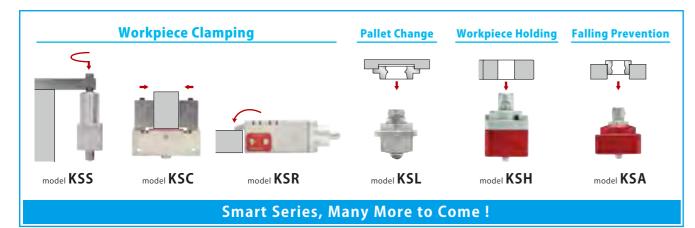
New Concept

Smart Series

Powered by any power source. Smart fit on any application.



Solution for various issues such as no driving force, all electric system, carbon neutrality, SDGs, etc.

Please visit our website to find the best solution for your tasks!

KOSMEK SMART SERIES



Product Information Page

https://www.kosmek.co.jp/english/products/robot/index.html





KOSMEK LTD.

https://www.kosmek.com/

HEAD OFFICE 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241

United States of America KOSMEK (USA) LTD. SUBSIDIARY

650 Springer Drive, Lombard, IL 60148 USA

TEL. +1-630-620-7650 FAX. +1-630-620-9015

MEXICO KOSMEK USA Mexico Office REPRESENTATIVE OFFICE

Av. Santa Fe 103, Int. 59, col. Santa Fe Juriquilla, Queretaro,

QRO, 76230, Mexico TEL. +52-1-55-3044-9983

KOSMEK EUROPE GmbH **FUROPF**

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

> KOSMEK (CHINA) LTD. Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong

CHINA SUBSIDIARY

Shanghai 200125, China TEL. +86-21-54253000

BRANCH OFFICE

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

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

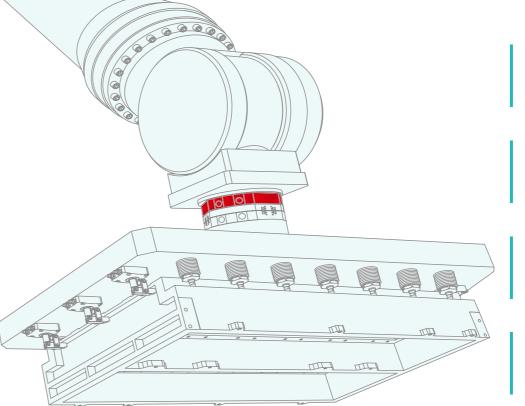
■ For Further Information on Unlisted Specifications and Sizes, Please call us. Specifications in this Leaflet are Subject to Change without Notice.



FA • Industrial Robot Related Products

Application Examples vol.5

— July 2024 —



Theme 1

Transfer

Theme 2

Setup

Operation

Positioning

KOSMEK Products for Automation

and Setup Improvement

in Every Process



THAIL AND

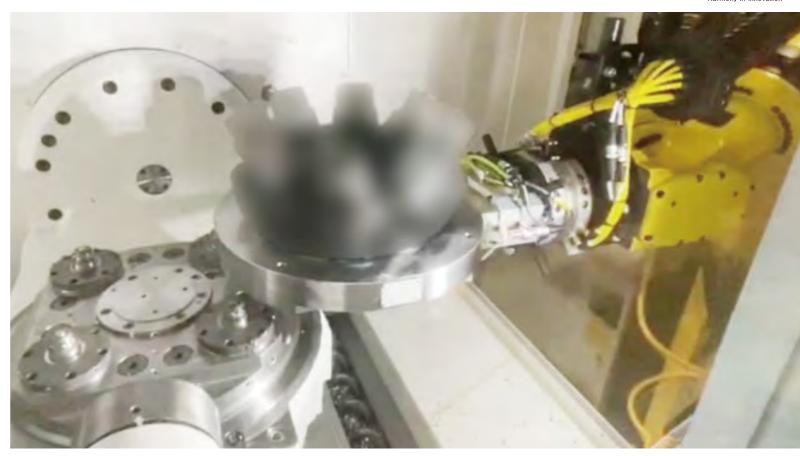


Automation

Transfer

AUTOMATION requires the ability to transfer various kinds of workpieces regardless of their shapes.

KOSMEK provides transfer hands that are compact yet powerful, and applicable to a wide variety of workpieces, fixtures and pallets.









Pallet Gripper Model WVA

Moment-Resistible Gripper Suitable for Pallet Transfer Side approaching enables to save space for fixture stock. P.5



NEW Robotic Hand Changer for High-Payload Model SWL

Compact, Powerful and Safe Robotic Hand Changer
Payload Line-up: 80kg/120kg/180kg/300kg.
Directly mounted on a robot with compatible mounting dimensions.





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.





FA Pneumatic Hole Clamp

Model **WKH**

Gripper expands and pulls workpiece in.

Clamps the workpiece by holding its holes, allowing for 5 faces accessible.

Light Weight, Smaller Footprint, and High-Power

P.11



High-Power Pneumatic Hole Clamp

Model SWE

Engineered for clamping a workpiece in a machine tool.

Strong clamping force with mechanical lock replaces hydraulics allows for transferring heavy workpieces and five-face machining.

P.13



Hole Gripper

Model WKK

Gripper expands and pulls workpiece in.

Air blow function prevents cutting chips and coolant, allowing for transferring workpieces to and from various machining and die casting processes.

P.14



Compliance Module

Model WRC

The misalignment correcting device which can be directly mounted to KOSMEK Robotic Tool Changer (7kg ~ 75kg Payload). Mechanical floating function allows for simple installation. Suitable for transfer and assembly process with a robot.

P. 15



High-Power Pull Stud Clamp

Model WPT

Clamps with the Pull Bolt. Compact Body with Powerful Holding Force Safe and compact robotic hand with self-locking function. P.17



Ball Lock Cylinder

Model WKA

The simple and compact robotic hand hooks a workpiece with steel balls P.19



Locating Pin Clamp

 $\mathsf{Model}\; \boldsymbol{SWP}$

Expansion Locating Pin allows for stable operation with large clearance and high repeatability with internal chucking. Suitable for automated application.

