

特殊应用选择

SELECTION ON SPECIAL APPLICATIONS

如果运行条件要求滚子链速低于50m/min., 要考虑的不是磨损伸长率, 而是疲劳强度。与一般选择方法相比, 低速链条为经济的选择。特殊运行条件下, 其选择方法要不同于一般选择方法。

(1) 低速运行

当链速低于50M/min., 且启动、停止频率较低时, 使用下列公式。

$$\boxed{\text{容许载荷}} \geq \boxed{\text{作用于链条的最大载荷}} \times \boxed{\text{工作系数}} \times \boxed{\text{速度系数}}$$

选择步骤如下:

1. 根据表1《简易选择图表》中的发动机功率HP和转速RPM选择较小滚子链和链轮。
2. 用查取的链轮转速rpm乘以表2单位链轮转速rpm的链速值计算得出链速m/min.。
3. 确定作用于链条上的最大载荷。
4. 查表4中的工作系数。
5. 从表3速度系数中查速度系数。
6. 利用上述公式计算查取值, 比较根据上述第1项试选的滚子链的容许载荷。

如果不能满足要求, 应更换链条和链轮, 再检查。

注:

当运行条件需要设备频繁启动、停止、反向转动时, 提高工作系数以补偿运行条件, 或咨询OCM。

(2) 异常环境条件下的运行

当运行环境条件低于正常情况时, 咨询OCM。如果运行环境温度或腐蚀性高时, 建议使用不锈钢滚子链。

表3速度系数 Table 3 Speed Factor

滚子链速 Speed of Roller Chain(m/min)	速度系数 Speed Factor	备注 Remarks
低于10 Less than 10	1.0	
10及小于20 10 and Less than 20	1.1	
20及小于30 20 and Less than 30	1.2	
30及小于40 30 and Less than 40	1.3	
40及小于50 40 and Less than 50	1.4	
50及小于70 50 and Less than 70	1.6	只适用于OCM不锈钢滚子链 Applicable only to OCM Stainless Roller Chain

If an application requires the speed of roller chain at less than 50m/min., it is necessary to take into account not wear elongation but fatigue strength. It is, therefore, economical to use a low speed selection method rather than the general selection procedure. For operations under special conditions, a different selection method is required from the general selection procedure.

(1) Operation at low speeds

The formula below is used if the speed of chain is less than 50M/min. with infrequent starts and stops.

$$\boxed{\text{Allowable load}} \geq \boxed{\text{Max load imposed on chain}} \times \boxed{\text{Service factor}} \times \boxed{\text{Speed factor}}$$

Selection procedure is as follows:

1. Select slightly smaller roller chain and sprocket from a prime mover HP and RPM on Table 1 Easy Selection Chart.
2. Multiply the rpm of sprocket obtained by Table 2, the value of chain speed per one rpm of the sprocket to obtain the speed of chain, m/min.
3. To determine the max load imposed on chain.
4. Service factor from Table 4.
5. Speed factor is obtained from Table 3, speed factor.
6. Using the formula above, calculate the value obtained, and compare the allowable load of a roller chain tentatively selected on the item 1 above. If not satisfactory to meet the requirements, please change the chain and sprocket and review.

Note:

When operation conditions are frequent starts and stops and reversals of drive rotation, increase the service factors to compensate for the conditions or consult OCM.

(2) Operations under abnormal atmosphere conditions

If the atmosphere condition of operation is worse than ordinary, consult OCM. If operation atmosphere is high temperature or corrosive, it is recommended to use stainless steel roller chain.

表2. 单位链轮转速的链速

Table 2 Chain Speed per one rpm of sprocket

OCM 链号 Chain No.	链轮齿数 Number of teeth in sprocket																				
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
OCMS10	0.032	0.035	0.038	0.041	0.044	0.048	0.051	0.054	0.057	0.060	0.064	0.067	0.070	0.073	0.076	0.079	0.083	0.086	0.089	0.092	0.095
OCM 15	0.048	0.052	0.057	0.062	0.067	0.071	0.076	0.081	0.086	0.090	0.095	0.100	0.105	0.110	0.114	0.119	0.124	0.129	0.133	0.138	0.143
OCM 25	0.064	0.070	0.076	0.083	0.089	0.095	0.102	0.108	0.114	0.121	0.127	0.133	0.140	0.146	0.152	0.159	0.165	0.171	0.178	0.184	0.191
OCM 35	0.095	0.105	0.114	0.124	0.133	0.143	0.152	0.162	0.171	0.181	0.191	0.200	0.210	0.219	0.229	0.238	0.248	0.257	0.267	0.276	0.286
OCM 40	0.127	0.140	0.152	0.165	0.178	0.191	0.203	0.216	0.229	0.241	0.254	0.267	0.279	0.292	0.305	0.318	0.330	0.343	0.356	0.368	0.381
OCM 50	0.159	0.175	0.191	0.206	0.222	0.238	0.254	0.270	0.286	0.302	0.318	0.333	0.349	0.365	0.381	0.397	0.413	0.429	0.445	0.460	0.476
OCM 60	0.191	0.210	0.229	0.248	0.267	0.286	0.305	0.324	0.343	0.362	0.381	0.400	0.419	0.438	0.457	0.476	0.495	0.514	0.533	0.552	0.572
OCM 80	0.254	0.279	0.305	0.330	0.356	0.381	0.406	0.432	0.457	0.483	0.508	0.533	0.559	0.584	0.610	0.635	0.660	0.686	0.711	0.737	0.762
OCM100	0.318	0.349	0.381	0.413	0.445	0.476	0.508	0.540	0.572	0.603	0.635	0.667	0.669	0.730	0.762	0.794	0.826	0.857	0.889	0.921	0.953
OCM120	0.381	0.419	0.457	0.495	0.533	0.572	0.610	0.648	0.686	0.724	0.762	0.800	0.838	0.876	0.914	0.953	0.991	1.029	1.067	1.105	1.143
OCM140	0.445	0.489	0.533	0.578	0.622	0.667	0.711	0.756	0.800	0.845	0.889	0.933	0.978	1.022	1.067	1.111	1.156	1.200	1.245	1.289	1.334
OCM160	0.508	0.559	0.610	0.660	0.711	0.762	0.813	0.864	0.914	0.965	1.016	1.067	1.118	1.168	1.219	1.270	1.321	1.372	1.422	1.473	1.524
OCM200	0.635	0.699	0.762	0.826	0.889	0.953	1.016	1.080	1.143	1.207	1.270	1.334	1.397	1.461	1.524	1.588	1.651	1.715	1.778	1.842	1.905
OCM240	0.762	0.838	0.914	0.991	1.067	1.143	1.219	1.295	1.372	1.448	1.524	1.600	1.676	1.753	1.829	1.905	1.981	2.057	2.134	2.210	2.286