

Selection Of Roller Chain Drives

(GB/T 18150—2006 / ISO 10823:2004)

The standard of "Guidelines for the Selection of Roller Chain Drives"(GB/T 18150-2006 / ISO 10823:2004) has been issued. If you try to calculate the actual transmission power of a chain, you must consider revising the transmission power of the driving sprocket (input power).

Actual power (Corrected power) = input power × service factor × teeth factor
Service factor is listed in the following table.

Teeth factor = $(19/Z_s)^{1.08}$ (Z_s —tooth number of the small sprocket)

Service Factor Table

Driven Mechanism Characteristic	Driving Mechanism Characteristic		
	Smooth Running	Slight Vibration	Medium Vibration
Smooth Running	1.0	1.1	1.3
Medium Vibration	1.4	1.5	1.7
Severe Vibration	1.8	1.9	2.1

GB/T 18150—2006 / ISO 10823:2004

Distinguished chain manufacturers have their own chain transmission power rating graphs and power diagrams. Refer to the GB/T 18150-2006 / ISO 10823:2004 standard for selecting the drive power or selecting chain according to the drive power. We are required to understand the relationship between the number of teeth of the small sprocket and its speed. A chain is only considered suitable if the actual power is within the range of rating power displayed on the corresponding graph. The transmission part is utilized in walking tractor and the transmission power in rotary tillage to prove whether the chain selection is applicable.

■ Chain Drive Part

Small sprocket speed $n_s = 1351$ r/min

Tooth number of small sprocket $Z_s = 14$

Actual power (Corrected power) = 10.944hp = 8.16kW

From B series horsepower rating graph, you will find selected 08B-2 chain is suitable.

■ Rotary Tillage Chain

Small sprocket speed $n_s = 199$ r/min

Tooth number of small sprocket $Z_s = 13$

Actual power (Corrected power) = 9.888hp = 7.37kW

From A series horsepower rating graph, you will find selected 12A-2 chain is unsuitable. You should choose 16A-1 or 60H-2 heavy duty roller chain instead of 12A-2.

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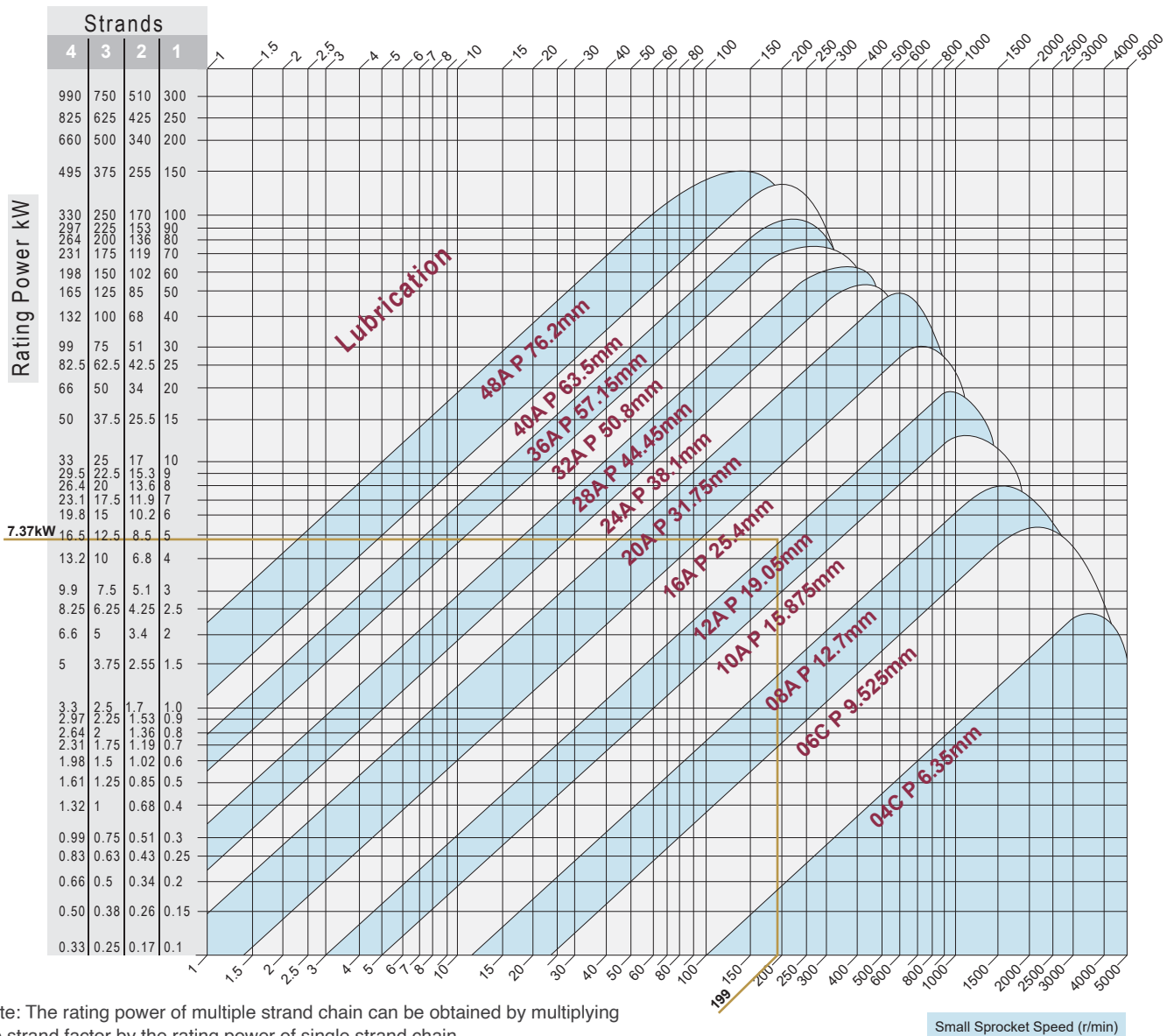
Power rating graph (A series roller chain)

