

FA • Robotic Automation Products

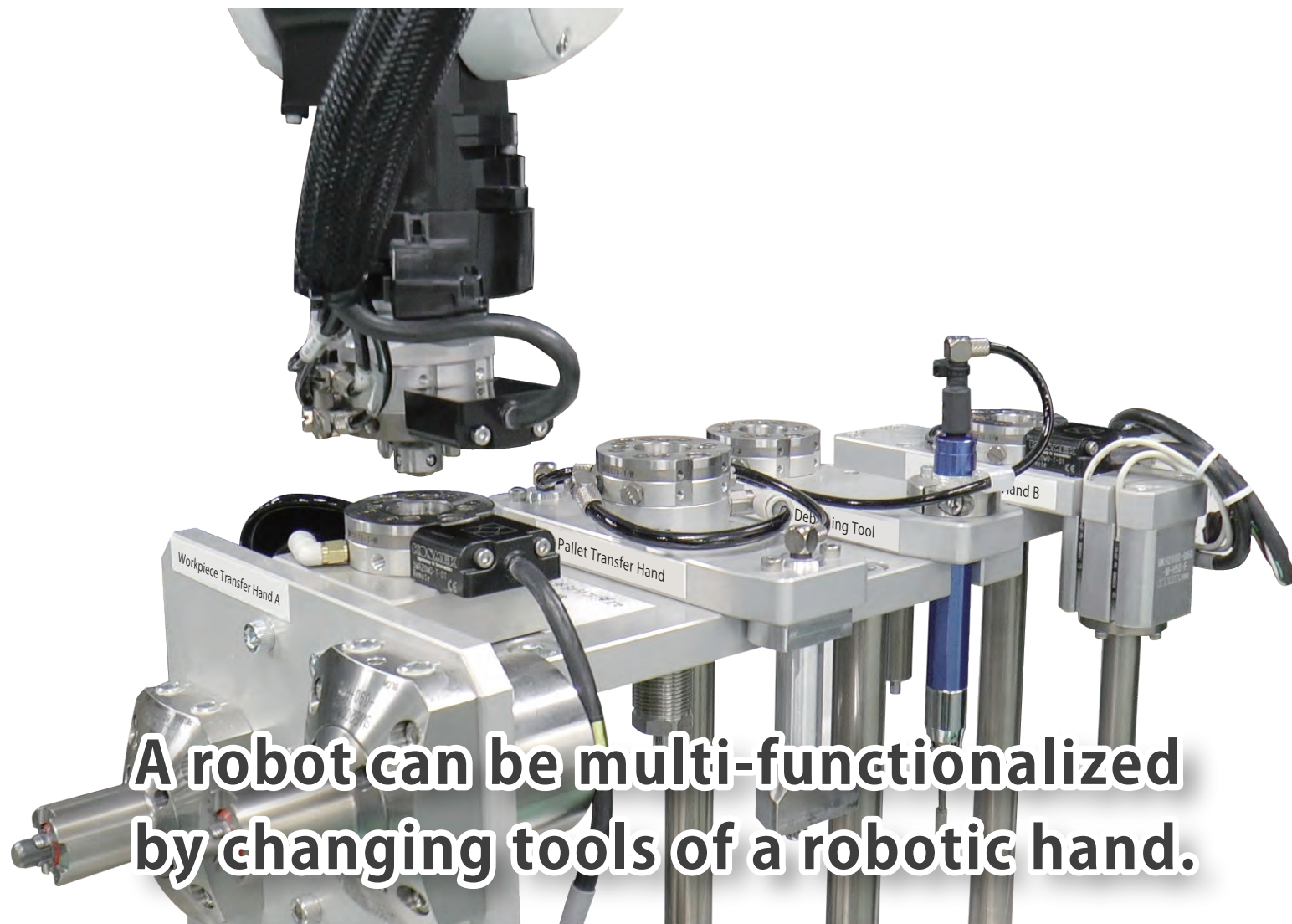
Application Examples

Vol.3



Find the Best Solutions
based on Your Tasks

Kosmek Products for Automation and Setup Improvement in Every Process



A robot can be multi-functionalized by changing tools of a robotic hand.

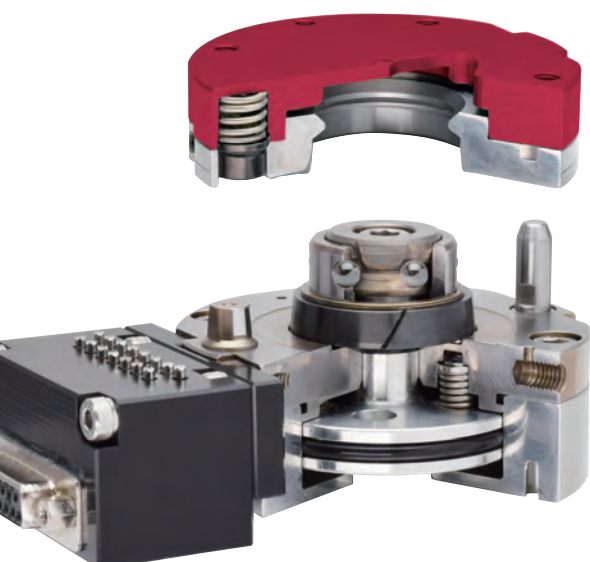
Best Selling Product

Robotic Hand Changer

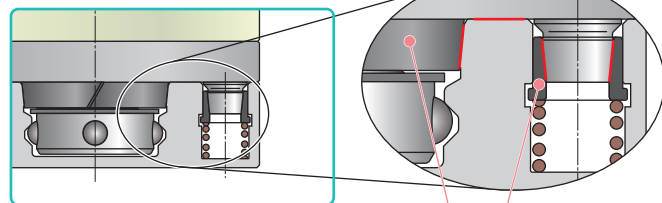
model **SWR**

The World's Only Zero-Backlash Robotic Hand Changer

KOSMEK Exclusive Non-Backlash Mechanism



When Connected



Zero-Backlash Connection
with Dual Contact

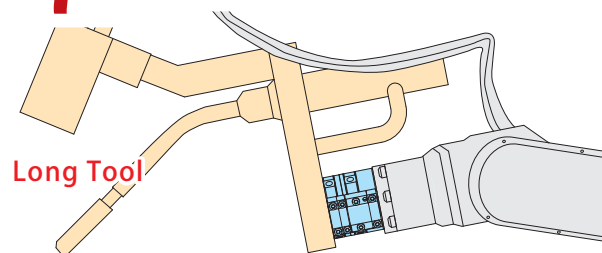
"Zero" backlash with dual contact minimizes the vibration of electrode and prevents noise and friction. Highly reliable electrode prevents moment stops caused by communication error.

Secures the Aimed Position

When Connected, Repeatability is **$3\mu m$** ^{*}

Even with long tools or hands, fluctuation of the edge is extremely small. It secures high accuracy processing even after tool change.

※ Repeatability of SWR0010 (Payload : 0.5~1kg) is $5\mu m$.



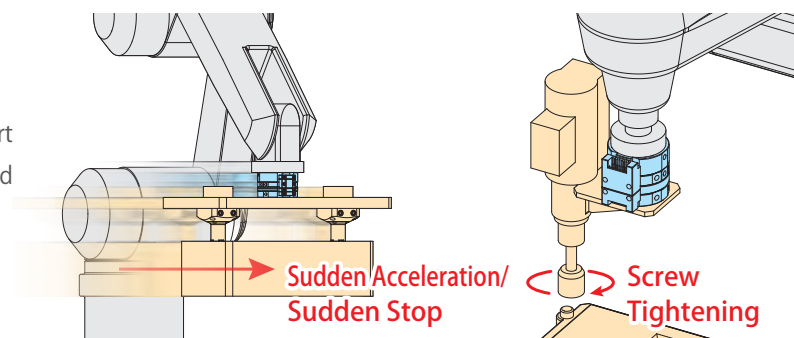
24-Hour Continuous Operation is Possible

Uncomparably High **Rigidity** and **Durability**

Strong to "bending" and "torsion" with high rigidity obtained by non-backlash function.

