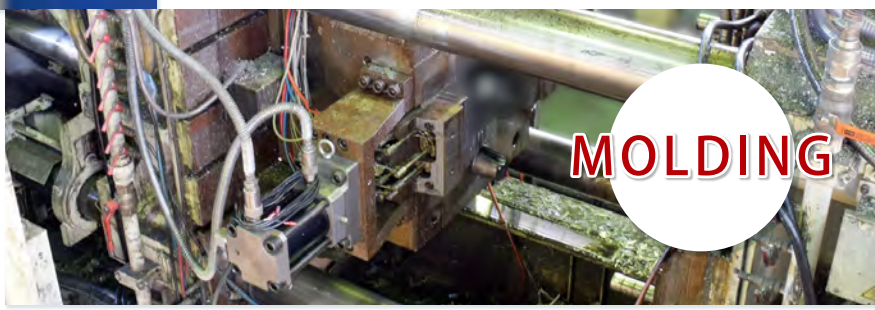
Hydraulic Auto Clamp

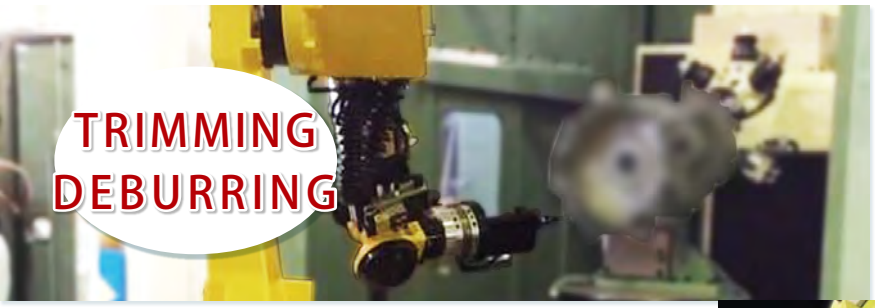
Ejector Coupler
(Connecting Ejector Rods)

High-Power / High-Speed Core Pull Cylinder



KOSMEK

Products for Diecast Machines



Robotic Hand Changer

for Trimming Press
High-Power Pneumatic Die Clamp

Robotic Hand Changer

Robotic Hand

High-Power Pneumatic Clamp

KOSMEK
Harmony in Innovation

Kosmek Products

1 P.03

High-Power / High-Speed Core Pull Cylinder

2 P.11

High-Power Core Push Cylinder

3 P.12

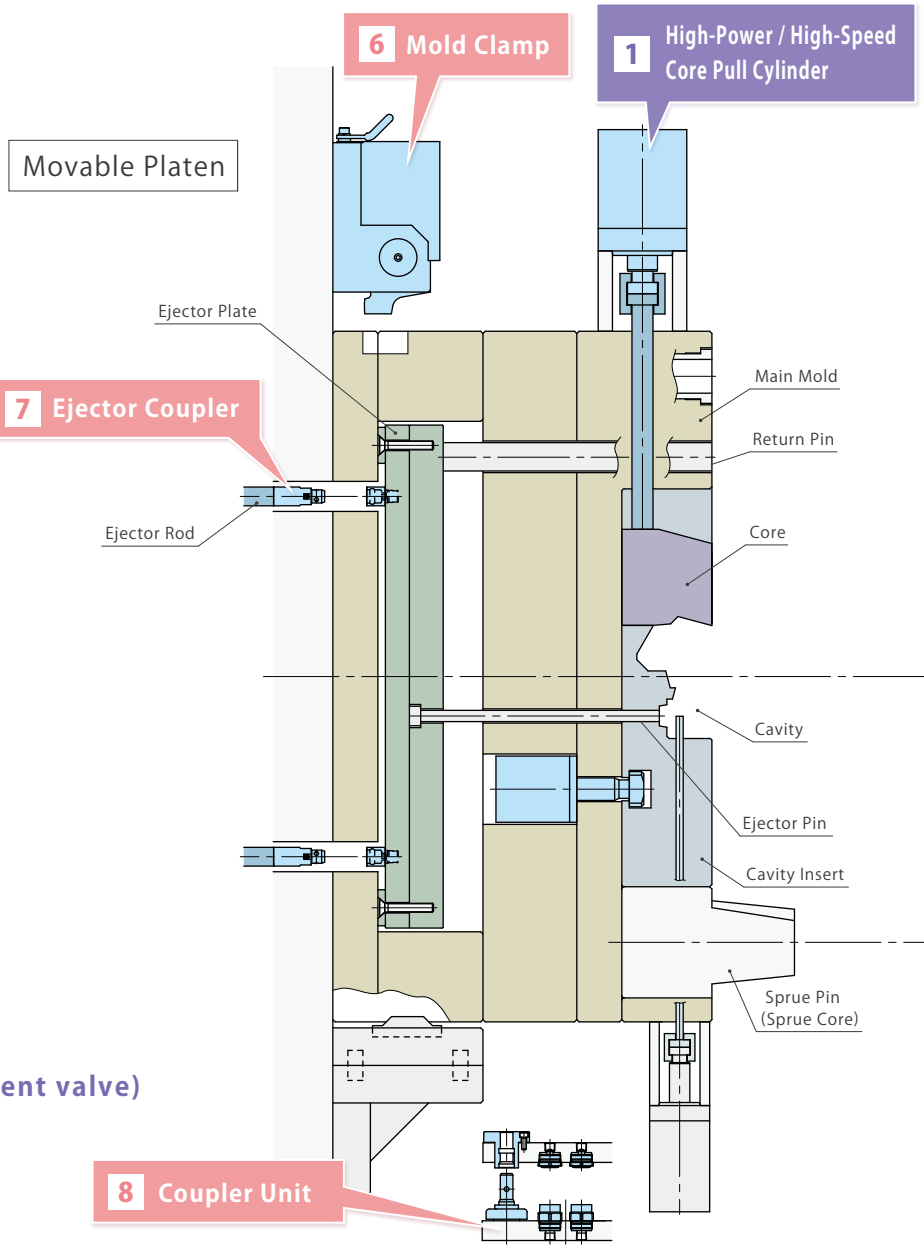
Auto Circulating Cylinder (for Partial Pressurization)

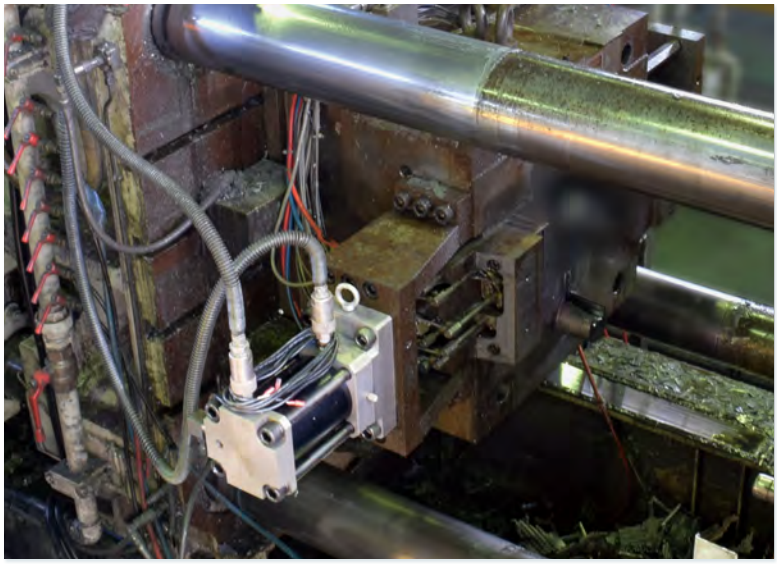
4 P.13

High-Power Push Cylinder (for opening and closing the vent valve)

5 P.14

Twist Clamp (for Cassette Mold)

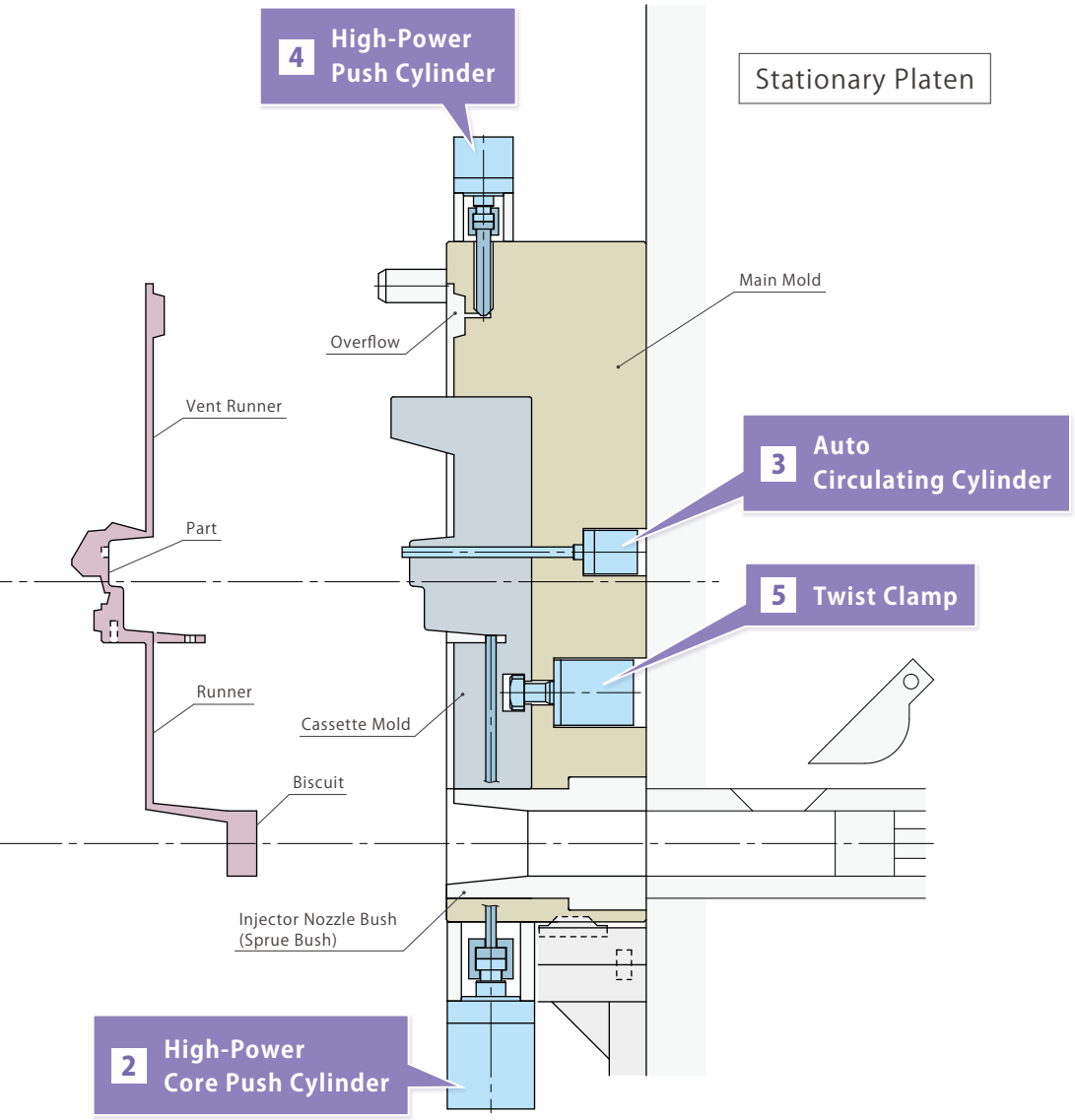




Mold Side

Cycle Time Reduction

Overview



6 P.15

Mold Clamping System for Diecasting Machines

Mold Clamp

Hydraulic Unit

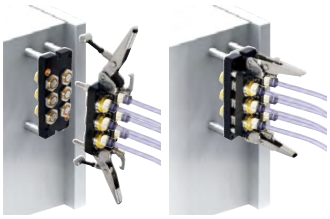
Operational Control Unit

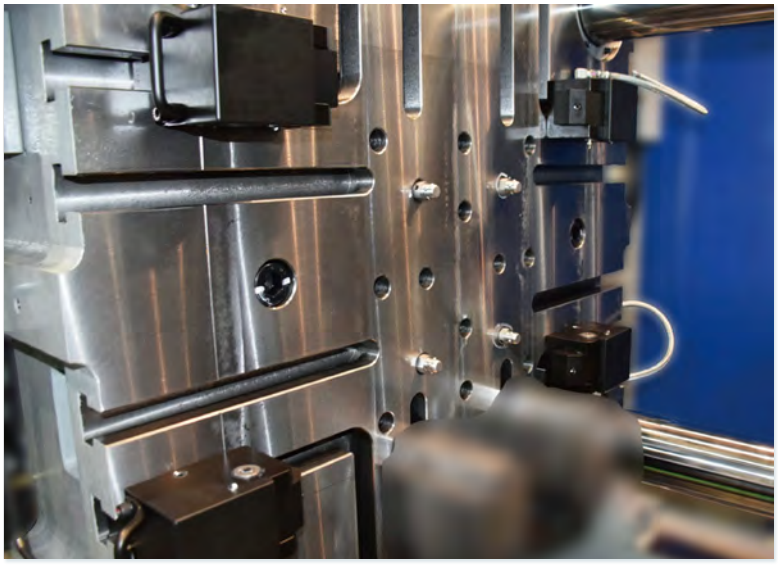
7 P.19

Ejector Coupler

8 P.26

Coupler Unit





Machine Side

Setup Time Reduction

MOLDING

Cycle Time Reduction

High-Speed Core Pull Cylinder

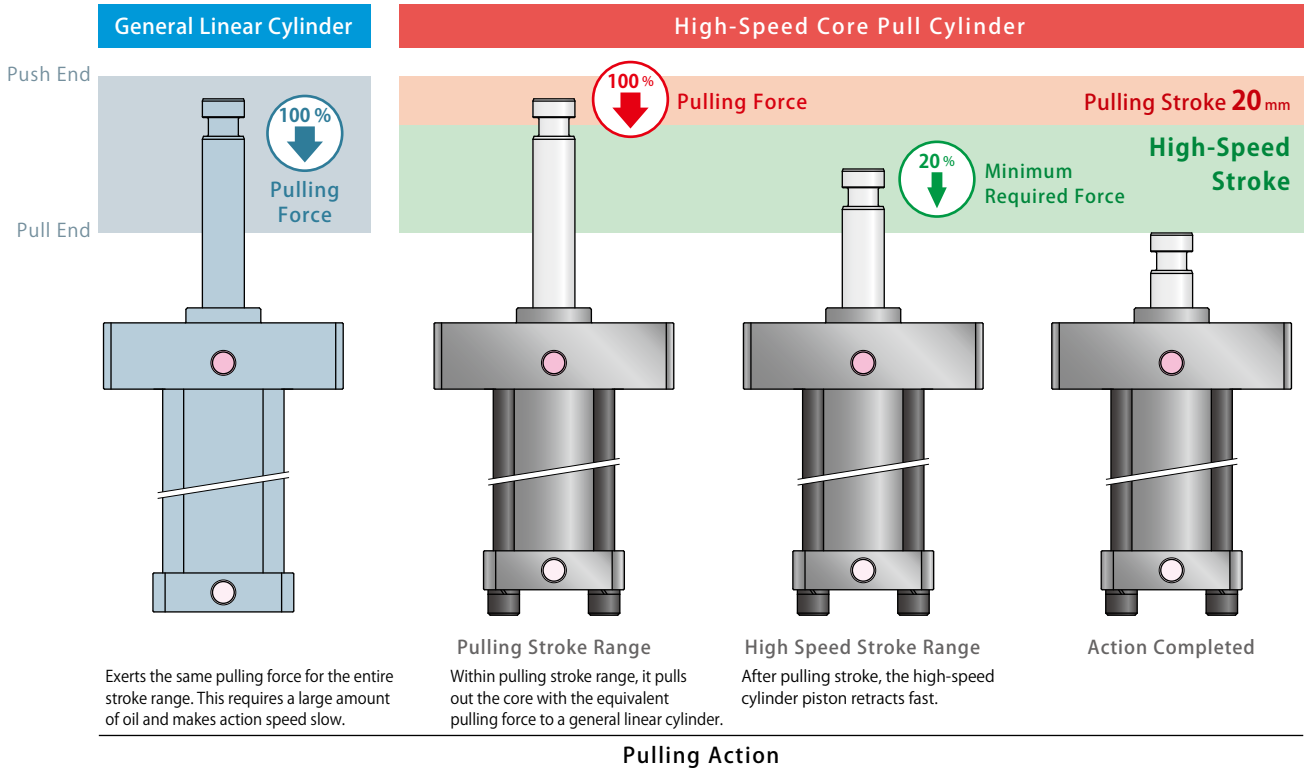
Model PCB

Hyd. Lock / Hyd. Release

Mold and Productivity Improvement

The cylinder operates in half the time faster than before.

