

For Multi-Workpiece Layout,  
Space Saving, Tool Improvement,







Machining Accuracy Improvement  
and Cycle Time Reduction

Hole Clamp

Hole Clamp avoids interference with a tool, achieving Process Integration, Compact Fixture and Multi-Workpiece Layout. Tool’s projecting length can be shortened, and its fluctuation can be minimized. This improves the manufacturing quality and operational life of tools.





	 Model SFA	 Model SFC	 Model SWE	 Model SWA
Classification	Double Action Hyd. Lock / Hyd. Release	Double Action (Offset Model) Hyd. Lock / Hyd. Release	Double Action Air Lock / Air Release	Double Action Air Lock / Air Release
Operating Pressure Range	1.5 ~ 7(4) MPa	1.5 ~ 7(4) MPa	0.2 ~ 0.5 MPa	0.25 ~ 0.7(0.5) MPa

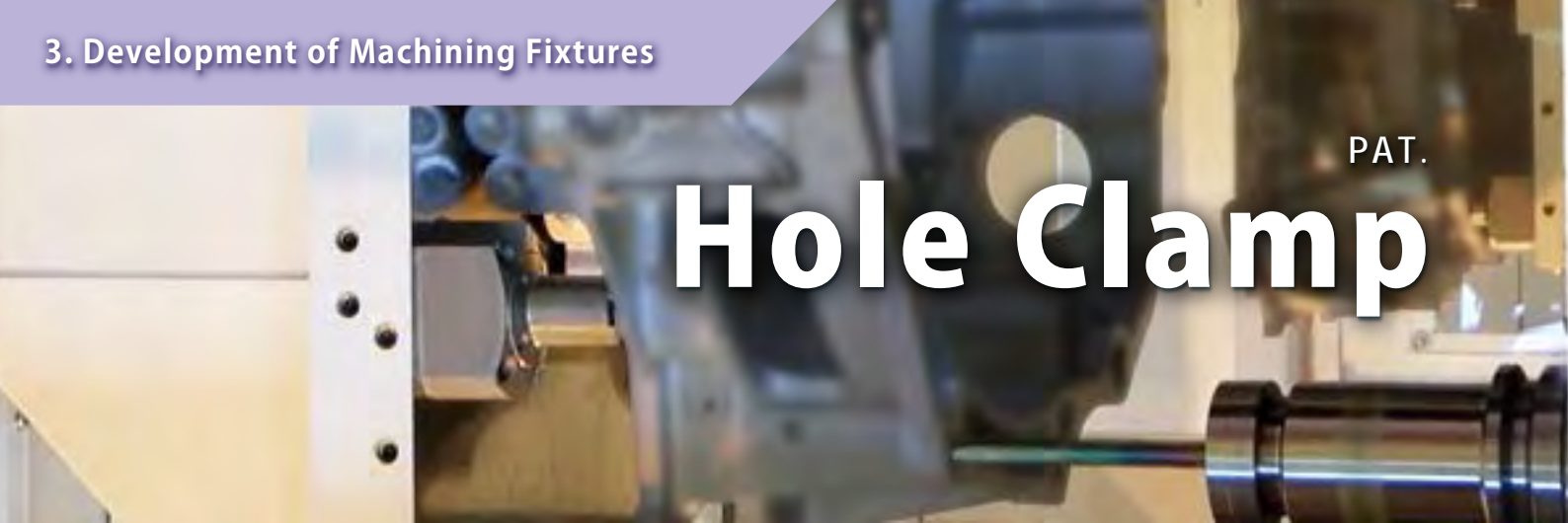
High-Power Clamp

Compact, yet exerts powerful clamping force.  
Allows for compact fixture and multi-workpiece layout.  
Powerful holding force to minimize workpiece fluctuation enables to improve the manufacturing quality and operational life of tools.

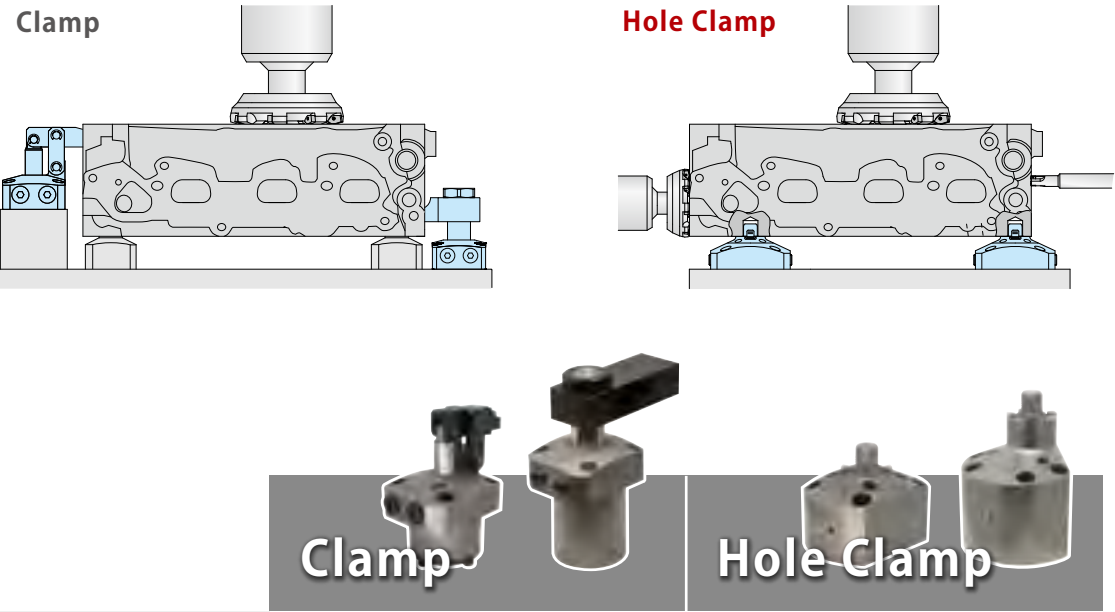


	 Model LHE	 Model LKE	 Model WHE	 Model WCE
Classification	Double-Acting Swing Clamp Hyd. Lock / Hyd. Release	Double-Acting Link Clamp Hyd. Lock / Hyd. Release	Double-Acting Swing Clamp Air Lock / Air Release	Double-Acting Link Clamp Air Lock / Air Release
Operating Pressure Range	1.5 ~ 6MPa	0.5 ~ 6MPa	0.2 ~ 0.5MPa	0.2 ~ 0.5MPa



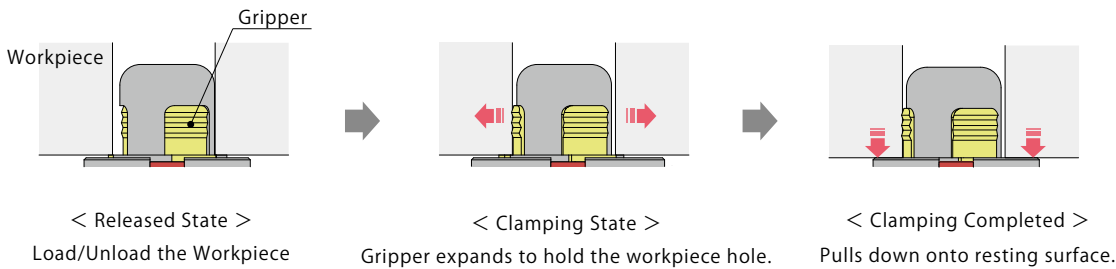


Hole Clamp for Integrated Operation,  
Space Saving and Multi-Workpiece Layout



Number of machinable faces without interference	3	5
Fixture Weight ※1	About 40kg	About 30kg
Table Size	Large	Compact
Amount of Coolant (Cutting Chips Draining)	Large (△)	Small (○)
Height of Transfer Equipment	High	Low

※1. Reference fixture weight when clamping a workpiece (300mm × 200mm) with 4 clamps.

