MIKI PULLEY

High performance metal disk coupling

SERVOFLEX SFC

FLEX series
Servoflex®

MIKI PULLEY

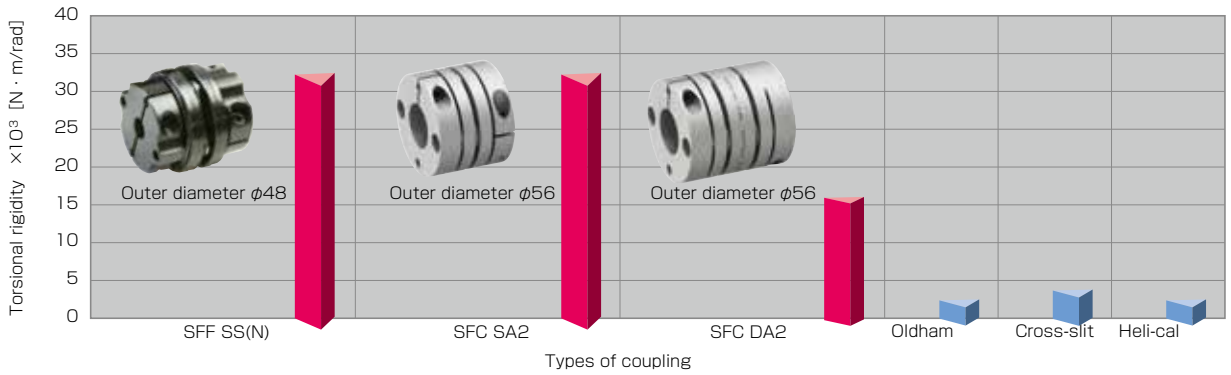
High-stiffness and low-inertia couplings

Metal disc couplings developed for high-speed, high-precision positioning, and ultra-precise control of servomotors, etc.
While achieving high torsional stiffness, high torque, low inertia, and high response speed, these couplings are also flexible in the parallel misalignment direction, in the angular directions, and in the axial direction.
This model has a single element type that emphasizes stiffness and a double element type that emphasizes flexibility.
A wide variety of options such as a tapered shaft, length-specified special order, and keyway milling application are available.

High-rigidity metal disk flexible couplings

A layered metal disk is rigid in the torsional direction and flexible in the parallel misalignment, angular, and axial direction.

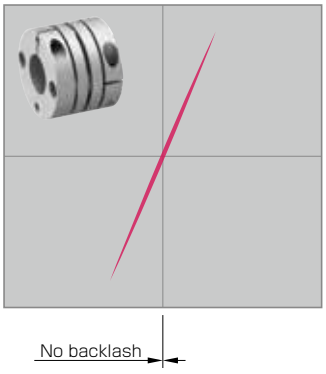
Torsional rigidity comparison of couplings



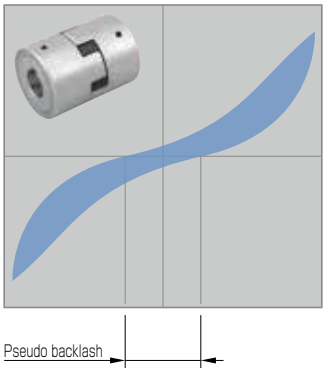
No backlash

No backlash, accurate shaft rotation, and precise control.

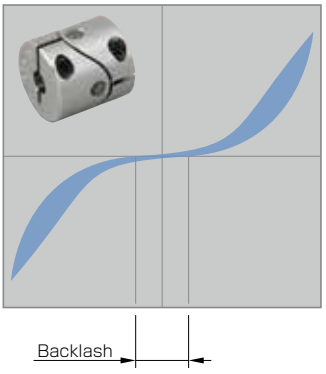
Elastic (metal) coupling
Metal disk : SERVOFLEX



Elastic (rubber, plastic) coupling
rubber, plastic compression, etc

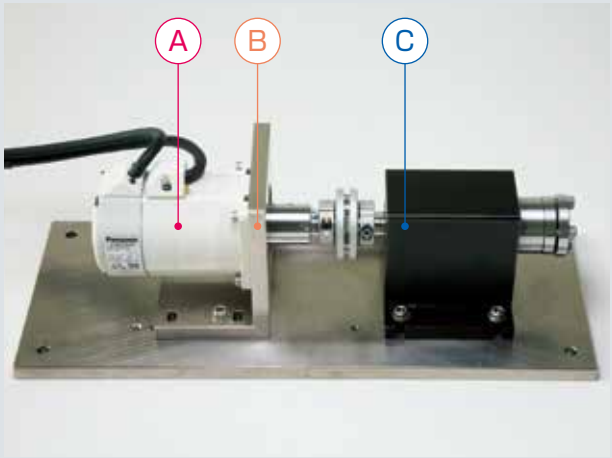


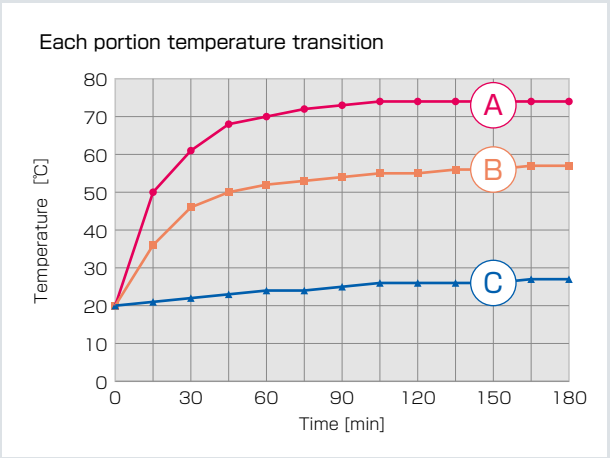
Correction coupling
Oldham, pin bush, etc



Heat rejection

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





Optimal design by 3D-CAD and FEM

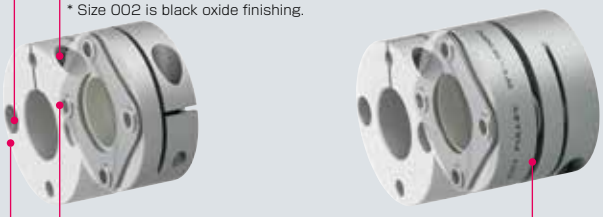
An optimal design using the finite element method (FEM) is applied for the metal disk shape design.

Bolt Material: Alloy steel for machine structural use
Surface finishing: trivalent chrome treatment

* Size 080,090,100 are anti-rust coating.

Clump bolt Material: Alloy steel for machine structural use
Surface finishing: Solid lubricant coating

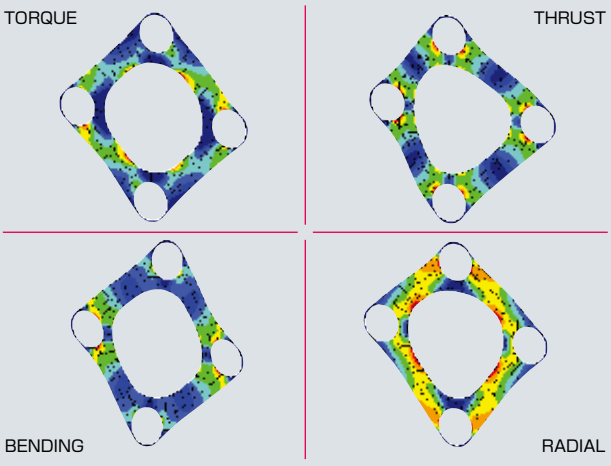
* Size 002 is black oxide finishing.



Element material metal disk: SUS304, collar: SUS304

* The collar material of size 080,090,100 are S45C and surface finishing is trivalent chrome treatment.

Clump hub and spacer Material: High-strength aluminum alloy
Surface finishing: Alumite treatment



*These measurement results were calculated from actual experiments performed using MIKI PULLEY procedures and are not to be interpreted as guarantees of product performance.

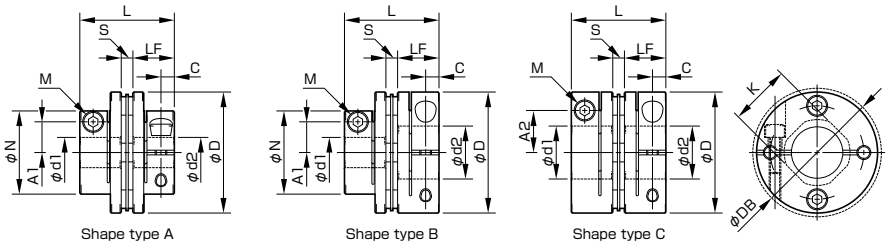
Single Element Type

Specifications

Model	Shape type	Rated torque [N·m]	Misalignment			Max. rotation speed [min⁻¹]	Torsional stiffness [N·m/rad]	Axial stiffness [N/mm]	Moment of inertia [kg·m²]	Mass [kg]
			Parallel [mm]	Angular [°]	Axial [mm]					
SFC-002SA2	C	0.25	0.01	0.5	±0.04	10000	190	34	0.06×10⁻⁶	0.003
SFC-005SA2	C	0.6	0.02	0.5	±0.05	10000	500	140	0.26×10⁻⁶	0.007
SFC-010SA2	C	1	0.02	1	±0.1	10000	1400	140	0.58×10⁻⁶	0.011
SFC-020SA2	C	2	0.02	1	±0.15	10000	3700	64	2.39×10⁻⁶	0.025
SFC-025SA2	C	4	0.02	1	±0.19	10000	5600	60	3.67×10⁻⁶	0.029
SFC-030SA2	A	5	0.02	1	±0.2	10000	8000	64	4.07×10⁻⁶	0.034
	B	5	0.02	1	±0.2	10000	8000	64	6.09×10⁻⁶	0.041
	C	5	0.02	1	±0.2	10000	8000	64	8.20×10⁻⁶	0.049
SFC-035SA2	C	10	0.02	1	±0.25	10000	18000	112	18.44×10⁻⁶	0.082
SFC-040SA2	A	12	0.02	1	±0.3	10000	20000	80	16.71×10⁻⁶	0.077
	B	12	0.02	1	±0.3	10000	20000	80	22.55×10⁻⁶	0.085
	C	12	0.02	1	±0.3	10000	20000	80	29.25×10⁻⁶	0.100
SFC-050SA2	A	25	0.02	1	±0.4	10000	32000	48	55.71×10⁻⁶	0.159
	B	25	0.02	1	±0.4	10000	32000	48	76.26×10⁻⁶	0.177
	C	25	0.02	1	±0.4	10000	32000	48	99.03×10⁻⁶	0.206
SFC-055SA2	C	40	0.02	1	±0.42	10000	50000	43	188.0×10⁻⁶	0.314
SFC-060SA2	A	60	0.02	1	±0.45	10000	70000	76.4	145.9×10⁻⁶	0.283
	B	60	0.02	1	±0.45	10000	70000	76.4	205.0×10⁻⁶	0.326
	C	60	0.02	1	±0.45	10000	70000	76.4	268.6×10⁻⁶	0.385
SFC-080SA2	C	100	0.02	1	±0.55	10000	140000	128	710.6×10⁻⁶	0.708
SFC-090SA2	C	180	0.02	1	±0.65	10000	100000	108	1236×10⁻⁶	0.946
SFC-100SA2	C	250	0.02	1	±0.74	10000	120000	111	1891×10⁻⁶	1.202

