

## Super Chain

Proven Performance



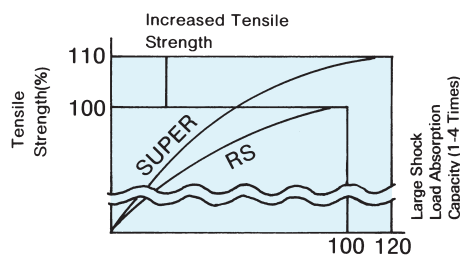
ASME/ANSI standard roller chains are widely used in various industries. To meet the insistent demands of heavy industry, construction and agriculture, stronger and higher performing chains which can replace the corresponding ASME/ANSI standard chains are necessary. U.S. Tsubaki offers a line-up of Super and Ultra Super Chains which will solve your specific driving and conveying problems relating to heavy shock load and/or space limitations.

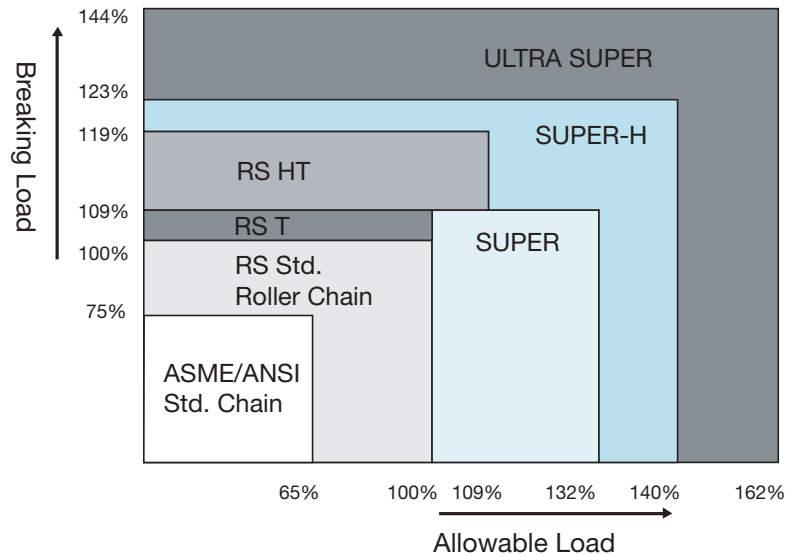
## SUPER ROLLER CHAIN SUPER 80 ~ 240

High fatigue and tensile strength allow the selection of a chain one size smaller than would be required with standard chain.

Pins constructed of "high toughness" steel give this chain exceptional ability to absorb shock loads.

The link plate holes are ball drifted to obtain high fatigue strength.





If you have a problem like breakage of pins due to heavy shock loads, we suggest that you use either the T Series or the HT Series.

If you have problems such as fatigue breakage of link plates, generally poor performance, or a space limitation, we suggest that you use the Super Series, Super-H Series or Ultra Super Series. You may be able to use the next smaller size chain or even a chain two sizes smaller.

### T Series

T Series chains have greater shock load resistance and higher ultimate tensile strength than comparable ASME/ANSI standard roller chains. This is accomplished by using thru hardened pins. The dimensions of the chains are identical to ASME/ANSI standard roller chains.

### HT Series

HT Series chains have a greater ultimate tensile strength (plus 15-30%) than ASME/ANSI standard roller chains by using thru hardened pins and link plates of the next larger chain size. These chains also provide greater shock load resistance. The dimensions of the chains are identical to those of the ASME/ANSI Heavy Series standard roller chains.

### Super Series

The dimensions of Super Series Chain are identical to those of ASME/ANSI standard roller chain. Super Series Chain has a wider waist link plate than our standard chain and special manufacturing techniques are used to produce the pitch holes. After heat treatment, the holes are then ball drifted for greater fatigue strength. The pins are thru hardened for greater shock resistance. Because of this, Super Series Chain has a Maximum Allowable Load 25-30% higher than our standard RS roller chain.

