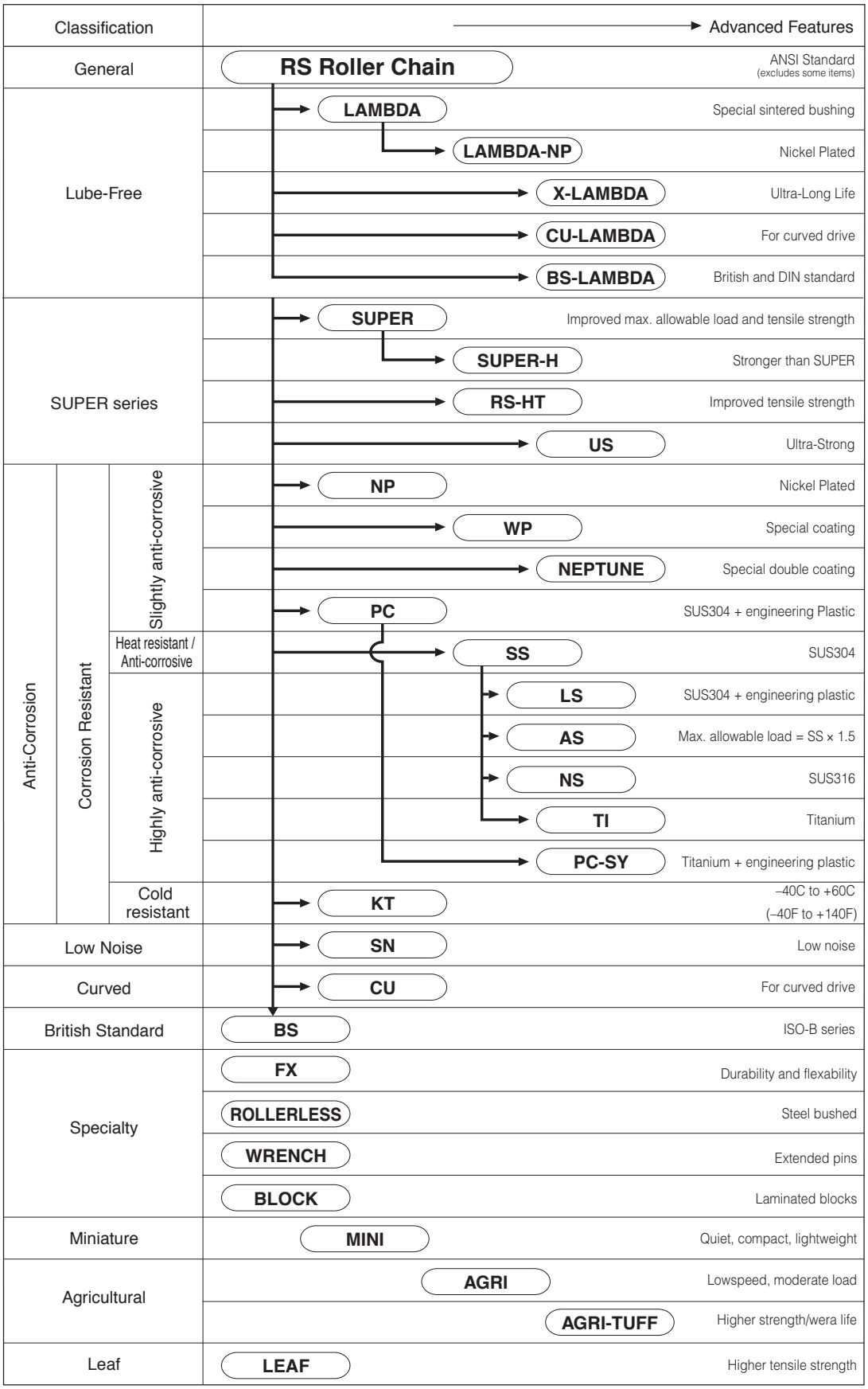
TSUBAKI DRIVE CHAIN

Tsubaki Roller Chain Types/Selection



Introduction to Tsubaki Roller Chain

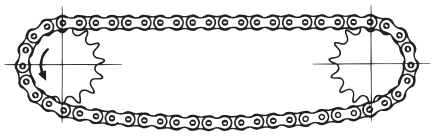
This Drive Chain Catalog outlines the important points relating to selection, installation, and maintenance of each TSUBAKI Roller Chain. Make sure to read this catalog before using the chain, and follow the correct selection procedures and method of use. Furthermore, please fully explain matters relating to installation and maintenance to those performing these tasks.

Before Use

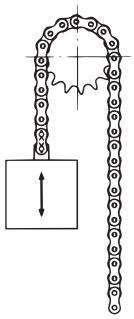
Caution

The horsepower ratings tables in this catalog (excluding SUPER Chain) are for RS Roller Chains and Lambda Roller Chains where connecting links having undergone the ring coin process and 2-pitch offset links are used.

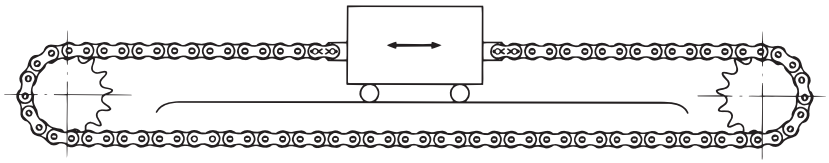
Ordinary Transmission



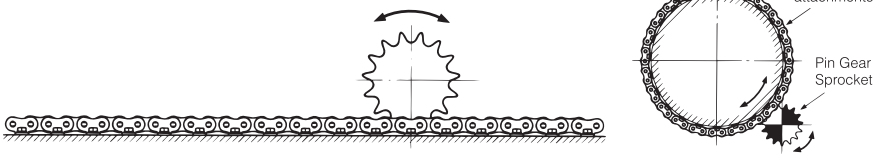
Lifting Transmission



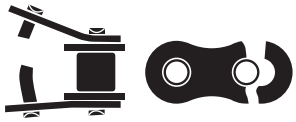
Shuttle Traction



Pin Gear Drive



Roller Chain Safety Use



- Clear the area of all personnel when lifting Roller Chain.
- Install safety equipment to prevent injuries and damage to equipment in the event of Roller Chain breakage.
- Inspect and replace worn Roller Chain periodically.
- Wear elongation may cause Roller Chain to break and climb up on the sprocket. (Wear life can be extended by periodically applying lubrication, or by using the lube-free Lambda Chain series.)
- Overload may cause Roller Chain to break. (Overload breakage can be avoided through careful selection, considering inertia or by using identically-sized SUPER Roller Chain.)
- Unfavorable environmental conditions such as corrosion may cause eventual Roller Chain breakage. (This can be avoided by making sure the chain doesn't come in contact with corrosive liquids or steam, etc. Alternatively, the Anti-Corrosive series is recommended.)
- Correctly install Roller Chain to avoid misalignment or uneven wear and possible breakage.

Introduction to Tsubaki Roller Chain

Power transmission machines use chains, gears, or belts. The table below provides a comparison of typical applications. In general, chain is an economical part of power transmission machines for low speeds and large loads. However, it is also possible to use chain in high-speed conditions like automobile engine camshaft drives. This is accomplished by devising a method of operation and lubrication.

General Comparison of Transmission Elements

	Roller Chain	Tooth Belt	V Belt	Spur Gear
Synchronization	■	■	▼	■
Transmission Efficiency	■	■	▲	■
Anti-Shock	▲	❍	■	▼
Noise/Vibration	▲	■	■	▼
Surrounding Conditions	Avoid water and dust (Corrosion Resistant Roller Chain is available)	Avoid heat, oil, water, and dust	Avoid heat, oil, water, and dust	Avoid water and dust
Space Weight (High Speed Low Load)	▼	■	❍	❍
Space Weight (Low Speed High Load)	■ Compact/Light Weight	▲ Slightly heavy pulley	▼ Heavy wide pulley	❍ Less durability due to low number of engaging teeth
Lubrication	▼ Necessary	■ Unnecessary	■ Unnecessary	▼ Necessary
Layout Flexibility	■	❍	▲	▼
Excess Load on Bearing	■	❍	▼	■

■ Excellent ❍ Good ▲ Fair ▼ Poor

Features & Points to Note about Roller Chain Transmission

Features

1. Accommodates large speed reductions/increases (Usually up to 1 : 7)
2. Chain can accommodate long shaft center distances (normally less than 4 m), and is more versatile.
3. It is possible to use chain with multiple shafts or drives with both sides of the chain.
4. Ease of installation and replacement (easy to cut and connect chains).
5. Drive use is possible even when shafts are vertical, as long as the chain receives support in short distances between the shafts.
6. Standardization of chains under the American National Standards Institute (ANSI), the International Standardization Organization (ISO), and the Japanese Industrial Standards (JIS) allow ease of selection.
7. The sprocket diameter for a chain system may be smaller than a belt pulley, while transmitting the same torque.
8. Sprockets are subject to less wear than gears because sprockets distribute the loading over their many teeth.
9. There is high shock absorbency compared with gears.

Points to Note

1. Chain has a speed variation, called chordal action, which is caused by the polygonal effect of the sprockets.
   (Shock can be reduced under the same speed ratio, by either reducing the chain pitch or increasing the number of sprocket teeth.)
2. During transmission, a particular method of lubrication is necessary according to speed.
3. Chain wears and elongates, so you need to consider measures for adjusting chain slack.
4. Chain is weak when subjected to loads from the side. It needs proper alignment.

Introduction to Tsubaki Roller Chain

Explanation of Terms

1. ANSI Standard Minimum Tensile Strength (Tensile Breakage Strength)
This is the Minimum Tensile Strength determined by ANSI. If a roller chain breaks from a tensile load below this value, then it does not surpass ANSI standards. In the case of multi-strand roller chain, the single strand value is multiplied by the number of strands.

2. Average Tensile Strength
This is a fracture load reading obtained after a long period of actual tensile strength testing of a large number of chain strands. Of course, when any given strand of roller chain fractures, this value may be higher or lower, so it does not represent a guaranteed value. This value differs depending on the manufacturer.

3. Minimum Tensile Strength
This is a minimum value determined by statistical processing at TSUBAKI. If any roller chain fractures by a tensile load below this value, then it does not surpass the standards. This value differs depending on the manufacturer.

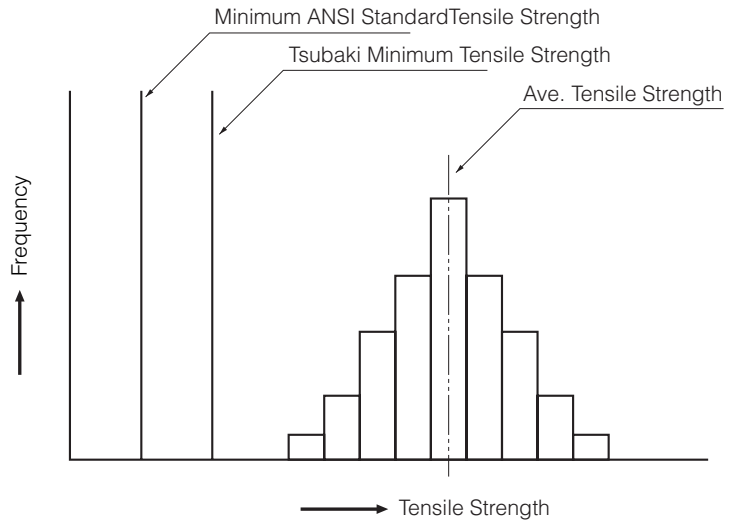


Fig. 1 Relationship between three tensile strengths.

4. Tensile Strength Testing Method
As shown in Fig. 2, roller chain with over five links is fixed at both ends by clevises and is stretched until fracture occurs. The type of fracture is indicated by breakage of the roller chain or failure of its parts (Fig. 3).

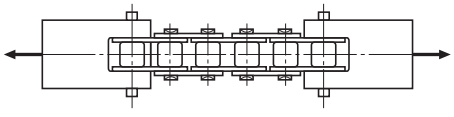


Fig. 2 Tensile strength test

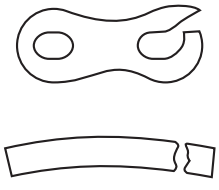


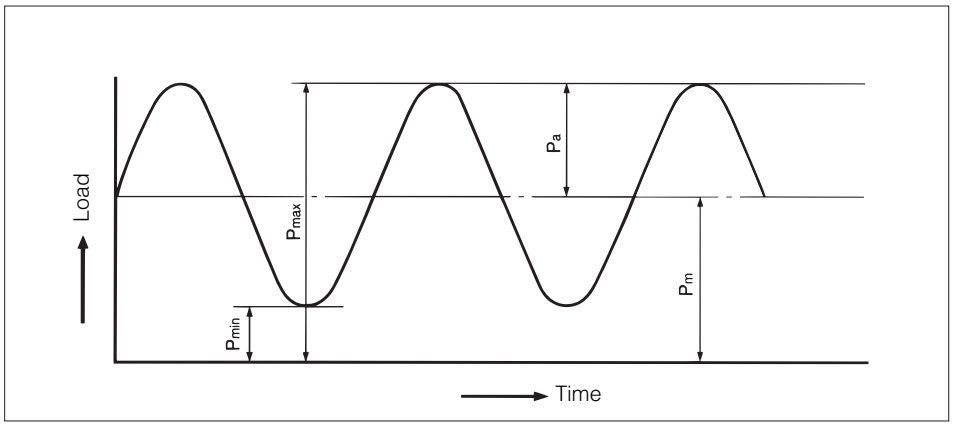
Fig. 3 Shape of fracture

5. Maximum Allowable Load

The maximum allowable load is the tension load for which a chain is rated to carry in running operation. Proper chain tension is critical because excessive tension can cause accelerated wear/breakage or chain overload and excessive slack can cause rough chain operation and may result in the chain skipping a sprocket tooth.
The use of one-pitch offset links reduces the maximum allowable load – it now becomes 65% of the maximum allowable load of the main chain.
Two-pitch offset links do not change the maximum allowable load of the main chain.

In Figure 4 below, the maximum allowable load is indicated by Pmax.
Pmax = (Pm + Pa) = 2.2Pa
Where a new roller chain with over 5 links receives a repetitive load with a frequency of 10^6.

Fig. 4 Summary chart for repetitive loads



6. Horsepower Ratings Table

RS Roller Chain and SUPER Roller Chain HP rating tables show HP values that allow 15,000 hours of operation using a two-shaft drive and 100 pitches of roller chain under conditions 1 - 5 below. The HP ratings table of LAMBDA chain is based on conditions 1 - 4 and shows HP rating values when LAMBDA chain is used with two shafts. Lambda Chain has more than 14 times the wear elongation of Standard RS Roller Chain operated without lubrication (#120 and #140 have five times). X-LAMBDA has more then five times the wear elongation life of Lambda Roller Chain.

1) The chains are operated under ordinary conditions where the ambient temperature is –10°C ~ +60°C (+14°F ~ +140°F) and there is no abrasive dust.
2) There are no negative effects from corrosive gasses or a high humidity.
3) The two transmission shafts are in a horizontal position and the chains are properly installed.
4) There is minimal fluctuation in load during transmission.
5) The recommended lubrication system and lubricant shown in the HP rating tables is used for RS Roller Chain and SUPER Roller Chain.

7. Moment of Inertia (I / J / GD^2)

Moment of Inertia is used to show the degree of inertia in rotational movement, in other words, “rotation difficulty”, or “rotation ease.” This is equivalent to the mass (weight) of the object being used for straight-line transmission.

Introduction to Tsubaki Roller Chain

After almost a century of chain design, engineering and manufacturing experience, you can count on Tsubaki standard roller chain to deliver consistent superior performance and longer life. All minimizing your downtime and maximizing your output. And all for a price a lot less than you might think. From the best heat-treated steel for the job to ground-breaking patents, you can trust Tsubaki to deliver the quality difference you can see.

Tsubaki's Patented Lube Grooves Extend Wear Life and Performance by up to 30%

Long Lasting Solid Rollers Provide Greater Fatigue Life and Durability at High Speeds

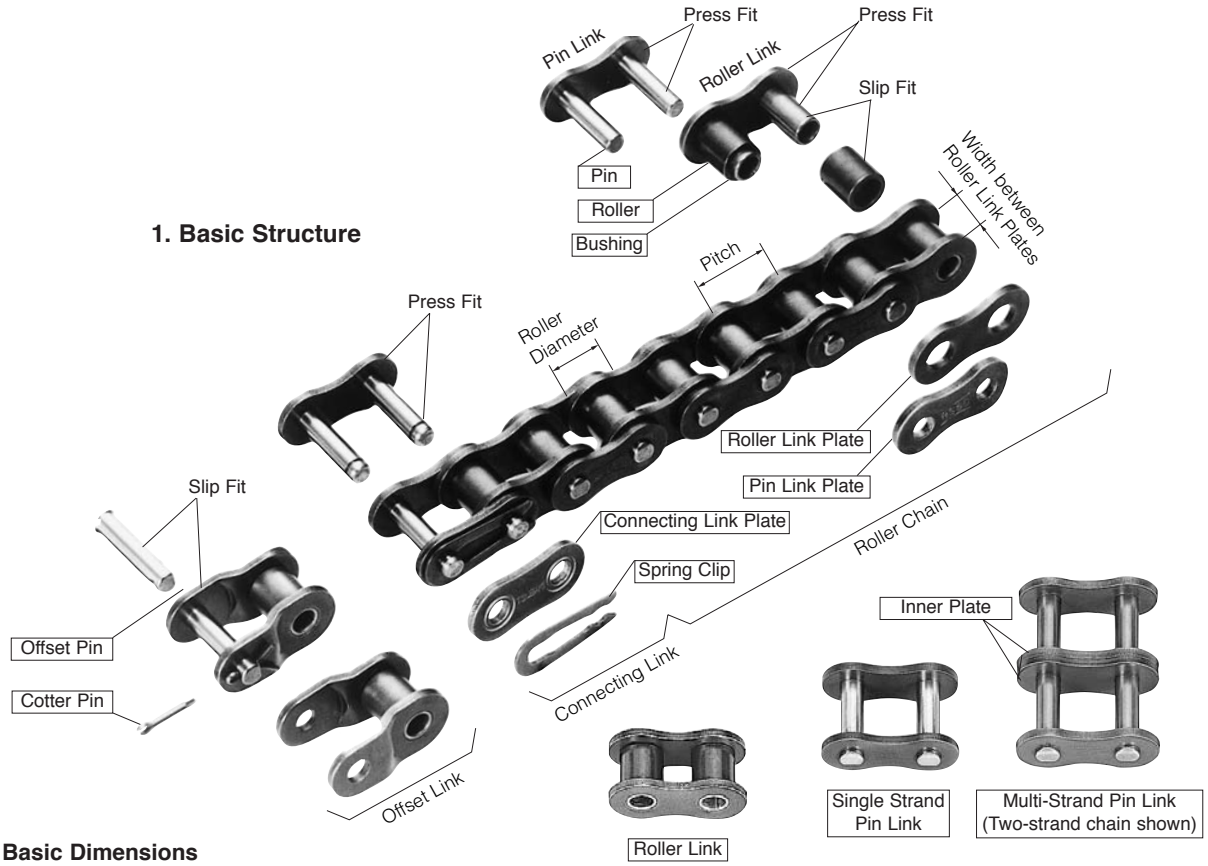
Precision Riveting Process Helps to Withstand Side Load Impact

Wide Waist Link Plates Provide Tensile Strength and Maximum Allowable Load that Exceeds ANSI Standards

Tsubaki's Patented Ring Coining Generates Unsurpassed Connecting Link Strength

Roller Chain Structure

1. Basic Structure



Three Basic Dimensions
Pitch, Roller Diameter and Width between Roller Link Plates are known as the "Three Basic Dimensions of Roller Chain." When these three dimensions are identical, roller chain and sprockets are dimensionally compatible.

*** Slip Fit**
When the shafts and holes are fitted together, there is a continuous loose fit. This is a fit where the range of tolerance for the hole is larger than the range of tolerance for the shaft (pin or bushing).

*** Press Fit**
When the shafts and holes are fitted together, there is a continuous interference fit. This is a fit where the range of tolerance for the hole is smaller than the range of tolerance for the shaft (pin or bushing).

Spring clips, cotter pins and spring pins are the parts that prevent the connecting link plate from falling off the pin. These parts are critical in order to maintain the original strength of the chain.

• Plate
The plate is the component that bears the tension placed on the chain. Usually this is a repeated loading, sometimes accompanied by shock. Therefore, the plate must have not only great static tensile strength, but also must hold up to the dynamic forces of load and shock.

• Pin
The pin is subject to shearing and bending forces transmitted by the plate. At the same time, it forms a load-bearing part, together with the bushing, when the chain flexes during sprocket engagement. Therefore, the pin needs high tensile and shear strength, resistance to bending, and also must have sufficient endurance against shock and wear.

• Bushing
The bushing is subject to complex forces from all parts, especially from the repetition of shock loads when the chain engages the sprocket. Therefore, the bushing needs extremely high shock resistance. In addition, the bushing forms a load-bearing part together with the pin and as such requires great wear resistance.

• Roller
The roller is subject to impact load as it strikes the sprocket teeth during the chain engagement with the sprocket. After engagement, the roller changes its point of contact and balance. It is held between the sprocket teeth and bushing, and moves on the tooth face while receiving a compression load. Therefore, it must be resistant to wear and still have strength against shock, fatigue and compression. RS11 / 15 / 25 / 35 do not have rollers.

• Roller Link
Two bushings are press fit into two roller link plates and rollers are inserted to allow rotation around the outside of the bushing. This is the same for single strand and multi-strand chain.

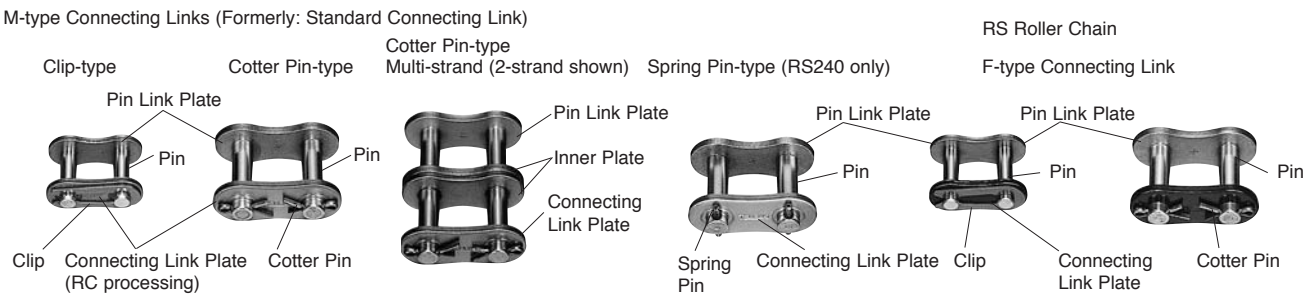
• Pin Link and Inner Plate
The pin link consists of two pins that have been press fit into two pin link plates. In the case of multi-strand roller chain, an inner plate is added to the pin link. The inner plate is slip fit for Standard RS Roller Chain and press fit for SUPER Roller Chain.

Roller Chain Structure

2. Assembly Parts

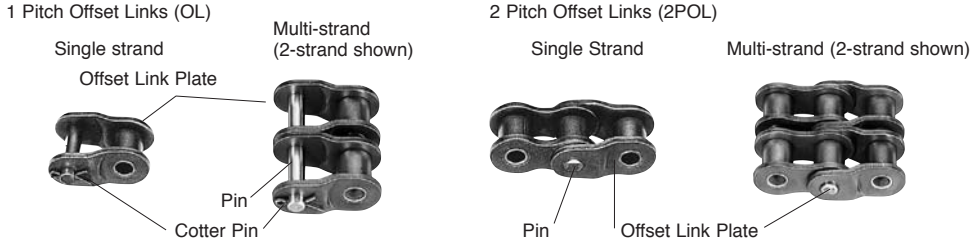
Roller Chains are usually made up of a number of connected links in an endless formation, or used by fixing the chain ends, but the need for connecting links will eventually arise. Although offset links can be used when there are an odd number of links in the roller chain, please use a design that requires an even number of links as much as possible.

2.1 Connecting Links



Chain Type	Pin & Connecting Link Plate Fitting	Connecting Link Plate Fastening Method	Points to Note
RS Roller Chain	Slip Fit	Clip Cotter Pin Spring Pin	• For multi-strand chain, make sure the plate with ring coining processing is on the outer most side when assembling. • Operating speed is indicated by the white area in the HP ratings table.
	Press Fit	Clip / Cotter Pin Spring Pin T Pin	• Make sure to use the chain according to the specified applications on page A-90 and within the speed region of the colored area in the HP rating tables.
Lambda (Λ) Roller Chain	Slip Fit	Clip Cotter Pin	• Can be used in all areas of the HP ratings table for Lambda Chain. • Ring coining is carried out on the connecting link plates.
SUPER Roller Chain SUPER-H Roller Chain ULTRA SUPER Roller Chain	Press Fit	Spring Pin	• Please use the exclusive connecting links for each chain type.
RS-HT Roller Chain	Press Fit	Cotter Pin Spring Pin	• Please use the exclusive connecting link for RS-HT Roller Chain.
Heavy Duty Roller Chain	Press Fit	T Pin	• There are no connecting links, so use connecting pins for assembly.

2.2 Offset Links



Please refer to the dimension tables for roller chain types and sizes suitable for offset links.

1 Pitch Offset Links

When an OL is used, please allow for a 20% reduction in HP ratings compared to that of the main chain and a 35% reduction in Maximum Allowable Load.

2 Pitch Offset links

The pin and offset link plate of a 2POL is press fit and is fastened by a rivet. They can be used in accordance with the HP ratings tables.

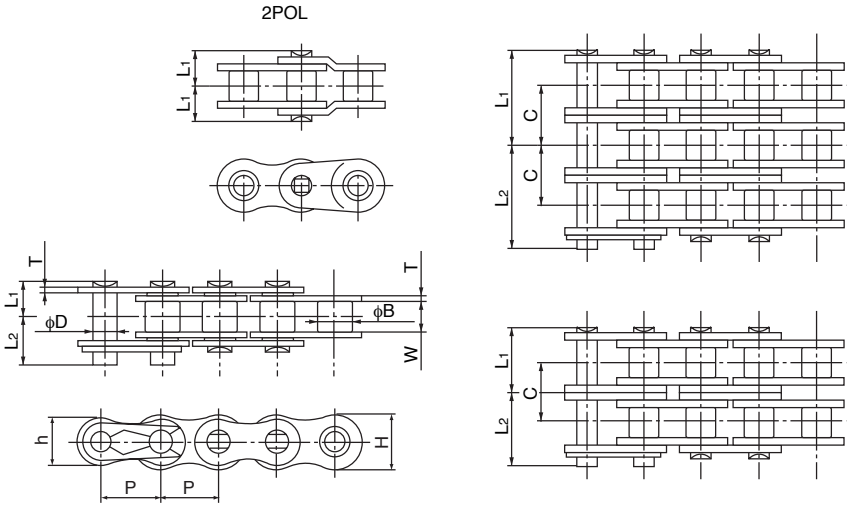
2.2 Identical maximum allowable load as main chain…(Slip-fit connecting link and two-pitch offset link)

	Tsubaki ANSI Standard Roller Chain
Main chain	100%
Slip-fit connecting link	100%
Semi Press-fit connecting link	100%
Two-pitch offset link	100%
One-pitch offset link	65%

The maximum allowable load on the Slip-fit connecting link and the two-pitch offset link have been improved to the level of the main chain, thereby allowing full exploitation of the chain's performance for slow speed chain selection.

RS25 ANSI Standard Roller Chain 1/4" Pitch

TSUBAKI



Notes: All pins have riveted construction.
Spring clip connecting links supplied for all sizes.

All dimensions in inches unless otherwise stated.

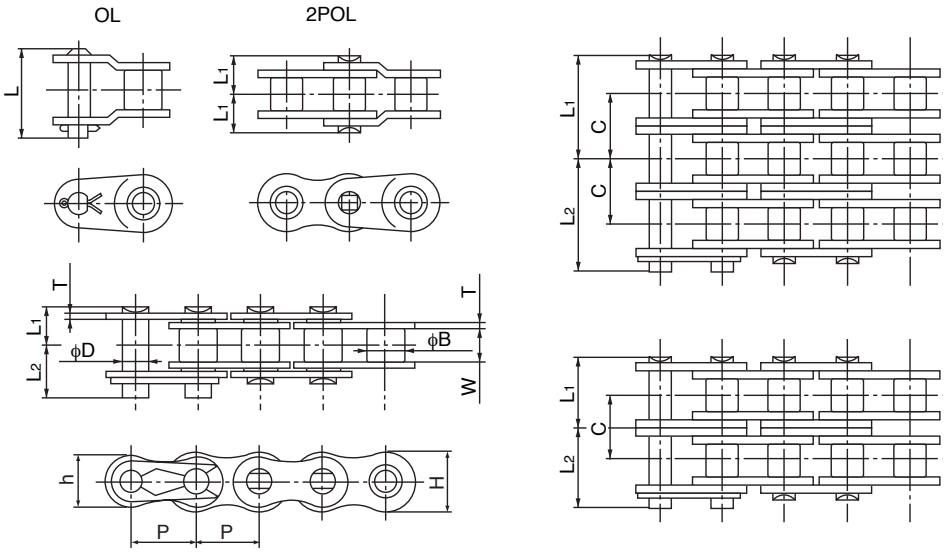
Chain Number	Pitch P	Bushing Dia. B	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2							
Single Strand																	
RS25	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.339	0.150	0.189	-	780	920	1,050	140	0.09	480
Double Strand																	
RS25-2	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.591	0.276	0.315	0.252	1,560	1,840	2,100	240	0.18	480
Triple Strand																	
RS25-3	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.843	0.402	0.441	0.252	2,340	2,760	3,150	350	0.28	480

Note: Only 2 pitch offset links are available for RS25 and RS25-2.

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	50	100	300	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10000
	Lubrication System																								
	A										B				C										
11	0.03	0.05	0.14	0.23	0.31	0.39	0.50	0.60	0.71	0.83	0.95	1.13	1.29	1.38	1.16	0.99	0.86	0.75	0.67	0.60	0.54	0.49	0.45	0.41	0.35
12	0.03	0.06	0.16	0.25	0.34	0.43	0.55	0.66	0.78	0.90	1.05	1.23	1.42	1.57	1.32	1.12	0.97	0.86	0.76	0.68	0.61	0.56	0.51	0.47	0.40
13	0.04	0.06	0.17	0.27	0.37	0.47	0.60	0.72	0.84	0.98	1.14	1.34	1.54	1.74	1.49	1.27	1.10	0.96	0.86	0.77	0.69	0.63	0.57	0.53	0.45
14	0.04	0.07	0.19	0.30	0.40	0.50	0.65	0.78	0.94	1.06	1.23	1.46	1.68	1.89	1.66	1.42	1.23	1.08	0.96	0.86	0.77	0.70	0.64	0.59	0.50
15	0.04	0.08	0.20	0.32	0.43	0.54	0.68	0.84	0.99	1.14	1.33	1.57	1.81	2.04	1.84	1.57	1.36	1.20	1.06	0.95	0.86	0.78	0.71	0.65	0.56
16	0.04	0.08	0.22	0.34	0.47	0.58	0.74	0.90	1.06	1.22	1.43	1.69	1.93	2.19	2.03	1.73	1.50	1.32	1.17	1.05	0.94	0.86	0.78	0.72	0.61
17	0.05	0.09	0.23	0.37	0.48	0.60	0.79	0.97	1.14	1.30	1.53	1.80	2.07	2.33	2.22	1.90	1.64	1.44	1.28	1.14	1.03	0.94	0.86	0.79	0.67
18	0.05	0.09	0.25	0.39	0.53	0.64	0.84	1.02	1.21	1.38	1.62	1.92	2.20	2.48	2.42	2.07	1.79	1.57	1.39	1.25	1.12	1.02	0.93	0.86	0.73
19	0.05	0.10	0.26	0.41	0.56	0.68	0.89	1.09	1.29	1.48	1.72	2.02	2.33	2.63	2.62	2.24	1.94	1.70	1.51	1.35	1.22	1.11	1.01	0.93	0.79
20	0.06	0.10	0.28	0.44	0.59	0.72	0.94	1.15	1.35	1.56	1.82	2.15	2.47	2.78	2.83	2.42	2.10	1.84	1.63	1.46	1.32	1.20	1.09	1.00	0.86
21	0.06	0.11	0.29	0.46	0.60	0.76	0.99	1.21	1.42	1.64	1.92	2.27	2.60	2.92	3.05	2.60	2.26	1.98	1.76	1.57	1.42	1.29	1.17	1.08	0.92
22	0.06	0.11	0.31	0.48	0.64	0.80	1.05	1.27	1.50	1.73	2.01	2.37	2.74	3.08	3.27	2.79	2.42	2.12	1.88	1.69	1.52	1.38	1.26	1.16	0.99
23	0.06	0.12	0.32	0.51	0.67	0.84	1.10	1.34	1.57	1.81	2.12	2.49	2.87	3.23	3.50	2.98	2.59	2.27	2.01	1.80	1.62	1.47	1.35	1.24	1.06
24	0.07	0.13	0.34	0.53	0.72	0.90	1.14	1.39	1.65	1.89	2.21	2.61	3.00	3.38	3.73	3.18	2.76	2.42	2.15	1.92	1.73	1.57	1.44	1.32	1.12
25	0.07	0.13	0.35	0.55	0.75	0.94	1.19	1.46	1.72	1.98	2.32	2.72	3.14	3.54	3.93	3.38	2.93	2.57	2.28	2.04	1.84	1.67	1.53	1.40	1.20
26	0.07	0.14	0.37	0.56	0.76	0.98	1.25	1.53	1.80	2.07	2.41	2.84	3.27	3.69	4.10	3.59	3.11	2.73	2.42	2.17	1.95	1.77	1.62	1.49	1.27
28	0.08	0.15	0.40	0.63	0.83	1.05	1.35	1.65	1.94	2.24	2.61	3.08	3.54	4.00	4.44	4.01	3.47	3.05	2.70	2.42	2.18	1.98	1.81	1.66	1.42
30	0.08	0.16	0.43	0.66	0.90	1.13	1.46	1.78	2.09	2.41	2.82	3.33	3.82	4.30	4.79	4.45	3.85	3.38	3.00	2.68	2.42	2.20	2.01	1.84	1.57
32	0.09	0.17	0.44	0.71	0.98	1.21	1.56	1.90	2.25	2.59	3.02	3.57	4.09	4.61	5.14	4.90	4.25	3.73	3.30	2.96	2.67	2.42	2.21	2.03	1.73
35	0.10	0.19	0.51	0.78	1.06	1.33	1.72	2.11	2.48	2.84	3.33	3.93	4.51	5.08	5.65	5.60	4.86	4.26	3.78	3.38	3.05	2.77	2.53	2.32	1.98
40	0.12	0.22	0.58	0.90	1.22	1.53	1.98	2.43	2.86	3.29	3.85	4.53	5.20	5.87	6.53	6.85	5.93	5.21	4.62	4.13	3.73	3.38	3.09	2.83	2.42
45	0.13	0.25	0.64	1.03	1.39	1.74	2.25	2.76	3.25	3.73	4.37	5.15	5.91	6.66	7.42	8.15	7.08	6.21	5.51	4.93	4.45	4.04	3.69	3.38	2.89

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which indicates the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.



Notes: All pins have riveted construction.
Spring clip connecting links supplied for all sizes.

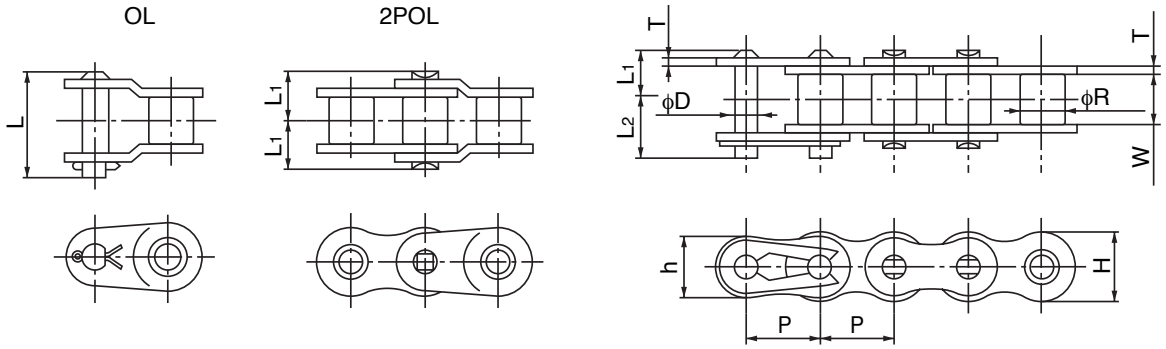
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Dia. B	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS35	0.375	0.200	0.188	0.049	0.354	0.307	0.141	0.500	0.230	0.270	0.531	-	1,950	2,200	2,530	480	0.22	320
Double Strand																		
RS35-2	0.375	0.200	0.188	0.049	0.354	0.307	0.141	0.898	0.429	0.469	0.965	0.398	3,900	4,400	5,060	810	0.46	320
Triple Strand																		
RS35-3	0.375	0.200	0.188	0.049	0.354	0.307	0.141	1.295	0.630	0.665	1.362	0.398	5,850	6,600	7,590	1,210	0.70	320

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																									
	50	100	300	500	700	900	1200	1500	1800	2100	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10000
	Lubrication System																									
						A					B												C		
11	0.16	0.30	0.78	1.23	1.66	2.09	2.71	3.31	3.90	4.48	3.86	2.92	2.32	1.90	1.58	1.35	1.18	1.03	0.91	0.82	0.74	0.67	0.60	0.56	0.48
12	0.17	0.32	0.86	1.35	1.84	2.29	2.98	3.63	4.29	4.92	4.40	3.35	2.66	2.17	1.82	1.56	1.35	1.18	1.05	0.94	0.84	0.76	0.70	0.64	0.55
13	0.19	0.35	0.94	1.48	2.00	2.51	3.25	3.97	4.68	5.38	4.96	3.75	2.99	2.45	2.05	1.74	1.50	1.33	1.17	1.05	0.94	0.86	0.78	0.72	0.62
14	0.20	0.38	1.01	1.60	2.16	2.71	3.51	4.30	5.07	5.82	5.55	4.21	3.34	2.72	2.29	1.96	1.70	1.49	1.31	1.18	1.06	0.97	0.87	0.80	0.68
15	0.21	0.40	1.09	1.72	2.33	2.92	3.80	4.63	5.46	6.26	6.16	4.65	3.70	3.03	2.53	2.17	1.88	1.65	1.46	1.31	1.18	1.07	0.98	0.90	0.76
16	0.23	0.43	1.17	1.85	2.49	3.14	4.06	4.96	5.85	6.72	6.77	5.10	4.08	3.34	2.80	2.39	2.07	1.82	1.61	1.43	1.30	1.18	1.07	0.99	0.83
17	0.25	0.47	1.25	1.97	2.67	3.35	4.33	5.30	6.25	7.17	7.42	5.59	4.47	3.66	3.06	2.61	2.27	1.98	1.77	1.58	1.42	1.29	1.18	1.07	0.93
18	0.27	0.50	1.33	2.09	2.84	3.57	4.61	5.65	6.64	7.63	8.09	6.09	4.87	3.98	3.34	2.84	2.47	2.17	1.92	1.72	1.54	1.41	1.29	1.18	1.01
19	0.28	0.52	1.41	2.23	3.02	3.77	4.89	5.98	7.04	8.09	8.77	6.60	5.28	4.32	3.62	3.08	2.68	2.35	2.09	1.86	1.68	1.53	1.38	1.27	1.09
20	0.30	0.55	1.49	2.35	3.18	4.00	5.16	6.32	7.44	8.56	9.47	7.13	5.70	4.67	3.90	3.34	2.90	2.53	2.25	2.01	1.82	1.65	1.50	1.41	1.18
21	0.31	0.58	1.57	2.48	3.35	4.21	5.44	6.66	7.84	9.01	10.2	7.67	6.13	5.02	4.21	3.59	3.11	2.72	2.41	2.17	1.96	1.77	1.62	1.49	1.27
22	0.32	0.62	1.65	2.60	3.53	4.43	5.73	7.00	8.25	9.48	10.9	8.31	6.58	5.38	4.51	3.85	3.34	2.92	2.60	2.33	2.09	1.90	1.74	1.60	1.35
23	0.35	0.64	1.73	2.74	3.70	4.64	6.01	7.35	8.66	9.95	11.6	8.88	7.05	5.77	4.83	4.13	3.58	3.14	2.79	2.49	2.25	2.04	1.86	1.72	1.46
24	0.36	0.67	1.81	2.86	3.88	4.85	6.29	7.70	9.07	10.4	12.2	9.47	7.50	6.13	5.15	4.39	3.80	3.34	2.96	2.64	2.39	2.17	1.98	1.82	1.54
25	0.38	0.70	1.89	2.99	4.05	5.08	6.57	8.05	9.48	10.9	12.7	10.1	7.99	6.54	5.48	4.66	4.05	3.57	3.16	2.82	2.55	2.31	2.11	1.94	1.65
26	0.39	0.74	1.97	3.12	4.22	5.30	6.87	8.39	9.88	11.4	13.3	10.7	8.46	6.92	5.81	4.96	4.30	3.77	3.34	2.99	2.70	2.45	2.24	2.05	1.74
28	0.43	0.79	2.13	3.38	4.57	5.74	7.43	9.09	10.7	12.3	14.3	11.9	9.48	7.75	6.49	5.55	4.81	4.22	3.74	3.35	3.02	2.74	2.51	2.31	1.96
30	0.46	0.86	2.31	3.65	4.93	6.18	8.01	9.79	11.5	13.2	15.6	13.2	10.5	8.57	7.17	6.14	5.32	4.67	4.14	3.70	3.34	3.03	2.76	2.53	2.17
32	0.50	0.91	2.47	3.90	5.28	6.62	8.58	10.5	12.4	14.2	16.6	14.6	11.5	9.44	7.91	6.76	5.86	5.14	4.56	4.08	3.67	3.34	3.04	2.80	
35	0.54	1.01	2.72	4.30	5.82	7.31	9.45	11.6	13.7	15.7	18.4	16.6	13.2	10.8	9.07	7.72	6.71	5.87	5.22	4.67	4.21	3.82	3.49	3.21	
40	0.63	1.17	3.14	4.98	6.73	8.44	10.9	13.4	15.7	18.1	21.2	20.4	16.1	13.2	11.1	9.45	8.19	7.19	6.37	5.70	5.14	4.67			
45	0.71	1.33	3.57	5.65	7.64	9.57	12.4	15.2	17.8	20.5	24.0	24.3	19.3	15.8	13.2	11.3	9.79	8.60	7.63	6.83					

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

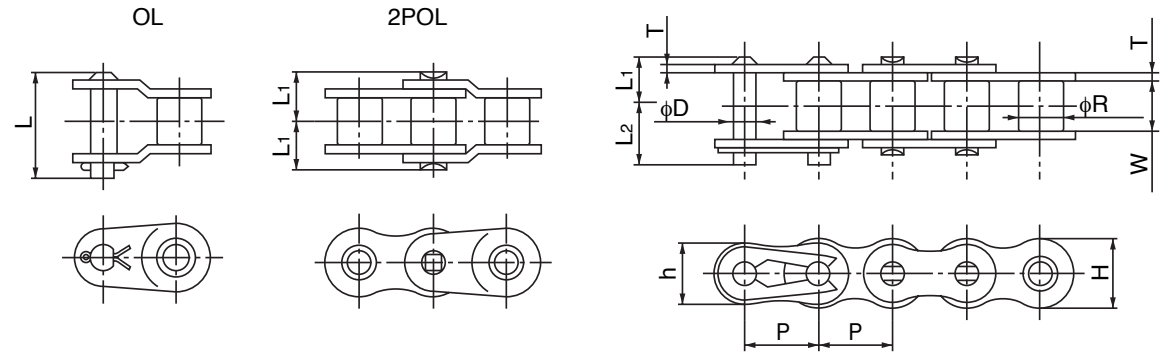


Notes: All pins have riveted construction.
Spring clip connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L						
RS42 (38)	0.500	0.306	0.188	0.040	0.386	0.331	0.143	0.496	0.236	0.280	0.555	na	1,830	2,110	370	0.24	240

Note: refer to section on "Roller Chain Selection" for details on selecting for slow speed.

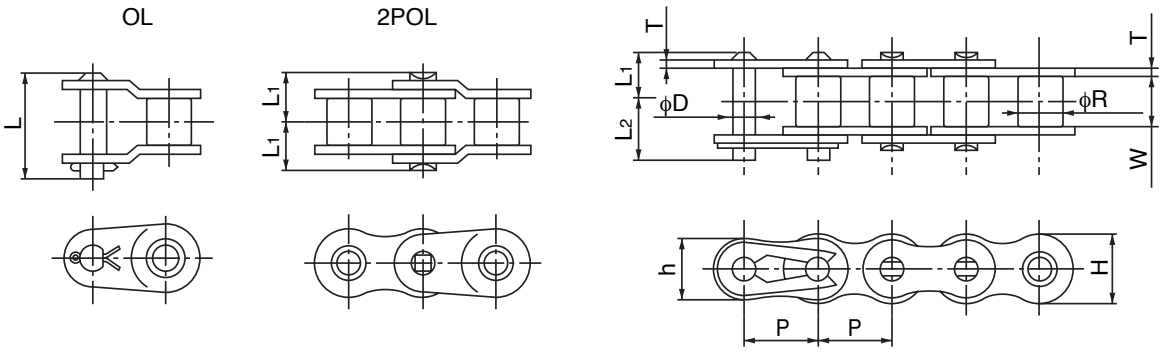


Notes: All pins have riveted construction.
Spring clip connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L						
RS43 (37)	0.500	0.306	0.134	0.040	0.386	0.331	0.143	0.425	0.201	0.232	0.490	na	1,830	2,110	370	0.19	240

Note: refer to section on "Roller Chain Selection" for details on selecting for slow speed.



Notes: All pins have riveted construction.
Spring clip connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

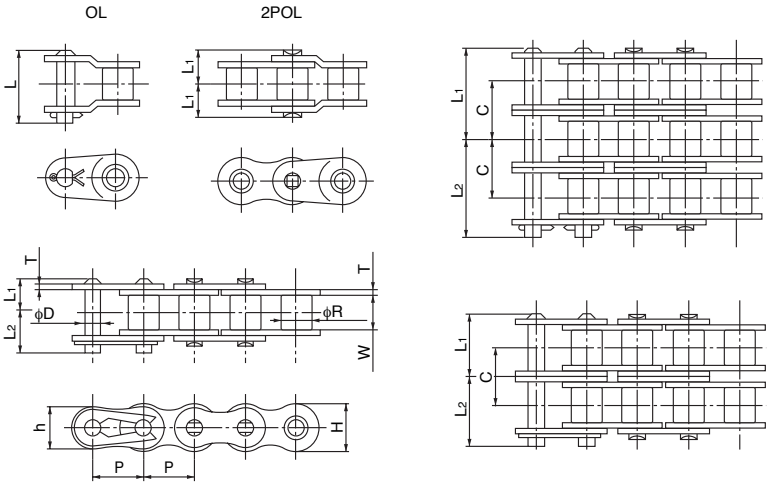
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L						
RS41	0.500	0.306	0.250	0.050	0.386	0.331	0.141	0.579	0.266	0.313	0.594	1,500	2,310	2,640	500	0.27	240

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000
	Lubrication System																								
	A								B														C		
11	0.04	0.09	0.16	0.31	0.58	0.82	1.06	1.30	1.76	2.20	2.27	1.71	1.36	1.11	0.93	0.74	0.61	0.51	0.43	0.34	0.28	0.20	0.15	0.12	0.10
12	0.04	0.09	0.19	0.34	0.63	0.90	1.17	1.42	1.93	2.41	2.59	1.95	1.55	1.27	1.06	0.84	0.69	0.58	0.49	0.39	0.32	0.23	0.17	0.14	0.11
13	0.04	0.11	0.20	0.36	0.68	0.98	1.27	1.55	2.10	2.63	2.90	2.20	1.75	1.43	1.20	0.95	0.78	0.65	0.56	0.44	0.36	0.26	0.20	0.16	0.13
14	0.05	0.11	0.21	0.39	0.74	1.06	1.37	1.68	2.28	2.85	3.14	2.46	1.95	1.60	1.34	1.06	0.87	0.73	0.62	0.49	0.40	0.29	0.22	0.17	0.14
15	0.05	0.12	0.23	0.43	0.79	1.14	1.47	1.81	2.45	3.07	3.38	2.73	2.17	1.77	1.49	1.18	0.96	0.81	0.69	0.55	0.45	0.32	0.24	0.19	0.16
16	0.05	0.13	0.24	0.46	0.84	1.22	1.58	1.94	2.63	3.30	3.62	3.01	2.39	1.95	1.64	1.30	1.06	0.89	0.76	0.60	0.49	0.35	0.27	0.21	0.17
17	0.07	0.13	0.25	0.48	0.91	1.31	1.69	2.08	2.80	3.51	3.86	3.29	2.61	2.14	1.79	1.42	1.16	0.98	0.83	0.66	0.54	0.39	0.29	0.23	0.19
18	0.07	0.15	0.28	0.52	0.97	1.39	1.80	2.20	2.98	3.74	4.11	3.59	2.86	2.33	1.95	1.55	1.27	1.06	0.91	0.72	0.59	0.42	0.32	0.25	
19	0.07	0.16	0.29	0.55	1.02	1.47	1.90	2.33	3.16	3.97	4.36	3.89	3.10	2.53	2.12	1.68	1.38	1.15	0.98	0.78	0.64	0.46	0.35	0.28	
20	0.07	0.16	0.31	0.58	1.09	1.55	2.02	2.47	3.34	4.20	4.61	4.24	3.33	2.73	2.29	1.81	1.49	1.24	1.06	0.84	0.69	0.49	0.38	0.30	
21	0.08	0.17	0.32	0.62	1.14	1.65	2.13	2.60	3.52	4.41	4.85	4.56	3.59	2.94	2.46	1.95	1.60	1.34	1.14	0.91	0.74	0.53	0.40	0.32	
22	0.08	0.19	0.35	0.64	1.19	1.73	2.22	2.73	3.70	4.64	5.11	4.88	3.85	3.15	2.64	2.09	1.71	1.44	1.23	0.97	0.80	0.57	0.43	0.34	
23	0.08	0.19	0.36	0.67	1.26	1.81	2.35	2.87	3.89	4.87	5.36	5.21	4.11	3.37	2.82	2.24	1.83	1.54	1.31	1.04	0.85	0.61	0.46	0.37	
24	0.09	0.20	0.38	0.71	1.31	1.90	2.45	3.00	4.07	5.11	5.60	5.56	4.38	3.59	3.01	2.39	1.95	1.64	1.40	1.11	0.91	0.65	0.49	0.39	
25	0.09	0.21	0.40	0.74	1.38	1.98	2.57	3.14	4.25	5.33	5.86	5.91	4.66	3.81	3.20	2.54	2.08	1.74	1.49	1.18	0.96	0.69	0.53		
26	0.09	0.23	0.42	0.76	1.43	2.06	2.68	3.28	4.44	5.56	6.11	6.27	4.94	4.05	3.39	2.69	2.20	1.85	1.58	1.25	1.02	0.73	0.56		
28	0.11	0.24	0.44	0.83	1.55	2.24	2.91	3.55	4.81	6.03	6.62	7.01	5.52	4.52	3.79	3.01	2.46	2.06	1.76	1.40	1.14	0.82	0.62		
30	0.11	0.25	0.48	0.90	1.68	2.41	3.12	3.82	5.17	6.49	7.13	7.77	6.13	5.01	4.20	3.33	2.73	2.29	1.95	1.55	1.27	0.91	0.69		
32	0.12	0.28	0.51	0.97	1.80	2.59	3.36	4.10	5.55	6.96	7.65	8.56	6.75	5.52	4.63	3.67	3.01	2.52	2.15	1.71	1.40	1.00			
35	0.13	0.31	0.58	1.06	1.98	2.85	3.70	4.52	6.11	7.67	8.43	9.80	7.72	6.32	5.29	4.20	3.44	2.88	2.46	1.95	1.60	1.14			
40	0.16	0.35	0.66	1.23	2.29	3.30	4.26	5.21	7.06	8.86	9.73	11.5	9.43	7.72	6.47	5.13	4.20	3.52	3.01	2.39	1.95	1.40			
45	0.17	0.40	0.75	1.39	2.60	3.74	4.85	5.92	8.03	10.1	11.1	13.0	11.3	9.21	7.72	6.13	5.01	4.20	3.59	2.85	2.33				

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS40 ANSI Standard Roller Chain 1/2" Pitch



Notes: All pins have riveted construction. Spring clip connecting links supplied for single / double strand. Cotter type connecting links supplied for triple strand chain and above.
All dimensions in inches unless otherwise stated.

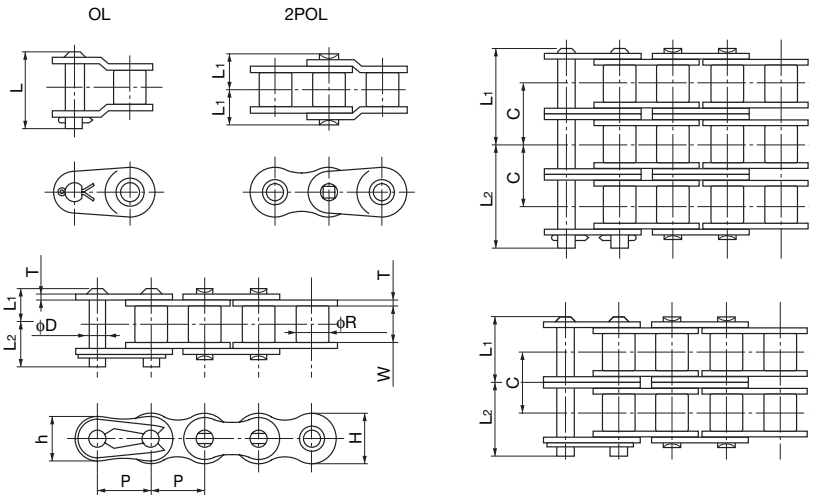
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS40	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.709	-	3,120	3,960	4,290	810	0.43	240
Double Strand																		
RS40-2	0.500	0.312	0.313	0.059	0.472	0.409	0.156	1.283	0.608	0.675	1.319	0.567	6,240	7,920	8,580	1,380	0.85	240
Triple Strand																		
RS40-3	0.500	0.312	0.313	0.059	0.472	0.409	0.156	1.843	0.892	0.951	1.886	0.567	9,360	11,880	12,870	2,040	1.28	240
Quadruple Strand																		
RS40-4	0.500	0.312	0.313	0.059	0.472	0.409	0.156	2.409	1.177	1.232	2.453	0.567	12,480	15,840	17,160	2,680	1.70	240
Quintuple Strand																		
RS40-5	0.500	0.312	0.313	0.059	0.472	0.409	0.156	2.980	1.461	1.520	3.024	0.567	15,600	19,800	21,450	3,170	2.12	240
Sextuple Strand																		
RS40-6	0.500	0.312	0.313	0.059	0.472	0.409	0.156	3.547	1.744	1.803	3.591	0.567	18,720	23,760	25,740	3,740	2.55	240

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	5000	6000	7000	8000
	Lubrication System																								
	A												B										C		
11	0.08	0.19	0.35	0.64	1.21	1.73	2.24	2.74	3.70	4.65	5.11	6.02	6.81	5.58	4.67	3.70	3.03	2.55	2.15	1.72	1.41	1.01	0.76	0.62	0.50
12	0.09	0.20	0.38	0.71	1.31	1.90	2.47	3.00	4.08	5.11	5.62	6.61	7.60	6.36	5.31	4.22	3.45	2.90	2.47	1.96	1.60	1.14	0.87	0.68	0.58
13	0.09	0.23	0.42	0.76	1.43	2.07	2.68	3.29	4.44	5.57	6.13	7.21	8.29	7.16	5.99	4.76	3.89	3.26	2.79	2.21	1.81	1.29	0.98	0.78	0.64
14	0.11	0.24	0.44	0.83	1.56	2.24	2.91	3.55	4.81	6.03	6.64	7.82	8.97	8.01	6.71	5.31	4.36	3.65	3.11	2.47	2.02	1.45	1.10	0.87	0.71
15	0.11	0.25	0.48	0.90	1.68	2.41	3.14	3.84	5.19	6.50	7.15	8.42	9.67	8.88	7.43	5.89	4.83	4.04	3.45	2.74	2.24	1.60	1.22	0.97	0.79
16	0.12	0.28	0.52	0.97	1.80	2.59	3.35	4.10	5.55	6.97	7.66	9.03	10.4	9.79	8.18	6.49	5.31	4.45	3.81	3.02	2.47	1.77	1.34	1.07	0.87
17	0.13	0.30	0.55	1.03	1.92	2.76	3.58	4.39	5.93	7.44	8.18	9.64	11.1	10.7	8.97	7.11	5.82	4.88	4.17	3.31	2.71	1.94	1.48	1.17	0.97
18	0.13	0.31	0.59	1.10	2.04	2.95	3.81	4.67	6.32	7.91	8.70	10.2	11.8	11.7	9.76	7.75	6.34	5.31	4.55	3.61	2.96	2.11	1.60	1.27	
19	0.15	0.34	0.62	1.17	2.17	3.12	4.05	4.95	6.69	8.39	9.23	10.9	12.5	12.7	10.5	8.41	6.88	5.77	4.92	3.92	3.21	2.29	1.74	1.38	
20	0.16	0.35	0.66	1.23	2.29	3.30	4.28	5.23	7.07	8.86	9.75	11.5	13.2	13.7	11.1	9.08	7.53	6.22	5.31	4.22	3.45	2.47	1.88	1.49	
21	0.16	0.38	0.70	1.29	2.41	3.47	4.51	5.51	7.46	9.35	10.3	12.1	13.9	14.8	12.4	9.76	7.99	6.71	5.73	4.55	3.71	2.66	2.02	1.60	
22	0.17	0.39	0.72	1.35	2.53	3.66	4.73	5.79	7.84	9.83	10.8	12.7	14.6	15.8	13.2	10.5	8.57	7.19	6.13	4.87	3.98	2.86	2.17	1.72	
23	0.17	0.42	0.76	1.42	2.67	3.84	4.98	6.07	8.22	10.3	11.3	13.4	15.3	16.9	14.1	11.2	9.16	7.68	6.56	5.20	4.26	3.06	2.32	1.84	
24	0.19	0.43	0.80	1.49	2.79	4.02	5.20	6.36	8.61	10.8	11.9	13.9	16.1	18.0	15.0	11.9	9.76	8.18	7.00	5.54	4.55	3.25	2.47	1.96	
25	0.20	0.44	0.83	1.56	2.91	4.20	5.44	6.65	9.00	11.3	12.4	14.6	16.8	18.9	16.0	12.7	10.4	8.70	7.43	5.89	4.83	3.45	2.63		
26	0.20	0.47	0.87	1.62	3.04	4.39	5.67	6.93	9.39	11.8	12.9	15.3	17.6	19.7	17.0	13.5	11.0	9.24	7.89	6.25	5.12	3.66	2.76		
28	0.23	0.51	0.95	1.77	3.30	4.75	6.14	7.51	10.2	12.8	14.1	16.5	19.0	21.5	19.0	15.0	12.3	10.3	8.81	7.00	5.73	4.09	3.11		
30	0.24	0.55	1.02	1.90	3.55	5.11	6.62	8.10	11.0	13.7	15.2	17.8	20.4	23.1	21.1	16.8	13.5	11.4	9.76	7.75	6.34	4.55	3.45		
32	0.25	0.59	1.09	2.04	3.81	5.48	7.09	8.68	11.7	14.8	16.2	19.0	21.9	24.7	23.2	18.4	15.0	12.6	10.8	8.54	7.00	5.00			
35	0.28	0.64	1.21	2.24	4.20	6.03	7.82	9.56	12.9	16.2	17.8	21.1	24.1	27.2	26.6	21.1	17.2	14.3	12.3	9.76	7.99	5.73			
40	0.32	0.75	1.39	2.59	4.84	6.97	9.04	11.1	14.9	18.8	20.7	24.3	27.9	31.5	32.5	25.7	21.1	17.6	15.0	11.9	9.76	7.00			
45	0.38	0.84	1.58	2.95	5.50	7.93	10.3	12.5	17.0	21.3	23.5	27.6	31.6	35.7	38.6	30.6	25.1	21.1	18.0	14.2	11.7				

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

5/8" Pitch ANSI Standard Roller Chain RS50



Notes: All pins have riveted construction. Spring clip connecting links supplied for single / double strand. Cotter type connecting links supplied for triple strand chain and above.
All dimensions in inches unless otherwise stated.