* The rated torque of the coupling may be limited for bore diameters. Consult "Standard Bore Diameters". * Max. rotation speed does not take into account dynamic balance. * Torsional stiffness values given are measured values for the element alone. * The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Shape type A　Shape type B　Shape type C

CAD

Model	Shape type	d1 [mm]		d2 [mm]		D [mm]	DB [mm]	N [mm]	L [mm]	LF [mm]	S [mm]	A1 [mm]	A2 [mm]	C [mm]	K [mm]	M Quantity - Nominal dia.	Tightening torque [N·m]
		Min.	Max.	Min.	Max.												
SFC-002SA2	C	3	5	3	5	12	12.4	-	12.35	5.9	0.55	-	3.7	1.9	5.6	1-M1.6	0.23～0.28
SFC-005SA2	C	3	6	3	6	16	-	-	16.7	7.85	1	-	4.8	2.5	6.5	1-M2	0.4～0.5
SFC-010SA2	C	3	8	3	8	19	-	-	19.35	9.15	1.05	-	5.8(6)	3.15	8.5	1-M2.5(M2)	1.0～1.1(0.4～0.5)
SFC-020SA2	C	4	10	4	11	26	-	-	23.15	10.75	1.65	-	9.5	3.3	10.6	1-M2.5	1.0～1.1
SFC-025SA2	C	5	14	5	14	29	-	-	23.4	10.75	1.9	-	11	3.3	14.5	1-M2.5	1.0～1.1
SFC-030SA2	A	5	10	5	10	34	-	21.6	27.3	12.4	2.5	8	-	3.75	14.5	1-M3	1.5～1.9
	B	5	10	Over10	16	34	-	21.6	27.3	12.4	2.5	8	12.5	3.75	14.5	1-M3	1.5～1.9
	C	Over10	14	Over10	16	34	-	-	27.3	12.4	2.5	-	12.5	3.75	14.5	1-M3	1.5～1.9
SFC-035SA2	C	6	16	6	19	39	-	-	34	15.5	3	-	14	4.5	17	1-M4	3.4～4.1
SFC-040SA2	A	8	15	8	15	44	-	29.6	34	15.5	3	11	-	4.5	19.5	1-M4	3.4～4.1
	B	8	15	Over15	24	44	-	29.6	34	15.5	3	11	17	4.5	19.5	1-M4	3.4～4.1
	C	Over15	19	Over15	24	44	-	-	34	15.5	3	-	17	4.5	19.5	1-M4	3.4～4.1
SFC-050SA2	A	8	19	8	19	56	-	38	43.4	20.5	2.4	14.5	-	6	26	1-M5	7.0～8.5
	B	8	19	Over19	30	56	-	38	43.4	20.5	2.4	14.5	22	6	26	1-M5	7.0～8.5
	C	Over19	25	Over19	30	56	-	-	43.4	20.5	2.4	-	22	6	26	1-M5	7.0～8.5
SFC-055SA2	C	10	30	10	30	63	-	-	50.6	24	2.6	-	23	7.75	31	1-M6	14～15
SFC-060SA2	A	11	24	11	24	68	-	46	53.6	25.2	3.2	17.5	-	7.75	31	1-M6	14～15
	B	11	24	Over24	35	68	-	46	53.6	25.2	3.2	17.5	26.5	7.75	31	1-M6	14～15
	C	Over24	30	Over24	35	68	-	-	53.6	25.2	3.2	-	26.5	7.75	31	1-M6	14～15
SFC-080SA2	C	18	35	18	40	82	-	-	68	30	8	-	28	9	38	1-M8	27～30
SFC-090SA2	C	25	40	25	45	94	-	-	68.3	30	8.3	-	34	9	42	1-M8	27～30
SFC-100SA2	C	32	45	32	45	104	-	-	69.8	30	9.8	-	39	9	48	1-M8	27～30

* The øDB value is measured assuming that the head of the clamping bolt is larger than the external diameter of the hub. * The nominal diameter for the clamping bolt M is equal to the quantity - the nominal diameter of the screw, where the quantity is for a hub on one side. * The values in ( ) of the SFC-010, d1 or d2 is the value in the case of ø8mm.

Standard bore diameters

Standard (option) bore diameters d1·d2 [mm] and Rated torque, which is limited [N·m]

Shaft tolerance			Nominal bore dia.	3	4	5	6	6.35	7	8	9	9.525	10	11	12	13	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
	h7 (h6,g6)	B		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	j6 (Option)	J																			○		○	○		○							
	k6 (Option)	K								○	○						○		○			○		○	○				○		○			
Corresponding bore diameter in each type	SFC-002SA2	d1		●	●	●																											
		d2		●	●	●																											
	SFC-005SA2	d1		●	●	●	●																										
		d2		●	●	●	●																										
	SFC-010SA2	d1		●	●	●	●	●	●	●																							
		d2		●	●	●	●	●	●	●																							
	SFC-020SA2	d1			●	●	●	●	●	●	●	●	●																				
		d2			●	●	●	●	●	●	●	●	●	●																			
	SFC-025SA2	d1				2.1	●	●	●	●	●	●	●	●	●	●	●	●															
		d2				2.1	●	●	●	●	●	●	●	●	●	●	●	●															
	SFC-030SA2	d1				2.8	3.4	●	●	●	●	●	●	●	●	●	●	●															
		d2				2.8	3.4	●	●	●	●	●	●	●	●	●	●	●	●	●													
	SFC-035SA2	d1					5	5	6.6	●	●	●	●	●	●	●	●	●	●	●													
		d2					5	5	6.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
	SFC-040SA2	d1								9	●	●	●	●	●	●	●	●	●	●	●	●											
		d2								9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	SFC-050SA2	d1								18	20	22	22	●	●	●	●	●	●	●	●	●	●	●	●	●							
		d2								18	20	22	22	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	SFC-055SA2	d1											31	34	36	38	●	●	●	●	●	●	●	●	●	●	●						
		d2											31	34	36	38	●	●	●	●	●	●	●	●	●	●	●						
	SFC-060SA2	d1												50	51	●	●	●	●	●	●	●	●	●	●	●	●						
		d2												50	51	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	SFC-080SA2	d1																		●	●	●	●	●	●	●	●	●	●				
		d2																		●	●	●	●	●	●	●	●	●	●	●	●		
	SFC-090SA2	d1																							●	●	●	●	●	●	●		
		d2																							●	●	●	●	●	●	●	●	●
	SFC-100SA2	d1																										226	●	●	●	●	●
		d2																										226	●	●	●	●	●

* The standard bore diameter is nominal B for shaft tolerance h7 (h6, g6). However, in the case where the shaft diameter is ø35, the tolerance is $^{+0.010}_{-0.025}$. * Nominal J and K for shaft tolerance j6 and k6 are optional specifications. Only bore diameters marked ○ are applicable. * Bore diameters marked with ● or numbers are supported as the standard bore diameters. Consult MIKI PULLEY regarding special arrangements for other bore diameters. * Bore diameters whose fields contain numbers are restricted in their rated torque by the holding power of the shaft connection component because the bore diameter is small. The numbers indicate the rated torque [N•m].

How to Place an Order

SFC-025SA2-10B-14K

- Size
- Type
  SA2: Single element, Aluminum alloy hub
- Bore dia. d1 (Small dia.)
- Bore dia. d2 (Large dia.)
- Corresponding shaft tolerance
  B : h 7(h6,g6)
  J : j 6(Option)
  K : k 6(Option)

* Specify the nominal bore dimension in the sequence d1 (small diameter) and -d2 (large diameter).
* Specify the shaft tolerance used in the case where d1 = d2 (identical diameters), in the sequence B, J and K.

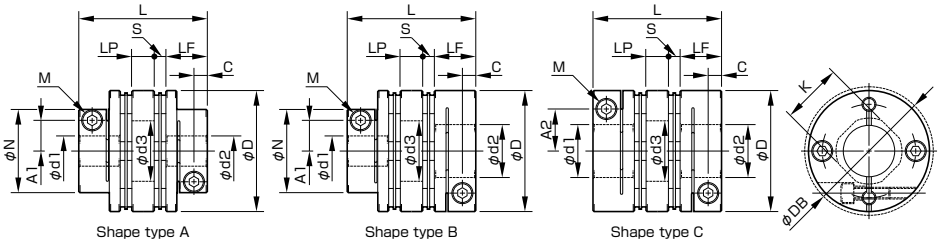
Double Element Type

Specifications

Model	Shape type	Rated torque [N·m]	Misalignment			Max. rotation speed [min⁻¹]	Torsional stiffness [N·m/rad]	Axial stiffness [N/mm]	Moment of inertia [kg·m²]	Mass [kg]
			Parallel [mm]	Angular [°]	Axial [mm]					
SFC-002DA2	C	0.25	0.03	0.5(On one side)	±0.08	10000	95	17	0.07×10^{-6}	0.004
SFC-005DA2	C	0.6	0.05	0.5(On one side)	±0.1	10000	250	70	0.37×10^{-6}	0.010
SFC-010DA2	C	1	0.11	1(On one side)	±0.2	10000	700	70	0.80×10^{-6}	0.015
SFC-020DA2	C	2	0.15	1(On one side)	±0.33	10000	1850	32	3.43×10^{-6}	0.035
SFC-025DA2	C	4	0.16	1(On one side)	±0.38	10000	2800	30	5.26×10^{-6}	0.040
SFC-030DA2	A	5	0.18	1(On one side)	±0.4	10000	4000	32	7.43×10^{-6}	0.054
	B	5	0.18	1(On one side)	±0.4	10000	4000	32	9.45×10^{-6}	0.060
	C	5	0.18	1(On one side)	±0.4	10000	4000	32	11.56×10^{-6}	0.068
SFC-035DA2	C	10	0.24	1(On one side)	±0.5	10000	9000	56	26.93×10^{-6}	0.121
SFC-040DA2	A	12	0.24	1(On one side)	±0.6	10000	10000	40	29.98×10^{-6}	0.124
	B	12	0.24	1(On one side)	±0.6	10000	10000	40	35.82×10^{-6}	0.131
	C	12	0.24	1(On one side)	±0.6	10000	10000	40	42.52×10^{-6}	0.146
SFC-050DA2	A	25	0.28	1(On one side)	±0.8	10000	16000	24	98.34×10^{-6}	0.250
	B	25	0.28	1(On one side)	±0.8	10000	16000	24	118.9×10^{-6}	0.268
	C	25	0.28	1(On one side)	±0.8	10000	16000	24	141.7×10^{-6}	0.298
SFC-055DA2	C	40	0.31	1(On one side)	±0.84	10000	25000	21.5	261.3×10^{-6}	0.459
SFC-060DA2	A	60	0.34	1(On one side)	±0.9	10000	35000	38.2	256.6×10^{-6}	0.447
	B	60	0.34	1(On one side)	±0.9	10000	35000	38.2	315.7×10^{-6}	0.489
	C	60	0.34	1(On one side)	±0.9	10000	35000	38.2	379.3×10^{-6}	0.549
SFC-080DA2	C	100	0.52	1(On one side)	±1.10	10000	70000	64	1039×10^{-6}	1.037
SFC-090DA2	C	180	0.52	1(On one side)	±1.30	10000	50000	54	1798×10^{-6}	1.369
SFC-100DA2	C	250	0.55	1(On one side)	±1.48	10000	60000	55.5	2754×10^{-6}	1.739

