Servoflex coupling

■SFC model NEW
Type: SA2/DA2

■SFS model
Type: SS/DS/S/W/G

■SFH model
Type: G

■SFM model NEW
Type: SS/DS

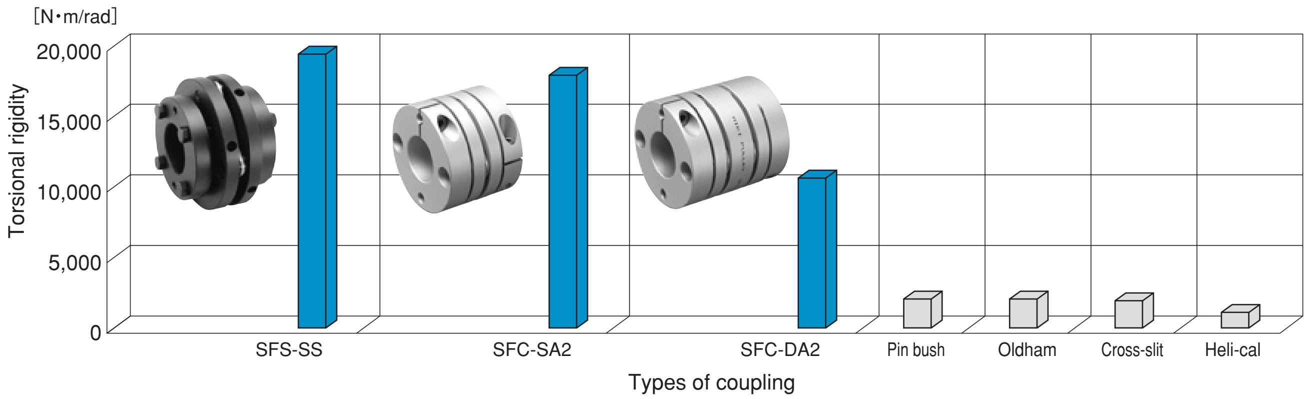
■SFF model NEW
Type: SS/DS

- Most suitable coupling for servomotors
- Plate-spring type coupling with high torsional rigidity and responsiveness
- No backlash with minimal hysteresis
- High flexibility and small axial reaction force in the radial direction
- A wide range of products corresponding from a feed shaft to main shaft of machine tool.

■Extra-high torsional rigidity

Torsional rigidity of the SERVOFLEX is several times higher than other couplings.

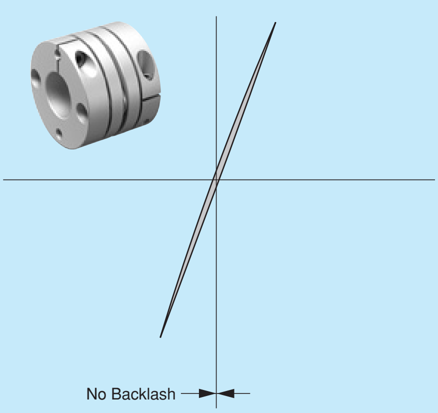
Torsional rigidity comparison of couplings (outside dia. 50～60mm)

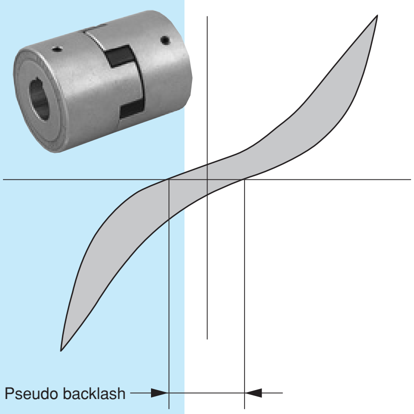


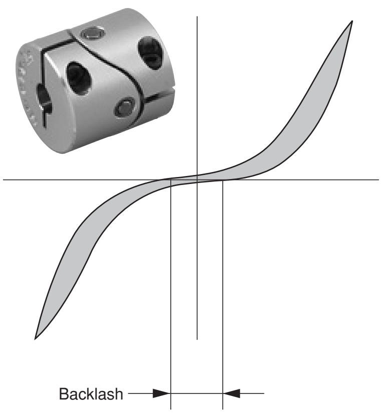
■No Backlash

There is no backlash and secular distortion in the torsional performance of the SERVOFLEX.

① Elastic (metal) coupling Metal plate spring: SERVOFLEX	② Elastic (rubber and plastic) coupling Rubber, plastic compression and plastic plate spring, etc	③ Correction coupling Oldham, pin bush, etc.







SFC model

The SFC model is a plate-spring type coupling with lightweight and high-strength aluminum alloy used for the clamp hub. It has a high torsional rigidity and responsiveness.
The SFC-SA2 with single element and ultrahigh rigidity and the SFC-DA2 with double elements and flexibility are available.
Each type has a green design corresponding to the RoHS.

SFS・SFH model

The SFS and SFH model are plate-spring type couplings. Carbon steel is used for the body material. Very high torsional rigidity assures accurate shaft rotation and ultra precision control. A single element type with high rigidity, double-element type with flexibility (two elements are used through a spacer plate) and floating type with a flange between double elements are available. Assembly finished or partly-finished product, shaft fastening by friction locking or key, or tapered shaft correspondence is available for each type.

SFM・SFF model

SFM and SFF model are plate-spring type couplings. They are developed for machine tools to comply with high precision and high speed. SFM model is for main shaft of machine tools, and SFF model is for feed shaft.
As for model for main shaft, centering structure is established on flange part and pressurized flange to comply with high precision mounting. In order to decrease the turning sound at high rotation, the circumference of plate is covered with flange so that the shape is less uneven.
Both models are new development of plate-spring, and the top-level of transmission torque is realized.

Model List

Model	Type	Element	Material	Outside dia. [mm]	Permissible torque [N・m]	Torsional spring constant [N・m/rad]	Moment of inertia [kg・m²]
SFC	SA2	Single	Aluminum alloy	16〜104	0.5〜250	500〜140000*	0.26×10^{-6}〜1858×10^{-6}
	DA2	Double	Aluminum alloy	16〜104	0.5〜250	250〜70000*	0.36×10^{-6}〜2704×10^{-6}
SFS	SS	Single	S45C or similar	82〜144	100〜800	83000〜780000	1.24×10^{-3}〜11.30×10^{-3}
	DS	Double	S45C or similar	82〜144	100〜800	41000〜390000	1.61×10^{-3}〜16.60×10^{-3}
	S	Single	S45C or similar	56〜144	20〜800	16000〜780000	0.11×10^{-3}〜9.90×10^{-3}
	W	Double	S45C or similar	56〜144	20〜800	8000〜390000	0.14×10^{-3}〜15.00×10^{-3}
	G	Double	S45C or similar	56〜144	20〜800	8000〜390000	0.20×10^{-3}〜21.20×10^{-3}
SFH	G	Double	S45C or similar	152〜262	700〜8000	750000〜5390000	21.70×10^{-3}〜410.40×10^{-3}
SFM	SS	Single	S45C or similar	90〜140	200〜800	140000〜160000*	1.87×10^{-3}〜16.9×10^{-3}
	DS	Double	S45C or similar	90〜140	200〜800	70000〜80000*	2.43×10^{-3}〜21.5×10^{-3}
SFF	SS	Single	S45C or similar	70〜100	70〜300	60000〜160000*	0.68×10^{-3}〜2.99×10^{-3}
	DS	Double	S45C or similar	70〜100	70〜300	30000〜80000*	0.83×10^{-3}〜3.76×10^{-3}

* The torsional spring constant marked * indicates the value of element part.

SFC-SA2/DA2

■Extra-high torsional stiffness
High torsional stiffness assures accurate shaft rotation and ultraprecision control.

■No backlash
Backlash is not caused due to the power transmission by friction locking. It is most suitable for ultraprecision control.

■Extra-low inertia
Low inertia is achieved by the clamp hub shape corresponding to the high-strength aluminum alloy and shaft diameter. It is most suitable for high speed applications.

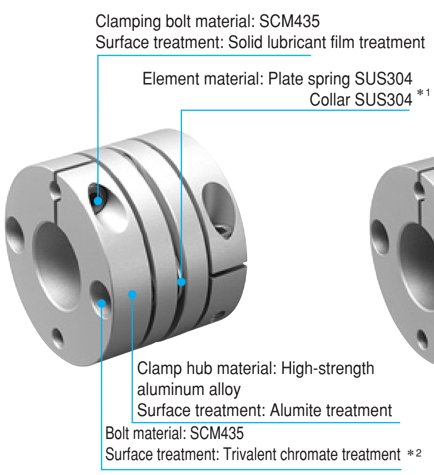
■Adapted to the RoHS
Adapted to the Restriction of Hazardous Substances that bans the use of 6 substances such as mercury or lead.

Type		SA2	DA2
Permissible torque [N·m]		0.5～250	0.5～250
Bore processing finished product [mm]		ϕ4 ～ 45	ϕ4 ～ 45
Operational temperature [℃]		−30 ～ +100	−30 ～ +100
Backlash		Zero	Zero
Max. permissible misalignment	Parallel offset [mm]	0.02	0.05 ～ 0.55
	Angular misalignment [°]	0.5～1	0.5～1 (one side)
	Axial displacement [mm]	±0.05 ～ ±0.74	±0.10 ～ ±1.48

■ Structure and Material

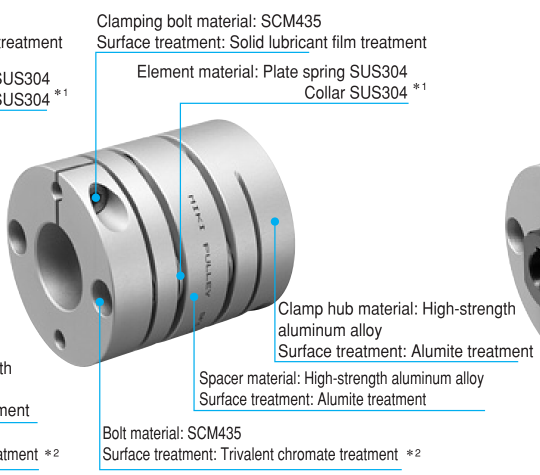
■SFC-SA2

Simple antirust specification

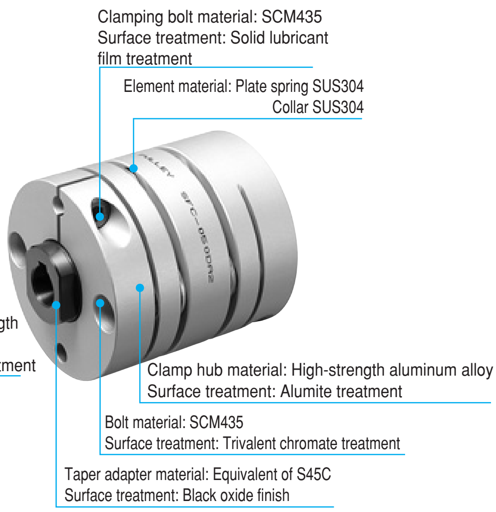


■SFC-DA2

Simple antirust specification



■SFC-SA2/DA2-BC



*1 collars material from the size #080 to #100 is S45C, and has the surface treatment of Trivalent chromate.
*2 bolts from the size #080 to #100 has surface treatment of antirust.

●Extra-high torsional stiffness

The SFC model is a plate-spring type coupling with lightweight and high-strength aluminum alloy used for the clamp hub. It has a high torsional rigidity and responsiveness.
The SFC-SA2 with single element and ultrahigh rigidity and the SFC-DA2 with double elements and flexibility are available.

■SFC-SA2

■SFC-DA2

●Extra-low inertia

Three shape types can be selected in accordance with the bore diameter to be used. Select small shape types for small bore diameters to reduce inertia to the minimum necessary. It is also suitable for a high-speed operation.

■TYPE A

■TYPE B

■TYPE C

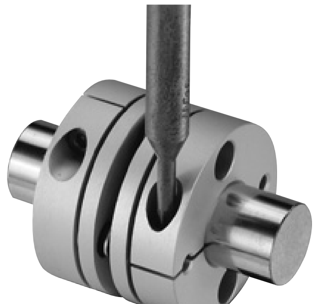
●Corresponding to tapered shafts

Fastening is completed by clamp hubs by mounting a tapered adapter in the tapered shaft of servomotor.

■SFC-SA2/DA2-BC

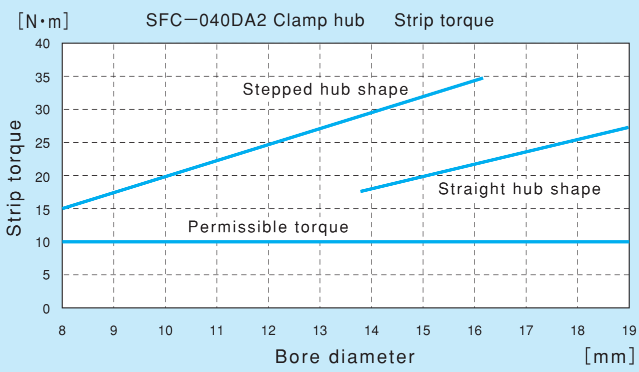
●Easy and steady, no backlash

By the clamp method, mounting can be completed by tightening right-and-left two bolts only. Power transmission by friction locking eliminates backlash. Concentricity between both ends of the coupling is assured by use of an assembly fixture.



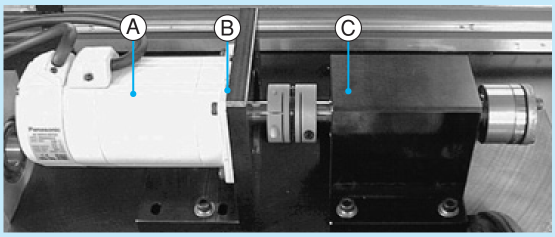
●Reliable shaft fastening

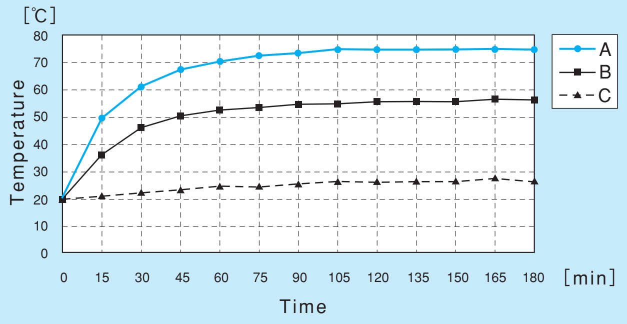
The clamp hub, strong to vibration and shock, assures reliable fastening. Shaft fastening is completed using only one bolt. Shaft retention is changed by the bore diameter to be used. However, it satisfies the coupling permissible torque within the standard bore diameter.



●Heat rejection

The stainless-steel plate spring reduces thermal conduction from a servomotor to the driven shaft, which also reduces variations in accuracy caused by thermal expansion.





Specification

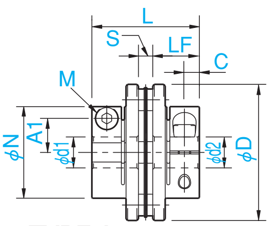
SFC-□SA2

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Shape type	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]							
SFC-005SA2	0.5	0.02	0.5	±0.05	10000	500	140	C	0.25×10^{-6}	0.007	—
SFC-010SA2	0.8	0.02	1	±0.1	10000	1400	140	C	0.58×10^{-6}	0.011	—
SFC-020SA2	1.5	0.02	1	±0.15	10000	3700	64	C	2.36×10^{-6}	0.025	—
SFC-030SA2	4	0.02	1	±0.2	10000	8000	64	A	4.00×10^{-6}	0.033	—
								B	6.06×10^{-6}	0.041	—
								C	8.12×10^{-6}	0.049	—
SFC-035SA2	6	0.02	1	±0.25	10000	18000	112	C	18.43×10^{-6}	0.084	—
SFC-040SA2	10	0.02	1	±0.3	10000	20000	80	A	16.42×10^{-6}	0.076	—
								B	22.98×10^{-6}	0.090	—
								C	29.53×10^{-6}	0.105	—
SFC-050SA2	25	0.02	1	±0.4	10000	32000	48	A	54.88×10^{-6}	0.156	—
								B	77.10×10^{-6}	0.185	—
								C	99.33×10^{-6}	0.214	—
SFC-060SA2	60	0.02	1	±0.45	10000	70000	76.4	A	143.7×10^{-6}	0.279	—
								B	206.1×10^{-6}	0.337	—
								C	268.5×10^{-6}	0.396	—
SFC-080SA2	100	0.02	1	±0.55	10000	140000	128	C	709.3×10^{-6}	0.727	—
SFC-090SA2	180	0.02	1	±0.65	10000	100000	108	C	1227×10^{-6}	0.959	—
SFC-100SA2	250	0.02	1	±0.74	10000	120000	111	C	1858×10^{-6}	1.181	—

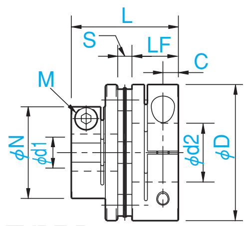
* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the actual measurement value of element.

Dimensions

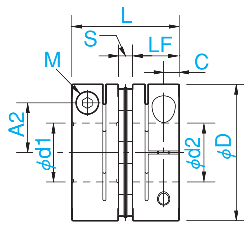
SFC-□SA2



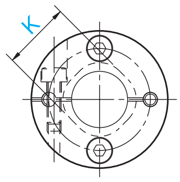
TYPE A



TYPE B



TYPE C



CAD

Unit [mm]

Model	d1*1		d2*1		D	N	L	LF	S	A1	A2	C	K	M	Tightening torque [N·m]	Shape type	CAD file No.
	Min.	Max.	Min.	Max.													
SFC-005SA2	4	6	4	6	16	—	16.7	7.85	1.0	—	4.8	2.5	6.5	2-M2	0.4	C	C005S2B1
SFC-010SA2	4	8	4	8	19	—	19.35	9.15	1.05	—	5.8*2	3.15	8.5	2-M2.5*3	1.0*3	C	C010S2B1
SFC-020SA2	5	10	5	10	26	—	23.15	10.75	1.65	—	9.5	3.3	10.6	2-M2.5	1.0	C	C020S2B1
SFC-030SA2	5	10	5	10	34	21.6	27.3	12.4	2.5	8	—	3.75	14.5	2-M3	1.5	A	C030S2B1
	5	10	Over 10	14						8	12.5					B	C030S2B2
	Over 10	14	Over 10	14		—				—	12.5					C	C030S2B3
SFC-035SA2	8	16	8	16	39	—	34.0	15.5	3.0	—	14.0	4.5	17	2-M4	3.4	C	C035S2B1
SFC-040SA2	8	15	8	15	44	29.6	34.0	15.5	3.0	11	—	4.5	19.5	2-M4	3.4	A	C040S2B1
	8	15	Over 15	19						11	17.0					B	C040S2B2
	Over 15	19	Over 15	19		—				—	17.0					C	C040S2B3
SFC-050SA2	10	19	10	19	56	38	43.4	20.5	2.4	14.5	—	6	26	2-M5	7.0	A	C050S2B1
	10	19	Over 19	25						14.5	22.0					B	C050S2B2
	Over 19	25	Over 19	25		—				—	22.0					C	C050S2B3
SFC-060SA2	12	24	12	24	68	46	53.6	25.2	3.2	17.5	—	7.75	31	2-M6	14	A	C060S2B1
	12	24	Over 24	30						17.5	26.5					B	C060S2B2
	Over 24	30	Over 24	30		—				—	26.5					C	C060S2B3
SFC-080SA2	20	35	20	30	82	—	68	30	8	—	28	9	38	2-M8	30	C	C080S2B1
SFC-090SA2	25	40	25	40	94	—	68.3	30	8.3	—	34	9	42	2-M8	30	C	C090S2B1
SFC-100SA2	35	45	35	45	104	—	69.8	30	9.8	—	39	9	48	2-M8	30	C	C100S2B1

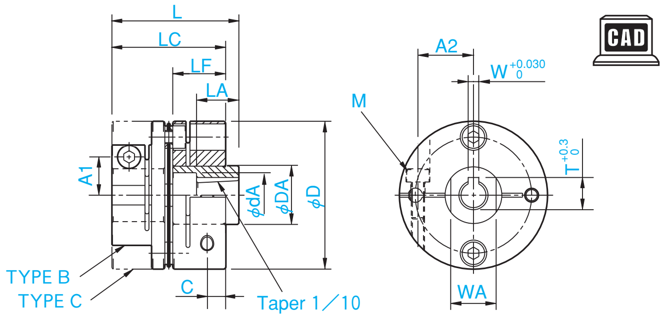
* *1 The torque permitted could be limited depending on the bore diameter. Refer to the "Standard bore diameter" on page12.
* *2 indicates the value when d1 or d2 is φ4 ~ φ7. It will be 0.6 if d1 or d2 is φ8.
* *3 indicates the value when d1 or d2 is φ4 ~ φ7. It will be M2 if d1 or d2 is φ8. The tightening torque of M2 is 0.4N・m.
* The recommended machining tolerance of the mate mounting shaft is h7. Contact us for special tolerances other than h7.

