel's strength while using a corrosion-resistant coating.
(NP Series, NEP Series, APP Series)



- Application Areas
- Steel industry
 - Nonferrous metals industry
 - Containers, cranes
 - Outdoor conveyors
 - Carwashes

Special Material Style

These specialty chains use special materials to adapt to unique environments. (Made to order)
(KT Series, TI Series)



- Application Areas
- Battery industry
 - Freezer industry
 - Cold regions
 - Chemical cleaning
 - Light electrical industry

User Feedback 01



Washing Equipment Design Manager



Our washing equipment for sintered parts was to be designed with a stainless steel attachment chain, so I decided to talk to Tsubaki. The equipment is used to remove grease from parts, so the chain absolutely must not be lubricated. Past chains used on the equipment elongated and caused frequent problems, so our customers are particularly concerned about chain life. We are now using stainless steel LSC Series chains that offer customers the added value of longer conveyor life, which has led to more orders.

Chain: RF2040S-LSC Sprocket: RF2040S1012T-SS

User Feedback 02



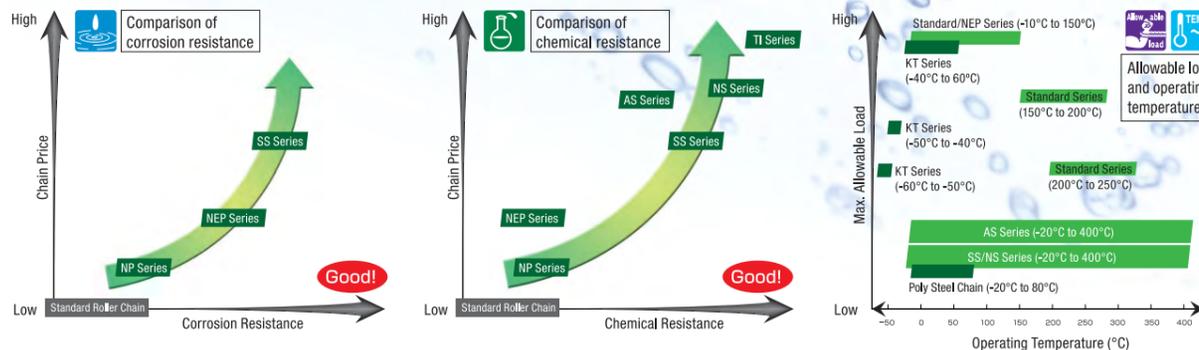
Steel Industry Safety Manager



We use steel chains to drive our roller conveyor, which conveys hot billets as they are cooled by water. We previously used another company's standard chains, but water splashing on the drive unit caused problems with conveyor operation due to premature rusting. The chains would then ride up on the sprocket, eventually causing the chains to break. So we attached Tsubaki NEP Series surface-treated chains to the conveyor. NEP chains dramatically suppressed corrosion and drastically reduced our chain problems. We are extremely satisfied with the results: longer operational life for the chain, and reduced trouble with chain replacement.

Chain: RS100-NEP-1 Sprocket: RS sprocket (standard)

Comparison of Environmental Characteristics



*Operating temperature range is shown based on a rough measure of allowable load. In actual situations use a lubricant appropriate to the operating temperature.

Chemical Resistance

Chemical resistance varies considerably with operating conditions. The following chart does not show guaranteed values. Rather, it is a guide to be used in checking a chain's chemical resistance ahead of time based on your actual operating conditions in order to determine the right series to use. The data presented is based on an ambient temperature of 20°C.

- : Resistant
- ▲ : Resistant under some conditions
- × : Not resistant
- : Unknown (no data)

