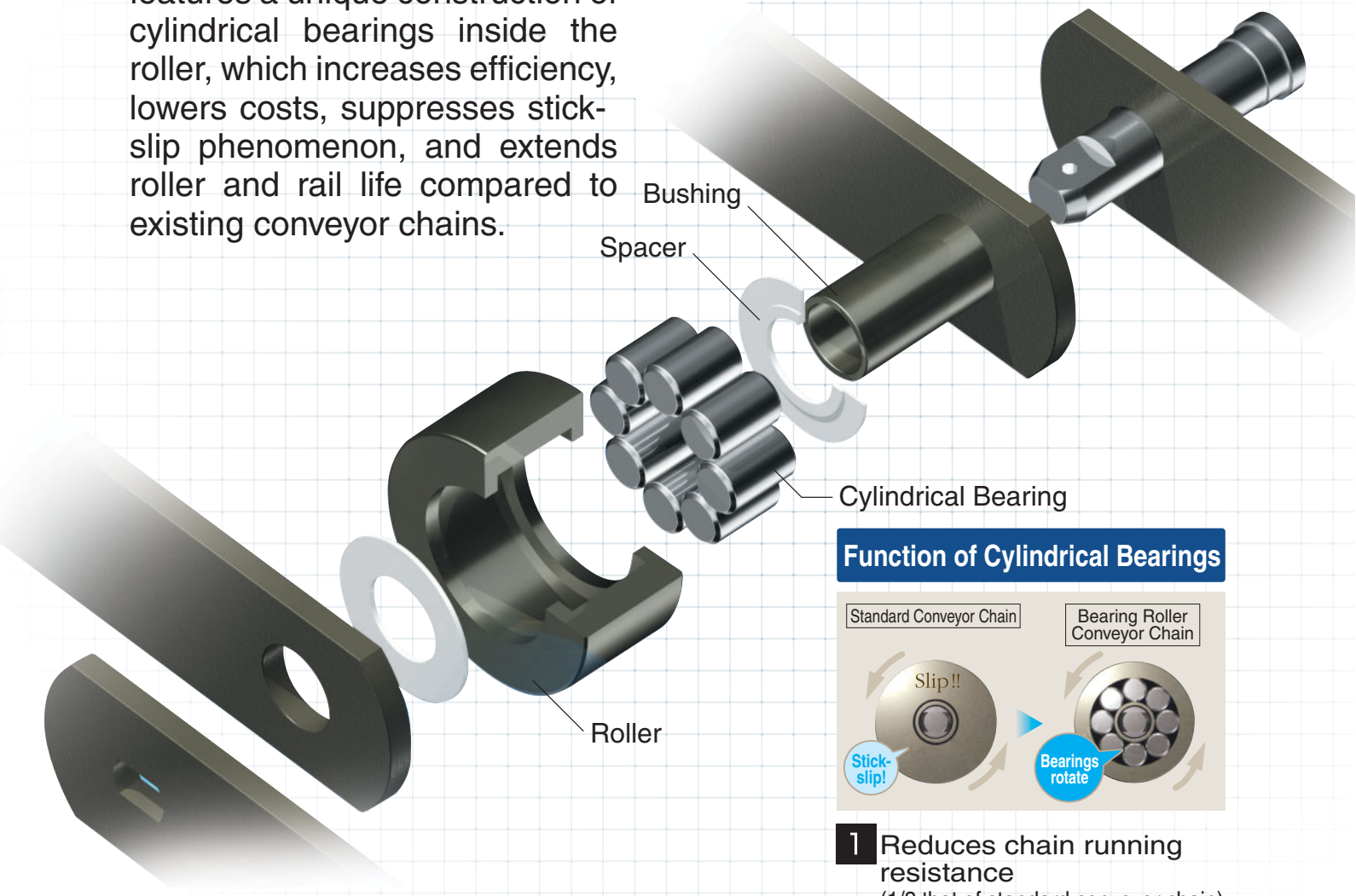
Innovation in Motion
TSUBAKI

Expanded Lineup

TSUBAKI
Bearing Roller Conveyor Chain

Bearing Roller Conveyer Chain –
The Problem Solver!

Bearing Roller Conveyor Chain features a unique construction of cylindrical bearings inside the roller, which increases efficiency, lowers costs, suppresses stick-slip phenomenon, and extends roller and rail life compared to existing conveyor chains.

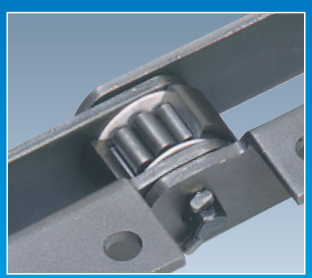


Function of Cylindrical Bearings

1. Reduces chain running resistance
   (1/3 that of standard conveyor chain)
2. Greatly increases roller allowable load
3. Increases wear life

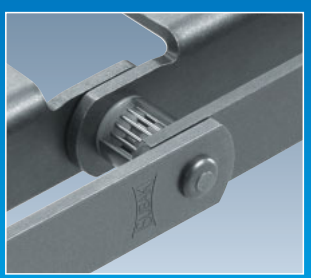
Product Lineup

Standard Series

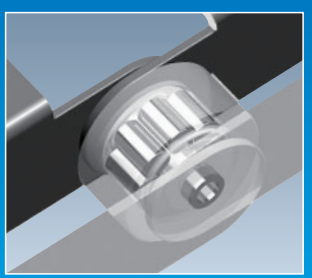


BR Type

BF Type



BS Type

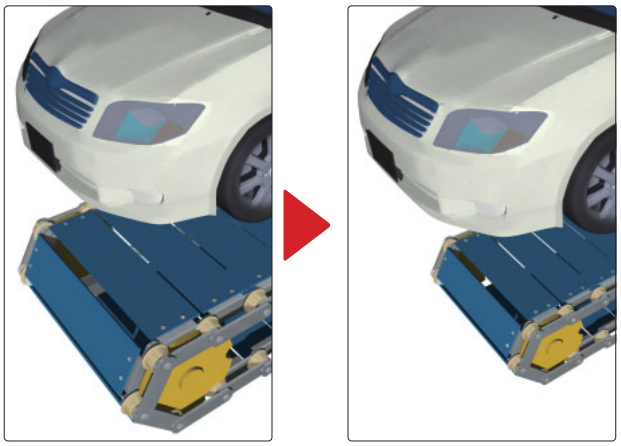


DBR Type
(Anti-dust Specifications)

Solution 1

Reduces chain tension and required drive

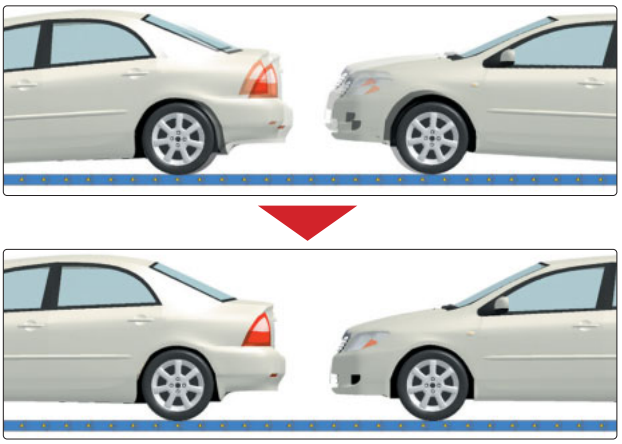
Chain tension and required drive are only 1/3 of standard conveyor chains. This allows users to choose a smaller size, as well as reduce the size of their conveyor and necessary drive power, for greater cost savings.



Solution 2

Prevents stick-slip phenomenon at low speeds

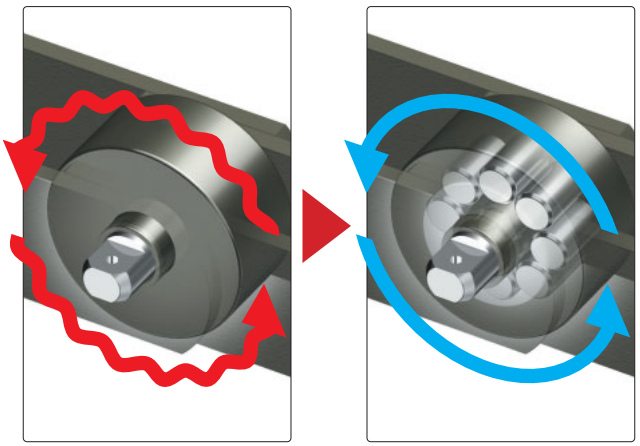
Preventing stick-slip and providing smooth movement ensures stable conveyance and eliminates motion sickness on assembly lines for higher productivity.



Solution 3

Controls poor roller rotation and decreases rail wear

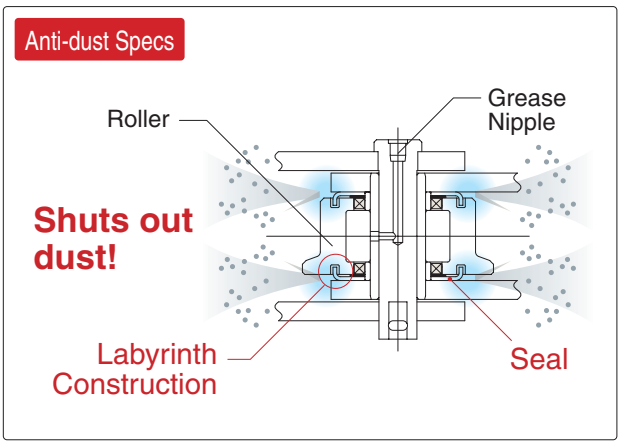
Cylindrical bearings ensure smooth roller rotation and reduce rail wear. Roller wear life is also dramatically increased.



