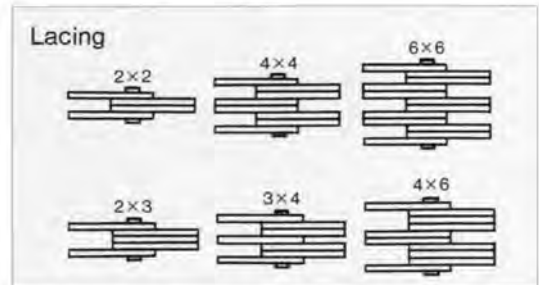# Leaf Chain Selection

Leaf chain, also called a balance chain, features a simple steel structure consisting of plates and pins.
This chain is used for load lifting and balancing. Application (For Example: Fork Lifts)

Lacing

Type

Leaf chain falls into two types: AL type for light loading and BL type for heavy loading.
AL type is used for applications without impact and with daily repetition of 100 times or less.

Selection

1.Determine the following items according to operating conditions.
- Chain speed
- Daily repetition of power applications
- Working load (attachment weight, inertia force and impact force)

2.Determine chain type.
- U BL type is recommended
- Use roller chain if speed exceeds 30 m/min or number of daily repetition exceeds 1000.

3.Determine chain size by the following equation.

$$\text{Working load} \times \frac{\text{Use coefficient}}{\text{(Table 1)}} \times \frac{\text{Safety factor}}{\text{(Table 2)}} \leq \text{Min. tensile strength}$$

Table 1 Use Coefficient

Type of impact	Use	Use coefficient
Smooth transmission	Smooth starts and stops, and moderate load change (i.e., lowering of balance-weight)	1.0
Impact to some extent	Frequent starts, stops, load changes and operations (i.e., fork lift)	1.3
Impact	Rapid starts, stops, load changes and operations (i.e., mining and construction machinery)	1.5

Table 2 Safety Factor

Plate combination / No. repetition		Safety factory 2 x 2, 3 x 4 / 2 x 3, 4 x 4	Safety factory 4 x 6 / 6 x 6
BL type	1000 times/day	8 or more	9 or more
AL type	10 times/day	8 or more	9 or more
AL type	100 times/day	11 or more	12 or more

Notes to Selection
- Do not use a chain with low safety factor. Otherwise, pin will turn, resulting in chain failure.
- Perform periodic lubrication. Even when safety factor is satisfactory, insufficient lubrication will result in pin rotation.
- Safety factor of chain is determined by the related regulations, or by this bulletin, whichever is greater.

Attaching of Chains and Clevises
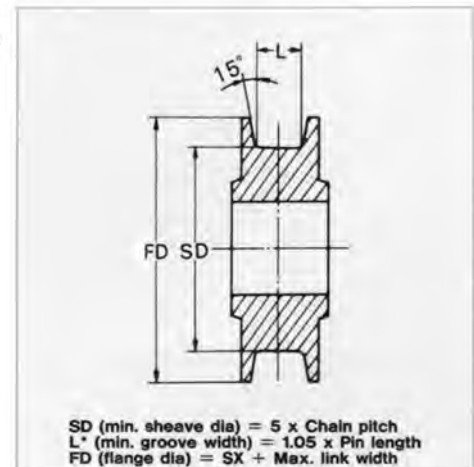
1.When clevise is outer link or connecting link:
Outer link connector and connecting link (standard) are used.

2.When clevise is inner link:
Inner link connector and connecting pin (with dimension "W") are used.

Connecting link (outer link)
Clevise (for outer link)

Connecting pin
Inner link
Clevise (for inner link)
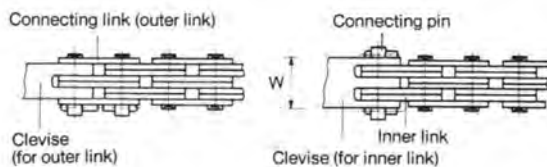
Sheave

SD (min. sheave dia) = 5 x Chain pitch
L* (min. groove width) = 1.05 x Pin length
FD (flange dia) = SX + Max. link width
*Connecting pin cannot be engaged with sheave.