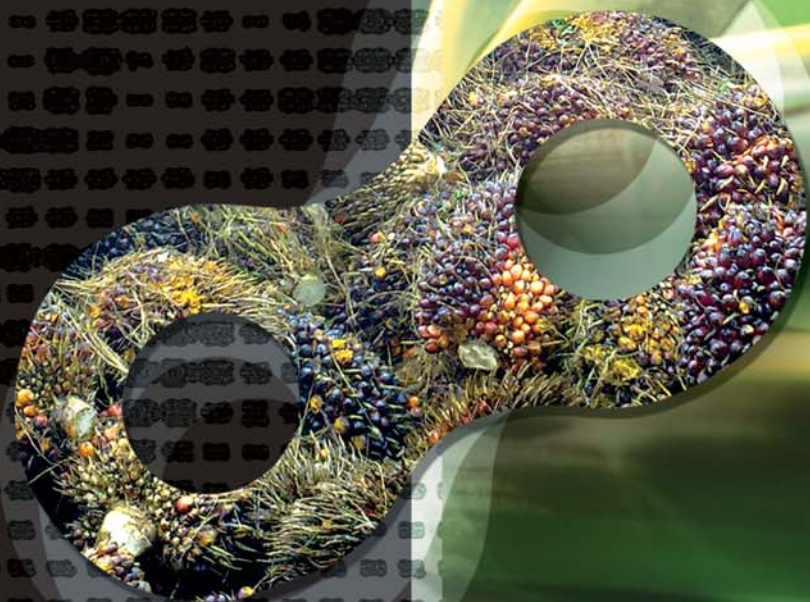




TSUBAKI PALM OIL MILL PRODUCTS



TSUBAKIMOTO CHAIN

The Global Best

The World's number one brand

Solution Providing

1

TSUBAKI GLOBAL BUSINESS

Global Network

The Tsubaki group includes 28 production locations and 24 group companies worldwide. Tsubaki production and sales networks are more fully developed than ever.

Global Alliances

We continue to aggressively pursue operational alliances, mergers, and technical alliances with companies in Japan and throughout the world.

Best Source/ Best Supply

Through global development of our network, we constantly seek the best combination of regions based on product distribution and market feedback.

Global Marketing

with a keen grasp on the needs of customers, we use the Group's comprehensive strengths to commercialize products rapidly

TSUBAKIMOTO SINGAPORE

“Global Best” is Tsubakimoto Chain’s strategy for focusing the Group’s comprehensive strengths. Tsubakimoto Singapore is 100% subsidiary of Tsubakimoto Chain Co.

Our Mission

We excel as a leading Supplier of Power Transmission Products by providing the Best Value to Customers In the Indian Ocean Rim.

To achieve the best for palm oil mills’ we implement this strategy in our power transmission products and chains. Success stories are known in palm oil mills. With continuous innovation in technology, palm oil mills evolve from batch operation system to continuous sterilizer system. ULTRA WEAR RESISTANCE (UWR) is special development for continuous sterilizer system conveyor.

Quality is palm oil mills’ highest priority, and we strive to respond rapidly to changes in the business environment. We are concentrating the Group’s comprehensive strengths and using its global service system to increase POM productivity.

Please feel free to ask questions or consult with any Tsubaki representative you meet
We are ready to provide you with the “Global Best”



POML



Fruit Yard

Ramp

FFB Incline Conveyor
RF 706SP-R

FFB Incline Conveyor
RF 706SP-R

FFB Conveyor
RF 706SP-R

Sterilizer

(Power Cylinder)

- RF706SP-R-D or ST is available for continuous cooker and severe application
- RF306HP-R, RF506HP-R & RF506SP-R are available for light duty application
- RF906 SP-R is extra heavy duty chain



ayout

Fruit Bucket Elevator

RF 306HP-R
RF 604R
RF 94R
RF 9503S

EFB Inclined Elevator

RF 94R
RF 90R

Nut Bucket Elevator
RF 90R

**Digester
&
Press
(Reducer)**

**Nut
Separator**

**Fruit
Stripper**

Screw Conveyor

EFB Conveyor

RF 94R
RF 90R

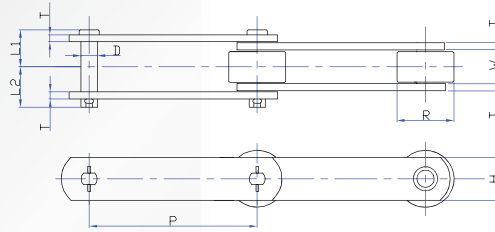


Ultra Wear Resistant (UWR)

Improved wear resistance between pin/bush and bush/roller with special material and heat treatment. Special alloy steel for inner link plates and pin also provide for higher tensile strengths.