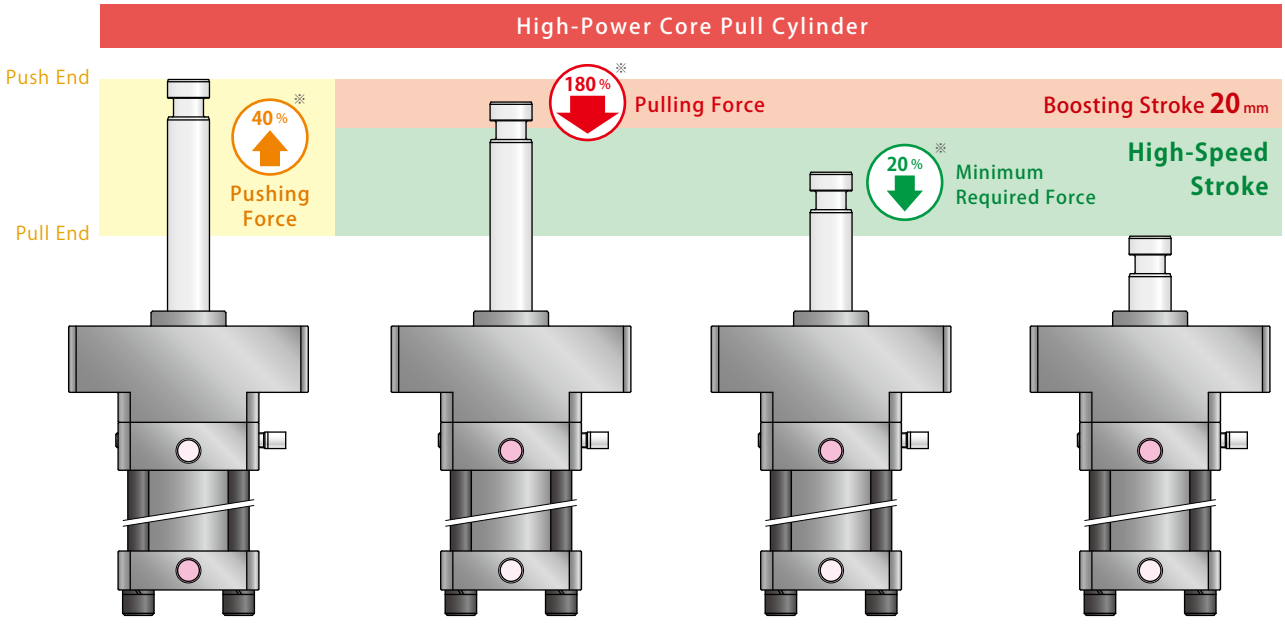
Reduce the down time and improve the productivity.



High-Power Core Pull Cylinder

Model PCA

Hyd. Lock / Hyd. Release



※ Ratio when compared to a general linear cylinder with the same size.

High-Speed Core Pull Cylinder

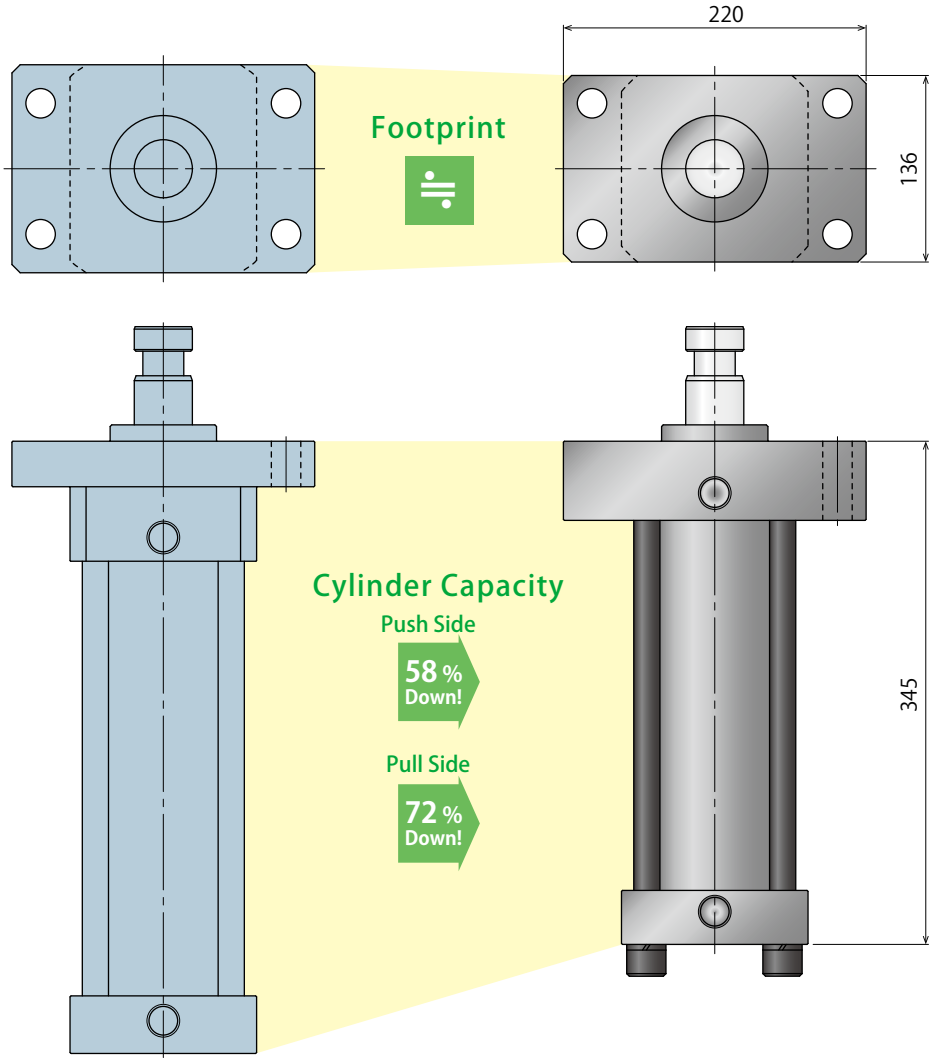
- Energy Saving
- Less Cycle Time
- More Compact Pump

Model PCB

Hyd. Lock / Hyd. Release

High-Speed Core Pull Cylinder has faster action speed and can be replaced from **General Linear Cylinder**.

Size Comparison



General Linear Cylinder	
Cylinder Inner Diameter	ϕ100 mm
Pulling Force	93.9 kN
Weight	About 39 kg

Cylinder Weight

9 % Down!

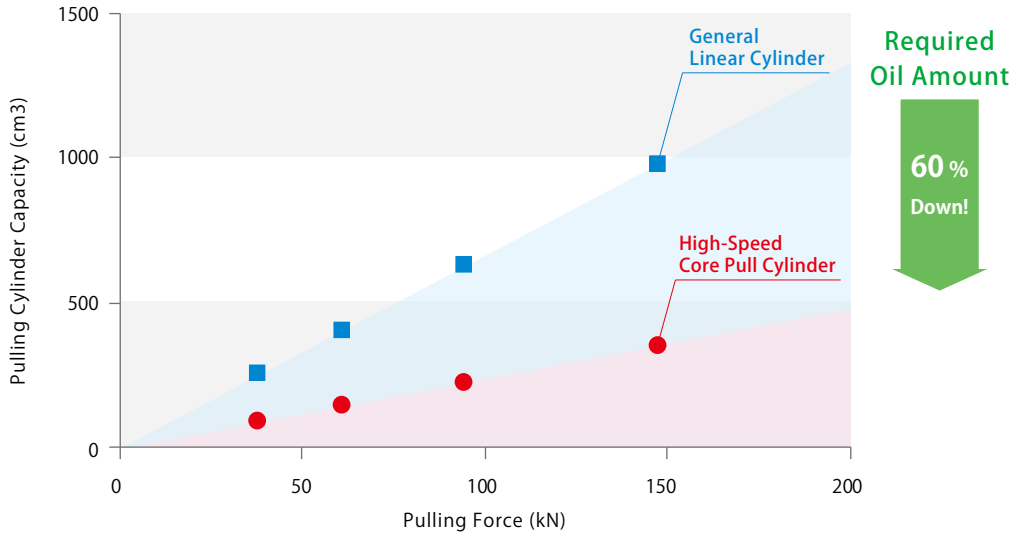
High-Power Core Pull Cylinder	
Cylinder Inner Diameter	ϕ100 mm
Pulling Force	94 kN
Weight	About 35.3 kg

※ Stroke : 200 mm
Hydraulic Pressure : 15 MPa

When comparing cylinders with the same size,

High-Speed Core Pull Cylinder reduces about **60% of oil amount**

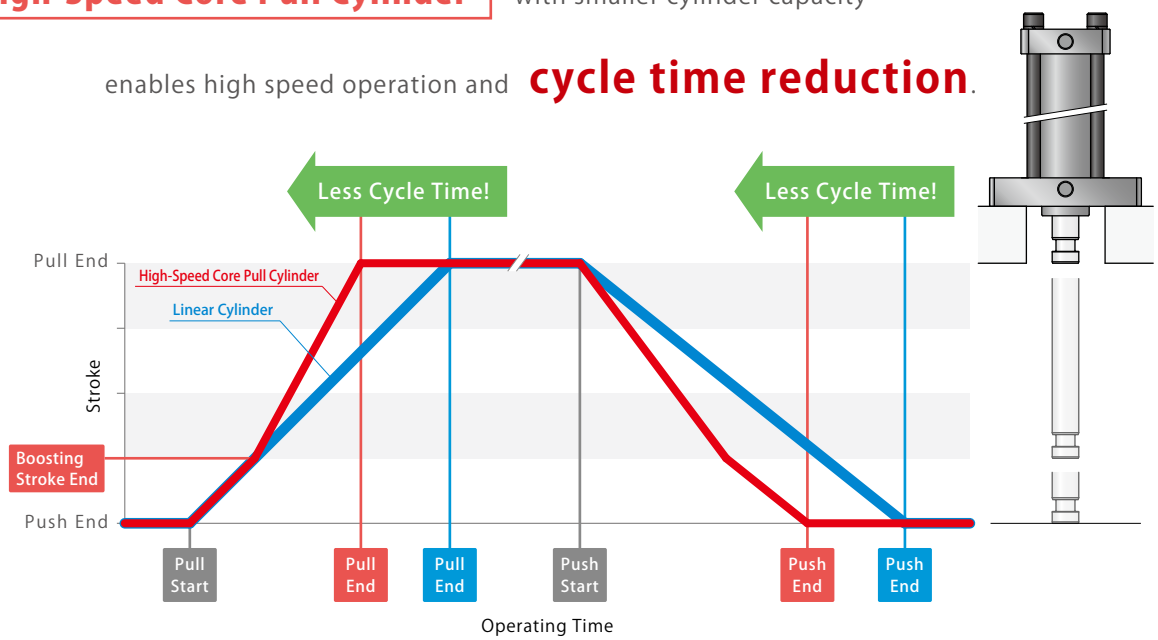
to **General Linear Cylinder**.



Pulling Cylinder Capacity Comparison (Stroke：100mm, Hydraulic Pressure：15MPa)

High-Speed Core Pull Cylinder with smaller cylinder capacity

enables high speed operation and **cycle time reduction**.



Operating Time Image (Compared to cylinder with the same pulling force.)

For example, if total cycle time of pushing and pulling is shortened to 2 sec., production volume per 24 hours will increase by 5%.

	Cycle Time	Production Volume per 24 hours
Mold with High-Speed Core Pull Cylinder	38 sec.	2274 pcs.
Mold with General Linear Cylinder	40 sec.	2160 pcs.

Productivity 5% Up!

High-Power Core Pull Cylinder

- More Compact Mold
- Lighter
- Energy Saving

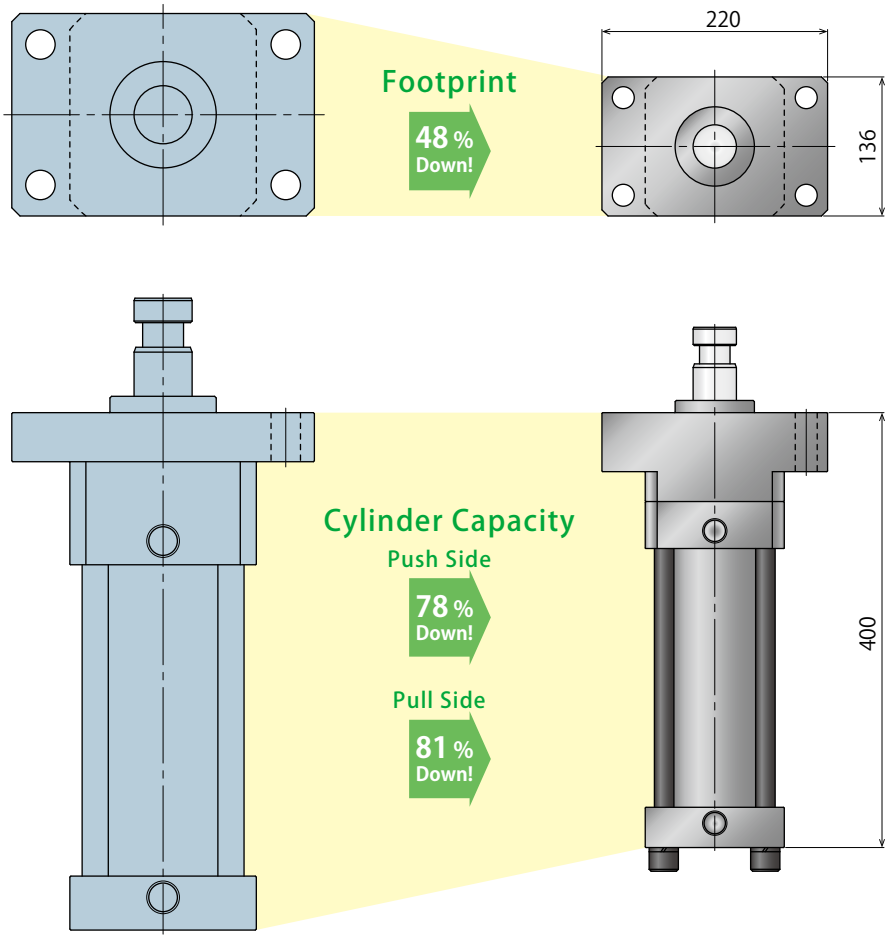
Model PCA

Hyd. Lock / Hyd. Release

When comparing cylinders with the same pulling thrust,

High-Power Core Pull Cylinder model PCA is **3 size smaller** than **General Linear Cylinder.**

3 Size Down Example



General Linear Cylinder		
Cylinder Inner Diameter	ϕ140	mm
Pulling Force	184.1	kN
Weight	About 80	kg

Cylinder Weight
46 % Down!

