Ball Wedge Cylinder

Smart Series
Ball Wedge Cylinder

Model KSA



Powered by Third-Party Source: Smart Series

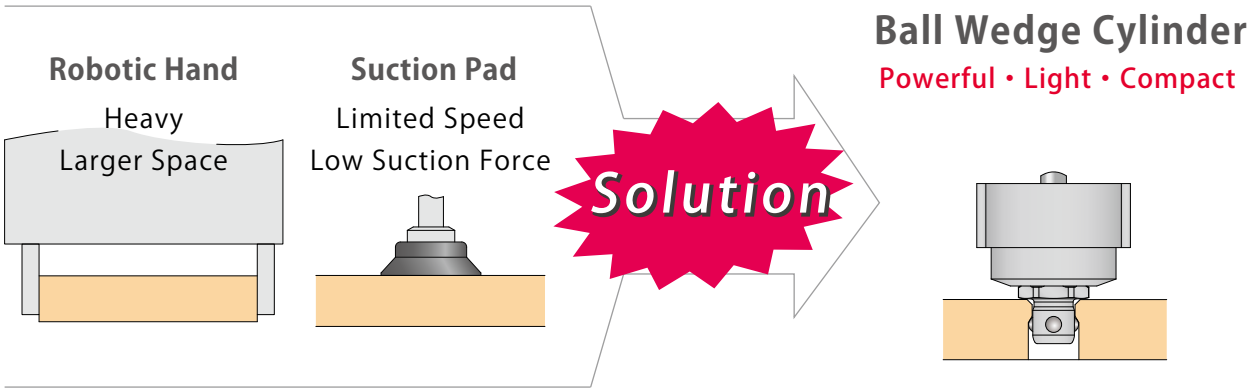
Mechanical Ball Wedge Cylinder for Small Pallet Transferring

The light weight and compact design allows for pallet transfer and temporary tool stocker, etc.

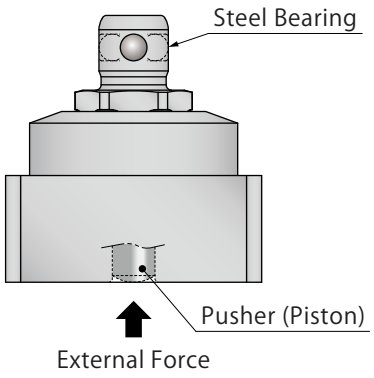
Using Low-dust Grease for Clean Environments

Features

The ball wedge cylinder is used for transfer pallets, plates, temporary tool stocker, etc.

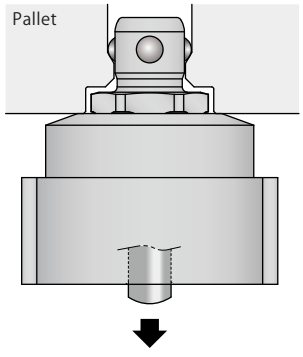


Released by External Force



When the pusher is pushed in, the steel bearings retract.

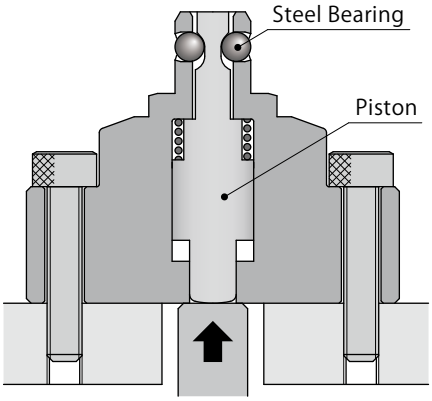
Locked by Spring



When the pusher is released, the steel bearings expand with the built-in spring and holds a pallet.

