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The structural style of the disc couplings

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Disc couplings are widely used in metallurgy, mining, petroleum, electric power, shipbuilding, lifting machinery, water pumps, the paper industry, light industry, printing, chemical and other industries of machinery equipment to transfer power.
Disc couplings
The structural style of the disc couplings

**DB** 基本型膜片联轴器;
适用于仅有轴向转角偏差的场合。
矩形变位：40~319000N·m

**DT** 塑料联轴器装置;
轴径太大可以选配以满足长轴端面

**DX** 同轴对合型膜片联轴器;
同轴对合型膜片联轴器可以适应不

**DXT** 双联式反应型膜片联轴器;
双联式反应型膜片联轴器可以适应不

## The Selection of the Disc Couplings

**Use the following steps to select couplings**

### 1. 选用基本原则 / The Selection of the Basic Information


### 2. 选用计算 / The Selection and Use Calculation

膜片联轴器的主参数是公称转矩 Tn。选用时各转矩间应符合以下关系:

The main parameter of the couplings is the nominal torque Tn, among various torque when selection should accord with the following relationship:

\[
\begin{align*}
T &= T_0 \leq T_n \leq [T] \leq [T_{max}] \leq T_{max} \\
T_0 &= \text{理论转矩, N·m} \\
T &= \text{计算转矩, N·m} \\
T_n &= \text{公称转矩, N·m} \\
[T] &= \text{允许转矩, N·m} \\
[T_{max}] &= \text{允许最大转矩, N·m} \\
T_{max} &= \text{最大转矩, N·m}
\end{align*}
\]

### 1.2.1 联轴器的理论转矩计算 / The Theory Torque Calculation of the Couplings

\[
T = 950P/wn
\]

### 1.2.2 联轴器的计算转矩计算 / The Couplings Torque Calculation

\[
\text{计算公式: } T = T_0 - K_2 - K_1 \times K_2
\]
### The Selection of the Disc Couplings

<table>
<thead>
<tr>
<th>Motor Type</th>
<th>Motor Coefficient</th>
<th>Motor Power (kW)</th>
<th>Work Machine Name</th>
<th>Work Machine Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1.0</td>
<td>&lt;120</td>
<td>1</td>
<td>Technical machine (turning, milling, drilling), shearing machine, box machine,等等</td>
</tr>
<tr>
<td>1.2</td>
<td>&gt;120-240</td>
<td>1.5</td>
<td>Light</td>
<td>Technical machine (turning, milling, drilling), shearing machine, box machine,等等</td>
</tr>
<tr>
<td>1.4</td>
<td>&gt;240</td>
<td>2</td>
<td>Medium</td>
<td>Technical machine (turning, milling, drilling), shearing machine, box machine,等等</td>
</tr>
<tr>
<td>1.6</td>
<td>2.5</td>
<td>Heavy</td>
<td>Heavy</td>
<td>Technical machine (turning, milling, drilling), shearing machine, box machine,等等</td>
</tr>
</tbody>
</table>

#### 1.2.3 When the presence of the following situations, it should be calculated and selected by the following method

1. High peak loads
2. Brake (brake wheel or brake disc is part of the coupling)
3. High frequency axial channeling move

### Peak Load

When the big motor power, impact load, frequent starting and braking, intermittent operation and etc. system exists repetitive peak load, the couplings rating torque is equal to or greater than the calculated according to the following formula to calculate the model selection and torque.

- **No reverse peak load**
  - Selection torque \( (N_m) = \text{system peak torque} \times \text{reaction speed} (rpm) \)
  
- **Have reverse peak load**
  - Selection torque \( (N_m) = 1.5 \times \text{system peak torque} \times \text{rotation speed} (rpm) \)
  
- **Occasional peak load (reversing)**
  - In the transmission of the power split, if the system peak load appeared a number less than 1000 times, using the following formula:
    
    
    \[
    \text{Selection torque} = N_m = 0.5 \times \text{system peak torque} \times \text{rotation speed} (rpm)
    \]
    
    For reverse situation, select the step b.

### Brake

If the braking torque exceed the motor torque, according to the following formula to select model and torque:

\[
\text{Selection torque} = N_m = \text{brake} \times \text{application factor}
\]

### High Frequency Axial Channeling Shift

If the axial channeling move exceed more than 5 times per hour, so the working condition coefficient should be increased by 0.25.

\[
\text{Selection torque} = N_m = \text{power} \times 9550 \times (\text{application factor} + 0.25) \times \text{rotation speed} (rpm)
\]

---

**注释**

- 峰值负载：
  - 当电机功率大，有冲击负载、频繁启动和制动、有微振或振等系统存在反复性峰值负载时，
  - 轴向偏移量需等于或大于根据下式计算出的选型转矩。

**注释**

- *Disc couplings* 透镜式联轴器
The selection of the disc couplings

1.3 初选联轴器型号规格 / The preliminary selection of the couplings model specifications

1.4 选型验证 / Selection of validation

1.5 确定联轴器型号规格 / To determine the couplings model specifications

1.6 产品标记 / Product mark

2.1 基本信息 / General information

电机额定功率：2500kW
输出转速：995rpm
输入轴线定心：1168mm
输入轴直径 d1：220 mm
输出轴直径 d2：190mm
联轴器类型：膜片联轴器
磨损：重冲击
使用环境：有灰尘等
工作性质：连续

Motor rated power: 2500kW
Output speed: 995rpm
Input and output end distance: 1168mm
Input shaft diameter d1: 220 mm
Output shaft diameter d2: 190mm
Couplings type: disc couplings
Load properties: Heavy impact
Surrounding environment: such as dust etc
Nature of work: continuous

2.2 选用计算 / Selection & use and calculation

根据基本信息，本项目选膜片联轴器。According to the general information, this project
选用联轴器。Choose the disc couplings.