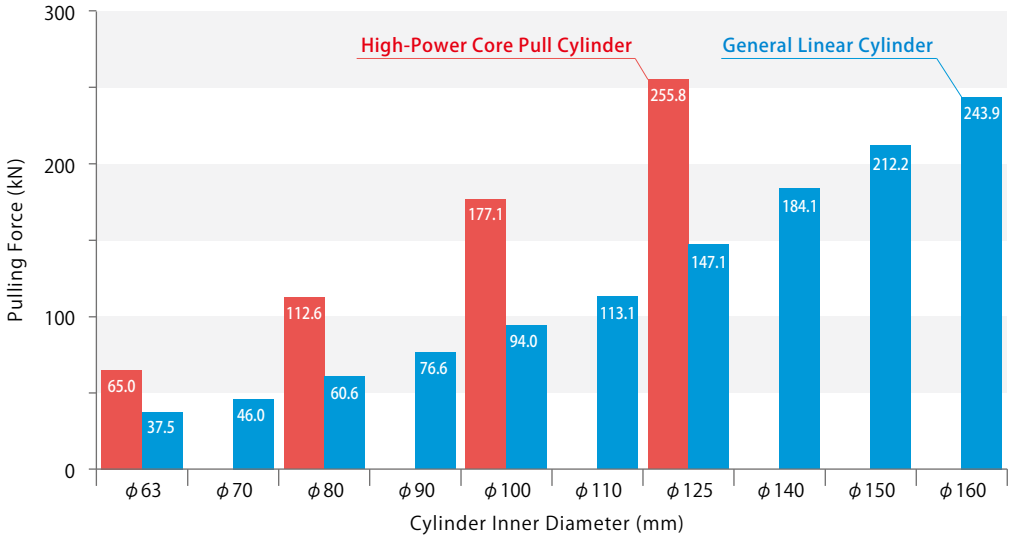
High-Power Core Pull Cylinder		
Cylinder Inner Diameter	ϕ100	mm
Pulling Force	177.1	kN
Weight	About 43.3	kg

※ Stroke：200 mm
Hydraulic Pressure：15 MPa

When comparing cylinders with the same inner diameter,

High-Power Core Pull Cylinder exerts about **180% force**

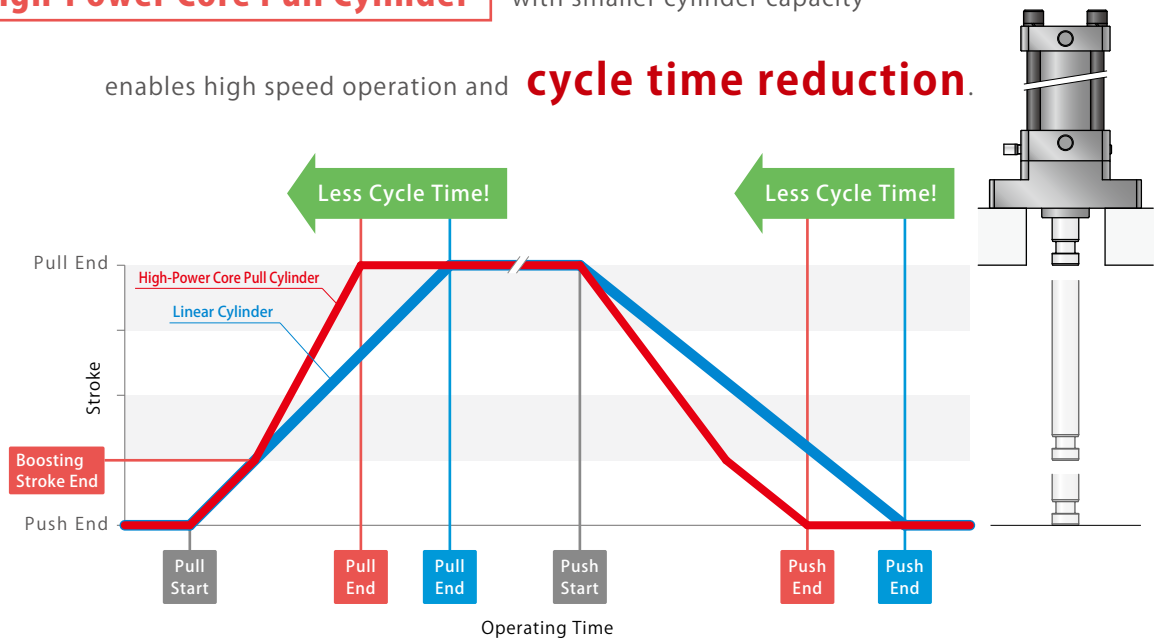
to **General Linear Cylinder**.



Pulling Force Comparison (Supply Hydraulic Pressure at 15MPa)

High-Power Core Pull Cylinder with smaller cylinder capacity

enables high speed operation and **cycle time reduction**.



Operating Time Image (Compared to cylinder with the same pulling force.)

For example, if total cycle time of pushing and pulling is shortened to 2 sec., production volume per 24 hours will increase by 5%.

	Cycle Time	Production Volume per 24 hours
Mold with High-Power Core Pull Cylinder	38 sec.	2274 pcs.
Mold with General Linear Cylinder	40 sec.	2160 pcs.

Productivity

5 % Up !

High-Speed Core Pull Cylinder

Specifications

Model No.			PCB0630	PCB0800	PCB1000	PCB1250
Cylinder Inner Diameter		mm	φ63	φ80	φ100	φ125
Stroke (in 5mm increments)		mm	40 ~ 250			
Cylinder ※1 Capacity cm3	Push Side		1.13×Stroke+39.7	1.81×Stroke+64.3	2.83×Stroke+100.5	4.42×Stroke+157.1
	Pull Side		0.52×Stroke+39.7	0.82×Stroke+64.3	1.24×Stroke+100.5	1.95×Stroke+157.1
Operating Pressure		MPa	15.0			
Max. Operating Pressure		MPa	16.0			
Min. Operating Pressure ※2		MPa	1.0			
Withstanding Pressure		MPa	24.0			
Operating Temperature		℃	**N**:Standard 0 ~ 70 **V**:High Temperature 0 ~ 120			
Weight ※1		kg	0.033×Stroke+7.0	0.053×Stroke+11.0	0.083×Stroke+18.7	0.130×Stroke+29.4

Notes :

※1. The stroke in calculation of cylinder capacity and weight should be calculated in mm.

※2. Minimum pressure to operate the cylinder with no load.

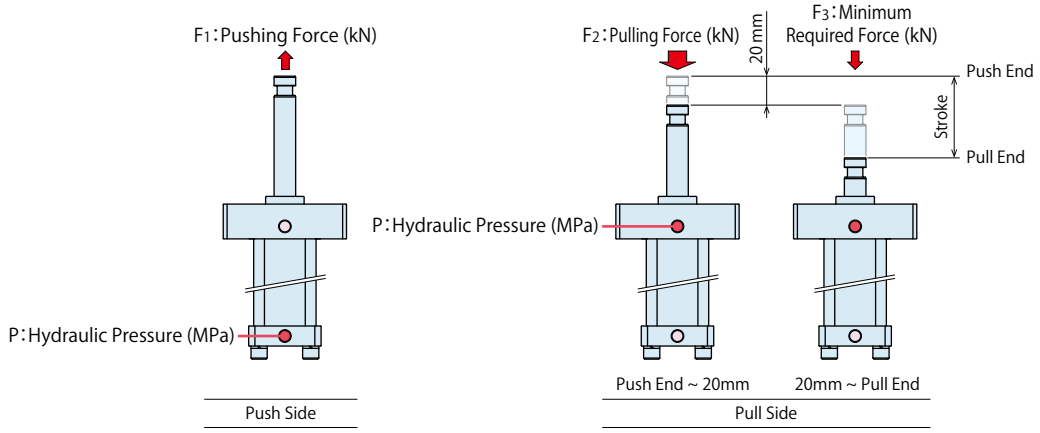
Ability

(kN)

Model No.			PCB0630	PCB0800	PCB1000	PCB1250
Pushing Force		At P:15MPa	17.0	27.1	42.4	66.3
		Calculation Formula ※4	$F_1=1.13\times P$	$F_1=1.81\times P$	$F_1=2.83\times P$	$F_1=4.42\times P$
Pull Side	Pulling Force (Push End ~ 20mm)	At P:15MPa	37.5	60.6	94.0	147.1
		Calculation Formula ※4	$F_2=2.50\times P$	$F_2=4.04\times P$	$F_2=6.27\times P$	$F_2=9.81\times P$
	Minimum Required Force (20mm ~ Pull End)	At P:15MPa	7.8	12.3	18.6	29.3
		Calculation Formula ※4	$F_3=0.52\times P$	$F_3=0.82\times P$	$F_3=1.24\times P$	$F_3=1.95\times P$

Note :

※4. F_1 : Pushing Force (kN), F_2 : Pulling Force (kN), F_3 : Minimum Required Force (kN), P : Hydraulic Pressure (MPa)



High-Power Core Pull Cylinder

Specifications

Model No.		PCA0631	PCA0801	PCA1001	PCA1251
Cylinder Inner Diameter mm		ϕ63	ϕ80	ϕ100	ϕ125
Stroke mm (in 5mm increments)	**A** Compact	40 ~ 200			
	B Flange	40 ~ 250			
Cylinder※1 Capacity cm3	Push Side	1.13×Stroke+39.7	1.81×Stroke+64.3	2.83×Stroke+100.5	4.42×Stroke+157.1
	Pull Side	0.52×Stroke+76.3	0.82×Stroke+133.7	1.24×Stroke+211.3	1.95×Stroke+302.0
Operating Pressure MPa		15.0			
Max. Operating Pressure MPa		16.0			
Min. Operating Pressure※2 MPa		1.0			
Withstanding Pressure MPa		24.0			
Operating Temperature ℃		**N**:Standard 0 ~ 70 **V**:High Temperature 0 ~ 120			
Weight※1 kg	**A** Compact	0.065×Stroke+11.5	0.090×Stroke+19.0	0.125×Stroke+29.5	0.180×Stroke+49.0
	B Flange	0.033×Stroke+10.0	0.053×Stroke+16.5	0.083×Stroke+26.7	0.130×Stroke+43.3

Notes :

※1. The stroke in calculation of cylinder capacity and weight should be calculated in mm.

※2. Minimum pressure to operate the cylinder with no load.

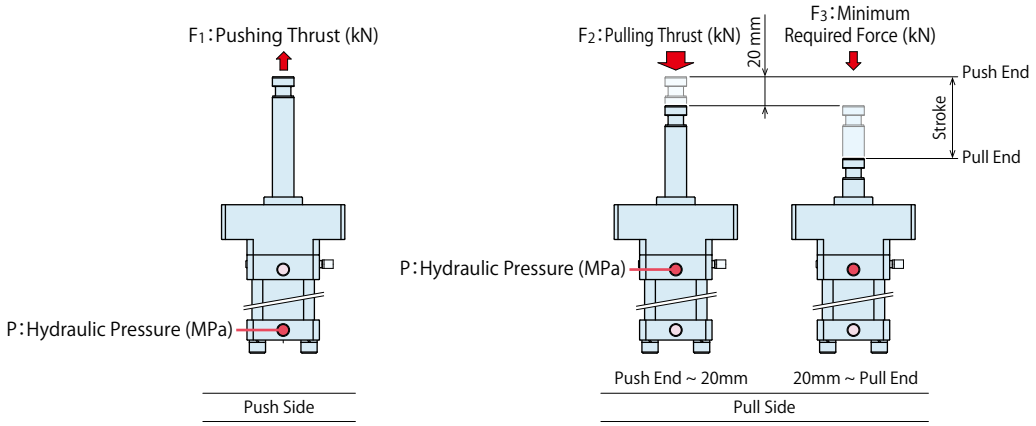
Ability

(kN)

Model No.			PCA0631	PCA0801	PCA1001	PCA1251
Pushing Force		At P:15MPa	17.0	27.1	42.4	66.3
		Calculation Formula※4	$F_1=1.13\times P$	$F_1=1.81\times P$	$F_1=2.83\times P$	$F_1=4.42\times P$
Pull Side	Pulling Force (Push End ~ 20mm)	At P:15MPa	65.0	112.6	177.1	255.8
		Calculation Formula※4	$F_2=4.33\times P$	$F_2=7.51\times P$	$F_2=11.81\times P$	$F_2=17.05\times P$
	Minimum Required Force (20mm ~ Pull End)	At P:15MPa	7.8	12.3	18.6	29.3
		Calculation Formula※4	$F_3=0.52\times P$	$F_3=0.82\times P$	$F_3=1.24\times P$	$F_3=1.95\times P$

Note :

※4. F_1 : Pushing Force (kN), F_2 : Pulling Force (kN), F_3 : Minimum Required Force (kN), P : Hydraulic Pressure (MPa)



※ Details are on the product catalog. Please contact us or visit our website.

