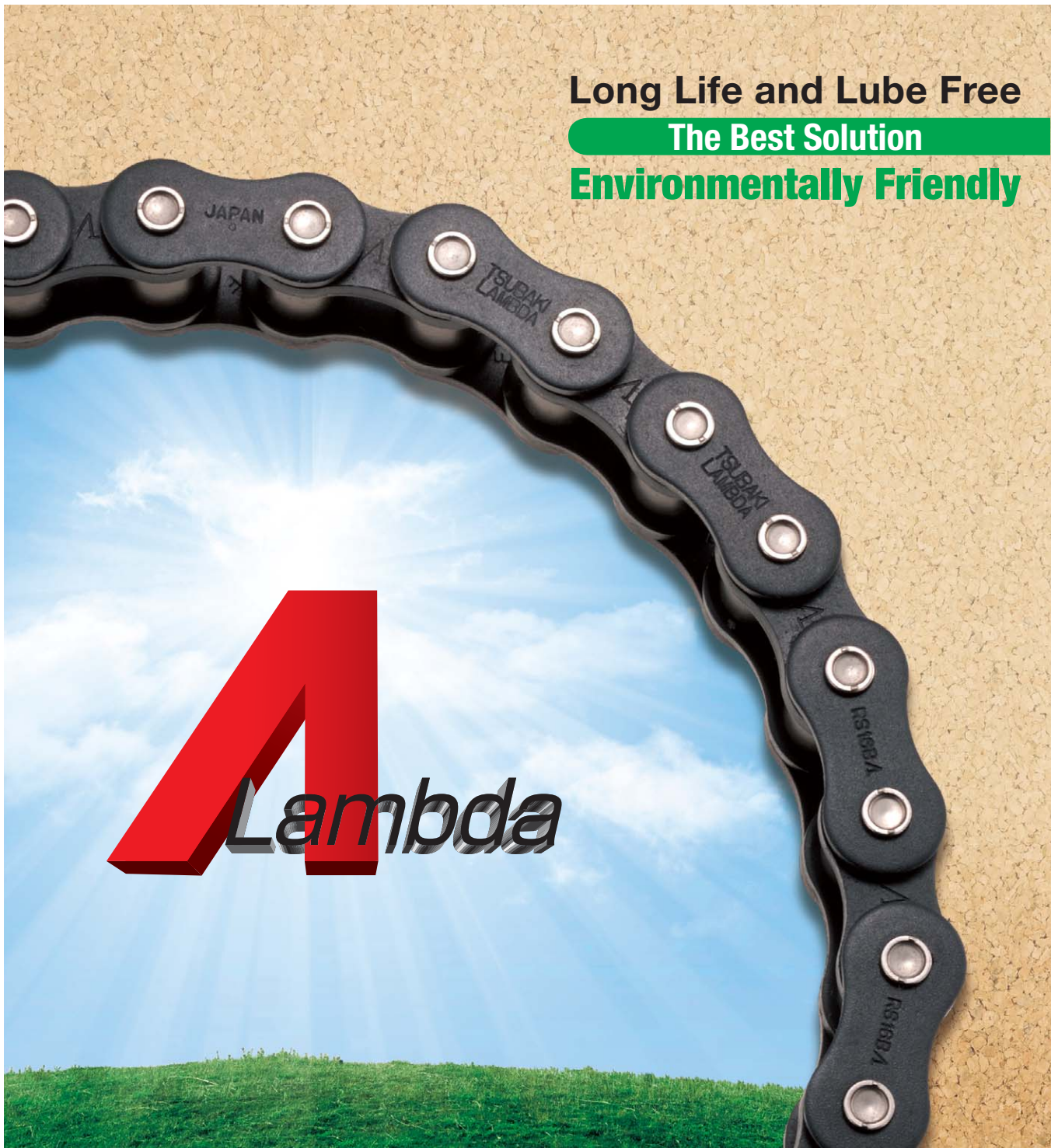


TSUBAKI LAMBDA[®] CHAIN

Long Life and Lube Free
The Best Solution
Environmentally Friendly



TSUBAKI Lambda Chain | Long Life, Lube Free,

Since 1988, Lambda Chain has gained an outstanding reputation in a variety of industries and applications due to its unequalled wear resistance performance. Our new-generation Lambda Chain provides even higher levels of performance and quality. Increase your productivity by taking advantage of Lambda Chain's lower maintenance requirements, cleaner operation, increased productivity, and longer life.

Lower Maintenance Costs

Increased Productivity

Cleaner Working Environment

Greater Savings on Chain Replacement Costs



CLEAN

Advanced Performance through the Combination of Superior Parts

Special Coated Pin
For smoother rotation

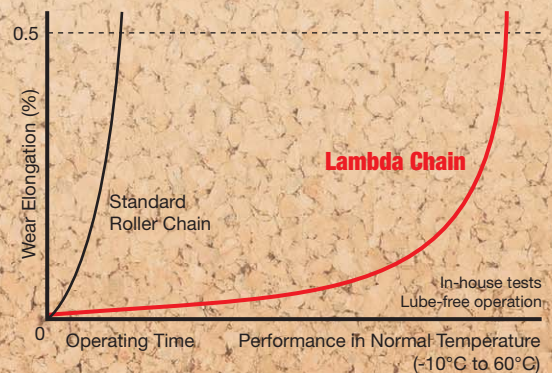


High-Performance Sintered Bush
Impregnated with lubricant

Ring-Coined Connecting Link (Patented)

A ring-shaped groove is provided around the connecting link plate hole. This creates positive residual stress that allows the connecting link to maintain the same strength as the base chain, even with a loose fit between pins and holes.

Substantially Longer Wear Elongation Life When Compared with Standard Roller Chain



and Environmentally Friendly

- Life Cycle Assessment (LCA) inventory analysis results of CO₂ emissions comparing RS80-LMD-1 Lambda and RS80-1 Roller Chain

Increased Wear Life over Standard Roller Chain, Providing an 80% Reduction in CO₂ Emissions



for GREEN

Greatly Reduces CO₂ Levels for Future Generations

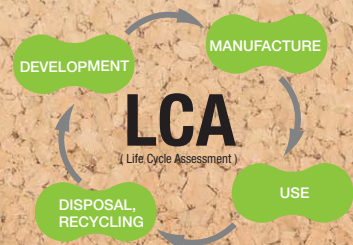


Actively Incorporating LCA (Life Cycle Assessment) in Tsubaki Activities

Tsubaki Lambda Chain is an eco-friendly chain that requires no lubrication and has a long wear life. It is extremely effective in reducing greenhouse gas emissions.

LCA (Life Cycle Assessment)

Life Cycle Assessment (LCA) is a tool for the systematic evaluation of the environmental aspects of a product through all stages of its life cycle, from raw materials to waste management, including recycling and final disposal.



Wide Range of Options

Tsubaki Lambda Chain is available in a wide range of sizes and options to meet your needs, including Roller Chain, Small Size Conveyor Chain, Large Size Conveyor Chain, Free Flow Chain, and Top Chain.

Lube Free Roller Chain

Lambda Chain



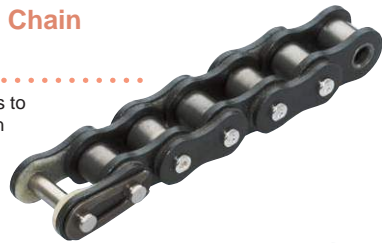
BS Lambda Chain

Replacement for ISO 606 B Series roller chain.



Long Life Lambda Chain (X-Λ® [X-Lambda])

Extended service life thanks to oil-impregnated bushes with felt seals.



BS X-Lambda Chain available

Surface-Treated Lambda Chain

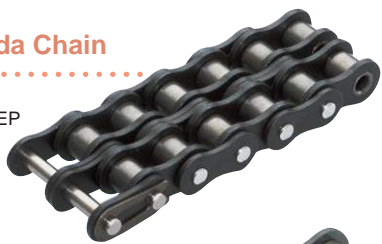
NP / NEP

Photo shows NP Series.



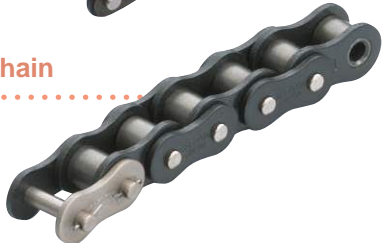
Heavy Duty Lambda Chain

Greater ultimate tensile strength. Standard / NP / NEP (Note: Requires special sprockets.)



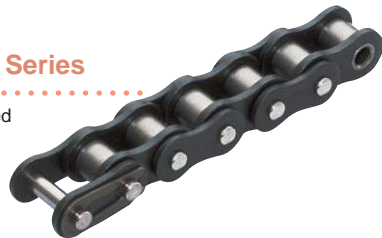
Curved Lambda Chain

For curved horizontal conveyance layouts.



Lambda Chain KF Series

Uses NSF-H1 grade certified lube for food conveyors. Usable in -10°C–230°C environments.

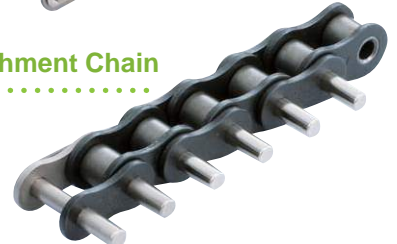


Lube Free Small Size Conveyor Chain

Lambda Double Pitch Chain



Lambda RS Attachment Chain



BS Lambda Attachment Chain

Replacement for ISO 606 B Series small size conveyor chain.



Long Life Lambda RS Attachment Chain (X-Λ® [X-Lambda]) Long Life Lambda Double Pitch Chain (X-Λ® [X-Lambda])

Extended service life thanks to oil-impregnated bushes with felt seals.



Surface-Treated Lambda Double Pitch Chain Surface-Treated Lambda RS Attachment Chain

NP / NEP

Photo shows NEP Series.



Lambda RS Attachment Chain KF Series Lambda Double Pitch Chain KF Series

Uses NSF-H1 grade certified lube for food conveyors. Usable in -10°C–230°C environments.



Lube Free Small Size Conveyor Chain

Lambda RF Roller Chain

Conveyed objects can be placed directly on the chain. ANSI and BS/DIN available.



Lambda Hollow Pin Chain

Hollow pins allow easy insertion of various attachments.



Lube Free Top Chain

Lambda Snap Cover Chain

Protects conveyed objects with engineering plastic top plates snapped onto outer links of chain.



Lambda TN Snap Cover Chain

Conveyed objects can be placed directly on the chain. (Top plates are engineering plastic.)



Lambda TS/TSA Top Chain Lambda TOS/TOR Top Chain

Conveyed objects can be placed directly on the chain. (Top plates are stainless steel.)



Lube Free Free Flow Chain

Lambda Outboard Roller Double Pitch Chain Lambda Outboard Roller RS Chain

Free flow chain allows for accumulation of conveyed objects.



Lambda Top Roller Double Pitch Chain Lambda Top Roller RS Chain

Free flow chain allows for accumulation of conveyed objects.



Lambda Double Plus Chain

High-speed, low-noise operation. (Refer to separate Free Flow Chain catalog.)



Lube Free Large Size Conveyor Chain

Lambda Plastic Roller Conveyor Chain

Larger-sized RF03-LMC and RF05-LMC chain.



Lube Free Plus α Attachment Chain

Lambda Plus α Attachments

Meets the needs of any application.

Photo shows press nut attachment.



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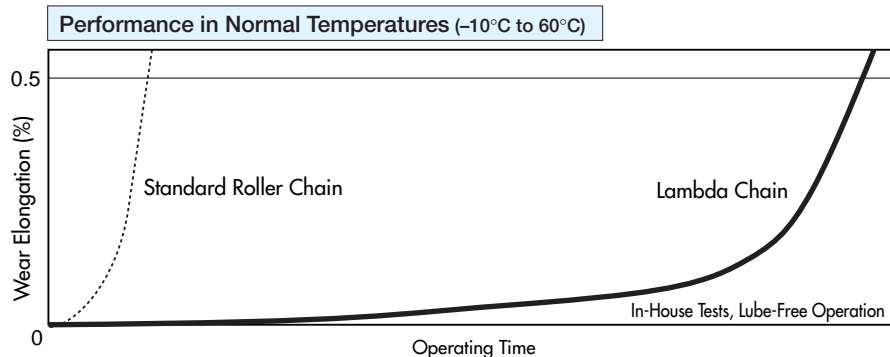
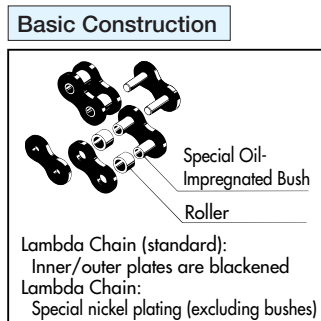
Lube Free
And
Maintenance Reduction
Being The
Definitive
Advantage



Lambda Chain

Tsubaki is a pioneer in the industry, being the first to develop a chain that uses special oil-impregnated bushes. Since first being introduced in 1988, Lambda Chain has gained an outstanding reputation in a variety of industries and applications. It is capable of meeting a wide range of customer needs for long life in a lubrication-free environment, resulting in a reduction in overall long-term costs.

- Long life without additional lubrication** ... Special oil-impregnated bushes provide long service life.
- Interchangeability** Compatible with RS Standard Roller Chain.
Note: Single-strand chains use an RS standard sprocket, whereas double-strand chains require a special sprocket because the transverse pitch (dimension C) differs from that of RS Roller Chain.
- Operating temperature range** ... -10°C to 150°C
- Selection** Use the General Selection Method.



Products

■ Lambda Chain

Inner and outer plates are blackened. This treatment provides better corrosion resistance, as well as improving the overall appearance of the chain. To ensure compatibility with RS Roller Chain, the inner plate is one size thicker with the same tensile strength and maximum allowable load as RS Roller Chain. Thus, pins are longer than those of RS Roller Chain, so please check that there will be no interference with equipment.

Note: Kilowatt ratings differ slightly from RS Roller Chain.

■ BS Lambda Chain (ISO 606 B Series)

Lambda Chain that conforms to ISO 606 B Series. The dimensions are fully interchangeable with existing BS chains. Specially shaped pins are used on single-strand 08B to 16B sizes to enable easy chain disassembly using a standard chain breaker.



■ Surface-Treated Lambda Chain

Standard Lambda Chain with corrosive-resistant surface treatments on the plates and rollers.

NP: Nickel-plated plates and rollers provide mild corrosion resistance.

NEP: A special corrosive-resistant surface treatment is applied to the plates and rollers to improve corrosion resistance.



■ Heavy Duty Lambda Chain

The outer and inner plates are one size thicker than standard Lambda Chain to give the chain the same strength as RS Roller Chain, even in double-strand configuration.

Note: Requires special sprockets.



■ Curved Lambda Chain

Lambda Chain with a wide horizontal bending radius thanks to its original pin and bush construction and a large clearance between plates. Curved conveyance can be easily configured using RS standard sprockets.



Long Life Lambda Chain (X-Λ® [X-Lambda]) (Patent No. 3280312)

The inclusion of an oil-impregnated felt seal in the construction of X-Lambda Chain significantly improves the anti-wear performance of standard Lambda Chain. Ideal for environments where extended replacement intervals are required when using standard Lambda Chain.

Ultra long life in a lube-free chain

... The combination of a special oil-impregnated bush and felt seal further extends service life.

Interchangeability

..... Compatible with standard Lambda Chain. However, as the overall pin length is longer than RS Roller Chain and Lambda Chain, please check that there will be no interference with machinery or other equipment.

Operating temperature range

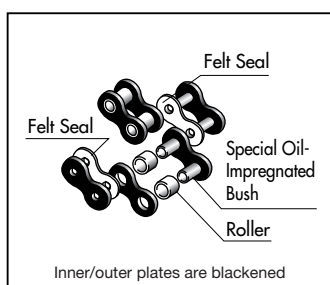
... -10°C to 150°C

Selection

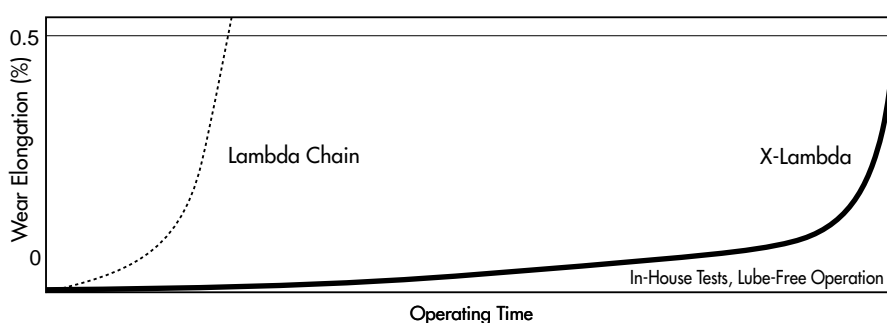
..... Use the General Selection Method.



Basic Construction



Performance in Normal Temperatures (-10°C to 60°C)



Lambda Chain KF Series (Heat Resistant Series)

Even in high-temperature environments (150°C to 230°C), our special lubricant that is resistant to volatilization and degradation brings out maximum wear performance in the chain. KF Series uses environmentally friendly NSF-H1 grade certified lube, making it usable on food processing equipment where it is difficult to lubricate and wear is a problem. KF Series has the same or better life than our Food Grade Lambda Series.

Operating temperature range

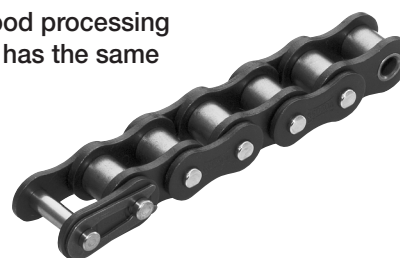
... -10°C to 230°C
Note: Best between 150°C to 230°C

Chain size

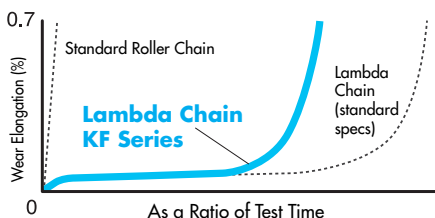
..... RS40-LMD to RS80-LMD-KF



Do not use in environments over 230°C. This will lead to a serious degradation in wear life. Harmful gases may be emitted in temperatures over 280°C.

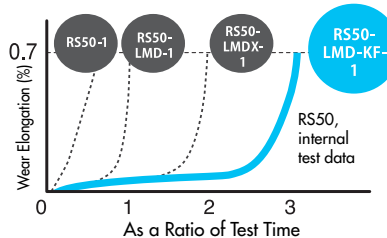


Wear Elongation Life in Normal Temperatures



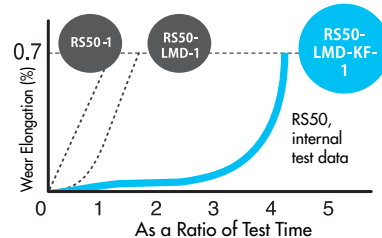
(0.5% wear elongation comparison, wear test results using Tsubaki drive chain conditions)

Wear Elongation Life in 150°C Environments



Note: The allowable usage temperature range for Lambda Chain Standard Specifications is 150°C.

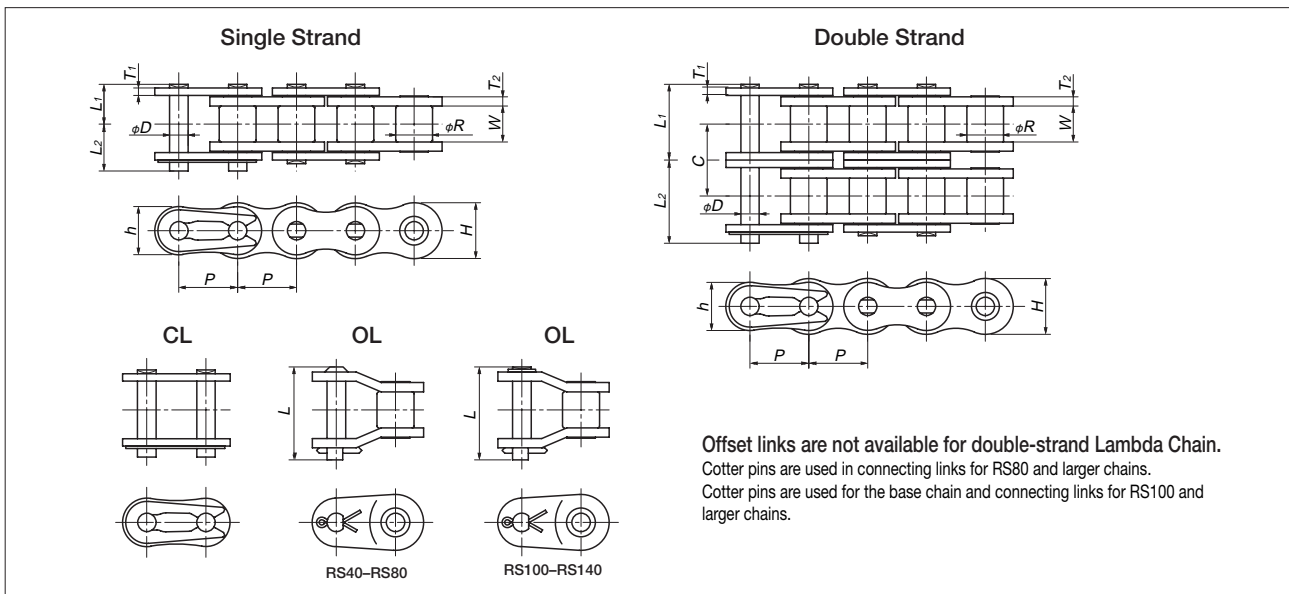
Wear Elongation Life in 230°C Environments



Safety Precautions for Lambda Chain

1. Do not use Lambda Chain if the chain will come in direct contact with food or where coating flakes or wear dust can contaminate food. Also, in non-food applications, appropriately cover the chain or contact a Tsubaki representative about chain selection if using in environments where coating flakes or wear dust present problems. Though nickel is not subject to the Japan Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can peel.
2. Lambda Chain uses NSF-H1 non-compliant anti-rust lubrication/assembly oil.
3. Do not use Lambda Chain where there is the possibility of exposure to chemicals, water, or cleaning/degreasing vapors.

Lambda Chain



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.		Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate				Dia. <i>D</i>	Pin				Offset Pin Length <i>L</i>
Single Strand	Double Strand				Thickness <i>T</i> ₁	Thickness <i>T</i> ₂	Height <i>H</i>	Height <i>h</i>		<i>L</i> ₁		<i>L</i> ₂		
RS40-LMD-1	RS40-LMD-2	12.70	7.92	7.55	1.5	2.0	12.0	10.4	3.97	8.75	16.5	10.45	18.1	20.0
RS50-LMD-1	RS50-LMD-2	15.875	10.16	9.26	2.0	2.4	15.0	13.0	5.09	10.75	20.2	12.45	22.0	24.0
RS60-LMD-1	RS60-LMD-2	19.05	11.91	12.28	2.4	3.2	18.1	15.6	5.96	13.70	26.05	15.75	28.05	32.0
RS80-LMD-1	RS80-LMD-2	25.40	15.88	15.48	3.2	4.0	24.1	20.8	7.94	17.15	32.7	20.25	35.9	39.9
RS100-LMD-1	RS100-LMD-2	31.75	19.05	18.70	4.0	4.8	30.1	26.0	9.54	20.65	39.5	23.85	42.5	47.5
RS120-LMD-1	—	38.10	22.23	24.75	4.8	5.6	36.2	31.2	11.11	25.75	—	29.95	—	59.0
RS140-LMD-1	—	44.45	25.40	24.75	5.6	6.4	42.2	36.4	12.71	27.70	—	32.20	—	63.7

Tsubaki Chain No.		Min. Tensile Strength kN {kgf}		Approx. Mass (kg/m)		No. of Links per Unit	Allowable Speed (m/min)	Transverse Pitch <i>C</i>
Single Strand	Double Strand	Single Strand	Double Strand	Single Strand	Double Strand			
RS40-LMD-1	RS40-LMD-2	17.7 {1800}	35.4 {3600}	0.70	1.4	240	150	15.4
RS50-LMD-1	RS50-LMD-2	28.4 {2900}	56.8 {5800}	1.11	2.2	192	135	19.0
RS60-LMD-1	RS60-LMD-2	40.2 {4100}	80.4 {8200}	1.72	3.4	160	120	24.52
RS80-LMD-1	RS80-LMD-2	71.6 {7300}	143.2 {14600}	2.77	5.5	120	90	31.1
RS100-LMD-1	RS100-LMD-2	107 {10900}	214 {21800}	4.30	8.6	96	80	37.6
RS120-LMD-1	—	148 {15000}	—	6.4	—	80	50	—
RS140-LMD-1	—	193 {19700}	—	8.1	—	68	50	—

Notes: 1. Use the kilowatt ratings table for selecting chain. 2. Offset links are not available for double-strand chain. Use an even number of links.

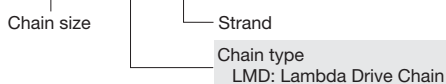
Operating Temperature Range: -10°C to 150°C

Precautions for Use

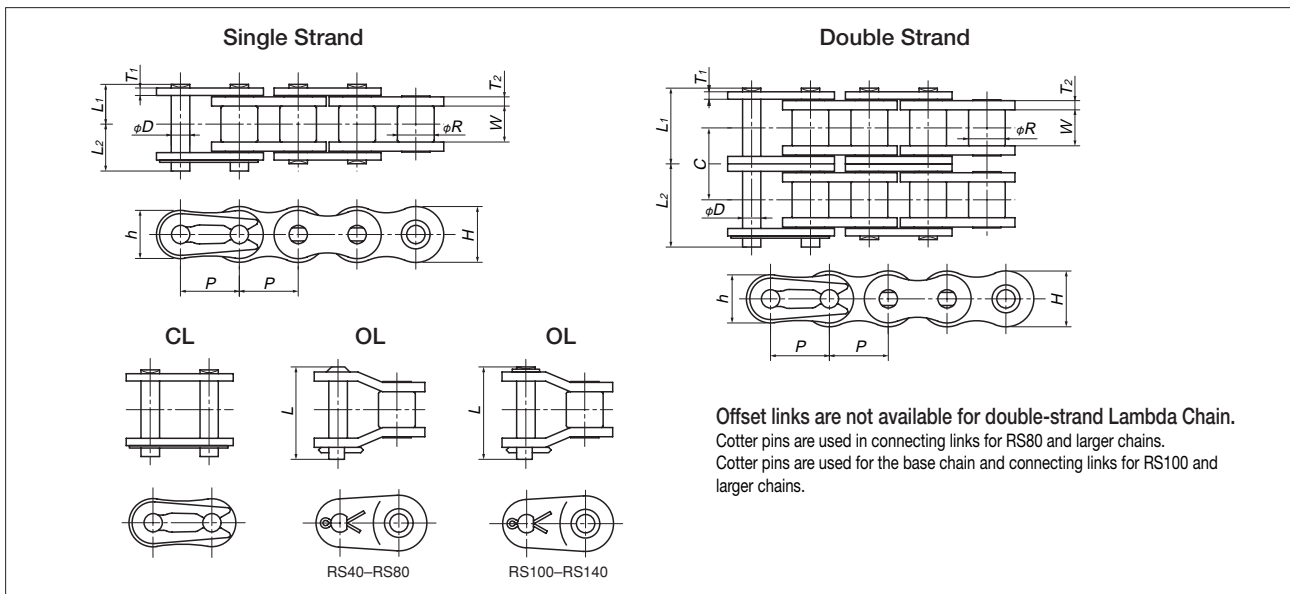
- Dust in the bushes accelerates wear. Wet environments can cause the oil in the oil-impregnated bushes to leak. Bushes are coated with less rust-prevention oil than those for RS Roller Chain, causing premature rusting.
- Bush oil can leak in a vacuum, decreasing wear resistance. Do not use in a vacuum.
- Chain life will decrease dramatically if oil in the oil-impregnated bushes is depleted.
- Kilowatt ratings for double-strand Lambda Chain (multi-strand coefficient):
The multi-strand coefficient of a double-strand chain with the same part dimensions of a single-strand chain is 1.4.
- If **Heavy Duty Lambda Chain** is to achieve the same coefficient 1.7 of double-strand RS Roller Chain, the outer and inner plates must be thickened and an H-class FCL (press fit) must be used. In any event, special sprockets are required; double-strand RS standard sprockets cannot be used.
- Double-strand Lambda Chain pin length:
Because the inner plate is thicker than that of RS Roller Chain, the pins are longer by an equal amount (*L*₁, *L*₂). Please check that there will be no interference with equipment.

Chain Numbering

No. **RS40-LMD-1**



Surface-Treated Lambda Chain (NP/NEP)



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.		Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate				Dia. <i>D</i>	Pin				Offset Pin Length <i>L</i>
Single Strand	Double Strand				Thickness <i>T</i> ₁	Thickness <i>T</i> ₂	Height <i>H</i>	Height <i>h</i>		<i>L</i> ₁		<i>L</i> ₂		
RS40-LMD-NP-1	RS40-LMD-NP-2	12.70	7.92	7.55	1.5	2.0	12.0	10.4	3.97	8.75	16.5	10.45	18.1	20.0
RS50-LMD-NP-1	RS50-LMD-NP-2	15.875	10.16	9.26	2.0	2.4	15.0	13.0	5.09	10.75	20.2	12.45	22.0	24.0
RS60-LMD-NP-1	RS60-LMD-NP-2	19.05	11.91	12.28	2.4	3.2	18.1	15.6	5.96	13.70	26.05	15.70	28.05	32.0
RS80-LMD-NP-1	RS80-LMD-NP-2	25.40	15.88	15.48	3.2	4.0	24.1	20.8	7.94	17.15	32.7	20.25	35.9	39.9
RS100-LMD-NP-1	RS100-LMD-NP-2	31.75	19.05	18.70	4.0	4.8	30.1	26.0	9.54	20.65	39.5	23.85	42.5	47.5
RS120-LMD-NP-1	—	38.10	22.23	24.75	4.8	5.6	36.2	31.2	11.11	25.75	—	29.95	—	59.0
RS140-LMD-NP-1	—	44.45	25.40	24.75	5.6	6.4	42.2	36.4	12.71	27.70	—	32.20	—	63.7

Tsubaki Chain No.		Min. Tensile Strength kN {kgf}		Approx. Mass (kg/m)		No. of Links per Unit	Allowable Speed (m/min)	Transverse Pitch <i>C</i>
Single Strand	Double Strand	Single Strand	Double Strand	Single Strand	Double Strand			
RS40-LMD-NP-1	RS40-LMD-NP-2	19.1 {1950}	38.2 {3900}	0.70	1.4	240	150	15.4
RS50-LMD-NP-1	RS50-LMD-NP-2	31.4 {3200}	62.8 {6400}	1.11	2.2	192	135	19.0
RS60-LMD-NP-1	RS60-LMD-NP-2	44.1 {4500}	88.3 {9000}	1.72	3.4	160	120	24.52
RS80-LMD-NP-1	RS80-LMD-NP-2	78.5 {8000}	157 {16000}	2.77	5.5	120	90	31.1
RS100-LMD-NP-1	RS100-LMD-NP-2	118 {12000}	235 {24000}	4.30	8.6	96	80	37.6
RS120-LMD-NP-1	—	167 {17000}	—	6.4	—	80	50	—
RS140-LMD-NP-1	—	216 {22000}	—	8.1	—	68	50	—

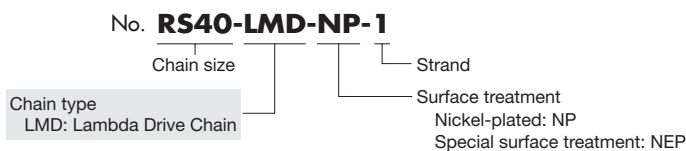
- Notes: 1. Use the kilowatt ratings table for selecting chain.
2. Offset links are not available for double-strand chain. Use an even number of links.

Operating Temperature Range: -10°C to 150°C

Lambda NEP Chain is available.

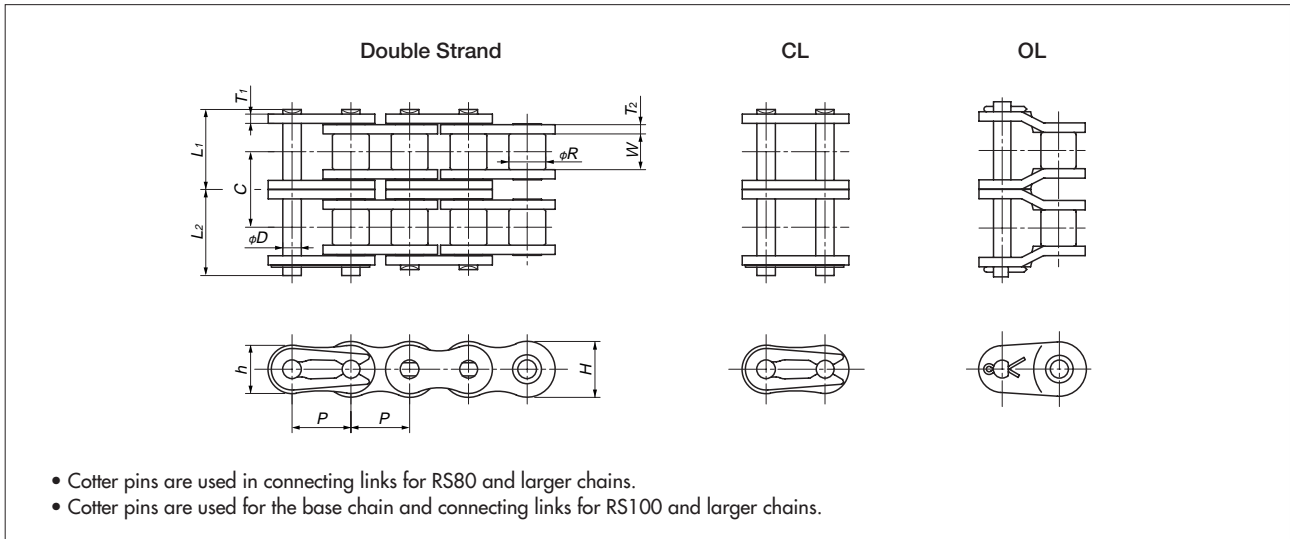
⚠ Safety Precautions for Nickel-Plated Chain
Do not use nickel-plated Lambda Chain if the chain will come in direct contact with food or where coating flakes or wear dust can contaminate food. Also, in non-food applications, appropriately cover the chain or contact a Tsubaki representative about chain selection if using in environments where coating flakes or wear dust present problems. Though nickel is not subject to the Japan Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can peel.

Chain Numbering



Heavy Duty Lambda Chain

Surface-Treated Heavy Duty Lambda Chain (NP/NEP)



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate				Pin			Transverse Pitch C
				Thickness T_1	Thickness T_2	Height H	Height h	Dia. D	L_1	L_2	
RS40-LMD-H-2	12.70	7.92	7.55	2.0	2.0	12.0	10.4	3.97	17.5	19.15	16.4
RS50-LMD-H-2	15.875	10.16	9.26	2.4	2.4	15.0	13.0	5.09	20.95	22.65	19.7
RS60-LMD-H-2	19.05	11.91	12.28	3.2	3.2	18.1	15.6	5.96	27.55	29.45	26.1
RS80-LMD-H-2	25.40	15.88	15.48	4.0	4.0	24.1	20.8	7.94	34.6	37.2	32.6
RS100-LMD-H-2	31.75	19.05	18.70	4.8	4.8	30.1	26.0	9.54	41.35	44.05	39.1

Tsubaki Chain No.	Min. Tensile Strength kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit	Allowable Speed (m/min)
RS40-LMD-H-2	35.4 {3600}	1.57	240	150
RS50-LMD-H-2	56.8 {5800}	2.35	192	135
RS60-LMD-H-2	80.4 {8200}	3.59	160	120
RS80-LMD-H-2	143.2 {14600}	6.18	120	90
RS100-LMD-H-2	214 {21800}	9.03	96	80

Operating Temperature Range: -10°C to 150°C

Sprockets

- The chain's transverse pitch (C) differs from that of RS Roller Chain. Special sprockets (ANSI Heavy Duty) are required; double-strand RS standard sprockets cannot be used.

Kilowatt Ratings (Multi-Strand Coefficient)

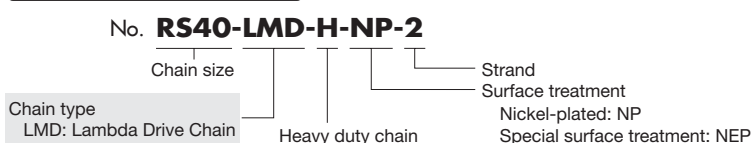
- The multi-strand coefficient of Heavy Duty Lambda Chain is 1.7. To select a chain, multiply the kilowatt ratings on pages 16 and 17 by 1.7.

Pin Length

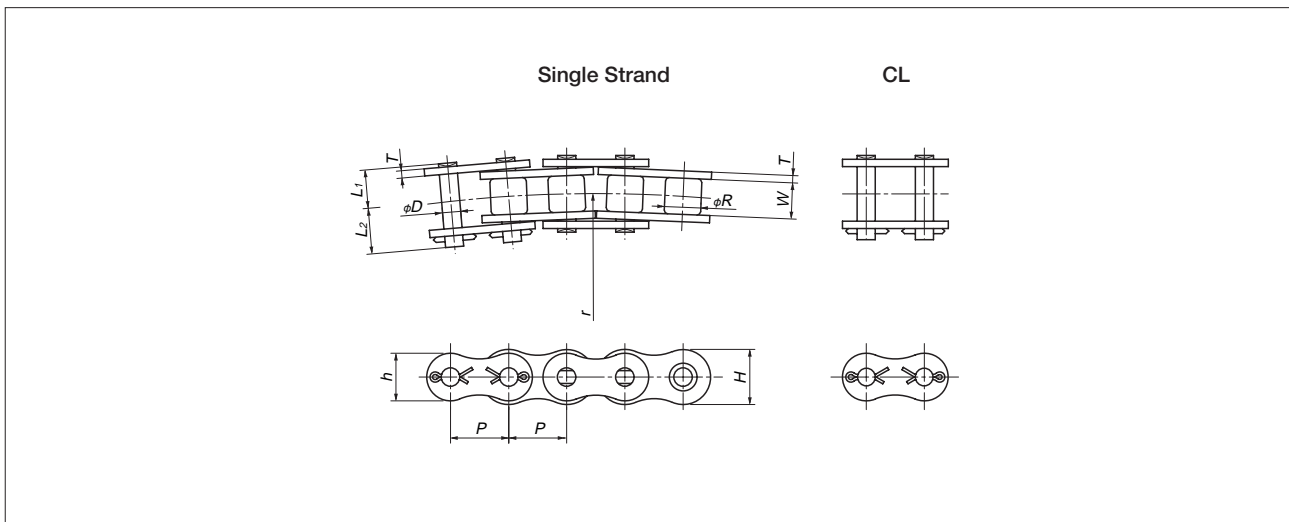
- Because the outer and inner plates are thicker than those of RS Roller Chain, the pins are longer by an equal amount (L_1 , L_2). Please check that there will be no interference with equipment.