2.3 初选联轴器型号规格 / The preliminary selection of the couplings model specifications

DT22 膜片联轴器 定型规格 64000N·m
满足转矩要求 初选DT22型膜片联轴器

DT22 disc couplings with type of joint pipe Nominal torque 64000N·m
Meet the torque requirement, preliminary select the DT22, the disc couplings with joint pipe.

2.4 验证 / Verification

①孔径
满足要求
②扭转空间（与现场条件比较）
### Shipping and Carrying

**Carrying**

- Lift the product using a forklift or crane. Always use lifting equipment or cranes to lift the goods from the designated place. At the same time, pay attention to the bearing capacity of the handling equipment and comply with the load requirements specified on the actual invoice.

### Unpacking

- After unboxing, check the packaging list to ensure all parts are complete. If there are any issues, please contact our company in a timely manner.

### Storage

- The coupling should be stored in dry, clean, and well-ventilated areas, away from sunlight and moisture.
- The coupling should be stored in protective sleeves to protect the surface from damage during transport.
- The product requires long-term storage, and should be regularly checked and protected against dust and other damages.
Membrane联轴器的使用、维护和保养

The use, maintenance, and preservation of the disc couplings

定期检查

定期检查是必要的。建议每半年进行一次下列检查，主要内容如下：

Disc couplings run normally without lubrication; however, regular inspection is necessary. We suggest that every six months make the following checks:

- 检查转轴和轴套是否松动，必要时按安装要求进行紧固。
- 观察膜片组件外侧表面是否有磨损、裂纹、过大的永久变形等缺陷，如有应立即更换。
- 传递扭矩的螺栓配合装配面是否有磨损磨损。
- 检查机座和对中是否变形，如已超限应重新进行对中调整。
- 此外，连接的弹簧端面如果松动或不紧，需检查安装是否有问题。
- 是否有其他缺陷，如有需更换。
- 根据需要，必须在断电及断链过程中测量机组的振动值，如已超过规定值，应停机检查原因，并加以排除。

监测

监测

监测时可在机组运行过程中测量机组的振动值，如已超过规定值，应停机检查原因，并加以排除。

联轴器的拆卸

联轴器的拆卸

拆卸时应检查保护好膜片的表面，以防损伤。

更换配件

更换配件

发现膜片组件或紧固件有损伤时应及时更换配件。

附表

Attached list

附表1

Attached list 1

<table>
<thead>
<tr>
<th>No.</th>
<th>质量类型</th>
<th>质量分布</th>
<th>质量单位</th>
<th>质量比例</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>驱动类型</td>
<td>电机</td>
<td>千克</td>
<td>15%</td>
</tr>
<tr>
<td>2.</td>
<td>驱动功率</td>
<td>千瓦</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>驱动速度</td>
<td>转/分</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>轴向力</td>
<td>千牛</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>径向力</td>
<td>千牛</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>轴向位移</td>
<td>毫米</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>径向位移</td>
<td>毫米</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>轴向公差</td>
<td>毫米</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>径向公差</td>
<td>毫米</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>合计</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
附表
Attached list

驱动盘选型基本信息表
Suited basic selection information form

1. Drive Type: □Electric motor □Turbine □Internal combustion engines, internal combustion engine cylinder number: __________
2. Load Type: □Uniform □Light impact □Medium impact □Heavy impact □Extra heavy impact
3. Motor speed (rpm): __________
4. Drive device type: __________
5. Drive shaft diameter (mm): __________ Keyway size (mm): __________
6. Drive shaft diameter (mm): __________ Keyway size (mm): __________
7. Effective length of the drive shaft (mm): __________
8. Effective length of the driven shaft (mm): __________
9. Axle base (mm): __________
10. The total length of installation (mm): __________
11. Axial compensation (mm): __________
12. Radial compensation (mm): __________
13. Angular compensation*: __________
14. Working environment: □Indoor □Outdoor □Dusty □Water □Oil □Corrosion □Other
15. Working temperature (°C): __________
16. Allowable rotary space (mm): __________
17. Other: __________

附表
Attached list

螺纹紧固件表
Bolt tightening torque table

性能等级10.9级 螺纹紧固力矩
Performance level 10.9 grade Bolt tightening torque

螺纹公称直径 (mm) Nominal Dia (mm) M8 M8 M10 M12 M14 M16 M18 M20

螺纹紧固力矩 (N·m) Torque (N·m)
13-18 30-38 65-78 110-130 180-201 280-330 380-450 540-850

螺纹公称直径 (mm) Nominal Dia (mm) M22 M24 M27 M30 M33 M38 M38

螺纹紧固力矩 (N·m) Torque (N·m)
745-860 940-1120 1400-1650 1700-2000 2473-3209 2830-3550 4111-5481