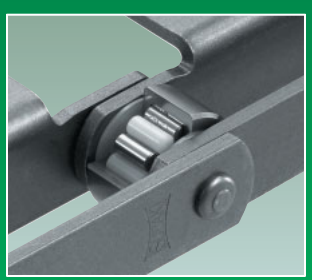
Solution 4

Improved anti-dust capabilities

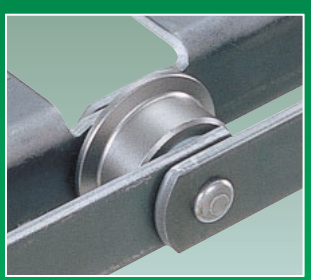
Tsubaki's Bearing Roller Conveyor Chain Anti-dust Specifications solves the problem of dust causing early wear between bushing and roller that afflicts standard conveyor chains.



Lube-free Series

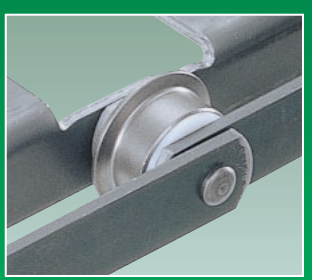


EBR Type (Standard)



EBF Type (Standard)

WEBR Type (Water Resistant)



WEBF Type (Water Resistant)

Problem solved -
no matter what the application!

Suppresses stick-slip phenomenon, increasing work efficiency

Standard Series
Standard Specs
BF Type

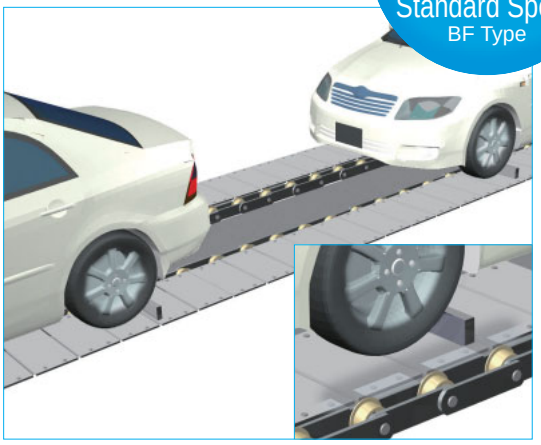
Problem

Normally, a chain with a thin metal sleeve press-fitted between the roller and bushing is used. At speeds of 5m/min or less, the chain experiences stick-slip, causing motion sickness in workers and decreasing work efficiency.

Problem Solved!

Normal operation with no stick-slip seen, even at 2m/min. Motion sickness in workers also eliminated, leading to a better work environment.

Industry: Automotive
Machine: Assembly Line
Chain Size: RF17200BF-1LA2



Increases conveyor life while reducing maintenance time

Standard Series
Standard Specs
BS Type

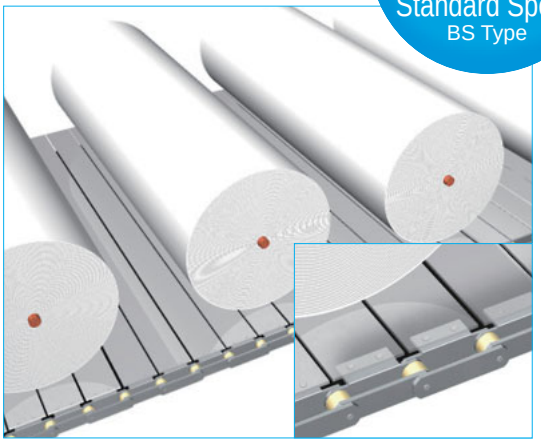
Problem

- Lubing impossible when conveying paper rolls.
- This causes poor roller rotation, leading to increased chain tension. This in turn leads to elongation of the plate holes and wear on the S roller outer diameter.

Problem Solved!

Bearing rollers provide for smooth roller rotation, resulting in less chain tension, reduced wear on the outer diameter, and much longer conveyor life.

Industry: Paper
Machine: Paper roll slat conveyor
Chain Size: RF10-BS

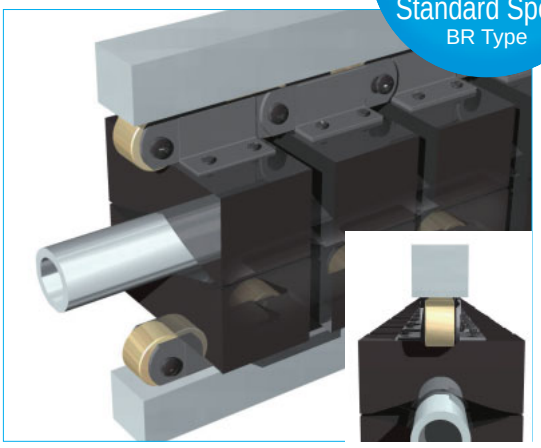


Effective against rail wear, and suppresses chain – rail sliding noise

Standard Series
Standard Specs
BR Type

Problem

Normally, a standard chain with lubrication is used. Strong roller pressure on the conveyor pipe leads to poor roller rotation, greater rail wear, and shorter chain and rail life.



Problem Solved!

Smooth roller rotation and less rail wear means quieter running between chain and rail.

Industry: Steel
Seamless pipe conveyor
Chain Size: RF05075BR

Lowers chain tension in dusty environments and stops chain failure

Standard Series
Anti-dust Specs

Problem

Need a chain that will lower chain tension in dusty environments and stop chain failure.

Problem Solved!

Lubed once every 2 or 3 months
5 years of operation, no part problems

Industry: Recycling
Conveyed Items: Plastic, sand, stone, steel scrap, etc.
Chain Size: RF17

Lowers energy costs in dusty environments

Standard Series
Anti-dust Specs

Problem

Need a chain that can lower energy costs in dusty environments

Problem Solved!

Lubed once a year
1 year of operation with no part problems

Industry: Cement
Conveyed Items: Fly ash
Chain Size: RF26

Problem solved – no matter what the application!

Reduces corner rail wear on outdoor slanted conveyors

Lube-Free Series
Water Resistant Specs

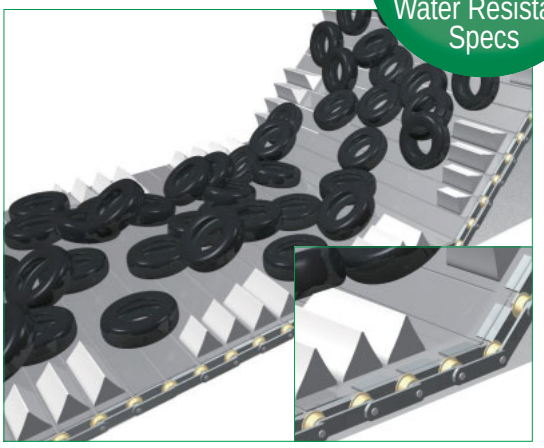
Problem

- Lube in standard conveyor chains sticks to the roller rotation surface on the rail, leading to poor roller rotation.
- This increases chain tension and roller reactive force on the corner, resulting in corner rail wear in 1 — 2 months.
- Equipment is located on the coast — lube-free would be best.

Problem Solved!

Smooth roller rotation reduces chain tension as well as the roller reactive force on the corner. This in turn helps control corner rail wear.

Industry: Cement
Used Tire Conveyor
Chain Size: RF17200WEBF



Suppresses stick-slip phenomenon and increases operation rate of production lines

Lube-Free Series
Standard Specs
Water Resistant Specs

Problem

- Stick-slip causes mis-operation of sensors during product inspection, which necessitates frequent line stops.
- Workers get motion-sick, leading to a bad working environment.
- Water from washing machine leak checks regularly get onto one side of the chain, leading to worse corrosion and shorter life than the opposite side.

Problem Solved!

No more line stops from stick-slip phenomenon interfering with sensor operation, leading to a better work environment. And switching to WEBF (Water Resistant type) on one side of the line extends chain life, even with water from leak checks contacting chain.

Industry: Home appliance
Washing Machine Conveyor
Chain Size: RF08150EBF/WEBF

No lubrication and longer life in shower testers for the automotive industry

Lube-Free Series
Water Resistant Specs

Problem

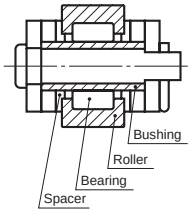
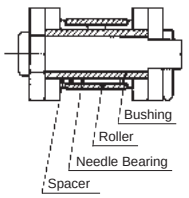
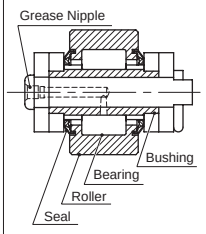
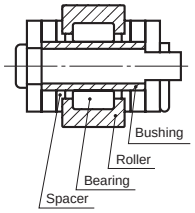
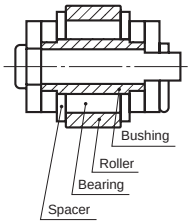
The shower tester lines are a particularly harsh process in the automotive industry. In the past, the issues of lube-free and long life were addressed with seals and grease nipples, or plastic inserts in the roller inner radius. However, none of these methods were satisfactory in terms of maintenance time and chain life.

Problem Solved!

We introduced our WEBF Series chain, which combines the reduced wear of seal and grease nipple types, and lube-free features of plastic inserts. WEBF provides long life even in contact with water or in lube-free environments.