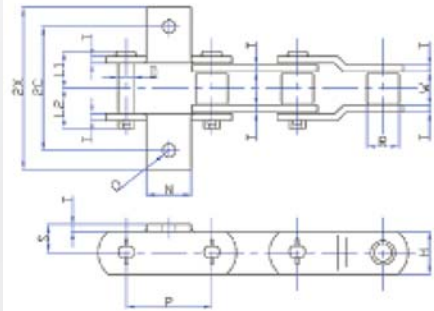
Plain - UWR



Tsubaki Chain No	P	W	R	D	L1	L2	H	T	Average Tensile Strength		Weight kg/m
									Kgf	lbs	
RF 90R-UWR	101.6	21.4	47.6	11.3	25	28.5	31.8	4.8	9,300	20,460	6.1
RF 94R-P	101.6	30	50.8	14.5	33	36	38.1	6.3	14,900	32,780	7.0
RF 94R-UWR	101.6	30	50.8	14.5	33	36	38.1	6.3	14,900	32,780	10.0
RF 604R-P	152.4	30	50.8	14.5	33	36	38.1	6.3	14,900	32,780	5.5
RF 604R-UWR	152.4	30	50.8	14.5	33	36	38.1	6.3	14,900	32,780	7.9

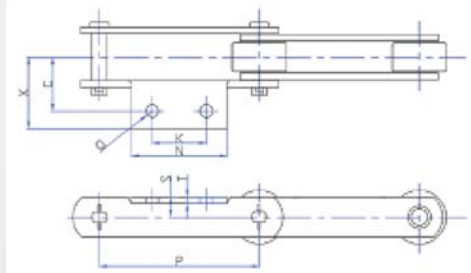
K-1 Attachment

(Steel Version of Malleable Iron Chain)



Tsubaki Chain No	P	W	R	D	L1	L2	H	T	2C	2X	N	O	S	Average Tensile Strength		Weight kg/m
														Kgf	lbs	
RF 9503-S	76.7	30	29	14.5	33	36	38.1	6.3	111.1	145	40	12	25.4	11,500	25,300	9.4

A-2 Attachment

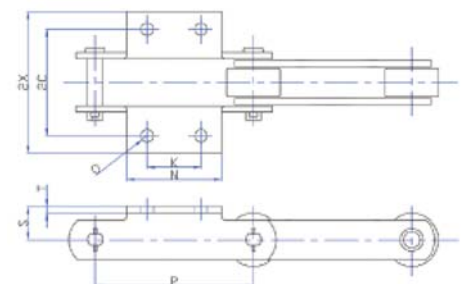


Tsubaki Chain No	P	C	X	K	N	O	S	T
RF 90R-UWR	101.6	44.5	62	31.8	63.5	10.7	15.9	4.8
RF 94R-UWR	101.6	44.5	62	31.8	63.5	10.7	19.1	6.3
RF 604R-UWR	152.4	50.8	67.5	50.8	90	12	19.1	6.3

K-2 Attachment



Tsubaki Chain No	P	2C	2X	S	T	O	K	N
RF 90R-UWR	101.6	89	124	31.8	4.8	10.7	31.8	63.5
RF 94R-UWR	101.6	89	124	31.8	6.3	10.7	31.8	63.5



What is UWR

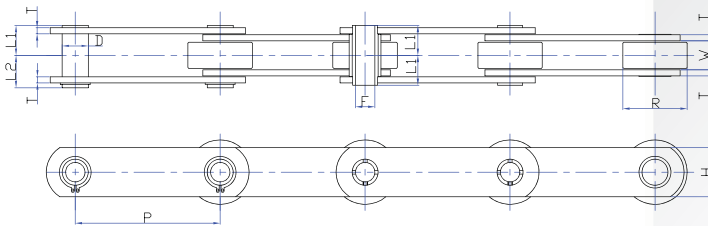
UWR series, while keeping all the SWR features, addresses this wear problem by hardened roller and the application of Molybdenum Disulphide (MOS2) grease between bearing surfaces of pin/bush and bush/roller. With these two added processes, both roller ID and OD wears are very much reduced, and the chain life is further extended.



