



Coupling for a feed shaft of machine tools

**SERVO FLEX**  
**SFF – SS/DS – N**  
**Operation Manual**

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Please read this Instruction Manual carefully before  
 using the Miki Pulley Servo Flex Coupling.

Forward this manual to the end-user for safe operation of coupling.



# 1. Before using

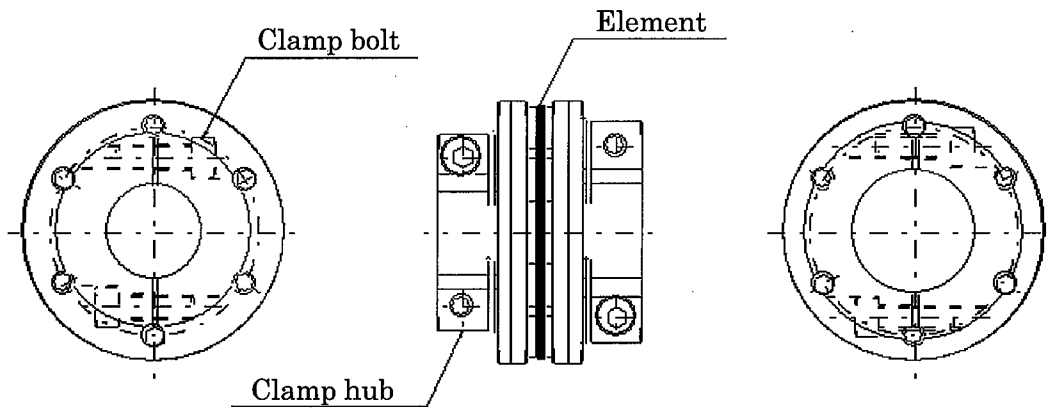
## 1-1 After opening the package.

Please check the followings;

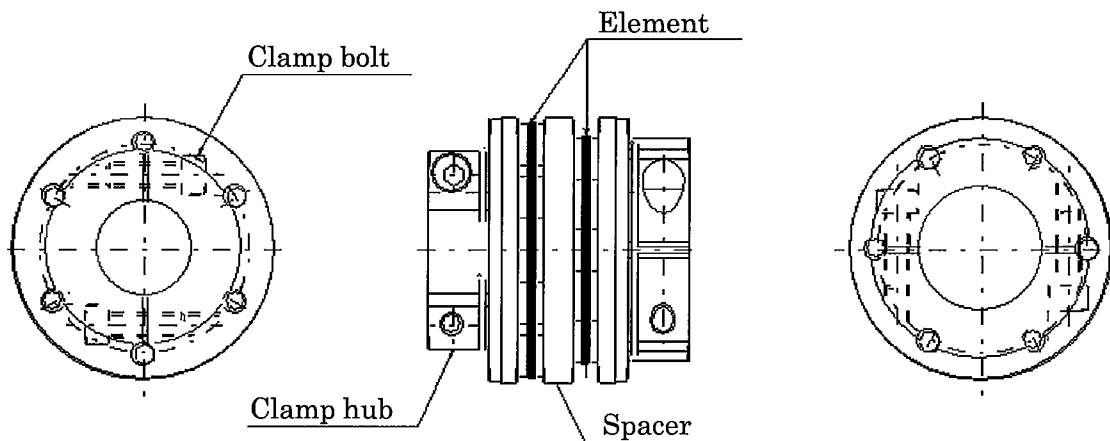
- (1) Please confirm whether proper products are packed as your order.
- (2) Please confirm whether the products are free from deformation or any damages while transport.

Please contact with our sales office if you have any concerns after checking

## 1-2 Product shape and component name





Outline figure 1 ( SFF-SS-N )



Outline figure 2 ( SFF-DS-N )

## 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".

	<b>DANGER</b>	When death or serious injury may result by mishandling
	<b>CAUTION</b>	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 can not 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 "maximum permissible misalignment" could cause damage or adverse effect on the equipment. Always operate the product within the specified "maximum 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.

#### Cautions for disposal



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

## CAUTION

#### Structural precautions Please



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

#### Mounting precautions



The installation of the product must be performed within the specified maximum permissible error. Using the product with more than the maximum 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 If



Using the product with more than the specified permissible transmitting 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. Installation

#### 3-1 Attentions for transport

- Be careful to treat product to be free from any damages while transport.
- Be careful to treat product to prevent the elements from any impacts.

#### 3-2 Installation place and usage environment

- Please do not use product in high temperature or humidity and under dusty environments.
- Please do not use product at any places exposed to the range over the operating acceptable temperature. (from -30 degrees to 120 degrees)
- Please do not use product at any places exposed to corrosive gas, fluid, and chemical spray.
- Please do not used outside, since the product has neither water-resistance nor corrosion-resistance.
- Please do not use product at any places where a strong oscillation occur.

