SUNG-IL MACHINERY

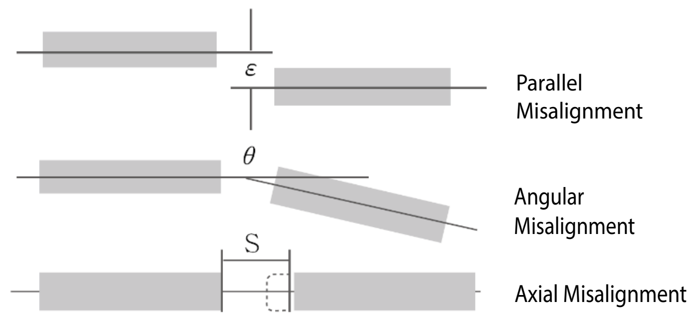
Drive Couplings

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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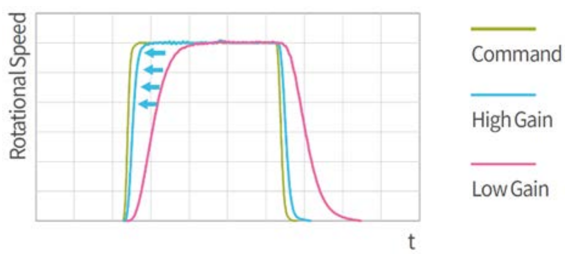
SHR Series High Gain Clamp-Style Coupling

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) *Rated	Torque (N·m) *Max	Torsional Stiffness (N·m/rad)	Max Misalignment Parallel (mm)	Max Misalignment Axial (mm)	Max Misalignment Angular	Drawing Links
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
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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

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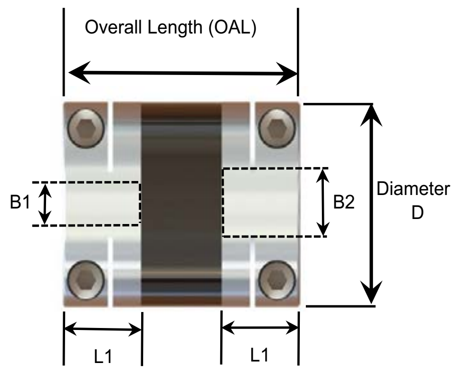

**SHR Series Dimensions and Mass							
Size	Diameter, D (mm)	Overall Length, OAL (mm)	***Shaft Mount, L1 (mm)	*Mass (g)	*Moment of Inertia (kg-m2)	Clamp Screw	
						Type	Fastening Torque (N·m)
18	17.8	25.5	8	11	4.90E-07	SHCS M2-0.4 x 6mm	0.6
24	23.8	31.2	9.6	22	1.90E-06	SHCS M2.6-0.45 x 8mm	1.1
29	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