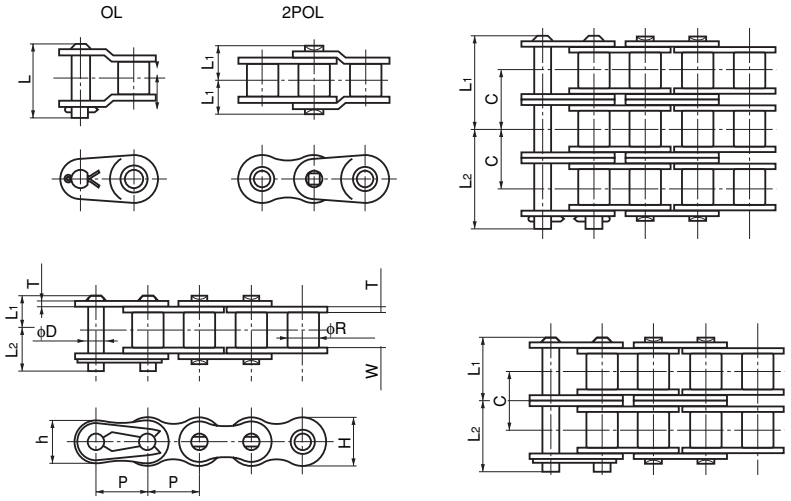
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS50	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.874	0.406	0.469	0.886	-	4,880	6,380	7,040	1,430	0.70	192
Double Strand																		
RS50-2	0.625	0.400	0.375	0.079	0.591	0.512	0.200	1.594	0.762	0.833	1.646	0.713	9,760	12,760	14,080	2,420	1.39	192
Triple Strand																		
RS50-3	0.625	0.400	0.375	0.079	0.591	0.512	0.200	2.307	1.118	1.189	2.358	0.713	14,640	19,140	21,120	3,580	2.07	192
Quadruple Strand																		
RS50-4	0.625	0.400	0.375	0.079	0.591	0.512	0.200	3.020	1.474	1.545	3.071	0.713	19,520	25,520	28,160	4,730	2.75	192
Quintuple Strand																		
RS50-5	0.625	0.400	0.375	0.079	0.591	0.512	0.200	3.732	1.831	1.902	3.787	0.713	24,400	31,900	35,200	5,590	3.44	192
Sextuple Strand																		
RS50-6	0.625	0.400	0.375	0.079	0.591	0.512	0.200	4.449	2.189	2.260	4.504	0.713	29,280	38,280	42,240	6,580	4.13	192

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	200	300	400	500	700	900	1000	1200	1400	1600	1800	2100	2400	2700	3000	3500	4000	4500	5000	5500	6000
	Lubrication System																								
	A											B											C	
11	0.16	0.38	0.71	1.33	2.48	3.58	4.64	5.66	7.67	9.62	10.6	10.3	8.14	6.65	5.58	4.43	3.62	3.04	2.59	2.07	1.68	1.41	1.21	1.05	0.93
12	0.19	0.42	0.78	1.46	2.72	3.93	5.10	6.22	8.42	10.6	11.6	11.7	9.27	7.59	6.36	5.04	4.13	3.46	2.95	2.35	1.92	1.61	1.37	1.19	1.05
13	0.20	0.46	0.86	1.60	2.98	4.28	5.55	6.79	9.19	11.5	12.7	13.2	10.4	8.56	7.16	5.70	4.65	3.90	3.33	2.64	2.16	1.81	1.56	1.34	
14	0.21	0.50	0.93	1.73	3.22	4.64	6.01	7.35	9.95	12.5	13.7	14.8	11.7	9.56	8.02	6.36	5.20	4.36	3.73	2.95	2.43	2.02	1.73	1.50	
15	0.23	0.54	0.99	1.86	3.47	5.00	6.48	7.93	10.7	13.4	14.8	16.4	13.0	10.6	8.89	7.05	5.77	4.83	4.13	3.27	2.68	2.25	1.92	1.66	
16	0.25	0.58	1.07	2.00	3.73	5.36	6.95	8.49	11.5	14.3	15.8	18.0	14.3	11.7	9.79	7.76	6.36	5.32	4.55	3.61	2.95	2.47	2.11	1.84	
17	0.27	0.62	1.14	2.13	3.97	5.73	7.42	9.07	12.3	15.4	16.9	19.7	15.7	12.8	10.7	8.50	6.96	5.83	4.99	3.96	3.23	2.71	2.31	2.01	
18	0.28	0.66	1.22	2.27	4.22	6.09	7.89	9.64	13.0	16.4	18.0	21.2	17.0	13.9	11.7	9.27	7.59	6.36	5.42	4.30	3.53	2.95	2.52		
19	0.31	0.68	1.29	2.40	4.48	6.45	8.37	10.2	13.8	17.3	19.0	22.5	18.5	15.2	12.7	10.0	8.22	6.89	5.89	4.67	3.82	3.21	2.74		
20	0.32	0.72	1.35	2.53	4.73	6.83	8.84	10.8	14.6	18.4	20.1	23.7	20.0	16.4	13.7	10.8	8.89	7.44	6.36	5.04	4.13	3.46	2.95		
21	0.34	0.76	1.43	2.68	4.99	7.19	9.32	11.4	15.4	19.3	21.2	25.1	21.5	17.6	14.8	11.7	9.57	8.02	6.84	5.42	4.44	3.73	3.18		
22	0.35	0.80	1.50	2.82	5.24	7.56	9.80	12.0	16.2	20.4	22.4	26.3	23.1	18.8	15.8	12.5	10.2	8.60	7.34	5.82	4.76	4.00	3.41		
23	0.38	0.84	1.58	2.95	5.51	7.94	10.3	12.6	17.0	21.3	23.5	27.6	24.7	20.1	16.9	13.4	11.0	9.19	7.84	6.22	5.10	4.28			
24	0.39	0.89	1.66	3.08	5.77	8.30	10.8	13.2	17.8	22.4	24.5	29.0	26.3	21.5	18.0	14.3	11.7	9.79	8.35	6.64	5.42	4.55			
25	0.40	0.93	1.73	3.23	6.02	8.68	11.3	13.8	18.6	23.3	25.6	30.2	27.9	22.8	19.2	15.2	12.4	10.4	8.89	7.05	5.77	4.83			
26	0.43	0.97	1.81	3.37	6.29	9.05	11.7	14.3	19.4	24.4	26.8	31.5	29.6	24.3	20.2	16.1	13.2	11.0	9.43	7.47	6.13	5.14			
28	0.46	1.05	1.96	3.65	6.81	9.82	12.7	15.6	21.1	26.4	29.0	34.2	33.1	27.0	22.7	18.0	14.8	12.3	10.5	8.35	6.84	5.74			
30	0.50	1.13	2.11	3.93	7.34	10.6	13.7	16.8	22.7	28.4	31.2	36.7	36.7	30.0	25.1	19.8	16.4	13.7	11.7	9.27	7.59				
32	0.54	1.21	2.27	4.21	7.87	11.3	14.6	18.0	24.3	30.4	33.5	39.4	40.4	33.3	27.8	22.0	18.0	15.2	12.9	10.2	8.35				
35	0.59	1.33	2.49	4.64	8.66	12.5	16.2	19.7	26.8	33.5	36.9	43.4	46.3	38.1	31.6	25.1	20.7	17.2	14.8	11.7	9.56				
40	0.67	1.54	2.87	5.36	10.0	14.5	18.6	22.8	31.0	38.8	42.6	50.3	56.5	46.4	38.8	30.7	25.1	21.1	18.0	14.3					
45	0.76	1.74	3.27	6.09	11.4	16.4	21.2	25.9	35.1	44.0	48.4	57.0	65.6	55.1	46.1	36.6	30.0	25.1	21.5						

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS60 ANSI Standard Roller Chain 3/4" Pitch



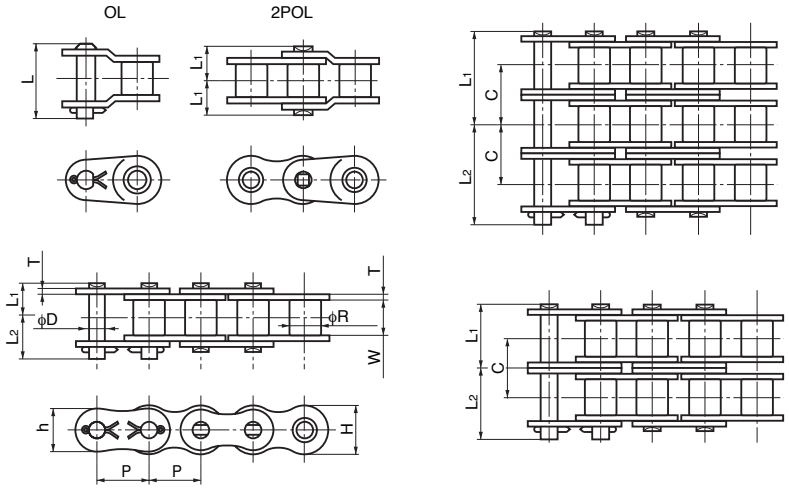
Notes: All pins have riveted construction. Spring clip connecting links supplied for single / double strand. Cotter type connecting links supplied for triple strand chain and above.
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS60	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.110	-	7,030	9,020	9,900	1,980	1.03	160
Double Strand																		
RS60-2	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.988	0.955	1.033	2.071	0.898	14,060	18,040	19,800	3,360	2.04	160
Triple Strand																		
RS60-3	0.750	0.469	0.500	0.094	0.713	0.614	0.235	2.906	1.404	1.502	2.972	0.898	21,090	27,060	29,700	4,950	3.04	160
Quadruple Strand																		
RS60-4	0.750	0.469	0.500	0.094	0.713	0.614	0.235	3.803	1.852	1.951	3.870	0.898	28,120	36,080	39,600	6,530	4.05	160
Quintuple Strand																		
RS60-5	0.750	0.469	0.500	0.094	0.713	0.614	0.235	4.705	2.303	2.402	4.772	0.898	35,150	45,100	49,500	7,720	5.05	160
Sextuple Strand																		
RS60-6	0.750	0.469	0.500	0.094	0.713	0.614	0.235	5.606	2.752	2.854	5.669	0.898	42,180	54,120	59,400	9,110	6.06	160

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500
	Lubrication System																								
	A													B								C			
11	0.30	0.67	1.26	2.35	3.39	4.39	6.32	8.19	10.0	11.8	13.5	15.3	17.0	15.6	13.5	11.9	9.41	7.70	6.45	5.51	3.94	3.00	2.39	1.94	1.64
12	0.32	0.74	1.38	2.59	3.71	4.81	6.95	9.00	11.0	13.0	14.9	16.8	18.6	17.8	15.6	13.5	10.7	8.77	7.35	6.29	4.49	3.42	2.71	2.23	1.86
13	0.35	0.80	1.52	2.82	4.06	5.26	7.58	9.80	12.0	14.1	16.2	18.2	20.4	20.1	17.4	15.2	12.1	9.90	8.30	7.08	5.07	3.85	3.06	2.51	
14	0.39	0.87	1.64	3.06	4.40	5.70	8.21	10.6	13.0	15.3	17.6	19.8	22.0	22.4	19.4	17.0	13.5	11.1	9.27	7.91	5.66	4.32	3.42	2.80	
15	0.42	0.94	1.76	3.29	4.73	6.13	8.84	11.5	13.9	16.5	18.9	21.3	23.7	24.8	21.6	18.8	15.0	12.3	10.3	8.77	6.29	4.77	3.80	3.10	
16	0.44	1.01	1.89	3.53	5.08	6.57	9.47	12.3	15.0	17.7	20.2	22.9	25.5	27.4	23.7	20.9	16.5	13.5	11.3	9.67	6.92	5.26	4.17	3.42	
17	0.47	1.09	2.01	3.77	5.42	7.03	10.1	13.1	16.0	18.9	21.7	24.4	27.2	29.9	26.0	22.9	18.1	14.8	12.4	10.6	7.58	5.77	4.57	3.74	
18	0.51	1.15	2.15	4.00	5.77	7.47	10.8	13.9	17.0	20.1	23.1	26.0	29.0	31.8	28.3	24.9	19.7	16.1	13.5	11.5	8.26	6.29	4.99	4.08	
19	0.54	1.22	2.28	4.24	6.12	7.91	11.4	14.8	18.1	21.3	24.4	27.6	30.7	33.7	30.7	27.1	21.5	17.6	14.6	12.5	8.96	6.81	5.40	4.43	
20	0.56	1.29	2.40	4.48	6.46	8.37	12.1	15.6	19.0	22.5	25.9	29.1	32.5	35.7	33.1	29.2	23.1	18.9	15.8	13.5	9.67	7.35	5.83		
21	0.59	1.35	2.53	4.73	6.81	8.82	12.7	16.5	20.1	23.7	27.2	30.7	34.2	37.5	35.7	31.5	24.8	20.2	17.0	14.5	10.4	7.91	6.29		
22	0.63	1.42	2.67	4.98	7.16	9.28	13.4	17.3	21.2	24.9	28.7	32.3	35.9	39.4	38.2	33.8	26.6	21.9	18.2	15.6	11.1	8.49	6.73		
23	0.66	1.50	2.79	5.22	7.51	9.74	14.1	18.1	22.3	26.1	30.0	33.9	37.7	41.4	40.9	36.1	28.4	23.3	19.4	16.8	11.9	9.08	7.19		
24	0.68	1.57	2.92	5.46	7.87	10.2	14.6	19.0	23.2	27.4	31.5	35.5	39.4	43.3	43.6	38.2	30.3	24.8	20.8	17.8	12.7	9.67	7.67		
25	0.72	1.64	3.06	5.71	8.22	10.6	15.3	19.8	24.3	28.6	32.9	37.1	41.2	45.3	46.4	40.6	32.2	26.4	22.1	18.9	13.5	10.3	8.15		
26	0.75	1.72	3.19	5.95	8.58	11.1	16.0	20.8	25.3	29.9	34.3	38.8	43.0	47.3	49.2	43.2	34.2	28.0	23.5	20.0	14.3	10.9	8.55		
28	0.82	1.85	3.46	6.45	9.29	12.0	17.3	22.4	27.5	32.3	37.1	42.0	46.7	51.2	55.0	48.3	38.2	31.4	26.1	22.4	16.0	12.2			
30	0.87	2.00	3.73	6.95	10.0	13.0	18.6	24.1	29.6	34.9	40.1	45.2	50.2	55.3	60.2	53.5	42.4	34.7	29.1	24.8	17.8	13.5			
32	0.94	2.15	4.00	7.46	10.7	13.9	20.0	25.9	31.8	37.4	42.9	48.4	53.8	59.1	64.5	58.9	46.7	38.2	32.1	27.4	19.6	14.9			
35	1.03	2.36	4.40	8.21	11.8	15.3	22.1	28.6	35.0	41.2	47.3	53.4	59.3	65.2	71.1	67.5	53.4	43.7	36.6	31.4	22.4	17.0			
40	1.19	2.72	5.08	9.48	13.7	17.7	25.5	33.0	40.4	47.6	54.6	61.6	68.5	75.4	82.1	82.3	65.7	53.5	44.8	38.2	27.4				
45	1.35	3.10	5.77	10.8	15.6	20.1	29.0	37.5	45.9	54.0	62.1	70.0	77.8	85.6	93.2	98.3	78.4	63.7	53.4	45.6	32.6				

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS80	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.417	-	12,500	16,060	17,600	3,300	1.78	120
Double Strand																		
RS80-2	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	2.657	1.154	25,000	32,120	35,200	5,610	3.53	120
Triple Strand																		
RS80-3	1.000	0.625	0.625	0.126	0.949	0.819	0.313	3.705	1.795	1.909	3.815	1.154	37,500	48,180	52,800	8,250	5.29	120
Quadruple Strand																		
RS80-4	1.000	0.625	0.625	0.126	0.949	0.819	0.313	4.862	2.372	2.490	4.972	1.154	50,000	64,240	70,400	10,890	7.04	120
Quintuple Strand																		
RS80-5	1.000	0.625	0.625	0.126	0.949	0.819	0.313	6.020	2.951	3.069	6.126	1.154	62,500	80,300	88,000	12,870	8.78	120
Sextuple Strand																		
RS80-6	1.000	0.625	0.625	0.126	0.949	0.819	0.313	7.169	3.528	3.642	7.280	1.154	75,000	96,360	105,600	15,180	10.54	120

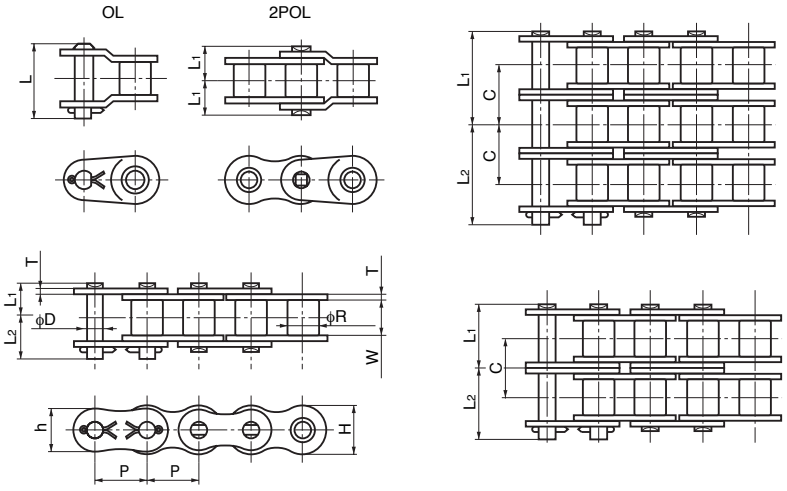
Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2700	3000	3400
	Lubrication System																								
	A											B							C						
11	0.66	1.52	2.82	5.27	7.58	9.83	14.2	18.4	22.4	26.4	30.3	27.5	23.1	19.6	17.0	14.9	11.8	9.70	8.13	6.93	6.01	5.27	4.43	3.77	1.70
12	0.72	1.66	3.10	5.78	8.33	10.8	15.6	20.1	24.7	29.0	33.4	31.2	26.1	22.3	19.4	17.0	13.5	11.0	9.25	7.90	6.85	6.01	5.04	4.30	
13	0.79	1.81	3.38	6.30	9.08	11.8	16.9	22.0	26.8	31.6	36.3	35.3	29.8	25.2	21.9	19.2	15.2	12.5	10.4	8.92	7.72	6.79	5.69	4.85	
14	0.86	1.96	3.66	6.83	9.84	12.8	18.4	23.7	29.1	34.2	39.4	39.4	33.3	28.2	24.4	21.5	17.0	13.9	11.7	9.96	8.64	7.58	6.36	5.42	
15	0.93	2.12	3.94	7.36	10.6	13.7	19.8	25.6	31.4	36.9	42.4	43.7	36.9	31.2	27.1	23.9	18.9	15.4	12.9	11.0	9.57	8.41	7.04	6.01	
16	0.99	2.27	4.22	7.89	11.4	14.8	21.2	27.5	33.5	39.6	45.5	48.1	40.6	34.5	29.8	26.1	20.8	17.0	14.2	12.2	10.5	9.25	7.76	6.62	
17	1.06	2.41	4.52	8.42	12.1	15.7	22.7	29.4	35.8	42.2	48.5	52.7	44.3	37.7	32.7	28.7	22.7	18.6	15.6	13.3	11.5	10.1	8.49	7.25	
18	1.13	2.57	4.80	8.96	12.9	16.8	24.1	31.2	38.1	44.9	51.6	57.5	48.1	41.2	35.7	31.2	24.8	20.2	17.0	14.5	12.6	11.0	9.25	7.90	
19	1.19	2.72	5.10	9.49	13.7	17.7	25.5	33.1	40.5	47.6	54.7	61.7	52.3	44.5	38.6	33.9	27.0	22.0	18.4	15.7	13.5	12.0	10.0	8.57	
20	1.26	2.88	5.38	10.0	14.5	18.8	27.0	35.0	42.8	50.4	57.8	65.3	56.5	48.1	41.7	36.6	29.0	23.9	19.8	17.0	14.8	12.9	10.8		
21	1.33	3.04	5.67	10.6	15.3	19.7	28.4	36.9	45.1	53.1	61.0	68.8	60.7	51.8	44.8	39.4	31.2	25.6	21.5	18.4	16.0	13.9	11.7		
22	1.39	3.19	5.97	11.1	16.1	20.8	29.9	38.8	47.3	55.8	64.1	72.3	65.0	55.5	48.1	42.2	33.5	27.4	23.1	19.6	17.0	14.9	12.5		
23	1.48	3.35	6.26	11.7	16.8	21.7	31.4	40.6	49.8	58.6	67.3	75.9	69.6	59.3	51.4	45.1	35.8	29.4	24.7	21.1	18.2	16.0	13.4		
24	1.54	3.51	6.56	12.2	17.6	22.8	32.9	42.5	52.0	61.3	70.4	79.4	74.2	63.7	54.8	48.1	38.2	31.2	26.1	22.3	19.4	17.0	14.2		
25	1.61	3.67	6.85	12.8	18.4	23.9	34.3	44.5	54.4	64.1	73.6	83.0	78.9	67.7	57.9	51.1	40.6	33.3	27.8	23.9	20.7	18.1	15.2		
26	1.68	3.82	7.15	13.3	19.2	24.8	35.8	46.4	56.7	66.9	76.8	86.6	83.7	71.7	61.8	54.2	43.0	35.3	29.5	25.2	21.9	19.2	16.1		
28	1.82	4.14	7.74	14.5	20.8	27.0	38.8	50.3	61.4	72.4	83.3	93.9	93.5	80.2	69.1	60.6	48.1	39.4	33.0	28.2	24.4	21.5			
30	1.96	4.47	8.34	15.6	22.4	29.0	41.8	54.2	66.2	78.0	89.7	101	104	88.9	76.7	67.2	53.4	43.6	36.6	31.2	27.1	23.9			
32	2.11	4.79	8.94	16.6	24.0	31.1	44.8	58.1	71.1	83.7	96.2	108	114	97.5	84.4	74.0	58.7	48.1	40.4	34.5	29.8	26.1			
35	2.32	5.28	9.84	18.4	26.4	34.3	49.3	64.0	78.2	92.1	106	119	131	112	96.6	84.8	67.2	55.0	46.1	39.4	34.1				
40	2.67	6.10	11.4	21.2	30.6	39.6	57.0	73.9	90.4	106	122	138	153	137	117	103	82.2	67.2	56.3	48.1	20.0				
45	3.03	6.92	12.9	24.1	34.7	44.9	64.8	83.9	103	121	139	157	174	162	142	123	98.0	80.2	67.2	54.2					

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS100 ANSI Standard Roller Chain 1 1/4" Pitch

TSUBAKI



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

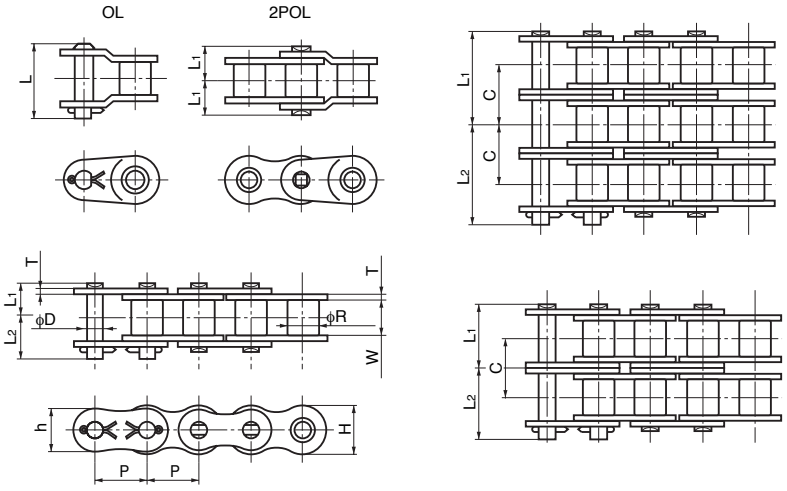
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS100	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	1.748	-	19,530	23,980	26,400	5,060	2.67	96
Double Strand																		
RS100-2	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	3.209	1.409	39,060	47,960	52,800	8,602	5.26	96
Triple Strand																		
RS100-3	1.250	0.750	0.750	0.157	1.185	1.024	0.376	4.504	2.191	2.313	4.618	1.409	58,590	71,940	79,200	12,650	7.89	96
Quadruple Strand																		
RS100-4	1.250	0.750	0.750	0.157	1.185	1.024	0.376	5.913	2.896	3.018	6.028	1.409	78,120	95,920	105,600	16,700	10.52	96
Quintuple Strand																		
RS100-5	1.250	0.750	0.750	0.157	1.185	1.024	0.376	7.327	3.602	3.724	7.437	1.409	97,650	119,900	132,000	19,730	13.09	96
Sextuple Strand																		
RS100-6	1.250	0.750	0.750	0.157	1.185	1.024	0.376	8.740	4.309	4.431	8.846	1.409	117,180	143,880	158,400	23,270	15.73	96

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000	2200	2400	2600	
	Lubrication System																								
			A							B								C							
11	1.10	2.52	4.71	8.77	12.6	16.4	23.6	30.6	37.4	44.0	40.1	32.9	27.5	23.5	20.2	17.8	15.8	14.2	11.6	9.71	8.30	7.19	6.32	1.29	
12	1.21	2.76	5.16	9.64	13.9	18.0	25.9	33.5	41.0	48.4	45.7	37.3	31.4	26.7	23.2	20.2	18.0	16.1	13.2	11.1	9.45	8.19	7.19		
13	1.33	3.02	5.63	10.5	15.2	19.6	28.3	36.6	44.8	52.7	51.5	42.1	35.3	30.2	26.1	22.9	20.2	18.2	14.9	12.5	10.6	9.24	8.10		
14	1.43	3.27	6.10	11.4	16.4	21.2	30.6	39.7	48.4	57.1	57.5	47.1	39.4	33.7	29.2	25.6	22.7	20.2	16.6	13.5	11.9	10.3	9.05		
15	1.54	3.53	6.57	12.3	17.7	22.9	33.0	42.8	52.2	61.6	63.8	52.2	43.7	37.3	32.5	28.4	25.2	22.5	18.4	15.6	13.2	11.4	10.0		
16	1.65	3.78	7.05	13.2	18.9	24.5	35.4	45.7	55.9	66.0	70.4	57.5	48.3	41.2	35.7	31.4	27.8	24.8	20.2	17.0	14.5	12.6	11.1		
17	1.77	4.04	7.52	14.1	20.2	26.1	37.7	48.9	59.8	70.4	77.1	63.0	52.8	45.1	39.0	34.3	30.4	27.2	22.3	18.8	16.0	13.8	0.79		
18	1.88	4.29	8.01	14.9	21.5	27.9	40.1	52.0	63.6	75.0	83.9	68.7	57.5	49.1	42.5	37.3	33.1	29.6	24.3	20.2	17.4	15.0			
19	2.00	4.55	8.49	15.8	22.8	29.5	42.5	55.1	67.5	79.4	91.1	74.6	62.4	53.2	46.1	40.5	35.9	32.1	26.3	22.0	18.8	16.4			
20	2.11	4.80	8.97	16.8	24.1	31.2	44.9	58.3	71.2	83.9	96.4	80.5	67.3	57.5	49.9	43.7	38.8	34.7	28.4	23.9	20.2	17.6			
21	2.23	5.07	9.45	17.7	25.3	32.9	47.5	61.4	75.1	88.5	102	86.6	72.4	61.8	53.6	47.1	41.7	37.3	30.6	25.6	21.9	19.0			
22	2.33	5.32	9.94	18.5	26.7	34.6	49.9	64.6	79.0	93.1	107	92.8	77.8	66.4	57.5	50.4	44.8	40.0	32.9	27.5	23.5	20.2			
23	2.45	5.59	10.4	19.4	28.0	36.3	52.3	67.7	82.9	97.6	112	99.2	83.0	70.9	61.4	53.9	47.9	42.8	35.0	29.4	25.1	7.74			
24	2.56	5.85	10.9	20.4	29.4	38.1	54.7	70.9	86.8	102	117	106	88.5	75.6	65.6	57.5	51.1	45.6	37.3	31.4	26.7				
25	2.68	6.12	11.4	21.3	30.7	39.7	57.3	74.2	90.7	107	123	113	94.1	80.3	69.6	61.2	54.2	48.5	39.7	33.3	28.4				
26	2.80	6.38	11.9	22.3	32.1	41.4	59.7	77.4	94.5	111	128	119	99.9	85.3	73.9	64.8	57.5	51.4	42.1	35.3	30.2				
28	3.03	6.91	12.9	24.0	34.7	44.9	64.6	83.8	102	121	138	133	112	95.2	82.6	72.4	64.2	57.5	47.1	39.4	33.7				
30	3.26	7.44	13.9	25.9	37.4	48.4	69.7	90.3	110	130	149	148	124	106	91.6	80.3	71.2	63.7	52.2	43.7	10.0				
32	3.50	7.98	14.9	27.8	40.1	51.9	74.7	96.8	118	139	160	162	135	116	101	88.5	78.6	70.3	57.5	45.2					
35	3.86	8.80	16.4	30.6	44.1	57.1	82.3	107	130	154	177	186	156	133	115	101	89.8	80.3	65.8	55.1					
40	4.45	10.2	18.9	35.4	51.0	66.0	95.1	123	150	177	204	228	190	164	141	124	110	98.2	80.3						
45	5.06	11.5	21.6	40.2	57.9	75.0	108	139	172	201	232	261	228	194	168	148	131	117	45.3						

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

1 1/2" Pitch ANSI Standard Roller Chain RS120



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

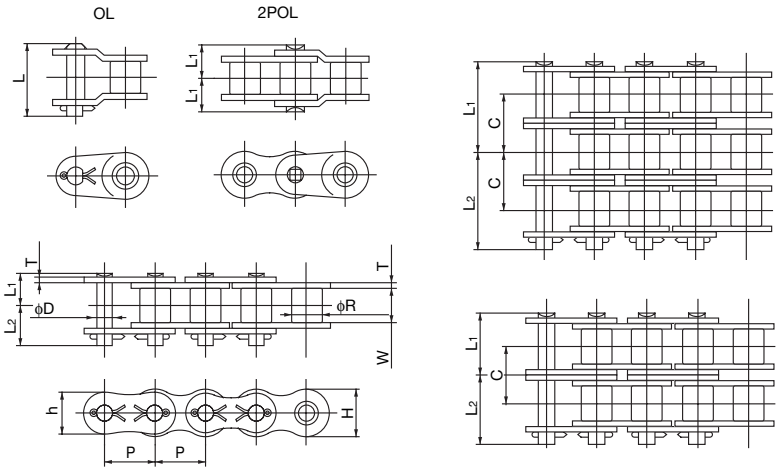
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS120	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	2.197	-	28,120	33,220	37,400	6,820	3.97	80
Double Strand																		
RS120-2	1.500	0.875	1.000	0.189	1.425	1.228	0.437	3.906	1.874	2.031	4.063	1.787	56,240	66,440	74,800	11,590	7.84	80
Triple Strand																		
RS120-3	1.500	0.875	1.000	0.189	1.425	1.228	0.437	5.701	2.772	2.929	5.850	1.787	84,360	99,660	112,200	17,050	11.75	80
Quadruple Strand																		
RS120-4	1.500	0.875	1.000	0.189	1.425	1.228	0.437	7.488	3.665	3.823	7.638	1.787	112,480	132,880	149,600	22,500	15.65	80
Quintuple Strand																		
RS120-5	1.500	0.875	1.000	0.189	1.425	1.228	0.437	9.280	4.561	4.719	9.425	1.787	140,600	166,100	187,000	26,600	19.54	80
Sextuple Strand																		
RS120-6	1.500	0.875	1.000	0.189	1.425	1.228	0.437	11.067	5.455	5.612	11.213	1.787	168,720	199,320	224,400	31,370	23.42	80

Maximum Horsepower Ratings

No. of Teeth Small Spkt.	Maximum Speed – Small Sprocket (rpm)																							
	10	25	50	100	150	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
	Lubrication System																							
	A									B			C											
11	2.02	4.61	8.61	16.1	23.2	30.0	43.2	55.9	68.4	58.5	46.3	38.0	31.8	27.1	23.5	20.7	18.4	16.4	14.8	13.4	12.2	11.2	10.4	9.60
12	2.23	5.07	9.47	17.7	25.5	33.0	47.5	61.6	75.2	66.6	52.8	43.2	36.2	31.0	26.8	23.5	20.9	18.8	16.8	15.3	13.9	12.8	11.8	10.90
13	2.43	5.53	10.3	19.3	27.8	35.9	51.8	67.1	81.9	75.1	59.5	48.7	40.8	34.9	30.2	26.6	23.5	21.1	19.0	17.2	15.7	14.3	13.3	12.31
14	2.63	5.99	11.2	20.9	30.0	38.9	56.1	72.7	86.8	83.9	66.5	54.4	45.6	39.0	33.8	29.6	26.3	23.5	21.2	19.2	17.6	16.1	14.9	8.94
15	2.83	6.45	12.0	22.5	32.3	42.0	60.3	78.3	95.6	93.1	73.9	60.5	50.7	43.2	37.4	32.9	29.1	26.1	23.5	21.3	19.4	18.0	16.5	
16	3.03	6.92	12.9	24.1	34.7	44.9	64.8	83.9	103	103	81.4	66.5	55.8	47.6	41.3	36.2	32.1	28.7	25.9	23.5	21.5	19.7	18.2	
17	3.23	7.39	13.8	25.7	37.0	48.0	69.2	89.6	110	112	89.0	72.8	61.0	52.2	45.2	39.6	35.3	31.5	28.4	25.7	23.5	21.6	19.8	
18	3.45	7.86	14.6	27.4	39.4	51.1	73.5	95.2	117	122	97.1	79.4	66.5	56.9	49.2	43.2	38.4	34.3	31.0	28.2	25.6	23.5	11.3	
19	3.65	8.33	15.6	29.0	41.8	54.2	77.9	101	124	133	105	86.1	72.1	61.7	53.4	46.8	41.6	37.3	33.5	30.4	27.8	25.5		
20	3.86	8.81	16.5	30.7	44.1	57.3	82.5	107	130	143	114	92.9	77.9	66.5	57.7	50.7	44.9	40.1	36.2	32.9	30.0	27.5		
21	4.06	9.28	17.3	32.3	46.5	60.3	86.9	113	138	154	122	100	83.8	71.6	62.1	54.4	48.3	43.2	39.0	35.4	32.3	29.6		
22	4.28	9.76	18.2	33.9	48.9	63.4	91.3	118	145	165	131	107	90.0	76.7	66.5	58.5	51.8	46.3	41.8	38.0	34.6	16.6		
23	4.49	10.2	19.0	35.7	51.4	66.5	95.9	124	152	177	139	115	96.2	82.1	71.1	62.5	55.4	49.5	44.7	40.5	37.0			
24	4.69	10.7	20.0	37.3	53.8	69.6	100	130	158	188	146	122	102	87.4	75.9	66.5	59.0	52.8	47.6	43.2	39.4			
25	4.91	11.2	20.9	39.0	56.2	72.8	105	135	166	196	160	130	109	92.9	80.6	70.7	62.8	56.2	50.7	45.9	41.3			
26	5.12	11.7	21.9	40.8	58.6	75.9	109	142	173	204	169	138	115	98.7	85.4	75.1	66.5	59.5	53.8	48.7	26.6			
28	5.55	12.7	23.6	44.1	63.6	82.3	119	153	188	221	189	154	129	110	95.6	83.8	74.3	66.5	60.1	54.4				
30	5.98	13.7	25.5	47.5	68.4	88.6	128	165	202	239	209	172	143	122	106	92.9	82.5	73.9	66.5	42.4				
32	6.41	14.6	27.4	51.0	73.4	95.1	137	177	217	256	231	188	158	135	117	102	90.8	81.4	73.4					
35	7.07	16.1	30.0	56.1	80.9	105	150	196	239	282	263	215	180	154	133	117	104	92.9	47.7					
40	8.15	18.6	34.7	64.8	93.3	121	174	225	276	325	322	263	220	188	164	143	127	59.5						
45	9.27	21.2	39.4	73.6	106	137	198	256	314	369	384	314	263	224	194	172	80.1							

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS140 ANSI Standard Roller Chain 1 3/4" Pitch



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

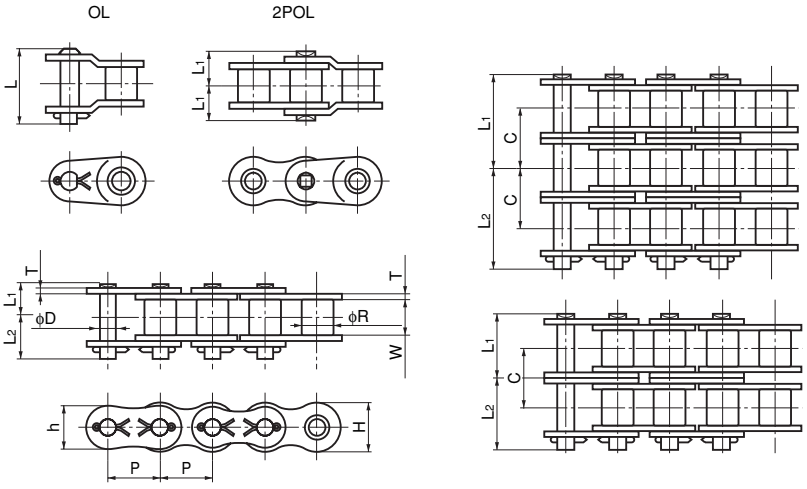
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS140	1.750	1.000	1.000	0.220	1.661	1.433	0.500	2.307	1.059	1.248	2.343	-	38,280	43,340	48,400	9,020	5.02	68
Double Strand																		
RS140-2	1.750	1.000	1.000	0.220	1.661	1.433	0.500	4.232	2.022	2.211	4.421	1.925	76,560	86,680	96,800	15,334	9.94	68
Triple Strand																		
RS140-3	1.750	1.000	1.000	0.220	1.661	1.433	0.500	6.165	2.986	3.179	6.350	1.925	114,840	130,020	145,200	22,550	14.87	68
Quadruple Strand																		
RS140-4	1.750	1.000	1.000	0.220	1.661	1.433	0.500	8.091	3.949	4.142	8.276	1.925	153,120	173,360	193,600	29,766	19.11	68
Quintuple Strand																		
RS140-5	1.750	1.000	1.000	0.220	1.661	1.433	0.500	10.016	4.913	5.102	10.201	1.925	191,400	216,700	242,000	35,178	24.77	68
Sextuple Strand																		
RS140-6	1.750	1.000	1.000	0.220	1.661	1.433	0.500	11.949	5.878	6.071	12.126	1.925	229,680	260,040	290,400	41,492	29.68	68

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																								
	10	25	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
	Lubrication System																							
	A			B								C												
11	3.16	7.23	13.5	25.2	36.2	46.9	57.4	67.7	77.8	87.7	97.5	87.0	75.2	66.0	52.4	42.9	35.9	30.7	26.6	23.3	20.7	18.5	16.8	15.2
12	3.49	7.94	14.9	27.6	39.8	51.6	63.2	74.3	85.4	96.3	107	99.1	86.4	75.2	59.7	48.9	41.0	35.0	30.3	26.6	23.6	21.1	19.0	17.3
13	3.80	8.66	16.2	30.2	43.4	56.3	68.8	81.1	93.2	105	117	112	97.4	84.9	67.3	55.3	46.3	39.4	34.2	30.0	26.6	23.9	21.5	19.4
14	4.12	9.39	17.6	32.7	47.1	61.0	74.6	87.8	101	114	126	125	109	94.8	75.2	61.7	51.6	44.1	38.2	33.5	29.8	26.6	24.0	21.9
15	4.43	10.1	18.9	35.3	50.7	65.7	80.3	94.7	109	123	137	138	120	105	83.4	68.4	57.3	48.9	42.4	37.3	33.0	29.5	26.6	
16	4.75	10.8	20.2	37.7	54.3	70.4	86.1	102	117	131	146	153	132	116	92.0	75.2	63.2	53.8	46.7	41.0	36.3	32.5	29.4	
17	5.07	11.6	21.6	40.4	58.1	75.2	91.9	108	124	141	156	168	145	127	101	82.5	69.2	59.0	51.1	44.9	39.8	35.7	32.1	
18	5.39	12.3	22.9	42.9	61.7	79.9	97.8	115	132	149	166	182	158	138	110	89.8	75.2	64.2	55.8	48.9	43.3	38.8	35.0	
19	5.73	13.0	24.4	45.5	65.4	84.8	104	122	141	158	176	193	172	150	119	97.5	81.7	69.7	60.5	53.0	47.1	42.1	38.0	
20	6.05	13.8	25.7	48.0	69.2	89.6	110	129	149	168	186	204	185	161	128	105	88.1	75.2	65.2	57.3	50.8	45.5		
21	6.37	14.5	27.1	50.7	73.0	94.5	115	135	157	176	196	216	198	176	138	113	94.8	81.0	70.3	61.7	54.6	48.9		
22	6.71	15.3	28.6	53.2	76.7	99.4	121	143	165	185	207	227	213	188	148	121	102	86.9	75.2	66.0	58.6	52.4		
23	7.03	16.1	29.9	55.9	80.5	104	127	150	173	194	216	237	228	201	158	130	109	92.8	80.5	70.7	62.6	56.1		
24	7.36	16.8	31.4	58.5	84.2	109	133	157	181	204	227	249	243	215	169	138	116	99.0	85.7	75.2	66.8	59.7		
25	7.70	17.6	32.7	61.2	88.0	114	139	165	189	213	236	260	259	228	180	148	123	105	91.2	80.1	70.9	63.6		
26	8.03	18.4	34.2	63.7	91.9	119	145	172	197	223	247	271	274	241	190	156	131	112	96.7	84.9	75.2			
28	8.69	19.8	37.0	69.1	99.5	129	158	185	213	240	267	294	306	268	213	174	146	125	108	94.8	84.1			
30	9.37	21.3	39.8	74.4	107	139	170	200	229	259	288	316	339	298	236	193	162	138	120	105	93.2			
32	10.0	22.9	42.8	79.8	115	149	182	215	247	278	308	339	370	329	260	213	178	152	132	116				
35	11.1	25.2	47.1	87.8	127	164	201	236	271	306	341	374	408	375	298	243	204	174	152	130				
40	12.8	29.1	54.4	102	146	189	232	274	314	354	393	432	471	459	363	298	249	213	178					
45	14.5	33.1	61.8	115	166	215	263	310	357	401	447	491	535	547	434	355	298	237	92.8					

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

2" Pitch ANSI Standard Roller Chain RS160



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS160	2.000	1.125	1.250	0.252	1.898	1.638	0.563	2.705	1.254	1.451	2.795	-	50,000	57,200	62,700	11,880	6.77	60
Double Strand																		
RS160-2	2.000	1.125	1.250	0.252	1.898	1.638	0.563	5.012	2.407	2.604	5.205	2.303	100,000	114,400	125,400	20,196	13.43	60
Triple Strand																		
RS160-3	2.000	1.125	1.250	0.252	1.898	1.638	0.563	7.319	3.561	3.758	7.508	2.303	150,000	171,600	188,100	29,700	20.11	60
Quadruple Strand																		
RS160-4	2.000	1.125	1.250	0.252	1.898	1.638	0.563	9.622	4.715	4.907	9.811	2.303	200,000	228,800	250,800	39,204	26.84	60
Quintuple Strand																		
RS160-5	2.000	1.125	1.250	0.252	1.898	1.638	0.563	11.929	5.868	6.061	12.114	2.303	250,000	286,000	313,500	46,332	33.43	60
Sextuple Strand																		
RS160-6	2.000	1.125	1.250	0.252	1.898	1.638	0.563	14.236	7.020	7.217	14.417	2.303	300,000	343,200	376,200	54,648	40.15	60

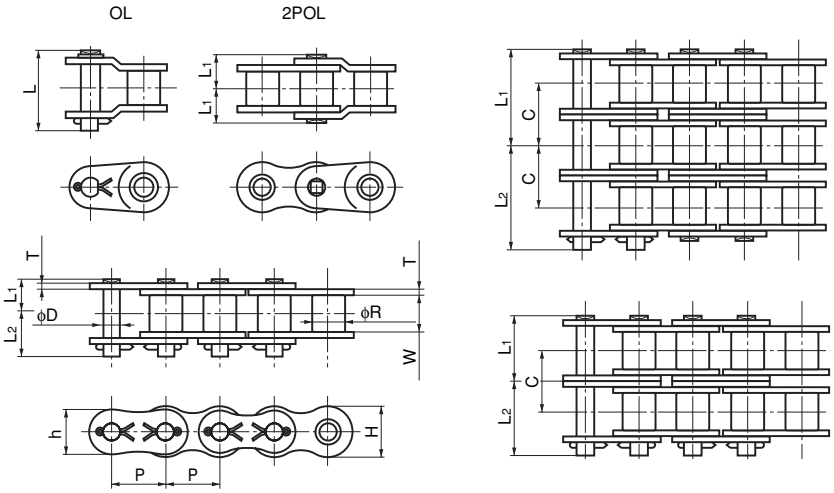
Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																							
	10	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	1000	1100	1200	1300
	Lubrication System																							
	A			B							C													
11	4.77	10.9	20.2	38.0	54.6	70.7	86.5	102	117	132	113	96.7	83.7	73.5	65.2	58.3	52.6	47.7	43.6	40.0	34.1	29.6	26.0	23.1
12	5.24	12.0	22.3	41.7	59.9	77.6	94.9	112	129	145	129	110	95.5	83.7	74.3	66.4	59.9	54.4	49.6	45.6	38.9	33.7	29.6	26.3
13	5.71	13.0	24.3	45.5	65.4	84.8	104	122	141	158	146	124	108	94.4	83.7	75.0	67.6	61.3	56.1	51.4	44.0	38.1	33.4	29.6
14	6.20	14.1	26.4	49.2	70.8	91.7	112	132	152	172	162	139	120	105	93.6	83.7	75.5	68.5	62.6	57.4	49.1	42.5	37.3	33.1
15	6.66	15.2	28.4	53.0	76.3	98.8	121	142	164	185	181	156	133	117	104	92.8	83.7	76.0	69.5	63.7	54.4	47.1	41.4	
16	7.15	16.4	30.4	56.9	81.8	106	130	153	176	198	198	170	148	129	114	102	92.3	83.7	76.4	70.3	59.9	51.9	45.6	
17	7.63	17.4	32.5	60.6	87.4	113	138	164	188	212	217	186	161	141	125	112	101	91.7	83.7	76.8	65.6	57.0	49.9	
18	8.13	18.5	34.6	64.5	92.9	120	148	173	200	225	237	202	176	154	135	122	110	99.9	91.2	83.7	71.5	62.1	54.4	
19	8.61	19.6	36.6	68.4	98.6	128	156	184	212	239	257	220	190	168	148	132	119	108	99.0	90.8	77.5	67.2	59.0	
20	9.11	20.8	38.8	72.3	104	135	165	194	223	252	278	237	205	180	160	143	129	117	107	98.2	83.7	72.7	63.7	
21	9.59	21.9	40.9	76.2	110	142	174	205	235	266	295	255	221	194	172	154	139	126	115	105	90.1	78.2	68.5	
22	10.1	23.1	42.9	80.2	115	150	182	216	248	279	310	274	237	208	184	165	149	135	123	113	96.7	83.7		
23	10.6	24.1	45.1	84.1	121	157	192	227	260	292	326	292	255	223	197	176	159	143	132	121	103	89.6		
24	11.1	25.3	47.2	88.0	127	164	201	236	272	307	341	312	272	237	211	188	169	154	139	129	110	95.5		
25	11.6	26.4	49.3	92.0	132	172	209	247	284	321	357	331	288	252	223	200	180	164	149	137	117	101		
26	12.1	27.6	51.5	96.0	138	180	219	257	296	334	371	351	306	267	237	212	192	173	158	145	124	108		
28	13.1	29.9	55.8	104	150	194	237	279	321	362	402	393	342	298	266	237	215	194	177	162	139	120		
30	14.1	32.2	60.1	112	161	209	256	302	346	390	433	436	380	331	294	263	237	215	196	180	154			
32	15.2	34.5	64.4	120	173	224	274	323	371	418	465	480	416	365	323	290	261	237	216	198	169			
35	16.6	38.0	70.9	132	190	247	302	355	409	461	512	550	476	417	370	331	298	271	247	227	180			
40	19.2	43.9	81.9	153	220	286	349	410	472	532	591	650	582	514	452	404	365	331	302	257				
45	21.9	49.9	93.1	173	249	325	396	467	536	605	672	739	695	613	539	483	418	349	271	189				

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS180 ANSI Standard Roller Chain 2 1/4" Pitch

TSUBAKI



Notes: Cotter type connecting links supplied for this chain.

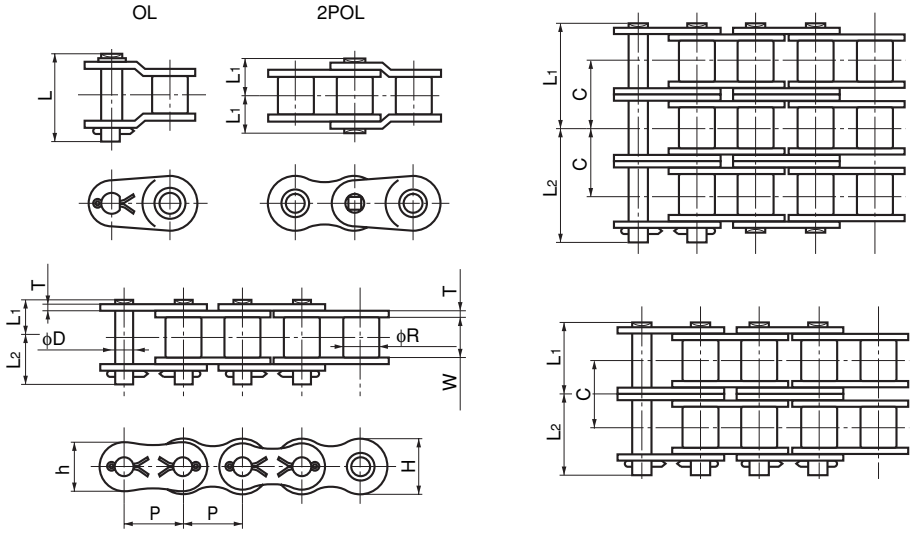
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS180	2.250	1.406	1.406	0.281	2.134	1.843	0.687	3.075	1.404	1.671	3.173	-	63,280	75,460	82,940	13,640	9.01	54
Double Strand																		
RS180-2	2.250	1.406	1.406	0.281	2.134	1.843	0.687	5.673	2.707	2.967	5.949	2.591	126,560	150,920	165,880	23,190	17.77	54
Triple Strand																		
RS180-3	2.250	1.406	1.406	0.281	2.134	1.843	0.687	8.276	4.004	4.272	8.539	2.591	189,840	226,578	288,420	34,100	25.61	54
Quadruple Strand																		
RS180-4	2.250	1.406	1.406	0.281	2.134	1.843	0.687	10.870	5.301	5.569	11.134	2.591	253,120	301,840	331,760	45,010	34.10	54
Quintuple Strand																		
RS180-5	2.250	1.406	1.406	0.281	2.134	1.843	0.687	13.465	6.598	6.866	13.724	2.591	316,400	377,300	414,700	53,200	42.61	54
Sextuple Strand																		
RS180-6	2.250	1.406	1.406	0.281	2.134	1.843	0.687	16.059	7.896	8.163	16.315	2.591	379,680	452,760	497,640	62,740	51.10	54

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																							
	10	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
	Lubrication System																							
	A						B					C												
11	6.17	14.1	26.3	48.9	70.5	91.3	112	132	152	149	124	106	92.0	80.7	71.6	64.1	57.8	52.4	47.9	44.0	40.5	37.5	34.9	32.5
12	6.77	15.4	28.8	53.8	77.5	100	123	145	166	169	142	121	105	92.0	81.7	73.1	65.8	59.7	54.6	50.2	46.3	42.8	39.7	37.1
13	7.39	16.9	31.4	58.6	84.5	109	134	158	181	190	161	135	118	103	92.0	82.3	74.3	67.5	61.6	56.5	52.2	48.3	44.8	
14	7.99	18.2	34.1	63.6	91.5	119	145	170	196	213	178	152	132	115	102	92.0	82.9	75.4	68.8	63.2	58.2	53.9	50.2	
15	8.62	19.7	36.7	68.4	98.6	128	156	184	212	236	198	169	146	128	114	102	92.0	83.5	76.2	70.0	64.5	59.7	55.5	
16	9.24	21.1	39.3	73.4	106	137	168	197	227	256	219	186	161	141	125	112	101	92.0	84.1	77.2	71.1	65.8	61.3	
17	9.87	22.5	42.0	78.3	113	146	178	211	241	272	239	204	177	156	137	123	111	100	92.0	84.5	77.9	72.1		
18	10.5	23.9	44.7	83.3	120	156	190	224	257	290	260	223	192	169	150	134	121	110	100	92.0	84.9	78.6		
19	11.1	25.3	47.3	88.4	127	165	201	237	272	307	283	241	208	184	162	145	131	119	109	99.9	92.0	85.3		
20	11.8	26.8	50.0	93.3	134	174	213	251	288	325	306	260	225	198	176	157	141	128	117	108	99.4	92.0		
21	12.4	28.3	52.7	98.4	142	184	224	264	304	343	329	280	243	213	189	169	152	138	126	116	107	99.1		
22	13.0	29.8	55.5	104	149	193	236	278	319	361	353	300	260	228	202	181	164	148	135	124	115			
23	13.7	31.2	58.2	109	157	202	248	292	335	378	377	323	278	244	216	194	176	160	145	133	123			
24	14.3	32.6	60.9	114	164	212	259	306	351	396	401	345	296	260	231	207	186	169	154	142	131			
25	15.0	34.1	63.7	119	172	221	271	319	367	414	426	366	315	278	245	220	198	180	164	152	139			
26	15.6	35.5	66.4	124	178	232	283	333	382	432	452	386	334	294	260	233	211	192	174	160				
28	16.9	38.6	72.0	134	193	251	306	361	414	468	506	432	374	329	291	260	235	213	194	178				
30	18.2	41.6	77.5	145	208	270	330	389	447	504	561	479	414	365	322	290	260	236	216	198				
32	19.6	44.5	83.1	156	224	290	354	417	479	540	601	527	456	401	355	319	287	260	239					
35	21.5	49.1	91.6	170	247	319	390	460	528	595	661	603	522	459	406	365	329	291	220					
40	24.8	56.7	106	197	284	369	451	531	610	688	660	610	575	524	465	398	325	244						
45	28.2	64.4	120	224	323	418	511	602	692	728	680	632	578	514	441	361	271							

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.



Notes: Cotter type connecting links supplied for this chain.

All dimensions in inches unless otherwise stated.

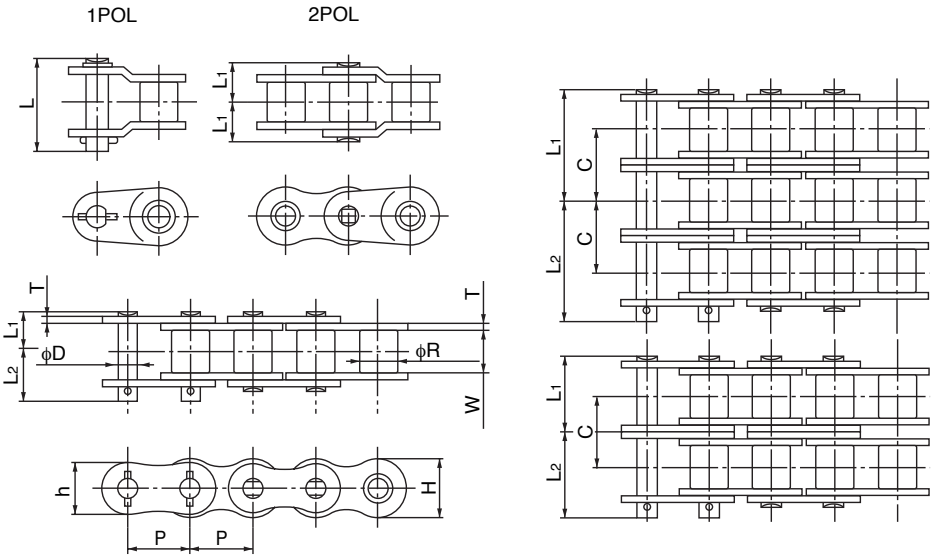
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS200	2.500	1.562	1.500	0.315	2.374	2.047	0.781	3.299	1.535	1.764	3.437	-	78,120	95,700	105,600	16,060	11.05	48
Double Strand																		
RS200-2	2.500	1.562	1.500	0.315	2.374	2.047	0.781	6.122	2.947	3.175	6.346	2.819	156,240	191,400	211,200	27,300	21.86	48
Triple Strand																		
RS200-3	2.500	1.562	1.500	0.315	2.374	2.047	0.781	8.945	4.360	4.585	9.173	2.819	234,360	287,100	316,800	40,150	32.84	48
Quadruple Strand																		
RS200-4	2.500	1.562	1.500	0.315	2.374	2.047	0.781	11.768	5.772	5.996	11.996	2.819	312,480	382,800	422,400	53,000	43.66	48
Quintuple Strand																		
RS200-5	2.500	1.562	1.500	0.315	2.374	2.047	0.781	14.591	7.181	7.409	14.815	2.819	390,600	478,500	528,000	62,630	54.48	48
Sextuple Strand																		
RS200-6	2.500	1.562	1.500	0.315	2.374	2.047	0.781	17.413	8.593	8.821	17.638	2.819	468,720	574,200	633,600	73,870	65.39	48

Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																		
	10	15	20	30	40	50	70	100	150	200	250	300	350	400	450	500	550	600	650
	Lubrication System																		
	A				B									C					
11	7.36	10.6	13.7	19.8	25.6	31.4	42.4	58.5	84.2	109	133	157	181	162	135	115	100	87.8	77.9
12	8.09	11.7	15.2	21.7	28.2	34.5	46.7	64.2	92.5	120	146	173	198	184	154	132	114	100	
13	8.82	12.7	16.5	23.7	30.7	37.5	50.8	70.0	101	131	160	188	216	208	174	148	129	113	
14	9.56	13.8	17.8	25.7	33.3	40.6	55.1	75.9	109	142	173	204	235	232	194	166	143	126	
15	10.3	14.9	19.2	27.6	35.8	43.9	59.3	81.8	118	153	186	220	252	257	215	184	160	139	
16	11.0	16.0	20.7	29.6	38.5	46.9	63.6	87.7	126	164	200	236	271	284	237	202	176	154	
17	11.8	17.0	22.0	31.6	41.0	50.2	67.9	93.6	135	174	213	252	290	311	260	223	192	169	
18	12.5	18.1	23.3	33.7	43.6	53.4	72.3	99.5	143	186	227	268	307	338	284	243	209	184	
19	13.3	19.2	24.8	35.7	46.3	56.6	76.6	106	152	197	241	284	326	367	307	261	227	198	
20	14.1	20.2	26.1	37.8	48.9	59.8	81.0	112	161	208	255	300	345	389	333	283	245		
21	14.8	21.3	27.6	39.8	51.5	63.0	85.3	118	169	220	268	316	363	409	358	306	264		
22	15.6	22.4	29.1	41.8	54.2	66.2	89.7	124	178	231	282	333	382	430	384	327	283		
23	16.4	23.5	30.4	43.9	56.9	69.5	94.1	130	186	243	296	349	401	452	409	349	303		
24	17.2	24.7	31.9	46.0	59.5	72.8	98.6	135	196	253	310	365	420	473	437	373	323		
25	17.8	25.7	33.4	48.0	62.2	76.0	103	142	204	266	323	382	439	495	464	396	343		
26	18.6	26.8	34.7	50.2	64.9	79.4	107	148	213	276	338	398	457	516	492	420	365		

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

RS240 ANSI Standard Roller Chain 3" Pitch



Note: All pins have riveted construction.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L							
Single Strand																		
RS240	3.000	1.875	1.875	0.374	2.850	2.457	0.937	4.071	1.886	2.185	4.201	-	112,500	139,700	154,000	22,220	16.42	40
Double Strand																		
RS240-2	3.000	1.875	1.875	0.374	2.850	2.457	0.937	7.531	3.618	3.913	7.811	3.457	225,000	279,400	308,000	37,770	32.23	40
Triple Strand																		
RS240-3	3.000	1.875	1.875	0.374	2.850	2.457	0.937	10.984	5.348	5.636	11.272	3.457	337,500	419,100	462,000	55,550	47.97	40
Quadruple Strand																		
RS240-4	3.000	1.875	1.875	0.374	2.850	2.457	0.937	14.453	7.079	7.374	14.732	3.457	450,000	558,800	616,000	73,320	63.72	40
Quintuple Strand																		
RS240-5	3.000	1.875	1.875	0.374	2.850	2.457	0.937	17.913	8.809	9.104	18.189	3.457	562,500	698,500	770,000	86,660	79.46	40
Sextuple Strand																		
RS240-6	3.000	1.875	1.875	0.374	2.850	2.457	0.937	21.370	10.539	10.831	21.657	3.457	675,000	838,200	924,000	102,210	95.21	40

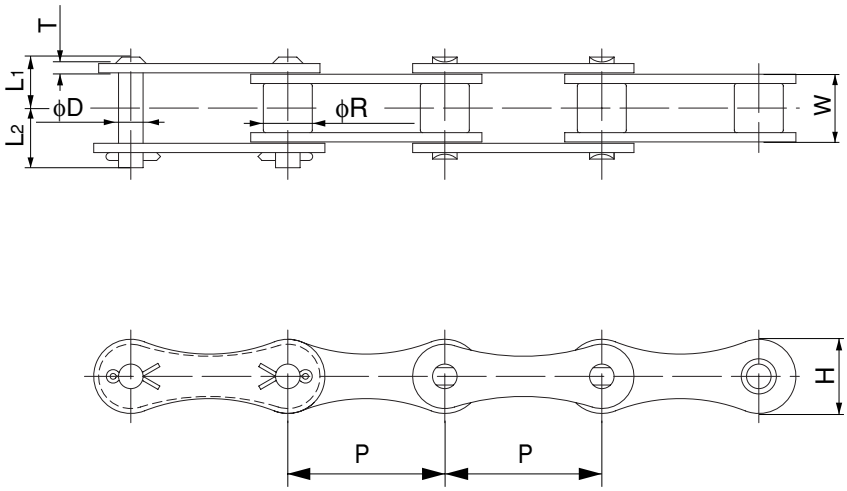
Maximum Horsepower Ratings

No. of Teeth Small Sprkt.	Maximum Speed – Small Sprocket (rpm)																			
	5	10	15	20	25	30	40	50	60	80	100	125	150	175	200	250	300	350	400	450
	Lubrication System																			
	A					B												C		
11	6.81	12.7	18.2	23.7	29.0	34.2	44.3	54.0	63.7	82.6	101	123	145	168	188	231	271	228	188	156
12	7.48	13.9	20.1	26.0	31.8	37.5	48.5	59.4	70.0	90.7	111	135	160	184	207	253	298	260	213	
13	8.15	15.2	21.9	28.4	34.7	40.9	53.0	64.8	76.3	99.0	121	148	174	200	225	276	325	294	240	
14	8.84	16.5	23.7	30.7	37.5	44.3	57.4	70.1	82.7	107	131	160	189	217	244	299	353	329	268	
15	9.52	17.7	25.6	33.1	40.5	47.7	61.8	75.6	89.0	115	141	173	204	233	263	322	380	363	298	
16	10.2	19.0	27.5	35.5	43.4	51.2	66.4	81.1	95.5	124	152	185	219	251	283	345	388	372	329	
17	10.9	20.4	29.2	38.0	46.4	54.7	70.8	86.5	102	132	161	197	232	267	302	369	397	381	359	
18	11.6	21.6	31.1	40.4	49.3	58.2	75.4	92.1	108	141	172	211	248	284	321	392	406	390	377	
19	12.3	22.9	33.0	42.8	52.3	61.7	79.8	97.6	115	149	182	223	263	302	339	416	425	408	393	
20	13.0	24.3	34.9	45.2	55.3	65.2	84.4	103	122	157	193	235	278	319	359	439	443	424	408	
21	13.7	25.6	36.7	47.7	58.3	68.7	88.9	109	128	166	202	248	292	335	378	463	463	440	421	
22	14.3	26.8	38.8	50.2	61.3	72.1	93.6	114	134	174	213	261	307	353	398	487	471	455	436	
23	15.2	28.2	40.6	52.6	64.2	75.8	98.2	120	141	184	224	274	322	370	418	496	481	469	448	
24	15.8	29.5	42.5	55.1	67.3	79.4	103	126	148	192	235	287	338	388	437	531	504	483		
25	16.5	30.8	44.4	57.5	70.4	82.9	107	131	154	200	245	299	353	405	457	550	520	496		
26	17.3	32.2	46.4	60.1	73.4	86.5	112	137	161	209	256	312	369	422	477	561	532	510		

Remarks: 1) Multiply the value given above by the multiple factor (page A-91) in order to obtain the transmission horsepower of multiple strand chain.
2) For Lubrication Methods, A, B & C, refer to page A-110 for explanation. Please consult Tsubaki for use of horsepower ratings to the right of the boundary line which represents the peak torque.
3) Refer to the procedures for selecting roller chain beginning on page A-90.

