MIKI PULLEY

HYDRAULIC SHAFT LOCK
ETP BUSHINGS
ETP－E Plus
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.

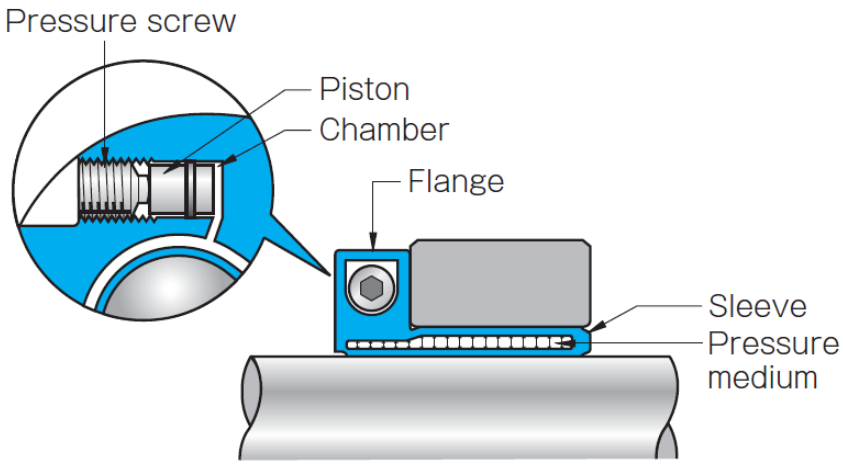
☆Before use this product, read the instruction manual carefully and use the product safely and correctly.

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

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1. STRUCTURE AND PARTS



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

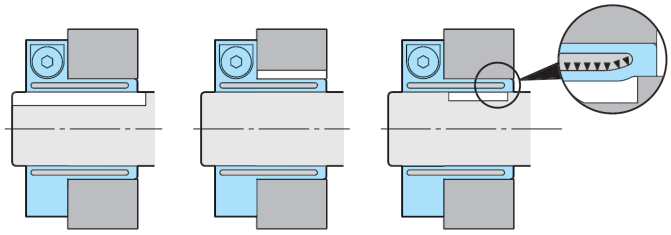
When loosening the pressure screw, be careful of the rotation or falling off of the product, shaft, and hub.	**Always use a calibrated torque wrench and clamp at the tightening torque specified by Miki Pulley.**
Loosening the pressure screw relieves pressure and instantaneously uncouples the mechanism; the product can then easily move in the rotational and axial directions. Persons or objects in the direction of the product falling may be injured or result in accident.	Depending on the tightening adjustment of bolt or screw, exceptionally dangerous situations such as product damage or performance degradation could occur.
Be careful lifting a heavy weight. Do not lift with a bad posture.	**Use a safety glasses or gloves.**
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.	Sharp portions of shaft keyway, etc. may cause injury.

2. 2 IMPORTANT POINTS OF PRODUCT SPECIFICATIONS

	Do not use the product in a bad environment. **Product is for dry use; do not allow exposure to water or oil/grease.**		**Request disposal with a waste-collection company, or dispose of according to laws and regulations.**
	Operating temperature range： －30～+85℃ 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.
	Comes as a finished product. Do not disassemble, modify, or additionally process the product.		**In case there is a keyway in the shaft and hub, ETP-E Plus cannot be used.**
	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.		The product will become permanently deformed by the keyway and unremovable. However, ETP-E Plus can be used if the keyway is completely filled and shaped to form a round shaft.

【Keyway Shape where the ETP-E Plus Cannot Be Detached due to a Deformation of the Sleeve】

The ETP-E Plus cannot be used if the shaft and hub have a keyway as shown in the figure.
Note that you can use the ETP-E Plus for the shaft and hub with a keyway if you can completely fill and shape the keyway with epoxy putty for metals.

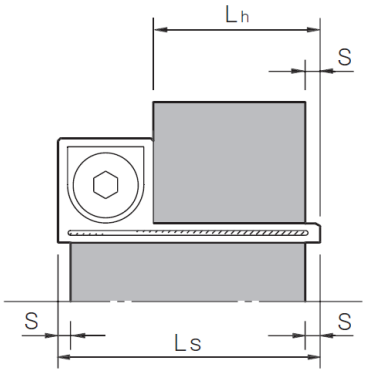


2. 3 IMPORTANT POINTS BEFORE MOUNTING

	Do not use any bolt or screw other than the pressure screw on the product.		**Ensure that the shaft and hub act across the entire length of the product.**
	Using a bolt or screw other than the pressure screw on the product could affect how the product is installed and result in an accident.		The product will deform where not subject to action and become undetachable.
	Thread lock or other adhesive cannot be used on the pressure screw.		**Wipe off any rust, dust and oil content on the shaft and inner surface of the hub. Wipe away any antirust grease, dirt, etc. with a cloth.**
	The pressure screw cannot be tightened correctly, and will prevent its performance.		
	Finish the installation shaft and hub tolerances and surface roughnesses to the values we specify.		If any grease is attached, remove the grease completely. Meanwhile, the oil content attached on the surface of the ETP-E Plus should be also removed. Do not use molybdenum-, silicon-, or fluorine-based containing oil or grease. It will affect a change in the coefficient of friction.
	Tolerances and surface roughnesses other than specified may cause slippage or otherwise affect performance.		