* The rated torque of the coupling may be limited for bore diameters. Consult "Standard Bore Diameters". * Max. rotation speed does not take into account dynamic balance. * Torsional stiffness values given are measured values for the element alone. * The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Shape type A　Shape type B　Shape type C

Model	Shape type	d1 [mm]		d2 [mm]		D [mm]	DB [mm]	N [mm]	L [mm]	LF [mm]	LP [mm]	S [mm]	A1 [mm]	A2 [mm]	C [mm]	d3 [mm]	K [mm]	M Quantity - Nominal dia.	Tightening torque [N·m]
		Min.	Max.	Min.	Max.														
SFC-002DA2	C	3	5	3	5	12	12.4	-	15.7	5.9	2.8	0.55	-	3.7	1.9	5.2	5.6	1-M1.6	0.23～0.28
SFC-005DA2	C	3	6	3	6	16	-	-	23.2	7.85	5.5	1	-	4.8	2.5	6.5	6.5	1-M2	0.4～0.5
SFC-010DA2	C	3	8	3	8	19	-	-	25.9	9.15	5.5	1.05	-	5.8(6)	3.15	8.5	8.5	1-M2.5(M2)	1.0～1.1(0.4～0.5)
SFC-020DA2	C	4	10	4	11	26	-	-	32.3	10.75	7.5	1.65	-	9.5	3.3	10.6	10.6	1-M2.5	1.0～1.1
SFC-025DA2	C	5	14	5	14	29	-	-	32.8	10.75	7.5	1.9	-	11	3.3	15	14.5	1-M2.5	1.0～1.1
SFC-030DA2	A	5	10	5	10	34	-	21.6	37.8	12.4	8	2.5	8	-	3.75	15	14.5	1-M3	1.5～1.9
	B	5	10	Over10	16	34	-	21.6	37.8	12.4	8	2.5	8	12.5	3.75	15	14.5	1-M3	1.5～1.9
	C	Over10	14	Over10	16	34	-	-	37.8	12.4	8	2.5	-	12.5	3.75	15	14.5	1-M3	1.5～1.9
SFC-035DA2	C	6	16	6	19	39	-	-	48	15.5	11	3	-	14	4.5	17	17	1-M4	3.4～4.1
SFC-040DA2	A	8	15	8	15	44	-	29.6	48	15.5	11	3	11	-	4.5	20	19.5	1-M4	3.4～4.1
	B	8	15	Over15	24	44	-	29.6	48	15.5	11	3	11	17	4.5	20	19.5	1-M4	3.4～4.1
	C	Over15	19	Over15	24	44	-	-	48	15.5	11	3	-	17	4.5	20	19.5	1-M4	3.4～4.1
SFC-050DA2	A	8	19	8	19	56	-	38	59.8	20.5	14	2.4	14.5	-	6	26	26	1-M5	7.0～8.5
	B	8	19	Over19	30	56	-	38	59.8	20.5	14	2.4	14.5	22	6	26	26	1-M5	7.0～8.5
	C	Over19	25	Over19	30	56	-	-	59.8	20.5	14	2.4	-	22	6	26	26	1-M5	7.0～8.5
SFC-055DA2	C	10	30	10	30	63	-	-	68.7	24	15.5	2.6	-	23	7.75	31	31	1-M6	14～15
SFC-060DA2	A	11	24	11	24	68	-	46	73.3	25.2	16.5	3.2	17.5	-	7.75	31	31	1-M6	14～15
	B	11	24	Over24	35	68	-	46	73.3	25.2	16.5	3.2	17.5	26.5	7.75	31	31	1-M6	14～15
	C	Over24	30	Over24	35	68	-	-	73.3	25.2	16.5	3.2	-	26.5	7.75	31	31	1-M6	14～15
SFC-080DA2	C	18	35	18	40	82	-	-	98	30	22	8	-	28	9	40	38	1-M8	27～30
SFC-090DA2	C	25	40	25	45	94	-	-	98.6	30	22	8.3	-	34	9	47	42	1-M8	27～30
SFC-100DA2	C	32	45	32	45	104	-	-	101.6	30	22	9.8	-	39	9	50	48	1-M8	27～30

* The øDB value is measured assuming that the head of the clamping bolt is larger than the external diameter of the hub. * The nominal diameter for the clamping bolt M is equal to the quantity - the nominal diameter of the screw, where the quantity is for a hub on one side. * The values in ( ) of the SFC-010, d1 or d2 is the value in the case of ø8mm.

Standard bore diameters

Standard (option) bore diameters d1·d2 [mm] and Rated torque, which is limited [N·m]

	Nominal bore dia.		3	4	5	6	6.35	7	8	9	9.525	10	11	12	13	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
Shaft tolerance	h7 (h6,g6)	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	j6 (Option)	J																			○		○	○		○							
	k6 (Option)	K							○	○						○		○			○		○	○				○		○			
Corresponding bore diameter in each type	SFC-002DA2	d1	●	●	●																												
		d2	●	●	●																												
	SFC-005DA2	d1	●	●	●	●																											
		d2	●	●	●	●																											
	SFC-010DA2	d1	●	●	●	●	●	●	●																								
		d2	●	●	●	●	●	●	●																								
	SFC-020DA2	d1		●	●	●	●	●	●	●	●	●																					
		d2		●	●	●	●	●	●	●	●	●	●																				
	SFC-025DA2	d1			2.1	●	●	●	●	●	●	●	●	●	●	●																	
		d2			2.1	●	●	●	●	●	●	●	●	●	●	●																	
	SFC-030DA2	d1			2.8	3.4	●	●	●	●	●	●	●	●	●	●																	
		d2			2.8	3.4	●	●	●	●	●	●	●	●	●	●	●	●															
	SFC-035DA2	d1				5	5	6.6	●	●	●	●	●	●	●	●	●	●															
		d2				5	5	6.6	●	●	●	●	●	●	●	●	●	●	●	●	●												
	SFC-040DA2	d1							9	●	●	●	●	●	●	●	●	●	●	●	●												
		d2							9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
	SFC-050DA2	d1							18	20	22	22	●	●	●	●	●	●	●	●	●	●	●	●	●								
		d2							18	20	22	22	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	SFC-055DA2	d1										31	34	36	38	●	●	●	●	●	●	●	●	●	●	●	●						
		d2										31	34	36	38	●	●	●	●	●	●	●	●	●	●	●	●						
	SFC-060DA2	d1											50	51	●	●	●	●	●	●	●	●	●	●	●	●	●						
		d2											50	51	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	SFC-080DA2	d1																		●	●	●	●	●	●	●	●	●	●				
		d2																		●	●	●	●	●	●	●	●	●	●	●			
	SFC-090DA2	d1																							●	●	●	●	●	●	●		
		d2																							●	●	●	●	●	●	●	●	●
	SFC-100DA2	d1																										226	●	●	●	●	●
		d2																										226	●	●	●	●	●

* The standard bore diameter is nominal B for shaft tolerance h7 (h6, g6). However, in the case where the shaft diameter is ø35, the tolerance is $^{+0.010}_{-0.025}$. * Nominal J and K for shaft tolerance j6 and k6 are optional specifications. Only bore diameters marked ○ are applicable. * Bore diameters marked with ● or numbers are supported as the standard bore diameters. Consult MIKI PULLEY regarding special arrangements for other bore diameters. * Bore diameters whose fields contain numbers are restricted in their rated torque by the holding power of the shaft connection component because the bore diameter is small. The numbers indicate the rated torque [N•m].

How to Place an Order

SFC-025DA2-10B-14B

- Size
- Type
  DA2: Double element, Aluminum alloy hub
- Bore dia. d1 (Small dia.)
- Bore dia. d2 (Large dia.)
- Corresponding shaft tolerance
  B: h7(h6,g6)
  J: j6(Option)
  K: k6(Option)

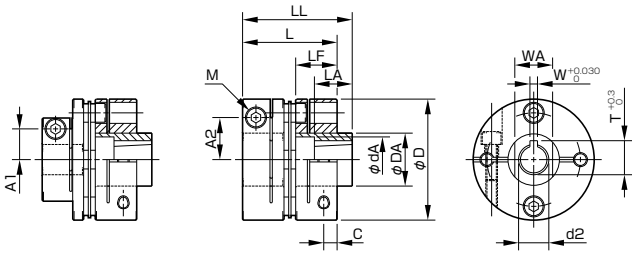
* Specify the nominal bore dimension in the sequence d1 (small diameter) and -d2 (large diameter).
* Specify the shaft tolerance used in the case where d1 = d2 (identical diameters), in the sequence B, J and K.

Option Tapered shaft supported

Allows coupling via a clamp hub when a taper adapter is mounted on the tapered shaft of a servo motor.

