Innovation in Motion
TSUBAKI

TSUBAKI
Stainless Steel Chains and
SS Series Upgrade / HS Series
Sprockets
Wear-resistant Series

Tsubaki solves problems with chain stretching and strength

TSUBAKI ECO LINK

Longer wear life and strong—Tsubaki stainless steel chains and sprockets are the solution

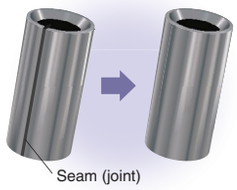
Upgrade

Stainless Steel Chain
SS Series

We've improved wear life and maximum allowable load by adopting seamless bushes.

Wear life	2 times the previous SS Series
Max. allowable load	1.5 times the previous SS Series
Applicable products	Drive chain Small size conveyor chain RS: RS40 to RS100 Double Pitch: RF2040 to RF2080 BS/DIN standard: RS08B to RS16B

Seamless bush



The bush adopts a seamless structure in place of the previous split structure.

Note: Only SS Series chains in the sizes above are being upgraded. Wear life and maximum loads for other sizes of SS Series chain will remain unchanged.

Stainless Steel Chain
HS Series

We use 13Cr stainless steel for the pins, bushes, and rollers to give the chain longer life and higher strength.

Wear life	3 to 6 times the previous SS Series
Max. allowable load	2.7 times the previous SS Series
Applicable products	Drive chain Small size conveyor chain RS: RS40 to RS80 Double Pitch: RF2040 to RF2080

Stainless Steel Sprockets
Wear-resistant Series

We've applied a special surface treatment to give the sprocket better wear resistance.

Wear life	2.5 times the previous stainless steel sprocket
Applicable products	RS sprocket: RS40 to RS80 Double Pitch sprocket: RF2040 to RF2080

Maintenance issues 1

Having trouble with chain wear and stretching?

Chain tension adjustments can be so time-consuming.

Chains become “stretched” due to wear after being used for a while. You need to periodically check for slack and adjust the chain tension.

I want to replace chains less frequently.

Replacing a chain involves not only the cost of the chain itself, but also the costs of stopping the production line during replacement work and carrying out the replacement work.

Longer wear life is the solution.

Stainless Steel Chain SS Series

The upgraded SS Series gives longer wear life.

You can further extend chain wear life.

Stainless Steel Chain HS Series

The HS Series has even longer wear life than the SS Series.

Production concerns 2

Worried about chain strength?

We’ll need to increase chain size if we want to ramp up production.

To ramp up production, you need to convey more materials and increase chain speed. This involves recalculating the chain size. If it turns out you need a larger chain and sprocket, you may have to modify your equipment to fit them.

A higher maximum allowable load enables you to increase production without using a larger chain.

Stainless Steel Chain SS Series

We’ve upgraded the SS Series to give it 1.5 times higher maximum allowable load.

You can raise the maximum allowable load even higher.

HS Series Stainless Steel Chain Wear-resistant Stainless Steel Sprockets

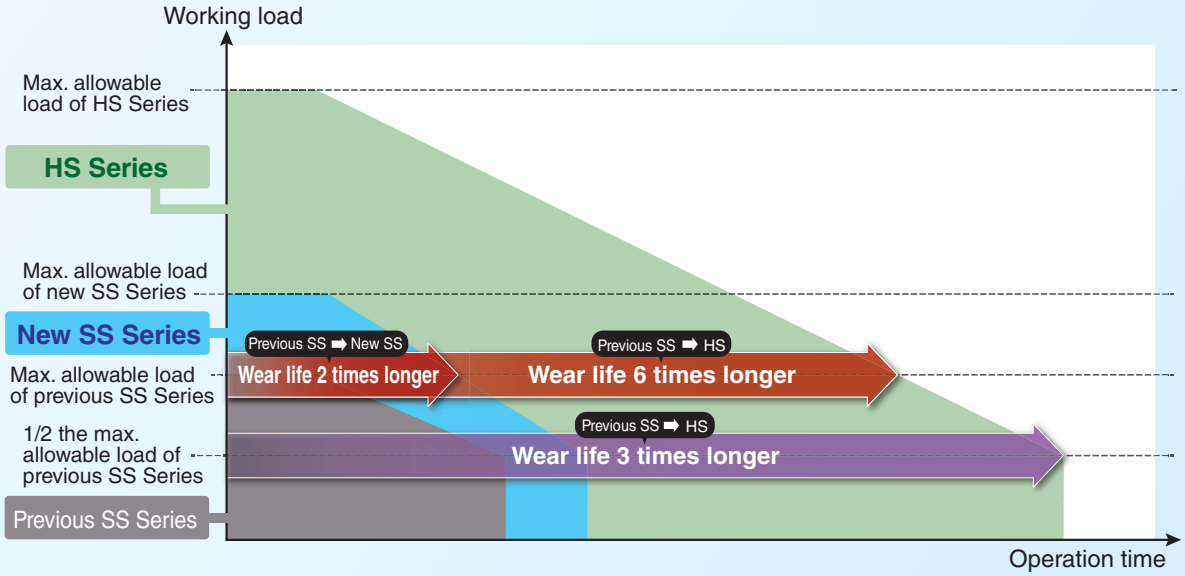
The HS Series uses 13Cr stainless steel for the pins, bushes, and rollers to provide greater strength.
A special surface treatment on the sprocket gives it better wear resistance.