Chain Series	Acetic acid 10%	Acetone	Alcohol	Ammonia water	Boric acid 50%	Calcium hypochlorite	Chromic acid 5%	Concentrated nitric acid 65%	Ferric chloride 5%	Formic acid 50%	Hydrochloric acid 2%	Hydrogen peroxide 30%	Nitric acid 5%	Oxalic acid 10%	Phosphoric acid 5%	Potassium hydroxide 20%	Seawater	Sodium chloride 5%	Sodium hydroxide 25%	Sodium hypochlorite 10%	Sulfuric acid 5%	Vinegar	Zinc chloride 50%	Zinc sulfate 25%
SS Series	●	●	●	●	●	●	●	●	▲	●	×	●	●	●	●	●	●	●	×	×	▲	▲	●	
AS Series	●	●	●	●	×	▲	×	×	●	×	▲	▲	▲	▲	●	×	●	●	×	×	×	×	●	
NS Series	●	●	●	●	●	●	●	●	▲	×	●	●	●	●	●	●	●	●	●	●	●	●	●	
LSC Series	●	●	●	●	—	—	●	×	▲	×	×	—	—	●	—	×	▲	●	×	×	×	—	●	
Poly Steel Chain	●	●	●	●	—	×	×	×	—	×	×	×	×	—	×	●	●	●	●	×	×	▲	▲	—
Poly Steel Chain SY Series	●	×	●	●	—	●	●	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
KV Series (reference)	●	●	●	●	—	—	×	—	—	▲	×	●	—	▲	●	▲	●	●	—	×	×	▲	—	—
TI Series	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SS Series	●	●	●	●	●	●	●	●	▲	●	×	●	●	●	●	●	●	●	●	×	×	▲	▲	●
Engineering Plastic	▲	●	●	●	—	▲	×	×	×	×	×	×	×	●	×	●	●	●	●	▲	×	▲	×	—

- This chart shows the corrosion (chemical) resistance to certain chemicals for each product. It does not include wear performance.
- Super engineering plastic KV Series is shown for reference. KV Series can be used as rollers on small size plastic roller conveyor chain.
- This is only a partial chart. For a more complete listing, please refer to Tsubaki's comprehensive Drive Chain & Sprocket catalog, or Small Size Conveyor Chain & Sprocket catalog.

- Drive Chain
- Corrosion Resistant: Usable in contact with water.
- Nonmagnetic: No magnetism.
- Lube-Free: Requires no additional lubrication.
- Chemical Resistant: Resistant to various chemicals. (Consult Tsubaki's chemical resistance chart for more details.)
- Small Size Conveyor Chain
- Sanitary: Relatively hygienic to use.
- Operating Temperature Range: Temperature range for chain operation.
- Weight: Relatively lightweight and easy to handle.
- Resistant to Stress Corrosion Cracking: Resistant to hydrogen embrittlement fracture.
- Sprockets
- Chain Price: Measure of price. Varies by quantity and chain size. Contact your Tsubaki representative for more details.
- Allowable Load: Has an allowable load similar to steel chains (80% to 100%).

Stainless Steel Style

SS Series

SUS304-equivalent basic stainless steel chain



Material: SUS304 equiv.

Allowable Load (High) 1

Corrosion Resistance (Good) 5

Chemical Resistance (Good) 4

Delivery (Quick) 4

Weight (Light) 1

Temp: -20°C to 400°C

Icons: Food, Chemical, Water, Weight

AS Series

Stainless steel chain with 1.5 times the allowable load of SS Series



Material: Pin/roller: Precipitation-hardened stainless steel; Plate/bush: SUS304 equiv.

Allowable Load (High) 1.5

Corrosion Resistance (Good) 4

Chemical Resistance (Good) 3

Delivery (Quick) 4

Weight (Light) 1

Temp: -20°C to 400°C

Icons: Food, Chemical, Water, Weight

NS Series

Uses SUS316 stainless steel for outstanding corrosion resistance



Material: SUS316 equiv.

Allowable Load (High) 1

Corrosion Resistance (Good) 5

Chemical Resistance (Good) 5

Delivery (Quick) 1

Weight (Light) 1

Temp: -20°C to 400°C

Icons: Food, Chemical, Water, Weight, Tools

Note: NS Series uses a cotter pin on the connecting link. (RS25NS uses a clip on the connecting link.)

Coating Style

NP Series

Nickel plated for an attractive appearance



Nickel plating

Base chain: Steel

Allowable Load (High) 4

Corrosion Resistance (Good) 1.5

Chemical Resistance (Good) 1

Delivery (Quick) 4

Weight (Light) 1

Temp: -10°C to 60°C*

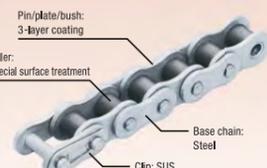
Icons: Food, Chemical, Water, Weight, Allowable Load

*Using a suitable lubricant can raise the operating temperature range to 150°C maximum.

Also available in lube-free, long-life Lambda Chain.