Single element type specifications and dimensions

Model	Shape type	Rated torque [N·m]	Moment of inertia [kg·m²]	Mass [kg]
SFC-040SA2-□B-11BC	B	12	26.58×10⁻⁶	0.131
	C	12	33.28×10⁻⁶	0.146
SFC-050SA2-□B-11BC	B	25	82.91×10⁻⁶	0.240
	C	25	103.5×10⁻⁶	0.258
SFC-050SA2-□B-14BC	B	25	88.72×10⁻⁶	0.271
	C	25	111.5×10⁻⁶	0.301
SFC-050SA2-□B-16BC	B	25	95.44×10⁻⁶	0.309
	C	25	118.2×10⁻⁶	0.338
SFC-055SA2-□B-14BC	C	40	201.1×10⁻⁶	0.409
SFC-055SA2-□B-16BC	C	40	207.8×10⁻⁶	0.446
SFC-060SA2-□B-16BC	B	60	228.7×10⁻⁶	0.475
	C	60	287.8×10⁻⁶	0.517



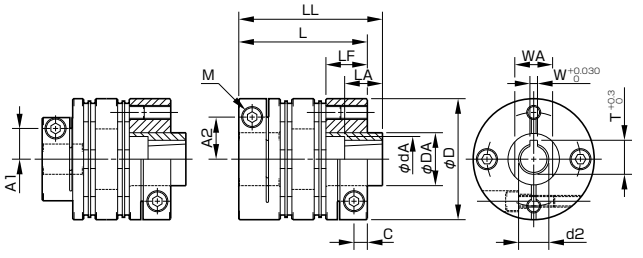
Shape type B　　Shape type C

Model	d2 [mm]	W [mm]	T [mm]	WA [mm]	LA [mm]	dA [mm]	DA [mm]	LL [mm]	D [mm]	L [mm]	LF [mm]	C [mm]	A1 [mm]	A2 [mm]	M Quantity - Nominal dia.
SFC-040SA2-□B-11BC	11	4	12.2	18	16	17	22	44	44	34	15.5	4.5	11	17	1-M4
SFC-050SA2-□B-11BC	11	4	12.2	18	16	17	22	48.4	56	43.4	20.5	6	14.5	22	1-M5
SFC-050SA2-□B-14BC	14	4	15.1	24	19	22	28	53.4	56	43.4	20.5	6	14.5	22	1-M5
SFC-050SA2-□B-16BC	16	5	17.3	24	29	26	30	63.4	56	43.4	20.5	6	14.5	22	1-M5
SFC-055SA2-□B-14BC	14	4	15.1	24	19	22	28	56.6	63	50.6	24	7.75	-	23	1-M6
SFC-055SA2-□B-16BC	16	5	17.3	24	29	26	30	66.6	63	50.6	24	7.75	-	23	1-M6
SFC-060SA2-□B-16BC	16	5	17.3	24	29	26	30	69.6	68	53.6	25.2	7.75	17.5	26.5	1-M6

* See page of single element type SFC SA2 for other specifications and dimensions.

Double element type specifications and dimensions

Model	Shape type	Rated torque [N·m]	Moment of inertia [kg·m²]	Mass [kg]
SFC-040DA2-□B-11BC	B	12	39.42×10⁻⁶	0.180
	C	12	46.12×10⁻⁶	0.195
SFC-050DA2-□B-11BC	B	25	125.5×10⁻⁶	0.331
	C	25	146.1×10⁻⁶	0.349
SFC-050DA2-□B-14BC	B	25	131.1×10⁻⁶	0.362
	C	25	154.1×10⁻⁶	0.392
SFC-050DA2-□B-16BC	B	25	138.1×10⁻⁶	0.400
	C	25	160.8×10⁻⁶	0.430
SFC-055DA2-□B-14BC	C	40	274.0×10⁻⁶	0.530
SFC-055DA2-□B-16BC	C	40	280.5×10⁻⁶	0.567
SFC-060DA2-□B-16BC	B	60	339.4×10⁻⁶	0.638
	C	60	398.5×10⁻⁶	0.681



Shape type B　　Shape type C

Model	d2 [mm]	W [mm]	T [mm]	WA [mm]	LA [mm]	dA [mm]	DA [mm]	LL [mm]	D [mm]	L [mm]	LF [mm]	C [mm]	A1 [mm]	A2 [mm]	M Quantity - Nominal dia.
SFC-040DA2-□B-11BC	11	4	12.2	18	16	17	22	58	44	48	15.5	4.5	11	17	1-M4
SFC-050DA2-□B-11BC	11	4	12.2	18	16	17	22	64.8	56	59.8	20.5	6	14.5	22	1-M5
SFC-050DA2-□B-14BC	14	4	15.1	24	19	22	28	69.8	56	59.8	20.5	6	14.5	22	1-M5
SFC-050DA2-□B-16BC	16	5	17.3	24	29	26	30	79.8	56	59.8	20.5	6	14.5	22	1-M5
SFC-055DA2-□B-14BC	14	4	15.1	24	19	22	28	74.4	63	68.7	24	7.75	-	23	1-M6
SFC-055DA2-□B-16BC	16	5	17.3	24	29	26	30	84.7	63	68.7	24	7.75	-	23	1-M6
SFC-060DA2-□B-16BC	16	5	17.3	24	29	26	30	89.3	68	73.3	25.2	7.75	17.5	26.5	1-M6

* See page of double element type SFC DA2 for other specifications and dimensions.

How to Place an Order

SFC-050DA2-12B-14BC

- Size
- Type : SA2 , DA2
- Bore dia. d1
- Corresponding shaft tolerance B: h7 (h6,g6) , (Option K: k6 , J: j6)
- [d2]BC BC: Taper adapter

Option For length-specified special order parts

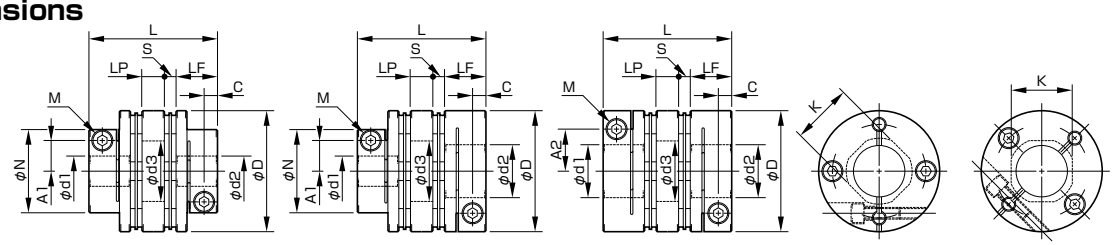
SFC DA2 couplings can be made in specific lengths that match the distance between shafts by changing the length of the spacer. Specify the length in 1 mm units.

Specifications

Model	Shape type	Rated torque [N·m]	Misalignment				Max. rotation speed [min⁻¹]	Moment of inertia [kg·m²]		Mass [kg]	
			Parallel [mm]		Angular [°]	Axial [mm]					
			Min. L	Max. L				Min. L	Max. L	Min. L	Max. L
SFC-005DA2	C	0.6	0.03	0.20	0.5(On one side)	±0.1	10000	0.33×10^{-6}	0.62×10^{-6}	0.009	0.017
SFC-010DA2	C	1	0.08	0.44	1(On one side)	±0.2	10000	0.72×10^{-6}	1.38×10^{-6}	0.014	0.026
SFC-020DA2	C	2	0.10	0.46	1(On one side)	±0.33	10000	3.02×10^{-6}	5.30×10^{-6}	0.031	0.054
SFC-025DA2	C	4	0.09	0.46	1(On one side)	±0.38	10000	4.55×10^{-6}	7.95×10^{-6}	0.036	0.061
SFC-030DA2	A	5	0.11	0.48	1(On one side)	±0.4	10000	6.09×10^{-6}	12.80×10^{-6}	0.046	0.085
	B	5	0.11	0.48	1(On one side)	±0.4	10000	8.11×10^{-6}	14.82×10^{-6}	0.053	0.091
	C	5	0.11	0.48	1(On one side)	±0.4	10000	10.22×10^{-6}	16.93×10^{-6}	0.061	0.099
SFC-035DA2	C	10	0.15	0.54	1(On one side)	±0.5	10000	23.85×10^{-6}	35.97×10^{-6}	0.108	0.161
SFC-040DA2	A	12	0.15	0.54	1(On one side)	±0.6	10000	25.06×10^{-6}	44.76×10^{-6}	0.107	0.174
	B	12	0.15	0.54	1(On one side)	±0.6	10000	30.89×10^{-6}	50.62×10^{-6}	0.116	0.182
	C	12	0.15	0.54	1(On one side)	±0.6	10000	37.58×10^{-6}	57.31×10^{-6}	0.130	0.197
SFC-050DA2	A	25	0.16	0.63	1(On one side)	±0.8	10000	77.42×10^{-6}	144.3×10^{-6}	0.205	0.347
	B	25	0.16	0.63	1(On one side)	±0.8	10000	97.97×10^{-6}	164.8×10^{-6}	0.225	0.365
	C	25	0.16	0.63	1(On one side)	±0.8	10000	120.8×10^{-6}	187.6×10^{-6}	0.252	0.394
SFC-055DA2	C	40	0.16	0.60	1(On one side)	±0.84	10000	226.8×10^{-6}	325.0×10^{-6}	0.378	0.538
SFC-060DA2	A	60	0.19	0.63	1(On one side)	±0.9	10000	210.8×10^{-6}	340.1×10^{-6}	0.382	0.567
	B	60	0.19	0.63	1(On one side)	±0.9	10000	269.9×10^{-6}	399.2×10^{-6}	0.424	0.609
	C	60	0.19	0.63	1(On one side)	±0.9	10000	333.5×10^{-6}	462.8×10^{-6}	0.484	0.669

* The rated torque of the coupling may be limited for bore diameters. Consult "Standard Bore Diameters" of SFC DA2. * Max. rotation speed does not take into account dynamic balance. * See page of SFC DA2 for each stiffness values. * The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Model	Shape type	d1 [mm]		d2 [mm]		D [mm]	N [mm]	L [mm]			LF [mm]	S [mm]	A1 [mm]	A2 [mm]	C [mm]	d3 [mm]	K [mm]	M Quantity - Nominal dia.	Tightening torque [N·m]
		Min.	Max.	Min.	Max.			Std.	Min.	Max.									
SFC-005DA2	C	3	6	3	6	16	-	23.2	21	40	7.85	1	-	4.8	2.5	6.5	6.5	1-M2	0.4～0.5
SFC-010DA2	C	3	8	3	8	19	-	25.9	24	45	9.15	1.05	-	5.8(6)	3.15	8.5	8.5	1-M2.5(M2)	1.0～1.1(0.4～0.5)
SFC-020DA2	C	4	10	4	11	26	-	32.3	29	50	10.75	1.65	-	9.5	3.3	10.6	10.6	1-M2.5	1.0～1.1
SFC-025DA2	C	5	14	5	14	29	-	32.8	29	50	10.75	1.9	-	11	3.3	15	14.5	1-M2.5	1.0～1.1
SFC-030DA2	A	5	10	5	10	34	21.6	37.8	34	55	12.4	2.5	8	-	3.75	15	14.5	1-M3	1.5～1.9
	B	5	10	Over10	16	34	21.6	37.8	34	55	12.4	2.5	8	12.5	3.75	15	14.5	1-M3	1.5～1.9
	C	Over10	14	Over10	16	34	-	37.8	34	55	12.4	2.5	-	12.5	3.75	15	14.5	1-M3	1.5～1.9
SFC-035DA2	C	6	16	6	19	39	-	48	43	65	15.5	3	-	14	4.5	17	17	1-M4	3.4～4.1
SFC-040DA2	A	8	15	8	15	44	29.6	48	43	65	15.5	3	11	-	4.5	20	19.5	1-M4	3.4～4.1
	B	8	15	Over15	24	44	29.6	48	43	65	15.5	3	11	17	4.5	20	19.5	1-M4	3.4～4.1
	C	Over15	19	Over15	24	44	-	48	43	65	15.5	3	-	17	4.5	20	19.5	1-M4	3.4～4.1
SFC-050DA2	A	8	19	8	19	56	38	59.8	53	80	20.5	2.4	14.5	-	6	26	26	1-M5	7.0～8.5
	B	8	19	Over19	30	56	38	59.8	53	80	20.5	2.4	14.5	22	6	26	26	1-M5	7.0～8.5
	C	Over19	25	Over19	30	56	-	59.8	53	80	20.5	2.4	-	22	6	26	26	1-M5	7.0～8.5
SFC-055DA2	C	10	30	10	30	63	-	68.7	60	85	24	2.6	-	23	7.75	31	31	1-M6	14～15
SFC-060DA2	A	11	24	11	24	68	46	73.3	65	90	25.2	3.2	17.5	-	7.75	31	31	1-M6	14～15
	B	11	24	Over24	35	68	46	73.3	65	90	25.2	3.2	17.5	26.5	7.75	31	31	1-M6	14～15
	C	Over24	30	Over24	35	68	-	73.3	65	90	25.2	3.2	-	26.5	7.75	31	31	1-M6	14～15