Also, high strength material is used in all the contact part of the master and tool so that it ensures high durability and $3\mu m$ ^{*} locating repeatability even after 2 million cycles.

※ Repeatability of SWR0010 (Payload : 0.5~1kg) is $5\mu m$.



NEW

Compact Robotic Hand Changer

Extra-Small Robotic Hand Changer
Compact and Light, yet Zero Backlash when Connected



Payload :
0.5~1kg
Model : SWR0010
Repeatability : 0.005mm

NEW

Additional Option Line-up

Even More Flexibly Used with Additional Options for Robotic Hand Changer with 3kg ~ 120kg payload.



Air Port with Check Valve
Easier to Choose Solenoid Valves



Resin Connector Electrode
Easy to Connect • 16 signals



Compact Electric Power Transmission
Ability to Transmit AC/DC200V 5A



Larger Port Air Joint
Suitable for Negative Pressure

A Variety of Electrode/Air Joint Options





Holds the Tools on the Tool Stocker Stay Locked Even After Air Cut-Off

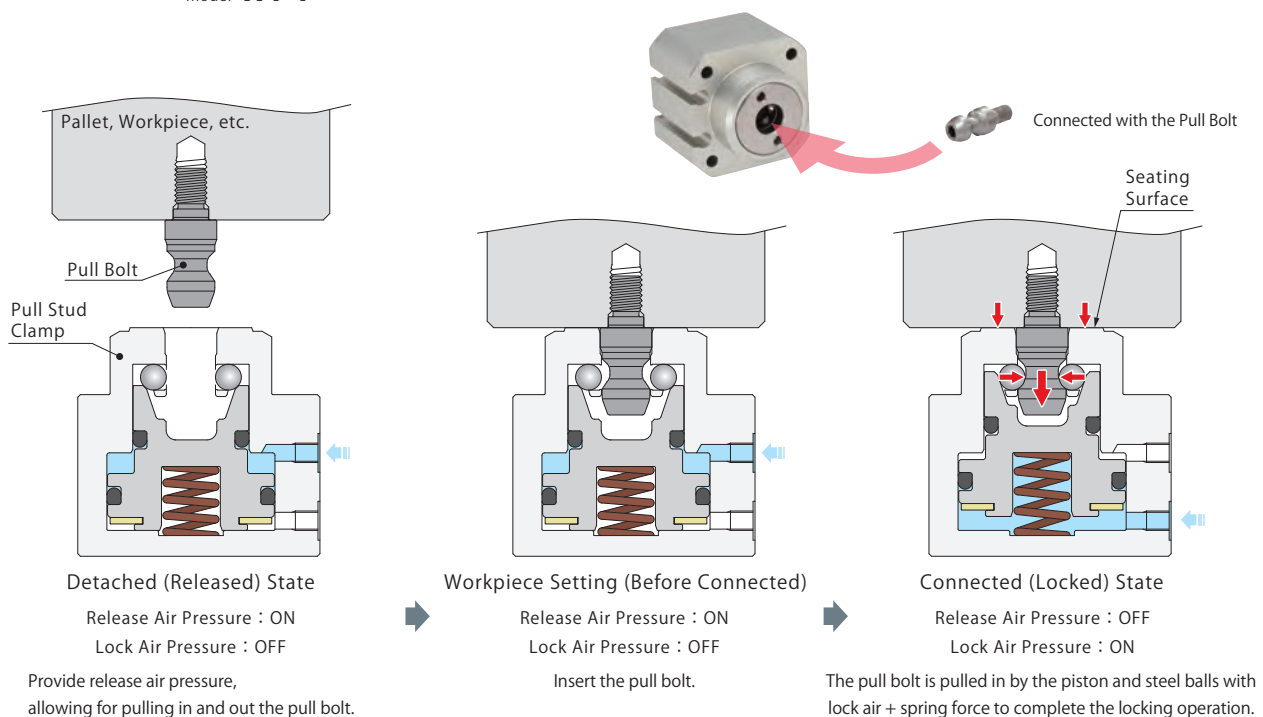
The Latest Product

High-Power Pull Stud Clamp

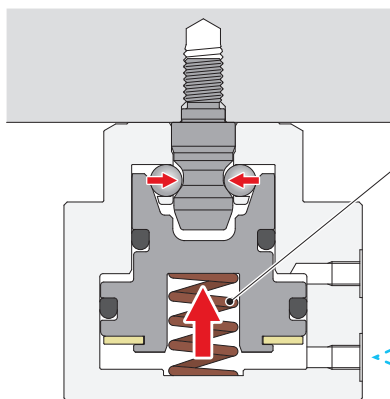
model **WPT**

Clamps by pulling the Pull Bolt. Compact, Light and Easy to Install.

For Various FA Applications: Pallet Transfer, Stocker for Hands/Tools, etc.



Self-Locking Function Holds the Tools with Residual Holding Pressure even when Robotic Hand Tool is detached.



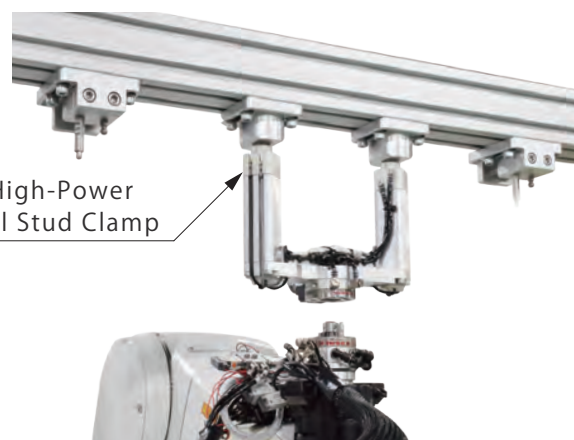
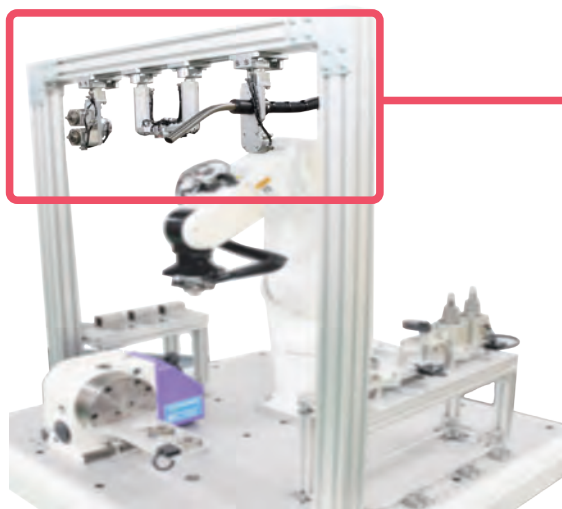
Safe Self-Locking Spring

Self-locking spring enables to hold workpieces even when air is accidentally cut off.

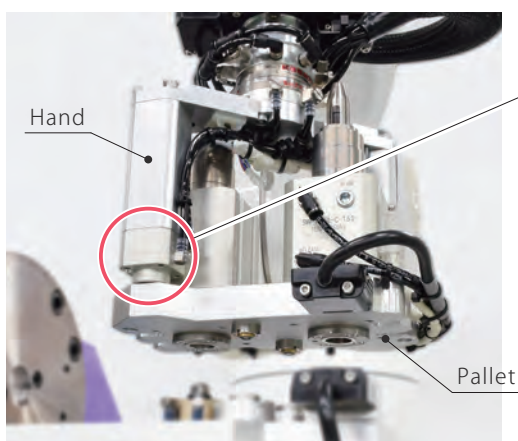
※ Make sure to supply lock air for normal use.