Lambda NEP Chain also available.

Chain Numbering



Curved Lambda Chain



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate			Pin		
				Thickness T	Height H	Height h	Dia. * D	L_1	L_2
RS40-LMC-CU-1	12.70	7.92	7.95	1.5	12.0	10.4	3.59	8.45	9.75
RS50-LMC-CU-1	15.875	10.16	9.53	2.0	15.0	13.0	4.45	10.3	11.7
RS60-LMC-CU-1	19.05	11.91	12.70	2.4	18.1	15.6	5.35	12.95	14.55

Tsubaki Chain No.	Min. Tensile Strength kN {kgf}	Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit	Min. Horizontal Bending Radius r
RS40-LMC-CU-1	12.4 {1260}	1.86 {190}	0.61	240	400
RS50-LMC-CU-1	19.2 {1960}	2.84 {290}	1.01	192	500
RS60-LMC-CU-1	27.9 {2840}	4.02 {410}	1.40	160	600

* Pin end diameter is slightly smaller than standard Lambda Chain pins.

Operating Temperature Range: -10°C to 150°C

Sprockets

- RS standard sprockets can be used.

Attachment Chain also available.

See 9.1, 9.2 on page 70 for installation.

Chain Numbering

No. **RS40-LMC-CU-1**

Chain size

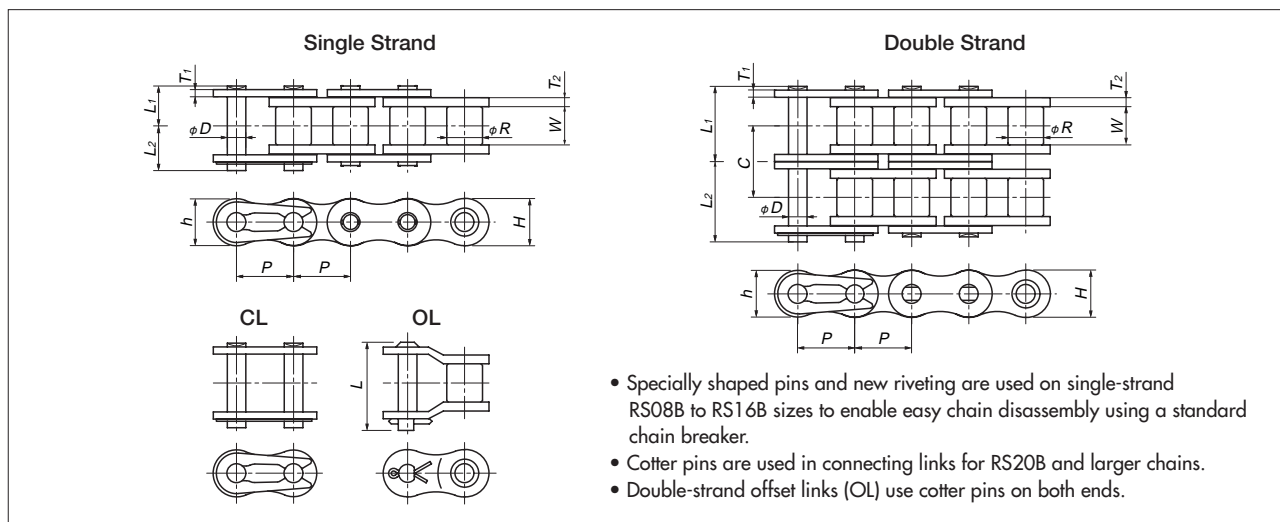
Strand

Curved chain

Chain type

LMC: Lambda Attachment Chain

BS Lambda Chain (ISO 606 B Series)



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.		JIS No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate				Dia. D	Pin			
Single Strand	Double Strand					Thickness T1	Thickness T2	Height H	Height h		L1		L2	
RF06B-LM-1	RF06B-LM-2	06B	9.525	6.35	5.72	1.0	1.3	8.2	8.2	3.28	6.1	11.2	7.7	12.8
RS08B-LM-1	RS08B-LM-2	08B	12.70	8.51	7.75	1.6	1.6	11.8	10.4	4.45	8.4	15.3	10.0	16.9
RS10B-LM-1	RS10B-LM-2	10B	15.875	10.16	9.65	1.5	1.5	14.7	13.7	5.08	9.55	17.85	11.25	19.55
RS12B-LM-1	RS12B-LM-2	12B	19.05	12.07	11.68	1.8	1.8	16.1	16.1	5.72	11.1	20.85	13.0	22.75
RS16B-LM-1	RS16B-LM-2	16B	25.40	15.88	17.02	3.2	4.0	21.0	21.0	8.28	17.75	33.55	19.95	35.75
RS20B-LM-1	RS20B-LM-2	20B	31.75	19.05	19.56	3.4	4.4	26.4	26.0	10.19	19.9	38.25	23.1	41.45
RS24B-LM-1	RS24B-LM-2	24B	38.10	25.40	25.40	5.6	6.0	33.4	31.2	14.63	26.65	50.8	31.85	56.0

Tsubaki Chain No.		Offset Pin Length L		Min. Tensile Strength kN {kgf}		Approx. Mass (kg/m)		No. of Links per Unit	Allowable Speed (m/min)	Transverse Pitch C
Single Strand	Double Strand	Single Strand	Double Strand	Single Strand	Double Strand	Single Strand	Double Strand			
RF06B-LM-1	RF06B-LM-2	15.1	25.9	8.90 {910}	16.9 {1720}	0.39	0.75	320	160	10.24
RS08B-LM-1	RS08B-LM-2	18.6	34.5	17.8 {1820}	31.1 {3170}	0.70	1.35	240	150	13.92
RS10B-LM-1	RS10B-LM-2	20.8	39.4	22.2 {2260}	44.5 {4540}	0.95	1.85	192	135	16.59
RS12B-LM-1	RS12B-LM-2	24.4	45.9	28.9 {2950}	57.8 {5890}	1.25	2.50	160	120	19.46
RS16B-LM-1	RS16B-LM-2	39.3	73.4	60.0 {6120}	106 {10800}	2.70	5.40	120	90	31.88
RS20B-LM-1	RS20B-LM-2	46.6	84.6	95.0 {9690}	170 {17300}	3.85	7.65	96	80	36.45
RS24B-LM-1	RS24B-LM-2	61.7	112.8	160 {16300}	280 {28600}	7.45	14.65	80	50	48.36

Notes: 1. RF06B plate is flat. ()

2. Double-strand RF06B and RS08B chains have one inner plate.

3. Minimum tensile strength of attachment chains differs from those above. Please contact a Tsubaki representative for more information.

Operating Temperature Range: -10°C to 150°C

Sprockets

- BS Roller Chain sprockets (conforming to ISO B Series standards) must be used.

Pin Shape

- Single-strand chains in sizes RS08B through RS16B use easy disassembly pins (with center sink riveting). All other sizes, including multi-strand chains, use double stake riveting.

Easy Disassembly and Connection

- Newly developed, specially shaped pins and new riveting are used on single-strand RS08B to RS16B sizes to enable easy chain disassembly using a standard chain breaker.

Chain Selection: Please contact a Tsubaki representative.

Compatibility with Old Chain Model

- When replacing an old chain model, always replace the entire chain.
- New chain cannot be connected to an old chain model. Old connecting parts (connecting links, offset links, etc.) cannot be used with new chain.

Chain Numbering

No. **RS08B-LM-1**

Chain size

Strand

Chain type

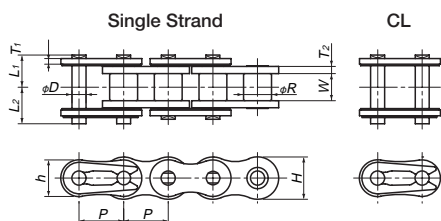
LM: Lambda Chain

Long Life Lambda Chain (X-Λ® [X-Lambda])



ANSI

ANSI Chain



Offset links are not available for X-Lambda Chain.
Cotter pins are used in connecting links for RS80 and larger chains.
Cotter pins are used for the base chain and connecting links for RS100 and larger chains.

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate				Pin		
				Thickness T_1	Thickness T_2	Height H	Height h	Dia. D	L_1	L_2
RS40-LMDX-1	12.70	7.92	7.55	1.5	2.0	12.0	10.4	3.97	9.4	11.1
RS50-LMDX-1	15.875	10.16	9.26	2.0	2.4	15.0	13.0	5.09	11.4	13.1
RS60-LMDX-1	19.05	11.91	12.28	2.4	3.2	18.1	15.6	5.96	14.8	16.5
RS80-LMDX-1	25.40	15.88	15.48	3.2	4.0	24.1	20.8	7.94	18.3	20.9
RS100-LMDX-1	31.75	19.05	18.70	4.0	4.8	30.1	26.0	9.54	21.8	24.5
RS120-LMDX-1	38.10	22.23	24.75	4.8	5.6	36.2	31.2	11.11	26.7	30.75

Tsubaki Chain No.	Min. Tensile Strength kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit	Allowable Speed (m/min)
RS40-LMDX-1	17.7 {1800}	0.70	240	150
RS50-LMDX-1	28.4 {2900}	1.11	192	135
RS60-LMDX-1	40.2 {4100}	1.72	160	120
RS80-LMDX-1	71.6 {7300}	2.77	120	90
RS100-LMDX-1	107 {10900}	4.30	96	80
RS120-LMDX-1	148 {15000}	6.40	80	50

Operating Temperature Range: -10°C to 150°C

Chain Numbering

No. **RS40-LMDX-1**

Chain size Strand

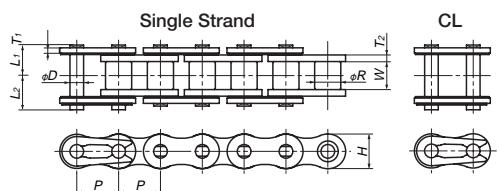
Chain type
LMDX: X-Lambda Drive Chain

Kilowatt Ratings: See pages 16 and 17.



BS

BS/DIN Chain (ISO 606 B Series)



- Connecting links are clip type for sizes up to RS12B-LMX, and cotter type for size RS16B-LMX.
- Due to the use of the felt seal, the pins are longer. Check for machine interference.
- X-Lambda offset links are not available.
- X-Lambda double-strand chain is not available.
- Due to the oil in the felt seal, more oil adheres to the surface of X-Lambda chain than regular Lambda chain.

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate			Pin			Min. Tensile Strength occ. to ISO 606 kN	Approx. Mass (kg/m)
				Thickness T_1	Thickness T_2	Height H (max)	Dia. D	L_1	L_2		
RS08B-LMX-1	12.70	8.51	7.75	1.6	1.6	12.0	4.45	9.0	10.6	17.8	0.70
RS10B-LMX-1	15.875	10.16	9.65	1.5	1.5	14.7	5.08	10.3	12.0	22.2	0.95
RS12B-LMX-1	19.05	12.07	11.68	1.8	1.8	16.1	5.72	11.9	13.8	28.9	1.25
RS16B-LMX-1	25.40	15.88	17.02	3.2	4.0	21.0	8.28	18.55	20.75	60.0	2.70

Operating Temperature Range: -10°C to 150°C

Precautions for Use

- Because the inner plate is thicker than that of RS Roller Chain and due to the felt seals, the pins are longer by an equal amount (L_1 , L_2). Please check that there will be no interference with equipment.
- Offset links are not available for X-Lambda Chain. Use an even number of links.
- Due to oil in the felt seals, more oil adheres to the surface of X-Lambda Chain than standard Lambda Chain.

Connecting

When assembling chain, use connecting links designed for X-Lambda Chain (with felt seals). As shown in Figure 1, insert felt seals between the outer plates and connecting plates, and attach the link. (See page 65 on how to cut and connect chain.)

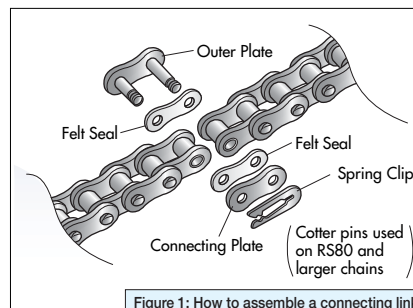


Figure 1: How to assemble a connecting link

Chain Numbering

No. **RS08B-LMX-1**

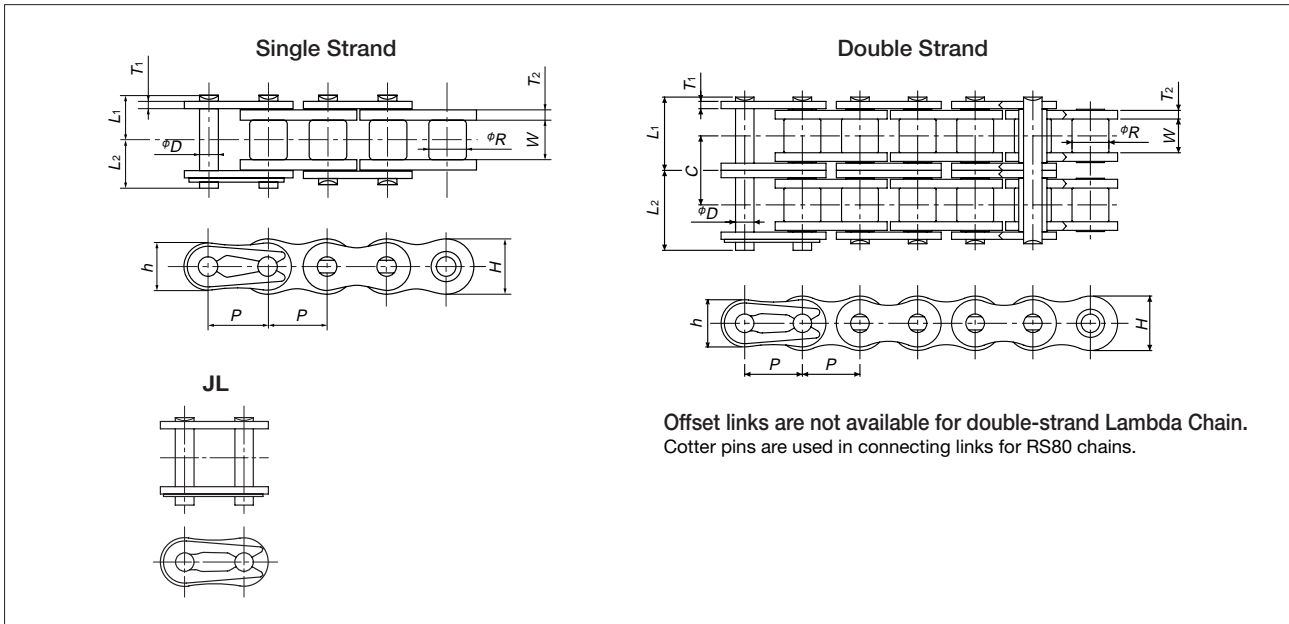
Chain size

Strand

Chain type

LMX: X-Lambda Chain

Lambda Chain KF Series (Heat Resistant Series)



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.		Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate				Dia. <i>D</i>	Pin			
Single Strand	Double Strand				Thickness <i>T1</i>	Thickness <i>T2</i>	Height <i>H</i>	Height <i>h</i>		<i>L1</i>		<i>L2</i>	
									Single Strand	Double Strand	Single Strand	Double Strand	
RS40-LMD-KF-1	RS40-LMD-KF-2	12.70	7.92	7.55	1.5	2.0	12.0	10.4	3.97	8.75	16.5	10.45	18.1
RS50-LMD-KF-1	RS50-LMD-KF-2	15.875	10.16	9.26	2.0	2.4	15.0	13.0	5.09	10.75	20.2	12.45	22.0
RS60-LMD-KF-1	RS60-LMD-KF-2	19.05	11.91	12.28	2.4	3.2	18.1	15.6	5.96	13.70	26.05	15.70	28.05
RS80-LMD-KF-1	RS80-LMD-KF-2	25.40	15.88	15.48	3.2	4.0	24.1	20.8	7.94	17.15	32.7	20.25	35.9

Tsubaki Chain No.		Min. Tensile Strength kN {kgf}		Approx. Mass (kg/m)		No. of Links per Unit	Allowable Speed (m/min)	Transverse Pitch <i>C</i>
Single Strand	Double Strand	Single Strand	Double Strand	Single Strand	Double Strand			
RS40-LMD-KF-1	RS40-LMD-KF-2	17.7 {1800}	35.3 {3600}	0.70	1.4	240	150	15.4
RS50-LMD-KF-1	RS50-LMD-KF-2	28.4 {2900}	56.9 {5800}	1.11	2.2	192	135	19.0
RS60-LMD-KF-1	RS60-LMD-KF-2	40.2 {4100}	80.4 {8200}	1.72	3.4	160	120	24.52
RS80-LMD-KF-1	RS80-LMD-KF-2	71.6 {7300}	143 {14600}	2.77	5.5	120	90	31.1

- Notes: 1. Offset links are not available for double-strand chain. Use an even number of links.
 2. Offset links for single-strand chain use special numbering only for double-pitch offset links.

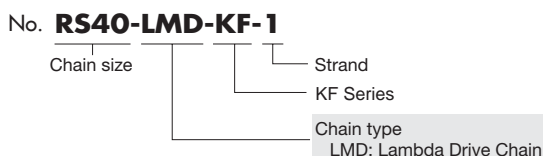
Operating Temperature Range: -10°C to 230°C

Precautions for Use

- Kilowatt ratings for double-strand Lambda Chain (multi-strand coefficient):
 The multi-strand coefficient of a double-strand chain with the same part dimensions of a single-strand chain is 1.4. Special sprockets are required; double-strand RS standard sprockets cannot be used.
- Double-strand Lambda Chain pin length:
 Because the inner plate is thicker than that of RS Roller Chain, the pins are longer by an equal amount (L_1 , L_2). Please check that there will be no interference with equipment.
- Delivery: Made to order
- Select chain based on maximum allowable load with ambient temperature selection coefficients factored in.

Chain Selection: See page 64.

Chain Numbering



Kilowatt Rating Tables (Lambda Chain, Surface-Treated Lambda Chain, X-Lambda Chain, Lambda Chain KF Series)

■ RS40-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	100	200	300	400	500	700	900	1000	1200
9	0.05	0.11	0.21	0.39	0.72	1.04	1.35	1.64	2.23	2.79	3.07	3.62
10	0.05	0.12	0.23	0.43	0.81	1.16	1.51	1.84	2.49	3.13	3.44	
11	0.06	0.14	0.26	0.48	0.90	1.29	1.67	2.04	2.76	3.47	3.81	
12	0.07	0.15	0.28	0.53	0.98	1.42	1.84	2.24	3.04	3.81		
13	0.07	0.17	0.31	0.57	1.07	1.54	2.00	2.45	3.31	4.15		
14	0.08	0.18	0.33	0.62	1.16	1.67	2.17	2.65	3.59			
15	0.08	0.19	0.36	0.67	1.25	1.80	2.34	2.86	3.87			
16	0.09	0.21	0.39	0.72	1.34	1.93	2.50	3.06	4.14			
17	0.10	0.22	0.41	0.77	1.43	2.06	2.67	3.27				
18	0.10	0.23	0.44	0.82	1.52	2.20	2.84	3.48				
19	0.11	0.25	0.46	0.87	1.62	2.33	3.02	3.69				
20	0.12	0.26	0.49	0.92	1.71	2.46	3.19	3.90				
21	0.12	0.28	0.52	0.96	1.80	2.59	3.36	4.11				
22	0.13	0.29	0.54	1.01	1.89	2.73	3.53	4.32				
23	0.13	0.31	0.57	1.06	1.99	2.86	3.71	4.53				
24	0.14	0.32	0.60	1.11	2.08	3.00	3.88					
25	0.15	0.33	0.62	1.16	2.17	3.13	4.06					
26	0.15	0.35	0.65	1.21	2.27	3.27	4.23					
28	0.17	0.38	0.71	1.32	2.46	3.54	4.58					
30	0.18	0.41	0.76	1.42	2.65	3.81						
32	0.19	0.44	0.81	1.52	2.84	4.09						
35	0.21	0.48	0.90	1.67	3.13	4.50						
40	0.24	0.56	1.04	1.93	3.61							
45	0.28	0.63	1.18	2.20	4.10							

■ RS50-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	100	200	300	400	500	600	700	800	900
9	0.10	0.23	0.43	0.80	1.49	2.15	2.78	3.40	4.01	4.60	5.19	5.77
10	0.11	0.26	0.48	0.90	1.67	2.41	3.12	3.81	4.49	5.16	5.82	
11	0.12	0.28	0.53	0.99	1.85	2.67	3.46	4.22	4.98	5.72		
12	0.14	0.31	0.58	1.09	2.03	2.93	3.80	4.64	5.47	6.28		
13	0.15	0.34	0.64	1.19	2.22	3.19	4.14	5.06	5.96			
14	0.16	0.37	0.69	1.29	2.40	3.46	4.48	5.48	6.46			
15	0.17	0.40	0.74	1.39	2.59	3.73	4.83	5.91				
16	0.19	0.43	0.80	1.49	2.78	4.00	5.18	6.33				
17	0.20	0.46	0.85	1.59	2.96	4.27	5.53	6.76				
18	0.21	0.49	0.91	1.69	3.15	4.54	5.88					
19	0.23	0.51	0.96	1.79	3.34	4.81	6.24					
20	0.24	0.54	1.01	1.89	3.53	5.09	6.59					
21	0.25	0.57	1.07	2.00	3.72	5.36	6.95					
22	0.26	0.60	1.12	2.10	3.91	5.64						
23	0.28	0.63	1.18	2.20	4.11	5.92						
24	0.29	0.66	1.24	2.30	4.30	6.19						
25	0.30	0.69	1.29	2.41	4.49	6.47						
26	0.32	0.72	1.35	2.51	4.69	6.75						
28	0.34	0.78	1.46	2.72	5.08	7.32						
30	0.37	0.84	1.57	2.93	5.47							
32	0.40	0.90	1.69	3.14	5.87							
35	0.44	0.99	1.86	3.46	6.46							
40	0.50	1.15	2.14	4.00	7.47							
45	0.57	1.30	2.44	4.54								

■ RS60-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	100	150	200	250	300	400	500	600	700
9	0.18	0.41	0.76	1.41	2.03	2.63	3.22	3.79	4.92	6.01	7.08	8.14
10	0.20	0.45	0.85	1.58	2.28	2.95	3.61	4.25	5.51	6.73	7.94	
11	0.22	0.50	0.94	1.75	2.53	3.27	4.00	4.71	6.11	7.46		
12	0.24	0.55	1.03	1.93	2.77	3.59	4.39	5.18	6.71	8.20		
13	0.26	0.60	1.13	2.10	3.03	3.92	4.79	5.65	7.31			
14	0.29	0.65	1.22	2.28	3.28	4.25	5.19	6.12	7.92			
15	0.31	0.70	1.31	2.45	3.53	4.57	5.59	6.59	8.54			
16	0.33	0.75	1.41	2.63	3.79	4.90	6.00	7.06				
17	0.35	0.81	1.50	2.81	4.04	5.24	6.40	7.54				
18	0.38	0.86	1.60	2.98	4.30	5.57	6.81	8.02				
19	0.40	0.91	1.70	3.16	4.56	5.90	7.22	8.51				
20	0.42	0.96	1.79	3.34	4.82	6.24	7.63	8.99				
21	0.44	1.01	1.89	3.53	5.08	6.58	8.04					
22	0.47	1.06	1.99	3.71	5.34	6.92	8.46					
23	0.49	1.12	2.08	3.89	5.60	7.26	8.87					
24	0.51	1.17	2.18	4.07	5.87	7.60	9.29					
25	0.54	1.22	2.28	4.26	6.13	7.94	9.71					
26	0.56	1.28	2.38	4.44	6.40	8.29						
28	0.61	1.38	2.58	4.81	6.93	8.98						
30	0.65	1.49	2.78	5.18	7.46	9.67						
32	0.70	1.60	2.98	5.56	8.00							
35	0.77	1.76	3.28	6.12	8.82							
40	0.89	2.03	3.79	7.07	10.2							
45	1.01	2.31	4.30	8.03								

■ RS80-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	75	100	125	150	200	250	300	350	
9	0.40	0.91	1.69	2.44	3.16	3.86	4.55	5.90	7.21	8.50	9.76	
10	0.45	1.02	1.90	2.73	3.54	4.33	5.10	6.61	8.08	9.52	10.9	
11	0.49	1.13	2.10	3.03	3.93	4.80	5.65	7.33	8.96	10.6		
12	0.54	1.24	2.31	3.33	4.31	5.27	6.21	8.05	9.84			
13	0.59	1.35	2.52	3.63	4.70	5.75	6.77	8.77	10.7			
14	0.64	1.46	2.73	3.93	5.09	6.23	7.34	9.51	11.6			
15	0.69	1.58	2.94	4.24	5.49	6.71	7.90	10.2				
16	0.74	1.69	3.15	4.54	5.88	7.19	8.48	11.0				
17	0.79	1.80	3.37	4.85	6.28	7.68	9.05	11.7				
18	0.84	1.92	3.58	5.16	6.68	8.17	9.63					
19	0.89	2.03	3.80	5.47	7.08	8.66	10.2					
20	0.94	2.15	4.01	5.78	7.49	9.15	10.8					
21	0.99	2.27	4.23	6.09	7.89	9.65	11.4					
22	1.04	2.38	4.45	6.41	8.30	10.1	12.0					
23	1.10	2.50	4.67	6.72	8.71	10.6	12.5					
24	1.15	2.62	4.89	7.04	9.12	11.1						
25	1.20	2.74	5.11	7.35	9.53	11.6						
26	1.25	2.85	5.33	7.67	9.94	12.2						
28	1.36	3.09	5.77	8.31	10.8	13.2						
30	1.46	3.33	6.22	8.96	11.6							
32	1.57	3.57	6.67	9.60	12.4							
35	1.73	3.94	7.34	10.6	13.7							
40	1.99	4.55	8.48	12.2								
45	2.26	5.16	9.63	13.9								

Notes: 1. Kilowatt ratings when using a one-pitch offset link (OL) are 80% that of the above values.

2. Kilowatt ratings for RS Roller Chain differ from above.

3. Select Lambda Chain KF Series based on kilowatt ratings with ambient temperature selection coefficients factored in.

Kilowatt Rating Tables (Lambda Chain, Surface-Treated Lambda Chain, X-Lambda Chain, Lambda Chain KF Series)

■ RS100-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	75	100	125	150	175	200	225	250	275
9	0.66	1.51	2.82	4.07	5.27	6.44	7.59	8.72	9.83	10.9	12.0	13.1
10	0.74	1.70	3.16	4.56	5.90	7.22	8.50	9.77	11.0	12.2	13.5	
11	0.82	1.88	3.51	5.05	6.54	8.00	9.42	10.8	12.2	13.6		
12	0.90	2.06	3.85	5.55	7.19	8.79	10.4	11.9	13.4			
13	0.99	2.25	4.20	6.05	7.84	9.58	11.3	13.0				
14	1.07	2.44	4.55	6.55	8.49	10.4	12.2	14.0				
15	1.15	2.63	4.90	7.06	9.15	11.2	13.2					
16	1.23	2.82	5.26	7.57	9.81	12.0	14.1					
17	1.32	3.01	5.61	8.08	10.5	12.8						
18	1.40	3.20	5.97	8.60	11.1	13.6						
19	1.49	3.39	6.33	9.11	11.8	14.4						
20	1.57	3.58	6.69	9.63	12.5	15.3						
21	1.66	3.78	7.05	10.2	13.2							
22	1.74	3.97	7.41	10.7	13.8							
23	1.83	4.17	7.78	11.2	14.5							
24	1.91	4.36	8.14	11.7	15.2							
25	2.00	4.56	8.51	12.3	15.9							
26	2.09	4.76	8.88	12.8								
28	2.26	5.15	9.62	13.9								
30	2.43	5.55	10.4	14.9								
32	2.61	5.95	11.1	16.0								
35	2.88	6.56	12.2									
40	3.32	7.58	14.1									
45	3.77	8.60	16.1									

■ RS120-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	5	10	15	20	25	30	40	50	60	80	100	125
9	0.65	1.22	1.75	2.27	2.77	3.27	4.23	5.17	6.09	7.90	9.65	11.8
10	0.73	1.36	1.96	2.54	3.11	3.66	4.74	5.80	6.83	8.85	10.8	13.2
11	0.81	1.51	2.17	2.82	3.44	4.06	5.25	6.42	7.57	9.81	12.0	
12	0.89	1.66	2.39	3.09	3.78	4.46	5.77	7.06	8.31	10.8	13.2	
13	0.97	1.81	2.60	3.37	4.12	4.86	6.29	7.69	9.07	11.7	14.4	
14	1.05	1.96	2.82	3.65	4.47	5.26	6.82	8.33	9.82	12.7		
15	1.13	2.11	3.04	3.94	4.81	5.67	7.35	8.98	10.6	13.7		
16	1.21	2.26	3.26	4.22	5.16	6.08	7.88	9.63	11.3	14.7		
17	1.29	2.41	3.48	4.51	5.51	6.49	8.41	10.3	12.1			
18	1.38	2.57	3.70	4.79	5.86	6.90	8.94	10.9	12.9			
19	1.46	2.72	3.92	5.08	6.21	7.32	9.48	11.6	13.7			
20	1.54	2.88	4.15	5.37	6.57	7.74	10.0	12.3	14.4			
21	1.63	3.03	4.37	5.66	6.92	8.15	10.6	12.9	15.2			
22	1.71	3.19	4.60	5.95	7.28	8.58	11.1	13.6				
23	1.79	3.35	4.82	6.25	7.64	9.00	11.7	14.2				
24	1.88	3.50	5.05	6.54	7.99	9.42	12.2	14.9				
25	1.96	3.66	5.28	6.83	8.35	9.84	12.8	15.6				
26	2.05	3.82	5.50	7.13	8.72	10.3	13.3	16.3				
28	2.22	4.14	5.96	7.72	9.44	11.1	14.4					
30	2.39	4.46	6.42	8.32	10.2	12.0	15.5					
32	2.56	4.78	6.89	8.92	10.9	12.9	16.7					
35	2.82	5.27	7.59	9.83	12.0	14.2						
40	3.26	6.08	8.76	11.4	13.9	16.4						
45	3.70	6.91	9.95	12.9	15.8							

■ RS140-LMD-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	5	10	15	20	25	30	40	50	60	80	100	125
9	1.02	1.90	2.74	3.55	4.34	5.12	6.63	8.10	9.55	12.4	15.1	18.5
10	1.14	2.13	3.07	3.98	4.87	5.73	7.43	9.08	10.7	13.9	16.9	
11	1.27	2.36	3.41	4.41	5.39	6.35	8.23	10.1	11.9	15.4	18.8	
12	1.39	2.60	3.74	4.85	5.92	6.98	9.04	11.1	13.0	16.9		
13	1.52	2.83	4.08	5.28	6.46	7.61	9.86	12.1	14.2	18.4		
14	1.64	3.07	4.42	5.72	7.00	8.25	10.7	13.1	15.4	19.9		
15	1.77	3.30	4.76	6.17	7.54	8.88	11.5	14.1	16.6			
16	1.90	3.54	5.10	6.61	8.08	9.52	12.3	15.1	17.8			
17	2.03	3.78	5.45	7.06	8.63	10.2	13.2	16.1	19.0			
18	2.16	4.02	5.80	7.51	9.18	10.8	14.0	17.1	20.2			
19	2.29	4.27	6.14	7.96	9.73	11.5	14.9	18.2				
20	2.42	4.51	6.49	8.41	10.3	12.1	15.7	19.2				
21	2.55	4.75	6.85	8.87	10.8	12.8	16.6	20.2				
22	2.68	5.00	7.20	9.33	11.4	13.4	17.4	21.3				
23	2.81	5.24	7.55	9.78	12.0	14.1	18.3					
24	2.94	5.49	7.91	10.2	12.5	14.8	19.1					
25	3.07	5.74	8.26	10.7	13.1	15.4	20.0					
26	3.21	5.99	8.62	11.2	13.7	16.1	20.8					
28	3.48	6.48	9.34	12.1	14.8	17.4	22.6					
30	3.74	6.99	10.1	13.0	15.9	18.8						
32	4.01	7.49	10.8	14.0	17.1	20.1						
35	4.42	8.25	11.9	15.4	18.8	22.2						
40	5.11	9.53	13.7	17.8	21.7							

Notes: 1. Kilowatt ratings when using a one-pitch offset link (OL) are 80% that of the above values.

2. Kilowatt ratings for RS Roller Chain differ from above.

3. Select Lambda Chain KF Series based on kilowatt ratings with ambient temperature selection coefficients factored in.

Kilowatt Rating Tables (BS Lambda Chain [ISO 606 B Series])

RF06B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm								
	50	100	300	500	700	900	1200	1500	1800
9	0.06	0.11	0.31	0.49	0.66	0.83	1.07	1.31	1.55
10	0.07	0.13	0.35	0.55	0.74	0.93	1.20	1.47	
11	0.08	0.14	0.38	0.61	0.82	1.03	1.33	1.63	
12	0.08	0.16	0.42	0.67	0.90	1.13	1.47		
13	0.09	0.17	0.46	0.73	0.98	1.23	1.60		
14	0.10	0.18	0.50	0.79	1.07	1.34			
15	0.11	0.20	0.54	0.85	1.15	1.44			
16	0.11	0.21	0.57	0.91	1.23	1.54			
17	0.12	0.23	0.61	0.97	1.31	1.65			
18	0.13	0.24	0.65	1.03	1.40	1.75			
19	0.14	0.26	0.69	1.09	1.48				
20	0.15	0.27	0.73	1.16	1.57				
21	0.15	0.29	0.77	1.22	1.65				
22	0.16	0.30	0.81	1.28	1.74				
23	0.17	0.32	0.85	1.35	1.82				
24	0.18	0.33	0.89	1.41					
25	0.19	0.35	0.93	1.47					
26	0.19	0.36	0.97	1.54					

RS08B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm											
	10	25	50	100	200	300	400	500	700	900	1000	1200
9	0.05	0.11	0.20	0.38	0.71	1.02	1.32	1.62	2.19	2.75	3.02	3.56
10	0.05	0.12	0.23	0.43	0.80	1.15	1.48	1.81	2.46	3.08	3.39	
11	0.06	0.14	0.25	0.47	0.88	1.27	1.65	2.01	2.72	3.41	3.75	
12	0.07	0.15	0.28	0.52	0.97	1.40	1.81	2.21	2.99	3.75		
13	0.07	0.16	0.30	0.57	1.06	1.52	1.97	2.41	3.26	4.09		
14	0.08	0.18	0.33	0.61	1.14	1.65	2.13	2.61	3.53			
15	0.08	0.19	0.35	0.66	1.23	1.78	2.30	2.81	3.81			
16	0.09	0.20	0.38	0.71	1.32	1.90	2.47	3.01	4.08			
17	0.10	0.22	0.41	0.76	1.41	2.03	2.63	3.22				
18	0.10	0.23	0.43	0.80	1.50	2.16	2.80	3.42				
19	0.11	0.24	0.46	0.85	1.59	2.29	2.97	3.63				
20	0.11	0.26	0.48	0.90	1.68	2.42	3.14	3.84				
21	0.12	0.27	0.51	0.95	1.77	2.55	3.31	4.04				
22	0.13	0.29	0.54	1.00	1.86	2.68	3.48	4.25				
23	0.13	0.30	0.56	1.05	1.96	2.82	3.65	4.46				
24	0.14	0.32	0.59	1.10	2.05	2.95	3.82					
25	0.14	0.33	0.61	1.15	2.14	3.08	3.99					
26	0.15	0.34	0.64	1.20	2.23	3.22	4.17					

RS10B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm									
	10	25	50	100	200	300	400	500	700	900
9	0.07	0.16	0.30	0.55	1.03	1.48	1.92	2.35	3.18	3.99
10	0.08	0.18	0.33	0.62	1.15	1.66	2.15	2.63	3.56	
11	0.09	0.20	0.37	0.69	1.28	1.84	2.39	2.92	3.95	
12	0.09	0.22	0.40	0.75	1.41	2.02	2.62	3.21	4.34	
13	0.10	0.24	0.44	0.82	1.53	2.21	2.86	3.50		
14	0.11	0.26	0.48	0.89	1.66	2.39	3.10	3.79		
15	0.12	0.28	0.51	0.96	1.79	2.58	3.34	4.08		
16	0.13	0.30	0.55	1.03	1.92	2.76	3.58	4.38		
17	0.14	0.32	0.59	1.10	2.05	2.95	3.82	4.67		
18	0.15	0.34	0.63	1.17	2.18	3.14	4.06			
19	0.16	0.36	0.66	1.24	2.31	3.33	4.31			
20	0.16	0.38	0.70	1.31	2.44	3.52	4.55			
21	0.17	0.40	0.74	1.38	2.57	3.71	4.80			
22	0.18	0.42	0.78	1.45	2.71	3.90				
23	0.19	0.44	0.82	1.52	2.84	4.09				
24	0.20	0.46	0.85	1.59	2.97	4.28				
25	0.21	0.48	0.89	1.66	3.11	4.47				
26	0.22	0.50	0.93	1.74	3.24	4.67				

RS12B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm										
	10	25	50	100	150	200	300	400	500	600	700
9	0.10	0.23	0.42	0.79	1.13	1.47	2.11	2.74	3.35	3.95	4.53
10	0.11	0.25	0.47	0.88	1.27	1.64	2.37	3.07	3.75	4.42	
11	0.12	0.28	0.52	0.98	1.41	1.82	2.63	3.40	4.16		
12	0.14	0.31	0.58	1.07	1.55	2.00	2.89	3.74	4.57		
13	0.15	0.34	0.63	1.17	1.69	2.18	3.15	4.08			
14	0.16	0.36	0.68	1.27	1.83	2.37	3.41	4.41			
15	0.17	0.39	0.73	1.37	1.97	2.55	3.67	4.76			
16	0.18	0.42	0.78	1.46	2.11	2.73	3.94				
17	0.20	0.45	0.84	1.56	2.25	2.92	4.20				
18	0.21	0.48	0.89	1.66	2.40	3.10	4.47				
19	0.22	0.51	0.94	1.76	2.54	3.29	4.74				
20	0.23	0.54	1.00	1.86	2.68	3.48	5.01				
21	0.25	0.56	1.05	1.96	2.83	3.67					
22	0.26	0.59	1.11	2.07	2.98	3.85					
23	0.27	0.62	1.16	2.17	3.12	4.04					
24	0.29	0.65	1.22	2.27	3.27	4.23					
25	0.30	0.68	1.27	2.37	3.42	4.43					
26	0.31	0.71	1.33	2.47	3.56	4.62					

- Notes: 1. Kilowatt ratings when using an offset link (OL) are 80% that of the above values.
 2. Kilowatt ratings for BS Roller Chain differ from above.