Agricultural Roller Chain

An economical choice in drive applications where the speed is low, the load is moderate or where the center is relatively long. Tsubaki double pitch agricultural drive chains are also available in stainless steel and nickel plated anti-corrosive coatings.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
A2040	1.000	0.312	0.312	0.060	0.472	0.156	1.083	0.325	0.380	3,700	0.26	120
A2050	1.250	0.400	0.375	0.080	0.590	0.200	1.413	0.406	0.469	6,100	0.42	96
A2060	1.500	0.469	0.500	0.094	0.709	0.234	1.543	0.506	0.600	8,500	0.63	80
A2080	2.000	0.625	0.625	0.125	0.906	0.312	1.543	0.640	0.754	14,500	1.03	60

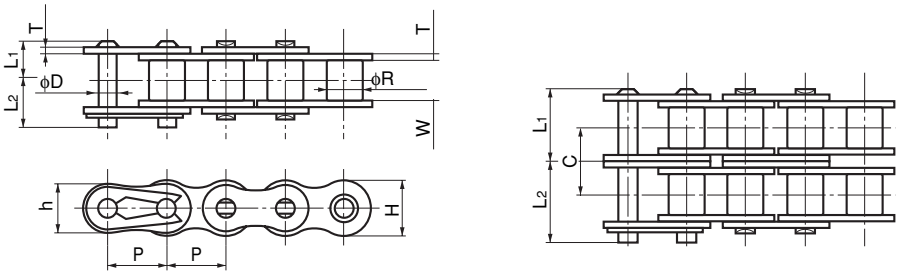
Agri-Tuff Roller Chain

An introduction to Agri-Tuff Roller Chain

Agri-Tuff chain is designed specifically for use in agricultural applications.
Features of Agri-Tuff chain include:
- Quad stake riveted for increased link plate adhesion.
- Hardened pin for greater wear life and shock load protection.
- Solid roller for durability and strength.

Standard

Agri-Tuff Roller Chain



All dimensions in inches unless otherwise stated.

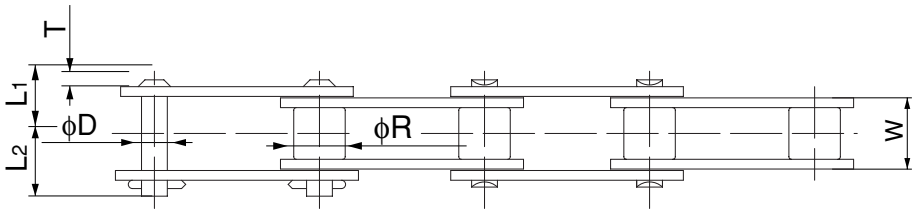
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
Single Strand														
RS40AT	0.500	0.313	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	-	4,290	0.43	240
RS50AT	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	-	7,050	0.70	192
RS60AT	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	-	9,920	1.03	160
RS60HAT	0.750	0.469	0.500	0.126	0.713	0.614	0.235	1.240	0.573	0.667	-	9,920	1.21	160
RS80AT	1.000	0.625	0.625	0.126	0.949	0.819	0.312	1.398	0.640	0.758	-	17,640	1.79	120
Double Strand														
RS40-2AT	0.500	0.313	0.313	0.059	0.472	0.409	0.156	1.283	0.608	0.675	0.567	8,580	0.85	240
RS50-2AT	0.625	0.400	0.375	0.079	0.591	0.512	0.200	1.595	0.762	0.833	0.713	14,100	1.39	192
RS60-2AT	0.750	0.469	0.500	0.094	0.713	0.614	0.235	2.008	0.955	1.053	0.898	19,840	2.04	160
RS60-2HAT	0.750	0.469	0.500	0.126	0.713	0.614	0.235	2.264	1.083	1.181	1.028	19,840	2.41	160

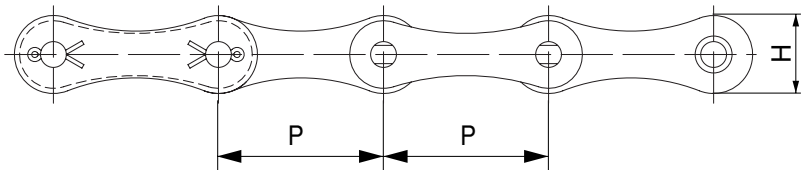
Note: RS80AT connecting link uses cotter pins.

Agri-Tuff Roller Chain

Double Pitch

Agri-Tuff Roller Chain





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
RS2040AT	1.000	0.313	0.313	0.059	0.472	0.156	0.705	0.325	0.380	3,700	0.26	120
RS2050AT	1.250	0.400	0.375	0.079	0.591	0.200	0.875	0.406	0.469	6,100	0.42	96
RS2060AT	1.500	0.469	0.500	0.094	0.709	0.235	1.106	0.506	0.600	8,500	0.63	80

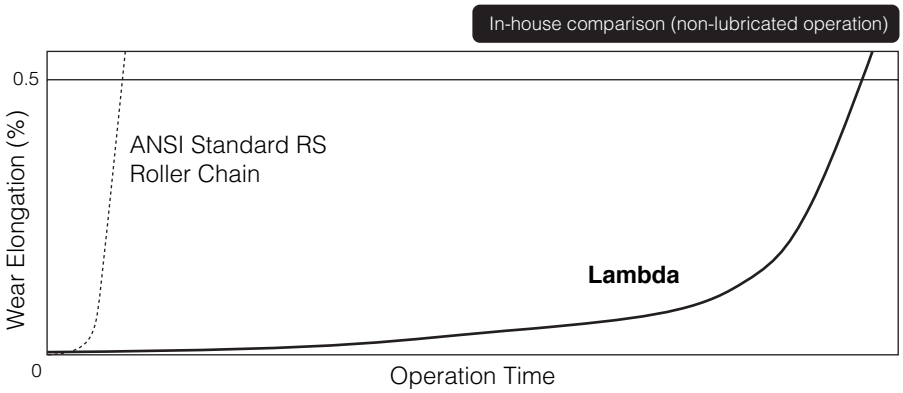
"Original" Lambda Lube-Free Roller Chain

Lambda chain increases productivity and saves money.
- Reduce maintenance time.
- Eliminate product contamination.
- Reduce downtime.

Long life and low maintenance

Lambda chains use special oil-impregnated bushings to provide lubrication and to prolong wear life.

Ambient Temperature: –10°C - +60°C (+14°F - +140°F)



- More than 14 times the wear elongation life of ANSI Standard RS Roller Chain
  (N.B. #120 and #140 have 5 times the life of ANSI Standard RS Roller Chain)

Interchangeable

Lambda Chain is interchangeable with ANSI Standard RS Roller Chain. However, as the pins are longer than that of Standard RS Roller Chain, please make sure that there is no interference with the machine.

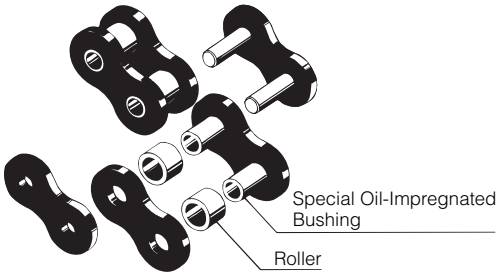
Operating Temperature

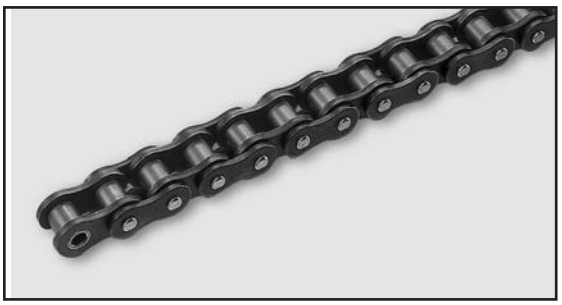
–10°C - +150°C (+14°F - +302°F)

Sprocket

ANSI Standard RS Roller Chain sprockets can be used. (Limited to single strand Roller Chain only)

Basic Construction



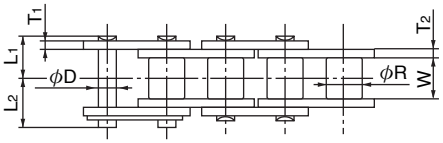


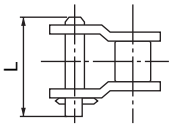
Lambda Chain (Std.): Inner/Outer plates are blackened
Lambda Chain (Nickel Plated): All nickel-plated (except bushings)

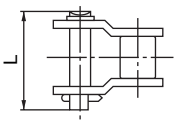
Lambda (Lube-Free) Roller Chain

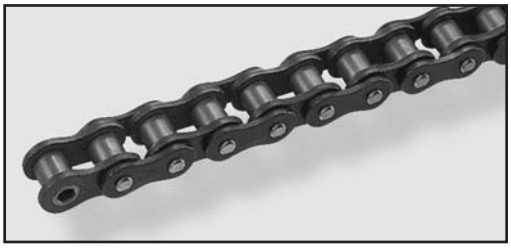
Carbon Steel and Nickel Plated

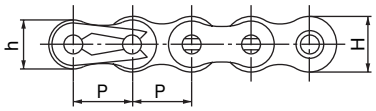
Lambda Drive Chain

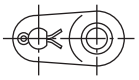




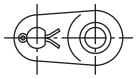




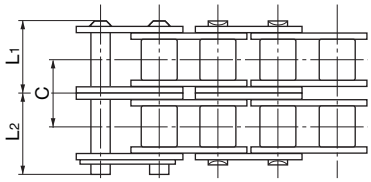




#40 to #80



#100 to #140



All dimensions in inches unless otherwise stated.

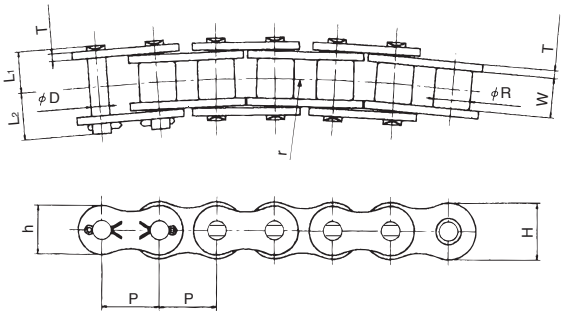
Carbon Steel Chain Number	Nickel Plated (NP) Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Transverse Pitch C
					Thickness T_1	Thickness T_2	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L	
Single Strand														
RSD40 LAMBDA	RSD40NP LAMBDA	0.500	0.312	0.297	0.059	0.079	0.472	0.409	0.156	0.757	0.346	0.411	0.787	-
RSD50 LAMBDA	RSD50NP LAMBDA	0.625	0.400	0.365	0.079	0.094	0.591	0.512	0.200	0.913	0.423	0.490	0.945	-
RSD60 LAMBDA	RSD60NP LAMBDA	0.750	0.469	0.483	0.094	0.126	0.713	0.614	0.235	1.157	0.541	0.616	1.260	-
RSD80 LAMBDA	RSD80NP LAMBDA	1.000	0.625	0.609	0.126	0.157	0.949	0.819	0.313	1.472	0.675	0.797	1.571	-
RSD100 LAMBDA	RSD100NP LAMBDA	1.250	0.750	0.736	0.157	0.189	1.185	1.024	0.376	1.752	0.813	0.939	1.870	-
RSD120 LAMBDA	RSD120NP LAMBDA	1.500	0.875	0.974	0.189	0.220	1.425	1.228	0.437	2.193	1.014	1.179	2.323	
RSD140 LAMBDA	RSD140NP LAMBDA	1.750	1.000	0.974	0.220	0.252	1.661	1.433	0.500	2.358	1.091	1.268	2.508	
Double Strand (Heavy)														
RSD40H-2 LAMBDA	RSD40NPH-2 LAMBDA	0.500	0.312	0.297	0.079	0.079	0.472	0.409	0.156	1.443	0.689	0.754	-	0.645
RSD50H-2 LAMBDA	RSD50NPH-2 LAMBDA	0.625	0.400	0.365	0.094	0.094	0.591	0.512	0.200	1.717	0.825	0.892	-	0.776
RSD60H-2 LAMBDA	RSD60NPH-2 LAMBDA	0.750	0.469	0.483	0.126	0.126	0.713	0.614	0.235	2.244	1.085	1.159	-	1.028
RSD80H-2 LAMBDA	RSD80NPH-2 LAMBDA	1.000	0.625	0.609	0.157	0.157	0.949	0.819	0.313	2.827	1.362	1.465	-	1.283
RSD100H-2 LAMBDA	RSD100NPH-2 LAMBDA	1.250	0.750	0.736	0.189	0.189	1.185	1.024	0.376	3.362	1.628	1.734	-	1.535

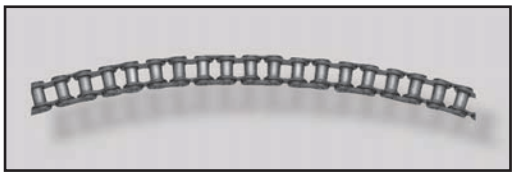
Carbon Steel Chain Number	Nickel Plated Chain Number	Average Tensile Strength (lbs.)	Steel	Nickel Plated	Approx. Weight (lbs./ft.)	Number of links per 10 feet	Maximum Allowable Speed (ft./min)
			Maximum Allowable Load (lbs.)	Maximum Allowable Load (lbs.)			
Single Strand							
RSD40 LAMBDA	RSD40NP LAMBDA	4,290	810	680	0.47	240	492
RSD50 LAMBDA	RSD50NP LAMBDA	7,040	1,430	1,210	0.74	192	443
RSD60 LAMBDA	RSD60NP LAMBDA	9,900	1,980	1,630	1.15	160	394
RSD80 LAMBDA	RSD80NP LAMBDA	17,600	3,300	2,860	1.86	120	295
RSD100 LAMBDA	RSD100NP LAMBDA	26,400	5,060	4,290	2.88	96	262
RSD120 LAMBDA	RSD120NP LAMBDA	37,400	6,820	5,720	4.29	80	164
RSD140 LAMBDA	RSD140NP LAMBDA	48,400	9,020	7,700	5.43	68	164
Double Strand							
RSD40H-2 LAMBDA	RSD40NPH-2 LAMBDA	8,580	1,380	1160	0.94	240	492
RSD50H-2 LAMBDA	RSD50NPH-2 LAMBDA	14,080	2,420	2060	1.49	192	443
RSD60H-2 LAMBDA	RSD60NPH-2 LAMBDA	19,800	3,370	2770	2.30	160	394
RSD80H-2 LAMBDA	RSD80NPH-2 LAMBDA	35,200	5,610	4860	3.71	120	295
RSD100H-2 LAMBDA	RSD100NPH-2 LAMBDA	52,800	8,600	7280	5.76	96	262

Lambda (Lube-Free) Roller Chain

Curved

Lambda Drive Chain



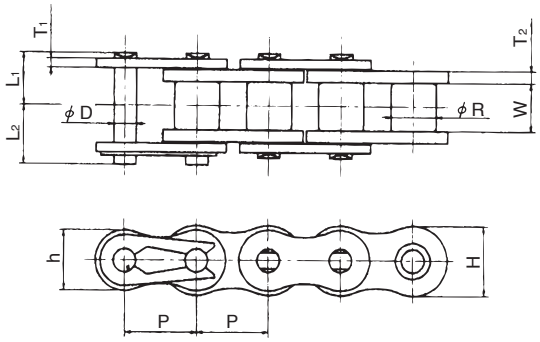


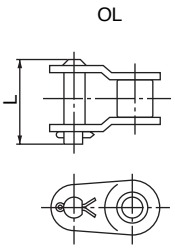
All dimensions in inches unless otherwise stated.

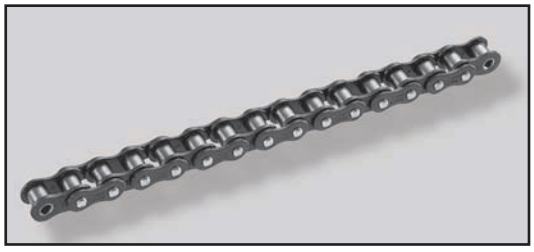
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Radius r	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2					
RS40CU-LAMBDA	0.500	0.312	0.313	0.059	0.472	0.409	0.141	0.717	0.333	0.384	16	2,770	420	0.41	240
RS50CU-LAMBDA	0.625	0.400	0.375	0.079	0.591	0.512	0.175	0.866	0.406	0.461	20	4,310	640	0.68	192
RS60CU-LAMBDA	0.750	0.469	0.500	0.094	0.713	0.614	0.211	1.083	0.510	0.573	24	6,250	900	0.94	160

British Standard

Lambda Drive Chain







All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate				Pin					Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T_1	Thickness T_2	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Length L			
RSD08B-LAMBDA	0.500	0.335	0.305	0.059	0.079	0.465	0.409	0.156	0.756	0.344	0.411	0.787	4,220	0.47	240
RSD10B-LAMBDA	0.625	0.400	0.380	0.079	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.886	5,830	0.70	192
RSD12B-LAMBDA	0.750	0.475	0.460	0.094	0.094	0.713	0.614	0.235	1.051	0.488	0.563	1.138	7,480	1.01	160
RSD16B-LAMBDA	1.000	0.625	0.670	0.126	0.134	0.949	0.819	0.313	1.472	0.675	0.797	1.571	16,480	1.88	120

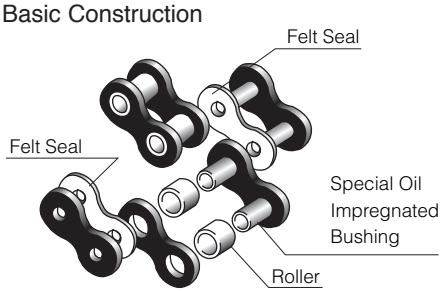
Note: Although some dimensions differ from British Standard carbon steel drive chain, the primary dimensions of British Standard Lambda drive chain are identical. This allows British Standard Lambda drive chain to engage perfectly with British Standard sprockets.

X-Lambda Lube-Free Roller Chain

Longer (5x) Life than "Original" Lambda Roller Chain

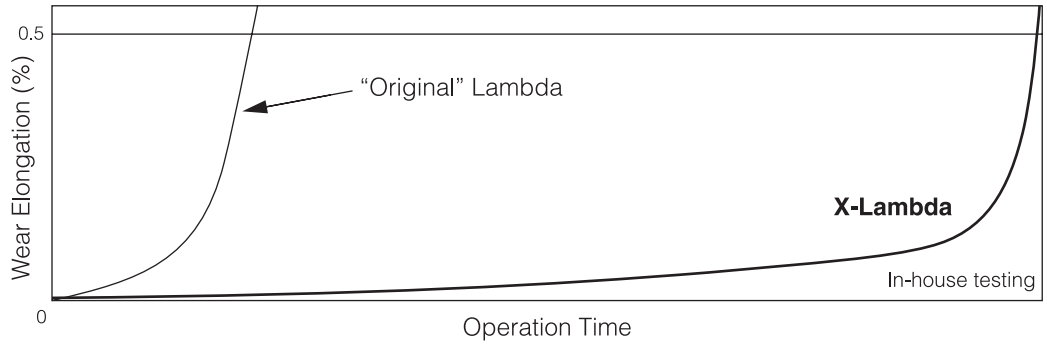
X-Lambda features an oil impregnated felt seal that provides more than 5 times the wear life of "Original" Lambda roller chain. (In-house comparison at –10°C - +60°C (+14°F - +140°F))

Basic Construction



Inner/Outer Plates: Blackened

Ambient temperature range (–10°C - +60°C/+14°F - +140°F)



Operating Temperature

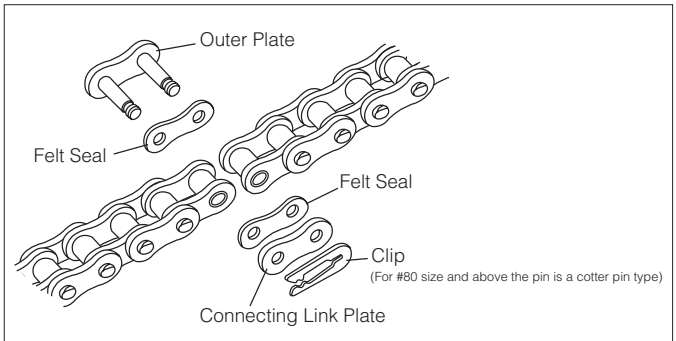
–10°C - +150°C (+14°F - +302°F)

Sprocket

Standard RS Roller Chain sprockets can be used.
(Only for Single Strand Chain)

Connecting Method

When connecting the chain, use an X-Lambda Chain connecting link (with a felt seal). As shown in Diag. 1, insert felt seals between the outer plate and the connecting link plate then attach the link.



Diag. 1 Attaching the connecting link

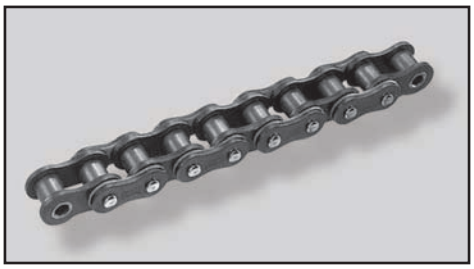
Important Notes:

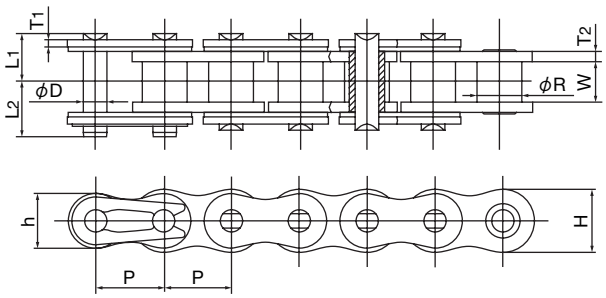
- Inner plate is thicker than Standard RS Roller Chain. Also, due to the insertion of the felt seal, the pin (dimensions L_1 and L_2 in chain diagrams) is now longer.
- Offset links are not available - use an even number of links.
- As the felt seal is oil impregnated, the surface of X-Lambda has more oil on it than "Original" Lambda Chain.

X-Lambda (Lube-Free) Roller Chain

Carbon Steel (X-Lambda)

X-Lambda Drive Chain





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Maximum Allowable Speed (ft./min)
				Thickness T_1	Thickness T_2	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2				
RSD40 X-LAMBDA	0.500	0.312	0.297	0.059	0.079	0.472	0.409	0.156	0.807	0.370	0.437	4,290	810	0.47	492
RSD50 X-LAMBDA	0.625	0.400	0.365	0.079	0.094	0.591	0.512	0.200	0.965	0.449	0.516	7,040	1,430	0.74	443
RSD60 X-LAMBDA	0.750	0.469	0.483	0.094	0.126	0.713	0.614	0.235	1.232	0.583	0.650	9,900	1,980	1.15	394
RSD80 X-LAMBDA	1.000	0.625	0.609	0.126	0.157	0.949	0.819	0.313	1.543	0.720	0.823	17,600	3,300	1.86	295
RSD100 X-LAMBDA	1.250	0.750	0.736	0.157	0.189	1.185	1.024	0.376	1.823	0.858	0.965	26,400	5,060	2.88	262
RSD120 X-LAMBDA	1.500	0.875	0.974	0.189	0.220	1.425	1.228	0.437	2.262	1.051	1.211	37,400	6,820	4.29	164

Note: X-Lambda has no offset links.

Horsepower Ratings

The horsepower ratings shown in these charts are based on the following conditions:

1. The chains are operated under ordinary conditions. The ambient temperatures during typical operating conditions range between 14°F and 302°F. They should not be used in corrosive conditions or high humidity.

2. The two transmission shafts are horizontal and the chains are properly installed.

RSD50-LAMBDA and RSD50-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	200	300	400	500	600	700
11	0.16	0.38	0.71	1.33	2.48	3.58	4.64	5.66	6.67	7.67
12	0.19	0.42	0.78	1.46	2.72	3.93	5.09	6.22	7.33	8.42
13	0.20	0.46	0.86	1.59	2.98	4.28	5.55	6.78	7.99	
14	0.21	0.50	0.92	1.73	3.22	4.64	6.00	7.34	8.66	
15	0.23	0.54	0.99	1.86	3.47	5.00	6.47	7.92		
16	0.25	0.58	1.07	2.00	3.73	5.36	6.94	8.48		
17	0.27	0.62	1.14	2.13	3.97	5.72	7.41	9.06		
18	0.28	0.66	1.22	2.27	4.22	6.08	7.88			
19	0.31	0.68	1.29	2.40	4.48	6.45	8.36			
20	0.32	0.72	1.35	2.53	4.73	6.82	8.83			
21	0.34	0.76	1.43	2.68	4.99	7.18	9.32			
22	0.35	0.80	1.50	2.81	5.24	7.56				
23	0.38	0.84	1.58	2.95	5.51	7.93				
24	0.39	0.88	1.66	3.08	5.76	8.30				
25	0.40	0.92	1.73	3.23	6.02	8.67				
26	0.43	0.97	1.81	3.36	6.29	9.05				
28	0.46	1.05	1.96	3.65	6.81	9.81				
30	0.50	1.13	2.10	3.93	7.33					
32	0.54	1.21	2.27	4.21	7.87					
35	0.59	1.33	2.49	4.64	8.66					
40	0.67	1.54	2.87	5.36	10.0					
45	0.76	1.74	3.27	6.08						

RSD40-LAMBDA and RSD-40-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	200	300	400	500	700	900	1000
11	0.08	0.19	0.35	0.64	1.21	1.73	2.24	2.73	3.70	4.65	5.11
12	0.09	0.20	0.38	0.71	1.31	1.90	2.47	3.00	4.07	5.11	
13	0.09	0.23	0.42	0.76	1.43	2.06	2.68	3.28	4.44	5.56	
14	0.11	0.24	0.44	0.83	1.55	2.24	2.91	3.55	4.81		
15	0.11	0.25	0.48	0.90	1.68	2.41	3.14	3.83	5.19		
16	0.12	0.28	0.52	0.97	1.80	2.59	3.35	4.10	5.55		
17	0.13	0.29	0.55	1.03	1.92	2.76	3.58	4.38			
18	0.13	0.31	0.59	1.10	2.04	2.95	3.81	4.66			
19	0.15	0.34	0.62	1.17	2.17	3.12	4.05	4.95			
20	0.16	0.35	0.66	1.23	2.29	3.30	4.28	5.23			
21	0.16	0.38	0.70	1.29	2.41	3.47	4.50	5.51			
22	0.17	0.39	0.72	1.35	2.53	3.66	4.73	5.79			
23	0.17	0.42	0.76	1.42	2.67	3.83	4.97	6.07			
24	0.19	0.43	0.80	1.49	2.79	4.02	5.20				
25	0.20	0.44	0.83	1.55	2.91	4.20	5.44				
26	0.20	0.47	0.87	1.62	3.04	4.38	5.67				
28	0.23	0.51	0.95	1.77	3.30	4.74	6.14				
30	0.24	0.55	1.02	1.90	3.55	5.11					
32	0.25	0.59	1.09	2.04	3.81	5.48					
35	0.28	0.64	1.21	2.24	4.20	6.03					
40	0.32	0.75	1.39	2.59	4.84						
45	0.38	0.84	1.58	2.95	5.50						

RSD60-LAMBDA and RSD60-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	100	150	200	250	300	400	500
11	0.29	0.67	1.26	2.35	3.39	4.38	5.36	6.31	8.19	10.0
12	0.32	0.74	1.38	2.59	3.71	4.81	5.88	6.94	8.99	11.0
13	0.35	0.80	1.51	2.81	4.06	5.25	6.42	7.57	9.80	
14	0.39	0.87	1.64	3.06	4.40	5.70	6.96	8.20	10.6	
15	0.42	0.94	1.76	3.28	4.73	6.13	7.49	8.83	11.4	
16	0.44	1.01	1.89	3.52	5.08	6.57	8.04	9.46		
17	0.47	1.09	2.01	3.77	5.41	7.02	8.58	10.1		
18	0.51	1.15	2.14	3.99	5.76	7.47	9.13	10.7		
19	0.54	1.22	2.28	4.24	6.11	7.91	9.68	11.4		
20	0.56	1.29	2.40	4.48	6.46	8.36	10.2	12.0		
21	0.59	1.35	2.53	4.73	6.81	8.82	10.8			
22	0.63	1.42	2.67	4.97	7.16	9.27	11.3			
23	0.66	1.50	2.79	5.21	7.51	9.73	11.9			
24	0.68	1.57	2.92	5.46	7.87	10.2	12.5			
25	0.72	1.64	3.06	5.71	8.22	10.6	13.0			
26	0.75	1.72	3.19	5.95	8.58	11.1				
28	0.82	1.85	3.46	6.45	9.29	12.0				
30	0.87	2.00	3.73	6.94	10.0	13.0				
32	0.94	2.14	3.99	7.45	10.7					
35	1.03	2.36	4.40	8.20	11.8					
40	1.19	2.72	5.08	9.48	13.7					
45	1.35	3.10	5.76	10.8						

Lambda and X-Lambda Roller Chain

TSUBAKI

RSD80-LAMBDA and RSD80-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	75	100	125	150	200	250	300
11	0.66	1.51	2.81	4.06	5.27	6.43	7.57	9.82	12.0	14.2
12	0.72	1.66	3.10	4.46	5.78	7.06	8.32	10.8	13.2	
13	0.79	1.81	3.38	4.87	6.30	7.71	9.07	11.8	14.3	
14	0.86	1.96	3.66	5.27	6.82	8.35	9.84	12.7	15.5	
15	0.92	2.12	3.94	5.68	7.36	8.99	10.6	13.7		
16	0.99	2.27	4.22	6.08	7.88	9.64	11.4	14.7		
17	1.06	2.41	4.52	6.50	8.42	10.3	12.1	15.7		
18	1.13	2.57	4.80	6.92	8.95	11.0	12.9			
19	1.19	2.72	5.09	7.33	9.49	11.6	13.7			
20	1.26	2.88	5.37	7.75	10.0	12.3	14.5			
21	1.33	3.04	5.67	8.16	10.6	12.9	15.3			
22	1.39	3.19	5.96	8.59	11.1	13.5	16.1			
23	1.47	3.35	6.26	9.01	11.7	14.2	16.8			
24	1.54	3.51	6.55	9.44	12.2	14.9				
25	1.61	3.67	6.85	9.85	12.8	15.5				
26	1.68	3.82	7.14	10.3	13.3	16.4				
28	1.82	4.14	7.73	11.1	14.5	17.7				
30	1.96	4.46	8.34	12.0	15.5					
32	2.10	4.78	8.94	12.9	16.6					
35	2.32	5.28	9.84	14.2	18.4					
40	2.67	6.10	11.4	16.4						
45	3.03	6.92	12.9	18.6						

RSD120-LAMBDA and RSD120-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 5	10	15	20	25	30	40	50	60	80	100
11	1.09	2.02	2.91	3.78	4.61	5.44	7.04	8.60	10.1	13.1	16.1
12	1.19	2.22	3.20	4.14	5.07	5.98	7.73	9.46	11.1	14.5	17.7
13	1.30	2.43	3.48	4.52	5.52	6.51	8.43	10.3	12.2	15.7	19.3
14	1.41	2.63	3.78	4.89	5.99	7.05	9.14	11.2	13.2	17.0	
15	1.51	2.83	4.07	5.28	6.45	7.60	9.85	12.0	14.2	18.4	
16	1.62	3.03	4.37	5.66	6.92	8.15	10.6	12.9	15.1	19.7	
17	1.73	3.23	4.66	6.04	7.39	8.70	11.3	13.8	16.2		
18	1.85	3.44	4.96	6.42	7.85	9.25	12.0	14.6	17.3		
19	1.96	3.65	5.25	6.81	8.32	9.82	12.7	15.5	18.4		
20	2.06	3.86	5.56	7.20	8.81	10.4	13.4	16.5	19.3		
21	2.18	4.06	5.86	7.59	9.27	10.9	14.2	17.3	20.4		
22	2.29	4.28	6.17	7.97	9.76	11.5	14.9	18.2			
23	2.40	4.49	6.46	8.38	10.2	12.1	15.7	19.0			
24	2.52	4.69	6.77	8.77	10.7	12.6	16.4	20.0			
25	2.63	4.91	7.08	9.15	11.2	13.2	17.2	20.9			
26	2.75	5.12	7.37	9.56	11.7	13.8	17.8	21.8			
28	2.98	5.55	7.99	10.3	12.7	14.9	19.3				
30	3.20	5.98	8.60	11.2	13.7	16.1	20.8				
32	3.43	6.41	9.23	12.0	14.6	17.3	22.4				
35	3.78	7.06	10.2	13.2	16.1	19.0					
40	4.37	8.15	11.7	15.3	18.6	22.0					
45	4.96	9.26	13.3	17.3	21.2						

RSD100-LAMBDA and RSD100-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 10	25	50	75	100	125	150	175	200	225
11	1.10	2.52	4.70	6.77	8.77	10.7	12.6	14.5	16.4	18.2
12	1.21	2.76	5.16	7.44	9.64	11.8	13.9	15.9	18.0	
13	1.33	3.02	5.63	8.11	10.5	12.8	15.1	17.4		
14	1.43	3.27	6.10	8.78	11.4	13.9	16.4	18.8		
15	1.54	3.52	6.57	9.46	12.3	15.0	17.7			
16	1.65	3.78	7.05	10.1	13.1	16.1	18.9			
17	1.77	4.03	7.52	10.8	14.1	17.2				
18	1.88	4.29	8.00	11.5	14.9	18.2				
19	2.00	4.54	8.48	12.2	15.8	19.3				
20	2.10	4.80	8.97	12.9	16.8	20.5				
21	2.22	5.07	9.45	13.7	17.7					
22	2.33	5.32	9.93	14.3	18.5					
23	2.45	5.59	10.4	15.0	19.4					
24	2.56	5.84	10.9	15.7	20.4					
25	2.68	6.11	11.4	16.5	21.3					
26	2.80	6.38	11.9	17.2						
28	3.03	6.90	12.9	18.6						
30	3.26	7.44	13.9	20.0						
32	3.50	7.97	14.9	21.4						
35	3.86	8.79	16.4							
40	4.45	10.2	18.9							
45	5.05	11.5	21.6							

RSD140-LAMBDA and RSD140-X-Lambda

No. of Teeth Small Spkt.	HORSEPOWER RATINGS Maximum Speed - Small Sprocket (rpm) 5	10	15	20	25	30	40	50	60	80	100
11	1.70	3.16	4.57	5.91	7.22	8.51	11.0	13.5	15.9	20.6	25.2
12	1.86	3.48	5.01	6.50	7.93	9.36	12.1	14.9	17.4	22.7	
13	2.04	3.79	5.47	7.08	8.66	10.2	13.2	16.2	19.0	24.7	
14	2.20	4.11	5.92	7.67	9.38	11.1	14.3	17.6	20.6	26.7	
15	2.37	4.42	6.38	8.27	10.1	11.9	15.4	18.9	22.2		
16	2.55	4.74	6.84	8.86	10.8	12.8	16.5	20.2	23.9		
17	2.72	5.07	7.30	9.46	11.6	13.7	17.7	21.6	25.5		
18	2.90	5.39	7.77	10.1	12.3	14.5	18.8	22.9	27.1		
19	3.07	5.72	8.23	10.7	13.0	15.4	20.0	24.4			
20	3.24	6.04	8.70	11.3	13.8	16.2	21.0	25.7			
21	3.42	6.37	9.18	11.9	14.5	17.2	22.2	27.1			
22	3.59	6.70	9.65	12.5	15.3	18.0	23.3	28.5			
23	3.77	7.02	10.1	13.1	16.1	18.9	24.5				
24	3.94	7.36	10.6	13.7	16.8	19.8	25.6				
25	4.11	7.69	11.1	14.3	17.6	20.6	26.8				
26	4.30	8.03	11.6	15.0	18.4	21.6	27.9				
28	4.66	8.69	12.5	16.2	19.8	23.3	30.3				
30	5.01	9.37	13.5	17.4	21.3	25.2					
32	5.37	10.0	14.5	18.8	22.9	26.9					
35	5.92	11.1	15.9	20.6	25.2	29.8					
40	6.85	12.8	18.4	23.9	29.1						

An introduction to V-Class Chain

Tsubaki “V” class roller chains are designed and manufactured for drives used in the most severe conditions where high speed and heavy shock load are the norm. Common applications are found in such industries as oil field, mining and logging. These chains are manufactured according to ANSI specifications and also meet API specification 7F, oil field chain.

“V” class chain features:

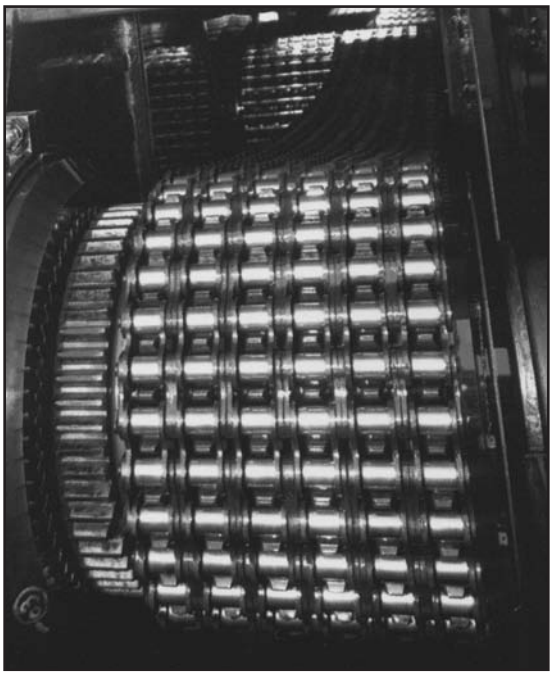
• *Semi-Press Middle Link Plates*
Middle link plates have a shorter pitch than the pin link plates in order to maintain contact with the pin at the outer surface of its holes. This provides and easier cut and assembly without reducing the horsepower ratings of the chain.

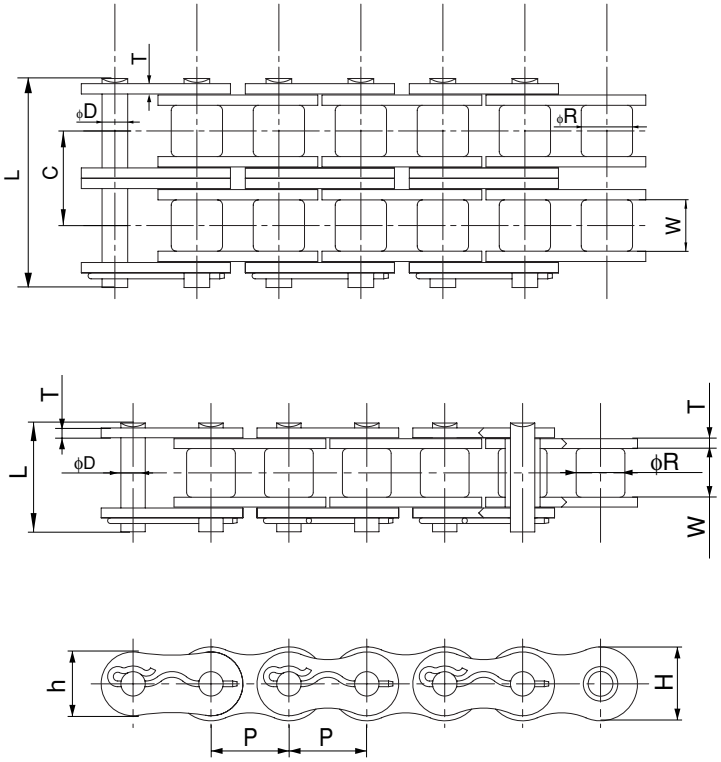
• *Superior Impact Resistance*
The pin surface is carburized and hardened by Tsubaki heat treating techniques for superior impact resistance. This results in greater breaking strength and increased chain impact strength as compared to ANSI standard chains.

• *Greater Fatigue Strength*
Link plates are ball drifted after heat treatment for greater fatigue strength. This results in a 30% increase chain life compared to our ANSI standard chains.

• *Case Hardened Pins*
Case hardened pins extend the wear life of the chain.

• *High Speed Durability*
Rollers are shot peened after heat treatment to provide superior wear life and high speed durability.





Note: Shepherd's crook type cotter ( ) will be supplied unless otherwise specified.

Cotter Pin Type Connecting Link (The pin and link plate are press-fitted.)

BCL (bushed type connecting link) is used for multiple strand chain. The cover plate is designed for a snug press-fit on the pins.

Four-pitch Offset Link

The pin is press-fitted onto offset link plates.

V-Class Roller Chain

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Diameter R	Width Between Inner Link Plates W	Link Plate			Pin		Transverse Pitch C	Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length L			
Single Strand											
RS100V	1.250	0.750	0.750	0.156	1.185	1.024	0.375	1.678	-	26,400	2.7
RS120V	1.500	0.875	1.000	0.187	1.425	1.228	0.437	2.118	-	37,400	4.0
RS140V	1.750	1.000	1.000	0.219	1.661	1.433	0.500	2.307	-	48,500	5.0
RS160V	2.000	1.125	1.250	0.250	1.898	1.638	0.562	2.705	-	60,600	6.8
RS200V	2.500	1.562	1.500	0.312	2.374	2.047	0.781	3.299	-	103,600	11.0
RS240V	3.000	1.875	1.875	0.375	2.850	2.457	0.937	4.071	-	152,100	16.5
Double Strand											
RS100V-2	1.250	0.750	0.750	0.156	1.185	1.024	0.375	3.090	1.408	52,800	5.3
RS120V-2	1.500	0.875	1.000	0.187	1.425	1.228	0.437	3.905	1.789	71,800	7.9
RS140V-2	1.750	1.000	1.000	0.219	1.661	1.433	0.500	4.233	1.924	94,200	10.0
RS160V-2	2.000	1.125	1.250	0.250	1.898	1.638	0.562	5.011	2.305	119,000	13.5
RS200V-2	2.500	1.562	1.500	0.312	2.374	2.047	0.781	6.122	2.817	207,200	21.9
RS240V-2	3.000	1.875	1.875	0.375	2.850	2.457	0.937	7.531	3.458	304,200	32.3
Triple Strand											
RS100V-3	1.250	0.750	0.750	0.156	1.185	1.024	0.375	4.504	1.408	79,200	7.9
RS120V-3	1.500	0.875	1.000	0.187	1.425	1.228	0.437	5.701	1.789	107,700	11.8
RS140V-3	1.750	1.000	1.000	0.219	1.661	1.433	0.500	6.165	1.924	141,300	14.9
RS160V-3	2.000	1.125	1.250	0.250	1.898	1.638	0.562	7.319	2.305	178,500	20.2
RS200V-3	2.500	1.562	1.500	0.312	2.374	2.047	0.781	8.945	2.817	310,800	32.9
RS240V-3	3.000	1.875	1.875	0.375	2.850	2.457	0.937	10.984	3.458	456,300	48.1
Quadruple Strand											
RS100V-4	1.250	0.750	0.750	0.156	1.185	1.024	0.375	5.914	1.408	105,600	10.6
RS120V-4	1.500	0.875	1.000	0.187	1.425	1.228	0.437	7.488	1.789	143,600	15.7
RS140V-4	1.750	1.000	1.000	0.219	1.661	1.433	0.500	8.091	1.924	188,400	19.2
RS160V-4	2.000	1.125	1.250	0.250	1.898	1.638	0.562	9.622	2.305	238,000	26.9
RS200V-4	2.500	1.562	1.500	0.312	2.374	2.047	0.781	11.768	2.817	414,400	43.8
RS240V-4	3.000	1.875	1.875	0.375	2.850	2.457	0.937	14.453	3.458	608,400	63.9
Quintuple Strand											
RS100V-5	1.250	0.750	0.750	0.156	1.185	1.024	0.375	7.326	1.408	132,000	13.1
RS120V-5	1.500	0.875	1.000	0.187	1.425	1.228	0.437	9.280	1.789	179,500	19.6
RS140V-5	1.750	1.000	1.000	0.219	1.661	1.433	0.500	10.015	1.924	235,500	24.8
RS160V-5	2.000	1.125	1.250	0.250	1.898	1.638	0.562	11.929	2.305	297,500	33.5
RS200V-5	2.500	1.562	1.500	0.312	2.374	2.047	0.781	14.590	2.817	518,000	54.6
RS240V-5	3.000	1.875	1.875	0.375	2.850	2.457	0.937	17.913	3.458	760,500	79.7
Sextuple Strand											
RS100V-6	1.250	0.750	0.750	0.156	1.185	1.024	0.375	8.740	1.408	158,400	15.8
RS120V-6	1.500	0.875	1.000	0.187	1.425	1.228	0.437	11.067	1.789	215,400	23.5
RS140V-6	1.750	1.000	1.000	0.219	1.661	1.433	0.500	11.949	1.924	282,600	29.8
RS160V-6	2.000	1.125	1.250	0.250	1.898	1.638	0.562	14.237	2.305	357,000	40.3
RS200V-6	2.500	1.562	1.500	0.312	2.374	2.047	0.781	17.414	2.817	621,600	58.7
RS240V-6	3.000	1.875	1.875	0.375	2.850	2.457	0.937	21.37	3.458	912,600	95.2
Septuple Strand											
RS100V-7	1.250	0.750	0.750	0.156	1.185	1.024	0.375	10.150	1.408	185,500	18.4
RS120V-7	1.500	0.875	1.000	0.187	1.425	1.228	0.437	12.858	1.789	251,300	26.5
RS140V-7	1.750	1.000	1.000	0.219	1.661	1.433	0.500	13.874	1.924	329,700	35.0
RS160V-7	2.000	1.125	1.250	0.250	1.898	1.638	0.562	16.543	2.305	416,500	46.6
RS200V-7	2.500	1.562	1.500	0.312	2.374	2.047	0.781	20.232	2.817	725,200	76.5
Octuple Strand											
RS100V-8	1.250	0.750	0.750	0.156	1.185	1.024	0.375	11.563	1.408	212,000	21.1
RS120V-8	1.500	0.875	1.000	0.187	1.425	1.228	0.437	14.646	1.789	287,200	30.3
RS140V-8	1.750	1.000	1.000	0.219	1.661	1.433	0.500	15.799	1.924	376,800	40.0
RS160V-8	2.000	1.125	1.250	0.250	1.898	1.638	0.562	18.850	2.305	476,000	53.2
RS200V-8	3.000	1.875	1.875	0.315	2.374	2.047	0.781	23.051	2.817	832,000	87.10

Note: Cotter chain type (shepherd's crook type cotter) will be supplied for all chains unless otherwise specified. riveted type chain is available upon request.

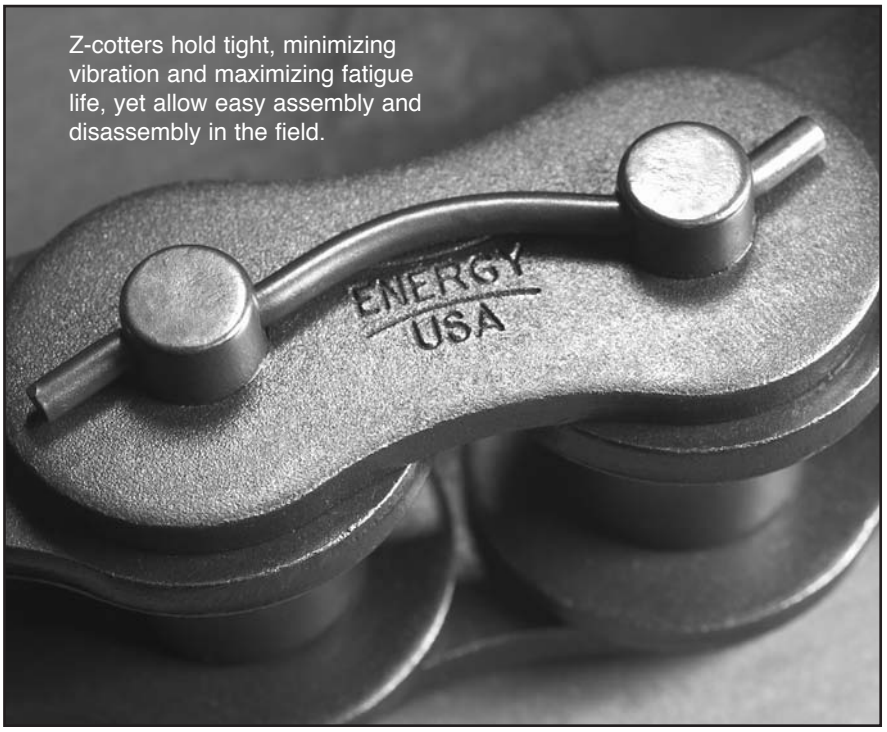
Energy Series
Oil Field Chain

When Power Counts

High productivity, high speeds, high shock loads, and high cyclic loading in the oil field put great demands on roller chain. Energy Series Chain will keep your operation running smoothly.

Engineered for quality and performance

Tsubaki builds performance into every Energy Series chain. We start with the highest-quality steel, manufacture all parts to stringent tolerances, and provide the most effective heat- treatment processes to maximize tensile strength and shock load resistance. That means long-lasting chain in the toughest applications.



Z-cotters hold tight, minimizing vibration and maximizing fatigue life, yet allow easy assembly and disassembly in the field.

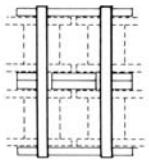
Energy Series Oil Field Chain

Stronger pins for longer chain life

Drilling applications put a lot of stress on pins, and pin wear can cause early chain failure. Energy Series pins are made of special materials, precision-ground to ensure accurate fit, and assembled only after our proprietary heat treatment. The result is tough, through-hardened pins that increase fatigue strength and allow the chain to better withstand shock loads.

Pitch-compensated link plates maintain maximum strength

Energy Series link plates have wider waists, putting more steel where you need it to handle shock loads. The added plate strength creates a rigid link with less deflection under load. Center plates are pitch-compensated, creating a contact fit that allows easy cutting and assembly while maximizing chain strength. The plates hold tighter and share the load equally, creating higher fatigue resistance and longer lasting chain.



Ballized holes for smoother contact

Fatigue cracks can start from imperfections in the plate holes. Energy Series chains are manufactured to minimize imperfections. After heat treatment, the pitch holes on the side plates are ball drifted to impart residual compressive stress and create extremely smooth hole surfaces, which maximizes fatigue strength.

Building better bushings and rollers

Roller and bushing designs play significant parts in chain life. Every Energy Series chain uses solid rollers, which are carefully formed from high-grade steel into optimal roundness and then heat treated and shot peened for toughness and strength. Energy Series features solid bushings for large sizes and precision-formed bushings for small sizes. Both types of bushings are fabricated to be the roundest in the industry for smooth, long-lasting operations.

Pre-stressed for performance

All chains are pre-stressed to ensure uniform load distribution and to minimize initial elongation. The result is better operation immediately following installation and throughout the life of the chain.

Factory-applied hot-dip lube penetrates deeper

The final manufacturing step before chains are shipped is one of the most important. Tsubaki dips each chain in hot lubricant, so it penetrates deeper than typical surface sprays. This special step puts the lube where you need it — deep into the pin and bushing area — to extend the working life of the chain.

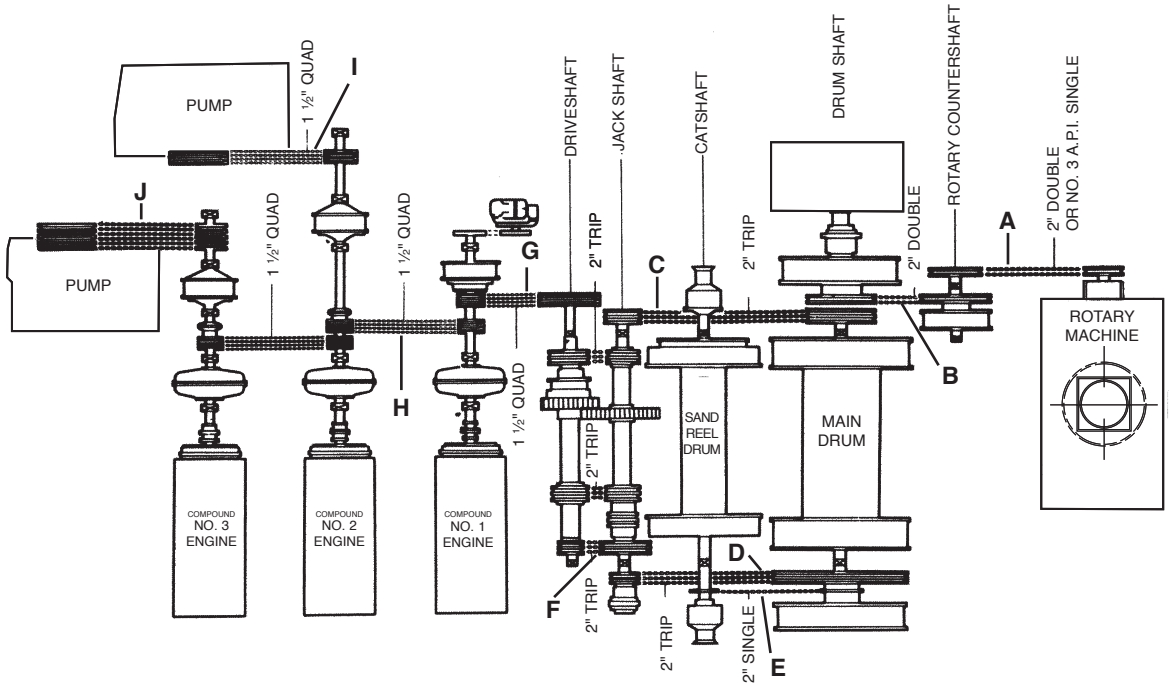
Shot-peened link plates add fatigue resistance.

Ballized holes for tighter tolerances and a smoother fit.

Energy Series
Oil Field Chain

Designed specifically to fit where you need it.

CHAIN DIAGRAM DRAWWORKS, COMPOUND, AND PUMP



		Rig Horsepower						
	Chain Drive	**4000**	**3000**	**2000**	**1500**	**1000**	**750**	**500**
A	**Rotary Table**	160-2	160-2	160-2	160-2	140-2	140-2	140-1
			200H-1		140-2	160-1	160-1	120-1
B	**Rotary Countershaft**	160-2	160-2	160-2	160-2	140-2	140-2	140-1
			200H-1		140-2	160-1	160-1	120-1
C	**High Drum**	240-3	200H-3	160-4	160-3	140-3	160-2	120-3
						160-2	140-2	140-2
D	**Low Drum**	240-3	200H-3	160-4	160-3	140-3	160-2	120-3
						160-2	140-3	140-2
E	**Catshaft**	160-2	160-2	160-2	160-1	160-1	160-1	140-1
			200H-1		140-2	140-2	140-2	120-1
F	**Transmission**	140-8	160-4	160-4	160-3	160-2	140-2	120-2
			200H-3	160-3		140-3		100-3
G	**Drawworks Input**	140-8	120-8	120-6	120-4	120-3	100-4	100-3
						120-4		100-4
H	**Compound**	140-8	120-8	120-6	120-4	120-3	100-4	100-3
						120-4		
I & J	**Mud Pump Drives**	140-8	120-8	120-8	120-6	120-4	100-6	100-4
				120-6	120-4	120-3	100-4	100-3

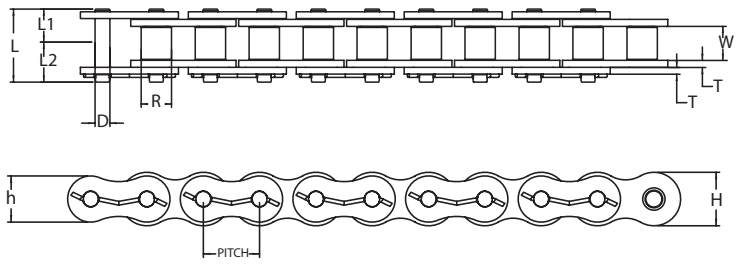
Energy Series
Oil Field Chain

Energy Series Single-Strand Chain Dimensions

Chain No.	Pitch	L1	L2	L	D	R	W	h	H	T	ATS[1]	WPF[2]
80	1.000	0.640	0.758	1.398	0.312	0.625	0.625	0.819	0.949	0.125	17,640	1.79
100	1.250	0.778	0.900	1.678	0.375	0.750	0.750	1.025	1.185	0.156	26,460	2.68
120	1.500	0.980	1.138	2.118	0.437	0.875	1.000	1.228	1.425	0.187	37,480	3.98
140	1.750	1.059	1.248	2.307	0.500	1.000	1.000	1.433	1.661	0.219	48,510	5.03
160	2.000	1.254	1.451	2.705	0.562	1.125	1.250	1.638	1.898	0.250	60,630	6.79
180	2.250	1.404	1.671	3.075	0.687	1.406	1.406	1.843	2.134	0.281	80,480	9.04
200	2.500	1.535	1.764	3.299	0.781	1.562	1.500	2.047	2.374	0.312	103,630	11.08
240	3.000	1.886	2.185	4.071	0.937	1.875	1.875	2.457	2.850	0.375	152,140	16.46
80H	1.000	0.720	0.823	1.543	0.312	0.625	0.625	0.819	0.949	0.156	17,640	2.08
100H	1.250	0.858	0.965	1.823	0.375	0.750	0.750	1.025	1.185	0.187	26,460	3.17
120H	1.500	1.061	1.203	2.264	0.437	0.870	1.000	1.228	1.425	0.219	37,480	4.38
140H	1.750	1.138	1.303	2.441	0.500	1.000	1.000	1.433	1.661	0.250	48,510	5.54
160H	2.000	1.337	1.514	2.851	0.562	1.125	1.250	1.638	1.898	0.281	60,630	7.35
180H	2.250	1.486	1.734	3.220	0.687	1.406	1.406	1.843	2.134	0.312	80,480	9.60
200H	2.500	1.689	1.894	3.583	0.781	1.562	1.500	2.047	2.374	0.375	103,630	12.33
264	2.500	1.686	1.965	3.651	0.875	1.562	1.500	2.047	2.366	0.375	125,000	12.47
240H	3.000	2.157	2.453	4.610	0.937	1.875	1.875	2.457	2.850	0.500	152,140	19.54

All dimensions in inches unless otherwise stated.

ATS[1] = Average Tensile Strength (lbs.)
WPF[2] = Approximate Weight Per Foot (lbs./ft.)



