

# SADS Advanced Disc Couplings



## SADS Series Overview

The SADS series employs an innovative 6-point fixation method for its plate springs rather than the conventional 4-point attachment used in standard disk couplings, resulting in a more rigid and durable connection that distributes stress more evenly across six assembly holes. This advanced plate spring architecture makes the SADS series less flexible but significantly more durable and stiff than comparable-sized general disk couplings, enabling users to select a smaller coupling size while achieving similar or better performance. The higher torsional stiffness translates directly to faster response times, making the SADS series particularly advantageous for high-speed and high-accuracy positioning applications.

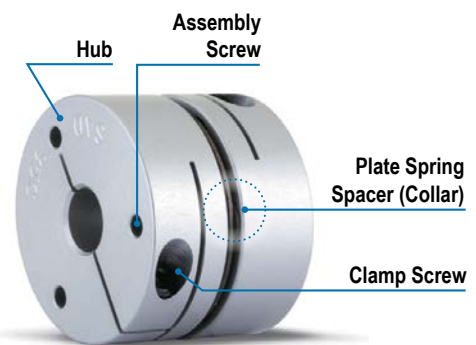
Specifically designed for compact installations in small to mid-sized applications, the SADS series is ideal for semiconductor manufacturing equipment, SMT machines, Cartesian robots, UV/XY stages, machine tools, and index tables where space is at a premium but performance cannot be compromised. The series achieves maximum torque transmission capacity in its size range while maintaining excellent precision characteristics with zero backlash. Available with side-clamp hubs in high-strength aluminum alloy construction with anodized finish. While the increased stiffness slightly reduces misalignment absorption compared to standard disk couplings, the superior durability and torque capacity make it the optimal choice for precision servo and stepping motor applications in space-constrained environments.

## Features

- Wide bore selection from 5 - 22mm (metric) and 3/16 - 7/8in (imperial)
- Wide Torque Range from 1.3 N·m - 14 N·m
- High Torsional Stiffness from 800 N·m/rad - 7500 N·m/rad
- 1 piece coupling
- No Backlash
- Hub Material: Anodized High Strength Aluminum Alloy (AL-7075-T6)
- Plate Spring Material: Stainless Steel
- Spacer Material: Steel
- Clamp Style Hub better shaft clamping than Set Screw style
- Cost effective
- Easy to install
- NO temperature correction factor required!

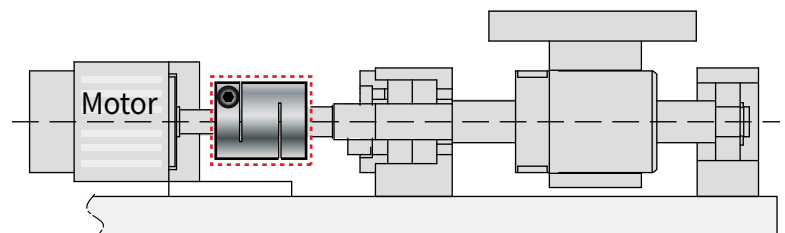
## Applications

- Robotics and Automation
- High speed positioning
- Packaging automation
- Conveyors



*The plate spring has 6 assembly holes, which allow for higher stiffness and torque ratings than a plate spring with fewer holes*

**Excellent for High Torque & High Torsional Stiffness Applications!**



# SADS Advanced Disc Couplings



## SADS Size 19

### Features

- Diameter = 19mm
- Overall Length = 18.8mm
- Nominal Shaft Gap = 1.8mm
- Minimum shaft clamping length = 8.5mm
- Maximum RPM = 14,000
- Clamp Screw = 2x SHCS M2-0.4 x 6mm
- Clamp Screw Fastening Torque = 0.5 N·m
- \*Mass = 12 g
- \*Moment of Inertia =  $6.2 \times 10^{-7}$  kg·m<sup>2</sup>

