MIKI PULLEY

JAW COUPLING
MIKIPULLEY STARFLEX
ALS－R／Y／B
Instruction Manual

☆This instruction manual describes mainly installation, removal, and notes pertaining to same for standard-specification products after purchase; see the Miki Pulley website and our latest catalog for product specifications and performance.

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

☆First, please check that it is the correct product and if the product was damaged during transportation.

CONTENTS

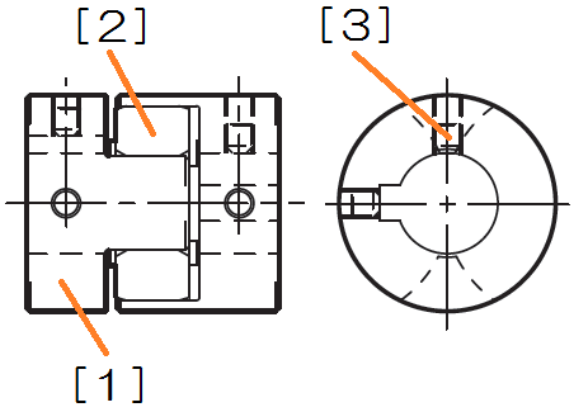
1. STRUCTURE AND PARTS
2. NOTES
3. MOUNTING
4. REMOVAL

1. STRUCTURE AND PARTS

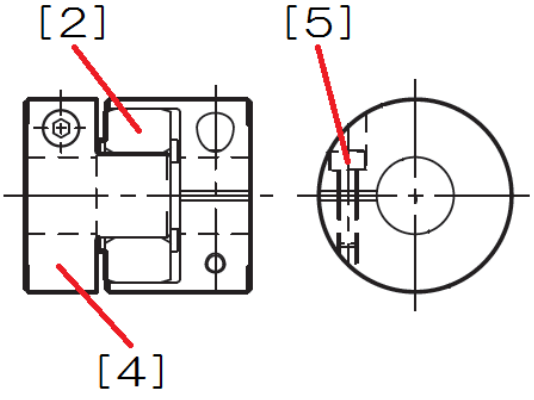
This product is delivered in parts and requires assembly by the customer.
Key/set screw-type and clamp-type couplings are available to provide different types of coupling.
Elements are color-coded in three types by hardness and fit.

Note
If hubs were purchased by pilot bore, the customer must work the bore diameters, keyways, and set screws. The customer must also prepare hexagon socket set screws.

■Key/Set Screw Type



■Clamp Type



[1]Hub [2]Element [3]Hexagon socket set screw [4]Clamping hub [5]Clamping bolt

2. NOTES

2. 1 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".

【CLASS】

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

【FIGURE SIGN】

PROHIBITION	In the handling of the product, it indicates that prohibit the act.
CAUTION	In the handling of the product, it indicates that attention is required.
MANDATORY	In the handling of the product, it indicates that the action is compulsory on the basis of the instructions.

DANGER

Make sure that the main power of the product is off before mounting or performing maintenance/inspection.	**Set up a safety mechanism such as a safety brake to avoid any danger.**
It is extremely dangerous if the driving part starts operating by accident while handling the product.	The driven and driving sides could become completely detached if the product is damaged while in operation and not immediately halted.
Be sure to use a safety cover.	
It is extremely dangerous if hands, fingers, hair, clothing, etc. get caught in the product or a rotating part while in operation.	

CAUTION

Always use set screws or clamping bolts specified by Miki Pulley and a calibrated torque wrench correctly and clamp at the specified tightening torque.	**Use a safety glasses or gloves.**
Depending on the tightening adjustment of bolt or screw, exceptionally dangerous situations such as product damage or performance degradation could occur.	Sharp portions of element comprising the thin disc spring, product bore diameter, keyway, shaft keyway, etc. may cause injury.
Be careful lifting a heavy weight. Do not lift with a bad posture.	
Straining yourself to lift a heavy product or using a torque wrench, or an awkward posture when installing the product in a machine could cause back injury.	