Specification SFC-□SA2-□B-□BC

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Shape type	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]					
SFC-050SA2-□B-11BC	25	0.02	1	±0.4	10000	B	81.52×10^{-6}	0.237	—
						C	103.7×10^{-6}	0.266	—
-□B-14BC	25	0.02	1	±0.4	10000	B	87.34×10^{-6}	0.268	—
						C	109.6×10^{-6}	0.297	—
-□B-16BC	25	0.02	1	±0.4	10000	B	94.16×10^{-6}	0.306	—
						C	116.4×10^{-6}	0.335	—
SFC-060SA2-□B-16BC	60	0.02	1	±0.45	10000	B	225.3×10^{-6}	0.469	—
						C	287.8×10^{-6}	0.528	—

* The moment of inertia and mass of the size 050 are measured with bore diameter of 19mm for shape B and 25mm for shape C.
* The moment of inertia and mass of the size 060 are measured with bore diameter of 24mm for shape B and 30mm for shape C.
* For the values of torsional spring constant and axial spring constant, refer to the specification table on page 11.
* Electroless nickel plating is available by special order.

Dimensions SFC-□SA2-□B-□BC



Model	Shape type	CAD file No.
SFC-050SA2-□B-11BC	B	C050S2C1
	C	C050S2C2
-□B-14BC	B	C050S2C3
	C	C050S2C4
-□B-16BC	B	C050S2C5
	C	C050S2C6
SFC-060SA2-□B-16BC	B	C060S2C1
	C	C060S2C2

Unit [mm]

Model	W	T	WA	LA	dA	DA	L	D	LC	LF	C	A1	A2	M
SFC-050SA2-□B-11BC	4	12.2	18	16	17	22	48.4	56	43.4	20.5	6	14.5	22	2-M5
-□B-14BC	4	15.1	24	19	22	28	53.4							
-□B-16BC	5	17.3	24	29	26	30	63.4							
SFC-060SA2-□B-16BC	5	17.3	24	29	26	30	69.6	68	53.6	25.2	7.75	17.5	26.5	2-M6

* The shape type is either TYPE B or TYPE C.
* For the dimensions other than those above, refer to the measurement table on page 11.

Standard bore diameter

Model	Standard bore diameter d1・d2 [mm]																											
	4	5	6	6.35	7	8	9	9.525	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45
SFC-005SA2	●	●	●																									
SFC-010SA2	●	●	●	●	●	●																						
SFC-020SA2		1.2	●	●	●	●	●	●	●																			
SFC-030SA2		2.8	3.4	●	●	●	●	●	●	●	●	●																
SFC-035SA2						●	●	●	●	●	●	●	●	●														
SFC-040SA2						9	●	●	●	●	●	●	●	●	●	●												
SFC-050SA2									22	●	●	●	●	●	●	●	●	●	●	●								
SFC-060SA2											51	●	●	●	●	●	●	●	●	●	●	●						
SFC-080SA2																	●	●	●	●	●	●	●	●				
SFC-090SA2																				●	●	●	●	●	●	●		
SFC-100SA2																								●	●	●	●	●

* The bore diameters with value or marked ● are supported as standard bore diameter.
* The permissible torque of small bore diameter indicated in the column with value is limited by the shaft fixing mechanism. The value indicates its operating torque [N・m].
* For bore diameters other than those above, processing cost is added to the standard price.

Ordering Information

SFC - 040 SA2 - 14 B - 15 B

- 040: Size
- SA2: Type: SA2 Single element, Aluminum hub
- 14 B - 15 B: Bore dia.: d1—d2

SFC - 060 SA2 - 20 B - 16 BC

- 060: Size
- SA2: Type: SA2
- 20 B - 16: Bore dia.: d1—d2
- BC: Taper adaptor

SFC-DA2

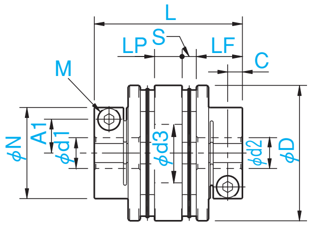
Specification SFC-□DA2

Model	Permissible torque [N·m]	Max. permissible misalignment: Parallel offset [mm]	Max. permissible misalignment: Angular misalignment [°]	Max. permissible misalignment: Axial displacement [mm]	Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Shape type	Moment of inertia [kg·m²]	Mass [kg]	Price
SFC-005DA2	0.5	0.05	0.5 (one side)	±0.1	10000	250	70	C	0.36×10^{-6}	0.010	—
SFC-010DA2	0.8	0.11	1 (one side)	±0.2	10000	700	70	C	0.79×10^{-6}	0.015	—
SFC-020DA2	1.5	0.15	1 (one side)	±0.33	10000	1850	32	C	3.40×10^{-6}	0.035	—
SFC-030DA2	4	0.18	1 (one side)	±0.4	10000	4000	32	A	7.33×10^{-6}	0.053	—
								B	9.39×10^{-6}	0.061	—
								C	11.45×10^{-6}	0.069	—
SFC-035DA2	6	0.24	1 (one side)	±0.5	10000	9000	56	C	26.78×10^{-6}	0.123	—
SFC-040DA2	10	0.24	1 (one side)	±0.6	10000	10000	40	A	29.49×10^{-6}	0.122	—
								B	36.05×10^{-6}	0.136	—
								C	42.61×10^{-6}	0.151	—
SFC-050DA2	25	0.28	1 (one side)	±0.8	10000	16000	24	A	96.94×10^{-6}	0.246	—
								B	119.2×10^{-6}	0.275	—
								C	141.4×10^{-6}	0.304	—
SFC-060DA2	60	0.34	1 (one side)	±0.9	10000	35000	38.2	A	252.4×10^{-6}	0.440	—
								B	314.8×10^{-6}	0.498	—
								C	377.3×10^{-6}	0.556	—
SFC-080DA2	100	0.52	1 (one side)	±1.10	10000	70000	64	C	1034×10^{-6}	1.051	—
SFC-090DA2	180	0.52	1 (one side)	±1.30	10000	50000	54	C	1776×10^{-6}	1.373	—
SFC-100DA2	250	0.55	1 (one side)	±1.48	10000	60000	55.5	C	2704×10^{-6}	1.707	—

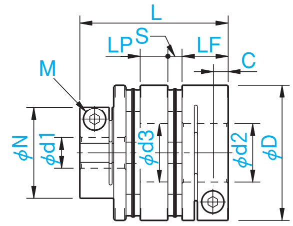
* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the actual measurement value of element.

Dimensions SFC-□DA2

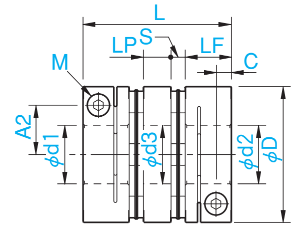
CAD



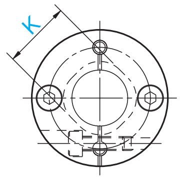
TYPE A



TYPE B



TYPE C



Unit [mm]

Model	d1*1 Min.	d1*1 Max.	d2*1 Min.	d2*1 Max.	D	N	L	LF	LP	S	A1	A2	C	d3	K	M	Tightening torque [N·m]	Shape type	CAD file No.
SFC-005DA2	4	6	4	6	16	—	23.2	7.85	5.5	1.0	—	4.8	2.5	6.5	6.5	2-M2	0.4	C	C005D2B1
SFC-010DA2	4	8	4	8	19	—	25.9	9.15	5.5	1.05	—	5.8*2	3.15	8.5	8.5	2-M2.5*3	1.0*3	C	C010D2B1
SFC-020DA2	5	10	5	10	26	—	32.3	10.75	7.5	1.65	—	9.5	3.3	10.6	10.6	2-M2.5	1.0	C	C020D2B1
SFC-030DA2	5	10	5	10	34	21.6	37.8	12.4	8	2.5	8	—	3.75	15	14.5	2-M3	1.5	A	C030D2B1
	5	10	Over 10	14							8	12.5						B	C030D2B2
	Over 10	14	Over 10	14		—					—	12.5						C	C030D2B3
SFC-035DA2	8	16	8	16	39	—	48	15.5	11	3	—	14.0	4.5	17	17	2-M4	3.4	C	C035D2B1
SFC-040DA2	8	15	8	15	44	29.6	48	15.5	11	3	11	—	4.5	20	19.5	2-M4	3.4	A	C040D2B1
	8	15	Over 15	19							11	17.0						B	C040D2B2
	Over 15	19	Over 15	19		—					—	17.0						C	C040D2B3
SFC-050DA2	10	19	10	19	56	38	59.8	20.5	14	2.4	14.5	—	6	26	26	2-M5	7.0	A	C050D2B1
	10	19	Over 19	25							14.5	22.0						B	C050D2B2
	Over 19	25	1Over 19	25		—					—	22.0						C	C050D2B3
SFC-060DA2	12	24	12	24	68	46	73.3	25.2	16.5	3.2	17.5	—	7.75	31	31	2-M6	14	A	C060D2B1
	12	24	Over 24	30							17.5	26.5						B	C060D2B2
	Over 24	30	Over 24	30		—					—	26.5						C	C060D2B3
SFC-080DA2	20	35	20	35	82	—	98	30	22	8	—	28	9	40	38	2-M8	30	C	C080D2B1
SFC-090DA2	25	40	25	40	94	—	98.6	30	22	8.3	—	34	9	47	42	2-M8	30	C	C090D2B1
SFC-100DA2	35	45	35	45	104	—	101.6	30	22	9.8	—	39	9	50	48	2-M8	30	C	C100D2B1

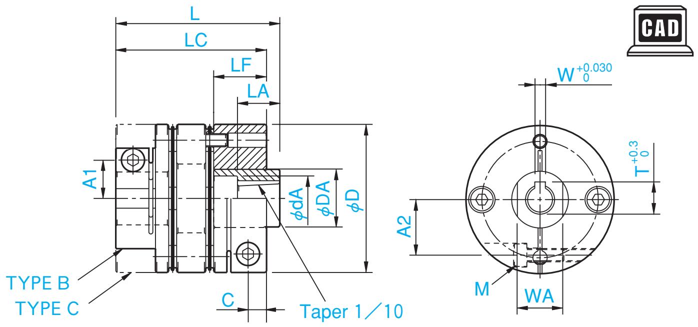
* *1 Permissible torque could be limited depending on the bore diameter. Refer to the "Standard bore diameter" on page14.
* *2 indicates the value when d1 or d2 is φ4 ~ 7. It will be 0.6 if d1 or d2 is φ8.
* *3 indicates the value when d1 or d2 is φ4 ~ 7. It will be M2 if d1 or d2 is φ8. The tightening torque of M2 is 0.4N・m.
* The recommended machining tolerance of the mate mounting shaft is h7. Contact us for the special tolerance other than h7.

Specification SFC-□DA2-□B-□BC

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Shape type	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]					
SFC-050DA2-□B-11BC	25	0.28	1(one side)	±0.8	10000	B	123.6×10^{-6}	0.327	—
						C	145.8×10^{-6}	0.356	—
-□B-14BC	25	0.28	1(one side)	±0.8	10000	B	129.4×10^{-6}	0.358	—
						C	151.6×10^{-6}	0.386	—
-□B-16BC	25	0.28	1(one side)	±0.8	10000	B	136.2×10^{-6}	0.396	—
						C	158.4×10^{-6}	0.424	—
SFC-060DA2-□B-16BC	60	0.34	1(one side)	±0.9	10000	B	334.1×10^{-6}	0.630	—
						C	396.5×10^{-6}	0.688	—

* The moment of inertia and mass of the size 050 are measured with bore diameter of 19mm for shape B and 25mm for shape C.
* The moment of inertia and mass of the size 060 are measured with bore diameter of 24mm for shape B and 30mm for shape C.
* For the values of torsional spring constant and axial spring constant, refer to the specification table on page 13.
* Electroless nickel plating is available by special order.

Dimensions SFC-□DA2-□B-□BC



Model	Shape type	CAD file No.
SFC-050DA2-□B-11BC	B	C050D2C1
	C	C050D2C2
-□B-14BC	B	C050D2C3
	C	C050D2C4
-□B-16BC	B	C050D2C5
	C	C050D2C6
SFC-060DA2-□B-16BC	B	C060D2C1
	C	C060D2C2

Unit [mm]

Model	W	T	WA	LA	dA	DA	L	D	LC	LF	C	A1	A2	M
SFC-050DA2-□B-11BC	4	12.2	18	16	17	22	64.8	56	59.8	20.5	6	14.5	22	2-M5
-□B-14BC	4	15.1	24	19	22	28	69.8							
-□B-16BC	5	17.3	24	29	26	30	79.8							
SFC-060DA2-□B-16BC	5	17.3	24	29	26	30	89.3	68	73.3	25.2	7.75	17.5	26.5	2-M6

* The shape type is either TYPE B or TYPE C.
* For the dimensions other than those above, refer to the measurement table on page 13.

Standard bore diameter

Model	Standard bore diameter d1・d2 [mm]																											
	4	5	6	6.35	7	8	9	9.525	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45
SFC-005DA2	●	●	●																									
SFC-010DA2	●	●	●	●	●	●																						
SFC-020DA2		1.2	●	●	●	●	●	●	●																			
SFC-030DA2		2.8	3.4	●	●	●	●	●	●	●	●	●																
SFC-035DA2						●	●	●	●	●	●	●	●	●														
SFC-040DA2						9	●	●	●	●	●	●	●	●	●	●												
SFC-050DA2									22	●	●	●	●	●	●	●	●	●	●	●								
SFC-060DA2											51	●	●	●	●	●	●	●	●	●	●	●						
SFC-080DA2																	●	●	●	●	●	●	●	●				
SFC-090DA2																				●	●	●	●	●	●	●		
SFC-100DA2																								●	●	●	●	●

* The bore diameters with value or marked ● are supported as standard bore diameter.
* The permissible torque of small bore diameter indicated in the column with value is limited by the shaft fixing mechanism. The value indicates its operating torque [N・m].
* For bore diameters other than those above, processing cost is added to the standard price.

Ordering Information

SFC - 040 DA2 - 14 B - 15 B

- 040: Size
- DA2: Type: DA2 Double element, Aluminum hub
- 14 B - 15 B: Bore dia.: d1−d2

SFC - 060 DA2 - 20 B - 16 BC

- 060: Size
- DA2: Type: DA2
- 20 B - 16: Bore dia.: d1−d2
- BC: Taper adaptor

Servoflex

Selection

Selection Procedure

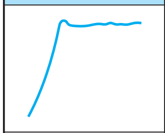
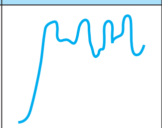
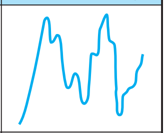
❶ Calculate torque Ta applied to the coupling based on the motor output P and coupling operating rotation speed n.

$$Ta[N \cdot m] = 9550 \times \frac{R\ [kW]}{n\ [min^{-1}]}$$

❷ Calculate corrected torque Td applied to the coupling after deciding the service factor K based on load conditions.

Td = Ta × K (See the table below)

●Factor K by load condition

Load character			
Constant	Fluctuations: small	Fluctuations: medium	Fluctuations: large
			
1.0	1.25	1.75	2.25

In servomotor drive, multiply the service factor K=1.2˜ 1.5 by the maximum torque of servomotor Ts.

Td = Ts ×(1.2~1.5)

❸ Select a coupling size with permissible torque Tn that becomes greater than the corrected torque Td.

Tn ≧ Td

❹ Depending on the bore diameters, the coupling permissible torque may be limited. Refer to the "Specification" and "Standard bore diameter".

❺ Confirm if the required shaft diameter does not exceed the maximum bore diameter of the selected size.

For machines whose load torques periodically fluctuate drastically, contact us.

Simplified selection

The table indicates suitable sizes based on the rated output, rated torque and maximum torque of general-purpose servomotors. Since torque characteristics of servomotors differ depending on the maker, select the coupling size after confirming the specification of the maker.

Rated output [kW]	Servomotor specification			Shaft dia. [mm]	Corresponding coupling specification		
	Rated revolution [min^{-1}]	Rated torque [N·m]	Max. torque [N·m]		Single element Model（SFC-□SA2）	Double element Model（SFC-□DA2）	Max. bore dia. [mm]
0.05	3000	0.16	0.48	8	010SA2	010DA2	8
0.1	3000	0.32	0.95	8	020SA2	020DA2	10
0.2	3000	0.64	1.90	14	030SA2	030DA2	14
0.4	3000	1.30	3.80	14	035SA2	035DA2	16
0.5	2000	2.39	7.16	24	050SA2	050DA2	25
0.5	3000	1.59	4.77	24	050SA2	050DA2	25
0.75	2000	3.58	10.7	22	050SA2	050DA2	25
0.75	3000	2.40	7.20	19	040SA2	040DA2	19
0.85	1000	8.12	24.4	24	060SA2	060DA2	30
1	2000	4.78	14.4	24	050SA2	050DA2	25
1	3000	3.18	9.55	24	050SA2	050DA2	25
1.2	1000	11.5	34.4	35	080SA2	080DA2	35
1.5	2000	7.16	21.6	28	060SA2	060DA2	30
1.5	3000	4.78	14.3	24	050SA2	050DA2	25
2	2000	9.55	28.5	35	080SA2	080DA2	35
2	3000	6.37	15.9	24	050SA2	050DA2	25
3	1000	28.60	85.9	35	090SA2	090DA2	35
3.5	2000	16.70	50.1	35	080SA2	080DA2	35
3.5	3000	11.10	27.9	28	060SA2	060DA2	30
5	2000	23.90	71.6	35	080SA2	080DA2	35
5	3000	15.90	39.7	28	060SA2	060DA2	30
7	2000	33.40	100	35	090SA2	090DA2	35

Design check items

Feed-screw systems

❶ Oscillation phenomena of servomotors
If the resonant frequency of the entire feed-screw system is under 400 ~ 500Hz, oscillation may occur depending on the gain adjustment of the servomotor.
The problems can be avoided by raising the resonant frequency of the mechanical system or adjusting the tuning function (filter function) of the servomotor.