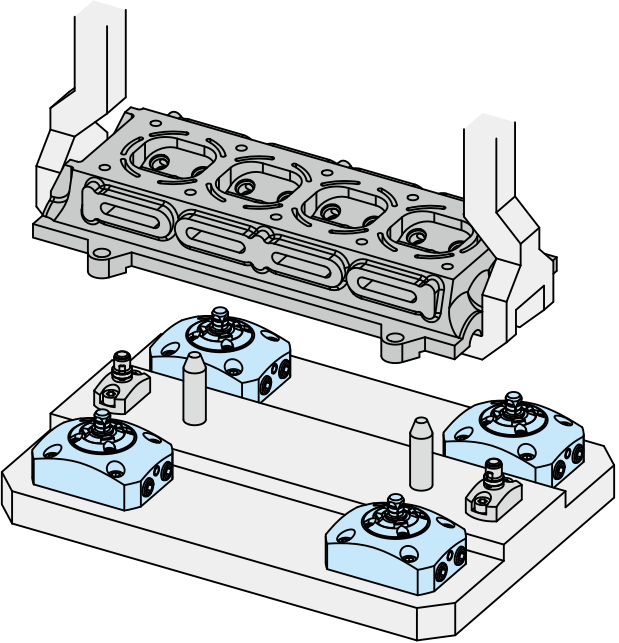
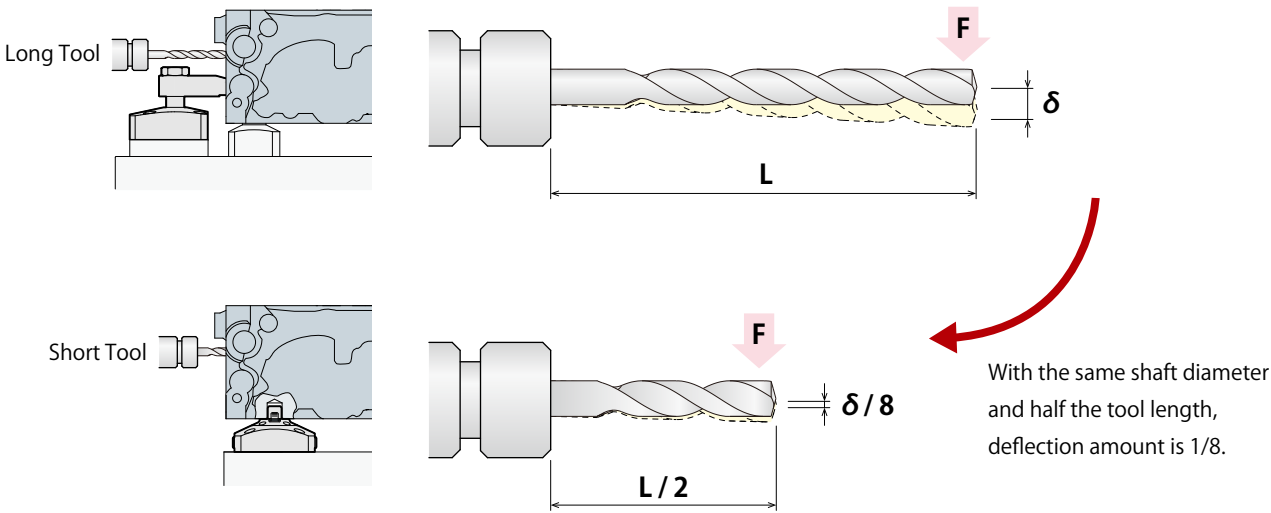


More Accessible Tools

No interference of a cutting tool and a clamp means closer access of the cutting tool to a workpiece, and shorter projecting length. This enables the cutting tool to minimize fluctuation, machine with higher accuracy and improve machining quality. Plus, wear-out of the cutting tool can be reduced, allowing for stable machining accuracy for a long time.

$$\delta = \frac{C \times L^3}{D^4}$$

δ : Deflection L : Tool Length  
C : Constant D : Tool Shaft Diam.



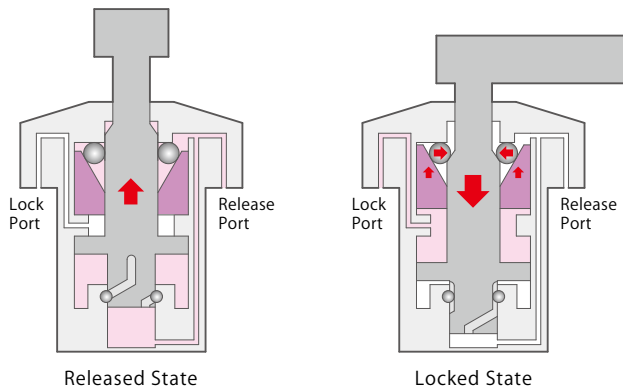
Auto Transferring  
of a Workpiece

There is no interference even when transferring a workpiece with a gantry loader or multi-joint robot.

# High-Power Clamp PAT.

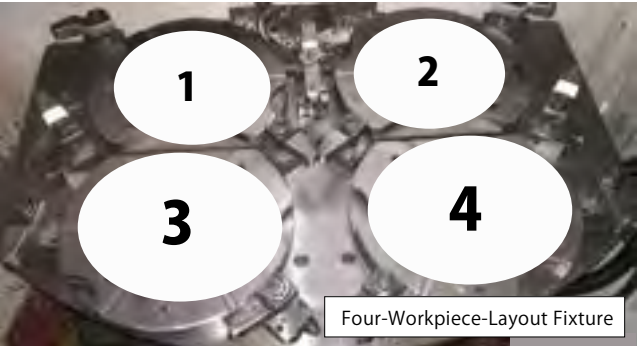
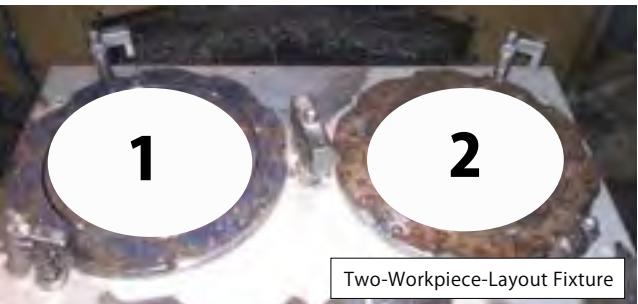


## Hydraulic Pressure + Mechanical Lock



This size (full scale) exerts  
**Clamping Force 3.7 kN** **Holding Force 4.6 kN**

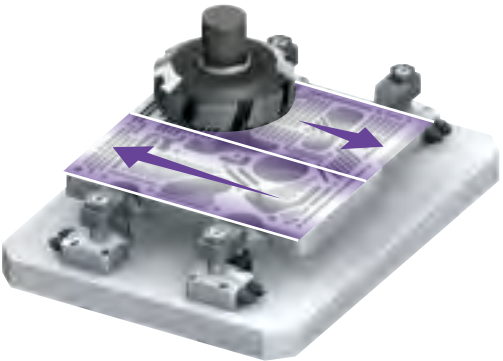
※ When supply hydraulic pressure is 5 MPa and lever length is 60 mm.