Also recommended for end of arm tooling and clamp on equipment.

Link Clamp / Link Clamp Retracting model / Swing Clamp

NEW High-Power Pneumatic Clamp Model WCE/WFE/WHE

Compact and high-power clamp cylinders with KOSMEK exclusive mechanical lock.

The new Link Clamp Retracting model whose largely retracted lever avoids interference during workpiece loading/unloading. Equipped with self-locking function to prevent a workpiece fall.

P.23



Pneumatic Swing Clamp

Model WHC

Compact pneumatic clamp cylinder with long operational life, high speed and accuracy. This clamp is coolant resistant, and can be used in various applications with the use of auto switch.

P.25



NEW Pneumatic Link Clamp -Retracting model - Model WFC

Retracted lever avoids interference during workpiece loading/unloading. This clamp is coolant resistant, and can be used in various applications with the use of auto switch. ** Visit our website for detail.



NEW Pneumatic Link Clamp

Model WCC

Compact Cylinder with Built-in Link Mechanism. This clamp is coolant resistant, and can be used in various applications with the use of auto switch.

** Visit our website for detail.



Air Safety Valve / Safety Push Valve

Model BWS / SWRA

Air Safety Valve: Ultra-compact and light air pilot check valve prevents a workpiece fall.

Safety Push Valve: Directly mounted on the KOSMEK Robotic Hand Changer (Model SWR), and prevents a tool fall caused by operational error of a valve.



Air Sequence Valve

Model BWD

A sequence valve (time delay valve) that can activate multiple actuators in sequence. It controls air flow by using a check valve, flow control valve, air tank, switching valve, and initiate a time difference for air pressure supplied from primary side to secondary side. P.29



Leakless Coupler

Model JWC / JWD

Leakless coupler enables to maintain clamping force since it keeps the air pressure even if a coupler is disconnected, remains air clamps in a locked state, and transfer a workpiece to the next station.

P.31



Model KS

Powered by any power source. Smart fit on any application.

* Visit our website for detail.



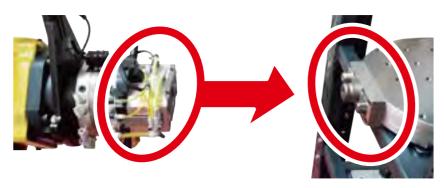


Pallet Gripper model WVA

The moment-resistible gripper is best suitable for pallet transfer.

Enables side-approaching transfer and thus space saving for fixture stocker and avoids interference when transferring to a narrow machine.

No Interference with Side-Approaching Transfer



Easy to Transfer by Approaching from the Side

Withstands high moment when approaching to a pallet.

Avoid interference even when transferring to a narrow space.

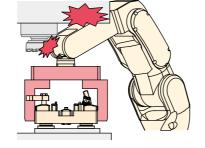


Make Pallet Storing Flexible

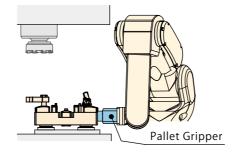
Side-approaching saves space for storing pallets and fixtures.



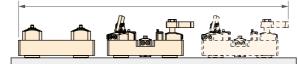
Before: Interference Occurs



After: Interference Avoided

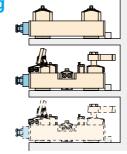


Before: Requires Space for Fixtures

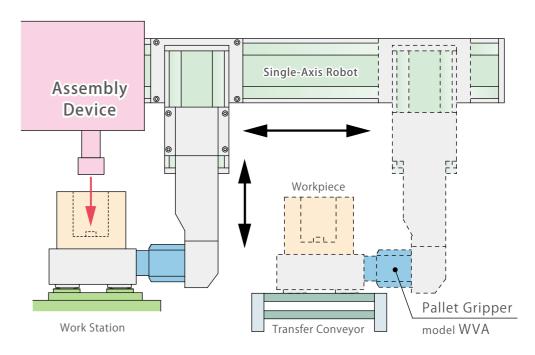








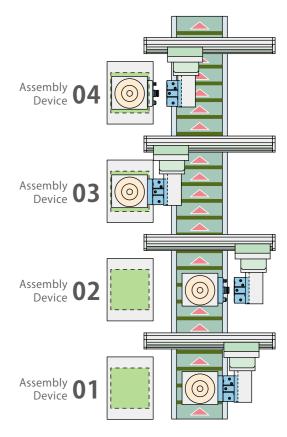
Side-Approaching to Reduce Equipment Cost



Side-Approaching Reduces Cost for Transfer Device

Easy to transfer into a device even when using with a single-axis robot. Requires less number of robot axes and shorter stroke for reduction in overall equipment cost.

Saves Space and Cost for Lines Requiring Multiple Processes





Application Example Video

Pallet Gripper Fixture Setup with Robot



Video Title

Pallet Gripper Application Example

https://www.kosmek.co.jp/php_file/video_products.php?id=081&lang=2







Robotic Hand Changer for High-Payload model **SWL**

Payload Line-up: 80kg/120kg/180kg/300kg.

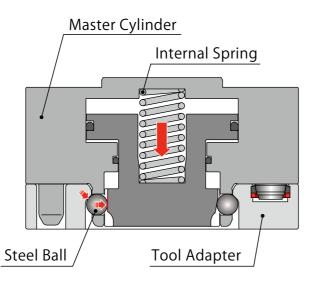
Directly mounted on a robot whose mounting dimensions

of the flange based on ISO mounting pattern.