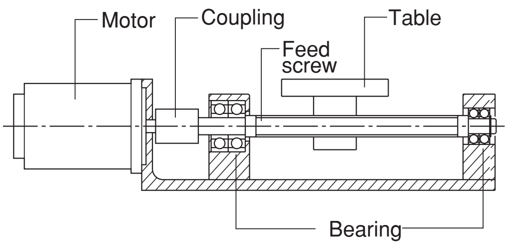
Contact us for unclear points concerning oscillation phenomena of servomotors.

❷ Resonance caused by stepping motors
Resonance can occur within a certain speed range due to the pulsation frequency of the stepping motor and the natural frequency of the entire system. Resonance can be avoided by not operating near resonant speed, or by reviewing the resonant frequency in the design phase.

Contact us for unclear points concerning resonance of stepping motors.

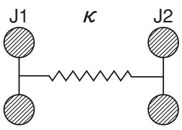
How to evaluate the resonant frequency of feed-screw system

❶ Select the coupling according to the normal operating torque and maximum torque of the servomotor/stepping motor.
❷ In the following feed-screw system, evaluate the entire resonant frequency: Nf from the torsional spring constant: κ of the coupling and feed screw, the moment of inertia: J1 of the driving side and the moment of inertia: J2 of the driven side.



$$Nf=\frac{1}{2\pi}\sqrt{\kappa\left(\frac{1}{J1}+\frac{1}{J2}\right)}$$

Nf: Eigenfrequency of the entire feed-screw system [Hz]
κ: Torsional spring constant of the coupling and feed screw [N・m/rad]
J1: Moment of inertia of the driving side
J2: Moment of inertia of the driven side



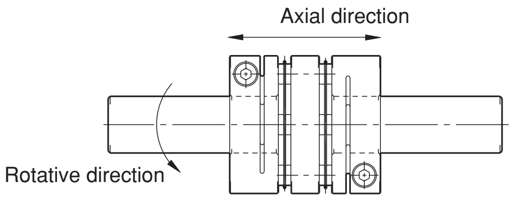
Mounting

The concentricity of the right and left bore diameters is ensured by adjusting with an exclusive jig. However, the assembly accuracy may be disturbed if a strong impact is given to the product. Please handle it with care.

❶ Confirm the clamping bolts are loosened. Remove the rust, dust and oil content on the inside diameter surface of the shaft and coupling. (Wipe off the oil content completely with a waste cloth, etc.)

❷ Insert the coupling into the shaft. At this time, do not apply more than necessary force such as compression or pulling to the element part of the coupling.
After the coupling is mounted into the motor, do not apply excessive compression when inserting the coupling into the mating shaft.

❸ Confirm the two clamping bolts are loosened and the coupling is movable to the axial and rotative directions.
If it doesn't move smoothly, adjust centering of both shafts again.
If the concentricity can not be confirmed with the method described above, confirm the mounting accuracy by other measures.



❹ After confirming any force such as compression or pulling does not act in the axial direction, keep the position where the entire length of the clamp hub contacts both shafts, and tighten two clamping bolts at the specified torque.
For tightening torque, refer to the appropriate tightening torque list described below.

* Do not use any other clamping bolt unspecified. Any liquid such as oil or fixing agent is not allowed.
Applying such liquid could lead to excessive axial force, which could cause damage to the product.

● A list of bolt sizes and appropriate tightening torque

Size	Clamping bolt	Tightening torque [N·m]
005	M2	0.4
010	M2	0.4
	M2.5	1.0
020	M2.5	1.0
030	M3	1.5
035	M4	3.4
040	M4	3.4
050	M5	7.0
060	M6	14.0
080	M8	30.0
090	M8	30.0
100	M8	30.0

SFS・SFH

Extra-high torsional stiffness
High torsional stiffness assures accurate shaft rotation and ultraprecision control.

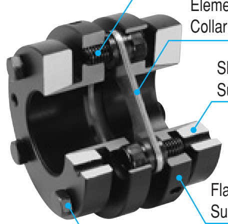
No backlash
Backlash is not caused due to the power transmission by friction locking.
It is most suitable for ultraprecision control.

Preassembled product
The SFS-SS/DS type is shipped from a factory as a finished product.

Permissible torque [N･m]		20 ～ 8000
Pilot bore/Additional machining range [mm]		ϕ7 ～ 115
Operational temperature [℃]		−30 ～ +120
Backlash		Zero
Max. permissible misalignment	Parallel offset [mm]	0.02 ～ 0.9
	Angular misalignment [°]	1 (one side)
	Axial displacement [mm]	±0.6 ～ ±0.9

Structure and Material

SFS-SS



Hexagon socket head cap screw: Equivalent of SCM435
Surface treatment: Black oxide finish

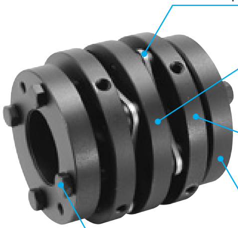
Element material: Plate spring SUS304
Collar Equivalent of S45C

Sleeve material: Equivalent of S45C
Surface treatment: Black oxide finish

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Pressure bolt material: SCM435
Surface treatment: Black oxide finish

SFS-DS



Element material: Plate spring SUS304
Collar Equivalent of S45C

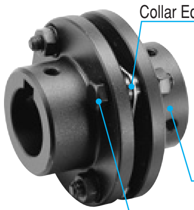
Spacer material: Equivalent of S45C
Surface treatment: Black oxide finish

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Sleeve material: Equivalent of S45C
Surface treatment: Black oxide finish

Pressure bolt material: SCM435
Surface treatment: Black oxide finish

SFS-S

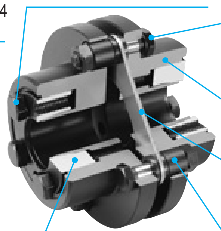


Element material: Plate spring SUS304
Collar Equivalent of S45C

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Reamer bolt material: SCM435
Surface treatment: Black oxide finish

SFS-S-M-M



Pressure bolt material: SCM435
Surface treatment: Black oxide finish

Reamer bolt material: SCM435
Surface treatment: Black oxide finish

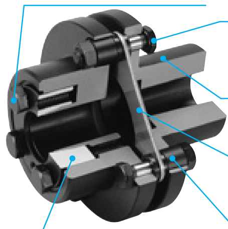
Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Element material: Plate spring SUS304
Collar Equivalent of S45C

Collar Equivalent of S45C
Collar material: Equivalent of S45C

Sleeve material: Equivalent of S45C
Surface treatment: Black oxide finish

SFS-S-M-C



Pressure bolt material: SCM435
Surface treatment: Black oxide finish

Reamer bolt material: SCM435
Surface treatment: Black oxide finish

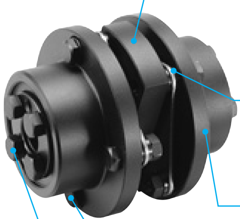
Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Element material: Plate spring SUS304
Collar Equivalent of S45C

Collar Equivalent of S45C
Collar material: Equivalent of S45C

Sleeve material: Equivalent of S45C
Surface treatment: Black oxide finish

SFS-W



Spacer material: Equivalent of S45C
Surface treatment: Black oxide finish

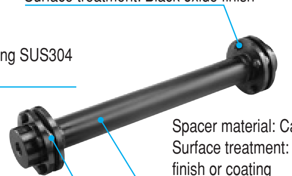
Element material: Plate spring SUS304
Collar Equivalent of S45C

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Reamer bolt material: SCM435
Surface treatment: Black oxide finish

Pressure bolt material: SCM435
Surface treatment: Black oxide finish

SFS-G



Reamer bolt material: SCM435
Surface treatment: Black oxide finish

Spacer material: Carbon steel
Surface treatment: Black oxide finish or coating

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

SFH

Element material: Plate spring SUS304
Collar Equivalent of S45C

Spacer material: Equivalent of S45C
Surface treatment: Black oxide finish

Flange material: Equivalent of S45C
Surface treatment: Black oxide finish

Reamer bolt material: SCM435
Surface treatment: Black oxide finish

SFS-SS/DS

●High rigidity and flexibility
The single-element type with high rigidity (SFS-SS) and double-element type with high flexibility (SFS-DS) are available.

●Preassembled product
Both sides of flange are assembled with a high-accuracy exclusive jig to obtain a high-level concentricity. Assembling time can be reduced.

●Reliable shaft fastening
High fastening power can be obtained by tightening the pressure bolts on the flange edge in order. In addition, bores are already drilled on the flange circumference to insert a round bar to prevent corotation.

●Corresponding to a large-diameter shaft
Since there is no guide face which enhances the inserting accuracy of sleeve, a large-diameter shaft can be used.

■SFS-SS

■SFS-DS

■SFS-SS-K-K

SFS-S/W/G

●Wide range of products
The single-element type with high rigidity (SFS-S), double-element type with high flexibility (SFS-W) and SFS-G for a long center distance are available.

●Free mounting method
Products are made with prepared bores as standard, which enables shaft fastening by key or thermal fit.
The SFS-S/W/G-M-M types using friction locking and SFS-S/W/G-M-C types corresponding to tapered shafts of servomotors are also available.

●High-precision mounting
The SFS-S/W/G-M-M type has a design whose sleeve is inserted into the inside flange, which allows high-precision mounting.

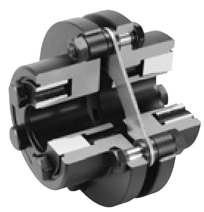
●Shipment of partly-finished product
Product is shipped in parts for easy mounting in any place. Preassembled product is also available upon request.

■SFS-S

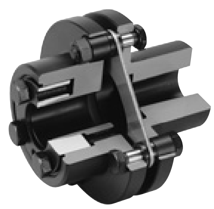
■SFS-W

■SFS-G

■SFS-S-M-M



■SFS-S-M-C



SFH-G

●High torque transmission
SFH model is a large-size double-element type coupling with a spacer in between.
Six bolts are used to achieve high torque transmission and reliability.

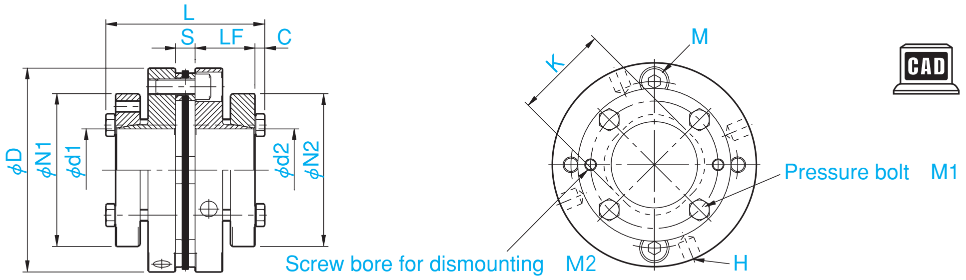
■SFH-G

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFS-080SS	100	0.02	1	±0.55	15000	83000	60	1.24×10^{-3}	1.38	—
SFS-090SS	180	0.02	1	±1.2	15000	170000	122	2.08×10^{-3}	1.70	—
SFS-100SS	250	0.02	1	±1.4	15000	250000	160	3.58×10^{-3}	2.30	—
SFS-120SS	450	0.02	1	±1.6	15000	430000	197	6.32×10^{-3}	3.02	—
SFS-140SS	800	0.02	1	±1.8	15000	780000	313	11.30×10^{-3}	4.47	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.

Dimensions



CAD

Unit [mm]

Model	D	L	d1·d2	N1·N2	LF	S	C	K	H	M	M1	M2
SFS-080SS	82	71	22	58	26.5	8	5	38	4-5.1 drill	M8	4-M6	2-M6
			25	63								
			28·30·32	68								
			35	73								
SFS-090SS	94	71	32	68	26.5	8	5	42	4-6.8 drill	M8	4-M6	2-M6
			35	73								
			38·40·42	78								
			45	83								
			48	88								
SFS-100SS	104	81	35	73	30.5	10	5	48	4-8.6 drill	M8	4-M6	2-M6
			38·40·42	78								
			45	83								
			48·50·52	88								
			55·60	98								
SFS-120SS	122	82	38·40·42	78	30.5	11	5	54	4-8.6 drill	M10	4-M6	2-M6
			45	83								
			48·50·52	88								
			55·60·62	98								
			65·70	108								
SFS-140SS	144	96	45·48	98	36.5	12	5.5	61	4-8.6 drill	M12	6-M8	2-M8
			50·52·55	108							6-M8	
			60	118							4-M8	
			62·65·70	128							4-M8	
			75·80	138							4-M8	

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Model	CAD file No.											
SFS-080SS	φ22	φ25	φ28	φ30	φ32	φ35	—	—	—	—	—	—
	SFS-SS01	SFS-SS02	SFS-SS03	SFS-SS04	SFS-SS05	SFS-SS06	—	—	—	—	—	—
SFS-090SS	φ32	φ35	φ38	φ40	φ42	φ45	φ48	—	—	—	—	—
	SFS-SS07	SFS-SS08	SFS-SS09	SFS-SS10	SFS-SS11	SFS-SS12	SFS-SS13	—	—	—	—	—
SFS-100SS	φ35	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60	—	—
	SFS-SS14	SFS-SS15	SFS-SS16	SFS-SS17	SFS-SS18	SFS-SS19	SFS-SS20	SFS-SS21	SFS-SS22	SFS-SS23	—	—
SFS-120SS	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60	φ62	φ65	φ70
	SFS-SS24	SFS-SS25	SFS-SS26	SFS-SS27	SFS-SS28	SFS-SS29	SFS-SS30	SFS-SS31	SFS-SS32	SFS-SS33	SFS-SS34	SFS-SS35
SFS-140SS	φ45	φ48	φ50	φ52	φ55	φ60	φ62	φ65	φ70	φ75	φ80	—
	SFS-SS36	SFS-SS37	SFS-SS38	SFS-SS39	SFS-SS40	SFS-SS41	SFS-SS42	SFS-SS43	SFS-SS44	SFS-SS45	SFS-SS46	—

* CAD data is provided for one hub for each hole diameter. Use the data in combination.

Combination of standard bore diameters

SFS-080SS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	22	●	●	●	●	●	●														
	25		●	●	●	●	●														
	28			●	●	●	●														
	30				●	●	●														
	32					●	●														
	35						●														

SFS-090SS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	32					●	●	●	●	●	●	●									
	35						●	●	●	●	●	●									
	38							●	●	●	●	●									
	40								●	●	●	●									

SFS-100SS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	35						●	●	●	●	●	●	●	●	●	●					
	38							●	●	●	●	●	●	●	●	●					
	40								●	●	●	●	●	●	●	●					
	42									●	●	●	●	●	●	●					
	45										●	●	●	●	●	●					

SFS-120SS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	38							300	300	300	300	300	300	300	300	300	300	300	300		
	40								315	315	315	315	315	315	315	315	315	315	315		
	42									330	330	330	330	330	330	330	330	330	330		
	45										350	350	350	350	350	350	350	350	350		
	48											370	370	370	370	370	370	370	370		
	50												390	390	390	390	390	390	390		
	52													410	410	410	410	410	410		

SFS-140SS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	45										●	●	●	●	●	●	●	●	●	●	●
	48											●	●	●	●	●	●	●	●	●	●
	50												●	●	●	●	●	●	●	●	●
	52													●	●	●	●	●	●	●	●
	55														●	●	●	●	●	●	●
	60															●	●	●	●	●	●

* The bore diameters with value or marked ● are supported as standard bore diameter.
* The permissible torque of small bore diameter indicated in the column with value is limited by the shaft fixing mechanism. The value indicates its operating torque [N・m].

Ordering Information

SFS - 080 SS- 25 K- 30 K

Size: 080

Type: SS
Single element, Iron hub

Bore diameter: d1-d2
K: Friction locking

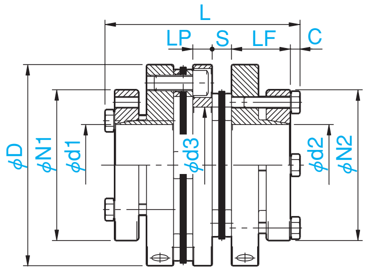
SFS-DS

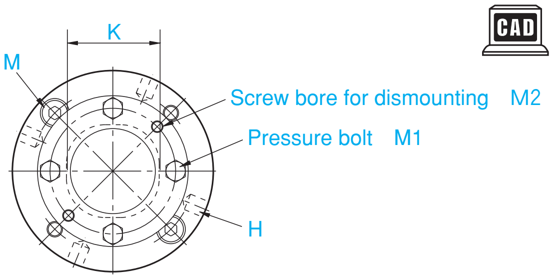
Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFS-080DS	100	0.3	1 (one side)	±1.1	10000	41000	30	1.61×10^{-3}	1.74	—
SFS-090DS	180	0.3	1 (one side)	±2.4	10000	85000	61	2.71×10^{-3}	2.16	—
SFS-100DS	250	0.3	1 (one side)	±2.8	10000	125000	80	4.53×10^{-3}	2.86	—
SFS-120DS	450	0.4	1 (one side)	±3.2	10000	215000	98	7.93×10^{-3}	4.18	—
SFS-140DS	800	0.4	1 (one side)	±3.6	10000	390000	156	16.60×10^{-3}	6.16	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.

Dimensions





Unit [mm]

	D	L	d1·d2	N1·N2	LF	LP	S	C	d3	K	H	M	M1	M2
SFS-080DS	82	89	22	58	26.5	10	8	5	40	38	4-5.1 drill	M8	4-M6	2-M6
			25	63										
			28·30·32	68										
			35	73										
SFS-090DS	94	89	32	68	26.5	10	8	5	50	42	4-6.8 drill	M8	4-M6	2-M6
			35	73										
			38·40·42	78										
			45	83										
			48	88										
SFS-100DS	104	101	35	73	30.5	10	10	5	60	48	4-8.6 drill	M8	4-M6	2-M6
			38·40·42	78										
			45	83										
			48·50·52	88										
			55·60	98										
SFS-120DS	122	107	38·40·42	78	30.5	14	11	5	62	54	4-8.6 drill	M10	4-M6	2-M6
			45	83										
			48·50·52	88										
			55·60·62	98										
			65·70	108										
SFS-140DS	144	122	45·48	98	36.5	14	12	5.5	70	61	4-8.6 drill	M12	6-M8	2-M8
			50·52·55	108									6-M8	
			60	118									4-M8	
			62·65·70	128									4-M8	
			75·80	138									4-M8	

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Model	CAD file No.											
SFS-080DS	Spacer	φ22	φ25	φ28	φ30	φ32	φ35	—	—	—	—	—	—
	SFS-DS01	SFS-SS01	SFS-SS02	SFS-SS03	SFS-SS04	SFS-SS05	SFS-SS06	—	—	—	—	—	—
SFS-090DS	Spacer	φ32	φ35	φ38	φ40	φ42	φ45	φ48	—	—	—	—	—
	SFS-DS02	SFS-SS07	SFS-SS08	SFS-SS09	SFS-SS10	SFS-SS11	SFS-SS12	SFS-SS13	—	—	—	—	—
SFS-100DS	Spacer	φ35	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60	—	—
	SFS-DS03	SFS-SS14	SFS-SS15	SFS-SS16	SFS-SS17	SFS-SS18	SFS-SS19	SFS-SS20	SFS-SS21	SFS-SS22	SFS-SS23	—	—
SFS-120DS	Spacer	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60	φ62	φ65	φ70
	SFS-DS04	SFS-SS24	SFS-SS25	SFS-SS26	SFS-SS27	SFS-SS28	SFS-SS29	SFS-SS30	SFS-SS31	SFS-SS32	SFS-SS33	SFS-SS34	SFS-SS35
SFS-140DS	Spacer	φ45	φ48	φ50	φ52	φ55	φ60	φ62	φ65	φ70	φ75	φ80	—
	SFS-DS05	SFS-SS36	SFS-SS37	SFS-SS38	SFS-SS39	SFS-SS40	SFS-SS41	SFS-SS42	SFS-SS43	SFS-SS44	SFS-SS45	SFS-SS46	—

* CAD data is provided for spacer part and one hub for each hole diameter. Use the data in combination.