Action Description

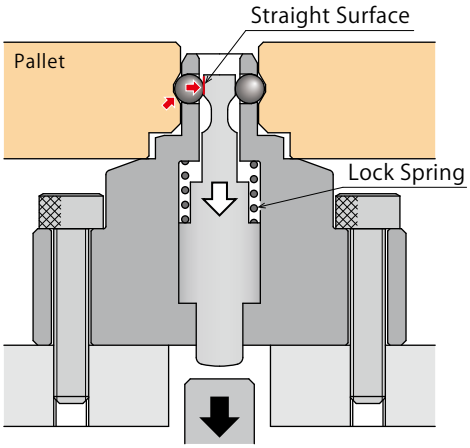
※ This is a simplified drawing. Actual components are different.



Releasing Force：10 ~ 30 N

Released State

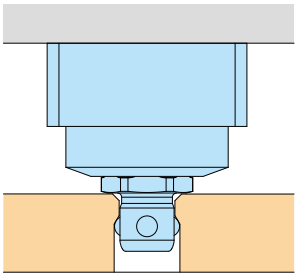
The steel bearings are fully retracted when force is applied to the piston.



Locked State

The steel bearings are fully expanded and in a locked state due to built-in spring lock when force applied to the release rod is removed.

Application Examples



Pallet Transfer

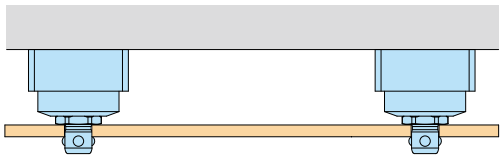
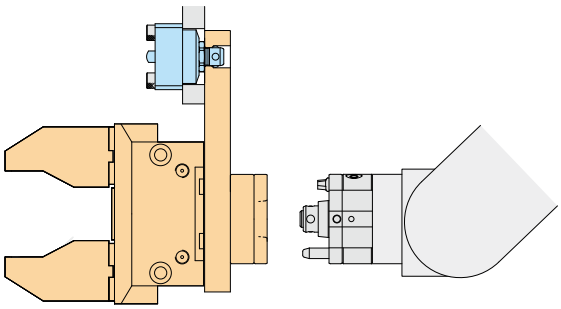