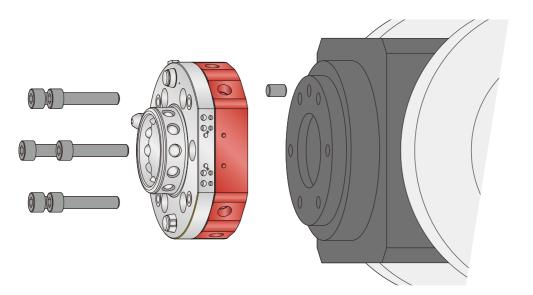
Compact, Powerful and Safe Tool Changer

Securely prevents a tool fall with the two-step mechanical lock mechanism.

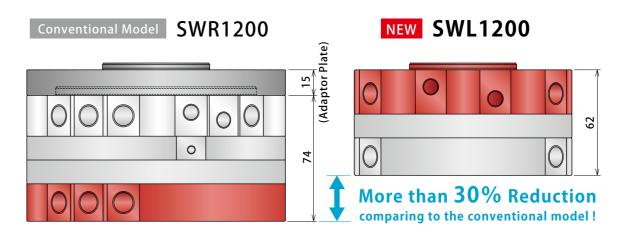


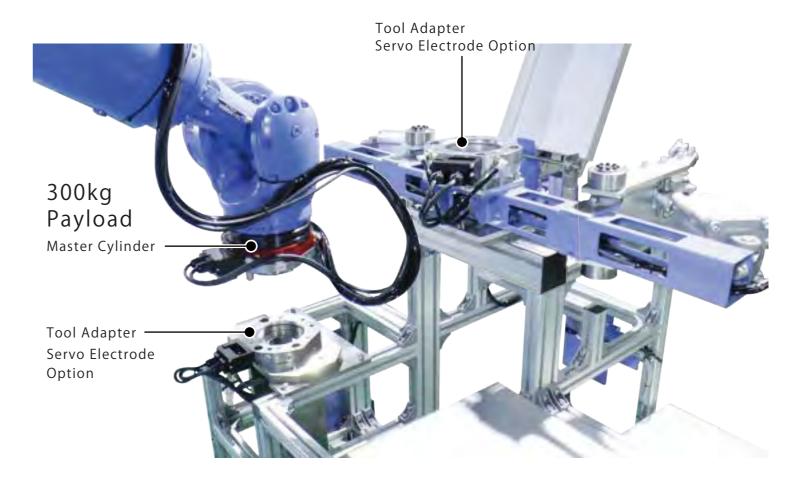


Directly mounted on a robot with compatible mounting dimensions.



Thickness when Connected: more than 15% Reduced Comparing to the Conventional Model







Application Example Video

300kg Payload Robotic Hand Changer

| Search

Video Title

Robotic Hand Changer with 300kg Payload

http://www.kosmek.co.jp/php_file/video_products.php?id=149&lang=2



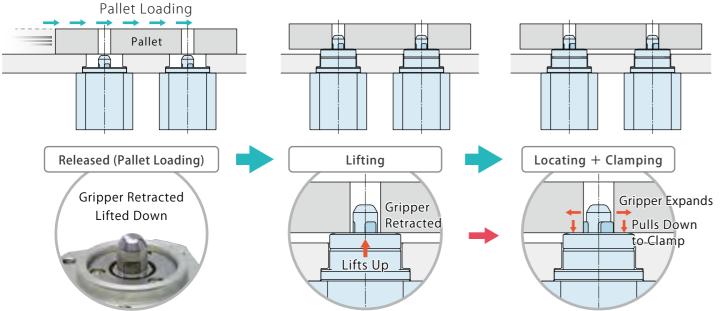




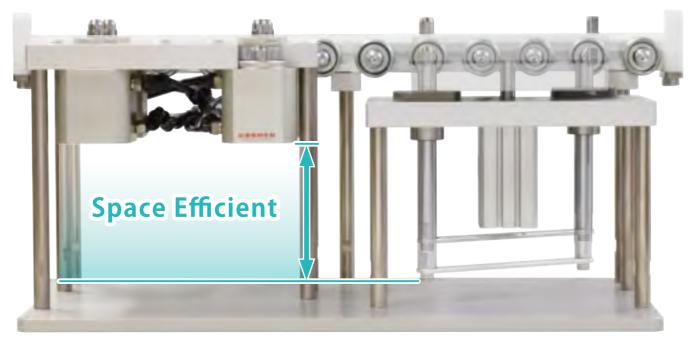
model SWJ Lifting Hole Clamp

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 Efficient
- With Clamping Function
- No Backlash due to no gap between the pin and pallet hole.

the pin and pallet hole.

Application Example Video

locating pins separately.

Requires Space

Assembly and Inspection with a Robot Lifting Hole Clamp

Before

General Cylinder + Fixture

Needs to place lift cylinders, linear guides and

Requires Additional Clamps

• Backlash due to gap between

• Complicated • Number of Parts: Many

Search

Video Title

Assembly • Inspection Robot Case Study



See our case studies





FA Pneumatic Hole Clamp model WKH

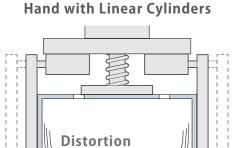
Gripper expands and pulls workpiece in.

Clamps the workpiece by holding its holes, allowing for 5 faces accessible.