Combination of standard bore diameters

SFS-080DS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	22	●	●	●	●	●	●														
	25		●	●	●	●	●														
	28			●	●	●	●														
	30				●	●	●														
	32					●	●														
	35						●														

SFS-090DS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	32					●	●	●	●	●	●	●									
	35						●	●	●	●	●	●									
	38							●	●	●	●	●									
	40								●	●	●	●									

SFS-100DS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	35						●	●	●	●	●	●	●	●	●	●					
	38							●	●	●	●	●	●	●	●	●					
	40								●	●	●	●	●	●	●	●					
	42									●	●	●	●	●	●	●					
	45										●	●	●	●	●	●					

SFS-120DS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	38							300	300	300	300	300	300	300	300	300	300	300	300		
	40								315	315	315	315	315	315	315	315	315	315	315		
	42									330	330	330	330	330	330	330	330	330	330		
	45										350	350	350	350	350	350	350	350	350		
	48											370	370	370	370	370	370	370	370		
	50												390	390	390	390	390	390	390		
	52													410	410	410	410	410	410		

SFS-140DS		Standard bore diameter d2 [mm]																			
		22	25	28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore dia. d1 [mm]	45										●	●	●	●	●	●	●	●	●	●	●
	48											●	●	●	●	●	●	●	●	●	●
	50												●	●	●	●	●	●	●	●	●
	52													●	●	●	●	●	●	●	●
	55														●	●	●	●	●	●	●
	60															●	●	●	●	●	●

* The bore diameters with value or marked ● are supported as standard bore diameter.
* The permissible torque of small bore diameter indicated in the column with value is limited by the shaft fixing mechanism. The value indicates its operating torque [N・m].

Ordering Information

SFS - 090 DS- 35 K- 48 K

- 090 — Size
- DS — Type: DS, Double element, Iron hub
- 35 K- 48 — Bore diameter: d1-d2
- K — K: Friction locking

Servoflex

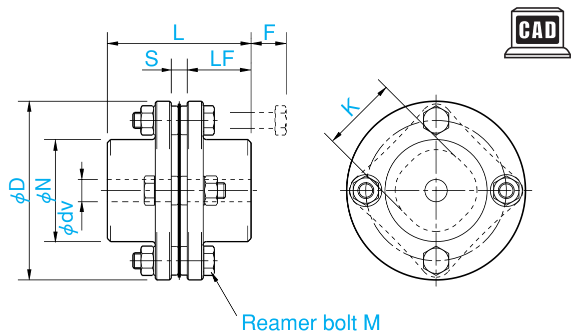
SFS-S

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment		Max. rotation speed [min^{-1}]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [$kg·m^2$]	Mass [kg]	Price
		Angular misalignment [°]	Axial displacement [mm]						
SFS-05S	20	1	±0.6	25000	16000	43	0.11×10^{-3}	0.30	—
SFS-06S	40	1	±0.8	20000	29000	45	0.30×10^{-3}	0.50	—
SFS-06S-□M-11C	40	1	±0.8	5000	29000	45	0.29×10^{-3}	0.60	—
SFS-06S-□M-16C	40	1	±0.8	5000	29000	45	0.34×10^{-3}	0.70	—
SFS-08S	80	1	±1.0	17000	83000	60	0.87×10^{-3}	1.00	—
SFS-08S-□M-□M	80	1	±1.0	5000	83000	60	0.93×10^{-3}	1.30	—
SFS-08S-□M-16C	80	1	±1.0	5000	83000	60	0.84×10^{-3}	1.20	—
SFS-09S	180	1	±1.2	15000	170000	122	1.60×10^{-3}	1.40	—
SFS-09S-□M-□M	180	1	±1.2	5000	170000	122	1.80×10^{-3}	1.80	—
SFS-09S-□M-16C	180	1	±1.2	5000	170000	122	1.50×10^{-3}	1.60	—
SFS-10S	250	1	±1.4	13000	250000	160	2.60×10^{-3}	2.10	—
SFS-10S-□M-□M	250	1	±1.4	5000	250000	160	2.70×10^{-3}	2.30	—
SFS-12S	450	1	±1.6	11000	430000	197	6.50×10^{-3}	3.40	—
SFS-12S-□M-□M	450	1	±1.6	5000	430000	197	6.80×10^{-3}	4.10	—
SFS-14S	800	1	±1.8	9500	780000	313	9.90×10^{-3}	4.90	—
SFS-14S-35M-35M	580	1	±1.8	5000	780000	313	14.01×10^{-3}	6.40	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.

Dimensions SFS-□S



Unit [mm]

Model	d1 · d2			D	N	L	LF	S	F	K	M	CAD file No.
	Pilot bore	Min.	Max.									
SFS-05S	7	8	20	56	32	45	20	5	11	24	4-M5×22	SFS-S1
SFS-06S	7	8	25	68	40	56	25	6	10	30	4-M6×25	SFS-S2
SFS-08S	12	14	35	82	54	66	30	6	11	38	4-M6×29	SFS-S3
SFS-09S	12	14	38	94	58	68	30	8	21	42	4-M8×36	SFS-S4
SFS-10S	20	22	42	104	68	80	35	10	16	48	4-M8×36	SFS-S5
SFS-12S	20	22	50	126	78	91	40	11	23	54	4-M10×45	SFS-S6
SFS-14S	20	22	60	144	88	102	45	12	31	61	4-M12×54	SFS-S7

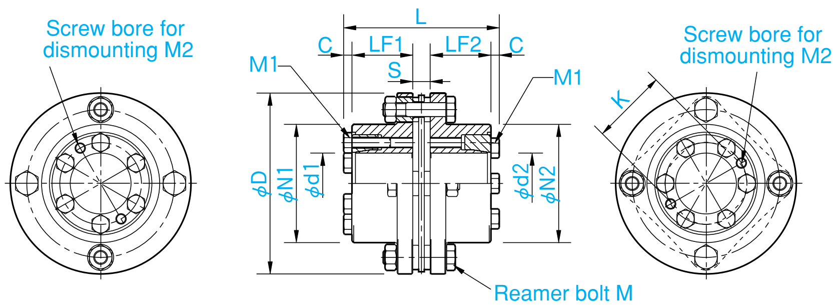
* For additional processing, refer to the "Standard bore processing specification" on page 34.
* Prepared bores are drilled bores.

Ordering Information

SFS - 10 S- 25 H- 30 H

- 10: Size
- S: Type: S — Single element, iron hub
- 25 H- 30 H: Bore diameter: d1- d2 with standard bore processing
  * Blank if bore processing is not required.

Dimensions SFS-□S-□M-□M



Model	CAD file No.			
SFS-08S	15M	16M	20M	22M
	SFS-M14	SFS-M15	SFS-M16	SFS-M17
SFS-09S	25M	28M	35M	—
	SFS-M18	SFS-M19	SFS-M110	—
SFS-10S	25M	28M	30M	35M
	SFS-M21	SFS-M22	SFS-M23	SFS-M24
SFS-12S	30M	35M	—	—
	SFS-M25	SFS-M26	—	—
SFS-14S	35M	—	—	—
	SFS-M27	—	—	—

* CAD data is provided for one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d1	d2	D	N1	N2	L	LF1	LF2	S	C	K	M	M1	M2
SFS-08S	□M-□M	15·16·20·22	15·16·20·22	82	54	54	75.6	30	30	6	4.8	38	4-M6X29	4-M6	2-M6
SFS-09S	□M-□M	25·28	25·28	94	58	58	77.6	30	30	8	4.8	42	4-M8X36	6-M6	2-M6
	□M-35M	25·28	35			68	85.6		38						
SFS-10S	□M-□M	25·28·30·35	25·28·30·35	104	68	68	89.6	35	35	10	4.8	48	4-M8X36	6-M6	2-M6
SFS-12S	□M-□M*1	30·35	30·35	126	78	78	101.6	40	40	11	5.3	54	4-M10X45	4-M8	2-M8
SFS-14S	35M-35M	35	35	144	88	88	112.6	45	45	12	5.3	61	4-M12X54	6-M8	2-M8

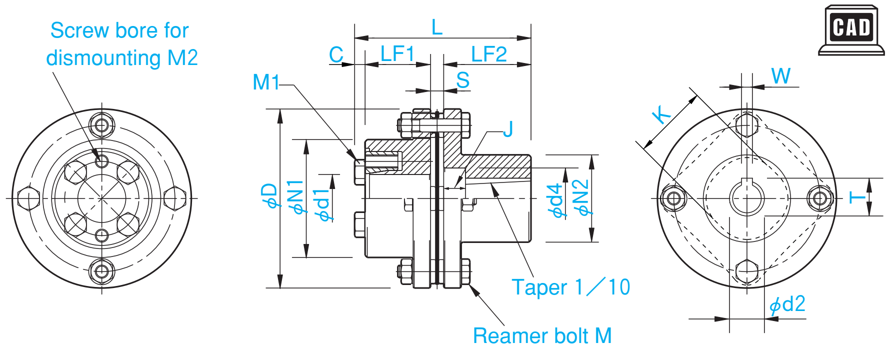
* *1 The permissible torque of SFS-12S-30M-□M is limited by the shaft fixing mechanism of (30) and will be 380 [N・m].

Ordering Information

SFS - 10 S- 25 M- 30 M

- 10 — Size
- S — Type: S, Single element, iron hub
- 25 M- 30 — Bore diameter: d1-d2
- M — M: Frictional locking

Dimensions SFS-□S-□M-□C



Model	CAD file No.				
SFS-06S	12M	14M	15M	11C	16C
	SFS-M11	SFS-M12	SFS-M13	SFS-C1	SFS-C2
SFS-08S	15M	16M	20M	22M	16C
	SFS-M14	SFS-M15	SFS-M16	SFS-M17	SFS-C3
SFS-09S	25M	28M	16C	—	—
	SFS-M18	SFS-M19	SFS-C4	—	—

* CAD data is provided for one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d1	d2	W $^{+0.030}_{0}$	T $^{+0.3}_{0}$	d4	J	D	N1	N2	L	LF1	LF2	S	C	K	M	M1	M2
SFS-06S	□M-11C	12·14·15	11	4	12.2	18	9	68	40	30	60.8	25	25	6	4.8	30	4-M6X25	4-M5	2-M5
	□M-16C	15	16	5	17.3	28	10			40	75.8		40						
SFS-08S	□M-16C	15·16·20·22	16	5	17.3	28	10	82	54	40	80.8	30	40	6	4.8	38	4-M6X29	4-M6	2-M6
SFS-09S	□M-16C	25·28	16	5	17.3	28	10	94	58	40	82.8	30	40	8	4.8	42	4-M8X36	6-M6	2-M6

Ordering Information

SFS - 08 S- 20 M- 16 C

- 08 — Size
- S — Type: S, Single element, iron hub
- 20 M- 16 C — Bore diameter: d1-d2
  - M: Friction locking
  - C: Tapered shaft correspondence

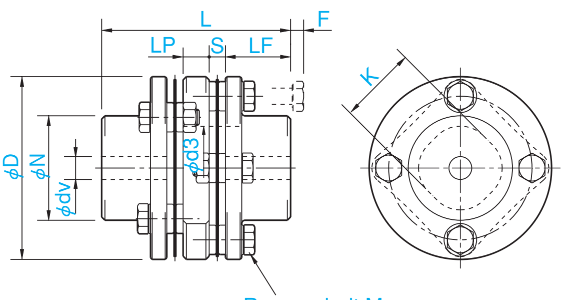
Servoflex

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFS-05W	20	0.2	1 (one side)	±1.2	10000	8000	21	0.14×10^{-3}	0.40	—
SFS-06W	40	0.3	1 (one side)	±1.6	8000	14000	22	0.41×10^{-3}	0.70	—
SFS-06W-□M-11C	40	0.3	1 (one side)	±1.6	5000	14000	22	0.40×10^{-3}	0.80	—
SFS-06W-□M-16C	40	0.3	1 (one side)	±1.6	5000	14000	22	0.45×10^{-3}	0.90	—
SFS-08W	80	0.3	1 (one side)	±2.0	6800	41000	30	1.10×10^{-3}	1.30	—
SFS-08W-□M-□M	80	0.3	1 (one side)	±2.0	5000	41000	30	1.16×10^{-3}	1.60	—
SFS-08W-□M-16C	80	0.3	1 (one side)	±2.0	5000	41000	30	1.07×10^{-3}	1.50	—
SFS-09W	180	0.5	1 (one side)	±2.4	6000	85000	61	2.20×10^{-3}	2.10	—
SFS-09W-□M-□M	180	0.5	1 (one side)	±2.4	5000	85000	61	2.40×10^{-3}	2.50	—
SFS-09W-□M-16C	180	0.5	1 (one side)	±2.4	5000	85000	61	2.10×10^{-3}	2.30	—
SFS-10W	250	0.5	1 (one side)	±2.8	5200	125000	80	3.60×10^{-3}	2.80	—
SFS-10W-□M-□M	250	0.5	1 (one side)	±2.8	5000	125000	80	3.70×10^{-3}	3.00	—
SFS-12W	450	0.6	1 (one side)	±3.2	4400	215000	98	9.20×10^{-3}	4.90	—
SFS-12W-□M-□M	450	0.6	1 (one side)	±3.2	4400	215000	98	9.50×10^{-3}	5.60	—
SFS-14W	800	0.7	1 (one side)	±3.6	3800	390000	156	15.00×10^{-3}	7.10	—
SFS-14W-35M-35M	580	0.7	1 (one side)	±3.6	3800	390000	156	19.11×10^{-3}	8.60	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.

Dimensions SFS-□W



CAD

Unit [mm]

Model	d1 · d2			D	N	L	LF	LP	S	F	d3	K	M	CAD file No.
	Pilot bore	Min.	Max.											
SFS-05W	7	8	20	56	32	58	20	8	5	4	20	24	8-M5×15	SFS-W1
SFS-06W	7	8	25	68	40	74	25	12	6	3	24	30	8-M6×18	SFS-W2
SFS-08W	12	14	35	82	54	84	30	12	6	2	28	38	8-M6×20	SFS-W3
SFS-09W	12	14	38	94	58	98	30	22	8	12	32	42	8-M8×27	SFS-W4
SFS-10W	20	22	42	104	68	110	35	20	10	7	34	48	8-M8×27	SFS-W5
SFS-12W	20	22	50	126	78	127	40	25	11	10	40	54	8-M10×32	SFS-W6
SFS-14W	20	22	60	144	88	144	45	30	12	15	46	61	8-M12×38	SFS-W7

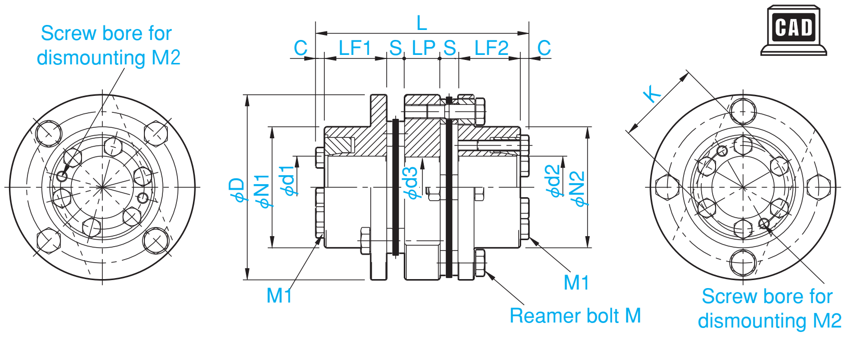
* For additional processing, refer to the "Standard bore processing specification" on page 34.
* Prepared bores are drilled bores.

Ordering Information

SFS - 10 W- 25 H- 30 H

- 10 — Size
- W — Type: W Double element, iron hub
- 25 H- 30 H — Bore diameter: d1- d2 with standard bore processing
  * Blank if bore processing is not required.

Dimensions SFS-□W-□M-□M



Model	CAD file No.				
SFS-08W	Spacer	15M	16M	20M	22M
	SFS-W9	SFS-M14	SFS-M15	SFS-M16	SFS-M17
SFS-09W	Spacer	25M	28M	35M	—
	SFS-W10	SFS-M18	SFS-M19	SFS-M110	—
SFS-10W	Spacer	25M	28M	30M	35M
	SFS-W11	SFS-M21	SFS-M22	SFS-M23	SFS-M24
SFS-12W	Spacer	30M	35M	—	—
	SFS-W12	SFS-M25	SFS-M26	—	—
SFS-14W	Spacer	35M	—	—	—
	SFS-W13	SFS-M27	—	—	—

* CAD data is provided for spacer part and one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d 1	d 2	D	N1	N2	L	LF1	LF2	LP	S	C	d3	K	M	M1	M2
SFS-08W	□M-□M	15·16·20·22	15·16·20·22	82	54	54	93.6	30	30	12	6	4.8	28	38	8-M6×20	4-M6	2-M6
SFS-09W	□M-□M	25·28	25·28	94	58	58	107.6	30	30	22	8	4.8	32	42	8-M8×27	6-M6	2-M6
	□M-35M	25·28	35			68	115.6		38								
SFS-10W	□M-□M	25·28·30·35	25·28·30·35	104	68	68	119.6	35	35	20	10	4.8	34	48	8-M8×27	6-M6	2-M6
SFS-12W	□M-□M*1	30·35	30·35	126	78	78	137.6	40	40	25	11	5.3	40	54	8-M10×32	4-M8	2-M8
SFS-14W	35M-35M	35	35	144	88	88	154.6	45	45	30	12	5.3	46	61	8-M12×38	6-M8	2-M8

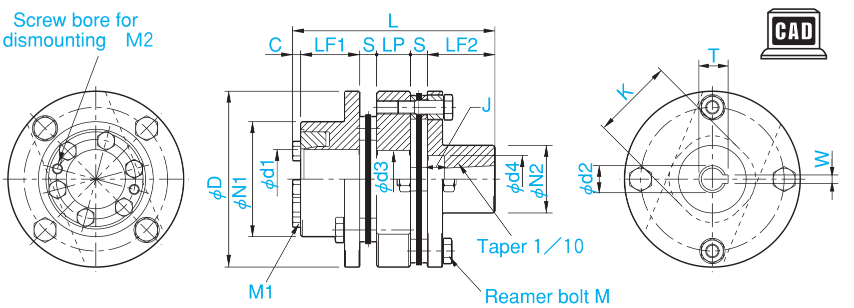
* *1 The permissible torque of SFS-12W-30M-□M is limited by the shaft fixing mechanism of (30) and will be 380 [N・m].