Kilowatt Rating Tables (BS Lambda Chain [ISO 606 B Series])

■ RS16B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm							
	10	25	50	100	150	200	300	350
9	0.32	0.73	1.36	2.54	3.65	4.73	6.82	7.83
10	0.36	0.82	1.52	2.84	4.09	5.30	7.64	8.78
11	0.40	0.90	1.69	3.15	4.54	5.88	8.47	
12	0.44	0.99	1.85	3.46	4.98	6.46		
13	0.47	1.08	2.02	3.77	5.43	7.04		
14	0.51	1.17	2.19	4.09	5.89	7.63		
15	0.55	1.26	2.36	4.40	6.34	8.22		
16	0.59	1.36	2.53	4.72	6.80	8.81		
17	0.63	1.45	2.70	5.04	7.26	9.41		
18	0.68	1.54	2.87	5.36	7.72			
19	0.72	1.63	3.05	5.68	8.19			
20	0.76	1.73	3.22	6.01	8.65			
21	0.80	1.82	3.39	6.33	9.12			
22	0.84	1.91	3.57	6.66	9.59			
23	0.88	2.01	3.74	6.99	10.1			
24	0.92	2.10	3.92	7.32				
25	0.96	2.20	4.10	7.65				
26	1.00	2.29	4.27	7.98				

■ RS20B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm							
	10	25	50	100	150	200	275	
9	0.54	1.23	2.30	4.30	6.19	8.02	10.7	
10	0.61	1.38	2.58	4.82	6.94	8.99		
11	0.67	1.53	2.86	5.34	7.69	9.96		
12	0.74	1.68	3.14	5.87	8.45	10.9		
13	0.81	1.84	3.43	6.39	9.21			
14	0.87	1.99	3.71	6.93	9.98			
15	0.94	2.14	4.00	7.46	10.8			
16	1.01	2.30	4.29	8.00	11.5			
17	1.08	2.45	4.58	8.54				
18	1.14	2.61	4.87	9.09				
19	1.21	2.77	5.16	9.63				
20	1.28	2.92	5.46	10.2				
21	1.35	3.08	5.75	10.7				
22	1.42	3.24	6.05	11.3				
23	1.49	3.40	6.35	11.8				
24	1.56	3.56	6.64	12.4				
25	1.63	3.72	6.94	13.0				
26	1.70	3.88	7.24					

■ RS24B-LM-1 Kilowatt Ratings (Single-Strand Chain)

Small Sprocket Teeth No.	Small Sprocket Max. rpm				
	10	25	50	100	125
9	0.97	2.20	4.11	7.67	9.38
10	1.08	2.47	4.61	8.60	10.5
11	1.20	2.74	5.11	9.53	
12	1.32	3.01	5.61	10.5	
13	1.44	3.28	6.12	11.4	
14	1.56	3.55	6.63		
15	1.68	3.83	7.14		
16	1.80	4.10	7.65		
17	1.92	4.38	8.17		
18	2.04	4.66	8.69		
19	2.17	4.94	9.22		
20	2.29	5.22	9.74		
21	2.41	5.50	10.3		
22	2.54	5.79	10.8		
23	2.66	6.07	11.3		
24	2.79	6.36	11.9		
25	2.91	6.64	12.4		
26	3.04	6.93	12.9		

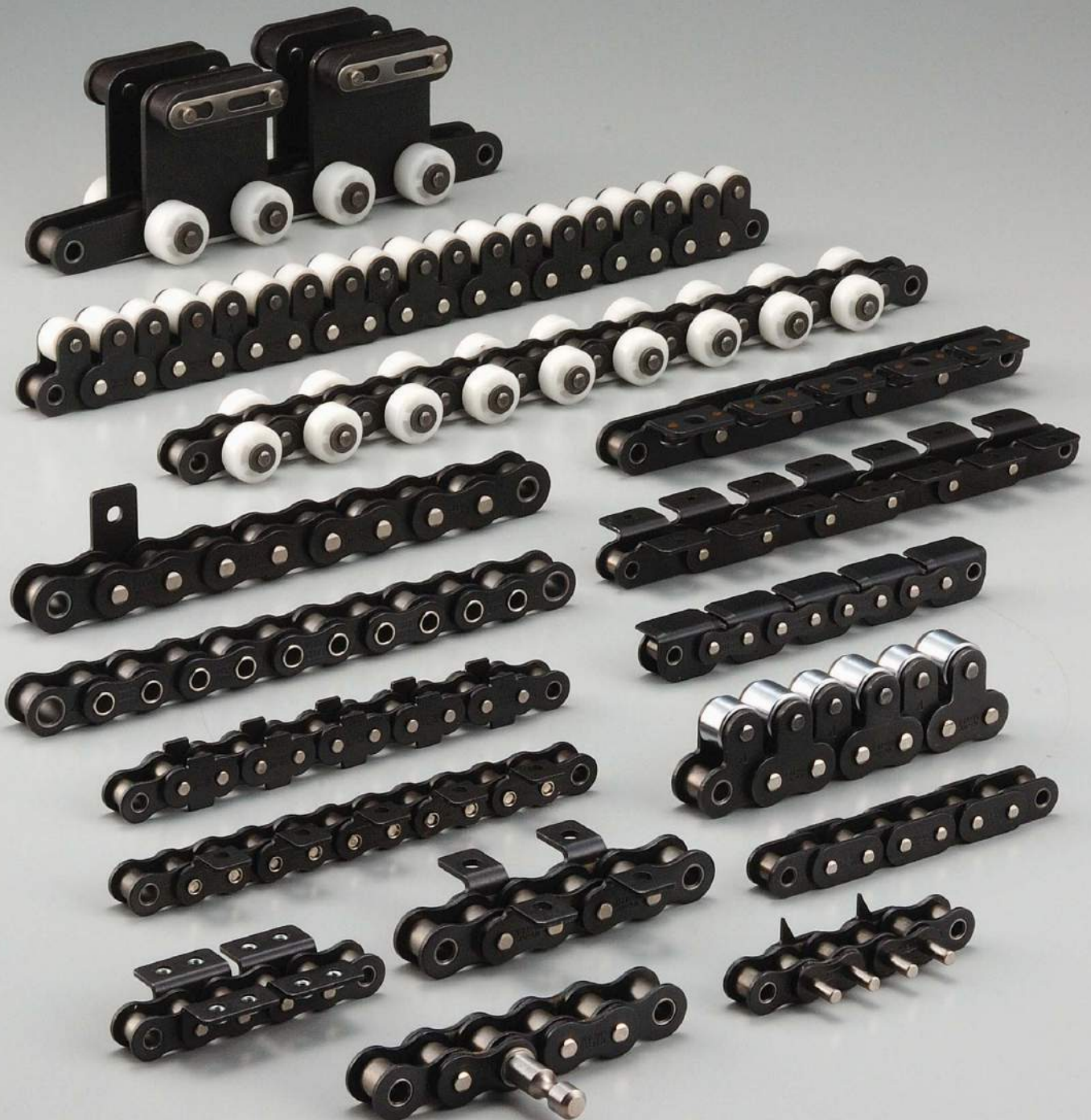
- Notes: 1. Kilowatt ratings when using an offset link (OL) are 80% that of the above values.
2. Kilowatt ratings for BS Roller Chain differ from above.

Tsubaki Lube Free Lambda Chain

- ¥ Keeps Your Application Running Clean
- ¥ No Product Contamination
- ¥ Reduces Downtime and Maintenance Costs

Applications

Food and Beverage, Packaging, Printing, Personal Care,
Electronic Appliances, Automotive, Lumber, Textile, Lighting
and Much More!



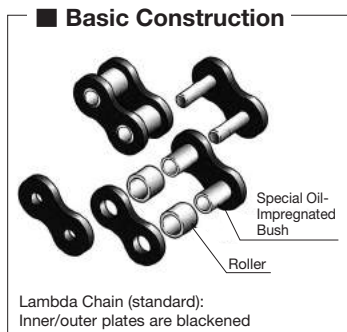
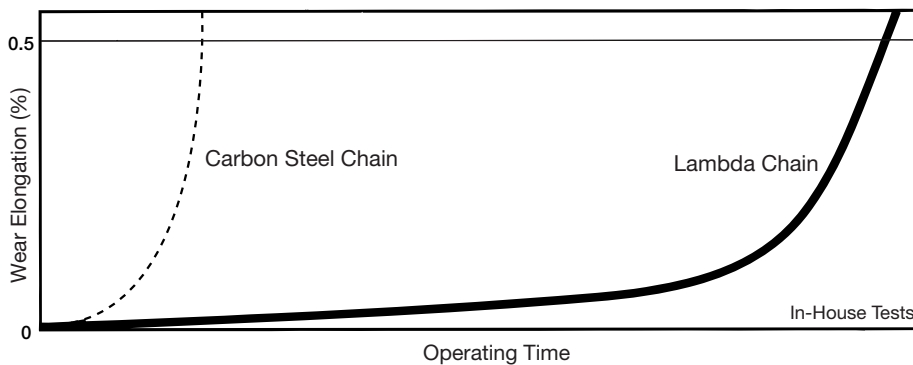
Lube Free Small Size Conveyor Chain

Tsubaki Lambda Chain

Tsubaki is a pioneer in the industry, being the first to develop a chain that uses special oil-impregnated bushes. Since first being introduced in 1988, Lambda Chain has gained an outstanding reputation in a variety of industries and applications. It is capable of meeting a wide range of customer needs for long life in a lubrication-free environment, resulting in a reduction in overall long-term costs.

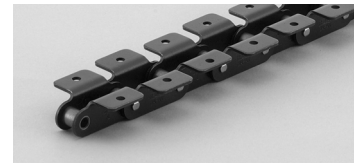
- Long life without additional lubrication: Special oil-impregnated bushes provide long service life.
- Interchangeability: Compatible with Standard Small Size Conveyor Chain.
- Operating temperature range: -10°C to 150°C
- Greatly increases wear elongation life over standard roller chain.

Performance in Normal Temperatures (-10°C to 60°C)



Lambda Double Pitch Chain, Lambda RS Attachment Chain

Inner and outer link plates are blackened. This treatment provides better corrosion resistance, as well as improving the overall appearance of the chain.



BS Lambda Attachment Chain

Lambda Chain that conforms to ISO 606 B series. The dimensions are fully interchangeable with existing BS chains. Specially shaped pins are used on single-strand 08B to 16B sizes to enable easy chain disassembly using a standard chain breaker.



Surface-Treated Lambda Double Pitch Chain, Surface-Treated Lambda RS Attachment Chain

Standard Lambda Chain with corrosive-resistant surface treatments.
 NP: Nickel-plated plates and rollers provide mild corrosion resistance.
 NEP: A special corrosive-resistant surface treatment is applied to the plates and rollers to improve corrosion resistance.



Lambda RF Roller Chain

RF Roller Chain with all the features of Lambda Chain. Designed for lubrication-free applications where conveyed objects are placed directly on the chain.



Lambda Hollow Pin Double Pitch Chain, Lambda Hollow Pin RS Chain

Hollow Pin Chain with all the features of Lambda Chain. (Special oil-impregnated sintered bushes are used on hollow pin bushes.)



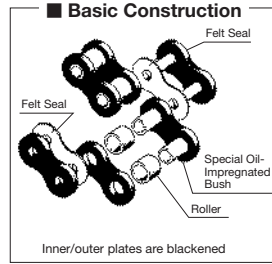
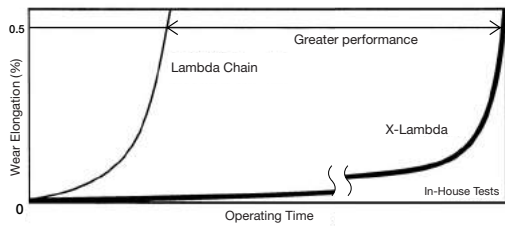
Lube Free Small Size Conveyor Chain

Long Life Lambda Chain (X-Λ[®] [X-Lambda])

The inclusion of an oil-impregnated felt seal in the construction of X-Λ[®] (X-Lambda) Chain significantly improves the anti-wear performance of standard Lambda Chain. Ideal for environments where extended replacement intervals are required when using lube-free chain.

- **Ultra-long wear life with no lubrication:** Our special oil-impregnated bushes and felt seals give X-Λ even longer wear life. (In-house test comparison, -10°C to 60°C)
- **Interchangeability:** Fully interchangeable with Lambda Chain. However, as the overall pin length is longer than Lambda Chain, please check attachment dimensions and that there will be no interference with machinery or other equipment.
- **Operating temperature range:** -10°C to 150°C

Performance in Normal Temperatures (-10°C to 60°C)



Lambda Chain KF Series

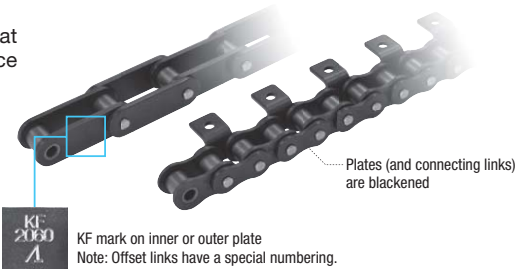
Lambda Double Pitch Chain KF Series, Lambda RS Attachment Chain KF Series

Even in high temperature environments (150°C to 230°C), our special lubricant that is resistant to volatilization and degradation brings out maximum wear performance in the chain. It uses environmentally friendly NSF-H1 grade certified lube.

Operating temperature range ** -10°C to 230°C
 Note: Best between 150°C to 230°C

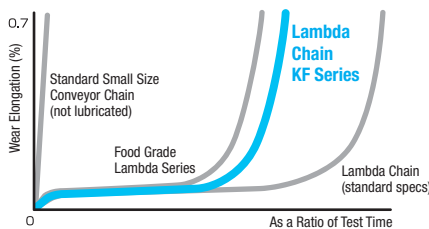
Chain size ** RF2040-LMC to RF2080-LMC-KF
 RS40-LMC to RS80-LMC-KF

Chain numbering



Wear Elongation Life in Normal Temperatures

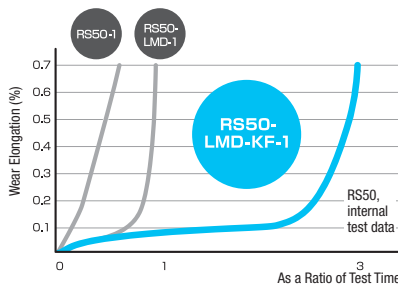
KF Series uses environmentally friendly NSF-H1 grade certified lube, making it usable on food processing equipment where it is difficult to lubricate and wear is a problem.



KF Series has the same or better wear life than our Food Grade Lambda Series. (0.5% wear elongation comparison, wear test results using Tsubaki drive chain conditions)

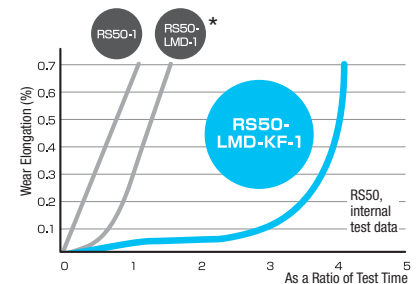
Wear Elongation Life in 150°C Environments

Even in high temperature environments (150°C to 230°C), our special lubricant that is resistant to volatilization and degradation brings out maximum wear performance in the chain.



* The allowable usage temperature range for Lambda Chain Standard Specifications is 150°C.

Wear Elongation Life in 230°C Environments



⚠ Do not use in environments over 230°C. This will lead to a serious degradation in wear life. Harmful gases may be emitted in temperatures over 280°C.

⚠ Safety Precautions for Lambda Chain

1. Do not use Lambda Chain if the chain will come in direct contact with food or where coating flakes or wear dust can contaminate food. Also, in non-food applications, appropriately cover the chain or contact a Tsubaki representative about chain selection if using in environments where coating flakes or wear dust present problems. Though nickel is not subject to the Japan Food Sanitation Law or the Industrial Safety and Health Law, plating on sliding parts can peel.
2. Lambda Chain uses NSF-H1 non-compliant anti rust lubrication/assembly oil.
3. Do not use Lambda Chain where there is the possibility of exposure to chemicals, water, or cleaning/degreasing vapors.

■ **Chain Selection:** See page 64.

Lambda Double Pitch Chain

Surface-Treated Lambda Double Pitch Chain (NP/NEP)

Base Chain

S Roller	Offset Link	R Roller	Offset Link

• Connecting links: RF2040-LMC to RF2060-LMC use spring clips. RF2080-LMC and RF2100-LMC as well as chains with GNK1 attachments (all sizes) use cotter pins. Base chain pins are riveted.

Attachments

A1 Attachment	A2 Attachment	K1 Attachment	K2 Attachment

• Pin end diameter on EP attachments is slightly larger.
 • Actual dimension P' may differ from P. Please contact a Tsubaki representative for details.

• Pins other than those on connecting links are riveted regardless of whether attachments are present.
 • Attachments shown are S roller type. However, the dimensions for attachments are the same when R rollers are used.
 Also, the drawings show attachments added on every link.

R roller type not available.

Lambda Double Pitch Chain

Surface-Treated Lambda Double Pitch Chain (NP/NEP)

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.			Roller Type	Pitch P	P'	Width Between Inner Link Plates W	Roller Dia.		Pin			Offset Pin Length L	Plate	
							S Roller R ₁	R Roller R ₂	Dia. D	L ₁	L ₂		Thickness T	Height H
RF2040-LMC	RF2040-LMC-NP	RF2040-LMC-NEP	S	25.40	Contact a Tsubaki representative for details.	7.95	7.92	15.88	3.97	8.25	9.95	18.2	1.5	12.0
RF2050-LMC	RF2050-LMC-NP	RF2050-LMC-NEP		31.75		9.53	10.16	19.05	5.09	10.30	12.0	22.6	2.0	15.0
RF2060-LMC	RF2060-LMC-NP	RF2060-LMC-NEP		38.10		12.70	11.91	22.23	5.96	14.55	16.55	31.5	3.2	17.2
RF2080-LMC	RF2080-LMC-NP	RF2080-LMC-NEP		50.80		15.88	15.88	28.58	7.94	18.30	20.90	39.9	4.0	23.0
RF2100-LMC	RF2100-LMC-NP	RF2100-LMC-NEP		63.50		19.05	19.05	39.69	9.54	21.80	24.50	47.5	4.8	28.6

Attachment Dimensions

Unit: mm

Tsubaki Chain No.			Attachment															
			C	C ₁	C ₂	K	N	O	O ₁	S	T	X	X ₂	X _S	D	L ₃	L ₄	G
RF2040-LMC	RF2040-LMC-NP	RF2040-LMC-NEP	12.7	11.1	13.6	9.5	19.1	3.6	5.2	9.1	1.5	19.3	17.6	19.8	3.97	9.5	16.75	4.1
RF2050-LMC	RF2050-LMC-NP	RF2050-LMC-NEP	15.9	14.3	15.9	11.9	23.8	5.2	6.8	11.1	2.0	24.2	22.0	24.6	5.09	11.9	21.0	5.1
RF2060-LMC	RF2060-LMC-NP	RF2060-LMC-NEP	21.45	17.5	19.1	14.3	28.6	5.2	8.7	14.7	3.2	31.5	28.2	30.6	5.96	14.3	27.45	6.1
RF2080-LMC	RF2080-LMC-NP	RF2080-LMC-NEP	27.8	22.2	25.4	19.1	38.1	6.8	10.3	19.1	4.0	40.7	36.6	40.5	7.94	19.1	35.5	8.1
RF2100-LMC	RF2100-LMC-NP	RF2100-LMC-NEP	33.35	28.6	31.8	23.8	47.6	8.7	14.3	23.4	4.8	49.9	44.9	50.4	9.54	23.8	43.4	10.1

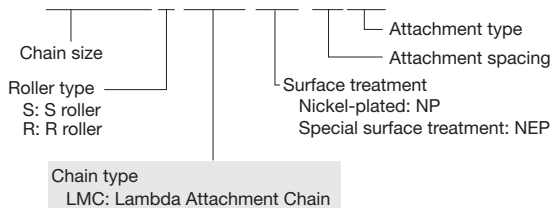
Tsubaki Chain No.			Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)		Additional Weight per Attachment (kg)			No. of Links per Unit
				S Roller	R Roller	A, SA	K, SK	EP	
RF2040-LMC	RF2040-LMC-NP	RF2040-LMC-NEP	2.65{ 270}	0.51	0.87	0.003	0.006	0.001	120
RF2050-LMC	RF2050-LMC-NP	RF2050-LMC-NEP	4.31{ 440}	0.84	1.30	0.006	0.012	0.002	96
RF2060-LMC	RF2060-LMC-NP	RF2060-LMC-NEP	6.28{ 640}	1.51	2.19	0.017	0.034	0.003	80
RF2080-LMC	RF2080-LMC-NP	RF2080-LMC-NEP	10.7 {1090}	2.41	3.52	0.032	0.064	0.007	60
RF2100-LMC	RF2100-LMC-NP	RF2100-LMC-NEP	17.1 {1740}	3.54	5.80	0.06	0.12	0.012	48

Note: Dimensions O and O₁ are slightly smaller on NEP chains.

Operating Temperature Range: -10°C to 150°C

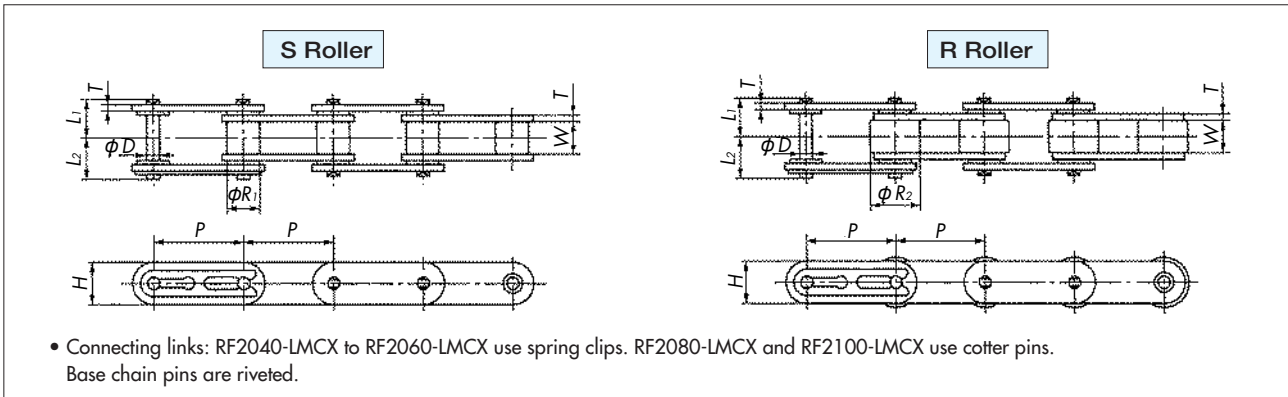
Chain Numbering

No. **RF2040S-LMC-NP-1LK2**

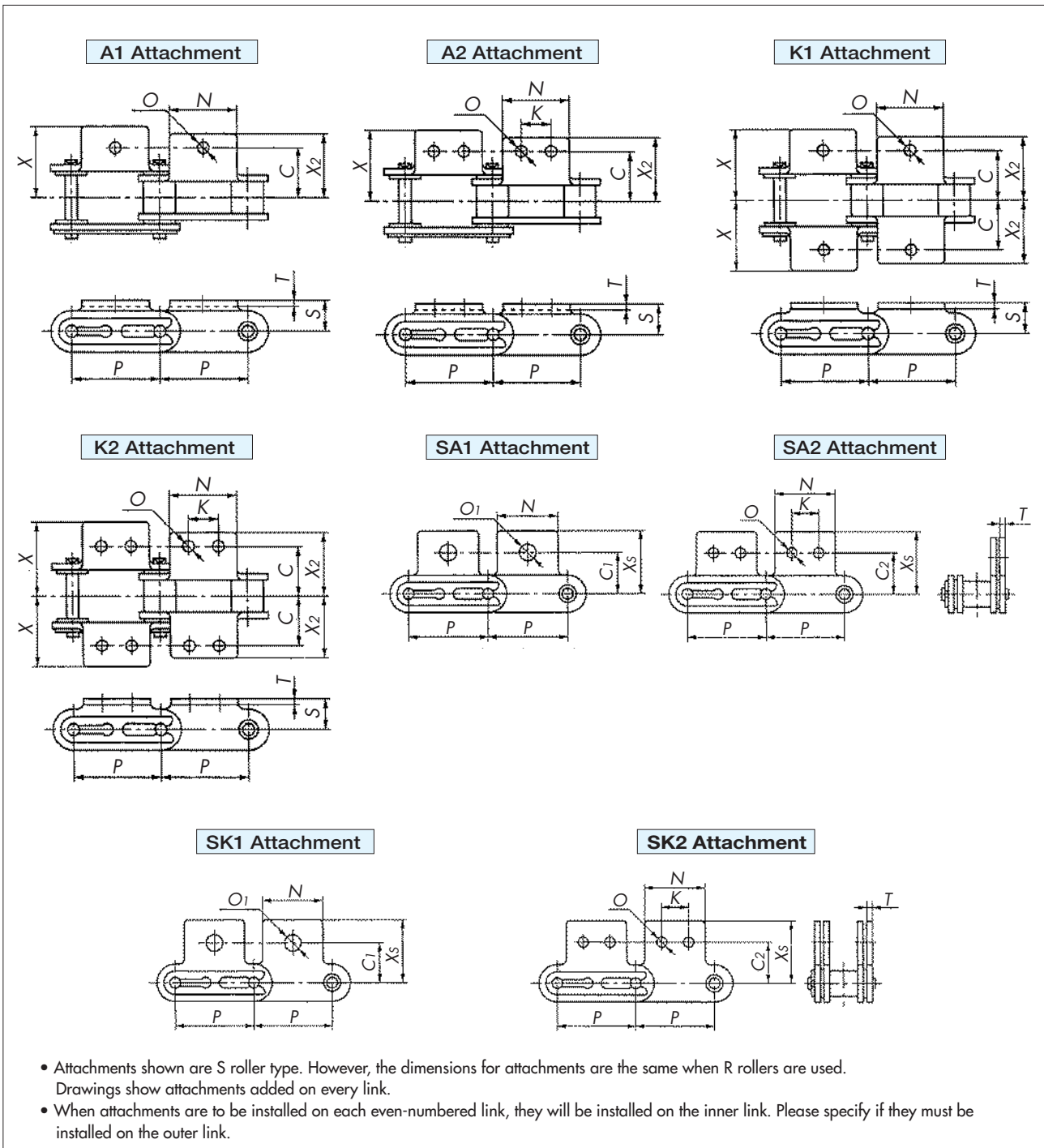


Long Life Lambda Double Pitch Chain (X-Λ[®] [X-Lambda])

Base Chain



Attachments



Long Life Lambda Double Pitch Chain (X-Λ® [X-Lambda])

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Roller Type	Pitch <i>P</i>	Width Between Inner Link Plates <i>W</i>	Roller Dia.		Pin			Plate		Max. Allowable Load kN {kgf}
				S Roller <i>R</i> ₁	S Roller <i>R</i> ₂	Dia. <i>D</i>	<i>L</i> ₁	<i>L</i> ₂	Thickness <i>T</i>	Height <i>H</i>	
RF2040-LMCX	S · R	25.40	7.95	7.92	15.88	3.97	8.90	10.6	1.5	12.0	2.65 { 270}
RF2050-LMCX		31.75	9.53	10.16	19.05	5.09	11.0	12.7	2.0	15.0	4.31 { 440}
RF2060-LMCX		38.10	12.70	11.91	22.23	5.96	15.25	17.15	3.2	17.2	6.28 { 640}
RF2080-LMCX		50.80	15.88	15.88	28.58	7.94	19.15	21.75	4.0	23.0	10.7 {1090}
RF2100-LMCX		63.50	19.05	19.05	39.69	9.54	22.6	25.3	4.8	28.6	17.1 {1740}

Attachment Dimensions

Unit: mm

Tsubaki Chain No.	Attachment												Approx. Mass (kg/m)		Additional Weight per Attachment (kg)		No. of Links per Unit
	<i>C</i>	<i>C</i> ₁	<i>C</i> ₂	<i>K</i>	<i>N</i>	<i>O</i>	<i>O</i> ₁	<i>S</i>	<i>T</i>	<i>X</i>	<i>X</i> ₂	<i>X</i> _S	S Roller	R Roller	<i>A</i> , <i>SA</i>	<i>K</i> , <i>SK</i>	
RF2040-LMCX	12.7	11.1	13.6	9.5	19.1	3.6	5.2	9.1	1.5	19.9	17.6	19.8	0.51	0.87	0.003	0.006	120
RF2050-LMCX	15.9	14.3	15.9	11.9	23.8	5.2	6.8	11.1	2.0	24.85	22.0	24.6	0.84	1.30	0.006	0.012	96
RF2060-LMCX	21.45	17.5	19.1	14.3	28.6	5.2	8.7	14.7	3.2	32.4	28.2	30.6	1.51	2.19	0.017	0.034	80
RF2080-LMCX	27.8	22.2	25.4	19.1	38.1	6.8	10.3	19.1	4.0	41.6	36.6	40.5	2.43	3.54	0.032	0.064	60
RF2100-LMCX	33.35	28.6	31.8	23.8	47.6	8.7	14.3	23.4	4.8	50.8	44.9	50.4	3.56	5.82	0.06	0.12	48

Note: Please contact a Tsubaki representative regarding OL (offset links).

Operating Temperature Range: -10°C to 150°C

- Due to the felt seals, X-Lambda chain pin length is slightly longer than that on standard attachment chain. The *X* dimension is longer on X-Lambda chain attachments than on standard attachments. Please check that there will be no interference with equipment.
- See page 28 for instructions on handling connecting links. Note that the shape of the felt seal is round and differs from the felt seals on RS X-Lambda Chain. Four felt seals are installed on each connecting link.

Chain Numbering

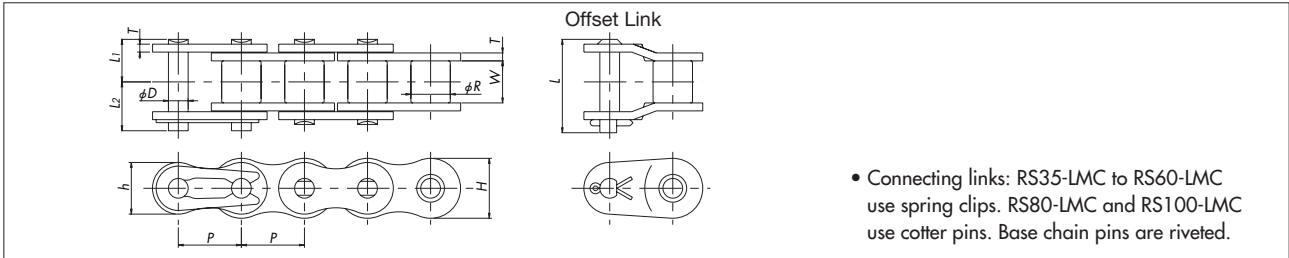
No. **RF2040S-LMCX-1LK2**



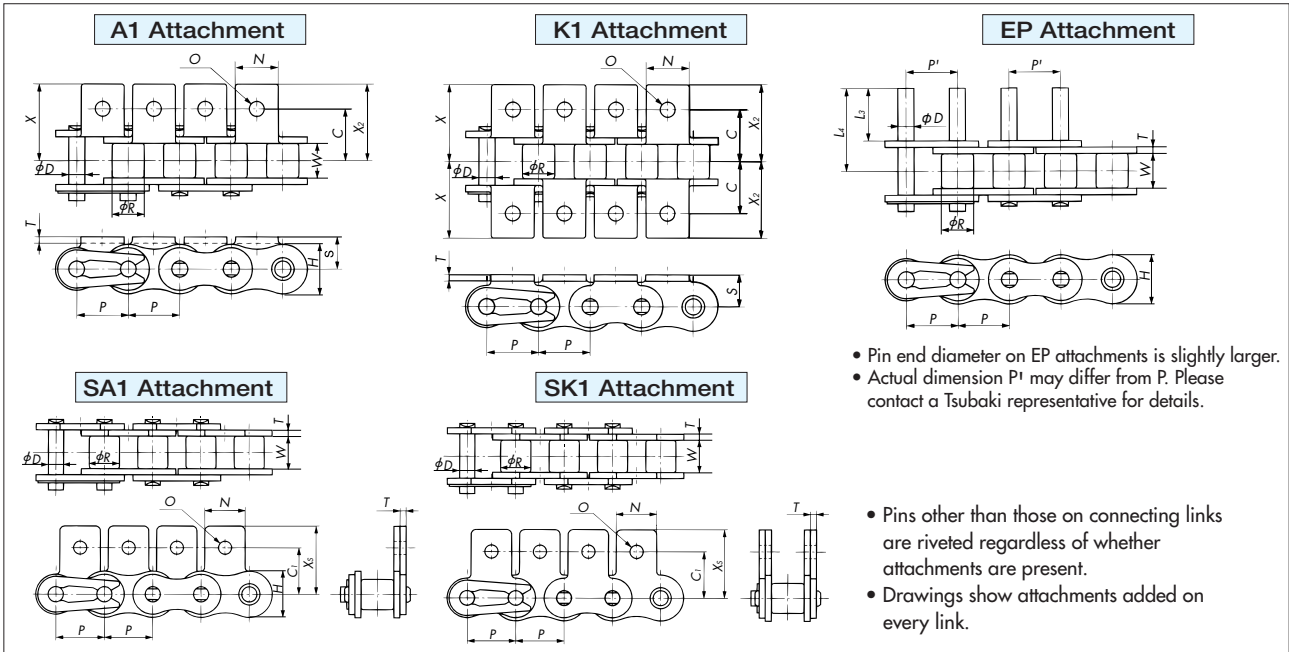
Lambda RS® Attachment Chain

Surface-Treated Lambda RS® Attachment Chain (NP/NEP)

Base Chain



Attachments



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.			Pitch P	P'	Width Between Inner Link Plates W	Roller Dia. (Bush Dia.) R	Pin			Plate			Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit	
							Dia. D	L1	L2	L	Thickness T	Height H	Height h			
RS35-LMC	RS35-LMC-NP	RS35-LMC-NEP	9.525		4.78	(5.08)	3.00	5.85	6.85	13.5	1.25	9.0	7.8	1.52 { 155}	0.33	320
RS40-LMC	RS40-LMC-NP	RS40-LMC-NEP	12.70		7.95	7.92	3.97	8.25	9.95	18.2	1.5	12.0	10.4	2.65 { 270}	0.64	240
RS50-LMC	RS50-LMC-NP	RS50-LMC-NEP	15.875		9.53	10.16	5.09	10.3	12.0	22.6	2.0	15.0	13.0	4.31 { 440}	1.04	192
RS60-LMC	RS60-LMC-NP	RS60-LMC-NEP	19.05		12.70	11.91	5.96	12.85	14.75	28.2	2.4	18.1	15.6	6.28 { 640}	1.53	160
RS80-LMC	RS80-LMC-NP	RS80-LMC-NEP	25.40		15.88	15.88	7.94	16.25	19.25	36.6	3.2	24.1	20.8	10.7 {1090}	2.66	120
RS100-LMC	RS100-LMC-NP	RS100-LMC-NEP	31.75		19.05	19.05	9.54	19.75	22.85	43.7	4.0	30.1	26.0	17.1 {1740}	3.99	96

Attachment Dimensions

Unit: mm

Tsubaki Chain No.			Attachment										Additional Weight per Attachment (kg)		
			C	C1	N	O	S	X	X2	X5	L3	L4	A, SA	K, SK	EP
RS35-LMC	RS35-LMC-NP	RS35-LMC-NEP	9.5	9.5	7.9	3.4	6.35	14.3	14.3	14.55	9.5	14.6	0.0008	0.0016	0.0008
RS40-LMC	RS40-LMC-NP	RS40-LMC-NEP	12.7	12.7	9.5	3.6	8.0	17.8	17.8	17.40	9.5	16.75	0.002	0.004	0.001
RS50-LMC	RS50-LMC-NP	RS50-LMC-NEP	15.9	15.9	12.7	5.2	10.3	23.4	23.4	23.05	11.9	21.0	0.003	0.006	0.002
RS60-LMC	RS60-LMC-NP	RS60-LMC-NEP	19.05	18.3	15.9	5.2	11.9	28.2	28.2	26.85	14.3	25.75	0.007	0.014	0.003
RS80-LMC	RS80-LMC-NP	RS80-LMC-NEP	25.4	24.6	19.1	6.8	15.9	36.6	36.6	35.45	19.1	33.85	0.013	0.026	0.007
RS100-LMC	RS100-LMC-NP	RS100-LMC-NEP	31.75	31.8	25.4	8.7	19.8	44.9	44.9	44.0	23.8	41.75	0.026	0.052	0.012

Notes: 1. Pin diameters for Lambda RS35-LMC and Standard RS35 are different and therefore they cannot be connected together.
 2. RS35-LMC has no rollers. 3. Dimension D of RS35-LMC EP attachment is 3.0 mm diameter and is smaller than that of Standard RS35.
 4. Dimension O is slightly smaller on NEP chains.