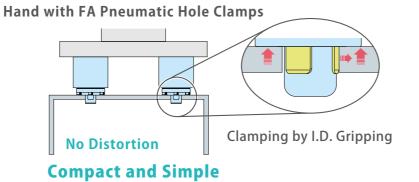
Light Weight, Smaller Footprint, and High-Power

Compact Transfer Hand for Housing Parts

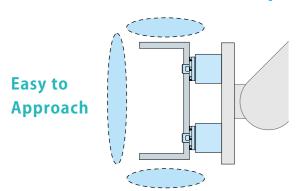




Larger Space



Easy to Assemble without Interference around Workpiece

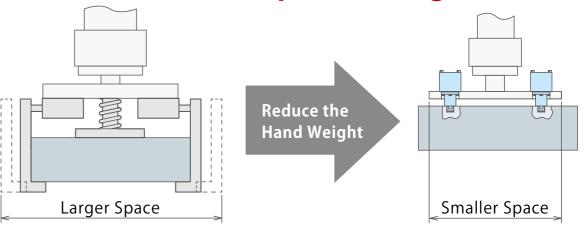




Advantages of FA Pneumatic Hole Clamp

Chucking Inside of Workpiece Holes Allows for

Compact and Light Applications

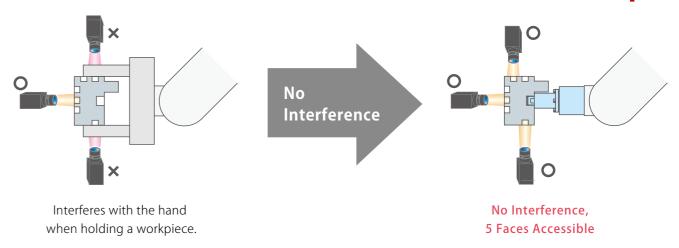


Hand with Parallel Hand/Linear Cylinder

Hole Clamp: Compact and Light with Powerful Gripping Force

Chucking Inside of Workpiece Holes Allows for

Zero Interference and Minimum Setup





Application Example Video

FA Pneumatic Hole Clamp Application Example

Search

Video Title

Introducing Application Examples of FA Pneumatic Hole Clamp

http://www.kosmek.co.jp/php_file/video_products.php?id=117&lang=2





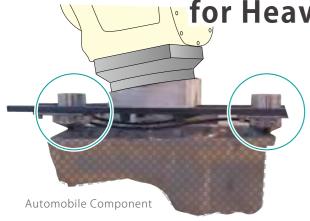


High-Power Pneumatic Hole Clamp model SWE

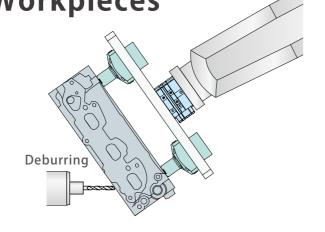
Engineered for clamping a workpiece in a machine tool.

Strong clamping force with mechanical lock replaces hydraulics allows for transferring heavy workpieces and five-face machining.

Light and Compact Transfer Hand for Heavy Workpieces



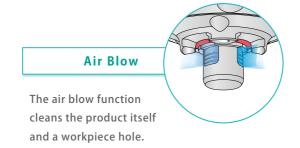




5 Faces Accessible with No Interference

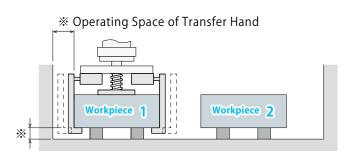
Save Energy with Light Hands

Reducing the weight of the hand speeds up the robot and maximizes utilization of its payload leading to downsizing of the robot size.



Saves Space for Storing without Interference around Workpiece

High-Power Pneumatic Hole Clamp to grip a workpiece hole eliminates an operating space for transfer hand, minimizing a storing space for workpieces. Also, an internal spring prevents a workpiece fall even when air pressure drops to 0MPa.



Hand with Linear Cylinders

Gripper expands and clamps in the workpiece hole.

Workpiece 1 Workpiece 3

High-Power Pneumatic Hole Clamp



Workpiece Transfer

FA • Industrial Robot System

Hole Gripper model WKK

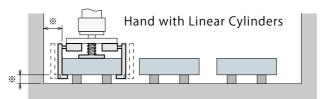
Gripper expands and pulls workpiece in. Air blow function prevents cutting chips and coolant, allowing for transferring workpieces to and from various machining and die casting processes.





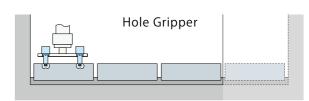
Gripper expands and pulls in.

Space Saving for Transfer Hand and Stocker





See our case studies



Application Example Video

Pallet Setup and Robot Deburring with Tool Changer



Video Title

Tool Change / Pallet Setup / Robot Deburring Image

http://www.kosmek.co.jp/php_file/video_products.php?id=007&lang=2







Compliance Module model WRC

The misalignment correcting device which can be directly mounted to KOSMEK Robotic Tool Changer (7kg ~ 75kg Payload). Mechanical floating function allows for simple installation. Suitable for transfer and assembly process with a robot.

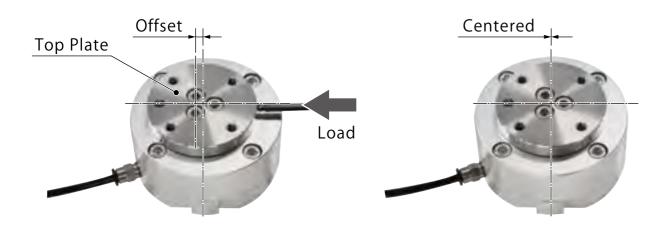
Correct Misalignment during Robot Transfer

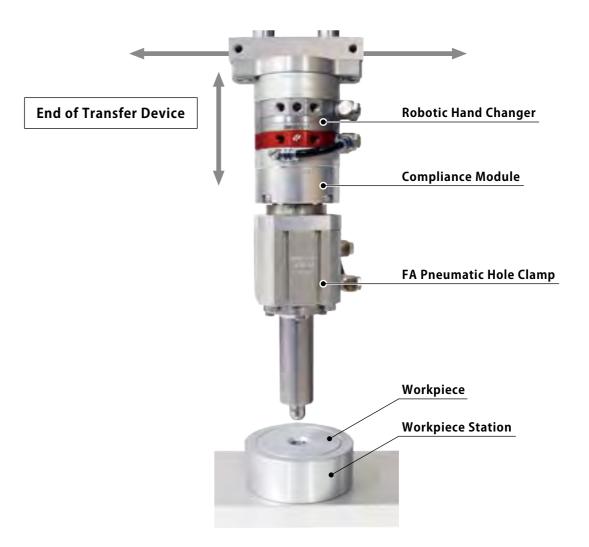
Easy to Correct Misalignment with Mechanical Floating Function



Directly Mounted to Robotic Hand Changer (model SWR)

Misalignment of Workpiece is Corrected by the Floating Top Plate







Misalignment between the clamp tip and the center of the workpiece.