【Allowable Range at Edges】

The performance of the ETP-E Plus is based on the case where the shaft and the hub act across the entire standard shaft length, Ls, and the entire standard hub length, Lh, respectively.
Accordingly, make sure in the design phase that the shaft and the hub act for the respective entire standard lengths. If the length of the shaft and hub is limited due to design reasons, make sure it is less than the dimension S in the figure.
If it exceeds the dimension S, stress concentrates on the sleeve edge and the sleeve is deformed, so there is the possibility that the ETP-E Plus cannot be detached.



Note
Dimension S is indicated by "S" in the table.

3. MOUNTING

(1)
Remove any rust, dust, and oil off from the shaft and inner surface of the hub.
If any antirust grease, dirt, etc. remains on the surface of the ETP-E Plus, wipe it off with a cloth.
In particular, never allow oil or grease containing antifriction or other agent (molybdenum-, silicon-, or fluorine-based) to contact the surface, which would dramatically affect the friction coefficient.

(2)
Attach the ETP-E Plus to the hub and mount them to the shaft.
If accurate positioning of the shaft and hub is needed, adjust the position of both before tightening the pressure screw.
Never tighten the pressure screw before mounting the ETP-E Plus to the shaft and hub.

(3)
Tighten the pressure screw to the specified torque using a torque wrench.(See table)

Note
Never tighten the pressure screw before inserting the shaft to this product.
The ETP-E Plus will deform and become uninsertable.

Note
The number of attachments/detachments (given in catalog) only applies if you prevent foreign particles from adhering to the pressure screw and make sure oil or grease containing antifriction or other agent (molybdenum-, silicon-, or fluorine-based) always remains on the pressure screw's surface.

Note
In addition, be sure to use a torque wrench and do not use an impact wrench that has large torque fluctuation.

【Pressure screw tightening torque / Allowable Installation Dimension at Edges (dimension S)】

◇Even if type differs, the tightening torque is the same value if the size is the same.

◇Internal circumference tolerance for hub being installed is common at “H7” for all sizes.

◇TYPE／NH:h7 shaft, CH:h7 shaft (electroless nickel plating), RH:h7 shaft (stainless steel specifications), NK:k6 shaft, CK:k6 shaft (electroless nickel plating)

SIZE	TYPE					Nominal size	Width across flat [mm]	Tightening torque [N・m]	S [mm]
ETP-E-015	NH	CH	RH			M10	5	7	2
ETP-E-019	NH	CH		NK	CK	M10	5	7	2
ETP-E-020	NH	CH	RH			M10	5	7	2
ETP-E-022	NH	CH		NK	CK	M10	5	7	3
ETP-E-024	NH	CH		NK	CK	M10	5	7	3
ETP-E-025	NH	CH	RH			M10	5	7	3
ETP-E-028	NH	CH		NK	CK	M10	5	7	4
ETP-E-030	NH	CH	RH			M10	5	7	4
ETP-E-032	NH	CH		NK	CK	M10	5	7	4
ETP-E-035	NH	CH	RH			M10	5	7	4
ETP-E-038	NH	CH		NK	CK	M16	8	24	5
ETP-E-040	NH	CH	RH			M16	8	24	5
ETP-E-042	NH	CH		NK	CK	M16	8	24	5
ETP-E-045	NH	CH	RH			M16	8	24	5
ETP-E-048	NH	CH		NK	CK	M16	8	24	5
ETP-E-050	NH	CH	RH			M16	8	24	5
ETP-E-055	NH	CH		NK	CK	M16	8	24	5
ETP-E-060	NH	CH	RH			M16	8	24	5
ETP-E-070	NH					M20	10	40	8
ETP-E-080	NH					M20	10	40	8
ETP-E-090	NH					M20	10	40	8
ETP-E-100	NH					M20	10	40	8

4. REMOVAL

(1)

Before starting work, ensure safety by making sure no torque or thrust are applied to the ETP-E Plus and there is no risk of the shaft and hub falling by their own weight.
The ETP-E Plus does not have a self-locking mechanism.
The coupling force is instantaneously released by loosening the pressure screw.

(2)

Loosen the pressure screw until the coupling force is released.
The pressure screw should only be loosened. Do not remove it.

Note

Avoid overloosening pressure screw; product is not designed to prevent it from falling out.
Be careful not to lose pressure screw. Becoming scratched or nicked after falling may prevent pressure screw from being used again.

MIKI PULLEY
http://www.mikipulley.co.jp/

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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.

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