Industry: Automotive
Machine: Shower Tester Conveyor
Chain Size: RF12200WEBF-1LA2

Specification Chart

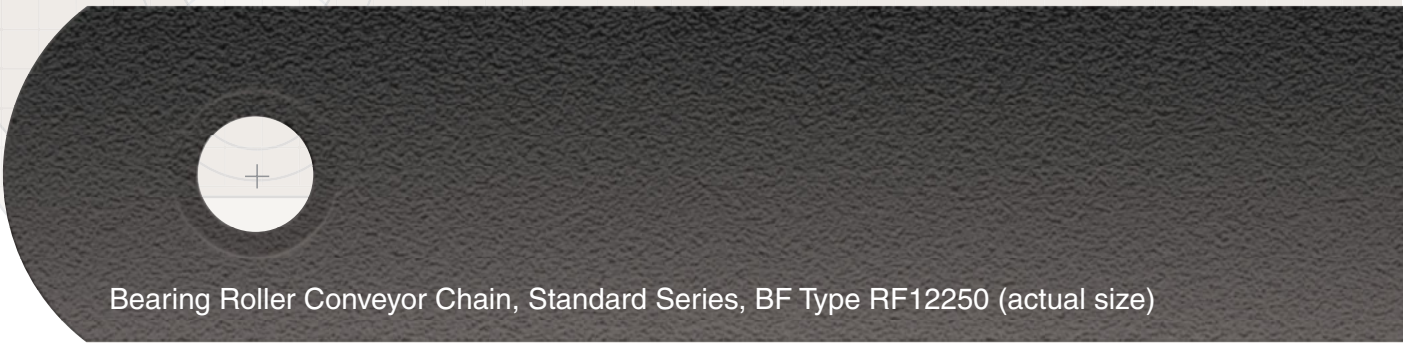
Series Specification			Standard Series				Lube-Free Series			
			Standard Specs			Anti-dust Specs	Standard Specs		Water Resistant Specs	
Type			BR BF		BS	DBR DBF	EBR EBF		WEBR WEBF	
Roller Construction										
Roller Material	Roller(outer ring)		Hardened tensile steel		Hardened tensile steel	Hardened tensile steel	Hardened tensile steel		SUS400 stainless steel	
	Bearing		Case hardened alloy steel bearings		Case hardened alloy steel needle bearings	Case hardened alloy steel bearings	Case hardened alloy steel bearings and plastic bearings		SUS400 stainless steel bearings and plastic bearings	
	Bushing(inner ring)		Case hardened alloy steel		Case hardened alloy steel	Case hardened alloy steel	Case hardened alloy steel		SUS400 stainless steel	
	Spacer		Plastic		Plastic	Plastic	Plastic		Plastic	
	Seal		—		—	Rubber	—		—	
	Side Plate		—		—	Carbon steel	—		—	
Chain Specs	Plate		DT Series: Carbon steel	AT Series: Hardened tensile steel	Carbon steel	DT Series: Carbon steel	AT Series: Hardened tensile steel	DT Series: Carbon steel / AT Series: Hardened tensile steel		Carbon steel
	Pin		DT Series: Hardened tensile steel	AT Series: Hardened tensile steel	Hardened tensile steel	DT Series: Hardened tensile steel	AT Series: Hardened tensile steel	DT Series: Hardened tensile steel / AT Series: Hardened tensile steel		SUS400 stainless steel
Usage Environment			Room temperature away from water and dust		Room temperature away from water and dust	Dust may be present (Cannot be used when chain will be buried in dust.)	Room temperature away from water and dust		Room temperature in contact with water	
Roller Lubrication			Requires regular lube		Packaged and shipped lubed — no further lube necessary	Requires regular lube	Packaged and shipped lubed — no further lube necessary		Packaged and shipped lubed — no further lube necessary (cannot be used in dusty environments)	
Ambient Temperature			-20…C to 80…C (can mfg. to withstand up to 150…C)		-20…C to 50…C	-10…C to 80…C	-20…C to 50…C		0…C to 50…C	
Roller Allowable Load	S Roller, R Roller	RF03	1.96kN	{ 200kgf}	—	—	—	—	1.96kN	{ 200kgf}	1.37kN	{ 140kgf}
		RF05	3.04kN	{ 310kgf}	—	—	—	—	3.04kN	{ 310kgf}	2.13kN	{ 220kgf}
		RF08	4.12kN	{ 420kgf}	—	—	—	—	4.12kN	{ 420kgf}	2.88kN	{ 290kgf}
		RF10	5.49kN	{ 560kgf}	2.00kN	{ 200kgf}	5.49kN	{ 560kgf}	5.49kN	{ 560kgf}	3.84kN	{ 390kgf}
		RF12	8.34kN	{ 850kgf}	3.00kN	{ 310kgf}	8.34kN	{ 850kgf}	8.34kN	{ 850kgf}	5.84kN	{ 600kgf}
		RF17	14.1kN	{1440kgf}	—	—	14.1kN	{1440kgf}	14.1kN	{1440kgf}	9.87kN	{1010kgf}
		RF26	19.6kN	{2000kgf}	—	—	19.6kN	{2000kgf}	19.6kN	{2000kgf}	13.7kN	{1400kgf}
		RF36	27.5kN	{2800kgf}	—	—	27.5kN	{2800kgf}	27.5kN	{2800kgf}	19.3kN	{1970kgf}
	F Roller	RF03	1.27kN	{ 130kgf}	—	—	—	—	1.27kN	{ 130kgf}	0.89kN	{ 90kgf}
		RF05	1.96kN	{ 200kgf}	—	—	—	—	1.96kN	{ 200kgf}	1.37kN	{ 140kgf}
		RF08	2.65kN	{ 270kgf}	—	—	—	—	2.65kN	{ 270kgf}	1.86kN	{ 190kgf}
		RF10	3.43kN	{ 350kgf}	—	—	3.43kN	{ 350kgf}	3.43kN	{ 350kgf}	2.40kN	{ 240kgf}
		RF12	5.49kN	{ 560kgf}	—	—	5.49kN	{ 560kgf}	5.49kN	{ 560kgf}	3.84kN	{ 390kgf}
		RF17	9.81kN	{1000kgf}	—	—	9.81kN	{1000kgf}	9.81kN	{1000kgf}	6.87kN	{ 700kgf}
		RF26	13.7kN	{1400kgf}	—	—	13.7kN	{1400kgf}	13.7kN	{1400kgf}	9.59kN	{ 980kgf}
		RF36	18.6kN	{1900kgf}	—	—	18.6kN	{1900kgf}	18.6kN	{1900kgf}	13.0kN	{1330kgf}
Coefficient of Roller Rotation Friction			0.03		0.03	※ 0.05	0.03		0.03	
Chain Allowable Speed	Sprocket No. of Teeth	6	15m/min		10m/min	15m/min	—		—	
		8	25m/min		15m/min	25m/min	15m/min		15m/min	
		10	30m/min		20m/min	30m/min	20m/min		20m/min	
		12	30m/min		25m/min	30m/min	25m/min		25m/min	

※ As Anti-dust Specs are designed for use in dusty environments, their coefficient of friction is slightly higher. Consult a Tsubaki representative when selecting.

Go two sizes down –

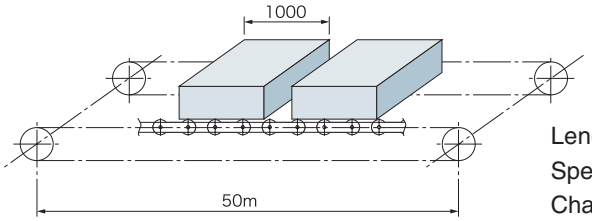
RF Conveyor Chain (RF26250) actual size

2 Size Down



Bearing Roller Conveyor Chain, Standard Series, BF Type RF12250 (actual size)

Specifications (Selection Example)



Length	: 50m	Conveyed Items	: 40 items at 2000kgf/each
Speed	: 10m/min	No. of Strands	: 2
Chain Pitch	: 250	F Roller Type	: A2 attachment

A Bearing Roller Conveyor Chain for every environment

Usage Environment	Standard Conveyor Chain	Bearing Roller Conveyor Chain
Normal	DT, GT	Standard Series/Lube-Free Series, Standard Specs
High wear (heavy load)	AT	Standard Series/Lube-Free Series, Standard Specs
High wear (foreign objects)	BT, CT	Standard Series, Anti-dust Specs
Slightly corrosive	PT, NEP	Lube-Free Series, Water Resistant Specs

Selection

1. Follow RF Conveyor Chain selection guidelines when selecting size.
2. Specifications necessary when selecting:

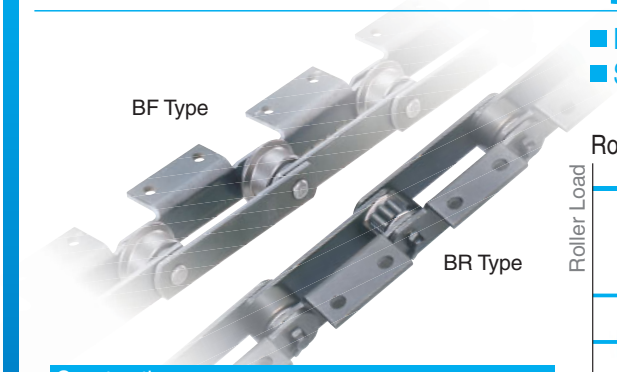
●Roller rotation coefficient of friction: See pg. 6
●Ambient temperature: See pg. 6
●Sprocket: All series/specifications can use sprockets for RF Conveyor Chains. See pg. 6 for sprocket no. of teeth.
●Rail: The roller contact width of Lube-Free Series Water Resistant Specs and Heat-resistant Specs are different from RF Conveyor Chain. See pg. 17 for rail fitting.

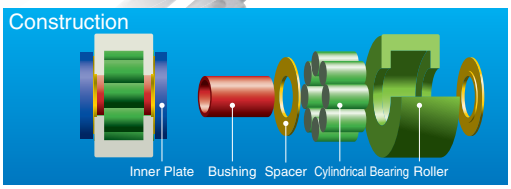
●Roller allowable load: Roller allowable load is the allowable load for one roller on a load-type conveyor. Roller allowable load assumes a guide rail tensile strength of 400N/mm2{41kgf/mm2}. When using A attachments, compare attachment allowable loads and use the lower of the values.