Special Product

High-Power Core Push Cylinder

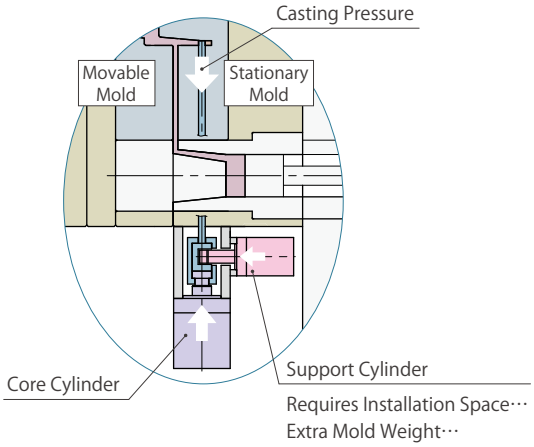
Mechanical Lock

Withstands Casting Pressure

Required Points of Core Cylinder for Stationary Mold

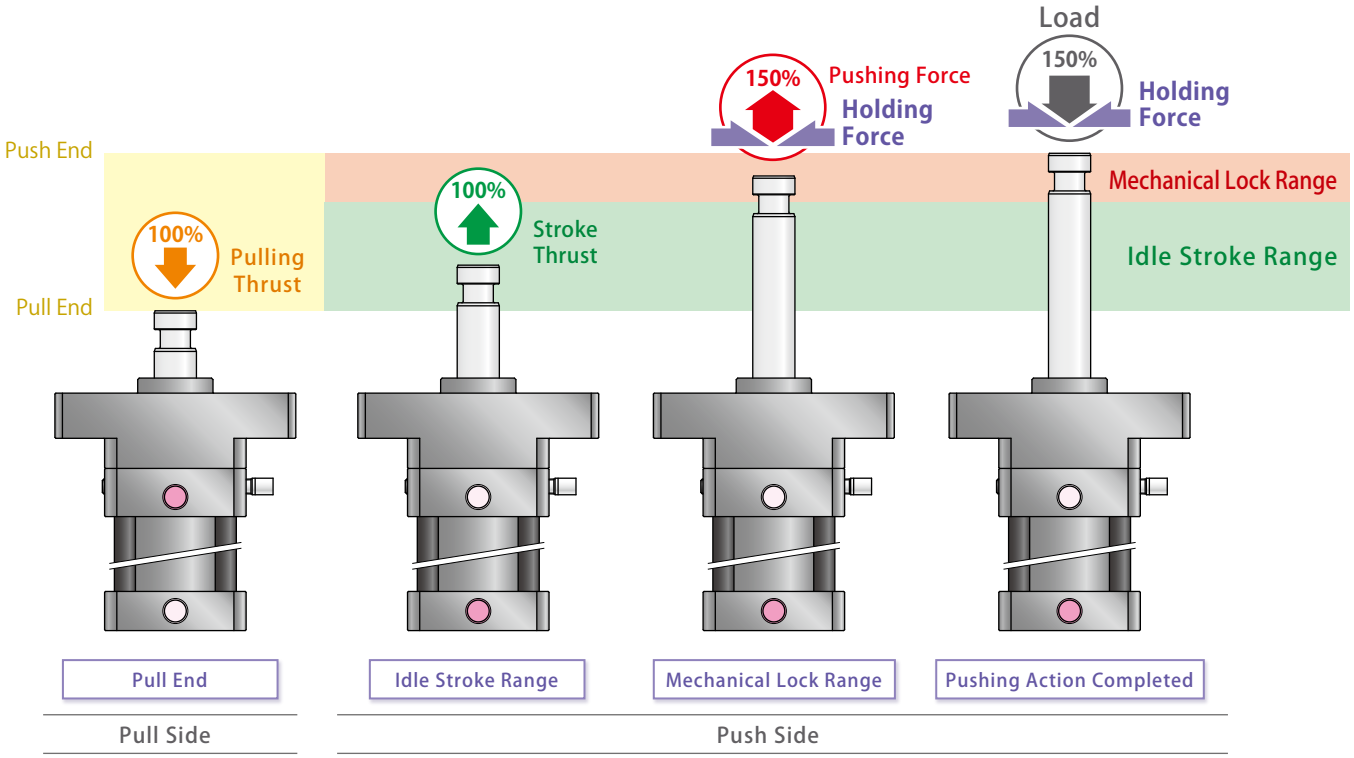
Cylinder for slide core installed on movable mold is able to withstand casting pressure with the cotter on the mold. However, when installing core cylinder on stationary mold, the cotter cannot be installed so the core cylinder has to withstand the casting pressure.

When a core cylinder cannot withstand casting pressure, it is required to fix the core cylinder and receive casting pressure by a support cylinder.



High-Power Core Push Cylinder

Compared to general cylinder, Kosmek High-Power Core Push Cylinder withstands load of 150% with mechanical lock function built in cylinder so that core cylinder does not require a support cylinder.



Auto Circulating Cylinder

(for Partial Pressurization)

Suitable for Partial Pressurization

Space-Saving Cylinder

Required Points of Partial Pressurization Cylinder

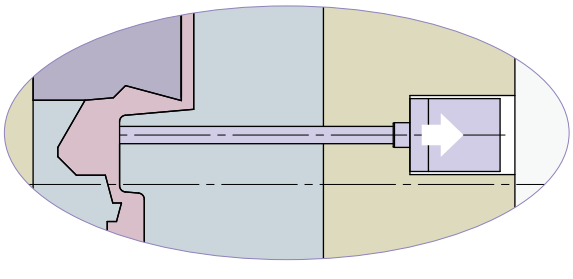
A cylinder for partial pressurization is installed near the cavity, so it is liable to become high temperature during operation. Also, the timing of pressurization is very important for this cylinder, since it will cause knocking and/or action delay if air is mixed in oil leading to low quality of products.

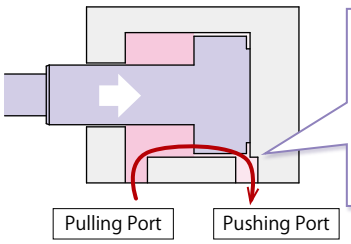
Auto Circulating Cylinder

Kosmek Auto Circulating Cylinder enables air bleeding and cooling by auto circulation of hydraulic oil.

Pulling Action

At pull end, auto oil circulation by intended internal leak ensures air bleeding per cycle. Also, it supplies cooled oil from outside all the time, thus sealing life span will be longer.

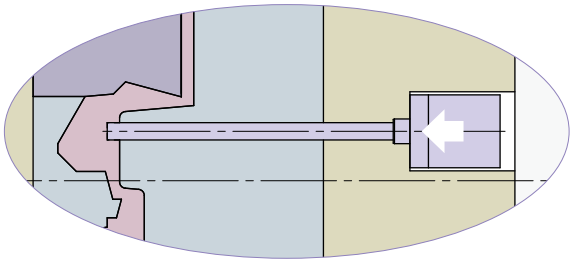


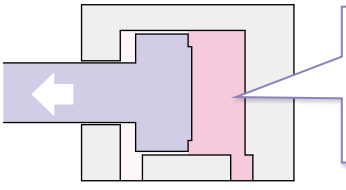


At pull end, hydraulic oil circulates automatically from the pulling port to the pushing port to bleed air.

Pushing Action

Air bleeding of hydraulic oil per cycle prevents knocking and/or action delay, and ensures pushing action at the right time.





Hydraulic fluid with no air mixed ensures pushing action at the right time.

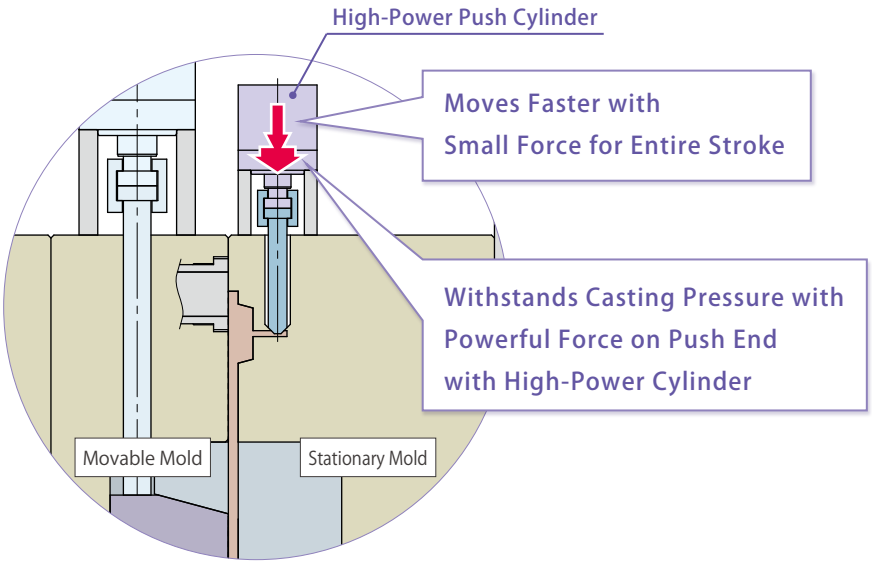
Special Product

High-Power Push Cylinder

Suitable for Opening/Closing Vent Valves

High-Power & High-Speed Cylinder

High-Power Push Cylinder exerts high thrust force only on push side, so it is suitable when receiving casting pressure on cylinder push end.
It actuates faster with small thrust force in the middle of cylinder stroke, and withstands casting pressure with large thrust force at the last several millimeters.

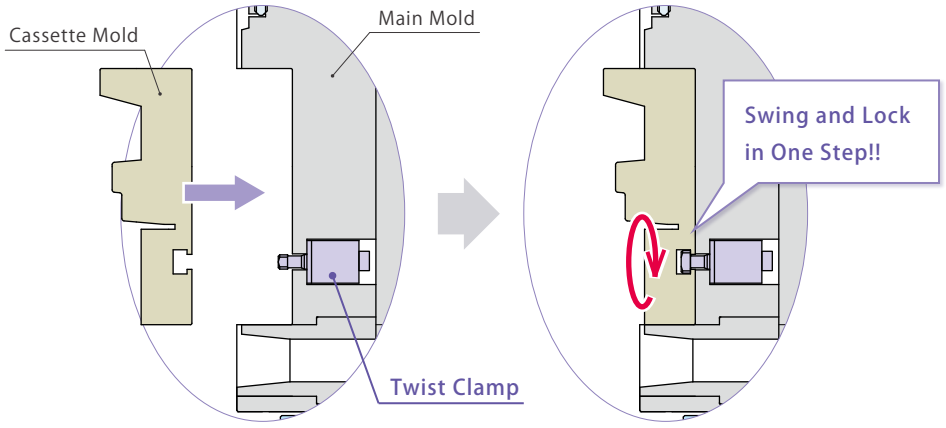


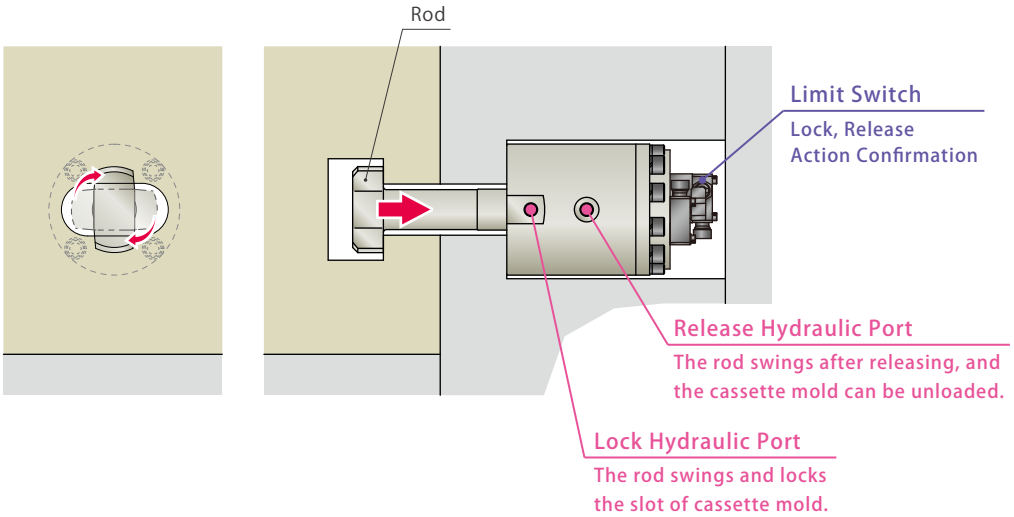
Special Product

Twist Clamp (for Cassette Mold)

Quick and Safe Cassette Mold Change

Cassette mold can be easily changed by installing the twist clamp inside a mold.





Simple Circuit

Kosmek Twist Clamp has only one port for swing and lock. This allows for simple circuit and control with two ports: "Swing⇒Lock" and "Release⇒Swing".

Compact Body

Optimization of swing function allows for compact body. For space saving and downsizing of a mold.

With Limit Switch for Action Confirmation

Lock and release action can be detected by a limit switch. Safety is ensured by interlock with a diecast machine.

CASTING Mold Change Time Reduction

Diecast Mold Clamp

Model GK□

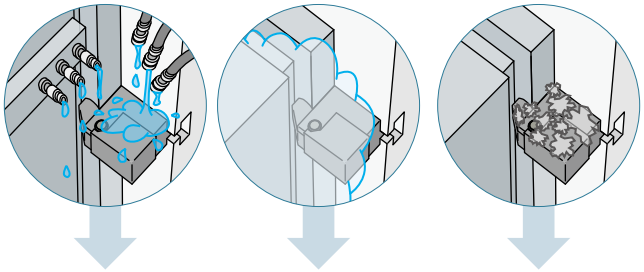
Hyd. Lock / Spring Release

Securely Clamps with Mold Clamp

Allows for secure and safe mold clamping with a button operation outside the machine.

Typical Severe Environment of Diecasting

Process Water | Mold Lubricant | Aluminum

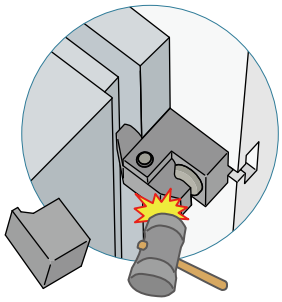


Corrosion • Oil Leak

Severe environment causes corrosion and oil leak of clamp...

Release Error

This leads to release error of clamp and affects mold change time.



Sometimes an adhered clamp lever has to be forcibly released by hitting it.

No Release Errors

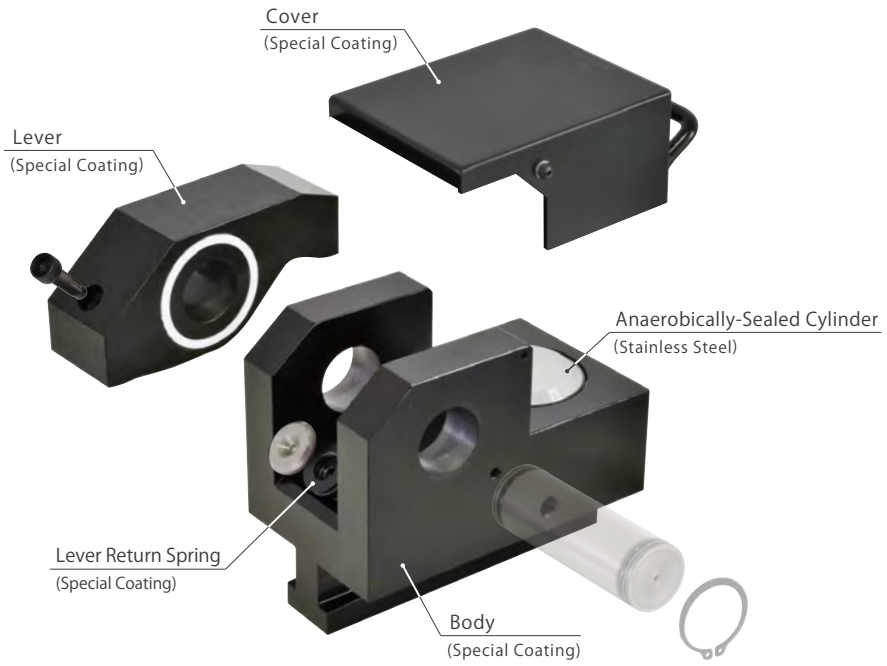
with the Clamp Exclusively Designed for Diecast

Special Coating Capability

Special coating greatly reduces the risk of corrosion.

General Black Oxide	Kosmek Special Coating
 Corrosion in a short period. Peeled corrosion may get into the sliding part and damage the sealing.	 No corrosion at all. Ensures stable movement for a long period.