### Super-H Series

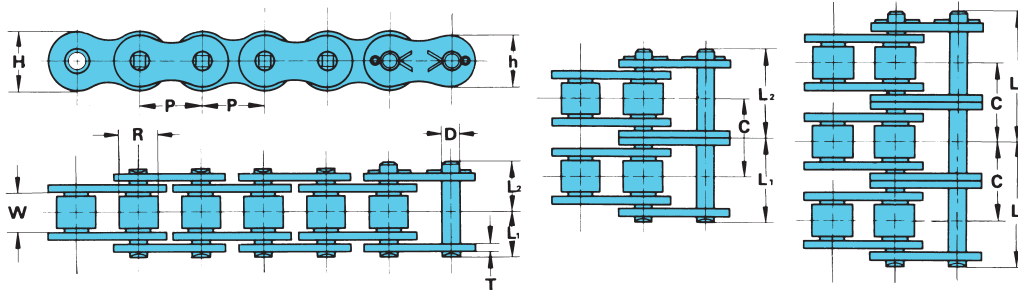
Super-H Series Chain has the same wide waist as Super Series. The link plate thickness is identical to those of the ASME/ANSI Heavy Series roller chains. The same special manufacturing techniques used in Super Series Chain are used to produce the pitch holes. The pins are thru hardened. Because of this, Super-H Series Chain has an even higher Maximum Allowable Load than the Super Series.

### Ultra Super Series

U.S. Tsubaki Ultra Super Series has a greater ultimate tensile strength and allowable load than any other roller chain we manufacture. With the Ultra Super Series, a chain up to two sizes smaller than standard can be selected.