Energy Series
Oil Field Chain

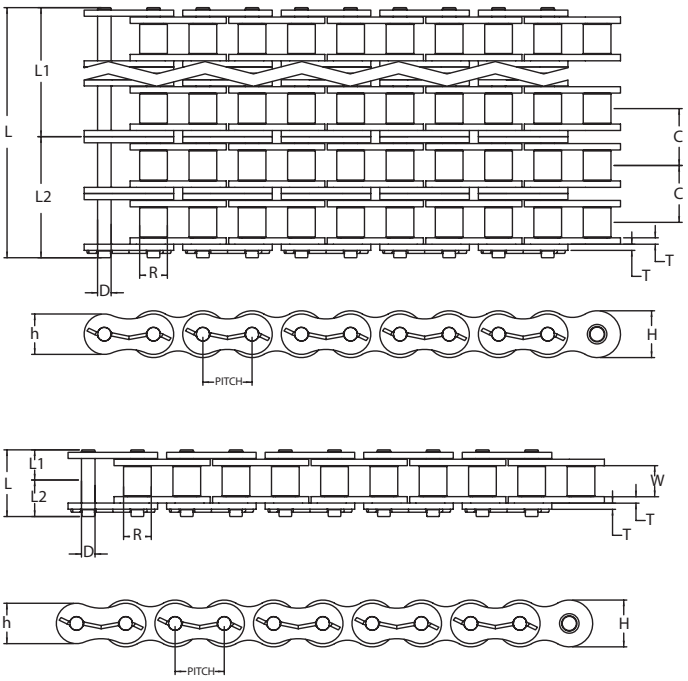
TSUBAKI

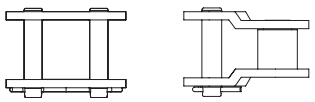
Energy Series Multi-Strand Chain Dimensions (continued)

Chain No.	Pitch	L1	L2	L	D	R	W	h	H	C	T	Strands 2 L1	2 L2	2 ATS[1]	2 WPF[2]	3 L1	3 L2	3 ATS[1]	3 WPF[2]
80	1.000	0.640	0.758	1.398	0.312	0.625	0.625	0.819	0.949	1.153	0.125	1.217	1.335	35,280	3.54	1.793	1.911	52,920	5.30
100	1.250	0.778	0.900	1.678	0.375	0.750	0.750	1.025	1.185	1.408	0.156	1.482	1.604	52,920	5.27	2.186	2.308	79,380	7.91
120	1.500	0.980	1.138	2.118	0.437	0.875	1.000	1.228	1.425	1.789	0.187	1.875	2.033	71,880	7.86	2.769	2.927	107,820	11.78
140	1.750	1.059	1.248	2.307	0.500	1.000	1.000	1.433	1.661	1.924	0.219	2.021	2.210	94,370	9.97	2.983	3.172	141,550	14.92
160	2.000	1.254	1.451	2.705	0.562	1.125	1.250	1.638	1.898	2.305	0.250	2.407	2.604	121,260	13.47	3.559	3.756	181,890	20.17
180	2.250	1.404	1.671	3.075	0.687	1.406	1.406	1.843	2.134	2.592	0.281	2.700	2.967	160,960	17.82	3.996	4.263	241,440	25.68
200	2.500	1.535	1.764	3.299	0.781	1.562	1.500	2.047	2.374	2.817	0.312	2.944	3.173	207,260	21.93	4.352	4.581	310,890	32.94
240	3.000	1.886	2.185	4.071	0.937	1.875	1.875	2.457	2.850	3.458	0.375	3.615	3.914	304,280	32.32	5.344	5.643	456,420	48.11
80H	1.000	0.720	0.823	1.543	0.312	0.625	0.625	0.819	0.949	1.283	0.156	1.362	1.465	35,280	4.15	2.003	2.106	52,920	6.21
100H	1.250	0.858	0.965	1.823	0.375	0.750	0.750	1.025	1.185	1.539	0.187	1.628	1.735	52,920	6.07	2.397	2.504	79,380	9.10
120H	1.500	1.061	1.203	2.264	0.437	0.875	1.000	1.228	1.425	1.924	0.219	2.023	2.165	71,880	8.67	2.985	3.127	107,820	12.99
140H	1.750	1.138	1.303	2.441	0.500	1.000	1.000	1.433	1.661	2.055	0.250	2.166	2.331	94,370	11.01	3.193	3.358	141,550	16.48
160H	2.000	1.337	1.514	2.851	0.562	1.125	1.250	1.638	1.898	2.437	0.281	2.556	2.733	121,260	14.64	3.774	3.951	181,890	21.93
180H	2.250	1.487	1.734	3.221	0.687	1.406	1.406	1.843	2.134	2.722	0.312	2.847	3.095	160,960	19.20	4.208	4.456	241,440	28.80
200H	2.500	1.689	1.894	3.583	0.781	1.562	1.500	2.047	2.374	3.083	0.375	3.231	3.436	207,260	24.51	4.772	4.977	310,890	36.81
264	2.500	1.686	1.965	3.651	0.875	1.562	1.500	2.047	2.366	3.083	0.375	3.228	3.507	250,000	24.93	4.769	5.048	375,000	37.32
240H	3.000	2.157	2.453	4.610	0.937	1.875	1.875	2.457	2.850	3.985	0.500	4.150	4.446	304,280	38.47	6.142	6.438	456,420	57.33

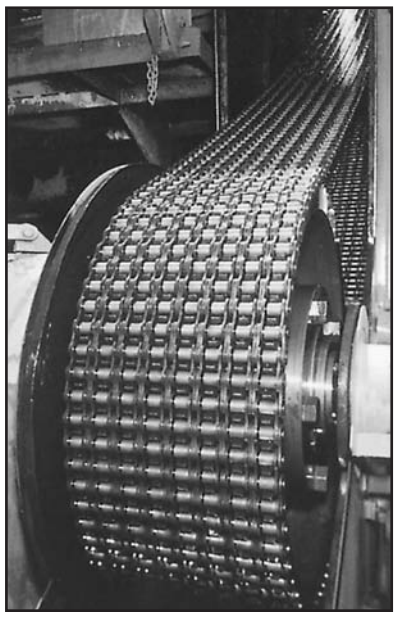
All dimensions in inches unless otherwise stated.

ATS[1] = Average Tensile Strength (lbs.)
WPF[2] = Approximate Weight Per Foot (lbs./ft.)





Connecting and offset links are also available.



Energy Series Multi-Strand Chain Dimensions (continued)

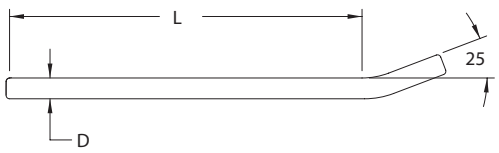
Chain No.	Strands 4 L1	4 L2	4 ATS[1]	4 WPF[2]	5 L1	5 L2	5 ATS[1]	5 WPF[2]	6 L1	6 L2	6 ATS[1]	6 WPF[2]	8 L1	8 L2	8 ATS[1]	8 WPF[2]
80	2.370	2.488	70,560	7.06	2.946	3.064	88,200	8.81	3.523	4.794	141,120	14.08	5.829	5.947	176,400	17.59
100	2.890	3.012	105,840	10.55	3.594	3.716	132,300	13.12	4.298	5.828	211,680	21.01	7.114	7.236	264,600	26.24
120	3.664	3.822	143,760	15.70	4.558	4.716	179,700	19.59	5.453	7.400	287,520	31.28	9.031	9.189	359,400	39.07
140	3.945	4.134	188,740	19.16	4.907	5.096	235,920	24.84	5.869	7.982	377,490	40.38	9.717	9.906	471,870	50.99
160	4.712	4.909	242,520	26.92	5.864	6.061	303,150	33.53	7.017	9.519	487,040	53.62	11.627	11.824	606,300	66.97
180	5.292	5.559	321,920	34.20	6.588	6.855	402,400	42.73	7.884	10.743	643,840	68.30	13.068	13.335	804,800	85.35
200	5.761	5.990	414,520	43.79	7.169	7.398	518,150	54.64	8.578	11.624	829,040	87.37	14.212	14.441	1,036,300	109.16
240	7.073	7.372	608,560	63.90	8.802	9.101	760,700	79.70	10.531	14.288	1,217,120	127.08	-	-	-	-
80H	2.645	2.748	70,560	8.27	3.286	3.389	88,200	10.33	3.928	5.314	141,120	16.51	6.494	6.597	176,400	20.63
100H	3.167	3.274	105,840	12.13	3.936	4.043	132,300	15.16	4.706	6.352	211,680	24.25	7.784	7.891	264,600	30.31
120H	3.947	4.089	143,760	17.31	4.909	5.051	179,700	21.63	5.871	7.937	287,520	34.59	9.719	9.861	359,400	43.23
140H	4.221	4.386	188,730	21.95	5.248	5.413	235,910	27.42	6.276	8.496	377,450	43.83	10.386	10.551	471,810	54.77
160H	4.993	5.170	242,520	29.22	6.211	6.388	303,150	36.51	7.430	10.044	485,040	58.38	12.304	12.481	606,300	72.96
180H	5.569	5.817	321,920	38.40	6.930	7.178	402,400	48.00	8.291	11.261	643,840	76.80	13.735	13.983	804,800	96.00
200H	6.314	6.519	414,520	49.11	7.855	8.060	518,150	61.41	9.397	12.685	829,040	98.31	15.563	15.768	1,036,300	122.91
264	6.311	6.590	500,000	49.81	7.852	8.131	625,000	62.30	9.394	12.756	1,000,000	99.77	-	-	-	-
240H	8.135	8.431	608,560	76.19	10.127	10.423	760,700	95.05	12.120	16.401	1,217,120	151.63	-	-	-	-

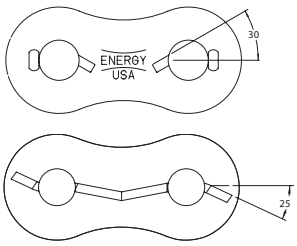
All dimensions in inches unless otherwise stated.

ATS[1] = Average Tensile Strength (lbs.)
WPF[2] = Approximate Weight Per Foot (lbs./ft.)

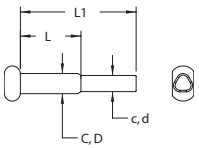
Z-Cotter Dimensions

	80	100	120	140	160	180	200
D	0.090	0.090	0.110	0.146	0.146	0.185	0.185
L	1.500	1.870	2.230	2.600	2.970	3.380	3.750





T-Cotter



	264 / 240
C	0.245
D	0.237
c	0.230
d	0.215
L	0.745
L1	1.435

Energy Series Multi-Strand Chain Dimensions (continued)

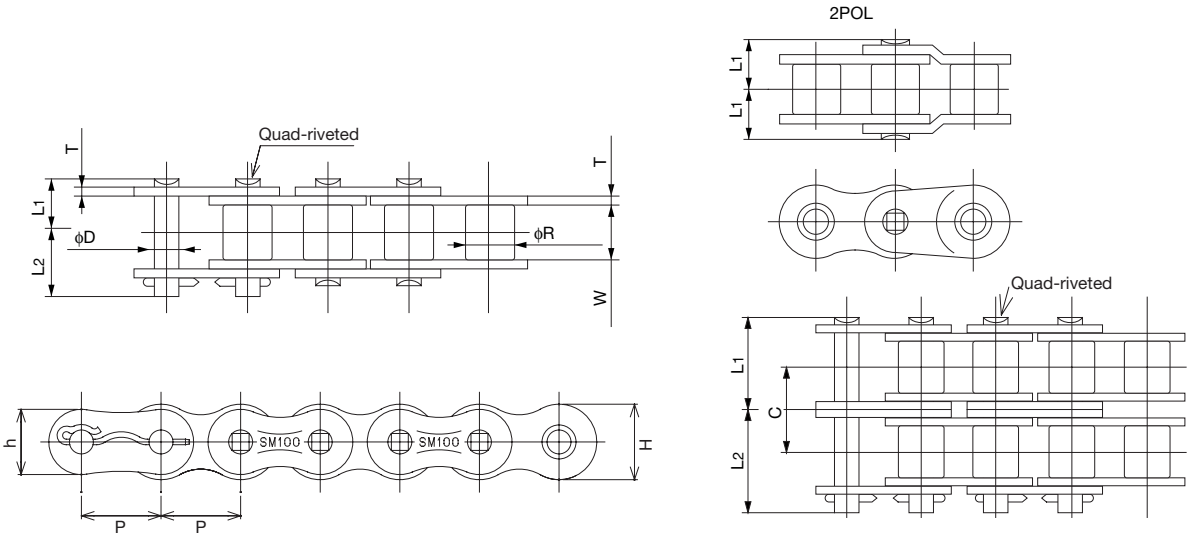
Chain No.	Strands 10 L1	L2	ATS[1]	WPF[2]
80	5.829	5.947	176,400	17.59
100	7.114	7.236	264,600	26.24
120	9.031	9.189	359,400	39.07
140	9.717	9.906	471,870	50.99
160	11.627	11.824	606,300	66.97
180	13.068	13.335	804,800	85.35
200	14.212	14.441	1,036,300	109.16
240	-	-	-	-
80H	6.494	6.597	176,400	20.63
100H	7.784	7.891	264,600	30.31
120H	9.719	9.861	359,400	43.23
140H	10.386	10.551	471,810	54.77
160H	12.304	12.481	606,300	72.96
180H	13.735	13.983	804,800	96.00
200H	15.563	15.768	1,036,300	122.91
264	-	-	-	-
240H	-	-	-	-

All dimensions in inches unless otherwise stated.

ATS[1] = Average Tensile Strength (lbs.)
WPF[2] = Approximate Weight Per Foot (lbs./ft.)

SpeedMaster Roller Chain

SpeedMaster Chain from Tsubaki is the answer for high-speed applications. SpeedMaster features carbon through-hardened plates. The pins are made of a specially treated alloy material. The surface of the pin is extra hard – improving wear resistance. The pins are quad riveted to better resist side force impact. The chain features a greater contact area between pin and bushing which results in less contact wear pressure and longer wear life. Shepherd's crook style cotter pins make for easy assembly of connecting links. Tsubaki's patented ring coining process generates unsurpassed connecting link strength. Depending on speed of the application and operating conditions (e.g. lubrication), users can expect between 2 and 6 times greater wear life compared to ANSI Standard RS Roller Chain.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2					
Single Strand															
RS60SM	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	-	9,900	1,980	1.03	160
RS80SM	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	-	17,600	3,300	1.78	120
RS100SM	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	-	27,200	5,060	2.67	96
RS120SM	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	-	39,600	6,820	3.97	80
RS140SM	1.750	1.000	1.000	0.220	1.661	1.433	0.500	2.307	1.059	1.248	-	52,800	9,020	5.02	68
Double Strand															
RS60SM-2	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.988	0.955	1.033	0.898	19,800	3,360	2.04	160
RS80SM-2	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	1.154	35,200	5,610	3.53	120
RS100SM-2	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	1.409	47,400	8,602	5.26	96
RS120SM-2	1.500	0.875	1.000	0.189	1.425	1.228	0.437	3.906	1.874	2.031	1.787	79,200	11,590	7.84	80
RS140SM-2	1.750	1.000	1.000	0.220	1.661	1.433	0.500	4.232	2.022	2.211	1.925	105,600	15,334	9.94	68

Note: Horsepower ratings for SpeedMaster chain are same as for identical size of Tsubaki RS Standard ANSI roller chain

An introduction to Heavy Duty and SUPER Series Chain

Tsubaki offers Heavy Duty and SUPER Series roller chains for applications that exceed the capabilities of Tsubaki ANSI standard RS Roller Chain. These heavy duty applications include the following:

1. Severe operating conditions such as heavy shock loads.
2. Where space to put the chain is limited. A Heavy Duty chain will often deliver the same tensile strength of a larger size of Standard RS Roller Chain.
3. Operating conditions that require higher horsepower ratings, maximum allowable load and tensile strength.

H (Heavy) Series:

H (Heavy) Series roller chain differs from ANSI (RS) standard series roller chain only in the extra thickness of the link plates. These link plates have the same thickness as the link plates of the next larger size of ANSI standard series. The thicker link plates provide (approximately 10%) greater capacity for absorbing shock loads. Through hardened pins are used up to size 140 chain. Above size 140, the pins are case hardened. H series chains are especially suited to situations where the load is heavy and operating speeds are low (up to 165 ft./sec.), or where operating conditions are severe.

SUPER Series:

The dimensions of this series are identical to those of ANSI (RS) standard series roller chain. The special design of the SUPER series link plates delivers exceptional performance. The pitch holes are critically formed and drifted to improve their allowable tension by 25%-30%; and the pins are through hardened for greater shock resistance. SUPER series chains offer horsepower ratings 30% greater than the equivalent size ANSI standard chain. SUPER series chains can be used to replace the next larger size of ANSI standard chain, making it ideal for applications where space is limited.

HT Series:

HT series chains provide a (15%-30%) greater ultimate tensile strength over ANSI standard roller chain by using through hardened pins and link plates of the next larger ANSI standard chain sizes. HT Series chains also provide a greater shock load resistance. The dimensions of the chain are identical to the H Series (above). HT Series chains also provide a greater shock load resistance and are best suited for low operating speeds – up to 165 ft./sec.

SUPER-H Series:

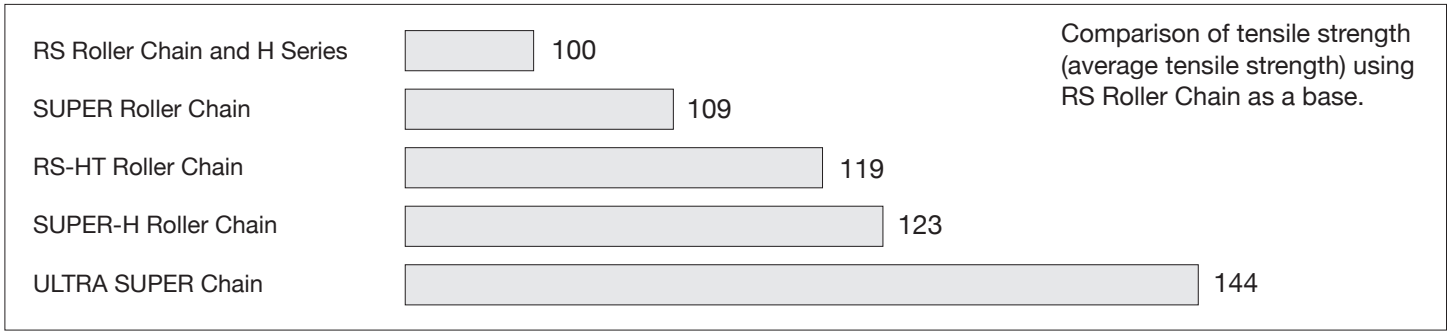
The thickness of SUPER-H series link plates is the same as the next larger size of SUPER series chain. The pins are also through hardened which provides a 13% greater ultimate tensile strength and 6% greater allowable tension than SUPER series chain. SUPER-H series chains can be used to replace the next largest size of ANSI standard chain, making it ideal for applications where space is limited. It is best suited for low speed operating conditions – up to 165 ft./sec.

ULTRA SUPER Series:

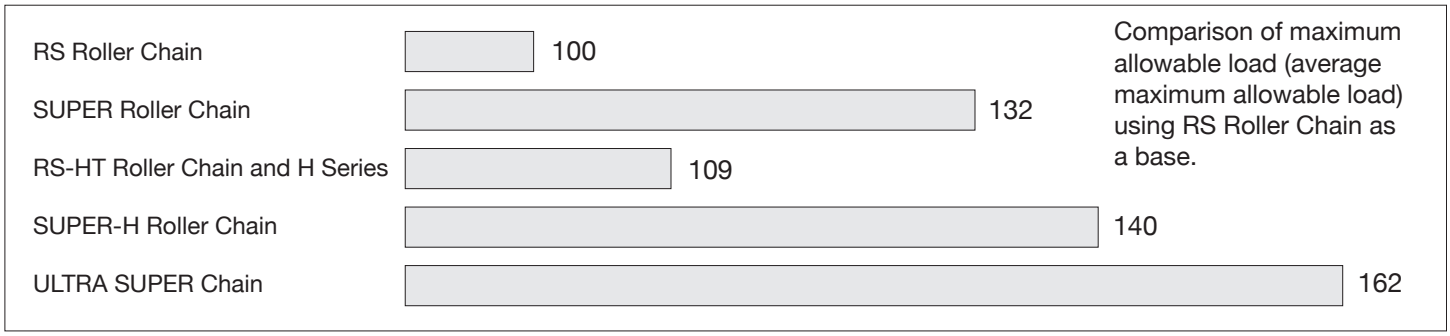
ULTRA SUPER series offer longer wear life, greater allowable load, higher tensile strength than any other Tsubaki roller chain. This chain is well suited for applications where there are space limitations. The heavy duty construction of the ULTRA SUPER series chains allows it to replace an (up to) two sizes larger ANSI standard roller chain. It is best suited for low speed operating conditions – up to 165 ft./sec.

Comparison of Tensile Strength and Maximum Allowable Load

Tensile Strength Comparison



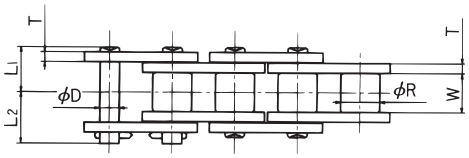
Maximum Allowable Load Comparison

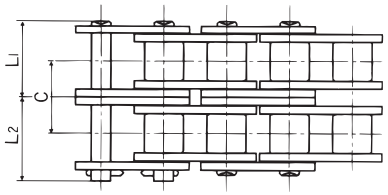


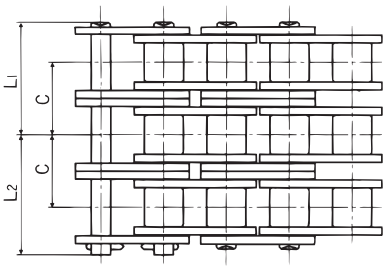
Heavy Duty Roller Chain

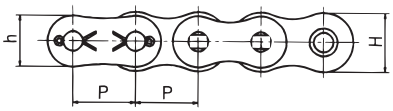
Heavy Series

Heavy Duty Roller Chain









All dimensions in inches unless otherwise stated.

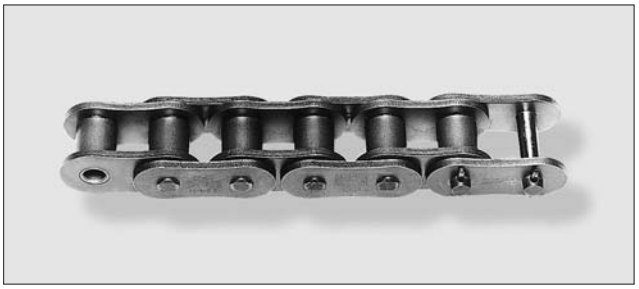
Chain Number	Pitch P	Bushing Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
Single Strand														
RS60H	0.750	0.469	0.500	0.126	0.713	0.614	0.235	1.165	0.583	0.669	-	9,920	2,200	1.21
RS80H	1.000	0.625	0.625	0.157	0.949	0.819	0.313	1.441	0.720	0.823	-	17,640	3,630	2.08
RS100H	1.250	0.750	0.750	0.189	1.185	1.024	0.376	1.717	0.858	0.965	-	26,460	5,510	3.07
RS120H	1.500	0.875	1.000	0.220	1.425	1.228	0.437	2.122	1.061	1.203	-	37,480	7,270	4.38
RS140H	1.750	1.000	1.000	0.252	1.661	1.433	0.500	2.276	1.138	1.303	-	48,510	9,590	5.54
RS160H	2.000	1.125	1.250	0.283	1.898	1.638	0.563	2.673	1.337	1.514	-	60,360	12,500	7.35
RS200H	2.500	1.563	1.500	0.374	2.374	2.047	0.781	3.378	1.689	1.894	-	103,630	17,600	12.33
RS240H	3.000	1.875	1.875	0.500	2.850	2.457	0.937	4.315	2.157	2.453	-	152,140	25,300	19.54
Double Strand														
RS60H-2	0.750	0.469	0.500	0.126	0.713	0.614	0.235	2.189	1.094	1.177	1.028	19,840	3,700	2.41
RS80H-2	1.000	0.625	0.625	0.157	0.949	0.819	0.313	2.724	1.362	1.465	1.283	35,280	6,100	4.15
RS100H-2	1.250	0.750	0.750	0.189	1.185	1.024	0.376	3.260	1.630	1.736	1.539	52,920	9,300	6.07
RS120H-2	1.500	0.875	1.000	0.220	1.425	1.228	0.437	4.047	2.024	2.165	1.924	71,880	12,300	8.67
RS140H-2	1.750	1.000	1.000	0.252	1.661	1.433	0.500	4.327	2.163	2.343	2.055	94,370	16,300	11.01
RS160H-2	2.000	1.125	1.250	0.283	1.898	1.638	0.563	5.110	2.555	2.740	2.437	121,260	21,200	14.64
RS200H-2	2.500	1.563	1.500	0.374	2.374	2.047	0.781	6.461	3.230	3.437	3.083	207,260	29,900	24.51
RS240H-2	3.000	1.875	1.875	0.500	2.850	2.457	0.937	8.291	4.146	4.445	3.985	304,280	43,000	38.47
Triple Strand														
RS60H-3	0.750	0.469	0.500	0.126	0.713	0.614	0.235	3.217	1.608	1.691	1.028	29,760	5,500	3.60
RS80H-3	1.000	0.625	0.625	0.157	0.949	0.819	0.313	4.012	2.006	2.108	1.283	52,920	9,000	6.21
RS100-3	1.250	0.750	0.750	0.189	1.185	1.024	0.376	4.803	2.402	2.504	1.539	79,380	13,700	9.10
RS120H-3	1.500	0.875	1.000	0.220	1.425	1.228	0.437	5.972	2.986	3.132	1.924	107,820	18,100	12.99
RS140H-3	1.750	1.000	1.000	0.252	1.661	1.433	0.500	6.390	3.195	3.356	2.055	141,550	23,900	16.48
RS160H-3	2.000	1.125	1.250	0.283	1.898	1.638	0.563	7.555	3.778	3.955	2.437	181,890	31,200	21.93
RS200H-3	2.500	1.563	1.500	0.374	2.374	2.047	0.781	9.547	4.774	4.982	3.083	310,890	44,000	36.81

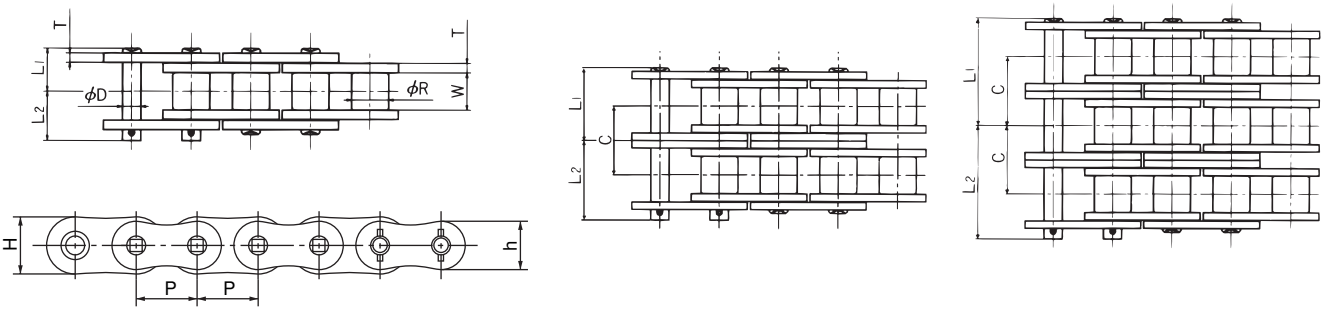
Notes:
1. Riveted type chain will be provided unless otherwise specified. Cotter pin type chain will be provided upon request.

Heavy Duty Roller Chain

Super Series

Heavy Duty Roller Chain





All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2				
Single Strand														
SUPER80	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	-	19,140	4,180	1.88
SUPER100	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	-	28,600	6,820	2.85
SUPER120	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	-	41,800	8,800	4.22
SUPER140	1.750	1.000	1.000	0.220	1.661	1.433	0.500	2.307	1.059	1.248	-	55,000	12,100	5.39
SUPER160	2.000	1.125	1.250	0.252	1.898	1.638	0.563	2.705	1.254	1.451	-	70,400	15,840	7.23
SUPER200	2.500	1.562	1.500	0.315	2.374	2.047	0.781	3.299	1.535	1.764	-	113,300	21,120	11.81
SUPER240	3.000	1.875	1.875	0.374	2.850	2.457	0.937	4.071	1.886	2.185	-	165,000	29,700	17.17
Double Strand														
SUPER80-2	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	1.154	38,280	7,106	3.77
SUPER100-2	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	1.409	57,200	11,594	5.61
SUPER120-2	1.500	0.875	1.000	0.189	1.425	1.228	0.437	3.906	1.874	2.031	1.787	83,600	14,990	8.33
SUPER140-2	1.750	1.000	1.000	0.220	1.661	1.433	0.500	4.232	2.022	2.211	1.925	110,000	20,570	10.68
SUPER160-2	2.000	1.125	1.250	0.252	1.898	1.638	0.563	5.012	2.407	2.604	2.303	140,800	26,928	14.36
SUPER200-2	2.500	1.562	1.500	0.315	2.374	2.047	0.781	6.122	2.947	3.175	2.819	226,600	35,904	23.39
SUPER240-2	3.000	1.875	1.875	0.374	2.850	2.457	0.937	7.531	3.618	3.913	3.457	330,000	50,490	34.09
Triple Strand														
SUPER80-3	1.000	0.625	0.625	0.126	0.949	0.819	0.313	3.705	1.795	1.909	1.154	57,420	10,450	5.63
SUPER100-3	1.250	0.750	0.750	0.157	1.185	1.024	0.376	4.504	2.191	2.313	1.409	85,800	17,050	8.42
SUPER120-3	1.500	0.875	1.000	0.189	1.425	1.228	0.437	5.701	2.772	2.929	1.787	125,400	22,000	12.49
SUPER140-3	1.750	1.000	1.000	0.220	1.661	1.433	0.500	6.165	2.986	3.179	1.925	165,000	30,250	15.97
SUPER160-3	2.000	1.125	1.250	0.252	1.898	1.638	0.563	7.319	3.561	3.758	2.303	211,200	39,600	21.51
SUPER200-3	2.500	1.562	1.500	0.315	2.374	2.047	0.781	8.720	4.360	4.585	2.819	339,900	52,800	35.13
SUPER240-3	3.000	1.875	1.875	0.374	2.850	2.457	0.937	10.697	5.348	5.636	3.457	495,000	74,250	50.99

Notes:
1. Four pitch offset link is available for single strand.
2. riveted type chain will be provided unless otherwise specified. Roll pin type chain will be provided upon request.
3. Semi press-fit type connecting links will be supplied.

Super Series-Size 80 and 100

Maximum Horsepower Ratings

Multi Strand Factor

Number of Roller Chain Strands	Multi-Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

Lubricating Systems and Methods

A	Drip lubrication
B	Oil bath lubrication or lubrication by slinger disc
C	Lubrication using a pump

Super 80 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)											
	25	50	100	200	300	400	500	600	700	800	900	1000
	Lubrication System											
		A			B					C		
13	2.4	4.5	8.4	15.7	22.6	29.2	35.8	42.2	43.3	35.4	29.6	
14	2.6	4.9	9.1	17.0	24.5	31.8	38.7	45.7	48.4	39.5	33.1	
15	2.8	5.3	9.8	18.4	26.4	34.2	41.8	49.2	53.6	43.8	36.7	
16	3.0	5.6	10.5	19.6	28.3	36.6	44.8	52.8	59.1	48.4	40.5	
17	3.2	6.0	11.2	20.9	30.2	39.1	47.8	56.3	64.7	52.9	44.4	
18	3.4	6.4	11.9	22.2	32.2	41.5	50.8	59.9	68.7	57.6	48.4	
19	3.6	6.8	12.7	23.6	34.0	44.1	53.9	63.5	72.9	62.6	52.4	
20	3.8	7.2	13.4	24.9	35.9	46.6	57.0	67.1	77.1	67.5	56.5	48.4
21	4.0	7.6	14.1	26.3	37.9	49.2	60.0	70.8	81.2	72.8	61.0	52.0
22	4.3	7.9	14.9	27.7	39.8	51.6	63.1	74.4	85.5	78.0	65.4	55.7
24	4.7	8.7	16.3	30.4	43.8	56.7	69.4	81.7	93.9	88.8	74.5	63.5
26	5.1	9.5	17.8	33.1	47.7	61.9	75.6	89.1	102.4	100.2	84.0	71.7
30	5.9	11.1	20.8	38.7	55.7	72.2	88.3	104.0	119.4	124.2	104.1	88.8
32	6.4	11.9	22.2	41.5	59.8	77.5	94.6	111.5	128.1	136.7	114.7	98.0
35	7.0	13.1	24.5	45.7	65.8	85.2	104.3	122.7	140.7	156.8	131.2	112.0
40	8.1	15.1	28.3	52.8	76.0	98.5	120.3	142.0	163.5	183.6	159.5	136.7

Super 100 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)												
	10	25	50	100	150	200	300	400	500	600	700	800	900
	Lubrication System												
		A			B					C			
13	1.9	4.4	8.3	15.4	22.2	28.8	41.4	53.6	65.5	65.3	51.7		
14	2.1	4.8	8.9	16.8	24.0	31.1	44.9	58.2	71.0	72.9	57.9		
15	2.3	5.2	9.6	18.0	25.9	33.5	48.4	62.6	76.5	80.8	64.2	52.4	
16	2.4	5.5	10.3	19.3	27.7	35.9	51.9	67.1	82.0	89.0	70.6	57.8	
17	2.6	5.9	11.0	20.6	29.6	38.5	55.3	71.7	87.6	97.6	77.3	63.2	
18	2.8	6.3	11.7	21.8	31.5	40.9	58.8	76.2	93.1	106.3	84.3	69.0	
19	2.9	6.7	12.4	23.2	33.4	43.3	62.4	80.8	98.8	115.2	91.4	74.8	
20	3.1	7.0	13.1	24.5	35.4	45.8	65.9	85.4	104.4	123.0	98.8	80.8	
21	3.3	7.4	13.8	25.9	37.3	48.2	69.5	90.0	110.0	129.7	106.3	869.7	
22	3.4	7.8	14.6	27.2	39.1	50.8	73.0	94.7	115.8	136.7	113.9	93.3	
24	3.8	8.6	15.9	29.9	43.0	55.7	80.3	104.0	127.2	150.1	129.8	106.3	
26	4.1	9.4	17.4	32.6	46.9	60.7	87.5	113.4	138.0	163.5	146.1	119.8	
30	4.8	10.9	20.4	38.1	54.8	70.9	102.1	132.4	162.1	190.3	180.9	147.4	
32	5.1	11.7	21.8	40.7	58.7	76.0	109.5	142.0	172.9	205.0	199.7	163.5	136.7
35	5.7	12.9	24.1	44.9	64.7	83.8	120.6	156.8	191.6	225.1	227.8	186.3	156.8
40	6.5	14.9	27.7	51.9	74.6	96.7	139.4	180.9	221.1	260.0	278.7	227.8	191.6

Notes:
1. Multiply the value given above by the multi-strand factor in order to obtain the horsepower rating of multi-strand chain.
2. Refer to roller chain maintenance section for more information on lubrication systems and methods.

Super Series-Size 120 and 140

Maximum Horsepower Ratings

Multi Strand Factor

Number of Roller Chain Strands	Multi-Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

Lubricating Systems and Methods

A	Drip lubrication
B	Oil bath lubrication or lubrication by slinger disc
C	Lubrication using a pump

Super 120 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)													
	10	25	50	100	150	200	300	350	400	450	500	600	700	800
	Lubrication System													
		A			B					C				
13	3.3	7.5	13.9	26.0	37.5	48.6	69.9	80.4	90.7	100.9	99.2	75.4		
14	3.6	8.1	15.1	28.3	40.6	52.7	75.8	87.1	98.2	109.2	110.8	84.3		
15	3.8	8.7	16.3	30.4	43.8	56.7	81.7	93.8	105.9	117.7	122.9	93.5		
16	4.1	9.4	17.4	32.6	46.9	60.8	87.6	100.6	113.5	126.2	135.3	103.0		
17	4.4	10.0	18.6	34.8	50.1	65.0	93.5	107.5	121.1	135.3	147.4	112.8	89.5	
18	4.7	10.6	19.8	37.0	53.3	69.0	99.4	114.3	128.9	143.4	158.1	122.9	97.6	
19	4.9	11.3	21.0	39.3	56.5	73.2	105.5	121.1	136.7	151.4	167.5	133.3	105.7	
20	5.2	11.9	22.2	41.5	59.8	77.5	111.5	128.1	144.7	160.8	176.9	143.4	114.3	
21	5.5	12.6	23.5	43.7	63.0	81.6	117.5	135.3	152.8	168.8	186.3	154.1	122.9	
22	5.8	13.2	24.7	46.0	66.2	85.8	123.5	142.0	159.5	178.2	195.6	166.2	131.9	
24	6.4	14.5	27.1	50.5	72.8	94.2	135.3	155.4	175.5	195.6	214.4	188.9	150.1	
26	6.9	15.8	29.5	55.1	79.3	102.8	147.4	170.2	191.6	213.1	234.5	213.1	168.8	
30	8.1	18.5	34.4	64.3	92.6	119.9	172.9	198.3	223.8	249.2	273.4	264.0	209.0	
32	8.7	19.8	37.0	68.9	99.3	128.6	184.9	213.1	239.9	266.7	293.5	290.8	230.5	
35	9.6	21.8	40.7	75.8	109.3	142.0	203.7	234.5	264.0	293.5	322.9	332.3	264.0	
40	11.0	25.2	47.0	87.6	126.2	163.5	235.8	270.7	305.5	339.0	373.9	407.4	322.9	264.0

Super 140 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)															
	10	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700
	Lubrication System															
		A		B						C						
13	4.7	10.7	20.0	37.3	53.6	69.5	85.0	100.1	115.0	129.7	131.5	112.2	97.3			
14	5.1	11.6	21.6	40.3	58.2	75.3	92.1	108.4	124.6	140.7	146.1	125.4	108.7			
15	5.5	12.5	23.3	43.4	62.6	81.1	99.2	116.8	134.0	151.4	162.1	138.0	120.6			
16	5.9	13.4	24.9	46.6	67.1	87.0	106.3	125.3	143.4	162.1	179.6	152.8	132.8			
17	6.3	14.3	26.7	49.7	71.7	92.9	113.5	133.7	154.1	172.9	193.0	167.5	144.7	127.6		
18	6.7	15.1	28.4	52.9	76.2	98.8	120.7	142.0	163.5	184.9	205.0	182.2	158.1	138.0		
19	7.1	16.1	30.0	56.1	80.8	104.7	128.0	151.4	172.9	195.6	217.1	197.0	171.5	150.1		
20	7.5	17.0	31.8	59.4	85.5	110.7	135.3	159.5	183.6	206.4	229.1	214.4	184.9	162.1		
21	7.9	18.0	33.5	62.6	90.0	116.7	142.0	167.5	193.0	217.1	242.5	230.5	199.7	175.5		
22	8.3	18.9	35.2	65.8	94.7	122.7	150.1	176.9	202.3	229.1	254.6	246.6	214.4	187.6		
24	9.1	20.8	38.7	72.2	104.0	135.3	164.8	194.3	222.4	251.9	280.1	281.4	243.9	214.4		
26	9.9	22.6	42.2	78.8	113.4	147.4	179.6	211.7	242.5	274.7	304.2	317.6	274.7	241.2		
30	11.6	26.4	49.3	91.9	132.4	171.5	209.0	246.6	284.1	320.3	356.4	391.3	340.4	298.8	265.3	
32	12.4	28.3	52.8	98.5	142.0	183.6	225.1	265.3	304.2	343.0	381.9	419.4	375.2	329.6	292.1	
35	13.7	31.2	58.2	108.5	156.8	202.3	247.9	292.1	335.0	377.9	420.8	462.3	428.8	376.5	333.7	298.8
40	15.8	36.0	67.1	125.4	180.9	234.5	285.4	337.7	387.3	436.8	485.1	533.3	525.3	461.0	408.7	365.8

Notes:
1. Multiply the value given above by the multi-strand factor in order to obtain the horsepower rating of multi-strand chain.
2. Refer to roller chain maintenance section for more information on lubrication systems and methods.

Super Series-Size 160 and 200

Maximum Horsepower Ratings

Multi Strand Factor

Number of Roller Chain Strands	Multi-Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

Lubricating Systems and Methods

A	Drip lubrication
B	Oil bath lubrication or lubrication by slinger disc
C	Lubrication using a pump

Super 160 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)															
	10	15	25	40	50	80	100	150	200	250	300	350	400	450	500	550
	Lubrication System															
	A		B					C								
13	7.0	10.2	16.1	24.5	30.0	45.8	56.0	80.7	104.5	127.7	150.1	172.9	174.2	146.1	124.9	
14	7.6	11.0	17.4	26.7	32.6	49.6	60.7	87.4	113.2	138.0	163.5	187.6	194.3	163.5	139.4	
15	8.2	11.9	18.8	28.7	35.0	53.5	65.4	94.2	121.9	148.7	175.5	202.3	215.7	180.9	154.1	
16	8.8	12.7	20.1	30.7	37.5	57.4	70.1	100.9	130.8	159.5	188.9	217.1	238.5	199.7	170.2	
17	9.4	13.5	21.4	32.8	40.1	61.2	74.8	107.7	139.4	170.2	201.0	230.5	260.0	218.4	186.3	
18	10.0	14.5	22.9	35.9	42.6	65.1	79.6	114.7	148.7	180.9	214.4	245.2	277.4	237.2	202.3	
19	10.6	15.3	24.3	37.0	45.3	69.0	84.4	121.5	158.1	193.0	226.5	260.0	293.5	257.3	219.8	190.3
20	11.2	16.2	25.6	39.1	47.8	73.0	89.2	128.5	166.2	203.7	239.9	276.0	310.9	278.7	237.2	206.4
21	11.8	17.0	27.1	41.3	50.4	76.9	94.1	135.3	175.5	214.4	253.3	290.8	327.0	300.2	255.9	221.1
22	12.4	18.0	28.4	43.3	52.9	80.9	98.9	142.0	184.9	225.1	265.3	305.5	344.4	321.6	274.7	237.2
24	13.7	19.7	31.2	47.6	58.2	88.8	108.5	156.8	202.3	247.9	292.1	335.0	377.9	365.8	312.2	270.7
26	14.9	21.4	34.0	51.9	63.5	96.9	118.5	170.2	221.1	270.7	318.9	365.8	412.7	412.7	352.4	305.5
30	17.4	25.1	39.7	60.6	74.1	113.1	138.0	199.7	257.3	314.9	371.2	426.1	481.1	511.9	436.8	379.2
32	18.6	26.9	42.6	65.0	79.5	121.3	148.7	213.1	276.0	337.7	398.0	456.9	515.9	564.1	482.4	418.1
35	20.5	29.6	46.9	71.6	87.5	133.5	163.5	234.5	304.2	372.5	438.2	503.8	568.2	632.5	550.7	477.0
40	23.7	34.2	54.1	82.7	101.0	154.1	188.9	272.0	352.4	430.1	506.5	581.6	656.6	730.3	674.0	584.2

Super 200 Maximum Horsepower Ratings

Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)													
	5	10	15	20	25	30	40	50	60	80	100	150	200	250
	Lubrication System													
	A		B								C			
13	6.5	12.2	17.6	22.6	27.7	32.7	42.3	51.7	61.0	79.1	96.6	139.4	180.9	219.8
14	7.1	13.2	19.0	24.7	30.0	35.4	45.8	56.1	66.1	85.6	104.7	151.4	195.6	238.5
15	7.6	14.2	20.5	26.5	32.4	38.2	49.4	60.4	71.2	92.2	112.8	162.1	210.4	257.3
16	8.2	15.3	22.0	28.4	34.7	40.9	53.1	64.9	76.4	98.9	120.9	174.2	225.1	276.0
17	8.7	16.2	23.5	30.4	37.1	43.7	56.5	69.1	81.5	105.6	129.0	186.3	241.2	294.8
18	9.3	17.3	24.9	32.3	39.4	46.5	60.2	73.6	86.7	112.3	136.7	198.3	255.9	313.6
19	9.8	18.4	26.4	34.2	41.8	49.3	63.8	78.0	91.9	119.1	146.1	209.0	272.0	332.3
20	10.4	19.4	27.9	36.2	44.2	52.1	67.4	82.4	97.2	125.8	154.1	221.1	286.8	351.1
21	10.9	20.4	29.5	38.1	46.6	54.9	71.2	87.0	102.4	132.7	162.1	233.2	302.8	369.8
22	11.5	21.4	31.0	40.1	49.0	57.8	74.8	91.4	107.7	139.4	170.2	253.3	317.6	388.6
24	12.6	23.6	34.0	44.0	53.9	63.4	82.1	100.4	118.3	152.8	187.6	269.3	349.7	427.5
26	13.8	25.7	37.0	48.0	58.7	69.1	89.5	109.5	129.0	167.5	203.7	294.8	380.6	
30	16.1	30.0	43.3	56.0	68.5	80.7	104.5	127.7	150.1	195.6	238.5	343.0	444.9	
32	17.3	32.2	46.4	60.0	73.4	86.4	112.0	136.7	160.8	209.0	255.9	368.5	477.0	
35	19.0	35.5	51.1	66.2	80.8	95.3	123.4	151.4	178.2	230.5	281.4	406.0	361.8	
40	22.0	41.0	59.0	76.4	93.4	110.0	142.0	174.2	205.0	266.7	325.6	469.0	394.0	

Notes:
1. Multiply the value given above by the multi-strand factor in order to obtain the horsepower rating of multi-strand chain.
2. Refer to roller chain maintenance section for more information on lubrication systems and methods.

Super Series-Size 240

Maximum Horsepower Ratings

Multi Strand Factor

Number of Roller Chain Strands	Multi-Strand Factor
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6

Lubricating Systems and Methods

A	Drip lubrication
B	Oil bath lubrication or lubrication by slinger disc
C	Lubrication using a pump

Super 240 Maximum Horsepower Ratings

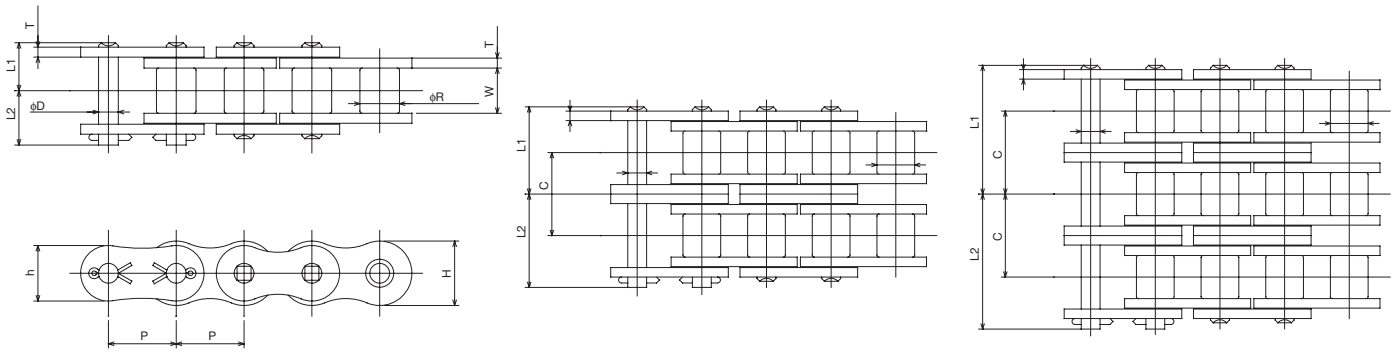
Number of Teeth Small Sprocket	Maximum Speed - Small Sprocket (rpm)												
	5	10	15	20	25	30	40	50	60	80	100	125	150
	Lubrication System												
	A		B							C			
13	8.0	15.0	21.6	28.0	34.2	40.3	52.2	63.8	75.2	97.5	119.0	146.0	112.0
14	8.7	16.3	23.4	30.3	37.1	43.7	56.6	69.2	81.5	106.0	129.0	158.0	118.0
15	9.4	17.5	25.2	32.7	39.9	47.1	61.0	74.5	87.8	114.0	139.0	170.0	126.0
16	10.1	18.8	27.0	35.0	42.8	50.4	65.4	79.9	94.1	122.0	149.0	182.0	133.0
17	10.7	20.0	28.9	37.4	45.7	53.9	69.8	85.3	101.0	130.0	159.0	195.0	139.0
18	11.4	21.3	30.7	39.8	48.6	57.3	74.2	90.7	107.0	138.0	169.0	207.0	146.0
19	12.1	22.6	32.5	42.2	51.5	60.7	78.7	96.2	113.0	147.0	179.0	219.0	153.0
20	12.8	23.9	34.4	44.6	54.5	64.2	83.2	102.0	120.0	155.0	190.0	232.0	159.0
21	13.5	25.2	36.3	47.0	57.4	67.7	87.7	107.0	126.0	164.0	200.0	244.0	165.0
22	14.2	26.5	38.1	49.4	60.4	71.2	92.2	113.0	133.0	172.0	210.0	257.0	
24	15.6	29.1	41.9	54.3	66.3	78.2	101.0	124.0	146.0	189.0	231.0	282.0	
26	17.0	31.7	45.7	59.2	72.3	85.2	110.0	135.0	159.0	206.0	252.0	308.0	
30	19.8	37.0	53.3	69.1	84.4	99.5	129.0	158.0	186.0	240.0	294.0	215.0	
32	21.3	39.7	57.1	74.0	90.5	107.0	138.0	169.0	199.0	258.0	315.0	225.0	
35	23.4	43.7	63.0	81.6	99.7	117.0	152.0	186.0	219.0	284.0	347.0		
40	27.1	50.5	72.7	94.2	115.0	136.0	176.0	215.0	253.0	328.0	259.0		

Notes:
1. Multiply the value given above by the multi-strand factor in order to obtain the horsepower rating of multi-strand chain.
2. Refer to roller chain maintenance section for more information on lubrication systems and methods.

Heavy Duty Roller Chain

HT Series

Heavy Duty Roller Chain



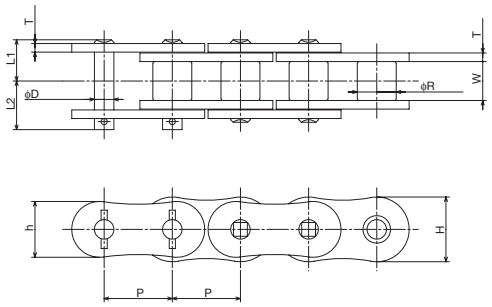
All dimensions in inches unless otherwise stated.

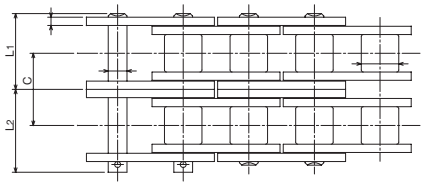
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2				
Single Strand														
RS40HT	0.500	0.312	0.312	0.080	0.472	0.409	0.156	0.808	0.375	0.433	-	5,290	1,170	0.53
RS50HT	0.625	0.400	0.375	0.094	0.591	0.512	0.200	0.941	0.437	0.504	-	8,260	1,870	0.79
RS60HT	0.750	0.469	0.500	0.126	0.713	0.614	0.235	1.252	0.583	0.669	-	12,540	2,200	1.21
RS80HT	1.000	0.625	0.625	0.157	0.949	0.819	0.313	1.543	0.720	0.823	-	20,900	3,630	2.08
RS100HT	1.250	0.750	0.750	0.189	1.185	1.024	0.376	1.823	0.858	0.965	-	31,900	5,500	3.07
RS120HT	1.500	0.875	1.000	0.220	1.425	1.228	0.437	2.264	1.061	1.203	-	42,900	7,260	4.38
RS140HT	1.750	1.000	1.000	0.252	1.661	1.433	0.500	2.441	1.138	1.303	-	56,100	9,570	5.54
RS160HT	2.000	1.125	1.250	0.281	1.898	1.638	0.563	2.850	1.337	1.514	-	71,500	12,540	7.35
RS200HT	2.500	1.562	1.500	0.374	2.374	2.047	0.781	3.583	1.689	1.894	-	125,400	17,600	12.33
RS240HT	3.000	1.875	1.875	0.500	2.850	2.457	0.937	4.610	2.157	2.453	-	198,000	25,300	19.52
Double Strand														
RS60HT-2	0.750	0.469	0.500	0.126	0.713	0.614	0.235	2.272	1.094	1.177	1.028	25,080	3,740	2.41
RS80HT-2	1.000	0.625	0.625	0.157	0.949	0.819	0.313	2.827	1.362	1.465	1.283	41,800	6,100	4.14
RS100HT-2	1.250	0.750	0.750	0.189	1.185	1.024	0.376	3.366	1.630	1.736	1.539	63,800	9,350	6.05
RS120HT-2	1.500	0.875	1.000	0.220	1.425	1.228	0.437	4.189	2.024	2.165	1.925	85,800	12,340	8.64
RS140HT-2	1.750	1.000	1.000	0.252	1.661	1.433	0.500	4.506	2.163	2.343	2.055	112,200	16,280	10.97
RS160HT-2	2.000	1.125	1.250	0.281	1.898	1.638	0.563	5.295	2.555	2.740	2.437	143,000	21,310	14.59
RS200HT-2	2.500	1.562	1.500	0.374	2.374	2.047	0.781	6.667	3.230	3.437	3.083	250,800	29,920	24.43
RS240HT-2	3.000	1.875	1.875	0.500	2.850	2.457	0.937	8.591	4.146	4.445	3.984	396,000	43,010	38.42
Triple Strand														
RS60HT-3	0.750	0.469	0.500	0.126	0.713	0.614	0.235	3.299	1.608	1.691	1.028	37,620	5,500	3.59
RS80HT-3	1.000	0.625	0.625	0.157	0.949	0.819	0.313	4.114	2.006	2.108	1.283	62,700	9,080	6.19
RS100HT-3	1.250	0.750	0.750	0.189	1.185	1.024	0.376	4.906	2.402	2.504	1.539	95,700	13,750	9.07
RS120HT-3	1.500	0.875	1.000	0.220	1.425	1.228	0.437	6.118	2.986	3.132	1.925	128,700	18,150	12.95
RS140HT-3	1.750	1.000	1.000	0.252	1.661	1.433	0.500	6.551	3.195	3.356	2.055	168,300	23,930	16.44
RS160HT-3	2.000	1.125	1.250	0.281	1.898	1.638	0.563	7.732	3.778	3.955	2.437	214,500	31,350	21.86
RS200HT-3	2.500	1.562	1.500	0.374	2.374	2.047	0.781	9.756	4.774	4.982	3.083	376,200	44,000	36.70
RS240HT-3	3.000	1.875	1.875	0.500	2.850	2.457	0.937	12.583	6.144	6.439	3.984	594,000	63,250	57.26

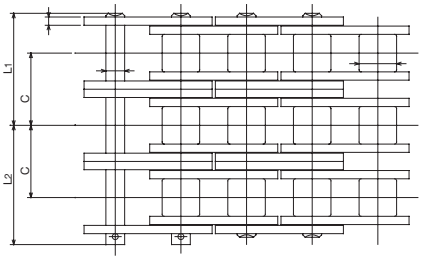
Notes:
1. riveted type chain will be provided unless otherwise specified. Cottered type chain is available upon request.
2. Semi-press fit connecting links will be supplied.

Super-H Series

Heavy Duty Roller Chain







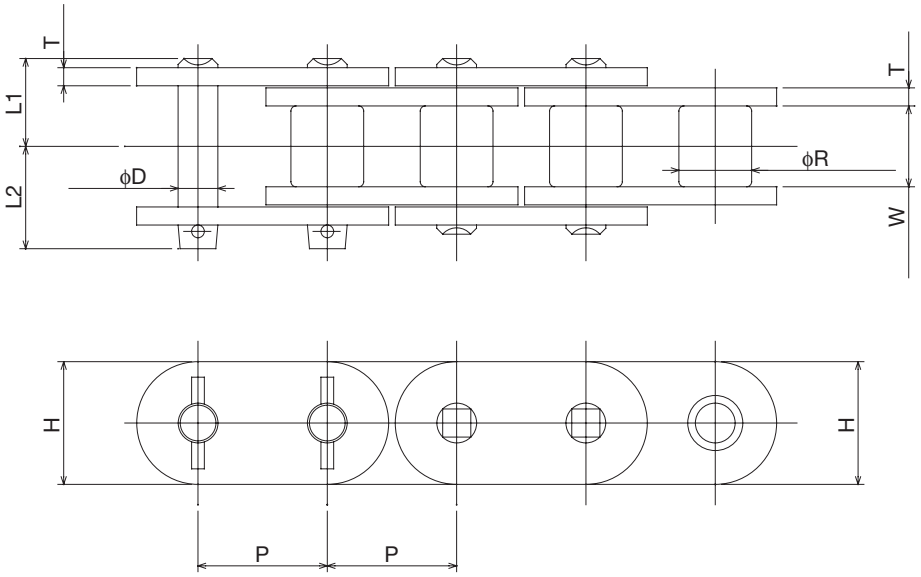
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
Single Strand														
SUPER80H	1.000	0.625	0.625	0.157	0.949	0.819	0.313	1.543	0.720	0.823	-	22,000	4,620	2.21
SUPER100H	1.250	0.750	0.750	0.189	1.185	1.024	0.376	1.823	0.858	0.965	-	32,560	7,260	3.28
SUPER120H	1.500	0.875	1.000	0.220	1.425	1.228	0.437	2.264	1.061	1.203	-	44,000	9,460	4.66
SUPER140H	1.750	1.000	1.000	0.252	1.661	1.433	0.500	2.441	1.138	1.303	-	57,200	12,760	5.97
SUPER160H	2.000	1.125	1.250	0.281	1.898	1.638	0.563	2.851	1.337	1.514	-	72,600	16,500	7.88
SUPER200H	2.500	1.500	1.500	0.374	2.374	2.047	0.781	3.583	1.689	1.894	-	134,200	22,400	13.22
SUPER240H	3.000	1.875	1.875	0.500	2.850	2.457	0.937	4.610	2.157	2.453	-	206,800	31,240	20.47
Double Strand														
SUPER80H-2	1.000	0.625	0.625	0.157	0.949	0.819	0.313	2.823	1.358	1.465	1.283	44,000	7,854	4.38
SUPER100H-2	1.250	0.750	0.750	0.189	1.185	1.024	0.376	3.366	1.630	1.736	1.539	65,120	12,342	6.39
SUPER120H-2	1.500	0.875	1.000	0.220	1.425	1.228	0.437	4.179	2.014	2.165	1.925	88,000	16,082	9.08
SUPER140H-2	1.750	1.000	1.000	0.252	1.661	1.433	0.500	4.506	2.163	2.343	2.055	114,400	21,692	11.68
SUPER160H-2	2.000	1.125	1.250	0.281	1.898	1.638	0.563	5.295	2.555	2.740	2.437	145,200	28,050	15.44
SUPER200H-2	2.500	1.562	1.500	0.374	2.374	2.047	0.781	6.667	3.230	3.437	3.083	268,400	38,080	25.86
SUPER240H-2	3.000	1.875	1.875	0.500	2.850	2.457	0.937	8.591	4.146	4.445	3.984	413,600	53,108	40.16
Triple Strand														
SUPER80H-3	1.000	0.625	0.625	0.157	0.949	0.819	0.313	4.106	1.998	2.108	1.283	66,000	11,550	6.55
SUPER100H-3	1.250	0.750	0.750	0.189	1.185	1.024	0.376	4.904	2.400	2.504	1.539	97,680	18,150	9.50
SUPER120H-3	1.500	0.875	1.000	0.220	1.425	1.228	0.437	6.086	2.954	3.132	1.925	132,000	23,650	13.50
SUPER140H-3	1.750	1.000	1.000	0.252	1.661	1.433	0.500	6.547	3.191	3.356	2.055	171,600	31,900	17.39
SUPER160H-3	2.000	1.125	1.250	0.281	1.898	1.638	0.563	7.711	3.756	3.955	2.437	217,800	41,250	22.99
SUPER200H-3	2.500	1.562	1.500	0.374	2.374	2.047	0.781	9.743	4.761	4.982	3.083	402,600	56,000	38.50
SUPER240H-3	3.000	1.875	1.875	0.500	2.850	2.457	0.937	12.544	6.105	6.439	3.984	620,400	78,100	59.87

Notes:
1. Offset links are not available.
2. riveted type chain will be provided unless otherwise specified. Roll pin type chain will be provided upon request.
3. Semi press-fit type connecting links will be supplied.

Ultra Super Series

Heavy Duty Roller Chain

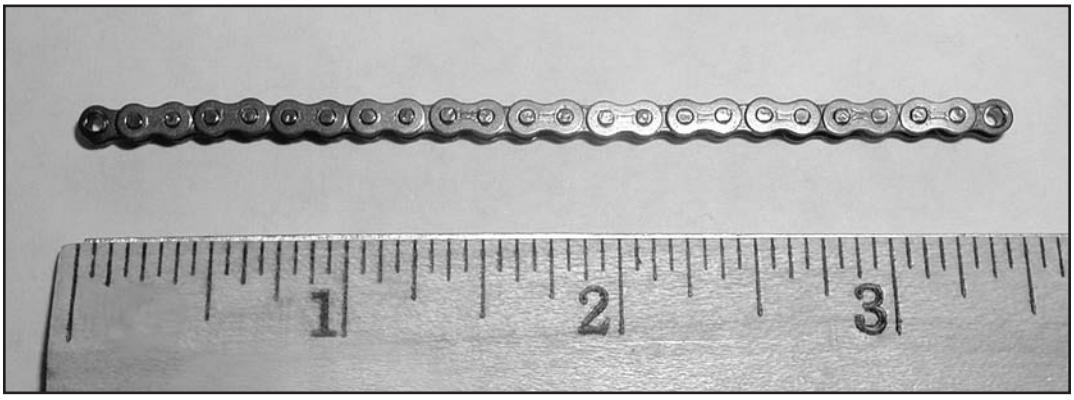


All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Side Plates		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)
				Thickness T	Height H	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2			
US100	1.250	0.750	0.750	0.187	1.185	0.406	1.878	0.880	0.998	38,500	8,800	3.40
US120	1.500	0.875	1.000	0.219	1.425	0.483	2.327	1.085	1.242	55,000	12,100	4.84
US140	1.750	1.000	1.000	0.250	1.661	0.550	2.508	1.161	1.346	70,400	14,300	6.19
US160	2.000	1.125	1.250	0.281	1.898	0.615	2.941	1.358	1.583	88,000	19,140	8.17
US200	2.500	1.562	1.500	0.375	2.374	0.804	3.697	1.691	2.006	149,600	24,200	13.71
US240	3.000	1.875	1.875	0.500	2.850	0.956	4.713	2.157	2.555	220,000	33,880	21.23

Notes:
1. RS Standard sprockets can be used if the sprocket teeth have been hardened and if the sprocket is not a cast iron type.
2. Chain should be lubricated using either the drip, oil bath or lubrication pump methods.
3. Offset links are not available.
4. riveted type chain will be supplied unless otherwise specified.
5. Chain must be used under 165 feet/second.
6. Multi-strand chain is not available.