Operating Temperature Range: -10°C to 150°C

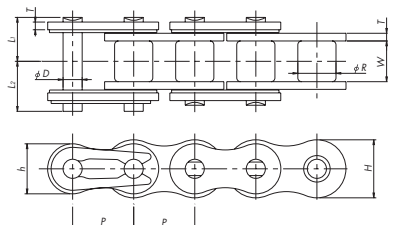
Chain Numbering

No. **RS40-LMC-NP-1LSA1**



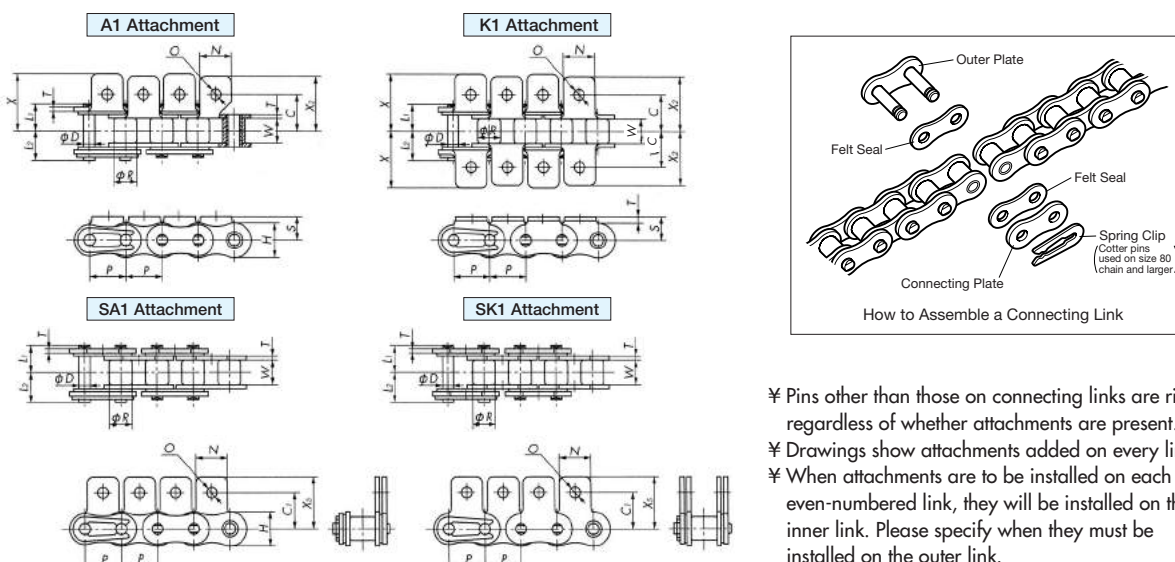
Long Life Lambda RS Attachment Chain (X- Λ ® [X-Lambda])

Base Chain



¥ Connecting links: RS40-LMCX to RS60-LMCX use spring clips.
 RS80-LMCX and RS100-LMCX use cotter pins. Base chain pins are riveted.
 ¥ Offset links are not available.

Attachments



¥ Pins other than those on connecting links are riveted regardless of whether attachments are present.
 ¥ Drawings show attachments added on every link.
 ¥ When attachments are to be installed on each even-numbered link, they will be installed on the inner link. Please specify when they must be installed on the outer link.

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R	Pin			Plate			Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit
				Dia. D	L ₁	L ₂	Thickness T	Height H	Height h			
RS40-LMCX	12.70	7.95	7.92	3.97	8.90	10.6	1.5	12.0	10.4	2.65{ 270}	0.64	240
RS50-LMCX	15.875	9.53	10.16	5.09	11.0	12.7	2.0	15.0	13.0	4.31{ 440}	1.04	192
RS60-LMCX	19.05	12.70	11.91	5.96	13.7	15.6	2.4	18.1	15.6	6.28{ 640}	1.53	160
RS80-LMCX	25.40	15.88	15.88	7.94	17.1	20.1	3.2	24.1	20.8	10.7 {1090}	2.69	120
RS100-LMCX	31.75	19.05	19.05	9.54	20.6	23.6	4.0	30.1	26.0	17.1 {1740}	4.02	96

Attachment Dimensions

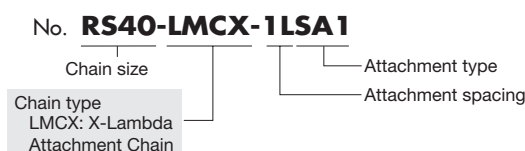
Unit: mm

Tsubaki Chain No.	Attachment								Additional Weight per Attachment (kg)	
	C	C ₁	N	O	S	X	X ₂	X _s	A, SA	K, SK
RS40-LMCX	12.7	12.7	9.5	3.6	8.0	18.40	17.8	17.40	0.002	0.004
RS50-LMCX	15.9	15.9	12.7	5.2	10.3	24.10	23.4	23.05	0.003	0.006
RS60-LMCX	19.05	18.3	15.9	5.2	11.9	29.05	28.2	26.85	0.007	0.014
RS80-LMCX	25.4	24.6	19.1	6.8	15.9	37.5	36.6	35.45	0.013	0.026
RS100-LMCX	31.75	31.8	25.4	8.7	19.8	45.6	44.9	44.0	0.026	0.052

Operating Temperature Range: -10°C to 150°C

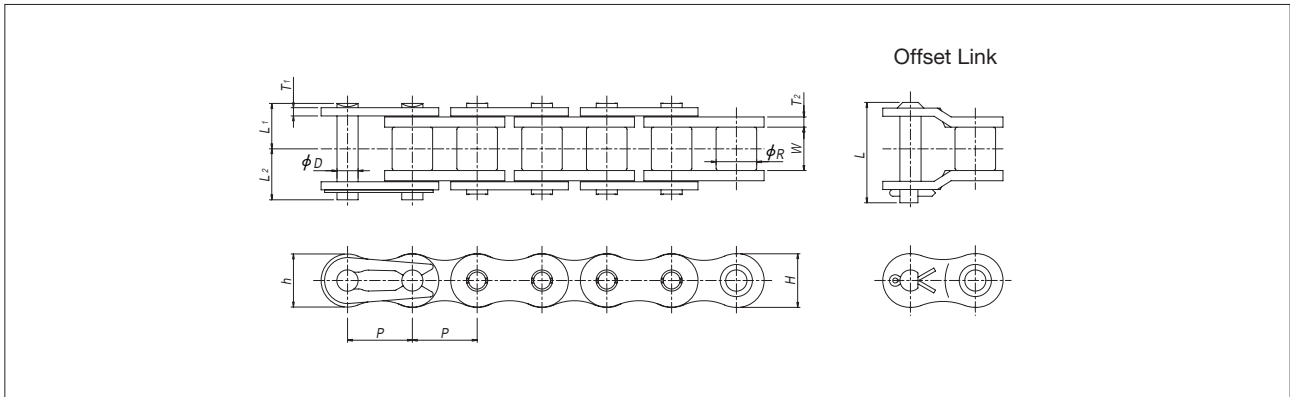
- Due to the felt seals, X-Lambda chain pin length is slightly longer than that on standard attachment chain. The X dimension is longer on X-Lambda chain attachments than on standard attachments. Please check that there will be no interference with equipment.
- When assembling chain, use connecting links designed for X-Lambda Chain (with felt seals). As shown in the above diagram, insert felt seals between the outer plates and connecting plates, and attach the link. The felt seals are impregnated with oil. Be careful to ensure that oil is not squeezed out.

Chain Numbering

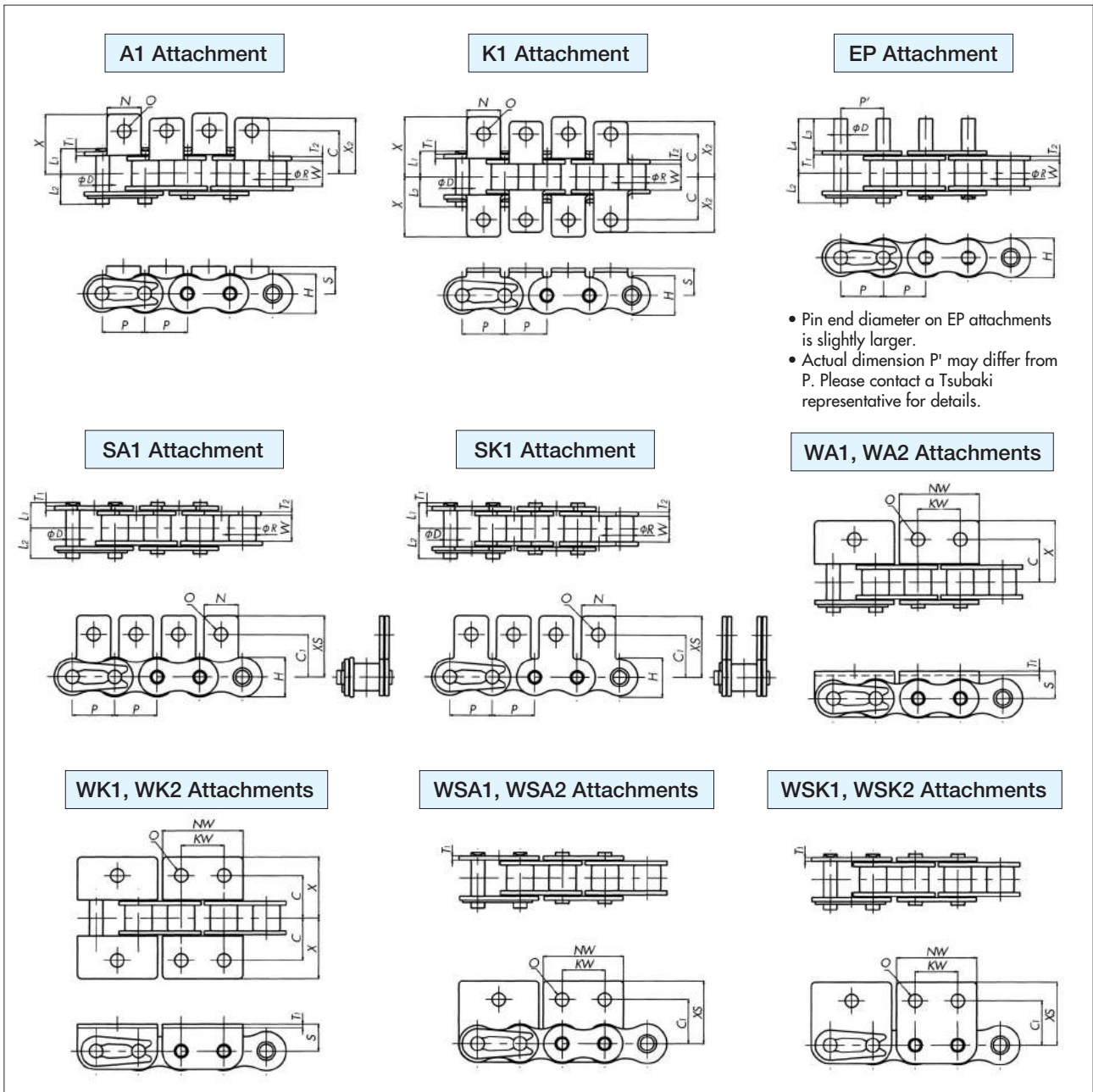


BS Lambda Attachment Chain (ISO 606 B Series)

Base Chain



Attachments



- Pin end diameter on EP attachments is slightly larger.
- Actual dimension P' may differ from P . Please contact a Tsubaki representative for details.

BS Lambda Attachment Chain (ISO 606 B Series)

■ Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch <i>P</i>	<i>P'</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate				Pin Dia. <i>D</i>
					Thickness <i>T₂</i>	Thickness <i>T₁</i>	Height <i>H</i>	Height <i>h</i>	
RS08B-LM	12.70	Contact a Tsubaki representative for details.	8.51	7.75	1.6	1.6	12.0	10.4	4.45
RS10B-LM	15.875		10.16	9.65	1.5	1.5	14.7	13.7	5.08
RS12B-LM	19.05		12.07	11.68	1.8	1.8	16.1	16.1	5.72
RS16B-LM	25.40		15.88	17.02	4.0	3.2	21.0	21.0	8.28

Unit: mm

Tsubaki Chain No.	Pin Length			Offset Pin Length <i>L</i>	Min. Tensile Strength kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit
	<i>L₁+L₂</i>	<i>L₁</i>	<i>L₂</i>				
RS08B-LM	18.4	8.4	10.0	18.6	13.7{1400}	0.70	240
RS10B-LM	20.8	9.55	11.25	20.8	16.1{1640}	0.95	192
RS12B-LM	24.1	11.1	13.0	24.4	19.5{1990}	1.25	160
RS16B-LM	37.7	17.75	19.95	39.3	54.1{5520}	2.70	120

■ Attachment Dimensions

Unit: mm

Tsubaki Chain No.	A1, SA1, K1, SK1 Attachments								Additional Weight per Attachment (kg)	
	<i>C</i>	<i>C₁</i>	<i>N</i>	<i>O</i>	<i>S</i>	<i>X</i>	<i>X₂</i>	<i>X_s</i>	<i>A, SA</i>	<i>K, SK</i>
RS08B-LM	11.9	12.7	11.4	4.2	8.9	19.05	17.15	19.3	0.002	0.004
RS10B-LM	15.9	15.9	12.7	5.0	10.2	22.25	20.6	22.9	0.003	0.006
RS12B-LM	19.05	22.2	16.5	7.1	13.5	29.85	27.8	32.05	0.006	0.012
RS16B-LM	23.8	23.9	24.3	6.7	15.2	37.35	34.4	34.1	0.014	0.028

Unit: mm

Tsubaki Chain No.	WA2, WSA2, WK2, WSK2 Attachments WA1, WSA1, WK1, WSK1 Attachments							EP Attachment			Additional Weight per Attachment (kg)			
	<i>C</i>	<i>C₁</i>	<i>NW</i>	<i>O</i>	<i>S</i>	<i>X</i>	<i>X_s</i>	<i>KW</i>	<i>D</i>	<i>L₃</i>	<i>L₄</i>	<i>WA, WSA</i>	<i>WK, WSK</i>	<i>EP</i>
RS08B-LM	12.7	13.1	24.6	4.9	8.9	20.3	20.7	12.7	4.45	9.5	17.0	0.005	0.010	0.001
RS10B-LM	15.9	16.6	30.0	5.0	10.2	22.85	23.6	15.9	5.08	11.9	20.25	0.006	0.012	0.002
RS12B-LM	17.45	17.6	34.8	5.5	11.4	25.65	25.75	19.1	5.72	14.3	24.1	0.009	0.018	0.003
RS16B-LM	28.6	26.0	46.0	8.1	15.9	39.25	36.7	25.4	8.28	19.1	35.25	0.030	0.060	0.008

■ Operating Temperature Range: -10°C to 150°C

■ Sprockets

BS Roller Chain sprockets (conforming to ISO B Series) must be used.

■ Pin Shape

Single-strand chains in sizes RS08B-LM through RS16B-LM use easy disassembly pins (with center sink riveting). All other sizes, including multi-strand chains, use double stake riveting.

■ Chain Selection: Please inquire for chain selection.

■ Special Orders

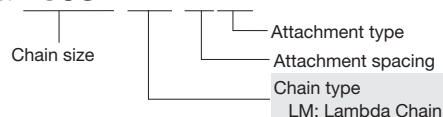
Tsubaki can manufacture special attachments and special extended pins, as well as RF06B, RS20B, and RS24B Attachment Chain having dimensions other than those given above. Please inquire for details.

■ Note

When replacing European standard attachment chain with Lambda Chain, note that dimensions may be different than Tsubaki standard dimensions. Be sure to check attachment dimensions before ordering.

Chain Numbering

No. **RS08B-LM-1LA1**



Lambda Double Pitch Chain KF Series (Heat Resistant Series)

S Roller

R Roller

A1 Attachment

A2 Attachment

K1 Attachment

K2 Attachment

SA1 Attachment

SA2 Attachment

SK1 Attachment

SK2 Attachment

EP Attachment

GNK1 Attachment

R Roller unavailable.

- Connecting Link: Spring clip = RF2040-LMCK – RF2060LMCK
Cotter pin = RF2080LMCK
GNK1 Attachment (all sizes)
Connecting plates are blackened.
- All pins besides connecting link pins are riveted, regardless of whether attachment is present or not.
- Attachment drawings are for S roller type, but similar attachment dimensions apply to R roller types as well.
Drawings will show when attachment is on every link.
- Offset links are not available.

- Pin head diameter for EP attachments is marginally larger than body diameter.
- Actual dimensions of P' differ from P. Contact a Tsubaki representative for more details.

Unit: mm

Tsubaki Chain No.	Roller Type	Pitch P	P'	Width Between Inner Link Plates W	Roller Dia.		Pin			Plate	
					S Roller R ₁	R Roller R ₂	Dia. D	L ₁	L ₂	Thickness T	Height H
RF2040-LMC-KF	S · R	25.40	Contact Tsubaki	7.95	7.92	15.88	3.97	8.25	9.95	1.5	12.0
RF2050-LMC-KF		31.75		9.53	10.16	19.05	5.09	10.30	12.0	2.0	15.0
RF2060-LMC-KF		38.10		12.70	11.91	22.23	5.96	14.55	16.55	3.2	17.2
RF2080-LMC-KF		50.80		15.88	15.88	28.58	7.94	18.30	20.90	4.0	23.0

Unit: mm

Tsubaki Chain No.	Attachment															
	C	C ₁	C ₂	K	N	O	O ₁	S	T	X	X ₂	X _s	D	L ₃	L ₄	G
RF2040-LMC-KF	12.7	11.1	13.6	9.5	19.1	3.6	5.2	9.1	1.5	19.3	17.6	19.8	3.97	9.5	16.75	4.1
RF2050-LMC-KF	15.9	14.3	15.9	11.9	23.8	5.2	6.8	11.1	2.0	24.2	22.0	24.6	5.09	11.9	21.0	5.1
RF2060-LMC-KF	21.45	17.5	19.1	14.3	28.6	5.2	8.7	14.7	3.2	31.5	28.2	30.6	5.96	14.3	27.45	6.1
RF2080-LMC-KF	27.8	22.2	25.4	19.1	38.1	6.8	10.3	19.1	4.0	40.7	36.6	40.5	7.94	19.1	35.5	8.1

Tsubaki Chain No.	Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)		Load Mass Per Attachment kg			No. of Links per Unit
		S Roller	R Roller	A, SA A/SA Attachment	K, SK K/SK Attachment	EP EP Attachment	
RF2040-LMC-KF	2.65{ 270}	0.51	0.87	0.003	0.006	0.001	120
RF2050-LMC-KF	4.31{ 440}	0.84	1.30	0.006	0.012	0.002	96
RF2060-LMC-KF	6.28{ 640}	1.51	2.19	0.017	0.034	0.003	80
RF2080-LMC-KF	10.7 {1090}	2.41	3.52	0.032	0.064	0.007	60

Chain Numbering No. **RF2040S-LMC-KF-1LA2**

Chain size
Roller type

KF Series

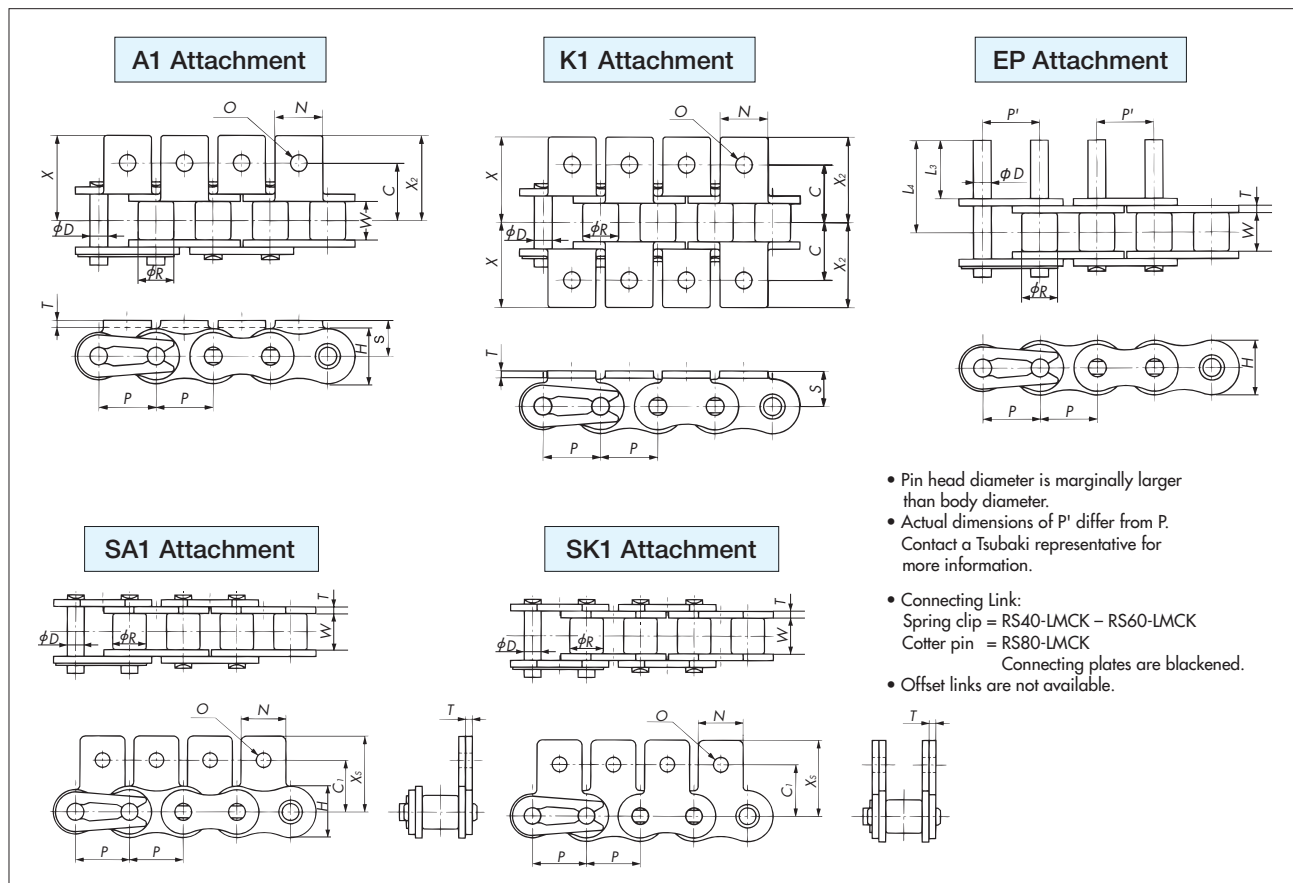
Attachment type
Attachment spacing

Chain type
LMC: Lambda Attachment Chain

Chain Selection: See page 64.

- Delivery: Made to order
- Select chain based on maximum allowable load with ambient temperature selection coefficients factored in.

Lambda RS Attachment Chain KF Series (Heat Resistant Series)



Unit: mm

Tsubaki Chain No.	Pitch P	P'	Width Between Inner Link Plates W	Roller (Bush) R	Pin			Plate		Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit
					Dia. D	L ₁	L ₂	Thickness T	Height H			
RS40-LMC-KF	12.70	Contact: Tsubaki	7.95	7.92	3.97	8.25	9.95	1.5	12.0	2.65{ 270}	0.64	240
RS50-LMC-KF	15.875		9.53	10.16	5.09	10.3	12.0	2.0	15.0	4.31{ 440}	1.04	192
RS60-LMC-KF	19.05		12.70	11.91	5.96	12.85	14.75	2.4	18.1	6.28{ 640}	1.53	160
RS80-LMC-KF	25.40		15.88	15.88	7.94	16.25	19.25	3.2	24.1	10.7 {1090}	2.66	120

Unit: mm

Tsubaki Chain No.	Attachment										Load Mass Per Attachment kg		
	C	C ₁	N	O	S	X	X ₂	X _s	L ₃	L ₄	A, SA A/SA Attachment	K, SK K/SK Attachment	EP EP Attachment
RS40-LMC-KF	12.7	12.7	9.5	3.6	8.0	17.8	17.8	17.40	9.5	16.75	0.002	0.004	0.001
RS50-LMC-KF	15.9	15.9	12.7	5.2	10.3	23.4	23.4	23.05	11.9	21.0	0.003	0.006	0.002
RS60-LMC-KF	19.05	18.3	15.9	5.2	11.9	28.2	28.2	26.85	14.3	25.75	0.007	0.014	0.003
RS80-LMC-KF	25.4	24.6	19.1	6.8	15.9	36.6	36.6	35.45	19.1	33.85	0.013	0.026	0.007

Chain Numbering

No. **RS40-LMC-KF-2LK1**



Chain type
LMC: Lambda Attachment Chain

■ **KF BS Lambda also available. Please contact a Tsubaki representative.**

■ **Chain Selection:** See page 64.

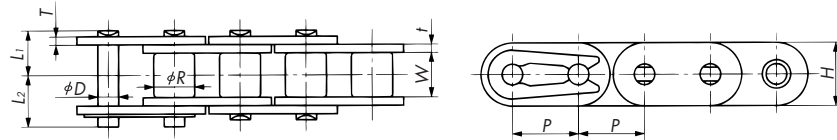
- Delivery: Made to order
- Select chain based on maximum allowable load with ambient temperature selection coefficients factored in.

Lambda RF Roller Chain



ANSI Chain

Base Chain



- Connecting links: RF40-LMC to RF60-LMC use spring clips. RF80-LMC and larger use cotter pins. Base chain pins are riveted.
- Offset links are not available.

Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate			Pin			Max. Allowable Load kN { kgf }	Approx. Mass (kg/m)	No. of Links per Unit
				Thickness T	Thickness t	Height H	Dia. D	L_1	L_2			
RF40-LMC	12.70	7.92	7.95	1.5	1.5	12.0	3.97	8.25	9.95	2.65 { 270 }	0.74	240
RF50-LMC	15.875	10.16	9.53	2.0	2.0	15.0	5.09	10.3	12.0	4.31 { 440 }	1.22	192
RF60-LMC	19.05	11.91	12.70	2.4	2.4	18.1	5.96	12.85	14.75	6.28 { 640 }	1.78	160
RF80-LMC	25.40	15.88	15.88	3.2	3.2	24.1	7.94	16.25	19.25	10.7 { 1090 }	3.09	120
RF100-LMC	31.75	19.05	19.05	4.0	4.0	28.6	9.54	19.75	22.85	17.1 { 1740 }	4.43	96

Operating Temperature Range: $-10^{\circ}C$ to $150^{\circ}C$

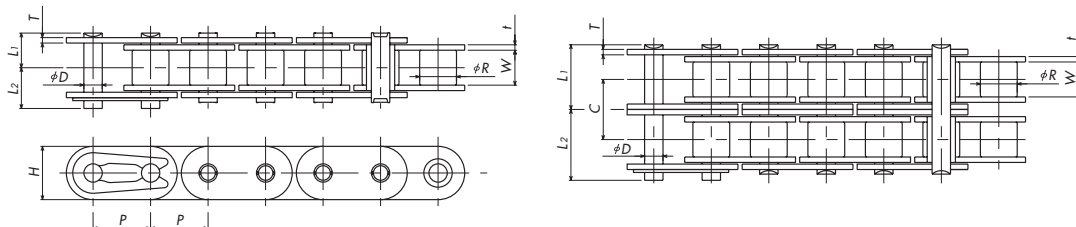
Sprockets

- RS standard sprockets can be used.



BS/DIN Chain (ISO 606 B Series)

Base Chain



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate			Pin			Transverse Pitch (pt)	Approx. Mass (kg/m)
				Thickness T	Thickness t	Height H	Dia. D	L_1	L_2		
RF08B-LM-1	12.70	8.51	7.75	1.6	1.6	11.8	4.45	8.40	10.0	—	0.7
RF08B-LM-2								15.30	16.90	13.92	1.40
RF10B-LM-1	15.875	10.16	9.65	1.5	1.5	14.7	5.08	9.55	11.25	—	0.95
RF10B-LM-2								17.85	19.55	16.59	1.90
RF12B-LM-1	19.05	12.07	11.68	1.8	1.8	16.1	5.72	11.10	13.0	—	1.25
RF12B-LM-2								20.85	22.75	19.46	2.60
RF16B-LM-1	25.40	15.88	17.02	4.0	3.2	24.0	8.28	17.75	19.95	—	2.7
RF16B-LM-2								33.55	35.75	31.88	5.60

Operating Temperature Range: $-10^{\circ}C$ to $150^{\circ}C$

Sprockets

- BS Roller Chain sprockets (conforming to ISO 606 B Series) must be used.

Chain Numbering

No. **RF40-LMC**

Chain size
Chain type
LMC: Lambda Attachment Chain

No. **RF10B-LM**

Chain size
Chain type
LM: Lambda Chain

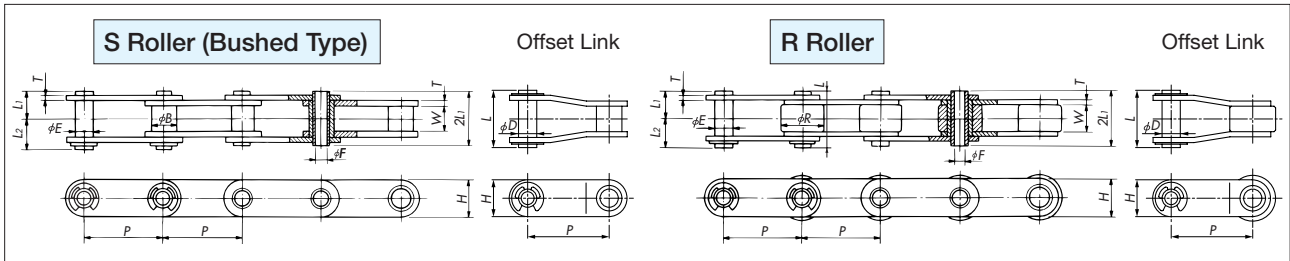
Lambda Hollow Pin Chain



Double Pitch

Lambda Hollow Pin Double Pitch Chain

Base Chain



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Roller Type	Pitch P	Bush Dia. B	Roller Dia. R	Width Between Inner Link Plates W	Plate		Pin				Offset Pin Length L	Approx. Mass (kg/m)		No. of Links per Unit
						Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	L ₁	L ₂		Bushed Type	R Roller	
RF2040-LMC-HP	S • R	25.40	7.92	15.88	7.95	1.5	12.0	5.68	4.00	8.00	9.50	19.1	0.46	0.82	120
RF2050-LMC-HP		31.75	10.16	19.05	9.53	2.0	15.0	7.22	5.12	10.05	11.65	23.4	0.75	1.21	96
RF2060-LMC-HP		38.10	11.91	22.23	12.70	2.4	17.2	8.38	5.99	12.55	14.25	28.7	1.38	2.06	80
RF2080-LMC-HP		50.80	15.88	28.58	15.88	3.2	23.0	11.375	8.02	16.25	17.80	35.7	1.80	2.81	60

Operating Temperature Range: -10°C to 150°C

Sprockets

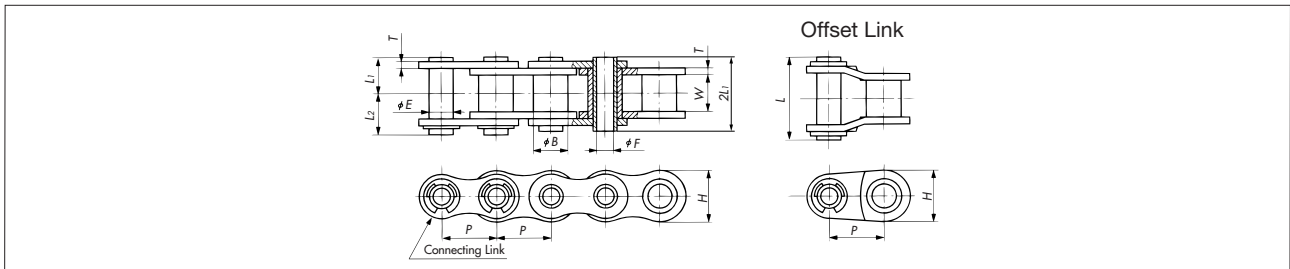
- Double Pitch sprockets can be used. RS standard sprockets can be used provided that the sprockets are of the S roller type and have 30 or more teeth.



RS

Lambda Hollow Pin RS Chain

Base Chain



Base Chain Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Bush Dia. B	Width Between Inner Link Plates W	Plate		Pin				Offset Pin Length L	Approx. Mass(kg/m)	No. of Links per Unit
				Thickness T	Height H	Outer Dia. E	Inner Dia. F (min.)	L ₁	L ₂			
RS40-LMC-HP	12.70	7.92	7.95	1.5	12.0	5.68	4.00	8.00	9.50	19.1	0.53	240
RS50-LMC-HP	15.875	10.16	9.53	2.0	15.0	7.22	5.12	10.05	11.65	23.4	0.86	192
RS60-LMC-HP	19.05	11.91	12.70	2.4	18.1	8.38	5.99	12.55	14.25	28.7	1.27	160
RS80-LMC-HP	25.40	15.88	15.88	3.2	24.1	11.375	8.02	16.25	17.80	35.7	2.15	120

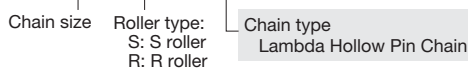
Operating Temperature Range: -10°C to 150°C

Sprockets

- RS standard sprockets can be used.

Chain Numbering

No. **RF2040S-LMC-HP**



No. **RS40-LMC-HP**

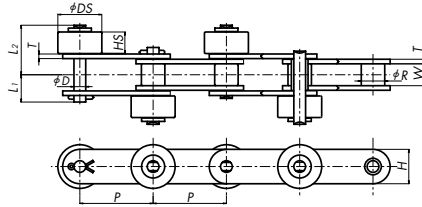


Lambda Outboard Roller Chain

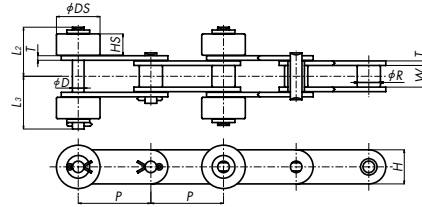
Double Pitch Chain with Outboard Rollers (same for all types)

Chain Without Brake

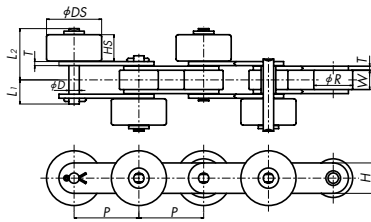
Base Chain S Roller Staggered Installation (Type I)



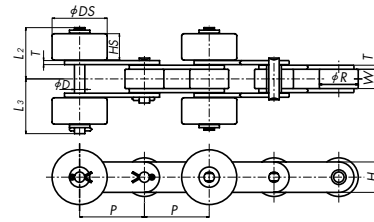
Crosswise Installation (Type II)



Base Chain R Roller Staggered Installation (Type I)

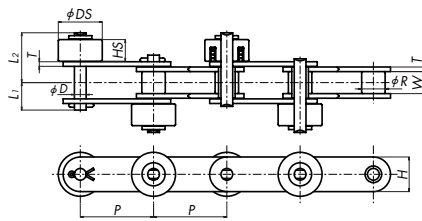


Crosswise Installation (Type II)

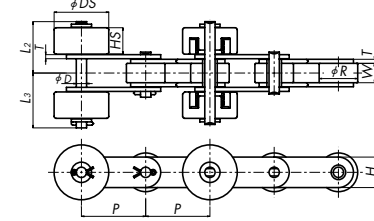


• All connecting links are cotter pin type.

Chain with Brake Staggered Installation (Type I)



Crosswise Installation (Type II)



• All connecting links are cotter pin type.
 • The dimensional drawing is of a conductive type (spring brake). Chains with plastic brakes have the same structure as those with no brakes.
 • Please inform Tsubaki of the brake attachment spacing.

