



5. Kilowatt Ratings Table

RS Roller Chain, SUPER Roller Chain, Heavy Duty Chain, and Low Noise Drive Chain kilowatt ratings tables show kW values for 15,000 hours of operation using a two-shaft drive and 100 pitches of roller chain under conditions 1 - 5 below.

The kW ratings table of Lambda Chain is based on conditions 1 - 4 and shows kW rating values when Lambda Chain is used with two shafts. Lambda Chain has more than seven times the wear elongation of Standard RS Roller Chain operated without lubrication (#120 and #140 are over 2.5 times). X-LAMBDA has more than five times the wear elongation life of Lambda Roller Chain.

- 1) The chains are operated under ordinary conditions where the ambient temperature is $-10^{\circ}\text{C} - +60^{\circ}\text{C}$ ($+14^{\circ}\text{F} - +140^{\circ}\text{F}$) and there is no abrasive dust.
- 2) There are no negative effects from corrosive gasses or high humidity.
- 3) The two shafts are level and the chains are properly installed. (See item 4 on pg. 162.)
- 4) There is minimal fluctuation in load during transmission.
- 5) The recommended lubrication system and lubricant shown in the kW ratings tables is used for RS Roller Chain and SUPER Roller Chain. (See pgs. 160 - 161.)

6. Moment of Inertia ($I / J / GD^2$)

Moment of inertia is used to show the degree of inertia in rotational movement; in other words, "rotation difficulty", or "rotation ease." This is equivalent to the mass (weight) of the object being used for straight-line transmission.

Moment of inertia is shown in the SI units table as:

$$I = mk^2 \text{ (kg} \cdot \text{m}^2 \text{ m: mass of rotating body k: turning radius)}$$

It is shown in the Gravimetric units table as:

$$J = \frac{G \cdot K^2}{G} \text{ (kgf} \cdot \text{m} \cdot \text{s}^2 \text{ G: mass of rotating body } \underline{G}: \text{gravitational acceleration).}$$

Although, $GD^2 = 4\underline{G}J$ (D: diameter of rotating body) is generally being used now in place of moment of inertia.

7. Total Length Tolerance of Roller Chain

Length test method and length tolerance are specified in JIS B 1801-2009. The length tolerance of any individual size when subjected to a measured load (e.g. 500 N [50.99 kgf] for RS 80) specified in JIS is 0 to +0.15% of the reference length. The reference length is calculated by multiplying the reference pitch (P) by the number of links. (Applicable to products bearing a JIS identification number.)

8. Elastic Elongation of Chain under Load

An elastic elongation curve of a chain under load looks as shown below. Values shown here are the standard references for single-strand RS Roller Chains. Actual values may slightly differ. Do not apply loads greater than the maximum allowable load to roller chains.