Miniature Roller Chain



An Introduction To Tsubaki Miniature Roller Chain

Miniature chain from Tsubaki is specially designed for applications with extremely limited space that require lightweight and quiet chain. Tsubaki miniature chain provides superior performance in a variety of demanding applications such as communications equipment, business machines, medical equipment, photographic equipment and other electro-mechanical devices. The chain is available in four styles to meet the needs of the most challenging small-scale applications.

Miniature Chain Selection

For chain speeds less than 150 ft./min., use the formula below to select the optimum chain size.

Maximum load (lbs.) on chain	x	Service factor	x	Chain speed coefficient	≤	Maximum allowable load (lbs) on chain
		(Table 1)		(Table 2)		

Table 1: Service Factor

Type of Impact	Service Factor
Smooth	1.0
Moderate Impact	1.3

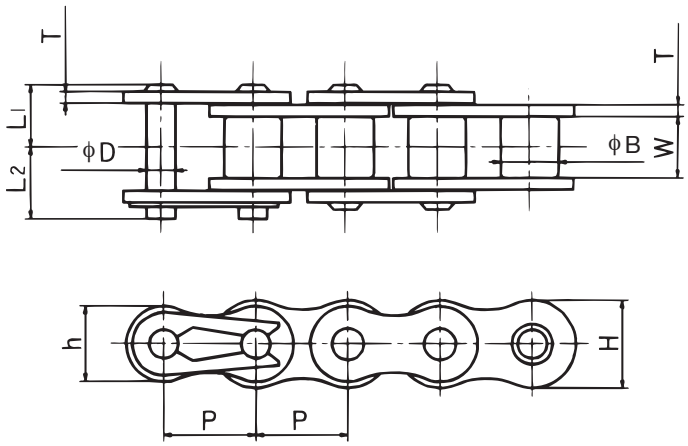
Table 2: Chain Speed Coefficient Table

Chain Speed	Chain Speed Coefficient
0 ~ 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 150 ft./min.	1.4

RS11SS Miniature Chain .148" Pitch

TSUBAKI

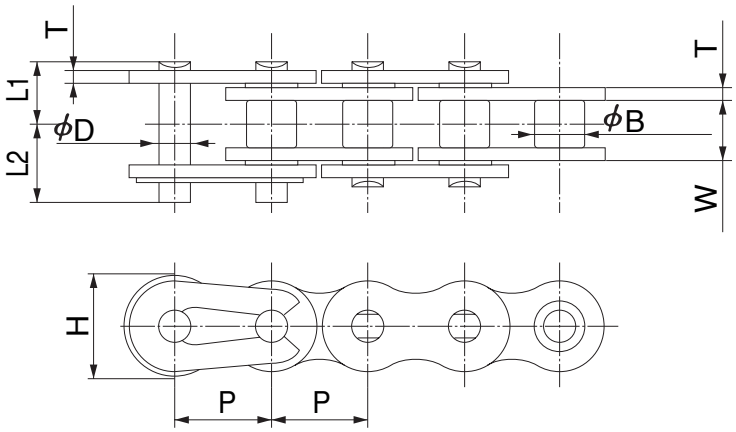
RS11SS bushed chain is composed of type 304 stainless steel (clips are type 301). This chain is more corrosion resistant than carbon steel chain and can be used in corrosive environments such as acids. It is non-magnetic and has a working temperature range of -4˚F - +752˚F. This chain is designed to be used where space is extremely limited such as in communications equipment, office machines and electro-mechanical devices.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate			Pin				Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
RS11SS	0.148	0.090	0.072	0.015	0.138	0.138	0.062	0.214	0.090	0.125	11	0.035	814

Tsubaki RS15 bushed chain is based on our RS chain production technology and is ideal for compact applications. This lightweight chain is half the weight of the smallest ANSI chain (RS25). It is ideal for such applications as industrial data equipment, business machines, electronic equipment, medical instruments and photographic equipment.

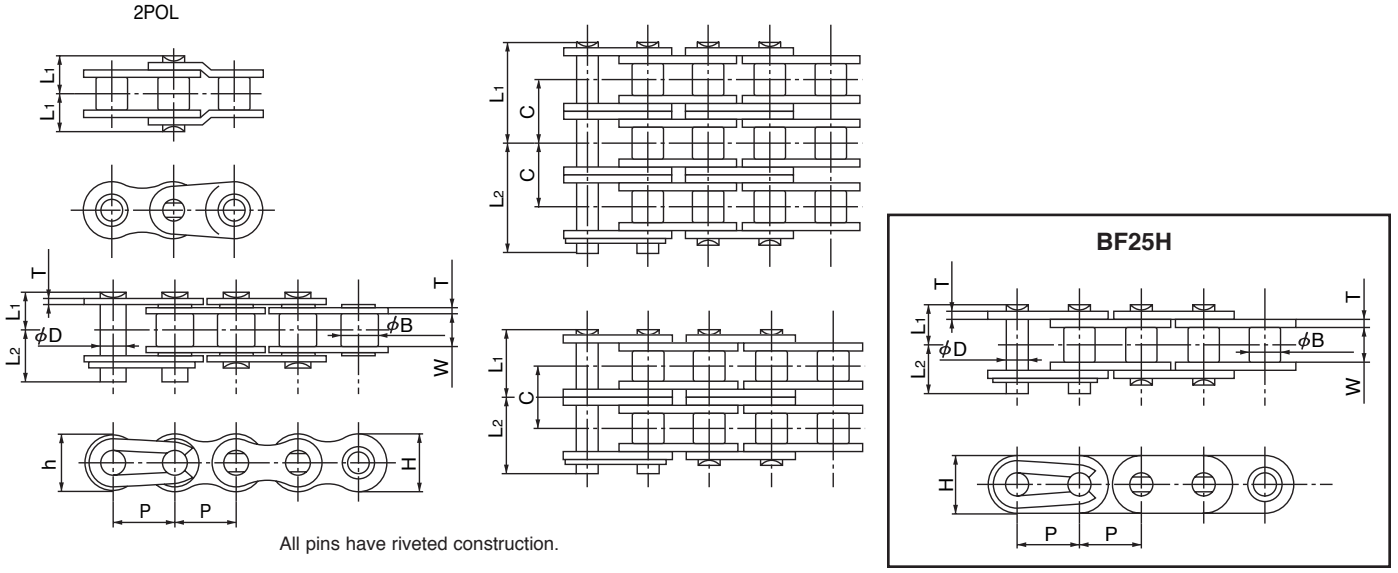


All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2				
RS15	0.188	0.098	0.094	0.024	0.169	0.064	0.272	0.120	0.152	510	70	0.05	640

Tsubaki RS25 bushed chain is the smallest ANSI roller chain. It is ideal for power transmission in business machines, electro-optical equipment and general industrial machines where spaces is limited.

Tsubaki BF25F bushed chain works with standard sprockets. It is a flat side-bar chain and its inner link plates are thicker than RS25. Both of these chains can accommodate a large maximum allowable load.



All pins have riveted construction.

All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Dia. B	Width Between Inner Link Plates W	Link Plate			Pin				Transverse Pitch C	ANSI Std. Minimum Tensile Strength (lbs.)	Tsubaki Minimum Tensile Strength (lbs.)	Tsubaki Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2							
Single Strand																	
RS25	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.339	0.150	0.189	-	780	920	1,050	140	0.09	480
BF25H	0.250	0.130	0.125	0.039	0.230	-	0.091	0.362	0.161	0.201	-	-	-	1,320	170	0.11	480
Double Strand																	
RS25-2	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.591	0.276	0.315	0.252	1,560	1,840	2,100	240	0.18	480
Triple Strand																	
RS25-3	0.250	0.130	0.125	0.030	0.230	0.199	0.091	0.843	0.402	0.441	0.252	2,340	2,760	3,150	350	0.28	480

Note: Only two-pitch offset links are available for RS25 and RS25-2. No offset links are available for BF25H.

British Standard/DIN Roller Chain

Introduction to Tsubaki British Standard/DIN Roller Chain

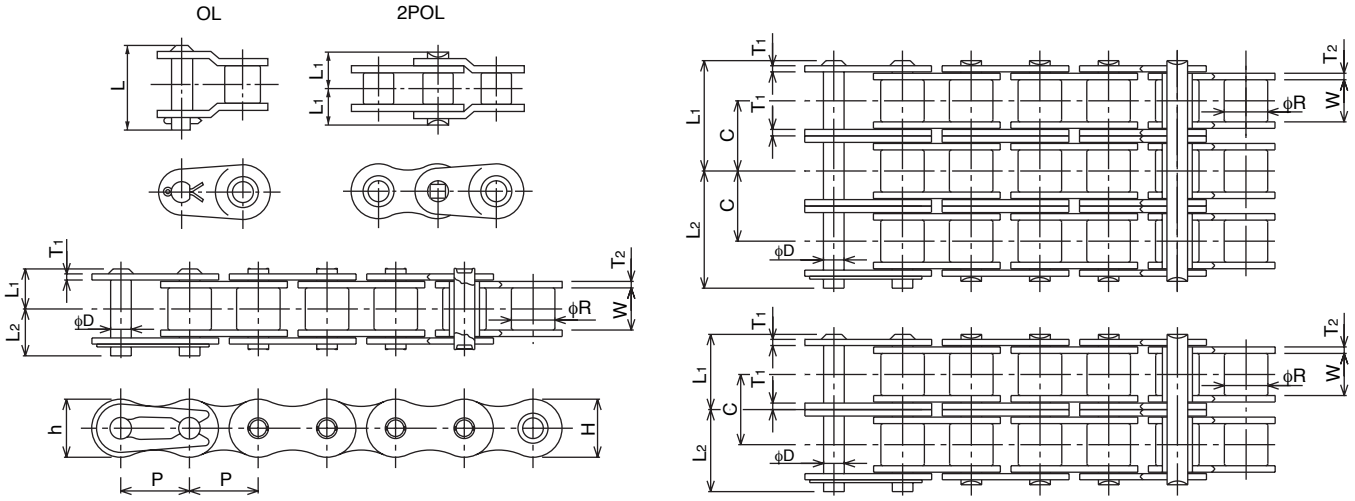
Tsubaki British Standard/DIN roller chains are manufactured to the following standards: International Standards Organization (ISO 606), British Standards Institution (BS 228) and Deutsches Institut für Normung (DIN 8187).
Tsubaki produces British Standard/DIN roller chain in a variety of sizes (now including RS05B and RS48B) and materials (carbon steel, lube-free Lambda, stainless steel and nickel plated). These chains are ideal for use on equipment that has been imported into Canada or on new machinery that is made in Canada but destined for export.
Features of Tsubaki British Standard/DIN roller chain include:

- ***Easy disassembly*** (cutting) on sizes RS08B to RS16B. Users can easily extract the pin on-site, with a standard screw type chain cutter.
- ***Ring coining*** - a process unique to Tsubaki whereby the connecting link is made as strong as the rest of the links in the chain. The ring coining process creates plastic deformation around the pinhole on the link plates of the chain. This generates residual stress around the deformed area, which boosts the transmission capacity of the connecting links to the same level as the chain itself.
- ***Solid rollers, bushes and link plates***, all of which are shot-peened - a process that work hardens the surface of these components, improving their durability at high speed and increasing fatigue strength.
- ***Center sink design of the rivet head*** - the result of years of experience in manufacturing marine diesel chain at Tsubaki. The benefit of the center sink pin design is that notches on the rivet head indicate line of riveting and easy identification in the case of pin rotation caused by overload conditions.
- ***Wider link plate design*** - improving the fatigue strength.
- ***Chain is pre-stressed*** after manufacture to ensure that all components are properly seated. This reduces the need for initial chain adjustment and has also improved the length tolerance.

British Standard/DIN Roller Chain

Carbon Steel

British Standard/DIN Roller Chain



All dimensions in inches unless otherwise stated.

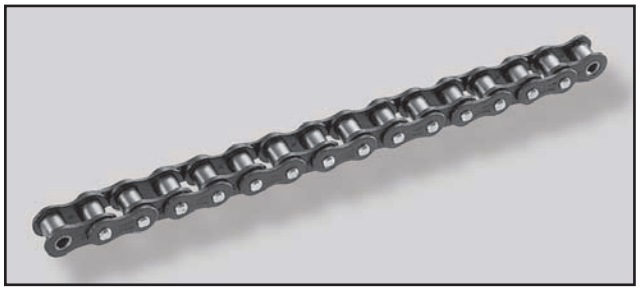
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Transverse Pitch C	Nominal Bearing Area (in^2)	Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Roller Link Thickness T_1	Pin Link Thickness T_2	Roller Link Height H	Pin Link Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L					
Single Strand																	
RS05B	0.315	0.197	0.118	0.030	0.030	0.280	0.280	0.091	0.335	0.150	0.185	0.299	-	0.017	1,300	0.12	380
RF06B ■	0.375	0.250	0.225	0.039	0.039	0.323	0.323	0.129	0.551	0.250	0.301	0.5591	-	0.043	2,310	0.26	320
RS08B ●	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	0.724	0.331	0.394	0.7244	-	0.078	4,400	0.47	240
RS10B ●	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	0.819	0.376	0.443	0.8307	-	0.104	5,830	0.64	192
RS12B ●	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	0.957	0.441	0.516	0.976	-	0.138	7,480	0.84	160
RS16B ●	1.000	0.625	0.670	0.126	0.157	0.827	0.827	0.326	1.484	0.699	0.785	1.531	-	0.326	16,500	1.81	120
RS20B	1.250	0.750	0.770	0.134	0.173	1.024	1.024	0.401	1.693	0.783	0.909	1.8484	-	0.457	24,200	2.59	96
RS24B	1.500	1.000	1.000	0.220	0.236	1.315	1.228	0.576	2.303	1.049	1.254	2.4409	-	0.859	41,800	5.01	80
RS28B	1.750	1.100	1.220	0.248	0.295	1.433	1.433	0.626	2.752	1.278	1.474	2.9331	-	1.147	48,400	6.35	68
RS32B	2.000	1.150	1.220	0.248	0.276	1.661	1.638	0.701	2.748	1.264	1.484	2.8937	-	1.257	62,920	6.89	60
RS40B	2.500	1.550	1.500	0.315	0.335	2.083	2.047	0.901	3.319	1.545	1.774	3.498	-	1.978	88,000	10.99	48
RS48B	3.000	1.900	1.800	0.394	0.476	2.512	2.354	1.151	4.335	1.935	2.400	4.610	-	3.195	138,930	16.80	40
Double Strand																	
RS05B-2	0.315	0.197	0.118	0.030	0.030	0.280	0.280	0.091	0.558	0.262	0.296	0.524	0.222	0.034	2,020	0.24	380
RF06B-2 ■▲	0.375	0.250	0.225	0.039	0.039	0.323	0.323	0.129	0.945	0.450	0.495	1.020	0.403	0.087	4,070	0.50	320
RS08B-2 ▲	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	1.268	0.602	0.665	1.322	0.548	0.155	7,590	0.91	240
RS10B-2	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	1.472	0.703	0.770	1.5512	0.653	0.208	11,660	1.24	192
RS12B-2	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	1.717	0.821	0.896	1.823	0.766	0.276	14,960	1.68	160
RS16B-2	1.000	0.625	0.670	0.126	0.157	0.827	0.827	0.326	2.728	1.321	1.407	2.906	1.255	0.651	31,460	3.63	120
RS20B-2	1.250	0.750	0.770	0.134	0.173	1.024	1.024	0.401	3.138	1.506	1.632	3.3406	1.435	0.916	45,980	5.14	96
RS24B-2	1.500	1.000	1.000	0.220	0.236	1.315	1.228	0.576	4.205	2.000	2.205	4.4469	1.904	1.719	79,640	9.84	80
RS28B-2	1.750	1.100	1.220	0.248	0.295	1.433	1.433	0.626	5.091	2.447	2.644	5.389	2.345	2.296	92,180	12.63	68
RS32B-2	2.000	1.150	1.220	0.248	0.276	1.661	1.638	0.701	5.043	2.411	2.632	5.3248	2.305	2.516	119,680	13.51	60
RS40B-2	2.500	1.550	1.500	0.315	0.335	2.083	2.047	0.901	6.165	2.969	3.197	6.439	2.846	3.956	168,960	21.50	48
RS48B-2	3.000	1.900	1.800	0.394	0.476	2.512	2.354	1.151	7.945	3.740	4.205	8.228	3.591	6.391	258,530	33.60	40
Triple Strand																	
RS05B-3	0.315	0.197	0.118	0.030	0.030	0.280	0.280	0.091	0.779	0.372	0.407	0.744	0.222	0.051	2,880	0.36	380
RF06B-3 ■▲	0.375	0.250	0.225	0.039	0.039	0.323	0.323	0.129	1.354	0.665	0.689	1.421	0.403	0.130	5,590	0.75	320
RS08B-3 ▲	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	1.815	0.876	0.939	1.874	0.548	0.233	10,890	1.34	240
RS10B-3	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	2.126	1.030	1.096	2.2087	0.653	0.312	17,490	1.88	192
RS12B-3	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	2.484	1.205	1.280	2.598	0.766	0.414	22,440	2.55	160
RS16B-3	1.000	0.625	0.670	0.126	0.157	0.827	0.827	0.326	3.984	1.949	2.035	4.169	1.255	0.977	46,860	5.38	120
RS20B-3	1.250	0.750	0.770	0.134	0.173	1.024	1.024	0.401	4.575	2.224	2.350	4.7776	1.435	1.373	69,080	7.69	96
RS24B-3	1.500	1.000	1.000	0.220	0.236	1.315	1.228	0.576	6.114	2.957	3.157	6.3524	1.904	2.579	119,240	14.62	80
RS28B-3	1.750	1.100	1.220	0.248	0.295	1.433	1.433	0.626	7.437	3.620	3.817	7.7343	2.345	3.443	138,160	18.95	68
RS32B-3	2.000	1.150	1.220	0.248	0.276	1.661	1.638	0.701	7.346	3.563	3.783	7.630	2.305	3.773	179,740	20.09	60
RS40B-3	2.500	1.550	1.500	0.315	0.335	2.083	2.047	0.901	9.008	4.390	4.618	9.2854	2.846	5.933	254,760	32.09	48
RS48B-3	3.000	1.900	1.800	0.394	0.476	2.512	2.354	1.151	11.520	5.528	5.992	11.820	3.591	9.585	393,410	50.40	40

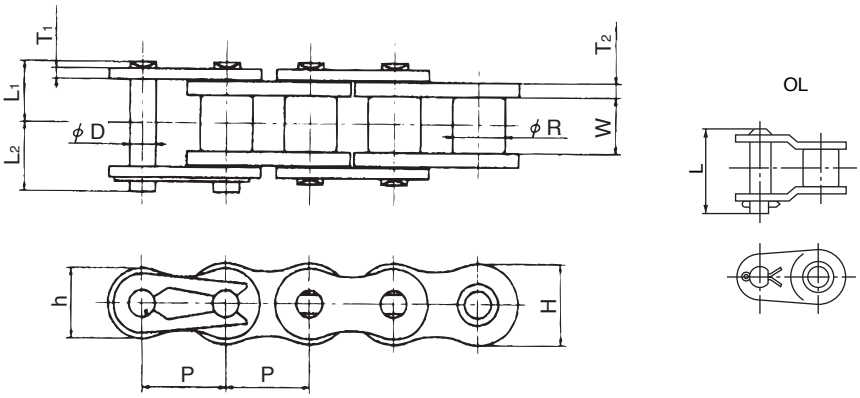
Notes: ■ Flat shape link plate.
▲ Middle link plate has one solid plate.
● Center sink riveting is applied (as shown in single strand drawing above).
Double stake riveting is applied to all other sizes including multi-strand chain.

British Standard/DIN Roller Chain

Lambda (Lube Free)

British Standard/DIN Roller Chain





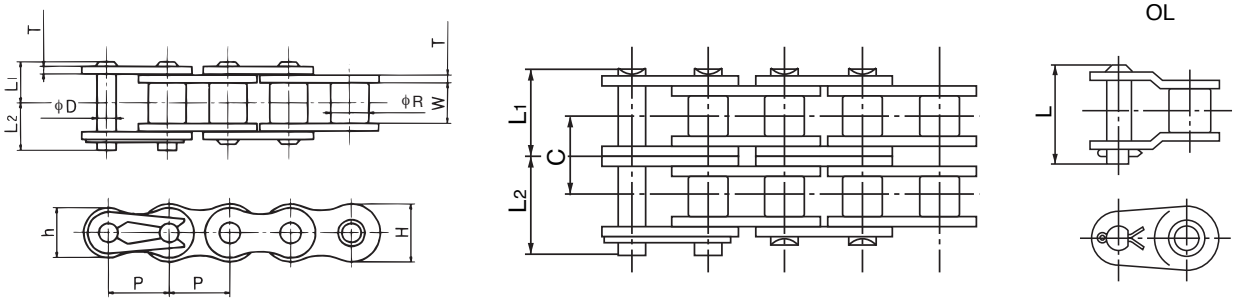
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Roller Link Thickness T_1	Pin Link Thickness T_2	Roller Link Height H	Pin Link Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L			
RSD08B-LAMBDA	0.500	0.335	0.305	0.059	0.079	0.465	0.409	0.156	0.756	0.344	0.411	0.787	4,220	0.47	240
RSD10B-LAMBDA	0.625	0.400	0.380	0.079	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.886	5,830	0.70	192
RSD12B-LAMBDA	0.750	0.475	0.460	0.094	0.094	0.713	0.614	0.235	1.051	0.488	0.563	1.138	7,480	1.01	160
RSD16B-LAMBDA	1.000	0.625	0.670	0.126	0.134	0.949	0.819	0.313	1.472	0.675	0.797	1.571	16,480	1.88	120

Note: Although some dimensions differ from British Standard carbon steel drive chain, the primary dimensions of British Standard Lambda drive chain are identical. This allows British Standard Lambda drive chain to engage perfectly with British Standard sprockets.

Stainless Steel Type 304

■ British Standard/DIN Roller Chain



All dimensions in inches unless otherwise stated.

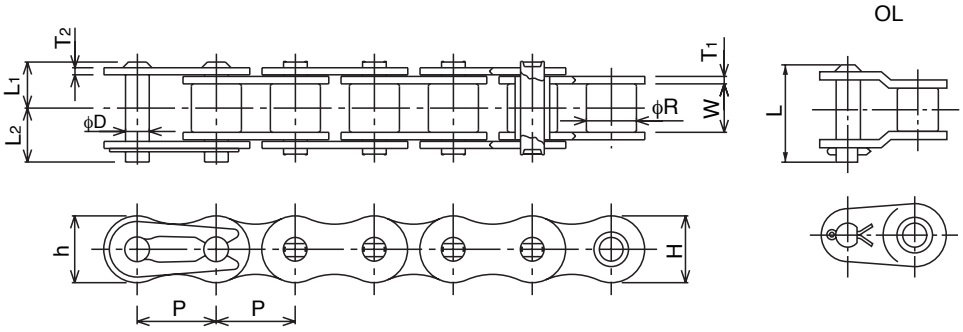
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Nominal Bearing Area (in^2)	Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Roller Link Thickness T_1	Pin Link Thickness T_2	Roller Link Height H	Pin Link Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L				
RF06BSS ■	0.375	0.250	0.225	0.039	0.039	0.323	0.323	0.129	0.551	0.250	0.301	0.5591	0.043	2,310	0.26	320
RS08BSS	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	0.724	0.331	0.394	0.7244	0.078	4,400	0.47	240
RS10BSS	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	0.819	0.376	0.443	0.8307	0.104	5,830	0.64	192
RS12BSS	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	0.957	0.441	0.516	0.976	0.138	7,480	0.84	160
RS16BSS	1.000	0.625	0.670	0.126	0.157	0.827	0.827	0.326	1.484	0.699	0.785	1.531	0.326	16,500	1.81	120

Note: ■ Flat shape link plate.

British Standard/DIN Roller Chain

Nickel Plated

■ British Standard/DIN Roller Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate				Pin					Nominal Bearing Area (in^2)	Average Tensile Strength (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Roller Link Thickness T_1	Pin Link Thickness T_2	Roller Link Height H	Pin Link Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L				
RF06BNP ■	0.375	0.250	0.225	0.039	0.039	0.323	0.323	0.129	0.551	0.250	0.301	0.5591	0.043	2,310	0.26	320
RS08BNP	0.500	0.335	0.305	0.063	0.063	0.465	0.409	0.175	0.724	0.331	0.394	0.7244	0.078	4,400	0.47	240
RS10BNP	0.625	0.400	0.380	0.059	0.059	0.579	0.539	0.200	0.819	0.376	0.443	0.8307	0.104	5,830	0.64	192
RS12BNP	0.750	0.475	0.460	0.071	0.071	0.634	0.634	0.225	0.957	0.441	0.516	0.976	0.138	7,480	0.84	160
RS16BNP	1.000	0.625	0.670	0.126	0.157	0.827	0.827	0.326	1.484	0.699	0.785	1.531	0.326	16,500	1.81	120
RS20BNP	1.250	0.750	0.770	0.134	0.173	1.024	1.024	0.401	1.693	0.783	0.909	1.8484	0.457	24,200	2.59	96
RS24BNP	1.500	1.000	1.000	0.220	0.236	1.315	1.228	0.576	2.303	1.049	1.254	2.4409	0.859	41,800	5.01	80
RS28BNP	1.750	1.100	1.220	0.248	0.295	1.433	1.433	0.626	2.752	1.278	1.474	2.9331	1.147	48,400	6.35	68
RS32BNP	2.000	1.150	1.220	0.248	0.276	1.661	1.638	0.701	2.748	1.264	1.484	2.8937	1.257	62,920	6.89	60
RS40BNP	2.500	1.550	1.500	0.315	0.335	2.083	2.047	0.901	3.319	1.545	1.774	3.498	1.978	88,000	10.99	48

Note: ■Flat shape link plate.

British Standard/DIN Chain Drive Selection

SELECTION PROCEDURE

1) The following factors must be considered when selecting roller chains for transmission needs.
   - The power to be transmitted.
   - The speed and the diameters of the driving shaft and the driven shaft.
   - The distance between the centers of the shafts.

2) Use Table I to obtain the "service factor". (The "Service Factor" table refers to the type of machine and source of power.)

3) Multiply the HP value by the service factor to obtain the design HP value.

4) Use Table III page A-67 to obtain the appropriate chain number and the number of teeth of the small sprocket by referring to the number of revolutions of the high speed shaft (the driving shaft when the speed is reduced; the driven shaft when the speed is increased) and the design HP value. For a smoother chain drive, a smaller pitch chain is suggested. If a single strand chain does not satisfy the transmission requirements, use a multi-strand chain. If the distance between the shafts and the diameter of the sprockets must be relatively small due to space considerations, a multiple strand roller chain with a smaller pitch may be used.

5) After determining the number of teeth for the small sprockets, confirm if the sprocket will meet the shaft diameter requirements.

6) The number of teeth for the large sprocket is determined by multiplying the number of teeth for the small sprocket by the speed ratio. While it is preferable that the number of teeth for the small sprocket be greater than 15, it is suggested that the number of teeth for the large sprocket not exceed 120. By reducing the number of teeth for the small sprocket the number of teeth for the large sprocket can also be reduced.

Number of Pitches of Chain

$$L=\frac{N_1+N_2}{2}+2C+\frac{\left(\frac{N_2-N_1}{6.28}\right)^2}{C}$$

Any fraction of L is counted as one pitch

Center Distance in Pitches

$$C=\frac{1}{8}\left\{2L-N_1-N_2+\sqrt{(2L-N_1-N_2)^2-\frac{8}{9.86}(N_2-N_1)^2}\right\}$$

L: Number of pitches of chain
N1: Number of teeth (small sprocket)
N2: Number of teeth (large sprocket)
C: Center distance in pitches

Chain Speed

$$S=\frac{P\cdot N\cdot n}{12}\ \text{(ft./min.)}$$

S: Chain speed (ft./min.)
P: Chain pitch (inch)
N: Number of teeth of sprocket
n: rpm of the sprocket

Chain Tension from HP

$$T=\frac{33{,}000\ X\ HP}{S}\ \text{(lbs.)}$$

T: Chain tension (lbs.)

Table II: Multiple Strand Factor

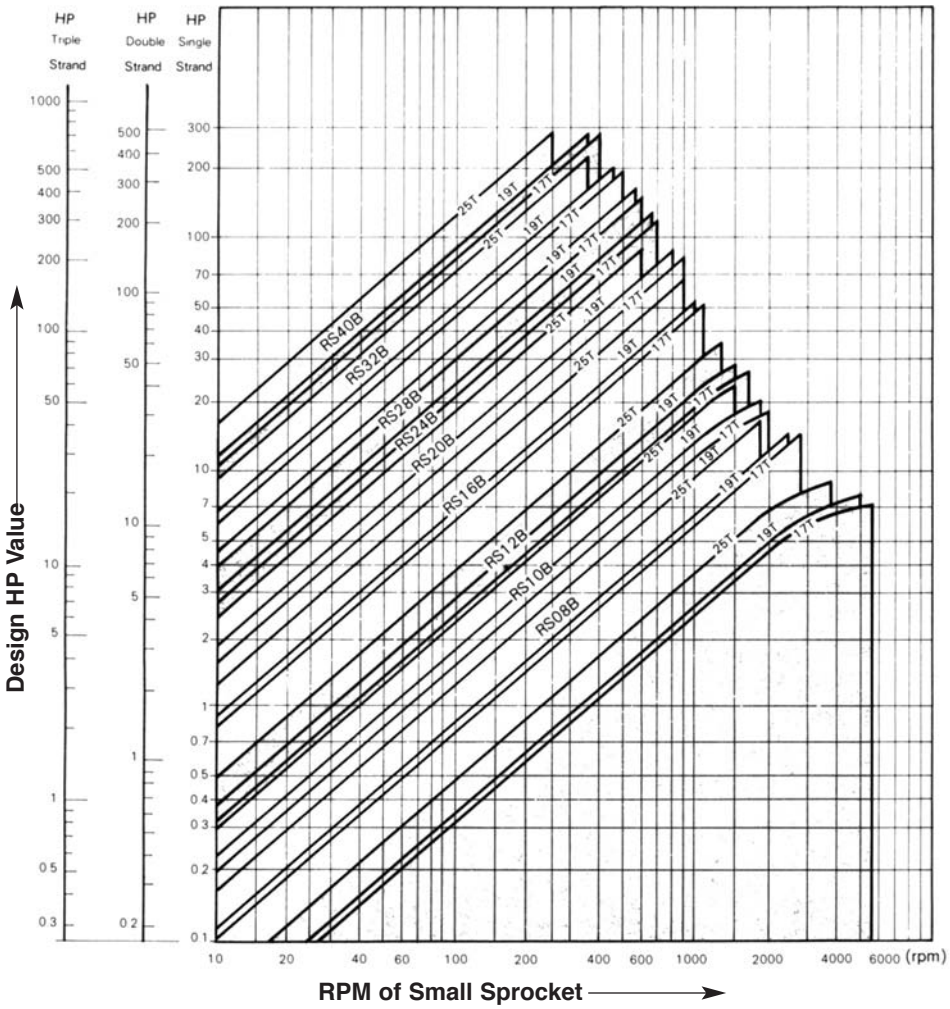
Number of Roller Chain Strand	Multiple-Strand Factor
Double Strand	1.7
Triple Strand	2.5

Table I: Service Factor

Type of Impact	Machines	Source of Power		
		Electric Motor or Turbine	Internal Combustion Engine	
			With hydraulic drive	Without hydraulic drive
Smooth	Belt conveyors with small load fluctuation, chain conveyors, centrifugal blowers, ordinary textile machines, ordinary machines with small load fluctuation.	1.0	1.0	1.2
Some impact	Centrifugal compressors, marine engines, conveyors with some load fluctuation, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general work machines, general paper mills.	1.3	1.2	1.4
Large impact	Presses, construction or mining machines, vibration machines, oil well rigs, rubber mixers, general machines with reverse or impact load.	1.5	1.4	1.7

British Standard/DIN Chain Drive Selection

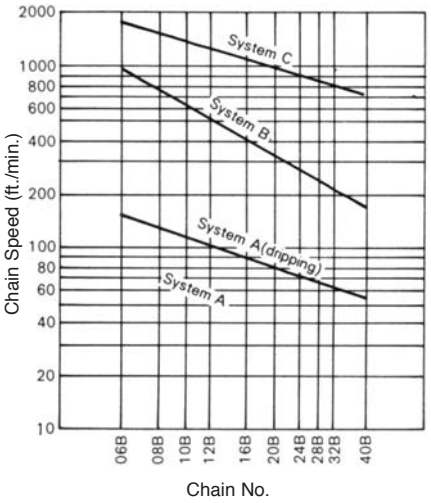
Table III: BS Roller Chain Selection Table



The selection table is based on the following conditions:

1) The chains are operated under ordinary conditions. The ambient temperature range is between 15°F and 140°F. They are not to be used in an atmosphere where abrasive dust or corrosive gas is present or when the humidity is exceptionally high.
2) The two transmission shafts are in a horizontal position and the chains are properly installed.
3) The suggested lubrication system shown on Table IV is used.
4) The load does not change significantly during transmission.
   The "Service Factors" given in Table I are used when the chains are used under various operating conditions. The load conditions will affect the life of the chain. The increase in the horsepower rating of multiple-strand roller chains cannot be calculated simply by multiplying the horse-power rating of one strand by the total number of strands, since the load on each strand is not exactly the same. In order to estimate the service life of a multiple-strand chain, the "Multiple-Strand Factor" given in Table II must be used.

Table IV: Chain Speed and Lubrication System



Example

Data:
1. Type of application: Centrifugal Blowers
2. Source of power: Electric Motor
3. HP to be transmitted: 40 hp
4. Driving shaft: 600 rpm
5. Driven shaft: 200 rpm
6. Center distance: 19 inches
7. Space limit: Max. 24 inches

Step 1 Use Table I and determine the service factor.
Service factor (SF) : 1.0

Step 2 Obtain design HP
Design HP= HP to be transmitted X SF
= 40 hp X 1.0
= 40 hp

Step 3 Obtain the chain size and the number of teeth of the small sprocket from the selection table for 40 hp and 600 rpm.

According to the selection table, the selected chains and sprockets rpm are:
(a) RS12B-3 chain and 25 tooth sprocket
(b) RS16B-2 chain and 17 tooth sprocket
(c) RS16B-1 chain and 25 tooth sprocket

* For (a), the necessary number of teeth for both small and large sprockets is 25 teeth and 75 teeth respectively, since the speed ratio is 1/3 (200/600 rpm). But the outside diameter of both sprockets 6.3 inches for 25 teeth and 18.3 inches for 75 teeth exceeds the limitation (6.3 inches + 18.3 inches>24 inches). Therefore, these sprockets cannot be installed.

* For (b) the necessary number of teeth for both the small and large sprocket is 17 (outside dia: 5.9 inches) and 51 (outside dia: 16.8 inches). It satisfies the space limitation (5.9 inches + 16.8 inches<24 inches). A combination of RS16B-2, and 17 teeth and 51 teeth must be used to fulfill all the necessary requirements.

* For (c), the necessary number of teeth for both small and large sprockets is 25 teeth (outside dia. 8.4 inches) and 75 teeth (outside dia. 24.4 inches) respectively. It exceeds the space limitation again (8.4 inches + 24.4 inches>24 inches).

Step 4 Use Table IV and determine the lubrication method.

$$\text{Chain speed (S)} = \frac{P \cdot N \cdot n}{12}$$

$$= \frac{1 \times 600 \times 17}{12} = 850 \text{ ft./min.}$$

System B is suggested.

Step 5 Obtain the number of pitches of chain (L).

$$= \frac{N_1 + N_2}{2} + 2C + \frac{\left(\frac{N_2 - N_1}{6.28}\right)^2}{C}$$

$$= \frac{51 + 17}{2} + 2 \times \frac{19}{1} + \frac{\left(\frac{51 - 17}{6.28}\right)^2}{\frac{19}{1}}$$

$$= 73.35 \longrightarrow 74 \text{ links}$$

An Introduction to Tsubaki Anti-Corrosive Roller Chains

NP Nickel Plated Roller Chain

NP is an RS Roller chain that has been plated with nickel. NP Chain has an attractive appearance and light corrosion resistance that makes it suitable for outdoor conditions where it is exposed to water. The maximum allowable load of nickel plated chain is 15% less than the equivalent RS roller chain.

Nickel plated roller chain should not be used where the chain comes into direct contact with food products. Nor should it be used where the nickel plated coating flakes may mix with and or contaminate food products. In non-food applications, a cover should be used where the coating flakes or wear dust may pose a problem.

Nickel plated roller chain has magnetic properties.

Working temperature range: +14˚F ~ +140˚F.

Ultra WP Roller Chain

Ultra WP is an RS Roller Chain that has undergone a special surface treatment (clips are type 301 stainless steel). This chain is more corrosion-resistant in wet environments than NP chain, and is suitable for use in environments exposed to salt-water. The horsepower ratings are the same as RS Roller chain. Ultra WP roller chain has magnetic properties.

Working temperature range: -22˚F ~ +302˚F

Neptune Roller Chain

Neptune is RS Roller Chain that has been both zinc galvanized and specially treated on the surface with a coating that together provide a double plated effect. (The surface treatment is applied to each individual part of the chain before it is assembled). This highly durable chain has superior corrosion resistance to salt-water and all types of weather. Tensile strength and maximum allowable load are identical to carbon steel RS Roller Chain.

Neptune roller chain should not be used where the chain comes into direct contact with food products. In non-food applications, a cover should be used where the coating flakes or where dust may pose a problem.

Working temperature range: +14˚F ~ +140˚F.

SS Stainless Steel Roller Chain

Stainless Roller Chain is composed of type 304 stainless steel (clips are type 301). This chain is more corrosion resistant than RS Roller Chain, NP Roller Chain and Ultra WP Roller Chain. It can be used in special environments such as corrosive conditions underwater and in acids/alkalis. It is non-magnetic, though it may have some magnetic properties at low operating temperatures.

Working temperature range: -4˚F ~ +752˚F.

LS Stainless Steel Roller Chain

LS chain is a roller chain in which an engineered plastic sleeve has been inserted between the (type 304 stainless steel) pin and bushing to make the chain self-lubricating. It is ideal when lubrication is difficult or impossible or in operations that require frequent wash downs. Corrosion resistance is almost identical to that of stainless steel roller chain.

Wear life comparison: LS vs. Stainless Steel – 4 times longer (with type 304 stainless steel rollers)

Note that type 304 stainless steel is generally considered non-magnetic except at very low temperatures.

Working temperature range: -4˚F ~ +212˚F (type 304 stainless steel rollers)

NS Stainless Steel Roller Chain

This is a roller chain made from type 316 stainless steel (note that clips on the RS25NS size use type 301). The NS Stainless Steel Roller chain has the greatest corrosion resistant properties of all of Tsubaki's stainless steel roller chain products. It has the highest resistance to extreme temperatures and has very low magnetic permeability.

Working temperature range: -4˚F ~ +752˚F

An Introduction to Tsubaki Anti-Corrosive Roller Chains

AS Stainless Steel Roller Chain

This roller chain uses heat-treated hardened stainless steel (type 600) for the pins and rollers. The link plates and bushings are made from type 304 stainless steel (clips are type 301). AS series chains are an excellent choice for drives requiring both corrosion resistance and high load capacity. Maximum allowable load is 50% greater than “SS” series Stainless Steel Roller Chain. Note that type 600 stainless steel has magnetic properties.

Working temperature range: -4˚F ~ +752˚F

PC Poly Steel Chain

Poly-steel chain requires no lubrication, has greater wear resistance and is about 50% lighter than RS Roller Chain. This chain is suitable for maintenance free and sanitary environments. Poly-steel chain consists of an engineering plastic inner link and 304 type stainless steel pins and outer link plates. This chain can be used for both conveying and driving applications. It can accommodate standard attachments.

Working temperature range: -10˚F ~ +176˚F

For more details on poly steel chains - including diagrams and specifications - please refer to the separate Plastic Roller Chains section in this catalogue.

TI Titanium Roller Chain

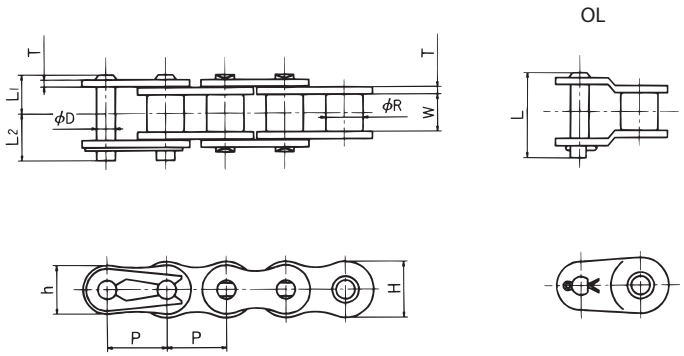
TI chains are extremely lightweight (50% of the weight of carbon steel) and are made completely of titanium, making it both non-magnetic and highly corrosion resistant.

Working temperature range: -4˚F ~ +752˚F

Anti-Corrosive Roller Chain

Nickel Plated

Anti-Corrosive Roller Chain



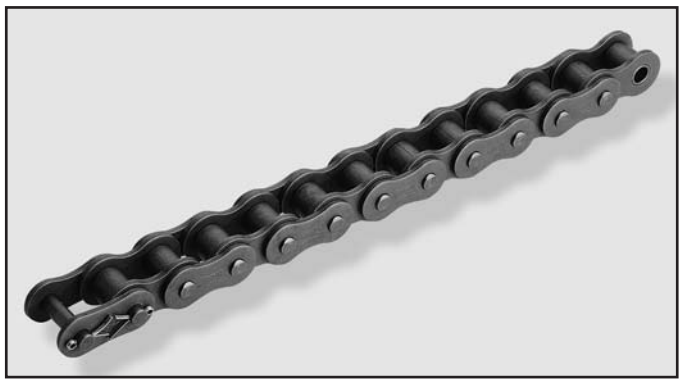
All dimensions in inches unless otherwise stated.

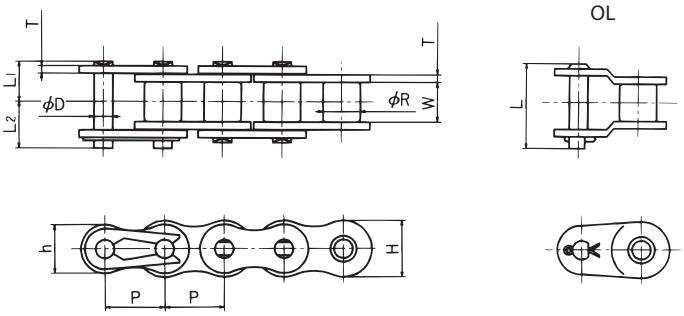
Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Minimum Tensile Strength (lbs.)	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L					
RS25NP	0.250	* 0.130	0.125	0.030	0.230	0.199	0.091	0.339	0.150	0.189	0.299	920	1,050	140	0.09	160
RS35NP	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.500	0.230	0.270	0.531	2,200	2,500	420	0.22	320
RS40NP	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.709	3,960	4,250	680	0.43	240
RS50NP	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.886	6,390	7,050	1,210	0.70	192
RS60NP	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.110	9,030	9,900	1,630	1.03	160
RS80NP	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.417	16,090	17,600	2,860	1.79	120
RS100NP	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	1.748	24,020	26,450	4,300	2.68	96
RS120NP	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	1.787	33,280	37,450	5,730	3.98	80

*Denotes that sizes RS25NP and RS35NP are rollerless. The figure shown is the bushing diameter.
Note: When one-pitch offset links are used, the maximum allowable load becomes 65% of the values shown above. Sizes 25 to 80 have riveted pin construction. Sizes 100 and 120 have cotted construction.

Ultra WP

Anti-Corrosive Roller Chain





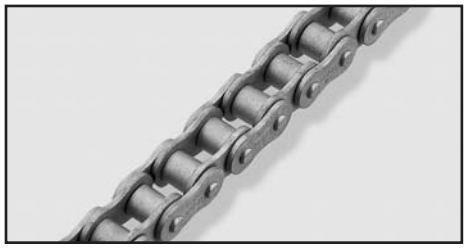
All dimensions in inches unless otherwise stated.

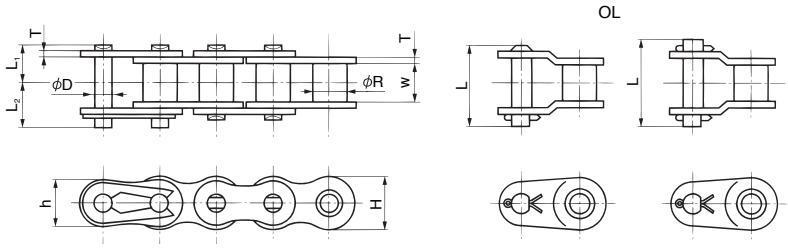
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin					Minimum Tensile Strength (lbs.)	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L					
RS40WP	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.730	0.325	0.392	0.709	3,960	4,290	810	0.43	240
RS50WP	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.911	0.406	0.472	0.886	6,390	7,050	1,430	0.70	192
RS60WP	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.146	0.506	0.581	1.110	9,030	9,920	1,980	1.03	160
RS80WP	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.417	0.640	0.758	1.417	16,090	17,630	3,300	1.78	120
RS100WP	1.250	0.750	0.750	0.157	1.185	1.024	0.376	0.778	0.778	0.900	1.748	24,020	26,450	5,070	2.67	96

Anti-Corrosive Roller Chain

Neptune

Anti-Corrosive Roller Chain





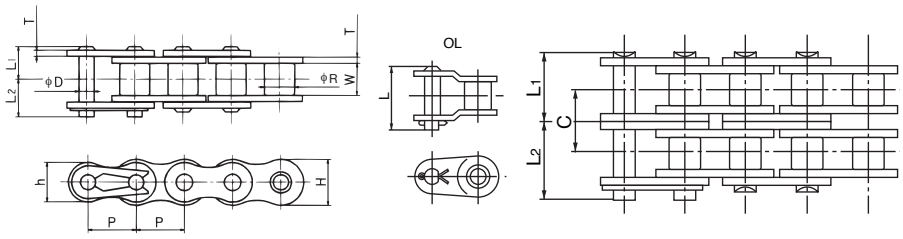
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin					Minimum Tensile Strength (lbs.)	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L					
RS35NT	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.500	0.230	0.270	0.531	2,200	2,530	480	0.22	320
RS40NT	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.709	3,960	4,290	810	0.43	240
RS50NT	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.886	6,380	7,040	1,430	0.70	192
RS60NT	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.110	9,020	9,900	1,980	1.03	160
RS80NT	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.524	16,060	17,600	3,300	1.78	120
RS100NT	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	1.803	23,980	26,400	5,060	2.67	96

Note: When 1-pitch offset links are used, the maximum allowable load becomes 60% of the values shown above.
* RS35NT is a bushed chain. There are no rollers. The value shown is the bushing diameter.

Stainless Steel "SS" Type 304

Anti-Corrosive Roller Chain



All dimensions in inches unless otherwise stated.

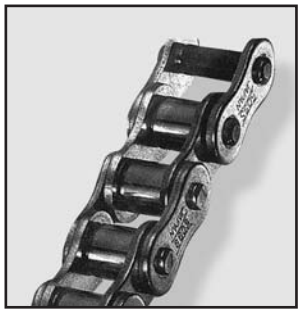
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin					Transverse Pitch C	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L				
RS11SS	0.148	* 0.090	0.072	0.015	0.138	0.138	0.062	0.214	0.090	0.125	-	-	11	0.03	134
RS25SS	0.250	* 0.130	0.125	0.030	0.230	0.199	0.091	0.339	0.150	0.189	-	-	26	0.09	160
RS35SS	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.500	0.230	0.270	0.579	-	59	0.22	320
RS40SS	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.732	-	99	0.43	240
RS40SS-2	0.500	0.312	0.313	0.059	0.472	0.409	0.156	1.283	0.608	0.675	1.319	0.567	198	0.85	240
RS50SS	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.941	-	154	0.70	192
RS50SS-2	0.625	0.400	0.375	0.079	0.591	0.512	0.200	1.594	0.762	0.833	1.646	0.713	308	1.39	192
RS60SS	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.157	-	231	1.03	160
RS60SS-2	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.988	0.955	1.033	2.071	0.898	462	2.04	160
RS80SS	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.535	-	396	1.78	120
RS80SS-2	1.000	0.625	0.625	0.126	0.949	0.819	0.313	2.551	1.217	1.335	2.679	1.154	792	3.55	120
RS100SS	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	1.831	-	572	2.69	96
RS100SS-2	1.250	0.750	0.750	0.157	1.185	1.024	0.376	3.091	1.484	1.606	3.213	1.409	1,144	5.35	96
RS120SS	1.500	0.875	1.000	0.197	1.425	1.228	0.437	2.187	1.014	1.173	2.350	-	858	4.11	80
RS120SS-2	1.500	0.875	1.000	0.197	1.425	1.228	0.437	3.961	1.904	2.057	4.130	1.787	1,716	8.19	80
RS140SS	1.750	1.000	1.000	0.236	1.661	1.433	0.500	2.406	1.108	1.297	2.606	-	1,034	5.30	68
RS140SS-2	1.750	1.000	1.000	0.236	1.661	1.433	0.500	4.331	2.075	2.256	4.512	1.925	2,068	10.57	68
RS160SS	2.000	1.125	1.250	0.276	1.898	1.638	0.563	2.839	1.321	1.518	3.043	-	1,430	7.28	60
RS160SS-2	2.000	1.125	1.250	0.276	1.898	1.638	0.563	4.965	2.470	2.494	5.303	2.303	2,860	14.51	60
RS180SS	2.250	1.406	1.406	0.281	2.059	1.709	0.687	3.091	1.419	1.671	3.343	-	1,918	9.01	54
RS200SS	2.500	1.562	1.500	0.315	2.374	2.047	0.781	3.339	1.555	1.783	3.575	-	2,420	11.08	48
RS240SS	3.000	1.875	1.875	0.374	2.850	2.457	0.937	4.142	1.870	2.272	4.433	-	3,520	16.42	40

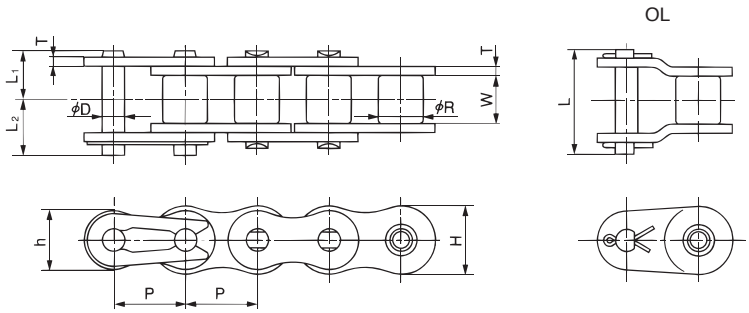
* Denotes that sizes RS11SS, RS25SS and RS35SS are rollerless. The values shown are for the bushing diameter. Notes: 1) The link plate thickness of large size chain greater than RS120SS differs to that of RS Roller Chain. 2) The rivet type for single-strand and multi-strand chain greater than RS80SS is quad rivet.

Anti-Corrosive Roller Chain

Stainless Steel ("LS" Type 304)

Anti-Corrosive Roller Chain



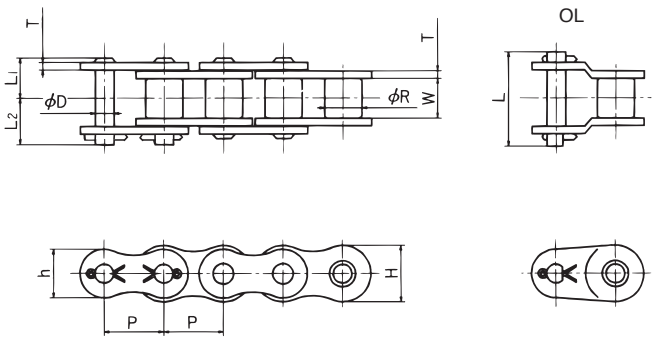


All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L			
RS40LS	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.732	100	0.43	240
RS50LS	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.941	150	0.70	192
RS60LS	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.157	230	1.03	160
RS80LS	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.535	400	1.78	120

Stainless Steel ("NS" Type 316)

Anti-Corrosive Roller Chain



All dimensions in inches unless otherwise stated.

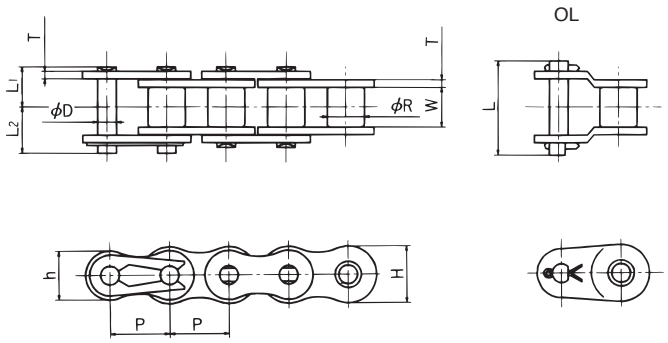
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin					Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L			
RS25NS	0.250	* 0.130	0.125	0.030	0.230	0.199	0.091	0.339	0.150	0.189	** 0.299	26	0.09	160
RS35NS	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.512	0.230	0.281	0.579	59	0.22	320
RS40NS	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.705	0.325	0.380	0.732	99	0.43	240
RS50NS	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.874	0.406	0.469	0.941	154	0.70	192
RS60NS	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.106	0.506	0.600	1.157	231	1.03	160
RS80NS	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.406	0.640	0.766	1.535	396	1.79	120

*Denotes that bushing diameter is shown in place of roller diameter.
**Denotes that offset links for RS25NS are two pitch offset links only. Offset links pins are riveted.

Anti-Corrosive Roller Chain

Stainless Steel ("AS" Type 600)

Anti-Corrosive Roller Chain

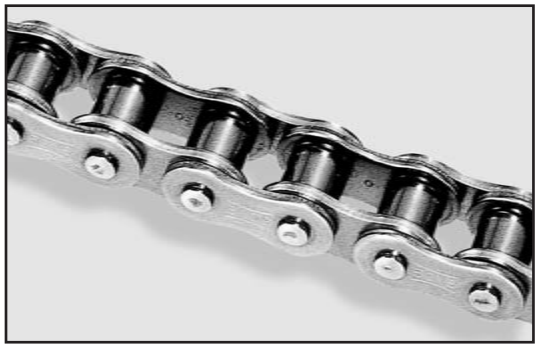


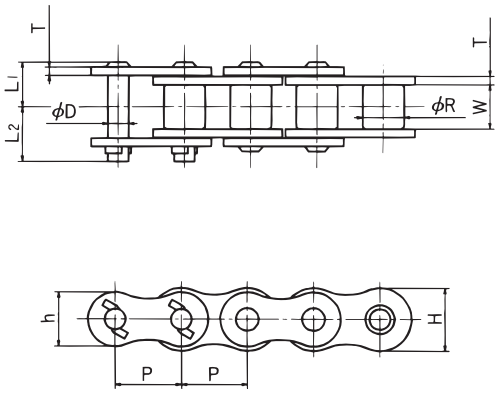
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin					Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L			
RS40AS	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.732	154	0.43	240
RS50AS	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.941	231	0.70	192
RS60AS	0.750	0.469	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.157	352	1.03	160
RS80AS	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.406	0.640	0.766	1.535	594	1.79	120

Titanium

Anti-Corrosive Roller Chain





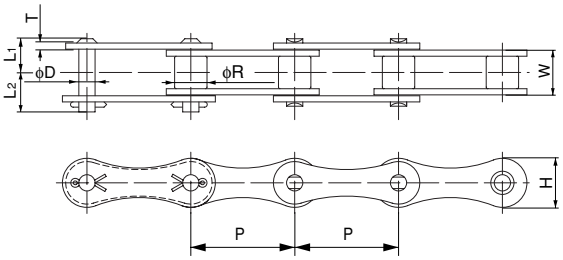
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
RS35TI	0.375	* 0.200	0.188	0.049	0.354	0.307	0.141	0.520	0.238	0.281	60	0.13	320
RS40TI	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.722	0.325	0.398	100	0.25	240

*Denotes that bushing diameter is shown in place of roller diameter.

Ultra WP (Double Pitch)

Anti-Corrosive Roller Chain



All dimensions in inches unless otherwise stated.

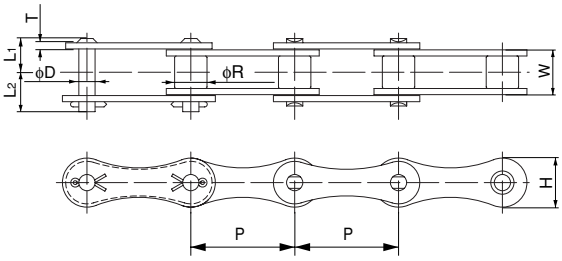
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
A2040WP	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	595	0.26
A2050WP	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.42
A2060WP	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	0.63
A2080WP	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.03

Note: These chains are offered on a made-to-order basis. Consult Tsubaki for more information.

Anti-Corrosive Roller Chain

Nickel Plated (Double Pitch)

Anti-Corrosive Roller Chain



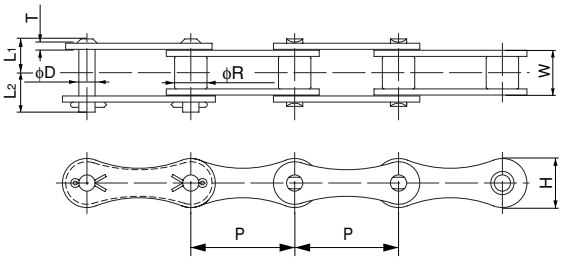
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
A2040NP	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	3,750	590	0.26
A2050NP	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	6,170	970	0.42
A2060NP	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	9,040	1,410	0.63
A2080NP	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	15,400	2,400	1.03

Note: These chains are offered on a made-to-order basis. Consult Tsubaki for more information.

Stainless Steel (Double Pitch) "SS" Type 304

Anti-Corrosive Roller Chain



All dimensions in inches unless otherwise stated.

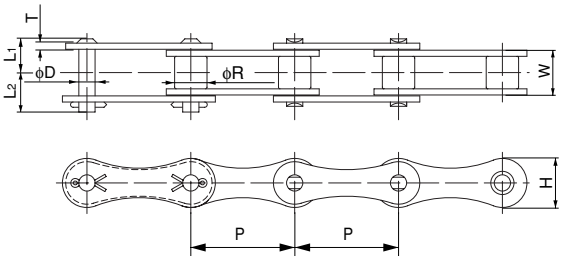
Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
A2040SS	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	100	0.26
A2050SS	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	154	0.42
A2060SS	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	231	0.63
A2080SS	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	397	1.03

Note: These chains are offered on a made-to-order basis. Consult Tsubaki for more information.

Anti-Corrosive Roller Chain

Stainless Steel (Double Pitch) "AS" Type 600

Anti-Corrosive Roller Chain



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate		Pin				Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
A2040AS	1.000	0.312	0.313	0.060	0.472	0.156	0.717	0.325	0.392	150	0.26
A2050AS	1.250	0.400	0.375	0.080	0.591	0.200	0.878	0.406	0.472	231	0.42
A2060AS	1.500	0.469	0.500	0.125	0.677	0.235	1.224	0.573	0.652	346	0.63
A2080AS	2.000	0.625	0.625	0.156	0.906	0.313	1.543	0.720	0.823	596	1.03

Note: Material used on oversized roller is Type 304 stainless steel.
These chains are offered on a made-to-order basis. Consult Tsubaki for more information.

An Introduction to Tsubaki Leaf Chain

Leaf Chain is the most simple of steel chains, consisting only of link plates and pins. This chain generally has greater tensile strength than roller chains and runs over sheaves rather than sprockets. They are suitable for hanging, balancing or motion transmitting applications. Leaf chains are often used as counterweight chains for machine tools, elevator and oven doors, fork lift truck masts, spinning frames and similar lifting or balancing applications. Plates are connected by pins and hold the tension loaded onto the chain. The pins are designed to resist the shear force from tension loading applied by the link plates. The pins are also designed to withstand abrasion from the middle plate holes when the chain articulates.

AL type: Plate configuration and thickness are the same as ANSI Standard RS Roller Chain. Pin diameter is almost the same as ANSI Standard RS Roller Chain.

BL type: The outside dimensions of the plates are the same as ANSI Standard RS Roller Chain inner plates of the same pitch. The plate thickness is the same as one size up Tsubaki RS Roller Chain. BL series can in most instances replace the older AL series leaf chains – consult Tsubaki Technical Support for interchange information.