NEP Series

RoHS Directive-compliant special corrosion-resistant surface-treated chain



Pin/plate/bush: 3-layer coating

Roller: Special surface treatment

Base chain: Steel

Clip: SUS

Allowable Load (High) 5

Corrosion Resistance (Good) 4

Chemical Resistance (Good) 1

Delivery (Quick) 3

Weight (Light) 1

Temp: -10°C to 60°C*

Icons: Food, Chemical, Water, Weight, Allowable Load

*Using a suitable lubricant can raise the operating temperature range to 150°C maximum.

NEP Series is the world's No. 1 surface-treated chain.

Tsubaki has developed an original environmentally friendly surface treatment. Used on NEP Series chains, this RoHS Directive-compliant surface treatment gives the highest corrosion resistance in the industry.

High corrosion resistance: No rust after 700 hours of salt spray testing.



Each part optimally surface treated. Each NEP Series chain part is individually surface treated. The plates, pins, and bushes feature a three-layer coating with superior corrosion resistance, while the rollers feature a special coating that produces very fine flakes when engaging the sprocket.

Sprockets

Stainless Steel Sprockets

Water, chemical, and high-temperature resistant



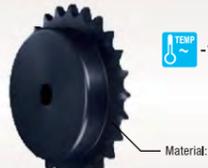
Material: SUS304 equiv.

Temp: -20°C to 400°C

Icons: Food, Chemical, Water, Weight

Engineering Plastic Sprockets

Low noise, lightweight, and easy to handle



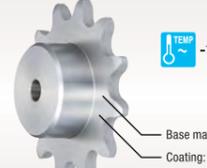
Material: Special MC901

Temp: -10°C to 60°C

Icons: Food, Chemical, Water, Weight

Surface-Treated Sprockets

High tooth strength and corrosion resistance



Base material: Steel

Coating: NP/NEP

Temp: -10°C to 60°C

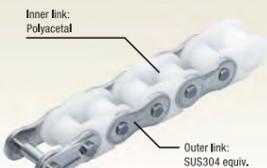
Icons: Food, Chemical, Water, Weight, Allowable Load

Note: Using steel chains with stainless steel sprockets may result in galvanic corrosion in certain situations, leading to premature roller wear. Avoid combining steel and stainless steel as much as possible. Contact a Tsubaki representative regarding surface-treated steel sprockets.

Hybrid Style

Poly Steel Chain

Clean, lightweight chain



Inner link: Polyacetal

Outer link: SUS304 equiv.

Allowable Load (High) 1

Corrosion Resistance (Good) 2

Chemical Resistance (Good) 2

Delivery (Quick) 5

Weight (Light) 4

Temp: -20°C to 80°C

Icons: Food, Chemical, Water, Weight

Note: Resistant to water-based corrosion, but the chain may suffer premature wear and a shorter chain life.

LSC Series

Lube-free, long-life stainless steel chain



Chain: SUS304 equiv.

Special engineering plastic sleeve

Allowable Load (High) 1

Corrosion Resistance (Good) 4

Chemical Resistance (Good) 3

Delivery (Quick) 1

Weight (Light) 1

Temp: -20°C to 100°C*

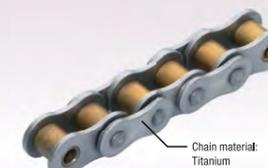
Icons: Food, Chemical, Water, Weight

*Operating temperature range is for stainless steel rollers. (-20°C to 80°C for plastic rollers.)

Special Material Style

TI Series

Titanium chain—tough against strong acids and alkalis



Chain material: Titanium

Allowable Load (High) 1

Corrosion Resistance (Good) 5

Chemical Resistance (Good) 5

Delivery (Quick) 1

Weight (Light) 4

Temp: -20°C to 400°C

Icons: Food, Chemical, Water, Weight

KT Series

Steel chain for cold environments



Chain material: Special steel

Allowable Load (High) 4

Corrosion Resistance (Good) 1

Chemical Resistance (Good) 1

Delivery (Quick) 1

Weight (Light) 1

Temp: -40°C to 60°C*

Icons: Food, Chemical, Water, Weight, Allowable Load

*Usable to -60°C depending on temperature selection.

- ⚠ Safety Precautions**
- Do not use surface-treated drive chain if chain may contact food or coating flakes may mix in with food.
 - While nickel plating is not directly regulated by food-hygiene and occupational health and safety laws, caution is recommended.

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toughest conditions!