Upgraded for even better performance

Greater strength and longer wear life—Tsubaki's high-performance stainless

Minimal wear elongation, higher maximum allowable load

■ Comparing wear elongation



In-house test conditions	Size: RS50 No. of links: 66 Sprockets: 17 teeth (drive/driven) RPM: 185 r/min Environment: Ambient temperature, dry condition*

*** What is "dry condition"?**

When the chain is not lubricated and is not exposed to water during operation.

Example: When a chain is washed after a day of operation and run the next day in an almost dry state, it is considered to be in a "dry condition."

Table 1: Max. allowable loads of drive chain and small size conveyor chain

kN{kgf}

RS	Double Pitch	New SS Series	HS Series	AS Series	NS Series	LSC Series	LSK Series*1
		Single strand	Single strand	Single strand	Single strand	Single strand	Single strand
RS40	RF2040	0.69 {70}	1.19 {121}	0.69 {70}	0.44 {45}	0.44 {45}	0.44 {45}
RS50	RF2050	1.03 {105}	1.85 {189}	1.03 {105}	0.69 {70}	0.69 {70}	0.69 {70}
RS60	RF2060	1.57 {160}	2.78 {283}	1.57 {160}	1.03 {105}	1.03 {105}	1.03 {105}
RS80	RF2080	2.65 {270}	4.77 {486}	2.65 {270}	1.77 {180}	1.77 {180}	1.77 {180}
RS100	–	3.82 {390}	–	–	–	–	–

BS/DIN standard	New SS Series
	Single strand
RS08B	0.73 {74}
RS10B	0.99 {101}
RS12B	1.31 {134}
RS16B	3.09 {315}

*1 The LSK Series is available only for small size conveyor chains.

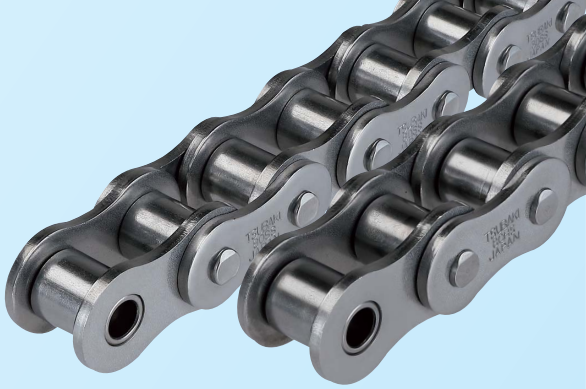
A special surface treatment boosts wear resistance

Stainless Steel Sprockets Wear-resistant Series

We've applied a special surface treatment to give the sprocket better wear resistance. This reduces the frequency of sprocket replacement.
If you're using the HS Series—and if its working load exceeds the maximum allowable load of the new SS Series shown in Table 1 above—we recommend using wear-resistant stainless steel sprockets. If you use a standard stainless steel sprocket, it will wear out prematurely.

steel chains

Tsubaki stainless steel chains are used in a variety of industries. The upgraded SS Series gives even better performance, so it can be used for a wider range of applications.



