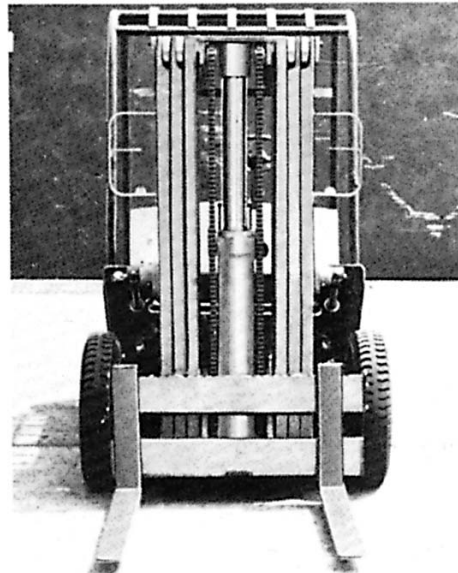


## Leaf Chain



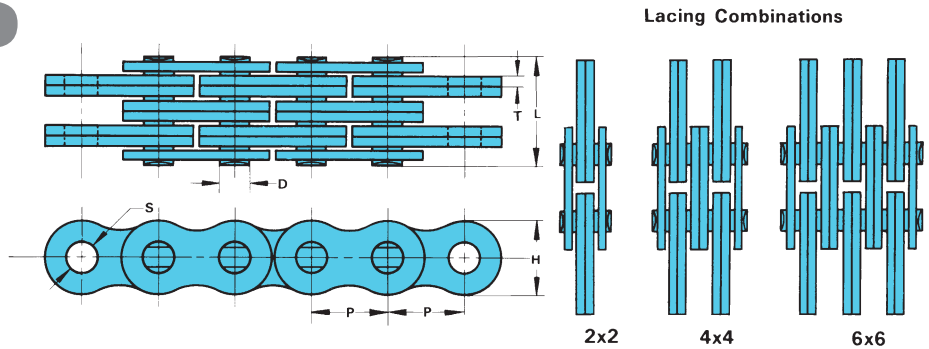
Leaf chains generally have greater tensile strength than roller chains, and run over sheaves rather than sprockets. They are most often used as counterweight chains for machine tools, elevator and oven doors, fork lift truck masts, spinning frames and similar lifting or balancing applications. BL series can, in most instances, replace the older AL series Leaf chains; consult U.S. Tsubaki for interchange information.

These chains are supplied with male or female terminations to allow addition of various clevises as desired.



# AL Series

New applications should use BL series chain. AL series was removed from the A.N.S.I. B29.8 Leaf chain standard in 1975.



U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	Pin		Link Plate		Hole Dia. (min.) S	Approx. Weight lbs./ft.
				D	L	T	H		
AL422	.500	2x2	3,700	.156	.331	.060	.409	.1578	.25
AL444	.500	4x4	7,500	.156	.585	.060	.409	.1578	.50
AL466	.500	6x6	11,200	.156	.839	.060	.409	.1578	.74
AL522	.625	2x2	6,200	.200	.427	.080	.512	.2019	.42
AL544	.625	4x4	12,300	.200	.762	.080	.512	.2019	.82
AL566	.625	6x6	18,500	.200	1.094	.080	.512	.2019	1.21
AL622	.750	2x2	8,600	.234	.498	.094	.614	.2362	.58
AL644	.750	4x4	17,200	.234	.888	.094	.614	.2362	1.15
AL666	.750	6x6	25,800	.234	1.278	.094	.614	.2362	1.70
AL822	1.000	2x2	14,600	.311	.644	.125	.819	.3138	1.01
AL844	1.000	4x4	29,100	.311	1.173	.125	.819	.3138	2.00
AL866	1.000	6x6	43,600	.311	1.701	.125	.819	.3138	2.97
AL1022	1.250	2x2	22,000	.373	.789	.156	1.024	.3768	1.80
AL1044	1.250	4x4	44,000	.373	1.445	.156	1.024	.3768	3.56
AL1066	1.250	6x6	66,000	.373	2.098	.156	1.024	.3768	5.31
AL1222	1.500	2x2	31,700	.437	.953	.187	1.228	.4386	2.39
AL1244	1.500	4x4	63,400	.437	1.732	.187	1.228	.4386	4.75
AL1266	1.500	6x6	95,000	.437	2.514	.187	1.228	.4386	7.07
AL1444	1.750	4x4	83,600	.500	2.020	.219	1.433	.5016	6.95
AL1466	1.750	6x6	125,400	.500	2.935	.219	1.433	.5016	10.18
AL1644	2.000	4x4	105,800	.562	2.285	.250	1.638	.5638	8.70
AL1666	2.000	6x6	158,000	.562	3.325	.250	1.638	.5638	13.00