In the following example, air pressure to the High-Power Pull Stud Clamp becomes 0MPa by changing tools.

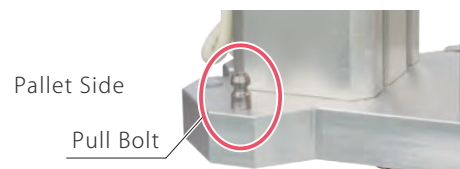


Stop Air Supply to Maintain on the Tool Stoker using Self-Locking Function



Pallet Transfer with High-Power Pull Stud Clamp

High-Power Pull Stud Clamp is light so it has minimal effect on robot's payload. Yet holding force is very powerful and this enables to transfer a heavy pallet, etc.

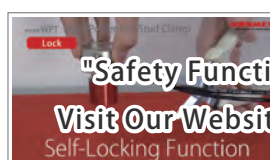


High-Power Pull Stud Clamp Specifications



Model	WPT0500	WPT0600	WPT0800	WPT1000
Max. Holding Force	768 N	1234 N	1918 N	2436 N
Residual Holding Force (at 0MPa)	100 N	170 N	250 N	300 N
Body Weight	55g	95g	155g	215g
Pull Bolt Weight	3 g	5 g	10 g	20 g

※ Refer to the WPT catalog for further information.



"Safety Function after Air Cut-Off"
 Visit Our Website for Solution Video
 Self-Locking Function

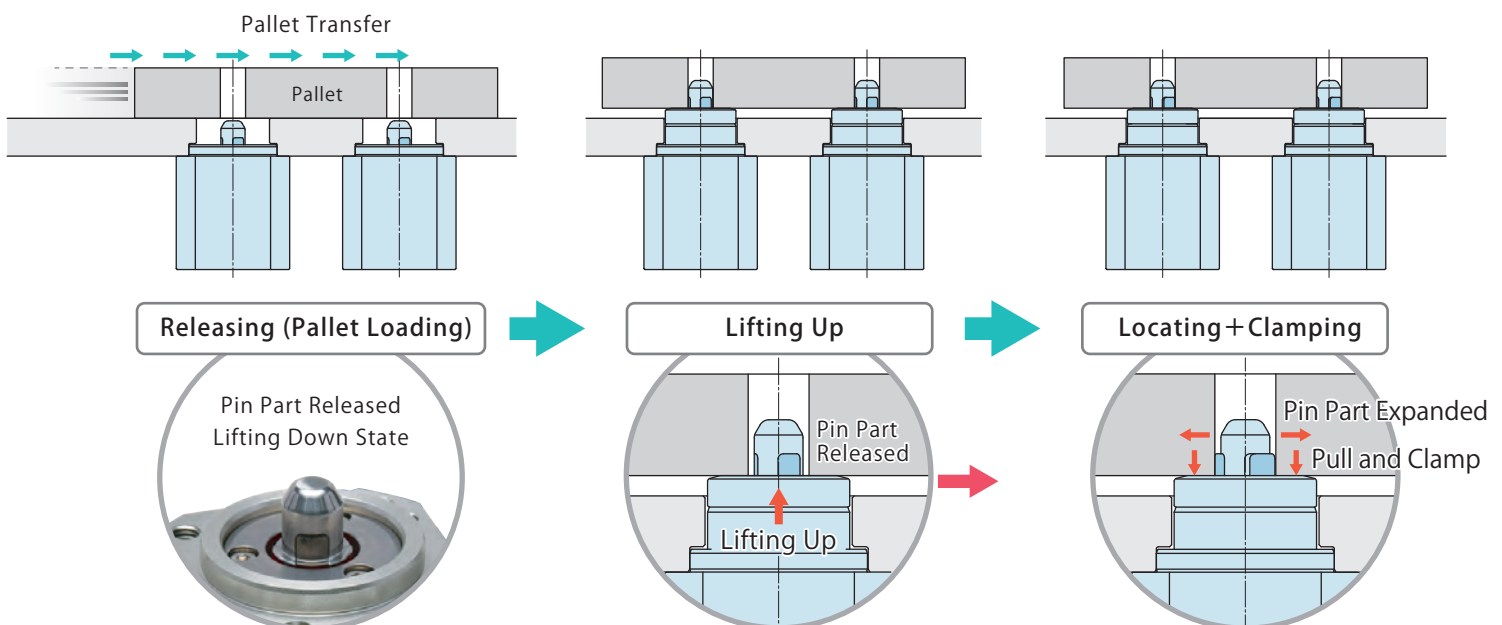


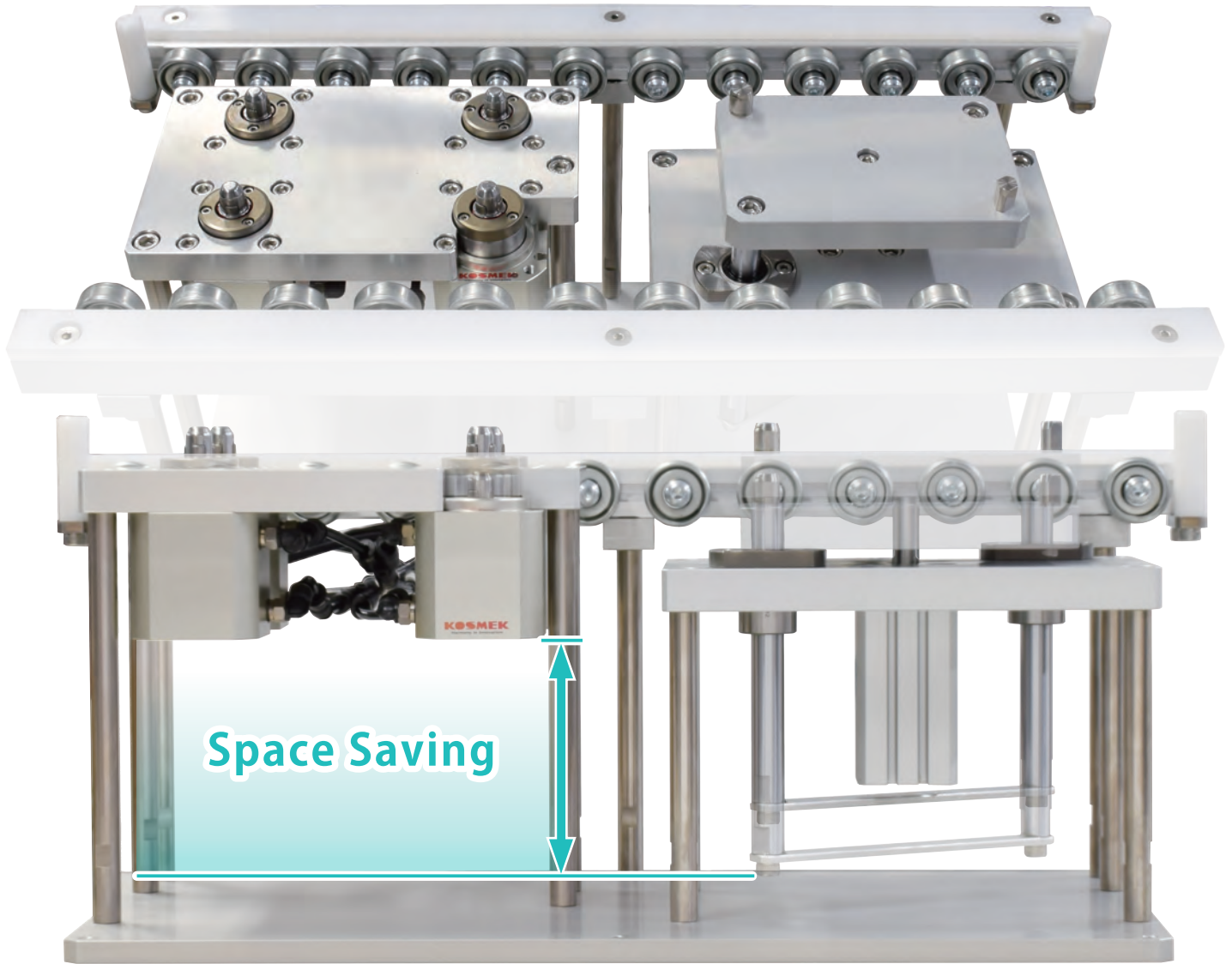
Save Application Space with the Lifting Hole Clamp for Pallet Transfer, and more.

