

Selection of Chain Drive Power

The international organization for standard had issued the ISO10823-1996 standard of Guidance on the selection of roller chain drives, If you try to calculate the input power You must consider to revise it according to the following formal

$$\text{Actual power} = \text{input power} \times \text{service factor} \times \text{strand factor}$$

Service factor table

Load type	Source of power		
	Internal combustion engine Hydraulic drive	Electric motor Turbine	Internal combustion Mechanical drive
Smooth	1.0	1.0	1.2
Moderate impact	1.2	1.3	1.4
High impact	1.4	1.5	1.7

Strand factor table

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

The chain factories with long history in the world have their own chain transmission power rating graph and power table. Though our country haven't created our own power rating graph, We can refer to the ISO 10823-1996 standard selecting the drive power or selecting chain according to the drive power , The condition is that we should know the number of the small sprocket's teeth and its revolution .

Now we use the transmission part in walking tractor and the transmission power in ratary tillage to proof whether the chain selection is correct.

1. Chain drive part

Small sprocket rpm $n_1=1351$ Tooth number of small sprocket $Z_1=14$
 Input power =10.944HP=8.16kW

2.Ratary tillage chain part

Small sprocket rpm $n_1=199$ Tooth number of small sprocket $Z_1=13$
 Input power=9.888HP =7.37kW

From A series horsepower rating graph, You'll find that selected 12A-2 roller chain is unsuitable, You should choose 16A-1 or 12AH-2 roller chain instead of 12A-2.