Compact body with powerful clamping force allows for multi-workpiece layout!

Able to use machining area at the maximum!

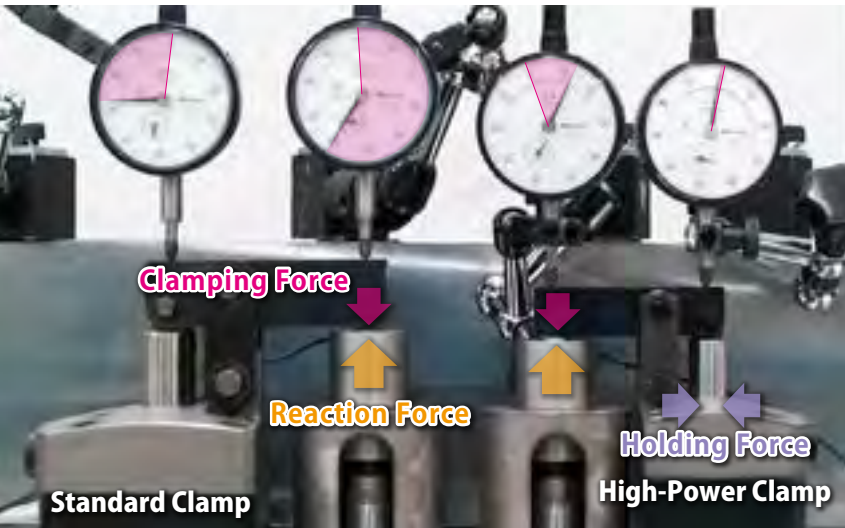
## Stronger Clamping Force, Better Machining Conditions!



Cutting Speed  $V_c = \pi \times \text{Milling Diameter} \times \text{Number of Rotations}$

Ex.) Doubling the milling diameter doubles the cutting speed!

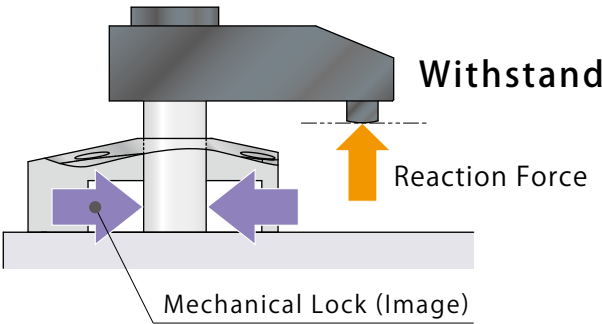
## Withstand the reaction force with holding force.




	Standard Link Clamp Model LKA0650	High-Power Link Clamp Model LKE0480
Clamping Force	2.08 kN	1.98 kN
Holding Force	-	3.04 kN

Supply Hyd. Pressure : 3 MPa  
Reaction Force : 3 kN

Even with the same clamping force, displacement to the reaction force differs significantly. High-power holding force will control fluctuation, resulting in longer operational life of tools.





**Double Piston Swing Clamp** Model LHD

We offer the Double Piston Swing Clamp that exerts a high power with a double piston structure (but without holding force). Long stroke allows for different clamping heights of workpieces on the same application.



# 4. Machining Line Automation

The Products for Stable Automation  
of General-Purpose Machines

## Air Sensing Clamp

Action confirmation is indispensable for automation.  
Confirming clamp conditions by detecting work clamp actions  
allows for securely using with transfer devices.



## Expansion Locating Pin

When loading a workpiece on a machining fixture,  
the expansion locating pin enables both stable loading  
(automation) and high accurate locating.



## Robotic Hand Changer

Robotic Hand Changer Designed to Meet Machining Demands  
It can be safely used even under environment with coolant,  
cutting chips, and etc.



## Robotic Hand

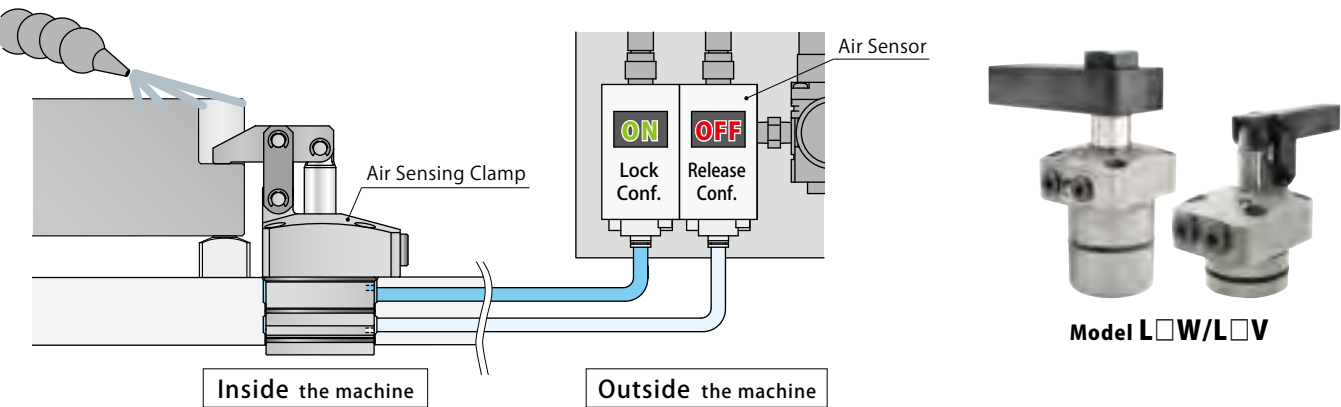
Kosmek robotic hands are compact even for  
the usage in the machining environment and  
for the aluminum die-casting workpieces in  
a complicated shape.