Drive: $Z_s = 19$

Chain length: 120 pitches

Transmission ratio: 1 : 3 to 3 : 1

Service life of chain: 15000 hours



Strand Factor Table

Number Of Strands	1	2	3	4	5	6
Factor	1.0	1.7	2.5	3.3	4.1	4.9

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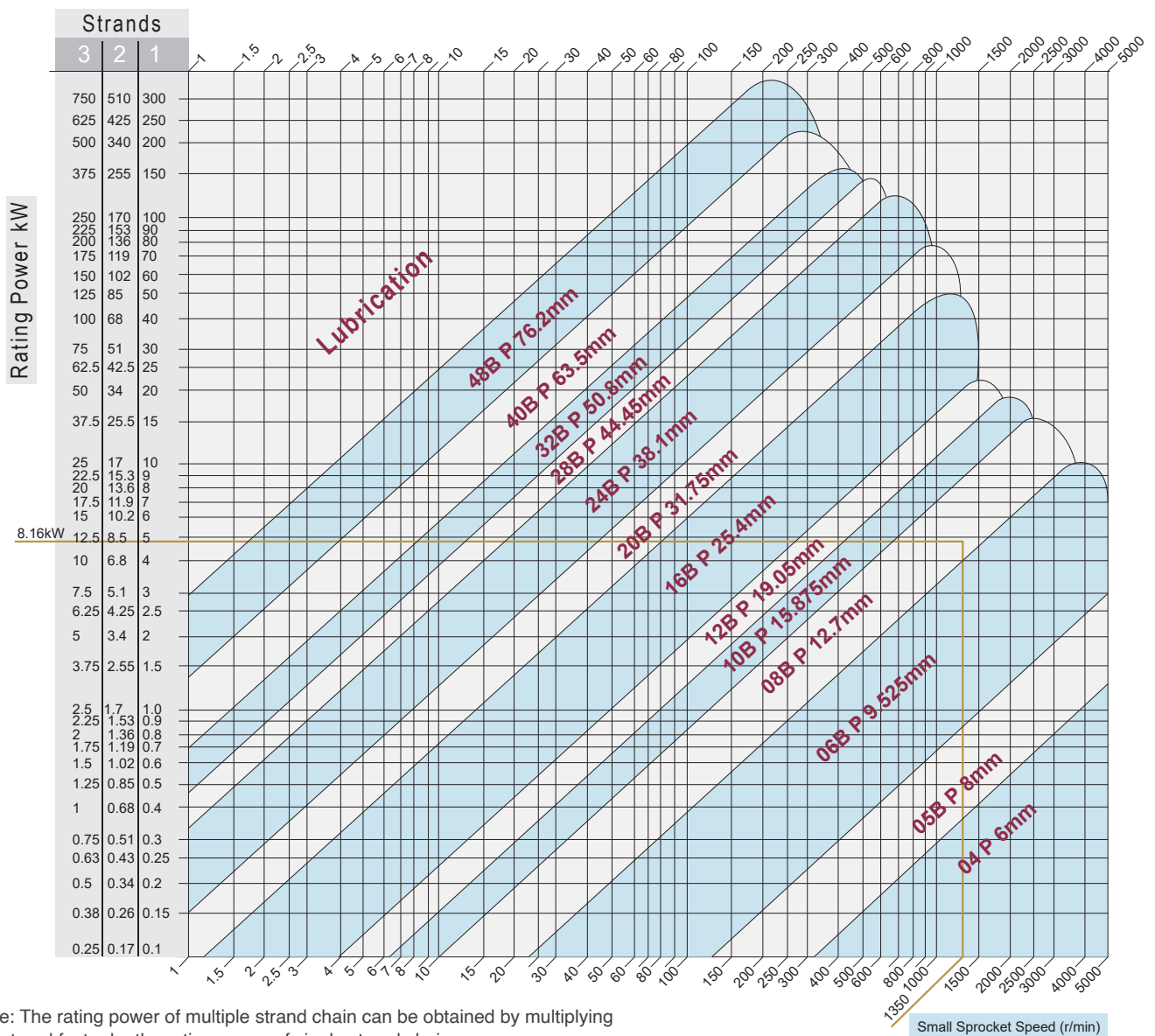
Power rating graph (A series roller chain)

Drive: Zs = 19

Chain length: 120 pitches

Transmission ratio: 1 : 3 to 3 : 1

Service life of chain: 15000 hours



Note: The rating power of multiple strand chain can be obtained by multiplying the strand factor by the rating power of single strand chain.

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Factor	1.0	1.7	2.5	3.3	4.1	4.9