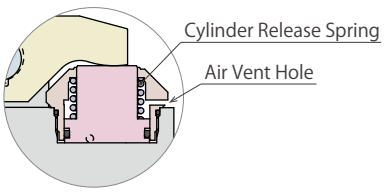
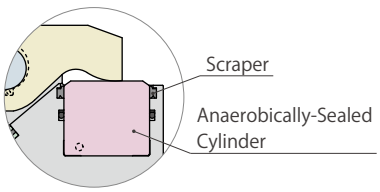
※【Comparison Test】Condition after soaked in 5% salt solution, washed after 200 hours and dried after 24 hours past.



Lever Return Spring

Powerful Lever Return Spring larger than that of the old model ensures lever release.

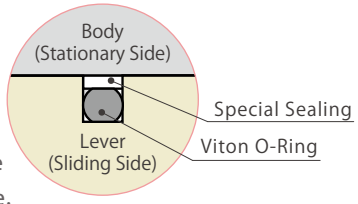
Longer Operation Life with Anaerobically-Sealed Cylinder

General Clamp Cylinder	Kosmek Anaerobically-Sealed Cylinder
 Invasion of mold lubricant and water from air vent hole of cylinder release spring may cause spring damage and release error due to corrosion.	 Anaerobically-sealed cylinder and scraper prevent invasion of foreign substances into clamp. This reduces the risk of release error.

Sealing Technique Ensures

Longer Operating Life

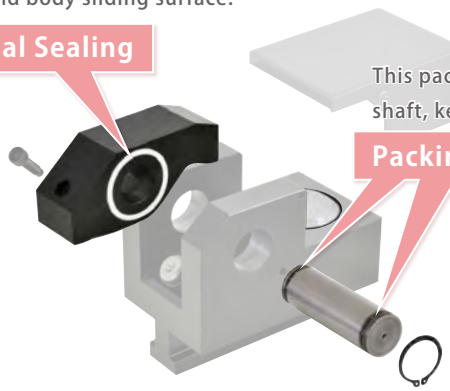
- Low Friction and Smooth Operation
- Wear Resistant and Longer Operating Life
- Maintains high-quality sealing with no clearance between special sealing and body sliding surface.



High Strength Special Sealing

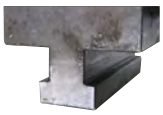
This packing, which is set on the fulcrum shaft, keeps out mold lubricant and dust.

Packing for the Fulcrum Shaft



Case Study of 5-Year-Old Clamp

Pin Hole Mounting Part	Pin	T-Leg Part
The pin hole part which affects the operation is clean. No invasion of foreign substance.	There is no invasion of foreign substance by the use of special seal and viton o-ring.	Special coating prevents it from rusting.

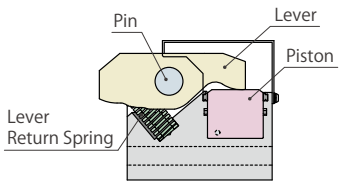


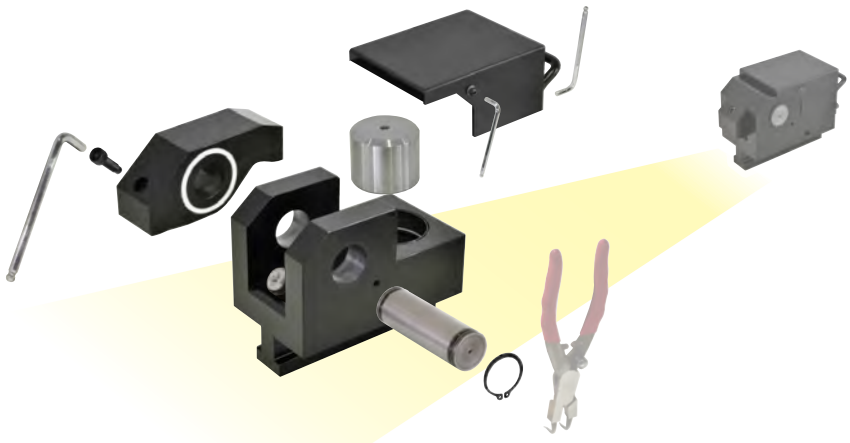
No invasion of foreign substance **reduces release error.**

Simplifies Sudden Maintenance

No Specific Skill is Required

No special tools are required for disassembly・assembly.
Since anyone can assemble and disassemble the clamp,
only a seal kit is needed to perform on-site maintenance.





From Small to Extra-Large Sizes

Standard System

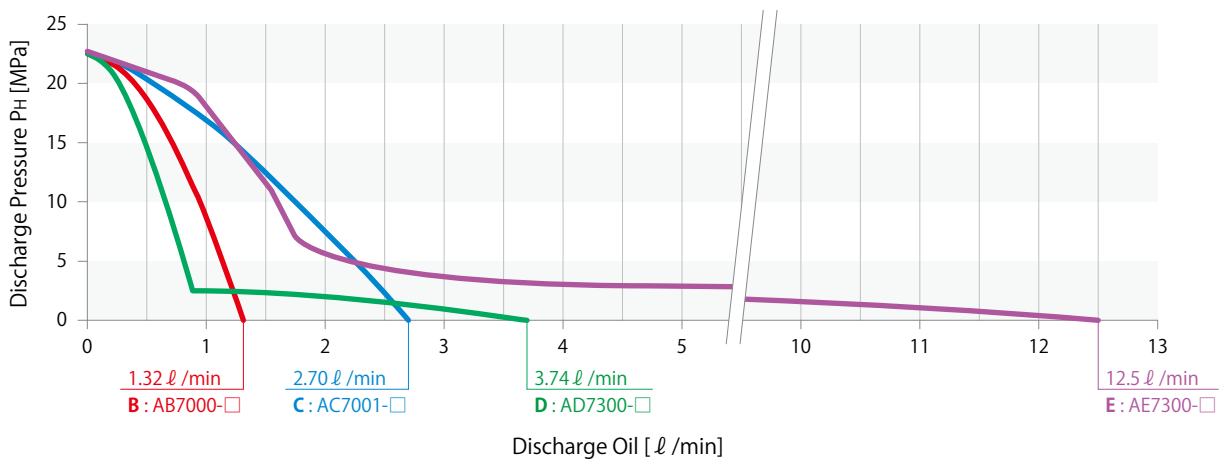
Die Casting Machine Capacity	Clamp Size ※1	Clamp Qty.	Stationary / Movable Total Clamping Force [kN]	Hydraulic Unit			Mold Fall Prevention Block	Air Valve Unit (Only GKE/GKF)
				Unit Model	Pump Model	Clamp Operation Speed		
～ 350	NEW 0100	8 (Stationary : 4 Movable : 4)	40	CTBN0□0 CTDN0□0 CTCN0□0 CTEN0□0	AB7000-□ AD7300-□ AC7001-□ AE7300-□	Faster	MJ0010	-
～ 500	NEW 0160		64					
～ 750	NEW 0250		100				MJ0020	MV3012-25
～ 1500	0400		160					
～ 2500	0630		252					
～ 5000	1000		400	CTDN0□0 CTCN0□0 CTEN0□0	AD7300-□ AC7001-□ AE7300-□		MJ0030	MV3022-25
～ 6500	1600		640				MJ0040	
～ 11000	NEW 2500		1000	CTCN0□0 CTEN0□0	AC7001-□ AE7300-□		MJ0050	
～ 16500	NEW 4000		1600	CUEN0□0	AE7300-□		Please contact us.	
～ 22500	NEW 5000		2000					
～ 25000	NEW 4000	12 (Stationary : 6 Movable : 6)	2400					
～ 30000	NEW 5000		3000					

Notes :

※1. T-Slot Manual Slide (Model GKB/GKC): sizes 0100~5000, T-Slot Automatic Slide (Model GKE/GKF): sizes 0400~5000.
Please contact us for T-slot automatic slide clamp sizes smaller than 0400.

1. The standard system above is just a reference. Please contact us for exact specifications for your machine.

Pump Performance Curve



※ Details are on the product catalog. Please contact us or visit our website.

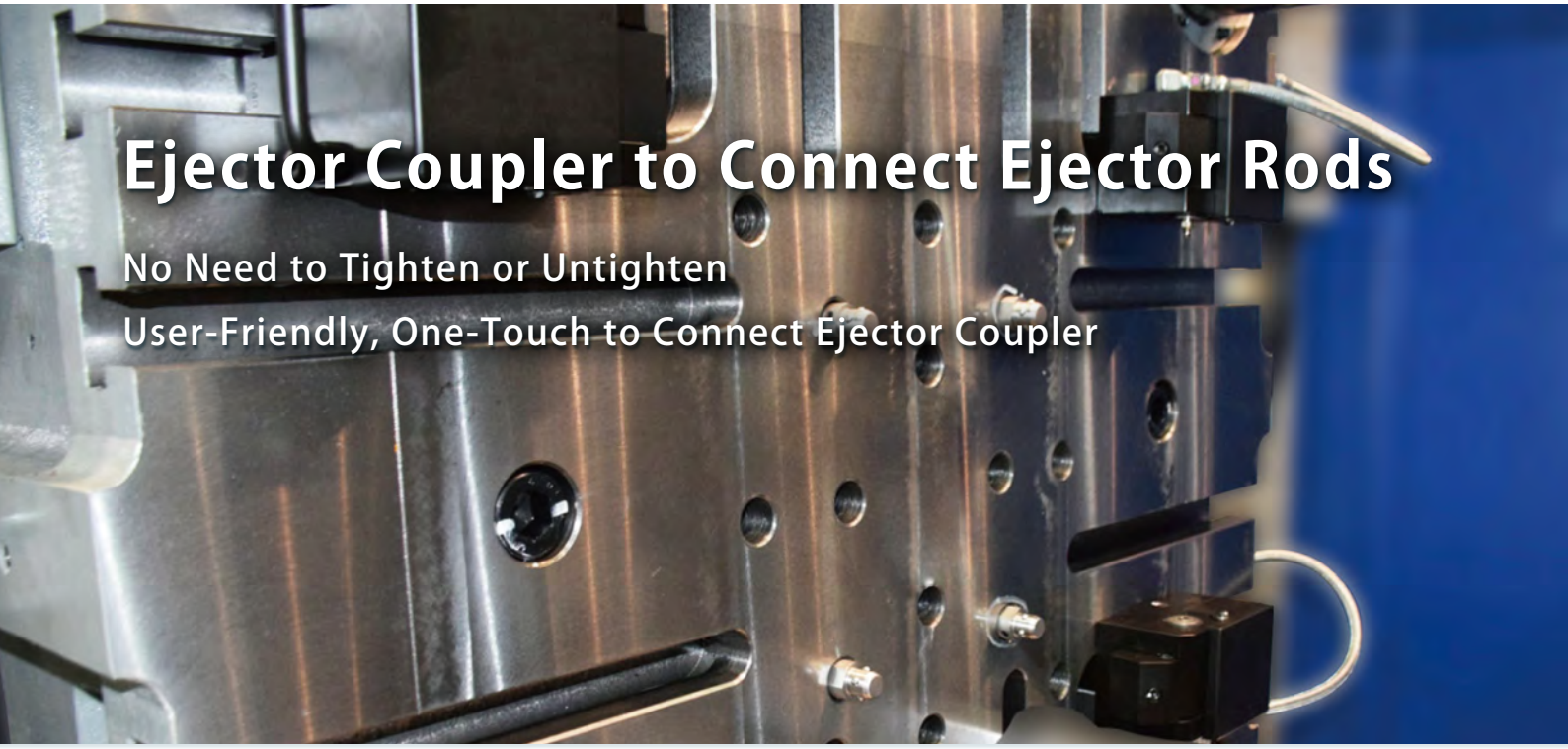
CASTING

Mold Change Time Reduction

Ejector Coupler (Connecting Ejector Rods)

Model PMC

Spring Lock / Air Release



Ejector Coupler to Connect Ejector Rods

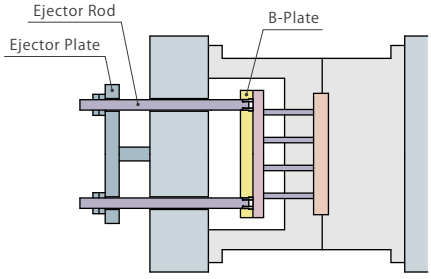
No Need to Tighten or Untighten

User-Friendly, One-Touch to Connect Ejector Coupler

Various Problems of Current Ejector Rod Connection

When Connecting with Ejector Rods

To connect B-plate (mold side) and ejector plate (machine side), total of eight positions need to be tightened/untightened. Also, it is dangerous to move around operation/non-operation side, and to work near the mold closing device.



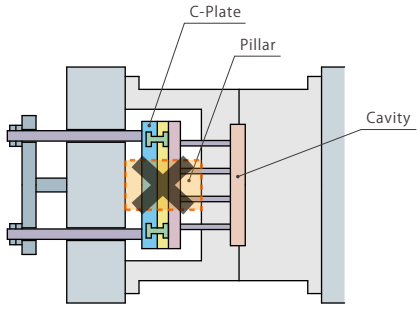
Ejector Rod Connection Procedure

【Loading a Mold】
↓
Pump Stop
↓
Connect Mold Operation Side (2 Parts)
↓
Connect Mold Non-Operation Side (2 Parts)
↓
Pump Start
Mold Close
Ejector Plate Move Forward
Pump Stop
↓
Connect Machine Operation Side (2 Parts)
↓
Connect Machine Non-Operation Side (2 Parts)
↓
【Connection Completed】

Poor Work Efficiency,
Dangerous and Takes Time

When Connecting with C-Plate

If installing C-plate to improve work efficiency, a pillar to support cavity cannot be placed. This leads to unstable product quality.



C-plate simplifies connection work, but quality is unstable since pillar cannot be installed.

Mold Change Time Reduction

※ Actual mold change time of a 350 ton diecast machine.

Unloading a Mold

Machine Side：Untighten 4 Nuts
Mold Side：Untighten 4 Rods
362 sec

→ Button Operation **1** sec

Loading a Mold

Machine Side：Tighten 4 Nuts
Mold Side：Tighten 4 Rods
387 sec

→ Button Operation **1** sec

Simplified Ejector Rod Connection

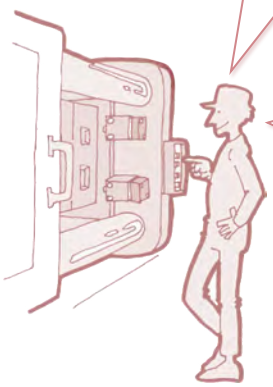
Manual Operation

MOLD Tighten 2 Ejector Rods (Operation Side)
Move to Non-Operation Side
MOLD Tighten 2 Ejector Rods (Non-Operation Side)
Move to Operation Side
Pump Start → Mold Close
→ Ejector Plate Move Forward
MACHINE Tighten 2 Nuts (Operation Side)
Move to Non-Operation Side
MACHINE Tighten 2 Nuts (Non-Operation Side)
Move to Operation Side
Pump Start → Ejector Plate Move Backward
→ Mold Open

Ejector Coupler

Mold Close
→ Ejector Plate Move Forward
Ejector Coupler
LOCK (Button Operation)
Ejector Plate Move Backward
→ Mold Open

No need to move around the machine or operate inside the machine.



