

#### **Overview**

Rotating shaft-driven mechanical components are commonly used in all forms of machinery that perform the various processes and functions of modern industry. Perfect alignment of shafts and rotating components is desired, but it is nearly impossible to build a real-world machine in which adjacent shaft ends align perfectly. Adjacent shafts can be misaligned in 3 orientations, angular, parallel and axial, see figure below. Misalignment will place stresses on shafts and related parts of the assembly such as bearings, which can result in early failure of both.

Drive couplings can be used to compensate for shaft misalignment, whether the misalignment is an intentional or an unintentional part of the design. When designing or modifying a system, there are essential factors to consider for choosing the correct couplings for the application.



(Refer to the specification tables herein for the particular specifications of each type of drive coupling.)

- RPM: For higher rpm applications, choose Jaw/Sleeve, High Gain, or Radial Beam-Style Servo couplings. For lower rpm, consider Oldham couplings.
- Torque: Consider the torque requirements of the application, and the torque specifications of the different drive coupling types. peak torque generally occurs at start-up, operating torque at steady-state operation, and reversing or braking torque during rapid acceleration or deceleration or direction changes.
- Backlash: Backlash is a measurement of the positional accuracy of the coupling, which is important for reversing and/or motion control applications. Zero backlash is ultimately desirable, but more expensive than necessary for low-precision applications.
- Precision: for high-precision applications, choose High Gain or Radial Beam- Style Servo. For applications requiring less precision, consider Jaw/ Sleeve couplings.

| Coupling Type Comparisons            |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------|--|--|--|--|--|--|--|--|--|--|
| Coupling Type                        | SJC Series<br>Jaw / Spider                           | SOH Series Oldham<br>Hub/Disc                        | SRB Series<br>Radial Beam                | SHR Series<br>High Gain                              |  |  |  |  |  |  |
| Representative Photo                 |  |  |  |  |  |  |  |  |  |  |
| Mounting Method                      | Clamp  | Clamp  | Clamp                                    | Clamp  |  |  |  |  |  |  |
| Blacklash Free                       | Good   | Yes  | Yes                                      | Yes  |  |  |  |  |  |  |
| Electrical Isolation                 | Good   | Good   | No                                       | No   |  |  |  |  |  |  |
| Vibration Absorption                 | Good   | Good   | No                                       | Excellent  |  |  |  |  |  |  |
| Jaw/Hub/Body Material                | High Strength Aluminum Alloy<br>with Anodized Finish | High Strength Aluminum Alloy<br>with Anodized Finish | Aluminum 7075-T6 with<br>Anodized Finish | High Strength Aluminum Alloy<br>with Anodized Finish |  |  |  |  |  |  |
| Spider/Disc/Core Material            | TPU (Thermoplastic<br>Polyurethane) or Hytrel ®      | POM (Polyacetal)                                     | Aluminum 7075-T6                         | HNBR (Hydrogenated acrylonitrile butadiene rubber)   |  |  |  |  |  |  |
| Permissible Operating<br>Temperature | -20°C to 120°C                                       | -20°C to 80°C  | -30°C to 100°C                           | -20°C to 80°C  |  |  |  |  |  |  |

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**Rotary Motion** 



### SOH Series Oldham Clamp-Style Coupling



#### **Features**

- Clamp Style Hub
- High Parallel misalignment range
- Zero Backlash
- Wide bore selection
- Wide Torque Range
- Electrical Isolation
- Hub material: High Strength Aluminum Alloy
- Disc material: POM (Polyacetal)
- Wide operating temperature range (-20°C to 80°C)

To create a coupling to meet your specific needs:

- Select 2 Hubs with desired Bores, of the same SOH Size
- Select 1 Disc, of the same SOH Size
- Verify Actual Torque ratings based on Temperature Correction Factor (TF)
- Coupling assemblies are designed for a press fit to achieve zero backlash. An auger press is recommended for assembly.



| SOH Series Coupling Hubs |         |      |                           |        |                          |         |     |  |  |
|--------------------------|---------|------|---------------------------|--------|--------------------------|---------|-----|--|--|
|                          |         |      | Bore, Max<br>B1 or B2 RPM |        | Clamp Sc                 | Drowing |     |  |  |
| Part Number*             | Price   | Size |                           | Туре   | Fastening<br>Torque(N·m) | Links   |     |  |  |
| <u>SOH-16C-4</u>         |         | 16   | 4mm                       | 13,000 | SHCS M2.6-0.45 x<br>8mm  | 1.0     | PDF |  |  |
| <u>SOH-16C-4.76</u>      | ¢10 50  |      | 3/16in                    |        |                          |         | PDF |  |  |
| <u>SOH-16C-5</u>         | \$10.50 |      | 5mm                       |        |                          |         | PDF |  |  |
| <u>SOH-16C-6</u>         |         |      | 6mm                       |        |                          |         | PDF |  |  |
| <u>SOH-20C-5</u>         |         | 20   | 5mm                       | 11,000 | SHCS M2.6-0.45 x<br>10mm | 1.0     | PDF |  |  |
| <u>SOH-20C-6</u>         |         |      | 6mm                       |        |                          |         | PDF |  |  |
| SOH-20C-6.35             |         |      | 1/4in                     |        |                          |         | PDF |  |  |
| SOH-20C-7.93             | \$11.50 |      | 5/16in                    |        |                          |         | PDF |  |  |
| SOH-20C-8                |         |      | 8mm                       |        |                          |         | PDF |  |  |
| SOH-20C-9.525            |         |      | 3/8in                     |        |                          |         | PDF |  |  |
| <u>SOH-20C-10</u>        |         |      | 10mm                      |        |                          |         | PDF |  |  |

