

# **TSUBAKI**

## **Small Size Conveyor Chain**

### **LSK™ Series Corrosion Resistant**

**Long Life Stainless Steel Chain**



**Stainless Steel Double Pitch Chain**  
**Stainless Steel RS® Attachment Chain**



# Introducing Tsubaki's new LSK™ Series

Tsubaki has added another series to its corrosion resistant stainless steel attachment chain line up. The LSK Series chain demonstrates high performance in high temperatures, dry conditions, in contact with water, or even underwater to meet the needs of the food industry and a wide range of other industries. Let Tsubaki's LSK Series be the next solution for your production lines.

## LSK Series with its revolutionary construction offers...



Photo: RF2050R-LSK-1LK1



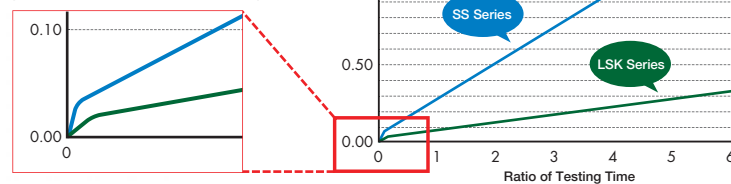
Photo: RF2050RPKV-LSK-1LK1

### Better wear resistance!

Less initial elongation

Provides long life thanks to a special wear resistant bush. Reduces burdensome chain maintenance.

Wear elongation life in ambient temperatures (In house test data, -10°C to 60°C)

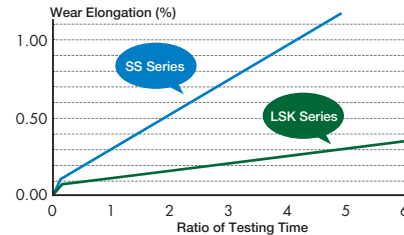


### Better heat resistance!

Max. 180°C

Greatly increased heat resistance. Can be used in the high temperature range.

Wear elongation life in 180°C environments (in-house test data)



### Better chemical resistance!

Tsubaki uses its extensive plastic chain engineering know-how to carefully select the special engineering plastic used with the bush.



## Chain Sizes and Performance \*LSK Series cannot be connected to standard specifications due to the differences in their pins.

Chain Size	Roller Type	Roller Material	Maximum Allowable Load kN{kgf}	Roller Allowable Load kN{kgf}/(each)	Continuous Usage Temperature °C	
					KV Series Rollers	Stainless Steel Rollers
<b>RS40-LSK</b>	S	Stainless steel	0.44 { 45 }	0.05 { 5 }	—	-20°C ~180°C
<b>RS50-LSK</b>			0.69 { 70 }	0.06 { 6 }		
<b>RS60-LSK</b>			1.03 {105}	0.09 { 9 }		
<b>RF2040S-LSK</b>			0.44 { 45 }	0.05 { 5 }		
<b>RF2050S-LSK</b>			0.69 { 70 }	0.06 { 6 }		
<b>RF2060S-LSK</b>			1.03 {105}	0.09 { 9 }		
<b>RF2040R-LSK</b>	R	Stainless steel, KV Series	0.44 { 45 }	0.20 {20}	-20°C ~180°C	
<b>RF2050R-LSK</b>			0.69 { 70 }	0.29 {30}		
<b>RF2060R-LSK</b>			1.03 {105}	0.49 {50}		

Note:

1. Contact a Tsubaki representative if you will decrease the chain before use.
2. Regularly clean any black wear dust that may develop.
3. Contact a Tsubaki representative regarding extended pins.
4. Standard Series engineering plastic rollers (white) may suffer premature wear in contact with or under water and are not recommended for these environments.

# chain for all your production line needs!

Long Life

Heat Resistance

Chemical Resistance



## Tsubaki's new LSK Series chain, with greatly improved wear resistance.

### Uses a special bush in the bearing area

Tsubaki's LSK Series stainless steel conveyor chain uses a special bush to provide self-lubricating functions between pin and bush for a longer wear life. In addition to stainless steel rollers, we also offer KV Series rollers for our LSK Series Double Pitch chain.