No Tools Required

General Specifications (No Action Confirmation Model)

・Outer Diameter：ϕ25 mm / ϕ30 mm / ϕ40 mm ・Operating Air Pressure：0.3 ~ 1.0 MPa ・Operating Temperature：0 ~ 120℃
・Max. Allowable Stretching Force：10 kN / 16 kN / 25 kN ・Max. Allowable Compressive Force：25 kN / 40 kN / 63 kN

※ Details are on the product catalog. Please contact us or visit our website.

PMC Ejector Coupler

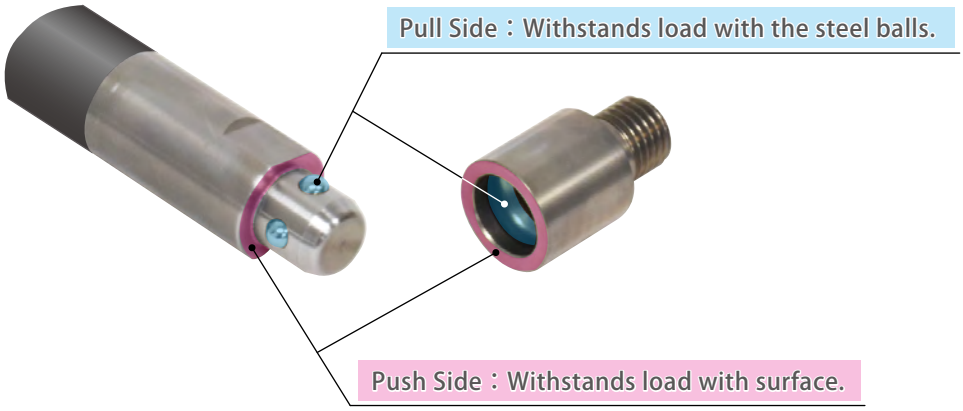
Improve Work Efficiency — The work without tools enhances productivity by saving time for searching tools.

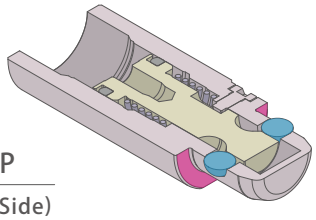
Reduce Operation Time — No need to move to the non-operation side.

Secure Operation — Prevent accidents caused by tightening work inside the machine.

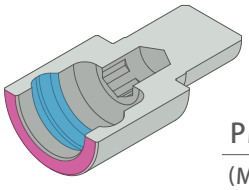
Standardize Operation — It allows everyone to tighten them with the same force.

Powerfully Connected by Air - Mechanical Locking





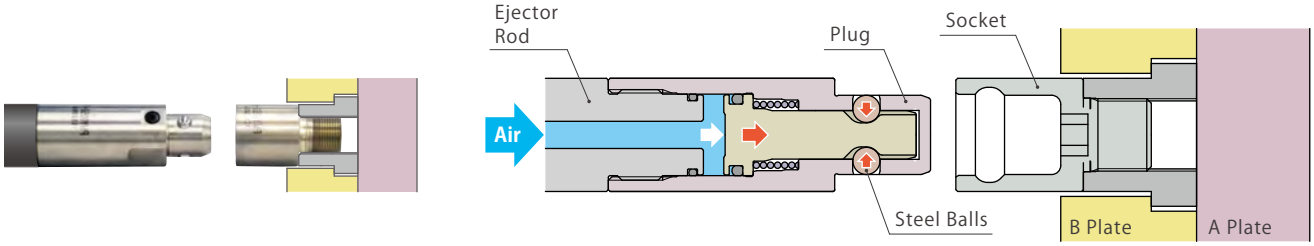
PMC-P
(Machine Side)



PMC-H/S
(Mold Side)

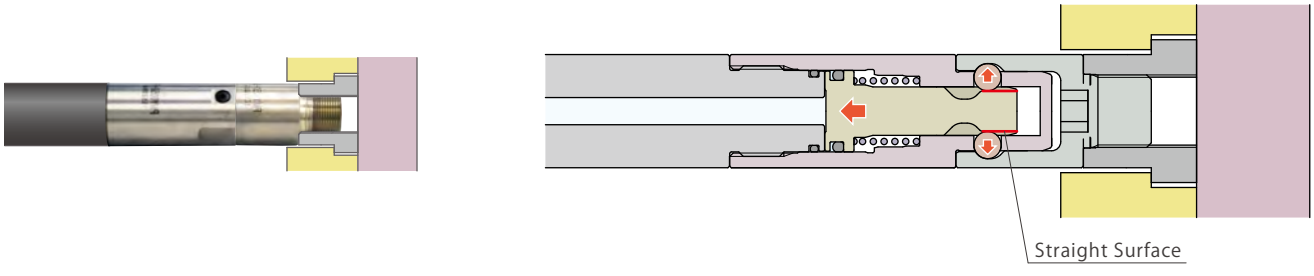
Released State — Release Air Pressure **ON**

By supplying air pressure, steel balls are free to move so the plug can be pulled out.



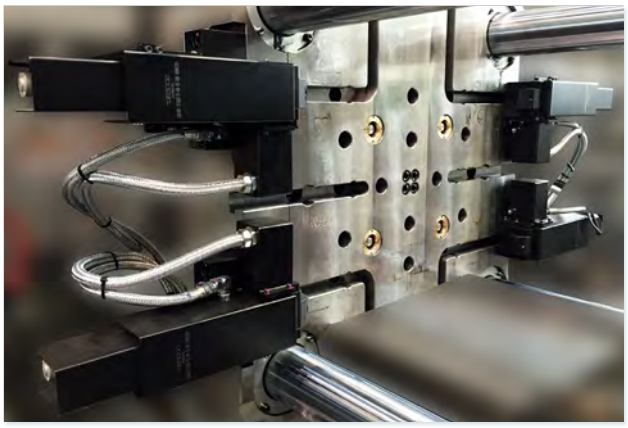
Locked State — Release Air Pressure **OFF**

By releasing air pressure, steel balls are pushed out with spring force, and the plug/socket is connected.

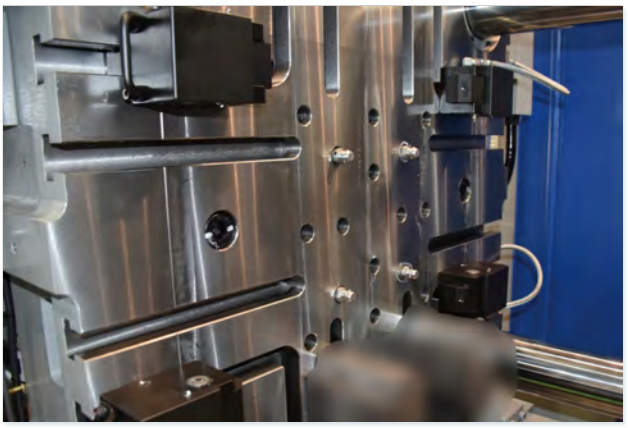


Using straight surface to fix the steel balls allows for powerful connection.

Installation Example of 125 ton Diecast Machine

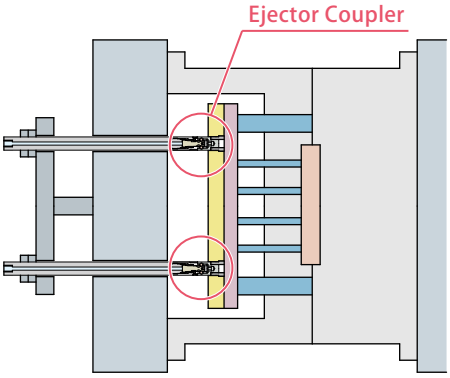


Installation Example of 350 ton Diecast Machine



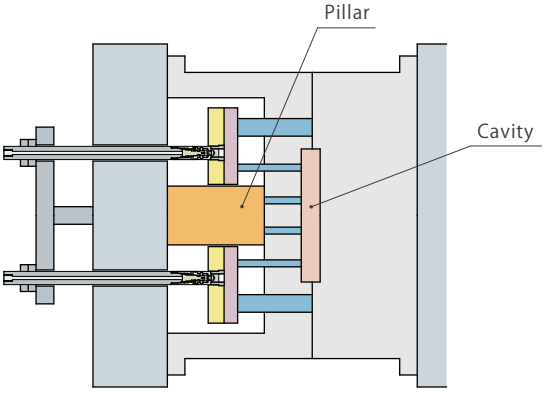
Reduce Setup Time Safely

Setup time can be reduced safely since the connection of ejector rod is completed only with ON/OFF of air pressure.



Able to Install a Pillar

Since the rod part is connected, the pillar can be placed on the back side of the cavity which receives casting pressure. This makes product quality stable.



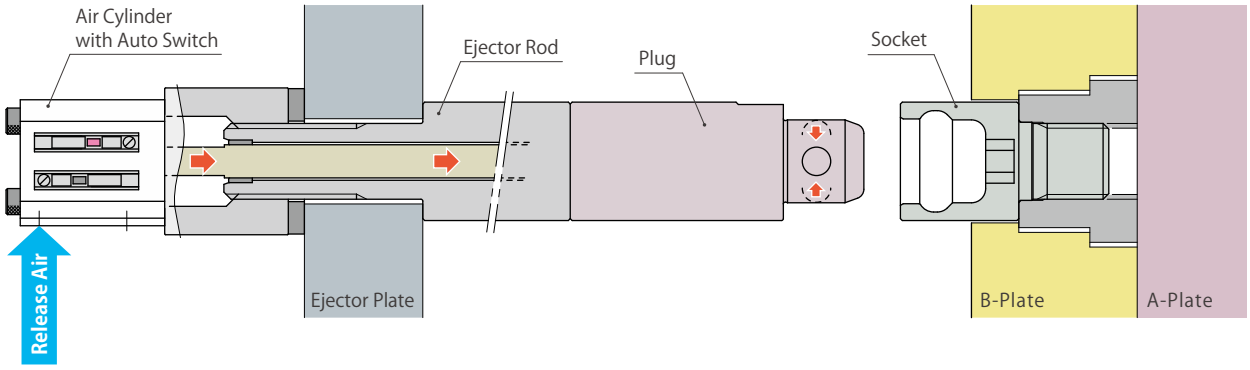
Action Confirmation Model
Ensures Lock / Release Action Confirmation

The air cylinder with auto switch moves the piston inside the plug directly.
Ejector coupler action is confirmed by detecting air cylinder position with auto switch.

Released State

Lock Air Pressure **OFF** Release Air Pressure **ON**

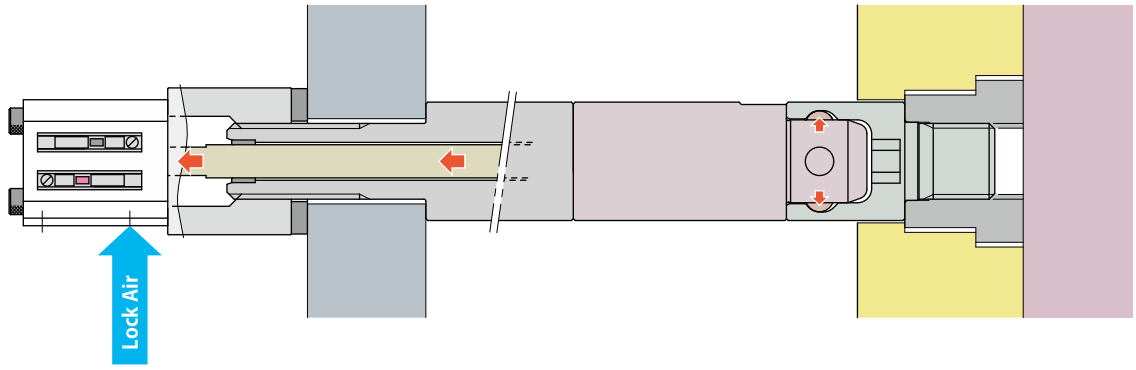
By supplying release air pressure, the air cylinder moves forward and the release action signal is ON.



Locked State

Lock Air Pressure **ON** Release Air Pressure **OFF**

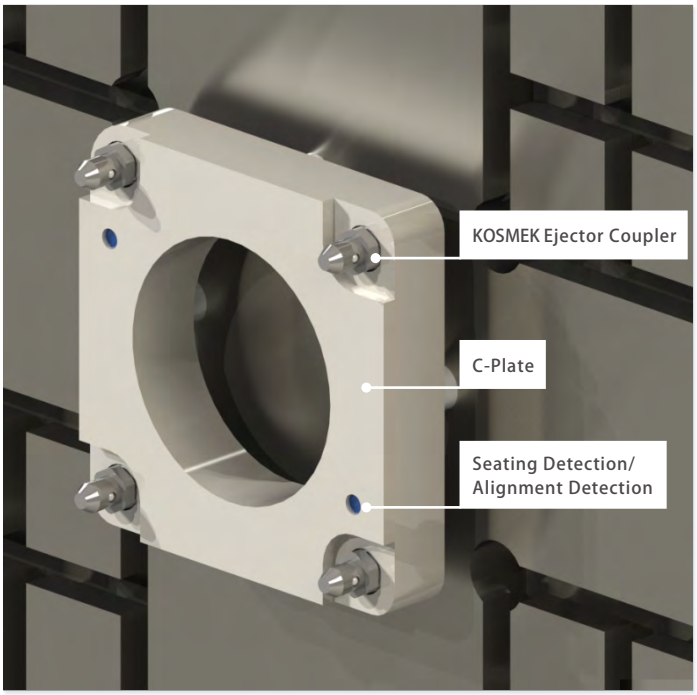
By supplying lock air pressure, the air cylinder moves backward and the lock action signal is ON.

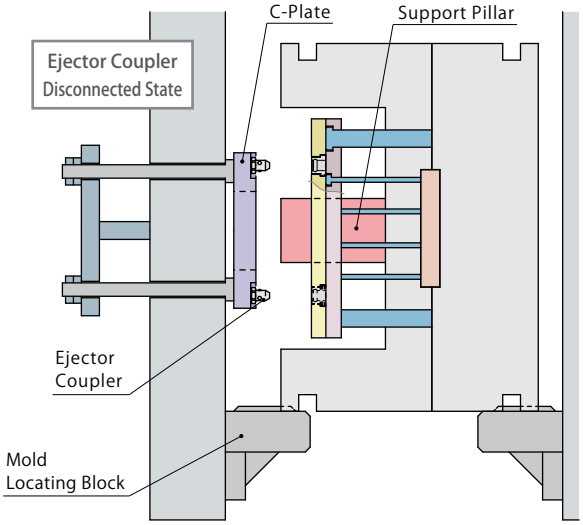


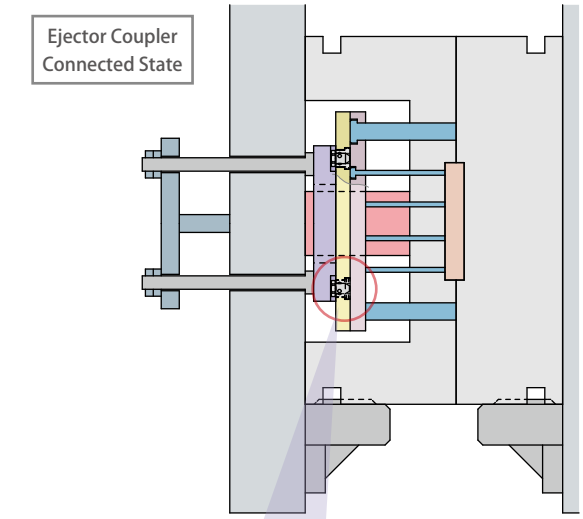
Special Product

Flexible Design of C-Plate

※ Special Application Example



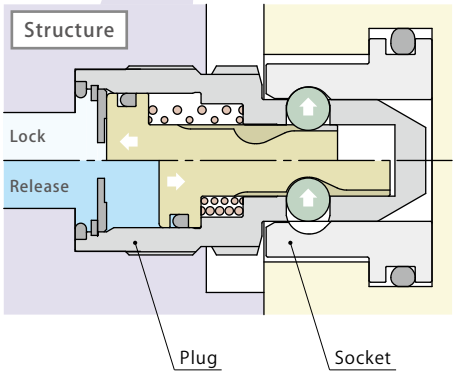




Required to install a pillar to stabilize accuracy and quality of products, but C-plate occupies space behind the cavity so that a support pillar cannot be installed.