The Latest Product Lifting Hole Clamp

model **SWJ**

Lifting type hole clamp with functions of lift cylinder, linear guide, locating and clamping. Locating part expands to eliminate the gap between the pin and workpiece hole. Zero gap makes no backlash.





After

Lifting Hole Clamp

Integrated Lift Cylinder, Linear Guide and Locating Pin with Clamping Function.

- Simple • Number of Parts : Few
- Space Saving
- With Clamping Function
- No Backlash due to no gap between the pin and pallet hole.

Before

General Cylinder + Fixture

Needs to place lift cylinders, linear guides and locating pins separately.

- Complicated • Number of Parts : Many
- Requires Space
- Requires Additional Clamps
- Backlash due to gap between the pin and pallet hole.

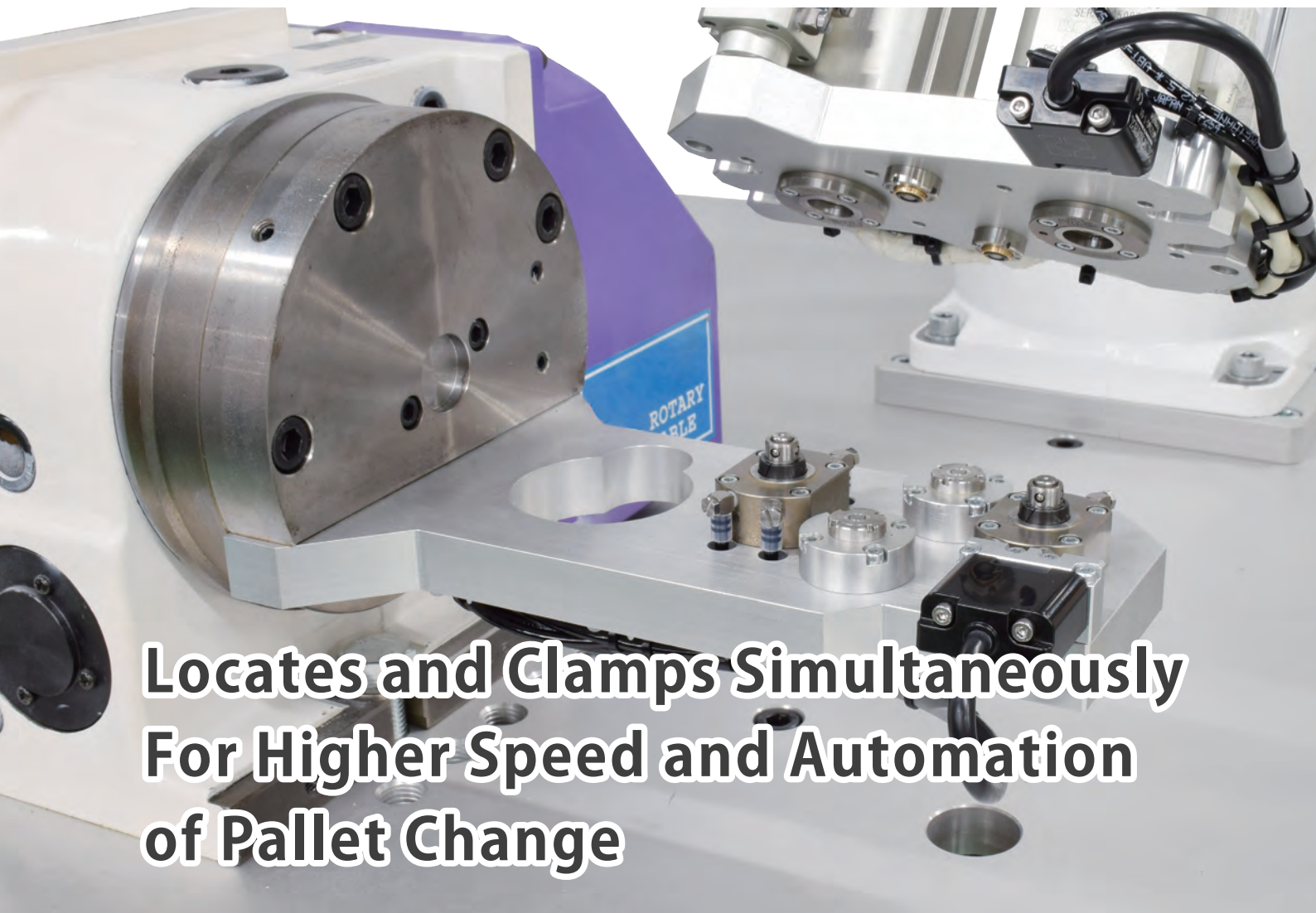
Lifting Hole Clamp Specifications



Model : SWJ2000-S10
 Workpiece Hole Diam. : $\phi 10 \pm 0.2$ mm
 Repeatability : 0.1 mm
 Lifting Stroke : 16 mm
 Lifting Force (at Extend) : 30 N
 Lifting Force (at 0.5MPa after operation) : 400 N
 Gripping Force (at 0.5MPa) : 500 N
 Clamping Force (at 0.5MPa) : 50 N
 ※ Refer to the SWJ catalog for further information.

Visit Our Website for :
 "Action Description Video"





Locates and Clamps Simultaneously For Higher Speed and Automation of Pallet Change

Compact Pneumatic Location Clamp

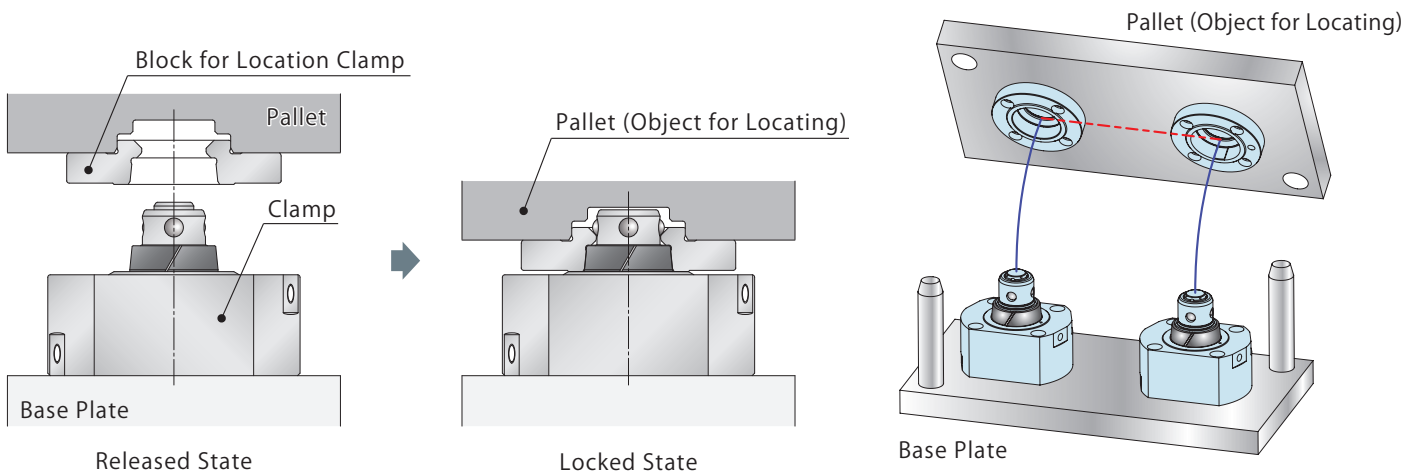
model **SWQ**

Drastically minimizes pallet setup time improves productivity.