2. 2 IMPORTANT POINTS OF PRODUCT SPECIFICATIONS

	Do not use the product in a bad environment. **Use and storage in direct sunlight may shorten element service life.**		**Request disposal with a waste-collection company, or dispose of according to laws and regulations.**
	Operating temperature range： －30～+80℃ Do not use the product in an environment where water, oil, or chemicals may spill (no matter how little), that is corrosive, where temperature is extremely high or low, that is dusty, where condensation forms, that is exposed to wind and rain, or that is subject to a high degree of vibration/impact; may cause product damage or performance deterioration.		When disposing of the product, request disposal with professionals, or dispose of according to law and local regulations if disposing of product by yourself. Do not dispose of or leave unattended where children play or in a public space.
	Never disassemble, modify, additionally process, or perform any work on the product other than drilling.		**Always be careful of allowable parallel, angular, and axial misalignment.(See table)**
	We do not guarantee quality nor shall we be liable for damages in the event of damage or affected performance of the product or of injury or accident occurring as a result of the product being disassembled, modified, or additionally processed by the customer.		Poor precision can result in product damage.
	For a tight-fit type element, a mounting load is generated when combining or removing.		**Backlash occurs with the element depending on load conditions and aging of the plastic. Note that backlash occurs with B-type elements from the start of use.**
	Forcefully mounting may damage the element. If generated mounting load prevents assembly from being performed easily, it is also possible to first assemble the coupling and then insert the shaft.		An element can be replaced with a new element. If you require high precision for a long period, we recommend a product such as metal disc couplings which have no backlash.

2. 3 IMPORTANT POINTS BEFORE MOUNTING

	Never tighten the set screws or clamping bolts before inserting the shaft to this product.		**Tolerance of the shaft on clamp types should be finished to h7 class. (except ø35)**
	The clamping hub will become deformed and the shaft uninsertable. The product is shipped with theset screws or clamping bolts pretightened.		If the fitting tolerance is too loose, clamp types will be prone to wear of the bore diameter and performance will be affected.
	Thread lock or other adhesives to prevent loosening, oil, or the like cannot be used on the set screws or clamping bolts.		**The inserted lengths of shafts should be lengths as specified. Ensure that shafts do not interfere with each other or with other components.**
	Lubricant components will create excessive axial forces and potentially damage the clamping bolts or coupling.		A shaft not inserted to the specified length will result in lower transmission torque and affect accuracy.

⚠	**This product can be fastened to a shaft by using "key/set screw types", "clamp types".** Tightening torque differs for set screws or bolts even of the same nominal size.	❗	**Wipe off any rust, dust, or oil on the shaft and inner diameter surface of the hub. Wipe away any antirust grease, dirt, etc. with a cloth.** Soiling will degrade shaft holding power and prevent the product from performing to capacity. In particular, never allow oil or grease containing antifriction or other agent (molybdenum-, silicon-, or fluorine-based), which would dramatically affect the friction coefficient, to contact the surface.
⚠	**Since the nominal sizes of the set screws or clamping bolts are small, take care not to damage the hexagon sockets when tightening.** If damaged, they cannot be removed.		

3. MOUNTING

(1)

Wipe off any rust, dust, oil, etc. from the shaft and inner diameter surfaces of the coupling. In particular, never allow oil or grease containing antifriction or other agent (molybdenum-, silicon-, or fluorine-based), which would dramatically affect the friction coefficient, to contact the surface.

(2)

Couplings can be mounted in 2 ways.

Note

Before assembling a coupling in either instance, it is necessary to position shaft B, which will be moved, and hub B where they will be fastened in place, so as to ensure the gap at 2 locations between hub A and hub B (dimension S) as well as shaft insert length (dimensions L1, L2) as per the table.

Insert and mount each shaft far enough in that the paired mounting shaft touches the hub along the entire length of the hub (dimensions L1, L2), as shown in the diagram below, and does not interfere with the element or the other shaft.

