

SERVO FLEX SFC-SA2/DA2 Instruction Manual

Before use this product, read the instruction manual carefully and use the product safety and correctly.

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1. Before using

1-1 After opening the package

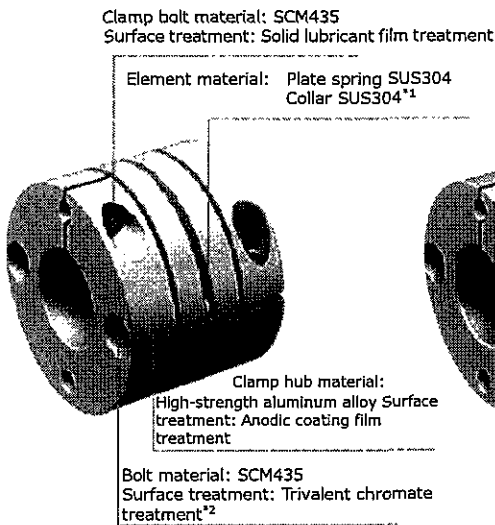
First, please check the following points.

- 1) Is the product what you ordered?
- 2) Is the product damaged during transportation?

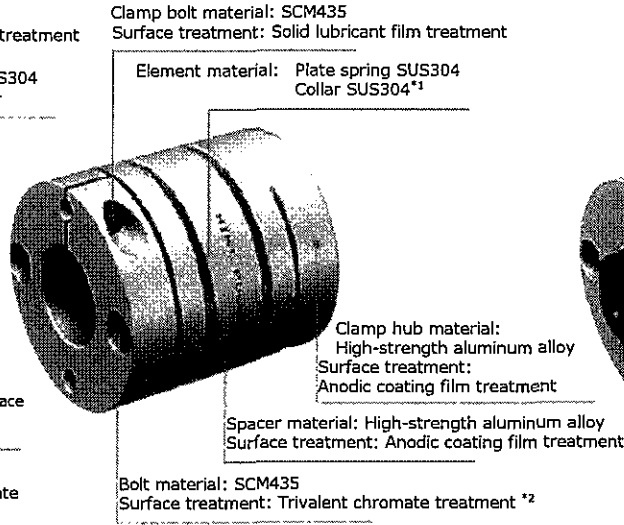
If any problems are found, please contact your supplier.

1-2 Structure and Parts

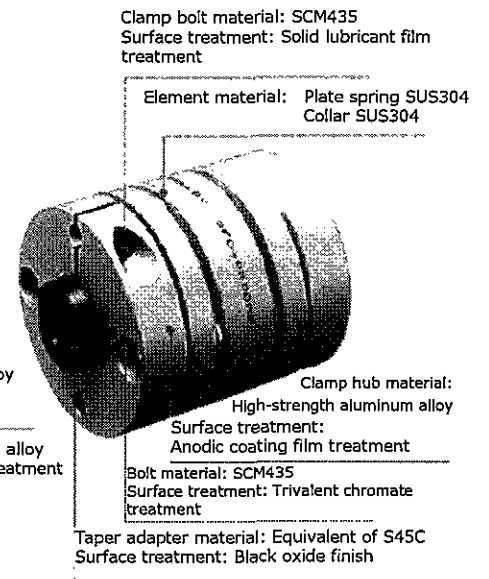
SFC-SA2



SFC-DA2



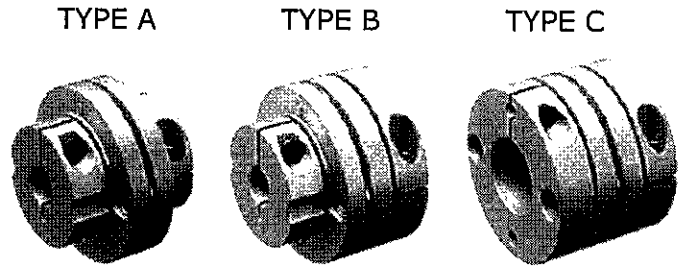
SFC-SA2/DA2-BC



* The collar material of the items marked with *1 is S45C from size #080 to size #100, using trivalent chromium for the surface treatment.

* The bolt surface treatment of the items marked with *2 is antirust coating from size #080 to size #100.

*There are three pattern shapes according to the combination of bore diameters to be adopted.