#### **Applications**

- General Applications
- Applications with high axial misalignment



### SOH Series Oldham Clamp-Style Coupling

| SOH Series Coupling Hubs |         |      |                   |         |                     |                          |                  |  |  |
|--------------------------|---------|------|-------------------|---------|---------------------|--------------------------|------------------|--|--|
|                          |         |      | _                 |         | Clamp Scre          |                          |                  |  |  |
| Part Number*             | Price   | Size | Bore,<br>B1 or B2 | Max RPM | Туре                | Fastening<br>Torque(N∙m) | Drawing<br>Links |  |  |
| <u>SOH-25C-6</u>         |         |      | 6mm               | _       |                     |                          | PDF              |  |  |
| <u>SOH-25C-6.35</u>      |         | 25   | 1/4in             |         | SHCS M3-0.5 x 10mm  | 47                       | PDF              |  |  |
| <u>SOH-25C-8</u>         | \$12.50 |      | 8mm               | 10.000  |                     |                          | PDF              |  |  |
| <u>SOH-25C-9.525</u>     | ψ12.00  |      | 3/8in             | 10,000  |                     | 1.7                      | PDF              |  |  |
| <u>SOH-25C-10</u>        |         |      | 10mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-25C-12</u>        |         |      | 12mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-32C-8</u>         |         |      | 8mm               |         |                     |                          | PDF              |  |  |
| <u>SOH-32C-9.525</u>     |         |      | 3/8in             |         |                     |                          | PDF              |  |  |
| <u>SOH-32C-10</u>        | \$15.50 | 32   | 10mm              | 9 000   | SHCS M4-0.7 x 12mm  | 35                       | PDF              |  |  |
| <u>SOH-32C-12</u>        | ψ15.50  | 52   | 12mm              | 9,000   |                     | 0.0                      | PDF              |  |  |
| <u>SOH-32C-14</u>        |         |      | 14mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-32C-12.7</u>      |         |      | 1/2in             |         |                     |                          | PDF              |  |  |
| <u>SOH-43C-12</u>        |         | 43   | 12mm              |         | SHCS M5-0.8 x 16mm  | 8.0                      | PDF              |  |  |
| <u>SOH-43C-12.7</u>      |         |      | 1/2in             | 8,000   |                     |                          | PDF              |  |  |
| <u>SOH-43C-14</u>        | \$25.00 |      | 14mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-43C-15.875</u>    | -       |      | 5/8in             |         |                     |                          | PDF              |  |  |
| <u>SOH-43C-16</u>        |         |      | 16mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-43C-19</u>        |         |      | 19mm              |         |                     |                          | <u>PDF</u>       |  |  |
| <u>SOH-57C-15.875</u>    |         |      | 5/8in             | -       | SHCS M6-1.0 x 20mm  | 13.0                     | PDF              |  |  |
| <u>SOH-57C-16</u>        |         | 57   | 16mm              |         |                     |                          | PDF              |  |  |
| <u>SOH-57C-19</u>        |         |      | 19mm              | 6,000   |                     |                          | PDF              |  |  |
| <u>SOH-57C-19.05</u>     | \$41.50 |      | 3/4in             |         |                     |                          | <u>PDF</u>       |  |  |
| <u>SOH-57C-22</u>        |         |      | 22mm              |         |                     |                          | <u>PDF</u>       |  |  |
| <u>SOH-57C-22.225</u>    |         |      | 7/8in             |         |                     |                          | <u>PDF</u>       |  |  |
| <u>SOH-57C-24</u>        |         |      | 24mm              |         |                     |                          | PDF              |  |  |
| <u>SOHM-70C-19.05</u>    |         |      | 3/4in             | -       |                     | 30.0                     | <u>PDF</u>       |  |  |
| <u>SOHM-70C-20</u>       |         |      | 20mm              | -       |                     |                          | <u>PDF</u>       |  |  |
| <u>SOHM-70C-22.225</u>   | \$52.00 |      | 7/8in             | -       |                     |                          | <u>PDF</u>       |  |  |
| SOHM-70C-25              |         |      | 25mm              |         |                     |                          | PDF              |  |  |
| <u>SOHM-70C-25.4</u>     |         | 70   | 1in               | 4,500   | SHCS M8-1.25 x 30mm |                          | PDF              |  |  |
| SOHM-70C-28.575          |         |      | 1-1/8in           |         |                     |                          | PDF              |  |  |
| <u>SOHM-70C-30</u>       |         |      | 30mm              |         |                     |                          | PDF              |  |  |
| <u>SOHM-70C-31.75</u>    |         |      | 1-1/4in           |         |                     |                          | PDF              |  |  |
| <u>SOHM-70C-35</u>       |         |      | 35mm              |         |                     |                          | <u>PDF</u>       |  |  |