Locating Repeatability : $3\ \mu\text{m}$

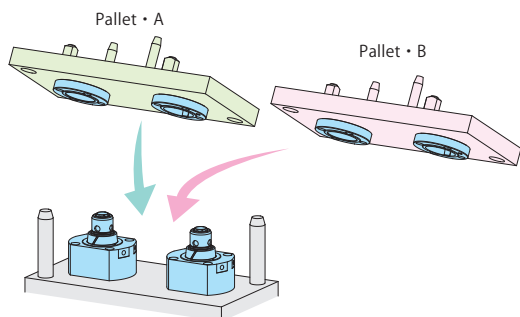
Suitable for automatic setup with robot.

Action Description

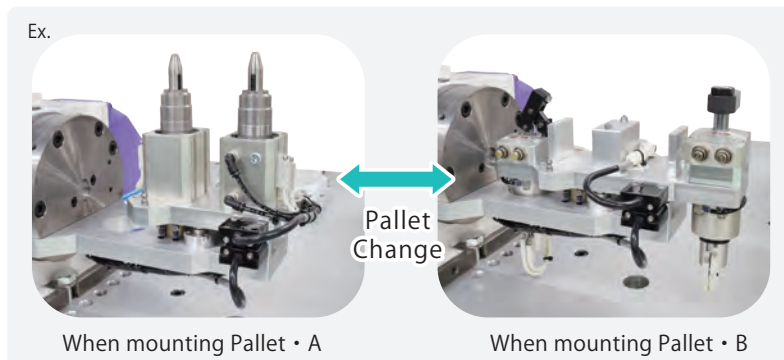


Setup Improvement Enhances Productivity

Pneumatic locating clamp locates with high accuracy and clamps at once. (Fixture alignment and inspection are eliminated.) Fixture change over is faster and easier, thus by eliminating alignment inspection for accuracy which is done in many different ways. Suitable for automatic pallet setup.

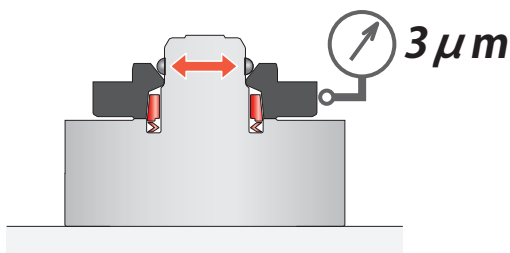


< Setup Change for Assembly Device •
 Inspection Device • Welding Fixture >



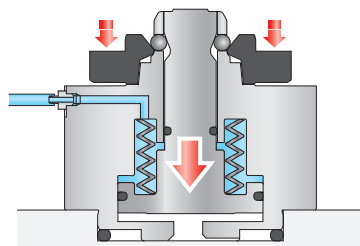
● Repetitive Locating with High Accuracy

Locating Repeatability : $3\ \mu\text{m}$
 Used with a combination of the clamp and block.
 Mount the block on the object for locating.



● Clamping Function

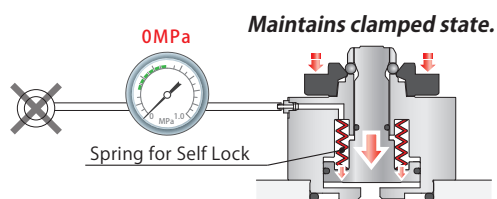
Clamping force is ranged from 0.25kN~1.1kN.
 Clamps with air pressure and spring for self locking.
 Clamping force is selectable for your needs.



● Self-Locking (Safety) Function (Maintains Clamping at Zero Air Pressure)

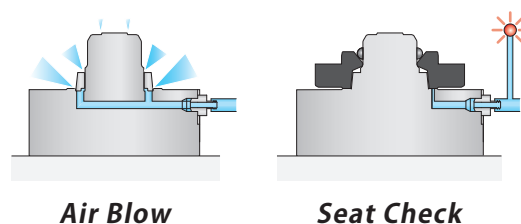
Even if air pressure is at zero, it will stay locked
 with self-locking spring.
 (Refer to Holding Force at 0MPa for detail.)

※ More than the minimum operating air pressure is required for locating.



● Air Blow and Seat Check

Contaminants are removed by air blow.
 Seating surface is provided with the air hole, and
 seating confirmation is available with a gap sensor.



Compact Pneumatic
 Location Clamp

Specifications



Model : SWQ0030-S□

Clamping Force (at 0.5MPa) : 310 N

Lift-up Force (at 0.5MPa) : 80N

Max. Loading Weight : 50kg regardless of no. of clamps.
 Consideration should be given to lift-up force.

※ Refer to the SWQ catalog for further information.

Model : SWQ0070-S□

Clamping Force (at 0.5MPa) : 600 N

Lift-up Force (at 0.5MPa) : 200N

Max. Loading Weight : 100kg regardless of no. of clamps.
 Consideration should be given to lift-up force.



For more powerful force : model SWT / model WVS.

For manual operation : model VXE / model VXF.

Refer to our website for further information.

High-Power Workholding Clamp Designed for Specific Environments

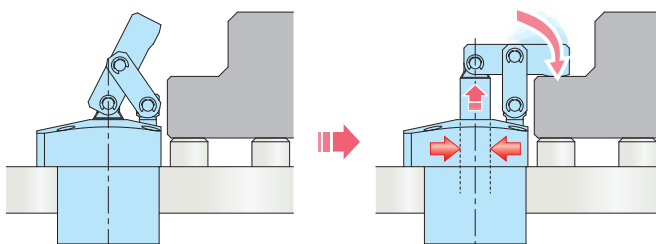
High-Power Pneumatic Swing / Link Clamp

model **WH□/WC□**

With built-in mechanical lock, it exerts powerful clamping and holding force, allowing for more compact application.

Action Description

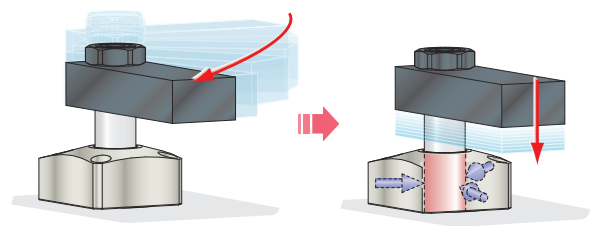
Link Clamp



Released State

Locked State

Swing Clamp



The lever descends
as it swings.

Clamping

Best Selling Product

High-Power Pneumatic Swing / Link Clamp

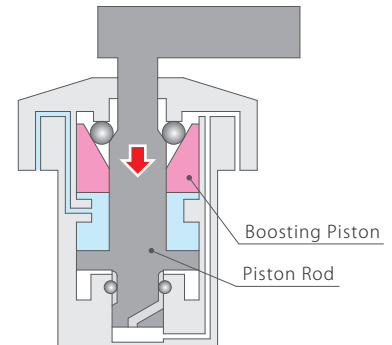
model **WHE/ WCE**

Standard High-Power Pneumatic Clamp with Built-in Mechanical Lock
for general use and cutting oil of machine tools.



Mechanism of the High Power
※ Simplified drawing

Boosting piston generates powerful
clamping force and holding force
with wedge mechanism.



