SUNG-IL MACHINERY

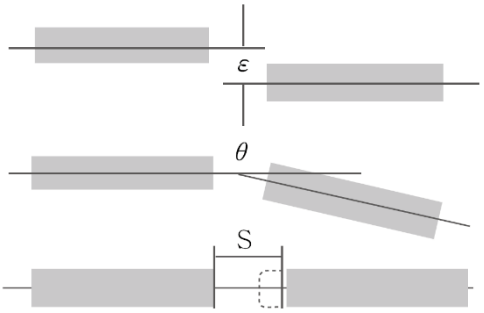
Drive Couplings

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.)

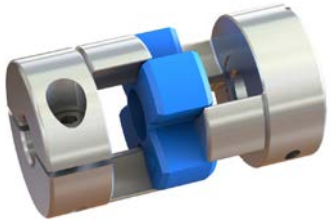
- RPM: For higher rpm applications, choose Jaw/Sleeve, High Gain, or Radial Beam-Style Servo couplings. For lower rpm, consider Oldham couplings.
- Torque: Consider the torque requirements of the application, and the torque specifications of the different drive coupling types. peak torque generally occurs 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

Drive Couplings

SJC Series Jaw/Spider Clamp- Style Coupling



Features

- Clamp Style Hub
- Most Commonly specified coupling type
- Wide bore selection
- Wide Torque Range
- High axial misalignment range
- Cost effective
- Fail-safe operation
- Electrical Isolation
- Spider available in three different degrees of durometers, stiffness, and torque ratings
- Jaw material: High Strength Aluminum Alloy
- Spider materials: Hytrel® or TPU (thermoplastic polyurethane)

Applications

- General Applications
- High Speed Applications
- Applications with high axial misalignment
- Applications in which inertia is NOT a factor

To create a coupling to meet your specific needs:

- Select 2 Jaws with desired Bores, of the same SJC Size
- Select 1 Spider with the desired performance specification, of the same SJC Size
- Verify Actual Torque ratings based Temperature Correction Factor (TF)

SJC Series Coupling Jaws

Part Number	Price	Size	Bore, B1 or B2	Max RPM	Clamp - Screw		Drawing Links
					Type	Fastening Torque (N·m)	
SJC-14C-3	$10.50	14	3mm	22,000	SHCS M2-0.4 × 6mm	0.5	PDF
SJC-14C-4			4mm				PDF
SJC-14C-5			5mm				PDF
SJC-14C-6			6mm				PDF
SJC-14C-4.76			3/16in				PDF
SJC-14C-6.35			1/4in				PDF
SJC-20C-4	$11.50	20	4mm	15,000	SHCS M2.6-0.45 × 8mm	1.0	PDF
SJC-20C-5			5mm				PDF
SJC-20C-6			6mm				PDF
SJC-20C-8			8mm				PDF
SJC-20C-10			10mm				PDF
SJC-20C-6.35			1/4in				PDF
SJC-20C-7.93			5/16in				PDF
SJC-20C-9.525			3/8in				PDF