The misalignment is corrected by the compliance module.

When gripping the workpiece, there is no load applied to the transfer device.



Product Introduction Video

Complicance Module WRC

Search

Product Page

https://www.kosmek.co.jp/php_file/eng_product_page.php?no=313_01_01&lang=2



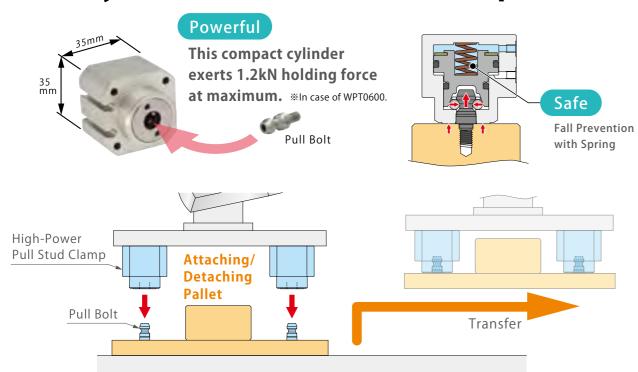




High-Power Pull Stud Clamp model WPT

Clamps with the Pull Bolt. Compact Body with Powerful Holding Force Safe and compact robotic hand with self-locking function.

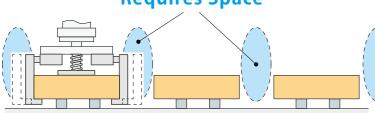
Easy to Transfer with a Compact Hand



Parallel Hand

High-Power Pull Stud Clamp

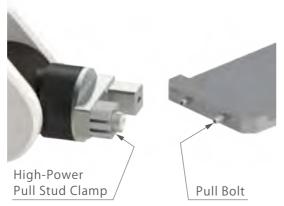
Requires Space



Saves Space for Fixture Stocker







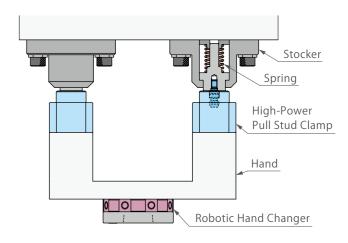
Saving Space for Tool Stocker



Holds a tool on a tool stocker and stays locked even after

air pressure is cut off.

Saving valuable space by setting the tool stocker above the equipment. Self-locking function of Pull-Stud Clamp enables to hold a tool with holding force powered by built-in spring even after detaching the tool. High-Power Pull Stud Clamp makes a stocker safe and simple.





Application Example Video

Deburring with Robot and KOSMEK Products

Search

Video Title

KOSMEK Product Application Example: Deburring Process

http://www.kosmek.co.jp/php_file/video_products.php?id=044&lang=2

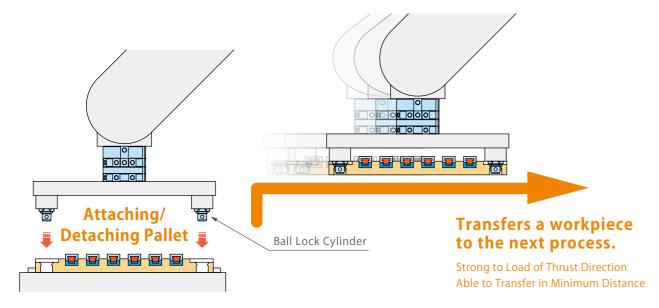




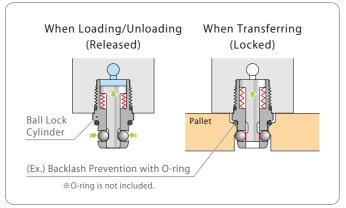
Ball Lock Cylinder model WKA

Securely transfers pallets and prevents pallet drops with the steel balls (Ball Lock). The light weight and compact design allows for maximizing the robot's ability without reducing its portable weight.

For Faster and More Accurate Pallet Transfer



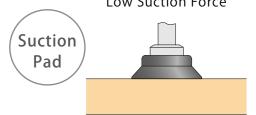




Current Method

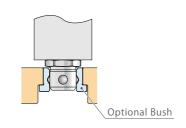
Limited Speed • Limited Weight

Low Suction Force

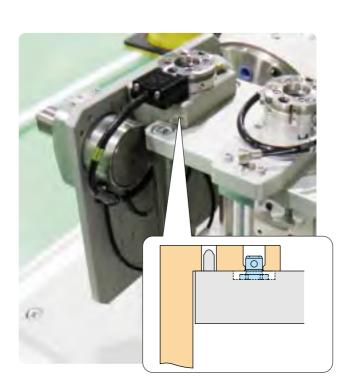


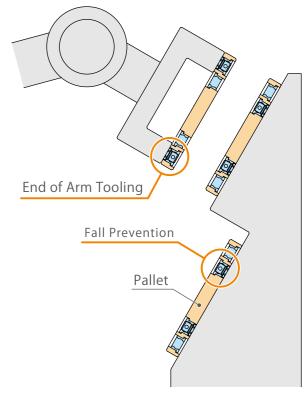
Ball Lock Cylinder

Powerful • Light • Compact with Mechanical Lock
Single Circuit for Positive Pressure Only