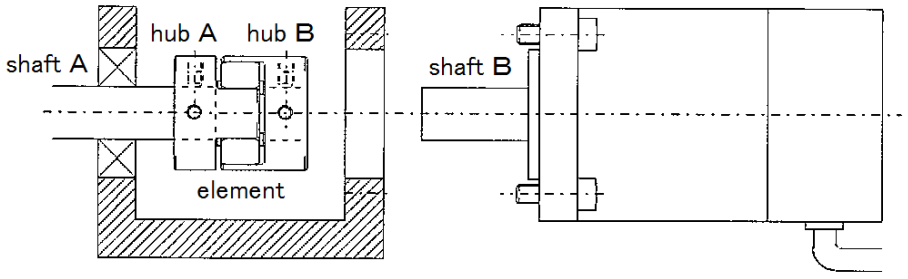
The processing tolerance for paired mounting shafts on clamping types is h7 class.
However, for a bore diameter of ø35, the shaft tolerance is ＋0.010～－0.025.

(2－1)”Mounting a coupling after assembling”

①Combine hub A, the element, and hub B to assemble the coupling.

②Check that set screws or clamping bolts have been loosened. Insert shaft A in hub A of the assembled coupling as shown below. Refasten hub A with the set screws or clamping bolt.

③Continue by moving the driving unit or driven unit in the axial direction, and insert shaft B in hub B. After inserting, fasten hub B with the set screws or clamping bolt.



(2－2)"Mounting after fastening hubs to each shaft"

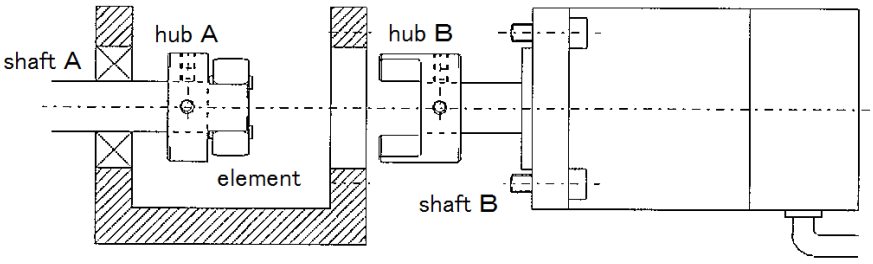
①Check that the set screws or clamping bolts have been loosened. Insert shaft A in hub A of the coupling as shown below. Refasten hub A with the set screws or clamping bolt.

②Next, combine the element with hub A.

③Continue by inserting hub B onto shaft B. After inserting, fasten hub B with the set screws or clamping bolt.

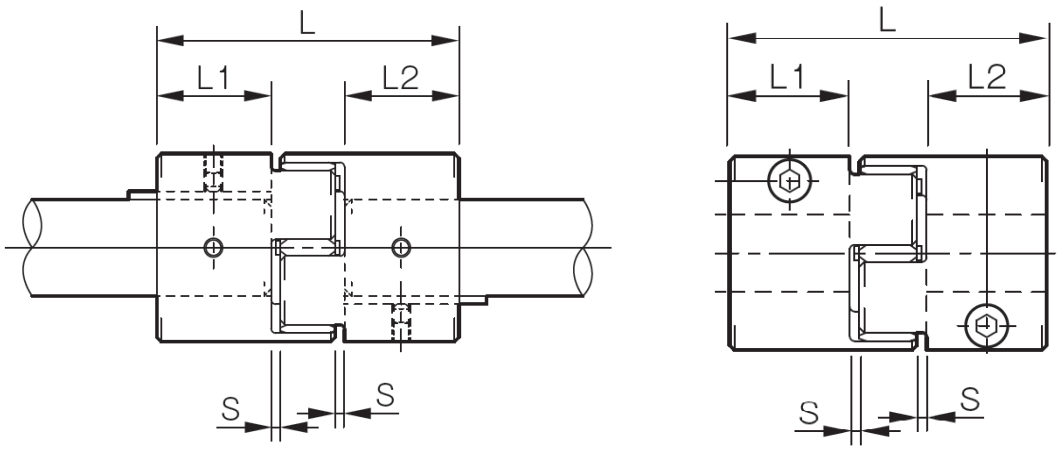
④Then move the driving unit or driven unit in the axial direction, and combine hub B with the element.

