

SHDS Single Disc Couplings



SHDS Series Overview

The SHDS series represents an advanced evolution of standard disk couplings, featuring a redesigned plate spring structure with eight assembly holes instead of the six assembly holes of the SADS series, which disperses stress concentration more effectively and significantly enhances both strength and stiffness. To complement these advanced plate springs, the body is manufactured from ultra-high-strength AL-7075-T6 aluminum alloy, achieving yield strength improvements of 70-80% over standard aluminum disk couplings. This combination delivers exceptional high-torque transmission with high torsional stiffness capacity while maintaining compact dimensions.

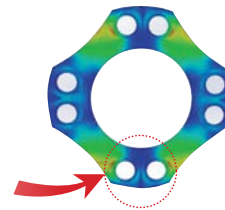
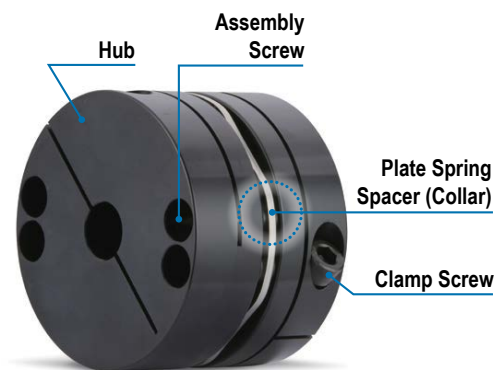
Designed for mid to large-sized applications requiring robust torque transmission, the SHDS series is ideal for Cartesian robots, belt drives, machine tools, index tables, logistics facilities, and servo presses. The enhanced stiffness and durability allow the SHDS series to handle significantly higher torque loads than similarly-sized standard disk couplings, making it possible to use a smaller coupling size while maintaining performance. Available in side-clamp configurations, the series offers excellent precision with zero backlash characteristics and high torsional stiffness, though like all disk-type couplings it has minimal vibration absorption and limited misalignment capability, making it best suited for well-aligned, high-torque servo and stepping motor applications.

Features

- Wide bore selection from 22 - 55mm (metric) and 7/8 - 1-7/8in (imperial)
- Wide Torque Range from 35 N-m - 280 N-m
- Parallel misalignment range from 0.02mm
- 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
- High Torsional Stiffness from 20,000 - 140,000 N-m/rad
- Cost effective
- Easy to install
- NO Temperature Correction Factor required!

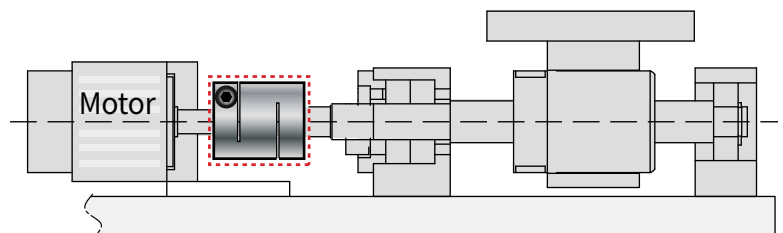
Applications

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



The Plate Spring has 8 assembly holes, in pairs, to reduce stress concentration which enhances higher stiffness and higher torque ratings

Excellent for High Torque & High Torsional Stiffness Applications!



SHDS Advanced Disc Couplings



SHDS Size 56

Features

- Diameter = 56mm
- Overall Length = 44.2mm
- Nominal Shaft Gap = 5.2mm
- Minimum shaft clamping length = 19.5mm
- Maximum RPM = 7,000
- Clamp Screw = 2x SHCS M6-1.0 x 16mm
- Clamp Screw Fastening Torque = 13.0 N·m
- *Mass = 210 g
- *Moment of Inertia = 4.0×10^{-5} kg·m²

*Values based on Bore 1 and Bore 2 diameters = 25mm



SHDS Size 56											
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	
SHDS-56C-22.22-22.22	\$100.00	7/8in	7/8in	**	35 N·m [309.78 lbf·in]	70 N·m [619.55 lbf·in]	20000 [177015]	0.02mm [0.0008in]	±0.3mm [±0.01in]	0.7°	PDF
SHDS-56C-22-24	\$100.00	22mm	24mm								PDF
SHDS-56C-22-25	\$100.00		25mm								PDF
SHDS-56C-24-24	\$100.00	24mm	24mm								PDF
SHDS-56C-24-25	\$100.00		25mm								PDF

**Slip torque is greater than the rated torque

SHDS Size 66

Features

- Diameter = 66mm
- Overall Length = 56.5mm
- Nominal Shaft Gap = 7.5mm
- Minimum shaft clamping length = 24.5mm
- Maximum RPM = 6,500
- Clamp Screw = 2x SHCS M6-1.0 x 20mm
- Clamp Screw Fastening Torque = 13.0 N·m
- *Mass = 380 g
- *Moment of Inertia = 1.0×10^{-4} kg·m²

*Values based on Bore 1 and Bore 2 diameters = 32mm



SHDS Size 66											
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	
SHDS-66C-22.22-28.57	\$138.00	7/8in	1-1/8in	**	60 N·m [531.04 lbf·in]	120 N·m [1062.09 lbf·in]	30000 [265523]	0.02mm [0.0008in]	±0.3mm [±0.01in]	0.7°	PDF
SHDS-66C-24-32	\$138.00	24mm	32mm								PDF
SHDS-66C-25.4-25.4	\$138.00		1in								1in
SHDS-66C-25.4-28.575	\$138.00	1-1/8in									PDF
SHDS-66C-28.57-28.57	\$138.00	1-1/8in	1-1/8in								PDF
SHDS-66C-32-32	\$138.00	32mm	32mm								PDF

