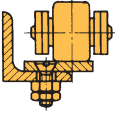
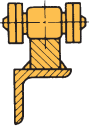
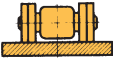


U.S. TSUBAKI ATTACHMENT CHAIN SELECTION GUIDE

General Engineering Information

Method of chain travel and type of rollers

Method of Chain Travel	Type of Roller	Features
Chain Rolling (Horizontal or Vertical) 	Oversize "R" roller type <ul style="list-style-type: none"> • Heavy in chain weight • Greater allowable roller load • Less roller wear 	<ul style="list-style-type: none"> • Smooth operation • Less vibration • Lower friction and less power required • Generally used for: conveyor lengths over 35 ft. conveyor speeds over 70 ft./min.
Chain Rolling 	Standard "S" roller type <ul style="list-style-type: none"> • Light weight • Lower allowable roller load 	<ul style="list-style-type: none"> • Generally used for: conveyor lengths less than 35 ft. conveyor speeds less than 70 ft./min.
Chain Sliding (Double Pitch chain) 		<ul style="list-style-type: none"> • Suitable for impact and dirty conditions • Economical • Impact resistant • Greater power required

Points to consider:

- 1) For long conveyors, use take-up devices to eliminate chain slack. Take-up stroke = (center distance between sprockets • 0.02) + catenary sag allowance.
- 2) Chain must always be engaged with at least 3 sprocket teeth.
- 3) When two or more strands of conveyor chain operate, all sprocket teeth on the head shaft should be aligned. The chain may be matched at the factory for uniform length and attachment alignment for accurate multiple strand operation.

Considerations for Use in Special Environments

ANSI standard and double pitch conveyor chain can be operated normally in ambient temperatures between 15°F and 140°F without trouble.

When the chain is operated in very low or high temperatures, or in an abrasive or corrosive atmosphere, the following should be taken into account.

1. Under very low or high temperatures:

Chain must be selected in a different manner when it is operated in freezing chambers, cold areas, when it passes through a heat-treatment furnace, or is affected by heat from the material conveyed.

U.S. Tsubaki Hi-Tech and Specialty Attachment chains.

In addition to the attachment chains shown in this general catalog, we offer a large variety of Specialty Attachment chains. Refer to our U.S. Tsubaki Attachment Chain Catalog No. LI0666 for additional selections.

Environmental Temperatures and Points of Concern

Temperatures	Chain Selection	Caution
-60° F ~-20° F	<ul style="list-style-type: none"> Under -20°F or lower conditions, ANSI 304 stainless steel chains and 600 series stainless steel chains are suggested. Carbon chains are not suggested. 	(1) Low temperature embrittlement may occur on link plates of carbon steel chain. (2) Freezing of lubricant. (3) Rust due to condensation. (4) Seizure due to freezing.
-20° F ~15° F	The chain should be selected on the basis of the corrected working load, below.	
140° F ~300° F	Special lubrication is required.	
300° F ~480° F	The chain should be selected on the basis of the corrected working load, below. Selection of the next larger pitch chain over the originally selected one is suggested.	(1) Excessive wear due to decrease of hardness of pin and bushing. (2) Poor lubrication due to deterioration of lube.
480°F~	ANSI 304 stainless steel chain and ANSI 600 series stainless steel chain are suggested.	

Table V: Corrected Working Load

Temperature	Corrected Working Load
-20° F ~ -4° F	(Max. allowable load in catalog) x 0.25
-4° F ~ 15° F	(Max. allowable load in catalog) x 0.3
15° F ~ 300° F	(Max. allowable load in catalog) x 1.0
300° F ~ 390° F	(Max. allowable load in catalog) x 0.75
390° F ~ 480° F	(Max. allowable load in catalog) x 0.5

2. In wet conditions:

When chain is exposed to water, e.g., in a sterilizer or water screen, excessive wear due to insufficient lubrication and rust may shorten chain life. In these cases, a larger chain size provides less bearing pressure and stainless steel or plated chain will provide rust prevention.

3. In corrosive conditions:

When chain is exposed to an acidic or alkaline solution or operated in a corrosive atmosphere, excessive wear may occur due to chemical corrosion on the chain parts in addition to mechanical wear.

Hydrogen embrittlement may also occur in an acidic atmosphere. Roller chain is more easily affected by acid than alkali. In special cases, electro-chemical corrosion may occur on the chain due to sea or mine water. Refer to the

table on page A-60 "Corrosion Resistance Guide", for the corrosion resistance of stainless steel.

4. In dusty conditions:

When conveyor chain is operated in dusty conditions, i.e., in the presence of coke, metal powder, and sand, the chain wears very quickly because foreign material gets between the parts of the chain and also the engaging surfaces of the sprocket teeth and chain.

In such cases, select a larger chain size to reduce the bearing pressure or choose a chain especially designed for high wear resistance.

The foregoing information is intended to provide general guidelines for conveyor chain selection. Please consult with U.S. Tsubaki for specific application problems.