#### Material

Base chain: 18-8 stainless steel (SUS304 equiv.)  
(pins, plates)

Bush: 18-8 stainless steel (SUS304 equiv.) + special engineering plastic  
(Special engineering plastic approved by the Food Sanitation Act)

Roller: 18-8 stainless steel (SUS304 equiv.)  
KV Series (special engineering plastic, black)

#### Chain Size

RS40-LSK – RS60-LSK  
RF2040-LSK – RF2060LSK

\*Made to order item; above sizes can be used with attachments.

#### Usage Temperature Range

-20°C to 180°C  
(With stainless steel or KV Series engineering plastic rollers)

### Base Construction

Bush

With special engineering plastic insert



## LSK Series – The solution for all your conveyance needs!

Minimizes chain elongation for less replacement costs and maintenance time!

Solves problems with mis-positioning during work transfer!

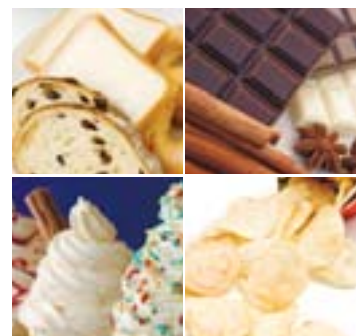
Quieter for a better work environment!

Say goodbye to articulation worries!



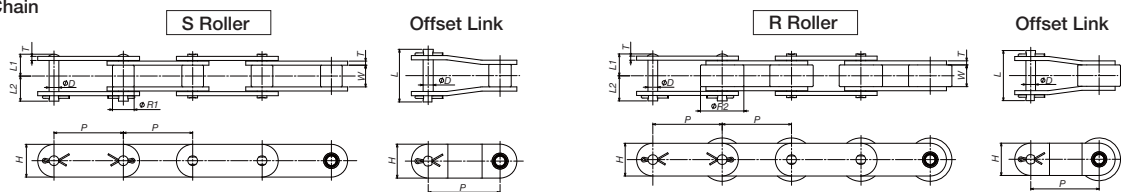
### Perfect for the following equipment!

- **Packing equipment**  
(horizontal pillows, bundling, shrinking, etc.)
- **Fill, form, and seal equipment**  
(liquids, powders, etc.)



## Double Pitch Stainless Steel Chain

### Base Chain

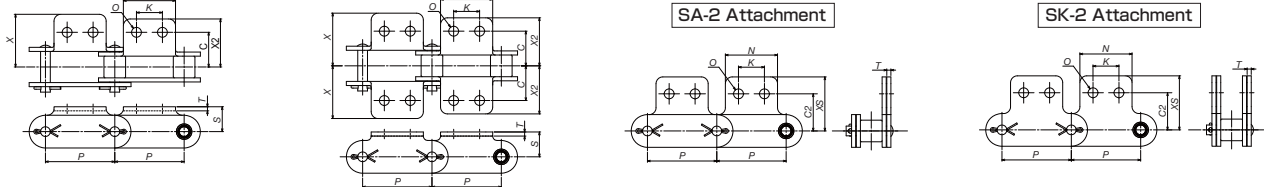


### A-2 Attachment

### K-2 Attachment

### SA-2 Attachment

### SK-2 Attachment



- LSK Series cannot be connected to standard specifications due to the differences in pins. • Connecting links use cotter pins.
- Offset links use cotter pins on both ends. • Contact a Tsubaki representative regarding extended pins. • Drawings above show attachments on every link.
- Drawings above show S rollers on the attachments, but the dimensions are the same with R rollers. Drawings above show attachments on every link.