Plate Transfer



Temporary Stopper/Falling Prevention for Stocker

Model No. Indication

KSA006 0

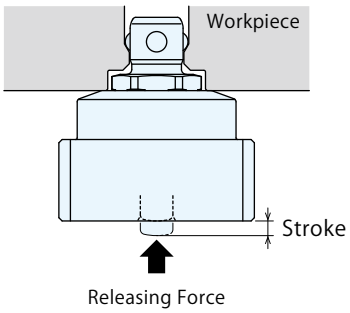
1

1 Design No.

0 : Revision Number

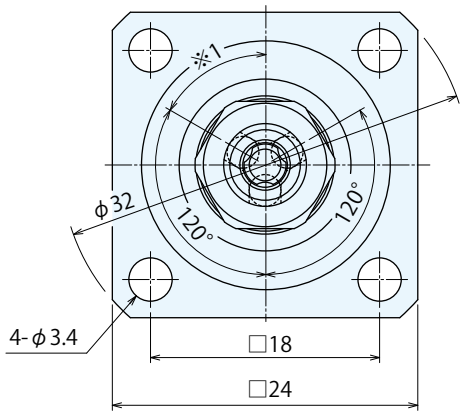
Specifications

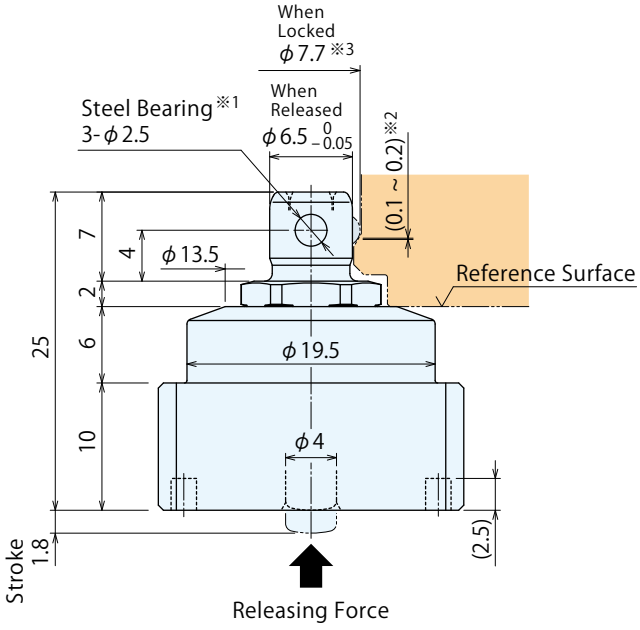
Model No.			**KSA0060**
Pulling Capacity (Holding Force)		N	50
Releasing Force	Min.	N	About 10
	Max.	N	About 30
Stroke		mm	1.8
Operating Temperature		℃	0 ~ 120
Grease			Low-dust Grease for Clean Environments : AFF manufactured by THK
Weight		g	About 35



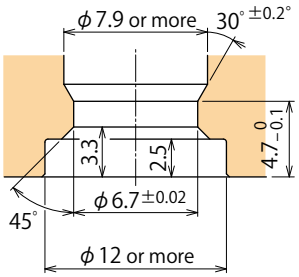
External Dimensions

※ This drawing shows the released state of KSA0060.

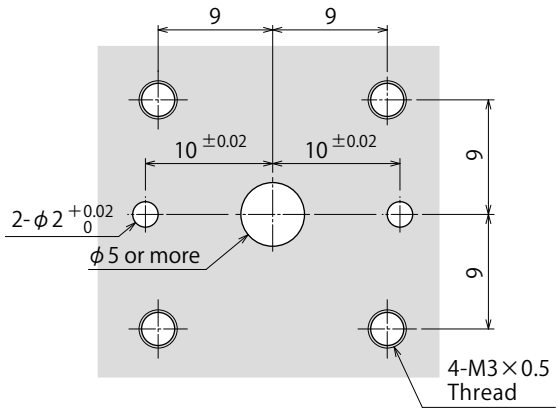


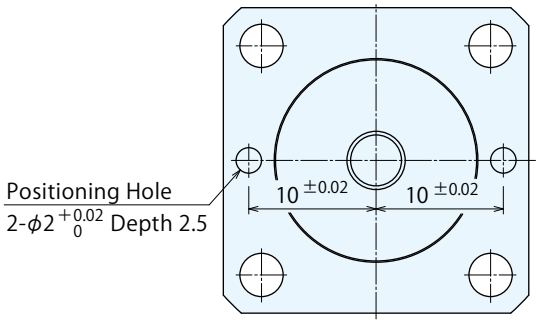


Workpiece Hole Reference Dimensions



Mounting Hole Machining Dimensions





Notes :

1. Mounting bolts are not provided with the product. Please prepare them separately.
2. This product is locked (diameter expanded) by spring and released (diameter retracted) by releasing force.

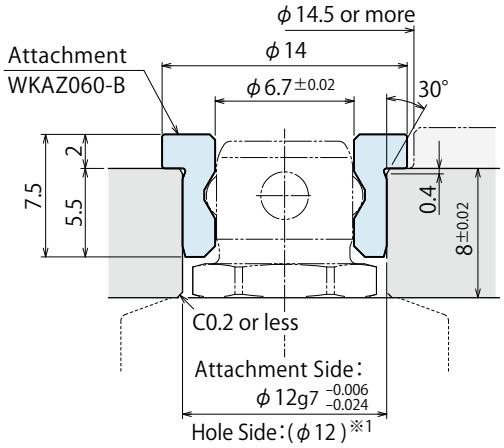
※1. Phasing of steel bearings varies depending on each product.
※2. There is a gap between a workpiece hole and a cylinder when locked (when expanded).
※3. This product must be used at the locked state (with the proper locked diameter).
Otherwise, it can be released even with low pull-out force.