Unit: mm

Tsubaki Chain No.	Roller Type	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate		Pin			Outboard Roller		Approx. Mass (kg/m)		
					Thickness T	Height H	Dia. D	L1	L2	L3	DS	HS	Base Chain Steel Roller	Base Chain Plastic Roller
RF2040S-LMC-SRP	S	25.40	7.92	7.95	1.5	12.0	3.97	9.65	17.9	19.3	15.88	7.8	0.66	—
RF2050S-LMC-SRP		31.75	10.16	9.53	2.0	15.0	5.09	11.9	21.6	23.3	19.05	9.4	1.03	—
RF2060S-LMC-SRP		38.10	11.91	12.70	3.2	17.2	5.96	16.95	29.65	32.05	22.23	12.6	1.80	—
RF2040R-LMC-SRP	R	25.40	15.88	7.95	1.5	12.0	3.97	9.65	23.1	24.5	23.0	13.0	1.24	0.89
RF2050R-LMC-SRP		31.75	19.05	9.53	2.0	15.0	5.09	11.9	25.3	27.0	27.0	13.0	1.70	1.23
RF2060R-LMC-SRP		38.10	22.23	12.70	3.2	17.2	5.96	16.95	29.65	32.05	30.0	12.6	2.64	1.93

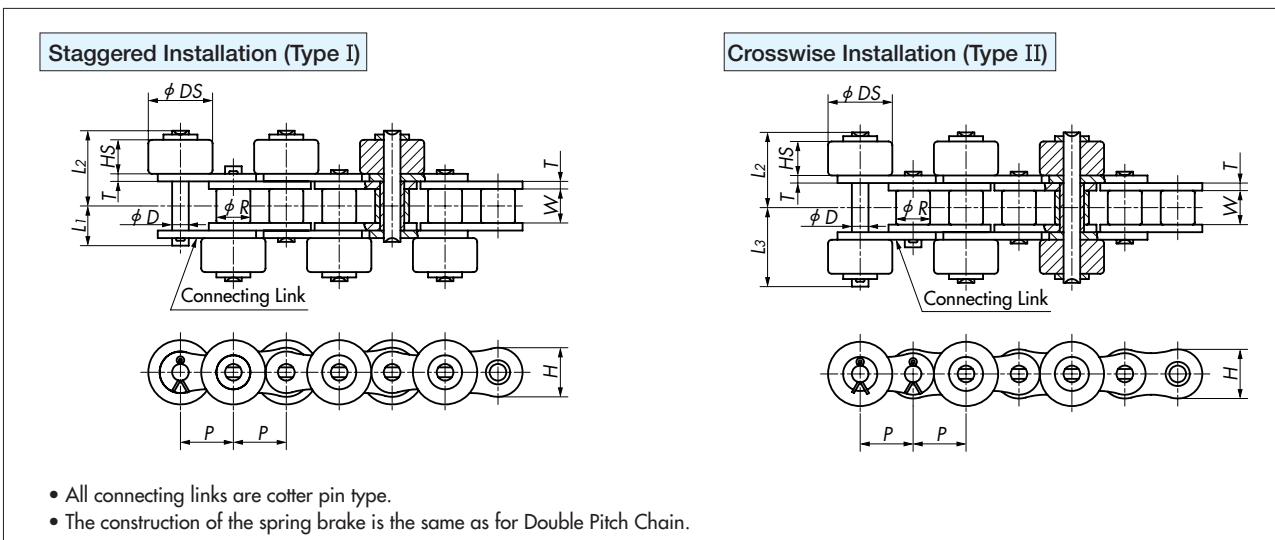
Unit: mm

Tsubaki Chain No.	Roller Type	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Plate		Pin			Outboard Roller		Approx. Mass (kg/m)	
					Thickness T	Height H	Dia. D	L1	L2	L3	DS		HS
RF2040S-LMC-SR	S	25.40	7.92	7.95	1.5	12.0	3.97	9.65	17.9	19.3	15.88	7.8	1.02
RF2050S-LMC-SR		31.75	10.16	9.53	2.0	15.0	5.09	11.9	21.6	23.3	19.05	9.4	1.53
RF2060S-LMC-SR		38.10	11.91	12.70	3.2	17.2	5.96	16.95	29.65	32.05	22.23	12.6	2.56
RF2040R-LMC-SR	R	25.40	15.88	7.95	1.5	12.0	3.97	9.65	23.1	24.5	23.0	13.0	—
RF2050R-LMC-SR		31.75	19.05	9.53	2.0	15.0	5.09	11.9	25.3	27.0	27.0	13.0	—
RF2060R-LMC-SR		38.10	22.23	12.70	3.2	17.2	5.96	16.95	29.65	32.05	30.0	12.6	—

Notes: 1. The mass given in the above table assumes that outboard rollers are installed on every link in a staggered installation (as illustrated above in the diagram on the left) or on every second link in a crosswise installation (as illustrated above in the diagram on the right).
 2. Even if the chain with steel outboard rollers is Lambda Chain, the outboard rollers need to be lubricated.

Lambda Outboard Roller Chain

RS Chain with Outboard Rollers (same for all types)



Chain Without Brake

Unit: mm

Tsubaki Chain No.	Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate		Pin			Outboard Roller		Approx. Mass (kg/m)	
				Thickness <i>T</i>	Height <i>H</i>	Dia. <i>D</i>	<i>L</i> ₁	<i>L</i> ₂	<i>L</i> ₃	<i>DS</i>		<i>HS</i>
RS40-LMC-SRP	12.70	7.92	7.95	1.5	12.0	3.97	9.65	17.9	19.3	15.88	7.8	0.94
RS50-LMC-SRP	15.875	10.16	9.53	2.0	15.0	5.09	11.9	21.6	23.2	19.05	9.4	1.42
RS60-LMC-SRP	19.05	11.91	12.70	2.4	18.1	5.96	15.25	27.95	30.35	22.23	12.6	2.11

Unit: mm

Tsubaki Chain No.	Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate		Pin			Outboard Roller		Approx. Mass (kg/m)	
				Thickness <i>T</i>	Height <i>H</i>	Dia. <i>D</i>	<i>L</i> ₁	<i>L</i> ₂	<i>L</i> ₃	<i>DS</i>		<i>HS</i>
RS40-LMC-SR	12.70	7.92	7.95	1.5	12.0	3.97	9.65	17.9	19.3	15.88	7.8	1.67
RS50-LMC-SR	15.875	10.16	9.53	2.0	15.0	5.09	11.9	21.6	23.2	19.05	9.4	2.42
RS60-LMC-SR	19.05	11.91	12.70	2.4	18.1	5.96	15.25	27.95	30.35	22.23	12.6	3.63

Notes: 1. The mass given in the above table assumes that outboard rollers are installed on every link in a staggered installation (as illustrated above in the diagram on the left) or on every second link in a crosswise installation (as illustrated above in the diagram on the right).
 2. Even if the chain with steel outboard rollers is Lambda Chain, the outboard rollers need to be lubricated.

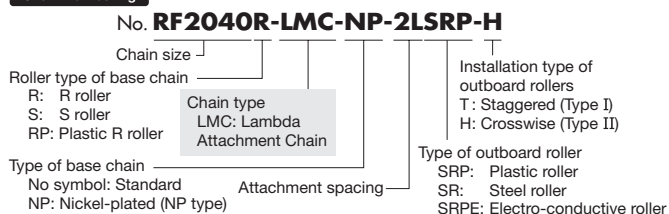
Chain with Brake

Unit: mm

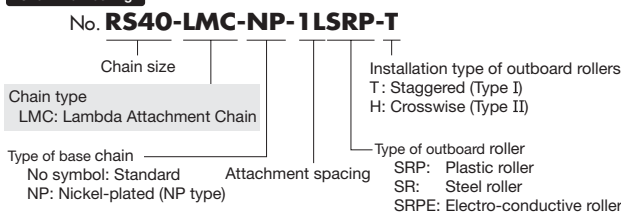
Tsubaki Chain No.	Pitch <i>P</i>	Roller Dia. <i>R</i>	Width Between Inner Link Plates <i>W</i>	Plate		Pin			Outboard Roller		Approx. Mass (kg/m)	
				Thickness <i>T</i>	Height <i>H</i>	Dia. <i>D</i>	<i>L</i> ₁	<i>L</i> ₂	<i>L</i> ₃	<i>DS</i>		<i>HS</i>
RS40-LMC-SRPB	12.70	7.92	7.95	1.5	12.0	3.97	9.65	17.9	19.3	15.88	7.8	0.94
RS50-LMC-SRPB	15.875	10.16	9.53	2.0	15.0	5.09	11.9	21.6	23.2	19.05	9.4	1.42
RS60-LMC-SRPB	19.05	11.91	12.70	2.4	18.1	5.96	15.25	27.95	30.35	22.23	12.6	2.11

Notes: 1. The mass given in the above table assumes that outboard rollers are installed on every link in a staggered installation (as illustrated above in the diagram on the left) or on every second link in a crosswise installation (as illustrated above in the diagram on the right).
 2. If using a conductive roller, the brake is a spring brake with chain number SRPBE.

Chain Numbering

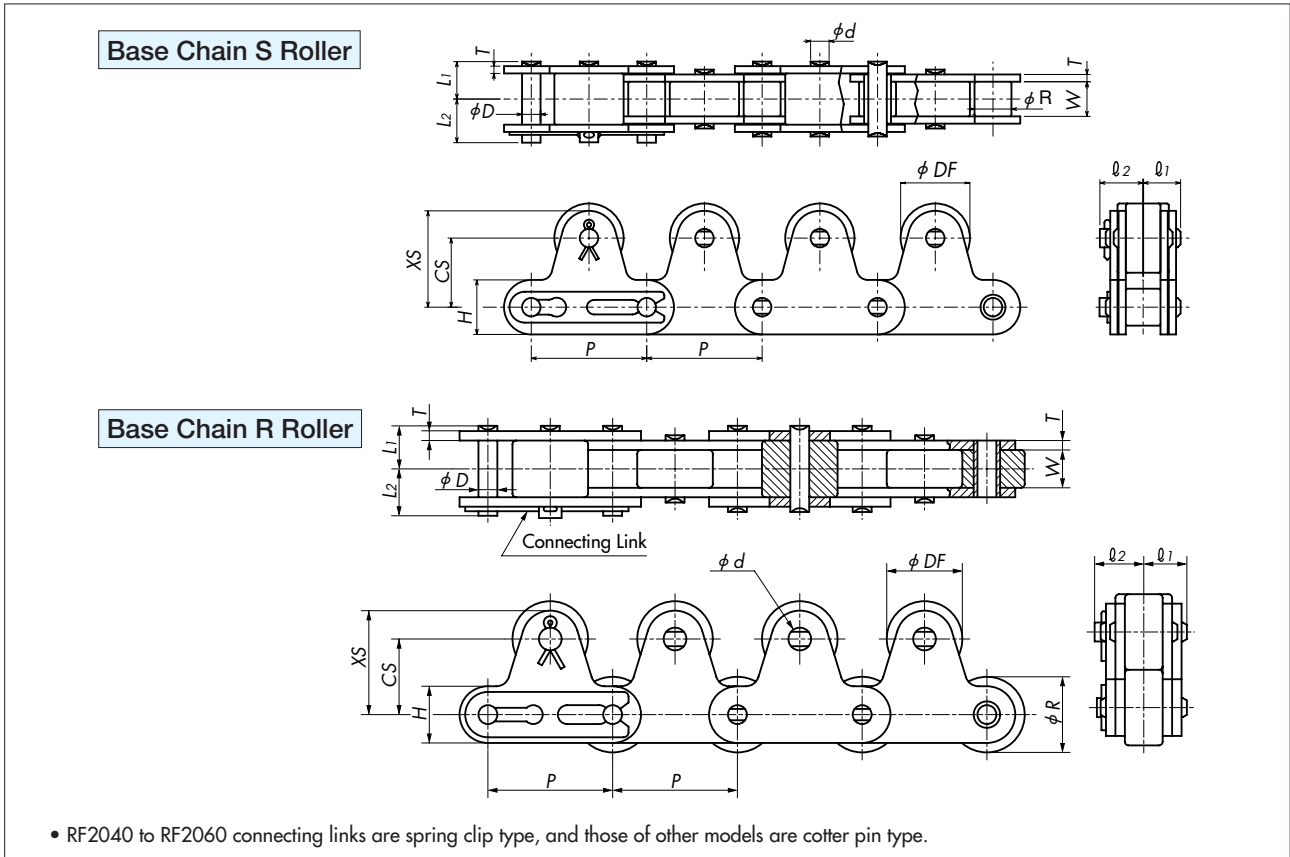


Chain Numbering



Lambda Top Roller Chain

Double Pitch Chain with Top Rollers (same for all types)



Unit: mm

Tsubaki Chain No. Plastic Top Roller Lambda	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin			Plate		Top Roller						Approx. Mass (kg/m)		
			S Roller	R Roller	Dia. D	L ₁	L ₂	Height H	Thickness T	DF	CS	XS	l ₁	l ₂	d	S Roller	R Roller	Plastic R Roller
RF2040S-LMC-TRP	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	15.88	15.0	21.0	8.25	9.65	3.97	0.91	—	—
RF2050S-LMC-TRP	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	19.05	19.0	26.5	10.3	11.9	5.09	1.44	—	—
RF2060S-LMC-TRP	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	22.23	23.0	31.6	14.55	16.95	5.96	2.77	—	—
RF2040R-LMC-TRP	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	15.88	15.0	21.0	8.25	9.65	3.97	—	1.27	0.92
RF2050R-LMC-TRP	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	19.05	19.0	26.5	10.3	11.9	5.09	—	1.90	1.43
RF2060R-LMC-TRP	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	22.23	23.0	31.6	14.55	16.95	5.96	—	3.46	2.75

Unit: mm

Tsubaki Chain No. Steel Top Roller Lambda	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin			Plate		Top Roller						Approx. Mass (kg/m)	
			S Roller	R Roller	Dia. D	L ₁	L ₂	Height H	Thickness T	DF	CS	XS	l ₁	l ₂	d	S Roller	R Roller
RF2040S-LMC-TR	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	15.88	15.0	21.0	8.25	9.65	3.97	1.33	—
RF2050S-LMC-TR	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	19.05	19.0	26.5	10.3	11.9	5.09	2.04	—
RF2060S-LMC-TR	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	22.23	23.0	31.6	14.55	16.95	5.96	3.68	—
RF2040R-LMC-TR	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	15.88	15.0	21.0	8.25	9.65	3.97	—	1.69
RF2050R-LMC-TR	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	19.05	19.0	26.5	10.3	11.9	5.09	—	2.50
RF2060R-LMC-TR	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	22.23	23.0	31.6	14.55	16.95	5.96	—	4.36

Notes: 1. When a top roller is installed on each even-numbered link, the top roller is installed on the inner link unless otherwise specified.
2. Lubrication is required on Steel Top Rollers.

Sprockets for Double Pitch Chain with Top Rollers

If the base chain roller is an R roller, a standard sprocket for Double Pitch Chain (R roller) cannot be used since the tooth end of the sprocket comes into contact with the top roller.

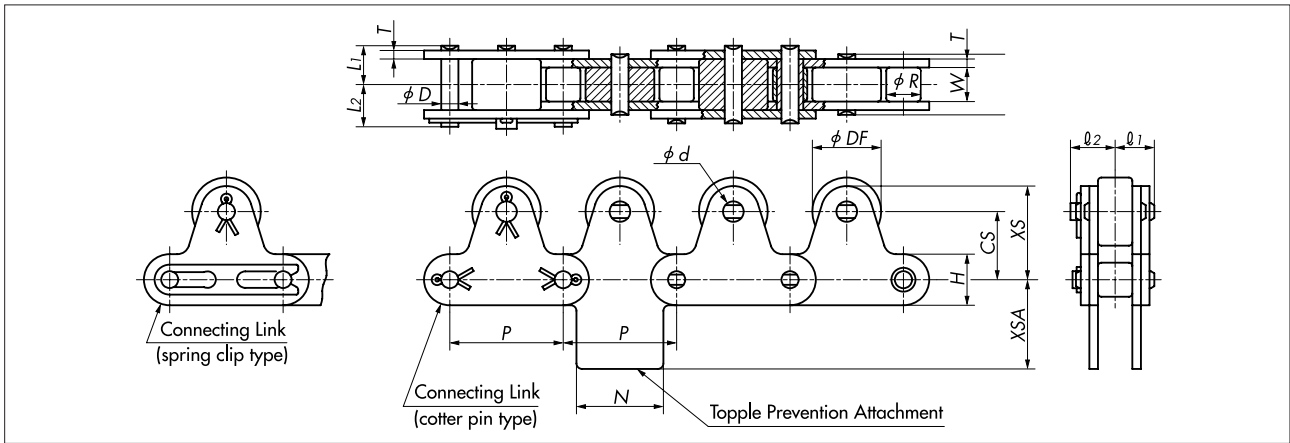
In this case, use the sprocket for Top Roller Chain shown on page 44.

If the base chain roller is an S roller, a standard sprocket for RF Double Pitch Chain (S roller) can be used as is. RS Roller Chain sprockets can only be used if they are the S roller type and when the number of the engaging teeth is 15 or more (number of sprocket teeth: 30).

Lambda Top Roller Chain

Double Pitch Chain with Topple Prevention Attachments

Special attachments are installed on a long conveyor so as to prevent toppling and meandering of the conveyor.



Unit: mm

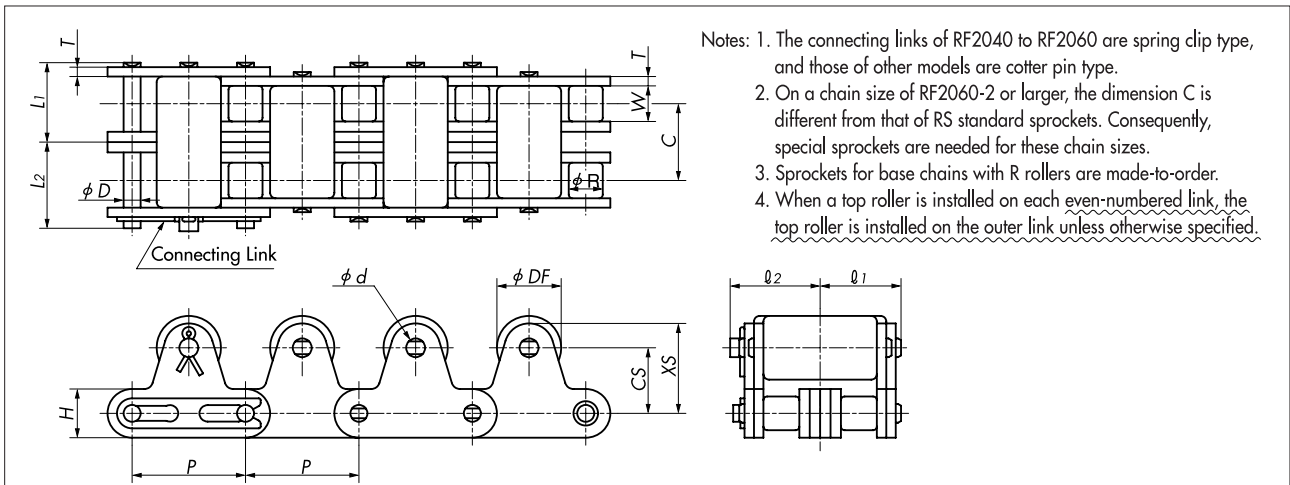
Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin			Plate		Top Roller & Attachment							
			S Roller	R Roller	Dia. D	L1	L2	Height H	Thickness T	DF	CS	XS	theta 1	theta 2	d	N	XSA
RF2040-LMC-TG	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	15.88	15.0	21.0	8.45	9.65	3.97	19.1	12.7
RF2050-LMC-TG	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	19.05	19.0	26.5	10.5	11.9	5.09	23.8	15.9
RF2060-LMC-TG	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	22.23	23.0	31.6	14.75	16.95	5.96	28.6	19.1
RF2080-LMC-TG	50.80	15.88	15.88	28.58	7.94	18.3	20.9	23.0	4.0	28.58	29.0	40.5	18.5	21.3	11.32	38.1	25.4
RF2100-LMC-TG	63.50	19.05	19.05	39.69	9.54	21.8	24.5	28.6	4.8	39.69	35.4	49.7	22.1	27.2	14.52	47.6	31.8

Notes: 1. Sprockets for base chains with R rollers are made-to-order.

2. Please use caution so as to avoid contact between these attachments and the hub of the sprocket. Please specify the installation spacing of the top rollers and attachments (four links or more).

Double Pitch Chain with Double-Strand Top Rollers

This chain allows for a larger conveying capacity than single-strand Top Roller Chain.



Notes: 1. The connecting links of RF2040 to RF2060 are spring clip type, and those of other models are cotter pin type.

2. On a chain size of RF2060-2 or larger, the dimension C is different from that of RS standard sprockets. Consequently, special sprockets are needed for these chain sizes.

3. Sprockets for base chains with R rollers are made-to-order.

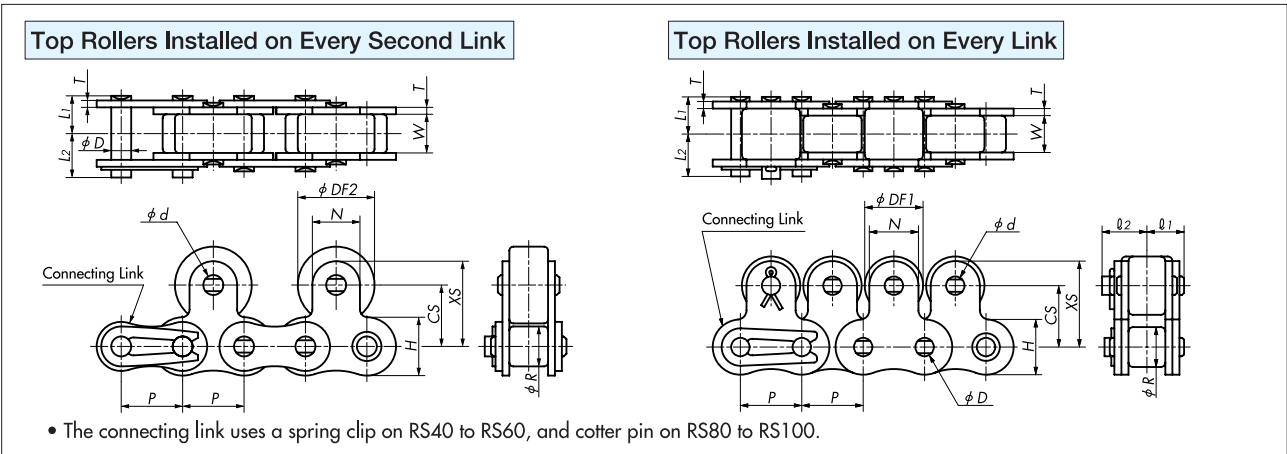
4. When a top roller is installed on each even-numbered link, the top roller is installed on the outer link unless otherwise specified.

Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Transverse Pitch C	Roller Dia. R		Pin			Plate		Top Roller					
				S Roller	R Roller	Dia. D	L1	L2	Height H	Thickness T	DF	CS	XS	theta 1	theta 2	d
RF2040-LMC-2-TR	25.40	7.95	14.4	7.92	15.88	3.97	15.45	17.15	12.0	1.5	15.88	15.0	21.0	15.65	17.25	3.97
RF2050-LMC-2-TR	31.75	9.53	18.1	10.16	19.05	5.09	19.35	21.15	15.0	2.0	19.05	19.0	26.5	19.55	21.95	5.09
RF2060-LMC-2-TR	38.10	12.70	26.2	11.91	22.23	5.96	27.7	29.6	17.2	3.2	22.23	23.0	31.6	27.85	30.85	5.96
RF2080-LMC-2-TR	50.80	15.88	32.6	15.88	28.58	7.94	34.6	37.2	23.0	4.0	28.58	29.0	40.5	34.8	37.5	11.32
RF2100-LMC-2-TR	63.50	19.05	39.1	19.05	39.69	9.54	41.4	44.1	28.6	4.8	39.69	35.4	49.7	41.65	46.75	14.52

Lambda Top Roller Chain

RS Chain with Top Rollers (same for all types)



Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Base Chain Roller Dia. R	Pin			Plate		Top Roller							Approx. Mass (kg/m)		
				Dia. D	L ₁	L ₂	Height H	Thickness T	DF1	DF2	CS	N	XS	φ ₁	φ ₂	d	On Every Link	On Every 2nd Link
RS40-LMC-TRP	12.70	7.95	7.92	3.97	8.25	9.95	12.0	1.5	11.0	15.88	12.7	9.5	17.45	8.25	9.65	3.97	0.92	0.85
RS50-LMC-TRP	15.875	9.53	10.16	5.09	10.3	12.0	15.0	2.0	15.0	19.05	15.9	12.7	22.25	10.3	11.9	5.09	1.56	1.38
RS60-LMC-TRP	19.05	12.70	11.91	5.96	12.85	14.75	18.1	2.4	18.0	22.23	18.3	15.9	26.25	12.85	15.25	5.96	2.30	2.03

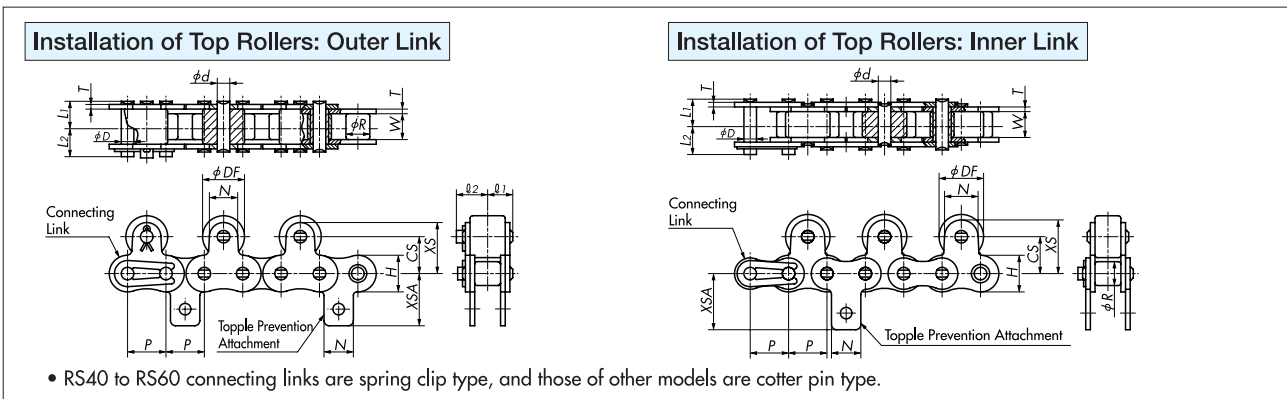
Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Base Chain Roller Dia. R	Pin			Plate		Top Roller							Approx. Mass (kg/m)		
				Dia. D	L ₁	L ₂	Height H	Thickness T	DF1	DF2	CS	N	XS	φ ₁	φ ₂	d	On Every Link	On Every 2nd Link
RS40-LMC-TR	12.70	7.95	7.92	3.97	8.25	9.95	12.0	1.5	11.0	15.88	12.7	9.5	17.45	8.25	9.65	3.97	1.83	1.41
RS50-LMC-TR	15.875	9.53	10.16	5.09	10.3	12.0	15.0	2.0	15.0	19.05	15.9	12.7	22.25	10.3	11.9	5.09	2.39	2.18
RS60-LMC-TR	19.05	12.70	11.91	5.96	12.85	14.75	18.1	2.4	18.0	22.23	18.3	15.9	26.25	12.85	15.25	5.96	3.60	3.18

Notes: 1. "On Every Link" and "On Every 2nd Link" described in the "Approx. Mass" column refer to the spacing for the installation of the top rollers.
 2. When a top roller is installed on each even-numbered link, the top roller is installed on the inner link unless otherwise specified.
 3. Even if the chain with steel top rollers is Lambda Chain, the top rollers need to be lubricated. 4. Lubrication is required on Steel Top Rollers.

RS Chain with Topple Prevention Attachments

Special attachments are installed on a long conveyor so as to prevent toppling and meandering of the conveyor.



Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R	Pin			Plate		Top Roller & Attachment							
				Dia. D	L ₁	L ₂	Height H	Thickness T	DF	CS	N	XS	φ ₁	φ ₂	d	XSA
RS40-LMC-TG	12.70	7.95	7.92	3.97	8.25	9.95	12.0	1.5	15.88	12.7	9.5	17.45	8.25	9.65	3.97	17.4
RS50-LMC-TG	15.875	9.53	10.16	5.09	10.3	12.0	15.0	2.0	19.05	15.9	12.7	22.25	10.3	11.9	5.09	23.05
RS60-LMC-TG	19.05	12.70	11.91	5.96	12.85	14.75	18.1	2.4	22.23	18.3	15.9	26.25	12.85	15.25	5.96	26.85
RS80-LMC-TG	25.40	15.88	15.88	7.94	16.25	19.25	24.1	3.2	28.58	24.6	19.1	34.15	16.25	19.25	7.94	35.45
RS100-LMC-TG	31.75	19.05	19.05	9.54	19.75	22.85	30.1	4.0	39.69	31.8	25.4	44.5	19.75	22.85	9.73	44.0

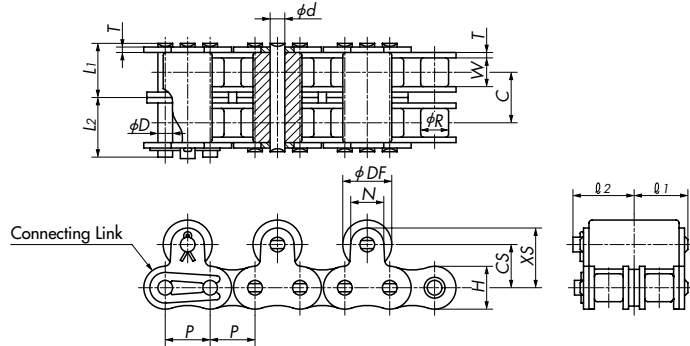
Notes: 1. Please specify whether to install the top rollers on the inner or outer link.
 2. Please use caution so as to avoid contact between these attachments and the hub of the sprocket. Please specify the installation spacing of the top rollers and attachments (four links or more).
 3. Lubrication is required on Steel Top Rollers.

Lambda Top Roller Chain

RS Chain with Double-Strand Top Rollers

This chain allows a larger conveying capacity than single-strand Top Roller Chain.

Installation of Top Rollers: Outer Link



- RS40-2 to RS60-2 connecting links are spring clip type, and those of other models are cotter pin type.

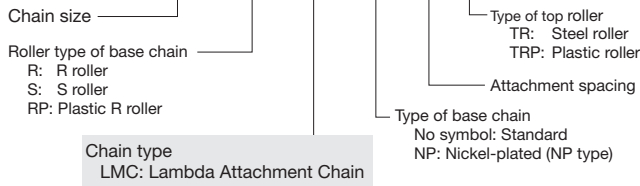
Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R	Transverse Pitch C	Pin			Plate		Top Roller						
					Dia. D	L1	L2	Height H	Thickness T	DF	CS	XS	N	phi 1	phi 2	d
RS40-LMC-2-TR	12.70	7.95	7.92	14.4	3.97	15.45	17.15	12.0	1.5	15.88	12.7	17.45	9.5	15.45	16.95	3.97
RS50-LMC-2-TR	15.875	9.53	10.16	18.1	5.09	19.35	21.15	15.0	2.0	19.05	15.9	22.25	12.7	19.35	21.15	5.09
RS60-LMC-2-TR	19.05	12.70	11.91	22.8	5.96	24.25	26.25	18.1	2.4	22.23	18.3	26.25	15.9	24.25	26.75	5.96
RS80-LMC-2-TR	25.40	15.88	15.88	29.3	7.94	30.9	33.9	24.1	3.2	28.58	24.6	34.15	19.1	30.9	33.9	7.94
RS100-LMC-2-TR	31.75	19.05	19.05	35.8	9.54	37.7	40.8	30.1	4.0	39.69	31.8	44.5	25.4	37.7	40.8	9.54

1. Dimension DF changes when top rollers are installed on every link.
2. RS standard sprockets (double-strand) can be used.
3. When a top roller is installed on each even-numbered link, the top roller is installed on the outer link unless otherwise specified.
4. Lubrication is required on Steel Top Rollers.

Chain Numbering

No. **RF2040RP-LMC-NP-1LTRP**

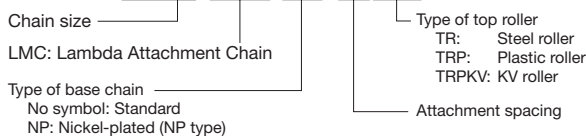


Chain with Topple Prevention Attachments

No. **RF2040R-1LTR-4LTG**



No. **RS40-LMC-NP-1LTRP**



Chain with Topple Prevention Attachments

No. **RS40-2LTRP-4LTG**



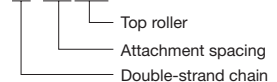
Chain with Double-Strand Top Rollers

No. **RF2040R-2-1LTR**



Chain with Double-Strand Top Rollers

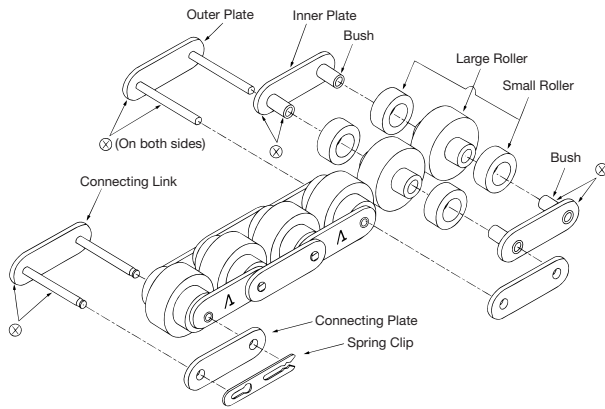
No. **RS40-2-2LTR**



Lambda Double Plus Chain

Construction

■ Lambda Type (Lube Free)



Parts marked with ⊗ are press fit.

Other parts are slip fit.

- Uses a special oil-impregnated bush.
- The bush is press-fitted into the inner plate.
- The pin is treated with a special nickel plating.
- The inner and outer plates are treated with a black oxide finish.

Chain Numbering

No. **RF2040VRPA-LMC-SC**

Chain size _____ With Snap Cover
 Chain type _____
 VRP: Double Plus plastic roller
 VR: Double Plus steel roller
 Chain type
 LMC: Lambda Attachment Chain
 Type of engineering plastic roller _____
 A, B, C, D
 UA, UB (only for RF2030)
 No symbol for steel roller

Combination of Base Chain and Roller

The same combination is also allowed for Double Plus Chain with Snap Cover.

Base Chain Type, Material, Application	Roller Series	Engineering Plastic Roller				Urethane Lining*1		Steel Roller
		VRPA Standard	VRPB High Friction	VRPC Electro-conductive	VRPD Electroconductive, High Friction	VRPUA Standard	VRPUB High Friction	VR
Lambda (Lube Free) (Base chain is the same as the standard type) Applications where lubrication is not permitted or not preferable		○	○	○	○	○	○	○

*1 Urethane lining is available only for RF2030VRP.

- Slight magnetism occurs due to plastic deformation during parts processing and assembly. For an application requiring complete non-magnetism, contact a Tsubaki representative for details.

Roller Classification by Use

Type	Roller		Classification	Lubrication	Environment
	Large Roller (Roller Color)	Small Roller (Roller Color)			
VRPA Standard	Standard (Brown)	Standard (Gray)	10 dB quieter than standard plastic outboard roller chain	No lubrication required. For long-term use, follow the Guidelines for Use on page 151 for Small Size Conveyor Chains (Catalog No. M003). Lambda type requires no lubrication.	Even if the base chain is HCP or SS type, the chain cannot be used in a place where it is exposed to water due to the use of engineering plastic rollers.
VRPB High Friction		High Friction (Off-White)	Rapid start-up Low noise		
VRPC Electroconductive	Conductive (Black)	Standard (Gray)	Volume resistivity $10^6 \Omega \cdot \text{cm}$		
VRPD Electroconductive, High Friction		High Friction (Off-White)	Volume resistivity $10^6 \Omega \cdot \text{cm}$ Rapid start-up Low noise		
VRPUA Standard	Urethane Lining (Off-White)	Standard (Gray)	Direct placement on conveyor		
VRPUB High Friction		High Friction (Off-White)	Direct placement on conveyor Rapid start-up Low noise		
VR	Steel	Steel	High load	Required	Not for use in humid environments.



Lambda Double Plus Chain

Base Chain

• RF2030VRP, RF2080VRP connecting link is a cotter pin type.

Unit: mm

Tsubaki Chain No.		Pitch P	Roller		Width		Plate			Pin			Approx. Mass kg/m		No. of Links per Unit
Plastic Roller	Steel Roller		R	R1	W1	W2	t	T	H	D	L1	L2	Plastic Roller	Steel Roller	
RF2030VRP-LMC	RF2030VR-LMC	19.05	11.91	18.3	8.0	4.0	1.5	1.5	9.0	3.00	12.05	13.25	0.6	1.4	160
RF2040VRP-LMC	RF2040VR-LMC	25.40	15.88	24.6	10.3	5.7	2.0	1.5	12.0	3.97	15.8	17.0	1.0	2.5	120
RF2050VRP-LMC	RF2050VR-LMC	31.75	19.05	30.6	13.0	7.1	2.4	2.0	15.0	5.09	19.55	21.25	1.4	3.7	96
RF2060VRP-LMC	RF2060VR-LMC	38.10	22.23	36.6	15.5	8.5	3.2	3.2	17.2	5.96	24.5	26.4	2.0	5.6	80
RF2080VRP-LMC	RF2080VR-LMC	50.80	28.58	48.0	20.0	15.0	4.0	4.0	23.0	7.94	35.8	38.0	3.9	—	60

RF2030VRP-LMC and RF2030VR-LMC pins are thinner than those of standard chains.

Base Chain (with Snap Cover)

- RF2080VRP connecting link is a cotter pin type.
- The base chain is for dedicated use with snap covers.
- Snap covers cannot be attached onto the Double Plus Chain shown above.
- An offset link with a snap cover is not available.

The snap cover prevents small parts from falling into the frame.

Unit: mm

Tsubaki Chain No.		Pitch P	Roller		Width		Plate			Pin			Approx. Mass kg/m		No. of Links per Unit
Engineering Plastic Roller	Steel Roller		R	R1	W1	W2	t	T	H	D	L1	L2	Plastic Roller	Steel Roller	
RF2030VRP-LMC-SC	RF2030VR-LMC-SC	19.05	11.91	18.3	8.0	4.0	1.5	1.5	9.0	3.00	12.05	13.25	0.6	1.4	160
RF2040VRP-LMC-SC	RF2040VR-LMC-SC	25.40	15.88	24.6	10.3	5.7	2.0	1.5	12.0	3.97	15.8	17.0	1.0	2.5	120
RF2050VRP-LMC-SC	RF2050VR-LMC-SC	31.75	19.05	30.6	13.0	7.1	2.4	2.0	15.0	5.09	19.55	21.25	1.4	3.7	96
RF2060VRP-LMC-SC	RF2060VR-LMC-SC	38.10	22.23	36.6	15.5	8.5	3.2	3.2	17.2	5.96	24.5	26.4	2.0	5.2	80
RF2080VRP-LMC-SC	RF2080VR-LMC-SC	50.80	28.58	48.0	20.0	15.0	4.0	4.0	23.0	7.94	35.8	38.0	3.9	—	60

RF2030VRP-LMC and RF2030VR-LMC pins are thinner than those of standard chains.

The snap cover is made of engineering plastic and is light gray in color.