Hollow Pin

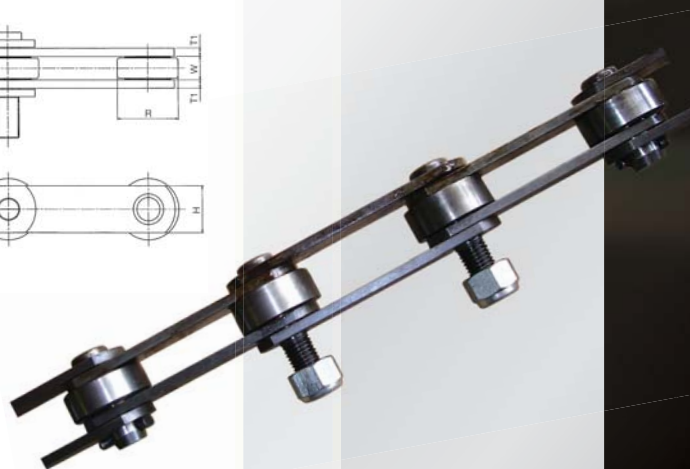
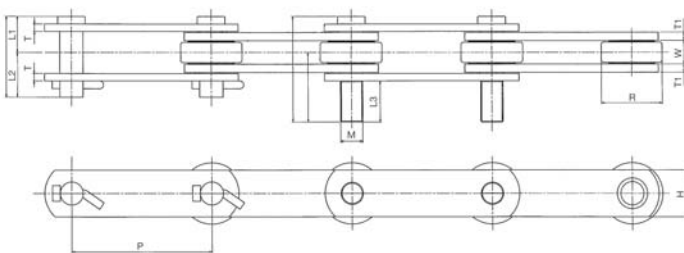
	UWR
Link Plate	Non-Hardened
Pin	Hardened
Bush	Hardened
Roller	Hardened
Lubrication Type	MOS2 grease

Hollow Pin Chain (HP) - Bigger Capacity



Taubaki Chain No	P	W	R	D	L1	L2	H	T	F (min)	Average Tensile Strength		Weight kg/m
										Kgf	lbs	
RF 306HP-R	152.4	25.4	66.7	26.9	29	31	50.8	6.3	20.1	17,230	37,900	11
RF 506HP-R	152.4	25.4	66.7	26.9	29	31	50.8	6.3	20.1	22,100	49,000	11

“Extended” Pin Chain Heavy Capacity



Taubaki Chain No	P	W	R	L3	L1	L2	H	T/T1	M	Average Tensile Strength		Weight kg/m
										Kgf	lbs	
RF 506SP-R	152.4	25.4	66.7	45	33.5	38.5	50.8	6.3	M20	24,500	54,000	11.7
RF 706SP-R	152.4	25.4	66.7	45	39	49.5	50.8	7.9/9.5	M24	35,000	77,000	15.0
RF 906SP-R	152.4	37.1	69.9	50	44.5	51	50.8	9.5	M18	39,500	87,000	18.0

RF506SP-R and RF906SP-R have T-head cotter with vertical direction

TSUBAKI SP series for FFB/SFB/CS

PALM OIL MILL CHAIN

Stronger Bush

Bush performance of RF706SP-R has been increased 30% compared to competitor's chains.

Tougher Link Plates

Precise alloy steel fabrication and expertly-controlled heat treatment ensures greater shock load during severe operation.

Stronger Pin

Competitors riveted pins have soft portions around the impact head due to decarburization, effectively reducing the strength of the entire chain, TSUBAKI cotter pins have stable surface hardness from the head to the tail end.

Easy Maintenance

Cutting and joining chain is easier, especially when removing just a few links and rejoining when chain is stretched over. Grinders are always required for riveted chain. Furthermore, the T-head cotter keys are located inward of the conveyor, making it even easier to install the chain. The cotter keys are optimally designed so that they face the horizontal chain pitch line, lowering the chances of them interfering with guides and casings.

Options Available For Heavy Duty & Corrosive Application

Long distance incline conveyors usually have sloppy rollers. TSUBAKI RF706SP-R-D, which is a Durable type model, can increase chain life with its specially designed bush and roller. In corrosive conditions such as Sterilized Fruit Bunch conveyors, we recommend TSUBAKI RF706SP-R-ST which has specially designed corrosion resistant bushes.