For More Compact Tool Stocker

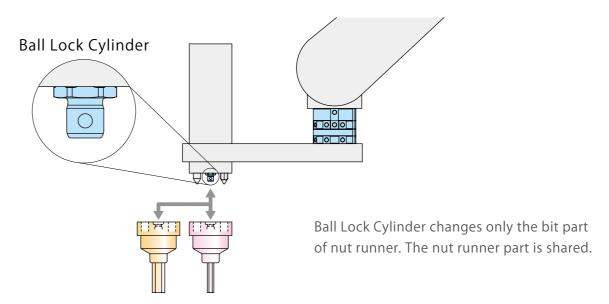




Offset Hand

Pallet Stocker

For Bit Change of Nut Runner





Application Example Video

Soldering Automation with Ball Lock Cylinder

Search

Video Title

Soldering Automation with WKA Ball Lock Cylinder

http://www.kosmek.co.jp/php_file/video_products.php?id=079&lang=2







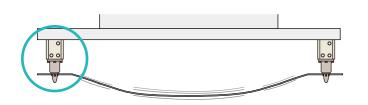
Locating Pin Clamp model SWP

Expansion Locating Pin allows for stable operation with large clearance and high repeatability with internal chucking. Suitable for automated application such as end of arm tooling and clamp on equipment.

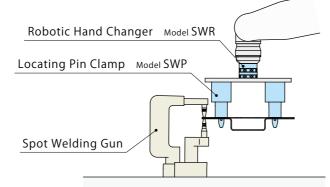
Prevents Short Time Breakdown



Assembly Line and Spot Welding for Automobile Exterior Parts



Withstands Distortion of Large Workpiece



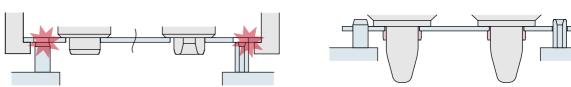
Drastically Reduce Damage to Workpiece!



Large Clearance for Smooth Loading/Unloading



High-Accuracy Locating to Prevent Loading Errors



Loading failure due to workpiece position difference.

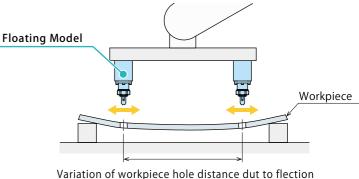
No loading failure possible with high-accuracy locating.

Floating Model Allows for Warp or Flection of Workpiece

The floating model allows the pin head to float according to the workpiece hole at released state. (No Locating Function)







can be absorbed by the floating function.



Product Introduction Video

Floating Model of Locating Pin Clamp

Search

Video Title

Introducing Floating Model of Locating Pin Clamp

http://www.kosmek.co.jp/php_file/video_products.php?id=083&lang=2







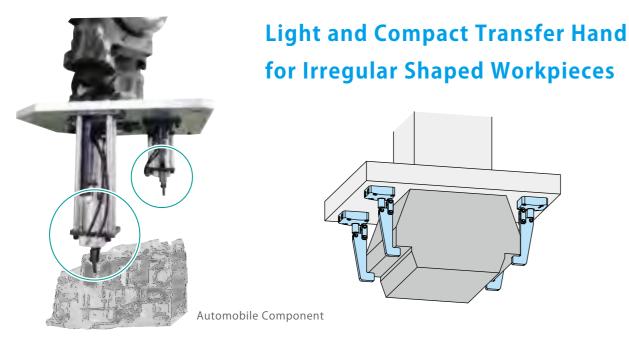
High-Power Pneumatic Clamp

Link Clamp / Link Clamp / Swing Clamp

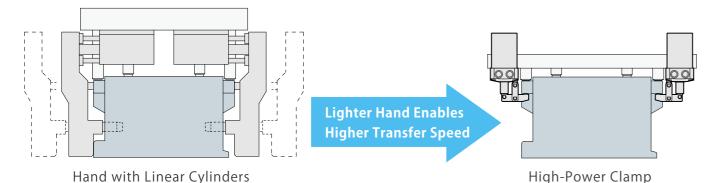
model WCE/WFE/WHE

Compact and high-power clamp cylinders with KOSMEK exclusive mechanical lock. Equipped with self-locking function** to prevent a workpiece fall, thus used for safe transfer hand.

** The function only for the model WCE and WFE.



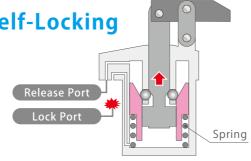
Clamping a Specific Spot, Light and Compact Hand Increases Operating Speed Compact and high-powered clamp cylinder enables to downsize a transfer hand.



Prevents a Workpiece Fall with Self-Locking

The function only for the model WCE and WFE.

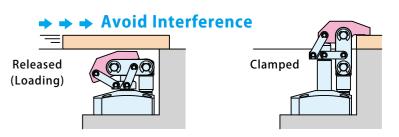
High-Power Pneumatic Link Clamp (model WCE and model WFE) have built-in self-locking function to maintain clamped state even when air supply is cut off, thus Installed as a safe transfer hand.



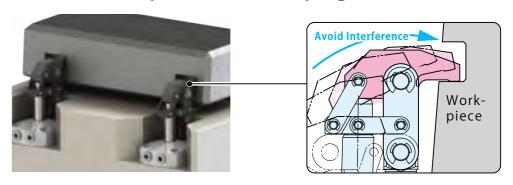
Self-Locking State
(Hold with Spring Force + Mechanical Locking)

The lever of Link Clamp (model WFE) is largely retracted to avoid interference during workpiece loading/unloading.