Go compact!

RF Conveyor Chain	Bearing Roller Conveyor Chain Standard Series, BF Type
Confirm roller allowable load	
Chain Size:RF26250F Roller Allowable Load:5.3kN{540kgf}	Chain Size:RF12250BF Roller Allowable Load:5.49kN{560kgf}
Confirm Chain Tensile Strength	
0.08 (when lubed)	0.03 As this is a rough selection, it ignores impact force during start-up and tensile strength from its own weight.
~1/3 coefficient of friction	~1/3
2000kgf/each x 40 items x 0.08 x 9.8/1000 x 1/2 strands =31.4kN{3200kgf}	2000kgf/each x 40 items x 0.03 x 9.8/1000 x 1/2 strands =11.8kN{1200kgf} Allowable tensile strength with a safety factor of 7.
~1/3 chain tensile strength	~1/3
RF26250F-1LA2	RF12250BF-1LA2
2 sizes down chain size	2 sizes down
Selecting Motor Capacity (kW)	
Basic formula: kW=31.4kN x 2 strands x 10m/min/54.1 x 1/0.85 =13.5kW	Basic formula: kW=11.8kN x 2 strands x 10m/min/54.1 x 1/0.85 =5.1kW
~1/2.5 motor capacity	~1/2.5
Cost Comparison	
RF26250F-1LA2 1	RF12250BF-1LA2 0.7
30% less cost	30% less

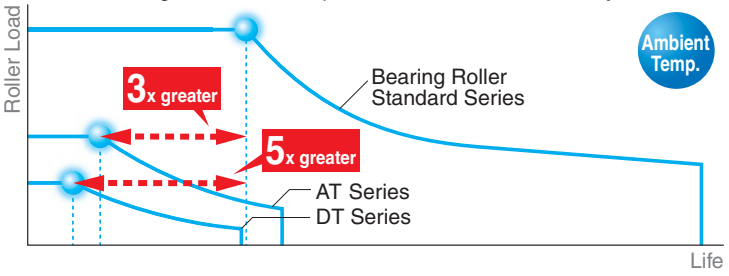
Standard Specs BR/BF Type





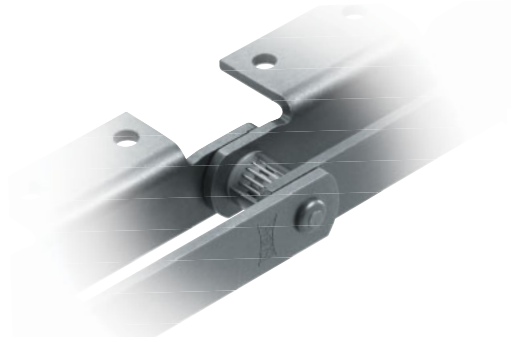
- Features cylindrical bearings between rollers and bushings.
- Same dimensions as standard R and F rollers on RF Conveyor Chains.

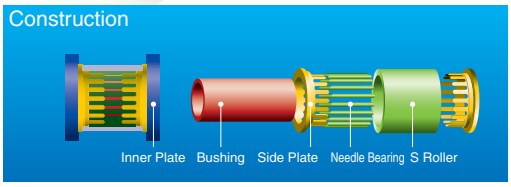
Roller-Bushing Wear Life Comparison with Standard Conveyor Chains



5x the wear life of DT Series and 3x the wear life of AT Series, without additional lubrication.

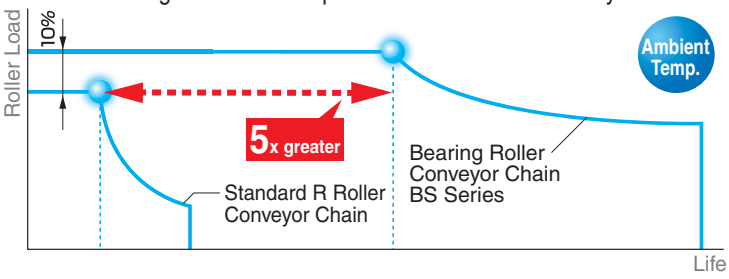
Standard Series BS Type





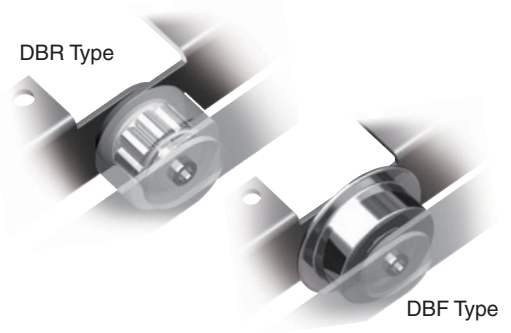
- Features a unique construction of needle bearings between the inner roller and outer bushing, kept in place by plastic side plates.
- Same dimensions as standard S roller on RF Conveyor Chains

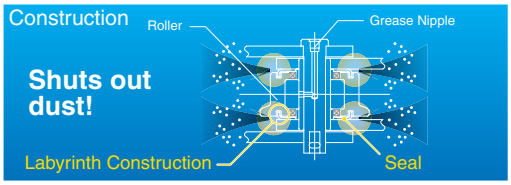
Roller-Bushing Wear Life Comparison with Standard Conveyor Chains



5x the wear life of DT Series without additional lubrication.
***Standard Conveyor Chain w/ S roller or R roller.**

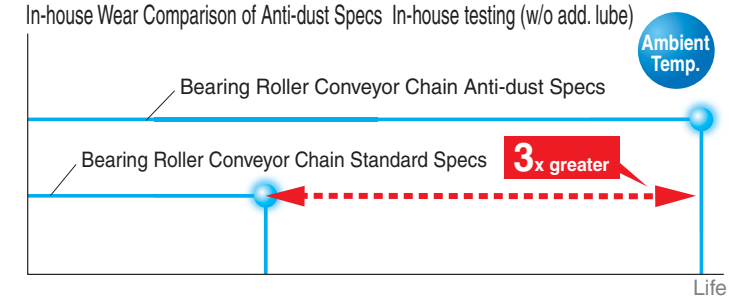
Anti-dust Specs DBR/DBF Type





- Exhibits the same performance and efficiency of the Bearing Roller Conveyor Chain, even in dusty environments.
- Same dimensions as standard R or F rollers on RF Conveyor Chains.

In-house Wear Comparison of Anti-dust Specs In-house testing (w/o add. lube)



3x the wear life of Bearing Roller Conveyor Chain Standard Specs.

Standard Series General Specifications

TSUBAKI Chain Number			Max. Allowable Tension						Roller Allowable Load					
			BR, BF Type				BS Type		R Roller		F Roller		S Roller	
			DT Series		AT Series									
BR Type	BF Type	BS Type	kN	{kgf}	kN	{kgf}	kN	{kgf}	kN	{kgf/each}	kN	{kgf/each}	kN	{kgf/each}
RF03075BR	RF03075BF	—	4.12	{ 420 }	7.85	{ 800 }	—	—	1.96	{ 200 }	1.27	{ 130 }	—	—
RF03100BR	RF03100BF	—					—	—					—	—
RF05100BR	RF05100BF	—	9.81	{ 1000 }	14.7	{ 1500 }	—	—	3.04	{ 310 }	1.96	{ 200 }	—	—
RF05125BR	RF05125BF	—					—	—					—	—
RF05150BR	RF05150BF	—					—	—					—	—
RF08125BR	RF08125BF	—	10.8	{ 1100 }	14.7	{ 1500 }	—	—	4.12	{ 420 }	2.65	{ 270 }	—	—
RF08150BR	RF08150BF													
RF10100BR	—	RF10100BS	15.7	{ 1620 }	23.5	{ 2400 }	10.8	{ 1100 }	5.49	{ 560 }	3.43	{ 350 }	2.00	{ 200 }
RF10125BR	RF10125BF	RF10125BS												
RF10150BR	RF10150BF	RF10150BS												
RF12200BR	RF12200BF	RF12200BS	26.5	{ 2700 }	36.3	{ 3700 }	17.8	{ 1800 }	8.34	{ 850 }	5.49	{ 560 }	3.00	{ 310 }
RF12250BR	RF12250BF	RF12500BS												
RF17200BR	RF17200BF	—	34.3	{ 3500 }	54.9	{ 5600 }	—	—	14.1	{ 1440 }	9.81	{ 1000 }	—	—
RF17250BR	RF17250BF													
RF17300BR	RF17300BF													
RF26250BR	RF26250BF	—	44.1	{ 4500 }	72.6	{ 7400 }	—	—	19.6	{ 2000 }	13.7	{ 1400 }	—	—
RF26300BR	RF26300BF													
RF26450BR	RF26450BF													
RF36300BR	RF36300BF	—	67.7	{ 6900 }	97.1	{ 9900 }	—	—	27.5	{ 2800 }	18.6	{ 1900 }	—	—
RF36450BR	RF36450BF													
RF36600BR	RF36600BF													

Note 1. DT specifications are standard for BS Type. As the max. allowable tension and roller allowable load for AT Series are determined by roller strength, they are the same as DT Series.
2. Consult a Tshubaki representative for inch pitch sizes.