1-3 Coupling total length dimension (L)

SA2



TYPE	SFC-005	SFC-010	SFC-020	SFC-025	SFC-030	SFC-035	SFC-040	SFC-050	SFC-060	SFC-080	SFC-090	SFC-100
L [mm]	16.7	19.35	23.15	23.4	27.3	34.0	34.0	43.4	53.6	68.0	68.3	69.8

DA2

TYPE	SFC-005	SFC-010	SFC-020	SFC-025	SFC-030	SFC-035	SFC-040	SFC-050	SFC-060	SFC-080	SFC-090	SFC-100
L [mm]	23.2	25.9	32.3	32.8	37.8	48.0	48.0	59.8	73.3	98.0	98.6	101.6

2. Safety Precautions




Please read carefully through the instruction manual and the technical information for proper use and safety. In this manual, safety precautions are classified by "DANGER" and "CAUTION".

	DANGER	When death or serious injury may result by mishandling
	CAUTION	When disability or only physical damage may result by mishandling



Equipment use (atomic energy, aerospace, medical treatment, transportation, or various safety devices) that may result in serious bodily injury or loss of life directly by mechanical failure or mishandling, careful examination is necessary. Contact us for further information. The company has taken all possible measures to produce a quality product; however, continuous rotational states when the clutch cannot be disengaged or coasting of the machine when the brakes went off is envisioned as emergency. Please pay attention to safety measures in case anything goes wrong.

DANGER




Structural precautions

	Touching the product during operation could cause injury. Place a safety cover to avoid any accident. Additionally, set up a safety mechanism for quick stop of the product when opening the cover.
	Do not use the product near flammable liquids or in the presence of gas and other explosive air particles.
	The driven and driving sides could be completely detached when the product is damaged. Set up a safety mechanism such as a safety brake to avoid any danger.


Mounting precautions

	Depending on the tightening adjustment of bolt or screw, exceptionally dangerous situations such as product damage or performance degradation could occur. Always use a calibrated torque wrench and clamp at the tightening torque specified by Miki Pulley.
	It is very dangerous if the driving part starts by accident while mounting the product. Be sure that the main power of the equipment is turned off.


Cautions during operation

	If the product is used in excess of more than its maximum rated permissible speed, very dangerous product damage could occur by a large vibration.
	Due to the exposed rotor, touching the product during operation may cause injury. Make sure not to touch the product during operation.
	Using the product with more than the "permissible misalignment" could cause damage or adverse effect on the equipment. Always operate the product within the specified "permissible misalignment."

Cautions for maintenance and inspection


	It is extremely dangerous if the driving part starts operating by accident while dismantling the product. Make sure that the main power of the equipment is off.
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Cautions for disposal





	Do not leave the product around where young children may play.
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CAUTION

Structural precautions

	Do not use the product in an environment where chemicals may spill, humidity is high, or in hot or cold temperature.
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Mounting precautions

	The installation of the product must be performed within the specified permissible error. Using the product with more than the permissible error could cause damage or adverse effect on the equipment.
	Using a bolt or screw that is not specified by our company could damage the product. Do not use any bolt or screw unspecified.
	To avoid any injury by stripping, spring pin or keyway, make sure to wear protective equipment such as safety glasses or gloves.
	Lifting of a heavy weight could cause back injury. Use a hoist when carrying or mounting the product.

Cautions during operation



Using the product with more than the specified permissible torque could cause damage or adverse effect on the equipment.



If abnormal noises or vibrations occur during operation, improper mounting should be considered. Do not leave the situation as it is. It may cause damage to the equipment itself. Also, for reasons other than above, the belts and other screws may loosen or become defective even if the product is mounted correctly.



Using the product when the locking part is in a slip condition could over heat the product, which could cause damage to the equipment.

Cautions for maintenance and inspection



We will refuse to take responsibility as to the damaged product that is dismantled, remodeled or repaired by a third party except our company and the designated company. Therefore, for the product that the assembly process or procedure of dismantlement is described in the manual, we will not be responsible as well. Please use our service network for repair and dismantlement.

Cautions for disposal



Call for a waste-control-collection company for disposal.