## Non-Standard Chain

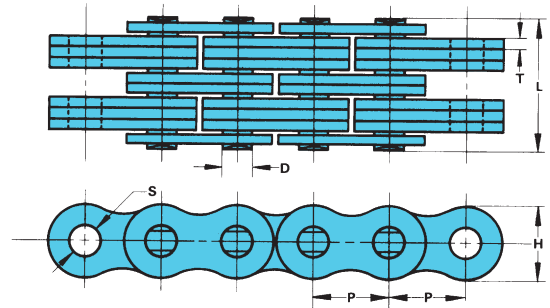
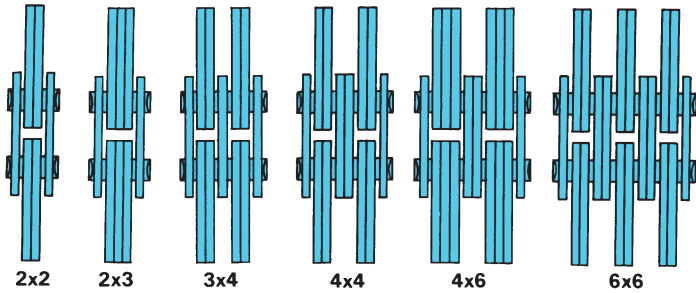
U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	Pin		Link Plate		Hole Dia. (min.) S	Approx. Weight lbs./ft.
				D	L	T	H		
BL532 (6H-5)	.625	3x2	7,000	.187	.583	.094	.590	.189	.79

NOTE: BL532 is available only as a replacement chain and should not be specified for new applications or designs.