# U.S. TSUBAKI SUPER CHAIN

## RS-T Series



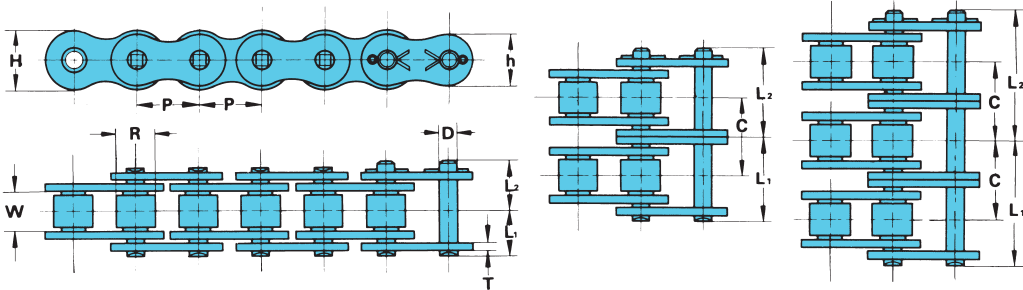
U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate			Pin			Transverse Pitch C	Average Tensile Strength lbs.	*Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
				T	H	h	D	L <sub>1</sub>	L <sub>2</sub>				
<b>SINGLE STRAND</b>													
RS60T	.750	.469	.500	.094	.713	.614	.234	.506	.581	—	10,300	1,980	1.03
RS80T	1.000	.625	.625	.125	.949	.819	.312	.640	.758	—	17,600	3,300	1.79
RS100T	1.250	.750	.750	.156	1.185	1.024	.375	.778	.900	—	27,300	5,070	2.68
RS120T	1.500	.875	1.000	.187	1.425	1.228	.437	.980	1.138	—	39,700	6,830	3.98
RS140T	1.750	1.000	1.000	.219	1.661	1.433	.500	1.059	1.248	—	52,900	9,040	5.03
RS160T	2.000	1.125	1.250	.250	1.898	1.638	.562	1.254	1.451	—	68,300	11,900	6.79
RS200T	2.500	1.562	1.500	.312	2.374	2.047	.781	1.535	1.764	—	105,800	16,090	11.08
RS240T	3.000	1.875	1.875	.375	2.850	2.457	.937	1.886	2.185	—	154,300	22,270	16.46
<b>DOUBLE STRAND</b>													
RS60T-2	.750	.469	.500	.094	.713	.614	.234	.955	1.033	.897	20,600	3,360	2.04
RS80T-2	1.000	.625	.625	.125	.949	.819	.312	1.217	1.335	1.153	35,200	5,610	3.54
RS100T-2	1.250	.750	.750	.156	1.185	1.024	.375	1.484	1.606	1.408	54,600	8,610	5.27
RS120T-2	1.500	.875	1.000	.187	1.425	1.228	.437	1.874	2.031	1.789	79,400	11,560	7.86
RS140T-2	1.750	1.000	1.000	.219	1.661	1.433	.500	2.022	2.211	1.924	105,800	15,360	9.97
RS160T-2	2.000	1.125	1.250	.250	1.898	1.638	.562	2.407	2.604	2.305	136,600	20,230	13.47
RS200T-2	2.500	1.562	1.500	.312	2.374	2.047	.781	2.947	3.175	2.817	211,600	27,350	21.93
RS240T-2	3.000	1.875	1.875	.375	2.850	2.457	.937	3.618	3.913	3.458	308,600	37,850	32.32
<b>TRIPLE STRAND</b>													
RS60T-3	.750	.469	.500	.094	.713	.614	.234	1.404	1.502	.897	30,900	4,950	3.05
RS80T-3	1.000	.625	.625	.125	.949	.819	.312	1.795	1.909	1.153	52,800	8,250	5.30
RS100T-3	1.250	.750	.750	.156	1.185	1.024	.375	2.191	2.313	1.408	81,900	12,670	7.91
RS120T-3	1.500	.875	1.000	.187	1.425	1.228	.437	2.772	2.929	1.789	119,100	17,070	11.78
RS140T-3	1.750	1.000	1.000	.219	1.661	1.433	.500	2.986	3.179	1.924	158,700	22,600	14.92
RS160T-3	2.000	1.125	1.250	.250	1.898	1.638	.562	3.561	3.758	2.305	204,900	29,750	20.17
RS200T-3	2.500	1.562	1.500	.312	2.374	2.047	.781	4.360	4.585	2.817	317,400	40,220	32.94
RS240T-3	3.000	1.875	1.875	.375	2.850	2.457	.937	5.348	5.636	3.458	462,900	55,670	48.11

Note: Riveted type chain will be provided unless otherwise specified.

Cottered type chain will be provided upon request.

\* Refer to page A-42, "Chain Drive Selection."