Drive Couplings

SJC Series Jaw/Spider Clamp- Style Coupling

SJC Series Coupling Jaws							
Part Number	Price	Size	Bore, B1 or B2	Max RPM	Clamp - Screw		Drawing Links
					Type	Fastening Torque (N·m)	
SJC-25C-5	$12.50	25	5mm	13,000	SHCS M3-0.5 × 10mm	1.7	PDF
SJC-25C-6			6mm				PDF
SJC-25C-6.35			1/4in				PDF
SJC-25C-8			8mm				PDF
SJC-25C-10			10mm				PDF
SJC-25C-14			14mm				PDF
SJCA-30C-5	$13.50	30	5mm	10,000	SHCS M4-0.7 × 12mm	3.5	PDF
SJCA-30C-6			6mm				PDF
SJCA-30C-6.35			1/4in				PDF
SJCA-30C-8			8mm				PDF
SJCA-30C-10			10mm				PDF
SJCA-30C-12			12mm				PDF
SJCA-30C-14			14mm				PDF
SJCA-30C-7.93			5/16in				PDF
SJCA-30C-9.525			3/8in				PDF
SJCA-30C-12.7			1/2in				PDF
SJCA-30C-15.875			5/8in				PDF
SJCB-40C-8	$18.50	40	8mm	8,500	SHCS M5-0.8 × 16mm	8.0	PDF
SJCB-40C-10			10mm				PDF
SJCB-40C-12			12mm				PDF
SJCB-40C-14			14mm				PDF
SJCB-40C-16			16mm				PDF
SJCB-40C-19			19mm				PDF
SJCB-40C-22			22mm				PDF
SJCB-40C-9.525			3/8in				PDF
SJCB-40C-12.7			1/2in				PDF
SJCB-40C-15.875			5/8in				PDF
SJC-55C-16	$29.00	55	16mm	6,500	SHCS M6-1.0 × 20mm	13.0	PDF
SJC-55C-19			19mm				PDF
SJC-55C-22			22mm				PDF
SJC-55C-24			24mm				PDF
SJC-55C-25			25mm				PDF
SJC-55C-30			30mm				PDF
SJC-55C-15.875			5/8in				PDF
SJC-55C-19.05			3/4in				PDF
SJC-55C-22.225			7/8in				PDF
SJC-55C-25.4			1in				PDF

Drive Couplings

SJC Series Jaw/Spider Clamp- Style Coupling

SJC Series Coupling Jaws							
Part Number	Price	Size	Bore, B1 or B2	Max RPM	Clamp - Screw		Drawing Links
					Type	Fastening Torque (N·m)	
SJC-65C-19	$43.50	65	19mm	5,500	SHCS M8-1.25 ×30mm	30.0	PDF
SJC-65C-20			20mm				PDF
SJC-65C-25			25mm				PDF
SJC-65C-30			30mm				PDF
SJC-65C-32			32mm				PDF
SJC-65C-35			35mm				PDF
SJC-65C-19.05			3/4in				PDF
SJC-65C-22.225			7/8in				PDF
SJC-65C-25.4			1in				PDF
SJC-80C-32	$71.00	80	32mm	4,500	SHCS M10-1.5 × 30mm	50.0	PDF
SJC-80C-35			35mm				PDF
SJC-80C-40			40mm				PDF
SJC-80C-42			42mm				PDF
SJC-80C-28.575			1-1/8in				PDF
SJC-80C-31.75			1-1/4in				PDF
SJC-100C-30	$104.00	100	30mm	3,500	SHCS M12-1.75 × 40mm	90.0	PDF
SJC-100C-32			32mm				PDF
SJC-100C-35			35mm				PDF
SJC-100C-40			40mm				PDF
SJC-100C-45			45mm				PDF
SJC-100C-50			50mm				PDF
SJC-100C-55			55mm				PDF
SJC-100C-60			60mm				PDF

Drive Couplings

SJC Series Jaw/Spider Clamp- Style Coupling

Select the performance characteristics by selecting a SJC Spider.

Simply changing the Spider material type will provide different performance ratings, even after in-use testing, without needing to change the Jaws.

Spider Material			
Sleeve	***Material***	***Color***	***Rated Temperature Range***
SJC-xx-BL-SLEEVE	TPU	Blue	-20°C to 70°C
SJC-xx-GR-SLEEVE	Hytrel®	Green	-20°C to 120°C
SJC-xx-RD-SLEEVE	Hytrel®	Red	

