

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).

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

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

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

- 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:

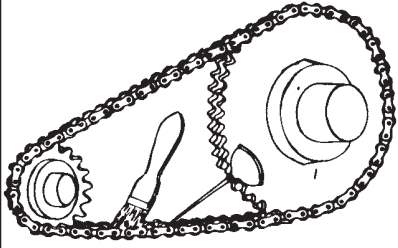
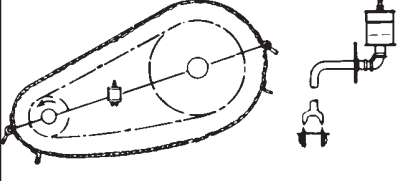
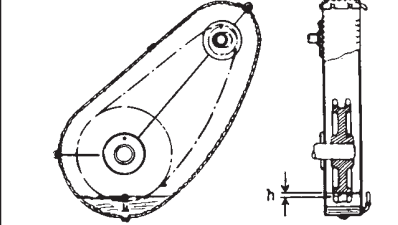
<p>System A</p> 	<p>Manual lubrication</p> <p>The oil is applied with an oil can or brush in the gap between the pin and roller link on the slack side of the chain. It should be applied about every eight hours or as often as necessary to prevent the bearing areas from becoming dry. Suitable chain speed is to be below 50 ft./min.</p>
<p>System B</p> 	<p>Drip lubrication</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>System C</p> 	<p>Oil bath lubrication</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