Standard Series Anti-dust Specifications

TSUBAKI Chain Number		Max. Allowable Tension				Roller Allowable Load			
		DBR, DBF Type				R Roller		F Roller	
		DT Series		AT Series					
DBR Type	DBF Type	kN	{kgf}	kN	{kgf}	kN	{kgf}	kN	{kgf}
RF10100DBR	—	15.7	{ 1620 }	23.5	{ 2400 }	5.49	{ 560 }	3.43	{ 350 }
RF10125DBR	RF10125DBF								
RF10150DBR	RF10150DBF								
RF12200DBR	RF12200DBF	26.5	{ 2700 }	36.3	{ 3700 }	8.34	{ 850 }	5.49	{ 560 }
RF12250DBR	RF12250DBF								
RF17200DBR	RF17200DBF	34.3	{ 3500 }	54.9	{ 5600 }	14.1	{ 1440 }	9.81	{ 1000 }
RF17250DBR	RF17250DBF								
RF17300DBR	RF17300DBF								
RF26250DBR	RF26250DBF	44.1	{ 4500 }	72.6	{ 7400 }	19.6	{ 2000 }	13.7	{ 1400 }
RF26300DBR	RF26300DBF								
RF26450DBR	RF26450DBF								
RF36300DBR	RF36300DBF	67.7	{ 6900 }	97.1	{ 9900 }	27.5	{ 2800 }	18.6	{ 1900 }
RF36450DBR	RF36450DBF								
RF36600DBR	RF36600DBF								

Note 1. *DT Series: General Use Conveyor Chain
AT Series: Wear Resistant/Heavy Duty Conveyor Chain.
2. Periodically lubricate the base chain using the grease nipple on the pin head.
(The lubrication cycle will vary depending on the type and amount of dust. A field test using a few links is essential.)
3. Chain cannot be used for conveyance in environments where it will be fully covered in dust. An example of such can be found on pg.4.
4. Base chain is compatible with General Use Conveyor Chains and can use current sprockets.
5. Do not use in corrosive environments. (Exposed to or submersed in warter, etc.)
6. Refer to our Tsubaki Large Size Conveyor Chain catalog for information on Selection and handling.
7. Can use any attachment.

Chain Numbering Example

RF03075 DBR -1L A1-DT

- Chain Size: RF03075
- Anti-dust Specs: DBR
- Bearing Roller Type: DBR
  - BR: R Roller
  - BF: F Roller
  - BS: S Roller
- Attachment Spacing: -1L
- Attachment Type: A1
- Chain Spec. Code: -DT
  - DT: Standard Series
  - AT: Heavy Duty Series

Ordering Example

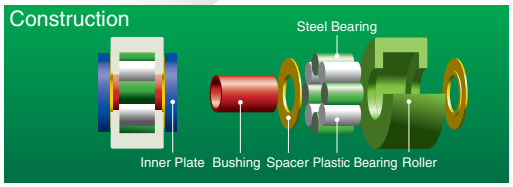
Chain Size: RF10, Pitch: 150mm
Bearing Roller Type: Standard Series, Standard Specs, F Roller
Chain Spec: DT Series
Attachment Type/Spacing: A2 every 1L
Quantity: 400 links

Chain Number

RF10150BF - DT - 1LA2

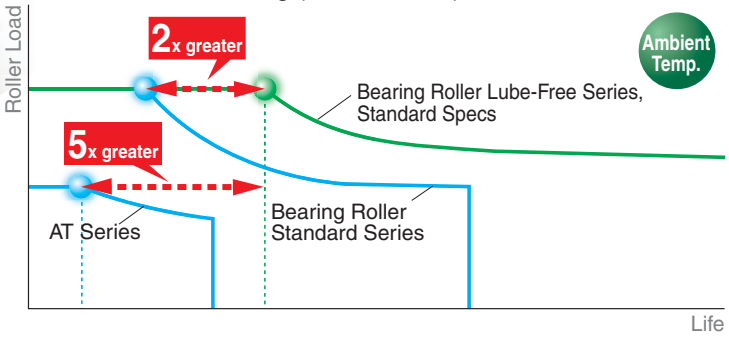
Quantity	Unit
400	L

Standard Specs EBR/EBF Type



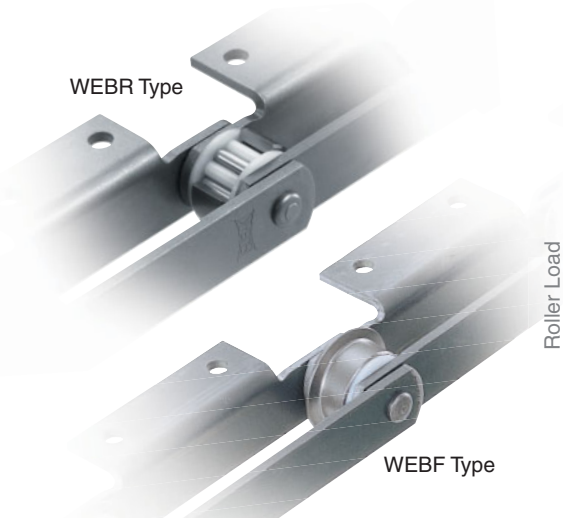
■ Tsubaki's Lube-Free Series uses special cylindrical bearings with automatic lubricating functions between the bushing and roller. Can be used without lubricating the rollers.

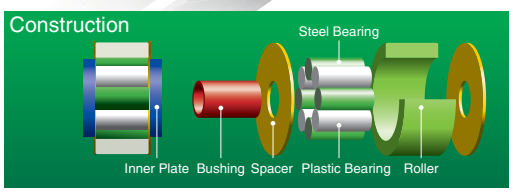
Roller-Bushing Wear Life Comparison with Standard Conveyor Chains In-house testing (w/o add. lube)



Has 5x the wear life of Standard Conveyor Chain DT Series and 2x the wear life of Bearing Roller Conveyor Chain Standard Specs without additional lubrication.

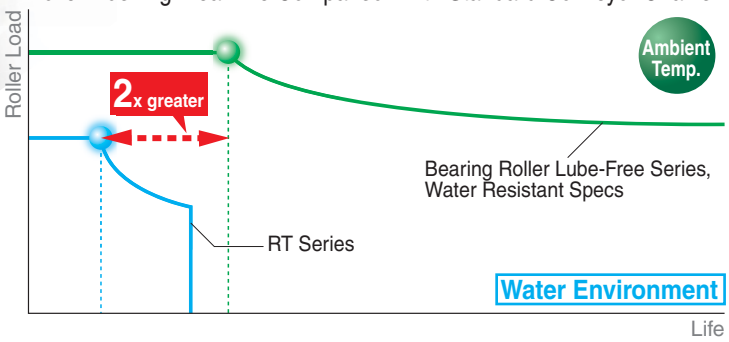
Water Resistant WEBR/WEBF Type





■ Tsubaki's Lube-Free Series uses special cylindrical bearings with automatic lubricating functions between the bushing and roller. Can be used without lubricating the rollers.

Roller-Bushing Wear Life Comparison with Standard Conveyor Chains



2x the wear life of Standard Conveyor Chain RT Series without additional lubrication.

Lube-Free/Standard Specifications

TSUBAKI Chain Number		Max. Allowable Tension				Roller Allowable Load			
		DT Series		AT Series		R Roller		F Roller	
EBR Type	EBF Type	kN	{kgf}	kN	{kgf}	kN	{kgf/each}	kN	{kgf/each}
RF03075EBR	RF03075EBF	2.88	{ 290 }	5.50	{ 560 }	1.96	{ 200 }	1.27	{ 130 }
RF03100EBR	RF03100EBF								
RF05100EBR	RF05100EBF	6.87	{ 700 }	10.3	{ 1050 }	3.04	{ 310 }	1.96	{ 200 }
RF05125EBR	RF05125EBF								
RF05150EBR	RF05150EBF								
RF08125EBR	RF08125EBF	7.56	{ 770 }	10.3	{ 1050 }	4.12	{ 420 }	2.65	{ 270 }
RF08150EBR	RF08150EBF								
RF10100EBR	—	11.0	{ 1120 }	16.5	{ 1680 }	5.49	{ 560 }	3.43	{ 350 }
RF10125EBR	RF10125EBF								
RF10150EBR	RF10150EBF								
RF12200EBR	RF12200EBF	18.6	{ 1900 }	25.4	{ 2590 }	8.34	{ 850 }	5.49	{ 560 }
RF12250EBR	RF12250EBF								
RF17200EBR	RF17200EBF	24..0	{ 2450 }	38.4	{ 3920 }	14.1	{ 1440 }	9.81	{ 1000 }
RF17250EBR	RF17250EBF								
RF17300EBR	RF17300EBF								
RF26250EBR	RF26250EBF	30.9	{ 3150 }	50.8	{ 5180 }	19.6	{ 2000 }	13.7	{ 1400 }
RF26300EBR	RF26300EBF								
RF36300EBR	RF36300EBF	47.4	{ 4830 }	68.0	{ 6930 }	27.5	{ 2800 }	18.6	{ 1900 }

Standard BR Series, BF Type (ref.)