### SOH Series Oldham Clamp-Style Coupling



| SOH Series Coupling DISC |         |          |                       |             |      |                        |                  |               |                |         |
|--------------------------|---------|----------|-----------------------|-------------|------|------------------------|------------------|---------------|----------------|---------|
| Part Number* Prid        |         | ice Size | Material              | Torque (Nm) |      | Torioonal              | Max Misalignment |               |                |         |
|                          | Price   |          |                       | *Rated      | *Max | Stiffness<br>(N·m/rad) | maximoungiment   |               |                | Drawing |
|                          | 11100   |          |                       |             |      |                        | Parallel<br>(mm) | Axial<br>(mm) | Angular        | Links   |
| SOH-16-DISC              | \$3.00  | 16       |                       | 1           | 2    | 65                     | 1                | 0.10          | 1.5<br>degrees | PDF     |
| SOH-20-DISC              |         | 20       |                       | 1.5         | 3    | 120                    | 1.5              |               |                | PDF     |
| SOH-25-DISC              | \$3.75  | 25       |                       | 2.5         | 5    | 200                    | 2                |               |                | PDF     |
| SOH-32-DISC              |         | 32       | Polyacetal<br>(black) | 7           | 14   | 620                    | 2.5              |               |                | PDF     |
| SOH-43-DISC              | ¢7.05   | 43       | (black)               | 12.5        | 25   | 1,200                  | 3                |               |                | PDF     |
| SOH-57-DISC              | φ1.25   | 57       | -                     | 34          | 68   | 2,600                  | 25               | 0.20          |                | PDF     |
| SOH-70-DISC              | \$17.50 | 70       |                       | 60          | 120  | 5,000                  | 3.5              |               |                | PDF     |

\*Rated & Max Torques values are based on complete SOH assembly with maximum Bore sizes and Temperature Correction Factor (TF) =1

### **Temperature Correction Factor (TF)**

The Rated and Max Torque values are affected by Temperature due to the polymer used in the Disc. Use the Temperature Correction Factor (TF) to the determine the Actual Rated and Max Torques in expected operating conditions.

#### Actual Disc Rated Torque= Disc Rated Torque x TF

Actual Disc Max Torque= Disc Maximum Torque x TF

| Temperature Correction Factor |      |  |  |  |  |  |
|-------------------------------|------|--|--|--|--|--|
| Operating Temperature TF      |      |  |  |  |  |  |
| -20°C to 30°C                 | 1.00 |  |  |  |  |  |
| 30°C to 40°C                  | 0.80 |  |  |  |  |  |
| 40°C to 60°C                  | 0.70 |  |  |  |  |  |
| 60°C to 120°C                 | 0.55 |  |  |  |  |  |



| **SOH Series Dimensions and Mass |                     |                                |                              |              |                                  |  |  |  |  |
|----------------------------------|---------------------|--------------------------------|------------------------------|--------------|----------------------------------|--|--|--|--|
| Series Size                      | Diameter,<br>D (mm) | Overall<br>Length,<br>OAL (mm) | ***Shaft<br>Mount,<br>L1(mm) | *Mass<br>(g) | *Moment of<br>Inertia<br>(kg-m2) |  |  |  |  |
| 16                               | 16                  | 23.9                           | 7.7                          | 8.5          | 3.10E-07                         |  |  |  |  |
| 20                               | 20                  | 25.7                           | 8                            | 14.2         | 8.20E-07                         |  |  |  |  |
| 25                               | 25.5                | 32                             | 10.2                         | 29.3         | 2.70E-06                         |  |  |  |  |
| 32                               | 32                  | 44.7                           | 14.4                         | 59.6         | 9.20E-06                         |  |  |  |  |
| 43                               | 43                  | 52                             | 16.5                         | 127          | 3.40E-05                         |  |  |  |  |
| 57                               | 57                  | 76.2                           | 26.9                         | 329          | 1.60E-04                         |  |  |  |  |
| 70                               | 73                  | 75.5                           | 25                           | 547          | 4.50E-04                         |  |  |  |  |

\* Mass & Moment of inertia based on complete assembly with max bore B1 & B2.

\*\* B1 & B2 are the Bore sizes for the selected SOH Jaw.

\*\*\*L1 is the mounting distance from the shaft END.