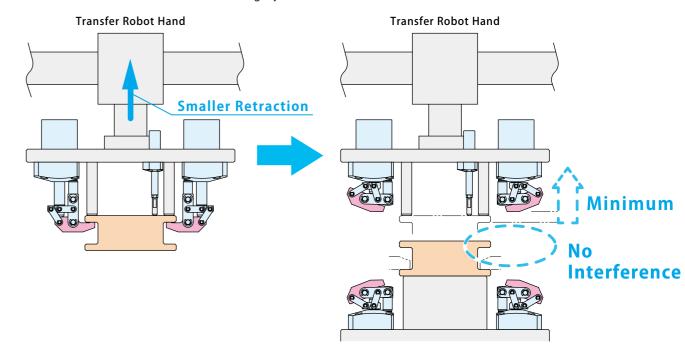
Avoid interference with a workpiece when loading and unloading



■ Enables to Clamp Difficult Clamping Points



■ For Robot Hands The largely retracted lever minimizes robot retraction.





Product Introduction Video

Link Clamp Retracting model

Search

Video Title

New model "High-Power Pneumatic Link Clamp -Retracting Model-"

http://www.kosmek.co.jp/php_file/video_products.php?id=143&lang=2







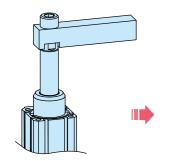
Pneumatic Swing Clamp model WHC

Compact pneumatic clamp cylinder with long operational life, high speed and high accuracy. This clamp is coolant resistant, and can be used in various applications with the use of auto switch.

Long Operational Life • **High Speed • High Accuracy**

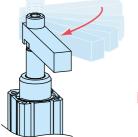


Action Description

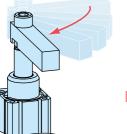


Swing Angle Accuracy 90±3°

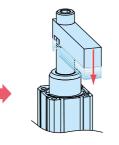
Before Swing (Released State)



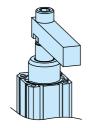
The lever descends



as it swings.

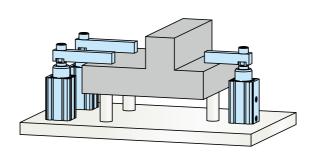


After swing completion, it descends vertically.

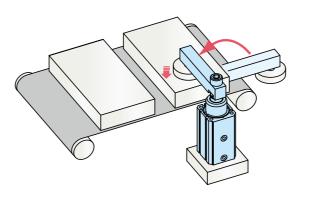


Action Completed (Clamped State)

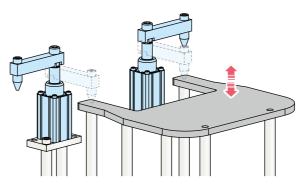
Application Examples



For Clamping a Workpiece during Assembly, Machining and Testing



For Clamping a Workpiece on a Device

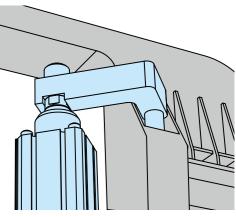


To Simplify Welding Fixtures, For Easier Loading/Unloading

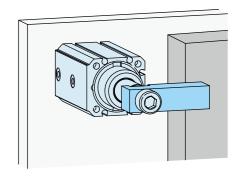
* Please consider spatter prevention. Welding model WHG/WCG with powerful protection is also available.



For End of Arm Tooling



To Avoid Interference, To the Place Requiring Accuracy



Mounting on a Vertical Surface

* Make sure to check "Notes for Lever Design" on the product catalog before use.

Product Introduction Video

Wall Mounting Pneumatic Swing Clamp



Video Title

Mount it on a wall surface! Pneumatic Swing Clamp with powerful swing mechanism - model WHC

http://www.kosmek.co.jp/php_file/video_products.php?id=133&lang=





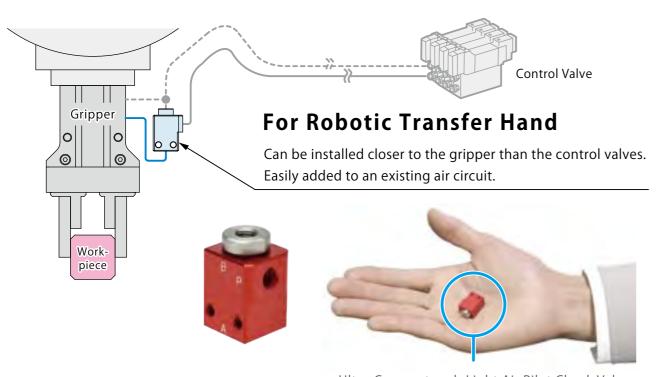


model BWS Air Safety Valve

model BWS Air Safety Valve

Ultra-compact and light air pilot check valve to prevent a workpiece fall during robot transfer. Maintains air pressure in a circuit even when air supply is stopped due to power failure, etc.

Workpiece Fall Prevention for Safety



Ultra-Compact and -Light Air Pilot Check Valve The weight of M3 thread size is 9g, M5 size is 14g, **Maintains pressure** and Rc1/8 size is 37g.

to prevent a workpiece fall even when air supply is cut off.

Air Safety Valve maintains air pressure in a circuit even when air supply is cut off due to power failure or piping damage caused by deterioration of air tube or a lack of consideration to piping design. Prevents a workpiece fall during transfer with a robot, protecting a workpiece and equipment. Built-in sealing is a soft seal with high reliability.



Even when air is cut off





FA • Industrial Robot System

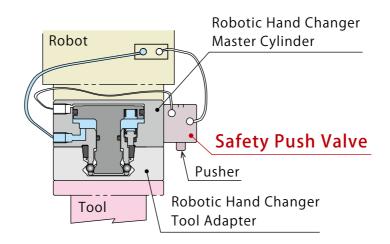
model SWRA Safety Push Valve

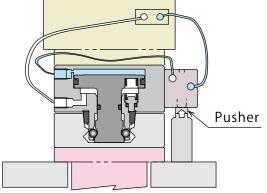
Prevents a tool fall caused by operational error of a valve during robot teaching. Enables to limit the SWR to release only at a designated position (tool stocker).

Prevent Errors during Robot Teaching

Prevent a Tool Fall of **Robotic Hand Changer during Teaching**

Able to mount directly on the Kosmek Robotic Hand Changer (Model SWR), and prevent a tool fall caused by valve operating error during robot teaching. Enables to limit the robotic hand changer to release only at a designated position (tool stocker).