Max. Allowable Tension

Max. Allowable Tension --- Engineering Plastic Roller Series

Tsubaki Chain No.	Roller Type Base Chain Type	Max. Allowable Tension kN {kgf}		Operating Temperature Range °C
		A, C, UA* Type	B, D, UB* Type	
RF2030VRP-LMC RF2030VRP-LMC-SC	Lambda	0.55 { 56}	0.27 { 28}	-10°C to 60°C
RF2040VRP-LMC RF2040VRP-LMC-SC	Lambda	0.88 { 90}	0.44 { 45}	
RF2050VRP-LMC RF2050VRP-LMC-SC	Lambda	1.37 { 140}	0.69 { 70}	
RF2060VRP-LMC RF2060VRP-LMC-SC	Lambda	2.06 { 210}	1.03 { 105}	
RF2080VRP-LMC RF2080VRP-LMC-SC	Lambda	5.30 { 540}	2.65 { 270}	

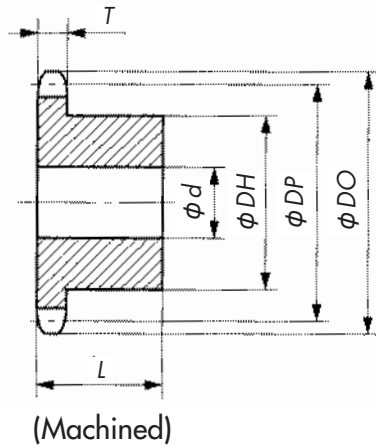
Max. Allowable Tension --- Steel Roller Series

Tsubaki Chain No.	Max. Allowable Tension kN {kgf}	Operating Temperature Range °C
RF2030VR-LMC	0.98 {100}	-10°C to 150°C For use at temperatures of 60°C and above, lubricate chain with high-temperature lubricant.
RF2040VR-LMC	1.57 {160}	
RF2050VR-LMC	2.45 {250}	
RF2060VR-LMC	3.73 {380}	
RF2080VR-LMC	5.30 {540}	

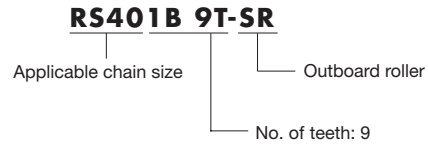
* Urethane lining is available only for RF2030VRP-LMC.

Special Sprockets

Sprockets for RS Chain with Outboard Rollers



Sprocket Numbering



Unit: mm

Tsubaki Sprocket No.	No. of Teeth	Pitch Dia. D_p	Outer Dia. D_o	Face Width T	Bore Dia. d		Hub Dia. D_H	Total Width L	Approx. Mass (kg)	Material (Specification)	
					Pilot Hole	Max.					
RS401B 09T-SR	9	37.13	42	7.3	9.5	10	20	22	0.08	Carbon Steel (machined)	
RS401B 10T-SR	10	41.10	46			11	24		0.10		
RS401B 11T-SR	11	45.08	51			14	28		0.14		
RS401B 12T-SR	12	49.07	53			16	32		0.17		
RS401B 13T-SR	13	53.07	58			20	36		0.22		
RS401B 14T-SR	14	57.07	63			22	40		0.27		
RS401B 15T-SR	15	61.08	67			26	44		0.32		
RS401B 16T-SR	16	65.10	71			28	48		0.38		
RS401B 17T-SR	17	69.12	75			32	52		0.44		
RS401B 18T-SR	18	73.14	78			35	56		0.50		
RS401B 19T-SR	19	77.16	83			38	60		0.57		
RS401B 20T-SR	20	81.18	88		42	64	0.72				
RS401B 21T-SR	21	85.21	92		44	68	0.80				
RS401B 22T-SR	22	89.24	96		46	72	0.90				
RS401B 23T-SR	23	93.27	98		50	76	0.98				
RS501B 09T-SR	9	46.42	53		8.9	9.5	12	26	25		0.15
RS501B 10T-SR	10	51.37	58				16	31			0.21
RS501B 11T-SR	11	56.35	63				20	36			0.25
RS501B 12T-SR	12	61.34	68				23	41			0.32
RS501B 13T-SR	13	66.34	73				27	46			0.41
RS501B 14T-SR	14	71.34	78			31	51	0.51			
RS501B 15T-SR	15	76.35	83			35	56	0.61			
RS501B 16T-SR	16	81.37	88			38	61	0.71			
RS501B 17T-SR	17	86.39	93	43		66	0.82				
RS501B 18T-SR	18	91.42	98	46		71	0.98				
RS601B 09T-SR	9	55.70	63	11.9	9.5	16	32	32	0.30		
RS601B 10T-SR	10	61.65	68		20	37	0.37				
RS601B 11T-SR	11	67.62	76		26	44	0.52				
RS601B 12T-SR	12	73.60	82		30	50	0.68				
RS601B 13T-SR	13	79.60	88		35	56	0.80				
RS801B 09T-SR	9	74.26	85	15	15.9	26	44	40	0.65		
RS801B 13T-SR	13	106.14	118		19	50	1.88				
RS801B 15T-SR	15	122.17	135		62	92	2.57				
RS1001B 10T-SR	10	102.75	117	18	18	40	62	50	1.82		
RS1001B 11T-SR	11	112.70	127		46	72	2.21				
RS1001B 12T-SR	12	122.67	138		52	81	2.73				

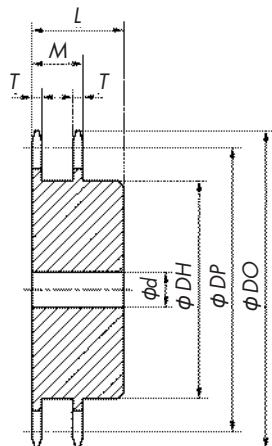
- Notes: 1. The tooth tip is hardened on all models.
 2. Delivery: Please contact a Tsubaki representative.
 3. Models other than those listed above can be used with RS standard sprockets.

Sprockets for RF Outboard Roller Chain

RF Double Pitch sprockets can be used for RF outboard roller chains.

Special Sprockets

Sprockets for Double Plus Chain



Sprocket Numbering

RF2030VRP-10T-SC

Applicable chain size

Chain with snap cover

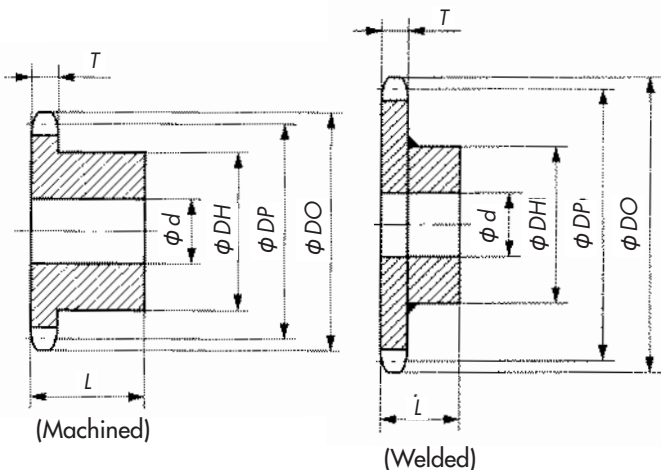
No. of teeth: 10

Unit: mm

Tsubaki Sprocket No.	No. of Sprocket Teeth	Pitch Dia. D_p	Outer Dia. D_o	Face Width T	Total Face Width M	Bore Dia. d		Hub Dia. D_H	Total Width L	Approx. Mass (kg)	Material (Specification)
						Pilot Hole	Max.				
RF2030VRP-10T-SC	10	61.65	63	3.0	15.3	12.7	20	37	25	0.2	Carbon Steel (machined)
RF2040VRP-10T-SC	10	82.20	85	4.0	20.4	15.9	32	52	40	0.8	
RF2050VRP-10T-SC	10	102.75	107	5.0	25.5	15.9	45	66	45	1.5	
RF2060VRP-10T-SC	10	123.30	128	6.0	30.5	19	55	81	50	2.5	
RF2080VRP-10T-SC	10	164.39	172	12.0	47.5	23	72	110	67	7.0	

- Notes: 1. The tooth tip is not hardened on any model.
 2. Delivery: Please contact a Tsubaki representative.
 3. Same as for Double Plus Chain without snap cover.
 4. Stainless steel specifications have the same dimensions.

Sprockets for Double Pitch Chain with Top Rollers



Sprocket Numbering

RF2040R 1200T-TR

Applicable chain size

Top roller

No. of engaging teeth (1200 T: 12)

Unit: mm

Tsubaki Sprocket No.	Roller Type	No. of Engaging Teeth	Pitch Dia. D_p	Outer Dia. D_o	Face Width T	Bore Dia. d		Hub Dia. D_H	Total Width L	Approx. Mass (kg)	Material (Specification)		
						Pilot Hole	Max.						
RF2040R 1100T-TR	R Roller	11	90.16	97	7.3	12.7	42	63	25	0.8	Carbon Steel (machined)		
RF2040R 1200T-TR		12	98.14	105									
RF2040R 1300T-TR		13	106.14	114									
RF2050R 1100T-TR		11	112.70	124	8.9	15.9	48	73	28	1.3			
RF2050R 1200T-TR		12	122.67	134									
RF2050R 1300T-TR		13	132.67	144									
RF2060R 1100T-TR		11	135.24	150	11.9	18	55	83	45	2.6			
RF2060R 1200T-TR		12	147.21	162									
RF2060R 1300T-TR		13	159.20	175									
RF2080R 1100T-TR		11	180.31	109	15	28	75	107	45	4.8			
RF2080R 1200T-TR		12	196.28	216									
RF2080R 1300T-TR		13	212.27	232									
RF2100R 1100T-TR			11	225.39	244	18	33	80	117	56		7.9	Rolled Steel (welded)

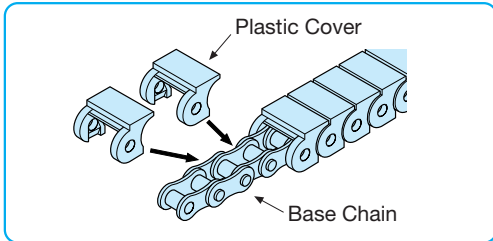
- Notes: 1. The tooth tip is not hardened on any model.
 2. Delivery: Please contact a Tsubaki representative.
 3. RS standard sprockets can be used with RF Double Pitch Chain (S roller) or when the number of engaging teeth of the sprocket is 15 or more (sprocket teeth: 30).

Lambda Snap Cover Chain

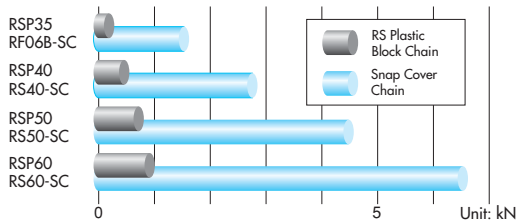
Features

- Snap covers can be attached to steel Lambda Chain for direct loading and conveyance.
- Higher maximum allowable load than RS plastic block chain (RS60-SC approx. seven times higher than RSP60 chain). Ideal for long, heavy-load conveyors.
- Plastic covers provide safety for both conveyed goods and people.




Structure



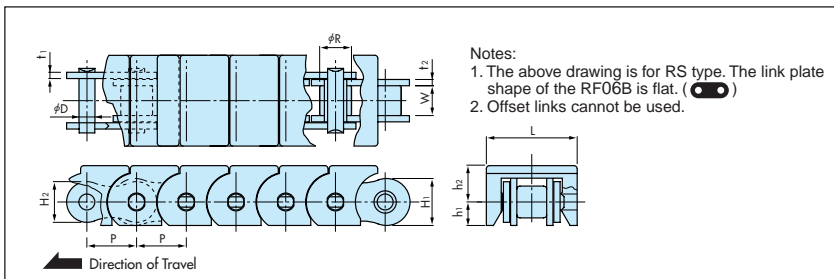
Allowable Load Comparison with RS Plastic Block Chain*



* No comparison of RS80-SC and RS100-SC chains as there are no corresponding RS plastic block chains.

Tsubaki Chain No.	Base Chain Type	Plastic Cover
RF06B	Lambda (lube-free)	Standard  Material: Polyacetal (white)  Material: Polyacetal (light blue) *
RS40		
RS50		
RS60		
RS80		
RS100	Electroconductive  Material: Electroconductive polyacetal (black) Used in applications where dust build-up from static, electrical noise and sparks must be avoided (volume specific resistance $1 \times 10^6 \Omega \cdot \text{cm}$)	

Notes:
 Various surface-treated chains are available. Consult a Tsubaki representative for details.
 * Cannot be used with electroconductive plastic covers as it will impede electroconductivity.



Special Connecting Links

A special connecting link makes it possible to hold the detachable plate by attaching the plastic snap cover. Note that standard connecting links with cotters and spring clips for standard roller chains cannot be used.

Unit: mm

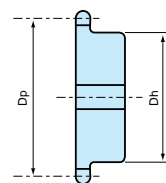
Tsubaki Chain No.	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Pin Diameter D	Plate				Plastic Cover					
					Thickness t1	Thickness t2	Height H1	Height H2	Height h1	Height h2	Width L	Max. Allowable Load kN {kgf}	Approx. Mass (kg/m)	No. of Links per Unit
RF06B-LMC-SC	9.525	6.35	5.72	3.28	1.0	1.27	8.2	8.2	4.2	7.6	17.5	1.47 { 150}	0.55	320
RS40-LMC-SC	12.70	7.92	7.95	3.97	1.5	1.5	12.0	10.4	6.2	9.3	23.5	2.65 { 270}	0.8	240
RS50-LMC-SC	15.875	10.16	9.53	5.09	2.0	2.0	15.0	13.0	7.7	11.8	29.0	4.31 { 440}	1.3	192
RS60-LMC-SC	19.05	11.91	12.70	5.96	2.4	2.4	18.1	15.6	8.5	13.7	35.0	6.28 { 640}	1.9	160
RS80-LMC-SC	25.40	15.88	15.88	7.94	3.2	3.2	24.1	20.8	11.5	18.0	42.5	10.7 {1090}	2.9	120
RS100-LMC-SC	31.75	19.05	19.05	9.54	4.0	4.0	30.1	26.0	14.7	21.3	49.5	17.1 {1740}	4.4	96

Operating Temperature Range: -10°C to 80°C

Maximum Allowable Speed: 60 m/min

Sprockets

- Sprockets must have at least 13 teeth.
- RF06B chains are BS (ISO B) DIN standard chains, which require 06B sprockets.
- Standard ANSI sprockets can be used for chains RS40 to RS100. However, note that, the maximum diameter of the sprocket hub for a given number of teeth, as shown in the table below, must be kept to prevent interference between the bottom plate of the engineering plastic cover and the sprocket hub.



Max. Hub Diameter $D_h \leq D_p - 2S$

Maximum Hub Diameter (Dh)

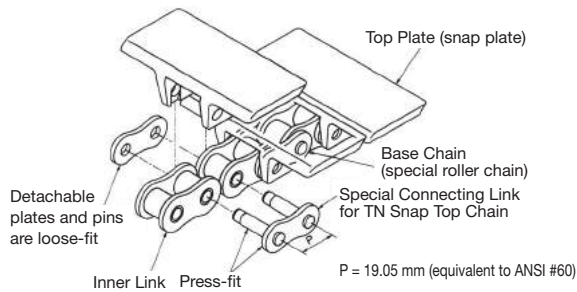
Unit: mm

Tsubaki Sprocket No.	No. of Teeth	13	14	15	16	17	18	19	20	21	22	23
RS40		—	41	45	49	53	—	61	65	69	73	—
RS50		47										

Unit: mm

	RS 06B	RS 40	RS 50	RS 60	RS 80	RS 100
2S	14	16	19	22	29	37

Lambda TN Snap Top Chain



Features

- Suitable for heavy loads and long conveyor applications because of high allowable chain load.
- Replacing top plates is simple and easy.
- Base chain is Nickel-plated Lambda Chain or NEP-plated Lambda Chain for operating environments where corrosion could pose a problem.

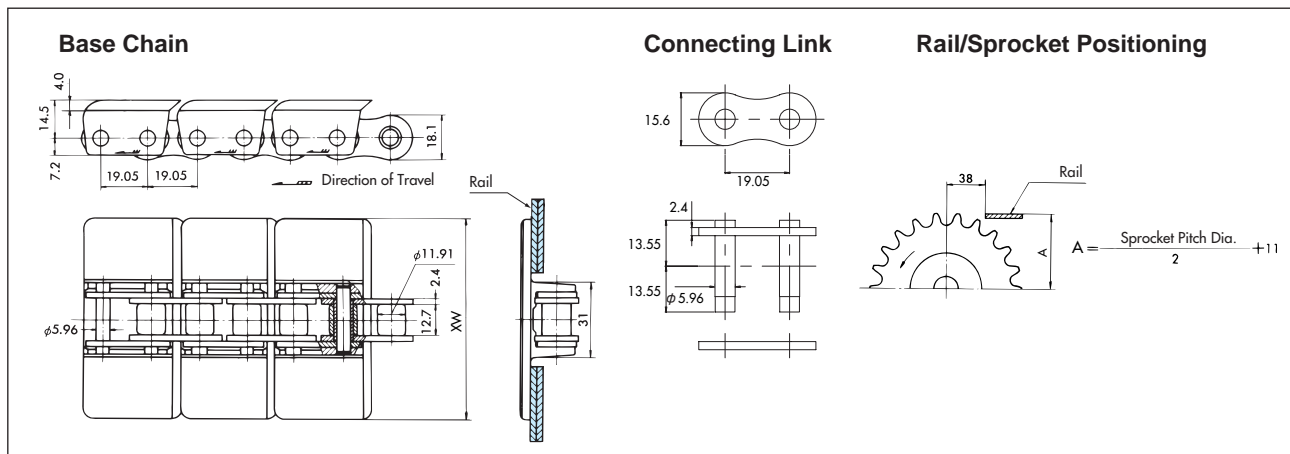
Chain Construction

TN Top Chains consist of snap top plates and ANSI #60 base chain. The “legs” of the top plates are used to snap the plates onto the outer links of the base chain and hold down the detachable plate and prevent it from coming loose. Connecting link pins have a shouldered end shape to keep a right inner width of the connecting link.

Top plate: The top plate is a cream-colored plastic.

Base chain: Equivalent to RS60-LMC (pin ends are different from standard drive chains), with the connecting link special to the TN series.

Connecting link: Does not use a cotter pin or clip. A connecting plate is attached to the top plate holes and press fitted.



Tsubaki Chain No.	Top Plate Width XW (mm)	Approx. Mass (kg/m)	Top Plate Material	Max. Allowable Load (kN {kgf})	Operating Temperature Range (°C)	Max. Allowable Speed (m/min)
TN826-LMC-NP	82.6	2.1	Polyacetal	6.28 {640}	-10 to 80	60
TN1016-LMC-NP	101.6	2.2				
TN1143-LMC-NP	114.3	2.3				
TN1270-LMC-NP	127.0	2.4				
TN1905-LMC-NP	190.5	2.8				

■ Sprockets

Standard ANSI #60 sprockets can be used. A 12-tooth sprocket is recommended as the minimum to prevent any interference between chain and sprocket.

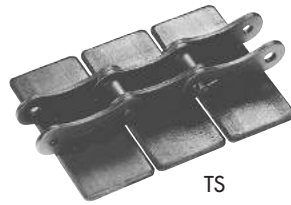
⚠ Caution

Be sure to specify chain length using the number of links in the base chain. TN top plates are attached only to the outer links of the base chain, which means that the number of links in the chain is twice the number of top plates. Also, note that the number of links for standard base chain length is 160; in other words, with a chain pitch of 19.05 mm, standard length is 3,048 mm.

Lambda TS/TSA Top Chain



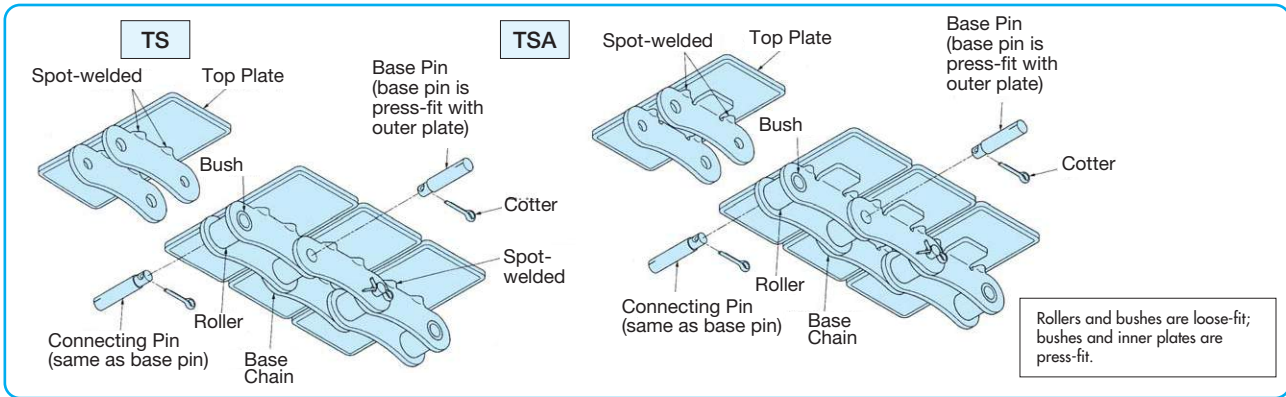
TS/TSA



TS

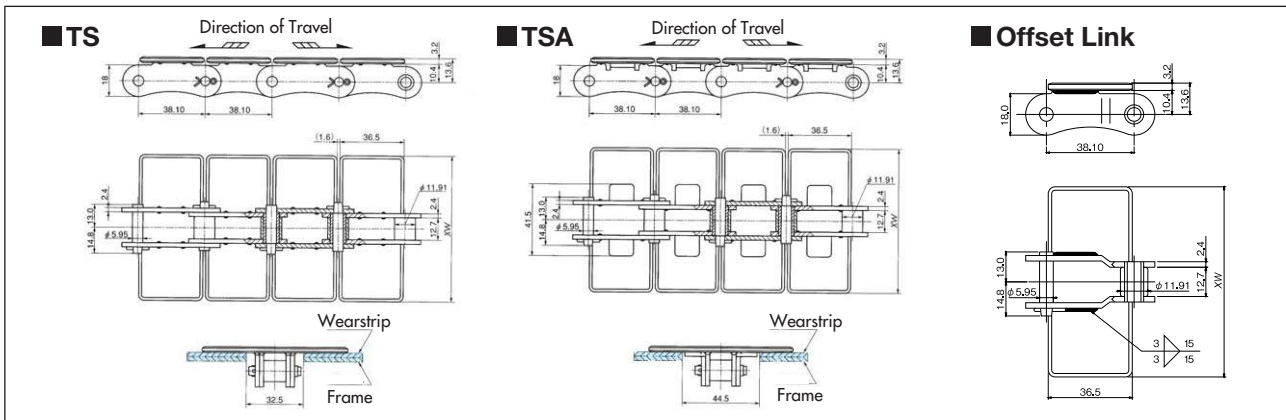


TSA



Features

- SUS 430 stainless steel (18-Cr) top plates attached to ANSI Nickel-plated Lambda double pitch chain. Standard sprockets for ANSI double pitch chains can be used.
- Available in type TS for single-strand applications and in type TSA for multi-strand applications.
- Available in a wide variety of special finishes to suit various applications and work environments. Includes hard chromium plated, buffed top plates, and heat-treated top plates for improved wear resistance.



TS

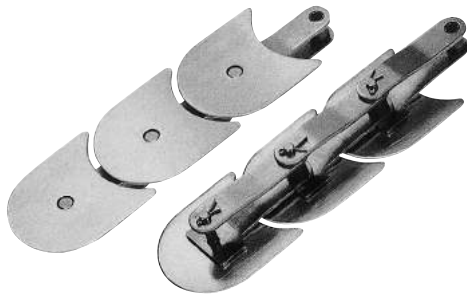
Tsubaki Chain No.	Top Plate Width XW (mm)	Approx. Mass (kg/m)	Max. Allowable Load (kN (kgf))	Operating Temperature Range (°C)	Max. Allowable Speed (m/min)
TS550-LMC-NP	55.0	2.5	2.94 {300}	-10 to 150	60
TS635-LMC-NP	63.5	2.7			
TS762-LMC-NP	76.2	3.0			
TS826-LMC-NP	82.6	3.2			
TS950-LMC-NP	95.0	3.5			
TS1016-LMC-NP	101.6	3.7			
TS1100-LMC-NP	110.0	3.9			
TS1143-LMC-NP	114.3	4.0			
TS1270-LMC-NP	127.0	4.3			
TS1524-LMC-NP	152.4	4.9			
TS1905-LMC-NP	190.5	5.8			

TSA

Tsubaki Chain No.	Top Plate Width XW (mm)	Approx. Mass (kg/m)	Max. Allowable Load (kN (kgf))	Operating Temperature Range (°C)	Max. Allowable Speed (m/min)
TSA550-LMC-NP	55.0	2.8	2.94 {300}	-10 to 150	60
TSA635-LMC-NP	63.5	3.0			
TSA762-LMC-NP	76.2	3.3			
TSA826-LMC-NP	82.6	3.5			
TSA950-LMC-NP	95.0	3.8			
TSA1016-LMC-NP	101.6	4.0			
TSA1100-LMC-NP	110.0	4.2			
TSA1143-LMC-NP	114.3	4.3			
TSA1270-LMC-NP	127.0	4.6			
TSA1524-LMC-NP	152.4	5.2			
TSA1905-LMC-NP	190.5	6.1			

Note: Standard chain length is 3,048 mm (10 feet).

Lambda TOS/TOR Top Chain

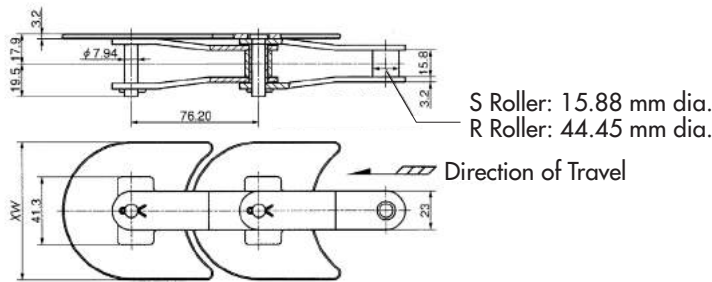


Features

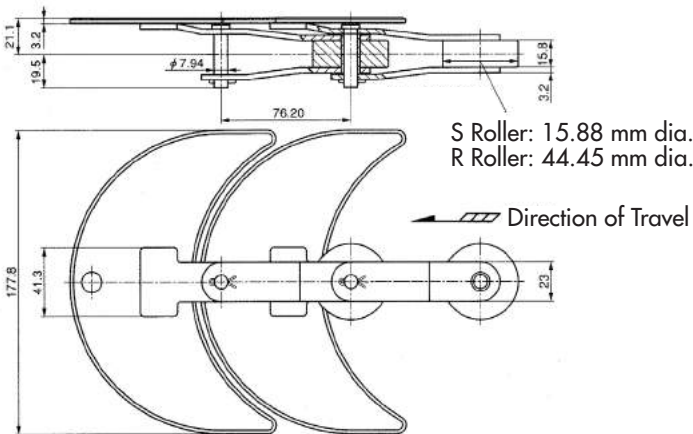
- TOS/TOR chain is designed for use in horizontal conveyors. Ideal for conveyance in tight spaces.

Unit: mm

TOS (R) 826,1143

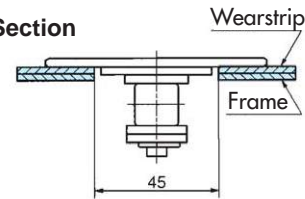


TOS (R) 1778

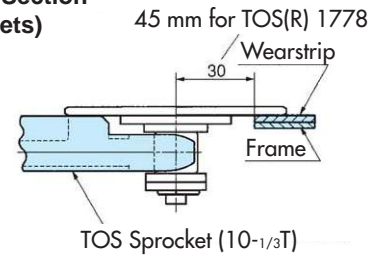


TOS

Straight Section

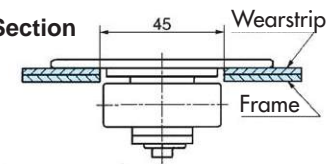


Curved Section (Sprockets)

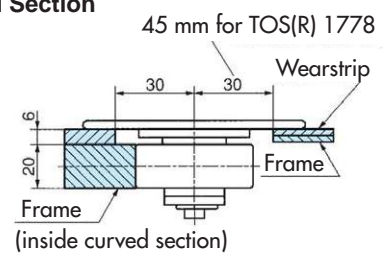


TOR

Straight Section



Curved Section



Curved section with the sprocket is the same as TOS series.

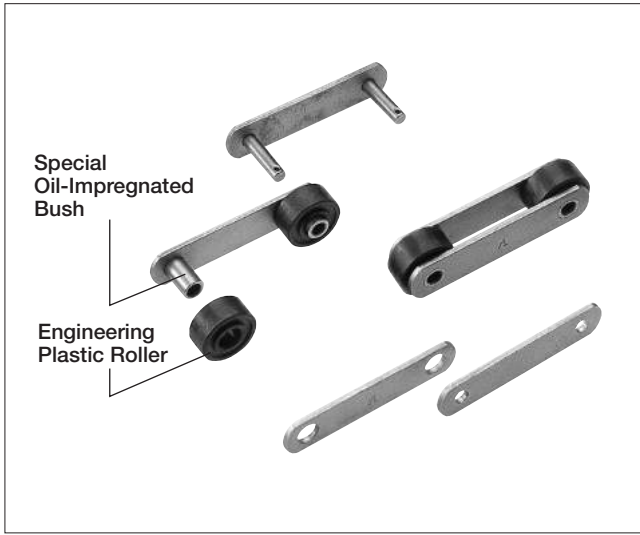
Tsubaki Chain No.		Top Plate Width XW (mm)	Max. Allowable Load (kN {kgf})	Approx. Mass (kg/m)		Operating Temperature Range (°C)	Max. Allowable Speed (m/min)	
S Roller	R Roller			S Roller	R Roller		With Lube	No Lube
TOS826-LMC	TOR826-LMC	82.6	2.94 {300}	4.1	5.9	-10 to 150	60	60
TOS1143-LMC	TOR1143-LMC	114.3		4.8	6.9			
TOS1778-LMC	TOR1778-LMC	177.8		6.3	8.1			

Note: Standard chain length is 3,048 mm (40 links).

Materials

Chain Type	Standard
Top Plates	430 Stainless Steel (18-Cr)
Base Chain	Lambda

Lambda Plastic Roller Conveyor Chain



1. Long life without additional lubrication

Wear life between pin-bush and bush-roller is more than seven times that of DT chain while being lube-free.

2. Low noise

5 to 7dB quieter than steel roller chain. No grating sounds when the rollers rotate.

3. Low running resistance

55% lower than steel roller chain (lube-free operation).

4. Clean

Suppresses the generation of metal wear dust.

5. Lightweight

30% lighter than steel roller chain.

6. Interchangeability

Dimensionally compatible with standard conveyor chain. Users can replace their conveyor chain with Lambda Plastic Roller Conveyor Chain with no additional changes. (It is necessary to check for strength and other factors.)

Specifications

Material			Operating Temperature Range	Coefficient of Rolling Friction of Rollers	Chain Speed	Sprocket
Roller	Bush	Other Parts				
Engineering Plastic	Special Oil-Impregnated Bush	Steel	0°C to 50°C	0.07 (lube-free)	25 m/min or less	RF Standard Sprocket

Notes: 1. Link plates are blackened carbon steel.
2. Coefficient of rolling friction assumes a low-dust, indoor environment within the operating temperature range.

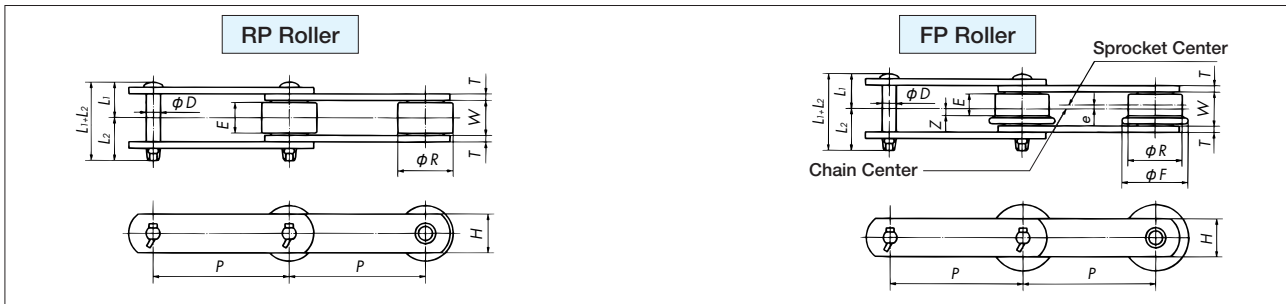
Maximum Allowable Load

Unit: kN {kgf}

Tsubaki Chain No.	No. of Sprocket Teeth		6		7		8		9		10	
	kN	{kgf}	kN	{kgf}	kN	{kgf}	kN	{kgf}	kN	{kgf}	kN	{kgf}
RF03075-LMC	1.48	{150}	1.86	{190}	1.96	{200}	1.96	{200}	1.96	{200}	1.96	{200}
RF03100-LMC	1.86	{190}	1.96	{200}	1.96	{200}	1.96	{200}	1.96	{200}	1.96	{200}
RF05100-LMC	2.65	{270}	3.33	{340}	4.21	{430}	5.20	{530}	5.20	{530}	5.20	{530}
RF05125-LMC	3.74	{380}	4.71	{480}	5.20	{530}	5.20	{530}	5.20	{530}	5.20	{530}
RF05150-LMC	4.90	{500}	5.20	{530}	5.20	{530}	5.20	{530}	5.20	{530}	5.20	{530}

Notes: 1. The table above shows max. allowable load for R rollers with a chain speed of 25 m/min or less.
2. Max. allowable load for F rollers is 70% that of the above values.
3. Refer to selection on page 59 for chain load calculations.

Dimensions Dimensions of the base chain and attachments are the same as RF Conveyor Chain.

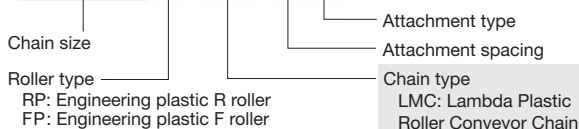


Unit: mm

Tsubaki Chain No.	Pitch P	RP Roller		FP Roller					Width Between Inner Link Plates W	Plate		Pin			Allowable Load per Roller		Approx. Mass (kg/m)	Attachment Type	
		Dia. R	Contact Width E	Dia. R	Flange Dia. F	Contact Width E	Offset e	Z		Height H	Thickness T	Dia. D	L1+L2	L1	L2	kN			{kgf}
RF03075-LMC	75	31.8	15.5	31.8	42	12	1.8	4.3	16.1	22	3.2	8.0	38	18	20	0.49	{50}	1.9	A
RF03100-LMC	100																	1.7	K
RF05100-LMC	100	40	19	40	50	14	2.5	4.5	22	32	4.5	11.3	53.5	25	28.5	0.83	{85}	3.6	SA
RF05125-LMC	125																	3.4	SK
RF05150-LMC	150																	3.2	G

Chain Numbering

No. **RF03075RP-LMC-1LK2**



Lambda Chain Specialty Attachments

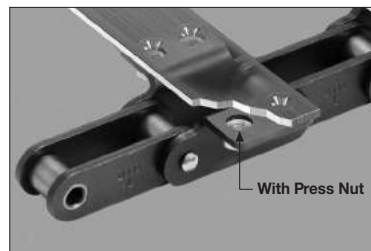
Tsubaki Specialty Attachments provide solutions for a wide range of conveying needs.

If your operations convey long, narrow items, convey items on chains, use slats, or have other unique requirements, consider these benefits.

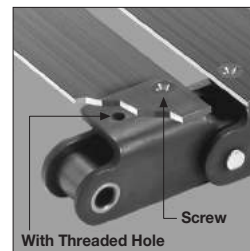
- Custom engineering at a reasonable cost
- Proven reliability
- Quick delivery
- High strength
- Easy selection
- Outstanding performance

Press Nut and Threaded Hole Chain

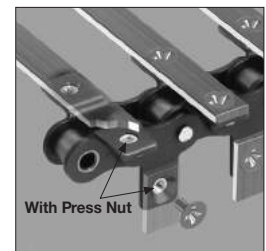
Press nuts can be inserted into holes on chain attachments, or holes can be tapped to provide a threaded hole in chain attachments. This special attachment allows slats or jigs to be attached using only machine screws or bolts, significantly improving work efficiency.



Chain with K2 attachment and press nut



Chain with bent-over A2 attachment and threaded hole



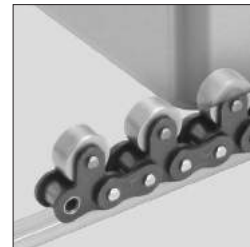
Chain with K1 and SA1 attachments and press nut

Free Flow Chain

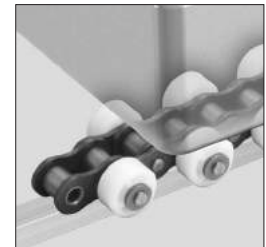
This chain consists of a Lambda base chain with freely rotating rollers. Although the base chain does not require lubrication, steel top rollers and steel outboard rollers must be lubricated. (Plastic top rollers and plastic outboard rollers do not require lubrication.)



Double Plus Chain



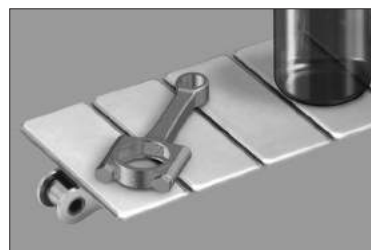
Top Roller Chain



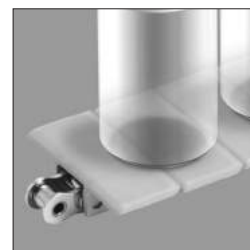
Outboard Roller Chain

Direct Loading Top Chain

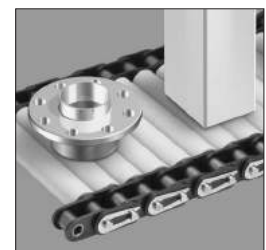
This chain is designed to allow various types of machine parts and container products (such as bottles, cans, and paper packs) to be placed directly on the chain for conveyance. The base chain is Lambda Chain.



TS Top Chain



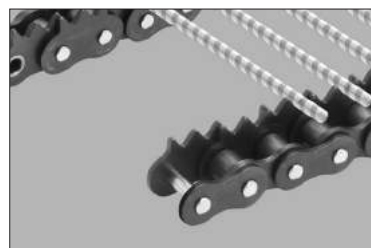
TN Top Chain



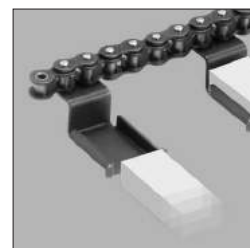
RT Roller Table

Direct Loading Chain with Special Attachments

This is Lambda Chain with special attachments to match the shape of the workpiece, such as round bars, pipes, small boxes, etc.