* The nominal diameter for the clamping bolt M is equal to the quantity - the nominal diameter of the screw, where the quantity is for a hub on one side. * The values in ( ) of the SFC-010, d1 or d2 is the value in the case of ø8mm. * Standard compatible lengths L range from the minimum L dimension shown in the above table to the maximum. Specify the length in 1 mm units. * When the L dimension is shorter than the standard, the left/right clamping bolt phases will be off by 45° . * See page of SFC DA2 for standard bore diameters.

How to Place an Order

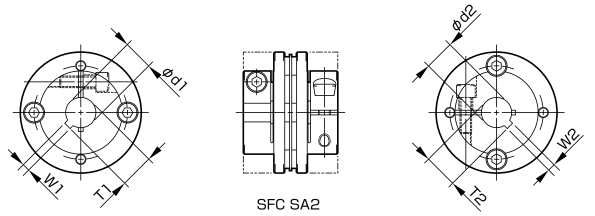
SFC-040DA2-14B-15B-L60

- Size
- Type: DA2
- Bore dia. d1 (Small dia.)
- Length-specified
  Use mm units for L dimensions.
- Corresponding shaft tolerance
  B: h7 (h6,g6) , (Option K: k6 , J: j6)
- Bore dia. d2 (Large dia.)

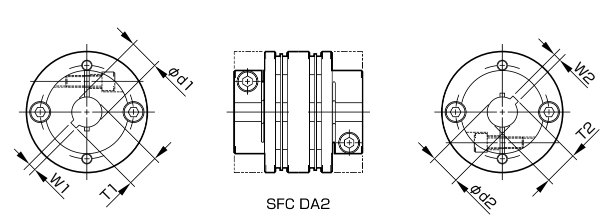
Option For keyway milling applications

If you are using a keyed shaft, we can mill a keyway in the clamping hub to your specifications.

Keyway size and tolerances



SFC SA2



SFC DA2

H9 keyway width standards												Js9 keyway width standards											
Nominal bore dia.				Bore dia. d1·d2 [mm]	Keyway width W1·W2 [mm]	Keyway height T1·T2 [mm]	Nominal bore dia.				Bore dia. d1·d2 [mm]	Keyway width W1·W2 [mm]	Keyway height T1·T2 [mm]	Nominal bore dia.				Bore dia. d1·d2 [mm]	Keyway width W1·W2 [mm]	Keyway height T1·T2 [mm]	Nominal bore dia.				Bore dia. d1·d2 [mm]	Keyway width W1·W2 [mm]	Keyway height T1·T2 [mm]
bore dia.	Shaft tolerance h7	j6	k6				bore dia.	Shaft tolerance h7	j6	k6				bore dia.	Shaft tolerance h7	j6	k6				bore dia.	Shaft tolerance h7	j6	k6			
8	BH	-	KH	8	3 $^{+0.025}_{0}$	9.4 $^{+0.3}_{0}$	20	BH	-	-	20	6 $^{+0.030}_{0}$	22.8 $^{+0.3}_{0}$	8	BJ	-	KJ	8	3 ±0.0125	9.4 $^{+0.3}_{0}$	20	BJ	-	-	20	6 ±0.0150	22.8 $^{+0.3}_{0}$
9	BH	-	KH	9	3 $^{+0.025}_{0}$	10.4 $^{+0.3}_{0}$	22	BH	JH	KH	22	6 $^{+0.030}_{0}$	24.8 $^{+0.3}_{0}$	9	BJ	-	KJ	9	3 ±0.0125	10.4 $^{+0.3}_{0}$	22	BJ	JJ	KJ	22	6 ±0.0150	24.8 $^{+0.3}_{0}$
10	BH	-	-	10	3 $^{+0.025}_{0}$	11.4 $^{+0.3}_{0}$	24	BH	JH	KH	24	8 $^{+0.036}_{0}$	27.3 $^{+0.3}_{0}$	10	BJ	-	-	10	3 ±0.0125	11.4 $^{+0.3}_{0}$	24	BJ	JJ	KJ	24	8 ±0.0180	27.3 $^{+0.3}_{0}$
11	BH	-	-	11	4 $^{+0.030}_{0}$	12.8 $^{+0.3}_{0}$	25	BH	-	-	25	8 $^{+0.036}_{0}$	28.3 $^{+0.3}_{0}$	11	BJ	-	-	11	4 ±0.0150	12.8 $^{+0.3}_{0}$	25	BJ	-	-	25	8 ±0.0180	28.3 $^{+0.3}_{0}$
12	BH	-	-	12	4 $^{+0.030}_{0}$	13.8 $^{+0.3}_{0}$	28	BH	JH	-	28	8 $^{+0.036}_{0}$	31.3 $^{+0.3}_{0}$	12	BJ	-	-	12	4 ±0.0150	13.8 $^{+0.3}_{0}$	28	BJ	JJ	-	28	8 ±0.0180	31.3 $^{+0.3}_{0}$
13	BH	-	-	13	5 $^{+0.030}_{0}$	15.3 $^{+0.3}_{0}$	30	BH	-	-	30	8 $^{+0.036}_{0}$	33.3 $^{+0.3}_{0}$	13	BJ	-	-	13	5 ±0.0150	15.3 $^{+0.3}_{0}$	30	BJ	-	-	30	8 ±0.0180	33.3 $^{+0.3}_{0}$
14	BH	-	KH	14	5 $^{+0.030}_{0}$	16.3 $^{+0.3}_{0}$	32	BH	-	KH	32	10 $^{+0.036}_{0}$	35.3 $^{+0.3}_{0}$	14	BJ	-	KJ	14	5 ±0.0150	16.3 $^{+0.3}_{0}$	32	BJ	-	KJ	32	10 ±0.0180	35.3 $^{+0.3}_{0}$
15	BH	-	-	15	5 $^{+0.030}_{0}$	17.3 $^{+0.3}_{0}$	35	BH	-	-	35	10 $^{+0.036}_{0}$	38.3 $^{+0.3}_{0}$	15	BJ	-	-	15	5 ±0.0150	17.3 $^{+0.3}_{0}$	35	BJ	-	-	35	10 ±0.0180	38.3 $^{+0.3}_{0}$
16	BH	-	KH	16	5 $^{+0.030}_{0}$	18.3 $^{+0.3}_{0}$	38	BH	-	KH	38	10 $^{+0.036}_{0}$	41.3 $^{+0.3}_{0}$	16	BJ	-	KJ	16	5 ±0.0150	18.3 $^{+0.3}_{0}$	38	BJ	-	KJ	38	10 ±0.0180	41.3 $^{+0.3}_{0}$
17	BH	-	-	17	5 $^{+0.030}_{0}$	19.3 $^{+0.3}_{0}$	40	BH	-	-	40	12 $^{+0.043}_{0}$	43.3 $^{+0.3}_{0}$	17	BJ	-	-	17	5 ±0.0150	19.3 $^{+0.3}_{0}$	40	BJ	-	-	40	12 ±0.0215	43.3 $^{+0.3}_{0}$
18	BH	-	-	18	6 $^{+0.030}_{0}$	20.8 $^{+0.3}_{0}$	42	BH	-	-	42	12 $^{+0.043}_{0}$	45.3 $^{+0.3}_{0}$	18	BJ	-	-	18	6 ±0.0150	20.8 $^{+0.3}_{0}$	42	BJ	-	-	42	12 ±0.0215	45.3 $^{+0.3}_{0}$
19	BH	JH	KH	19	6 $^{+0.030}_{0}$	21.8 $^{+0.3}_{0}$	45	BH	-	-	45	14 $^{+0.043}_{0}$	48.8 $^{+0.3}_{0}$	19	BJ	JJ	KJ	19	6 ±0.0150	21.8 $^{+0.3}_{0}$	45	BJ	-	-	45	14 ±0.0215	48.8 $^{+0.3}_{0}$

* We can also handle standards not listed above. Consult MIKI PULLEY.

Standard bore diameters

Standard (option) bore diameters d1·d2 [mm] and Rated torque, which is limited [N·m]																										
Nominal bore dia.			8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
Shaft tolerance	h7 (h6,g6)	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	j6 (Option)	J												○		○	○		○							
	k6 (Option)	K	○	○					○		○			○		○	○				○		○			
Corresponding bore diameter in each type	SFC-025SA2/DA2	d1	●	●	●	●	●	●	●																	
		d2	●	●	●	●	●	●	●																	
	SFC-030SA2/DA2	d1	●	●	●	●	●	●	●																	
		d2	●	●	●	●	●	●	●	●	●															
	SFC-035SA2/DA2	d1	●	●	●	●	●	●	●	●	●															
		d2	●	●	●	●	●	●	●	●	●	●	●	●												
	SFC-040SA2/DA2	d1	9	●	●	●	●	●	●	●	●	●	●	●												
		d2	9	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
	SFC-050SA2/DA2	d1	18	20	22	●	●	●	●	●	●	●	●	●	●	●	●	●								
		d2	18	20	22	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	SFC-055SA2/DA2	d1			31	34	36	38	●	●	●	●	●	●	●	●	●	●	●	●						
		d2			31	34	36	38	●	●	●	●	●	●	●	●	●	●	●	●						
	SFC-060SA2/DA2	d1				50	51	●	●	●	●	●	●	●	●	●	●	●	●	●						
		d2				50	51	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	SFC-080SA2/DA2	d1											●	●	●	●	●	●	●	●	●	●				
		d2											●	●	●	●	●	●	●	●	●	●	●	●		
	SFC-090SA2/DA2	d1																●	●	●	●	●	●	●		
		d2																●	●	●	●	●	●	●	●	●
	SFC-100SA2/DA2	d1																			226	●	●	●	●	●
		d2																			226	●	●	●	●	●

* The standard bore diameter is nominal B for shaft tolerance h7 (h6, g6). However, in the case where the shaft diameter is ø35, the tolerance is $^{+0.010}_{-0.025}$. * Nominal J and K for shaft tolerance j6 and k6 are optional specifications. Only bore diameters marked ○ are applicable. * Bore diameters marked with ● or numbers are supported as the standard bore diameters. Consult MIKI PULLEY regarding special arrangements for other bore diameters. * Bore diameters whose fields contain numbers are restricted in their rated torque by the holding power of the shaft connection component because the bore diameter is small. The numbers indicate the rated torque [N•m].

