Premium SBR®

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It is important to select the most suitable roller chains and sprockets for the job by careful study of power transmission requirements.

The following basic factors should be considered when selecting roller chains for transmission needs through there may be other factors.

ATMOSPHERIC CONSIDERATION

The input power ratings appearing on the pages of 80 to 84, have been worked out under the following conditions.

1) To be driven in normal atmosphere of -10° F to 60° C free from ill effect of abrasive dust, corrosive gas, high humidity etc.
2) Sprockets should be aligned and mounted on parallel horizontal shafts.
3) Recommended method of lubrication and recommended kind of lubricant should be used.
4) Should be driven at even load or small load variations.

Power rating of multiple strand chain is not simply calculable by multiplying the power rating of one strand by the number of strand because of uneven load distribution onto each strand. So, multiple strand factor should be used for expected service life.

A service life of 15,000 hrs, can be expected when chain length is 100 pitches and the above conditions are met.

POINT IN SELECTION ROLLER CHAIN AND SPROCKET

The following factors must be taken into consideration in selecting proper chain drive, depending on chain speed-normal or low speed. Also correction factors should be used, fully grasping the conditions of use.

a) Driven machine
b) Type of load: smooth light or heavy shock
c) Source of power
d) kW to be transmitted [kW_0:kW]
e) RPM and diameter of high speed shaft[n_1:rpm]
f) RPM and diameter of low speed shaft[n_2:rpm]
g) Center distance of shaft [m]
h) Chain-driving speed [S:m/min]

SELECTION PROCEDURE ACCORDING TO CHAIN SPEED

IN CASE OF NORMAL SPEED

S=50～250m/min

To obtain corrected power kW_1 multiply kW_0 by corrected factor f1 applied according to condition of use

$kW_1=kW_0 \cdot f_1$
$=kW_0 \cdot f_1 \cdot f_2$

To obtain chain and high-speed sprocket teeth N_1 use roller chain quick selection chart and power rating chart according to RPM of high speed shaft and corrected power kW_1

N_1

Determine low speed sprocket teeth N_2 from speed ratio R

$R=n_1/n_2$
$N_2=R \cdot N_1$

See if each sprocket shaft diameter and mounting space satisfy specifications of machi-

＊Check

Make special sprocket

Obtain corrected power kW_1 of single strand by referring to multiple strand factor f_2

OK

Finally determined

Economical sprockets for general industrial use are recommended except when special sprockets are made due to unavoidable circumstances.

IN CASE OF LOW SPEED

S=Less than 50m/min.
Divided into two cases dep-ending on chain driving conditions

1) For low speed drive with few stops and starts, make the chain selection in a way to satisfy the following formula:
$T \times f_1 \times f_3 \leqq$ Max. allowable chain load.
2) For low speed drive with frequent stops and starts.
$T \times f_1 \times f_3 \times f_4 \leqq$ Ave. ultimate strength.

Select the chain by substituting the values of chain speed and max working load into formulas (1)&(2), after chain selected tentatively in the general way.

N_1[－]＝Number of teeth on small sprocket.
N_2[－]＝Number of teeth on large sprocket.
P [mm]＝Chain pitch
S [m/min]＝Chain speed