LEAF CHAIN SELECTION GUIDELINES

1. Obtain the following factors that are specific to your application:
   - Chain Speed (Operation Speed)
   - Number of operations (reciprocations) per day
   - Working load (Including: attachment weight, inertia force and impact force)

When the chain speed exceeds 100 ft./min, and/or, the number of operations (reciprocations) exceeds 1,000 times/day, wear problems may happen. In these cases, Tsubaki RS Roller Chain is recommended - not leaf chain.

2. Determine leaf chain type.
   - BL type is generally recommended.
   - AL type can be used when the application has no impact load and wear problem.

(Number of strokes does not exceed 100 times/day)

3. Determine Chain Size:

Working load X Service Factor (Table 1) X Safety Factor (Table 2) $\leq$ Minimum Tensile Strength

4. If the chain is operated with a lesser safety factor than the one shown in Table 2, the pin may rotate and lead to chain breakage. Even if the chain is operated with the proper safety factor, the lack of lubricant may cause pin rotation, so the chain must be periodically lubricated.

5. In case the safety factor and/or chain selection are subject to some official law and/or regulation, compare the outcomes of both the specified selection and this selection, and select the safer of the two.

Table 1 Service factor

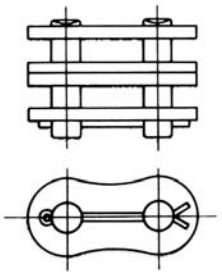
Impact	Applications	Service Factor
Smooth Transition	Start and stop are smooth. Load fluctuation is low (eg. suspension of counterweights).	1.0
Small Impact	Frequent start, stop, load fluctuation and reversing (eg. fork lift).	1.3
Heavy Impact	Heavy and rapid start, stop and load fluctuations are required. (eg. Mining machinery and construction machines).	1.5

Table 2 Safety factor

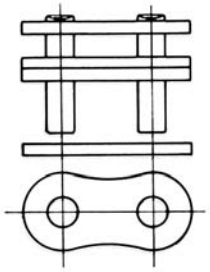
Type of Leaf Chain	Maximum Number of Reciprocations/Strokes	Safety Factor	
		Plate Lacing 2x2, 2x3, 3x4, 4x4	Plate Lacing 4x6, 6x6
AL Type	less than 10 times per day	8	9
	less than 100 times per day	11	12
BL Type	less than 1,000 times per day	8	9

How to Order Tsubaki Leaf Chain

- For odd numbers of pitches, inner links at both ends will be provided as standard.
- For even numbers of pitches, a clevis connector or press fit/rivet outer link can be supplied. The clevis connector or press fit/rivet outer link are both available from stock in popular sizes.
- Also available in Ultra Wp and Neptune anti-corrosive coating. Please consult Tsubaki technical support for more details.



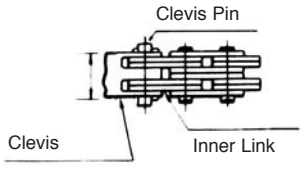
Clevis connector link

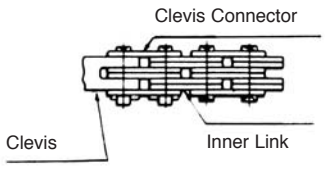


Press fit and rivet outer link

How to Connect with a Clevis

1. When an inner link is used for the end, a clevis pin is normally supplied by the clevis manufacturer.
2. When an outer link is used for the end, the press fit outer link provides the most integrity.



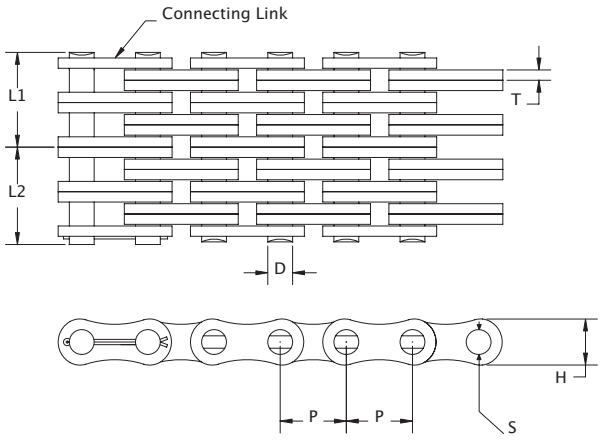


Note: Tsubaki does not supply clevises. Consult original equipment manufacturer for more details on clevises.

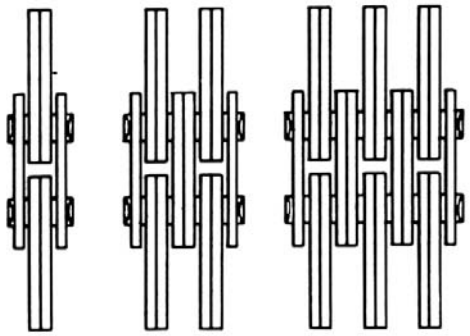
AL Type

Leaf Chain

Chain Diagram:



Lacing Combinations Available:



All dimensions in inches unless otherwise stated.

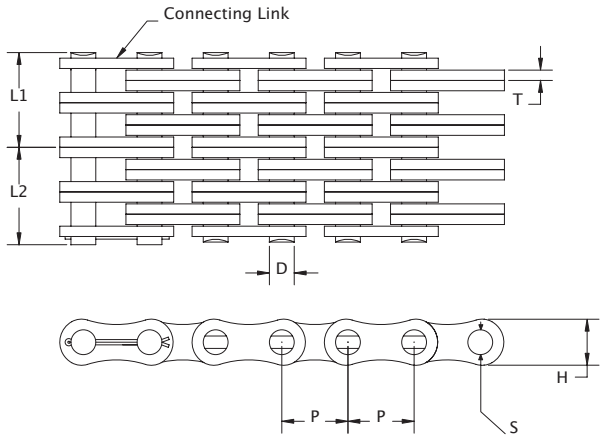
Chain Number	Pitch P	Lacing	Link Plate		Pin				Hole Diameter S	Mnimum Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
			Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
AL422	0.500	2x2	0.060	0.409	0.156	0.374	0.165	0.209	0.158	3,700	0.25
AL444	0.500	4x4	0.060	0.409	0.156	0.628	0.293	0.335	0.158	7,500	0.50
AL466	0.500	6x6	0.060	0.409	0.156	0.882	0.419	0.463	0.158	11,200	0.74
AL522	0.625	2x2	0.080	0.512	0.200	0.488	0.214	0.274	0.202	6,200	0.42
AL544	0.625	4x4	0.080	0.512	0.200	0.823	0.381	0.442	0.202	12,300	0.82
AL566	0.625	6x6	0.080	0.512	0.200	1.156	0.547	0.608	0.202	18,500	1.21
AL622	0.750	2x2	0.094	0.614	0.234	0.573	0.249	0.324	0.236	8,600	0.58
AL644	0.750	4x4	0.094	0.614	0.234	0.963	0.444	0.519	0.236	17,200	1.15
AL666	0.750	6x6	0.094	0.614	0.234	1.352	0.639	0.713	0.236	25,800	1.70
AL822	1.000	2x2	0.125	0.819	0.311	0.754	0.322	0.432	0.314	14,600	1.01
AL844	1.000	4x4	0.125	0.819	0.311	1.283	0.587	0.697	0.314	29,100	2.00
AL866	1.000	6x6	0.125	0.819	0.311	1.811	0.850	0.961	0.314	43,600	2.97
AL1022	1.250	2x2	0.156	1.024	0.373	0.915	0.395	0.520	0.377	22,000	1.80
AL1044	1.250	4x4	0.156	1.024	0.373	1.571	0.722	0.848	0.377	44,000	3.56
AL1066	1.250	6x6	0.156	1.024	0.373	2.224	1.049	1.175	0.377	66,000	5.31
AL1222	1.500	2x2	0.187	1.228	0.437	1.098	0.476	0.622	0.439	31,700	2.39
AL1244	1.500	4x4	0.187	1.228	0.437	1.878	0.866	1.012	0.439	63,400	4.75
AL1266	1.500	6x6	0.187	1.228	0.437	2.659	1.257	1.402	0.439	95,000	7.07
AL1444	1.750	4x4	0.219	1.433	0.500	2.197	1.010	1.187	0.502	83,600	6.95
AL1466	1.750	6x6	0.219	1.433	0.500	3.112	1.468	1.644	0.502	125,400	10.18
AL1644	2.000	4x4	0.250	1.638	0.562	2.482	1.143	1.339	0.564	105,800	8.70
AL1666	2.000	6x6	0.250	1.638	0.562	3.522	1.663	1.859	0.564	158,000	13.00

Also available in Ultra Wp and Neptune anti-corrosive coatings. Please ask for details.

BL Type

Leaf Chain

Chain Diagram:



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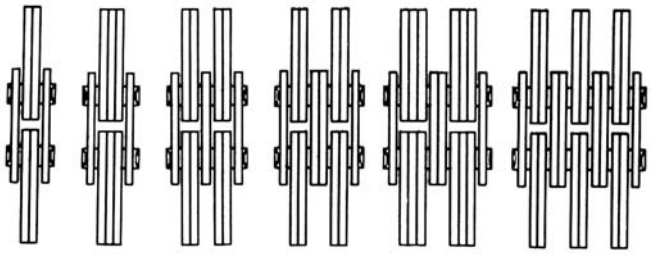


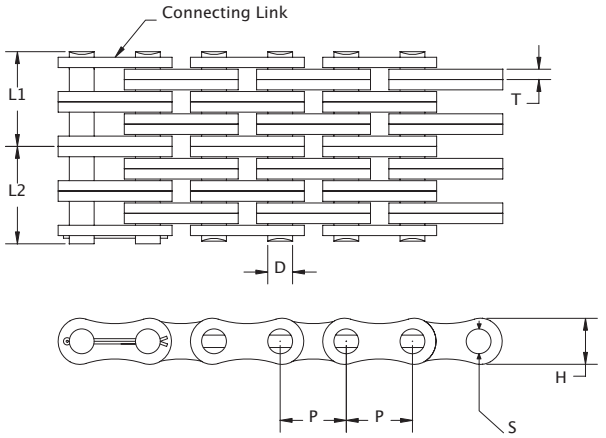
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Lacing	Link Plate		Pin				Hole Diameter S	Minimum Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
			Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
BL422	0.500	2x2	0.079	0.472	0.200	0.488	0.214	0.275	0.202	5,300	0.46
BL423	0.500	2x3	0.079	0.472	0.200	0.571	0.255	0.316	0.202	5,300	0.56
BL434	0.500	3x4	0.079	0.472	0.200	0.738	0.339	0.400	0.202	7,900	0.76
BL444	0.500	4x4	0.079	0.472	0.200	0.825	0.382	0.443	0.202	10,600	0.86
BL446	0.500	4x6	0.079	0.472	0.200	0.990	0.465	0.526	0.202	10,600	1.11
BL466	0.500	6x6	0.079	0.472	0.200	1.155	0.547	0.608	0.202	15,900	1.32
BL522	0.625	2x2	0.094	0.591	0.234	0.573	0.249	0.324	0.236	8,800	0.72
BL523	0.625	2x3	0.094	0.591	0.234	0.669	0.297	0.372	0.236	8,800	0.85
BL534	0.625	3x4	0.094	0.591	0.234	0.866	0.396	0.470	0.236	13,200	1.14
BL544	0.625	4x4	0.094	0.591	0.234	0.963	0.444	0.519	0.236	17,600	1.27
BL546	0.625	4x6	0.094	0.591	0.234	1.158	0.541	0.616	0.236	17,600	1.61
BL566	0.625	6x6	0.094	0.591	0.234	1.353	0.639	0.714	0.236	26,400	1.88
BL622	0.750	2x2	0.126	0.713	0.312	0.756	0.323	0.434	0.314	14,300	1.13
BL623	0.750	2x3	0.126	0.713	0.312	0.892	0.393	0.697	0.314	14,300	1.37
BL634	0.750	3x4	0.126	0.713	0.312	1.152	0.521	0.631	0.314	21,500	1.90
BL644	0.750	4x4	0.126	0.713	0.312	1.284	0.587	0.697	0.314	28,700	2.14
BL646	0.750	4x6	0.126	0.713	0.312	1.547	0.719	0.829	0.314	28,600	2.69
BL666	0.750	6x6	0.126	0.713	0.312	1.812	0.851	0.961	0.314	42,900	3.18
BL822	1.000	2x2	0.157	0.949	0.375	0.920	0.397	0.523	0.377	23,100	1.74
BL823	1.000	2x3	0.157	0.949	0.375	1.079	0.476	0.602	0.377	23,100	2.15
BL834	1.000	3x4	0.157	0.949	0.375	1.407	0.641	0.767	0.377	34,800	2.98
BL844	1.000	4x4	0.157	0.949	0.375	1.579	0.727	0.853	0.377	46,200	3.39
BL846	1.000	4x6	0.157	0.949	0.375	1.898	0.886	1.012	0.377	46,200	4.25
BL866	1.000	6x6	0.157	0.949	0.375	2.224	1.049	1.175	0.377	69,400	5.07

Also available in Ultra Wp and Neptune anti-corrosive coatings. Please ask for details.

BL Type

Leaf Chain



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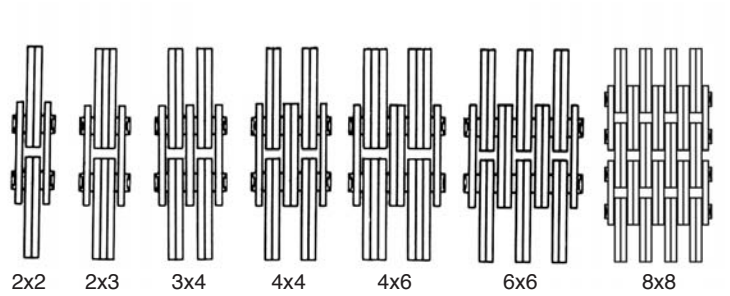


All dimensions in inches unless otherwise stated.

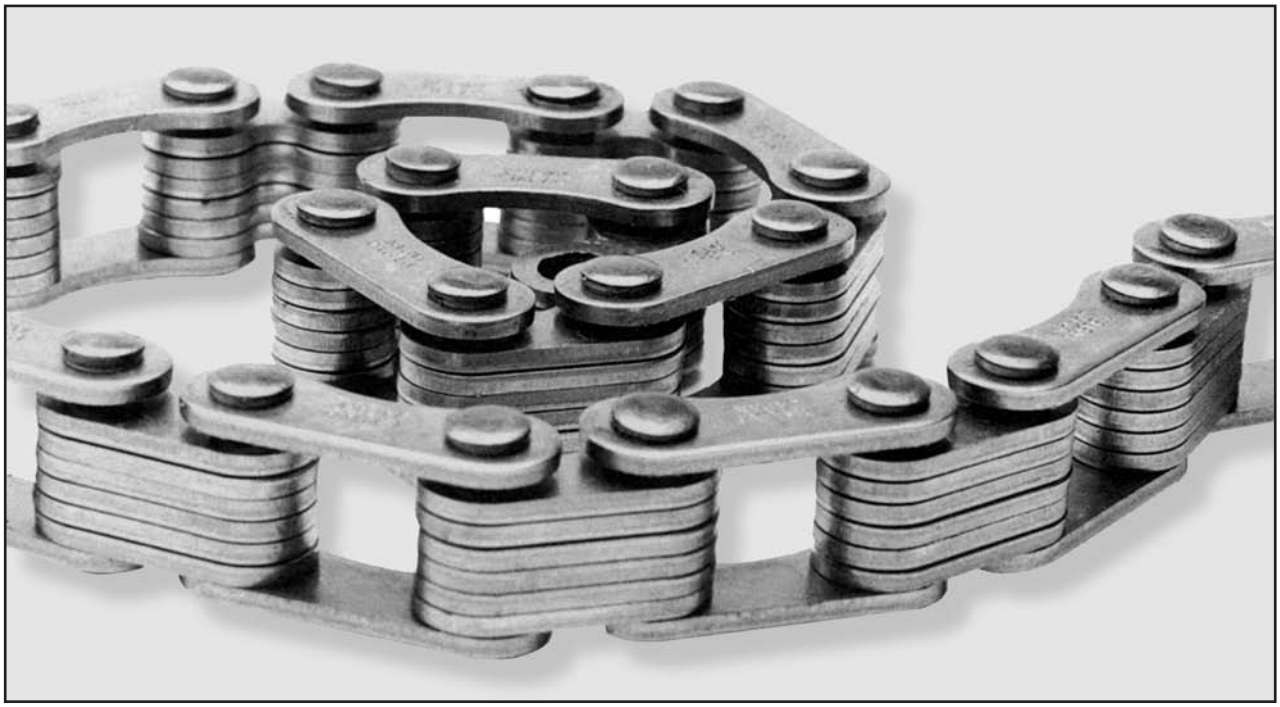
Chain Number	Pitch P	Lacing	Link Plate		Pin				Hole Diameter S	Minimum Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
			Thickness T	Height H	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
BL1022	1.250	2x2	0.189	1.185	0.437	1.089	0.472	0.617	0.439	31,700	2.53
BL1023	1.250	2x3	0.189	1.185	0.437	1.283	0.569	0.715	0.439	31,700	3.15
BL1034	1.250	3x4	0.189	1.185	0.437	1.675	0.765	0.910	0.439	48,500	4.40
BL1044	1.250	4x4	0.189	1.185	0.437	1.853	0.854	0.999	0.439	63,400	5.03
BL1046	1.250	4x6	0.189	1.185	0.437	2.260	1.057	1.203	0.439	63,400	6.24
BL1066	1.250	6x6	0.189	1.185	0.437	2.659	1.257	1.402	0.439	95,200	7.50
BL1222	1.500	2x2	0.220	1.425	0.500	1.282	0.552	0.730	0.502	41,800	3.25
BL1223	1.500	2x3	0.220	1.425	0.500	1.512	0.667	0.844	0.502	41,800	4.39
BL1234	1.500	3x4	0.220	1.425	0.500	1.969	0.896	1.073	0.502	67,200	6.11
BL1244	1.500	4x4	0.220	1.425	0.500	2.198	1.010	1.188	0.502	83,600	6.98
BL1246	1.500	4x6	0.220	1.425	0.500	2.656	1.239	1.416	0.502	83,600	8.07
BL1266	1.500	6x6	0.220	1.425	0.500	3.114	1.468	1.646	0.502	125,600	9.80
BL1422	1.750	2x2	0.252	1.661	0.562	1.442	0.623	0.820	0.564	52,900	4.91
BL1423	1.750	2x3	0.252	1.661	0.562	1.701	0.752	0.949	0.564	52,900	6.09
BL1434	1.750	3x4	0.252	1.661	0.562	2.220	1.012	1.209	0.564	87,000	7.61
BL1444	1.750	4x4	0.252	1.661	0.562	2.482	1.143	1.340	0.564	105,800	8.71
BL1446	1.750	4x6	0.252	1.661	0.562	3.002	1.403	1.599	0.564	105,800	12.10
BL1466	1.750	6x6	0.252	1.661	0.562	3.522	1.663	1.860	0.564	158,700	15.13
BL1622	2.000	2x2	0.283	1.898	0.687	1.661	0.701	0.961	0.689	79,300	6.61
BL1623	2.000	2x3	0.283	1.898	0.687	1.963	0.852	1.111	0.689	79,300	8.17
BL1634	2.000	3x4	0.283	1.898	0.687	2.559	1.150	1.409	0.689	124,500	11.39
BL1644	2.000	4x4	0.283	1.898	0.687	2.853	1.297	1.557	0.689	158,600	12.75
BL1646	2.000	4x6	0.283	1.898	0.687	3.451	1.596	1.855	0.689	158,600	16.19
BL1666	2.000	6x6	0.283	1.898	0.687	4.045	1.893	2.153	0.689	238,300	19.31
BL1688	2.000	8x8	0.283	1.898	0.687	5.095	2.418	2.678	0.689	303,500	25.75

Also available in Ultra Wp and Neptune anti-corrosive coatings. Please ask for details.

An Introduction to Tsubaki Specialty Chain

Tsubaki is the world's leader in providing specialty chains for the most demanding applications. In addition to industry leading Made-to-Order capabilities, Tsubaki offers a number of "standard" specialty chains.

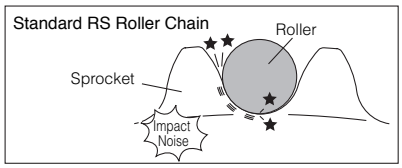
- **Low Noise (SN) Chain** — Uses uniquely structured spring rollers which absorbs the force of impact between chain and sprocket. The result is lower noise levels.
- **FX Chain** — Increased clearance between pins and bushings allows for added chain flexibility with excellent durability.
- **Rollerless Chain** — Designed and manufactured to withstand continued wearing.
- **Wrench Chain** — Extra long pins serve as tension linkages to provide a secure hold for pipe wrenches.
- **Laminated Block Chain** — Manufactured with 304 stainless steel, it directly replaces solid block chain in light load, low speed applications.
- **KT Cold Resistant Chain** — This chain can be used in colder temperatures than RS Roller Chain while offering identical horsepower ratings.

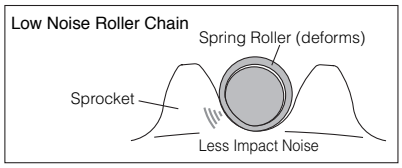


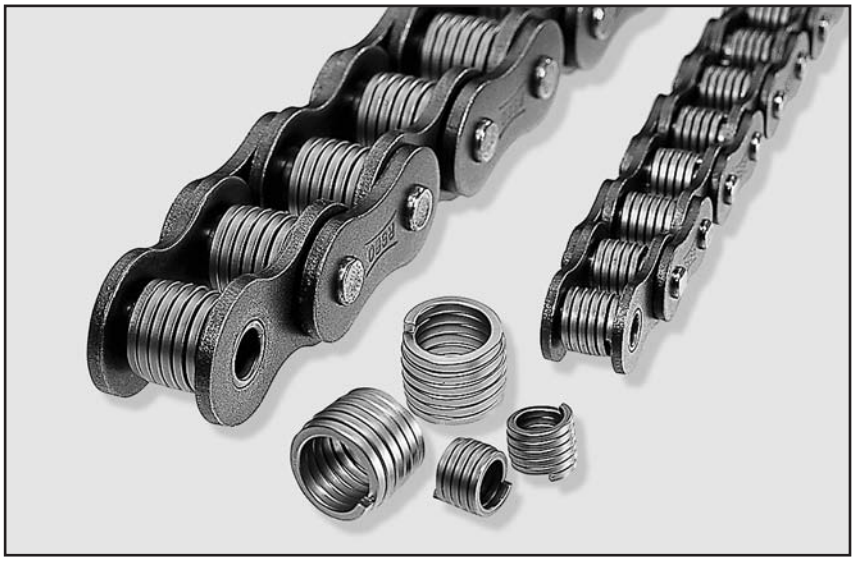
Low Noise (SN)

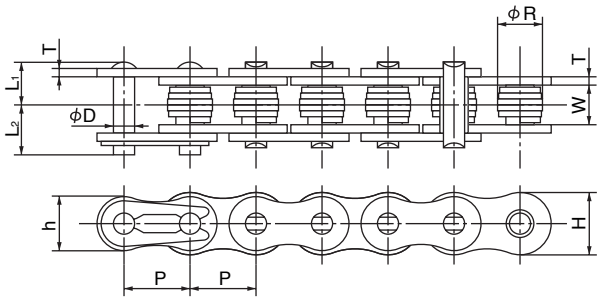
Specialty Chain

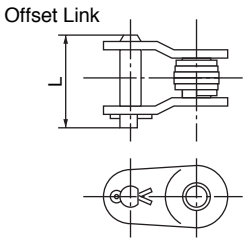
Tsubaki's uniquely structured spring rollers are used for the chain rollers. When Tsubaki's SN Roller Chain engages with the sprocket, the spring roller deforms and absorbs the force of the impact. The lower impact force reduces impact noise between chain and sprocket resulting in lower noise levels. Compared with Tsubaki's standard RS Roller Chain (pre-lubricated), noise levels of SN Roller Chain are 6 - 8 dB lower. (In-house comparison testing). Dimensionally interchangeable with standard RS Roller Chain.











Connecting links for RS80SN are cotter pin-type.

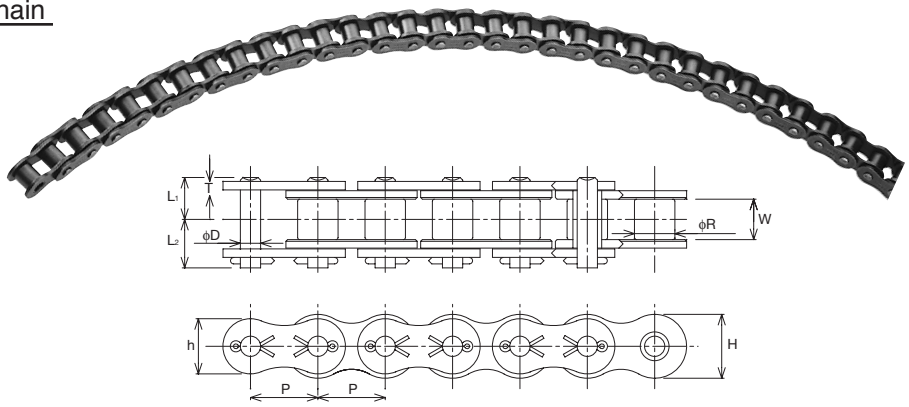
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L				
RS40SN	0.500	0.335	0.313	0.059	0.472	0.409	0.156	0.717	0.325	0.392	0.709	4,295	815	0.43	240
RS50SN	0.625	0.425	0.375	0.079	0.591	0.512	0.200	0.878	0.406	0.472	0.886	7,060	1,430	0.70	192
RS60SN	0.750	0.496	0.500	0.094	0.713	0.614	0.235	1.087	0.506	0.581	1.110	9,915	1,985	1.03	160
RS80SN	1.000	0.661	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.417	17,650	3,305	1.79	120

Note: When one-pitch offset links (OL) are used, the Max. Allowable Load becomes 65% of the values shown above.

FX Chain

Specialty Chain



Tsubaki FX chains feature excellent durability and flexibility for tough applications such as concrete mixers, earth moving equipment, and mining machines.

1. FX chains are interchangeable with ANSI standard chains and can operate on the same ANSI standard sprocket.
2. Increased clearance between pins and bushings allows the chains to accommodate a 4 inch lateral side bow and an 8 degree twist per 4 feet of chain.

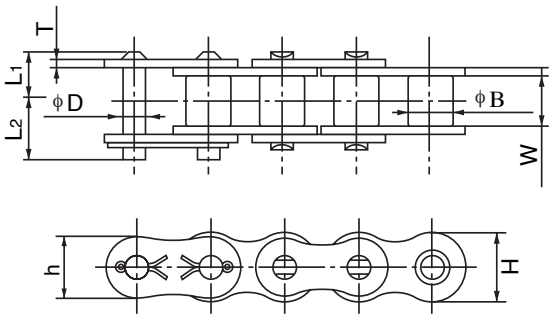
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Diameter R	Width Between Inner Link Plates W	Link Plate			Pin				Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2			
RS100FX	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.678	0.778	0.900	24,000	5,060	2.51
RS120FX	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	34,000	6,820	3.69
RS140FX	1.750	1.000	1.000	0.220	1.661	1.433	0.500	2.307	1.059	1.248	46,000	9,020	5.00
RS160FX	2.000	1.125	1.250	0.252	1.898	1.638	0.563	2.705	1.254	1.451	58,000	11,880	6.53
RS180FX	2.250	1.406	1.406	0.281	2.134	1.843	0.687	3.075	1.404	1.671	72,000	13,640	8.69

Rollerless

Specialty Chain

Rollerless chains are often used in applications where the rollers would get stuck/don't roll. These applications include environments with abrasive materials such as metal filings and asphalt.



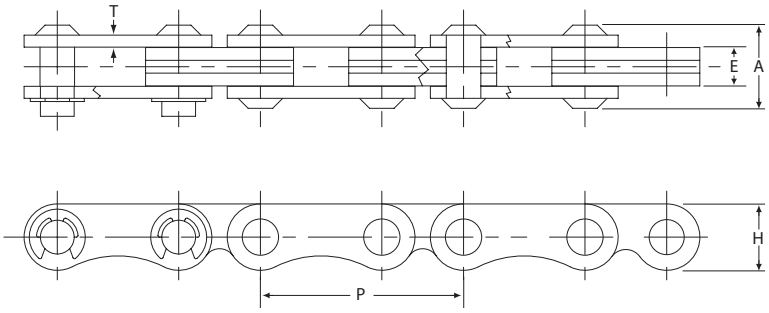
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Bushing Diameter B	Width Between Inner Link Plates W	Link Plate			Pin				Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
				Thickness T	Height H	Height h	Diameter D	Length $L_1 + L_2$	Length L_1	Length L_2		
RS65	0.750	0.330	0.500	0.094	0.713	0.614	0.234	1.087	0.506	0.581	9,800	0.81
RS85	1.000	0.448	0.625	0.125	0.949	0.819	0.312	1.398	0.640	0.758	17,200	1.41
RS105	1.250	0.533	0.750	0.156	1.185	1.024	0.375	1.678	0.778	0.900	25,500	2.08
RS125	1.500	0.627	1.000	0.187	1.425	1.228	0.437	2.118	0.980	1.138	36,300	3.04

Laminated Block Chain

Specialty Chain

Laminated Block chain is used in light load, low speed applications. The chain is made entirely of 304 type stainless steel. It is available in a variety of sizes, and it directly replaces Solid Block chain.



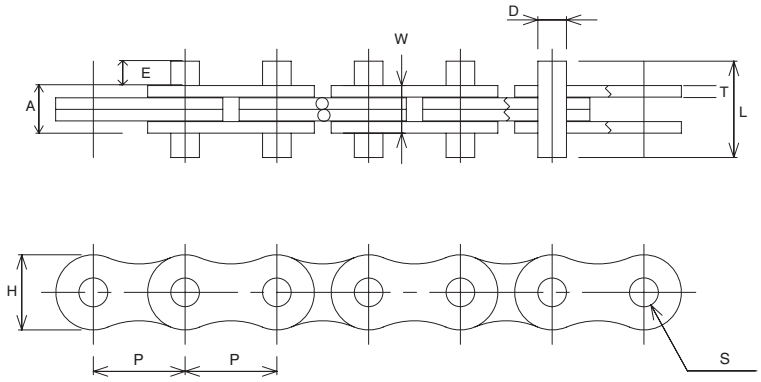
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Link Plate Thickness T	Link Plate Height H	Total Width A	Block Width E	Approximate Weight (lbs./ft.)
T502LSS	1.000	0.060	0.325	0.375	0.188	0.30
T503LSS	1.000	0.060	0.325	0.437	0.250	0.30
T504LSS	1.000	0.060	0.325	0.562	0.312	0.40
T505LSS	1.000	0.060	0.325	0.625	0.375	0.40
T506LSS	1.000	0.060	0.325	0.750	0.500	0.50

Wrench Chain

Specialty Chain

Wrench chains are made with high strength extended pins that serve as tension linkages for gripping. Common use is in a wrench or clevis tool. The center plates have a slip-fit to ensure proper articulation while the outside plates have an interference fit.



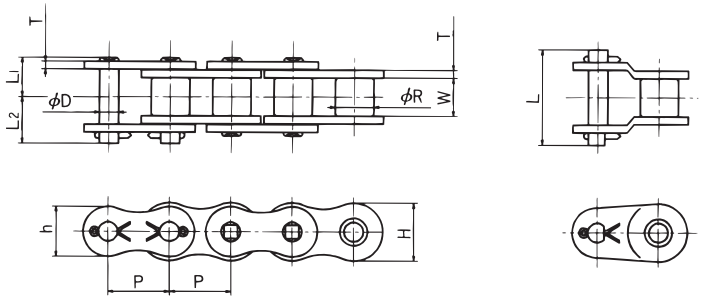
All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Lacing	Width Over Link Plate A	Link Plate Thickness T	Link Plate Height H	Pin Diameter D	Pin Length L	Pin Extension E	Hole Diameter S	Average Tensile Strength (lbs.)	Approximate Weight (lbs./ft.)
50WR	0.625	2x2	0.331	0.080	0.512	0.200	0.559	0.114	0.202	6,750	0.45
60WR	0.750	2x2	0.394	0.094	0.614	0.234	0.787	0.197	0.236	9,000	0.62

KT Cold-Resistant Chain

Specialty Chain

This chain can be used in colder temperatures than RS Roller Chain while offering identical horsepower ratings. This chain is constructed using high tensile alloy steel which makes it suitable for use in low temperatures. Working temperature range: -40˚F ~ +140˚F.



All dimensions in inches unless otherwise stated.

Chain Number	Pitch P	Roller Dia. R	Width Between Inner Link Plates W	Link Plate			Pin					Minimum Tensile Strength (lbs.)	Average Tensile Strength (lbs.)	Maximum Allowable Load (lbs.)	Approx. Weight (lbs./ft.)	Number of links per 10 feet
				Thickness T	Height H	Height h	Dia. D	Length $L_1 + L_2$	Length L_1	Length L_2	Offset Pin Length L					
RS35KT	0.375	0.200*	0.188	0.049	0.354	0.307	0.141	0.508	0.230	0.278	0.531	2,200	2,530	480	0.22	320
RS40KT	0.500	0.312	0.313	0.059	0.472	0.409	0.156	0.705	0.325	0.380	0.709	3,960	4,290	810	0.43	240
RS50KT	0.625	0.400	0.375	0.079	0.591	0.512	0.200	0.874	0.406	0.469	0.933	6,380	7,040	1,430	0.70	192
RS60KT	0.750	0.469	0.500	0.094	0.713	0.614	2.361	1.106	0.506	0.600	1.110	9,020	9,900	1,980	1.03	160
RS80KT	1.000	0.625	0.625	0.126	0.949	0.819	0.313	1.398	0.640	0.758	1.528	16,060	17,600	3,300	1.79	120
RS100KT	1.250	0.750	0.750	0.157	1.185	1.024	0.376	1.677	0.778	0.900	1.795	23,980	26,400	5,060	2.68	96
RS120KT	1.500	0.875	1.000	0.189	1.425	1.228	0.437	2.118	0.980	1.138	2.197	33,220	37,400	6,820	3.98	80
RS160KT	2.000	1.125	1.250	0.252	1.898	1.638	0.563	2.705	1.254	1.451	2.795	57,200	62,700	11,880	6.79	60

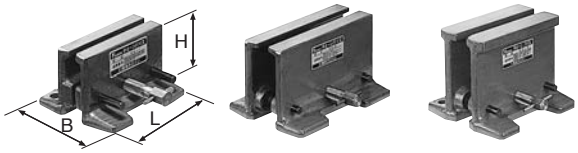
* RS35KT is rollerless. The dimension shown is for the bushing diameter.

Roller Chain Tools

Chain Cutting Tools

The chain you have purchased is either fixed length (10 ft.) or on a reel. We have a selection of tools below, which allow you to cut the chain to the necessary length. For details on the use of the tools, please refer to the “Roller Chain Maintenance” section.

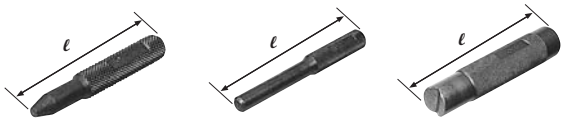
1. Chain Vices



RSCV-1 RSCV-2 RSCV-3

Type	Suitable Chain			Dimensions (inches)		
	Single Strand	Double Strand	Triple Strand	L	H	B
RSCV-1	RS40 ~ 80	RS40	—	4.0	2.6	3.7 ~ 4.5
RSCV-2	RS40 ~ 160	RS40 ~ 100	RS40 ~ 100	7.1	4.3	4.7 ~ 5.9
RSCV-3	RS80 ~ 240	RS80 ~ 160	RS80 ~ 100	7.9	6.7	7.1 ~ 8.7

2. Punches

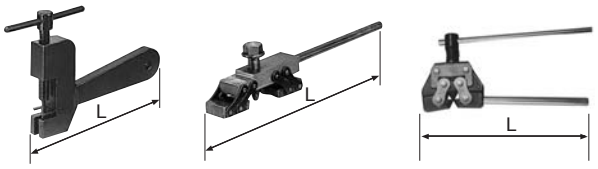


Primary Punch Secondary Punch Riveting Punch

Type				Suitable Chain
Primary Punch	ℓ (in.)	Secondary Punch	ℓ (in.)	
RSS-1	2.4	RSD-1	3.2	RS 40 ~ 60
RSS-2	2.8	RSD-2	3.5	RS 80 ~ 120
RSS-3	3.2	RSD-3	4.7	RS140 ~ 240

Type		Suitable Chain
Riveting Punch	ℓ (in.)	
RS40 Punch	3.9	RS40
RS50 Punch	3.9	RS50
RS60 Punch	3.9	RS60
RS80 Punch	3.9	RS80

3. Chain Breakers



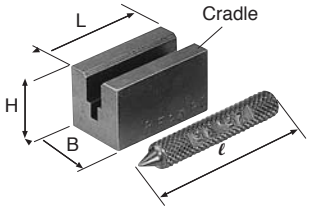
RSCS-A RSCS-C Type D

Type	L (in.)	Suitable Chain (Single Strand)	Type	L (in.)	Suitable Chain (Sgl. & Dbl. Strand)
RSCS-A1	4.6	RS25	D35	7.3	RS25 ~ 60
RSCS-A2	4.6	RS35	D60	8.7	RS60 ~ 100
RSCS-A3	4.6	RS41	D120	11.4	RS120 ~ 160
RSCS-A4	4.6	RF06B	RSCS-C3	27.9	RS160 ~ 240

Note: They can also be used for other chains besides RS Roller Chain, such as BS Roller Chain, and Marine Engine Chain. Specialized marine engine chain breakers are also available.

4. Cutting Tools for Poly Steel Chain

Standard cutting tools cannot be used for Poly Steel chain. An exclusive Poly Steel Chain punch and cradle is required.



Cutting Tool

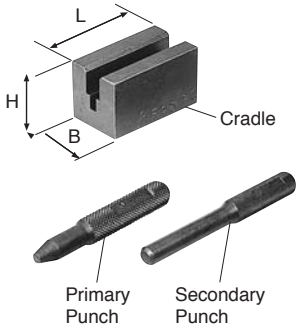
All dimensions in inches.

Type	L	H	B	ℓ	Suitable Chain
RF25PC-KOGU	1.4	0.8	0.8	2.1	RF25PC
RF35PC-KOGU	2.0	1.2	1.2	2.1	RF35PC
RF40PC-KOGU	2.6	1.4	1.4	2.2	RF40PC
RF50PC-KOGU	3.1	1.6	1.4	2.2	RF50PC
RF60PC-KOGU	3.9	1.8	1.6	2.2	RF60PC

Note: The exclusive punch and cradle are a set.

5. Cutting Tools for Lambda (Λ) Chain

An exclusive cradle, primary punch and secondary punch are required for the disassembly of Lambda chain.



Cutting Tool

All dimensions in inches.

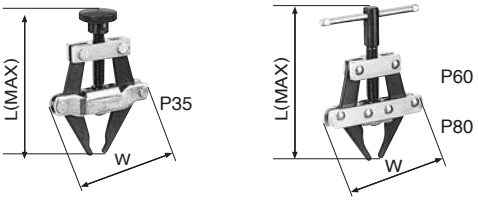
Type	L	H	B	Suitable Chain
RSD 40Λ-KOGU	2.6	1.3	1.3	RSD40-Λ
RSD 50Λ-KOGU	3.1	1.6	1.6	RSD50-Λ
RSD 60Λ-KOGU	3.7	1.9	1.9	RSD60-Λ
RSD 80Λ-KOGU	5.1	2.4	2.4	RSD80-Λ
RSD100Λ-KOGU	6.3	2.9	2.9	RSD100-Λ
RSD120Λ-KOGU	6.3	3.5	3.5	RSD120-Λ
RSD140Λ-KOGU	7.1	3.9	3.9	RSD140-Λ

Note: The exclusive punch and cradle are a set. The dimensions of the punches are the same as those shown in No.2 on the left.

Chain Connecting Tools

Chain Pullers

This tool is used to bring the chain ends together when installing on a machine.



Type	L (in.)	W (in.)	Suitable Chain
P35	4.6	2.8	RS35 ~ 60
P60	7.3	4.3	RS60 ~ 100
P80	9.8	5.7	RS80 ~ 240

Drive Chain Selection

1. Selection Guide

Application — Essential points for selection — **Selection method**

Ordinary transmission — Selection based on HP ratings table — **General selection**

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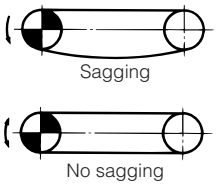
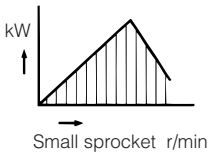


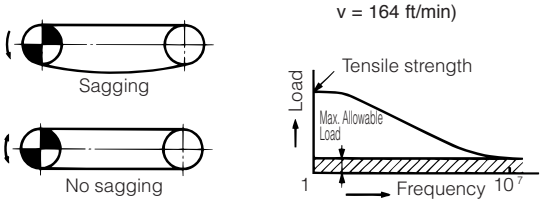


Ordinary transmission — Selection based on Max. Allowable Load (economical selection, chain speed v = 164 ft/min) — **Slow speed selection**

Starting frequency - less than 5 times/day (8hrs)
Page A-98

Slow speed selection (special)

Starting frequency - more than 6 times/day (8hrs)
Page A-100



Lifting Application — Selection based on Max. Allowable Load (chain speed v = 164 ft/min) Please use F-CLs or exclusive CLs for end-bolts — **Lifting roller chain selection**

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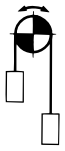


Chain type	Connecting parts that can be used			
	Slip Fit	Press Fit	2-pitch OL	1-pitch OL
RS	○	○	○	□
SUPER	—	○	—	—
RSD-Λ	○	—	—	□
RSD-Λ-NP	○	—	—	□
RSDX-Λ	◌	—	—	—
RS-KT	△	◌	—	◌
RS-SN	○	◌	◌	□
RS	○	○	○	△
SUPER	—	○	—	—
RS-HT	—	○	—	—
SUPER-H	—	○	—	—
Ultra-Super	—	○	—	—
NP	○	◌	—	△
WP	○	◌	—	△
DP	○	◌	—	△
SS, AS, LS	○	—	—	○
PC	○	—	—	—
PC-SY	◌	—	—	—
NS	◌	—	—	◌
TI	◌	—	—	◌
RS-KT	△	◌	—	△
RS-SN	○	◌	◌	△

CL : abbrev. of Connecting Link
OL : abbrev. of Offset Link

○: Available □: Allow for percentage decline in HP ratings (Refer to each HP ratings table)
△: Allow for percentage decline in strength (Refer Pages A-98-100) – : Unavailable Dotted line: Made-to-order

Data required for roller chain selection
1) Driven machine
2) Load classification
3) Source of power
4) HP to be transmitted
5) Diameter and RPM of driving shaft
6) Diameter and RPM of driven shaft
7) Center distance between shafts

Necessary power (motor) characteristics for the special method of chain selection
1) Moment of inertia
2) Rated torque
3) Starting torque
4) Stalling torque

2. Service Factors

Tsubaki offers simplex, duplex and triplex chains in RF06B to RS40B of BS/DIN European standard. In ANSI standard, up to 6 strands are available as standard items from RS40 to RS240 and up to triplex for RS25 and RS35. In multiple strand chain drives, the load is unequal across the width of the chain, so the transmission capability of multiple strand chain is calculated using multiple strand factors shown in the table below.

Table 1 : Multi-strand factor

No. of strands	Multi-strand factor
2 strands	1.7
3 strands	2.5
4 strands	3.3
5 strands	3.9
6 strands	4.6

Service factor K_S

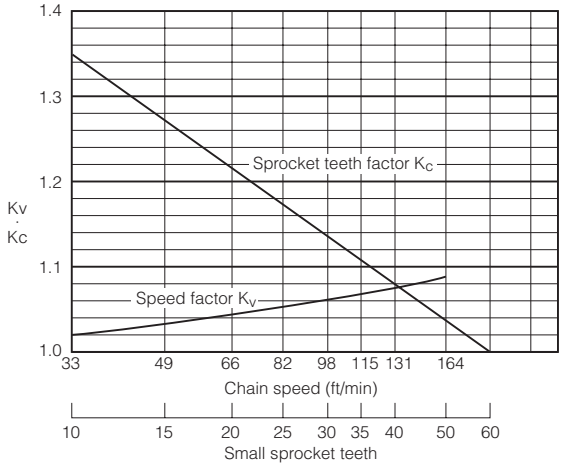
The chain's transmission capacity is affected if there is frequent load fluctuation. The appropriate service factor K_S must be applied based on the source of power and type of machine as shown in the table below. Please note that the service factor is never smaller than 1.0.

Table 2 : Service factor K_S

Type of Impact	Machines	Source of Power		
		Electric Motor or Turbine	Internal Combustion Engine	
			With hydraulic drive	Without hydraulic drive
Smooth	Belt Conveyors with small load fluctuation, chain conveyors, centrifugal blowers, ordinary textile machines, ordinary machines with small load fluctuation.	1.0	1.0	1.2
Some impact	Centrifugal compressors, marine engines, conveyors with some load fluctuation, automatic furnaces, dryers, pulverizers, general machine tools, compressors, general work machines, general paper mills.	1.3	1.2	1.4
Large impact	Press, construction or mining machines, vibration machines, oil well rigs rubber mixers, rolls, roll gangs, general machines with reverse or large impact loads.	1.5	1.4	1.7

Speed factor K_V and sprocket teeth factor K_C

Table 3 : Speed factor, K_V and sprocket teeth factor K_C

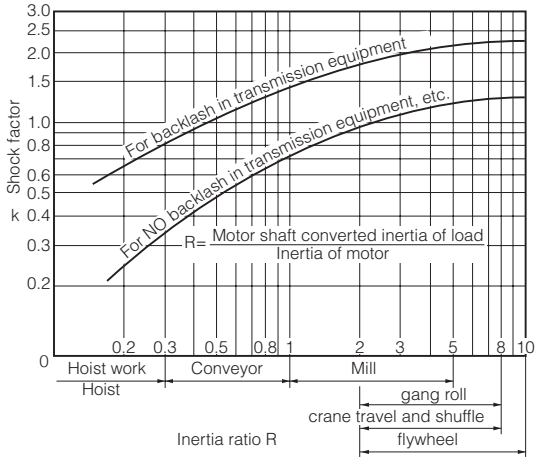


Shock factor K

This coefficient is determined by the rate of inertia between the power source (eg. motor or engine) and the driven machinery (rate of I, GD^2) as well as the amount of backlash in the transmission equipment.
When rate of inertia R > 10, R = 10
When rate of inertia R < 0.2, R = 0.2

When I or GD^2 for either the motor/power source or driven machinery is unknown, use the value of R on table 4.

Table 4 : Shock factor K



Imbalance load factor K_u

When carrying out shuttle traction and lifting with two chains, or four chains for shuttle drive and lifting, the chain tension is not uniform. This must be accounted for by multiplying the following imbalance load coefficient K_u to adjust the left-and-right load imbalance.
Example : For four lifting strands, the imbalance load factor for one strand $K_u = 0.6 \times 0.6 = 0.36$

Table 5 : Imbalance load factor K_u

2 lifting strands	0.6
4 lifting strands	0.36

3. Roller Chain Provisional Selection Tables

Table 6: Provisional selection chart for RS Roller Chain (Lambda Roller Chain)

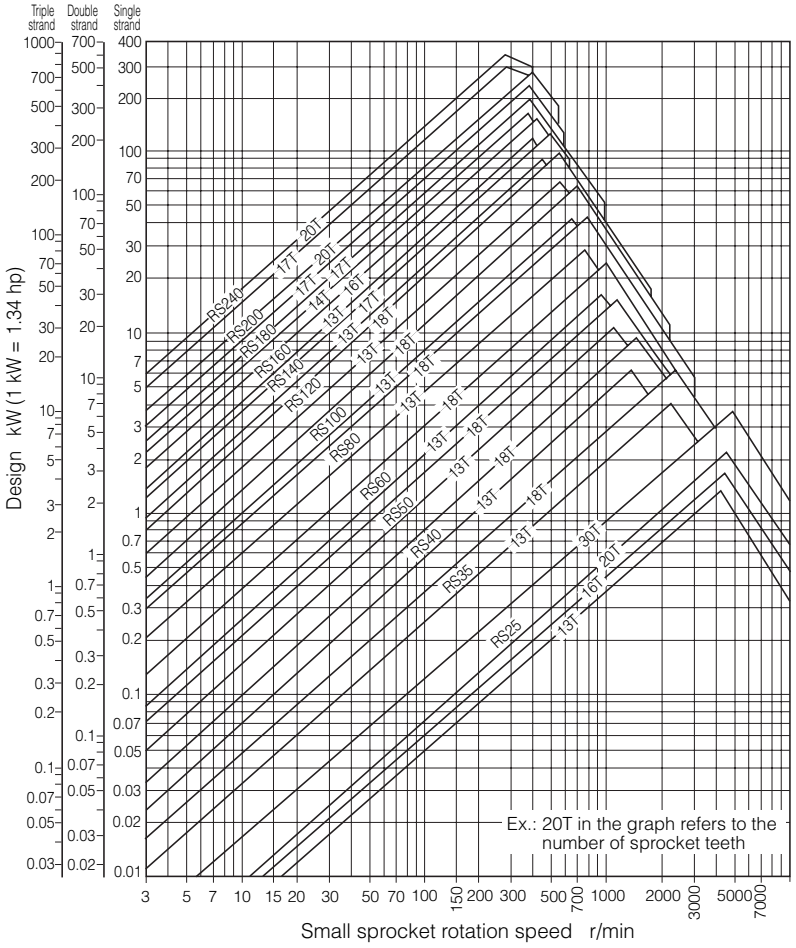
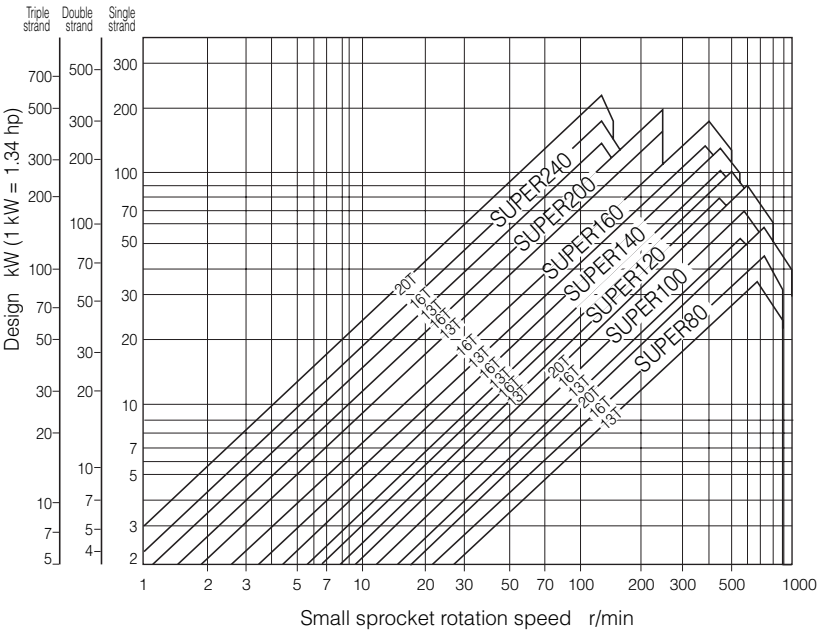


Table 7: Provisional selection chart for SUPER Roller Chain



How to use this table (Table 6)

1. Example: Single strand chain, design kW = 5 kW (6.7 hp)

(1) Assume that the speed of the small sprocket is 100 r/min. Judging from the intersecting point of design kW value of 5 kW or 6.7 hp (vertical axis) and the speed value of 100 r/min (horizontal axis), RS80 and a sprocket with between 13 and 18 teeth would be appropriate. Therefore, based on the position of the intersection, we can see that a 14T sprocket can be used.

(2) Assume that the speed of the small sprocket is 300 r/min. Following the same procedure shown in the above example, RS60 and a sprocket with less than 13 teeth or RS50 and a sprocket with more than 18 teeth would be appropriate. This table is used for tentative selections only. The power ratings tables should be used to confirm the chain sizes.

(3) When the chain speed is less than 164 ft./min., it is more economical to select your RS Roller Chain by slow speed selection.

(4) Allow for a 20% drop in the power rating values shown in the design power ratings chart (Table 6) when 1-pitch offset links are used.

(5) A 4-pitch offset link is available for SUPER Roller Chain and the power ratings are the same as in Table 7.

4. Selection Formulae

4-1 Symbols and units used in formulae

(Table 8)

Symbol	Definition	Imperial Unit	Metric Unit
C	Center distance in pitches	—	—
C'	Center distance between shafts	ft	m
d	Pitch circle diameter of the small sprocket	in	mm
D	Outer diameter of the drum	in	mm
F_b	Chain tension when the motor is decelerating (stalling)	lbs	kgf
F'_b	Design chain tension when the motor is decelerating (stalling)	lbs	kgf
F_c	Chain tension of shuttle drive	lbs	kgf
F'_c	Design chain tension of shuttle drive	lbs	kgf
F_ℓ	Chain tension from torque on load side (actual load)	lbs	kgf
F'_ℓ	Design chain tension from torque on load side (actual load)	lbs	kgf
F_m	Chain tension from motor rated output	lbs	kgf
F'_m	Design chain tension from motor rated output	lbs	kgf
F_{ms}	Chain tension from starting torque of motor	lbs	kgf
F'_{ms}	Design chain tension from starting torque of motor	lbs	kgf
F_{mb}	Chain tension from stalling torque of motor	lbs	kgf
F'_{mb}	Design chain tension from stalling torque of motor	lbs	kgf
F_s	Chain tension when motor accelerates (starting)	lbs	kgf
F'_s	Design chain tension when motor accelerates (starting)	lbs	kgf
F_w	Chain tension from load (actual load)	lbs	kgf
F'_w	Design chain tension from load (actual load)	lbs	kgf
f_1	Coefficient of friction between roller and rail (with lubrication 0.14, without lubrication 0.21)	—	—
G	Standard acceleration from gravity G = 9.80665 m/s^2 (32.17 ft./s^2)	—	—
i	Speed ratio (example) if ratio is 1/30 then i = 30	—	—
I_ℓ {GD^2_ℓ}	Converted moment of inertia of the loaded motor output shaft	lbs-ft^2	kgf·m^2
I_m {GD^2m}	Moment of inertia of the motor output shaft	lbs-ft^2	kgf·m^2
K	Shock factor Refer Table 4	—	—
K_c	Sprocket teeth factor Refer Table 3	—	—
K_s	Service factor Refer Table 2	—	—
K_t	Temperature coefficient Refer Table 10	—	—
K_u	Imbalance load factor Refer Table 5	—	—
K_v	Speed factor Refer Table 3	—	—
L	Chain length (number of links)	—	—
m	Unit mass of chain	lbs/ft.	kgf/m
M {W}	Mass of load (weight)	lbs	kgf
μ	Coefficient of friction between the rail and the axle = 0.1 (shuttle drive) Coefficient of friction between the rotating body and the support rollers = 0.3 (pin gear)	—	—
n	RPM of the small sprocket	rpm	rpm
n_1	RPM of drive shaft	rpm	rpm
n_2	RPM of driven shaft	rpm	rpm
N	No. of teeth for large sprocket	—	—
N'	No. of teeth for small sprocket	—	—
P	Chain pitch	in	mm
R	Inertia ratio Refer Table 4	—	—
S	Attachment height for RS attachment chain (distance from the drum surface to the chain pitch center)	in	mm
t_b	The time for deceleration of the motor (when stalling)	s	s
t_s	The time for acceleration of the motor (when starting)	s	s
T_b	Stalling torque of the motor	%(ft-lbs)	%(kgf·m)
T_s	Starting torque of the motor	%(ft-lbs)	%(kgf·m)
T_ℓ	Load torque	ft-lbs	kgf·m
T_m	Working torque	ft-lbs	kgf·m
T_n	Rated torque of the motor	ft-lbs	kgf·m
V	Chain speed	ft/min	m/min

4-2 Formulae

1) Perform all selections by taking the transmission efficiency including the chain as $\eta = 1$
2) Use the calculated value in items 11 and 12 from this table for the tension and transmission kW used in the selection.

(Table 9)

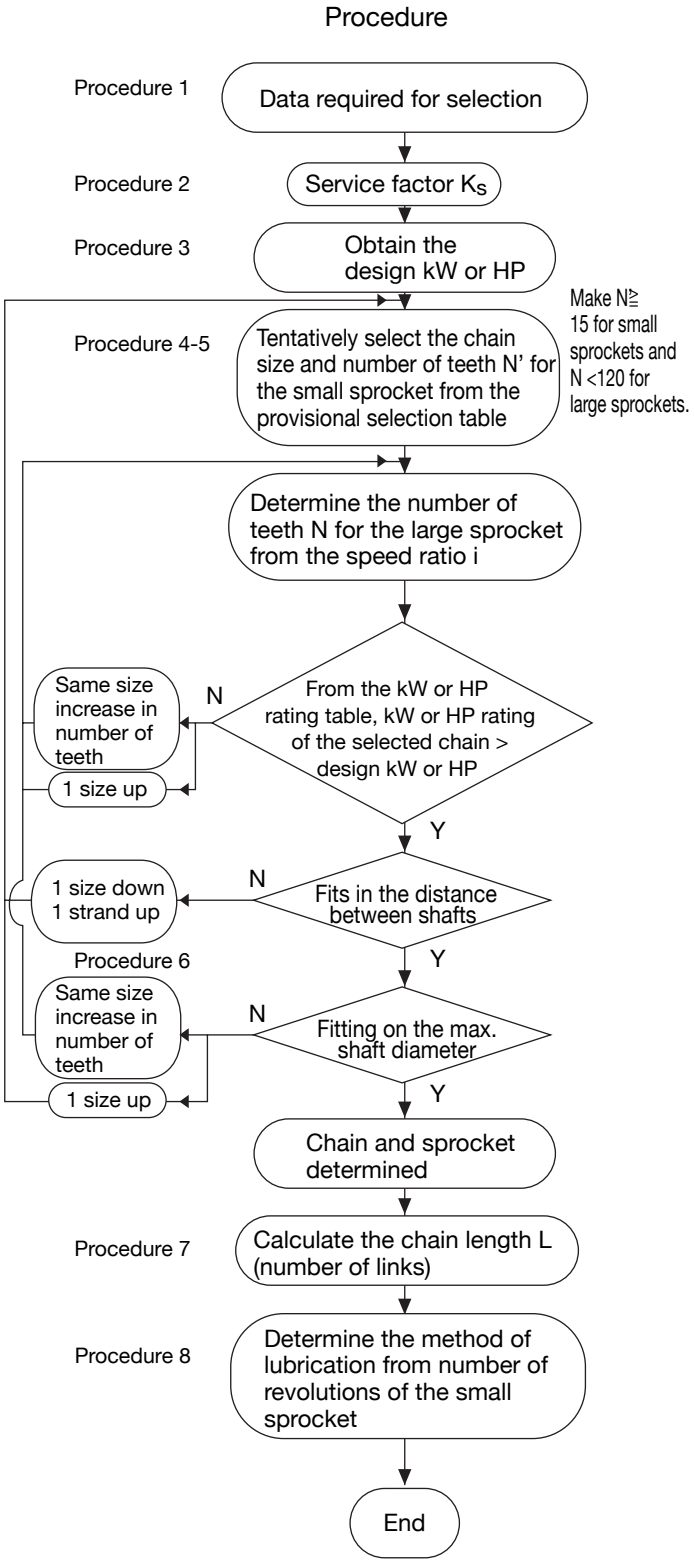
Item	Imperial Unit	Metric Unit
1. Chain length (number of links): L, ordinary transmission	For ordinary transmission between two shafts (1) Where the number of teeth and distance between shafts has been decided for both sprockets. $L = \frac{N+N'}{2} + 2C + \frac{\left(\frac{N-N'}{6.28}\right)^2}{C}$ (2) Where the number of links of chain and number of teeth has been decided. $C = \frac{1}{8}\left\{2L-N-N'+\sqrt{(2L-N-N')^2-\frac{8}{9.86}(N-N')^2}\right\}$ Even if the fractional part of the value found for L (below that of the decimal point) is small, round it up to the nearest integer and add a link. An offset link must be used when an odd number of links exist; however, if possible, change the number of teeth on the sprocket or the distance between shafts so that an even number of links may be used.	
2. Chain speed: V	$V = \frac{P \times N' \times n}{12}$ (ft./min)	$V = \frac{P \times N' \times n}{1000}$ (m/min)
3. Chain tension from motor rated output = F_m	$F_m = \frac{33000 \times HP}{V}$ (lbs.)	$F_m = \frac{6120 \times kW}{V}$ (kgf)
4. Inertia where the motor shaft converts the moment of inertia of the load I(GD^2): Iℓ ($GD^2\ell$)	$GD^2\ell = W \times \left(\frac{V}{\pi n_1}\right)^2$ (lbs.ft^2)	$GD^2\ell = W \times \left(\frac{V}{\pi n_1}\right)^2$ (kgf·m^2)
5. Motor rated torque: T_n	$T_n = 5252 \times \frac{HP}{n_1}$ (ft.lb)	$T_n = 974 \times \frac{kW}{n_1}$ (kgf·m)
6. Load torque: Tℓ	Lifting $T\ell = \frac{M \times d}{2 \times 12 \times i}$ (ft.lb) Shuttle $T\ell = F'_C \times \frac{1}{2 \times 12 \times i}$ (ft.lb)	$T\ell = \frac{W \times d}{2 \times 1000 \times i}$ (kgf·m)
7. Working torque: T_m	$T_m = \frac{T_s(\%)+T_b(\%)}{2 \times 100} \times T_n$ (ft.lb) OR $T_m = \frac{T_s(\text{ ft.lb })+T_b(\text{ ft.lb })}{2}$ (ft.lb)	$T_m = \frac{T_s(\%)+T_b(\%)}{2 \times 100} \times T_n$ (kgf·m) OR $T_m = \frac{T_s(\text{ kgf·m })+T_b(\text{ kgf·m })}{2}$ (kgf·m)
8. Chain tension from starting torque: F_{ms} Chain tension from stalling torque: F_{mb}	$F_{ms} = \frac{T_s(\%) \times i}{(d / 2 \times 12) \times 100} \times T_n \times 1$ (ft.lb) OR $F_{ms} = \frac{T_s(\text{ ft.lbs }) \times i}{d / (2 \times 12)} \times 1$ (ft.lb) $F_{mb} = \frac{T_b(\%) \times i}{d / (2 \times 12) \times 100} \times T_n \times 1.2^*$ (ft.lb) OR $F_{mb} = \frac{T_b(\text{ ft.lbs }) \times 1}{d / (2 \times 12)} \times 1.2^*$ (ft.lb) * constant	$F_{ms} = \frac{T_s(\%) \times i}{(d / 2 \times 1000) \times 100} \times T_n \times 1$ (kgf·m) OR $F_{ms} = \frac{T_s(\text{ kgf·m }) \times i}{d / (2 \times 1000)} \times 1$ (kgf·m) $F_{mb} = \frac{T_b(\%) \times i}{d / (2 \times 1000) \times 100} \times T_n \times 1.2^*$ (kgf·m) OR $F_{mb} = \frac{T_b(\text{ ft.lbs }) \times 1}{d / (2 \times 1000)} \times 1.2^*$ (kgf·m) * constant

All of the chain tensions in the above formulae are the tensions when using one strand of chain. When using two strands of chain or more, calculate the chain tension for one strand and multiply it by the imbalance load factor K_u (Table 5) for the number of strands being used.