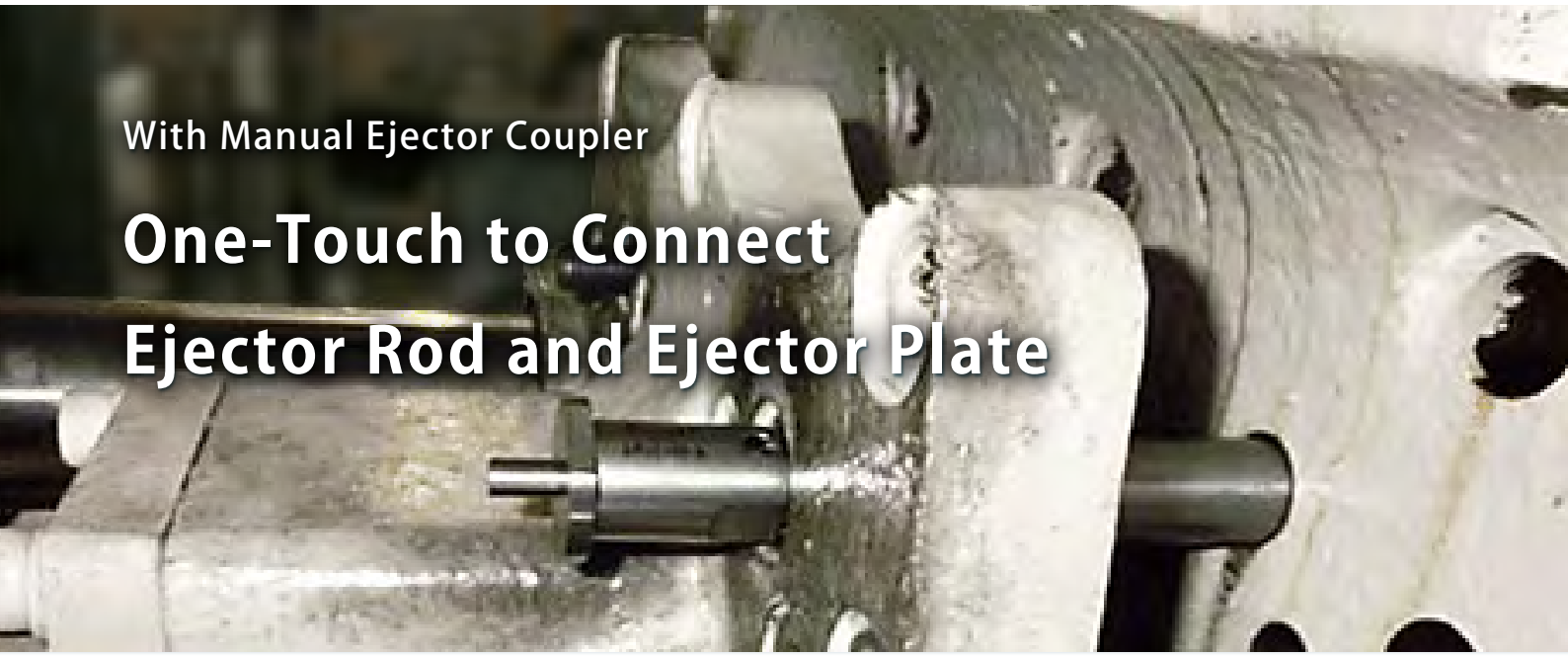
Even in such the case...

With KOSMEK Ejector Coupler, it is able to design a C-plate freely.



Ejector Coupler
Manual Model

Spring Lock / Manual Release

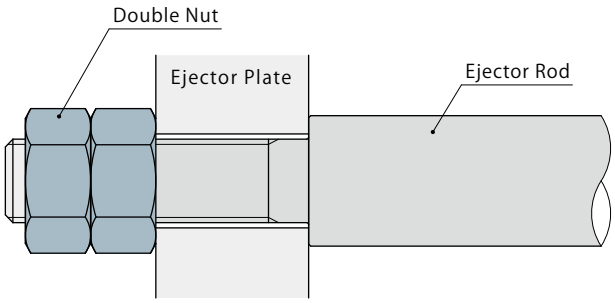


With Manual Ejector Coupler

One-Touch to Connect Ejector Rod and Ejector Plate

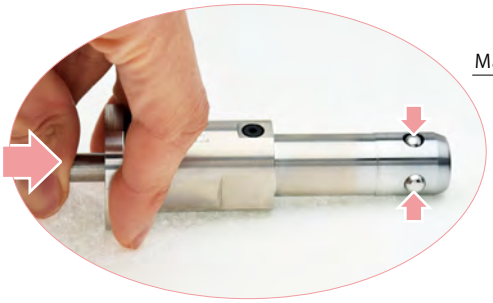
Current Method

In general, an ejector rod and an ejector plate are connected by double nut, but this takes a lot of time to tighten and untighten.



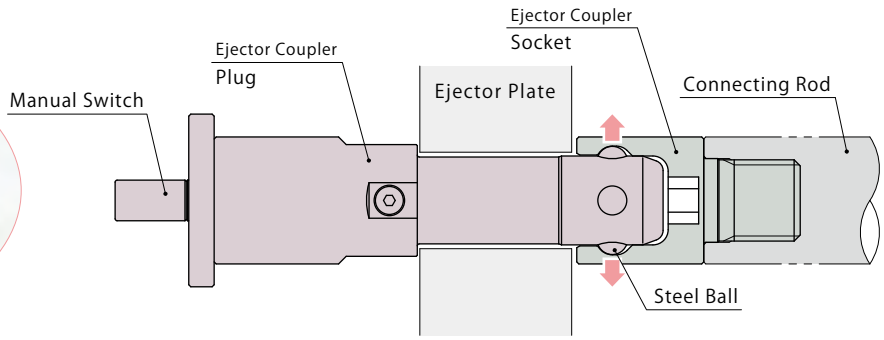
Ejector Coupler Manual Model

Manual Ejector Coupler enables one-touch connection of the ejector rod and ejector plate.



Released State：Manual Switch

By pushing the manual switch, the steel balls become free to move so it is able to pull out the plug.



Locked State：Mechanical Lock

By releasing the manual switch, the steel balls come out with internal spring and lock the plug and socket.

It is connected to the mold side via the connecting rod, so there is no need to modify the mold side.

Special Product

Coupler Unit

One Touch to Connect

Multiple Couplers for Cooling Water

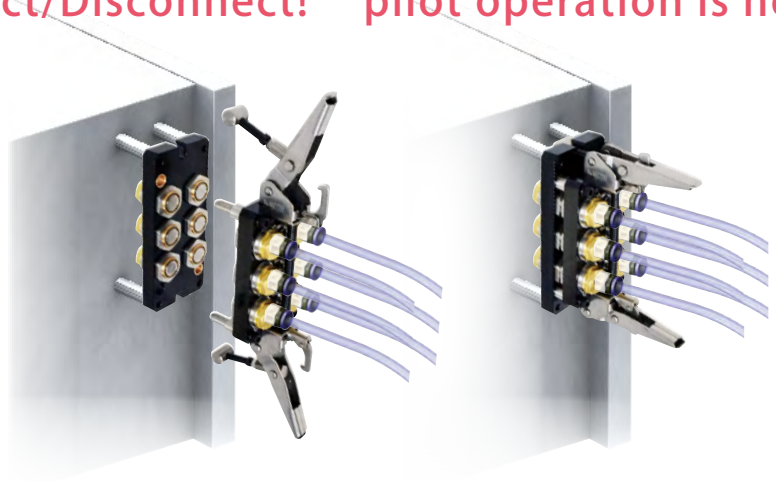
Manual Coupler Unit

User-Friendly Handle Operation

Easy to Connect/Disconnect!

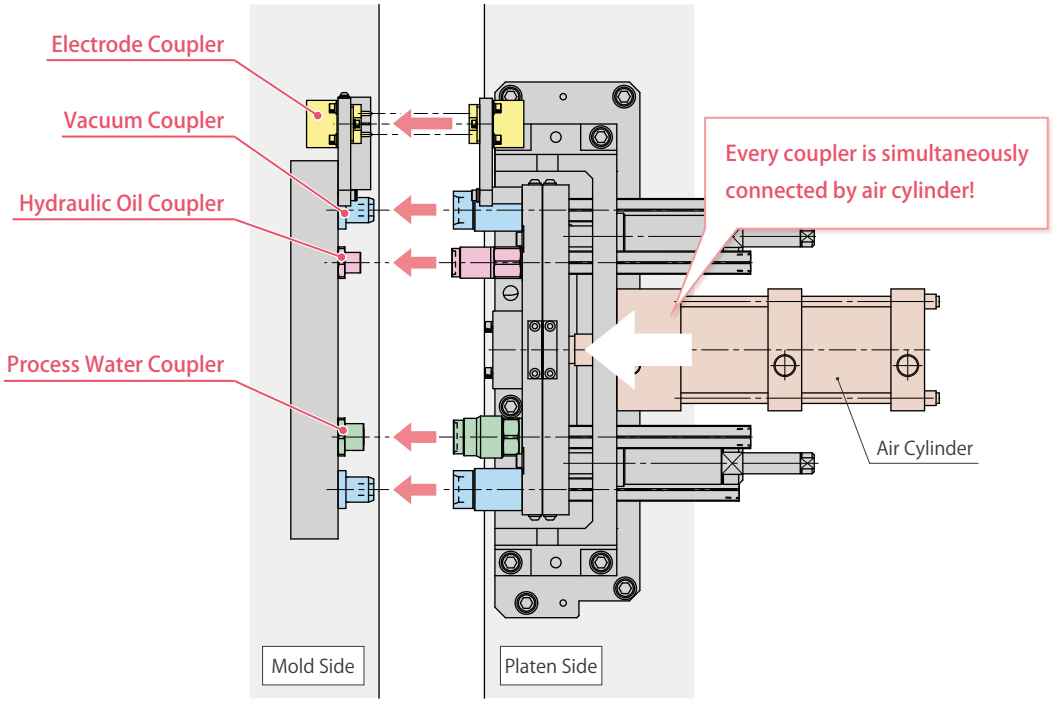
Even with check valve

pilot operation is not required!



Auto Coupler Unit

Connection of fluid/electrode couplers are fully automated!



TRIMMING
DEBURRING

Die Clamp with No Hydraulic Use

High-Power Pneumatic Die Clamp

Model **HQA/HQB** PAT.

Air + Spring Lock / Air Release

Self-Lock Function with Spring

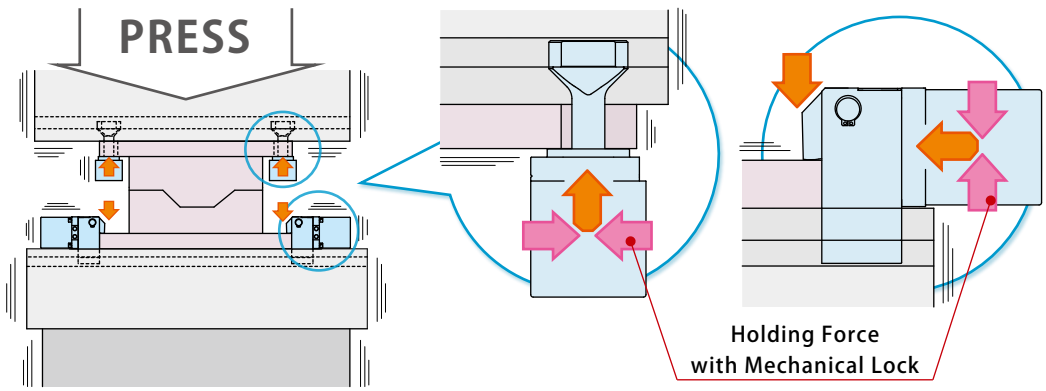
Clamping of Trimming Press with Clean Air

Powerfully Clamps a Die with Air Pressure + Mechanical Lock

The High-Power Pneumatic Die Clamp is

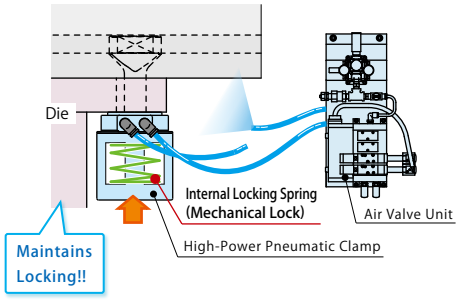
a **HYBRID** system using

air pressure and a **mechanical lock.**



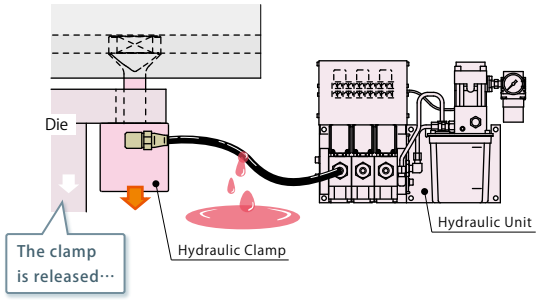
Safe and Clean Die Clamp

Even when air pressure is cut off, 20% of holding force will prevent falling of the die.



High-Power Pneumatic Die Clamp

With Self-Locking Function

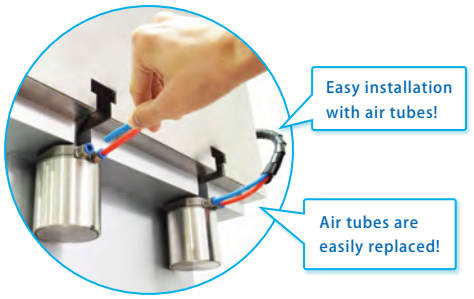


Hydraulic Clamp

No Self-Locking Function

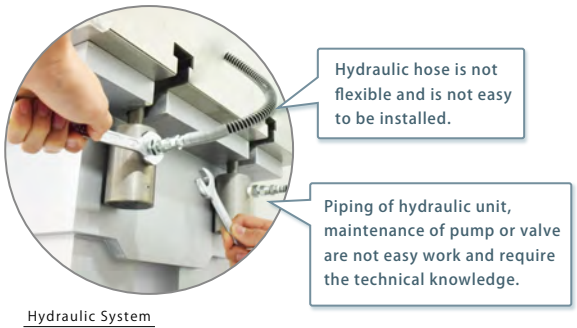
Improved Maintainability

Drastically reduces the running cost since valves and other control devices are available on the market and easily replaced in case of trouble.