3. Handling

3-1 Caution of transport

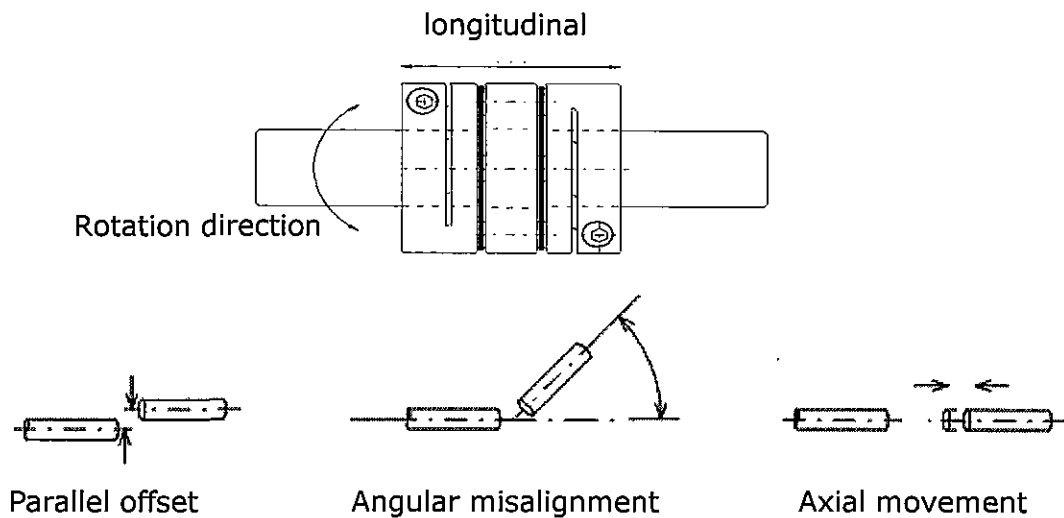
- 1) Please handle with care during transportation to prevent damage to the product.
- 2) Do not use excessive force when handling the products.

3-2 Operating environment

- 1) Do not use the product in a hot or humid environment.
- 2) Do not use the product where exceed the operational temperature range of -30°C to +120°C.
- 3) Please avoid using the products at the place where in the presence of corrosive gas, or any medicine may splash.
- 4) Although this product is water resistance and corrosion resistance, please avoid too much fluid and corrosion adhesion that may cause deterioration.
- 5) Do not use this product in locations where large vibration occurs.

3-3 Mounting

- 1) To avoid operating the driving part accidentally, turn off the main power supply and confirm the safety before starting the mounting.
- 2) The dimension of the attachment shaft should be class h7 or smaller. However, in the case of $\phi 35$ shaft diameter tolerance is from -0.025 to +0.010.
- 3) Wipe off any rust, dust and oil contents adhering to the surface of the shaft and hub with cloth. If oil or grease containing molybdenum disulfide or extreme pressure agent that extremely reduce friction coefficient is adhering, remove them with treatment such as degreasing.
- 4) Adjust centering within the range of permissible misalignment, for fully satisfactory coupling performance. If accuracy of centering cannot be confirmed, confirm whether coupling slightly moves in a longitudinal and rotation direction with loosening clamp bolt of coupling. If the coupling cannot move smoothly, adjust accuracy of centering again.

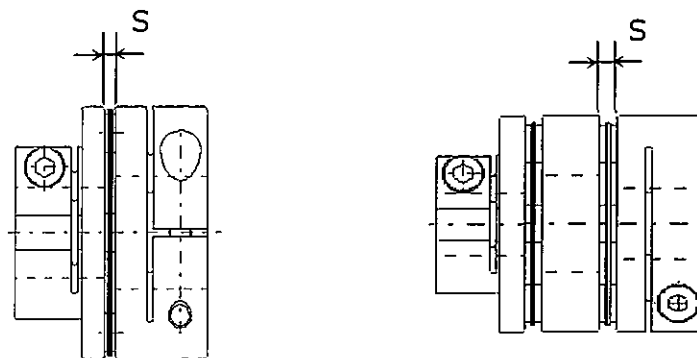


Angular misalignment: Values in the permissible misalignment table show an angular misalignment in one set of membranes. Since type DA2 uses two sets of membranes, the angle of deviation in the whole product becomes 2 degrees. (In the case of 005DA2, it becomes 1 degree.)

Axial movement: Dimension S in Element gap dimension (S) should be within the misalignment capacity range.

Element gap dimension (S)

Size	005	010	020	025	030	035	040	050	060	080	090	100
S [mm]	1.0	1.05	1.65	1.9	2.5	3.0	3.0	2.4	3.2	8.0	8.3	9.8

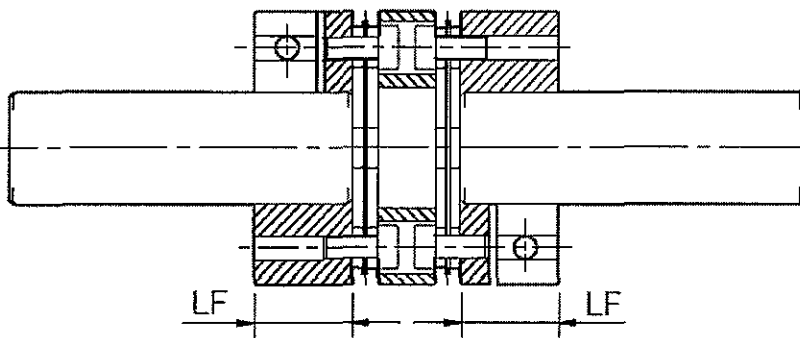


5) Do not tighten the clamp bolt before insert the target shaft to this product.

