

SFC Flexible Couplings



SFC Series Overview

The SFC series features a flexible polyurethane middle element that provides exceptional misalignment absorption capabilities, making it especially well-suited for applications where significant angular or parallel misalignment must be accommodated. The soft, resilient urethane structure acts as both the torque-transmitting medium and a vibration damping element, absorbing external impacts and reducing vibration transmission between connected shafts.

While the SFC series excels at misalignment absorption and vibration damping, it is characterized by relatively lower durability compared to metal-element couplings, making it best suited for light-duty applications with encoders and general-purpose motors rather than high-torque servo or stepping motor systems. The urethane material's flexibility provides excellent shock absorption but limits the coupling's torque capacity and torsional stiffness. This series is ideal for applications such as encoders, small conveyors, and light general machinery where misalignment compensation and vibration isolation are more critical than precision or high torque transmission.



Features

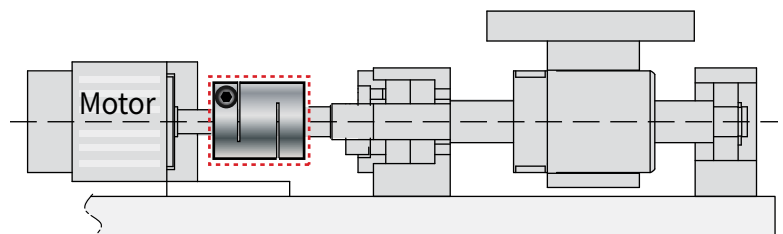
- Wide bore selection from 5 - 16mm (metric) and 1/4 - 1/2in (imperial)
- Parallel misalignment range from 2.0 - 3.0mm
- 1 piece coupling with urethane flexible element
- Hub Material: Nickel Plated Steel
- Middle Element Material: Polyurethane
- Set Screw clamping style
- Excellent misalignment absorption
- Superior vibration absorption and impact dampening
- Good electrical insulation between shafts
- Suitable for encoder and general motor applications
- Simple, cost-effective design
- Easy to install
- Ideal for light-duty applications

Structure	Material	Surface Treatment
Hub	Steel	Nickel Plating
Middle Part	Polyurethane	-
Screws	SCM435 Alloy Steel	Black Oxide

Excellent for High Misalignment Applications!

Applications

- Encoders
- General purpose machinery
- Light-duty conveyors
- Small material handling equipment
- Low-torque rotary applications
- Applications requiring vibration isolation
- Equipment with significant misalignment
- Light industrial automation



SFC Flexible Couplings



SFC Size 29

Features

- Diameter = 25mm
- Overall Length = 28mm
- *Mass = 19 g
- Maximum RPM = 3,000
- Set Screw = 4x M4-0.7 x 6mm
- Set Screw Fastening Torque = 1.7 N·m

*Values based on Bore 1 and Bore 2 diameters = 10mm



SFC Size 29								
Part Number	Price	Bore 1	Bore 2	Max Torque**	Shaft Misalignment			Drawing Links
					Max Parallel	Max Axial	Max Angular	
SFC-29-5-5	\$31.00	5mm	5mm	0.4 N·m [3.54 lbf·in]	2mm [0.08in]	1.5mm [0.06in]	10°	PDF
SFC-29-5-6.35	\$31.00		1/4in					PDF
SFC-29-5-8	\$31.00		8mm					PDF
SFC-29-6-6	\$31.00	6mm	6mm					PDF
SFC-29-6.35-6.35	\$31.00		1/4in					1/4in
SFC-29-6.35-9.525	\$31.00	1/4in	3/8in					PDF
SFC-29-8-8	\$31.00		8mm					8mm
SFC-29-8-10	\$31.00	10mm						PDF

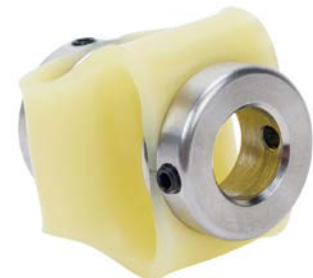
** Max Torque is based on the polyurethane durability. Rated and Slip torques are not given do to set screw installation variances.