#### 3-3 How to install

##### 3-3-1 Attentions for installation

- Please shut down main power firmly before installing the product and confirm the safety to prevent accidental operation.
- Be careful to install the membrane so as not to injure yourself at the membrane of the product.
- Tolerance of the shaft for standard products must be within h7 class.
- Please do not tighten the clamp bolt before installing the shaft.
- Remove rust, dust, and grease on the shaft by a piece of cloth. Especially, a grease or oil containing molybdenum disulfide or extreme-pressure that decrease the friction pretty much must be removed completely off by degreasing agent, i.e. thinner.

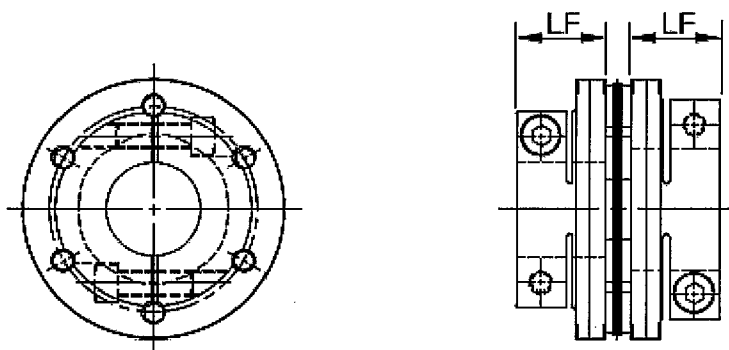
##### 3-3-2 Mounting

SFF model is finished-assembly products. The concentricity of the right and left inner diameters of the coupling is set by assembling the parts with high precision using a specialized jig.

Be careful when handling the product in the case of a strong shock to the coupling because it might be damaged during use due to assembly accuracy unable to be maintained.

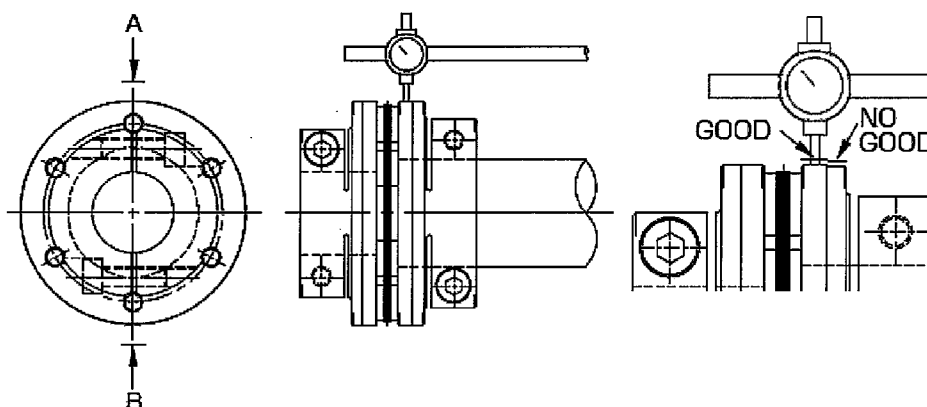
- (1) Make sure that the clamp bolts of the coupling are loosened, and remove dust, dirt, and oil, etc. from the shaft and the inner diameter part of the coupling. (Grease should be wiped away with a cloth, etc., or by degreasing as required.)
- (2) When inserting the coupling into the motor shaft, make sure that no excessive force such as compression, tension, etc. is applied to the element.

- (3) Make sure that the insertion length of the coupling into the motor shaft is kept in the position so that the target shaft is in contact with the entire length of the clamp hub (LF dimension) as illustrated below. Alternately tighten two clamp bolts, and then temporary tighten the coupling to cannot be turned with hand.



Size	040	050	060	070	080	090	100	120
LF [mm]	17.5	21.5	24	25	30	30	40	40

- (4) Put the dial gauge on the outer diameter of the clamp hub, tighten two clamp bolts while rotating the shaft so that a difference of the value the run-out A and B  $\leq 0.02$  mm (close to 0) can be accomplished.



- (5) Alternately tighten two clamp bolts with adjusting, finally, use a calibrated torque wrench and tighten all the pressure bolts at the appropriate tightening torque as shown in the table below. Due to fastening with 2 clamp bolts, if only one bolt is fastened, too much axis tension is on the bolt fastened in first when the other bolt is fastened.