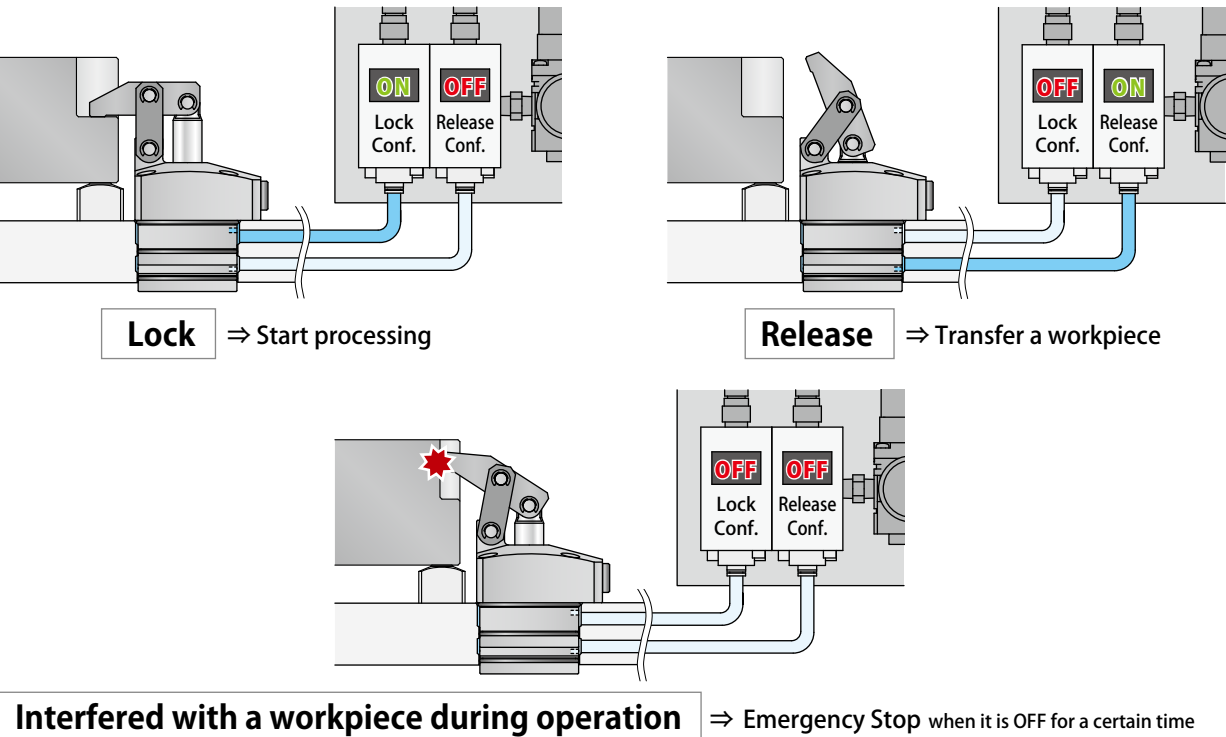




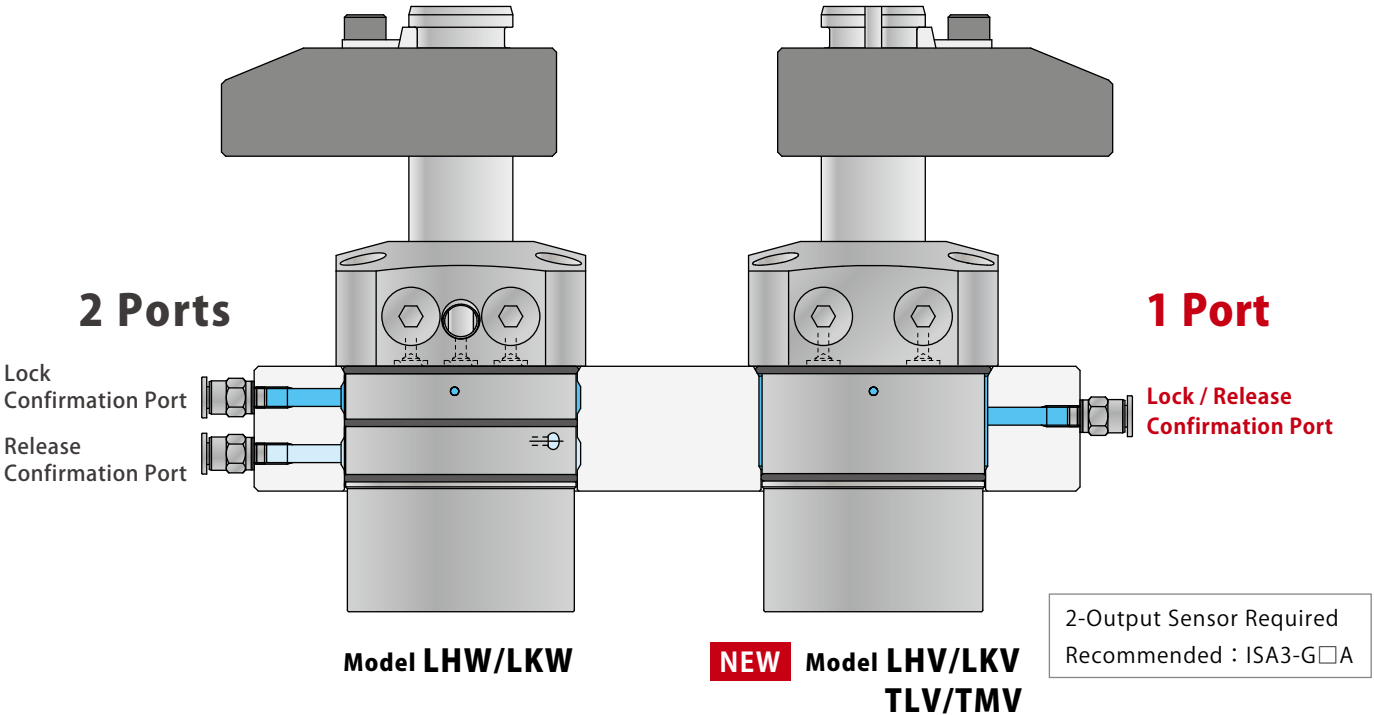
Detecting three states of a clamp (locked, released and in use) results in secure operation with workpiece transfer equipment and machine tools.



With KOSMEK clamp, it is able to check clamp actions by using air pressure provided via built-in valve function. Sensors can be placed outside a machine for stable action under machining environment.

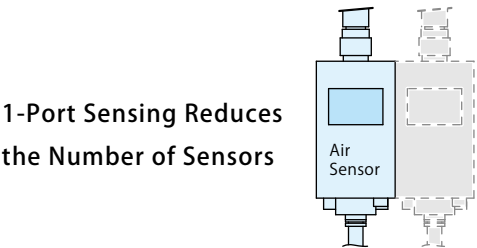


Even when the number of ports is limited,  
one air port checks lock and release actions!  
1-Port Sensing Clamp



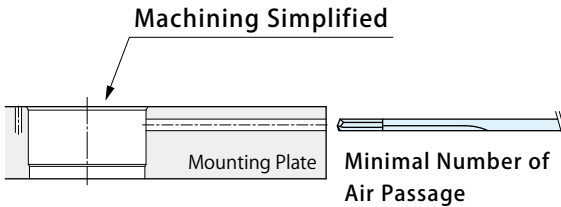
Minimized Number of Sensors

Using with a two-output air sensor allows for one sensing air port, checks both lock and release actions and reduces the number of sensors.



Minimized Number of Ports • Simple Machining

Integrating ports allows for reducing the number of ports of a rotary joint and machining for air passage of a fixture plate, and they simplify the machining of a mounting hole, etc.