The Latest Product

High-Power Welding Swing / Link Clamp

model **WHG/ WCG**

High-Power Pneumatic Clamp with Built-in Mechanical Lock
and Spatter Resistant Body for Welding Applications

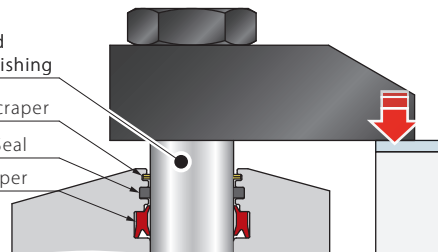


Special Rod
Surface Finishing

Coil Scraper

Dust Seal

Soft Wiper



Triple Protective Structure



The rod operates without failure
even after exposed to spatter for a long time.

The Latest Product

High-Power Swing / Link Clamp for Washing Application

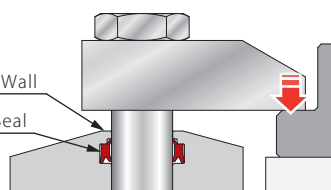
model **WHJ/ WCJ**

High-Power Pneumatic Clamp with Built-in Mechanical Lock
and Corrosion-Resistant Body for High Pressure Washing



Protective Wall

Dust Seal



Prevent Washing Liquid
from Entering a Cylinder

Standard Model WCE



Improved
Corrosion Resistance

Highly Durable Parts
Designed for Washing Applications

Locates and Clamps Simultaneously by using workpiece holes of welding applications, etc.

The Latest Product
Locating Pin Clamp
model **SWP**

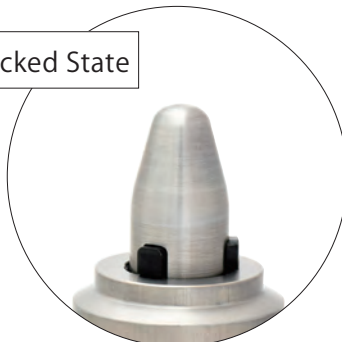
Expansion Locating Pin Clamp allows for
High Accuracy Locating and Clamping of Thin Workpieces

Action Description

Released State



Locked State

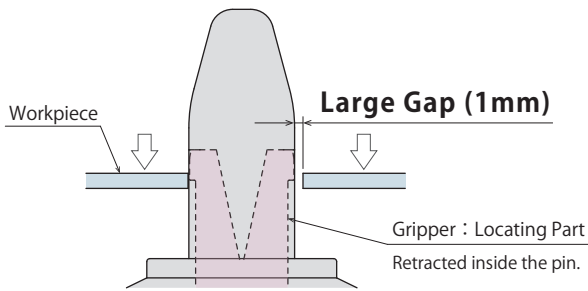


No Gap. Spatter Entering Protection

The pin itself goes down along with the gripper when locking, so there is hardly any gap at locked state, preventing contaminants.

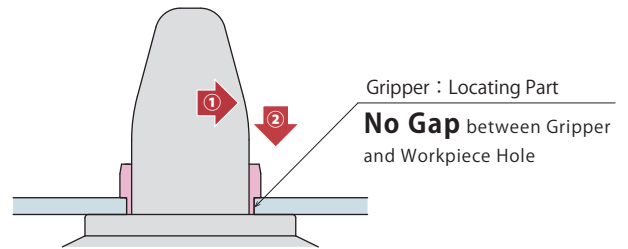
High Accuracy

Expansion of locating part allows for higher accuracy than general locating pin. Smooth loading/unloading due to large gap at released state.



Released State

Gripper is retracted at released state. Workpiece can be smoothly installed due to an adequate space between the workpiece hole and pin. Also, the locating part does not touch a workpiece since it is retracted inside the pin.



Locked State

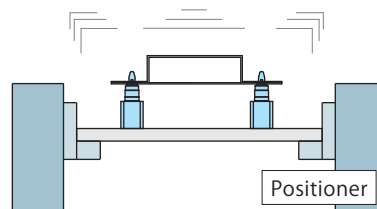
Gripper expansion enables zero gap and high accuracy locating.

Repeatability : 0.05mm

Unlike general locating pin, the Locating Pin Clamp remains high accuracy regardless of variation in tolerance of workpiece hole diameter.

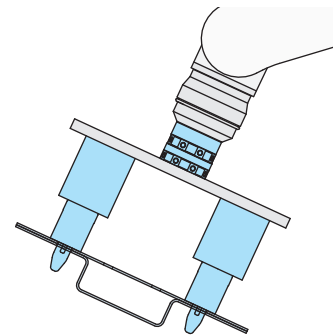
Compact·Light

Short body allows for more compact and lighter applications.



Less Load to the Positioner

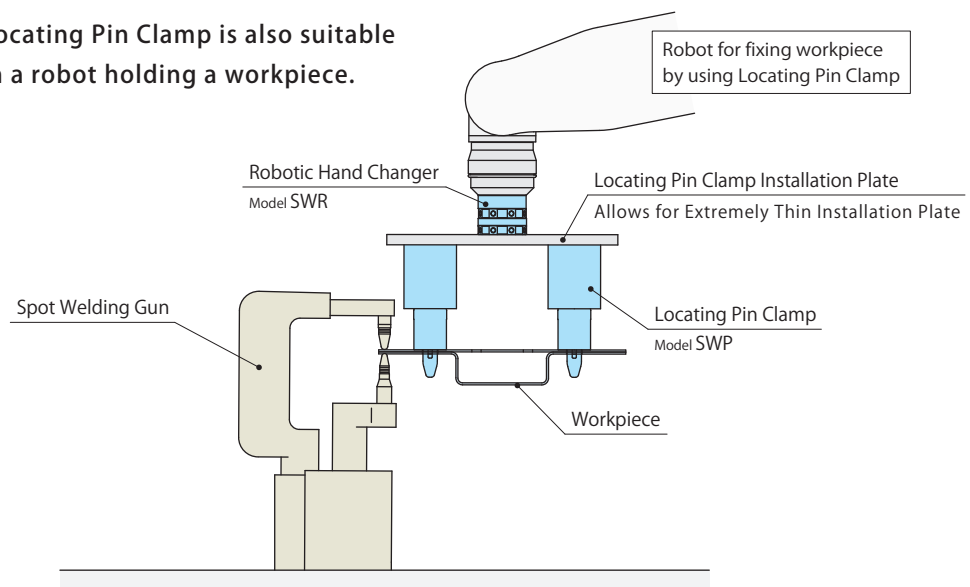
Light fixture with light Pin Clamp decreases load to the positioner.