Chain with triangle attachments for conveying bar-type objects



Chain with tray attachments for conveying small boxes



Chain with V-shaped attachments for conveying pipes

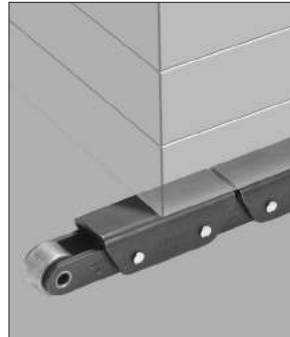
Lambda Chain Specialty Attachments

Direct Loading Bent Attachment Chain

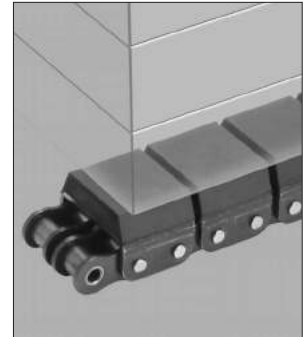
This chain is designed to allow pallets, cardboard boxes, plastic containers, etc., to be placed directly on the chain for conveyance. Stainless steel attachments, upper-layer attachments, and rubber attachments can be custom made according to the application.



Chain with upper-layer attachments (stainless steel)



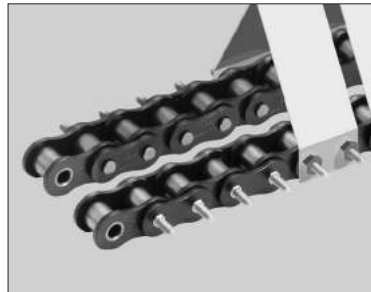
Double Pitch Chain with upper-layer attachments



Double-strand chain with rubber attachments

Extended Pin with Thread Chain

This chain features extended pins, threaded extended pins, or extended pins with spring clips to enable installation of various attachments. The attachments can be secured by nuts, inserted into tubing, or attached to spring clips.



Chain with threaded extended pins



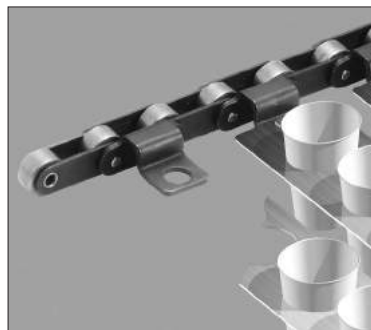
Extended pin chain



Extended pin chain with spring clips

Bar, Slat, and Wire Mesh Conveyor Chain

Special attachment chain to match the shape of attached tools or jigs such as slats with holes, stepped bars, square bars, round bars, etc.



Chain for conveyor with slats with holes (Chain center and slats are at the same level)



Stepped bar chain (Ends are inserted into holes in attachments)



Square bar chain



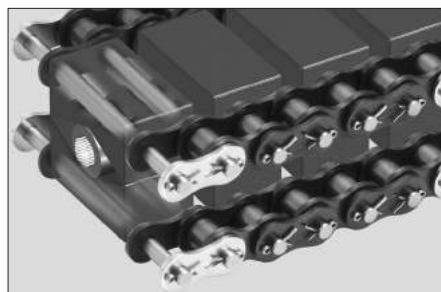
Hollow Pin Chain for wire mesh conveyor with guide rollers



Round bar attachment bush chain

Chains That Convey by Sandwiching Workpieces between Chains

These chains form two conveyors that sandwich an object between them using the stay pins of the chain, or a bent-over open-box-shaped attachment.



Stay-pin chain (with blocks attached to the stay pins)

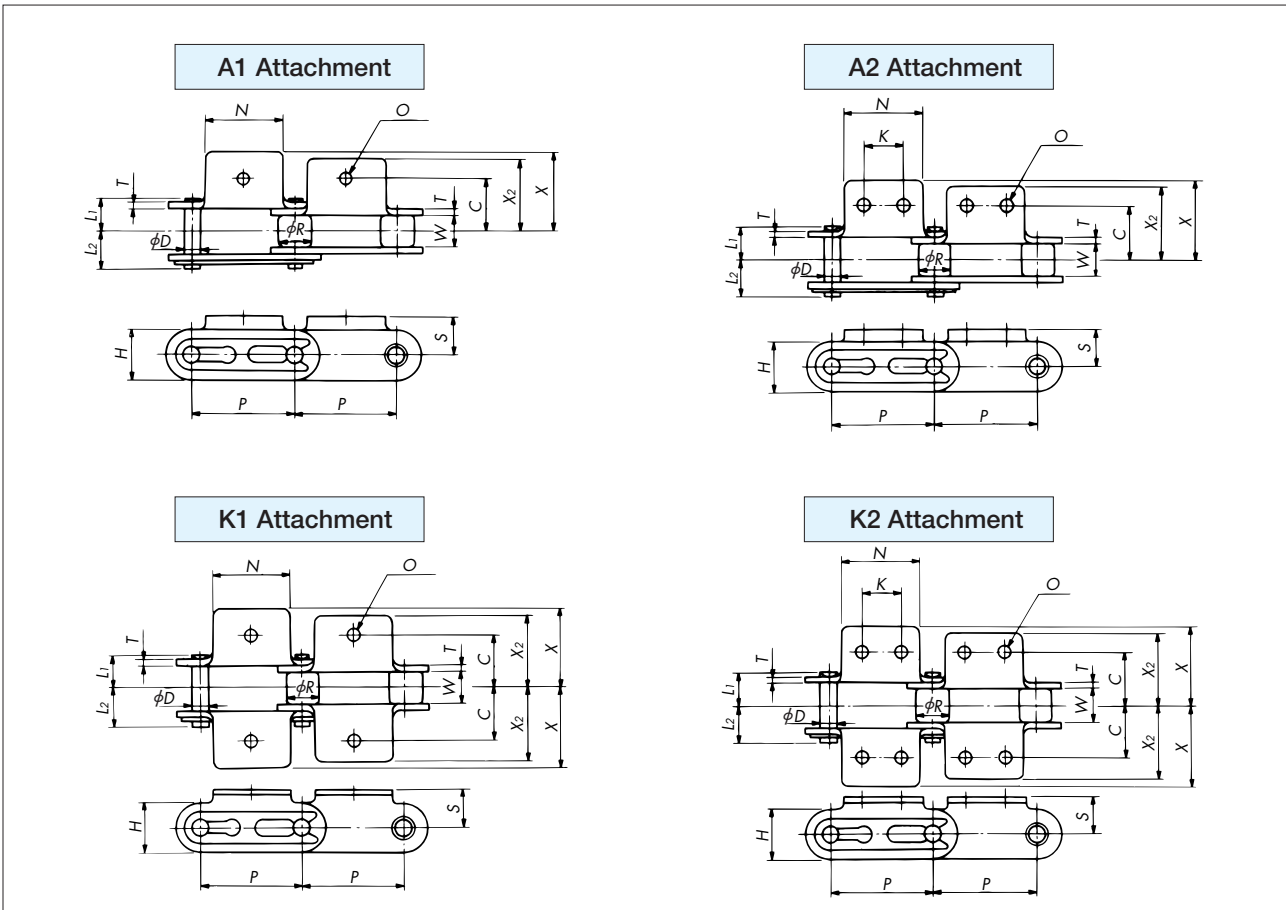


Chain with bent-over attachments

Lambda Plus α Attachments

Attachments with special hole diameters.

Double Pitch **Special Hole Diameter Attachment (Attachment Types: A, K)**



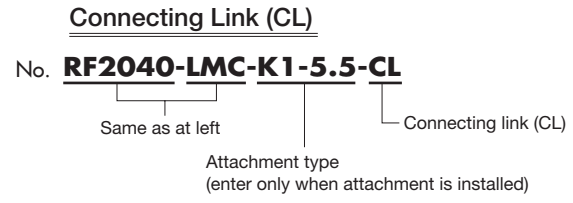
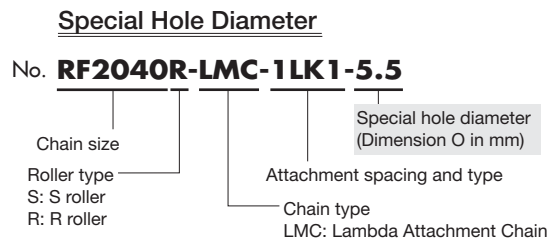
- Connecting links: RF2040 to RF2060 use spring clips. RF2080 and larger use cotter pins. Base chain pins are riveted.
- Attachments shown are S roller type. However, the dimensions for attachments are the same when R rollers are used. Also, the drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.
- X and X2 are the width of the attachments installed on the outer link and inner link, respectively.

Attachment Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin			Plate		Attachment						
			S Roller	R Roller	Dia. D	L1	L2	Height H	Thickness T	C	K	N	S	X	X2	O
RF2040-LMC	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	12.7	9.5	19.1	9.1	19.3	17.6	4.5 · 5.5
RF2050-LMC	31.75	9.53	10.16	19.05	5.09	10.30	12.0	15.0	2.0	15.9	11.9	23.8	11.1	24.2	22.0	4.5 · 5.5
RF2060-LMC	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	21.45	14.3	28.6	14.7	31.5	28.2	5.5 · 6.5
RF2080-LMC	50.80	15.88	15.88	28.58	7.94	18.30	20.90	23.0	4.0	27.8	19.1	38.1	19.1	40.7	36.6	9.0
RF2100-LMC	63.50	19.05	19.05	39.69	9.54	21.80	24.50	28.6	4.8	33.35	23.8	47.6	23.4	49.9	44.9	11.0

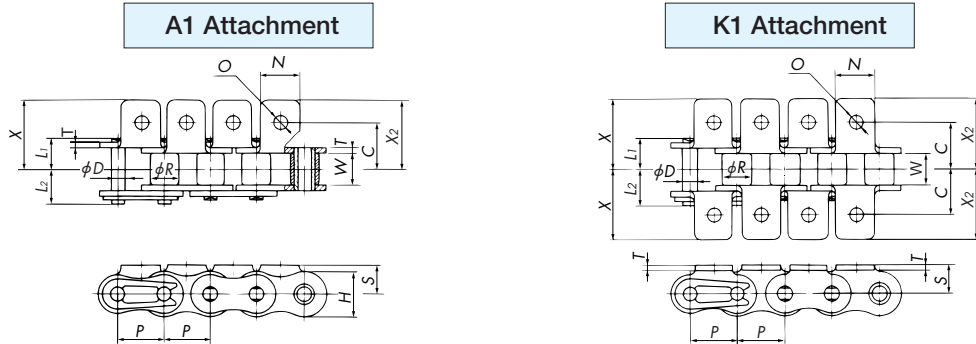
Chain Numbering



Lambda Plus α Attachments



Special Hole Diameter Attachment (Attachment Types: A, K)



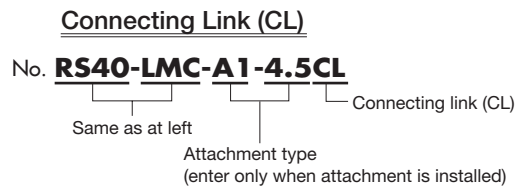
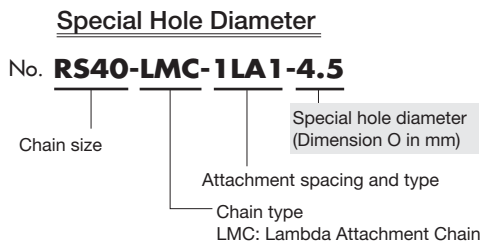
- Connecting links: RS40 to RS60 use spring clips. RS80 and larger use cotter pins. Base chain pins are riveted.
- X and X2 are the width of the attachments installed on the outer link and inner link, respectively.
- Drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.

Attachment Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller (Bushing) Dia. R	Pin			Plate		Attachment					
				Dia. D	L ₁	L ₂	Height H	Thickness T	C	N	S	X	X ₂	O
RS40-LMC	12.70	7.95	7.92	3.97	8.25	9.95	12.0	1.5	12.7	9.5	8.0	17.8	17.8	4.5 · 5.5
RS50-LMC	15.875	9.53	10.16	5.09	10.3	12.0	15.0	2.0	15.9	12.7	10.3	23.4	23.4	4.5 · 5.5
RS60-LMC	19.05	12.70	11.91	5.96	12.85	14.75	18.1	2.4	19.05	15.9	11.9	28.2	28.2	5.5 · 6.5
RS80-LMC	25.40	15.88	15.88	7.94	16.25	19.25	24.1	3.2	25.4	19.1	15.9	36.6	36.6	9.0
RS100-LMC	31.75	19.05	19.05	9.54	19.75	22.85	30.1	4.0	31.75	25.4	19.8	44.9	44.9	11.0

Chain Numbering



Lambda Plus α Attachments

Nuts are added to the attachment to enable slats to be installed simply and easily. Both the attachment and nut are heat-treated for ample strength.

Double Pitch **Press Nut Attachment (Attachment Types: A-NM, K-NM)**

- Connecting links: RF2040 to RF2060 use spring clips. Base chain pins are riveted.
- Attachments shown are S roller type. However, the dimensions for attachments are the same when R rollers are used. Also, the drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.
- X and X₂ are the width of the attachments installed on the outer link and inner link, respectively.

Attachment Dimensions

Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin			Plate		Attachment								
			S Roller	R Roller	Dia. D	L ₁	L ₂	Height H	Thickness T	C	K	N	B	S	X	X ₂	T ₁	O
RF2040-LMC-NM3	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	12.7	9.5	19.1	5.5	9.1	19.3	17.6	3.6	M3
RF2040-LMC-NM4	25.40	7.95	7.92	15.88	3.97	8.25	9.95	12.0	1.5	12.7	9.5	19.1	7.0	9.1	19.3	17.6	3.8	M4
RF2050-LMC-NM4	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	15.9	11.9	23.8	7.0	11.1	24.2	22.0	4.3	M4
RF2050-LMC-NM5	31.75	9.53	10.16	19.05	5.09	10.3	12.0	15.0	2.0	15.9	11.9	23.8	8.0	11.1	24.2	22.0	5.1	M5
RF2060-LMC-NM5	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	21.45	14.3	28.6	8.0	14.7	31.5	28.0	6.3	M5
RF2060-LMC-NM6	38.10	12.70	11.91	22.23	5.96	14.55	16.55	17.2	3.2	21.45	14.3	28.6	10.0	14.7	31.5	28.0	7.3	M6

Dimension B is the width when nuts are installed on upper and lower surfaces.

Chain Numbering

Press Nut (Double Pitch)

No. **RF2040R-LMC-1LK1-NM4**

- Chain size
- Roller type: S: S roller, R: R roller
- Press nut dimension (Dimension O in mm)
- With press nut
- Attachment spacing and type
- Chain type: LMC: Lambda Attachment Chain

Connecting Link (CL)

No. **RF2040-LMC-K1-NM4-CL**

- Same as at left
- Attachment type (enter only when attachment is installed)
- Connecting link (CL)

Lambda Plus α Attachments



Press Nut Attachment (Attachment Types: A-NM, K-NM)

A1NM Attachment

K1NM Attachment

Dimension B is the width when nuts are installed on upper and lower surfaces.

- Connecting links: RS40 to RS60 use spring clips. Base chain pins are riveted.
- Drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.
- X and X₂ are the width of the attachments installed on the outer (pin) link and inner (roller) link, respectively.

Attachment Dimensions

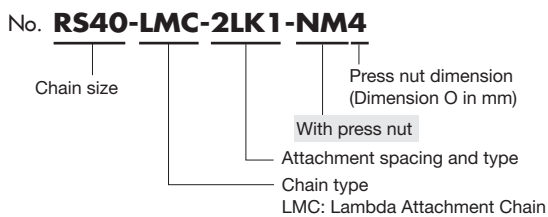
Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R	Pin			Plate			Attachment							
				Dia. D	L ₁	L ₂	Height h	Height H	Thickness T	C	N	B	S	X	X ₂	T ₁	O
RS40-LMC-NM3	12.70	7.95	7.92	3.97	8.25	9.95	10.4	12.0	1.5	12.7	9.5	5.5	8.0	17.8	17.8	3.6	M3
RS40-LMC-NM4	12.70	7.95	7.92	3.97	8.25	9.95	10.4	12.0	1.5	12.7	9.5	7.0	8.0	17.8	17.8	3.8	M4
RS50-LMC-NM4	15.875	9.53	10.16	5.09	10.3	12.0	13.0	15.0	2.0	15.9	12.7	7.0	10.3	23.4	23.4	4.3	M4
RS50-LMC-NM5	15.875	9.53	10.16	5.09	10.3	12.0	13.0	15.0	2.0	15.9	12.7	8.0	10.3	23.4	23.4	5.1	M5
RS60-LMC-NM5	19.05	12.70	11.91	5.96	12.85	14.75	15.6	18.1	2.4	19.05	15.9	8.0	11.9	28.2	28.2	5.5	M5
RS60-LMC-NM6	19.05	12.70	11.91	5.96	12.85	14.75	15.6	18.1	2.4	19.05	15.9	10.0	11.9	28.2	28.2	6.5	M6

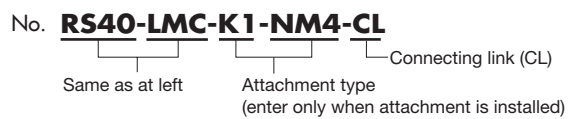
Dimension B is the width when nuts are installed on upper and lower surfaces.

Chain Numbering

Press Nut (RS)



Connecting Link (CL)



Lambda Plus α Attachments

Chain with extended pins projecting to a customer-specified length can be manufactured with a short leadtime for perfect compatibility with your attachments or parts.

Double Pitch **Special Extended Pin (Attachment Type: EPL)**

EPL Attachment

- Actual dimension P' may differ from P. Please contact a Tsubaki representative for details.
- Extended pins on standard Lambda Chain are nickel-plated. Consequently, pin end diameter will be slightly larger.
- Connecting links: RF2040 to RF2060 use spring clips. RF2080 and larger use cotter pins. Base chain pins are riveted.
- Attachments shown are S roller type. However, the dimensions for attachments are the same when R rollers are used. Also, the drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.

Attachment Dimensions

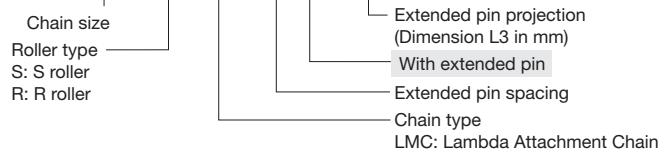
Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R		Pin		Plate		Pin	
			S Roller	R Roller	Dia. D	L ₂	Height H	Thickness T	L ₃	L ₄
RF2040-LMC-EPL15.4	25.40	7.95	7.92	15.88	3.97	9.95	12.0	1.5	15.4	22.65
RF2040-LMC-EPL20.3	25.40	7.95	7.92	15.88	3.97	9.95	12.0	1.5	20.3	27.55
RF2040-LMC-EPL29.8	25.40	7.95	7.92	15.88	3.97	9.95	12.0	1.5	29.8	37.05
RF2050-LMC-EPL19.3	31.75	9.53	10.16	19.05	5.09	12.0	15.0	2.0	19.3	28.4
RF2050-LMC-EPL23.8	31.75	9.53	10.16	19.05	5.09	12.0	15.0	2.0	23.8	32.9
RF2050-LMC-EPL31.2	31.75	9.53	10.16	19.05	5.09	12.0	15.0	2.0	31.2	40.3
RF2060-LMC-EPL16.5	38.10	12.70	11.91	22.23	5.96	16.55	17.2	3.2	16.5	29.65
RF2060-LMC-EPL20.8	38.10	12.70	11.91	22.23	5.96	16.55	17.2	3.2	20.8	33.95
RF2060-LMC-EPL28.2	38.10	12.70	11.91	22.23	5.96	16.55	17.2	3.2	28.2	41.35
RF2080-LMC-EPL27.1	50.80	15.88	15.88	28.58	7.94	20.90	23.0	4.0	27.1	43.5
RF2080-LMC-EPL35.4	50.80	15.88	15.88	28.58	7.94	20.90	23.0	4.0	35.4	51.8
RF2080-LMC-EPL56.5	50.80	15.88	15.88	28.58	7.94	20.90	23.0	4.0	56.5	72.9
RF2100-LMC-EPL34.0	63.50	19.05	19.05	39.69	9.54	24.50	28.6	4.8	34.0	53.6
RF2100-LMC-EPL43.7	63.50	19.05	19.05	39.69	9.54	24.50	28.6	4.8	43.7	63.3
RF2100-LMC-EPL69.9	63.50	19.05	19.05	39.69	9.54	24.50	28.6	4.8	69.9	89.5

Chain Numbering

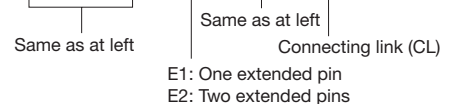
Special Extended Pin (Double Pitch)

No. **RF2040S-LMC-2LEPL15.4**



Connecting Link (CL)

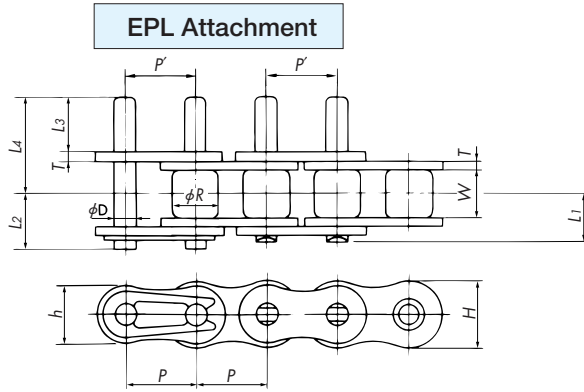
No. **RF2040-LMC-E1-L15.4-CL**



Lambda Plus α Attachments



Special Extended Pin (Attachment Type: EPL)



- Actual dimension P' may differ from P. Please contact a Tsubaki representative for details.
- Extended pins on standard Lambda Chain are nickel-plated. Consequently, pin end diameter will be slightly larger.
- Connecting links: RS40 to RS60 use spring clips. RS80 and larger use cotter pins. Base chain pins are riveted.
- Drawings show attachments added on every link.
- Pins other than those on connecting links are riveted regardless of whether attachments are present.

Attachment Dimensions

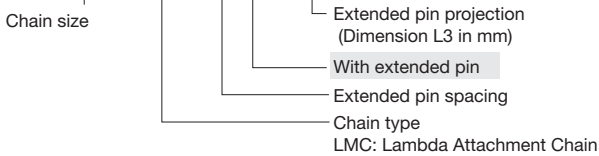
Unit: mm

Tsubaki Chain No.	Pitch P	Width Between Inner Link Plates W	Roller Dia. R	Pin			Plate			Pin	
				Dia. D	L1	L2	Height h	Height H	Thickness T	L3	L4
RS40-LMC-EPL15.4	12.70	7.95	7.92	3.97	8.25	9.95	10.4	12.0	1.5	15.4	22.7
RS40-LMC-EPL20.3	12.70	7.95	7.92	3.97	8.25	9.95	10.4	12.0	1.5	20.3	27.6
RS40-LMC-EPL29.8	12.70	7.95	7.92	3.97	8.25	9.95	10.4	12.0	1.5	29.8	37.1
RS50-LMC-EPL19.3	15.875	9.53	10.16	5.09	10.3	12.0	13.0	15.0	2.0	19.3	28.4
RS50-LMC-EPL23.8	15.875	9.53	10.16	5.09	10.3	12.0	13.0	15.0	2.0	23.8	32.9
RS50-LMC-EPL31.2	15.875	9.53	10.16	5.09	10.3	12.0	13.0	15.0	2.0	31.2	40.3
RS60-LMC-EPL19.9	19.05	12.70	11.91	5.96	12.85	14.75	15.6	18.1	2.4	19.9	31.45
RS60-LMC-EPL24.2	19.05	12.70	11.91	5.96	12.85	14.75	15.6	18.1	2.4	24.2	35.75
RS60-LMC-EPL31.6	19.05	12.70	11.91	5.96	12.85	14.75	15.6	18.1	2.4	31.6	43.15
RS80-LMC-EPL30.8	25.40	15.88	15.88	7.94	16.25	19.25	20.8	24.1	3.2	30.8	45.55
RS80-LMC-EPL39.1	25.40	15.88	15.88	7.94	16.25	19.25	20.8	24.1	3.2	39.1	53.9
RS80-LMC-EPL42.3	25.40	15.88	15.88	7.94	16.25	19.25	20.8	24.1	3.2	42.3	57.1
RS100-LMC-EPL37.7	31.75	19.05	19.05	9.54	19.75	22.85	26.0	30.1	4.0	37.7	55.65
RS100-LMC-EPL45.0	31.75	19.05	19.05	9.54	19.75	22.85	26.0	30.1	4.0	45.0	62.95
RS100-LMC-EPL50.7	31.75	19.05	19.05	9.54	19.75	22.85	26.0	30.1	4.0	50.7	68.65

Chain Numbering

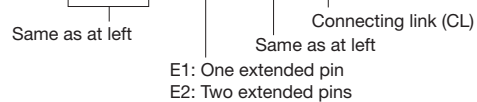
Special Extended Pin (RS)

No. **RS40-LMC-1LEPL15.4**



Connecting Link (CL)

No. **RS40-LMC-E1-L15.4CL**



Lube Free Drive Chain

Lube Free Drive Chain

1-1. Kilowatt Ratings (See page 16 for tables)

Kilowatt ratings are dependent on the following factors:

- 1) Indoor environment with a temperature range of -10°C to 60°C and where no wear dust is present.
- 2) No corrosive gases, high humidity or other harmful elements are present.
- 3) The two sprocket transmission shafts are maintained parallel to each other and the chains are properly installed.
- 4) No possibility of exposure to chemicals, water, or cleaning/degreasing vapors.
- 5) No significant load change during conveyance.

1-2. Operating Factors

As the drive capacity of the chain is subject to various application factors, the following table has been designed to rectify kilowatt changes in relation to load fluctuation. The Kilowatt Rating Tables are for conditions where the load is small. Refer to them for adjustments corresponding to load fluctuations.

Table 1: Operating Factors

Type of Impact	Power Source Type of Machine	Motor or Turbine	Internal Combustion	
			Hydraulic Drive	Non-Hydraulic
Smooth Transmission	Belt conveyors with small load fluctuations, chain conveyors, centrifugal pumps, centrifugal blowers, general textile machinery, general machines with small load fluctuations	1.0	1.0	1.2
Small-impact Transmission	Centrifugal compressors, marine engines, conveyors with some load fluctuations, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general construction machinery, general papermaking machines	1.3	1.2	1.4
Large-impact Transmission	Presses, crushers, construction and mining machines, vibration machines, oil-drilling rigs, rubber mixers, rolls, roll gangs, general machines with reverse or large impact loads	1.5	1.4	1.7

Step 1: Selection Factors

- 1) Type of machine
- 2) Type of impact
- 3) Power source
- 4) Kilowatt rating
- 5) Diameter and rpm of high-speed shaft (small sprocket)
- 6) Diameter and rpm of low-speed shaft (large sprocket)
- 7) Distance between shafts

Step 2: Determine Operating Factors

Use Table 1 to obtain the appropriate operating factors.

Step 3: Determine Corrected Kilowatt Value

Multiply the kilowatt rating value by the appropriate operating factor to obtain the corrected kilowatt value.

Step 4: Determine Chain and Small Sprocket Teeth Number

Using the Kilowatt Rating Tables and referring to the rpm of the small sprocket, determine the appropriate chain and the number of teeth of the small sprocket that satisfy the corrected kilowatt value. For smoother chain drive, the smallest pitch chain with the required kW is recommended.

For double-strand LMD and LMD-H chain, multiply the multi-strand coefficient 1.4 for LMD and 1.7 for LMD-H by the kW ratings in the Kilowatt Rating Tables to determine the appropriate chain and the number of teeth of the small sprocket that satisfy the corrected kilowatt value and small-sprocket rpm.

Step 5: Determine Large Sprocket Teeth Number

The number of teeth for the large sprocket is determined by multiplying the number of teeth of the small sprocket by the speed ratio. A small sprocket with more than 15 teeth is recommended. However, the number of teeth on the large sprocket should be less than 120. By reducing the number of teeth on the small sprocket, the number of teeth on the large sprocket can be reduced. Even in this case though, the number of teeth on the small sprocket should not be reduced to less than 13.

Step 6: Confirm Shaft Diameter

After determining the number of teeth necessary for the small sprocket, refer to the RS Sprocket Dimension Table (separate catalog) to check if the sprocket diameter satisfies space limitations.

Step 7: Calculate Chain Length

Calculate the necessary number of chain links.

Formula for Calculating Chain Length

$$L = \frac{Z+Z'}{2} + 2C + \frac{\left(\frac{Z-Z'}{6.28}\right)^2}{C}$$

- L = Chain length expressed in number of links
- Z = Number of teeth of large sprocket
- Z' = Number of teeth of small sprocket
- C = Distance between shafts expressed in number of links

Formula for Calculating Chain Speed

$$V = \frac{P \cdot Z' \cdot n}{1000} \text{ (m/min)}$$

- V = Chain speed (m/min)
- P = Chain pitch (mm)
- Z' = Number of teeth of small sprocket
- n = RPM of small sprocket

Notes: The maximum allowable load of double-strand Lambda Conveyor Chain (LMC) is roughly equal to only that of single-strand Lambda Drive Chain (LMD). When using LMC for drive purposes, please contact a Tsubaki representative beforehand.

Lube Free Small Size Conveyor Chain

Lube Free Small Size Conveyor Chain

An appropriate chain size and type can be selected based upon the type and capacity of the conveyor. In some cases, it may be difficult to determine the most appropriate chain size and type, since there are a variety of operating conditions for the conveyor. The general procedure for chain selection is as follows:

- Step 1: Check conveyance conditions
- Step 2: Tentatively determine chain type
- Step 3: Check allowable load of rollers and attachments
- Step 4: Calculate maximum chain tension
- Step 5: Determine chain size

In this catalog, values are indicated in both SI and gravimetric units. The weight (kgf) used to calculate the max. tension in the gravimetric units is the same value as the mass (kg).

Step 1: Check Conveyance Conditions

- 1) Type of conveyor (slat conveyor, bucket elevator, etc.)
- 2) Method of chain travel (horizontal, inclined, or vertical conveyor)
- 3) Type, mass, and size of materials to be conveyed
- 4) Conveyor capacity, interval between conveyed objects
- 5) Conveying speed
- 6) Conveyor length
- 7) Lubricated (yes/no)
- 8) Considerations for special environments (high/low temperature, presence of corrosive substances)

Lambda Chain operating temperature range: -10°C to 150°C

- Lambda Outboard Roller Chain, Lambda Top Roller Chain: -10°C to 80°C
- Lambda Plastic Roller Conveyor Chain: 0°C to 50°C

Step 2: Tentatively Determine Chain Type

SI Units

$$F(\text{kN}) = W \times f_1 \times K_v \times \frac{G}{1000} \quad \underline{G} = 9.80665 \text{ m/s}^2$$

{Gravimetric Units}

$$F(\text{kgf}) = W \times f_1 \times K_v$$

- W : Total mass {weight} of conveyed objects on conveyor kg {kgf}
- f₁ : Coefficient of friction (See page 61. For free-flow conveyors, see Table 5 f₂ and Table 6 f₃.)
- K_v : Speed coefficient (See page 61)

Tentatively select a chain that has maximum allowable tension of F (for two parallel strands, use F × 0.6) or more.

Step 3: Check Allowable Load

The load applied to rollers or attachments should not exceed the allowable loads shown in Table 1 and Table 2.

Table 1: Allowable Load of Base Chain Roller

Chain Size	Steel Roller	
	R Roller	S Roller
RF2040, RF40, RS40	0.64 { 65 }	0.15 { 15 }
RF2050, RF50, RS50	1.98 { 100 }	0.20 { 20 }
RF2060, RF60, RS60	1.57 { 160 }	0.29 { 30 }
RF2080, RF80, RS80	2.65 { 270 }	0.54 { 55 }
RF2100, RF100, RS100	3.92 { 400 }	0.78 { 80 }

Unit: kN {kgf}/roller

Note: The material used for double-pitch R Roller guide rails should be a high-tensile-strength material at least S45C (JIS), 1045 (AISI), or better.

Chain Size	Plastic Roller (R/F Roller)
RF03	0.49 { 50 }
RF05	0.83 { 85 }

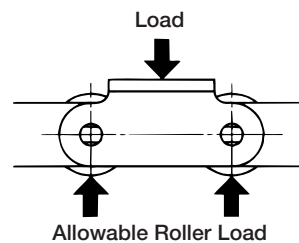
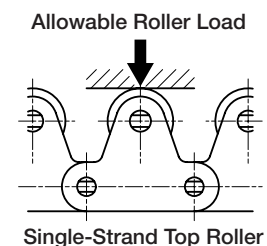
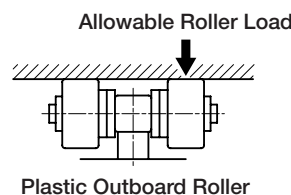


Table 2: Allowable Roller Load

Unit : kN {kgf}/roller

Chain Size	Engineering Plastic Outboard Roller	Engineering Plastic Top Roller
RF2040, RS40	0.05 { 5 }	0.05 { 5 }
RF2050, RS50	0.07 { 7 }	0.07 { 7 }
RF2060, RS60	0.10 { 10 }	0.10 { 10 }



Explanation of Symbols (1)

- F : Max. static tension applied to chain kN {kgf}
 - V : Conveying speed (chain speed) m/min
 - H : Center distance between sprockets (vertical direction) m
 - L : Center distance between sprockets (horizontal direction) m
 - C : Center distance between sprockets m
 - M : Mass {weight} of moving parts kg/m {kgf/m} (chain, bucket, apron, etc.)
 - W : Total mass {weight} of conveyed objects on conveyor (max. value) kg {kgf}
- For countable items:
- $$W = \frac{C}{\text{Loading interval}} \times \text{Mass (weight) of conveyed items}$$
- η : Transmission efficiency of drive unit
 - kW : Power required
 - f₁ : Coefficient of friction between chain and guide rail (Table 3)
 - G : Acceleration of gravity: 9.80665 m/s²

Do not use Lambda Chain where there is the possibility of exposure to chemicals, water, or cleaning/degreasing vapors.

Lube Free Small Size Conveyor Chain

Step 4: Calculate Max. Chain Tension (F)

1) Horizontal Conveyance

1-1) Goods are directly loaded on the conveyor

SI Units

$$F = (W + 2.1M \cdot C) f_1 \times \frac{G}{1000}$$

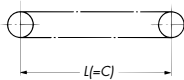
$$kW = \frac{F \cdot V}{60} \times 1.1 \times \frac{1}{\eta}$$

{Gravimetric Units}

$$F = (W + 2.1M \cdot C) f_1$$

$$kW = \frac{F \cdot V}{6120} \times 1.1 \times \frac{1}{\eta}$$

Explanation of symbols (1): Previous page



1-2) Goods are accumulated (free-flow conveyors)

SI Units

$$F = \{ (W_1 + M) L_1 \cdot f_1 + W_2 \cdot L_2 \cdot f_2 + (W_2 + M) L_2 \cdot f_3 + 1.1M(L_1 + L_2) f_1 \} \times \frac{G}{1000}$$

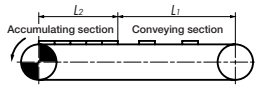
$$kW = \frac{F \cdot V}{60} \times 1.1 \times \frac{1}{\eta}$$

{Gravimetric Units}

$$F = (W_1 + M) L_1 \cdot f_1 + W_2 \cdot L_2 \cdot f_2 + (W_2 + M) L_2 \cdot f_3 + 1.1M(L_1 + L_2) f_1$$

$$kW = \frac{F \cdot V}{60} \times 1.1 \times \frac{1}{\eta}$$

Explanation of symbols (2): Next page



2) Vertical Conveyance

SI Units

$$F = (W + M \cdot C) \times \frac{G}{1000}$$

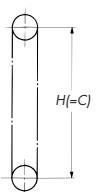
$$kW = \frac{W \cdot V}{60} \cdot \frac{G}{1000} \times 1.1 \times \frac{1}{\eta}$$

{Gravimetric Units}

$$F = W + M \cdot C$$

$$kW = \frac{W \cdot V}{6120} \times 1.1 \times \frac{1}{\eta}$$

Explanation of symbols (1): Previous page



3) Inclined Conveyance*

3-1) Goods are directly loaded on the conveyor

SI Units

$$F = \{ (W + M \cdot C) \frac{L \cdot f_1 + H}{C} + 1.1M(L \cdot f_1 - H) \} \times \frac{G}{1000}$$

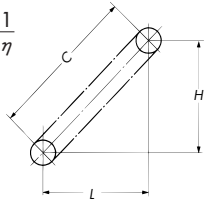
$$kW = \frac{V}{60} \{ F - M(H - L \cdot f_1) \frac{G}{1000} \} \times 1.1 \times \frac{1}{\eta}$$

{Gravimetric Units}

$$F = (W + M \cdot C) \frac{L \cdot f_1 + H}{C} + 1.1M(L \cdot f_1 - H)$$

$$kW = \frac{V}{6120} \{ F - M(H - L \cdot f_1) \} \times 1.1 \times \frac{1}{\eta}$$

Explanation of symbols (1): Previous page



4) Horizontal/Inclined Conveyance*

4-1) Goods are directly loaded on the conveyor

SI Units

$$F = \{ (\frac{W}{C_1 + C_2} + 2.1M) C_1 \cdot f_1 + (\frac{W}{C_1 + C_2} + M) (L_1 \cdot f_1 + H) + 1.1M(L_1 \cdot f_1 - H) \} \times \frac{G}{1000}$$

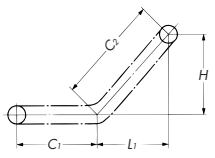
$$kW = \frac{V}{60} \{ F - M(H - L_1 \cdot f_1) \frac{G}{1000} \} \times 1.1 \times \frac{1}{\eta}$$

{Gravimetric Units}

$$F = (\frac{W}{C_1 + C_2} + 2.1M) C_1 \cdot f_1 + (\frac{W}{C_1 + C_2} + M) (L_1 \cdot f_1 + H) + 1.1M(L_1 \cdot f_1 - H)$$

$$kW = \frac{V}{6120} \{ F - M(H - L_1 \cdot f_1) \} \times 1.1 \times \frac{1}{\eta}$$

Explanation of symbols (1): Previous page



* When calculating the value for F, if $L \cdot f_1 - H < 0$, make $L \cdot f_1 - H = 0$. Also when calculating the value for kW, if $H - L \cdot f_1 < 0$, make $H - L \cdot f_1 = 0$.