Accessory：Attachment

Model No. Indication

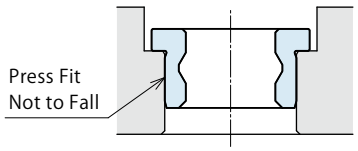
WKAZ060-B

Design No.
(Revision Number)

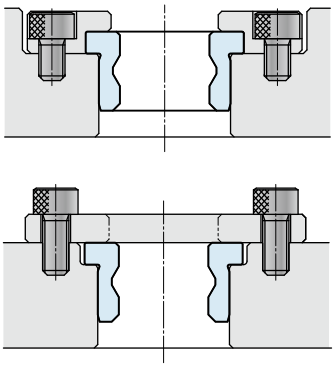


Attachment Mounting Examples

【Press-Fit Mounting】



【Mounting with a Cover】



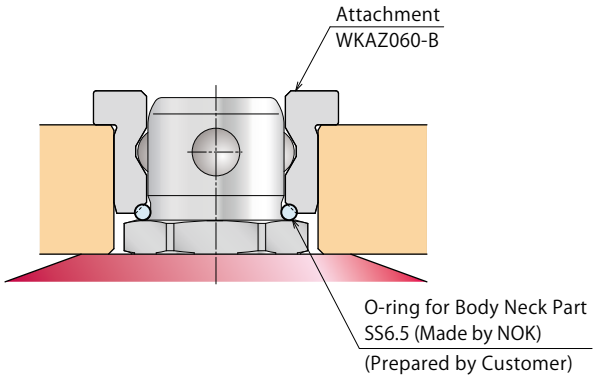
Notes :

1. Material：Martensitic Stainless Steel (HRc29 ~ 33), Weight：5g

※1. Determine the tolerance of mounting hole and the walls of the hole: ϕ12 based on the dimensions of the attachment. (Refer to the following attachment mounting examples.)

Backlash Prevention with O-ring (Reference)

There is a clearance between a workpiece hole and KSA when locked.
Simple backlash prevention is possible by mounting an o-ring to the neck part of KSA if necessary.



Cautions

Notes for Design

1) Check Specifications

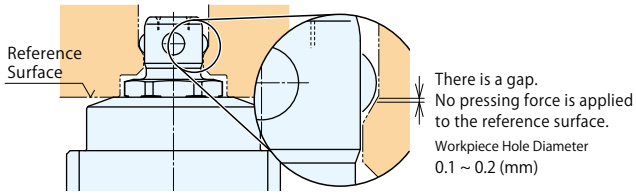
- This product is locked by the built-in spring and released by applying external force.
  Apply force within the range shown in specifications sections (refer to P.11 Releasing Force) to release. Applying excessive load on the cylinder leads to deformation and galling.
- Please use each product according to the specifications.

2) Operating Environment

This product has no function that prevents foreign substances.
Do not use under environment with coolant and cutting chips.

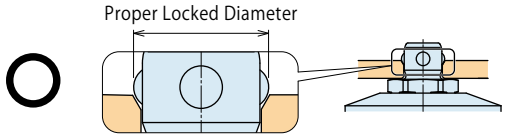
3) This product fixes a workpiece hole with the steel bearings (when locked).

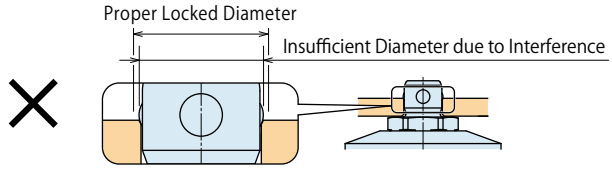
- There is a gap between the workpiece hole and cylinder when locked.
- There is no locating function or pressing force applied to the reference surface.