**Slip torque is greater than the rated torque

SHDS Advanced Disc Couplings



SHDS Size 88

Features

- Diameter = 88mm
- Overall Length = 69.9mm
- Nominal Shaft Gap = 9.9mm
- Minimum shaft clamping length = 30mm
- Maximum RPM = 5,500
- Clamp Screw = 2x SHCS M8-1.25 x 25mm
- Clamp Screw Fastening Torque = 30.0 N·m
- *Mass = 795 g
- *Moment of Inertia = 9.5×10^{-4} kg·m²

*Values based on Bore 1 and Bore 2 diameters = 45mm



SHDS Size 88											
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	
SHDS-88C-28.57-34.92	\$195.00	1-1/8in	1-3/8in	**	180 N·m [1593.13 lbf·in]	360 N·m [3186.27 lbf·in]	70000 [619553]	0.02mm [0.0008in]	±0.3mm [±0.01in]	0.7°	PDF
SHDS-88C-32-35	\$195.00	32mm	35mm								PDF
SHDS-88C-34.92-34.92	\$195.00	1-3/8in	1-3/8in								PDF
SHDS-88C-34.92-41.27	\$195.00		1-5/8in								PDF
SHDS-88C-35-35	\$195.00	35mm	35mm								PDF
SHDS-88C-35-40	\$195.00		40mm								PDF
SHDS-88C-40-40	\$195.00	40mm	40mm								PDF
SHDS-88C-40-42	\$195.00		42mm								PDF
SHDS-88C-41.27-41.27	\$195.00	1-5/8in	1-5/8in								PDF
SHDS-88C-42-42	\$195.00	42mm	42mm	PDF							

**Slip torque is greater than the rated torque

SHDS Size 110

Features

- Diameter = 108mm
- Overall Length = 77.7mm
- Nominal Shaft Gap = 8.7mm
- Minimum shaft clamping length = 34.5mm
- Maximum RPM = 4,000
- Clamp Screw = 2x SHCS M10-1.5 x 30mm
- Clamp Screw Fastening Torque = 50.0 N·m
- *Mass = 1320 g
- *Moment of Inertia = 24.9×10^{-4} kg·m²

*Values based on Bore 1 and Bore 2 diameters = 55mm



SHDS Size 110											
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	
SHDS-110C-41.2-47.6	\$422.00	1-5/8in	1-7/8in	221 N·m [1956.02 lbf·in]	280 N·m [2478.21 lbf·in]	560 N·m [4956.42 lbf·in]	140000 [1239105]	0.02mm [0.0008in]	±0.5mm [±0.02in]	0.7°	PDF
SHDS-110C-42-45	\$422.00	42mm	45mm	235 N·m [2079.93 lbf·in]							PDF
SHDS-110C-47.6-47.6	\$422.00	1-7/8in	1-7/8in	250 N·m [2212.69 lbf·in]							PDF
SHDS-110C-55-55	\$422.00	55mm	55mm	**							PDF

**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:

SJC Series	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.
SOH Series	Three-piece Oldham coupling with polyacetal spacer excellent for parallel misalignment absorption. Minimizes reaction force on shafts while enabling simple self-maintenance.
SRB Series	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.
SHR Series	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.
SHDS Series	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.
SADS Series	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.
SFC Series	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

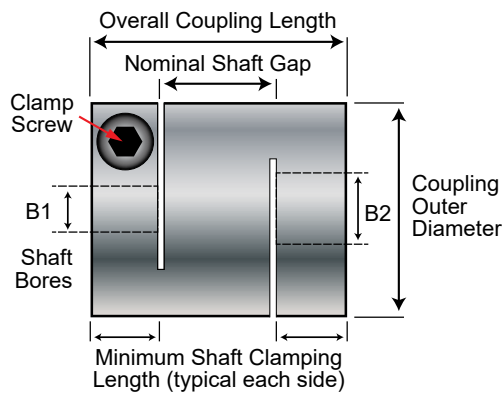
Coupling Type	SJC Series Jaw/Spider	SOH Series Oldham Hub/Disc	SRB Series Radial Beam	SHR Series High Gain	SHDS Series High Torque Disk	SADS Series Advanced Disk	SFC Series Urethane Flexible
Representative Photo							
Mounting Method	Clamp	Clamp	Clamp	Clamp	Clamp	Clamp	Set Screw
Backlash Free	No	Yes	Yes	Yes	Yes	Yes	No
Electrical Isolation	Yes	Yes	No	Yes	No	No	Yes
Vibration Absorption	Good	Good	Poor	Excellent	Poor	Poor	Excellent
Operating Temperature	-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
Torque Range	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
Max RPM Range	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
Torsional Stiffness	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
Misalignment	Good	Excellent (Parallel)	Good	Good	Low	Low	Excellent
Best For	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
Typical Applications	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



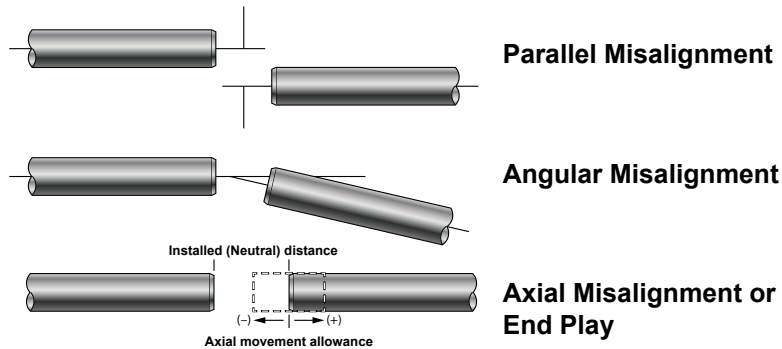
Definitions

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.