Max. Allowable Tension				Roller Allowable Load			
DT Series		AT Series		R Roller		F Roller	
kN	{kgf}	kN	{kgf}	kN	{kgf/each}	kN	{kgf/each}
4.12	{ 420 }	7.85	{ 800 }	1.96	{ 200 }	1.27	{ 130 }
9.81	{ 1000 }	14.7	{ 1500 }	3.04	{ 310 }	1.96	{ 200 }
10.8	{ 1100 }	14.7	{ 1500 }	4.12	{ 420 }	2.65	{ 270 }
15.7	{ 1600 }	23.5	{ 2400 }	5.49	{ 560 }	3.43	{ 350 }
26.5	{ 2700 }	36.3	{ 3700 }	8.34	{ 850 }	5.49	{ 560 }
34.3	{ 3500 }	54.9	{ 5600 }	14.1	{ 1440 }	9.81	{ 1000 }
44.1	{ 4500 }	72.6	{ 7400 }	19.6	{ 2000 }	13.7	{ 1400 }
67.7	{ 6900 }	97.1	{ 9900 }	27.5	{ 2800 }	18.6	{ 1900 }

Lube-Free Series, Water Resistant Specifications

TSUBAKI Chain Number		Max. Allowable Tension		Roller Allowable Load			
				R Roller		F Roller	
WEBR Type	WEBF Type	kN	{kgf}	kN	{kgf/each}	kN	{kgf/each}
RF03075WEBR	RF03075WEBF	2.88	{ 290 }	1.37	{ 140 }	0.89	{ 90 }
RF03100WEBR	RF03100WEBF						
RF05100WEBR	RF05100WEBF	6.87	{ 700 }	2.13	{ 220 }	1.37	{ 140 }
RF05125WEBR	RF05125WEBF						
RF05150WEBR	RF05150WEBF						
RF08125WEBR	RF08125WEBF	7.56	{ 770 }	2.88	{ 290 }	1.86	{ 190 }
RF08150WEBR	RF08150WEBF						
RF10100WEBR	—	11.0	{ 1120 }	3.84	{ 390 }	2.40	{ 240 }
RF10125WEBR	RF10125WEBF						
RF10150WEBR	RF10150WEBF						
RF12200WEBR	RF12200WEBF	18.6	{ 1900 }	5.84	{ 600 }	3.84	{ 390 }
RF12250WEBR	RF12250WEBF						
RF17200WEBR	RF17200WEBF	24..0	{ 2450 }	9.87	{ 1010 }	6.87	{ 700 }
RF17250WEBR	RF17250WEBF						
RF17300WEBR	RF17300WEBF						
RF26250WEBR	RF26250WEBF	30.9	{ 3150 }	13.7	{ 1400 }	9.59	{ 980 }
RF26300WEBR	RF26300WEBF						
RF36300WEBR	RF36300WEBF	47.4	{ 4830 }	19.3	{ 1970 }	13.0	{ 1330 }

Chain Numbering Example

RF03075 EB R -1L A2-DT

Chain Size

Bearing Roller Spec:
EB: Lube-Free Series, Standard Specs
WEB: Lube-Free Series, Water Resistant Specs

Roller Type:
R: R Roller
F: F Roller

Attachment Spacing

Attachment Type

Chain Spec. Code
DT: Standard Series
AT : Heavy Duty Series
(Water Resistant: No code)

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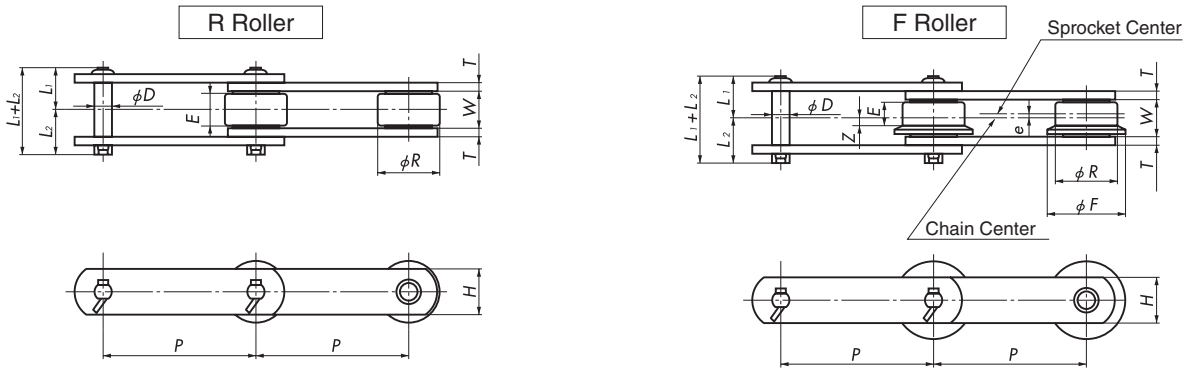
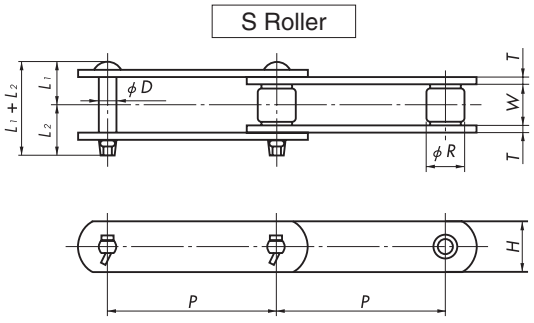


TSUBAKI Chain Number						Pitch	Roller						
							R Roller		F Roller				
Standard Series				Lube-free Series			Diameter	Contact Width	Diameter	Flange Diameter	Contact Width	Off-center	Z
Standard Specifications		Anti-dust Specifications		Standard Specifications		P	R	E	R	F	E	e	
RF03075BR	RF03075BF	—	—	RF03075EBR	RF03075EBF	75	31.8	14	31.8	42	11	1.5	4.3
RF03100BR	RF03100BF	—	—	RF03100EBR	RF03100EBF	100							
RF05100BR	RF05100BF	—	—	RF05100EBR	RF05100EBF	100	40	19	40	50	14	2.5	4.5
RF05125BR	RF05125BF	—	—	RF05125EBR	RF05125EBF	125							
RF05150BR	RF05150BF	—	—	RF05150EBR	RF05150EBF	150							
RF08125BR	RF08125BF	—	—	RF08125EBR	RF08125EBF	125	44.5	23	44.5	55	18	2.5	6.5
RF08150BR	RF08150BF	—	—	RF08150EBR	RF08150EBF	150							
RF10100BR	—	RF10100DBR	—	RF10100EBR	—	100	50.8	26	—	—	—	—	—
RF10125BR	RF10125BF	RF10125DBR	RF10125DBF	RF10125EBR	RF10125EBF	125			50.8	65	20	3	7
RF10150BR	RF10150BF	RF10150DBR	RF10150DBF	RF10150EBR	RF10150EBF	150							
RF12200BR	RF12200BF	RF12200DBR	RF12200DBF	RF12200EBR	RF12200EBF	200	65	32	65	80	24	4	8
RF12250BR	RF12250BF	RF12250DBR	RF12250DBF	RF12250EBR	RF12250EBF	250							
RF17200BR	RF17200BF	RF17200DBR	RF17200DBF	RF17200EBR	RF17200EBF	200	80	44	80	100	34	5	12
RF17250BR	RF17250BF	RF17250DBR	RF17250DBF	RF17250EBR	RF17250EBF	250							
RF17300BR	RF17300BF	RF17300DBR	RF17300DBF	RF17300EBR	RF17300EBF	300							
RF26250BR	RF26250BF	RF26250DBR	RF26250DBF	RF26250EBR	RF26250EBF	250	100	50	100	125	38	6	13
RF26300BR	RF26300BF	RF26300DBR	RF26300DBF	RF26300EBR	RF26300EBF	300							
RF26450BR	RF26450BF	RF26450DBR	RF26450DBF	RF26450EBR	RF26450EBF	450							
RF36300BR	RF36300BF	RF36300DBR	RF36300DBF	RF36300EBR	RF36300EBF	300	125	56	125	150	42	7	14
RF36450BR	RF36450BF	RF36450DBR	RF36450DBF	RF36450EBR	RF36450EBF	450							
RF36600BR	RF36600BF	RF36600DBR	RF36600DBF	RF36600EBR	RF36600EBF	600							

TSUBAKI Chain Number						Inner Link Inner Width	Plate		Pin				Approximate Mass kg/m	
Standard Series				Lube-free Series			Height	Thickness	Diameter					
Standard Specifications		Anti-dust Specifications		Standard Specifications		W	H	T	D	L_1+L_2	L_1	L_2	R Roller	F Roller
RF03075BR	RF03075BF	—	—	RF03075EBR	RF03075EBF	16.1	22	3.2	8.0	38	18	20	2.8	2.9
RF03100BR	RF03100BF	—	—	RF03100EBR	RF03100EBF								2.4	2.5
RF05100BR	RF05100BF	—	—	RF05100EBR	RF05100EBF	22	32	4.5	11.3	53.5	25	28.5	5.2	5.4
RF05125BR	RF05125BF	—	—	RF05125EBR	RF05125EBF								4.5	4.6
RF05150BR	RF05150BF	—	—	RF05150EBR	RF05150EBF								4.2	4.4
RF08125BR	RF08125BF	—	—	RF08125EBR	RF08125EBF	27	28.6	6.3	11.3	65.5	31	34.5	5.9	6.2
RF08150BR	RF08150BF	—	—	RF08150EBR	RF08150EBF								5.6	5.8
RF10100BR	—	RF10100DBR	—	RF10100EBR	—	30	38.1	6.3	14.5	69	33	36	10.0	—
RF10125BR	RF10125BF	RF10125DBR	RF10125DBF	RF10125EBR	RF10125EBF								8.7	9.0
RF10150BR	RF10150BF	RF10150DBR	RF10150DBF	RF10150EBR	RF10150EBF								8.0	8.3
RF12200BR	RF12200BF	RF12200DBR	RF12200DBF	RF12200EBR	RF12200EBF	37.1	44.5	7.9	15.9	83.5	40.5	43	11.6	12.1
RF12250BR	RF12250BF	RF12250DBR	RF12250DBF	RF12250EBR	RF12250EBF								10.4	10.8
RF17200BR	RF17200BF	RF17200DBR	RF17200DBF	RF17200EBR	RF17200EBF	51.4	50.8	9.5	19.1	109.5	51.5	58	20.0	21.0
RF17250BR	RF17250BF	RF17250DBR	RF17250DBF	RF17250EBR	RF17250EBF								17.0	18.0
RF17300BR	RF17300BF	RF17300DBR	RF17300DBF	RF17300EBR	RF17300EBF								16.0	16.0
RF26250BR	RF26250BF	RF26250DBR	RF26250DBF	RF26250EBR	RF26250EBF	57.2	63.5	9.5	22.2	116.5	55.5	61	26.0	27.0
RF26300BR	RF26300BF	RF26300DBR	RF26300DBF	RF26300EBR	RF26300EBF								23.0	24.0
RF26450BR	RF26450BF	RF26450DBR	RF26450DBF	RF26450EBR	RF26450EBF								19.0	19.0
RF36300BR	RF36300BF	RF36300DBR	RF36300DBF	RF36300EBR	RF36300EBF	66.7	76.2	12.7	25.4	146	68	78	40.0	42.0
RF36450BR	RF36450BF	RF36450DBR	RF36450DBF	RF36450EBR	RF36450EBF								32.0	33.0
RF36600BR	RF36600BF	RF36600DBR	RF36600DBF	RF36600EBR	RF36600EBF								28.0	29.0