Ordering Information

SFS - 10 W- 25 M- 30 M

- Size: 10
- Type: W — Double element, iron hub
- Bore diameter: d1-d2 (25-30)
- M: Friction locking

Dimensions SFS-□W-□M-□C



Model	CAD file No.					
SFS-06W	Spacer	12M	14M	15M	11C	16C
	SFS-W8	SFS-M11	SFS-M12	SFS-M13	SFS-C1	SFS-C2
SFS-08W	Spacer	15M	16M	20M	22M	16C
	SFS-W9	SFS-M14	SFS-M15	SFS-M16	SFS-M17	SFS-C3
SFS-09W	Spacer	25M	28M	16C	—	—
	SFS-W10	SFS-M18	SFS-M19	SFS-C4	—	—

* CAD data is provided for spacer part and one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d 1	d 2	W $^{+0.030}_{0}$	T $^{+0.3}_{0}$	d4	J	D	N1	N2	L	LF1	LF2	LP	S	C	d3	K	M	M1	M2
SFS-06W	□M-11C	12·14·15	11	4	12.2	18	9	68	40	30	78.8	25	25	12	6	4.8	24	30	8-M6×18	4-M5	2-M5
	□M-16C	15	16	5	17.3	28	10			40	93.8		40								
SFS-08W	□M-16C	15·16·20·22	16	5	17.3	28	10	82	54	40	98.8	30	40	12	6	4.8	28	38	8-M6×20	4-M6	2-M6
SFS-09W	□M-16C	25·28	16	5	17.3	28	10	94	58	40	112.8	30	40	22	8	4.8	32	42	8-M8×27	6-M6	2-M6

Ordering Information

SFS - 08 W- 20 M- 16 C

- Size: 08
- Type: W — Double element, iron hub
- Bore diameter: d1-d2 (20-16)
- M: Friction locking
- C: Tapered shaft correspondence

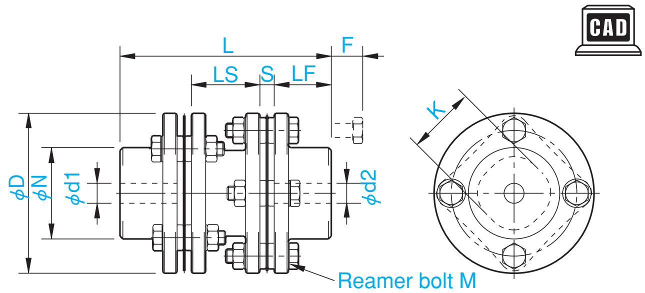
Servoflex

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFS-05G	20	0.5	1 (one side)	±1.2	20000	8000	21	0.20×10⁻³	0.50	—
SFS-06G	40	0.5	1 (one side)	±1.6	16000	14000	22	0.55×10⁻³	0.90	—
SFS-06G-□M-11C	40	0.5	1 (one side)	±1.6	5000	14000	22	0.54×10⁻³	1.00	—
SFS-06G-□M-16C	40	0.5	1 (one side)	±1.6	5000	14000	22	0.59×10⁻³	1.10	—
SFS-08G	80	0.5	1 (one side)	±2.0	13000	41000	30	1.50×10⁻³	1.70	—
SFS-08G-□M-□M	80	0.5	1 (one side)	±2.0	5000	41000	30	1.56×10⁻³	2.00	—
SFS-08G-□M-16C	80	0.5	1 (one side)	±2.0	5000	41000	30	1.47×10⁻³	1.90	—
SFS-09G	180	0.6	1 (one side)	±2.4	12000	85000	61	2.90×10⁻³	2.40	—
SFS-09G-□M-□M	180	0.6	1 (one side)	±2.4	5000	85000	61	3.10×10⁻³	2.80	—
SFS-09G-□M-16C	180	0.6	1 (one side)	±2.4	5000	85000	61	2.80×10⁻³	2.60	—
SFS-10G	250	0.6	1 (one side)	±2.8	10000	125000	80	4.60×10⁻³	3.30	—
SFS-10G-□M-□M	250	0.6	1 (one side)	±2.8	5000	125000	80	4.70×10⁻³	3.50	—
SFS-12G	450	0.8	1 (one side)	±3.2	8000	215000	98	11.80×10⁻³	5.80	—
SFS-12G-□M-□M	450	0.8	1 (one side)	±3.2	5000	215000	98	12.10×10⁻³	6.50	—
SFS-14G	800	0.9	1 (one side)	±3.6	7000	390000	156	21.20×10⁻³	8.60	—
SFS-14G-35M-35M	580	0.9	1 (one side)	±3.6	5000	390000	156	25.31×10⁻³	10.10	—

* The indicated values in the moment of inertia and mass are measured with the at maximum bore diameter.

Dimensions SFS-□G



Unit [mm]

Model	d1 · d2			D	N	L	LF	LS	S	F	K	M	CAD file No.
	Pilot bore	Min.	Max.										
SFS-05G	7	8	20	56	32	74	20	24	5	11	24	8-M5×22	SFS-G1
SFS-06G	7	8	25	68	40	86	25	24	6	10	30	8-M6×25	SFS-G2
SFS-08G	12	14	35	82	54	98	30	26	6	11	38	8-M6×29	SFS-G3
SFS-09G	12	14	38	94	58	106	30	30	8	21	42	8-M8×36	SFS-G4
SFS-10G	20	22	42	104	68	120	35	30	10	16	48	8-M8×36	SFS-G5
SFS-12G	20	22	50	126	78	140	40	38	11	23	54	8-M10×45	SFS-G6
SFS-14G	20	22	60	144	88	160	45	46	12	31	61	8-M12×54	SFS-G7

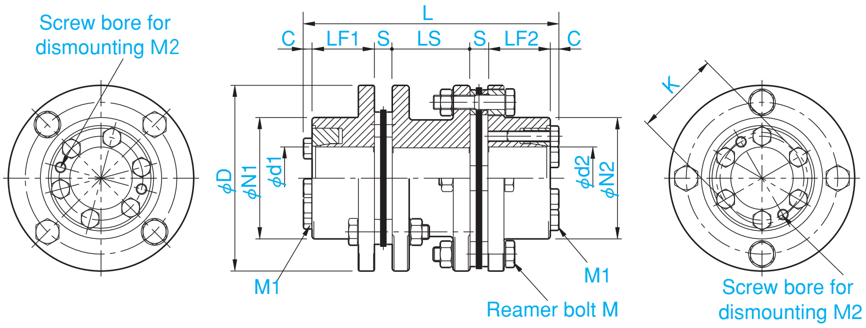
* Specify the required LS dimensions when requiring products other than the above LS dimensions. (Ex: SFS-10G LS=500) Contact us if the LS is greater than or equal to 1000.
* Prepared bores are drilled bores. For additional processing, refer to the "Standard bore processing specification" on page 34.

Ordering Information

SFS - 12 G- 35 H- 35 H

- 12: Size
- G: Type: G Double-element Floating shaft Iron hub
- 35 H- 35 H: Bore diameter: d1-d2 with standard bore processing
  * Blank if bore processing is not required.

Dimensions SFS-□G-□M-□M



Model	CAD file No.				
SFS-08G	Spacer	15M	16M	20M	22M
	SFS-G9	SFS-M14	SFS-M15	SFS-M16	SFS-M17
SFS-09G	Spacer	25M	28M	35M	—
	SFS-G10	SFS-M18	SFS-M19	SFS-M110	—
SFS-10G	Spacer	25M	28M	30M	35M
	SFS-G11	SFS-M21	SFS-M22	SFS-M23	SFS-M24
SFS-12G	Spacer	30M	35M	—	—
	SFS-G12	SFS-M25	SFS-M26	—	—
SFS-14G	Spacer	35M	—	—	—
	SFS-G13	SFS-M27	—	—	—

* CAD data is provided for spacer part and one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d1	d2	D	N1	N2	L	LF1	LF2	LS	S	C	K	M	M1	M2
SFS-08G	□M-□M	15･16･20･22	15･16･20･22	82	54	54	93.6	30	30	26	6	4.8	38	8-M6×20	4-M6	2-M6
SFS-09G	□M-□M	25･28	25･28	94	58	58	107.6	30	30	30	8	4.8	42	8-M8×27	6-M6	2-M6
	□M-35M	25･28	35			68	115.6		38							
SFS-10G	□M-□M	25･28･30･35	25･28･30･35	104	68	68	119.6	35	35	30	10	4.8	48	8-M8×27	6-M6	2-M6
SFS-12G	□M-□M*1	30･35	30･35	126	78	78	137.6	40	40	38	11	5.3	54	8-M10×32	4-M8	2-M8
SFS-14G	35M-35M	35	35	144	88	88	154.6	45	45	46	12	5.3	61	8-M12×38	6-M8	2-M8

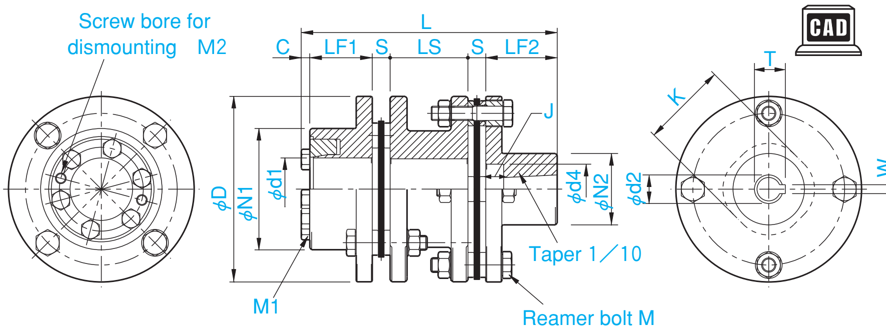
* *1 The permissible torque of SFS-12G-30M-□M is limited by the shaft fixing mechanism of (30) and will be 380 [N・m].

Ordering Information

SFS - 10 G- 25 M- 16 M

- 10: Size
- G: Type: G — Double element, Floating shaft iron hub
- 25M-16M: Bore diameter: d1-d2 — M: Friction locking

Dimensions SFS-□G-□M-□C



Model	CAD file No.				
SFS-06G	Spacer	12M	14M	15M	11C	16C
	SFS-G8	SFS-M11	SFS-M12	SFS-M13	SFS-C1	SFS-C2
SFS-08G	Spacer	15M	16M	20M	22M	16C
	SFS-G9	SFS-M14	SFS-M15	SFS-M16	SFS-M17	SFS-C3
SFS-09G	Spacer	25M	28M	16C	—	—
	SFS-G10	SFS-M18	SFS-M19	SFS-C4	—	—

* CAD data is provided for spacer part and one hub for each hole diameter. Use the data in combination.

Unit [mm]

Model	Bore dia.	d1	d2	W +0.030 0	T +0.3 0	d4	J	D	N1	N2	L	LF1	LF2	LS	S	C	K	M	M1	M2
SFS-06G	□M-11C	12･14･15	11	4	12.2	18	9	68	40	30	78.8	25	25	24	6	4.8	30	8-M6×18	4-M5	2-M5
	□M-16C	15	16	5	17.3	28	10			40	93.8		40							
SFS-08G	□M-16C	15･16･20･22	16	5	17.3	28	10	82	54	40	98.8	30	40	26	6	4.8	38	8-M6×20	4-M6	2-M6
SFS-09G	□M-16C	25･28	16	5	17.3	28	10	94	58	40	112.8	30	40	30	8	4.8	42	8-M8×27	6-M6	2-M6

Ordering Information

SFS - 10 G- 25 M- 16 C

- 10: Size
- G: Type: G — Double element, Floating shaft iron hub
- 25M-16C: Bore diameter: d1-d2 — M: Friction locking; C: Tapered shaft correspondence

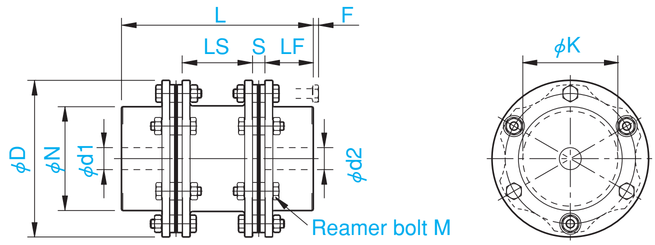
Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min^{-1}]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [$kg·m^2$]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFH-15G	700	1.4	1 (one side)	±0.8	5900	750000	122	21.70×10^{-3}	7.70	–
SFH-17G	1300	1.6	1 (one side)	±1.0	5100	1420000	112	46.60×10^{-3}	11.00	–
SFH-19G	2000	2.0	1 (one side)	±1.0	4700	1700000	122	76.40×10^{-3}	16.00	–
SFH-21G	4000	2.1	1 (one side)	±1.1	4300	2340000	254	122.90×10^{-3}	22.00	–
SFH-22G	5000	2.3	1 (one side)	±1.2	4000	2970000	224	175.20×10^{-3}	28.00	–
SFH-26G	8000	2.9	1 (one side)	±1.4	3400	5390000	306	410.40×10^{-3}	46.00	–

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.

Dimensions

CAD



Unit [mm]

Model	d1 · d2			D	N	L	LF	LS	S	F	K	M	CAD file No.
	Pilot bore	Min.	Max.										
SFH-15G	20	22	70	152	104	182	45	70	11	5	94	12-M 8×36	SFH-G1
SFH-17G	25	28	80	178	118	218	55	80	14	6	108	12-M10×45	SFH-G2
SFH-19G	30	32	85	190	126	260	65	100	15	10	116	12-M12×55	SFH-G3
SFH-21G	35	38	90	210	130	290	75	110	15	8	124	12-M16×60	SFH-G4
SFH-22G	45	48	100	225	144	335	90	115	20	-2	132	12-M16×65	SFH-G5
SFH-26G	50	55	115	262	166	391	100	145	23	11	150	12-M20×80	SFH-G6

* Prepared bores are drilled bores.

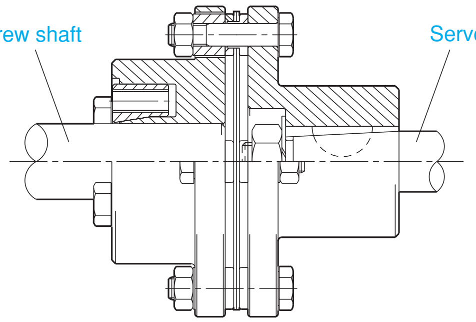
Ordering Information

SFH - 26 G - ☐ - ☐

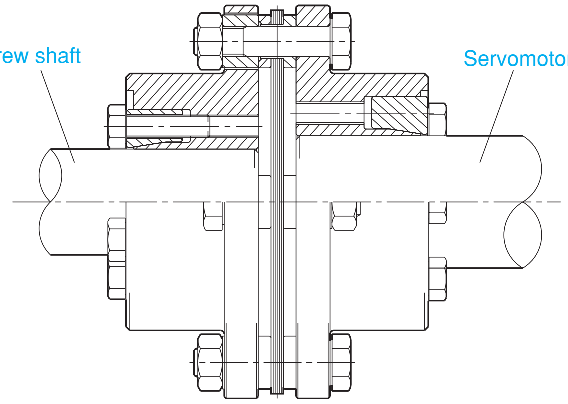
- ☐ - ☐: Bore diameter: d1- d2 with standard bore processing
  * Blank if bore processing is not required.
- 26: Size
- SFH: Model: SFH

Mounting Example

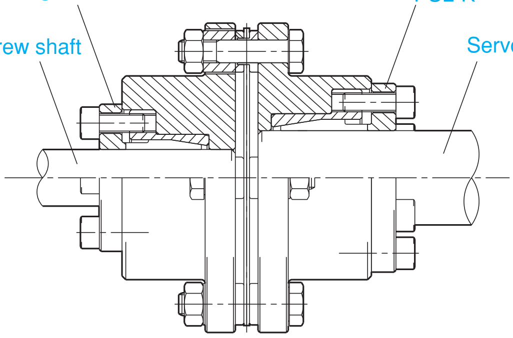
SFS-S-M-C



SFS-S-M-M



SFS-S



Selection

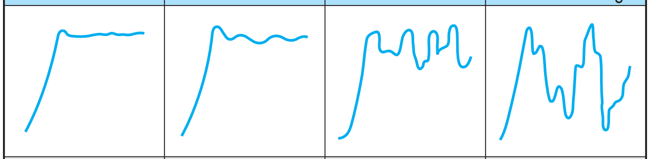
Selection Procedure

❶ Calculate torque Ta applied to the coupling based on the motor output P and coupling operating rotation speed n.

$$Ta\,[N\cdot m]=9550\times\frac{P[W]}{n[min^{-1}]}$$

❷ Calculate corrected torque Td applied to the coupling after deciding the service factor K based on load conditions.

Td = Ta × K (See table below)

Load character			
Constant	Fluctuations: small	Fluctuations: medium	Fluctuations: large
			
1.0	1.25	1.75	2.25

In servomotor drive, multiply the service factor K=1.2˜1.5 by the maximum torque of servomotor Ts.

Td = Ts ×(1.2~1.5)

❸ Select the size in order that the coupling permissible torque Tn becomes greater than the corrected torque Td.

Tn ≧ Td

❹ Depending on the bore diameters, the coupling permissible torque may be limited. Refer to the "Specification" and "Standard bore diameter".

❺ Confirm if the required shaft diameter does not exceed the maximum bore diameter of the selected size.

For machines whose load torques periodically fluctuate drastically, contact us.

Design check items

Feed-screw systems

- Oscillation phenomena of servomotors
If the torsional eigenfrequency of the entire feed-screw system is under 400 ˜ 500Hz, oscillation may occur depending on the gain adjustment of the servomotor. An oscillation phenomenon of a servomotor occurs mainly by the problem of the eigenfrequency of the entire feed-screw system and the electric control system.
These problems can be avoided by raising the torsional eigenfrequency of the mechanical system from the design phase or adjusting the tuning function (filter function) of the servomotor.

Contact us for unclear points concerning oscillation phenomena of servomotors.

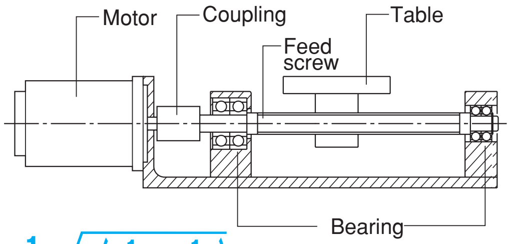
- Resonance caused by stepping motors
It is a phenomenon that occurs within a certain rotation speed range by the pulsation frequency of the stepping motor and the torsional eigenfrequency of the entire system. Resonance can be avoided by not applying the resonant rotation speed, or by reviewing the torsional eigenfrequency in the design phase.

Contact us for unclear points concerning resonance of stepping motors.