Before

Using Non-brand chain
Roller sloppy and worn
(See red broken line for the original roller)



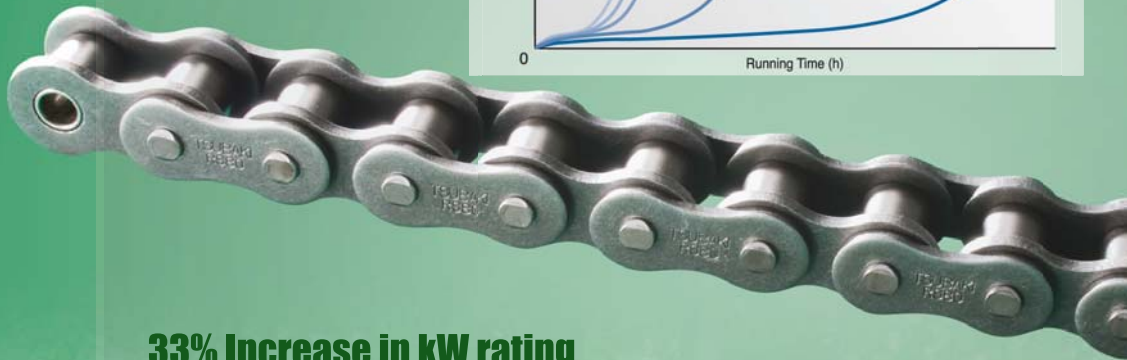
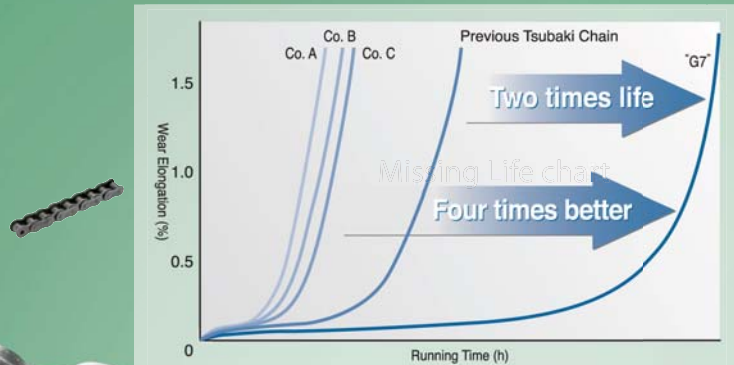
TSUBAKI RF706SP-R-D
Longer wear life of the roller

RS Roller Chain G7-EX

Twice the Wear Life

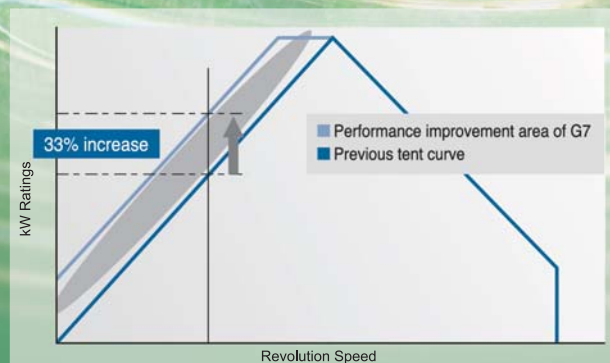
Tsubaki increased the effectiveness of its special lube groove (LG) processing, which retains lubrication oil between the pin and bush longer than the previous series.

With G7, our newly-developed LG solid bush with seamless bush for lasting pre-lubricating effect, we have doubled our chains' already long life.



33% Increase in kW rating

For the New RS Roller Chain G7-EX, a sophisticated integration of traditional manufacturing with the latest technology has enable a reduction in quality fluctuations, resulting in a roughly 33% increase in kW ratings.