How to Place an Order

SFC-060SA2-12BH-14KJ

- Size
- Type
  - SA2: Single element, Aluminum alloy hub
  - DA2: Double element, Aluminum alloy hub
- Bore dia. d1 (Small dia.)
- Bore dia. d2 (Large dia.)
- Affixing method
  - KJ: Shaft tolerance k6 + Keyway tolerance Js9
- Affixing method
  - BH: Shaft tolerance h7 + Keyway tolerance H9

* Specify the nominal bore dimension in the sequence d1 (small diameter) and -d2 (large diameter).
* Specify the shaft tolerance used in the case where d1 = d2 (identical diameters), in the sequence B, J, K, BH, BJ, JH, JJ, KH, and KJ.

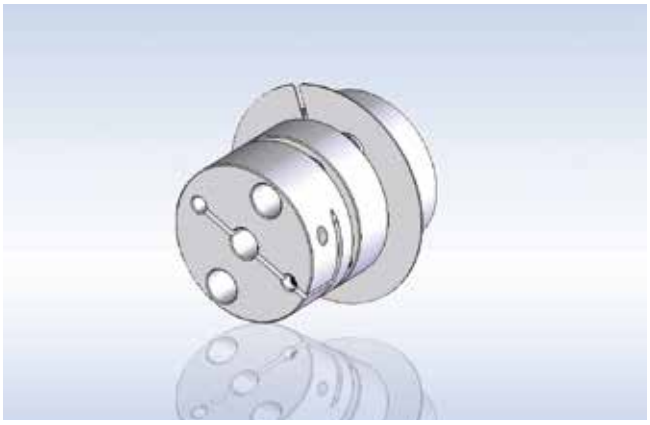
Customization Examples

We support customization flexibly.

Without alumite treatment

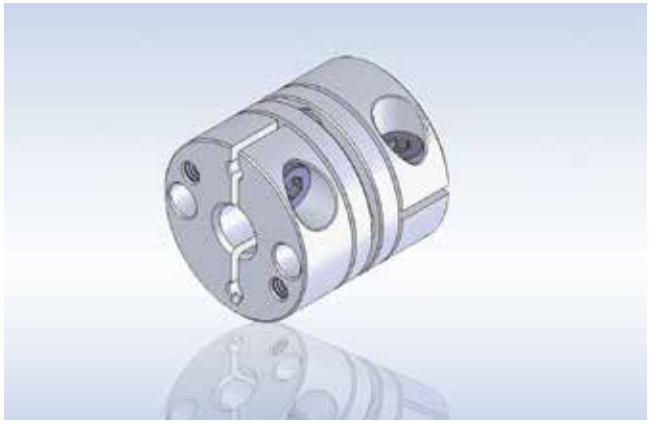
Without coating the surface, generation of gas under a vacuum environment is prevented.

With a slit plate



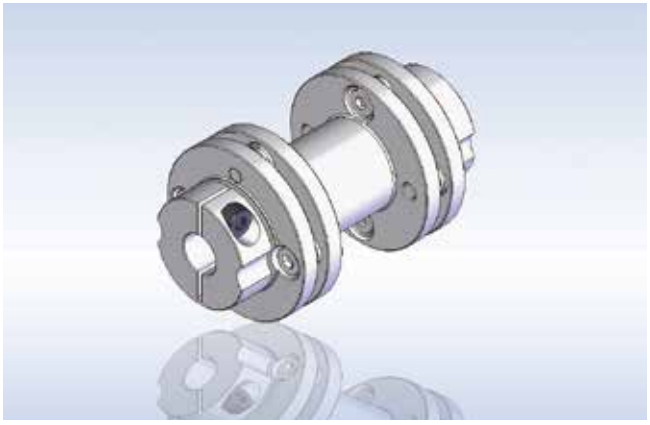
This specification supports position detection sensors such as encoders, etc. by installing a slit plate between hubs.

With edge-part tap bores



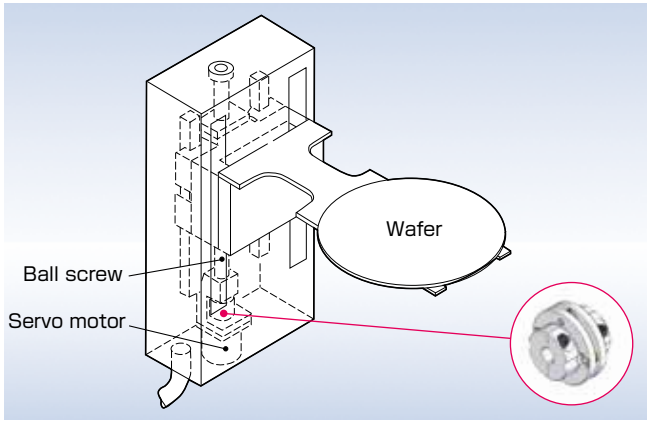
By drilling tap bores on the hub edge, a position detection sensor such as slit plate, etc., can be installed.

With a long spacer

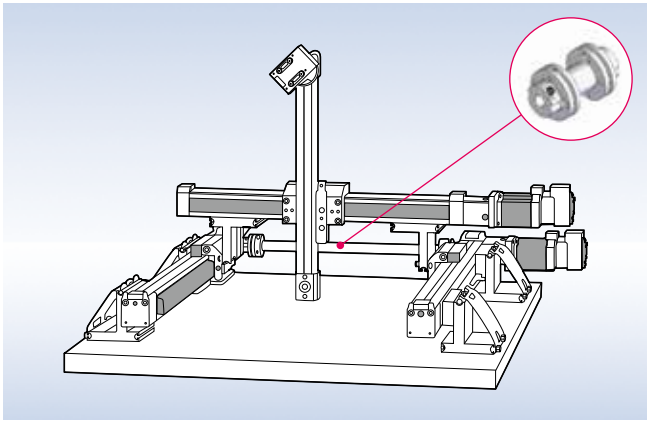


This is a specification for long intervals between installation shafts.

For the semiconductor wafer-lifting shaft



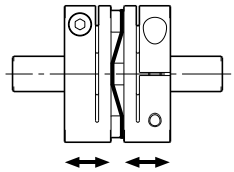
For the gantry mechanism

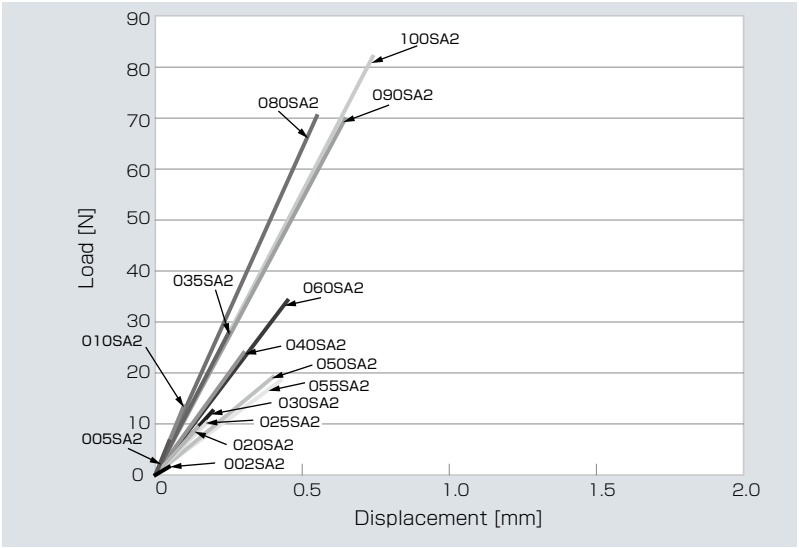


Items Checked for Design Purposes

Spring characteristics SFC SA2

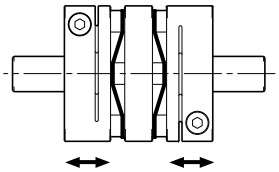
Axial load and amount of displacement

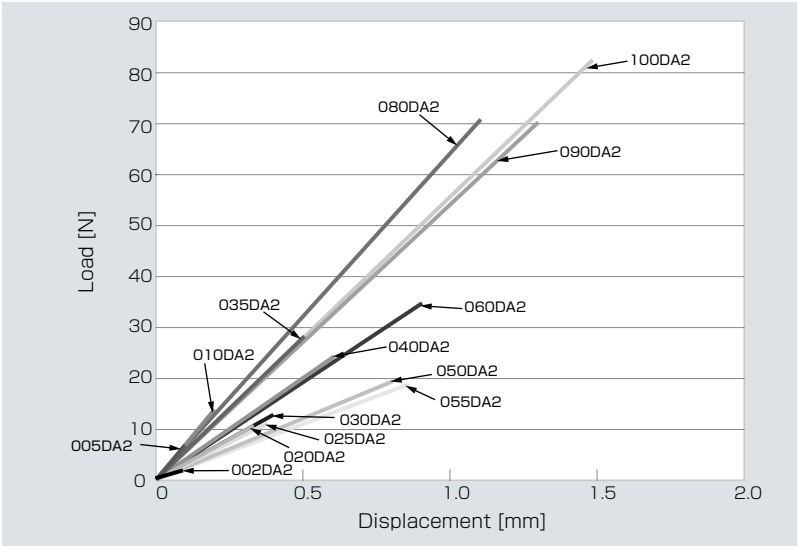




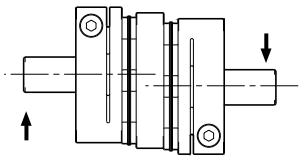
Spring characteristics SFC DA2

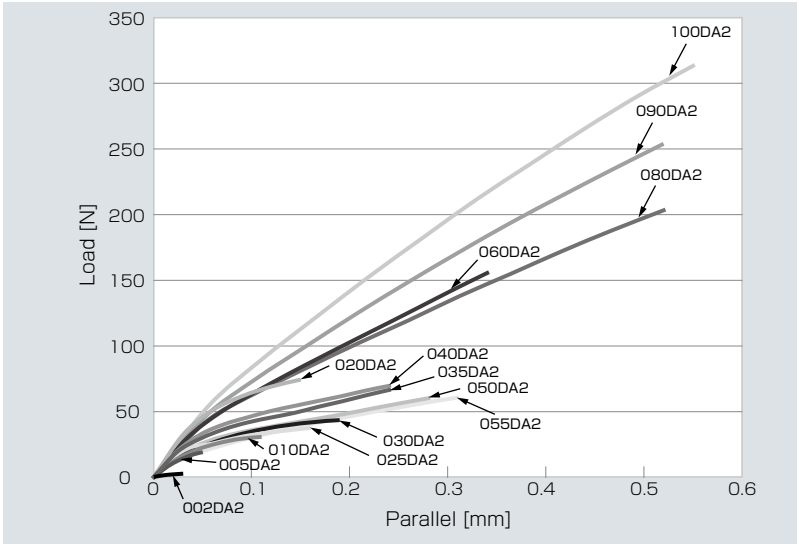
Axial load and amount of displacement





Parallel misalignment direction load and amount of displacement





Precautions for handling

Couplings are assembled at high accuracy using a special mounting jig to ensure accurate concentricity of left and right internal diameters.
Take extra precautions when handling couplings, should strong shocks be given on couplings, it may affect mounting accuracy and cause the parts to break during use.