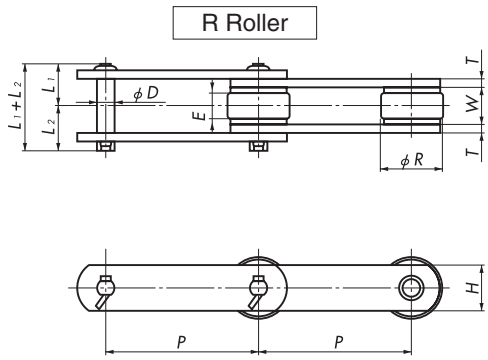
Standard Series, BS Type

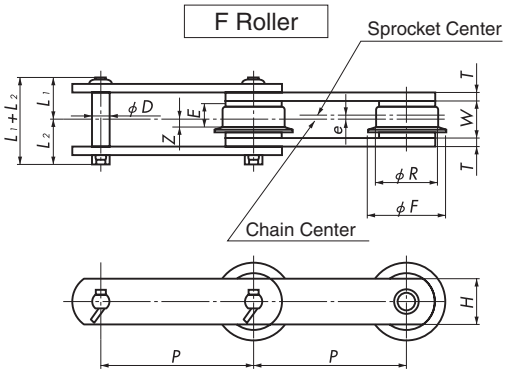


TSUBAKI Chain Number	Pitch P	Roller	Inner Link Inner Width W	Plate		Pin				Approximate Mass kg/m
		Diameter R		Height H	Thickness T	Diameter D	L_1+L_2	L_1	L_2	
RF10100BS	100	29	30	38.1	6.3	14.5	69	33	36	6.8
RF10125BS	125									6.2
RF10150BS	150									5.8
RF12200BS	200	34.9	37.1	44.5	7.9	15.9	83.5	40.5	43	8.2
RF12250BS	250									7.7

Note: See pgs. 15 and 16 for combining standard attachments with different roller types.

Lube-Free Series, Water Resistant Specifications (WEBR, WEBF)





TSUBAKI Chain Number		Pitch P	Roller							Inner Link Inner Width W	Plate		Pin				Approximate Mass kg/m	
			R Roller		F Roller													
			Diameter R	Contact Width E ※	Diameter R	Flange Diameter F	Contact Width E	Off-center e	Z		Height H	Thickness T	Diameter D	L_1+L_2	L_1	L_2	R Roller	F Roller
RF03075WEBR	RF03075WEBF	75	31.8	12.3	31.8	42	9.1	1.6	3	16.1	22	3.2	8.0	38	18	20	2.8	2.9
RF03100WEBR	RF03100WEBF	100															2.4	2.5
RF05100WEBR	RF05100WEBF	100	40	17	40	50	13	2	4.5	22	32	4.5	11.3	53.5	25	28.5	5.2	5.4
RF05125WEBR	RF05125WEBF	125															4.5	4.6
RF05150WEBR	RF05150WEBF	150															4.2	4.4
RF08125WEBR	RF08125WEBF	125	44.5	21	44.5	55	17	2	6.5	27	28.6	6.3	11.3	65.5	31	34.5	5.9	6.2
RF08150WEBR	RF08150WEBF	150															5.6	5.8
RF10100WEBR	—	100	50.8	23	—	—	—	—	—	30	38.1	6.3	14.5	69	33	36	10.0	—
RF10125WEBR	RF10125WEBF	125			50.8	65	18.5	2.3	7								8.7	9.0
RF10150WEBR	RF10150WEBF	150															8.0	8.3
RF12200WEBR	RF12200WEBF	200	65	28	65	80	22	3	8	37.1	44.5	7.9	15.9	83.5	40.5	43	11.6	12.1
RF12250WEBR	RF12250WEBF	250															10.4	10.8
RF17200WEBR	RF17200WEBF	200	80	40	80	100	32	4	12	51.4	50.8	9.5	19.1		51.5	58	20	21
RF17250WEBR	RF17250WEBF	250															17	18
RF17300WEBR	RF17300WEBF	300															16	16
RF26250WEBR	RF26250WEBF	250	100	46	100	125	36	5	13	57.2	63.5	9.5	22.2	116.5	55.5	61	26	27
RF26300WEBR	RF26300WEBF	300															23	24
RF36300WEBR	RF36300WEBF	300	125	55	125	150	43	6	15.5	66.7	76.2	12.7	25.4	146	68	78	40	42

Note: See pgs. 15 and 16 for combining standard attachments with different roller types. Also, See pgs. 17 for connection.

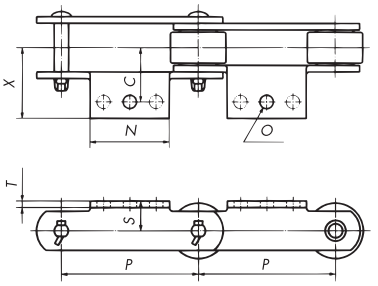
Attachment Chart

A1/K1 Attachments

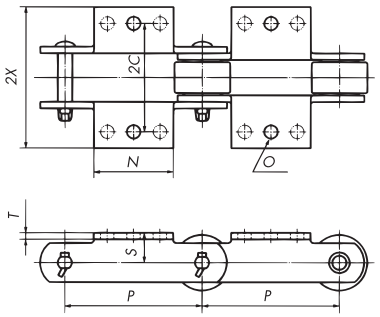
TSUBAKI Chain Number	Bearing Roller Type R Roller	F Roller	S Roller	Pitch P	S	C	2C	X	2X	N	T	O	Bolt Used	Additional Mass/Each kg
RF03075	○	○	–	75	20	30	60	46	92	55	3.2	10	M8	0.06
RF03100	○	○	–	100						65				0.07
RF05100	○	○	–	100	22	35	70	47	94	65	4.5	10	M8	0.07
RF05125	○	○	–	125						75				0.08
RF05150	○	○	–	150						85				0.10
RF08125	○	○	–	125	28	50	100	64	128	80	6.3	12	M10	0.19
RF08150	○	○	–	150						90				0.23
RF10100	○	–	○	100	28	50	100	67	134	70	6.3	12	M10	0.16
RF10125	○	○	○	125						80				0.18
RF10150	○	○	○	150						90				0.20
RF12200	○	○	○	200	38	60	120	79	158	120	7.9	15	M12	0.44
RF12250	○	○	○	250						170				0.61
RF17200	○	○	–	200	45	75	150	100	200	120	9.5	15	M12	0.64
RF17250	○	○	–	250						170				0.88
RF17300	○	○	–	300						220				1.26
RF26250	○	○	–	250	55	80	160	108	216	170	9.5	15	M12	1.01
RF26300	○	○	–	300						220				1.34

Note Three-hole attachments may be sent for some attachment orders. If you receive a three-hole attachmnet,use the center hole.

A1 Attachment



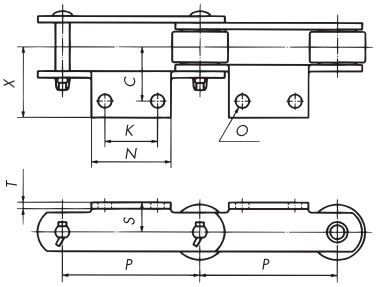
K1 Attachment



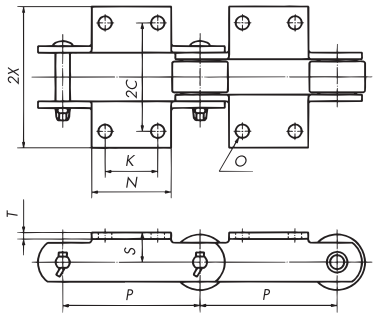
A2/K2 Attachments

TSUBAKI Chain Number	Bearing Roller Type R Roller	F Roller	S Roller	Pitch P	S	C	2C	X	2X	N	K	T	O	Bolt Used	Additional Mass/Each kg
RF03075	○	○	–	75	20	30	60	46	92	55	30	3.2	10	M8	0.06
RF03100	○	○	–	100						65	40				0.07
RF05100	○	○	–	100	22	35	70	47	94	65	40	4.5	10	M8	0.07
RF05125	○	○	–	125						75	50				0.08
RF05150	○	○	–	150						85	60				0.10
RF08125	○	○	–	125	28	50	100	64	128	80	50	6.3	12	M10	0.19
RF08150	○	○	–	150						90	60				0.23
RF10100	○	–	○	100	28	50	100	67	134	70	40	6.3	12	M10	0.16
RF10125	○	○	○	125						80	50				0.18
RF10150	○	○	○	150						90	60				0.20
RF12200	○	○	○	200	38	60	120	79	158	120	80	7.9	15	M12	0.44
RF12250	○	○	○	250						170	125				0.61
RF17200	○	○	–	200	45	75	150	100	200	120	80	9.5	15	M12	0.64
RF17250	○	○	–	250						170	125				0.88
RF17300	○	○	–	300						220	180				1.26
RF26250	○	○	–	250	55	80	160	108	216	170	125	9.5	15	M12	1.01
RF26300	○	○	–	300						220	180				1.34