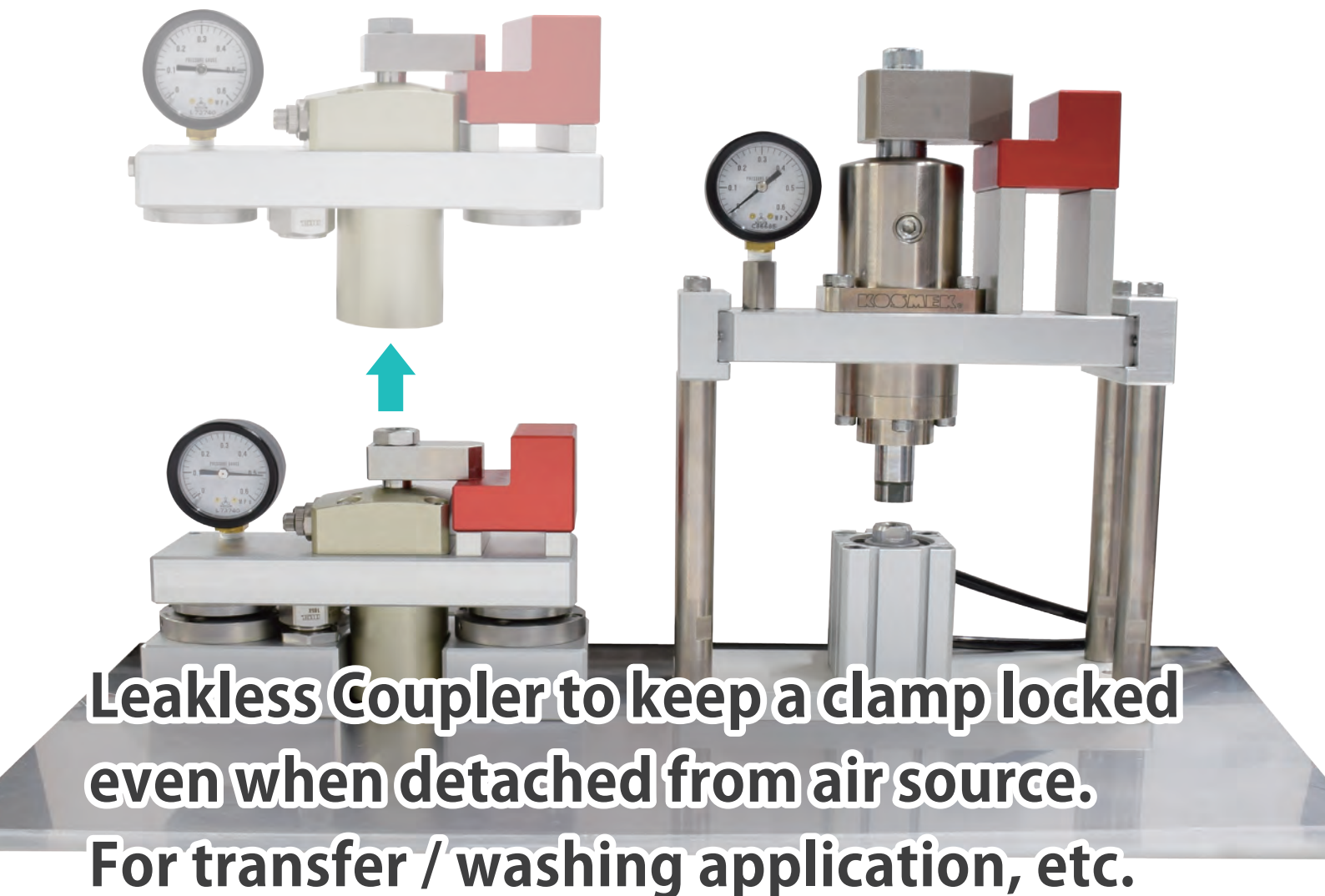


Compact and Light Transfer Hand

Compact and Light Locating Pin Clamp is also suitable for transferring thin plates.

- Compact and Light Locating Pin Clamp is also suitable for spot welding with a robot holding a workpiece.





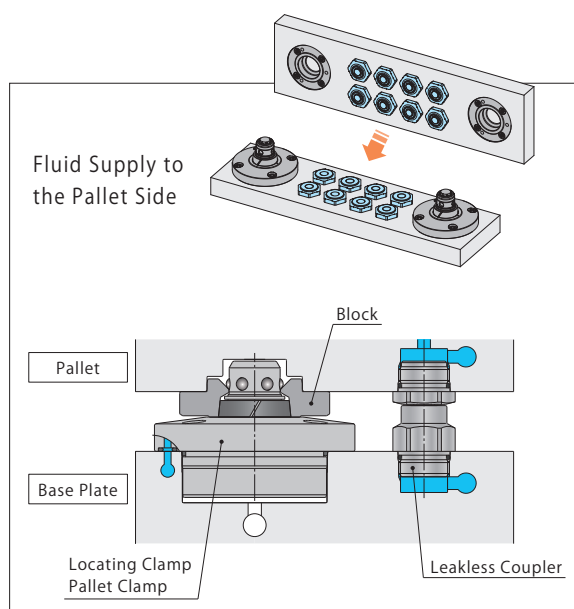
Leakless Coupler

model **JWC/JWD**

Suitable for detaching coupler to exchange pallets.

Easy to be used with Location Clamp / Pallet Clamp (model SWT / WVS).

No reaction force generated during pallet setting when using with SWT/WVS/VS.



Application Example when using with Pallet Clamp



model JWD



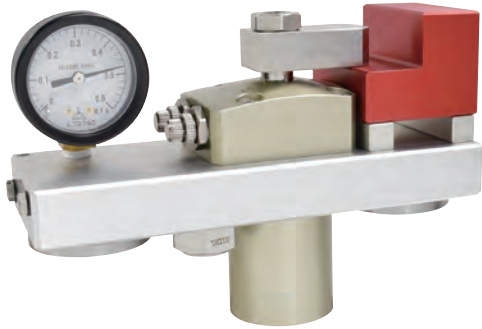
model JWC

JWD (Outgoing Side /
Fixture Side)



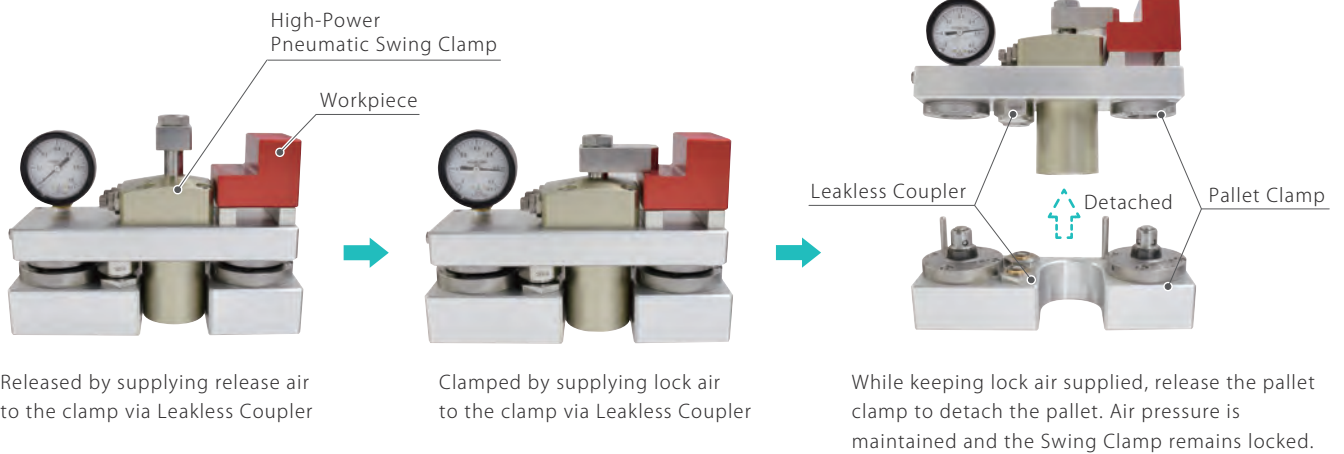
JWC (Incoming Side /
Pressure Source Side)