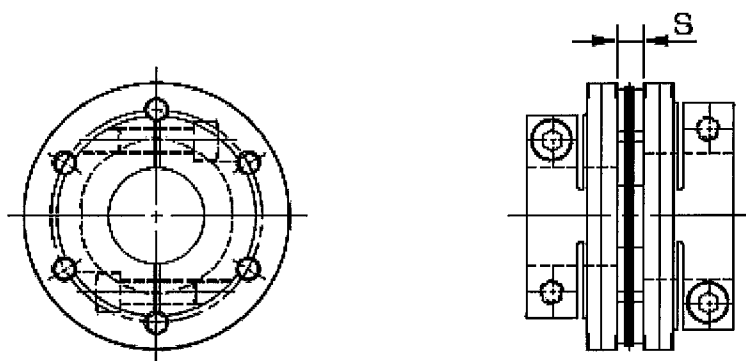
Be sure to tighten them alternately little by little.

Clamp bolt size	M4	M5	M6	M8	M10
Tightning torque [N-m]	3. 4	7	1 4	3 4	6 8

※ Bolt intensity 1 2. 9

- (6) Install the motor which is installed the coupling to the machine body. Adjust the motor installing position (spigot joint) with installing the coupling to the driven shaft such as feed-screw etc. In that time, make sure that no excessive force such as compression, tension, etc. is applied to the element.

- (7) Make sure that the insertion length of the coupling into the driven shaft is kept in the position so that the target shaft is in contact with the entire length of the clamp hub (LF dimension) as previously indicated. Alternately tighten two clamp bolts, and then temporary tighten the coupling to can -not be turned with hand.
- (8) The face-to-face dimension between clamp hubs (S) must be within the permissible error of the axial displacement in the basic value. However, the value is allowable when the parallel offset and angular misalignment are assumed to be 0 (zero). Adjust to achieve them to be as small as possible.



Model	S dimensions [mm]
SFF-040SS/DS-8N	3.9
SFF-040SS/DS-12N	3.9
SFF-050SS/DS-25N	5.4
SFF-060SS/DS-60N	5.4
SFF-070SS/DS-90N	5.9
SFF-070SS/DS-100N	5.9
SFF-080SS/DS-150N	8.3
SFF-080SS/DS-200N	7.7
SFF-090SS/DS-250N	8.3
SFF-090SS/DS-300N	8.3
SFF-100SS/DS-450N	10.2
SFF-120SS/DS-600N	10.2

- (9) Adjust run-out in the same process with the motor shaft side, finally, use a calibrated torque wrench and tighten all the pressure bolts at the appropriate tightening.
- (10) For prevent initial loosening of clamp bolts, retightening with the properly tightening torque after operate certain period time, is recommended.

### 3-4 Maximum permissible misalignment

When using the products (standard products), following permissive misalignment capacity must be secured.

Model		Parallel Offset [mm]	Angular Misalignment [degree]	Axial Displacement [mm]
SFF-040-8N SFF-040-12N	SS	0.02	1	±0.2
	DS	0.10	1(one side)	±0.4
SFF-050-25N	SS	0.02	1	±0.3
	DS	0.20	1(one side)	±0.6
SFF-060-60N	SS	0.02	1	±0.3
	DS	0.20	1(one side)	±0.6
SFF-070-90N SFF-070-100N	SS	0.02	1	±0.5
	DS	0.25	1(one side)	±1.0
SFF-080-150N	SS	0.02	1	±0.5
	DS	0.32	1(one side)	±1.0
SFF-080-200N	SS	0.02	1	±0.5
	DS	0.31	1(one side)	±1.0
SFF-090-250N SFF-090-300N	SS	0.02	1	±0.6
	DS	0.32	1(one side)	±1.2
SFF-100-450N	SS	0.02	1	±0.65
	DS	0.38	1(one side)	±1.3
SFF-120-600N	SS	0.02	1	±0.8
	DS	0.38	1(one side)	±1.6

## 4. Uninstallation

### 4-1 Attentions for uninstallation

- Please shut down main power firmly before installing the product and confirm the safety to prevent accidental operation.
- Be careful to uninstall the membrane so as not to injure yourself at the membrane of the product.
- Be careful to uninstall the broken coupling as the part is very sharp to hurt you.

### 4-2 How to uninstall



- (1) 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.
- (2) Loosening the all clamp bolts release fastening of the shaft. Do not pull the clamp bolts completely because clamp bolts are applied grease. Please note that the loosening bolt is not occurred in operation.

## 5. History of revision of this manual

The mark of revision is written after the manual number shown right upper side of this manual.

TRS-SFF-009-01 / MD-000071130

└── Revision mark

Mark of revision	Date of revision	Revised part, content of revision, etc.
01	2014/11/01	Add "SFF-100-450N" and "SFF-120-600N"

# mikipulley

<http://www.mikipulley.co.jp/>

Miki Pulley Co., Ltd.(Japan)

TEL: +81-46-257-5109

FAX: +81-46-258-1704