How to evaluate the eigenfrequency of feed-screw system

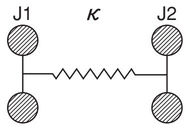
❶ Select the coupling according to the normal operating torque and maximum torque of the servomotor/stepping motor.

❷ In the following feed-screw system, evaluate the entire eigenfrequency: Nf from the torsional spring constant: K of the coupling and feed screw, the moment of inertia: J1 of the driving side and the moment of inertia: J2 of the driven side.



$$Nf=\frac{1}{2\pi}\sqrt{\kappa\left(\frac{1}{J1}+\frac{1}{J2}\right)}$$

Nf: Eigenfrequency of the entire feed-screw system [Hz]
κ: Torsional spring constant of the coupling and feed screw [N・m/rad]
J1: Moment of inertia of the driving side
J2: Moment of inertia of the driven side



Mounting and dismounting

● SFS-SS/DS type

1 Preassembled before delivery

The SFS-SS/DS type is an assembly finished product for easy mounting. The concentricity of the right and left bore diameters is ensured by adjusting with an exclusive jig.

2 Mounting Procedure

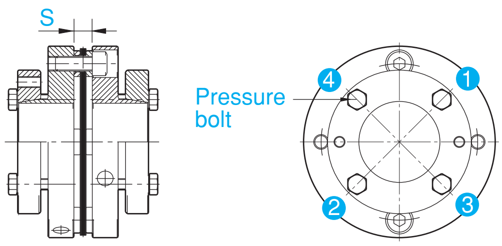
❶ Loosen the pressure bolts of coupling and confirm if the sleeve is free to move. Remove the rust, dust and oil content sit on the inside diameter surface of the shaft and coupling. (Wipe off the oil content completely with a waste cloth, etc.)

❷ Insert the coupling into one side of the shaft. At this time, do not apply more than necessary force such as compression or pulling to the element part of the coupling.

❸ Insert the other side of shaft into the coupling. Do not apply more than necessary force to the element part.

❹ Confirm if the pressure bolts are loosened and the coupling is movable to the axial and rotative directions. If it doesn't move smoothly, adjust centering of both shafts again.

❺ The face-to-face dimension between flange hubs (S) must be within the permissible error of the axial displacement in the dimension table. However, the value is allowable when the parallel offset and angular misalignment are assumed as 0 (zero). Adjust to achieve them to be small as possible.



❻ Keep the position where the entire length of the flange hub contacts both shafts, and tighten all the pressure bolts diagonally by little and little. Refer to the above figure for tightening order.

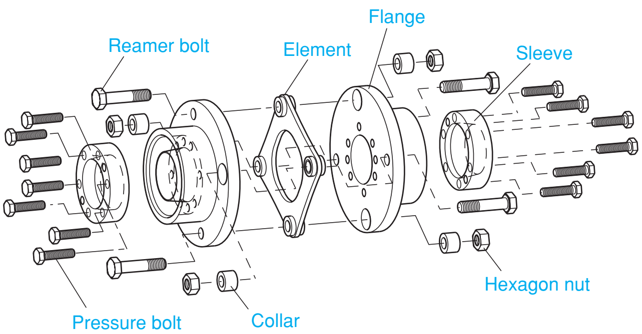
❼ By using a torque wrench, tighten all the pressure bolts at the specified torque. For tightening torque, refer to the appropriate tightening torque list on page 32.

SFS-S/W/G-M-M type

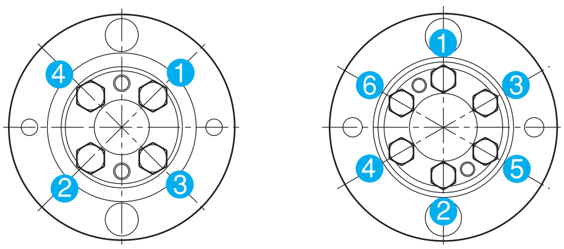
1 SFS (except SFS-SS/ DD type) is not a preassembled product. The product is delivered by parts.

2 Mounting (In the case that the element is mounted at the last.)

❶ Remove the rust, dust and oil content sit on the inside surface of the shaft and coupling.
❷ Loosen the pressure bolts of the coupling and confirm if the sleeve is free to move. Insert the flange hub into the mate mounting shaft.
❸ Keep the position where the entire length of the flange hub contacts the shaft, and tighten all the pressure bolts diagonally from each other. (The pressure bolts should be tightened equally in several batches.)
❹ Insert the other flange hub into the mating shaft as the procedure of ❷ and ❸.
❺ The face-to-face dimension between flange hubs (S) must be within the permissible error of the axial displacement in the dimension table. However, the value is allowable when the parallel offset and angular misalignment are assumed as 0 (zero). Adjust to achieve them to be small as possible.
❻ Insert the element into the space between two flange hubs and fix with the reamer bolts. Confirm the element is not deformed. If any force is applied in the axial direction, or if there is a lack of lubrication between the plate spring and collar or bolt, it may cause deformation in the element. Deformation may be improved by coating a little machine oil onto the bearing surface of the reamer bolts. However, do not use any oil containing an extreme-pressure additive such as molybdenum.
❼) Tighten the reamer bolts and pressure bolts by using a torque wrench at the specified torque. As the other mounting method, the element can be set to the flange hub first before inserting the shaft.



● Tighten the pressure bolts as the following order.



A list of bolt sizes and appropriate tightening torque

●SFS-SS/DS

Coupling Size	080	090	100	120	140
Pressure bolt size	M6	M6	M6	M6	M8
Tightening torque [N·m]	14	14	14	14	34

●SFS-S/W/G-M-M

Coupling Size	05	06	08	09	10	12	14
Pressure bolt size	M5	M6	M6	M6	M6	M8	M8
Tightening torque [N·m]	8	14	14	14	14	34	34

●SFS-S/W/G

Coupling Size	05	06	08	09	10	12	14
Reamer bolt size	M5	M6	M6	M8	M8	M10	M12
Tightening torque [N·m]	8	14	14	34	34	68	118

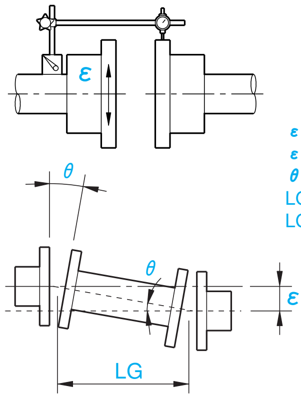
●SFH

Coupling Size	15	17	19	21	22	26
Reamer bolt size	M8	M10	M12	M16	M16	M20
Tightening torque [N·m]	34	68	118	300	300	570

Centering method

● Parallel offset (ε)

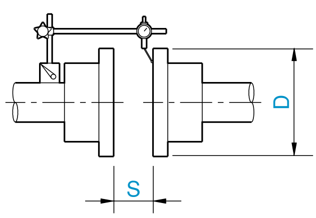
Fix the dial gauge on one side of the shaft and read the run-out of the outer periphery of the other flange while rotating the shaft. The models (SFS-S and SS types) with one pair of elements (plate springs) do not allow parallel offset and should be moved close to 0. For Models whose full length can be set freely (SFS-□-G/SFH-□-G), use the following formula to calculate the permissible parallel offset values



$\varepsilon = \tan\theta \times LG$
ε : Permissible parallel offset
θ : Full length of spacer
LG=LS+S
LG: Total spacer
S: Dimension between flange on one side and spacer

● Angular offset (θ)

Fix the dial gauge on one side of the shaft and read the run-out of the end surface near the outer periphery of the other flange while rotating the shaft.
Adjust run-out B so that ($\theta \leqq 1^\circ$) can be accomplished.



$B = D \times \tan\theta$
B: Run-out
D: Flange outer diameter
θ : 1°

● Axial displacement (S)

The face-to-face dimension between flange hubs (S) must be within the permissible error of the axial displacement in the dimension table. However, the value is allowable when the parallel offset and angular misalignment are assumed as 0 (zero). Adjust to achieve them to be small as possible.

* The S dimension of SFS-S/SS is a dimension between two flange hubs. The S dimension of SFS-DS/W/G/H is a dimension between a flange and a spacer.

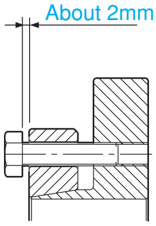
●Dismounting (Friction locking method)

1 Dismounting procedure

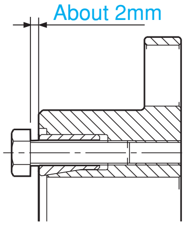
❶ Confirm if any torque or axial direction load does not act on the coupling. (Torque may be applied to the coupling when a safety break control system is activated. Make sure no torque is applied to the coupling.)

❷ Loosen all the pressure bolts about 2mm from the bearing surface.

■SFS-SS/DS type



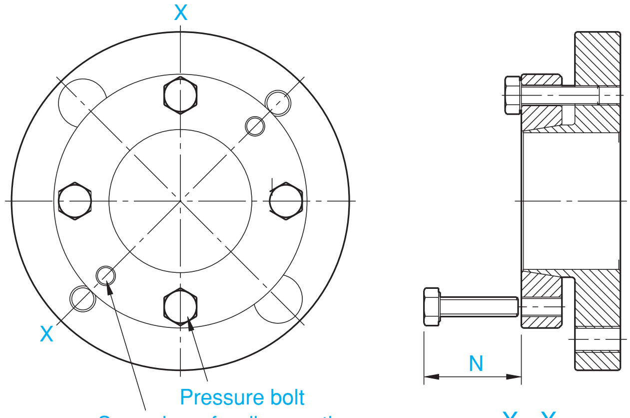
■SFS-S/W/G-M-M type



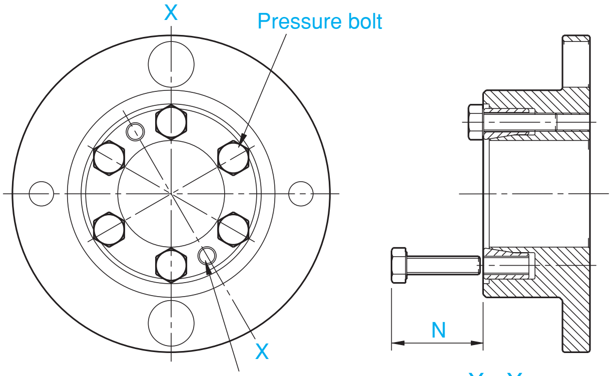
In the tapered shaft fastening method that tightens the pressure bolts from the axial direction, the sleeve has a self-locking mechanism so that loosening the bolts does not release fastening of the flange hub and shaft. (In some cases, fastening power could be released by just loosening the pressure bolts.) Therefore, a space for inserting a dismounting screw must be considered in the coupling design phase. If there is no space in the axial direction, contact us for further information.

❸ Remove two pressure bolts loosened in ❷ and insert them into the two screw bores for dismounting located on the sleeve. Tighten them alternately by little and little. Fastening of the flange hub and shaft will be released.

■SFS-SS/DS type



■SFS-S/W/G-M-M type



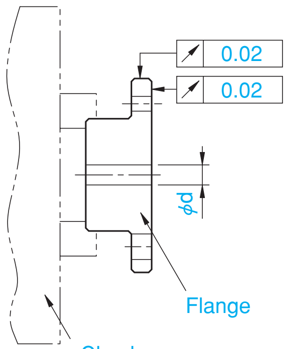
●Screw space for dismounting (N)

Model	Pressure bolt Nominal desig x length	Recommended N Dimensions [mm]
SFS-08S/W/G(MM)	M6×24	30
SFS-09S/W/G(MM)	M6×24	30
SFS-10S/W/G(MM)	M6×24	30
SFS-12S/W/G(MM)	M8×25	31.5
SFS-14S/W/G(MM)	M6×25	31
SFS-080SS/DS(KK)	M6×22	28
SFS-090SS/DS(KK)	M6×22	28
SFS-100SS/DS(KK)	M6×24	30
SFS-120SS/DS(KK)	M6×24	30
SFS-140SS/DS(KK)	M8×35	40.5

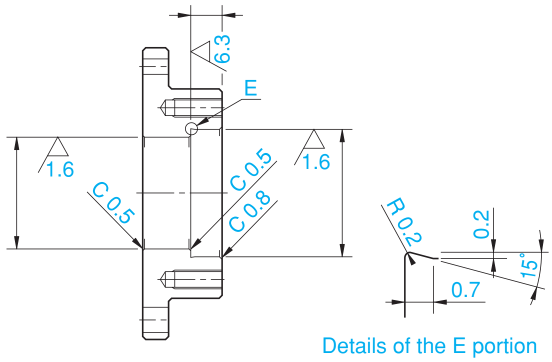
* If there is no space toward shaft, please contact us.

■ Centering and finishing in flange bore drilling

● Check center run-out of each size by the flange outer diameter. Adjust the chuck to achieve the following accuracy and finish the inner diameter.



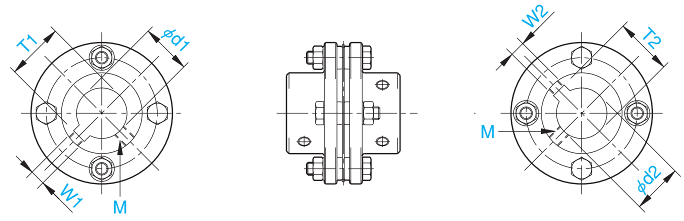
● Finish as illustrated below when machining to spannring.



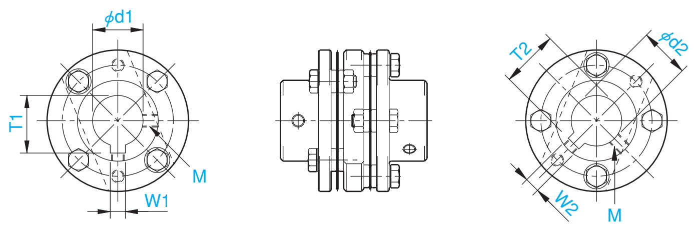
Standard bore processing specification

- Bore processing is available upon request. Products are stored with pilot bores.
- Bores are machined based on the following specification.
- Assign as described below when ordering.
  Ex) SFS-W 32H-38H
- The positions of setscrews will not be on the same plane.
- For the standardized sizes other than described below, refer to the technical data at the end of the catalog.

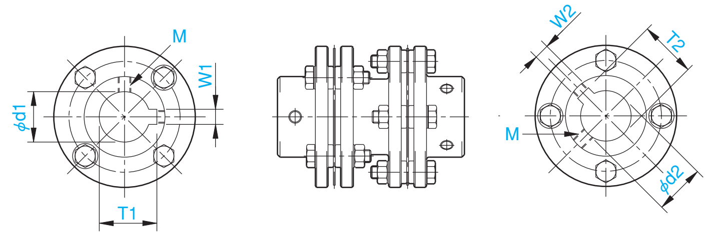
SFS-S



SFS-W



SFS-G



Unit [mm]

Previous JIS (2nd class) correspondence					New JIS correspondence					New standard motor correspondence				
Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Set screw bore (M)	Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Set screw bore (M)	Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Set screw bore (M)
Tolerance	H7, H8	E9	$^{+0.3}_{0}$	—	Tolerance	H7	H9	$^{+0.3}_{0}$	—	Tolerance	G7,F7	H9	$^{+0.3}_{0}$	—
8	$8^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
9	$9^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
10	$10^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
11	$11^{+0.018}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
12	$12^{+0.018}_{0}$	$4^{+0.050}_{+0.020}$	13.5	2-M4	12H	$12^{+0.018}_{0}$	$4^{+0.030}_{0}$	13.8	2-M4	—	—	—	—	—
14	$14^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	16.0	2-M4	14H	$14^{+0.018}_{0}$	$5^{+0.030}_{0}$	16.3	2-M4	14N	$14^{+0.024}_{+0.006}$	$5^{+0.030}_{0}$	16.3	2-M4
15	$15^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	17.0	2-M4	15H	$15^{+0.018}_{0}$	$5^{+0.030}_{0}$	17.3	2-M4	—	—	—	—	—
16	$16^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	18.0	2-M4	16H	$16^{+0.018}_{0}$	$5^{+0.030}_{0}$	18.3	2-M4	—	—	—	—	—
17	$17^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	19.0	2-M4	17H	$17^{+0.018}_{0}$	$5^{+0.030}_{0}$	19.3	2-M4	—	—	—	—	—
18	$18^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	20.0	2-M4	18H	$18^{+0.018}_{0}$	$6^{+0.030}_{0}$	20.8	2-M5	—	—	—	—	—
19	$19^{+0.021}_{0}$	$5^{+0.050}_{+0.020}$	21.0	2-M4	19H	$19^{+0.021}_{0}$	$6^{+0.030}_{0}$	21.8	2-M5	19N	$19^{+0.028}_{+0.007}$	$6^{+0.030}_{0}$	21.8	2-M5
20	$20^{+0.021}_{0}$	$5^{+0.050}_{+0.020}$	22.0	2-M4	20H	$20^{+0.021}_{0}$	$6^{+0.030}_{0}$	22.8	2-M5	—	—	—	—	—
22	$22^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	25.0	2-M6	22H	$22^{+0.021}_{0}$	$6^{+0.030}_{0}$	24.8	2-M5	—	—	—	—	—
24	$24^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	27.0	2-M6	24H	$24^{+0.021}_{0}$	$8^{+0.036}_{0}$	27.3	2-M6	24N	$24^{+0.028}_{+0.007}$	$8^{+0.036}_{0}$	27.3	2-M6
25	$25^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	28.0	2-M6	25H	$25^{+0.021}_{0}$	$8^{+0.036}_{0}$	28.3	2-M6	—	—	—	—	—
28	$28^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	31.0	2-M6	28H	$28^{+0.021}_{0}$	$8^{+0.036}_{0}$	31.3	2-M6	28N	$28^{+0.028}_{+0.007}$	$8^{+0.036}_{0}$	31.3	2-M6
30	$30^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	33.0	2-M6	30H	$30^{+0.021}_{0}$	$8^{+0.036}_{0}$	33.3	2-M6	—	—	—	—	—
32	$32^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	35.5	2-M8	32H	$32^{+0.025}_{0}$	$10^{+0.036}_{0}$	35.3	2-M8	—	—	—	—	—
35	$35^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	38.5	2-M8	35H	$35^{+0.025}_{0}$	$10^{+0.036}_{0}$	38.3	2-M8	—	—	—	—	—
38	$38^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	41.5	2-M8	38H	$38^{+0.025}_{0}$	$10^{+0.036}_{0}$	41.3	2-M8	38N	$38^{+0.050}_{+0.025}$	$10^{+0.036}_{0}$	41.3	2-M8
40	$40^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	43.5	2-M8	40H	$40^{+0.025}_{0}$	$12^{+0.043}_{0}$	43.3	2-M8	—	—	—	—	—
42	$42^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	45.5	2-M8	42H	$42^{+0.025}_{0}$	$12^{+0.043}_{0}$	45.3	2-M8	42N	$42^{+0.050}_{+0.025}$	$12^{+0.043}_{0}$	45.3	2-M8
45	$45^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	48.5	2-M8	45H	$45^{+0.025}_{0}$	$14^{+0.043}_{0}$	48.8	2-M10	—	—	—	—	—
48	$48^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	51.5	2-M8	48H	$48^{+0.025}_{0}$	$14^{+0.043}_{0}$	51.8	2-M10	48N	$48^{+0.050}_{+0.025}$	$14^{+0.043}_{0}$	51.8	2-M10
50	$50^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	53.5	2-M8	50H	$50^{+0.025}_{0}$	$14^{+0.043}_{0}$	53.8	2-M10	—	—	—	—	—
55	$55^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	60.0	2-M10	55H	$55^{+0.030}_{0}$	$16^{+0.043}_{0}$	59.3	2-M10	55N	$55^{+0.060}_{+0.030}$	$16^{+0.043}_{0}$	59.3	2-M10
56	$56^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	61.0	2-M10	56H	$56^{+0.030}_{0}$	$16^{+0.043}_{0}$	60.3	2-M10	—	—	—	—	—
60	$60^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	65.0	2-M10	60H	$60^{+0.030}_{0}$	$18^{+0.043}_{0}$	64.4	2-M10	60N	$60^{+0.060}_{+0.030}$	$18^{+0.043}_{0}$	64.4	2-M10

* Below φ11 of New JIS correspondence and below φ11 of New standard motor correspondence have the same contents as Previous JIS correspondence (Second class).