# U.S. TSUBAKI LEAF CHAIN

A - DRIVE CHAINS

## BL Series



U.S. TSUBAKI Chain No.	Pitch P	Lacing	Min. Tensile Strength lbs.	ANSI Min. Tensile Strength lbs.	Pin		Link Plate		Hole Dia. (min.) S	Approx. Weight lbs./ft.
					D	L	T	H		
BL422	.500	2x2	5,300	5,000	.200	.427	.080	.472	.2019	.46
BL423	.500	2x3	5,300	5,000	.200	.510	.080	.472	.2019	.56
BL434	.500	3x4	7,900	7,500	.200	.677	.080	.472	.2019	.76
BL444	.500	4x4	10,600	10,000	.200	.764	.080	.472	.2019	.86
BL446	.500	4x6	10,600	10,000	.200	.929	.080	.472	.2019	1.11
BL466	.500	6x6	15,600	15,000	.200	1.094	.080	.472	.2019	1.32
BL522	.625	2x2	8,800	7,500	.234	.498	.094	.591	.2362	.72
BL523	.625	2x3	8,800	7,500	.234	.594	.094	.591	.2362	.85
BL534	.625	3x4	13,200	11,000	.234	.791	.094	.591	.2362	1.14
BL544	.625	4x4	17,600	15,000	.234	.888	.094	.591	.2362	1.27
BL546	.625	4x6	17,600	15,000	.234	1.083	.094	.591	.2362	1.61
BL566	.625	6x6	26,400	22,500	.234	1.278	.094	.591	.2362	1.88
BL622	.750	2x2	14,300	11,000	.312	.645	.125	.713	.3138	1.13
BL623	.750	2x3	14,300	11,000	.312	.778	.125	.713	.3138	1.37
BL634	.750	3x4	21,500	17,000	.312	1.041	.125	.713	.3138	1.90
BL644	.750	4x4	28,500	22,000	.312	1.173	.125	.713	.3138	2.14
BL646	.750	4x6	28,500	22,000	.312	1.437	.125	.713	.3138	2.69
BL666	.750	6x6	43,000	33,000	.312	1.701	.125	.713	.3138	3.18
BL822	1.000	2x2	23,100	19,000	.375	.794	.156	.949	.3768	1.74
BL823	1.000	2x3	23,100	19,000	.375	.953	.156	.949	.3768	2.15
BL834	1.000	3x4	34,800	29,000	.375	1.281	.156	.949	.3768	2.98
BL844	1.000	4x4	46,200	38,000	.375	1.453	.156	.949	.3768	3.39
BL846	1.000	4x6	46,200	38,000	.375	1.772	.156	.949	.3768	4.25
BL866	1.000	6x6	69,500	57,000	.375	2.098	.156	.949	.3768	5.07
BL1022	1.250	2x2	31,700	26,000	.437	.944	.187	1.185	.4386	2.53
BL1023	1.250	2x3	31,700	26,000	.437	1.138	.187	1.185	.4386	3.15
BL1034	1.250	3x4	48,500	41,000	.437	1.530	.187	1.185	.4386	4.40
BL1044	1.250	4x4	63,400	52,000	.437	1.708	.187	1.185	.4386	5.03
BL1046	1.250	4x6	63,400	52,000	.437	2.114	.187	1.185	.4386	6.24
BL1066	1.250	6x6	95,200	78,000	.437	2.514	.187	1.185	.4386	7.50
BL1222	1.500	2x2	41,800	34,000	.500	1.104	.219	1.425	.5016	3.25
BL1223	1.500	2x3	41,800	34,000	.500	1.335	.219	1.425	.5016	4.39
BL1234	1.500	3x4	67,200	55,000	.500	1.791	.219	1.425	.5016	6.11
BL1244	1.500	4x4	83,600	68,000	.500	2.020	.219	1.425	.5016	6.98
BL1246	1.500	4x6	83,600	68,000	.500	2.478	.219	1.425	.5016	8.07
BL1266	1.500	6x6	125,600	102,000	.500	2.936	.219	1.425	.5016	9.80
BL1422	1.750	2x2	52,900	43,000	.562	1.245	.250	1.661	.5638	4.91
BL1423	1.750	2x3	52,900	43,000	.562	1.504	.250	1.661	.5638	6.09
BL1434	1.750	3x4	87,000	71,000	.562	2.024	.250	1.661	.5638	7.61
BL1444	1.750	4x4	105,800	86,000	.562	2.285	.250	1.661	.5638	8.71
BL1446	1.750	4x6	105,800	86,000	.562	2.805	.250	1.661	.5638	12.10
BL1466	1.750	6x6	158,700	130,000	.562	3.325	.250	1.661	.5638	15.13
BL1622	2.000	2x2	79,300	65,000	.687	1.401	.281	1.898	.6886	6.61
BL1623	2.000	2x3	79,300	65,000	.687	1.703	.281	1.898	.6886	8.17
BL1634	2.000	3x4	124,500	99,000	.687	2.299	.281	1.898	.6886	11.39
BL1644	2.000	4x4	158,600	130,000	.687	2.593	.281	1.898	.6886	12.75
BL1646	2.000	4x6	158,600	130,000	.687	3.191	.281	1.898	.6886	16.19
BL1666	2.000	6x6	238,300	195,030	.687	3.785	.281	1.898	.6886	19.31
BL2022	2.500	2x2	119,000	97,500						
BL2023	2.500	2x3	119,000	97,500						
BL2034	2.500	3x4	178,800	146,000						
BL2044	2.500	4x4	238,500	195,000						
BL2046	2.500	4x6	238,500	195,000						
BL2066	2.500	6x6	357,800	292,500						

CONSULT U.S. TSUBAKI ENGINEERING

# AL Series, BL Series

## SELECTION

### Step 1

From the Application Table below, determine the type of chain and service factor.

#### Application Table

Type of Chain	Shock	Applications	Service Factor	Chain Speed ft./min.
AL series	Moderate	Suspension of counterweights	1.0	Less than 100
AL and BL series		Fork lift	1.3	
BL series	Heavy	Mining machinery Construction equipment	1.5	

### Step 2

Multiply the required working load by the service factor and safety factor below to obtain the design tensile strength.

#### Safety Factor

Type of Chain	Safety Factor	Chain Speed ft./min.	Maximum Number of Reciprocations
AL series	12	Less than 100	Less than 100 per day
BL series	9	Less than 100	Less than 1,000 per day

### Step 3

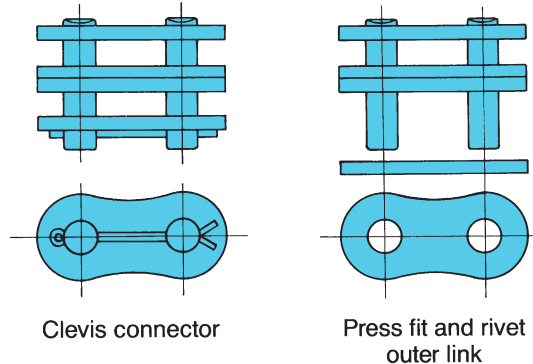
From the chain list, select a chain having a tensile strength not less than that obtained in Step 2.

$$\boxed{\text{Working Load}^*} \times \boxed{\text{Service Factor}} \times \boxed{\text{Safety Factor}} \leq \boxed{\text{Minimum Tensile Strength}}$$

\*Working Load including weights of attachments, inertia force and impact force.

