Selection of chain drive power

(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) had been issued. If you try to calculate the actual transmission power of chain, you must consider revising the transmission power of driving sprocket (input power).

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

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

Service factor table

从动机械特性 Driven Mechanism Characteristic	主动机械特性 Driving Mechanism Characteristic		
	平稳运转 Smooth Running	轻微振动 Slight Vibration	中等振动 Medium Vibration
平稳运转 Smooth Running	1.0	1.1	1.3
中等振动 Medium Vibration	1.4	1.5	1.7
严重振动 Severe Vibration	1.8	1.9	2.1

GB/T 18150—2006 / ISO 10823:2004

The chain factories with long history in the world have their own chain transmission power rating graph and power diagram. We can refer to the GB/T 18150-2006 / ISO 10823:2004 standard selecting the drive power or selecting chain according to the drive power, the condition is that we should know the tooth number of the small sprocket and its speed. Only if the actual power is within the range of rating power of the power rating graph, the selected chain is suitable.
Now we use the transmission part in walking tractor and the transmission power in rotary tillage to proof whether the chain selection is correct.

Chain drive part

Small sprocket speed n_S=1351 r/min
Tooth number of small sprocket Zs=14
Actual power (Corrected power)=10.944hp=8.16kW
From B series horsepower rating graph, you will find selected 08B-2 chain is suitable.

Ratary tillage chain part

Small sprocket speed n_S=199 r/min
Tooth number of small sprocket Zs=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.

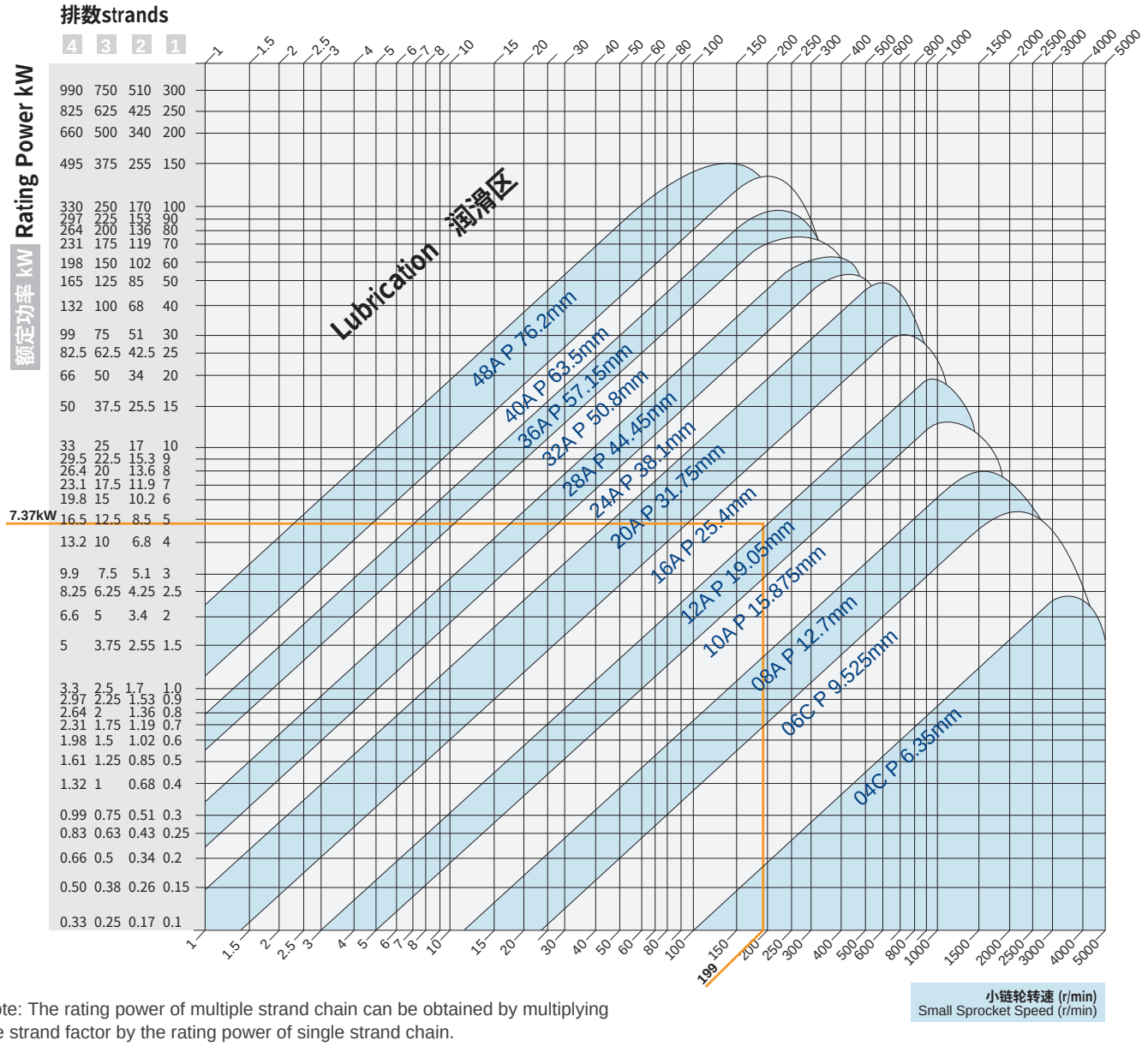
Selection of chain drive power

A

Power rating graph (A series roller chain)

The main characteristics of this power graph are as follows:

For 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.