A2 Attachment



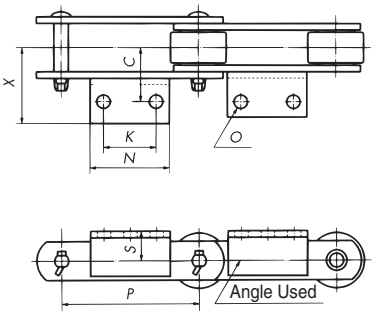
K2 Attachment



YA2(Welded) Attachments

TSUBAKI Chain Number	Bearing Roller Type R Roller	F Roller	S Roller	Pitch P	S	C	2C	X	2X	N	K	O	Angle Used	Bolt Used	Additional Mass/Each kg
RF26450	○	○	–	450	55	80	160	123.5	247	320	280	15	L75×75×9	M12	3.19
RF36300	○	○	–	300	70	100	200	160	320	160	100	19	L100×100 ×10	M16	2.40
RF36450	○	○	–	450						330	280				4.90
RF36600	○	○	–	600						410	360				6.10

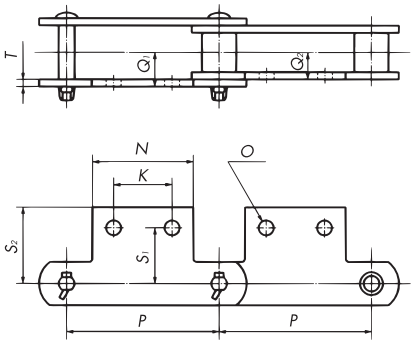
YA2(Welded) Attachment



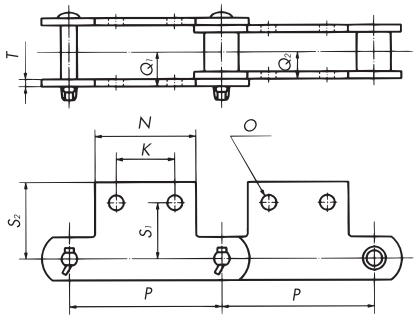
SA2/SK2 Attachments

TSUBAKI Chain Number	Bearing Roller Type R Roller	F Roller	S Roller	Pitch P	S_1	S_2	Q_1	Q_2	N	K	T	O	Bolt Used	Additional Mass/Each kg
RF03075	○	–	–	75	33	49	15.5	11.5	55	30	3.2	10	M8	0.06
RF03100	○	–	–	100					65	40				0.07
RF05100	○	–	–	100	33.4	50.7	21	15.5	65	40	4.5	10	M8	0.07
RF05125	○	–	–	125					75	50				0.08
RF05150	○	–	–	150					85	60				0.10
RF08125	○	–	–	125	46.1	60.7	27	20	80	50	6.3	12	M10	0.19
RF08150	○	–	–	150					90	60				0.23
RF10100	○	–	○	100	46.1	63	28.5	21.5	70	40	6.3	12	M10	0.16
RF10125	○	–	○	125					80	50				0.18
RF10150	○	–	○	150					90	60				0.20
RF12200	○	–	○	200	55	75.7	35.5	26.5	120	80	7.9	15	M12	0.44
RF12250	○	–	○	250					170	125				0.61

SA2 Attachment



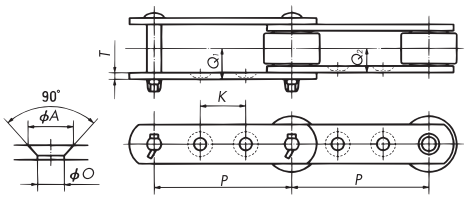
SK2 Attachment



GA2 Attachments

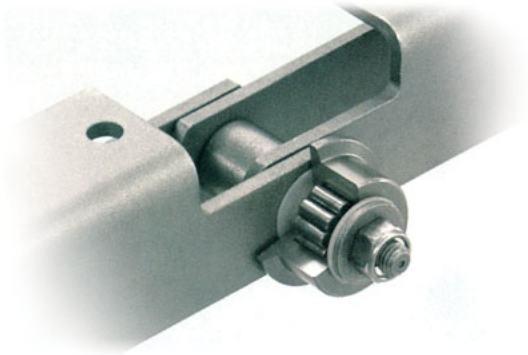
TSUBAKI Chain Number	Bearing Roller Type R Roller	F Roller	S Roller	Pitch P	K	T	Q_1	Q_2	A	O	Max. Length of Attached Bolt Outer Link	Inner Link	Bolt Used
RF03075	○	–	–	75	30	3.2	15.5	11.5	13.5	8	26	19	M8
RF03100	○	–	–	100	50								
RF05100	○	–	–	100	40	4.5	21	15.5	15	10	36	26	M8
RF05125	○	○	–	125	50								
RF05150	○	○	–	150	60								
RF08150	○	○	–	150	60	6.3	27	20	20	12	45	31	M10
RF10100	–	–	○	100	30	6.3	28.5	21.5	20	12	49	35	M10
RF10125	○	–	○	125	40								
RF10150	○	○	○	150	60								
RF12200	○	○	○	200	80	7.9	35.5	26.5	26	15	63	45	M12
RF12250	○	○	○	250	125								
RF17200	○	○	–	200	70	9.5	45.5	35	26	15	81	61	M12
RF17250	○	○	–	250	110								
RF17300	○	○	–	300	150								
RF26300	○	○	–	300	140	9.5	48.5	38	26	15	88	67	M12
RF26450	○	○	–	450	220								
RF36450	○	○	–	450	220	12.7	60	46	32	19	105	75	M16
RF36600	○	○	–	600	300								

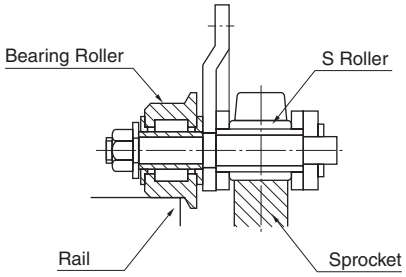
GA2 Attachment



Note:
1. A attachment mass in the chart refers to additional mass per attachment. Multiply that number by two for K attachments.
2. GA2 attachment mass is the same as that of the base chain.
3. Three-hole attachments may be sent for A1 or K1 attachment orders. If you receive a three-hole attachment, use the center hole.
4. Consult a Tsubaki representative if using a guide on A/K attachment sides.
5. When using slats attached to two strands of chain, be sure that slats are attached to either outer link-outer link or inner link-inner link.
6. Inch sizes also available. (Consult a Tsubaki representative for further details.)

Single Side Outboard Bearing Roller Conveyor Chain





■Assembly lines are often long. As workers work on top of the conveyor, stable conveyor running has a huge impact on work efficiency. Single Side Bearing Roller Conveyor Chain is designed with special features for such assembly lines.

Long Life

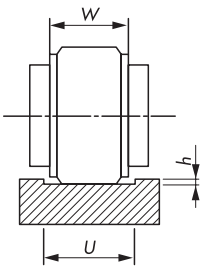
Single Side Bearing Roller Conveyor Chain supports conveyor load while running smoothly. The chain's S roller is specifically designed to engage the sprocket, reducing the load on the chain and extending chain life.

Changing Rollers is Easy

Outboard rollers can be changed while the chain is still on the conveyor. And because the outboard roller has a bushing, there is no damage to the chain pin.

⚠ Rail Fitting

When using a groove rail such as the one pictured on the right with Lube-Free Series Water Resistant Specifications, there is not much clearance between the roller and the spacer. Ensure the groove dimensions (U) are larger than the inner link inner width's (W). Tsubaki's recommended rail dimensions can be found to the right.



Chain Size	Rail Groove Depth *h*
RF03	1.6
RF05	1.6
RF08	1.6
RF10	2.1
RF12	2.1
RF17	2.1
RF26	2.1
RF36	2.6

For Safe Use

⚠ WARNING

Obey the following points in order to prevent hazardous situations.

- Do not use chains and accessories (accessories and parts) for anything other than their original purpose.
- Never perform additional processing on the chain.
  - · Do not anneal the various parts of the chain.
  - · Do not clean the chain with either acid or alkali, as they may cause cracking.
  - · Do not electroplate the chain or its parts, as it may cause cracking due to hydrogen embrittlement.
  - · Do not weld the chain, as the heat may cause cracking or a reduction in strength.
  - · When heating or cutting the chain with a torch, remove the links immediately adjacent and do not use them again.
- When there is need to replace a lost or damaged portion of a chain, always replace the whole chain with a new product rather than replacing only the lost or damaged portion.
- When using a chain on suspension equipment, establish a safety perimeter and strictly prevent entry to the area directly below the suspended object.
- Always employ hazard protection devices for the chain and sprocket (safety cover, etc.).
- If a substance that can cause embrittlement cracking (acid, strong alkali, battery fluid, etc.) adheres to the chain, stop using the chain immediately and replace it with a new one.
- During installation, removal, maintenance inspection and lubrication of the chain:
  - · Perform the operation according to the instruction manual or this catalog.
  - · Always turn off the power switch to the device and make sure that it cannot be turned on accidentally.
  - · Anchor the chain and parts so that they cannot move freely.
  - · Perform cutting and connecting procedures properly using a press or other special tool.
  - · Wear clothing and employ protective devices that are appropriate to the job (safety glasses, gloves, safety shoes, etc.).
  - · Only allow experienced personnel to perform chain replacement procedures.
- A fail safe back up system is suggested whenever using Leaf Chain to safely support the load in the event of a chain failure.

⚠ CAUTION

Obey the following points in order to prevent accidents.

- Only handle the chain after thoroughly understanding its structure and specifications.
- When installing a chain, inspect it in advance to confirm that it has not been damaged in transport.
- Be sure to perform regular maintenance inspections on the chain and sprocket.
- Chain strength varies according to manufacturer. When selecting a chain based on a Tsubaki catalog, always use the corresponding Tsubaki product.
- 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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