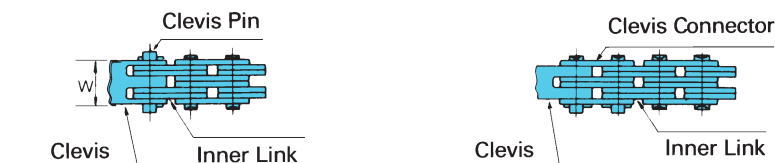
#### When ordering, specify your requirements.

- 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 and rivet outer link can be furnished.
- Clevis connector or press fit and rivet outer links are both available from stock in popular sizes.



#### Connection with Clevis:

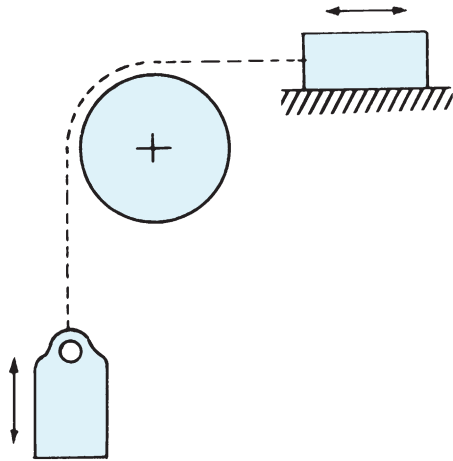
1. When an inner link is used for the end, a clevis pin is normally supplied by the clevis manufacturer.
2. When an outer link is used for the end, the press fit outer link provides the most integrity.



# U.S. TSUBAKI LEAF CHAIN

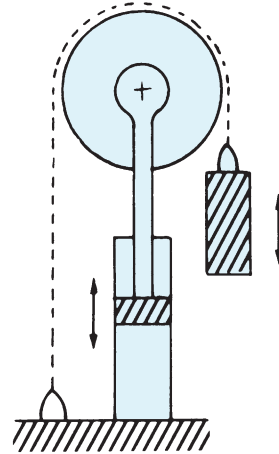
## TYPICAL APPLICATIONS

[A]



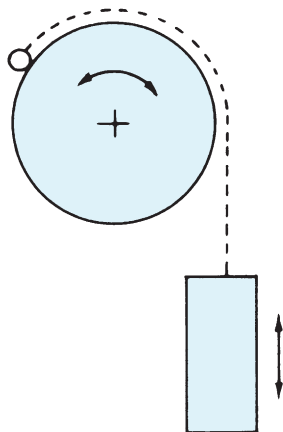
For counterweights of heavy machine tools — planers, multi-spindle drills, etc.

[B]



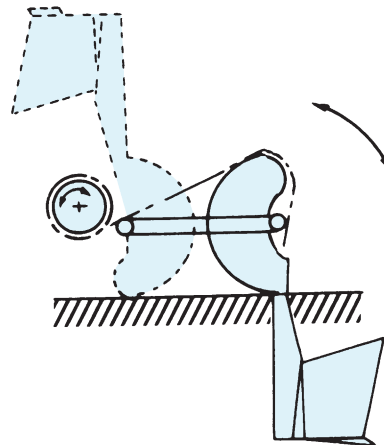
For increasing the travel distance on hydraulic lifts.

[C]



For suspension of a counterweight for the arm of drills or similar machine tool elements.

[D]



For transmitting reciprocating motion or lift.

# GENERAL CAUTIONS

1. Use lengths of factory assembled chain. Do not build lengths from individual components.
2. Do not attempt to rework damaged chains by replacing only the components obviously faulty. The entire chain may be compromised and should be discarded.
3. Never electroplate assembled Leaf chain or its components. Plating could result in failure from hydrogen embrittlement.
4. Welding should not be performed on any chain or component. Welding spatter should never be allowed to come in contact with chain or components.
5. Leaf chains are manufactured exclusively from heat treated steels and, therefore, must not be annealed. If heating a chain with a cutting torch is absolutely necessary for removal, the chain should not be reused.
6. Joining chains together should only be done by the chain manufacturer.
7. The Minimum Ultimate Strength of a chain means the minimum load at which it will break when subjected to a destructive tensile test. It does not mean working load.
8. Chains from different manufacturers should not be used in the same application.