SUNG-IL MACHINERY

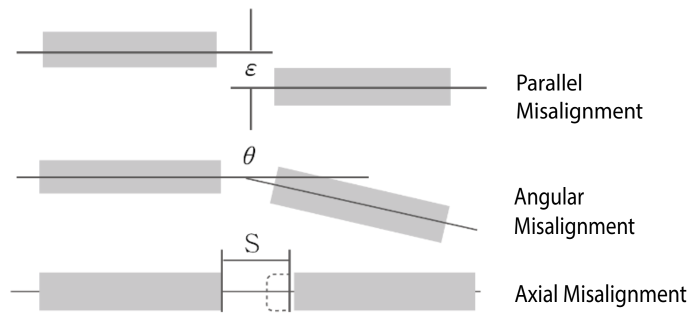
# Drive Couplings

## 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.

Some degree of Parallel, Angular, or Axial misalignment between shafts is almost unavoidable. Compensation for Shaft Misalignment is the most important feature of Couplings.




(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 Jaw / Spider*** | ***SOH Series Oldham Hub/Disc*** | ***SRB Series Radial Beam*** | ***SHR Series 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 with Anodized Finish | High Strength Aluminum Alloy with Anodized Finish | Aluminum 7075-T6 with Anodized Finish | High Strength Aluminum Alloy with Anodized Finish |
| ***Spider/Disc/Core Material*** | TPU (Thermoplastic Polyurethane) or Hytrel ® | POM (Polyacetal) | Aluminum 7075-T6 | HNBR (Hydrogenated acrylonitrile butadiene rubber) |
| ***Permissible Operating 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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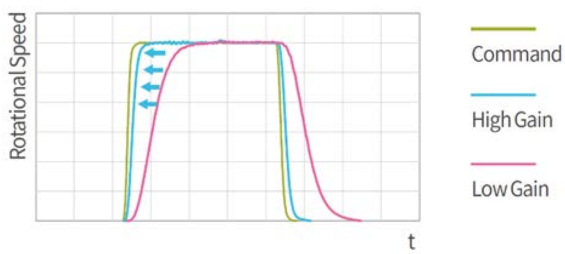
## SHR Series High Gain Clamp-Style Coupling

### Features

- Clamp Style Hub
- Increased Control Gain (High Gain)
- Vibration Absorption
- Blacklash Free
- Wide bore selection
- Wide Torque Range
- High durability
- Electrical Isolation
- Hub material: High Strength Aluminum Alloy
- Core material: HNBR (Hydrogenated acrylonitrile butadiene rubber)
- Wide operating temperature range (-20°C to 80°C)

### Applications

- Servo and Stepper
- High speed positioning applications
- High precision applications
- Ideal for use with SureServo2 motors with high frequency response




To create a coupling to meet your specific needs:

- Select High Gain Coupling with desired Bore sizes, B1 and B2
- Verify Actual Torque ratings based on Temperature Correction Factor (TF).

**SHR Series High Gain Coupling**

| Part Number | Price | Size | Bore, B1 x B2 | Max Rpm | Torque (N·m) | | Torsional Stiffness (N·m/rad) | Max Misalignment | | | Drawing Links |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | *Rated | *Max | | Parallel (mm) | Axial (mm) | Angular | |
| **SHR-18C-4-8** | $44.50 | 18 | 4 x 8mm | 33,000 | 1.9 N·m | 3.8 | 84 | 0.150 | ± 0.2 | 1.5˚ | PDF |
| **SHR-18C-5-8** | | | 5 x 8mm | | | | | | | | PDF |
| **SHR-18C-6-8** | | | 6 x 8mm | | | | | | | | PDF |
| **SHR-18C-6.35-8** | | | 6.35 (1/4in) x 8mm | | | | | | | | PDF |
| **SHR-18C-8-8** | | | 8 x 8mm | | | | | | | | PDF |
| **SHR-24C-8-8** | $47.00 | 24 | 8 x 8mm | 25,000 | 3.5 N·m | 7.0 | 132 | 0.150 | | | PDF |
| **SHR-24C-8-10** | | | 8 x 10mm | | | | | | | | PDF |
| **SHR-24C-8-12** | | | 8 x 12mm | | | | | | | | PDF |
| **SHR-29C-8-8** | $51.00 | 29 | 8 x 8mm | 21,000 | 5.7 N·m | 11.4 | 209 | 0.200 | ± 0.3 | | PDF |
| **SHR-29C-8-10** | | | 8 x 10mm | | | | | | | | PDF |
| **SHR-29C-8-12** | | | 8 x 12mm | | | | | | | | PDF |
| **SHR-29C-8-14** | | | 8 x 14mm | | | | | | | | PDF |
| **SHR-29C-10-14** | | | 10 x 14mm | | | | | | | | PDF |
| **SHR-29C-12-14** | | | 12 x 14mm | | | | | | | | PDF |
| **SHR-29C-14-14** | | | 14 x 14mm | | | | | | | | PDF |