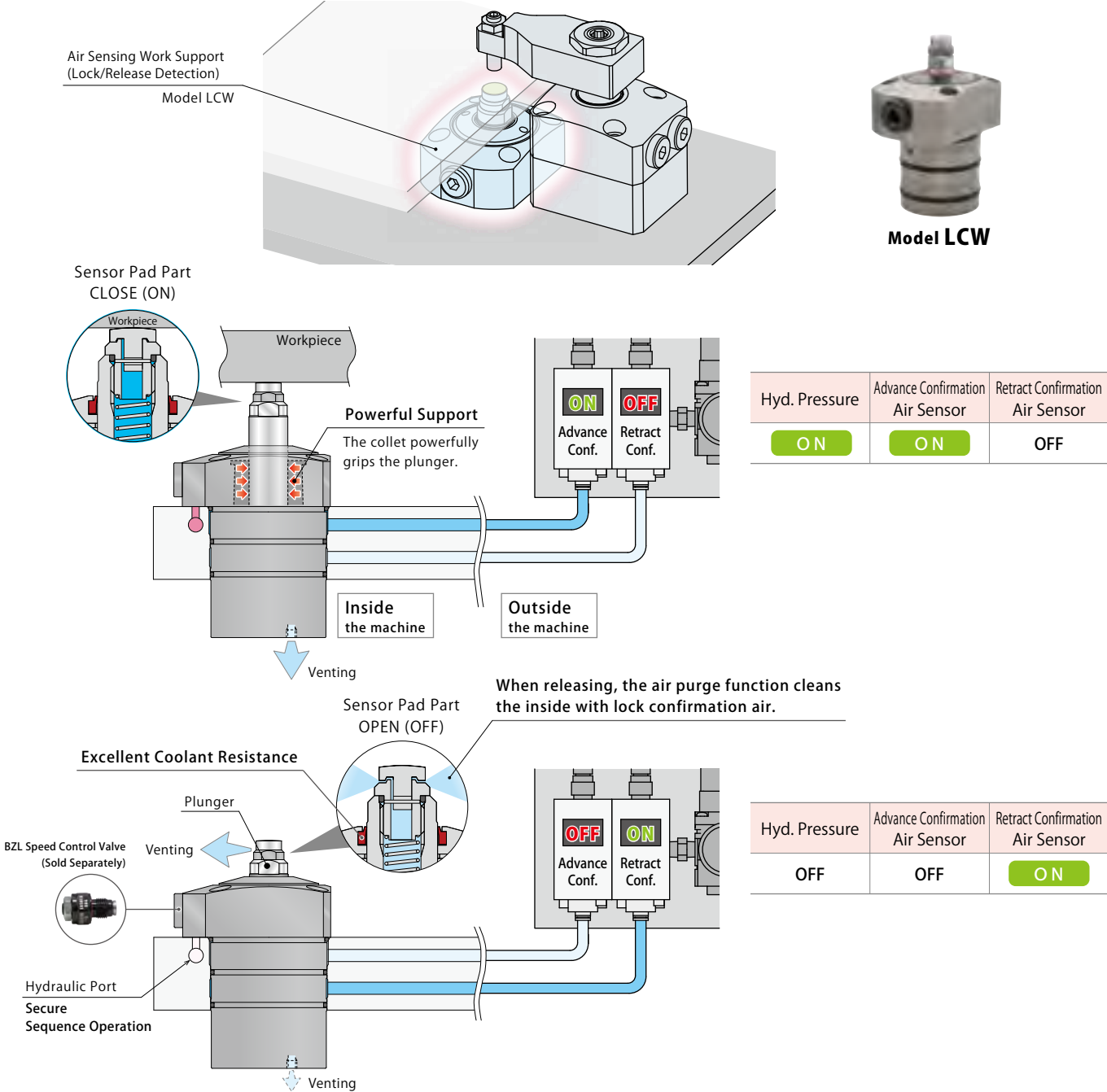
	Model LHW	Model LKW	Model LFW	Model LHV	Model LKV	Model TLV-2	Model TMV-2
Classification	Double-Acting Swing Clamp	Double-Acting Link Clamp	Double-Acting Link Clamp Lever Retraction	Double-Acting Swing Clamp	Double-Acting Link Clamp	Double-Acting Swing Clamp	Double-Acting Link Clamp
Op. Pressure Range	1.5 ~ 7MPa	0.5 ~ 7MPa	1.0 ~ 7MPa	1.5 (2.0) ~ 7MPa	1.0 ~ 7MPa	7 ~ 35MPa	3.5 ~ 35MPa
Required No. of Sensors	2	2	1※	1	1	1	1
Both-side Detection	○	○	—	○	○	○	○
One-side Detection	○	○	○※	—	—	○	○

※ Release action confirmation only.

# Air Sensing Work Support

## The World's First Work Support Action Detection!

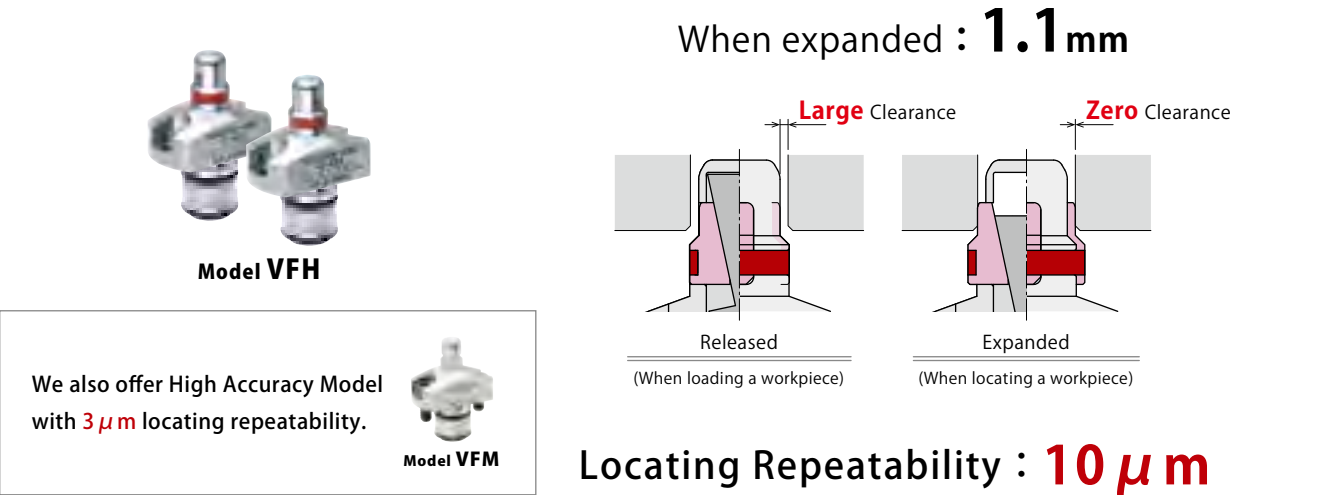
Possible to detect actions of the work support installed behind a workpiece.



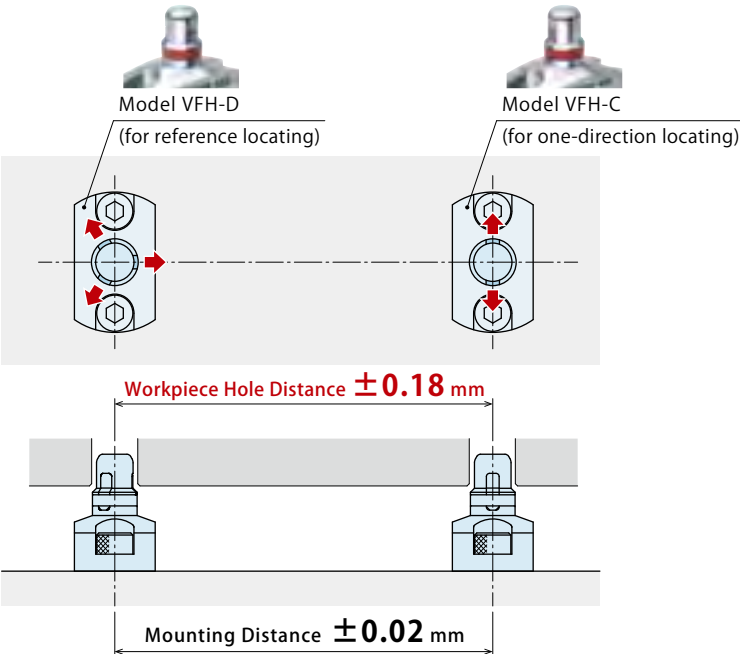
# Expansion Locating Pin Large Expansion Model

## Enables both Smooth Loading/Unloading and High Accuracy Locating

KOSMEK expansion locating pin absorbs variations in machining reference holes and reference hole distance. This enables high accuracy locating and stable automation.



Ex.)  
For a workpiece hole  $\phi 10^{+0.05}_0$  mm,  
Mounting Distance of  
Expansion Locating Pin:  $\pm 0.02$ mm  
Allowable Workpiece Hole Distance  
Variance: within  $\pm 0.18$ mm





# Robotic Hand High-Power Pneumatic Clamp

PAT.

## Light and Compact Transfer Hand for Irregular Shaped Workpieces

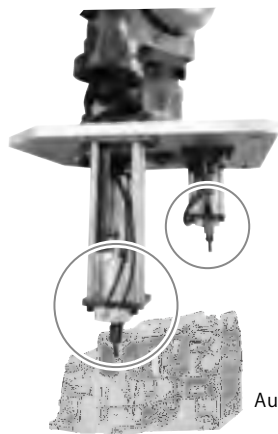
High-Power Pneumatic Link Clamp



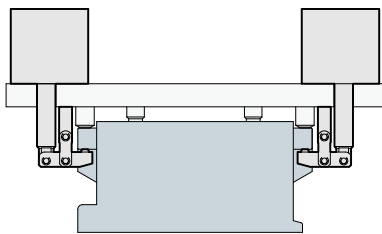
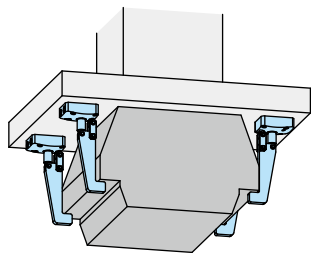
Model WCE

## Compact and Powerful High-Power Clamp with Self-Locking Function

Compact and high-power clamp cylinder with exclusive mechanical locking structure.  
Internal self-locking holds a workpiece even when air supply is stopped.  
Introduced as a transfer hand for irregular shaped workpieces.



Automobile Component

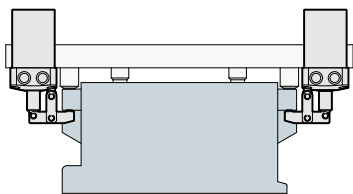


General Pneumatic Cylinder  
Heavy • Large



Fixture Weight  
About 10% Reduced

※ Reference when the size  
of the workpiece is 300×260.



Exerts Equivalent Clamping Force  
with Mechanical Lock

High-Power Pneumatic Clamp

Light • Compact • Powerful  
Reduce a Load to Transfer Equipment

## Light and Compact Transfer Hand for Heavy Workpieces

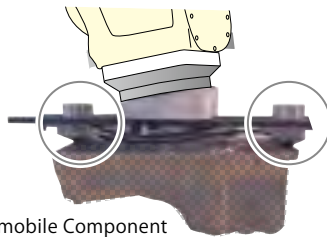
High-Power Pneumatic Hole Clamp



Model SWE

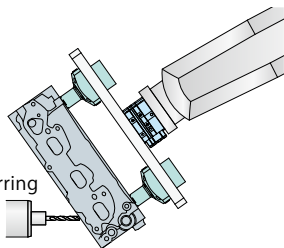
## Save Energy with Lighter Hands

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



Automobile Component

Transfer the Heavy Workpiece with Light Hands

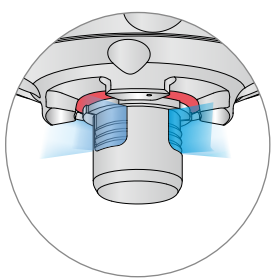


Deburring

5 Faces Accessible with No Interference

## Air Blow

The air blow function  
cleans the product itself  
and a workpiece hole.



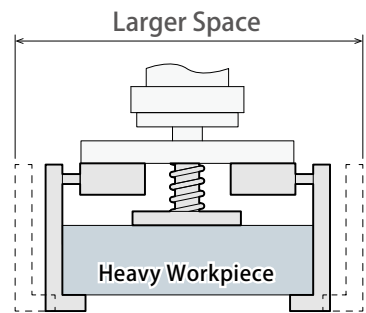
The gripper expands and  
pulls a workpiece in.



Clamping  
Force **2 kN** (Air Pressure : 0.45 MPa)

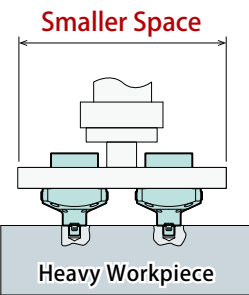
Even at zero pressure, it will stay locked with  
internal spring and prevent falling of workpieces.

Clamping Force at 0MPa **0.25 kN**



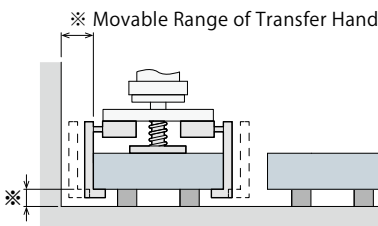
Loading/Lifting Hand with Linear Cylinder

Heavy • Large

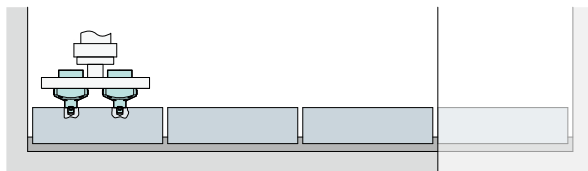


High-Power Pneumatic Hole Clamp

Light • Compact • High Accuracy  
Self-Lock Function to Ensure Safety



Loading/Lifting Hand with Linear Cylinder



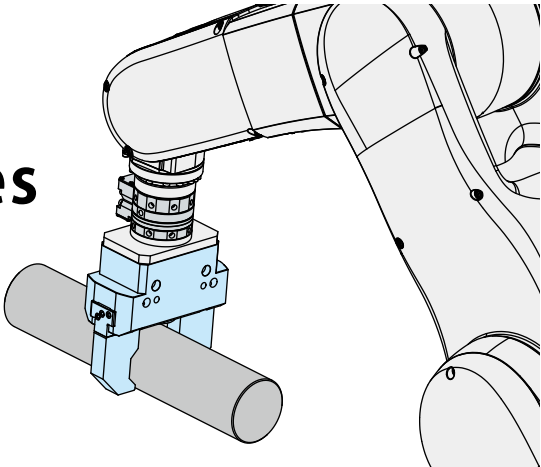
High-Power Pneumatic Hole Clamp

No movable range of transfer hands means  
the reduction of the storage space for workpieces.

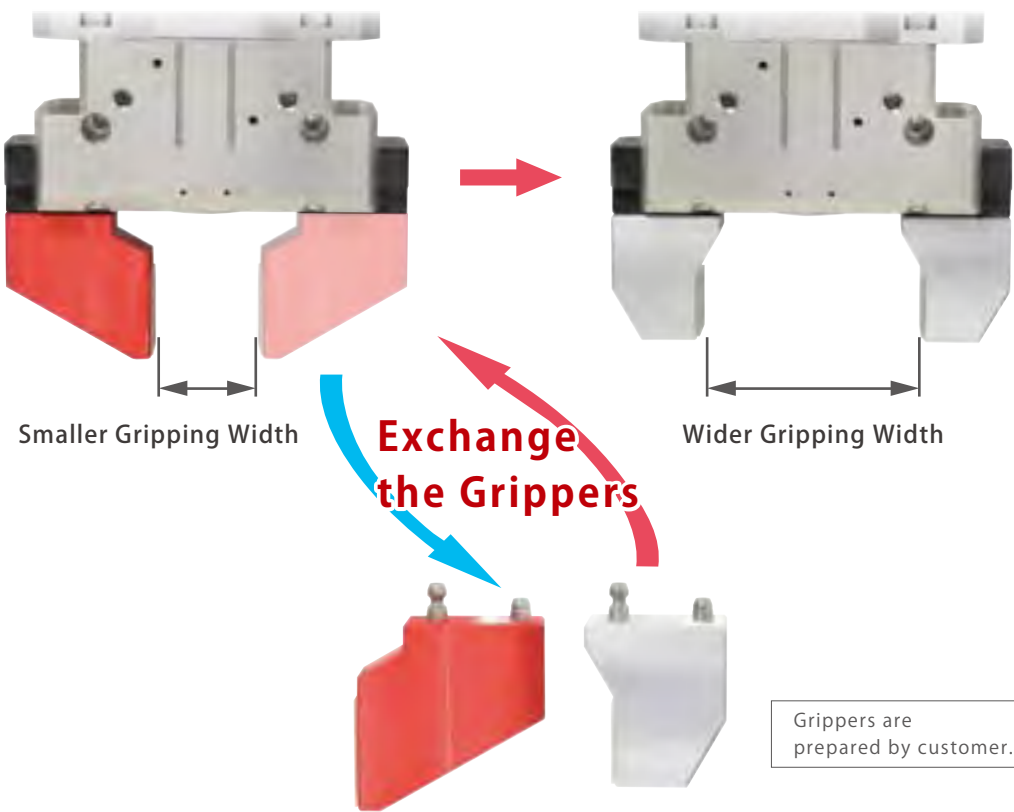
# Robotic Hand Parallel Hand with Auto-Grip Changer



## For Loading Cylindrical Workpieces



## Gripper Change Allows for Multi-Size Workpieces



A long-stroke chuck can grip several types of cylindrical workpieces, but the hand may become heavy and interfere with equipment. The parallel hand with auto-grip changer enables to change only the grippers of the parallel hand, allowing for a variety of workpieces.

# Stable Automation with KOSMEK High-Accuracy Setup System



## Instant High-Accuracy Locating and Powerful Clamping

Accumulated tolerance is increased as the number of changing parts (such as robotic hands, workpieces and fixtures) increases. KOSMEK products change each part with high accuracy to minimize the accumulated tolerance for stable production.

Transfer Device  
(Multi-Shaft Robot, Gantry Loader)

Pallet Transfer / Changeover

Workpiece Changeover

Fixture Changeover

General Setup System	KOSMEK High-Accuracy Setup System
Transfer/Changeover Tolerance $\pm 0.05$ mm	Transfer/Changeover Tolerance <b>0.003</b> mm
Workpiece Changeover Tolerance $\pm 0.05$ mm	Workpiece Changeover Tolerance <b>0.003</b> mm
Fixture Changeover Tolerance $\pm 0.05$ mm	Fixture Changeover Tolerance <b>0.003</b> mm
Accumulated Tolerance <b>0.3</b> mm	Less than <b>0.01</b> mm

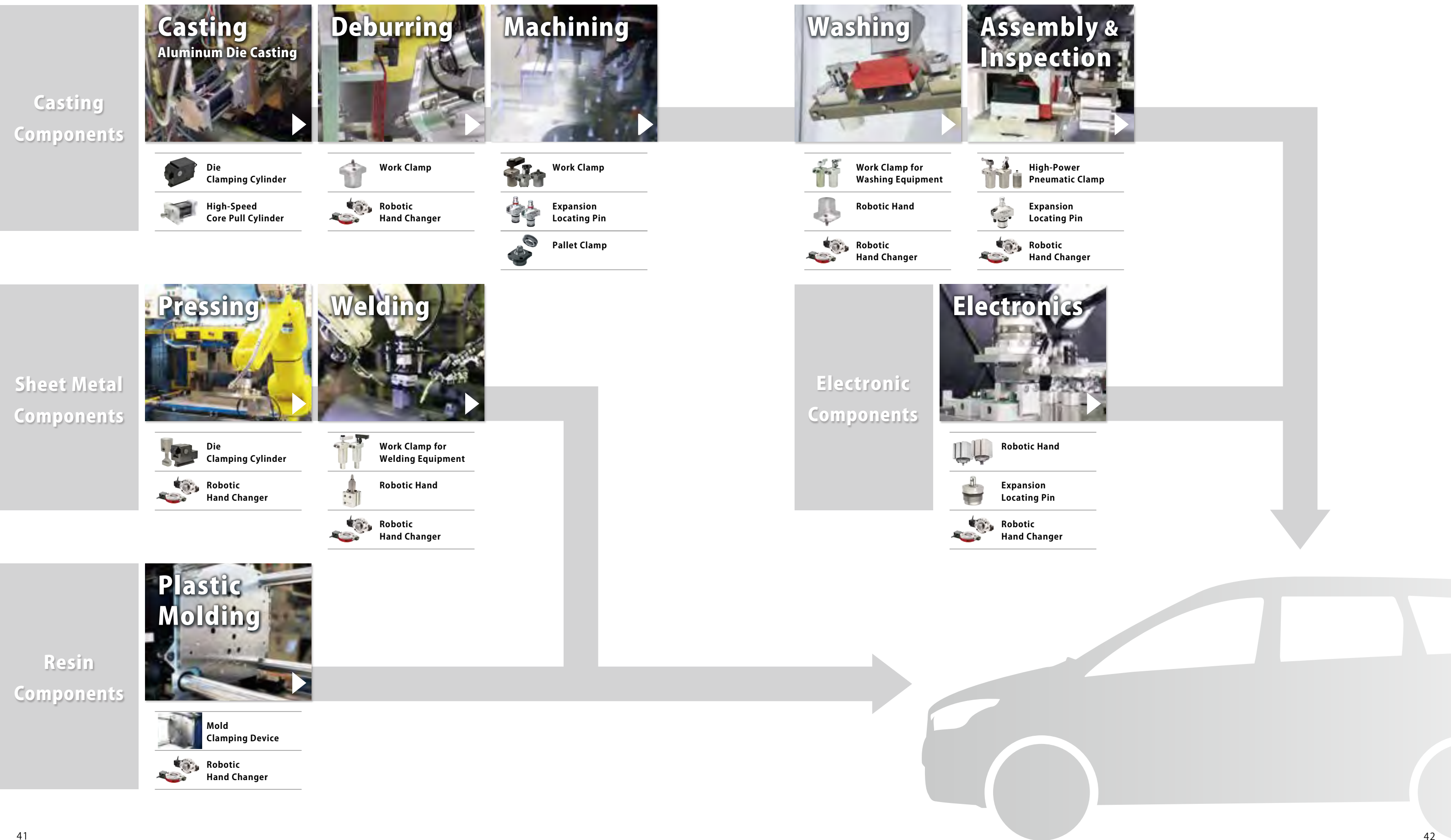
Unable to automate since zero return is required after each process due to large variation in tolerance.

**Highly Stable Automation Possible**



# KOSMEK Products to Enhance

# Productivity in Every Process





## Company Profile



KOSMEK LTD. Head Office

Company Name	KOSMEK LTD.
Established	May 1986
Capital	¥99,000,000
President	Tsutomu Shirakawa
Employee Count	270
Group Company	KOSMEK LTD. KOSMEK ENGINEERING LTD. KOSMEK (USA) LTD. KOSMEK EUROPE GmbH KOSMEK (CHINA) LTD. KOSMEK LTD. - INDIA
Business Fields	Design, production and sales of precision products, and hydraulic and pneumatic equipment
Customers	Manufacturers of automobiles, industrial machinery, semiconductors and electric appliances
Banks	Resona Bank, MUFG Bank, The Senshu Ikeda Bank

### Sales Offices

#### Sales Offices across the World

JAPAN HEAD OFFICE Overseas Sales	TEL. +81-78-991-5162 FAX. +81-78-991-8787 KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241 兵庫県神戸市西区室谷2丁目1番5号
United States of America SUBSIDIARY KOSMEK (USA) LTD.	TEL. +1-630-620-7650 FAX. +1-630-620-9015 650 Springer Drive, Lombard, IL 60148 USA
MEXICO REPRESENTATIVE OFFICE KOSMEK USA Mexico Office	TEL. +52-1-55-3044-9983 Av. Santa Fe 103, Int. 59, col. Santa Fe Juriquilla, Queretaro, QRO, 76230, Mexico
EUROPE SUBSIDIARY KOSMEK EUROPE GmbH	TEL. +43-463-287587 FAX. +43-463-287587-20 Schleppplatz 2 9020 Klagenfurt am Wörthersee Austria
CHINA KOSMEK (CHINA) LTD. 考世美(上海)貿易有限公司	TEL. +86-21-54253000 FAX. +86-21-54253709 Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China 中国上海市浦东新区浦三路21弄55号银亿滨江中心601室 200125
INDIA BRANCH OFFICE KOSMEK LTD. - INDIA	TEL. +91-9880561695 4A/Old No:649, Ground Floor, 4th D cross, MM Layout, Kavalbyrasandra, RT Nagar, Bangalore -560032 India
THAILAND REPRESENTATIVE OFFICE KOSMEK Thailand Representation Office	TEL. +66-2-300-5132 FAX. +66-2-300-5133 67 Soi 58, RAMA 9 Rd., Phatthanakan, Suanluang, Bangkok 10250, Thailand
TAIWAN (Taiwan Exclusive Distributor) Full Life Trading Co., Ltd. 盈生貿易有限公司	TEL. +886-2-82261860 FAX. +886-2-82261890 16F-4, No.2, Jian Ba Rd., Zhonghe District, New Taipei City Taiwan 23511 台湾新北市中和區建八路2號 16F-4 (遠東世紀廣場)
PHILIPPINES (Philippines Exclusive Distributor) G.E.T. Inc, Phil.	TEL. +63-2-310-7286 FAX. +63-2-310-7286 Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427
INDONESIA (Indonesia Exclusive Distributor) PT. Yamata Machinery	TEL. +62-21-29628607 FAX. +62-21-29628608 Delta Commercial Park I, Jl. Kenari Raya B-08, Desa Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia

#### Sales Offices in Japan

Head Office Osaka Sales Office Overseas Sales	TEL. 078-991-5162 FAX. 078-991-8787 〒651-2241 兵庫県神戸市西区室谷2丁目1番5号
Tokyo Sales Office	TEL. 048-652-8839 FAX. 048-652-8828 〒331-0815 埼玉県さいたま市北区大成町4丁目81番地
Nagoya Sales Office	TEL. 0566-74-8778 FAX. 0566-74-8808 〒446-0076 愛知県安城市美園町2丁目10番地1
Fukuoka Sales Office	TEL. 092-433-0424 FAX. 092-433-0426 〒812-0006 福岡県福岡市博多区上牟田1丁目8-10-101

## Our Products



### KOSMEK WORK CLAMPING SYSTEMS

#### Machine Tool Related Products

Our clamping system enables boltless automation to load and unload workpieces easier.  
Non-leak valve enables the use of hydraulic source and fixtures in a disconnected condition after locking (clamping action).  
We offer a wide range of products such as hydraulic/pneumatic actuators, supports, positioning equipment, valves, couplers, etc.



### KOSMEK FACTORY AUTOMATION SYSTEMS

#### FA • Industrial Robot Related Products

KOSMEK robotic hand changer, robotic hand, positioning equipment and other products improve automation, precision and setup of transfer, assembly, deburring, testing and various other processes.



### DIECAST CLAMPING SYSTEMS

#### For Diecast Machines

Kosmek Diecast Clamping Systems (KDCS) save the time of the changeover of die casting and magnesium molding machines under severe conditions. ex) mold release agents and high temperature.



### QUICK DIE CHANGE SYSTEMS

#### For Press Machines

Kosmek Quick Die Change Systems are a cost effective tool to improve the working environment, allow diversified and small-lot production, and reduce press down time.  
Available for a wide range of machines; from large size transfer-presses to smaller high speed presses.



### QUICK MOLD CHANGE SYSTEMS

#### For Injection Molding Machines

Automatic clamping systems have reduced mold change times and increased production efficiency for plastics manufacturers in a multitude of industries.  
We offer a variety of different clamping options, including hydraulically powered clamps, pneumatic clamps with a force multiplying mechanism, and magnetic clamping systems.