(1) Couplings are designed for use within an operating temperature range of −30℃ to 100℃. Although the couplings are designed to be waterproof and oil proof, do not subject them to excessive amounts of water and oil as it may cause part deterioration.

(2) Handle the element with care as it is made of a thin stainless steel metal disc, also making sure to be careful so as not to injure yourself.

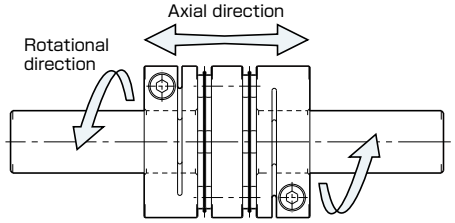
(3) Do not tighten up clamp bolts until after inserting the mounting shaft.

Mounting

(1) Check that clamp bolts have been loosened and remove any rust, dust, oil residue, etc. from the inner diameter surfaces of the shaft and couplings. (Use a waste cloth, etc. to wipe away oil residue or an oil remover as needed.)

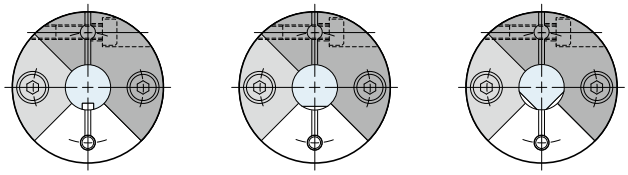
(2) Be careful when inserting the couplings into the shaft so as not to apply excessive force of compression or tensile force to the element. Be particularly careful not to apply excessive compressing force needlessly when inserting couplings into the paired shaft after attaching the couplings to the motor.

(3) With two of the clamp bolts loosened, make sure that couplings move gently along the axial and rotational directions.
Readjust the centering of the two shafts if the couplings fail to move smoothly enough.
This method is recommended as a way to easily check the concentricity of the left and right sides. If unable to use the same method, check the mounting accuracy using machine parts quality control procedures or an alternative method.

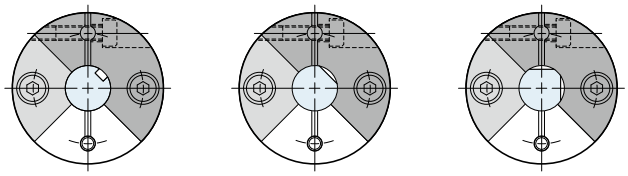


(4) As a general rule, round shafts are to be used for the paired mounting shaft. If needing to use a shaft with a different shape, be careful not to insert it into any of the locations indicated in the following figure. (Do not attempt to face keyways, D-shaped cuts, or other insertions to the grayed areas ▭.)
Placing the shaft in an undesirable location may cause the couplings to break or lead to a loss in shaft holding power. It is recommended that you use only round shafts to ensure full utilization of the entire range of coupling performance.

Proper mounting examples

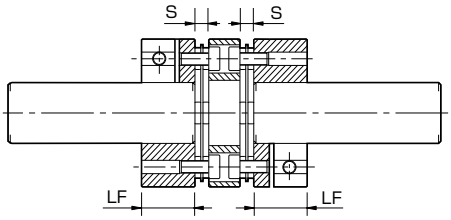


Poor mounting examples



※▭: Size 002/005 : ▭: Size 010 or above

(5) Insert each shaft far enough in that the paired shaft touches the shaft along the entire length of the clamp hub of the coupling (LF dimension) as shown in the diagram below.
In addition, restrict the dimensions between clamp hub faces (S dimensions in the diagram) within the allowable misalignment of the axial direction displacement with respect to a reference value. Note that the tolerance values were calculated based on the assumption that both the level of parallel misalignment and angular deflection are zero. Adjust to keep this value as low as possible.



Model	LF [mm]	S [mm]
SFC-002SA2/DA2	5.9	0.55
SFC-005SA2/DA2	7.85	1
SFC-010SA2/DA2	9.15	1.05
SFC-020SA2/DA2	10.75	1.65
SFC-025SA2/DA2	10.75	1.9
SFC-030SA2/DA2	12.4	2.5
SFC-035SA2/DA2	15.5	3
SFC-040SA2/DA2	15.5	3
SFC-050SA2/DA2	20.5	2.4
SFC-055SA2/DA2	24	2.6
SFC-060SA2/DA2	25.2	3.2
SFC-080SA2/DA2	30	8
SFC-090SA2/DA2	30	8.3
SFC-100SA2/DA2	30	9.8

(6) Check to make sure that no compression or tensile force is being applied along the axial direction before tightening up the two clamp bolts. Use a calibrated torque wrench to tighten the clamp bolts to within the tightening torque range listed below.

Model	Nominal clamp bolt dia.	Tightening torque [N·m]
SFC-002SA2/DA2	M1.6	0.23～0.28
SFC-005SA2/DA2	M2	0.4～0.5
SFC-010SA2/DA2	M2	0.4～0.5
SFC-010SA2/DA2	M2.5	1.0～1.1
SFC-020SA2/DA2	M2.5	1.0～1.1
SFC-025SA2/DA2	M2.5	1.0～1.1
SFC-030SA2/DA2	M3	1.5～1.9
SFC-035SA2/DA2	M4	3.4～4.1
SFC-040SA2/DA2	M4	3.4～4.1
SFC-050SA2/DA2	M5	7.0～8.5
SFC-055SA2/DA2	M6	14～15
SFC-060SA2/DA2	M6	14～15
SFC-080SA2/DA2	M8	27～30
SFC-090SA2/DA2	M8	27～30
SFC-100SA2/DA2	M8	27～30

* Use M2 bolts on SFC-010SA2/DA2 models with holes with a diameter of ø8 mm.
* The start and end numbers for the tightening torque ranges are between the minimum and maximum values. Tighten bolts to a tightening torque within the specified range for the model used.

Items Checked for Design Purposes

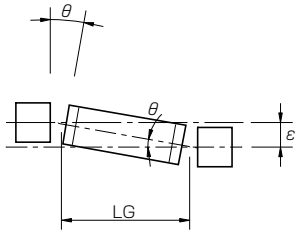
Compatible torque driver and wrench

Nominal bolt dia.	Tightening torque [N·m]	torque driver or wrench	Hexagon bit or head	Coupling size
M1.6	0.23～0.28	N3LTDK	CB 1.5mm	002
M2	0.4～0.5	N6LTDK	SB 1.5mm	005・010
M2.5	1.0～1.1	N12LTDK	SB 2mm	010・020・025
M3	1.5～1.9	N20LTDK	SB 2.5mm	030
M4	3.4～4.1	N50LTDK	SB 3mm	035・040
M5	7.0～8.5	N100LTDK	SB 4mm	050
M6	14～15	N230LCK	230HCK 5mm	055・060
M8	27～30	N450LCK	450HCK 6mm	080・090・100

* Torque driver (wrench) , Hexagon bit (head) models indicated above are the products of NAKAMURA SEISAKUSYO Co., Ltd.

Length-specified special order parts option

Specify any length for the length-specified special order option for the SERVOFLEX SFC DA2. Use the following formula to calculate the allowable parallel misalignment value, adjust it to be no greater than that value, and then mount the coupling.



$$\varepsilon = \tan\theta \times LG$$

ε : Allowable parallel misalignment [mm]
θ : Allowable angular deflection [°]

$$LG = LP + S$$

LP : Total length of spacer [mm]
S : Gap size between clamp hub and spacer [mm]

Options with keyway milling

SERVOFLEX SFC models exhibit satisfactory performance in transmitting torque by the clamp mechanism, but options for keyway milling are available on request. Be aware, however, that mounting of couplings using keys and keyways involve the following issues.

(1) Key must be no wider than the keyway. Pressure fitting the key may lead to damage of the coupling during mounting or operation.

(2) Positioning precision for keyway milling is determined by sight, so contact MIKI PULLEY when the keyway requires a positioning precision for a particular hub.

(3) Using Js9 class tolerances provides a tight fit, so it may be possible for couplings to become compressed when mounted on shafts. Be careful not to compress the couplings.

(4) Setting the fit of the key and keyway too loosely may generate rattle or dust. Also, be careful that the key does not come out.

(5) Adding a set screw over the keyway may lower clamp performance or the set screw may become loose within the torque range you use or in forward/reverse operation. The structural strength of the clamp hub may also decline or the coupling be damaged, so this is not recommended.

Clamp bolts

Use MIKI PULLEY-specified clamp bolts because they are processed with solid lubricant coating (except for SFC-002 M1.6). Applying adhesives to prevent loosening, oil, or the like to a clamp bolt will alter torque coefficients due to those lubricating components, creating excessive axial forces and potentially damaging the clamp bolt or coupling. Consult MIKI PULLEY before using such products.

Surface processing of coupling bore diameter

The bore diameters of SERVOFLEX SFC models may or may not have surface processing in some components due to the circumstances of processing (additional processing, keyway milling, etc.). This does not affect coupling performance. Consult MIKI PULLEY if your usage conditions require that bore diameters be surface processed or not.

Sequence for specifying the bore diameter when ordering

The method of specifying the bore diameter is d1 (small diameter) – d2 (large diameter). Basically, when the product is to be fitted with an adapter, this must always be specified in d2. However, in the case where d1 = d2 (equal diameters), there is a sequence for specifying the nominal value of each hole diameter, as shown below, so be careful when ordering.