Lube Free Small Size Conveyor Chain

Explanation of Symbols (2)

When Accumulating Objects (Free Flow Conveyor)

- F : Max. static tension applied to chain kN {kgf}
- V : Chain speed m/min
- L_1 : Length of conveying section m
- W_1 : Mass of conveyed objects in conveying section kg/m
- L_2 : Length of accumulating section m
- W_2 : Mass of conveyed objects in accumulating section kg/m
- M : Mass of moving parts kg/m
- η : Transmission efficiency of drive unit
- kW : Power required
- f_1 : Coefficient of friction between chain and rail during conveyance (Table 4)
- f_2 : Coefficient of friction between chain and conveyed objects during accumulation (Table 5)
- f_3 : Coefficient of friction between chain and rail during accumulation (Table 6)

Table 3-1:
 f_1 : Coefficient of Rolling Friction

Roller Type	Steel Roller
R Roller	0.08
S Roller	0.14

Table 3-2:
 f_1 : Coefficient of Sliding Friction

Steel Plate	
Dry	Lubricated
0.3	0.2

Table 3-3: f_1 : Coefficient of Rolling Friction (Lambda Plastic Roller Conveyor Chain)

Roller Type	Plastic Roller
R Roller	0.07
S Roller	

Table 4: f_1 : Coefficient of Friction Between Chain and Rail During Conveyance

Chain Type	Base Chain Roller Type	f_1	
Lambda Outboard Roller Chain	Steel Roller	R Roller	0.08
		S Roller	0.14
Lambda Top Roller Chain			

Table 5: f_2 : Coefficient of Friction Between Chain and Conveyed Objects During Accumulation

Chain Type	Transfer Roller Type	f_2
Lambda Outboard Roller Chain	Plastic Outboard Roller	0.06
	Outboard Roller with Plastic Brake	0.10
Lambda Top Roller Chain	Plastic Top Roller	0.06

Table 6: f_3 : Coefficient of Friction Between Chain and Rail During Accumulation

f_3	Same as f_1
-------	---------------

Table 7: Speed Coefficient (K)

Chain Speed (m/min)	Speed Coefficient (K)
15 or less	1.0
15 to 30	1.2
30 to 50	1.4
50 to 70	1.6
70 to 90	2.2
90 to 110	2.8
110 to 120	3.2

Table 8-1: Max. Allowable Tension Unit: kN {kgf}

Chain Type	RS35	RS40 RF2040 RF40	RS50 RF2050 RF50	RS60 RF2060 RF60	RS80 RF2080 RF80	RS100 RF2100 RF100
Lambda RS Attachment Chain Lambda Double Pitch Chain Lambda RF Roller Chain	1.52 {155}	2.65 {270}	4.31 {440}	6.28 {640}	10.7 {1090}	17.1 {1740}
Lambda Hollow Pin Chain	—	1.47 {150}	2.55 {260}	3.43 {350}	6.18 {630}	—

Table 8-2: Max. Allowable Tension of Free Flow Chain Unit: kN {kgf}

Chain Type	Type of Base Chain Roller	RS40 RF2040	RS50 RF2050	RS60 RF2060
Lambda Outboard Roller Chain	Steel Roller	2.65 {270}	4.31 {440}	6.28 {640}
Lambda Top Roller Chain	Steel Roller			

Table 8-3: Max. Allowable Tension of Lambda Plastic Roller Conveyor Chain Unit: kN {kgf}

No. of Sprocket Teeth Tsubaki Chain No.	6	7	8	9	10
RF03075	1.47 {150}	1.86 {190}	1.96 {200}	1.96 {200}	1.96 {200}
RF03100	1.86 {190}	1.96 {200}	1.96 {200}	1.96 {200}	1.96 {200}
RF05100	2.65 {270}	3.33 {340}	4.21 {430}	5.20 {530}	5.20 {530}
RF05125	3.74 {380}	4.71 {480}	5.20 {530}	5.20 {530}	5.20 {530}
RF05150	4.90 {500}	5.20 {530}	5.20 {530}	5.20 {530}	5.20 {530}

Note: The table above shows max. allowable tension for R Rollers with a chain speed of 25 m/min or less. Max. allowable tension for F Rollers is 70% of the above values.

Step 5: Determine Chain Size

Multiply the maximum static tension (F) applied to a chain by the speed coefficient (K) given in Table 7 for a chain that satisfies the following formula:

$$F \times K \leq \text{Max. Allowable Tension}$$

For two parallel strands, use max. tension of $0.6F$.

Lube Free Top Chain

TN Snap Cover Chain (LMC-NP) TS Top Chain (LMC-NP)

Follow the procedure below to select the top chain and wearstrip that are most economical and suitable for your application.

- Step 1: Establish operating conditions
- Step 2: Select top plate material
- Step 3: Select wearstrip material
- Step 4: Determine coefficients
- Step 5: Select top plate width
- Step 6: Calculate chain load
- Step 7: Determine chain size

In this catalog, values are indicated in both SI and gravimetric units. The weight (kgf) used to calculate the max. load in the gravimetric units is the same value as the mass (kg).

Step 1: Establish Operating Conditions

A) Conveyed Objects B) Conveyor Arrangement

- | | |
|-----------------------|-----------------------------|
| 1) Container material | 1) Straight or side flexing |
| 2) Mass | 2) Conveyor length |
| 3) Dimensions | 3) Conveyor layout |
| | 4) Space limitations |

C) Conveying Conditions D) Environment

- | | |
|--|---|
| 1) Conveying capacity | 1) Temperature Range |
| 2) Interval/spacing between objects to be conveyed | TS: -10°C to 150°C
TN: -10°C to 80°C |
| 3) Conveying speed | 2) Avoid exposure to chemicals, water, or cleaning/degreasing vapors |
| 4) Lubrication | |
| 5) Objects kept in accumulation or not | 3) Avoid abrasive conditions including the presence of glass fragments, paint chips, metal powder, sand, etc. |

Step 2: Select Top Plate Material

Choose a suitable top plate material according to the type of objects to be conveyed.

Table 1: Plate Material Selection Guide

Conveyed Objects	Top Plate Material	No Lube Abrasives	
		No	Yes
		Tin cans, aluminum cans, steel cans, metallic foil containers (beer cans, soft drink cans, cans having metal tops and bottoms and fiber sides, etc.)	Polyacetal
Industrial parts (machine parts, dies, castings, forgings, metals, bearings, bolts, nuts, etc.)	Stainless Steel	B	A
Plastics and plastic-covered containers, paper containers (for candies, confections, milk products such as milk, cheese and ice cream, etc.; includes paper board containers and those with paper bottoms such as those for soap and cereal)	Polyacetal	B	X
	Stainless Steel	A	A
Glass bottles, glass products, ceramics (glass bottles and glass containers for liquors, foodstuffs, pharmaceuticals, cosmetics, etc.)	Polyacetal	B	X
	Stainless Steel	A	A

A: Most Recommended B: Acceptable X: Inappropriate

Step 3: Select Wearstrip Material

Choose a suitable wearstrip material according to the type of top plate material.

Table 2: Wearstrip Material Selection Guide

Top Plate Material (Chain Type)	Wearstrip Material	No Lube Abrasives	
		No	Yes
		Stainless Steel (straight-running TS)	Stainless Steel
Steel	B		A
UHMWPE	A		X
Polyacetal (straight-running TN)	Stainless Steel	B	B
	Steel	A	X
	UHMWPE	B	A

A: Most Recommended B: Acceptable X: Inappropriate

Step 4: Determine Coefficients (f₁, f₂)

Table 3: Coefficient of Friction Between Top Plate and Wearstrip (f₁)

Top Plate Material	Lubrication	Wearstrip Material and Coefficient of Dynamic Friction		
		Stainless Steel	Steel	UHMWPE
Stainless Steel	No lube	0.35	0.35	0.25
Polyacetal	No lube	0.25	0.25	0.25

Table 4: Coefficient of Friction Between Conveyed Objects and Top Plate (f₂)

Conveyed Material	Lubrication	Top Plate Material and Coefficient of Dynamic Friction	
		Stainless Steel	Polyacetal
Plastics, paper containers, film-wrapped goods	No lube	0.35	0.25
Cans (with metal top and bottom)	No lube	0.35	0.25
Glass bottles, ceramics	No lube	0.25	0.22
Industrial parts (metal)	No lube	0.35	0.25

Step 5: Select Top Plate Width

Generally, the top plate must be slightly wider than the objects being conveyed. When objects are very wide and none of the top plate widths are satisfactory, top plates of the same width may be used in multi-strand arrangement.

Step 6: Calculate Max. Chain Load (F)

1) Calculating F

$$\text{SI Units } F = \{ (W + 2.1M) Lf_1 + WL' f_2 \} \times \frac{G}{1000}$$

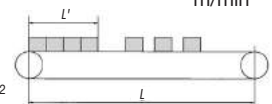
$$\{\text{Gravimetric Units}\} F = (W + 2.1M) Lf_1 + WL' f_2$$

2) Calculating Power Required

$$\text{SI Units } kW = \frac{F \cdot V}{60} \times 1.1 \times \frac{1}{\eta}$$

$$\{\text{Gravimetric Units}\} kW = \frac{F \cdot V}{6120} \times 1.1 \times \frac{1}{\eta}$$

- F : Max. tension applied to chain kN (kgf)
- W : Mass of conveyed objects kg/m
- M : Chain mass kg/m
- L : Length of conveyance (center distance between sprockets) m
- L' : Length of accumulating section
(zero when no slipping between conveyed objects and chain) m
- f₁ : Coefficient of friction between top plate and wearstrip (Table 3)
- f₂ : Coefficient of friction between conveyed objects and top plate (Table 4)
- K : Speed coefficient (Table 5)
- V : Chain speed m/min
- η : Transmission efficiency of drive unit
- kW : Power required
- G : Acceleration of gravity : 9.80665 m/s²



Lube Free Top Chain

Step 7: Determine Chain Size

Multiply the maximum tension (F) applied to a chain by the speed coefficient (K) given in Table 5 for a chain that satisfies the following formula:

$$F \times K \leq \text{Max. Allowable Tension}$$

When the maximum allowable tension is insufficient, it can be corrected by using top plates with narrower width and increasing the number of chain strands, or by splitting it into many short conveyors.

Table 5: Speed Coefficient (K)

Chain Speed (m/min)	Speed Coefficient (K)
15 or less	1.0
15 to 30	1.2
30 to 50	1.4
50 to 70	1.6
70 to 90	2.2
90 to 110	2.8
110 to 120	3.2

Lambda Snap Cover Chain

Step 1: Check Maximum Allowable Load of Snap Cover

Make certain that the load applied per link is within the maximum allowable load indicated in Table 1.

Table 1: Maximum Allowable Load of Snap Cover

Unit: kN {kgf}/pitch

	RF06B-SC-LMC	RS40-SC-LMC	RS50-SC-LMC	RS60-SC-LMC	RS80-SC-LMC	RS100-SC-LMC
Max. Allowable Load	0.03{3}	0.05{5}	0.07{7}	0.1{10}	0.15{15}	0.25{25}

Step 2: Calculate Chain Tension

- F : Max. tension applied to chain kN {kgf}
- $m1$: Mass of conveyed objects kg/m
- $m2$: Chain mass kg/m
- S : Length of conveyance (center distance between sprockets) m
- S' : Length of accumulating section m
- $\mu 1$: Coefficient of friction between chain and guide rail (carry way) (Table 2)
- $\mu 2$: Coefficient of friction between chain and guide rail (return way) (Table 3)
- $\mu 3$: Coefficient of friction between conveyed objects and chain (carry way) (Table 4)
- P : Power required kW
- V : Chain speed m/min
- K : Speed coefficient (Table 5)
- η : Transmission efficiency of drive unit
- G : Acceleration of gravity: 9.80665 m/s²

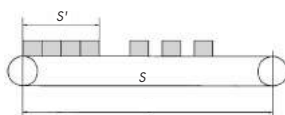


Table 2: Coefficient of Rolling Friction Between Chain and Guide Rail (Carry Way) ($\mu 1$)

With Lubrication
0.14



Table 3: Coefficient of Sliding Friction Between Chain (Plastic Cover) and Guide Rail (Return Way) ($\mu 2$)

Plastic Cover Material	Guide Rail Material	
	Stainless Steel, Steel	UHMWPE
Standard Type, Electroconductive Type	0.25	0.25

Note: Without lubrication

Table 4: Coefficient of Sliding Friction Between Conveyed Goods and Chain (Plastic Cover) ($\mu 3$)

Plastic Cover Material	Conveyed Material					
	Steel Cans, Aluminum Cans	Paper Packages	Glass Bottles	Plastic Containers	Industrial Parts (Metal)	Industrial Parts (Metal)
Standard Type, Electroconductive Type	0.25	0.30	0.22	0.25	0.25	0.25

Note: Without lubrication

Table 5: Speed Coefficient (K)

Chain Speed (m/min)	Speed Coefficient (K)
15 or less	1.0
15 to 30	1.2
30 to 50	1.4
50 to 60	1.6

SI Units

$$F = \{ (m1 + m2) S \cdot \mu 1 + 1.1m2 \cdot S \cdot \mu 2 + m1 \cdot S' \cdot \mu 3 \} \cdot G/1000$$

{Gravimetric Units}

$$F = \{ (m1 + m2) S \cdot \mu 1 + 1.1m2 \cdot S \cdot \mu 2 + m1 \cdot S' \cdot \mu 3 \}$$

Step 3: Determine Chain Size

Multiply the maximum tension (F) applied to a chain by the speed coefficient (K) given in Table 5 for a chain that satisfies the following formulas:

One strand of chain: $F \cdot K \leq \text{Max. Allowable Tension}$

Two strands of chain: $0.6F \cdot K \leq \text{Max. Allowable Tension}$

Step 4: Calculate Power Required

SI Units

$$P = F \cdot V / (54.5 \cdot \eta)$$

{Gravimetric Units}

$$P = F \cdot V / (5565 \cdot \eta)$$

Temperature Selection Method

Lambda Chain KF Series Lube Free Drive Chain Selection

Use the kilowatt ratings chart based selection method for selecting lube free drive chains.

$$\text{Corrected kW} < \text{kW ratings} = \text{Catalog kW ratings} \times \text{Temperature coefficient}$$

Note: The chain is usable if the kilowatt ratings are greater than the corrected kW.

Multiply the ambient temperature the chain will be used in by the temperature coefficient in Table 2 below to calculate kilowatt ratings.

Calculate the temperature coefficient with the maximum usage temperature of the equipment on which the chain will be installed.

Table 2: Temperature Coefficient by Ambient Temperature

Temperature	RS40 – RS80
Room temperature – 150°C	Catalog kW rating × 1
150°C – 200°C	Catalog kW rating × 3/4
200°C – 230°C	Catalog kW rating × 1/2

Note: A double-strand LMC chain only has the maximum allowable load of a single-strand LMD chain. Always confirm strength when using for power transmission.

Lambda Chain KF Series Lube Free Small Size Conveyor Chain Selection

Compare the tensile force that will act on the chain and the maximum allowable load for selecting lube free small size conveyor chains.

$$\text{Chain tensile force} < \text{Chain maximum allowable load} = \text{Catalog maximum allowable load} \times \text{temperature coefficient}$$

Note: The chain is usable if the maximum allowable load is greater than the chain's tensile strength.

Multiply the ambient temperature the chain will be used in by the temperature coefficient in Table 9 below to calculate maximum allowable load.

Calculate the temperature coefficient with the maximum usage temperature of the equipment on which the chain will be installed.

Selection should be calculated with the assumption of a loss of strength in relation to the usage temperature.

Chain speed should be less than the allowable speed. Please refer to Tsubakimoto Chain's Small Size Conveyor Chain catalog for more information.

Table 9: Temperature Coefficient by Ambient Temperature

Temperature	RS40 – RS80
Room temperature – 150°C	Catalog kW rating × 1
150°C – 200°C	Catalog kW rating × 3/4
200°C – 230°C	Catalog kW rating × 1/2

Chain Handling

1. How to Disassemble Lube Free Roller Chain

Roller Chains are generally sold in 1-unit sections (1 unit = 3,048 mm). Configuring chain to a specific length will require disassembling units.

1.1 Firmly lock the chain in a chain vise. Using a grinder, grind down the ends of the two pins on the outer link (on the same side) until they are level with the link plate. Take care that the grinder does not overheat.

1.2 Use a dedicated cradle and an RS Roller Chain punch to disassemble the chain. Using a primary punch suitable for the chain size, place the punch on the head of the pin that was ground down and strike with a hammer. Be sure to strike the pins on the outer link alternately to remove them evenly and at the same time. Strike the pins until they are just about to release from the outer plate.

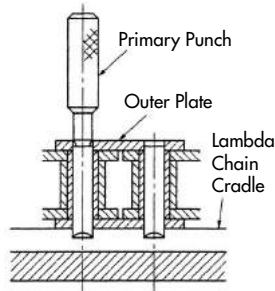


Figure 1: Tapping Pin with Primary Punch

1.3 Using a secondary punch and a hammer, completely remove the pair of pins from the outer plate. Check that the bush of the removed pins has not come loose from the inner plate. If the bush has come loose, do not continue to use it.

1.4 When removing the pins, lightly tap them alternately, taking due care not to damage the bush.

⚠ Safety Points

1. Use the grinder to grind down only the riveted portion of the pin head. Removing the pin without grinding the riveted head off will require additional time and effort, and may damage the chain.
2. Do not re-use pins and plates removed from the chain.

2. How to Disassemble Lube Free Small Size Conveyor Chain

2.1 Grinding Riveted Pin

Using a grinder, grind down the ends of the two pins on the outer link (on the attachment side) until they are level with the outer plate. Take care that the grinder does not overheat (see Figures 2 and 3). Particularly in the case of Lambda Chain, work on the chain slowly so that the oil-impregnated bush does not become too hot.

(Grind down the riveted heads of the pins until they are level with the outer plate.)

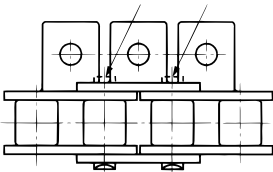


Figure 2: Attachment Chain



Figure 3: Grinding Down Pin Ends

2.1 Setting Chain on Vise and Cradle

2.2.1 S Roller (A, SA, EP, GNK1 Attachments)

Place the chain in the jaws of the vise with the attachment side facing up and gently tighten the vise to secure the chain (Figures 4 and 5).



Figure 4: Setting Chain in Chain Vise

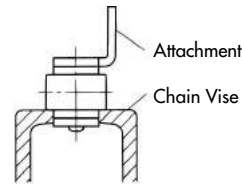


Figure 5: Cross Section of Chain Set in Chain Vise

2.2.2 S Roller (K, SK Attachments), R Roller (K, SK Attachments)

For these types, the chain is set in a cradle (Figure 6-1). Another method, used only for steel S Rollers (Figure 6-2), is to set the pin to be removed on the edge of the chain vise.

Whichever method is used, support blocks should be placed under the chain on either side of the vise to ensure that the chain remains stable (Figure 7).

Any attachment can be disassembled using this method. However more force will be required to remove the pin as mentioned in "2.3 Pin Removal" on the next page.

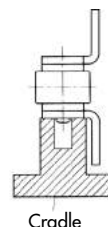


Figure 6-1: Cradle Cross Section

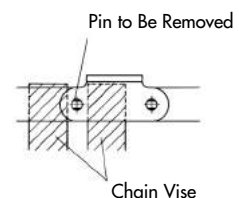


Figure 6-2: Chain Vise Usage

Chain Handling

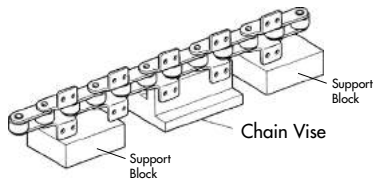


Figure 7: Cradle and Support Blocks

2.2.3 R Roller (A, SA, EP Attachments)

Secure the non-attachment side plate of the chain in the vise and support the R Rollers on the vise (Figure 9). Ensure that the chain is supported on both sides of the vise (Figure 8).

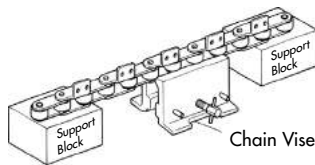


Figure 8: Chain Vise and Support Blocks

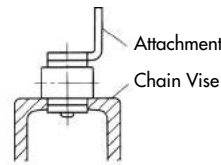


Figure 9: Cross Section of Chain Set in Chain Vise

2.3 Pin Removal

1) Using a primary punch suitable for the chain size, place the punch on the head of the pin that was ground down and strike with a hammer. Be sure to strike the pins on the outer link alternately to remove them evenly and at the same time. Strike the pins until they are just about to release from the outer plate (Figure 10).

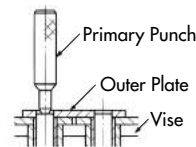


Figure 10: Tapping Pin with Primary Punch

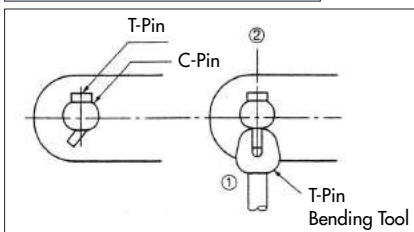
2) Using a secondary punch and a hammer, completely remove the pair of pins from the outer link. Check that the bush of the removed pins has not come loose from the inner plate. If the bush has come loose, do not continue to use it.

3. How to Disassemble Large Size Lambda Plastic Roller Conveyor Chain

3.1 T-Pin Removal

Using the T-Pin Bending Tool, straighten the T-pin and remove it.

Figure 11: Straightening T-Pin



In the case of small-size chain, a monkey wrench can be used to straighten the pin.

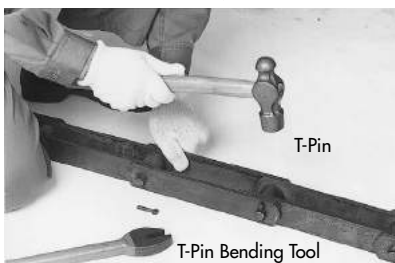


Photo: Straightening and removing T-pins

3.2 Alternately Striking C-Pins

1) These instructions are for removing the plate on the T-pin side.
2) The two C-pins remain inserted in the other outer plate.
3) As shown in the photo, using a tool to hold and support the inner link, alternately strike the C-pins on the T-pin side with a hammer.

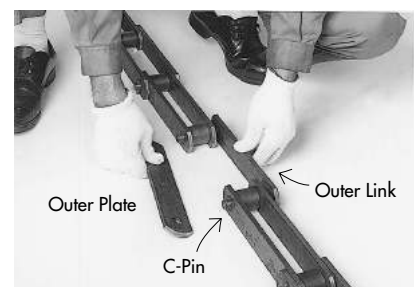


Photo: Striking one pin

Photo: Striking the other pin

3.3 Outer Link Removal

Remove the outer plate and the outer link with the two C-pins connected.



Note: The chain in the above photos is not the actual Lambda Plastic Roller Conveyor Chain.
Caution: When working on the chain, make sure that the plastic rollers suffer no shocks or impact, as these could lead to roller breakage.

⚠ Safety Points

- Work on the chain only in conditions where there is no tension on the chain. For any chain set-up, vertical, horizontal or diagonal, the chain must be kept so as to have no tension around the area to be cut (using chain blocks or wire).
- To prevent any problems arising with the chain, do not perform any additional processing on the chain, especially around the plate holes and pins.
- Be sure to wear safety glasses when striking the C-pins with a hammer so as to prevent injury from flying metal fragments.

4. How to Disassemble Lambda Outboard Roller Chain

4.1 When the Base Chain Roller Is an S Roller

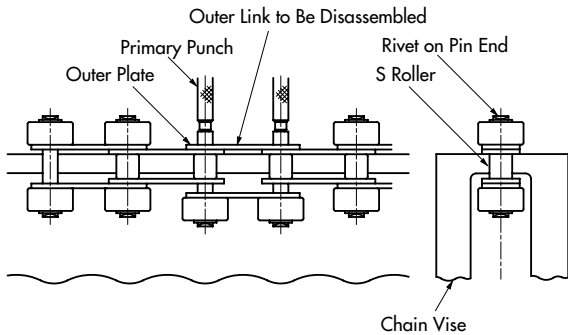


Figure 12: Setting S Roller Chain

- 1) Determine the outer link to be disassembled and mark the link for identification.
- 2) Set the chain on a chain vise (sold separately) as shown in Figure 12 and shear off the rivets on the pin ends (two rivets on one side) using a hand grinder. Take care that the grinder does not overheat.
- 3) Remove the two pins using a pin with a diameter slightly smaller than the pin diameter of the chain (using a Tsubaki Primary Punch or its equivalent). When the pins are pulled out a little, the two outboard rollers on the upper side can be removed. (Figure 12 shows the outboard rollers being removed.)
- 4) Directly tap the pin with a small hammer until the end of the pin reaches the upper face of the outer plate to remove. Tap the two pins alternately to ensure they come off evenly. Use caution not to damage the outboard rollers on the right and left.
- 5) Tap and pull out the two pins using a primary punch until the outer plate on the upper side can be removed.

Chain Vise (Optionally Available)

Chain Vise No.	Applicable OR Chain Size (Base Chain Roller: S Type)
RS-CV1	RS40, RF2040S
RS-CV2	RS40 to 60, RF2040S to 2060S

OR: Outboard Roller

4.2 When the Base Chain Roller Is an R Roller

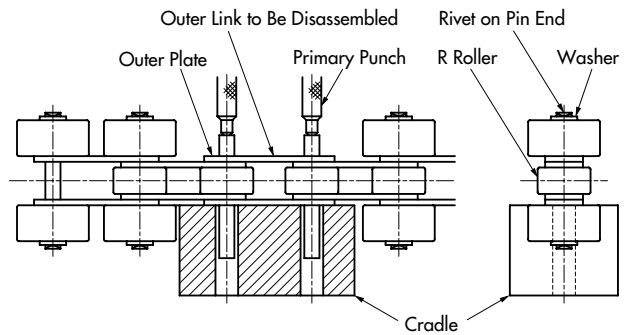


Figure 13: Setting R Roller Chain

- 1) Determine the outer link to be disassembled and mark the link for identification.
- 2) Shear off the rivets on the pin ends (four rivets) using a hand grinder so as to remove the four outboard rollers. In doing so, shear down to the washers with the grinder to remove the washers. Take care that the grinder does not overheat.
- 3) Remove the four outboard rollers. (Receive the outboard roller on the cradle, apply the punch on the pin end face, and tap the pin out until the washer is removed. Follow the same procedure to remove the washers on the other side.)
- 4) Set the chain on the cradle as shown above and remove the two pins by tapping the punch with a hammer. Prepare a cradle yourself as appropriate.
- 5) Follow steps 4) and 5) of 4. 1.
- 6) If outboard rollers are spaced every two or more links, the rivet parts to be sheared off will differ from those shown in the above diagram. (See Figure 14.)

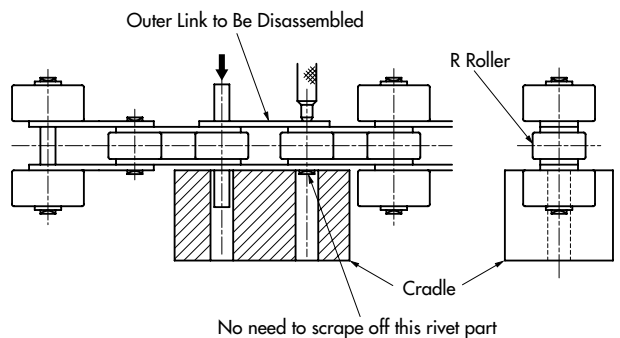


Figure 14: Removing the Pins

5. How to Disassemble Lambda Top Roller Chain

- 1) Mark the outer link to be disassembled for identification.

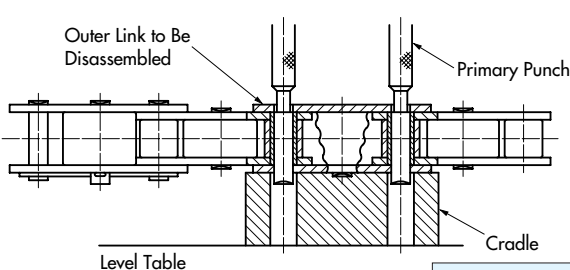
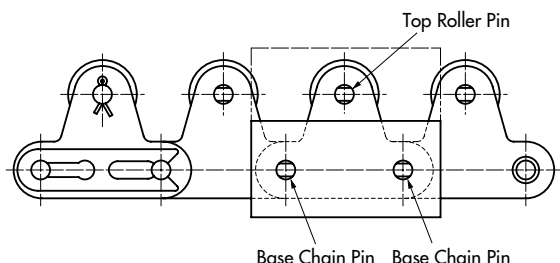


Figure 15: Removing Base Chain Pins



Chain Handling

- 2) Shear off the rivets on the base chain pin ends and top roller pin ends using a hand grinder or other means (three rivets on one side of the chain). Take care that the grinder does not overheat.
- 3) Turn the chain side that was grounded by the grinder upward and set the chain on a cradle, as shown in Figure 15. Prepare a cradle yourself as appropriate. To remove the three pins including the top roller pin at the same time, prepare a cradle integrating the part shown by the phantom line.
- 4) Tap the primary punch (or its equivalent) with a hammer until the two (three) pins are removed from the outer plate (up to the position shown in Figure 15.)
- 5) Change the setting of the cradle as shown in Figure 16 to remove the top roller pin. (When top rollers are not attached to the outer link, this procedure is not necessary.)
- 6) Remove the top roller pin by repeating step 4).

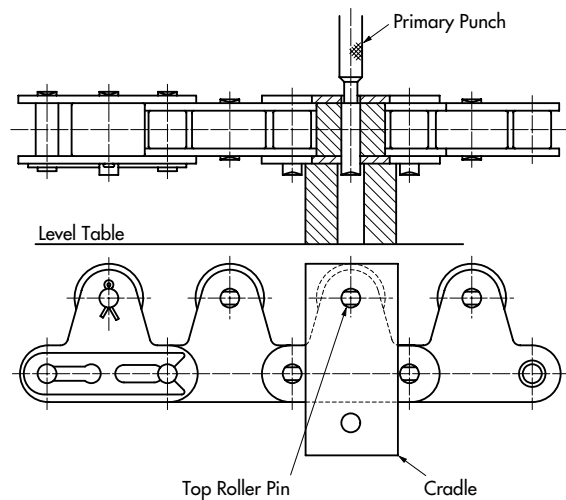


Figure 16: Removing Top Roller Pins

6. How to Disassemble Lube Free Top Chain

6.1 Lambda TS/TSA Top Chain

The chain can be disassembled from anywhere on the chain. The pins should be removed from the cotter pin side.

6.2 Lambda TN Snap Top Chain

The pin of the connecting link is loosely fitted in the connecting plate. For sections other than the connecting parts, push out the pair of pins parallel to one another by means of a punch and a hammer. (The pins are not riveted.)

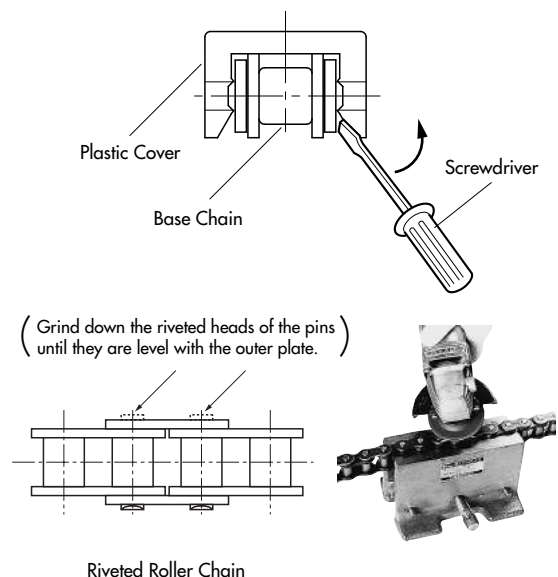
7. How to Disassemble Lambda Snap Cover Chain

7.1 Detaching and Attaching Plastic Covers

The plastic cover can be detached using a screwdriver. When attaching the plastic cover, attach the cover in the base chain firmly.

7.2 Disassembling Base Chain

For riveted roller chain, use a hand grinder to remove the riveted ends of the two pins (on the same side) of the outer link to be disassembled. Be careful not to overheat the chain when performing the grinding operation. For Lambda Chain, work especially slowly so as not to heat the oil-impregnated bushes.



Chain Handling

8. Tools for Chain Disassembly

For Use with Roller Chain and Small Size Conveyor Chain

8.1 Cradles for Lambda Roller Chain



Cradle

Cradles

Model No.	Applicable Chain
RS-LMD01-AST	RS40-LMD-1
RS-LMD02-AST	RS50-LMD-1
RS-LMD03-AST	RS60-LMD-1
RS-LMD04-AST	RS80-LMD-1
RS-LMD05-AST	RS100-LMD-1
RS-LMD06-AST	RS120-LMD-1
RS-LMD07-AST	RS140-LMD-1

8.3 Chain Vises

The vise that can be used is restricted to certain chains depending on the chain's attachment type and roller type.



CV-1 Type



CV-2 Type

Model No.	Applicable Chain	Dimensions		
		L	H	B
RS-CV1	RS40 to 80, RF2040 to 2080	100	65	94~115
RS-CV2	RS40 to 160, RF2040 to 2160	180	110	120~151

8.2 Punches



Primary Punch



Secondary Punch



Rivet Punch

Model No.		Applicable Chain
Primary Punch	Secondary Punch	
RS-P14	RS-P24	RS40 to 60, RF2040 to 2060
RS-P15	RS-P25	RS80 to 120, RF2080 to 2120
RS-P16	RS-P26	RS140 to 160, RF2160

For Use with Large Size Conveyor Chain

8.4 T-pin Bending Tools

Made to order.



8.5 Holding Tools



Reference

Chain T-Pin Nominal Diameter	Applicable Chain
ϕ 3 (2.6) x 15R	RF03
ϕ 4 (3.6) x 20R	RF05

Note: Actual diameters are shown in ().

Please contact your local Tsubaki representative if you wish to purchase any of the above tools.

Chain Handling

9. Installing Curved Lambda Chain

9.1 Installing the Guide

Compared to RS Roller Chain, Curved Lambda Chain has a larger play between the pins and bushes, providing a greater degree of freedom. Be sure to install a guide on the chain so that it engages straight onto the sprocket.

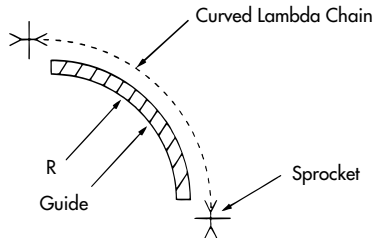


Figure 19: Guide

9.2 Minimum Horizontal Bending Radius (r)

Manufacture the guide so that its curve radius is equal to or greater than the minimum horizontal bending radius shown below.

Unit: mm

	Min. Horizontal Bending Radius (r)
RS40-LMC-CU-1	400
RS50-LMC-CU-1	500
RS60-LMC-CU-1	600

10. Conveyor Design for Lambda Snap Cover Chain

10.1 Wearstrip

Conveyance should be effectuated on the tension side and the conveyor on the slack side should be supported by the wearstrip, both ends of which should be slightly curved to prevent vibrations and pulsation of the chain.

10.3 Curve at End of Wearstrip

The curve radius of the wearstrip should be larger than the back-flex radius of the chain (see table below).

Unit: mm

	RS40-SC	RS50-SC	RS60-SC	RS80-SC	RS100-SC
Min. Back-Flex Radius R	380	480	560	740	880

10.2 Chain Slack

The necessary slack in the chain during conveyor operation is 90 to 140 mm below the drive sprocket.

10.4 Ways to Support Chain

- Carry way: Make sure the chain is supported by the rollers. If supported by the plastic cover, the cover will quickly wear down.
- Return way: The whole surface of the plastic cover should be supported.

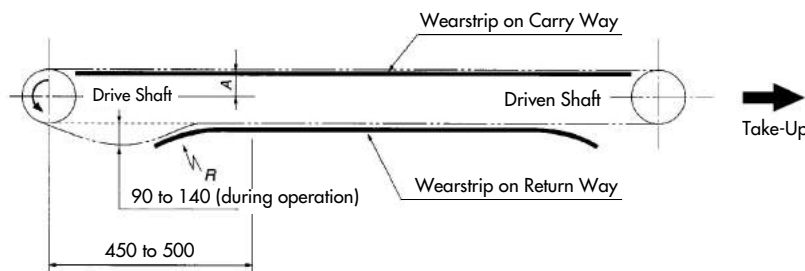


Figure 20: Conveyor Layout

10.5 Sprocket and Wearstrip Location

$A = \text{Sprocket PCD} - \text{roller diameter} / 2$

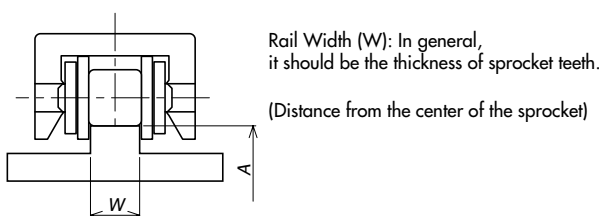


Figure 21: Carry Way

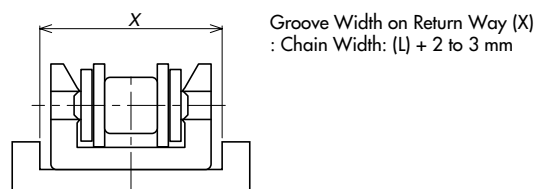


Figure 22: Return Way

MEMO

A series of horizontal dashed lines for writing.

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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