Distance from the edge surface of setscrew

Size	05	06	08	09	10	12	14
Distance [mm]	7	9	10	10	12	12	15

Servoflex

SFM · SFF

■Specially designed for machine tools

The SFM and SFF models are newly developed couplings for use in a main shaft and feed shaft of machine tools. The SFM model designed for a main shaft has a centering mechanism to respond to a high-precision mounting, which also allows the Max. rotation speed of 20,000(min^{-1}).

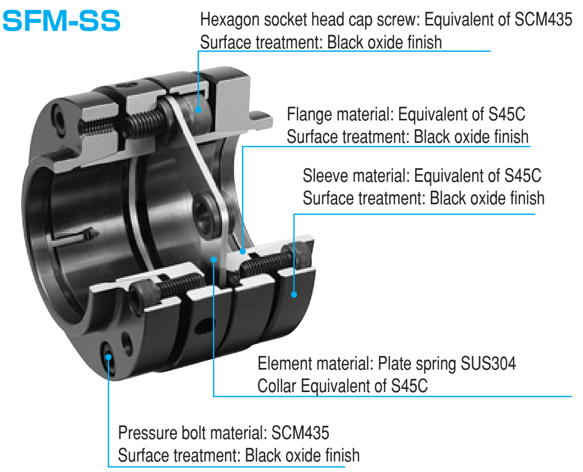
■High torque transmission and stiffness

By the newly designed plate spring, both models have a class-leading torque transmission and stiffness.

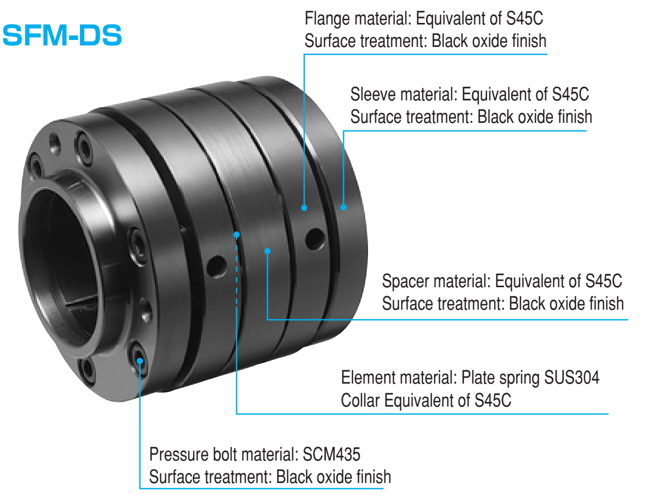
Model		SFM	SFF
Permissible torque [N·m]		200 ～ 800	70 ～ 300
Operating temp. [℃]		−30 ～ +120	−30 ～ +120
Backlash		Zero	Zero
Max. permissible misalignment	Parallel offset [mm]	0.02～0.44	0.02～0.31
	Angular misalignment [°]	1 (one side)	1 (one side)
	Axial displacement [mm]	±0.6 ～ ±2.0	±0.5 ～ ±1.4

Structure and Material

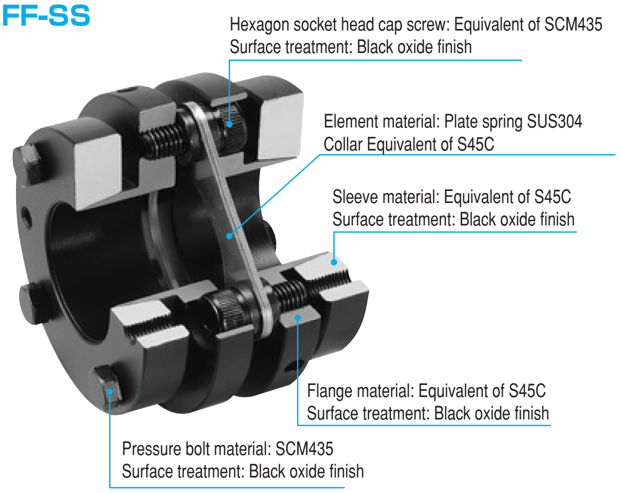
■SFM-SS



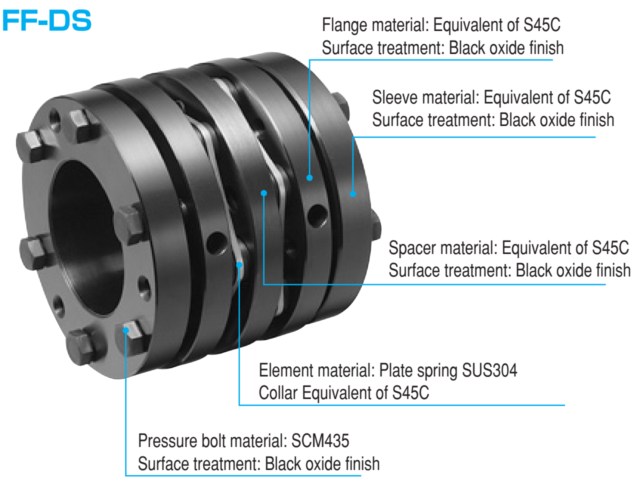
■SFM-DS



■SFF-SS

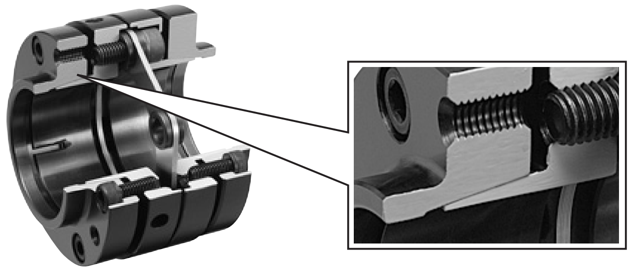


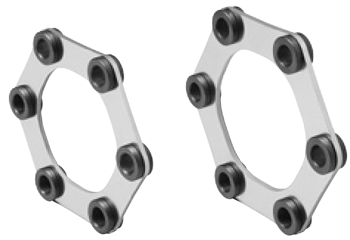
■SFF-DS



SFM-SS/DS

Coupling specially developed for main shafts of machine tools





●The Max. rotation speed of 20,000 (min^{-1})

The coupling specially designed for high-speed applications allows the Max. rotation speed of 20,000(min^{-1}). Stable power transmission at high speed is assured.

●High-precision positioning

Centering mechanisms are set for both flange and pressure flange to achieve high-precision positioning.

●Low noise

The outer circumference of the plate spring is covered with a flange and the pressure bolt is mounted in the pressure flange to reduce irregularities of shape as much as possible. A wind roar during high-speed rotation can be drastically reduced.

●High torque transmission and reliability

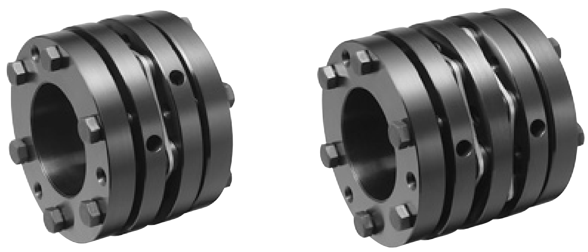
The plate spring developed by the latest finite element analysis method assures a class-leading torque transmission and reliability.

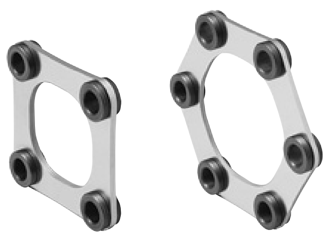
●High stiffness and flexibility

The SFM-SS type with single element and high stiffness and the SFM-DS type with double element and flexibility are available.

SFF-SS/DS

Coupling specially developed for feed shafts of machine tools





●High torque transmission and reliability

The plate spring developed by the latest finite element analysis method assures a class-leading torque transmission and reliability.

●Low inertia

One size smaller coupling can be selected with the same torque transmission to reduce the coupling inertia.

●High torsional stiffness and flexibility

The newly designed plate spring increases torsional stiffness. The single-element type with high torsional stiffness (SFF-SS) and double-element type with high flexibility (SFF-DS) are available.

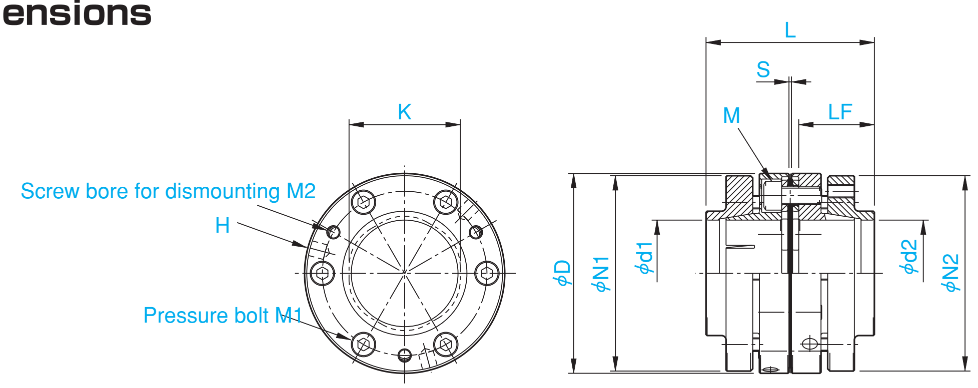
SFM-SS

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [ ]	Axial displacement [mm]						
SFM-090SS	200	0.02	1	±0.6	20000	140000	320	1.87×10^{-3}	1.66	—
SFM-100SS	300	0.02	1	±0.7	20000	160000	360	3.56×10^{-3}	2.07	—
SFM-120SS	500	0.02	1	±0.8	20000	140000	360	6.65×10^{-3}	2.90	—
SFM-140SS	800	0.02	1	±1.0	20000	100000	360	16.9×10^{-3}	5.35	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the value of element.

Dimensions



Unit [mm]

Model	D	L	d1・d2	N1・N2	LF	S	K	H	M	M1	M2	CAD file No.
SFM-090SS	90	75.7	28・30	73	34	1.1	50	3-6.8	M8	6-M6	3-M6	—
			32・35	78								
			38・40・42	83								
			45・48	88								
SFM-100SS	100	76	32・35	78	34	1	58	3-6.8	M8	6-M6	3-M6	—
			38・40・42	83								
			45・48	88								
			50・52	93								
			55	98								
			60	105								
SFM-120SS	120	82.2	38・40・42	83	36	1	68	3-8.6	M10	6-M6	3-M6	—
			45・48	88								
			50・52	93								
			55	98								
			60・62・65	105								
			70	115								
SFM-140SS	140	100.6	45	98	45	1	78	3-8.6	M12	6-M8	3-M8	—
			48・50・52	105								
			55	108								
			60・62	115								
			65	118								
			70・75	125								
			80	135								

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Combination of standard bore diameters

SFM-090SS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	28	●	●	●	●	●	●	●	●	●									
	30		●	●	●	●	●	●	●	●									
	32			●	●	●	●	●	●	●									
	35				●	●	●	●	●	●									
	38					●	●	●	●	●									
	40						●	●	●	●									
	42							●	●	●									
	45								●	●									
	48									●									

SFM-100SS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	32			●	●	●	●	●	●	●	●	●	●	●					
	35				●	●	●	●	●	●	●	●	●	●					
	38					●	●	●	●	●	●	●	●	●					
	40						●	●	●	●	●	●	●	●					
	42							●	●	●	●	●	●	●					
	45								●	●	●	●	●	●					
	48									●	●	●	●	●					
	50										●	●	●	●					
	52											●	●	●					
	55												●	●					

SFM-120SS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	38					●	●	●	●	●	●	●	●	●	●	●	●		
	40						●	●	●	●	●	●	●	●	●	●	●		
	42							●	●	●	●	●	●	●	●	●	●		
	45								●	●	●	●	●	●	●	●	●		
	48									●	●	●	●	●	●	●	●		
	50										●	●	●	●	●	●	●		
	52											●	●	●	●	●	●		
	55												●	●	●	●	●		
	60													●	●	●	●		
	62														●	●	●		
	65															●	●		

SFM-140SS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	45								●	●	●	●	●	●	●	●	●	●	●
	48									●	●	●	●	●	●	●	●	●	●
	50										●	●	●	●	●	●	●	●	●
	52											●	●	●	●	●	●	●	●
	55												●	●	●	●	●	●	●
	60													●	●	●	●	●	●
	62														●	●	●	●	●
	65															●	●	●	●
	70																●	●	●
	75																	●	●

Ordering Information

SFM - 090 S S - 28 K K - 30 K K - G 2.5 / 15000

- Size (090)
- Type (S) — S: Single-element type
- Material (S) — S: Steel
- Bore dia. (28)
- Fastening method (K) — K: Friction locking
- Mating shaft tolerance (K) — Blank: h6 J: j6 K: k6 S: $35^{+0.010}_{0}$ M: m6
- Bore dia. (30)
- Fastening method (K) — K: Friction locking
- Mating shaft tolerance (K) — Blank: h6 J: j6 K: k6 S: $35^{+0.010}_{0}$ M: m6
- Balance class (G 2.5)
- Practical Max. rotation speed (min^{-1}) (15000)

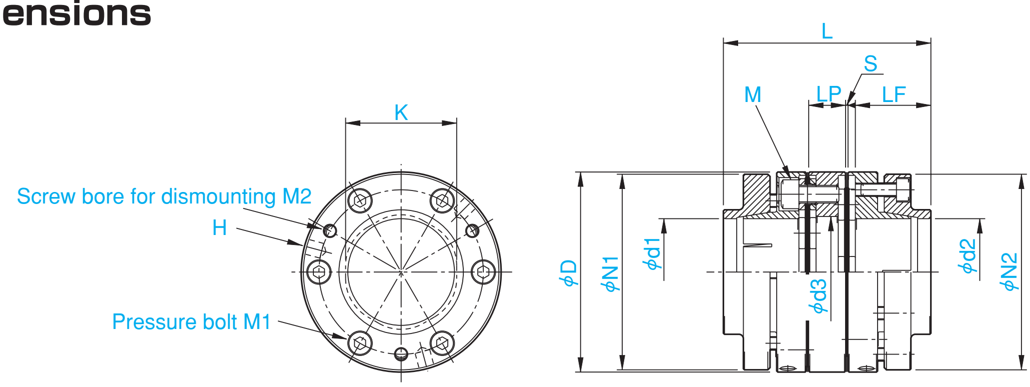
* Balance class and practical Max. rotation speed are options available on request.

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min⁻¹]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m²]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFM-090DS	200	0.30	1(one side)	±1.2	15000	70000	160	2.43×10^{-3}	2.08	—
SFM-100DS	300	0.31	1(one side)	±1.4	15000	80000	180	4.39×10^{-3}	2.56	—
SFM-120DS	500	0.38	1(one side)	±1.6	15000	70000	180	8.74×10^{-3}	3.76	—
SFM-140DS	800	0.44	1(one side)	±2.0	15000	50000	180	21.5×10^{-3}	6.77	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the value of element.

Dimensions



Unit [mm]

Model	D	L	d1 · d2	N1 · N2	LF	LP	S	d3	K	H	M	M1	M2	CAD file No.
SFM-090DS	90	93.4	28・30	73	34	16.6	1.1	50	50	3-6.8	M8	6-M6	3-M6	—
			32・35	78										
			38・40・42	83										
			45・48	88										
SFM-100DS	100	94	32・35	78	34	17	1	60	58	3-6.8	M8	6-M6	3-M6	—
			38・40・42	83										
			45・48	88										
			50・52	93										
			55	98										
			60	105										
SFM-120DS	120	104.4	38・40・42	83	36	21.2	1	72	68	3-8.6	M10	6-M6	3-M6	—
			45・48	88										
			50・52	93										
			55	98										
			60・62・65	105										
			70	115										
SFM-140DS	140	126.2	45	98	45	24.6	1	80	78	3-8.6	M12	6-M8	3-M8	—
			48・50・52	105										
			55	108										
			60・62	115										
			65	118										
			70・75	125										
			80	135										

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Combination of standard bore diameters

SFM-090DS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	28	●	●	●	●	●	●	●	●	●									
	30		●	●	●	●	●	●	●	●									
	32			●	●	●	●	●	●	●									
	35				●	●	●	●	●	●									
	38					●	●	●	●	●									
	40						●	●	●	●									
	42							●	●	●									
	45								●	●									
	48									●									

SFM-100DS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	32			●	●	●	●	●	●	●	●	●	●	●					
	35				●	●	●	●	●	●	●	●	●	●					
	38					●	●	●	●	●	●	●	●	●					
	40						●	●	●	●	●	●	●	●					
	42							●	●	●	●	●	●	●					
	45								●	●	●	●	●	●					
	48									●	●	●	●	●					
	50										●	●	●	●					
	52											●	●	●					
	55												●	●					

SFM-120DS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	38					●	●	●	●	●	●	●	●	●	●	●	●		
	40						●	●	●	●	●	●	●	●	●	●	●		
	42							●	●	●	●	●	●	●	●	●	●		
	45								●	●	●	●	●	●	●	●	●		
	48									●	●	●	●	●	●	●	●		
	50										●	●	●	●	●	●	●		
	52											●	●	●	●	●	●		
	55												●	●	●	●	●		
	60													●	●	●	●		
	62														●	●	●		
	65															●	●		

SFM-140DS		Standard bore diameter d2[mm]																	
		28	30	32	35	38	40	42	45	48	50	52	55	60	62	65	70	75	80
Standard bore diameter d1[mm]	45								●	●	●	●	●	●	●	●	●	●	●
	48									●	●	●	●	●	●	●	●	●	●
	50										●	●	●	●	●	●	●	●	●
	52											●	●	●	●	●	●	●	●
	55												●	●	●	●	●	●	●
	60													●	●	●	●	●	●
	62														●	●	●	●	●
	65															●	●	●	●
	70																●	●	●
	75																	●	●

Ordering Information

SFM - 090 D S - 28 K K - 30 K K - G 2.5 / 15000

- 090 — Size
- D — Type: D: Double-element type
- S — Material: S: Steel
- 28 — Bore dia.
- K — Fastening method: K: Friction locking
- K — Mating shaft tolerance: Blank: h6 J: j6, K: k6 S: 35 $^{+0.010}_{0}$, M: m6
- 30 — Bore dia.
- K — Fastening method: K: Friction locking
- K — Mating shaft tolerance: Blank: h6 J: j6, K: k6 S: 35 $^{+0.010}_{0}$, M: m6
- G 2.5 — Balance class
- 15000 — Practical Max. rotation speed (min^{-1})

* Balance class and practical Max. rotation speed are options available on request.