# RS-HT Series



U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate			Pin			Transverse Pitch C	Average Tensile Strength lbs.	*Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
				T	H	h	D	L <sub>1</sub>	L <sub>2</sub>				
<b>SINGLE STRAND</b>													
RS40HT	.500	.312	.312	.080	.472	.409	.156	.375	.433	—	5,290	1,170	.53
RS50HT	.625	.400	.375	.094	.591	.512	.200	.437	.504	—	8,260	1,870	.79
RS60HT	.750	.469	.500	.125	.713	.614	.234	.582	.669	—	12,500	2,200	1.21
RS80HT	1.000	.625	.625	.156	.949	.819	.312	.720	.823	—	20,900	3,630	2.08
RS100HT	1.250	.750	.750	.187	1.185	1.024	.375	.858	.965	—	31,900	5,510	3.07
RS120HT	1.500	.875	1.000	.219	1.425	1.228	.437	1.061	1.203	—	43,000	7,270	4.38
RS140HT	1.750	1.000	1.000	.250	1.661	1.433	.500	1.138	1.303	—	56,200	9,590	5.54
RS160HT	2.000	1.125	1.250	.281	1.898	1.638	.562	1.337	1.514	—	71,600	12,500	7.35
RS200HT	2.500	1.562	1.500	.375	2.374	2.047	.781	1.689	1.894	—	125,600	17,600	12.33
RS240HT	3.000	1.875	1.875	.500	2.850	2.457	.937	2.157	2.453	—	198,400	25,300	19.57
<b>DOUBLE STRAND</b>													
RS60HT-2	.750	.469	.500	.125	.713	.614	.234	1.083	1.181	1.028	25,100	3,700	2.41
RS80HT-2	1.000	.625	.625	.156	.949	.819	.312	1.358	1.492	1.283	41,800	6,100	4.15
RS100HT-2	1.250	.750	.750	.187	1.185	1.024	.375	1.630	1.736	1.539	63,900	9,300	6.06
RS120HT-2	1.500	.875	1.000	.219	1.425	1.228	.437	2.014	2.171	1.925	86,000	12,300	8.65
RS140HT-2	1.750	1.000	1.000	.250	1.661	1.433	.500	2.163	2.343	2.055	112,400	16,300	10.98
RS160HT-2	2.000	1.125	1.250	.281	1.898	1.635	.562	2.555	2.736	2.437	143,000	21,200	14.61
RS200HT-2	2.500	1.562	1.500	.375	2.374	2.047	.781	3.230	3.437	3.083	251,300	29,900	24.46
RS240HT-2	3.000	1.575	1.875	.500	2.850	2.457	.937	4.146	4.461	3.984	396,800	43,000	38.46
<b>TRIPLE STRAND</b>													
RS60HT-3	.750	.469	.500	.125	.713	.614	.234	1.614	1.720	1.028	37,700	5,500	3.60
RS80HT-3	1.000	.625	.625	.156	.949	.819	.312	1.998	2.120	1.283	62,800	9,000	6.20
RS100HT-3	1.250	.750	.750	.187	1.185	1.024	.375	2.400	2.510	1.539	95,900	13,700	9.08
RS120HT-3	1.500	.875	1.000	.219	1.425	1.228	.437	2.984	3.134	1.924	129,000	18,100	12.96
RS140HT-3	1.750	1.000	1.000	.250	1.661	1.433	.500	3.191	3.370	2.055	168,600	23,900	16.46
RS160HT-3	2.000	1.125	1.250	.281	1.898	1.635	.562	3.756	3.961	2.437	214,900	31,200	21.88
RS200HT-3	2.500	1.562	1.500	.375	2.374	2.047	.781	4.760	4.969	3.083	377,000	44,000	36.73
RS240HT-3	3.000	1.875	1.875	.500	2.850	2.457	.937	6.104	6.423	3.985	595,200	63,200	57.32

Note: Riveted type chain will be provided unless otherwise specified.

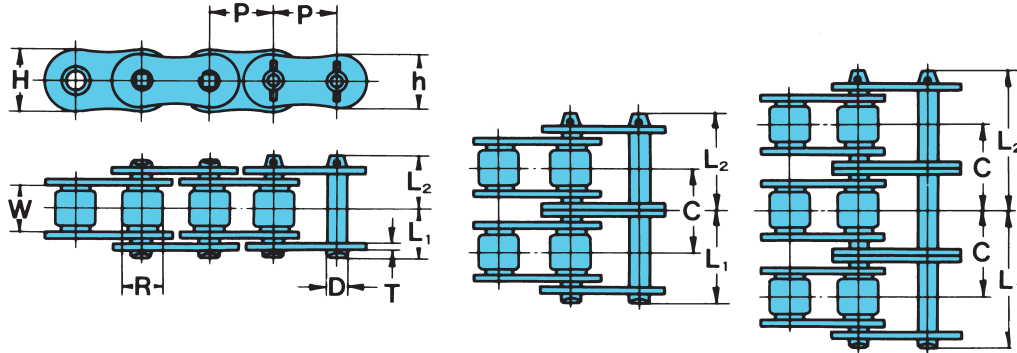
Cottered type chain will be provided upon request.

\* Refer to page A-42, "Chain Drive Selection."