\*Values based on Bore 1 and Bore 2 diameters = 8mm



SADS Size 19											
Part Number	Price	Bore 1	Bore 2	Slip Torque	Rated Torque	Max Torque	Torsional Stiffness (N·m/rad [lbf·in/rad])	Shaft Misalignment			Drawing Links
								Max Parallel	Max Axial	Max Angular	
<a href="#">SADS-19C-4.76-6.35</a>	\$48.00	3/16in	1/4in	**	1.3 N·m [11.51 lbf·in]	2.6 N·m [23.01 lbf·in]	800 [7081]	0.02mm [0.0008in]	±0.1mm [±0.004in]	1.0°	<a href="#">PDF</a>
<a href="#">SADS-19C-5-5</a>	\$48.00	5mm	5mm								<a href="#">PDF</a>
<a href="#">SADS-19C-5-6.35</a>	\$48.00		1/4in								<a href="#">PDF</a>
<a href="#">SADS-19C-5-8</a>	\$48.00	8mm	<a href="#">PDF</a>								
<a href="#">SADS-19C-6.35-6.35</a>	\$48.00	1/4in	1/4in								<a href="#">PDF</a>
<a href="#">SADS-19C-8-8</a>	\$48.00	8mm	8mm								<a href="#">PDF</a>

\*\*Slip torque is greater than the rated torque

## SADS Size 27

### Features

- Diameter = 27mm
- Overall Length = 24.2mm
- Nominal Shaft Gap = 2.2mm
- Minimum shaft clamping length = 11mm
- Maximum RPM = 10,000
- Clamp Screw = 2x SHCS M2.6-0.45 x 10mm
- Clamp Screw Fastening Torque = 1.0 N·m
- \*Mass = 28 g
- \*Moment of Inertia =  $3.3 \times 10^{-6}$  kg·m<sup>2</sup>

\*Values based on Bore 1 and Bore 2 diameters = 14mm



SADS Size 27											
Part Number	Price	Bore 1	Bore 2	Slip Torque	Rated Torque	Max Torque	Torsional Stiffness (N·m/rad [lbf·in/rad])	Shaft Misalignment			Drawing Links
								Max Parallel	Max Axial	Max Angular	
<a href="#">SADS-27C-6.35-9.525</a>	\$44.00	1/4in	3/8in	**	3 N·m [26.55 lbf·in]	6 N·m [53.10 lbf·in]	1800 [15931]	0.02mm [0.0008in]	±0.15mm [±0.006in]	1.0°	<a href="#">PDF</a>
<a href="#">SADS-27C-8-10</a>	\$44.00	8mm	10mm								<a href="#">PDF</a>
<a href="#">SADS-27C-8-12</a>	\$44.00		12mm								<a href="#">PDF</a>
<a href="#">SADS-27C-9.525-9.525</a>	\$44.00	3/8in	3/8in								<a href="#">PDF</a>
<a href="#">SADS-27C-9.525-12.7</a>	\$44.00		1/2in								<a href="#">PDF</a>
<a href="#">SADS-27C-10-10</a>	\$44.00	10mm	10mm								<a href="#">PDF</a>
<a href="#">SADS-27C-10-12</a>	\$44.00		12mm								<a href="#">PDF</a>
<a href="#">SADS-27C-12-12</a>	\$44.00	12mm	12mm								<a href="#">PDF</a>
<a href="#">SADS-27C-12-13</a>	\$44.00		13mm								<a href="#">PDF</a>
<a href="#">SADS-27C-12-14</a>	\$44.00		14mm								<a href="#">PDF</a>
<a href="#">SADS-27C-12.7-12.7</a>	\$44.00	1/2in	1/2in								<a href="#">PDF</a>
<a href="#">SADS-27C-13-13</a>	\$44.00	13mm	13mm								<a href="#">PDF</a>
<a href="#">SADS-27C-13-14</a>	\$44.00		14mm								<a href="#">PDF</a>
<a href="#">SADS-27C-14-14</a>	\$44.00		14mm								<a href="#">PDF</a>