Locked State

Even if the valve should switch during transfer, release action will not be performed.

Releasable State

Release action is possible only at tool stocker.





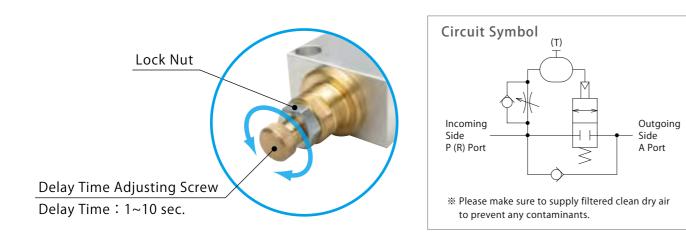
Air Sequence Valve model BWD

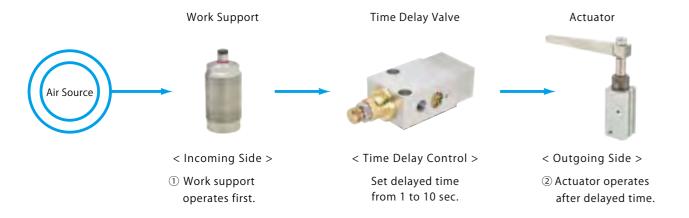
A sequence valve (time delay valve) that can activate multiple actuators in sequence. It controls air flow and initiate a time difference for air pressure supplied from primary side to secondary side.

Activates Multiple Actuators in Sequence

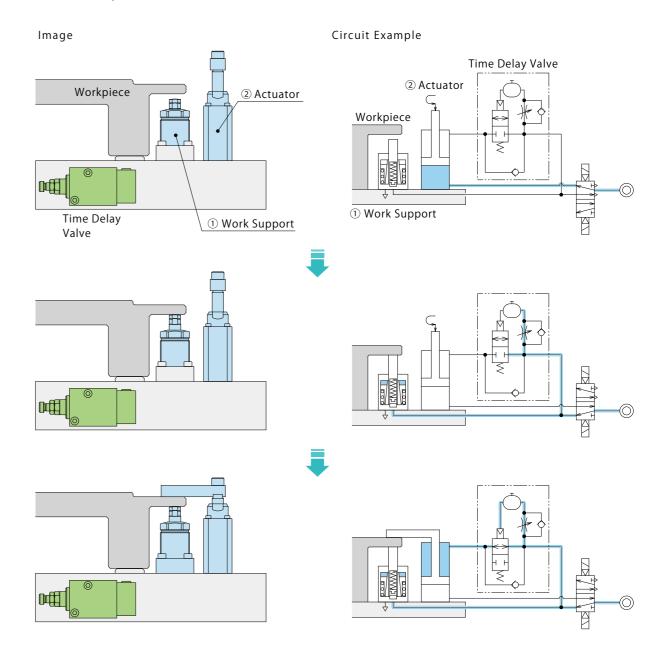
Electric Control or Air Pilot Port Not Required. Actuators can be actuated with minimal number of ports.

It controls the air flow by using a check valve, flow control valve, air tank, switching valve and activates multiple actuators in sequence. This has a compact and high performance sealing structure and can be built into fixtures for machining centers. It can be installed in explosion proof surroundings because electricity control is not required.





Action Description



Operating Procedure	
Locking	Air pressure is turned ON
	① Work Support is activated.
	The built-in switching valve activates once the tank in the air sequence valve is filled with air.
	② Actuator is activated.
	Locking action is completed.
Releasing	Air pressure is turned OFF.
	① Work Support and ② Actuator are released at almost the same time.
	Releasing action is completed.





Leakless Coupler model JWC/JWD

Leakless coupler enables to maintain clamping force since it keeps the air pressure even if a coupler is disconnected, remains air clamps in a locked state, and transfer a workpiece to the next station.

Leakless Coupler Maintains Pressurized State to Solve Pallet Transfer Problems

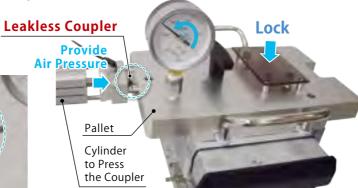
Provide and maintain air pressure in devices on a pallet.

1 Loading and Clamping the Workpiece

Provide air pressure through leakless coupler.

Available for use with negative pressure and vacuum air.





Working Process

Disconnect the leakless coupler under pressure.

Possible to transfer the pallet to the next station while the workpiece is clamped. The leakless coupler

maintains air pressure inside the circuit, so

it can be disconnected from the air source.



Unloading the Workpiece

After the operation is completed, connect couplers to release air out and unload the workpiece.



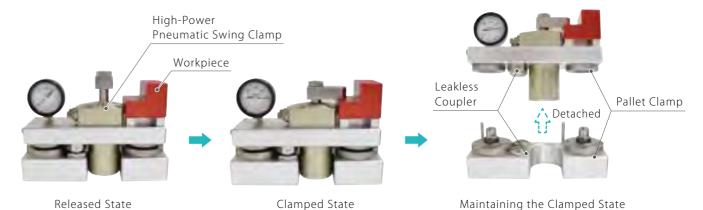
Detaching a workpiece from air source, transfer with pressure maintained.



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.



■ KOSMEK AUTO COUPLERS

 $\ensuremath{\mbox{\%}}$ Auto Coupler does not have a non-leak (pressure holding) function.



(Supplying Release Air)



(Supplying Lock Air)



(The pallet can be detached while keeping lock air supplied.)











Product Introduction Video

KOSMEK Leakless Coupler JWC

Search

Video Title

Leakless Coupler to Maintain Air Pressure

http://www.kosmek.co.jp/php_file/video_products.php?id=050&lang=2