# U.S. TSUBAKI SUPER CHAIN

## Super Series

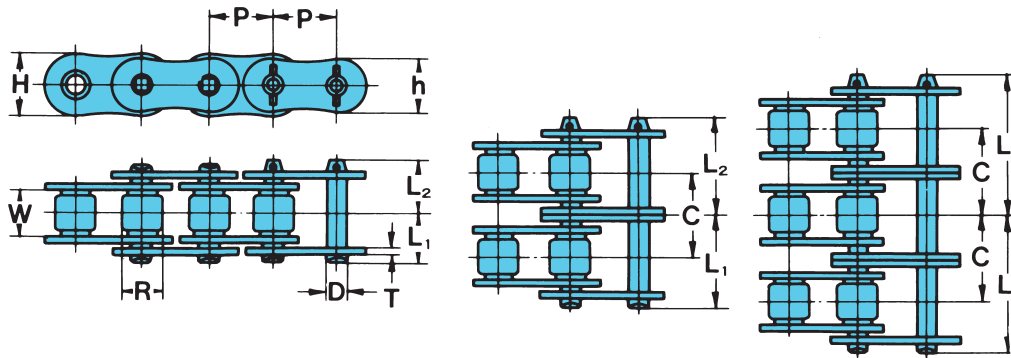
A - DRIVE CHAINS



U.S. Tsubaki Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate			Pin			Transverse Pitch C	Average Tensile Strength lbs.	* Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
				T	H	h	D	L1	L2				
<b>SINGLE STRAND</b>													
SUPER80	1.000	.625	.625	.125	.949	.819	.312	.640	.758	—	19,100	4,180	1.89
SUPER100	1.250	.750	.750	.156	1.185	1.024	.375	.778	.900	—	28,600	6,830	2.86
SUPER120	1.500	.875	1.000	.187	1.425	1.228	.437	.980	1.138	—	41,800	8,810	4.23
SUPER140	1.750	1.000	1.000	.219	1.661	1.433	.500	1.059	1.248	—	55,100	12,100	5.40
SUPER160	2.000	1.125	1.250	.250	1.898	1.638	.562	1.254	1.451	—	70,500	15,800	7.25
SUPER200	2.500	1.562	1.500	.312	2.374	2.047	.781	1.535	1.764	—	113,500	21,100	11.85
SUPER240	3.000	1.875	1.875	.375	2.850	2.457	.937	1.886	2.185	—	165,300	29,700	17.22
<b>DOUBLE STRAND</b>													
SUPER80-2	1.000	.625	.625	.125	.949	.819	.312	1.217	1.335	1.153	38,300	7,100	3.78
SUPER100-2	1.250	.750	.750	.156	1.185	1.024	.375	1.484	1.606	1.408	57,300	11,610	5.63
SUPER120-2	1.500	.875	1.000	.187	1.425	1.228	.437	1.874	2.031	1.789	83,700	14,990	8.36
SUPER140-2	1.750	1.000	1.000	.219	1.661	1.433	.500	2.022	2.211	1.924	110,200	20,610	10.70
SUPER160-2	2.000	1.125	1.250	.250	1.898	1.638	.562	2.407	2.604	2.305	141,000	26,980	14.40
SUPER200-2	2.500	1.562	1.500	.312	2.374	2.047	.781	2.947	3.175	2.817	227,000	35,980	23.46
SUPER240-2	3.000	1.875	1.875	.375	2.850	2.457	.937	3.618	3.913	3.458	330,700	50,590	34.19
<b>TRIPLE STRAND</b>													
SUPER80-3	1.000	.625	.625	.125	.949	.819	.312	1.795	1.909	1.153	57,500	10,470	5.64
SUPER100-3	1.250	.750	.750	.156	1.185	1.024	.375	2.191	2.313	1.408	85,900	17,080	8.45
SUPER120-3	1.500	.875	1.000	.187	1.425	1.228	.437	2.772	2.929	1.789	125,600	22,040	12.53
SUPER140-3	1.750	1.000	1.000	.219	1.661	1.433	.500	2.986	3.179	1.924	165,300	30,310	16.02
SUPER160-3	2.000	1.125	1.250	.250	1.898	1.638	.562	3.561	3.758	2.305	211,600	39,680	21.57
SUPER200-3	2.500	1.562	1.500	.312	2.374	2.047	.781	4.360	4.585	2.817	340,600	52,910	35.24
SUPER240-3	3.000	1.875	1.875	.375	2.850	2.457	.937	5.348	5.636	3.458	496,000	74,400	51.14