\*\*Slip torque is greater than the rated torque

# SADS Advanced Disc Couplings



## SADS Size 35

### Features

- Diameter = 35mm
- Overall Length = 27.2mm
- Nominal Shaft Gap = 2.2mm
- Minimum shaft clamping length = 12.5mm
- Maximum RPM = 8,500
- Clamp Screw = 2x SHCS M3-0.5 x 12mm
- Clamp Screw Fastening Torque = 1.7 N·m
- \*Mass = 58 g
- \*Moment of Inertia =  $1.1 \times 10^{-5}$  kg·m<sup>2</sup>

\*Values based on Bore 1 and Bore 2 diameters = 16mm



SADS Size 35											
Part Number	Price	Bore 1	Bore 2	Slip Torque	Rated Torque	Max Torque	Torsional Stiffness (N·m/rad [lbf·in/rad])	Shaft Misalignment			Drawing Links
								Max Parallel	Max Axial	Max Angular	
<a href="#">SADS-35C-12.7-15.875</a>	\$45.00	1/2in	5/8in	**	6 N·m [53.10 lbf·in]	12 N·m [106.21 lbf·in]	3000 [26552]	0.02mm [0.0008in]	±0.2mm [±0.008in]	1.0°	<a href="#">PDF</a>
<a href="#">SADS-35C-13-16</a>	\$45.00	13mm	16mm								<a href="#">PDF</a>
<a href="#">SADS-35C-14-16</a>	\$45.00	14mm	16mm								<a href="#">PDF</a>
<a href="#">SADS-35C-15.87-15.87</a>	\$45.00	5/8in	5/8in								<a href="#">PDF</a>
<a href="#">SADS-35C-16-16</a>	\$45.00	16mm	16mm								<a href="#">PDF</a>

\*\*Slip torque is greater than the rated torque

## SADS Size 40

### Features

- Diameter = 40mm
- Overall Length = 33.2mm
- Nominal Shaft Gap = 2.2mm
- Minimum shaft clamping length = 15.5mm
- Maximum RPM = 8,500
- Clamp Screw = 2x SHCS M4-0.7 x 14mm
- Clamp Screw Fastening Torque = 3.5 N·m
- \*Mass = 90.1 g
- \*Moment of Inertia =  $2.2 \times 10^{-5}$  kg·m<sup>2</sup>

\*Values based on Bore 1 and Bore 2 diameters = 3/4in



SADS Size 40											
Part Number	Price	Bore 1	Bore 2	Slip Torque	Rated Torque	Max Torque	Torsional Stiffness (N·m/rad [lbf·in/rad])	Shaft Misalignment			Drawing Links
								Max Parallel	Max Axial	Max Angular	
<a href="#">SADS-40C-15.87-19.05</a>	\$55.00	5/8in	3/4in	**	12 N·m [106.21 lbf·in]	24 N·m [212.42 lbf·in]	5500 [48679]	0.02mm [0.0008in]	±0.2mm [±0.008in]	1.0°	<a href="#">PDF</a>
<a href="#">SADS-40C-16-19</a>	\$55.00	16mm	19mm								<a href="#">PDF</a>
<a href="#">SADS-40C-19-19</a>	\$55.00	19mm	19mm								<a href="#">PDF</a>
<a href="#">SADS-40C-19.05-19.05</a>	\$55.00	3/4in	3/4in								<a href="#">PDF</a>

\*\*Slip torque is greater than the rated torque

# SADS Advanced Disc Couplings



## SADS Size 44

### Features

- Diameter = 44mm
- Overall Length = 33.2mm
- Nominal Shaft Gap = 2.2mm
- Minimum shaft clamping length = 15.5mm
- Maximum RPM = 8,000
- Clamp Screw = 2x SHCS M4-0.7 x 14mm
- Clamp Screw Fastening Torque = 3.5 N·m
- \*Mass = 112 g
- \*Moment of Inertia =  $3.5 \times 10^{-5}$  kg·m<sup>2</sup>