6) Confirm the two clamping bolts are loosened, then insert with holding only the clamp hub of the insert side. At this time, do not apply more than necessary force such as compression or pulling to the element part of the coupling. If inserted with holding parts other than clamp hub, there is a possibility that the spring plate is deformed.

*Especially, be careful not to apply excessive compression force when inserting the coupling into the mating shaft after the coupling is mounted into the motor.

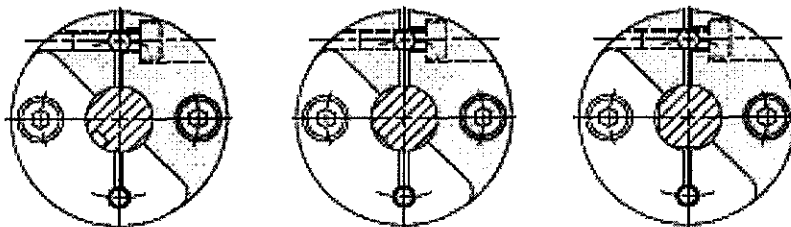
7) Make sure that the insertion length of the coupling into the shaft is kept in the position so that the target shaft is in contact with the entire length of the flange (LF dimension) as illustrated below.



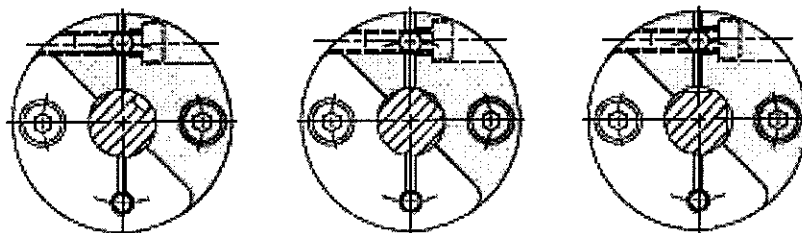
Size	LF dimension [mm]
005	7.85
010	9.15
020	10.75
025	10.75
030	12.4
035	15.5
040	15.5
050	20.5
060	25.2
080	30
090	30
100	30

8) As a principle, the target shaft is a circular shaft. However, if shafts other than a circular shaft have to be used for a certain reason, be careful with the shaft installation position as illustrated below. (Note that keyway, D-cut, etc. must not be processed on the filling side of the part.)
 Certain shaft installation positioning may result in damage to the coupling itself and lowering of shaft-retaining force. It is recommended to use a circular shaft for fully satisfactory coupling performance.

Example of Good Mounting



Example of Bad Mounting



9) After checking that no force such as compression, tension, etc. is applied to the axial direction, the shaft is retained so that the whole length of the clamp hub is in contact with both shafts, and two clamp bolts are tightened at an appropriate torque value.

To tighten the clamp bolts, a calibrated torque wrench is used within the range of the clamp bolt-tightening torque as shown in the table below.

Size	Clamp bolt	Tightening torque [N·m]
005	M2	0.4 to 0.5
010	M2	0.4 to 0.5
	M2.5	1.0 to 1.1
020	M2.5	1.0 to 1.1
025	M2.5	1.0 to 1.1
030	M3	1.5 to 1.9
035	M4	3.4 to 4.1
040	M4	3.4 to 4.1
050	M5	7.0 to 8.5
060	M6	14 to 15
080	M8	27 to 30
090	M8	27 to 30
100	M8	27 to 30

* If the bore diameter is $\varnothing 8$, size 010 will be M2.

*The clamp bolt is applied to the strength class 12.9.

*For the above tightening torque, solid lubricant film treatment is applied to the bolt and the torque coefficient is 0.18.

*The value of the tightening torque is between the minimum and the maximum values. The bolts should be tightened by the tightening torque within this range.

10) Use only clamp bolts specified by Miki Pulley.

11) Do not apply oil, grease, and adhesive, etc.

12) Do not disassemble this product. There is no warranty on disassembly caused.

13) Be sure to install the safety cover after install this product. It may cause injury if there is contact with the product during operation.