- Note:
1. Offset links are not available.
  2. Riveted type chain will be provided unless otherwise specified.
  3. Press-fit connecting links will be supplied.
  4. Carbon steel sprockets with hardened teeth should be used with Super Series chain.
  - \* 5. Refer to page A-42, "Chain Drive Selection."

# Super-H Series



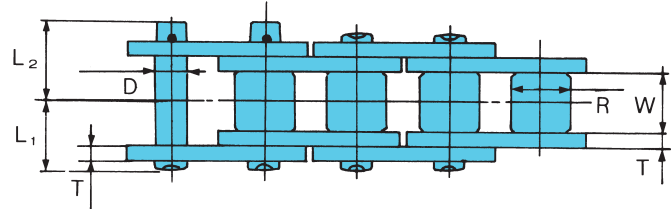
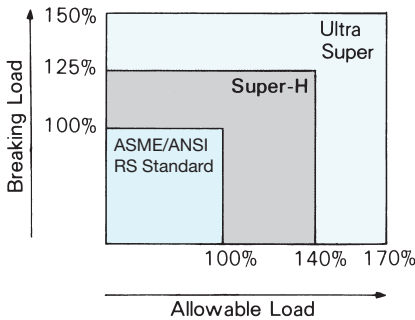
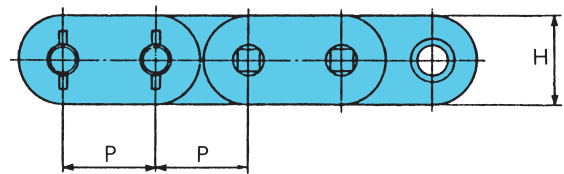
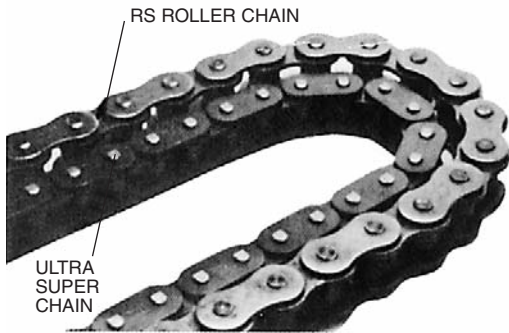
U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plate			Pin			Transverse Pitch C	Average Tensile Strength lbs.	*Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
				T	H	h	D	L <sub>1</sub>	L <sub>2</sub>				
<b>SINGLE STRAND</b>													
SUPER80H	1.000	.625	.625	.156	.949	.819	.312	.720	.823	—	22,000	4,630	2.21
SUPER100H	1.250	.750	.750	.187	1.185	1.024	.375	.858	.965	—	32,600	7,270	3.28
SUPER120H	1.500	.875	1.000	.219	1.425	1.228	.437	1.061	1.203	—	44,000	9,480	4.66
SUPER140H	1.750	1.000	1.000	.250	1.661	1.433	.500	1.138	1.303	—	57,300	12,780	5.97
SUPER160H	2.000	1.125	1.250	.281	1.898	1.638	.562	1.337	1.514	—	72,700	16,500	7.88
SUPER200H	2.500	1.562	1.500	.375	2.374	2.047	.781	1.689	1.894	—	134,400	22,500	13.22
SUPER240H	3.000	1.875	1.875	.500	2.850	2.457	.937	2.157	2.453	—	207,200	31,300	20.47
<b>DOUBLE STRAND</b>													
SUPER80H-2	1.000	.625	.625	.156	.949	.819	.312	1.358	1.492	1.283	44,000	7,870	4.38
SUPER100H-2	1.250	.750	.750	.187	1.185	1.024	.375	1.630	1.736	1.539	65,200	12,360	6.39
SUPER120H-2	1.500	.875	1.000	.219	1.425	1.228	.437	2.014	2.171	1.924	88,100	16,110	9.08
SUPER140H-2	1.750	1.000	1.000	.250	1.661	1.433	.500	2.163	2.343	2.055	114,600	21,730	11.68
SUPER160H-2	2.000	1.125	1.250	.281	1.898	1.638	.562	2.555	2.736	2.437	145,500	28,100	15.44
SUPER200H-2	2.500	1.562	1.500	.375	2.374	2.047	.781	3.230	3.437	3.083	268,900	38,220	25.86
SUPER240H-2	3.000	1.875	1.875	.500	2.850	2.457	.937	4.146	4.461	3.985	414,400	53,220	40.16
<b>TRIPLE STRAND</b>													
SUPER80H-3	1.000	.625	.625	.156	.949	.819	.312	1.998	2.120	1.283	66,100	11,570	6.55
SUPER100H-3	1.250	.750	.750	.187	1.185	1.024	.375	2.400	2.510	1.539	97,800	18,180	9.50
SUPER120H-3	1.500	.875	1.000	.219	1.425	1.228	.437	2.954	3.134	1.925	132,200	23,700	13.50
SUPER140H-3	1.750	1.000	1.000	.250	1.661	1.433	.500	3.191	3.370	2.055	171,900	31,960	17.39
SUPER160H-3	2.000	1.125	1.250	.281	1.898	1.638	.562	3.756	3.961	2.437	218,200	41,330	22.99
SUPER200H-3	2.500	1.562	1.500	.375	2.374	2.047	.781	4.761	4.968	3.083	403,400	56,210	38.50
SUPER240H-3	3.000	1.875	1.875	.500	2.850	2.457	.937	6.105	6.424	3.985	621,700	78,260	59.87