### Base Chain Dimensions

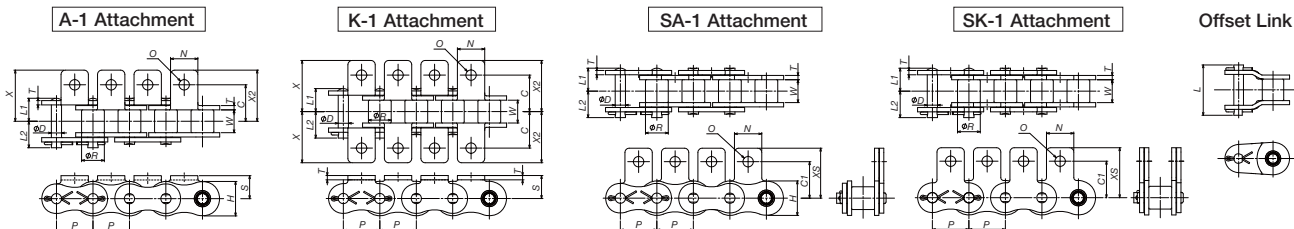
Tsubaki Chain No.	Pitch $P$	Roller Diameter		Inner Link Inner Width $W$	Pin			Plate		Approximate Mass kg/m			No. of Links per Unit	
		S Roller $R_1$	R Roller $R_2$		Diameter $D$	$L_1$	$L_2$	$L$	Thickness $T$	Width $H$	Stainless Steel Rollers			
											S Roller	R Roller		
RF2040-LSK	25.40	7.92	15.88	7.95	3.56	8.0	9.2	18.5	1.5	12.0	0.51	0.87	0.52	120
RF2050-LSK	31.75	10.16	19.05	9.53	4.45	10.15	11.85	23.9	2.0	15.0	0.84	1.30	0.83	96
RF2060-LSK	38.10	11.91	22.23	12.70	5.09	14.35	15.95	32.0	3.2	17.2	1.51	2.19	1.48	80

### Attachment Dimensions

Tsubaki Chain No.	$C$	$C_1$	$C_2$	$K$	$N$	$O$	$S$	$X$	$X_2$	$X_S$
RF2040-LSK	12.7	11.1	13.6	9.5	19.1	3.6	9.1	19.3	17.6	19.8
RF2050-LSK	15.9	14.3	15.9	11.9	23.8	5.2	11.1	24.2	22.0	24.6
RF2060-LSK	21.45	17.5	19.1	14.3	28.6	5.2	14.7	31.5	28.2	30.6

## RS® Stainless Steel Attachment Chain

### Base Chain



- LSK Series cannot be connected to standard specifications due to the differences in pins. • Connecting links use cotter pins.
- Offset links use cotter pins on both ends. • Contact a Tsubaki representative regarding extended pins. • Drawings above show attachments on every link.

### Base Chain Dimensions

Tsubaki Chain No.	Pitch $P$	Roller Diameter $R$	Inner Link Inner Width $W$	Pin			Plate			Approximate Mass kg/m	No. of Links per Unit	
				Diameter $D$	$L_1$	$L_2$	$L$	Thickness $T$	Width $H$			Width $h$
RS40-LSK	12.70	7.92	7.95	3.56	8.0	9.2	18.5	1.5	12.0	10.4	0.64	240
RS50-LSK	15.875	10.16	9.53	4.45	10.15	11.85	23.9	2.0	15.0	13.0	1.04	192
RS60-LSK	19.05	11.91	12.70	5.09	12.65	14.25	28.6	2.4	18.1	15.6	1.53	160

### Attachment Dimensions

Tsubaki Chain No.	$C$	$C_1$	$N$	$O$	$S$	$T$	$X$	$X_2$	$X_S$
RS40-LSK	12.7	12.7	9.5	3.6	8.0	1.5	17.8	17.8	17.40
RS50-LSK	15.9	15.9	12.7	5.2	10.3	2.0	23.4	23.4	23.05
RS60-LSK	19.05	18.3	15.9	5.2	11.9	2.4	28.2	28.2	26.85

## Model Numbering Example

**RF2040S-LSK-1LK2**

Chain number  
 Roller type  
 S: S Roller  
 R: R Roller  
 Attachment type  
 Attachment spacing  
 Chain series  
 LSK Series

**RF2040RPKV-LSK-1LK2**

When using KV Series rollers

**RS40-LSK-1LK1**

Chain number  
 Chain series  
 LSK Series  
 Attachment type  
 Attachment spacing

## Selection and Handling

### 1 Selection

Refer to the Tsubaki Small Size Conveyor Chain catalog for Double Pitch and RS attachment chain selection.