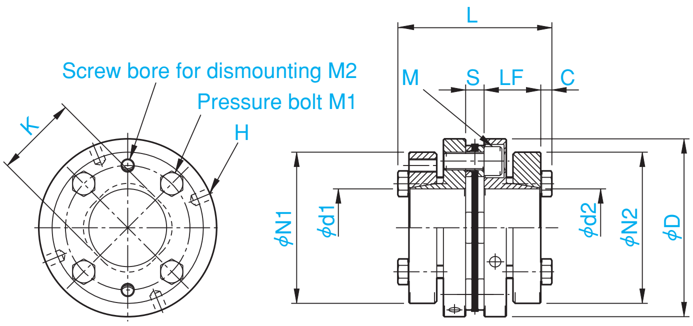
SFF-SS

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment: Parallel offset [mm]	Max. permissible misalignment: Angular misalignment [°]	Max. permissible misalignment: Axial displacement [mm]	Max. rotation speed [min^{-1}]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [$kg·m^2$]	Mass [kg]	Price
SFF-070SS	70	0.02	1	±0.5	18000	60000	105	$0.68×10^{-3}$	0.93	—
SFF-080SS	130	0.02	1	±0.5	17000	64000	96	$1.03×10^{-3}$	1.22	—
SFF-090SS	200	0.02	1	±0.6	15000	140000	320	$2.06×10^{-3}$	1.63	—
SFF-100SS	300	0.02	1	±0.7	13000	160000	360	$2.99×10^{-3}$	1.81	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the value of element.

Dimensions



CAD

Unit [mm]

Model	D	L	d1 · d2	N1 · N2	LF	S	C	K	H	M	M1	M2
SFF-070SS	70	63.5	18 • 19	53	23.5	6.5	5	31	4-5.1	M6	4-M6	2-M6
			20 • 22 • 24 • 25	58								
			28 • 30	63								
			32 • 35	68								
SFF-080SS	80	69.3	22 • 24 • 25	58	25.5	8.3	5	37	4-5.1	M8	4-M6	2-M6
			28 • 30	63								
			32 • 35	68								
SFF-090SS	90	68.7	28	68	25.5	7.7	5	50	3-6.8	M8	6-M6	3-M6
			30 • 32 • 35	73								
			38 • 40	78								
			42 • 45	83								
			48	88								
SFF-100SS	100	69.0	32 • 35	73	25.5	8	5	58	3-6.8	M8	6-M6	3-M6
			38 • 40	78								
			42 • 45	83								
			48 • 50 • 52	88								
			55	93								
			60	98								

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Model	CAD file No.										
SFF-070SS	φ18	φ19	φ20	φ22	φ24	φ25	φ28	φ30	φ32	φ35	—
	SFF-SS01	SFF-SS02	SFF-SS03	SFF-SS04	SFF-SS05	SFF-SS06	SFF-SS07	SFF-SS08	SFF-SS09	SFF-SS10	—
SFF-080SS	φ22	φ24	φ25	φ28	φ30	φ32	φ35	—	—	—	—
	SFF-SS11	SFF-SS12	SFF-SS13	SFF-SS14	SFF-SS15	SFF-SS16	SFF-SS17	—	—	—	—
SFF-090SS	φ28	φ30	φ32	φ35	φ38	φ40	φ42	φ45	φ48	—	—
	SFF-SS18	SFF-SS19	SFF-SS20	SFF-SS21	SFF-SS22	SFF-SS23	SFF-SS24	SFF-SS25	SFF-SS26	—	—
SFF-100SS	φ32	φ35	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60
	SFF-SS27	SFF-SS28	SFF-SS29	SFF-SS30	SFF-SS31	SFF-SS32	SFF-SS33	SFF-SS34	SFF-SS35	SFF-SS36	SFF-SS37

* CAD data is provided for one hub for each hole diameter. Use the data in combination.

Combination of standard bore diameters

SFF-070SS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	18	●	●	●	●	●	●	●	●	●	●									
	19		●	●	●	●	●	●	●	●	●									
	20			●	●	●	●	●	●	●	●									
	22				●	●	●	●	●	●	●									
	24					●	●	●	●	●	●									
	25						●	●	●	●	●									
	28							●	●	●	●									
	30								●	●	●									

SFF-080SS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	22				●	●	●	●	●	●	●									
	24					●	●	●	●	●	●									
	25						●	●	●	●	●									
	28							●	●	●	●									
	30								●	●	●									
	32									●	●									
	35										●									

SFF-090SS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	28							●	●	●	●	●	●	●	●	●				
	30								●	●	●	●	●	●	●	●				
	32									●	●	●	●	●	●	●				
	35										●	●	●	●	●	●				
	38											●	●	●	●	●				
	40												●	●	●	●				
	42													●	●	●				
	45														●	●				
	48															●				

SFF-100SS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	32									●	●	●	●	●	●	●	●	●	●	●
	35										●	●	●	●	●	●	●	●	●	●
	38											●	●	●	●	●	●	●	●	●
	40												●	●	●	●	●	●	●	●
	42													●	●	●	●	●	●	●
	45														●	●	●	●	●	●
	48															●	●	●	●	●
	50																●	●	●	●
	52																	●	●	●
	55																		●	●

Ordering Information

SFF - 080 S S - 25 K K - 30 K K

- 080 — Size
- S — Type
  S: Single-element type
- S — Material
  S: Steel
- 25 — Bore dia.
- K — Fastening method
  K: Friction locking
- K — Mating shaft tolerance
  Blank: h7
  K: k6
  M: m6
  J: j6
  S: 35 $^{+0.010}_{0}$
- 30 — Bore dia.
- K — Fastening method
  K: Friction locking
- K — Mating shaft tolerance
  Blank: h7
  K: k6
  M: m6
  J: j6
  S: 35 $^{+0.010}_{0}$

Servoflex

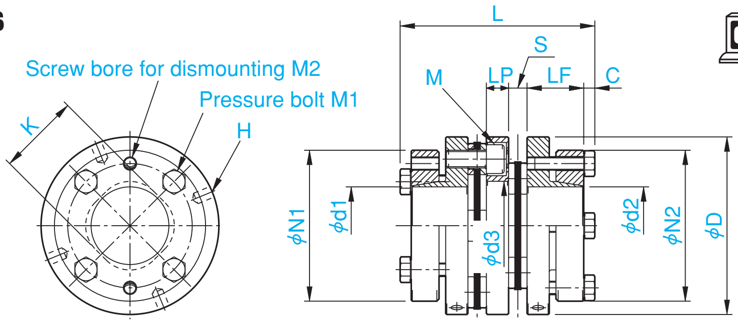
SFF-DS

Specification

Model	Permissible torque [N·m]	Max. permissible misalignment			Max. rotation speed [min^{-1}]	Torsional spring constant [N·m/rad]	Axial spring constant [N/mm]	Moment of inertia [kg·m^2]	Mass [kg]	Price
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFF-070DS	70	0.25	1(one side)	±1.0	14000	30000	53	0.83×10^{-3}	1.14	—
SFF-080DS	130	0.31	1(one side)	±1.0	13000	32000	48	1.36×10^{-3}	1.57	—
SFF-090DS	200	0.30	1(one side)	±1.2	12000	70000	160	2.58×10^{-3}	2.03	—
SFF-100DS	300	0.31	1(one side)	±1.4	10000	80000	180	3.76×10^{-3}	2.27	—

* The indicated values in the moment of inertia and mass are measured with the maximum bore diameter.
* The torsional spring constant indicates the value of element.

Dimensions



CAD

Unit [mm]

Model	D	L	d1 · d2	N1·N2	LF	LP	S	C	d3	K	H	M	M1	M2
SFF-070DS	70	78	18 · 19	53	23.5	8	6.5	5	35	31	4-5.1	M6	4-M6	2-M6
			20 · 22 · 24 · 25	58										
			28 · 30	63										
			32 · 35	68										
SFF-080DS	80	87.6	22 · 24 · 25	58	25.5	10	8.3	5	40	37	4-5.1	M8	4-M6	2-M6
			28 · 30	63										
			32 · 35	68										
SFF-090DS	90	86.4	28	68	25.5	10	7.7	5	50	50	3-6.8	M8	6-M6	3-M6
			30 · 32 · 35	73										
			38 · 40	78										
			42 · 45	83										
			48	88										
SFF-100DS	100	87	32 · 35	73	25.5	10	8	5	60	58	3-6.8	M8	6-M6	3-M6
			38 · 40	78										
			42 · 45	83										
			48 · 50 · 52	88										
			55	93										
			60	98										

* The combination of d1 and d2 is not available if both bore diameters are greater than the dimension K. Refer to the "Combination of standard bore diameters".

Model	CAD file No.										
SFF-070DS	Spacer	φ18	φ19	φ20	φ22	φ24	φ25	φ28	φ30	φ32	φ35	—
	SFF-DS01	SFF-SS01	SFF-SS02	SFF-SS03	SFF-SS04	SFF-SS05	SFF-SS06	SFF-SS07	SFF-SS08	SFF-SS09	SFF-SS10	—
SFF-080DS	Spacer	φ22	φ24	φ25	φ28	φ30	φ32	φ35	—	—	—	—
	SFF-DS02	SFF-SS11	SFF-SS12	SFF-SS13	SFF-SS14	SFF-SS15	SFF-SS16	SFF-SS17	—	—	—	—
SFF-090DS	Spacer	φ28	φ30	φ32	φ35	φ38	φ40	φ42	φ45	φ48	—	—
	SFF-DS03	SFF-SS18	SFF-SS19	SFF-SS20	SFF-SS21	SFF-SS22	SFF-SS23	SFF-SS24	SFF-SS25	SFF-SS26	—	—
SFF-100DS	Spacer	φ32	φ35	φ38	φ40	φ42	φ45	φ48	φ50	φ52	φ55	φ60
	SFF-DS04	SFF-SS27	SFF-SS28	SFF-SS29	SFF-SS30	SFF-SS31	SFF-SS32	SFF-SS33	SFF-SS34	SFF-SS35	SFF-SS36	SFF-SS37

* CAD data is provided for one hub for each hole diameter. Use the data in combination.

Combination of standard bore diameters

SFF-070DS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	18	●	●	●	●	●	●	●	●	●	●									
	19		●	●	●	●	●	●	●	●	●									
	20			●	●	●	●	●	●	●	●									
	22				●	●	●	●	●	●	●									
	24					●	●	●	●	●	●									
	25						●	●	●	●	●									
	28							●	●	●	●									
	30								●	●	●									

SFF-080DS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	22				●	●	●	●	●	●	●									
	24					●	●	●	●	●	●									
	25						●	●	●	●	●									
	28							●	●	●	●									
	30								●	●	●									
	32									●	●									
	35										●									

SFF-090DS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	28							●	●	●	●	●	●	●	●	●				
	30								●	●	●	●	●	●	●	●				
	32									●	●	●	●	●	●	●				
	35										●	●	●	●	●	●				
	38											●	●	●	●	●				
	40												●	●	●	●				
	42													●	●	●				
	45														●	●				
	48															●				

SFF-100DS		Standard bore diameter d2[mm]																		
		18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	60
Standard bore diameter d1[mm]	32									●	●	●	●	●	●	●	●	●	●	●
	35										●	●	●	●	●	●	●	●	●	●
	38											●	●	●	●	●	●	●	●	●
	40												●	●	●	●	●	●	●	●
	42													●	●	●	●	●	●	●
	45														●	●	●	●	●	●
	48															●	●	●	●	●
	50																●	●	●	●
	52																	●	●	●
	55																		●	●

Ordering Information

SFF - 080 D S - 25 K K - 30 K K

- Size — 080
- Type — D: Double-element type
- Material — S: Steel
- Bore dia. — 25
- Fastening method — K: Friction locking
- Mating shaft tolerance — Blank: h7, K: k6, M: m6, J: j6, S: 35 $^{+0.010}_{0}$
- Bore dia. — 30
- Fastening method — K: Friction locking
- Mating shaft tolerance — Blank: h7, K: k6, M: m6, J: j6, S: 35 $^{+0.010}_{0}$

Design check items

Mounting and dismounting

●Mounting

1 Preassembled before delivery

The SFM/SFF model is an assembly finished product for easy mounting. The concentricity of the right and left bore diameters is ensured by adjusting with an exclusive jig.

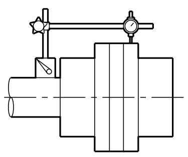
2 Mounting

❶ Loosen the pressure bolts of coupling and confirm the sleeve is free to move. Clean oil and any foreign matter from shaft and bore of coupling before mounting. Molybdenum disulfide or any grease containing extreme-pressure additive drastically reduces the friction factor. Wipe off completely using a degreasing agent.

❷ Insert the coupling on to the motor shaft. At this time, adjust the length of insertion to achieve the dimension LF of the dimension table.

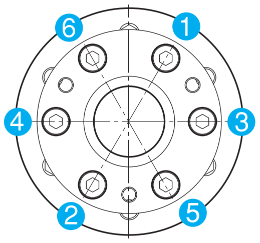
❸ Tighten the pressure bolts lightly diagonally by using a bore for rotation prevention.

❹ Place the dial gauge on the motor-shaft-side flange edge or outer periphery and adjust parallel offset close to zero by hammering while rotating the shaft.

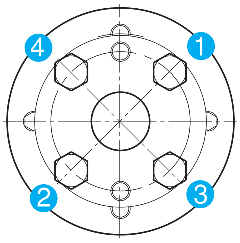


Retighten the pressure bolts evenly at the specified torque in the order described below.

■SFM model



■SFF model

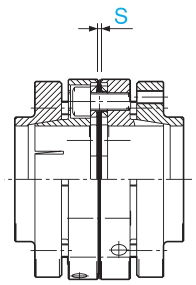


❺ Confirm if the pressure bolts of the motor shaft side are tightened to the specified torque and the value of parallel offset is small enough.

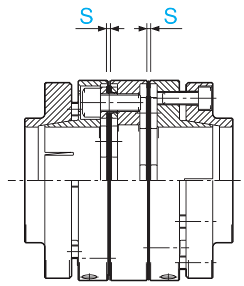
❻ Fix the motor mounted coupling in the machine. At this time, adjust the motor mounting position (inlay) while inserting the coupling into the spindle or feed screw. Check if there is no deformation of the plate spring. Also check if the insertion length of the mating shaft is the dimension LF of the dimension table.

❼ The space between flange hubs (S) must be within the permissible error of the axial displacement in the dimension table. However, the value is allowable when the parallel offset and angular misalignment are assumed as 0 (zero). Adjust to achieve them to be small as possible.

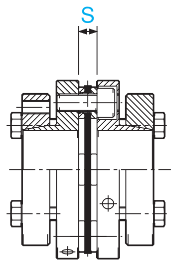
■SFM-SS type



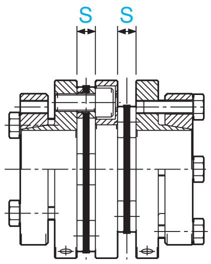
■SFM-DS type



■SFF-SS type



■SFF-DS type



❽ Tighten the pressure bolts of the spindle or feed screw side in order at the specified torque.

❾ After a certain period of operation, retighten the pressure bolts at the specified torque to prevent loosening.

●A list of bolt sizes and appropriate tightening torque

Model	Pressure bolt	Tightening torque [N·m]
SFM-090SS/DS	M6	14
SFM-100SS/DS	M6	14
SFM-120SS/DS	M6	14
SFM-140SS/DS	M8	34

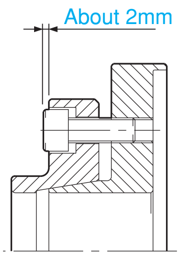
Model	Pressure bolt	Tightening torque
SFF-070SS/DS	M6	10
SFF-080SS/DS	M6	10
SFF-090SS/DS	M6	10
SFF-100SS/DS	M6	10

●Dismounting

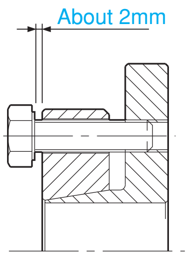
❶ Confirm if any torque or axial direction load does not act on the coupling. Torque may be applied to the coupling when a safety break control system is activated. Make sure no torque is applied to the coupling.

❷ Loosen all the bolts pressurizing the sleeve. For the SFM model, loosen the bolts about 2mm from the sleeve edge. For the SFF model, loosen the bolts about 2mm from the bearing surface.

■SFM model

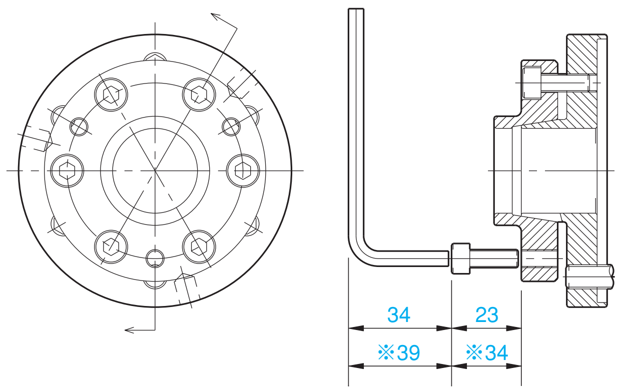


■SFF model



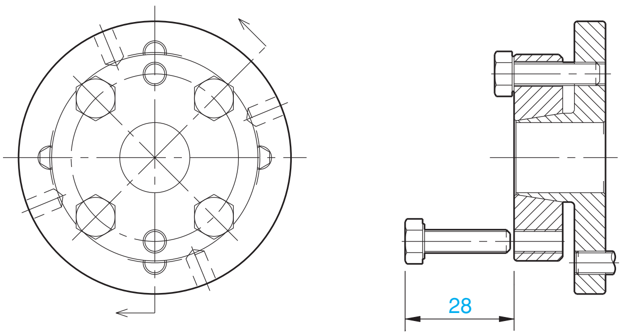
In the tapered shaft fastening method that tightens the pressure bolts from the axial direction, the sleeve has a self-locking mechanism so that loosening the bolts does not release fastening of the flange hub and shaft. (In some cases, fastening power could be released by just loosening the pressure bolts.) Therefore, a space for inserting a dismounting screw must be considered in the coupling design phase.

■SFM model



Note) In case of SFM-140, apply dimension with ※.

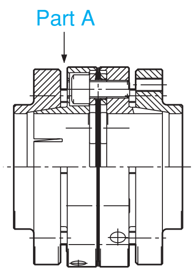
■SFF model



❸ Remove three pressure bolts loosened in ❷ (two bolts for the sizes 070 and 080 of SFF model) and insert them into the screw bores for dismounting located on the sleeve. Tighten them alternately little by little. Fastening of the flange hub and shaft will be released.

For the SFM model, hexagon socket head cap screws are used as its pressure bolt. Therefore, a space for L wrench must be considered in the design phase. If there is not a space in the axial direction, insert a flathead screwdriver into the A part and tap in a direction perpendicular to the shaft, or use the principle of leverage to release fastening. At this time, take extra care not to damage the coupling or pressure bolt.

■SFM model



■SFF model