(Table 9) continued

Item	Imperial Unit	Metric Unit
9. Chain tension when the motor accelerates: F_s Chain tension when the motor decelerates: F_b	$F_s = \frac{M \times V}{t_s \times 60 \times 32.173} + F_w^*$ (lbs) $F_b = \frac{M \times V}{t_b \times 60 \times 32.173} + F_w^*$ (lbs)	$F_s = \frac{W \times V}{t_s \times 60 \times G} + F_w^*$ (kgf) $F_b = \frac{W \times V}{t_b \times 60 \times G} + F_w^*$ (kgf)
	* For shuttle traction F_w becomes F_c	
10. Shuttle traction chain tension: F_c	$F_c = M \times \mu + 2.1 \times m \times C' \times f_1$ (lbs)	$F_c = W \times \mu + 2.1 \times m \times C' \times f_1$ (kgf)
11. Design kW or hp (for general selection)	Design kW = Motor / Power Source rated kW × K_s (kW) Design hp = Motor / Power Source rated hp × K_s (hp)	
12. Design chain tension from the load torque: F'_ℓ	$F'_\ell = F_\ell \times K_s \times K_v \times K_c$ { lbs (kgf) }	F_ℓ is calculated from T_R
Design chain tension from the motor: F'_m	$F'_m = F_m \times K_s \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension from the starting torque: F'_{ms}	$F'_{ms} = F_{ms} \times K \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension from the stalling torque: F'_{mb}	$F'_{mb} = F_{mb} \times K \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension of the shuttle drive: F'_c	$F'_c = F_c \times K_s \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension when accelerating: F'_s	$F'_s = F_s \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension when decelerating: F'_b	$F'_b = F_b \times K_v \times K_c$ { lbs (kgf) }	
Design chain tension from the load: F'_w	$F'_w = M \times K_s \times K_v \times K_c \times$(lbs)	$F'_w = W$(or F_w) $\times K_s \times K_v \times K_c$ (kgf)
	When the mass M (weight W) is unknown, find the shaft torque $T = T_n \times i$, { kN·m (kgf·m) } from the rated torque T_n of the prime mover and use F = 2T/d instead of W.	
13. Acceleration time of the motor: t_s	$t_s = \frac{(GD^2m + GD^2\ell) \times n_1}{1230 \times (T_m - T\ell)}$ (s)	$t_s = \frac{(GD^2m + GD^2\ell) \times n_1}{375 \times (T_m - T\ell)}$ (s)
14. Deceleration time of the motor: t_b	$t_b = \frac{(GD^2m + GD^2\ell) \times n_1}{1230 \times (T_m + T\ell)}$ (s)	$t_b = \frac{(GD^2m + GD^2\ell) \times n_1}{375 \times (T_m + T\ell)}$ (s)
15. Inertia ratio: R	$R = \frac{I\ell}{I_m}$	$R = \frac{GD^2\ell}{GD^2m}$
16. Conversion of the flywheel effect (GD^2) to the moment of inertia (I)	1 lb-ft^2 · · · (I)	4 kgf·m^2 · · · (GD^2)

5. General Selection



Procedure 4-5

(1) Select the chain and the number of teeth for the small sprocket:

The number of teeth for the small sprocket and a chain that satisfies the number of revolutions of the high speed shaft and design kW or HP can be found by using the provisional selection tables (Tables 6 & 7) or the kW or HP rating tables. When doing so, choose a chain of minimum pitch having the necessary kW or HP rating. When there is a shortage of performance with a single strand, choose multi-strand chain. Further, when the outside diameter of the sprocket has been made as small as possible and the distance between shafts reduced due to the space limitation, use a multi-strand roller chain with a small pitch.

(2) Select the number of teeth for the large sprocket:

If the number of teeth for the small sprocket has been determined, then multiply this value by the speed ratio and determine the number of teeth for the large sprocket.
It is appropriate to have more than 15 teeth for the small sprocket. However, if the number of teeth for the large sprocket exceeds 120 as a result, then this is not favorable. When this happens, reduce the number of teeth for the small sprocket; although, it is recommended to use more than 13 teeth.

Procedure 7

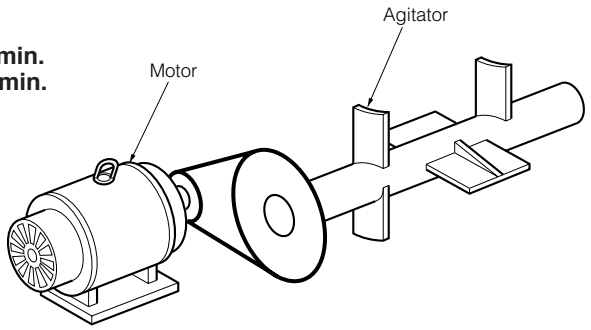
If possible, try to avoid using an offset link when using an odd number of links. Instead, try adjusting the distance between the shafts until an even number of links is attained.

Drive Chain Selection

Example based on the general selection

Procedure 1: Data required

Machine used	**: Agitator**
Type of shock	**: Smooth transmission**
Source of power	**: Motor**
Rated power	**: 50 HP**
High speed shaft	**: Shaft diameter 1 7/8" 750 r/min.**
Low speed shaft	**: Shaft diameter 2 3/8" 250 r/min.**
Distance between shafts	**: 9"**
Space limitation	**: 20"**



Procedure 2: Use Table 2 to determine the service factor
Service factor $K_S = 1.0$

Procedure 3: Obtain design power 50 HP x 1.0 = 50 HP

Procedure 4, 5: Determine the chain and the number of teeth for the sprocket. Based on the fact that the number of revolutions of the high speed shaft is 750 r/min and the design HP is 50 HP, we can find the chain number and the number of teeth of the small sprocket.

1. According to the power rating table, the best choice would normally be a single strand of RS80-17 teeth. Since the speed ratio is 1/3 (250/750 r/min.), the necessary number of sprocket teeth would be 17 for the small sprocket and 51 for the large sprocket. However, as the outside diameters are 5.9" for 17 teeth and 16.8" for 51 teeth, it exceeds the space limitation of 20". (5.9" + 16.8" > 20") Therefore, these sprockets are not suitable.

2. As a single strand chain is not suitable, a double-strand RS60-2, 22 and 66 teeth would be possible. But this combination is not suitable due to the space limitation again (5.7" + 16.2" > 20").

3. For triple strand, RS60-3, 15 and 45 teeth would be possible. The sprocket's diameters are 3.9" and 11.2" respectively, the sum of which is less than 20". The HP rating of a 15 tooth sprocket for the RS60-3 should be confirmed by the HP rating for the RS60. The HP rating of a 15 tooth sprocket is 18.9 HP at 700 r/min, and 21.3 HP at 800 r/min. The HP rating at 750 r/min is about 20 HP. Since 20 HP is for a single strand chain, the horsepower rating must be multiplied by a multi-strand factor of 2.5 for a triple strand (refer to Table 1). Therefore, the HP rating of RS60-3, 15 teeth at 750 r/min. is 50 HP (20 x 2.5 = 50)

4. This 50 hp rating satisfies the design HP rating.

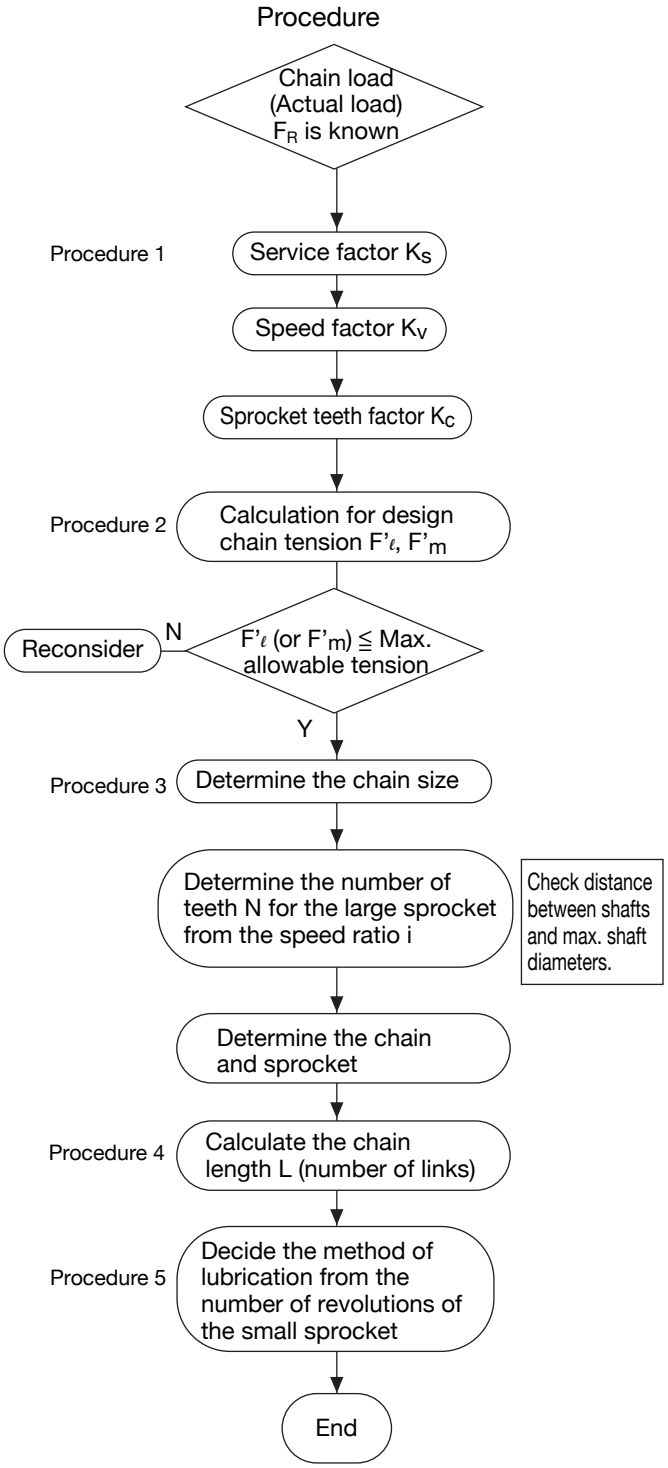
Procedure 6: Confirm the shaft diameter.
The shaft diameter is confirmed by the dimension table. The max. shaft diameter of RS60-15T is 1 7/8" and can be used for the shaft diameter of 1 7/8". The maximum shaft diameter for RS60-3-45T is 2.5" and so satisfies our shaft diameter of 2.36". The outside diameter for both sprockets is 3.5" and 11.2" respectively and fits within the prescribed space.

Procedure 7: Determine the distance between shafts
If the center distance between shafts is 8.66", from the formula the chain length of L is as follows:
In order to have an even number of links, we raise the value below the decimal point to an integer and get 56 links.

$$L = \left(\frac{45+15}{2}\right) + \left(2 \times \frac{9}{0.75}\right) + \left(\frac{\left(\frac{45-15}{6.28}\right)^2}{\frac{9}{0.75}}\right) = 55.9$$

Procedure 8: Confirm the method of lubrication
From the power rating table, lubrication method B is selected for the small sprocket of size RS60-3-15 T at 750 r/min. Lubrication is necessary by oil bath lubrication or by slinger disc.

6. Slow Speed Selection (Starting frequency-less than 5 times/day (8hrs)



Method of selection that applies for ordinary transmission where the chain speed V is less than 160 ft./min

(1) Applicable when making a more economical selection for RS and SUPER chain.

(2) Applicable when selecting RS-HT, SUPER-H and ULTRA SUPER chain.

(3) In the case of severe conditions, such as transmissions with lange impact, particularly from large loads and side forces, please use press fit connecting links and 2-pitch offset links.

(4) When using offset and standard connecting links, allow for the following strengths as a percentage of the max. allowable tension.

Slip fit connecting links	: 100%
Press fit connecting links	: 100%
2-pitch offset link (2POL)	: 100%
1-pitch offset link (OL)	: 65%

(5) The slow speed selection is an economical method of selection that uses the complete HP rating of the roller chain and should only be selected upon properly ascertaining the conditions of transmission. In particular it is vital that sufficient attention be given to shock loads.

(6) Chain tension increases when using SUPER, RS-HT, SUPER-H and ULTRA SUPER chain, so avoid using commercially available sprockets made of cast iron since the strength of the rim and boss portions will in certain cases be insufficient. RS standard sprockets A type and B type as well as C type provide sufficient strength. (Materials such as SS400, S35C, SC450, etc. have to be used)

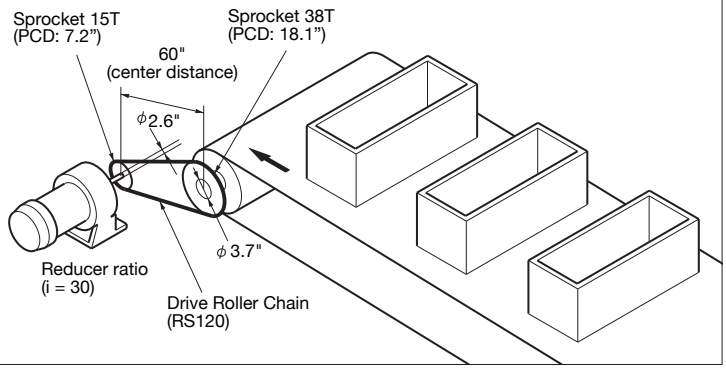
(7) For the high speed side, use a sprocket with hardened teeth.

(8) Since the bearing pressure will be extremely large, be certain to lubricate the chain.

Drive Chain Selection

Example based on the slow speed selection

Machine	**: Conveyor drive**
Chain load	**: 3754 lbs.**
Motor	**: 15 HP**
Reducer ratio	**: 30**
High speed shaft	**: 50 r/min, shaft diameter 2 1/2"**
Low speed shaft	**: 20 r/min, shaft diameter 3 7/8"**
Distance b/w shafts	**: 60"**
Starting frequency	**: 4 times/day**
Type of shock	**: Some shock involved**



Calculate the Roller Chain speed V.

$$V = \frac{PN'n}{1000} = \frac{1.5 \times 15 \times 50}{12} = 93.75 \text{ ft/min} < 160 \text{ ft/min}$$

The calculated speed (93.75ft./min) is less than 160ft/min, so slow speed selection can be used.

Imperial Units	Metric Units
F_ℓ = 3754 lbs.	F_ℓ = 1700 (kgf)

Procedure 1 :

Service factor K_S = 1.3 ..... some shock (Table 2)
Speed factor K_V = 1.06 ..... V = 28.6 m/min (90 ft./min) (Table 3)
Sprocket teeth factor K_C = 1.27 ..... N' = 15T (Table 3)

Procedure 2 : Calculate design chain tension F'_ℓ

$F'_\ell = F_\ell \times K_S \times K_V \times K_C$
= 3751 x 1.3 x 1.06 x 1.27
= 6569 lbs.

Procedure 2 : Calculate design chain tension F'_ℓ

$F'_\ell = F_\ell \times K_S \times K_V \times K_C$
= 1700 × 1.3 × 1.06 × 1.27
= 2975 (kgf)

Procedure 3 : Slow speed selection for RS Roller Chain
RS120 can be used since the maximum allowable tension of 6830 lbs. (3100 kgf) is larger than the design chain tension 6569 lbs. (2975 kgf). The driver sprocket is RS120-15T B-type (Max. shaft diameter 3 1/4" > Driver shaft diameter 2 1/2", therefore acceptable) provided it has hardened teeth. The driven sprocket is RS120-38T B-type, provided the bore diameter is manufactured to meet the diameter of the driven shaft (3.7").

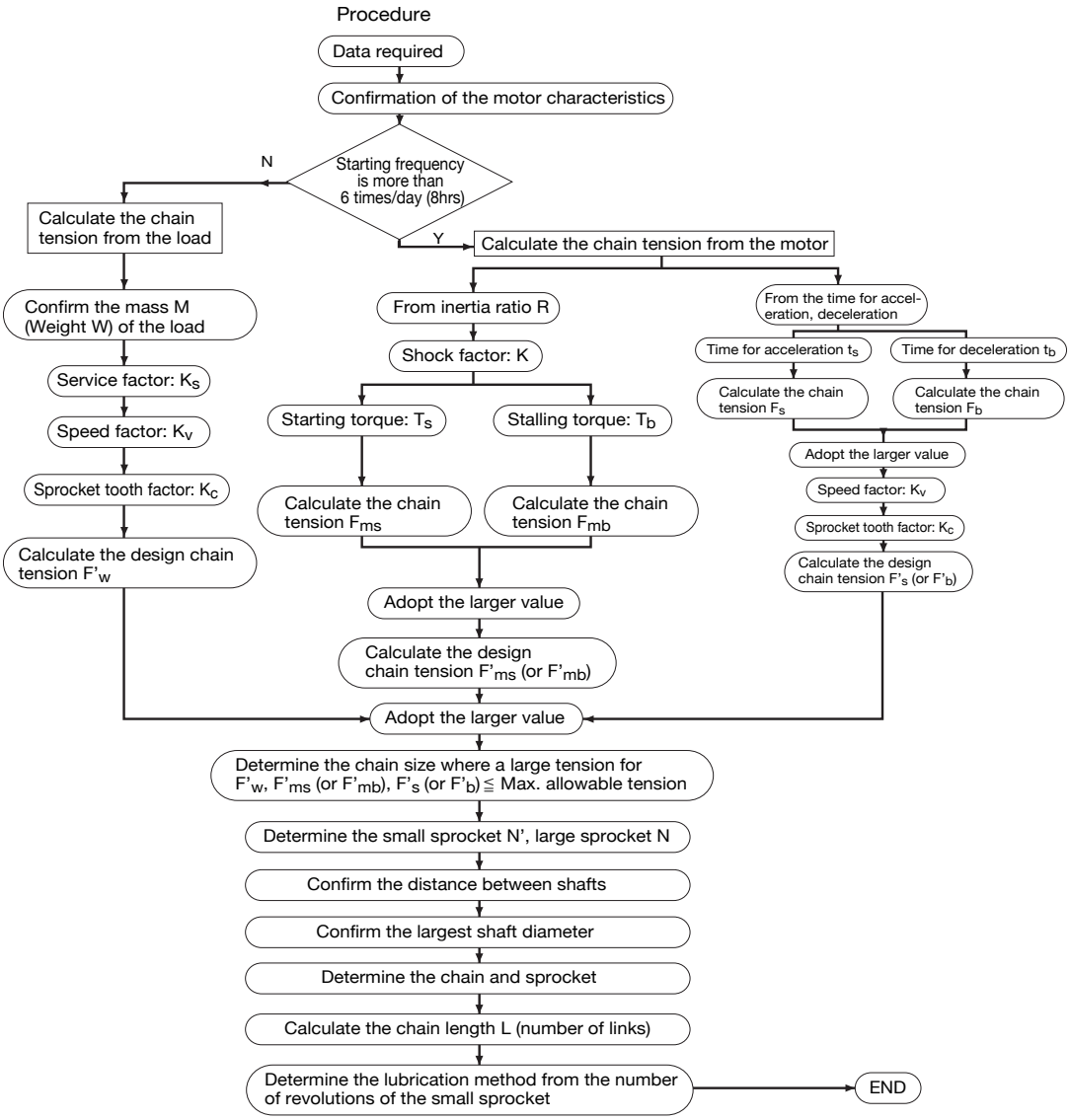
Procedure 4 : Number of chain links

$$L = \frac{N + N'}{2} + 2C + \frac{\left(\frac{N - N'}{6.28}\right)^2}{C} = \frac{38 + 15}{2} + 2 \times 40 + \frac{\left(\frac{38 - 15}{6.28}\right)^2}{40} \qquad C = \frac{60}{1.5} = 40$$

= 106.8 links → 107 links Distance between shafts = 60"

Procedure 5 : Lubrication method is by drip or brush

7. Slow Speed Selection (Starting Frequency - More then 6 times/day 8 hours) Special



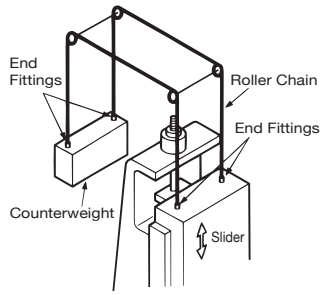
Method of selection that applies for ordinary transmission where the chain speed V is less than 160 ft/min

(1) Applicable when making a more economical selection for RS and SUPER chain.
(2) Applicable when selecting RS-HT, SUPER-H and ULTRA SUPER.
(3) In the case of severe conditions, such as transmissions with large impact, particularly from large loads and side forces, please use press fit connecting links and 2-pitch offset links.
(4) When using offset links and standard connecting links, allow for the following strengths as a percentage of the maximum allowable tension.
Slip Fit connecting Links : 100%
Press Fit Connecting Links : 100%
2-pitch offset link (2POL) : 100%
1-pitch offset link (OL) : 65%
(5) The slow speed selection is an economical method of selection that uses the complete HP rating of the roller chain and should only be selected upon properly ascertaining the conditions of transmission. In particular it is vital that sufficient attention is given to shock loads.
(6) Chain tension increases when using SUPER, RS-HT, SUPER-H, ULTRA SUPER chains, so avoid using commercially available sprockets made of cast iron since the strength of the rim and boss portions will, in certain cases, be insufficient.
RS standard sprockets A type and B type as well as C type provide sufficient strength. (Materials such as SS400, S35C, SC450, etc. have to be used)
(7) For the high speed side, use a sprocket with a hardening process carried out on the surface of its teeth.
(8) Since the bearing pressure will be extremely large, make certain to lubricate the chain.

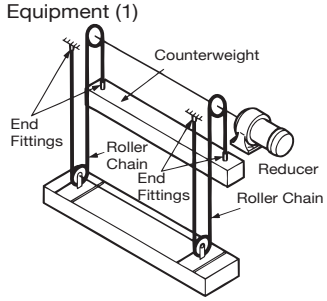
8. Selection Method for Lifting Transmissions

Consider the following procedures and points when selecting roller chain for lifting transmissions:

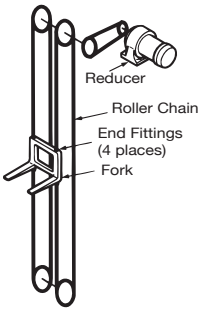
Balancing



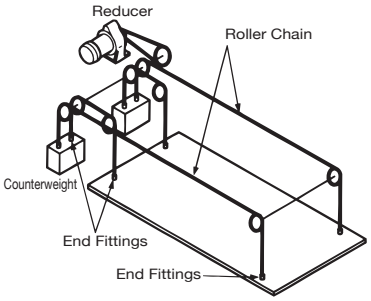
Ascending/Descending Equipment (1)



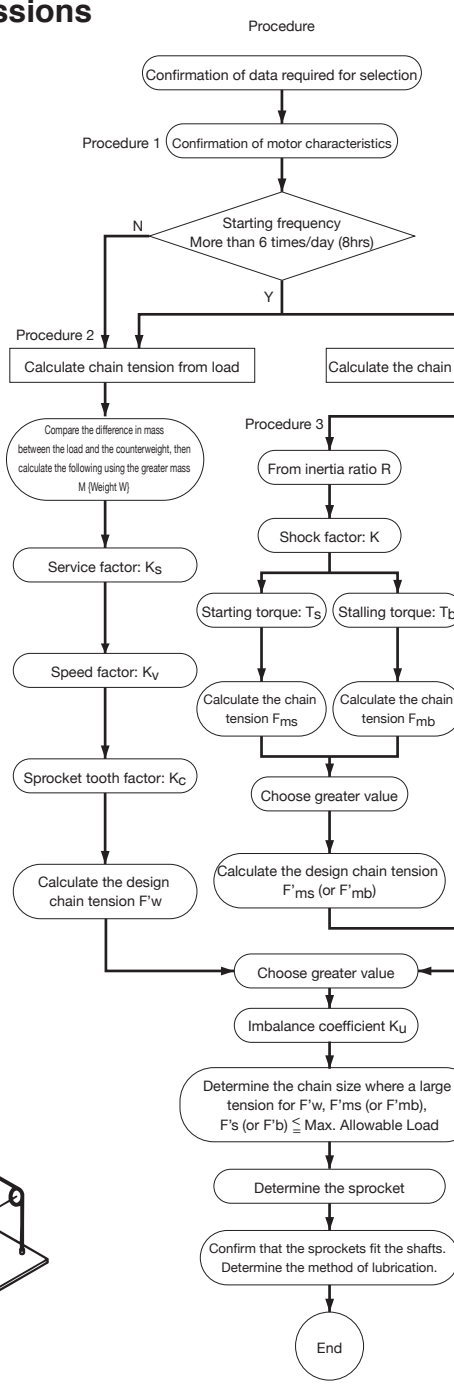
Ascending/ Descending Equipment (2)



Ascending/Descending Equipment (3)



Examples of Lifting Transmissions



End Fittings
End bolts and exclusive connecting links for end bolts are stocked for RS Roller Chain.

Safety Precautions

⚠ Clear the area of all personnel when lifting Roller Chain.
⚠ Install safety equipment to prevent injuries and damage to equipment in the event of Roller Chain breakage.
⚠ Inspect and replace worn Roller Chain periodically.

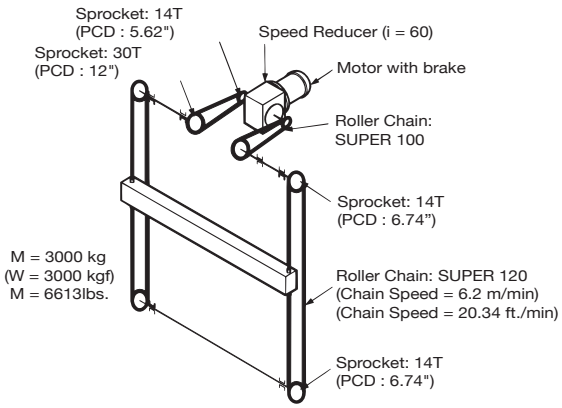
⚠ Roller Chain Selection for Lifting Applications

(1) When making your selection, calculate the tension from the load and from the motor and apply the greater of the two. As a rule of thumb, if the greater value is lower than the Max. Allowable Load of the chain you are thinking of choosing, then it may be selected.
(2) If there are any laws or guidelines for chain selection, check and calculate accordingly. Make sure to follow the manufacturer's selections and select the safer of the two selections.
(3) The chain speed should be less than 160 ft/min.
(4) Use F-Type (Semi Press-fit) connecting links. Offset links cannot be used.
(5) Lubricate the chain joints as much as possible after you reduce the loads. Sufficient lubrication is also required at end fittings (end bolts and connecting links, etc.) and connecting parts, etc.

Drive Chain Selection

TSUBAKI

Example of Selection for Lifting Transmission Roller Chain



You are planning to use a lifting transmission machine like the one on the left, and you are thinking of using SUPER 120 for the lifting and SUPER 100 for the drive chain. We will now select a chain for drive and for lifting.

Motor with brake: 3.7 kW = 5.0 HP

Motor shaft rotational speed: n_1 : 1500 r/min

Imperial Units

Procedure 1: Confirmation of motor characteristics

Rated torque:	T_n = 17.36 ft-lbs.
Starting torque:	T_s = 43.40 ft-lbs.
Stalling torque:	T_b = 52.08 ft-lbs.
Motor moment of inertia:	I_m = 1.42 lbs-ft^2

Procedure 2: Calculate chain tension from load

Chain tension $F_w = M = 6613$ lbs.

Metric Units

Procedure 1: Confirmation of motor characteristics

Rated torque:	T_n = 2.4 (kgf·m)
Starting torque:	T_s = 6.0 (kgf·m)
Stalling torque:	T_b = 7.2 (kgf·m)
Motor moment of inertia:	GD^2_m = 0.06 (kgf·m^2)

Procedure 2: Calculate chain tension from load

Chain tension $F_w = W = 3000$(kgf)

Chain speed V = 6.2 m/min (20.34 ft/min).....Speed factor: K_v = 1.02
14-tooth sprocket for lifting.....Sprocket tooth factor: K_c = 1.28
Minimal shock.....Service factor: K_s = 1.3
For double strand lifting.....Imbalance load coefficient K_u = 0.6

Design chain tension

$$F'_w = F_w \times K_s \times K_v \times K_c \times K_u$$
$$= 6613 \times 1.3 \times 1.02 \times 1.28 \times 0.6$$
$$= 6733 \text{ lbs} \quad \cdots\cdots ①$$

Procedure 3: Calculate the chain tension from the motor

Converted moment of inertia of the loaded motor output shaft

$$I_\ell = M \times \left(\frac{V}{\pi n_1}\right)^2$$
$$= 6613 \times \left(\frac{20.34}{\pi \times 1500}\right)^2$$
$$= 0.12318 \text{ (lbs.ft}^2\text{)}$$

Moment of inertia of the motor output shaft (I), I_m = 1.42 lbs.ft^2

$$\text{Inertia ratio (R)} \quad R = \frac{I_\ell}{I_m} = \frac{0.12318}{1.42}$$
$$= 0.087$$

Design chain tension

$$F'_w = F_w \times K_s \times K_v \times K_c \times K_u$$
$$= 3000 \times 1.3 \times 1.02 \times 1.28 \times 0.6$$
$$= 3055 \text{ (kgf)} \quad \cdots\cdots ①$$

Procedure 3: Calculate the chain tension from the motor

Converted moment of inertia of the loaded motor output shaft

$$GD^2_\ell = W \times \left(\frac{V}{pn_1}\right)^2$$
$$= 3000 \times \left(\frac{6.2}{p \times 1500}\right)^2$$
$$= 0.00519 \text{ (kgf·m}^2\text{)}$$

Moment of inertia of the motor output shaft GD^2m = 0.06 (kgf·m^2)

$$\text{Inertia ratio (R)} \quad R = \frac{GD^2_\ell}{GD^2} = \frac{0.00519}{0.06}$$
$$= 0.087$$

As the inertia ratio (R) equals ϕ.2, the shock factor (K) will be ϕ.23.

Procedure 3: (Continued)

Starting torque: T_s = 43.40 lbs.ft

Chain tension from starting torque

$$F_{ms} = T_s \times i \times \frac{30}{14} \times 1000/(d/2)$$

$$= 43.4 \times 60 \times \frac{30}{14} \times 12/(6.74/2)$$

$$= 19866 \text{ lbs.}$$

Stalling torque: T_b = 52.8 lbs.ft

Chain tension from stalling torque

$$F_{mb} = T_b \times i \times \frac{30}{14} \times 1000 \times 1.2/\left(\frac{d}{2}\right)$$

$$= 52.8 \times 60 \times \frac{30}{14} \times 12 \times 1.2/(6.74/2)$$

$$= 28607 \text{ lbs.}$$

Starting torque: T_s = 6.0 (kgf·m)

Chain tension from starting torque

$$F_{ms} = T_s \times i \times \frac{30}{14} \times 1000/(d/2)$$

$$= 6.0 \times 60 \times \frac{30}{14} \times 1000/(171.22/2)$$

$$= 9011(\text{kgf})$$

Stalling torque: T_b = 7.2 (kgf·m)

Chain tension from stalling torque

$$F_{mb} = T_b \times i \times \frac{30}{14} \times 1000 \times 1.2/(d/2)$$

$$= 7.2 \times 60 \times \frac{30}{14} \times 1000 \times 1.2/(171.22/2)$$

$$= 12976 \text{ (kgf)}$$

Use the greater value of F_{mb} to calculate chain tension as $F_{mb} > F_{ms}$.

Design chain tension

$$F'_{mb} = F_{mb} \times K \times K_v \times K_c \times K_u$$

$$= 28607 \times 0.23 \times 1.02 \times 1.28 \times 0.6$$

$$= 5154 \text{ lbs} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{②}$$

Design chain tension

$$F'_{mb} = F_{mb} \times K \times K_v \times K_c \times K_u$$

$$= 12976 \times 0.23 \times 1.02 \times 1.28 \times 0.6$$

$$= 2338 \text{ (kgf)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{②}$$

Procedure 4: Calculate the chain tension from motor acceleration and deceleration.

Working torque $T_m = \frac{T_s + T_b}{2} = \frac{43.4 + 52.08}{2}$

$= 47.74$ lbs.ft

Load torque $T_\ell = \frac{W \times d}{2 \times 12 \times i}$

$= \frac{6613 \times 6.74}{2 \times 12 \times 60 \times \frac{30}{14}}$

$= 14.5$ lbs.ft

Motor acceleration time

$$t_s = \frac{(I_m + I_\ell) \times n_1}{1230 \times (T_m - T_\ell)}$$

$$= \frac{(1.42 + 0.12318) \times 1500}{1230 \times (47.74 - 14.45)}$$

$$= 0.054 \text{ (s)}$$

Motor deceleration time

$$t_b = \frac{(I_m + I_\ell) \times n_1}{1230 \times (T_m + T_\ell)}$$

$$= \frac{(1.42 + 0.12318) \times 1500}{1230 \times (47.74 + 14.45)}$$

$$= 0.029 \text{ (s)}$$

Procedure 4: Calculate the chain tension from motor acceleration and deceleration.

Working torque $T_m = \frac{T_s + T_b}{2} = \frac{6.0 + 7.2}{2}$

$= 6.6$ (kgf·m)

Load torque $T_\ell = \frac{W \times d}{2 \times 1000 \times i}$

$= \frac{3000 \times 171.22}{2 \times 1000 \times 60 \times \frac{30}{14}}$

$= 2.0$ (kgf·m)

Motor acceleration time

$$t_s = \frac{(GD^2_m + GD^2_\ell) \times n_1}{375 \times (T_m - T_\ell)}$$

$$= \frac{(0.06 + 0.00519) \times 1500}{375 \times (6.6 - 2.0)}$$

$$= 0.057 \text{ (s)}$$

Motor deceleration time

$$t_b = \frac{(GD^2_m + GD^2_\ell) \times n_1}{375 \times (T_m + T_\ell)}$$

$$= \frac{(0.06 + 0.00519) \times 1500}{375 \times (6.6 + 2.0)}$$

$$= 0.030 \text{ (s)}$$

Because t_b is smaller than t_s, chain tension from motor deceleration F_b is greater than that of acceleration, so F_b should be used.

Chain tension from acceleration

$$F_b = \frac{M \times V}{t_b \times 60 \times 1000} + F_W$$

$$= \frac{6613 \times 20.34}{0.029 \times 60 \times 32.17} + 6613$$

$$= 9015 \text{ lbs.}$$

Chain tension from acceleration

$$F_b = \frac{W \times V}{t_b \times 60 \times \underline{G}} + F_W$$

$$= \frac{3000 \times 6.2}{0.030 \times 60 \times \underline{G}} + 3000$$

$$= 4054 \text{ (kgf)}$$

Drive Chain Selection

Design chain tension $F'_b = F_b \times K_v \times K_c \times K_u$
$= 8937 \times 1.02 \times 1.28 \times 0.6$
$= 7000$ lbs..... ③

Design chain tension $F'_b = F_b \times K_v \times K_c \times K_u$
$= 4054 \times 1.02 \times 1.28 \times 0.6$
$= 3176$ (kgf) ..... ③

When comparing the calculated design chain tensions in Steps ①, ②, and ③, note that F_b in Step ③ is the greatest.

Comparing F'_b (7000lbs) with the maximum allowable load of SUPER 120 chain (8818lbs), F'b < 8818lbs
Therefore, this chain may be selected.
The drive chain is

$$F'_b \times \frac{d}{d'} = 7000 \times \frac{6.74}{11.959}$$

$= 3945$ lbs < 6834 lbs

This value is less than the maximum allowable load of SUPER 100 chain, so it may also be used.

Comparing F'b (3176 kgf) with the maximum allowable load of SUPER 120 chain (4000 kgf), F'b < 4000 kgf.
Therefore, this chain may be selected.
The drive chain is

$$F'_b \times \frac{d}{d'} = 3176 \times \frac{171.22}{303.75}$$

$= 1790$ kgf < 3100 kgf

This value is less than the maximum allowable load of SUPER 100 chain, so it may also be used.

(Conclusion)

It is possible to use SUPER 120 for lifting applications and SUPER 100 for drive applications. However, if operational restrictions occur due to overload, the chains will be subjected to the following loads: Drive chain: $F_d = \frac{52.08 \times 12 \times 60 \times 2}{5.617} = 13{,}814$ (6266 kgf) (per strand), $F_d \times K_u = 13814\text{lbs} \times 0.6 = 8284\text{lbs}$ (3757 kgf), Lifting chain: $F_d \times \frac{11.959}{6.741} = 14{,}692$lbs (6,664 kgf).
In this case, since there is a possibility of chain plastic deformation, increase the chain size by selecting SUPER 120-2 for lifting transmission and SUPER 120 for drive transmission, just to be safe.

Weight required in lifting transmission applications for counterweight to prevent roller chain from climbing or jumping sprocket teeth.

$$T_k = T_o \times \{\sin\phi / \sin(\phi + 2\alpha)\}^{K-1}$$

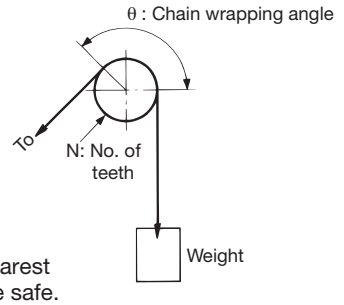
T_k : Minimum weight tension (Minimum back-tension)

T_o : Roller Chain tension

ϕ : Sprocket minimum pressure angle $\phi = 17° - \frac{64°}{N}$

2α : Sprocket dividing angle $2\alpha = \frac{360°}{N}$

K : Engaging No. of teeth $K = \frac{\theta}{360°} \times N$ ... Round-up to the nearest whole number to be safe.



Imperial Equation

If $T_o = 2425$ lbs, $N = 13^T$, and $\theta = 120°$, then

$\phi = 17° - \frac{64°}{N} = 17° - \frac{64°}{13} = 12.077$

$2\alpha = \frac{360°}{N} = \frac{360°}{13} = 27.692$

$K = \frac{\theta}{360°} \times N = \frac{120°}{360°} \times 13 = 4.33 \ldots K = 4$

$T_k = 2425 \times \{\sin 12.077 / \sin(12.077 + 27.692)\}^{4-1} = 85$ (lbs)

Metric Equation

If $T_o = 1100$ kgf, $N = 13^T$, and $\theta = 120°$, then

$\phi = 17° - \frac{64°}{N} = 17° - \frac{64°}{13} = 12.077$

$2\alpha = \frac{360°}{N} = \frac{360°}{13} = 27.692$

$K = \frac{\theta}{360°} \times N = \frac{120°}{360°} \times 13 = 4.33 \ldots K = 4$

$T_k = 1100 \times \{\sin 12.077 / \sin(12.077 + 27.692)\}^{4-1} = 38.5$ (kg)

Therefore, the roller chain will not climb or jump sprocket teeth if a 39 kg (85 lbs) weight is used. However, this will change depending on the layout and amount of wear on the Roller Chain and sprocket teeth. Please use the above as a reference.

9. Selection by Temperature

9.1 RS Roller Chain Selection by Temperature

Method of selection that allows for a decrease in strength depending on temperature. Additionally, lubrication should be carried out using a suitable lubricant according to the operating temperature.

1) Problems of roller chain transmission at high temperatures
   1) Increase in wear from a decrease in hardness
   2) Increase in elongation from softening
   3) Poor articulation and an increase in wear from depletion/carbonization of oil
   4) Increase in wear and poor articulation from scaling
2) Problems of roller chain transmission at low temperatures
   1) Decrease in shock resistance from brittleness at low temperatures
   2) Solidification of lubricant
   3) Poor articulation from frost and water adhesion

Table 10 Standard for transmission performance of RS Roller Chain for high and low temperatures.

Temperature	RS Roller Chain		KT Cold Resistant type
	RS60 and under	RS80 and over	
Below –60C (–76F)	—	—	Unusable
–60C ~ –50C (–76F ~ –58F)	—	—	Catalogue value × 1/2
–50C ~ –40C (–58F ~ –40F)	—	Unusable	Catalogue value × 2/3
–40C ~ –30C (–40F ~ –22F)	Unusable	Catalogue value × 1/4	Catalogue value
–30C ~ –20C (–22F ~ –4F)	Catalogue value × 1/4	Catalogue value × 1/3	Catalogue value
–20C ~ –10C (–4F ~ +14F)	Catalogue value × 1/3	Catalogue value × 1/2	Catalogue value
–10C ~ +60C (+14F ~ +140F)	Catalogue value	Catalogue value	Catalogue value
+60C ~ +150C (+140F ~ +302F)	Catalogue value	Catalogue value	Unusable
+150C ~ +200C (+302F ~ +392F)	Catalogue value × 3/4	Catalogue value × 3/4	—
+200C ~ +250C (+392F ~ +482F)	Catalogue value × 1/2	Catalogue value × 1/2	—
Above +250C (482F)	Unusable	Unusable	—

Note: The ambient temperature and the temperature of the chain itself are different.

9.2 Method of selection of SS / NS Stainless Steel Roller Chain for high temperatures (+400°C / +752°F and above)

Chain strength falls as the temperature of the chain becomes high. The temperature limit for use is decided by the temperature of the chain itself. If your operation runs at temperatures higher than +400°C (+752°F), consult the manufacturer before making your chain selection. Note that the chain cannot be used in temperatures in excess of +700°C (+1,292°F). The chain speed should be less than 160 ft/min for selection by temperature.

Changes and important points regarding high temperature environments:

1) In order to prevent poor articulation and poor roller rotation from heat expansion, clearances in each part need to be changed.
2) It is possible that the chain will break (creep rupture) at lower loads when the temperature becomes higher.

10. Special Selection Method for Corrosion-Resistant Roller Chain

Slow speed selection (selection by max. allowable load) is employed for Corrosion-Resistant Roller Chain Selection.

1) The maximum allowable load of some Corrosion-Resistant Roller Chain is lower than that of Standard RS Roller Chain.
2) Avoid using offset links wherever possible.
3) The chain speed should be less than 160 ft/min for selections made in “Special Selection Method.”
4) Refer to the following page when substances such as acids, alkalis or chemicals come into contact with the chain.
5) Selection formula

$$\text{Max. chain working load} \times \text{Service factor } K_S \times \text{Speed factor } K_V \times \text{Sprocket teeth factor } K_C \leqq \text{Max. allowable load of the chain}$$

11. Anti-Corrosion Reference Guide for Corrosion Resistant Roller Chain - Table 11

Since corrosion resistance varies substantially according to operating conditions, this chart should not be considered as a guarantee. Using this chart as a reference, make sure to check the corrosion resistance of the chain in advance according to the actual operating conditions before deciding on the type of chain to use.

Substance	Concentration	Temp. °F	SS	LS	NS	AS	PC	PC-SY	TI
Acetic Acid	10%	68	○	○	○	○	○	○	○
Acetone		68	○	○	○	○	○	x	○
Alcohol			○	○	○	○	○	○	○
Aluminum Sulfate	Saturated	68	○	○	○	x	–	–	○
Ammonia Water		68	○	○	○	○	○	○	○
Ammonium Chloride	50%	Boiling	▲	▲	○	x	–	–	○
Ammonium Nitrate	Saturated	Boiling	○	○	○	○	▲	○	○
Ammonium Sulfate	Saturated	Boiling	○	○	○	▲	–	–	○
Beer		68	○	○	○	○	○	○	○
Benzene		68	○	○	○	○	○	○	○
Boric Acid	50%	Boiling	○	–	○	○	–	–	○
Butyric Acid		68	○	–	○	○	○	–	○
Calcium Chloride	Saturated	68	▲	–	○	x	▲	○	○
Calcium Hydroxide	20%	Boiling	○	–	○	○	○	○	○
Calcium Hypochlorite	11-14%	68	○	–	○	x	x	○	○
Carbolic Acid			○	–	○	○	x	○	○
Carbon Tetrachlorite (dry)		68	○	○	○	○	○	○	○
Chlorinated Water			x	x	○	x	x	–	○
Chlorine Gas (dry)		68	▲	–	▲	x	–	○	○
Chlorine Gas (moist)		68	x	x	▲	x	–	○	○
Chromic Acid	5%	68	○	○	○	▲	x	○	○
Citric Acid	50%	68	○	○	○	○	–	○	○
Coffee		Boiling	○	○	○	○	○	○	○
Creosote		68	○	–	○	○	–	–	○
Developing Solution		68	○	–	○	▲	○	○	○
Ethyl Ether		68	○	○	○	○	○	○	○
Ferric Acid	50%	68	○	○	○	○	x	○	○
Ferric Chloride	5%	68	▲	▲	▲	x	–	–	○
Formalin	40%	68	○	○	○	○	–	–	○
Formic Acid	50%	68	○	x	○	○	x	○	○
Fruit Juice		68	○	○	○	▲	○	○	○
Gasoline		68	○	○	○	○	○	○	○
Glycerol		68	○	○	○	○	○	○	○
Honey/Molasses			○	○	○	○	○	○	○
Hydrochloric Acid	2%	68	x	x	x	x	x	○	○
Hydrogen Peroxide	30%	68	○	–	○	▲	x	○	○
Hydrogen Sulfide (dry)			○	–	○	○	○	○	○
Hydrogen Sulfide (wet)			x	x	x	x	x	–	○
Hydroxybenzene		68	○	○	○	○	x	–	○
Kerosene		68	○	○	○	○	–	–	○
Ketchup		68	○	○	○	○	○	○	○
Lactic Acid	10%	68	○	○	○	▲	○	○	○
Lard			○	–	○	○	–	–	○
Linseed Oil	100%	68	○	–	○	▲	○	–	○
Malic Acid	50%	Boiling	○	○	○	○	○	○	○
Mayonnaise		68	○	○	○	▲	○	○	○
Milk		68	○	○	○	○	○	○	○

Substance	Concentration	Temp. °F	SS	LS	NS	AS	PC	PC-SY	TI
Nitric Acid	5%	68	○	–	○	▲	x	○	○
Nitric Acid	65%	68	○	x	○	x	x	○	○
Nitric Acid	65%	Boiling	▲	x	▲	x	x	x	○
Oil (Plant, Mineral)		68	○	○	○	○	○	○	○
Oleic Acid		68	○	○	○	○	○	–	○
Oxalic Acid	10%	68	○	○	○	▲	–	○	○
Paraffin		68	○	○	○	○	○	–	○
Petroleum		68	○	–	○	○	○	○	○
Phosphate			○	○	○	○	–	–	○
Phosphoric Acid	5%	68	○	–	○	▲	x	○	○
Phosphoric Acid	10%	68	▲	x	▲	▲	x	○	○
Picric Acid	Saturated	68	○	–	○	○	–	–	○
Potassium	Saturated	68	○	○	○	▲	–	–	○
Potassium Bichromate	10%	68	○	○	○	○	○	–	○
Potassium Chloride	Saturated	68	○	○	○	▲	–	–	○
Potassium Hydroxide	20%	68	○	x	○	○	○	○	○
Potassium Nitrate	25%	68	○	○	○	○	○	–	○
Potassium Nitrate	25%	Boiling	○	–	○	x	–	–	○
Potassium Permanganate	Saturated	68	○	○	○	○	–	○	○
Seawater		68	▲	▲	○	x	▲	○	○
Soap-and-Water-Solution		68	○	○	○	○	○	–	○
Sodium Carbonate	Saturated	Boiling	○	○	○	○	–	–	○
Sodium Chloride	5%	68	○	○	○	▲	○	○	○
Sodium Cyanide		68	○	○	○	–	–	–	○
Sodium Hydrocarbonate		68	○	○	○	○	○	○	○
Sodium Hydroxide	25%	68	○	x	○	○	○	–	○
Sodium Hypochlorite	10%	68	x	x	○	x	x	○	○
Sodium Perchlorate	10%	Boiling	○	–	○	x	–	–	○
Sodium Sulfate	Saturated	68	○	○	○	○	–	–	○
Sodium Thiosulfate	25%	Boiling	○	○	○	○	–	–	○
Soft Drink		68	○	○	○	○	○	○	○
Stearic Acid	100%	Boiling	x	x	○	x	x	–	○
Sugar Solution		68	○	○	○	○	○	○	○
Sulfuric Acid	5%	68	x	x	○	x	x	○	○
Sulfur Dioxide		68	○	–	○	x	–	–	○
Synthetic Detergent			○	○	○	○	○	○	○
Syrup			○	○	○	○	○	○	○
Tartaric Acid	10%	68	○	○	○	○	○	○	○
Turpentine		95	○	–	○	○	–	○	○
Varnish			○	–	○	○	–	○	○
Vegetable Juice		68	○	○	○	○	○	○	○
Vinegar		68	▲	–	○	x	▲	○	○
Water			○	○	○	○	○	○	○
Whiskey		68	○	○	○	○	○	○	○
Wine		68	○	○	○	○	○	○	○
Zinc Chloride	50%	68	▲	▲	▲	x	▲	○	○
Zinc Sulfate	25%	68	○	○	○	○	–	○	○

Key:
SS: 304 SS Series
LS: 304 SS Series + Plastic Sleeve
NS: 316 NS Series
AS: 600 AS Series
PC: Poly-Steel
PC-SY: Corrosion Resistance Poly-Steel
TI: Titanium TI Series

○ : Highly corrosion resistant
▲ : Corrosion resistant depending on operating conditions
x : Not corrosion resistant
– : Unknown

Roller Chain Installation & Maintenance

1. How to Cut Roller Chain

If the chain you purchased is either a unit length (10 ft.) or on a reel, it is necessary for you to cut the chain to the necessary length.

How to cut Roller Chain
- Using a chain vice and punch
- Using a chain breaker

1.1 Using a chain vice and punch

1) For riveted type roller chain, grind down one end of the outer link plate's two pins (same side) to the surface of the link plate. Be careful of the chain overheating during the grinding process. In the case of Lambda Chain, grinding should be carried out slowly so as not to overheat the bushings. Poly Steel Chain has no rivets and so this process is not necessary.
2) Remove the cotter pin for cotter pin type roller chain.

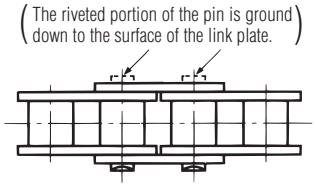
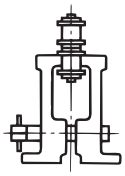


Fig. 1 Rivet-type roller chain

Fig. 2 Grinding the pin ends

3) As shown in the photo, put the roller chain into the groove of the chain vice (refer to Chain Tools section) and tighten the vice to secure the roller to be disassembled.
   (1) Please follow steps 1.3 and 1.4 for Poly Steel Chain and Lambda Chain.
   (2) For multi-strand SUPER Roller Chain, put the far end roller into the groove of the chain vice.

Fig. 3 Setting the roller chain in the chain vice.



Setting SUPER Roller Chain

4) Place the appropriate primary punch (refer to Chain Tools section), according to chain size, on the head of the ground pin, and then hit the head of the primary punch with a hammer. Make sure to hit the pins alternately to ensure the pins are removed evenly and at the same time. Continue to tap the pin until just before the pin is removed from the outer link plate.

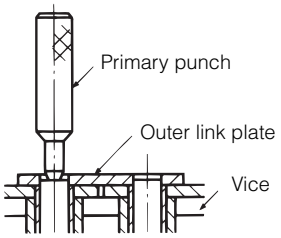


Fig. 4 Tapping the pin with the primary punch.

5) Use the secondary punch to remove the pin completely from the outer link plate. Check to make sure that the bushing where the pin was removed has not come loose or been deformed. Do not use loose or deformed parts.

⚠ Safety Precautions
(1) Make sure to use a grinder when grinding the riveted portion of one end of the rivet-type pin. If it is extracted without being ground first, more time and effort will be spent, or the chain will be damaged.
(2) Do not reuse any removed parts.

1.2 Using a chain breaker

1) For riveted type roller chain, grind down one end of the outer link plate's two pins (same side) to the surface of the link plate. (Same as 1.1) Remove the cotter pin for cotter pin type roller chain.
2) Remove the two pins from the same outer link plate. Check to make sure that the bushing where the pin was removed has not come loose or deformed. Do not use loose or deformed parts.

Fig. 5 Cutting chain using a chain breaker

1.3 How to cut Poly Steel

⚠ Safety Precautions
(1) A chain breaker (see the chain tools section) is a tool made for cutting chain, and can cut roller chain that is set on a machine. In this case, it is necessary beforehand to support the load on the roller chain and the weight of the roller chain itself to prevent it from falling after being cut.
(2) Do not reuse any removed parts.

Chain

1) Support the outer link plate of the chain in the cradle and push down on the pinhead with the exclusive punch. Then lightly hit the head of the punch using a hammer.
2) Avoid using excess force on the engineering plastic part, as there is a possibility of causing damage.

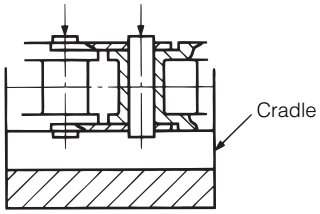


Fig. 6 Poly Steel Chain set in the cradle

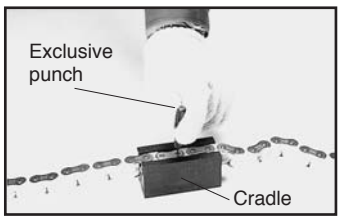


Fig. 7 Cutting Poly Steel Chain

1.4 How to cut Lambda Chain

1) Support the chain with a chain vice or something similar, and grind down one end of the outer link plate's two pins (same side) to the surface of the link plate. Be careful that the chain does not overheat during the grinding process. Grinding should be carried out slowly so as not to overheat the bushings.
2) The chain is then cut using an exclusive cradle (refer to Chain Tools section) and an RS Roller Chain punch. Important points for cutting are outlined in 4) and 5) in 1.1. However, please use an exclusive cradle instead of a vice.
3) When removing the pins with a punch, alternately hit the pins. Take extra care not to remove or cause any damage to the bushing. Make sure not to use this part if the bushing has come loose or been damaged.

2. How to Connect Roller Chain

2.1 When connecting chain on sprocket teeth

When connecting or disconnecting roller chain, it is convenient to use the sprocket teeth. Carry out the following steps.

1) Wind the chain around one of the sprockets such that both ends of the chain are facing each other on the sprocket.
2) Apply oil and grease to the connecting link.
3) Insert the connecting link into the two end links of the chain.
4) Insert the connecting link plate of the connecting link and fasten the plate using the clips/cotter pins or spring clips supplied.
5) When using a press-fit connecting link or semi-press-fit connecting link, insert the connecting link plate by tapping it with a hammer until it moves into position. Then fasten it using the clips/cotter pins or spring clips supplied.
6) When using the sprocket teeth to connect the chain, take care not to damage the teeth, particularly when using a cast iron sprocket.

Fig. 8 Connecting on a sprocket

2.2 When connecting between shafts

If the sprocket cannot be used due to the layout, please carry out the following steps.

1) Wind the chain around the sprockets and pull the chain ends together using a chain puller (refer to Chain Tools section) or wire.
2) Apply oil and grease to the connecting link.
3) Insert the connecting link into the two end links of the chain.

Fig. 9 Connecting between shafts

4) Insert the connecting link plate of the connecting link and fasten the plate using the clips/cotter pins or spring pins supplied.

2.3 Spring Clips and Cotter Pins

1) Spring Clips

Spring Clips are used for small size roller chain (under RS60) connecting links. When connecting the chain, the clip should be inserted securely into the slot of the pin on the connecting link after the connecting plate has been inserted on the pin. If the legs of the clips are spread too far they will not catch properly and will fall off during operation of the chain. Care should be taken when inserting them. The direction in which the clip is installed is generally opposite to the direction of travel for the chain as shown in Fig.10.

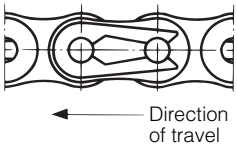


Fig. 10 Direction in which the clip is installed

2) Cotter Pins

TSUBAKI's cotter pins are heat treated. The legs of the cotter pins should be bent to an angle of approx. 60 degrees. Cotter pins should not be reused, and commercially available cotter pins other than those produced by TSUBAKI should be avoided.

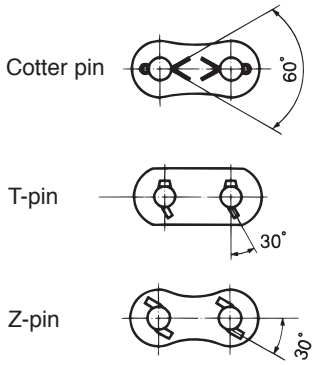


Fig. 11 Angle of legs for cotter pins

⚠ Safety Precautions

(1) Avoid using offset links wherever possible by varying the center distance between shafts or using an idler.
(2) In the case of pins and connecting link plate holes being press-fit or semi-press-fit type connecting links, avoid widening the connecting link plate hole or narrowing the pin diameter. Doing so will result in a reduction in roller chain strength.
(3) The outer link of cotter pin type roller chain can be used as a substitute for the connecting link. However, due to the press fit connection, the outer link plate must be carefully driven onto the pin parallel to the connecting link. If the connecting link plate is installed without due care to parallelism, chain damage or increased wear may result.
(4) Do not reuse press fit type link plates that have been detached.

3. RS Roller Chain Lubrication

One of the most important factors in getting the best possible performance from your roller chain is proper lubrication.
Following are some important points to remember:

1) The main purpose of lubricating and greasing is to limit wear elongation and prevent corrosion of the chain. Wear elongation arises from wear between the pin and bushing when the chain articulates.
2) TSUBAKI roller chain is pre-lubricated before packing. This helps to limit the amount of wear elongation during startup.
3) Use of detergents or solvents to clean chain will remove lubricant.

3.1 Lubrication Position

1) Since chain elongation is caused by wear between the pins and bushings, these parts must be well lubricated.
2) The clearance between the outer link plate and the inner link plate on the slack side of the chain should be lubricated with oil. The clearance between the bushing and the roller should also be done at the same time.

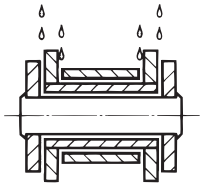


Fig. 12 Lubrication Position

3.2 Lubrication for Lifting chain

1) Although there is generally no slack side, lubrication must be done while the chain is not loaded.
2) For roller chain that does not articulate, grease should be applied thickly to prevent corrosion. The end fitting connection should also be well lubricated, even if there is no movement.
3) Since there is a possibility that rain or snow may cause loss of lubrication or corrosion from outdoor use, a protective cover should be attached to the chain.

3.3 Recommended Lubrication

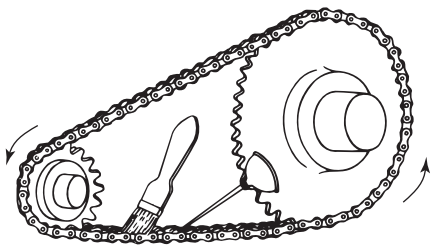
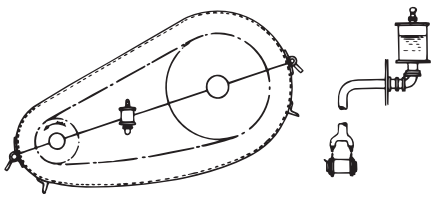
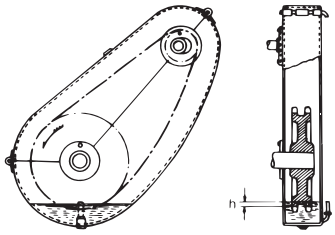
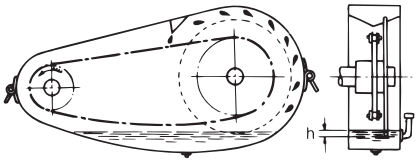
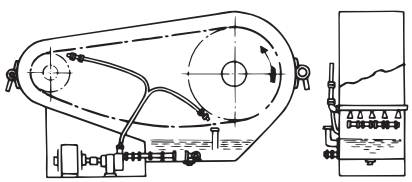
1) SAE No.