$=N_1 \cdot P \cdot n_1/1000$
T [kN]＝Max. working load.
$=60$

f2 : MULTI-STRAND FACTOR

Number of roller chain strands	f2
2	1.7
3	2.5
4	3.3
5	3.9
6	4.6
8	6.2
10	7.5

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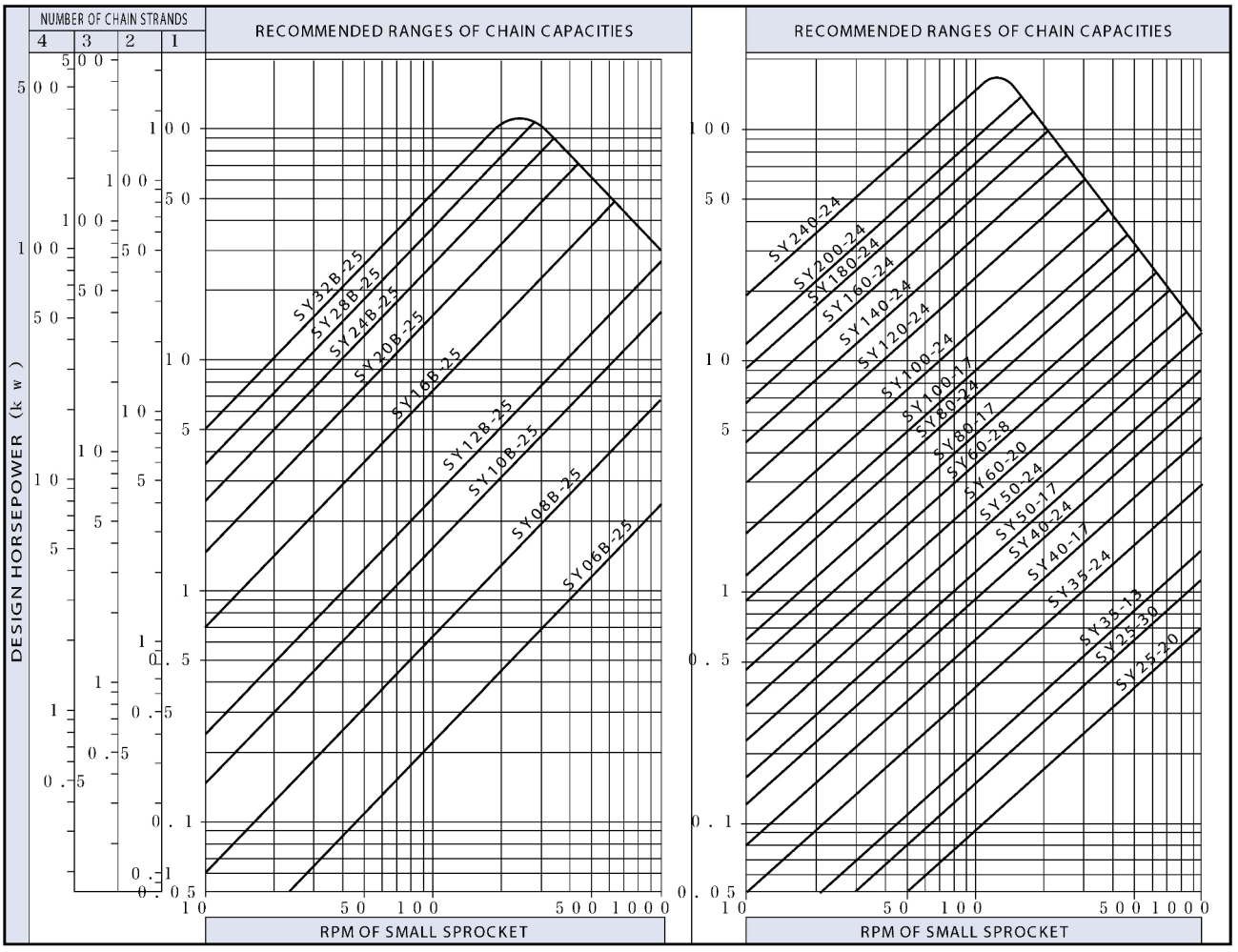

CONCISE SELECTION DATA

SY Chain No.	SY Standard(ANSI)		Each Series				
	Max. Allowable Load	Ave. Ultimate Strength	Ave.Ultimate Strength(kN)				
			E	U	H	HE	HU
35	2.48	10.8					
40	4.17	19.1					
50	7.22	31.9					
60	10.7	43.1	47.1		54.9	53.9	
80	19.1	78.5	79.4	84.3	60.2	93.2	98.1
100	29.4	118	119	127	137	142	145
120	39.5	167	174	186	186	191	196
140	52.3	216	227	245	241	252	255
160	69.0	275	294	314	306	319	324
180	79.0	353		412	373		
200	93.0	451		490	520		
240	129.0	677		726	726		

f1: SERVICE FACTOR

Driven Load Condition	Interval Combustion Engine		Motor or Turbine
	Hydraulic Drive	Mechanical Drive	
Uniform Smooth	1.1	1.3	1.0
Moderate Shock	1.5	1.7	1.4
Heavy Shock	1.9	2.1	1.8

f3: SPEED COEFFICIENT

Chain Speed	f3
15m/min.	1.0
15－30	1.2
30－50	1.4

f4: SAFETY FACTOR

Chain Speed	f4
25m/min.	7≦
25－50	8≦

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