Circuit Diagram



【Case 1】Transfer with Pressure Maintained

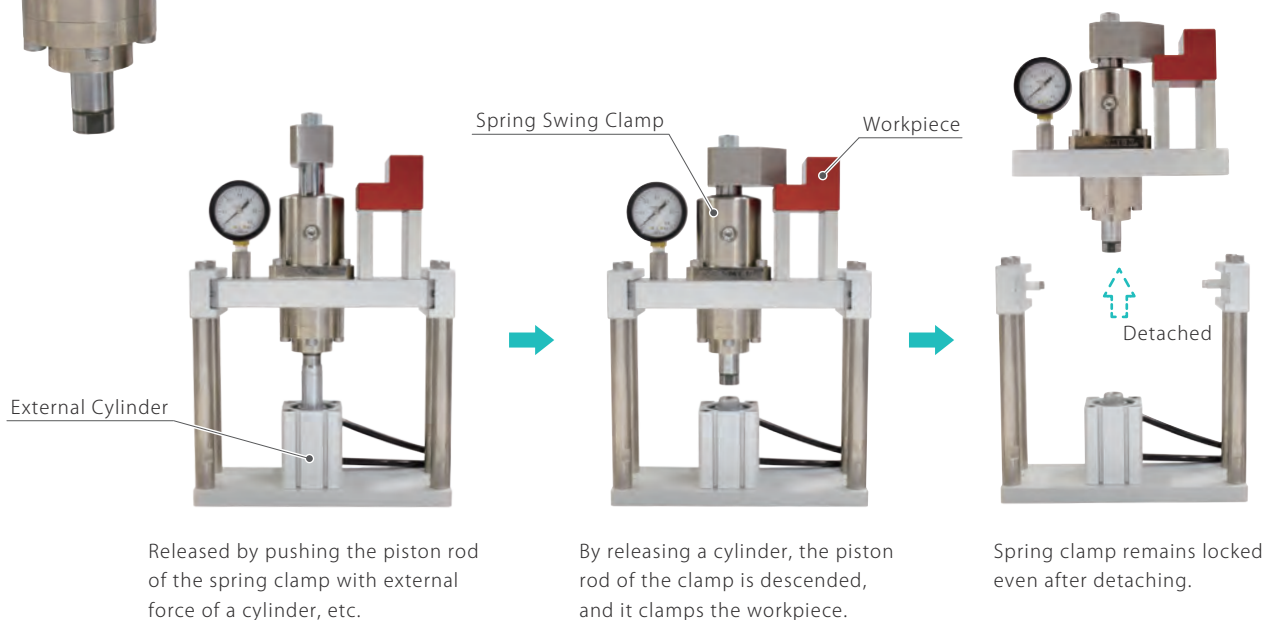
Detaching Method using Leakless Coupler and High-Power Pneumatic Swing Clamp
Maintains air pressure with check valve of Leakless Coupler JWD.
Able to transfer a workpiece even when detached from air source.
High-power pneumatic clamp withstands reaction force with holding force generated by mechanical locking. Piston rod will not be pressed back by reaction force so that air pressure in the circuit will not be compressed.



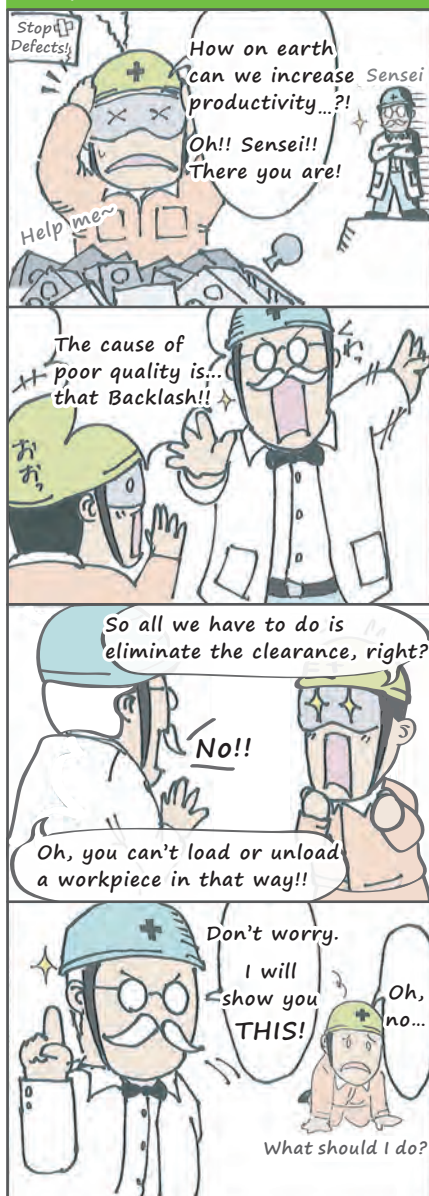
【Case 2】Transfer with Spring Clamp

Spring Swing Clamp locks with built-in spring, and releases with external force, so that it keeps a workpiece locked without air supply when transferring.

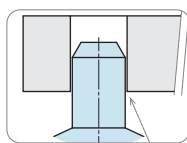
This is a custom-made model designed according to a request from a user.
For further information, please contact our sales office in your area.



Expansion Locating Pin

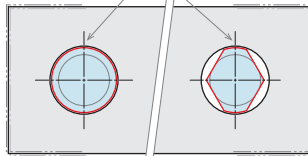


When loading/unloading workpiece

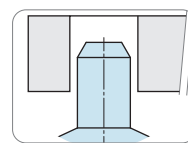


To improve accuracy, clearance must be small but this makes loading/unloading very hard.

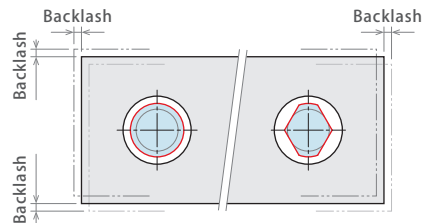
Clearance is small



When locating workpiece



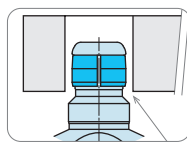
Smooth loading/unloading requires large clearance, but this leads to poor accuracy.





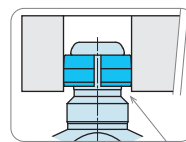
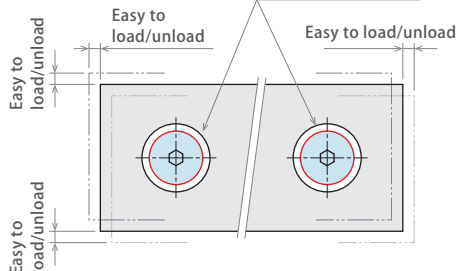
Expansion Locating Pin allows for Zero Clearance and High Accuracy

This is the high accuracy locating pin with pin expansion.
model VWH/VWM/VWK/VRA/VRC



The clearance between workpiece hole and pin is large so that it is easy to load/unload.

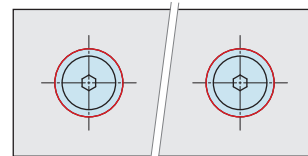
Large Clearance



The pin expands for locating. This allows for zero clearance and high accuracy locating.

Zero Clearance with Pin Expansion

Locating Repeatability: 3 μm (model VWM)



KOSMEK LTD.

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HEAD OFFICE 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241
TEL.+81-78-991-5162 FAX.+81-78-991-8787

United States of America
SUBSIDIARY

KOSMEK (USA) LTD.
650 Springer Drive, Lombard, IL 60148 USA
TEL. +1-630-620-7650 FAX. +1-630-620-9015

MEXICO
REPRESENTATIVE OFFICE

KOSMEK USA Mexico Office
Av. Santa Fe 103, Int. 59, col. Santa Fe Juriquilla, Queretaro,
QRO, 76230, Mexico TEL. +52-1-55-3044-9983

EUROPE
SUBSIDIARY

KOSMEK EUROPE GmbH
Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria
TEL. +43-463-287587 FAX. +43-463-287587-20

CHINA
SUBSIDIARY

KOSMEK (CHINA) LTD.
Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong
Shanghai 200125, China TEL. +86-21-54253000

INDIA
BRANCH OFFICE

KOSMEK LTD. - INDIA
4A/Old No:649, Ground Floor, 4th D cross, MM Layout, Kavalbyrasandra,
RT Nagar, Bangalore -560032 India TEL. +91-9880561695

THAILAND
REPRESENTATIVE OFFICE

KOSMEK Thailand Representation Office
67 Soi 58, RAMA 9 Rd., Phatthanakan, Suanluang, Bangkok 10250, Thailand
TEL. +66-2-300-5132 FAX. +66-2-300-5133

- For Further Information on Unlisted Specifications and Sizes, Please call us.
- Specifications in this Leaflet are Subject to Change without Notice.



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KOSMEK HEAD OFFICE