Note
Element types Y and R are characterized by a tight fit with a hub, and a mounting load is generated.



(3)
Check that the total coupling length (dimension L) does not exceed the permitted axial tolerance.
If the total coupling length cannot be checked, check that the gap between the hubs (dimension S) does not exceed the permitted axial tolerance.

SIZE	L [mm]	L1 ・ L2 [mm]	S [mm]
014	22	7	1
020	30	10	1
030	35	11	1.5
040	66	25	2
055	78	30	2
065	90	35	2.5
080	114	45	3
095	126	50	3
105	140	56	3.5



（4）

Center the coupling so that parallel and angular misalignment are within the permitted tolerances. Check centering by holding a straight-edge (metal ruler, etc.) to the outer circumference of the main body, using two points about 90° apart.

This is a simple method, and we instead recommend aligning the centering locations as the method for centering.

Note

However, this misalignment is the maximum value when each occurs independently, so make the allowable value when they combine 50% or less of this value.

SIZE	Misalignment		
	Parallel [mm]	Angular [°]	Axial [mm]
014-R	0.10	1	0～+0.6
020-R	0.10	1	0～+0.8
030-R	0.10	1	0～+1.0
040-R	0.10	1	0～+1.2
055-R	0.10	1	0～+1.4
065-R	0.10	1	0～+1.5
080-R	0.10	1	0～+1.8
095-R	0.10	1	−0.5～+2.0
105-R	0.15	1	−0.9～+2.0

SIZE	Misalignment		
	Parallel [mm]	Angular [°]	Axial [mm]
014-Y	0.10	1	0～+0.6
020-Y	0.15	1	0～+0.8
030-Y	0.15	1	0～+1.0
040-Y	0.10	1	0～+1.2
055-Y	0.15	1	0～+1.4
065-Y	0.15	1	0～+1.5
080-Y	0.15	1	0～+1.8
095-Y	0.15	1	−0.5～+2.0
105-Y	0.20	1	−0.9～+2.0

SIZE	Misalignment		
	Parallel [mm]	Angular [°]	Axial [mm]
030-B	0.17	1	−0.2～+1.0
040-B	0.20	1	−0.5～+1.2
055-B	0.22	1	−0.2～+1.4
065-B	0.25	1	−0.6～+1.5
080-B	0.28	1	−0.9～+1.8
095-B	0.32	1	−0.5～+2.0
105-B	0.36	1	−0.9～+2.0

(5)
Use a calibrated torque wrench to tighten the set screws or clamping bolts to a tightening torque listed below.

Hexagon socket set screw Nominal size	Tightening torque [N･m]
M3	0.7
M4	1.7
M5	3.6
M6	6.0
M8	14.5
M10	28.0

SIZE	Clamping bolt Nominal size	Tightening torque [N･m]
014	M2	0.4
020	M2.5	1.0
030	M3	1.5
040	M5	7.0
055	M6	14.0
065	M8	30.0
080	M8	30.0

4. REMOVAL

(1)
Before starting work, ensure safety by turning off the main equipment power and making sure no torque or thrust are applied to the coupling and there is no risk of the shaft and hub falling by their own weight.

(2)
The coupling is instantaneously released by loosening the set screws or clamping bolts.

Note
Element types Y and R are characterized by a tight fit with a hub, and cannot be removed easily. Loosen the set screws or clamping bolts before moving the driving unit or driven unit in the axial direction.

MIKI PULLEY
www.mikipulley.co.jp

Contact by email
Please contact us using the inquiry form and be aware that support for inquiries received on Saturdays, Sundays, holidays, New Year's, and summer business holidays will be provided on the next business day.

Contact by phone
Japanese/English
Miki Pulley International Business Department
TEL +81-46-257-5109