\*Values based on Bore 1 and Bore 2 diameters = 22mm



SADS Size 44											
Part Number	Price	Bore 1	Bore 2	Slip Torque	Rated Torque	Max Torque	Torsional Stiffness (N·m/rad [lbf·in/rad])	Shaft Misalignment			Drawing Links
								Max Parallel	Max Axial	Max Angular	
<a href="#">SADS-44C-19-22</a>	\$58.00	19mm	22mm	**	14 N·m [123.91 lbf·in]	28 N·m [247.82 lbf·in]	7500 [66381]	0.02mm [0.0008in]	±0.3mm [±0.01in]	1.0°	<a href="#">PDF</a>
<a href="#">SADS-44C-19.05-22.22</a>	\$58.00	3/4in	7/8in								<a href="#">PDF</a>
<a href="#">SADS-44C-22-22</a>	\$58.00	22mm	22mm								<a href="#">PDF</a>

\*\*Slip torque is greater than the rated torque

# 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 three orientations: angular, parallel, and axial. Misalignment places stresses on shafts and related parts of the assembly such as bearings, which can result in early failure of both. Drive couplings compensate for shaft misalignment, whether the misalignment is intentional or unintentional.

## Coupling Series

AutomationDirect offers seven distinct coupling series from Sung Il Machinery, each designed for specific application requirements:

<b>SJC Series</b>	High-torque jaw coupling with replaceable elastomeric spider offering excellent durability for vibration and impact. Available with TPU or Hytrel® spider materials providing electrical isolation for general industrial applications.
<b>SOH Series</b>	Three-piece Oldham coupling with polyacetal spacer excellent for parallel misalignment absorption. Minimizes reaction force on shafts while enabling simple self-maintenance.
<b>SRB Series</b>	One-piece precision metal coupling with zero backlash made from ultra-high strength aluminum alloy (AL-7075-T6). Good for both angular and parallel misalignment absorption in compact, space-saving designs.
<b>SHR Series</b>	High-performance rubber coupling optimized for servo motor applications with superior vibration dampening. Excellent vibration absorption allows higher gain values and improved servo system efficiency.
<b>SHDS Series</b>	Advanced single disk coupling designed for high torque transmission with enhanced plate spring structure. Enhanced durability through AL-7075-T6 aluminum alloy and steel construction for demanding applications.
<b>SADS Series</b>	Compact advanced disk coupling with high torsional stiffness featuring 6-point plate spring fixation. Ideal for precision servo and stepping motor applications requiring enhanced stiffness and durability.
<b>SFC Series</b>	Flexible urethane coupling excellent for absorbing large angular and parallel misalignments. Compact design with good vibration absorption and no restoring forces on connected equipment.