Strand factor table

排数 Number of strand	1	2	3	4	5	6
系数 Factor	1.0	1.7	2.5	3.3	4.1	4.9

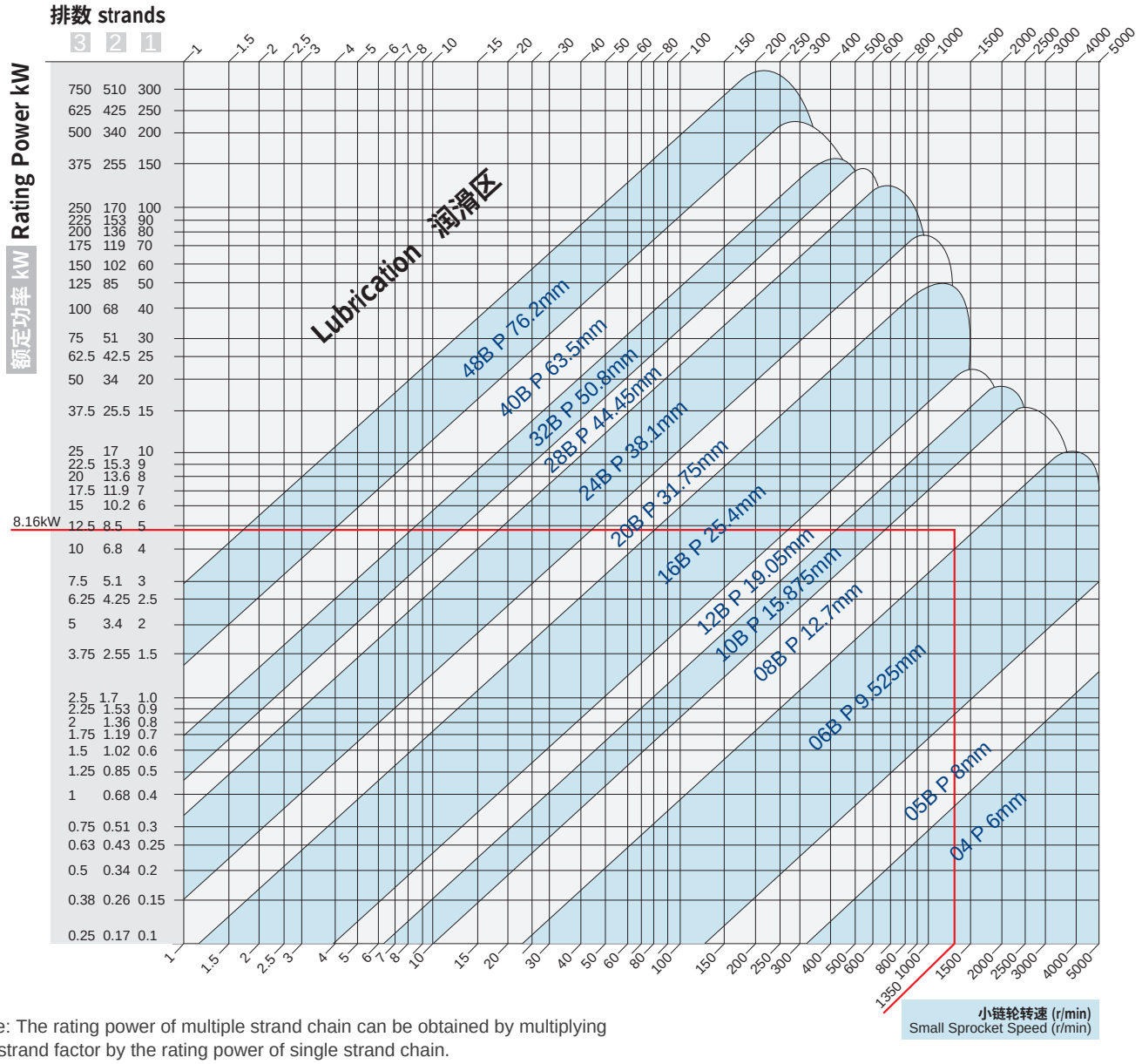
Selection of chain drive power

B

Power rating graph (B series roller chain)

■ **The main characteristics of this power graph are as follows:**

For 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.

■ **Strand factor table**

排数 Number of strand	1	2	3	4	5	6
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