SFC Size 38

Features

- Diameter = 32mm
- Overall Length = 35mm
- *Mass = 38 g
- Maximum RPM = 3,000
- Set Screw = 4x M4-0.7 x 6mm
- Set Screw Fastening Torque = 1.7 N·m

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



SFC Size 38								
Part Number	Price	Bore 1	Bore 2	Max Torque**	Shaft Misalignment			Drawing Links
					Max Parallel	Max Axial	Max Angular	
SFC-38-8-12	\$38.00	8mm	12mm	1.4 N·m [12.39 lbf·in]	2.5mm [0.10in]	2mm [0.08in]	10°	PDF
SFC-38-9.525-9.525	\$38.00		3/8in					3/8in
SFC-38-9.525-12.7	\$38.00	1/2in						PDF
SFC-38-10-10	\$38.00	10mm	10mm					PDF
SFC-38-10-12	\$38.00		12mm					PDF
SFC-38-12-12	\$38.00		12mm					PDF

** Max Torque is based on the polyurethane durability. Rated and Slip torques are not given do to set screw installation variances.

SFC Flexible Couplings



SFC Size 48

Features

- Diameter = 43mm
- Overall Length = 50mm
- *Mass = 60 g
- Maximum RPM = 3,000
- Set Screw = 4x M5-0.8 x 8mm
- Set Screw Fastening Torque = 4.0 N·m

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



SFC Size 48								
Part Number	Price	Bore 1	Bore 2	Max Torque**	Shaft Misalignment			Drawing Links
					Max Parallel	Max Axial	Max Angular	
SFC-48-12-13	\$52.00	12mm	13mm	1.8 N·m [15.93 lbf·in]	2.5mm [0.10in]	2mm [0.08in]	12°	PDF
SFC-48-12-14	\$52.00		14mm					PDF
SFC-48-12.7-12.7	\$52.00	1/2in	1/2in					PDF
SFC-48-13-13	\$52.00	13mm	13mm					PDF
SFC-48-13-14	\$52.00		14mm					PDF
SFC-48-14-14	\$52.00	14mm	14mm					PDF

** Max Torque is based on the polyurethane durability. Rated and Slip torques are not given do to set screw installation variances.

SFC Size 54

Features

- Diameter = 50mm
- Overall Length = 59mm
- *Mass = 140 g
- Maximum RPM = 3,000
- Set Screw = 4x M6-1.0 x 8mm
- Set Screw Fastening Torque = 7.0 N·m

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



SFC Size 54								
Part Number	Price	Bore 1	Bore 2	Max Torque**	Shaft Misalignment			Drawing Links
					Max Parallel	Max Axial	Max Angular	
SFC-54-13-16	\$105.00	13mm	16mm	4.5 N·m [39.83 lbf·in]	3mm [0.12in]	2mm [0.08in]	12°	PDF
SFC-54-14-16	\$105.00	14mm	16mm					PDF
SFC-54-16-16	\$105.00	16mm	16mm					PDF

** Max Torque is based on the polyurethane durability. Rated and Slip torques are not given do to set screw installation variances.

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

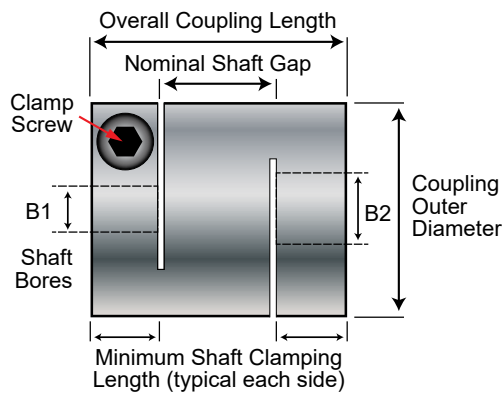
Coupling Type	SJC Series Jaw/Spider	SOH Series Oldham Hub/Disc	SRB Series Radial Beam	SHR Series High Gain	SHDS Series High Torque Disk	SADS Series Advanced Disk	SFC Series Urethane Flexible
Representative Photo							
Mounting Method	Clamp	Clamp	Clamp	Clamp	Clamp	Clamp	Set Screw
Backlash Free	No	Yes	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



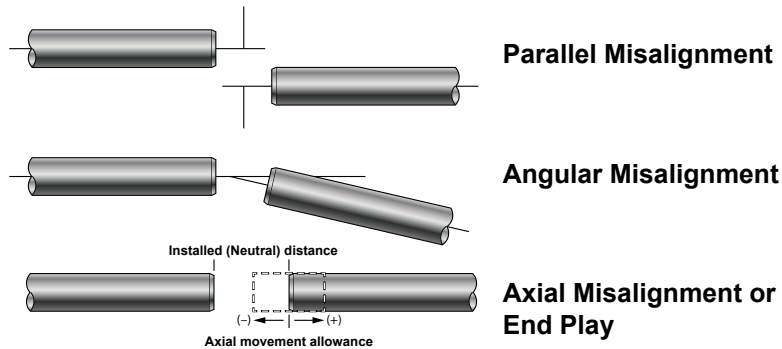
Definitions

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.