Linear

Power Cylinder: Electrical & Mechanical Actuator

Sterilizer Open/Close/Lock Diverter, Hopper Gate, Fruit Gate

Merit pf Power Cylinder

1 Save money

- You could cut 30% system cost and more than 80% running cost

2 Save the Earth

- Much less Co2 emission

3 Less Maintenance

- Do you want to keep maintenance time so much

4 No Pump required

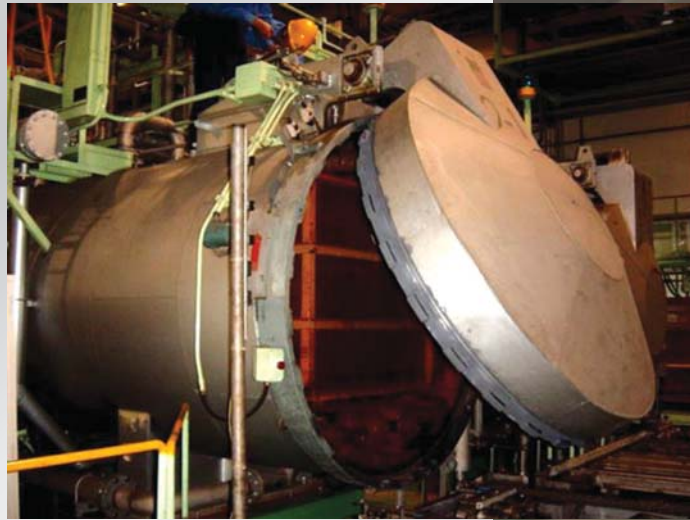
- Power cylinder is all in one package. You need only power source

5 Simple layout

- You need wire for motor only! No need to have many accessories

6 Mill System Automation

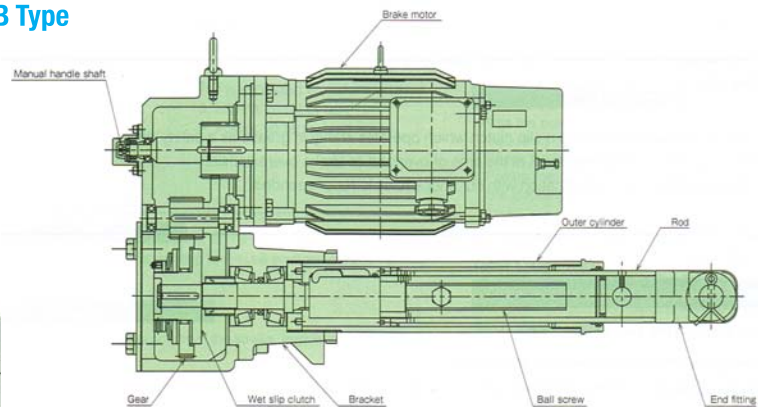
- Power cylinder contribution fully automated mill with simple system



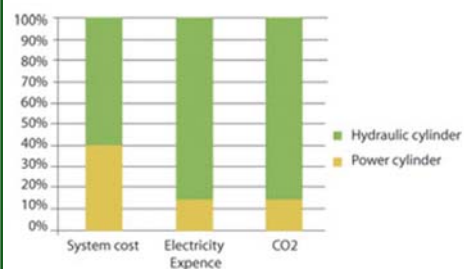
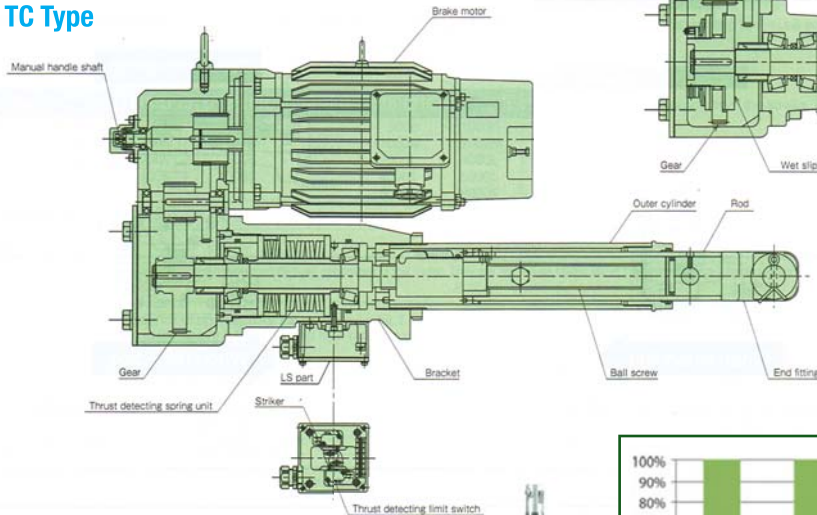
Thrust load: 40kg to 32ton
Stroke: Up to 3 meter



TB Type



TC Type



System Comparison

	Power cylinder	Hydraulic cylinder
System cost	1	1.5
Electricity Expenditure	1	6
CO2	1	6

*Thrust Load: 1000kgf, Stroke : 300mm, Speed 120mm/sec





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Kyotanabe plant



Kyoto factory