Select the appropriate chains size and type based on the conveyor type and capacity. Selection will depend on many varying conveyor usage conditions. If you cannot unconditionally select a chain, follow the general steps below.

- Step 1 Confirm conveyor conditions → Step 2 Provisionally select the chain model →  
 Step 3 Confirm the roller and attachment allowable load →  
 Step 4 Calculate the maximum load acting on the chain → Step 5 Determine the chain size →  
 Step 6 Use the index conveyance chain selection method if necessary

### 2 Sprockets

**Double Pitch Chain:**

When using S rollers, use RS sprockets only if the sprocket will have 30 or more teeth. In all other situations you will need to use Double Pitch chain sprockets.

**RS Attachment Chain:**

Use RS sprockets.

Refer to the Tsubaki Drive Chains & Sprockets catalog or the Tsubaki Small Size Conveyor Chain catalog for more information.

### 3 LSK Series corrosion resistance

Corrosion resistance varies accordingly depending on application conditions. This table should not be considered a guarantee. Using this table as a reference, be sure to check the corrosion resistance of the chain in advance according to the actual operating conditions when selecting your chain. Data in this table is for 20°C operating temperatures.

●: Totally resistant    ▲: Partially resistant (depending on operating conditions)    ×: Not resistant    -: Unknown

Chemical/ Food Product	Acetone	Alcohol	Aqueous ammonia	Zinc chloride 50%	Ferric chloride 5%	Sodium chloride	Hydrochloric acid 2%	Seawater	Hydrogen peroxide 3%	Formic acid 50%	Chromic acid 5%	Acetic acid 10%	Calcium hypochlorite	Sodium hypochlorite	Oxalic acid 10%	Nitric acid 5%	Vinegar	Potassium hydroxide	Sodium hydroxide 25%	Concentrated nitric acid 65%	Boric acid 50%	Sulfuric acid 5%	Zinc sulfate 25%	Phosphoric acid 5%	Benzene	Chromic acid	Citric acid
Chain Series																											
LSK Series	●	●	●	-	-	●	×	▲	●	-	▲	●	-	×	▲	●	▲	●	●	-	-	×	-	▲	●	▲	●
LSC Series	●	●	●	▲	▲	●	×	▲	-	×	●	●	-	×	●	-	-	×	×	×	-	×	●	×	●	●	●
SS Series	●	●	●	▲	▲	●	×	▲	●	●	●	●	●	×	●	●	▲	●	●	●	●	×	●	●	●	●	●
AS Series	●	●	●	×	×	▲	×	×	▲	●	▲	●	×	×	▲	▲	×	●	●	×	●	×	●	▲	●	●	●
NS Series	●	●	●	▲	▲	●	×	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