A wide line-up to match any environment

Table 2: Comparison of stainless steel chain performance

	Series code	Outline	Wear life comparison*1	Max. allowable load comparison*3	Corrosion resistance	Allowable temperature range*4
New SS Series	SS	General-purpose stainless steel chain with high corrosion resistance	200	150	○	-20℃–400℃
Previous SS Series			100	100		
HS Series	HS	Longer life than SS Series; 2.7 times the maximum allowable load of previous SS Series	600*2	270	△	-20℃–150℃
AS Series	AS	1.5 times the maximum allowable load of previous SS Series	100	150	△	-20℃–400℃
NS Series	NS	Higher corrosion resistance than SS Series	100	100	◎	-20℃–400℃
LSC Series	LSC	Longer life than SS Series	400	100	○	-20℃–100℃
LSK Series	LSK	Longer life and less initial elongation than SS Series	400	100	○	-20℃–180℃

*1: Comparison with wear life of previous SS Series set to 100, under maximum allowable load.
*2: Wear life may differ depending on the working load. Refer to the "Comparing wear elongation" graph on the left. We do not recommend using the HS Series if the chain will be constantly exposed to water. In these conditions, its wear life may shorten compared to the SS Series. Double Pitch chain with R rollers has four times the wear life of the previous SS Series, due to the wear between the bushes and rollers. (Previous SS Series under max. allowable load)
*3: Comparison with maximum allowable load of previous SS Series set to 100.
*4: –20°C to 80°C for Double Pitch chain with plastic rollers (standard series, white).

Table 3: Stainless steel chain materials and rustproofing

	Chain size			Material				Rustproofing
	RS	Double Pitch	BS/DIN standard	Plate	Pin	Bush	Roller	
New SS Series	40–100	2040–2080	08B–16B	18-8 stainless steel				Not lubed
Previous SS Series	11–35、120–240	2100–2160	–	18-8 stainless steel				Not lubed
HS Series	40–80	2040–2080	–	18-8 stainless steel	13Cr stainless steel*1			Volatile corrosion inhibitor
AS Series	40–80	2040–2080	–	18-8 stainless steel	Precipitation-hardened stainless steel	18-8 stainless steel	Precipitation-hardened stainless steel*1	Lubricant
NS Series	25–80	2040–2080	–	18-12 stainless steel				Not lubed
LSC Series	40–80	2040–2080	–	18-8 stainless steel*2				Not lubed
LSK Series	40–60	2040–2060	–	18-8 stainless steel		18-8 stainless steel + special engineering plastic	18-8 stainless steel	Not lubed

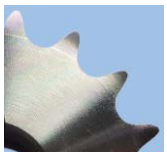
*1: On Double Pitch chain with R rollers, the roller material is 18-8 stainless steel.
*2: A special engineering plastic sleeve is inserted between the pins and bushes.

Chain Selection and Dimensions

- Please refer to the "Drive Chains & Sprockets" catalog or the "Small Size Conveyor Chains & Sprockets" catalog.
- For the BS/DIN standard drive chain, use the allowable load selection method.
- For the BS/DIN standard small size conveyor chain, contact a Tsubaki representative.

About the AS Series

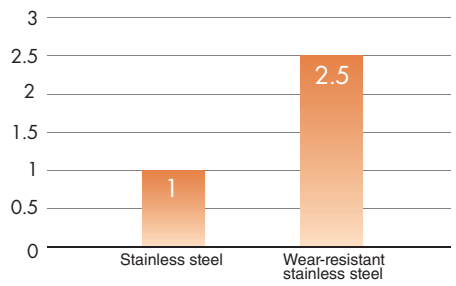
The upgraded SS Series now offers performance levels at least as good as those of the AS Series. We therefore recommend replacing AS Series chain with the new SS Series. One difference between the two series is that the SS Series is not lubricated at the time of shipment. Lubrication affects the long-term wear life of a chain. So, if you want to have lubricant applied to your new SS Series chain on a made-to-order basis, contact a Tsubaki representative.



Wear-resistant stainless steel sprocket after use

Standard stainless steel sprocket after use

Comparing sprocket wear life



In-house test conditions	Size: RS50 No. of links: 66 Working load: 1.85 kN Sprockets: 17 teeth (drive/driven) RPM: 185 r/min Environment: Ambient temperature, dry condition

Precautions

The coating on the sprocket may flake off when the sprocket engages the chain. If you're using the sprocket anywhere that such flakes could be a problem, take suitable countermeasures—for example, install a cover.

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Website https://www.tsubakimoto.com

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