***Rated & Max Torques values are based on maximum Bore sizes B1 & B2 and Temperature Correction Factor (TF) =1**

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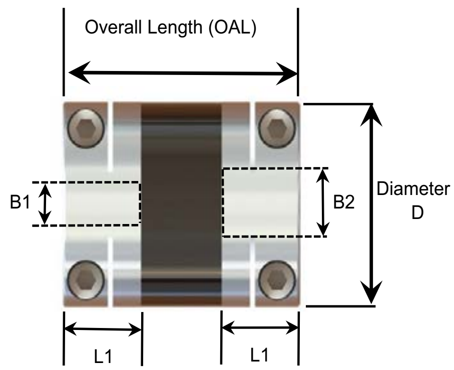
## SHR High Gain Clamp-Style Coupling

| SHR Series High Gain Coupling | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | Price | Size | Bore, B1 x B2 | Max Rpm | Torque (N·m) | | Torsional Stiffness (N·m/rad) | Max Misalignment | | | Drawing Links |
| | | | | | *Rated | *Max | | Parallel (mm) | Axial (mm) | Angular | |
| SHR-38C-14-14 | $60.00 | 38 | 14 x 14mm | 16,000 | 12 N·m | 24.0 | 479 | 0.200 | ± 0.3 | 1.5˚ | PDF |
| SHR-38C-14-16 | | | 14 x 16mm | | | | | | | | PDF |
| SHR-38C-14-18 | | | 14 x 18mm | | | | | | | | PDF |
| SHR-38C-14-19 | | | 14 x 19mm | | | | | | | | PDF |
| SHR-38C-14-20 | | | 14 x 20mm | | | | | | | | PDF |
| SHR-38C-19-19 | | | 19 x 19mm | | | | | | | | PDF |
| SHR-38C-19-20 | | | 19 x 20mm | | | | | | | | PDF |
| SHR-43C-14-14 | $68.00 | 43 | 14 x 14mm | 14,000 | 16 N·m | 32.0 | 610 | 0.200 | | | PDF |
| SHR-43C-14-16 | | | 14 x 16mm | | | | | | | | PDF |
| SHR-43C-14-18 | | | 14 x 18mm | | | | | | | | PDF |
| SHR-43C-14-19 | | | 14 x 19mm | | | | | | | | PDF |
| SHR-43C-14-20 | | | 14 x 20mm | | | | | | | | PDF |
| SHR-43C-14-22 | | | 14 x 22mm | | | | | | | | PDF |
| SHR-43C-19-19 | | | 19 x 19mm | | | | | | | | PDF |
| SHR-43C-19-20 | | | 19 x 20mm | | | | | | | | PDF |
| SHR-43C-19-22 | | | 19 x 22mm | | | | | | | | PDF |
| SHR-43C-22-22 | | | 22 x 22mm | | | | | | | | PDF |
| SHR-55C-14-14 | $88.00 | 55 | 14 x 14mm | 11,000 | 31.5 N·m | 63.0 | 1430 | 0.200 | | | PDF |
| SHR-55C-14-16 | | | 14 x 16mm | | | | | | | | PDF |
| SHR-55C-14-18 | | | 14 x 18mm | | | | | | | | PDF |
| SHR-55C-14-19 | | | 14 x 19mm | | | | | | | | PDF |
| SHR-55C-14-20 | | | 14 x 20mm | | | | | | | | PDF |
| SHR-55C-14-22 | | | 14 x 22mm | | | | | | | | PDF |
| SHR-55C-14-24 | | | 14 x 24mm | | | | | | | | PDF |
| SHR-55C-14-25 | | | 14 x 25mm | | | | | | | | PDF |
| SHR-55C-19-19 | | | 19 x 19mm | | | | | | | | PDF |
| SHR-55C-19-20 | | | 19 x 20mm | | | | | | | | PDF |
| SHR-55C-19-22 | | | 19 x 22mm | | | | | | | | PDF |
| SHR-55C-19-24 | | | 19 x 24mm | | | | | | | | PDF |
| SHR-55C-19-25 | | | 19 x 25mm | | | | | | | | PDF |
| SHR-55C-22-22 | | | 22 x 22mm | | | | | | | | PDF |
| SHR-55C-22-24 | | | 22 x 24mm | | | | | | | | PDF |
| SHR-55C-22-25 | | | 22 x 25mm | | | | | | | | PDF |
| SHR-55C-24-24 | | | 24 x 24mm | | | | | | | | PDF |
| SHR-55C-24-25 | | | 24 x 25mm | | | | | | | | PDF |
| SHR-55C-25-25 | | | 25 x 25mm | | | | | | | | PDF |

*Rated & Max Torques values are based on maximum Bore sizes B1 & B2 and Temperature Correction Factor (TF) =1

# Drive Couplings

## SHR Series High Gain Clamp-Style Coupling




| **SHR Series Dimensions and Mass | | | | | | | |
|---|---|---|---|---|---|---|---|
| Size | Diameter, D (mm) | Overall Length, OAL (mm) | ***Shaft Mount, L1 (mm) | *Mass (g) | *Moment of Inertia (kg-m2) | Clamp Screw | |
| | | | | | | Type | Fastening Torque (N·m) |
| 18 | 17.8 | 25.5 | 8 | 11 | 4.90E-07 | SHCS M2-0.4 x 6mm | 0.6 |
| 24 | 23.8 | 31.2 | 9.6 | 22 | 1.90E-06 | SHCS M2.6-0.45 x 8mm | 1.1 |
| 29 | 28.8 | 35 | 11 | 34 | 4.40E-06 | SHCS M3-0.5 x 10mm | 1.8 |
| 38 | 37.8 | 47 | 15.5 | 78 | 1.80E-05 | SHCS M4-0.7 x 14mm | 3.7 |
| 43 | 42.8 | 48 | 15.5 | 115 | 3.20E-05 | SHCS M4-0.7 x 14mm | 3.7 |
| 55 | 54.8 | 59 | 19.5 | 250 | 1.10E-04 | SHCS M5-0.8 x 20mm | 8.5 |

*** Mass & Moment of inertia based on complete assembly with max bore B1 & B2.**
****B1 & B2 are the Bore sizes for the selected SHR Coupling.**
*****L1 is the mounting distance from the shaft END.**

## Temperature Correction Factor (TF)

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

**Actual Rated Torque= Rated Torque x TF**

**Actual Max Torque= 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 |