## Coupling Performance Comparisons

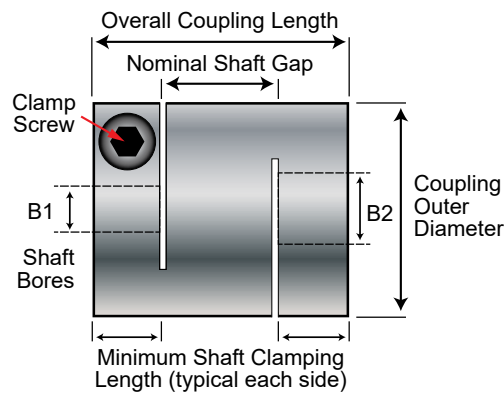
Coupling Type	SJC Series Jaw/Spider	SOH Series Oldham Hub/Disc	SRB Series Radial Beam	SHR Series High Gain	SHDS Series High Torque Disk	SADS Series Advanced Disk	SFC Series Urethane Flexible
<b>Representative Photo</b>							
<b>Mounting Method</b>	Clamp	Clamp	Clamp	Clamp	Clamp	Clamp	Set Screw
<b>Backlash Free</b>	No	Yes	Yes	Yes	Yes	Yes	No
<b>Electrical Isolation</b>	Yes	Yes	No	Yes	No	No	Yes
<b>Vibration Absorption</b>	Good	Good	Poor	Excellent	Poor	Poor	Excellent
<b>Operating Temperature</b>	-20 to +120 °C [-4 to +248 °F]	-20 to +80 °C [-4 to +176 °F]	Not specified (all-metal construction)	-20 to +80 °C [-4 to +176 °F]	Not specified (all-metal construction)		Not specified
<b>Torque Range</b>	2–600 N·m	0.2–130 N·m	0.6–65 N·m	1–65 N·m	25–600 N·m	1.3–14 N·m	0.5–14 N·m
<b>Max RPM Range</b>	3,500–22,000	4,500–20,000	3,000–30,000	9,000–42,000	3,000–7,700	8,500–14,000	5,000–13,000
<b>Torsional Stiffness</b>	22 ~ 40000 N·m/rad	65 ~ 5000 N·m/rad	75 ~ 2500 N·m/rad	41 ~ 7500 N·m/rad	20000 ~ 140000 N·m/rad	800 ~ 7500 N·m/rad	N/A
<b>Misalignment</b>	Good	Excellent (Parallel)	Good	Good	Low	Low	Excellent
<b>Best For</b>	General purpose, vibration dampening	Parallel misalignment	General purpose, No backlash	Servo motor high-gain applications	High Torque, High Torsional Stiffness	High Torque, High Torsional Stiffness	Large misalignment absorption
<b>Typical Applications</b>	Machine tools, pumps, general industry	Part feeders, logistics, Cartesian robots	Encoders, XY stages, UVW stages	Servo motors, SMT equipment, semiconductor manufacturing	Machine tools, index tables, servo presses	Servo/stepping motors, CNC machines	General industry, pumps, conveyors

# Drive Couplings



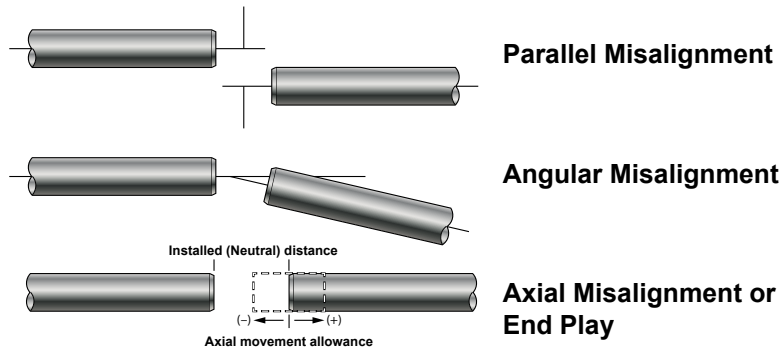
## Definitions

### Coupling Dimensions



### Shaft Misalignment

Some degree of parallel, angular, or axial misalignment between shafts is almost unavoidable. Compensation for shaft misalignment is the most important feature of couplings.



### Temperature Correction Factor (TF)

The rated and max torque values are affected by temperature due to the polymers used in the SHR, SJC, and SOH couplings. Use the temperature correction factor (TF) to determine the actual rated and max torques in the expected operating conditions.

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

$$\text{Actual Rated Torque} = \text{Rated Torque} \times \text{TF}$$

$$\text{Actual Max Torque} = \text{Maximum Torque} \times \text{TF}$$

### Slip Torque

With a clamp style coupling the grip on the shaft is prone to unwanted slipping if the torque becomes too high. This grip is dependent on the coupling size and the shaft bore. Small bores have less grip than larger bores. Slip torque ratings are provided for smaller bores that have less grip than the coupling's overall rated torque. The designer should consider the lower slip torque rating before selecting the coupling. Given a shaft size, the designer can always select a larger coupling with more desirable torque ratings.