- Note:
- Offset links are not available.
  - Riveted type chain will be provided unless otherwise specified. Cottered type chain will be provided upon request.
  - Press-fit connecting links will be supplied.
  - Carbon steel sprockets with hardened teeth should be used with Super-H Series chain.
  - \*5. Refer to page A-42, "Chain Drive Selection."

# U.S. TSUBAKI SUPER CHAIN

## Ultra Super Series

U.S. Tsubaki Ultra Super chains have superior strength, excellent durability, greater allowable load, higher breaking load, and are stronger than any other roller chain we manufacture. With 170% higher allowable load than that of ASME/ANSI RS standard chains, you can select up to two chain sizes smaller. U.S. Tsubaki Ultra Super chains will solve your specific driving and conveying problems relating to heavy shock load and/or space limitation.



U.S. TSUBAKI Chain No.	Pitch P	Roller Dia. R	Width Between Roller Link Plates W	Link Plates		Pins			Average Tensile Strength lbs.	* Maximum Allowable Load lbs.	Approx. Weight lbs./ft.
				T	H	D	L <sub>1</sub>	L <sub>2</sub>			
US100	1.250	.750	.750	.187	1.185	.406	.880	.998	38,500	8,800	3.40
US120	1.500	.875	1.000	.219	1.425	.483	1.085	1.242	55,100	12,100	4.84
US140	1.750	1.000	1.000	.250	1.661	.550	1.161	1.346	70,500	14,300	6.20
US160	2.000	1.125	1.250	.281	1.898	.615	1.358	1.583	88,000	19,140	8.17
US200	2.500	1.562	1.500	.375	2.374	.804	1.691	2.006	149,600	24,200	13.73
US240	3.000	1.875	1.875	.500	2.850	.959	2.157	2.555	220,000	33,900	21.25

- Note:
- RS standard sprockets can be used if the sprocket teeth have been hardened and the sprocket is not of the cast iron type.
  - Chain should be lubricated using:
    - drip method
    - oil bath
    - lubrication pump
  - Offset links are not available.
  - Riveted type chains will be supplied unless otherwise specified.
  - Chains cannot be coupled with RS standard chains.
  - \* Refer to page A-42, "Chain Drive Selection."