TPU = Thermoplastic Polyurethane
Hytrel® = DuPont Product

SJC Series Coupling Spiders

Part Number	***Price***	***Size***	***Material***	***Durometer***	***Torque (Nm)***		***Torsional Stiffness (N·m/rad)***	***Max Misalignment***		
					****Rated***	****Max.***		***Parallel (mm)***	***Axial (mm)***	***Angular***
SJC-14-BL-SLEEVE	$5.25	14	TPU	98A	2 N·m	4.0	22	0.050	−0.2 ~ +0.6	1.0°
SJC-14-GR-SLEEVE			Hytrel	98A	2 N·m	4.0	25	0.050		
SJC-14-RD-SLEEVE			Hytrel	63D	2.5 N·m	5.0	34	0.030		
SJC-20-BL-SLEEVE	$6.25	20	TPU	98A	4 N·m	8.0	50	0.070	−0.3 ~ +0.8	
SJC-20-GR-SLEEVE			Hytrel	98A	4 N·m	8.0	60	0.070		
SJC-20-RD-SLEEVE			Hytrel	63D	6 N·m	12.0	74	0.050		
SJC-25-BL-SLEEVE	$6.25	25	TPU	98A	9 N·m	18.0	220	0.070	−0.4 ~ +1.0	
SJC-25-GR-SLEEVE			Hytrel	98A	9 N·m	18.0	260	0.070		
SJC-25-RD-SLEEVE			Hytrel	63D	12 N·m	24.0	300	0.050		
SJC-30-BL-SLEEVE	$6.25	30	TPU	98A	12 N·m	24.0	170	0.080		
SJC-30-GR-SLEEVE			Hytrel	98A	12 N·m	24.0	200	0.080		
SJC-30-RD-SLEEVE			Hytrel	63D	16 N·m	32.0	220	0.060		
SJC-40-BL-SLEEVE	$8.25	40	TPU	98A	17 N·m	34.0	1,500	0.060	−0.5 ~ +1.2	
SJC-40-GR-SLEEVE			Hytrel	98A	17 N·m	34.0	1,600	0.060		
SJC-40-RD-SLEEVE			Hytrel	63D	21 N·m	42.0	1,750	0.040		
SJC-55-BL-SLEEVE	$9.25	55	TPU	98A	60 N·m	120.0	3,000	0.090	−0.5 ~ +1.4	
SJC-55-GR-SLEEVE			Hytrel	98A	60 N·m	120.0	4,500	0.090		
SJC-55-RD-SLEEVE			Hytrel	63D	75 N·m	150.0	6,000	0.060		
SJC-65-BL-SLEEVE	$12.50	65	TPU	98A	150 N·m	300.0	6,500	0.100	−0.6 ~ +1.5	
SJC-65-GR-SLEEVE			Hytrel	98A	150 N·m	300.0	8,500	0.100		
SJC-65-RD-SLEEVE			Hytrel	63D	180 N·m	360.0	10,000	0.080		
SJC-80-BL-SLEEVE	$18.50	80	TPU	98A	300 N·m	600.0	8,000	0.100		
SJC-80-GR-SLEEVE			Hytrel	98A	300 N·m	600.0	12,000	0.100		
SJC-80-RD-SLEEVE			Hytrel	63D	380 N·m	760.0	14,000	0.080		
SJC-100-BL-SLEEVE	$18.50	100	TPU	98A	500 N·m	1000.0	24,000	0.150	−0.6 ~ +2.0	
SJC-100-GR-SLEEVE			Hytrel	98A	500 N·m	1000.0	30,000	0.150		
SJC-100-RD-SLEEVE			Hytrel	63D	600 N·m	1200.0	40,000	0.100		

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

Drive Couplings

SJC Series Jaw/Spider Clamp- Style Coupling

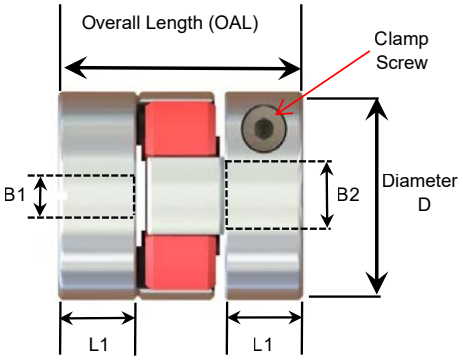
Temperature Correction Factor (TF)

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

Actual Spider Rated Torque= Spider Rated Torque x TF

Actual Spider Max Torque= Spider 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



** SJC Series Dimensions and Mass					
Series Size	***Diameter D, (mm)***	***Overall Length OAL,(mm)***	****Shaft Mount, L1 (mm)***	***Mass (g)***	****Moment of Inertia (kg-m2)***
14	14	22	7	6	1.60E-07
20	20	30	10	19	1.10E-06
25	25	31.3	10	25	2.40E-06
30	30	35.3	11.3	50	6.20E-06
40	40	66	25	160	3.90E-05
55	55	78.3	30.3	330	1.60E-04
65	65	90.3	35.3	560	3.80E-04
80	80	114.2	45.2	1,050	1.00E-03
100	104	140.2	56.2	2,550	4.60E-03

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