## For Your Safety When Using the Chain



### Warning To avoid danger, observe the following rules.

- Do not use chain or chain accessories for any purpose other than their originally intended use.
- Never perform additional work on chain.
  - Do not anneal any chain parts.
  - Do not clean chain with acids or alkalis. These may cause cracking.
  - Never attempt to electroplate chain or chain parts. This may cause hydrogen embrittlement.
  - Do not weld chain. Heating effects will cause weakening and cracking.
  - When a torch is used to heat or cut chain, remove the links on each side and do not reuse them.
- When replacing a worn or damaged part, do not replace just the worn or damaged part. Replace all parts with new parts.
- If a material that causes hydrogen embrittlement (acid, strong alkali, battery fluid, etc.) comes in contact with the chain, immediately stop using the chain and replace it with new chain.
- When using chain in a lifting device, set up a safety barrier and do not allow anyone to go under the equipment.
- Always install safety equipment (safety covers, etc.) on chain and sprockets.
- Strictly observe the general guidelines listed in Section 1, Chapter 1, 2nd Edition of the Japanese Occupational Safety and Health Regulations as well as rules and regulations concerning occupational safety and health in your region/country.
- When installing, removing, inspecting, maintaining and oiling chain,
  - Perform the work as instructed in the manual, catalog or other documentation that was provided with the product.
  - Before starting work, turn off the power switch and take measures to prevent it from being turned on accidentally.
  - Secure the chain and parts to prevent them from moving freely.
  - Use a press tool or other special tools to separate or connect chain, and follow the correct procedures.
  - Remove and insert pins and rivets in the correct direction.
  - Wear clothing and protective gear (safety glasses, gloves, safety shoes, etc.) that are appropriate for the work.
  - Only experienced personnel should perform chain replacement.



### Caution To prevent accidents, observe the following rules.

- Understand the structure and specifications of the chain that you are handling.
- Before installing chain, inspect it to make sure no damage occurred during delivery.
- Inspect and maintain chain and sprockets at regular intervals.
- Chain strength varies by manufacturer. Only Tsubaki products should be used when chain is selected using Tsubaki catalogs.
- Minimum tensile strength refers to the failure point when the corresponding load is applied to the chain once and does not refer to the allowable operational load.



## Warranty

### 1. LIMITED WARRANTY

Products manufactured by Seller: (a) conform to the design and specifications, if any, expressly agreed to in writing by Seller; and (b) are free of defects in workmanship and materials at the time of shipment. The warranties set forth in the preceding sentence are exclusive of all other warranties, express or implied, and extend only to Buyer and to no other person. ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

### 2. NON-RELIANCE

Buyer is not relying upon any advice, representations or warranties (except the warranties expressly set forth above) of Seller, or upon Seller's skill or judgment regarding the Seller's products.

Buyer is solely responsible for the design and specifications of the products, including without limitation, the determination of suitability for Buyer's application of the products.

### 3. CLAIMS

(a) Any claim relating to quantity or type shall be made to Seller in writing within 7 days after receipt of the products; any such claim made thereafter shall be barred.

(b) Any claim under the above-stated Limited Warranty shall be made to Seller in writing within three (3) months after receipt of the products; any such claim made thereafter shall be barred.

(c) Seller's liability for breach of warranty or otherwise is limited to repair or replacement, at Seller's option, of non-conforming or defective products. Buyer waives all other remedies, including, but not limited to, all rights to consequential, special or incidental damages, including, but not limited to, damages resulting from personal injury, death or damage to or loss of use of property.

(d) Repair, alteration, neglect or misuse of the products shall void all applicable warranties.

### 4. INDEMNIFICATION

Buyer will indemnify, defend and hold Seller harmless from all loss, liability, damage and expense, including attorneys' fees, arising out of any claim (a) for infringement of any patent, trademark, copyright, misappropriation of trade secrets, unfair competition or similar charge by any products supplied by Seller in accordance with the design or specifications furnished by Buyer, or (b) arising out of or connected with the products or any items into which the products are incorporated, including, but not limited to, any claim for product liability (whether or not based on negligence or strict liability of Seller), breach of warranty, breach of contract or otherwise.

### 5. ENTIRE AGREEMENT

These terms and conditions constitute the entire agreement between Buyer and Seller and supersede any inconsistent terms and conditions, whether contained in Buyer's purchase order or otherwise, and whether made heretofore or hereafter.

No statement or writing subsequent to the date hereof which purports to modify or add to the terms and conditions hereof shall be binding unless consented to in writing, which makes specific reference hereto, and which has been signed by the party against which enforcement thereof is sought. Seller reserves the right to change these terms and conditions without prior notice.



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