JHS Series
Hyper Coupling
No.1 & Only One
Technological Capacity

A drive shaft that transmits power to a machine is installed between the machine and the motor. Therefore, if the machine stops suddenly and an overload is generated, the drive shaft or the motor may break down. The hyper coupling developed by JTEKT is an interrupting device which prevents overloads from being transmitted to the motor or the drive shaft if an overload is generated.

High-level design/processing technology is added to a newly-developed material aiming at ultimate performance. New-generation products with improved rolling fatigue life, superior toughness and corrosion resistance, as well as unparalleled load capacity, abrasion resistance, and high-speed performance — This is what the JHS (JTEKT Hyper Strong) Series is about. JHS accelerates innovation, improvement, and rationalization at all manufacturing sites.

JHS is a registered trademark of JTEKT Corporation
The hyper coupling is a torque limiter that protects drive systems for heavy loads.

**JHS Series Hyper Coupling**

- **High operation accuracy**
- **High durability performance**
- **Significant reduction of maintenance man-hours**
- **Extensive lineup**

**Reliable know-how as a drive shaft/bearing manufacturer**

**Operating principle**

1. **Torque transmission**
   - A hydraulic expansion chamber is set in the outer cylindrical part to expand with oil pressure and transmit torque to the shaft part.

2. **Oil pressure release**
   - When excessive torque occurs, the torque transmission surface slides relatively. At the same time, the shear valve is broken by the cover tube and the oil pressure is released instantly.

3. **Free independent rotation**
   - The outer cylindrical part and the shaft part are free to rotate independently and smoothly on the bearings that support both ends of the torque transmission surface.

4. **Recovery**
   - The shear valve is replaced by matching the phases of the outer cylindrical part and shaft part. When oil pressure from the female coupler is applied again, recovery is completed.
High operation accuracy

- Operating torque accuracy within ±10% is realized
  - The relationship between the operating torque and oil pressure value was obtained with analysis and verified with a large static torsion testing machine to improve reliability.

High durability performance

- Operating durability of 150 times or more is realized
  - Special surface treatment is applied to the operating surface to improve durability.
  - The oil pressure release performance is improved by establishing an analysis method of the oil pressure release time.
  - A high degree of free independent rotation performance after the release of the oil pressure is secured by utilizing our know-how as a bearing manufacturer.

Reduction of maintenance man-hours

- Recovery operation man-hours reduced to 1/4 (compared with the shear pin type)
  - Only the shear valve is required to be replaced during operation, thus improving maintenance man-hours and the cost of replacement parts.

- Unlike the current shear pin type, this product does not require regular part replacement unless it is used.
  - The maintenance man-hours are greatly reduced, contributing to improvement of availability.

<table>
<thead>
<tr>
<th>Shear pin type</th>
<th>Hyper coupling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement part</td>
<td></td>
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<tr>
<td>Shear pin: 4 pieces</td>
<td></td>
</tr>
<tr>
<td>Nut: 4 pieces</td>
<td></td>
</tr>
<tr>
<td>Bush: 8 pieces</td>
<td></td>
</tr>
<tr>
<td>Shear valve: 4 pieces</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>At the time of regular inspection or before the next high-torque</th>
<th>At the regular inspection time of the shear pin is required</th>
<th>Regular inspection/replacement of the shear valves is not required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/4</td>
<td></td>
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</tbody>
</table>
Supported torque: 80 to 4200kN·m
Supported size: Outside diameter: 280 to 1090 mm
Full length: 350 to 1500 mm

We propose installation in your current facility by providing individual design.

Examples of other applications:
- Crusher
- Sizing press mill
- Plastic molding machine
- Electric resistance welded tube mill

Extensive lineup:
1. Supported torque: 8 to 4200kN·m
2. Supported size: Outside diameter: 280 to 1090 mm
   Full length: 350 to 1500 mm

   Drive shaft rotation diameter of supported size: φ160 to 840 mm
   We also accept orders in combination with a drive shaft.

Equipment is damaged

Excessive torque acts on the motor, pinion stand, and drive shaft
Hyper coupling not installed

Excessive torque transmission is intercepted
Equipment is protected

Recovery within a short time

Significant downtime needed for equipment repair/replacement

Occurrence of multiple in-take of rolled material
The rolls stop suddenly

Drive shafts

Hyper coupling

Pinion stand

Motor

Installation on this side can be also considered

Example of use of hyper coupling (rolling mill)

Occurrence of multiple in-take of rolled material
The rolls stop suddenly

Hyper coupling not installed
Excessive torque acts on the motor, pinion stand, and drive shaft
Equipment is damaged

Significant downtime needed for equipment repair/replacement

Hyper coupling installed
Excessive torque transmission is intercepted
Equipment is protected

Recovery within a short time

Examples of other applications:
- Crusher
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