4) Workpiece Hole

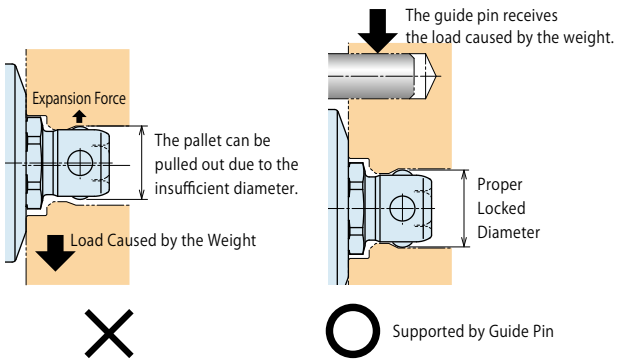
- When temporarily locking a hole with dimensions other than shown in the external dimensions (P.12), make sure to design the steel bearings to expand to the proper locked diameter. Otherwise, KSA can be released even with low pull-out force.





5) Mounting/Removing Pallet (Workpiece)

- If needed, please apply a guide pin (rough guide) separately to avoid increasing the force which exceeds allowable thrust load when mounting/ removing pallet (workpiece).
- The steel bearings have only a slight expansion force when locking. If the pallet is heavy and/or the position of the product and pallet hole is dislocated, the steel bearings may not expand properly. Please install a guide pin (rough guide) to ensure proper lock action.



Installation Notes

1) Installation of the Product

- When installing the product, use 4 hexagonal socket bolts and tighten them with the torque shown in the list below. Also, tighten them evenly to prevent tilting of the product.

Model No.	Mounting Bolt Size	Tightening Torque (N·m)
KSA0060	M3×0.5	1.3

※ Please refer to P.45 for common cautions.
・Notes on Handling ・Maintenance and Inspection ・Warranty

Common Cautions

Notes on Handling

1) It should be operated by qualified personnel.
- Machines and devices should be operated and maintained by qualified personnel.

2) Do not operate or remove the product unless the safety protocols are ensured.
① Machines and devices can only be inspected or prepared when it is confirmed that the safety devices are in place.
② Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no external force is applied to the product.
③ After stopping the product, do not remove until the temperature drops.
④ Make sure there is no trouble/issue in the bolts and respective parts before restarting a machine or device.

3) Do not touch a cylinder or workpiece while it is working.
- Otherwise, your hands may be injured.

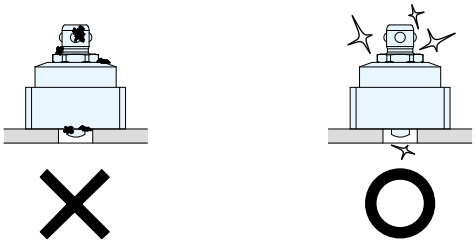


4) Do not disassemble or modify.
- Contains a powerful spring which is dangerous.
  If the product is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance and Inspection

1) Removal of the Product and Shut-off of Pressure Source
- Before the product is removed, make sure that safety devices and preventive devices are in place. Shut off the pressure and power source, and make sure no external force is applied to the product.
- Make sure there is no trouble/issue in the bolts and respective parts before restarting.

2) Regularly clean the moving parts and reference surfaces.
- Using the product contaminated with dirt may lead to malfunctioning.



If there is malfunction even after cleaning the product from outside, there may be contaminants or damage within internal parts. In this case, overhaul is required. Please call us for overhaul. If overhauled by unauthorized personnel, the warranty will be void even the period is still active.

3) Regularly tighten mounting bolts to ensure proper use.

4) Make sure there is a smooth action without an irregular noise.
- Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

5) The product should be stored in the cool and dark place without direct sunshine or moisture.

6) Please contact us for overhaul and repair.
- Contains a powerful spring which is dangerous.

Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
  Defects or failures caused by the following are not covered.

① If the stipulated maintenance and inspection are not carried out.
② Failure caused by the use of the non-confirming state at the user's discretion.
③ If it is used or operated in an inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
④ If the defect is caused by reasons other than our responsibility.
⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
⑥ Other caused by natural disasters or calamities not attributable to our company.
⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty