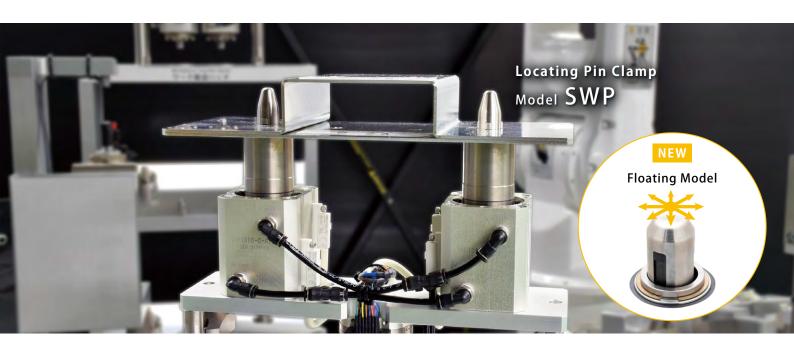


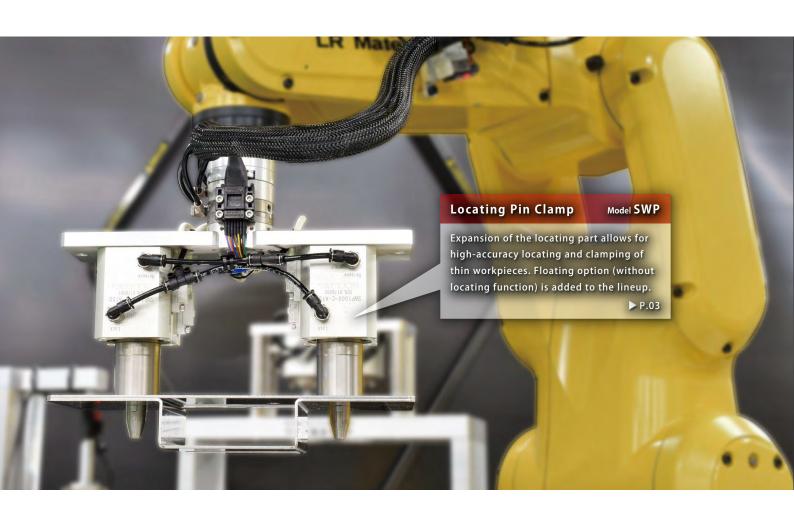
For setup improvement of welding applications

Kosmek Welding Products





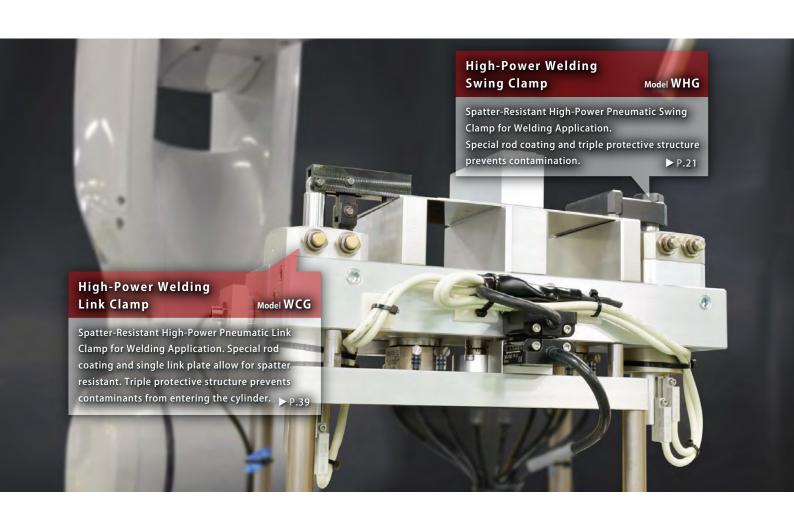




Spot Welding







Arc Welding





For Welding Application

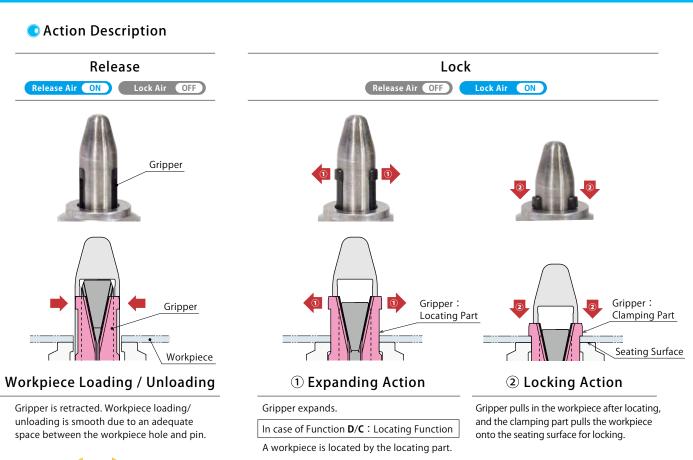
Locating Pin Clamp

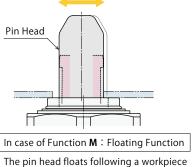
Model SWP





High Accuracy Locating and Clamping of Thin Workpieces Applicable to Workpiece Hole Diameter ϕ 8 or larger PAT.





In case of Function M: Floating Function
The workpiece is locked with the pin head floating. (No locating function)

hole.

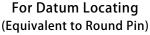
Function

Locating Function

Locating Repeatability: 0.05 mm

As general locating pin, Locating Pin Clamp has two types: Datum Locating Pin (round pin) and One-Direction Locating Pin (diamond pin).





Workpiece hole and gripper make contact at three points for datum locating.

For One Direction Locating (Equivalent to Diamond Pin)

Workpiece hole and gripper make contact, perpendicular to the reference hole, at two points for one-direction locating.



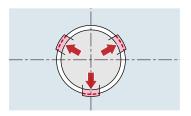
Pin Head: Fixed

Floating Function

Allowable Offset (Pin Head Floating Amount): ±0.8 mm*

In a released state, the pin head floats according to a workpiece hole. The pin head remains floated when a workpiece is securely clamped by the gripper (three parts). (No locating function)

% It shows the allowable offset of body size **100**. The allowable offset of body size **050** is ± 0.6 mm.

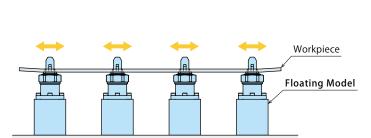




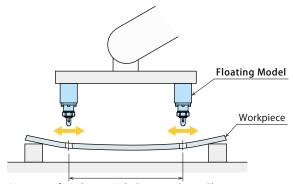
 $Pin\ Head\ {\rm :}\ Floatable$

Application Examples of Floating Model

In case there is a large variation in workpiece hole distance due to warp or flection of a workpiece.



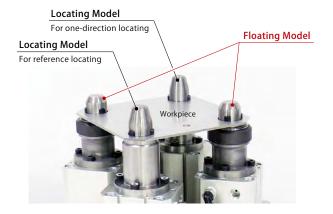
Variation of workpiece hole distance can be absorbed by the floating function.



Variation of Workpiece Hole Distance due to Flection

In case of locating with the locating model and requiring additional clamping force.

The floating model enables additional clamping force without interfering the locating model.



SWF

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve BZW

Manifold Block

WHZ-MD

General Cautions

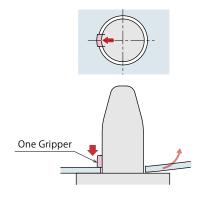
Welding Application Related Products

Die Change System for Press Machines

Features

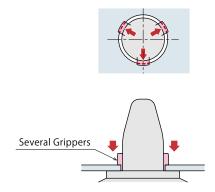
Stable Clamping

Gripper makes contact evenly, allowing for stable clamping.



Pin Clamp with One Gripper Only

Gripper force is concentrated only on one part, causing deformation of workpiece.



KOSMEK Locating Pin Clamp with Several Grippers

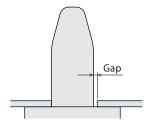
Three or two grippers press a workpiece hole evenly, so the force is distributed allowing for stable clamping.

High Accuracy

Expansion of locating part enables higher accuracy than general locating pin.

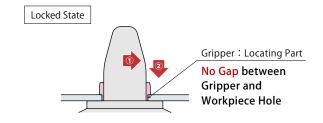
Locating Repeatability: 0.05mm

* In case of Locating Model (when combining Functions D and C) only.



General Locating Pin

Backlash caused by the gap between locating pin and workpiece hole lowers locating accuracy. Also, variance in tolerance of workpiece hole diameter creates variance in locating repeatability of each workpiece.



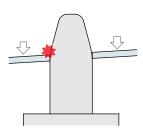
KOSMEK Locating Pin Clamp

Gripper expansion allows for high accuracy locating with no gaps. Variance in tolerance of workpiece hole diameter never affects locating accuracy.



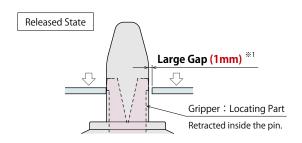
Work Efficiency

Smooth loading/unloading even with robots due to large gap between the pin and workpiece hole in a released state.



General Locating Pin

When making a gap smaller in order to improve locating accuracy, it becomes difficult to load/unload workpieces, causing frequent momentary stops of automated system. Also, wear of the pin lowers locating accuracy.



KOSMEK Locating Pin Clamp

Workpieces do not touch the grippers and are smoothly loaded/unloaded since the grippers are retracted inside the pin at released state.

%1. The gap is 0.2mm for SWP0501- \square -080/090- \square (Workpiece Hole Diameter ϕ 8/9), and 0.5mm for SWP0501- \square -100- \square (Workpiece Hole Diameter ϕ 10). Refer to the specifications for further information.

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve BZW

Manifold Block

WHZ-MD

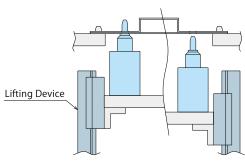
General Cautions

Welding Application Related Products

Die Change System for Press Machines

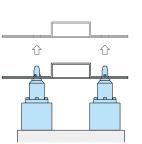
Company Profile Sales Offices

Fixture Cost Reduction



General Locating Pin

Because a gap between a locating pin and a workpiece hole is small, a lifting device may be required to pull out the workpiece stuck by welding distortion.

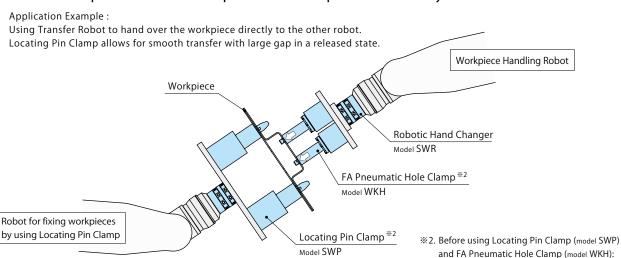


KOSMEK Locating Pin Clamp

Enables simple and low-cost equipment by smooth loading/unloading due to a large gap between Locating Pin Clamp and a workpiece hole.

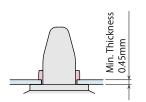
Make sure to test and ensure that there is no trouble such as workpiece deformation, etc.

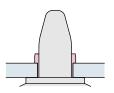
• Smooth Workpiece Transfer with Expansion Pin Clamp for Dual Robot Systems

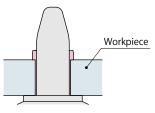


Flexible Fixturing

Longer stroke allows for workpiece thickness variance and flexible fixturing.







(111111)
Lock Stroke
2.3
3.6
5.5
6
6.5
7
8.5
10
10
10
10

Ability to Clamp Multiple Workpieces

Spot Welding Example with Three Workpieces.

Even with multiple workpieces, the gripper enables stable clamping.

** When using multiple workpieces, only one of the workpieces with minimum hole diameter can be located within the locating repeatability in the specification.

Three Workpieces

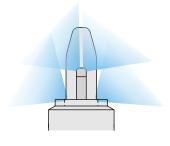
Spot Welding Gun

Anti-Contamination

Since the gap of clamping part is minimal, it keeps contaminants out even in a locked state. Also equipped with air blow function.



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

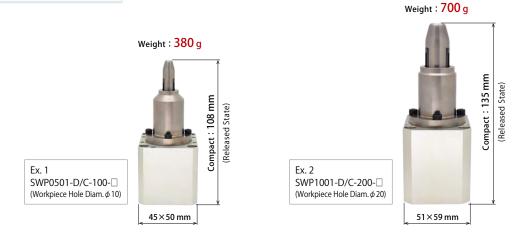


Air Blow Function

Air blow keeps contaminants out.

Compact • Light

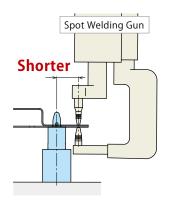
Short body allows for more compact and lighter applications.



More Compact Positioner

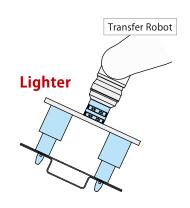
Less Load to Positioner

Light fixture with light Locating Pin Clamp reduces load to the positioner.



High Accessibility of Spot Welding Gun

Compact Locating Pin Clamp enables high accessibility of spot welding gun to a workpiece hole.



Compact and Light Transfer Hand

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

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve

BZW

Manifold Block WHZ-MD

General Cautions

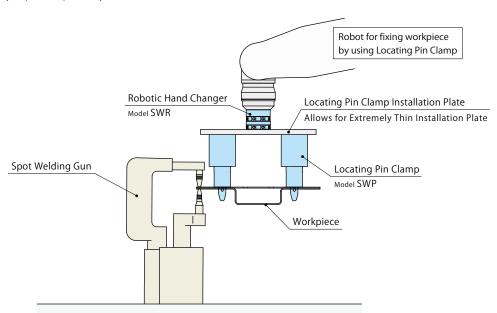
Welding Application Related Products

Die Change System for Press Machines

Company Profile Sales Offices

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

Application Example for Work Efficiency and Space Saving:
One robot can both transfer and weld by using Locating Pin Clamp as a robotic hand.
Compact and light body improves operability and reduces a load to the robot.

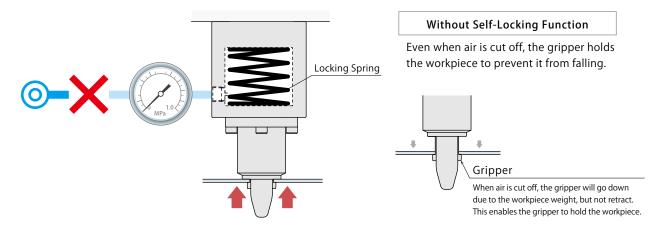




Safety Function

Built-in locking spring maintains locked state even when air pressure is cut off.

% Only for Self-Locking Function Option

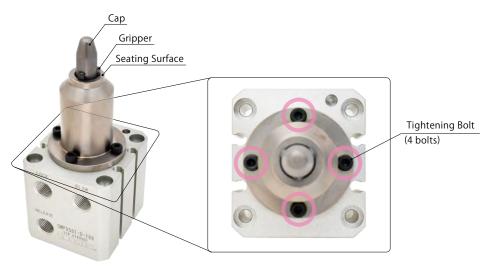


Maintenance

Removable Pin Allows for Simple Maintenance

The gripper and cap can be replaced by removing tightening bolts on the seating part.

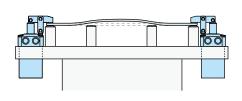
No special tools or hard work are required for maintenance. It also helps customer prepare for replacements.



* The picture shows in case of functions D/C.

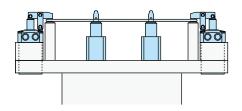
No Bending

Compared to perimeter clamping, Locating Pin Clamp is able to clamp the center of the workpiece without bending.



Perimeter Clamping

Perimeter clamping can be the cause of bending.



Locating Pin Clamp

No bending with Locating Pin Clamp by clamping workpiece holes.

Action
Description
Features

Model No. / Specifications Clamping Force Expanding Force

External Dimensions

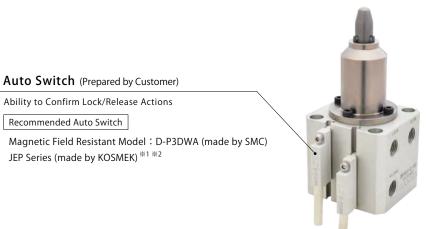
Accessories Shim Set

Cautions



Action Confirmation

Safely used in automation systems with action confirmation of Auto Switch.



Notes:

- ※1. Please refer to FA Industrial Robot Related Catalog (CATALOG No. FA0020□□-□□-GB) for detailed specifications of JEP series.
- ※2. Please use D-P3DWA (made by SMC) for an environment which generates a magnetic field disturbance.
 JEP series cannot be used in such an environment.
 - 1. When using an auto switch not made by Kosmek, check specifications of each manufacture.
- $2. \ Auto \ Switch \ may \ be \ stuck \ out \ of \ the \ clamp \ depending \ on \ the \ installation \ position \ and \ direction.$

Locating Pin Clamp

SW

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve

BZW

Manifold Block WHZ-MD

General Cautions

Welding Application Related Products

Die Change System for Press Machines

Model No. Indication



Body Size

Refer to the Specifications, Clamping Force, Expanding Force and External Dimensions for further information.

050: Select from Workpiece Hole Diam. ϕ 8, 9, 10, 11, 12, 13

100: Select from Workpiece Hole Diam. ϕ 14, 15, 16, 18, 20

2 Design No.

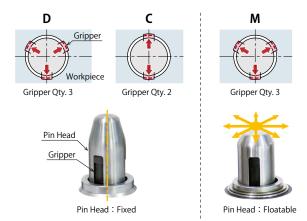
1 : Revision Number

3 Function

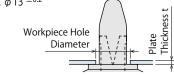
D: Datum (For Datum Locating)

C: Cut (For One Direction Locating)

M: Pin Head Floating (No Locating Function)



4 Workpiece Hole Diameter



4 Workpiece Hole D	080	090	100~200	
	D	_	0	0
3 Function	C	0	0	0
_	М	_	_	0

5 Self-Locking Function

Blank: With Self-Locking Function (Standard)

N : Without Self-Locking Function



** With self locking function, the clamp is locked at 0MPa. The ability of SWP varies depending on this function. Refer to the next page for further information.

Specifications

			SWP0501	SWP0501	SWP0501	SWP0501	SWP0501	SWP0501	SWP1001	SWP1001	SWP1001	SWP1001	SWP1001
Model No.													-□-200-□
M/- ulus is as	Hole Diameter		8 ^{+0.2} _{-0.1}	9+0.2	10 ±0.2	11 ±0.2	12 ±0.2	13 ±0.2	14 ±0.2	15 ±0.2	16 ±0.2	18 ±0.2	20 ±0.2
Workpiece mm	Thickness	Min.						0.45					
111111	t	Max.	2.3	3.6	5.5	6	6.5	7	8.5		1	0	
Locating Rep	eatability *1	mm		0.05 (wh	en combi	ning 🔢 D	and C)	∛ In case o	of 4 080:	when cor	nbining 🖺	C and C	
Allowable Offse	t (Pin Head Floating	Amount) mm		-	=	±0.6 (In ca	se of 🔼 N	1)	±0.8 (In case of 3 M)				
Cylinder Full S	Stroke	mm	8	9.3	12.1	13.8	14.3	14.8	16.3		17	7.8	
Lock Stroke		mm	2.3	3.6	5.5	6	6.5	7	8.5	10			
Cylinder	Lock Side		5.5	6.4	8.4	9.5	9.9	10.2	17.2		18	3.8	
Capacity cm ³	Release Side		6.4	7.5	9.7	11.1	11.5	11.9	20.5		22	2.4	
5 Blank	Max. Operating Pr	essure MPa	0.5										
Dialik	Min. Releasing Pre	ssure MPa						0.2					
5 N	Operating Press	ure MPa	0.2 ~ 0.5										
Withstanding	Pressure	MPa		0.75									
Usable Fluid			Dry Air										
Recommended Air Blow Pressure MPa		0.1 ~ 0.2											
Operating Temperature °C			0~70										
Weight		g			38	30					700		

Notes:

- %1. Locating repeatability under the same condition (no load).
 - 1. This product locks and releases with air pressure.
 - 2. When using with other clamps, make sure this product operates first by sequence control of a circuit.

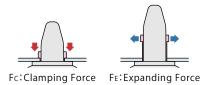
Clamping Force • Expanding Force

Model No.		SWP	0501	SWP1001		
		5 Blank: With Self-Locking	5 N:Without Self-Locking	5 Blank: With Self-Locking	5 N:Without Self-Locking	
	Air Pressure 0.5 MPa	380	325	600	500	
*2 *3	Air Pressure 0.4 MPa	315	260	500	400	
Clamping	Air Pressure 0.3 MPa	250	195	400	300	
Force	Air Pressure 0 MPa	55	-	100	-	
	Calculated Value **5	Fc=650×P+55	Fc=650×P	Fc=1000×P+100	Fc=1000×P	
	Air Pressure 0.5 MPa	1015	880	1600	1330	
*4	Air Pressure 0.4 MPa	840	700	1330	1060	
Expanding Force	Air Pressure 0.3 MPa	670	530	1060	800	
	Air Pressure 0 MPa	145	-	260	-	
	Calculated Value **5	FE=1740×P+145	FE=1760×P	FE=2680×P+260	FE=2660×P	

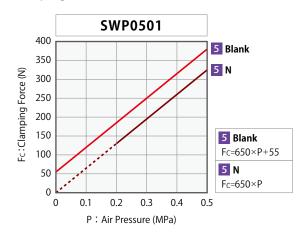
Notes:

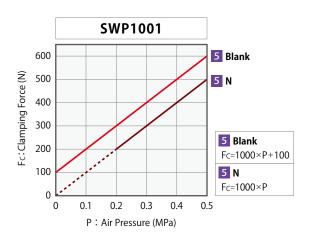
**2. Clamping force shows the pressing force against the seating surface.
The values in the table shows the calculated value when the workpiece thickness t is 0.45mm.

- *3. When supplying air pressure to the air blow port, a clamping force may decrease due to internal pressure.
- **4. Expanding force shows the force acting perpendicular to the pin's center axis. Expanding force shows the calculated value when the friction coefficient is μ 0.15.
- %5. Fc∶Clamping Force (N), FE∶Expanding Force (N), P∶Air Pressure (MPa)
 - 1. Depending on the material, thickness and chamfer shape of a workpiece hole, it can be deformed by clamping action, and the specifications will not be satisfied. Make sure to test clamping beforehand and adjust pressure accordingly.

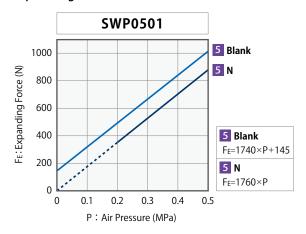


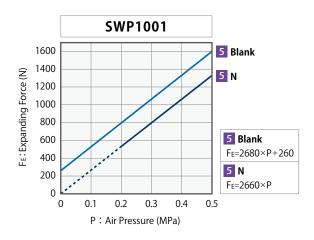
Clamping Force Curve





Expanding Force Curve





Locating Pin Clamp

High-Power
Welding
Swing Clamp
WHG
High-Power
Welding
Link Clamp
WCG
Air Flow
Control Valve

Manifold Block WHZ-MD

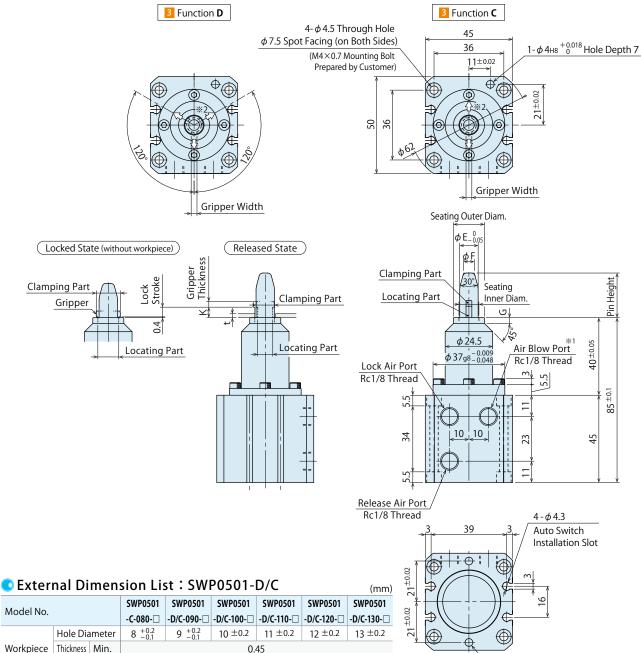
BZW

General Cautions

Welding Application Related Products

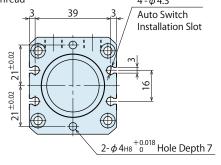
Die Change System for Press Machines

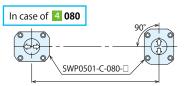
External Dimensions: SWP0501-D/C ** This drawing shows the released state of SWP0501-D/C.



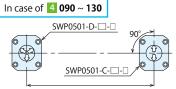
							(mm)
Model No.		SWP0501	SWP0501	SWP0501	SWP0501	SWP0501	SWP0501
		-C-080-□	-D/C-090-□	-D/C-100-□	-D/C-110-□	-D/C-120-□	-D/C-130-□
Hole Dia	ameter	8 +0.2	9 +0.2	10 ±0.2	11 ±0.2	12 ±0.2	13 ±0.2
Thickness	Min.			0.4	45		
t	Max.	2.3	3.6	5.5	6	6.5	7
		17	19	23	23.5	24	24.5
iam. E		7.8	8.8	9.5	10	11	12
m. F		4.5	5.5	5.5	6	7	8
At Released		7.7	8.7	9.3	9.8	10.8	11.8
At Locked without workpiece		9.8	10.8	11.8	12.8	13.8	14.8
At Released		6.1	7.1	7.7	8.2	9.2	10.2
At Locked without workpiece		8.2	9.2	10.2	11.2	12.2	13.2
3 Functi	ion D	-	3	3	3.5	3.5	3.5
3 Function C		3	3	3.5	3.5	3.5	3.5
ckness		2	2	3	3	3	3
Released Height K		2.7	4	5.9	6.4	6.9	7.4
Seating Inner Diam.		8.3	9.3	10.3	11.3	12.3	13.3
Seating Outer Diam.		15	15.5	16	17	18	19
t G		2.5	2.5	3	3	3	3
		2.3	3.6	5.5	6	6.5	7
	tiam. E m. F At Relea At Locked At Relea At Locked J Functi kness eight K er Diam.	t Max. iam. E m. F At Released At Locked without Workplece At Released At Locked without Function D Function C ckness eight K er Diam.	C-080-	C-080-	C-080-	C-080-□ -D/C-090-□ -D/C-100-□ D/C-110-□ Hole Diameter 8 + 0.2 9 + 0.2 10 ± 0.2 11 ± 0.2 Thickness Min.	C-080-

- Since the clamping part is not a floating structure, when clamping a workpiece with two of these products, consider distance accuracy and use them with arrangement shown in the drawing on the right. With out-of specification distance accuracy, workpiece will interfere with the guide part causing damages.





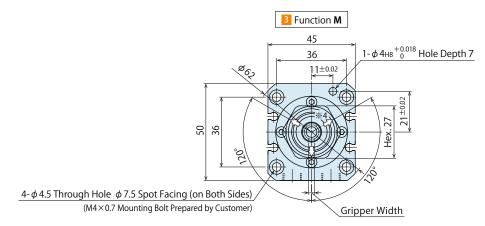
Cumulative accuracy of workpiece hole distance and clamp mounting distance must be as shown in the table below.

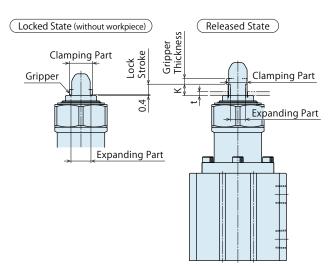


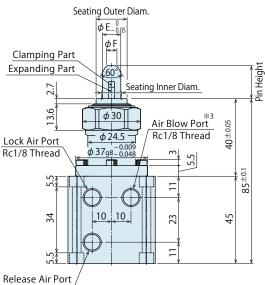
Cumulative accuracy of workpiece hole distance and clamp mounting distance must be as shown in the table below.

4 Hole Diam.	Distance Accuracy
080~090	±0.05mm or better
100	\pm 0.15mm or better
110~130	\pm 0.40mm or better

External Dimensions: SWP0501-M * This drawing shows the released state of SWP0501-M.







External Dimension List: SWP0501-M (mm) SWP0501 SWP0501 SWP0501 SWP0501 Model No. -M-100-□ -M-120-□ -M-110-□ -M-130-□ Hole Diameter 10 ± 0.2 11 ± 0.2 12 ± 0.2 13 ± 0.2 Workpiece Thickness Min. 0.45 Max. 5.5 6 6.5 7 Pin Height 17 19 19.5 20 Pin Outer Diam. E 9.5 10 12 11 Pin End Diam. F 5.5 6 7 8 At Released 9.3 9.8 10.8 11.8 Clamping Part At Locked without 11.8 12.8 13.8 14.8 At Released Locating 7.7 8.2 9.2 10.2 Part At Locked without workpiece 10.2 11.2 12.2 13.2 Gripper Width 3.5 3 3.5 3.5 **Gripper Thickness** 3 3 3 3 Released Height K 5.9 6.4 6.9 7.4 Seating Inner Diam. 10.3 11.3 12.3 13.3 Seating Outer Diam. 16 17 18 19

Notes:

Lock Stroke

3. Continuously supply air pressure to the air blow port.

5.5

%4. The arrow \Box in the drawing shows expanding direction of grippers.

6

6.5

7

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

Air Flow

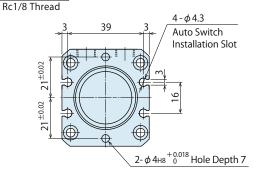
Control Valve
BZW

Manifold Block
WHZ-MD

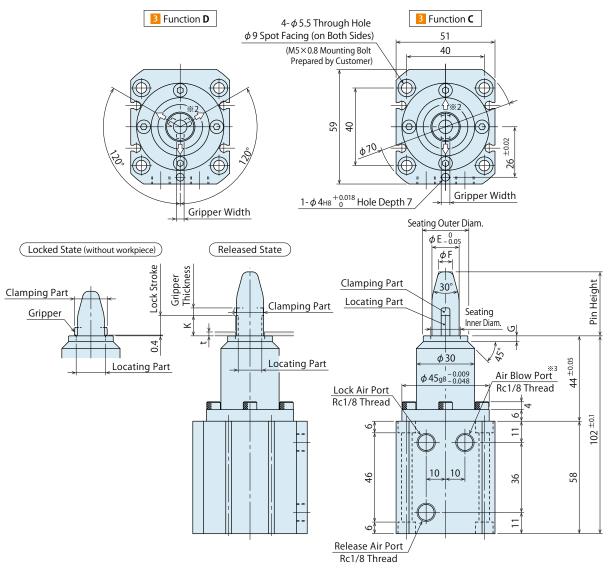
General Cautions

Welding Application Related Products

Die Change System for Press Machines

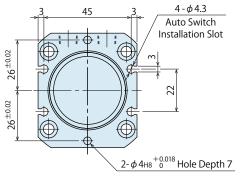


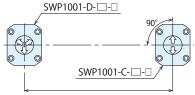
External Dimensions: SWP1001-D/C ** This drawing shows the released state of SWP1001-D/C.



External Dimension List: SWP1001-D/C

LACCI	ומו טו	шеп	JIOII LIJ		וטטו טי	_	(mm)
Madal Na	Model No.		SWP1001	SWP1001	SWP1001	SWP1001	SWP1001
Model No.		-D/C-140-□	-D/C-150-□	-D/C-160-□	-D/C-180-□	-D/C-200-□	
	Hole Dia	ameter	14 ±0.2	15 ±0.2	16 ±0.2	18 ±0.2	20 ±0.2
Workpiece	Thickness	Min.			0.45		
	t	Max.	8.5		1	0	
Pin Height			31	33	33	33	33
Pin Outer D	iam. E		13	14	15	17	19
Pin End Dia	m. F		7	7	8	10	12
Clamping	At Released		12.8	13.8	14.8	16.8	18.8
Part	At Locked without workpiece		15.8	16.8	17.8	19.8	21.8
Locating	At Released		11.2	12.2	13.2	15.2	17.2
Part	At Locked without workpiece		14.2	15.2	16.2	18.2	20.2
Gripper	3 Funct	ion D	4	4	4.5	5.5	5.5
Width	3 Funct	ion C	4	4.5	4.5	5.5	5.5
Gripper Thi	ckness		3.5	4	4	4	4
Released H	Released Height K		8.9	10.4	10.4	10.4	10.4
Seating Inner Diam.		14.3	15.3	16.3	18.3	20.3	
Seating Ou	Seating Outer Diam.		22	23	24	25	27
Seating Par	t G		3	3	3	4	4
Lock Stroke	:		8.5	10	10	10	10





Cumulative accuracy of workpiece hole distance and clamp mounting distance must be ± 0.4 mm or better.

Notes:

- $\ensuremath{\%1}.$ Continuously supply air pressure to the air blow port.
- ※2. The arrow

 in the drawing shows expanding direction of grippers.

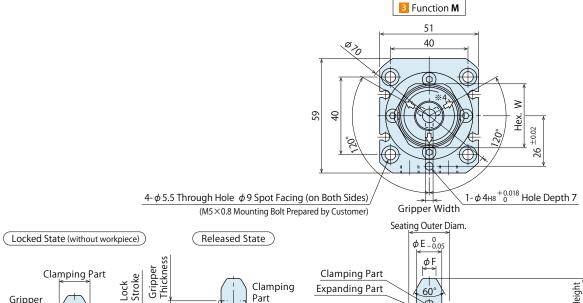
 Since the clamping part is not a floating structure, when clamping a workpiece with two of these products, use them within ±0.4mm of distance accuracy and with arrangement shown in the drawing on the right. With out-of specification distance accuracy, workpiece will interfere with the guide part causing damages.

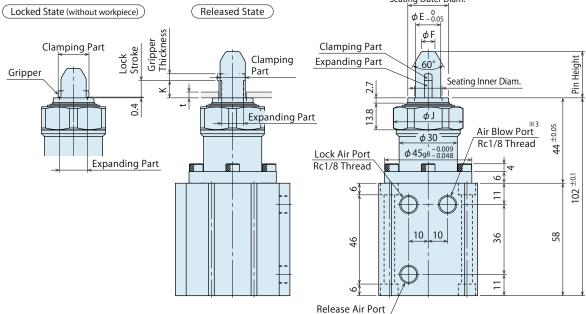
4 - φ 4.3 Auto Switch

Installation Slot

 $2-\phi 4_{H8}^{+0.018}_{0}$ Hole Depth 7

External Dimensions: SWP1001-M ** This drawing shows the released state of SWP1001-M.





Rc1/8 Thread

 $26^{\pm 0.02}$

 $26^{\pm 0.02}$

45

++++

External Dimension List: SWP1001-M

Exter	External Dimension List . SWP 1001-M (mm)							
MadalNa			SWP1001	SWP1001	SWP1001	SWP1001	SWP1001	
Model No.		-M-140-□	-M-150-□	-M-160-□	-M-180-□	-M-200-□		
	Hole Dia	ameter	14 ±0.2	15 ±0.2	16 ±0.2	18 ±0.2	20 ±0.2	
Workpiece	Thickness	Min.		0.45				
	t	Max.	8.5		1	0		
Pin Height			24	25	25	25	25	
Pin Outer D	iam. E		13	14	15	17	19	
Pin End Dia	End Diam. F			8	9	11	13	
Clamping	At Released		12.8	13.8	14.8	16.8	18.8	
Part	At Locked without workpiece		15.8	16.8	17.8	19.8	21.8	
Locating	At Relea		11.2	12.2	13.2	15.2	17.2	
Part	At Locked without workpiece		14.2	15.2	16.2	18.2	20.2	
Gripper Wi	dth		4	4	4.5	5.5	5.5	
Gripper Thi	ckness		3.5	4	4	4	4	
Released H	Released Height K			10.4	10.4	10.4	10.4	
Seating Inner Diam.			14.3	15.3	16.3	18.3	20.3	
Seating Ou	Seating Outer Diam. Hex. W (Outer Diam. ϕ J)			21	22	25	26	
Hex. W (Ou				33 (<i>ϕ</i> 36)	33 (<i>ϕ</i> 36)	35 (<i>ϕ</i> 38)	35 (φ 38)	
Lock Stroke	<u> </u>		8.5	10	10	10	10	

Notes:

- *3. Continuously supply air pressure to the air blow port.
- ※4. The arrow

 in the drawing shows expanding direction of grippers.

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve BZW

Manifold Block

WHZ-MD

General Cautions

Welding Application Related Products

Die Change System for Press Machines

• Accessory: Shim Set

A set of shims for level adjustment of the seating surface.

Model No. Indication



1 Body Size

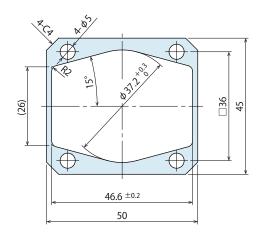
050: For SWP050 **100**: For SWP100

2 Design No.

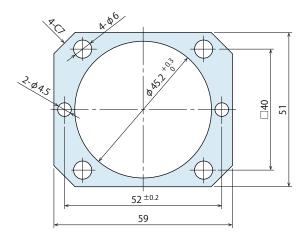
1 : Revision Number

External Dimensions

SWPZ0501-S Contents 2 of 0.5mm-thick shims, 2 of 1.0mm-thick shims



SWPZ1001-S Contents 2 of 0.5mm-thick shims, 2 of 1.0mm-thick shims



Note:

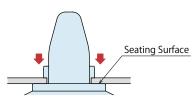
1. Material: SUS304



Cautions

Notes for Design

- 1) Check Specifications
- Please use each product according to the specifications.
- This product is an air double-acting clamp which locks and releases with air pressure. In case of Self-Locking Function Option, the clamp will be locked by spring force when release air pressure is released.
- 2) Reference Surface (Seating Surface) towards Z-axis
- This product has the seating surface for workpiece and locates in Z direction.

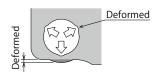


- 3) Clamping Force and Expanding Force
- Clamping force shows the pressing force against the seating surface, and expanding force shows the gripping force generated inside workpiece hole.

Make sure to test clamping and adjust pressure accordingly. Insufficient clamping force and/or expanding force leads to locking malfunctions and accuracy failure.

- 4) Wall Thickness around Workpiece Hole
- Thin wall around the workpiece hole could be deformed by locking action, and clamping force and/or locating repeatability will not fill the specification.

Please test clamping and adjust pressure accordingly before use.



5) Workpiece hole size and thickness should be within the range of the specification.

When workpiece hole diameter is larger than specification.	Expansion stroke is insufficient leading to accuracy failure and locking malfunction.
When using it with insufficient clamping force.	Leads to locking malfunction.
When workpiece hole diameter is smaller than specification.	Difficult to attach/detach the workpiece leading to damage.
Workpiece is thin.	Leads to locking malfunction.
Workpiece is thick.	Leads to locking malfunction.

6) Installation of the Clamp

■ The arrow

in the drawing shows expanding direction of grippers. Since the clamping part of Function D (Datum) / C (Cut) does not have a floating structure, when clamping a workpiece with two of these products, consider distance accuracy and use them with arrangement shown in the drawing below. With out-of specification distance accuracy, workpiece will interfere with the guide part causing damages. Please use Function M (Floating) when using more than three of these products.







Cumulative accuracy of workpiece hole distance and clamp mounting distance must be as shown in the table below

In case of Workpiece Hole Diam. **090** \sim **200**: ϕ 9 \sim 20

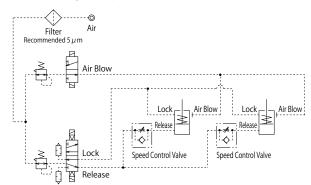


Cumulative accuracy of workpiece hole distance and clamp mounting distance must be as shown in the table below

Hole Diam.	Distance Accuracy
080~090	\pm 0.05mm or better
100	\pm 0.15mm or better
110~200	±0.40mm or better

- 7) Refer to the drawing below for air circuit.
- Excessive locking action speed leads to possible damage to the grippers and internal parts. Adjust the flow control valve with check valve (meter-out) to set the locking action time at 0.5 ~ 1 sec.

When using two Locating Pin Clamps for locating a workpiece, adjust the action procedure so that Function D (Datum) is locked before Function C (Cut). Function M (Floating) should be locked after locating is completed.



- 8) Fall Prevention Measures
- When using for transfer, etc., please prepare fall prevention measures for safety in case of an accident such as detachment of a workpiece.

ocating

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve BZW

Manifold Block

WHZ-MD

General Cautions

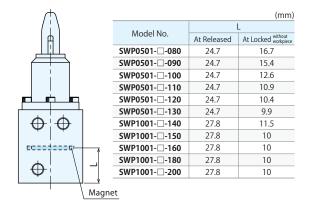
Welding Application Related Products

Die Change System for Press Machines

Cautions

Notes for Design

- 9) For Use of Auto Switch
- Magnet is built in the cylinder of this product, so the clamp action can be detected by auto switch.
 Refer to the following for the position of the built-in magnet.



Select an auto switch depending on the environment.

Recommended Auto Switch: JEP0000 (made by KOSMEK)

Please use D-P3DWA (made by SMC) for an environment which generates a magnetic field disturbance.

An auto switch may be stuck out of the clamp depending on the installation position and direction.

The auto switch detection part (magnet) is interlocked with the piston movement, so it does not detect the gripper movement.

- 10) Continuously supply air pressure to the air blow port.
- When using under environment with cutting chips, air blow is recommended in order to prevent spatter.
 When supplying air pressure to the air blow port, clamping force may decrease due to internal pressure.
- 11) All clamps must be fully released before loading and unloading a workpiece.
- When a workpiece is loaded and unloaded during lock or release operation, it will lead to damage of clamp or fall of workpiece.

Installation Notes

- 1) Check the fluid to use.
- Please supply filtered clean dry air.
 Also, install the drain removing device such as aftercooler, air dryer, etc.
- Oil supply with a lubricator, etc. is unnecessary.
 Oil supply with a lubricator may cause loss of the initial lubricant.
 The operation under low pressure and low speed may be unstable.
 (When using secondary lubricant, please supply lubricant continuously.
 Otherwise, the initial grease applied from KOSMEK will be removed from the secondary lubricant.)

2) Preparation for Piping

- The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly. The dust and cutting chips in the circuit can lead to fluid leakage and malfunction.
- There is no filter provided with this product to prevent contamination in the circuit.
- 3) Applying Sealing Tape
- Wrap with tape 1 to 2 times following the screwing direction.
- Pieces of the sealing tape can lead to air leakage and malfunction.
- In order to prevent contamination during the piping work, it should be carefully cleaned before working.
- 4) Mounting Locating Pin Clamp
- When mounting the product use four hexagonal socket bolts (with tensile strength of 12.9 or more) and tighten them with the torque shown in the table below. Tightening with greater torque than recommended can dent the seating surface or break the bolt.

Model No.	Tightening Bolt Size	Tightening Torque (N⋅m)
SWP0501	M4×0.7	3.2
SWP1001	M5×0.8	6.3

- 5) Port Position of Locating Pin Clamp
- The name of each port is marked on the flange surface. Be careful with the mounting direction of piping.

LOCK : Air Lock Port
RELEASE : Air Release Port
BLOW : Air Blow Port

- 6) It is recommended to use air piping with outer diameter ϕ 6 (inner diameter ϕ 4) or larger for air blow.
- Level Adjustment of the Seating Surface
 If requiring level adjustment of the seating surface,
 use a shim set for level adjustment (sold separately).



Applicable Model -

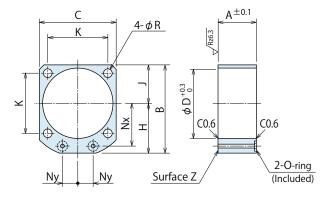
Manifold Block Model No.	Corresponding Item Model No.
Model WHZ-MD	Model WCG Model WHG

Manifold Block for WCG/WHG

Model No. Indication

WHZ 048

Size (Refer to following table) Design No. (Revision Number)



(mm)

				()
Model No.	WHZ0320-MD	WHZ0400-MD	WHZ0500-MD	WHZ0630-MD
Corresponding Item	WCG1000	WCG1600	WCG2500	WCG4000
Model Number	WHG1000	WHG1600	WHG2500	WHG4000
Α	25	27	31	35
В	60	67	77	88.5
С	50	58	68	81
D	46	54	64	77
Н	35	38	43	48
J	25	29	34	40.5
K	39	45	53	65
Nx	28	31	36	41
Ny	10	13	15	20
R	5.5	5.5	6.5	6.5
O-ring	1BP7	1BP7	1BP7	1BP7
Weiaht ka	0.1	0.1	0.2	0.2

- Notes: 1. Material: A2017BE-T4
 - 2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the dimension A as a reference.
 - 3. If thickness other than A is required, perform additional machining on surface Z. Please refer to the drawing.

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve

 BZW

Manifold Block

General Cautions

Welding Application Related Products

Die Change System for Press Machines

Cautions

Notes on Handling

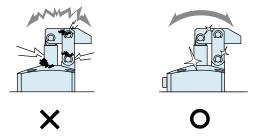
- 1) It should be operated by qualified personnel.
- Hydraulic and/or pneumatic machines and devices should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
- ① The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
- ② Before removing the product, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air circuits.
- 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 the machine or equipment.
- Do not touch the clamp (cylinder) while it is working.Otherwise, your hands may be injured.



- 4) Do not disassemble or modify.
- 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 removing the product, make sure that safety devices and preventive devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
- Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the piston rod.
- If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.



- 3) Regularly tighten pipes, mounting bolts, nuts, snap rings, cylinders and others 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 products should be stored in the cool and dark place without direct sunshine or moisture.
- 6) Please contact us for overhaul and repair.



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 handled in 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.
- ② 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.

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

WHG

High-Power Welding Link Clamp

WCG

Air Flow Control Valve

 BZW

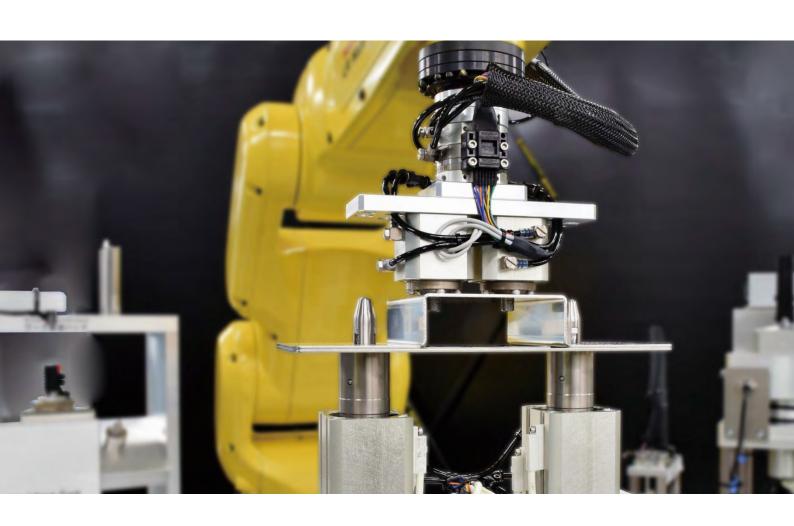
Manifold Block

WHZ-MD

General Cautions

Welding Application Related Products

Die Change System for Press Machines



Introducing Kosmek





Robotic Hand Changer

























Welding Products







FA·Industrial Robot Related Product Catalog

Please find further information on our complete catalog.

You can order from our website (http://www.kosmek.co.jp/english/).

Scan the QR code for Catalog Request and Inquiry

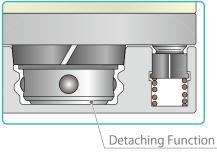


http://www.kosmek.co.jp/php_file/inquiry.php?lang=2

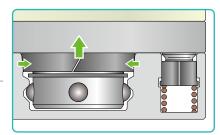


KOSMEK Exclusive Non-Backlash Mechanism



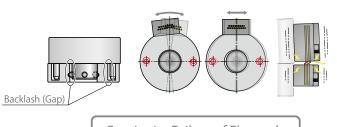


When Connected



Backlash of a Tool Changer Causes Electrode Errors





Continuity Failure of Electrode

Frequent Moment Stop

Zero-Backlash Connection with Dual Contact

Kosmek Hand Changer with No Backlash Prevents Electrode Errors No Noise







No Continuity Failure of Electrode



Sharp Decline of Moment Stop

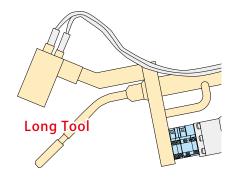


Secures the Aimed Position

When Connected, Locating Repeatability is $3 \mu \, \mathrm{m}^{2}$

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

 \times Only SWR0010 (0.5kg~1kg payload model) has repeatability of 5 μ m.



Locating

SWP

High-Power Welding Swing Clamp

High-Power Welding Link Clamp

WCG

Air Flow Control Valve

BZW Manifold Block

WHZ-MD

General Cautions

Company Profile Sales Offices

Tightening

24-Hour Continuous Operation is Possible

Uncomparably High Rigidity and Durability

Strong to "bend" 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 the tool so that it ensures high durability and 3μ m (5μ m*) repeatability even after 1 million cycles.

% Only SWR0010 (0.5kg~1kg payload model) has repeatability of 5 μ m.



Payload: 0.5kg ~ 360kg





A Variety of Electrode/Air Joint Options

- · Resin Connector Electrode
- Solder Terminal
- · Solder Terminal with Cable
- · Waterproof Electrode (Simple Waterproof) Only when connected: Equivalent to IP54
- · D-sub Connector
- Circular Connector (Connector Based on JIS C 5432)
- Compact Electric Power Transmission (Ability to Transmit AC/DC200V 5A)
- · Power Transmission Option (Connector Based on MIL-DTL-5015)

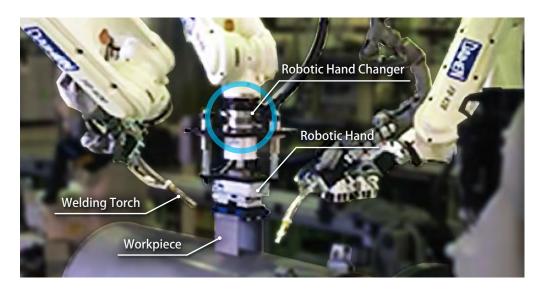
- · High Current Transmission Option (Connector Based on MIL-DTL-5015)
- · Waterproof Electrode (Noncontact Waterproof) IP67 Compact Model

Sudden Acceleration/ Sudden Stop

- Waterproof Electrode (Noncontact Waterproof) IP67
- Air Joint (3 Port Option with Larger Port : ϕ 6)
- Air Joint (2 Port Option)
- Air Joint (4 Port Solder Terminal Extensible Option)
- · Air Port with Check Valve

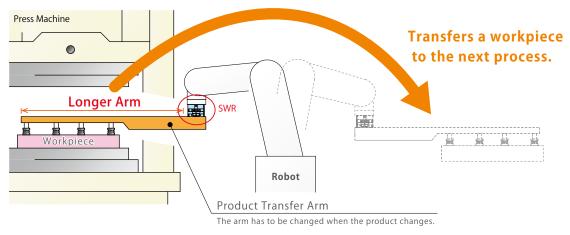


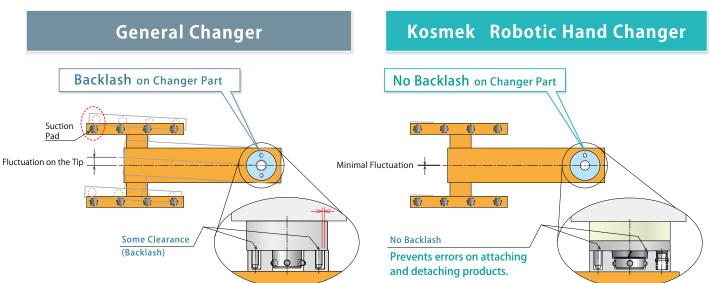
Holds Welding Workpiece without Backlash



A case study of Robotic Hand Changer exchanging robotic hands which hold a welding workpiece. Kosmek non-backlash changer allows for stable product quality and appearance of arc welding.

High-Accuracy Change of Transfer Arms







Locating

Pin Clamp SWPHigh-Power

Welding Swing Clamp

High-Power Welding Link Clamp WCG

Air Flow Control Valve

BZW

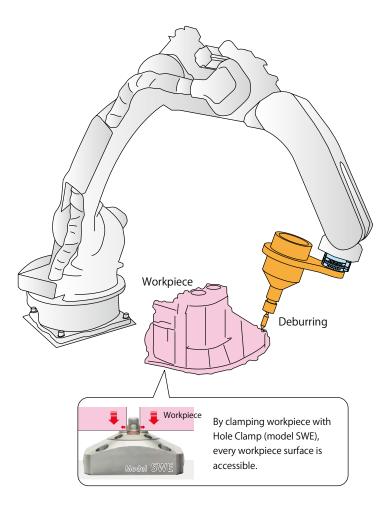
Manifold Block WHZ-MD

General Cautions

for Press Machines

Company Profile Sales Offices

Change the Transfer Hand and Deburring Tool with High Rigidity









Workpiece Transfer Tool

Withstands Heavy Load with Non-Backlash Function

Strong to "bend" and "torsion" with high rigidity.

Contact area of surface R is large and receives high load.

It ensures stable production even with offset transfer hand or heavy load deburring.

General Tool Changer

Backlash on Changer Part Due to backlash, a tool changer is weak to torsion and can be broken if high load is applied when deburring surface R which has large contact area. Low Load

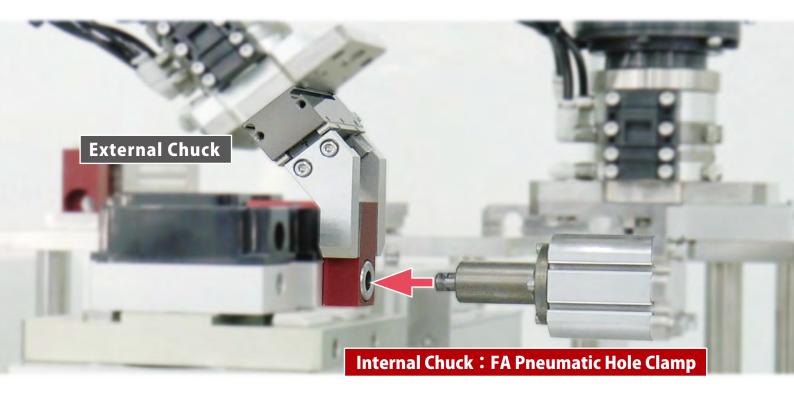
Kosmek Robotic Hand Changer

No Backlash on Changer Part

The changer has no backlash so it is highly rigid and strong to torsion. This allows for no fluctuation on tools.

It also withstands high load of casting deburring.

Light and Compact Robotic Hand Series for Factory Automation



Kosmek Exclusive Internal Chuck Series

FA Pneumatic Hole Clamp Model WKH

Gripper expands and pulls workpiece in.

Light Body with Selectable Functions : Locating and Floating Workpiece Diameter ϕ 6 \sim ϕ 14 in 0.5mm increments.

High-Power Pneumatic Hole Clamp

Can be used in machine tools. Gripper expands and pulls workpiece in. High Power with Contaminant Prevention for Machine Tools, etc.

Workpiece Diameter ϕ 6 \sim ϕ 13 in 0.5mm increments.



Air Lock / Air Release
Self-Lock Function with Spring



Ball Lock Cylinder Model WKA

Secures/Transfers a pallet and prevents falling off with steel balls.

Powerful, Light and Compact

Pull-Out Load Capacity (Holding Force): 50N / 70N / 100N / 150N / 200N







Advantages of FA Pneumatic Hole Clamp

Model WKH FA Pneumatic Hole Clamp

Locating Pin Clamp

SWP

High-Power Welding Swing Clamp

High-Power Welding Link Clamp

WCG

Air Flow Control Valve BZW

Manifold Block

WHZ-MD

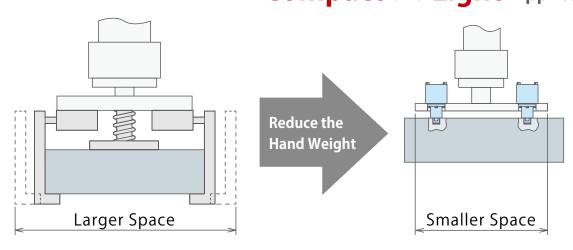
General Cautions

for Press Machines

Company Profile Sales Offices

Chucking Inside of Workpiece Holes Allows for

Compact and Light Applications

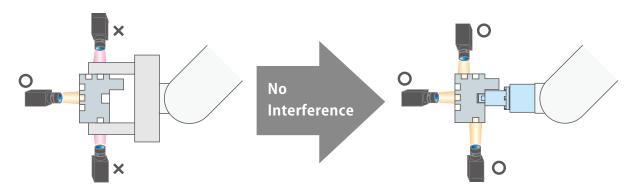


Loading/Lifting Hand with Parallel Hand/Linear Cylinder

Hole Clamp is Compact and Light with Powerful Gripping Force

Chucking Inside of Workpiece Holes Allows for

Zero Interference and Minimum Setup



Interferes with the hand when holding a workpiece.

5 Faces Accessible with No Interference

External Chuck Series

High-Power Parallel Gripper Parallel Gripper Gripper

Compact

Wide Angular

Gripper

Compact Parallel Gripper Angular Gripper

Three-Jaw Chuck

Two-Jaw Parallel Hand with Chuck Auto-Grip Changer





















Model WPS

Model WPA

Model WPE

Model WPF

Model WPH

Model WPJ

Model WPP

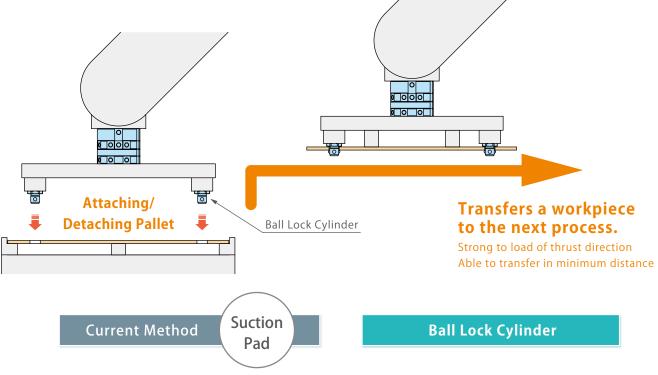
Model WPQ

Model WPW

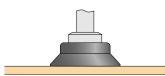


For Faster and More Accurate Pallet Transfer

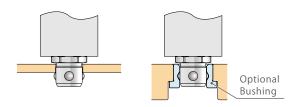
Model WKA Ball Lock Cylinder



Limited Speed Low Suction Force



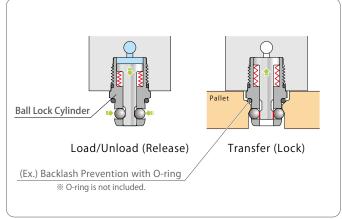
Powerful • Light • Compact with Mechanical Lock Single Circuit for Positive Pressure Only



Suction Pad has critical weight limits and speed limits due to low suction force. Also, the suction force is affected by the roughness of surface and is decreased due to deterioration and friction. Requires Hole Machining

Optional bush simplifies hole machining.







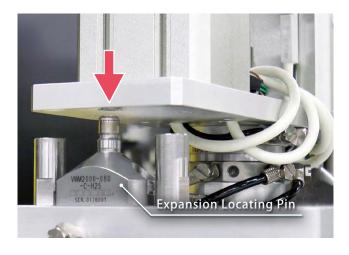
Automation Products

Powerful Support for Unstable Parts

High-Power Pneumatic Work Support (Standard / Rodless Hollow) Model WNC / WNA

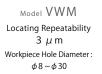


High Accuracy Locating of Workpiece • Pallet



Expansion Locating Pin No Gap with High Accuracy Locating Pin





Large-Expansion Model



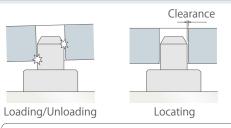
Model VWH Locating Repeatability $10 \mu m$ Workpiece Hole Diameter : ϕ 9 ~ ϕ 15

Manual-Operating



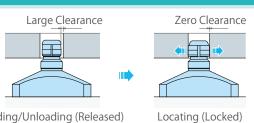
Locating Repeatability $5 \mu m$ Workpiece Hole Diameter: $\phi 8 \sim \phi 20$

Fixed Pin



Difficult to Load/Unload Some Clearance

Expansion Locating Pin



Loading/Unloading (Released)

Easy to Load/Unload **Zero Clearance and High Accuracy** Locating Pin Clamp

High-Power Welding

WHG

Hiah-Power Link Clamp

WCG

Air Flow Control Valve BZW

Manifold

Block WHZ-MD

General Cautions

Ouick Die Change Systems

High Speed and High Accuracy Fixture Setup

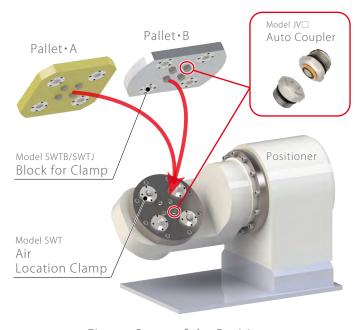
Air Location Clamp

Locates and clamps a fixture on a positioner simultaneously.

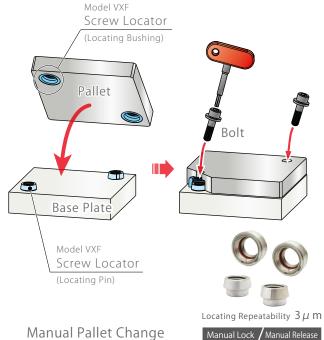
Enables setup time reduction and productivity improvement.







Fixture Setup of the Positioner





Locating Pin Clamp

High-Power Welding Swing Clamp

Hiah-Power

Link Clamp

Air Flow Control Valve

Manifold Block

BZW

WHZ-MD

WHG

Pneumatic Location Clamp Series

FA Pneumatic Pallet Clamp

Model WVG

Suitable for setup of welding fixtures and pallet transfer.

Locating Repeatability: 0.08mm

Compact Air Location Clamp Model SWO

Compact model. Suitable for setup of compact/light pallets/fixtures.

Locating Repeatability : 3 μ m



Equipped with Contamination Prevention

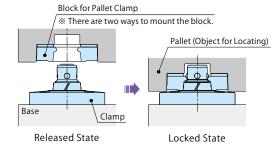
Locating Repeatability : 3 μ m

High-Power Pneumatic Pallet Clamp

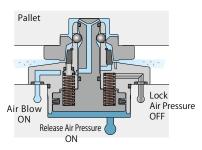
Exerts equivalent clamping force with hydraulic clamps.

Locating Repeatability : 3 μ m

Action Description



Air Blow and Seating Check



Contaminants can be removed by air blow. Seating surface is provided with the air hole. Use the gap sensor for seating check.

ir + Spring Lock / Air Release



r + Spring Lock / Air Release



r + Spring Lock / Air Release

Welding Related Products Quick Die

General Cautions

Change Systems

Company Profile Sales Offices



Self-Locking (Safety) Function

(Holding Force at OMPa Air Pressure)

Maintains clamped state.



Even if air pressure is at zero, it will stay locked with the self-locking spring.

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

Automatic Air Supply to a Pallet on a Positioner

Auto Coupler

Model JT JV







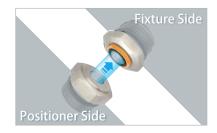






Compact Coupler to Connect Hydraulic/Pneumatic/Coolant Circuits

Connection Stroke: 1mm Commonly Used with Screw Locator and Pneumatic Location Clamp





Company Profile



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Employee Count 270

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and hydraulic and pneumatic equipment

Customers Manufacturers of automobiles, industrial machinery,

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Locating

SWP High-Power Welding Swing Clamp

High-Power Welding Link Clamp WCG Air Flow Control Valve BZW

Manifold Block WHZ-MD

General Cautions Welding Application Related Products

Product Line-up



■ Quick Die Change Systems

FOR PRESS MACHINES

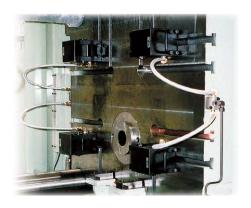


■ Kosmek Factory Automation Systems

FACTORY AUTOMATION INDUSTRIAL ROBOT RELATED PRODUCTS



Die Change System for Press Machines



■ Diecast Clamping Systems

FOR DIECAST MACHINES



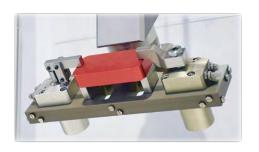
■ Kosmek Work Clamping Systems

MACHINE TOOL RELATED PRODUCTS



■ Quick Mold Change Systems

FOR INJECTION MOLDING MACHINES



■ Washing Application Products

KOSMEK PRODUCTS FOR WASHING APPLICATION



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