Table 1

Lubricating System	A I · A II · B				C			
Ambient Temperature / Chain No.	–10°C - 0°C (+14°F - +32°F)	0°C - +40°C (+32°F - +104°F)	+40°C - +50°C (+104°F - +122°F)	+50°C - +60°C (+122°F - +140°F)	–10°C - 0°C (+14°F - +32°F)	0°C - +40°C (+32°F - +104°F)	+40°C - +50°C (+104°F - +122°F)	+50°C - +60°C (+122°F - +140°F)
RS50 and under	SAE10W	SAE20	SAE30	SAE40	SAE10W	SAE20	SAE30	SAE40
RS60 · 80	SAE20	SAE30	SAE40	SAE50				
RS100					SAE20	SAE30	SAE40	SAE50
RS120 and over	SAE30	SAE40	SAE50					

2) Lubrication in high or low temperature conditions.
Please consult Tsubaki Technical Support for more information on lubrication in high or low temperature conditions.

3.4 Lubrication Systems and Methods Table 2

<table>
<tr><th colspan="2">Lubrication System</th><th>Method</th><th>Quantity of Oil</th></tr>
<tr><td rowspan="2">A</td><td>I</td><td> 
Oil is applied with an oil can or brush in the gap between the pin link and inner link clearances on the slack side of the chain.
⚠ Make sure chain operation is suspended while lubricating.</td><td>Oil should be applied at fixed intervals, usually about every eight hours, or as often as necessary to prevent the bearing areas from becoming dry.
* An automatic lubricator is also available for your convenience. Please consult Tsubaki for more details.</td></tr>
<tr><td>II</td><td>Drip Lubrication
 
A simple case can be used. Oil from the oil cup is supplied by drip feeding.</td><td>Apply about 5 - 20 drops of oil per minute for every strand of chain. Actual quantity depends on the chain speed.</td></tr>
<tr><td rowspan="2">B</td><td colspan="2">Oil Bath Lubrication
 
The chain is installed in a leak-free casing.</td><td>Chain should be submerged in oil 1/4” to 1/2”. If the oil depth “h” is too large, the composition of the oil may change due to heat generated (more than +80°C/+176°F) and lose some of its effectiveness.</td></tr>
<tr><td colspan="2">Lubrication by Slinger Disc
 
Install the slinger disc in a leak-free oil casing. Oil is splashed on the chain. The circumference speed should be at least 656 ft./min If the width of the chain is greater than 4.9”, attach slinger discs to both sides.</td><td>The bottom of the slinger disc should be lowered to a position 1” from the surface of the oil. The chain should not pass through the oil.</td></tr>
<tr><td>C</td><td colspan="2">Lubrication using a Pump
 
Use a leak-free casing. A pump is used to circulate the oil, which is then cooled. The number of supply holes should equal Z+1, where Z is the umber of strands of chain.</td><td>Oil quantity guide for each supply hole (Litres/min)
<table>
<tr><th>Chain Type</th><th>Chain Number / Chain Speed (ft./min)</th><th>RS60 and under</th><th>RS80 RS100</th><th>RS120 RS140</th><th>RS160 and over</th></tr>
<tr><td>RS</td><td>1,640 ~ 2,620</td><td rowspan="2">1.0</td><td rowspan="2">1.5</td><td rowspan="2">2.5</td><td rowspan="2">4.0</td></tr>
<tr><td>SUPER</td><td>980 or less</td></tr>
<tr><td>RS</td><td>2,620 ~ 3,660</td><td rowspan="2">2.0</td><td rowspan="2">2.5</td><td rowspan="2">3.5</td><td rowspan="2">5.0</td></tr>
<tr><td>SUPER</td><td>980 ~ 1,640</td></tr>
<tr><td>RS</td><td>3,660 ~ 4,600</td><td rowspan="2">3.0</td><td rowspan="2">3.5</td><td rowspan="2">4.5</td><td rowspan="2">6.0</td></tr>
<tr><td>SUPER</td><td>1,640 or more</td></tr>
</table></td></tr>
</table>

Examine the pins and bushings after removing the chain to confirm the effectiveness of the lubrication. Any scratches or reddish-brown color appearing on their surfaces indicates that the system is not being adequately lubricated.

4. RS Roller Chain Installation and Layout

4.1 Speed Ratio and Chain Lap

The speed ratio of roller chain can range up to 7 : 1 under normal operating conditions. However, a speed ratio of 10 : 1 is possible if the speed is very slow. Chain lap on the small sprocket must be at least 120° and at least 90° in the case of lifting chain.

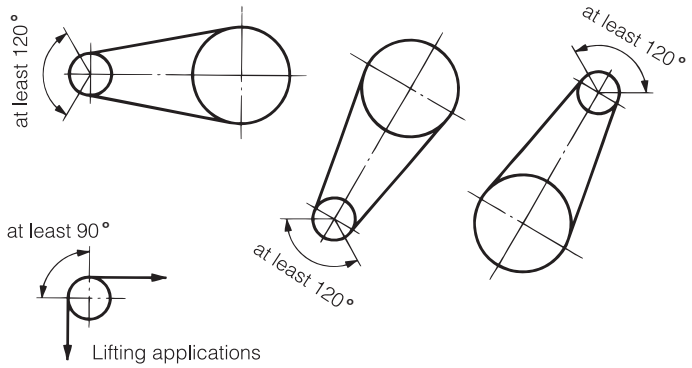


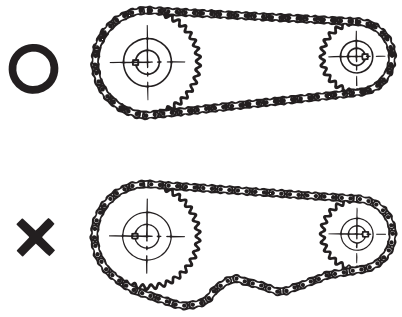
Fig. 13 Chain Lap

4.2 Distance between shafts

Sprockets can be separated by any distance as long as their teeth do not touch. Optimum distance is 30 to 50 times the pitch of the chain. However, the distance should be up to 20 times the pitch of the chain when there is a fluctuating load.

4.3 Amount of Slack

1) It is not necessary to apply initial tension to roller chain like V/horizontal belt drives. In general, roller chain is used with a suitable amount of slack. If roller chain is stretched too much, the oil film between the pin and bushing will be torn and damage to the roller chain and shafts will be accelerated. On the other hand, too much slack will cause the roller chain to vibrate, or ride up on the sprocket teeth resulting in damage to both the roller chain and the sprocket.



2) Generally, the slack of roller chain should be on the lower side. Adequate slack is calculated by moving the chain by hand in a downward direction from the center. The chain slack that you move by hand (SS') should be about 4% of the span (A-B) (Ex. The amount of slack when span length is 31.5" would be 31.5" × 0.04 = 1 1/4"). See figure 14.

In the following cases, the slack should be about 2% of the span.

(1) Vertical drive or close to vertical drive (tensioner is required)
(2) Center distance between two shafts is greater than 1 m.

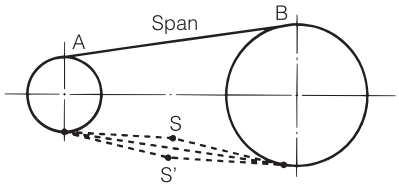


Fig. 14 Amount of chain slack

(3) Chain is operated under heavy load and frequent starts.
(4) Chain drive is suddenly reversed.

3) Roller chain tends to slightly elongate (about 0.05%) in the first few dozen hours of use. This elongation causes excess slack, so the amount of slack needs to be adjusted. Use a tensioner if the system has been designed for it. If a tensioner is unsuitable, adjust the slack by moving the shafts.

4.4 Horizontal Precision and Parallelism of the Shafts

Installation accuracy of the sprockets greatly affects the smoothness of the roller chain drive and also influences the wear life of the roller chain. Make sure to carry out the following important steps correctly.

1) Check the horizontal specification with a level. Adjust the shafts so that they are horizontal to within $\pm \frac{1}{300}$

2) Check the parallelism with a scale. Adjust the shafts so that they are parallel to within $\pm \frac{1}{300} = \left(\frac{A-B}{L}\right)$.

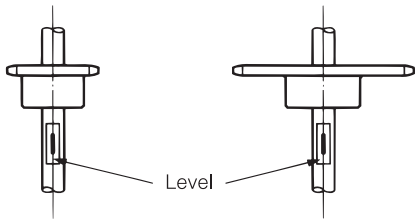


Fig. 15 Horizontal positioning of the shafts

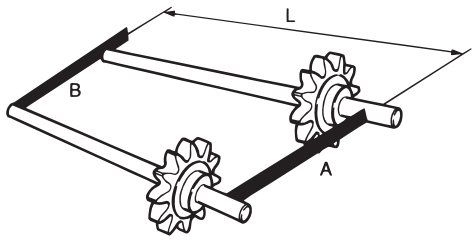


Fig. 16 Parallelism of the shafts

3) Correct the parallelism of the sprockets using a straight edge (or scale). Align the sprocket faces within the tolerances shown below according to distance between sprockets.

Up to 3.2 ft. ± .04"

3.2 ft. to 32 ft.: $\frac{\text{Distance between shafts (ft.)}}{12}$

Over 32 ft.: ± 0.4"

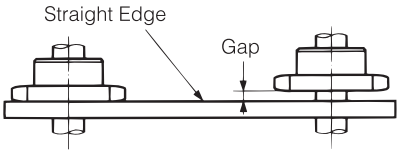


Fig. 17 Alignment of sprockets

4) Sprockets are fixed to shafts using Power Locks, Lock Sprockets, and keys (colors and bolt sets, etc. if required).

4.5 Layouts (◔ used in the figures below denotes the drive side)

1) General Layouts
When designing the roller chain drive, the centerline of both sprockets should be close to horizontal. If installation is close to vertical, it is desirable to install an idler or a guide shoe because even slight elongation can cause the chain to come off the sprocket. The angle of inclination should be kept within 60°.

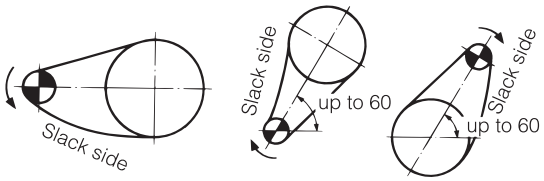


Fig. 18 General layouts

2) Layouts Requiring Attention
1) *When the slack is on top:*
When the center distance is short, move the shafts to adjust the center distance of the sprockets until the chain feels tight.

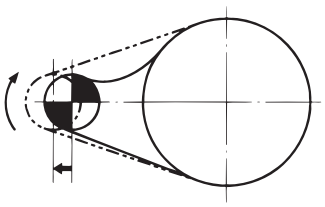


Fig. 19 Layout when the center distance is short

When the center distance is long, chain slack is adjusted by installing an idler, which supports the roller chain.

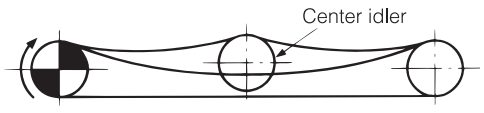


Fig.20 Layout when center distance is long.

2) *When chain speed is fast and load fluctuates:*
The natural vibration frequency of roller chain and the shock cycle of pumping machinery, or chordal action (up and down movement) of roller chain may attune, causing the roller chain to vibrate. In this case, a guide shoe (made of NBR or EPDM), etc. is used in order to stop the shaking and prevent vibration.

3) *When the center line is vertical:*
Install a tensioner that can automatically eliminate the extra chain slack. If the driving shaft is on the bottom, a tensioner must be installed.

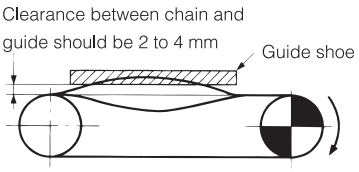


Fig. 21 Vibration preventive guide shoe

4.6 Installation of Lambda Curved Chain

1) Guide Installation
Lambda Curved Chain has a greater degree of freedom with regard to the clearance between the pins and bushings compared to standard chain. Therefore, a chain guide should be installed to ensure that the chain directly engages with the sprocket.

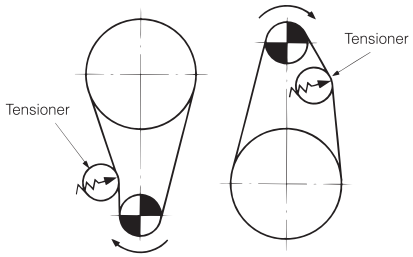


Fig. 22 Vertical drives

2) Minimum Radius (r)
The R dimension of the guide should be greater than the minimum radii shown in the following table.

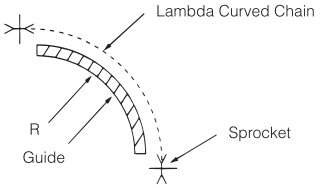


Illustration of guide

	Minimum Radius (r)
RSC40CU-Lambda	15.75"
RSC50CU-Lambda	19.70"
RSC60CU-Lambda	23.60"

5. Chain Test Run

After installing the chain, carry out a test run and check the following items before you actually start running the chain.

5.1 Pre-Test Run

1) Connecting link plates, clips, and cotter pins are installed correctly.
2) Chain slack has been properly adjusted.
3) Adequate lubrication is available.
4) The chain isn't touching any objects, such as chain cases, etc.
5) There are no obstacles in the chain operating area, and all is clean.

5.2 Test-Run

1) Sound. There should be no strange noises. Make sure the chain doesn't touch the case.
2) Vibration. Look for excessive chain vibration.
3) Sprocket-chain interaction. Make sure the chain doesn't climb over the sprockets.
4) Sprockets. Ensure that the chain separates smoothly from the sprocket.
5) Chain articulation. The chain should articulate smoothly.

If you notice any of these conditions, do not begin operation. Correct any problems before proceeding any further.

6. Roller Chain Inspection

1) Roller chain needs to be replaced when parts are damaged or when there has been 1.5% wear elongation. Try to replace the chain before this kind of situation occurs.
2) If roller chain selection and operating conditions are suitable, you can expect long life and low chain maintenance. Eventually the pins and bushings will wear; and the chain will need to be replaced. Listed below is an inspection check list.

6.1 Inspection Checklist
Table 3

Procedures	Method	Inspection Items	Reference page for details
Step I	Visually check the chain during operation and look for any abnormalities.	1. Sound. There should be no strange noises. 2. Vibration. Look for excessive chain vibration. 3. Sprocket-chain interaction. Make sure the chain doesn't climb over the sprockets. 4. The chain isn't jammed in the sprockets. 5. There are no stiff areas during articulation. 6. Adequate lubrication is available (lubricating system and quantity of oil) 7. Make sure the chain doesn't touch the case.	Inspection points are on the following pages and on the troubleshooting and problem-solving pages
Step II	Stop the chain and carefully inspect each part of the chain and sprocket.	1. Check the external cleanliness, corrosive, and lubrication conditions; also look for scratches or other damage to the link plate side and edge surfaces, pin edges, and roller surfaces. 2. Inspect for pin rotation and the clearance between the link plate and the pins. 3. Inspect the sprocket teeth surfaces and teeth side surfaces for scratches or marks. 4. Measure the wear elongation of the chain. 5. Check the articulation of the chain and rotation of the rollers. 6. When using a terminating device for lift applications, inspect the wear of the end bolts and the wear of the connecting link plate pins. Also check for proper installation at the same time.	
Step III	In order to investigate in more detail, remove the roller chain and inspect it visually or check it with measuring instruments.	1. The inspection items are identical to those in Step II, however, everything is checked in more detail.	

6.2 Inspection Intervals

Regular inspection of roller chain is recommend at one-month intervals. Inspection should be carried out at shorter intervals in the following cases.

1. Special or corrosive environments
2. High speeds with sudden stoppage
3. Lifting or indexing operations

6.3 Inspection requirements for ordinary transmission

1) Inspecting condition of lubrication
   1) While the chain is driving, check to see if there is lubrication in the clearance between the outer link plate and inner link plate. Also check if the chain or rotating disc is immersed in lubricating oil.
   2) When the chain is stationary, the chain surface will generally appear dirty from wear dust if lubrication is unsatisfactory. This is especially the case between the link plates.
   3) When the chain is removed, connecting link pins and the edge of the inside of the bushings should be checked. If there are any scratches, red or reddish-brown color, lubrication is improper or insufficient.

2) Inspection of link plates
   1) If repeated loads over the maximum allowable load are put on the chain, there is a strong possibility of fatigue breakage of the link plate. It is difficult to notice initial cracking from fatigue breakage simply from external observation.

Fig. 23 Cracks on the link plates

   2) Usually, a crack develops at the edge of a hole or at the side of the link plate, as shown in the illustrations below. The presence of cracks should be checked carefully. Fatigue breakage progresses little by little, so it can be noticed if close attention is paid.

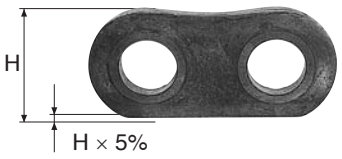


Fig. 24 Wear on the edges of the link plates

   3) When wear occurs from sliding between the edges of the plates and the guides, it is necessary to adjust the position of either the chain or the guides. The allowable wear on the link plates is limited to 5% of their height.

3) Inspection of pins

When the pins rotate, the roller chain must be completely replaced with new chain. This also applies to the connecting pins. By removing the connecting parts it is possible to see the conditions of wear and rust on the surfaces of the pins.

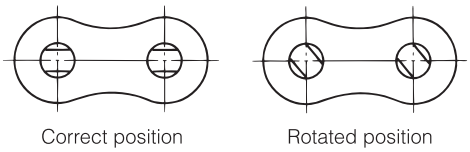


Fig. 25 Rotation of the pins

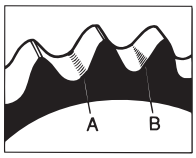
4) Inspection of the rollers
   1) As with the link plates, if rollers are also subjected to loads over the maximum allowable load, the repeated impact load between the chain and the sprockets may cause fatigue breakage to occur. The roller should be checked in the same way as the link plate.
   2) If foreign objects interfere with the engagement of the roller and sprocket, the roller may be damaged and a crack may develop. Careful attention should be paid to the above. In high-speed operations, even if foreign objects do not interfere with engagement, cracks may appear from the impact with the sprocket teeth.
   3) Chains damaged from fatigue breakage of the rollers must be completely replaced, because each part has received the same amount of repeated load.

Fig. 26 Cracks on the rollers

   4) Also check if the roller rotation is poor.

5) Inspection of the sprockets
   1) Chain and sprocket engagement can be checked by observing the roller and surface of the teeth. Proper engagement is when the contact area is uniform with point A in the illustration (figure 27). If the contact area is lopsided or the sides of the teeth are wearing away (point B in figure 27), this may have been caused from improper installation of the sprockets or twisting of the roller chain. In this case, rechecking/readjustment is necessary.
   2) The normal point of impact is slightly up from the tooth bottom. However, when initial tension is applied to the chain and tension remains on the slack side, the roller will slightly touch the tooth bottom. However, point A (figure 27) receives the strongest impact.

3) When idlers or tensioners are used, the contact area will be the center of the tooth bottom.

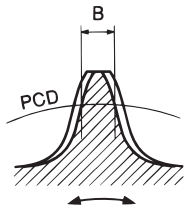


Improper installation

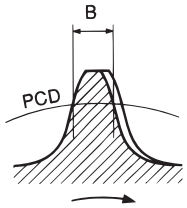
Improper installation causes the surface of the teeth to become ground down.

Fig. 27 Contact area of the sprocket teeth

4) Sprockets generally need to be replaced when tooth wear (shown in table 4) has been reached. Sprockets with induction hardened teeth need to be replaced when the hardening layer is worn.



forward and reverse



one direction

Sprocket Replacement Guide
(Based on Tooth Thickness/Dimension B)
Table 4

All dimensions in inches unless otherwise stated.

Size of RS Roller Chain	Dimension B	
	Normal	Pin-Gear
RS 11	0.024	—
RS 15	0.043	—
RS 25	0.059	—
RS 35	0.098	—
RS 41	0.102	—
RS 40	0.098	0.106
RS 50	0.114	0.134
RS 60	0.146	0.169
RS 80	0.197	0.228
RS100	0.272	0.307
RS120	0.343	0.390
RS140	0.417	0.469
RS160	0.488	0.559
RS180	0.445	0.535
RS200	0.496	0.591
RS240	0.594	0.713
RF320T	0.783	0.957
RF400T	0.980	

Size of BS Roller Chain	Dimension B Normal
RS05B	0.063
RF06B	0.063
RS08B	0.083
RS10B	0.114
RS12B	0.142
RS16B	0.197
RS20B	0.268
RS24B	0.283
RS28B	0.339
RS32B	0.469
RS40B	0.500

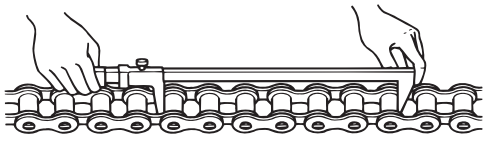
Note: Pin-Gear tooth thicknesses are all 18T.

5) If a new roller chain is run on a worn sprocket, the chain will wear at a faster rate than normal. In this case, when replacing the chain, replacement of the sprocket is also recommended.

6) Inspection of chain elongation
1) Chain elongation is caused not by deformation of the link plate, but by wear on the pin and bushing. Therefore, the remaining chain life can be estimated by periodically measuring the chain elongation.
2) Measuring chain elongation
(1) The chain should be measured while stretching it slightly to eliminate any slack.
(2) Measure the distance of the inside (L_1) and outside (L_2) of the rollers at both ends of the measured links using a caliper, to get a measurement (L).

$$L = \frac{L_1 + L_2}{2}$$

(3) When measuring, use at least 6 to 10 links to help keep any measuring error down to a minimum.



Positioning of vernier calipers for measuring 6 links

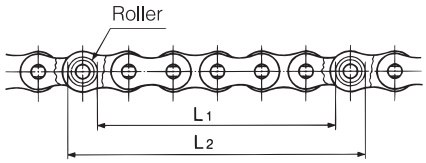


Fig. 28 Measurement of length

(4) Finding the chain elongation

$$\text{Chain elongation (\%)} = \frac{\text{Measured length} - \text{Standard length}}{\text{Standard length}} \times 100$$

Standard length = Chain pitch × Number of links

(5) For multi-strand roller chain, the measurement is carried out in the same way as for single strand roller chain of the same pitch.
(6) The limit of usage based on roller chain elongation for a smooth transmission is as follows.

Table 5

Maximum allowable elongation	
Large sprocket with up to 60 teeth	Chain elongation 1.5%
Large sprocket with between 61 - 80 teeth	Chain elongation 1.2%
Large sprocket with between 81 - 100 teeth	Chain elongation 1.0%
Large sprocket with between 101 - 110 teeth	Chain elongation 0.8%

(7) Dimensions for evaluating standard length (chain pitch × number of links) and 1.5% elongation are shown in Table 6 below.
(8) When the length of the roller chain cannot be measured with a vernier, a tape measure may be used; however, measurements need to be taken over as many links as possible to reduce measuring error.
(9) Lifespan of Lambda and X-Lambda roller chain. When chain elongation of Lambda Roller Chain reaches about 0.5% it may be losing its lubricating properties. This may be determined by the adhesion of red wear particles between the plates and the occurrence of articulation stiffness. When this occurs, the life of the chain has been reached.

Standard Length and 1.5% Elongation
Table 6

Chain Number		RS25	RS35	RS41	RS40
6 Link Measure	Standard Length	1.50	2.25	3.00	3.00
	1.5% Elongation	1.52	2.28	3.04	3.04
10 Link Measure	Standard Length	2.50	3.63	5.00	5.00
	1.5% Elongation	2.55	3.81	5.08	5.08

Chain Number		RS50	RS60	RS80	RS100
6 Link Measure	Standard Length	3.75	4.50	6.00	7.50
	1.5% Elongation	3.81	4.57	6.09	7.61
10 Link Measure	Standard Length	6.25	7.50	10.00	12.50
	1.5% Elongation	6.34	7.61	10.15	12.69

Chain Number		RS120	RS140	RS160	RS180
6 Link Measure	Standard Length	9.00	10.50	12.00	13.50
	1.5% Elongation	9.14	10.66	12.18	13.70
10 Link Measure	Standard Length	15.00	17.50	20.00	22.50
	1.5% Elongation	15.23	17.76	20.30	22.84

Chain Number		RS200	RS240
6 Link Measure	Standard Length	15.00	18.00
	1.5% Elongation	15.23	18.27
10 Link Measure	Standard Length	25.00	30.00
	1.5% Elongation	25.38	30.45

All dimension in inches unless otherwise stated.

6.4 Inspection of lifting and shuttle traction

1) This should be carried out with the same requirements as for ordinary transmission shown in item 6.3.
2) It is important to check the lubrication of the connecting parts between the roller chain and end brackets where end brackets are installed, as well as the parts where the roller chain winds around the sprocket. (Refer item 3.2 on page A-109)
3) The parts where the roller chain bends around the sprocket should be checked when inspecting the wear elongation of the roller chain.
4) Inspection of twisting and side bending of the roller chain. If partial twisting or side bending of the chain occurs, the complete roller chain should be replaced. (Fig. 29)

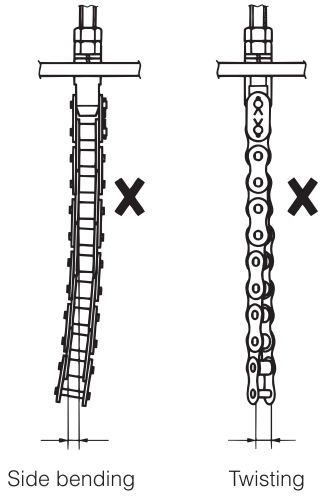


Fig. 29 Roller Chain Twisting

5) End brackets
Check for damage by deformation of the hole due to wear. If the hole is damaged or deformed, replace the end bracket immediately. The clearance on the pinhole of the bracket affects the life of the roller chain and should be kept to a minimum.

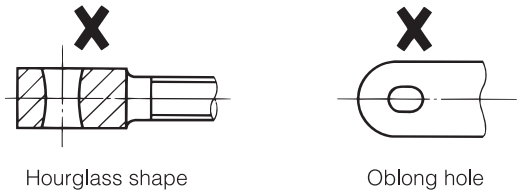


Fig. 30 Wear on the end bracket hole

6.5 Storage

Avoid storing spare parts, such as a roller chain, sprockets, and end brackets in high temperature/high humidity and dusty environments. Also, when storing roller chain that has been removed, wash the roller chain and then apply lubrication. After the roller chain clearances have been supplied with a sufficient amount of lubricant, wrap the chain in grease paper before storing away.

7. Precautions for Use in Damp, Corrosive and Abrasive Environments

Where possible, roller chain should be used in clean environments. When roller chain is used in damp, corrosive or abrasive environments follow these precautions:

7.1 Use in damp conditions

If the chain is exposed to water or steam the following problems may occur.

1) An increase in abrasive stretch due to improper or insufficient lubrication.
2) Decrease in fatigue strength from rust and corrosion (pitting) of the chain.
   A) Countermeasures
      (I) Reduce bearing pressure using a larger sized chain to improve wear resistance.
      (II) Use corrosion resistant roller chain for rust prevention.

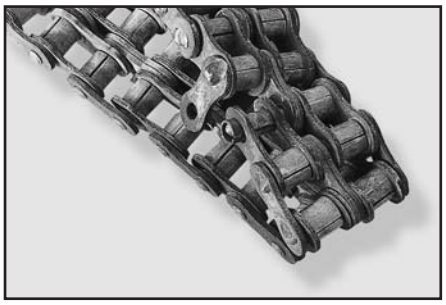


Fig. 31 Corrosion of stainless steel roller chain

7.2 Use in corrosive conditions

If roller chain is exposed to acids or alkaline conditions, such as battery acid and liquid used in plating processes, the following problems may occur.

1) Embrittlement fracture of link plates and pins.
2) Fatigue breakage of link plates and pins due to rust and pitting corrosion.
3) Wear from usual mechanical abrasion and corrosion.
4) Reduction in volume of the whole chain from corrosion.
5) In special cases where the chain is underwater (immersed in liquid), electro-chemical corrosion may occur.
6) There are also circumstances where even stainless steel roller chain will corrode. Fig. 31 shows an example of chain that was used in a plating apparatus. The chain fell to pieces within one month due to the affect of the acid.
   A) Countermeasures for embrittlement fractures (stress corrosion cracking):
      (I) Adopt a brittleness countermeasure that lowers crack susceptibility.
      (II) Install a cover or casing to prevent acids or alkalis from contacting the chain.
      (III) Adopt a high-grade material with anti-corrosive properties.
   B) Countermeasures for corrosion:
      (I) Use surface-treated chain.
      (II) Install a cover or casing to prevent acids or alkalis from contacting the chain.
      (III) Adopt a high-grade material with anti-corrosive properties.

Fig. 32 Hydrogen embrittlement cracking

In general, embrittlement fractures (stress corrosion cracking) occur around the link plate holes. This is the area where the pin and bushing are press-fitted to the link plate. This area has the highest concentration of stress. Cracks are generated even when there is no tension on the chain. Roller chain in general is more susceptible to acids than alkalis, and in special cases, embrittlement fractures (stress corrosion cracking) are generated by seawater or pit water.

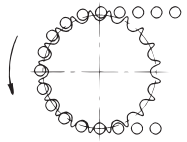
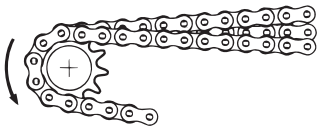
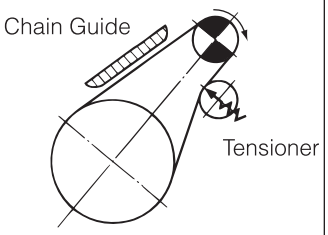
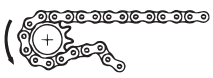
7.3 Use in abrasive conditions where abrasion is a problem

If the chain is exposed to strong abrasive materials (eg. sand and metal particles), the following problems may occur:

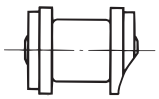
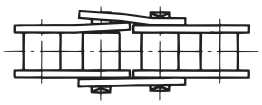
1) When the abrasive materials penetrate between the pins and bushings, chain wear is accelerated and poor articulation results.
2) When the abrasive materials penetrate between the bushings and rollers, chain wear is accelerated and poor roller rotation results.
3) When the abrasive materials penetrate between the link plates, poor articulation results.
   A) How to prevent abrasion.
      (I) Apply a dust-cover.
      (II) Remove foreign particles by regularly washing the roller chain.
      (III) Reduce bearing pressure by using a larger sized chain to improve wear resistance.
      (IV) Increase abrasion resistance by applying special processing to the parts of the chain where abrasion is a problem.

8. Drive System (Roller Chain and Sprockets) Troubleshooting Guide

8.1 General

Problem	Possible Causes	Solution
 Chain is riding up on the sprocket.	The roller chain and sprocket do not match.	Replace the chain or sprocket with the correct size.
	Excessive load.	Decrease the load, or increase the number of strands or size of the chain.
	Elongation of the chain due to wear or excessively worn sprocket teeth.	Replace with new chain and sprockets.
Unusual noises.	Improper installation of the sprocket or shaft.	Inspect and correct.
	Chain casing or bearings are loose.	Tighten all bolts and nuts.
	Excessive or insufficient slack in the chain.	Adjust the distance between shafts to obtain the proper amount of slack.
	Excessively worn chain or sprocket.	Replace the chain and sprocket with new chain and sprocket.
	Lack of or unsuitable lubrication.	Provide proper lubrication according to the operating conditions.
Excessive vibrations in chain.	Chain is resonating with periodic external force. 	Change the chain's mode of vibration. 1. Preventing resonance. a. To change the natural frequency of the chain. • Alter the effective tension either by applying an initial tension or adjusting the existing one. • Install a tensioner to change the chain span. • Replace the chain. Choose a different quality and spring coefficient. b. Change the vibration frequency. • Change the speed of rotation of the sprocket. • Re-evaluate the device set-up. 2. Mechanically reducing the vibrations. • Install a guide shoe. • Install a self-adjusting tensioner on the slack side. 
	Load fluctuations are excessively large.	Reduce fluctuations with fluid coupling or similar technique.
 The chain winds onto the sprocket (Poor separation from the sprocket teeth)	Span between shafts is too large.	Install an idler.
	Excessive slack in chain.	Adjust the chain length or distance between shafts. Install a tensioner.
	Elongation of the chain due to chain wear or excessively worn sprocket teeth.	Replace with new chain and sprocket.

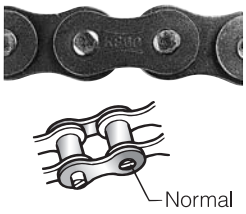
Roller Chain Installation & Maintenance

Problem	Possible Causes	Solution
Rusting of the chain	Improper lubrication or poor environment.	Replace chain and protect it from the environment with chain casing or proper lubrication.
Excessive wear on the inside surface of the link plates and sides of the sprocket teeth.	Improper installation. 	Correct sprocket and shaft installation.
Excessive wear on the link plate side surfaces and pin heads.	Improper installation of guides, etc. 	Check the condition of the guides, and increase the gap between the guides and the chain.
Improper flex or bending of chain, tight joints. 	Chain is not installed correctly.	Inspect the installation and correct as necessary.
	Contamination from metal dust or dirt because of improper lubrication.	Remove the chain, wash it thoroughly, and provide proper lubrication.
	Excessive load or bent pin.	Reduce the load or increase the number of or size of chains. Replace chain with a larger size.
	Corrosion or rusting.	Install a chain casing to protect the chain.
	Seizing from improper lubrication.	Provide proper lubrication according to the operating conditions.
	Seizing of pin and bushing. Pin and bushing seized from high-speed operation. This causes improper bending and can lead to chain breakage.	Provide the proper operating conditions.
Spreading of link plates.	Uneven or excessive loading caused by improper installation. 	Replace with new chain and correct installation.

8.2 Link Plate Related

Problem	Possible Causes	Solution
Breakage of link plate.	Excessively large shock load.	Reduce shock loads by making the start-up, stopping, and other actions smoother (installing a shock absorber, etc.). Increase the size or number of chains.
	Vibrations in the chain.	Install an anti-vibration device (for example, tensioner or idler). Refer to “Excessive vibration in chain” page (found earlier in this section).
	Large inertia in the driven machine (excessive load).	Increase the size or number of chains.
	Corrosion.	Replace with a new chain. Install a casing to protect the chain. Periodically clean the chain.
		(1) Static fracture. Stretching the link plate with a tensile load beyond its breaking load will cause it to stretch and then break. (2) Fatigue fracture. By repeatedly applying a load past its fatigue limit (fatigue strength), the fatigue will start at holes and then suddenly break.  (3) Offset link plate fatigue. Offset link plates are bent at the center, and the resulting concentration of stress at the bend can cause a fatigue break. Avoid using offset links in high-stress applications. 
Cracks in the link plates (fatigue), which are perpendicular to the direction of pull. 	Loads are greater than the maximum allowable load. And this excessive load is repeating.	Remove all large loads. If it is not possible to remove the excess load, then increase the size or number of chains. Replace with a new chain.
Deformation of link plate holes. 	Excessive load.	Remove excessive load. Replace with a new chain.
Corrosion stress cracks appear, usually as bow-shaped cracks in the link plate. 	The chain is being used in corrosive (acidic or alkaline) conditions. (This is not caused by a repetitive load).	• Replace with a new chain. Install a casing to protect the chain from the corrosive conditions. • Or use an anti-corrosive chain. (See anti-corrosive roller chain section in this catalogue).

8.3 Pin Related

Problems	Possible Causes	Solution
Breakage of pin.	Excessively large shock loads.	Reduce shock loads by making the start-up, stopping, and other actions smoother.
	Subject to a repetitive load greater than the fatigue limit of the pin.	Remove the large repetitive load or increase the size or number of chains.
	Corrosion.	Install a casing to protect the chain. Periodically clean and lubricate the chains.
 (1) Static fracture. The type of fracture found when subjecting the chain to the breakage test. Occurs when chain is subjected to a load greater than its breakage strength.	 (2) Fatigue fracture. Occurs when the pin is repetitively subjected to loads greater than its fatigue limit. Re-check the size of the peak load and formulate a countermeasure.	 (3) Shock-induced bending fracture. The pin is subjected to a large shock load and breaks. The side with the initiating point receives tensile load, and the fracture progresses from this point. A pin is especially susceptible to becoming weak with regard to bending when the surface of the pin has corroded.
Pin rotates or begins to stick out.	Excessive load or improper lubrication.	Replace with new chain. Improve the lubrication or loading conditions.
 	Operating a chain at high load without proper lubrication can create friction between the pin and bushing, causing the pin to rotate. In this condition, the pin may come out, leading to chain breakage.	Replace with new chain immediately. Do not weld or reuse the pins. If the pin head or link plate surface is worn, check the installation.
Wear or rust occurs only at the connecting pin in a lifting application or similar operation.	Improper initial lubrication at installation.	Replace the connecting link. If pin wear is excessive, also replace the chain. Properly install the connecting section for devices such as end brackets used for lifting applications, etc.

8.4 Bushing / Roller Related

Problem	Possible Causes	Solution
Roller and/or bushing splits.	Excessive load or speed of rotation.	Choose a different chain according to the HP ratings table.
	Inadequate lubrication.	Replace the chain. Provide adequate lubrication according to the operating conditions.
	Fatigue fracture.  Reached the point of fatigue during operation and eventually broke. Impact with the sprocket teeth at a force exceeding the chain's transmission capacity.	
Roller does not rotate.	RS11SS, RS15, RS25, RS35 (bushed chain)	Use a roller chain instead of a bushed chain.
	The inner link plate is moving inward, or the bushing is cracked.	Replace with a new chain. Re-inspect the installation and load conditions.
	Foreign particles have gotten between the bushing and roller.	Periodically clean the chain. Install a cover to protect the chain.
Roller is opening up.	Excessive load. 	Reduce the load. Provide adequate lubrication.
Roller is becoming hourglass shaped.	Excessive load or inadequate lubrication.	Replace with new chain. Improve the lubrication or loading conditions.

How to Order Roller Chain

1. Example of chain identification

Ordering base roller chain

The following also applies to chain sizes not mentioned below.

RS80 -2

Form — Size / Spec. — Number of strands (Not shown when single strand)

RS Roller Chain	RS80	-2*
SUPER Roller Chain	SUPER80	-2
Lambda Roller Chain	RSD80-Lambda	-2
NP Lambda Roller Chain	RSD80NP	-2
X-Lambda Roller Chain	RSD80X-Lambda	
RS-HT Roller Chain	RS80HT	-2
SUPER-H Roller Chain	SUPER80H	-2
NP Roller Chain	RS80NP	-2
WP Roller Chain	RS80WP	-2
DP Roller Chain	RS80DP	
SS Stainless Steel Roller Chain	RS80SS	-2
AS Stainless Steel Roller Chain	RS80AS	
SN Low Noise Roller Chain	RS80SN	

According to this catalog, this part is shown as the chain number.
* There are two (2) pin types for RS60, 80, 100, and 120 single strand chains.

*{RS60CP, RS80CP} (CP is shown when the pin is cotter pin type. Rivet type when no code is shown.)

*{RS100RP, RS120RP} (RP is shown when the pin is rivet pin type. Cotter pin type when no code is shown.)

Ordering connecting links separately

RS60 -2 -CL

Base roller chain — Connecting link

- RS Roller Chain (Slip-fit connecting link or Press-fit connecting link)
- 1 pitch offset link.....OL
- 2 pitch offset link.....2POL

Sprocket identification

RS60 -2B 20T -SS

- Base chain and size
- Sprocket type (B, C, A)
- No. of sprocket teeth ("T" is teeth)
- Specification SS: Type 304 Stainless Steel P: Plastic

2. Example of a specific order — **Described using RS Roller Chain as an example.**

1) When ordering by the unit (10 feet).

In general, roller chain is kept in stock by the 10 foot box (excl. special types). There is one connecting link included in one ten foot box. Place orders for connecting links separately if the chain is going to be divided into two or more pieces, or if it will be connected with another chain.

2) When ordering an even number of links.

(1) Example of 8 links

8 links including the connecting link.

(Example of order) RS50 Roller Chain 8 links (Slip-fit connecting links will be supplied unless otherwise requested).

(2) Example of 20-link endless strand
(Example of order) RS50 Roller Chain 20 links (Please specify "endless strand") There is no CL supplied in this case.

(3) Please consult Tsubaki Technical Support for other chain configurations.

How to Order Roller Chain

3) When ordering an odd number of links.

Specify the formation-see examples below.
In case of an unspecified odd number of links, both end links will be treated as inner links.

(1) Example of 9 links
(Example of order) RS50 Roller Chain 9 links

Please specify "with OL and Slip-fit connecting link."

(2) When a 2 pitch offset link is specified
(Example of order) RS50 Roller Chain 9 links

Please specify "with 2POL and Press-fit connecting link."

[This combination is possible for RS Roller Chain only.]

(3) Example of CLs on both ends
(Example of order) RS50 Roller Chain 9 links

Please specify "with Slip-fit connecting links on both ends."
RS50 Roller Chain 9 links
Please specify "with Press-fit connecting links on both ends."

(4) Example of inner link on both ends

(Example of order) RS50 Roller Chain 9 links
Please specify "with inner link on both ends."

(5) Example of outer link on both ends

(Example of order) RS50 Roller Chain 9 links
Please specify "with outer link on both ends."

[When both ends are outer links, make sure to correctly carry out riveting of the pin ends using a rivet punch (refer to Chain Tools section) after installing the chain in the machine.]

Note: The offset links and connecting links are supplied loose with the chain. They are not pre-assembled on the chain.

4) When ordering by the reel.

There is a fixed reel length available for RS35 - RS80 single strand chain (table below).

(Example of order) RS50 Roller Chain n reel(s)

Size	No. of feet/reel	No. of links	No. of CLs included
RS35	100	3200	10
RS40	100	2400	10
RS50	100	1920	10
RS60	100	1600	10
RS80	50	600	5

5) When ordering sprockets.

(Example of order)

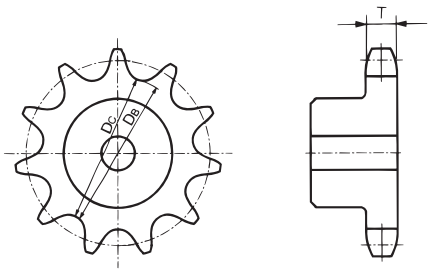
Standard sprocket	RS50	1B20T	n pcs
Fit bore sprocket (shaft hole diam.: 1")	RS50	1B20TH18J	n pcs
Type 304 Stainless Steel	RS50	1B20T-SS	n pcs
Plastic	RS50	1B20T-P	n pcs

6) When ordering a replacement chain.

1) When the roller chain size is unknown.
(1) Roller chain specification. Confirm the specifications (such as Super Series type) and material (eg. stainless steel).
(2) Identify the roller chain size/specification stamped on the link plate.
(3) Measure the roller chain pitch, roller diameter, width between inner links and plate thickness.

2) When the sprocket number is unknown.
(1) Chain No. and number of strands.
(2) Sprocket type.
(3) Shaft hole diameter (Not required when shaft hole processing is carried out by customer).
(4) Number of teeth.
(5) Boss diameter and boss length (Only for special types).
(6) Whether or not the teeth ends have been hardened.
(7) Marking.

Additionally, when the roller chain number is also unknown, please provide the following data in addition to (1) - (7) above:
(8) Width of tooth (T).
(9) Tooth bottom diameter (D_B) (D_C for an odd number of teeth).



Pitch Conversion Tables

Pitch Conversion Table - Number of Pitches Converted into Feet

No. of Pitches	Chain No. RS25 1/4"	RS35 3/8"	RS40 RS41 1/2"	RS50 5/8"	RS60 3/4"	RS80 1"	RS100 1-1/4"	RS120 1-1/2"	RS140 1-3/4"	RS160 2"	RS200 2-1/2"	RS240 3"	Length of Pitches
	Chain Length (ft.)												
1	0.0208	0.0313	0.0417	0.0521	0.0625	0.0833	0.1042	0.1250	0.1458	0.1667	0.2083	0.2500	1
2	0.0416	0.0625	0.0833	0.1042	0.1250	0.1667	0.2083	0.2500	0.2917	0.3333	0.4147	0.5000	2
3	0.0625	0.0938	0.1250	0.1563	0.1875	0.2500	0.3125	0.3750	0.4375	0.5000	0.6250	0.7500	3
4	0.0833	0.1250	0.1667	0.2083	0.2500	0.3333	0.4167	0.5000	0.5883	0.6667	0.8333	1.0000	4
5	0.1041	0.1563	0.2083	0.2604	0.3125	0.4167	0.5208	0.6250	0.7222	0.8333	1.0417	1.2500	5
6	0.1250	0.1875	0.2500	0.3125	0.3750	0.5000	0.6250	0.7500	0.8750	1.0000	1.2500	1.5000	6
7	0.1458	0.2188	0.2917	0.3646	0.4375	0.5833	0.7992	0.8750	1.0208	1.1667	1.4583	1.7500	7
8	0.1666	0.2500	0.3333	0.4167	0.5000	0.6667	0.8333	1.0000	1.1667	1.3333	1.6667	2.0000	8
9	0.1875	0.2813	0.3750	0.4688	0.5625	0.7500	0.9375	1.1259	1.3125	1.5000	1.8750	2.2500	9
10	0.2083	0.3125	0.4167	0.5208	0.6250	0.8333	1.0417	1.2500	1.4583	1.6667	2.0833	2.5000	10
11	0.2292	0.3438	0.4594	0.5729	0.6875	0.9167	1.1459	1.3750	1.6041	1.8333	2.2917	2.7500	11
12	0.2500	0.3750	0.5000	0.6250	0.7500	1.0000	1.2500	1.5000	1.7500	2.0000	2.5000	3.0000	12
13	0.2708	0.4063	0.5417	0.6771	0.8125	1.0833	1.3540	1.6250	1.8958	2.1667	2.7083	3.2500	13
14	0.2916	0.4375	0.5833	0.7292	0.8750	1.1667	1.4583	1.7500	2.0417	2.3333	2.9167	3.5000	14
15	0.3125	0.4688	0.6250	0.7813	0.9375	1.2500	1.5625	1.8750	2.1875	2.5000	3.1250	3.7500	15
16	0.3333	0.5000	0.6667	0.8333	1.0000	1.3333	1.6667	2.0000	2.3333	2.6667	3.3333	4.0000	16
17	0.3542	0.5313	0.7084	0.8854	1.0625	1.4167	1.7709	2.1250	2.4791	2.8333	3.5417	4.2500	17
18	0.3750	0.5625	0.7500	0.9375	1.1250	1.5000	1.8750	2.2500	2.7250	3.0000	3.7500	4.5000	18
19	0.3958	0.5938	0.7917	0.9896	1.1875	1.5833	1.9793	2.3750	2.7708	3.1667	3.9583	4.7500	19
20	0.4166	0.6250	0.8333	1.0417	1.2500	1.6667	2.0833	2.5000	2.9167	3.3333	4.1667	5.0000	20
21	0.4375	0.6563	0.8750	1.0938	1.3125	1.7500	2.1875	2.6250	3.0625	3.5000	4.3750	5.2500	21
22	0.4583	0.6875	0.9167	1.1458	1.3750	1.8333	2.2917	2.7500	3.2083	3.6667	4.5833	5.5000	22
23	0.4792	0.7188	0.9584	1.1979	1.4375	1.9166	2.3959	2.8750	3.3541	3.8333	4.7917	5.7500	23
24	0.5000	0.7500	1.0000	1.2500	1.5000	2.0000	2.5000	3.0000	3.5000	4.0000	5.0000	6.0000	24
25	0.5208	0.7813	1.0417	1.3021	1.5625	2.0833	2.6042	3.1250	3.6458	4.1667	5.2083	6.2500	25
26	0.5416	0.8125	1.0833	1.3541	1.6250	2.1667	2.7083	3.2500	3.7917	4.3333	5.4167	6.5000	26
27	0.5625	0.8438	1.1250	1.4062	1.6875	2.2500	2.8125	3.3750	3.9375	4.5000	5.6250	6.7500	27
28	0.5833	0.8750	1.1667	1.4583	1.7600	2.3333	2.9167	3.5000	4.0833	4.6667	5.8333	7.0000	28
29	0.6024	0.9063	1.2084	1.5104	1.8125	2.4167	3.0208	3.6250	4.2291	4.8333	6.0417	7.2500	29
30	0.6250	0.9375	1.2500	1.5625	1.8750	2.5000	3.1250	3.7500	4.3750	5.0000	6.2500	7.5000	30
31	0.6458	0.9688	1.2917	1.6164	1.9375	2.5883	3.2292	3.8750	4.5208	5.1667	6.4583	7.7500	31
32	0.6667	1.0000	1.3333	1.6667	2.0000	2.6667	3.3333	4.0000	4.6667	5.3333	6.6667	8.0000	32
33	0.6875	1.0313	1.3750	1.7188	2.0625	2.7500	3.4375	4.1250	4.8125	5.5000	6.8790	8.2500	33
34	0.7083	1.0625	1.4167	1.7708	2.1250	2.8333	3.5417	4.2500	4.9583	5.6667	7.0833	8.5000	34
35	0.7292	1.0938	1.4584	1.8229	2.1875	2.9167	3.6459	4.3750	5.1041	5.8333	7.2917	8.7500	35
36	0.7500	1.1250	1.5000	1.8750	2.2500	3.0000	3.7500	4.5000	5.2500	6.0000	7.5000	9.0000	36
37	0.7708	1.1563	1.5417	1.9271	2.3125	3.0833	3.8542	4.6250	5.3958	6.1667	7.7083	9.2500	37
38	0.7916	1.1875	1.5833	1.9791	2.3750	3.1667	3.9583	4.7500	5.5417	6.3333	7.9167	9.5000	38
39	0.8125	1.2188	1.6250	2.0312	2.4375	3.2500	4.0625	4.8750	5.6875	6.5000	8.1250	9.7500	39
40	0.8333	1.2500	1.6667	2.0833	2.5000	3.3333	4.1667	5.0000	5.8333	6.6667	8.3333	10.0000	40
41	0.8542	1.2813	1.7084	2.1354	2.5625	3.4167	4.2709	5.1250	5.9791	6.8333	8.5417	10.2500	41
42	0.8750	1.3125	1.7500	2.1875	2.6250	3.5000	4.3750	5.2500	6.1250	7.0000	8.7500	10.5000	42
43	0.8958	1.3438	1.7917	2.2396	2.6875	3.5833	4.4792	5.3750	6.2708	7.1667	8.9583	10.7500	43
44	0.9166	1.3750	1.8333	2.2916	2.7500	3.6667	4.5833	5.5000	6.4167	7.3333	9.1667	11.0000	44
45	0.9375	1.4063	1.8750	2.3437	2.8125	3.7500	4.6875	5.6250	6.5625	7.5000	9.3750	11.2500	45
46	0.9583	1.4375	1.9167	2.3958	2.8750	3.8333	4.7917	5.7500	6.7083	7.6667	9.5833	11.5000	46
47	0.9792	1.4688	1.9584	2.4479	2.9375	3.9167	4.8959	5.8750	6.8541	7.8333	9.7917	11.7500	47
48	1.0000	1.5000	2.0000	2.5000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	10.0000	12.0000	48
49	1.0208	1.5313	2.0417	2.5521	3.0625	4.0833	5.1042	6.1250	7.1458	8.1667	10.2083	12.2500	49
50	1.0416	1.5625	2.0833	2.6042	3.1250	4.1667	5.2083	6.2500	7.2917	8.3333	10.4167	12.5000	50

Pitch Conversion Tables

Pitch Conversion Table - Number of Pitches Converted into Feet

No. of Pitches	Chain No. RS25 1/4"	RS35 3/8"	RS40 RS41 1/2"	RS50 5/8"	RS60 3/4"	RS80 1"	RS100 1-1/4"	RS120 1-1/2"	RS140 1-3/4"	RS160 2"	RS200 1-1/2"	RS240 3"	No. of Pitches
	Chain Length (ft.)												
51	1.0625	1.5938	2.1250	2.6563	3.1875	4.2500	5.3125	6.3750	7.4375	8.5000	10.6250	12.7500	51
52	1.0833	1.6250	2.1667	2.7083	3.2500	4.3333	5.4167	6.5000	7.5833	8.6667	10.8333	13.0000	52
53	1.1042	1.6563	2.2084	2.7604	3.3125	4.4167	5.5209	6.6250	7.7291	8.8333	11.0417	13.2500	53
54	1.1250	1.6875	2.2500	2.8125	3.3750	4.5000	5.6250	6.7500	7.8750	9.0000	11.2500	13.5000	54
55	1.1458	1.7188	2.2917	2.8647	3.4375	4.5833	5.7292	6.8750	8.0208	9.1667	11.4583	13.7500	55
56	1.1666	1.7500	2.3333	2.9167	3.5000	4.6667	5.8333	7.0000	8.1667	9.3333	11.6667	14.0000	56
57	1.1375	1.7813	2.3750	2.9688	3.5625	4.7500	5.9375	7.1250	8.3125	9.5000	11.8750	14.2500	57
58	1.2083	1.8125	2.4167	3.0208	3.6250	4.8333	6.0417	7.2500	8.4583	9.6667	12.0833	14.5000	58
59	1.2292	1.8438	2.4584	3.0729	3.6870	4.9166	6.1459	7.3750	8.6041	9.8333	12.1917	15.7500	59
60	1.2500	1.8750	2.5000	3.1250	3.7500	5.0000	6.2500	7.5000	8.7500	10.0000	12.5000	15.0000	60
61	1.2708	1.9063	2.5417	3.1771	3.8125	5.0833	6.3542	7.6250	8.8958	10.1667	12.7083	15.2590	61
62	1.2916	1.9375	2.5833	3.2292	3.8750	5.1667	6.5583	7.7500	9.0417	10.3333	12.9167	15.5000	62
63	1.3125	1.9688	2.6250	3.2813	3.9375	5.2500	6.6625	7.8750	9.1875	10.5000	13.1350	16.7500	63
64	1.3333	2.0000	2.6667	3.3333	4.0000	5.3333	6.7667	8.0000	9.3333	10.6667	13.3333	16.0000	64
65	1.3542	2.0313	2.7084	3.3854	4.0625	5.4167	6.8709	8.1250	9.4791	10.8333	13.5417	16.2500	65
66	1.3750	2.0625	2.7500	3.4375	4.1250	5.5000	6.9750	8.2500	9.6250	11.0000	13.7500	16.5000	66
67	1.3958	2.0938	2.7917	3.4897	4.1875	5.5883	6.0792	8.3750	9.7708	11.1667	13.9583	17.7500	67
68	1.4166	2.1250	2.8333	3.5417	4.2500	5.6667	7.1833	8.5000	9.9167	11.3333	14.1667	17.0000	68
69	1.4375	2.1563	2.8750	3.5938	4.3125	5.7500	7.2875	8.6250	10.0625	11.5000	14.3750	17.2500	69
70	1.4583	2.1875	2.9167	3.6458	4.3750	5.8333	7.3917	8.7500	10.2083	11.6667	14.5833	17.5000	70
71	1.4792	2.2188	2.9584	3.6979	4.4375	5.9167	7.3950	8.8750	10.3541	11.8333	14.7917	18.7500	71
72	1.5000	2.2500	3.0000	3.7500	4.5000	6.0000	7.5000	9.0000	10.5000	12.0000	15.0000	18.0000	72
73	1.5208	2.2813	3.0417	3.8021	4.5625	6.0833	7.6042	9.1250	10.6458	12.1667	15.2083	18.2500	73
74	1.5416	2.3125	3.0833	3.8541	4.6250	6.1667	7.7083	9.2500	10.7917	12.3333	15.4167	18.5000	74
75	1.5525	2.3438	3.1250	3.9062	4.6875	6.2500	7.8125	9.3750	10.9375	12.5000	15.6250	18.7500	75
76	1.5831	2.3750	3.1667	3.9583	4.7500	6.3333	7.9167	9.5000	11.0833	12.6667	15.8333	19.0000	76
77	1.6039	2.4063	3.2084	4.0104	4.8125	6.4167	8.0209	9.6250	11.2291	12.8333	16.0417	19.2500	77
78	1.6247	2.4375	3.2500	4.0625	4.8750	6.5000	8.1250	9.7500	11.3750	13.0000	16.2500	19.5000	78
79	1.6456	2.4688	3.2917	4.1146	4.9375	6.5833	8.2282	9.8750	11.5208	13.1667	16.4583	19.7500	79
80	1.6664	2.5000	3.3333	4.1667	5.0000	6.6667	8.3333	10.0000	11.6667	13.3333	16.6667	20.0000	80
81	1.6872	2.5313	3.3750	4.2188	5.0625	6.7500	8.4375	10.1250	11.8125	13.5000	16.8750	20.2500	81
82	1.7081	2.5625	3.4167	4.2700	5.1250	6.8333	8.5417	10.2500	11.9583	13.6667	17.0833	20.5000	82
83	1.7289	2.5938	3.4584	4.3230	5.1875	6.9167	8.6459	10.3750	12.1041	13.8333	17.2917	20.7500	83
84	1.7497	2.6250	3.5000	4.3750	5.2500	7.0000	8.7500	10.5000	12.2500	14.0000	17.5000	21.0000	84
85	1.7706	2.6563	3.5417	4.4271	5.3125	7.0833	8.8542	10.6250	12.3958	14.1667	17.7083	21.2500	85
86	1.7914	2.6875	3.5833	4.4792	5.3750	7.1667	8.9583	10.7500	12.5417	14.3333	17.9167	21.5000	86
87	1.8122	2.7188	3.6250	4.5313	5.4375	7.2500	9.0625	10.8750	12.6875	14.5000	18.1250	21.7500	87
88	1.8330	2.7500	3.6667	4.5834	5.5000	7.3333	9.1667	11.0000	12.8333	14.6667	18.3333	22.0000	88
89	1.8539	2.7813	3.7084	4.6355	5.5625	7.4167	9.2709	11.1250	12.9791	14.8333	18.5417	22.2500	89
90	1.8747	2.8125	3.7500	4.6875	5.6250	7.5000	9.3750	11.2500	13.1250	15.0000	18.7500	22.5000	90
91	1.8955	2.8438	3.7917	4.7396	5.6875	7.5833	9.4792	11.3750	13.2708	15.1667	18.9583	22.7590	91
92	1.9164	2.8750	3.8333	4.7917	5.7500	7.6667	9.5833	11.5000	13.4167	15.3333	19.1667	23.0000	92
93	1.9372	2.9063	3.8750	4.8438	5.8125	7.7500	9.6875	11.6250	13.5625	15.5000	19.3750	23.2500	93
94	1.9580	2.9375	3.9167	4.8958	5.8750	7.8333	9.7917	11.7500	13.7083	15.6667	19.5833	23.5000	94
95	1.9789	2.9688	3.9584	4.9479	5.9375	7.9167	9.8959	11.8750	13.8541	15.8333	19.7917	23.7500	95
96	1.9997	3.0000	4.0000	5.0000	6.0000	8.0000	10.0000	12.0000	14.0000	16.0000	20.0000	23.0000	96
97	2.0205	3.0313	4.0417	5.0521	6.0625	8.0833	10.1042	12.1250	14.1458	16.1667	20.2083	24.2500	97
98	2.0413	3.0625	4.0833	5.1042	6.1250	8.1667	10.2083	12.2500	14.2917	16.3333	20.4167	24.5000	98
99	2.0622	3.0938	4.1250	5.1563	6.1875	8.2500	10.3125	12.3750	14.4375	16.5000	20.6250	24.7500	99
100	2.0830	3.1250	4.1667	5.2083	6.2500	8.3333	10.4167	12.5000	14.5833	16.6667	20.8333	25.0000	100

⚠ WARNING

USE CARE TO PREVENT INJURY COMPLY WITH FOLLOWING TO AVOID SERIOUS PERSONAL INJURY:

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 — 1996 “Safety Standards for Mechanical Power Transmission Apparatus”, and ANSI/ASME B20.1 — 1996 “Safety Standards for Conveyors and Related Equipment”, or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

2. Always lock out the power switch before installing, removing, lubricating or servicing a chain system.

3. When connecting or disconnecting chain:
   a. Eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.
   b. Support the chain to prevent uncontrolled movement of chain and parts.
   c. Use of pressing equipment is suggested. Tools must be in good condition and properly used.
   d. Do not attempt to connect or disconnect chain unless you understand chain construction, including the correct direction for pin/rivet removal or insertion.
   e. Do not attempt to rework damaged chains by replacing only the components obviously faulty. The entire chain may be compromised, and it should be discarded.

4. Other cautions:
   a. **Alterations and Repairs** to chains should be made only by qualified personnel with parts and components authorized by Tsubaki.
   b. **Electroplating of Assembled Chains** is not recommended. Plating of assembled chains could result in failure from hydrogen embrittlement.
   c. **Inspect Chains** for shipment damage before installation. During operation, all chain systems should be inspected on a regular schedule. Visually check for worn, damaged and broken parts caused by improper installation or maintenance, abnormal stress, temperature, humidity, abrasion or corrosion, possible interference with other system components and improper lubrication. (For correct lubrication procedures and systems, see the Installation and Maintenance section.)
   d. **Heating Chain** with a cutting torch is not suggested unless absolutely necessary for removal. If cut in such a manner, it should not be reused.
   e. **Welding** should not be performed on any chain or component.
   f. **Average Tensile Strength** of a chain means the average load at which it will break when subjected to a destructive tensile test. *It does not mean working load.* For complete information, contact Tsubaki Technical Support.
   g. **Product Dimensions** in this catalogue are subject to changes and are intended for general reference only. For exact current dimensions, request certified prints from Tsubaki.

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