4. Specifications

4-1 SFC-SA2

Model	Permissible torque [N · m]	permissible misalignment			Max. Rotation speed [min ⁻¹]	Torsional stiffness [N · m/rad]	Radial displacement [N/mm]	Shape TYPE	Moment of inertia [kg · m ²]	Mass [kg]
		Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFC-005SA2	0.6	0.02	0.5	±0.05	10000	500	140	C	0.26×10 ⁻⁶	0.007
SFC-010SA2	1	0.02	1	±0.1	10000	1400	140	C	0.58×10 ⁻⁶	0.011
SFC-020SA2	2	0.02	1	±0.15	10000	3700	64	C	2.39×10 ⁻⁶	0.025
SFC-025SA2	4	0.02	1	±0.19	10000	5600	60	C	3.67×10 ⁻⁶	0.029
SFC-030SA2	5	0.02	1	±0.2	10000	8000	64	A	4.07×10 ⁻⁶	0.034
								B	6.09×10 ⁻⁶	0.041
								C	8.20×10 ⁻⁶	0.049
SFC-035SA2	8	0.02	1	±0.25	10000	18000	112	C	18.55×10 ⁻⁶	0.084
SFC-040SA2	10	0.02	1	±0.3	10000	20000	80	A	16.71×10 ⁻⁶	0.077
								B	22.98×10 ⁻⁶	0.088
								C	29.68×10 ⁻⁶	0.103
SFC-050SA2	25	0.02	1	±0.4	10000	32000	48	A	55.71×10 ⁻⁶	0.159
								B	76.26×10 ⁻⁶	0.177
								C	99.03×10 ⁻⁶	0.206
SFC-060SA2	60	0.02	1	±0.45	10000	70000	76.4	A	145.9×10 ⁻⁶	0.283
								B	205.0×10 ⁻⁶	0.326
								C	268.6×10 ⁻⁶	0.385
SFC-080SA2	100	0.02	1	±0.55	10000	140000	128	C	710.6×10 ⁻⁶	0.708
SFC-090SA2	180	0.02	1	±0.65	10000	100000	108	C	1236×10 ⁻⁶	0.946
SFC-100SA2	250	0.02	1	±0.74	10000	120000	111	C	1891×10 ⁻⁶	1.202

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

*The torsional stiffness indicates the actual measurement value of element.

*Maximum speed does not consider the dynamic balance.

*In a special type case, check delivery specifications.

4-2 SFC-DA2

Model	Permissible torque [N · m]	permissible misalignment			Max. Rotation speed [min ⁻¹]	Torsional stiffness [N·m/rad]	Radial displacement [N/mm]	Shape TYPE	moment of inertia [kg · m ²]	Mass [kg]
		Eccentricity [mm]	Angular misalignment [°]	Axial displacement [mm]						
SFC-005DA2	0.6	0.05	0.5(one side)	±0.1	10000	250	70	C	0.37×10 ⁻⁶	0.01
SFC-010DA2	1	0.11	1 (one side)	±0.2	10000	700	70	C	0.80×10 ⁻⁶	0.015
SFC-020DA2	2	0.15	1 (one side)	±0.33	10000	1850	32	C	3.43×10 ⁻⁶	0.035
SFC-025DA2	4	0.16	1 (one side)	±0.38	10000	2800	30	C	5.26×10 ⁻⁶	0.04
SFC-030DA2	5	0.18	1 (one side)	±0.4	10000	4000	32	A	7.43×10 ⁻⁶	0.054
								B	9.45×10 ⁻⁶	0.06
								C	11.56×10 ⁻⁶	0.068
SFC-035DA2	8	0.24	1 (one side)	±0.5	10000	9000	56	C	27.05×10 ⁻⁶	0.122
SFC-040DA2	10	0.24	1 (one side)	±0.6	10000	10000	40	A	29.98×10 ⁻⁶	0.124
								B	36.25×10 ⁻⁶	0.134
								C	42.95×10 ⁻⁶	0.149
SFC-050DA2	25	0.28	1 (one side)	±0.8	10000	16000	24	A	98.34×10 ⁻⁶	0.25
								B	118.9×10 ⁻⁶	0.268
								C	141.7×10 ⁻⁶	0.298
SFC-060DA2	60	0.34	1 (one side)	±0.9	10000	35000	38.2	A	256.6×10 ⁻⁶	0.447
								B	315.7×10 ⁻⁶	0.489
								C	379.3×10 ⁻⁶	0.549
SFC-080DA2	100	0.52	1 (one side)	±1.10	10000	70000	64	C	1039×10 ⁻⁶	1.037
SFC-090DA2	180	0.52	1 (one side)	±1.30	10000	50000	54	C	1798×10 ⁻⁶	1.369
SFC-100DA2	250	0.55	1 (one side)	±1.48	10000	60000	55.5	C	2754×10 ⁻⁶	1.739

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

*The torsional stiffness indicates the actual measurement value of element.

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