## CHAIN DRIVE SELECTION

### Chain Drive Selection

Generally, Super Series chains are suggested when the chain speed is less than 160 ft./min. and where the RS roller chain or the ASME/ANSI Heavy Series are not strong enough to meet the application requirements.

- 1) Tentatively select the chain and sprocket with the same size and number of teeth as used in "Selection for Slow Speed" on page A-23.
- 2) Calculate the chain speed from the number of teeth of the driving sprocket using equation (A) and check whether the speed is less than 160 ft./min.
- 3) Calculate the chain tension necessary for the above drive from equation (B).
- 4) Select the service factor and the chain speed coefficient from Tables I and II.
- 5) Select the suitable chain and verify that the chain satisfies equation (C).

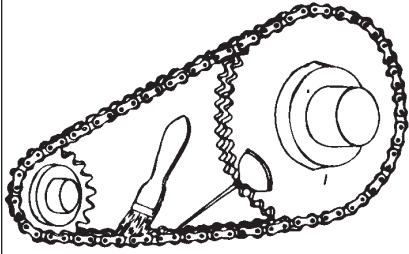
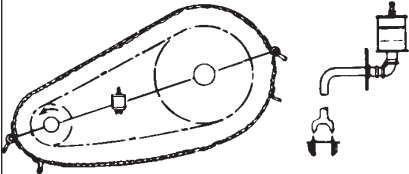
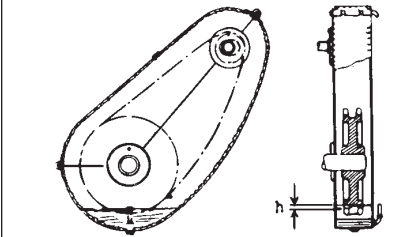
$$S = \frac{P \cdot N \cdot n}{12} \text{ (ft./min.)} \dots\dots\dots (A)$$

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

$$T \cdot \text{Service Factor} \cdot \text{Chain Speed Coefficient} \leq \text{Maximum Allowable Load} \dots\dots\dots (C)$$

- S: chain speed (ft./min.)
- P: chain pitch (inch)
- N: number of teeth of driving sprocket
- n: RPM of driving sprocket
- T: chain tension (lbs.)
- HP: horsepower to be transmitted (HP)

The following three lubricating systems are suggested:

<p><b>System A</b></p> 	<p><b>Manual lubrication</b></p> <p>The oil is applied with an oil can or brush in the gap between the pin and roller link on the slack side of the chain. It should be applied about every eight hours or as often as necessary to prevent the bearing areas from becoming dry. Suitable chain speed is to be below 50 ft./min.</p>
<p><b>System B</b></p> 	<p><b>Drip lubrication</b></p> <p>A simple casing can be used. The oil is supplied by a drip feed. Each strand of chain should ordinarily receive 5 to 20 drops of oil per minute. The amount is increased as the speed increases. Suitable chain speed is from 50 to 100 ft./min.</p>
<p><b>System C</b></p> 	<p><b>Oil bath lubrication</b></p> <p>The chain is installed in a leak-free casing. The oil depth of "h" should be 1/4 to 1/2 inch deep. If the oil is too deep, it will be adversely affected by the heat generated. Suitable chain speed is from 100 to 160 ft./min.</p>

**Table I: Service Factor**

Type of Impact	Service Factor
Smooth	1.0
Some impact	1.3
Large impact	1.5

For details, refer to Table I on page A-22.

**Table II: Chain Speed Coefficient**

Chain Speed	Speed Coefficient
Less than 50 ft./min.	1.0
50 ~ 100 ft./min.	1.2
100 ~ 160 ft./min.	1.4