Nominal	Shaft tolerance	Keyway tolerance	Classification	Instruction bore dia.	Indication order
B	h7 (h6,g6)	-	Standerd	d1/d2	1
J	j6	-	Option	d1/d2	2
K	k6	-	Option	d1/d2	3
BH	h7 (h6,g6)	H9	Option	d1/d2	4
BJ	h7 (h6,g6)	Js9	Option	d1/d2	5
JH	j6	H9	Option	d1/d2	6
JJ	j6	Js9	Option	d1/d2	7
KH	k6	H9	Option	d1/d2	8
KJ	k6	Js9	Option	d1/d2	9
BC	Tapered shaft supported		Option	d2	10

Points to consider regarding the feed screw system

Servo motor oscillation

Gain adjustment on the servo motor may cause the servo motor to oscillate.
Oscillation in the servo motor during operation can cause problems particularly with the overall natural frequency and electrical control systems of the feed screw system.
In order for these issues to be resolved, the torsional stiffness for the coupling and feed screw section and the moment of inertia and other characteristics for the system overall will need to be adjusted and the torsional natural frequency for the mechanical system raised or the tuning function (filter function) for the electrical control system in the servo motor adjusted during the design stage.

Stepper motor resonance

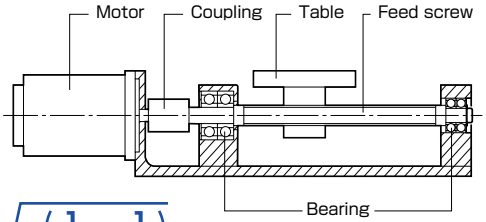
Stepper motors resonate at certain rotation speeds due to the pulsation frequency of the stepper motor and the torsional natural frequency of the system as a whole. To avoid resonance, either the resonant rotation speed must be simply skipped or the torsional natural frequency considered at the design stage.

Please contact MIKI PULLEY with any questions regarding servo motor oscillation or stepper motor resonance.

How to find the natural frequency of a feed screw system

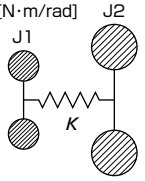
(1) Select a coupling based on the nominal and maximum torque of the servo motor or stepper motor.

(2) Find the overall natural frequency, Nf, from the torsional stiffness of the coupling and feed screw, κ, the moment of inertia of driving side, J1, and the moment of inertia of driven side, J2, for the feed screw system shown below.



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

Nf : Overall natural frequency of a feed screw system [Hz]
K : Torsional stiffness of the coupling and feed screw [N·m/rad]
J1 : Moment of inertia of the driver [kg·m²]
J2 : Moment of inertia of the follower [kg·m²]



Selection

(1) Find the torque Ta applied to the coupling using the output capacity, P, of the driver and the usage speed, n.

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

(2) Determine the factor K from the load properties, and find the corrected torque, Td, applied to the coupling.

$$T_d\ [N\cdot m] = T_a\ [N\cdot m] \times K \text{ (see below)}$$

Load properties	Constant	Vibration : Small	Vibration : Medium	Vibration : Large
				
K	1.0	1.25	1.75	2.25

For servo motor drive, multiply the maximum torque, Ts, by the usage factor K = 1.2 to 1.5.

$$T_d\ [N\cdot m] = T_s\ [N\cdot m] \times (1.2 \text{ to } 1.5)$$

(3) Set the size so that the rated coupling torque, Tn, is higher than the corrected torque, Td.

$$T_n\ [N\cdot m] \geqq T_d\ [N\cdot m]$$

(4) The rated torque of the coupling may be limited by the bore diameter of the coupling. See the Specifications and Standard Bore Diameters tables.

(5) Check that the mount shaft is no larger than the maximum bore diameter of the coupling.

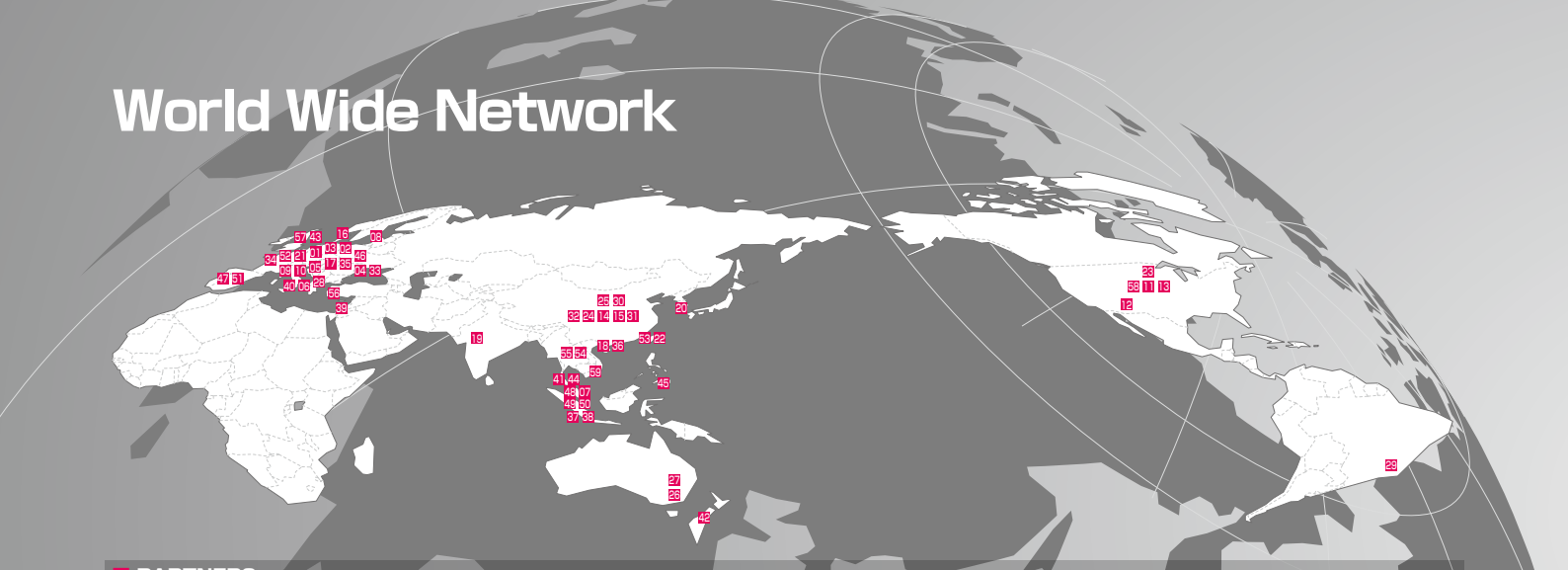
* Contact MIKI PULLEY for assistance with any device experiencing extreme periodic vibrations.

Easy size selection chart

Select a coupling size based on the rated output and the rated/maximum torque of the ordinary servo motor. The torque characteristics of servo motors vary between manufacturers, so check the specifications in the manufacturer catalog before finalizing a coupling size selection.

Servo motor specifications					Corresponding coupling specifications				
Rated output [W or kW]	Rated rotation speed [min⁻¹]	Rated torque [N·m]	Max. torque [N·m]	Shaft dia. [mm]	Single element type	Double element type	Rated torque [N·m]	Max. bore dia. [mm]	Outer dia. [mm]
3W	3000～6000	0.0096	0.029	4	SFC-002SA2	SFC-002DA2	0.25	5	12
5W	3000～6000	0.016	0.048	5	SFC-002SA2	SFC-002DA2	0.25	5	12
10W	3000～6000	0.032	0.096	6	SFC-005SA2	SFC-005DA2	0.6	6	16
15W	3000～6000	0.047	0.143	4	SFC-002SA2	SFC-002DA2	0.25	5	12
20W	3000～6000	0.0638	0.191	6	SFC-005SA2	SFC-005DA2	0.6	6	16
30W	3000～6000	0.098	0.322	8	SFC-010SA2	SFC-010DA2	1	8	19
50W	3000～6000	0.16	0.64	8	SFC-010SA2	SFC-010DA2	1	8	19
100W	3000～6000	0.32	1.28	8	SFC-020SA2	SFC-020DA2	2	11	26
150W	3000～6000	0.477	1.67	8	SFC-025SA2	SFC-025DA2	4	14	29
200W	3000～6000	0.64	2.23	14	SFC-025SA2	SFC-025DA2	4	14	29
300W	3000～6000	0.95	3.72	14	SFC-030SA2	SFC-030DA2	5	16	34
400W	3000～6000	1.3	5	14	SFC-035SA2	SFC-035DA2	10	19	39
450W	1500	2.86	8.92	19	SFC-040SA2	SFC-040DA2	12	24	44
500W	2000	2.4	7.2	24	SFC-040SA2	SFC-040DA2	12	24	44
600W	3000～6000	1.91	5.73	19	SFC-035SA2	SFC-035DA2	10	19	39
750W	3000～6000	2.387	9	19	SFC-040SA2	SFC-040DA2	12	24	44
750W	2000	3.6	10.7	22	SFC-050SA2	SFC-050DA2	25	30	56
850W	1500	5.39	13.8	19	SFC-050SA2	SFC-050DA2	25	30	56
1kW	3000～6000	3.18	12.5	24	SFC-050SA2	SFC-050DA2	25	30	56
1kW	2000	5	16.6	24	SFC-050SA2	SFC-050DA2	25	30	56
1.5kW	2000	7.5	21.6	35	SFC-060SA2	SFC-060DA2	60	35	68
2kW	3000～6000	6.8	21	24	SFC-055SA2	SFC-055DA2	40	30	63
2kW	2000	9.54	31	35	SFC-060SA2	SFC-060DA2	60	35	68
2.2kW	2000	10.5	36.7	28	SFC-060SA2	SFC-060DA2	60	35	68
2.5kW	3000～6000	12	46	24	SFC-060SA2	SFC-060DA2	60	35	68
3kW	3000～6000	12	35	28	SFC-060SA2	SFC-060DA2	60	35	68
3kW	2000	14.3	42.9	35	SFC-060SA2	SFC-060DA2	60	35	68
3.5kW	3000～6000	11.1	33.4	28	SFC-060SA2	SFC-060DA2	60	35	68
3.5kW	2000	17	55	35	SFC-080SA2	SFC-080DA2	100	40	82
4kW	3000～6000	22	39.2	28	SFC-060SA2	SFC-060DA2	60	35	68
4kW	2000	19.1	66.9	35	SFC-080SA2	SFC-080DA2	100	40	82
4.5kW	1500	28.5	105	35	SFC-090SA2	SFC-090DA2	180	45	94
5kW	3000～6000	15.9	47.6	28	SFC-080SA2	SFC-080DA2	100	40	82
5kW	2000	23.9	71.6	35	SFC-080SA2	SFC-080DA2	100	40	82
6kW	2000	38	130	35	SFC-090SA2	SFC-090DA2	180	45	94
7kW	1500	44.6	134	42	SFC-090SA2	SFC-090DA2	180	45	94
7.5kW	1500	48	139	42	SFC-100SA2	SFC-100DA2	250	45	104
9kW	3000～6000	28.6	85	35	SFC-090SA2	SFC-090DA2	180	45	94
11kW	2000	52.5	158	42	SFC-100SA2	SFC-100DA2	250	45	104

World Wide Network



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