Pneumatic System

Short Time・Low Cost Maintenance



Hydraulic System

Long Time・High Cost Maintenance

General Specification

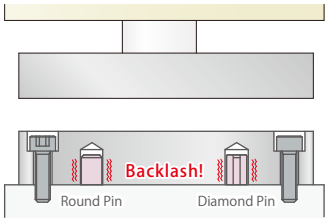
・Holding Force (at 0.4 ~ 0.8 MPa)：10 kN / 25 kN / 40 kN / 63 kN・Tightening Force (at 0.8 MPa)：2.5 kN / 6.3 kN / 10 kN / 15.8 kN
・Operating Air Pressure：0.4 ~ 0.8 MPa・Operating Temperature：0 ~ 70℃ (High Temperature 0 ~ 120℃)

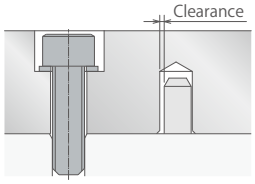
※ Details are on the product catalog. Please contact us or visit our website.

Maintenance Time Reduction with High Accuracy Locating

The Screw Locator with Locating Repeatability: 3 μm drastically reduces setup time of die maintenance for replacing die parts.

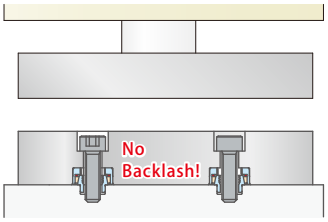
General Fixed Pin
Accuracy Correction Required

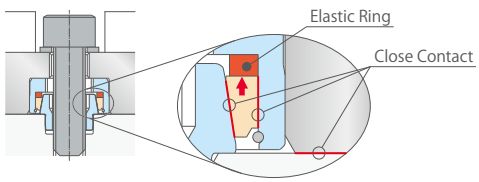




・Low Repeatability due to Clearance
・Hard to Load・Easy to Get Stuck
・Manual Tightening

Screw Locator
No Accuracy Correction Required





・3 μm Locating Repeatability
・Easy Loading/Unloading with Taper Pin
・Manual Tightening

Model **VXF**
Screw Locator
Manual Lock / Manual Release

TRIMMING
DEBURRING

Robot Standardization

Zero-Backlash Robotic Hand Changer

Model SWR PAT.

Air + Spring Lock / Air Release

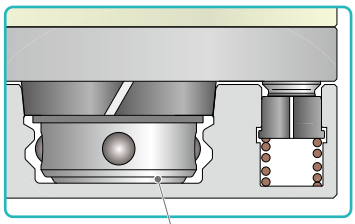
Self-Lock Function with Spring

Robotic Deburring for Multiproducts

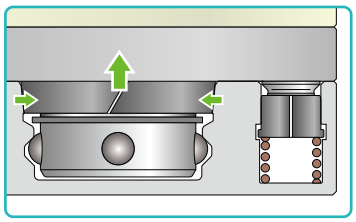
The Hand Changer connects even under environment with dust by using the air blow function. Its high rigidity withstands the load from any direction allowing stable production.

KOSMEK Exclusive Non-Backlash Mechanism

Before Connecting



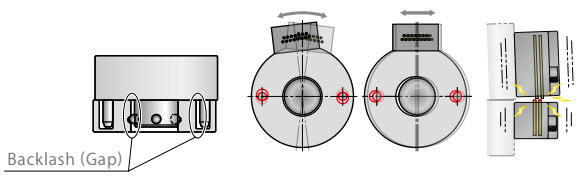
When Connected



Zero-Backlash Connection with Dual Contact

Backlash of Changer Causes Electrode Error

Noise and Continuity Failure due to Friction of Contact Probe



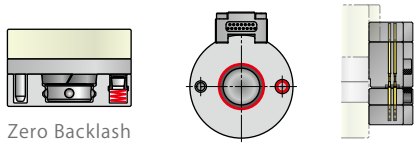
Continuity Failure of Electrode

↓

Frequent Moment Stop

Kosmek Hand Changer with No Backlash Prevents Electrode Error

No Noise



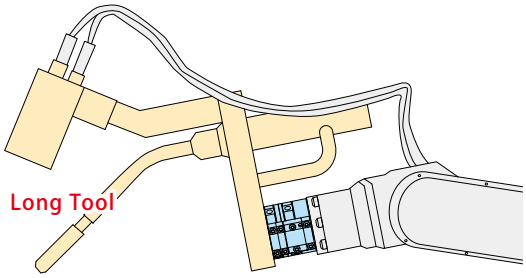
No Continuity Failure of Electrode

↓

Sharp Decline of Moment Stop

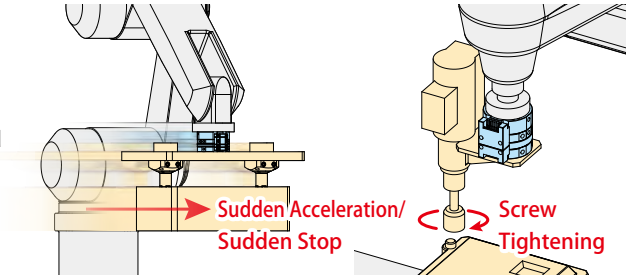
Locating Repeatability when Connected 3 μm

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

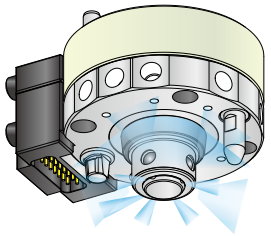


Uncomparably High Rigidity and Durability

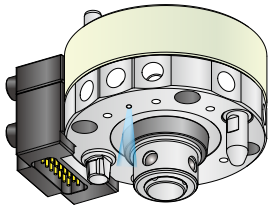
Strong to "bending" and "torsion" with high rigidity obtained by non-backlash function.
Also, high strength material is used in all the contact part of the master and tool so that it ensures high durability and 3 μm locating repeatability even after 1 million cycles.



KOSMEK Robotic Hand Changer offers more safety.



Air Blow

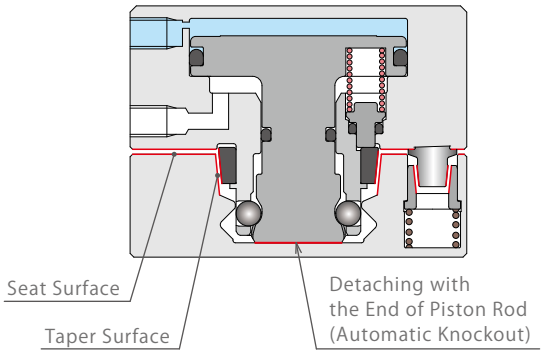


Connection Check

Air Blow / Connection Check

Air blow function is done by air purging from inside of the master cylinder. Also, when changing tools, it is able to clean the tool side of the cylinder. For connection check, it is performed when the contact between the master side and the tool side is mated and the check port is closed back to the air sensor.

※ Air blow function is only for air blow port option.
※ Select the seat port option for connection check.



Detaching (Automatic Knockout)

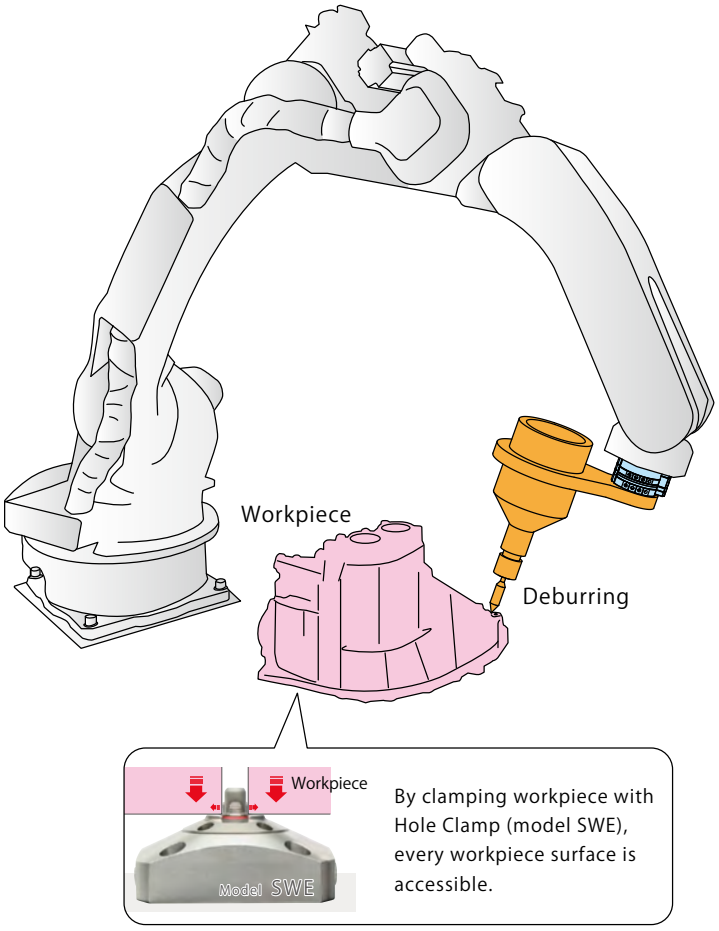
Free from adhesion and galling.
Prevents the error that "tool side cannot be pulled out."

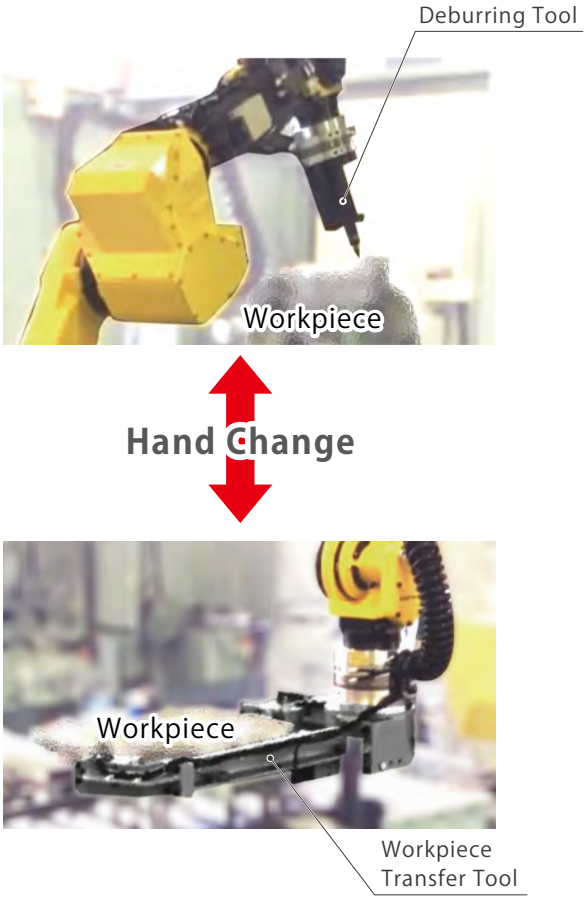
General Specifications

- Payload：3 kg / 7 kg / 12 kg / 25 kg / 50 kg / 75 kg / 120 kg • Operating Air Pressure：0.35(0.4) ~ 1.0 MPa
- Repeatability：3 μm • Operating Temperature：0 ~ 70℃

※ Details are on the product catalog. Please contact us or visit our website.

Change the Transfer Hand and Deburring Tool with High Rigidity

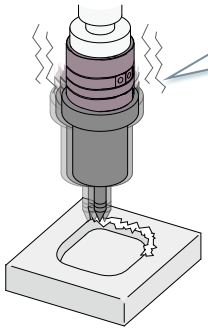




Withstands Heavy Load with Non-Backlash Function

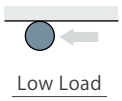
Strong to "bending" and "torsion" with high rigidity.
It ensures stable production even with offset transfer hand or heavy load deburring.

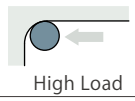
General Changer



Backlash on Changer Part

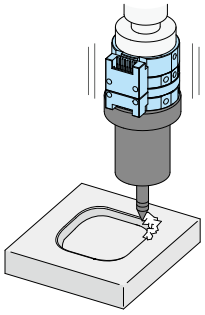
Due to backlash, a tool changer is weak to torsion and can be broken if high load is applied when deburring R surface which has large contact area.





Contact area of R surface is large and receives high 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.

Electrode / Air Port Options

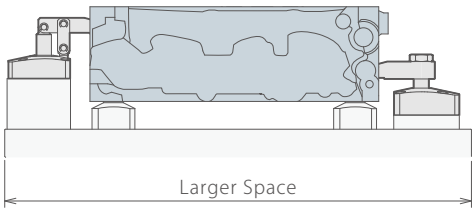
- Resin Connector
- Solder Terminal
- Solder Terminal with Cable
- Waterproof Electrode (Simple Waterproof)
  Only when connected：Equivalent to IP54
- D-sub Connector
- Circular Connector (Connector Based on JIS C 5432)
- Power Transmission Option (Connector Based on MIL-DTL-5015)
- Compact Electric Power Transmission (Ability to Transmit AC/DC200V 5A)
- High Current Transmission Option (Connector Based on MIL-DTL-5015)
- Waterproof Electrode (Noncontact Waterproof) IP67
- Air Joint (3 Port・Resin Connector/Solder Terminal Extensible Option)
- Air Joint (4 Port・Resin Connector/Solder Terminal Extensible Option)
- Air Joint (2 Port Option)

Waterproof Electrode
(Simple Waterproof)
IP54 only when connected

Waterproof Electrode
(Noncontact Waterproof) IP67

Larger Port Air Joint
(3 Ports)

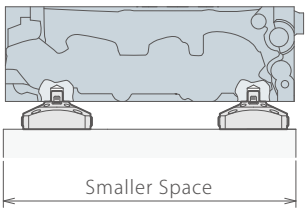
Avoid Interference and Save Space with High-Power Pneumatic Hole Clamp



Comparison Pneumatic Clamp

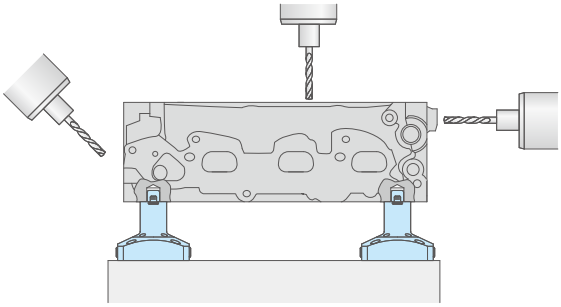
Fixture Weight
25% reduced

※ Reference when
workpiece size is 300×230



High-Power Pneumatic Hole Clamp

Accessible to Every Surface with High-Power Pneumatic Hole Clamp



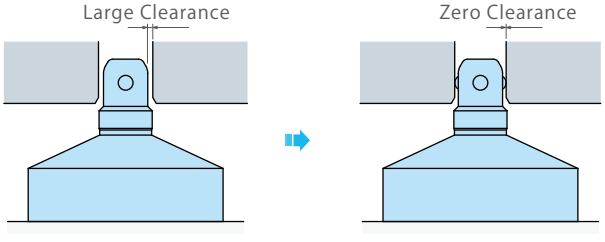
Model SWE PAT.

High-Power Pneumatic Hole Clamp

Air + Spring Lock / Air Release

High-Accuracy Locating Pin used even for Casting Core Hole

Locating Repeatability：**10** μm



Loading/Unloading (Retracted)

Locating (Expanded)

Easy to Load/Unload
Zero Clearance and High Accuracy

Model VWK PAT.

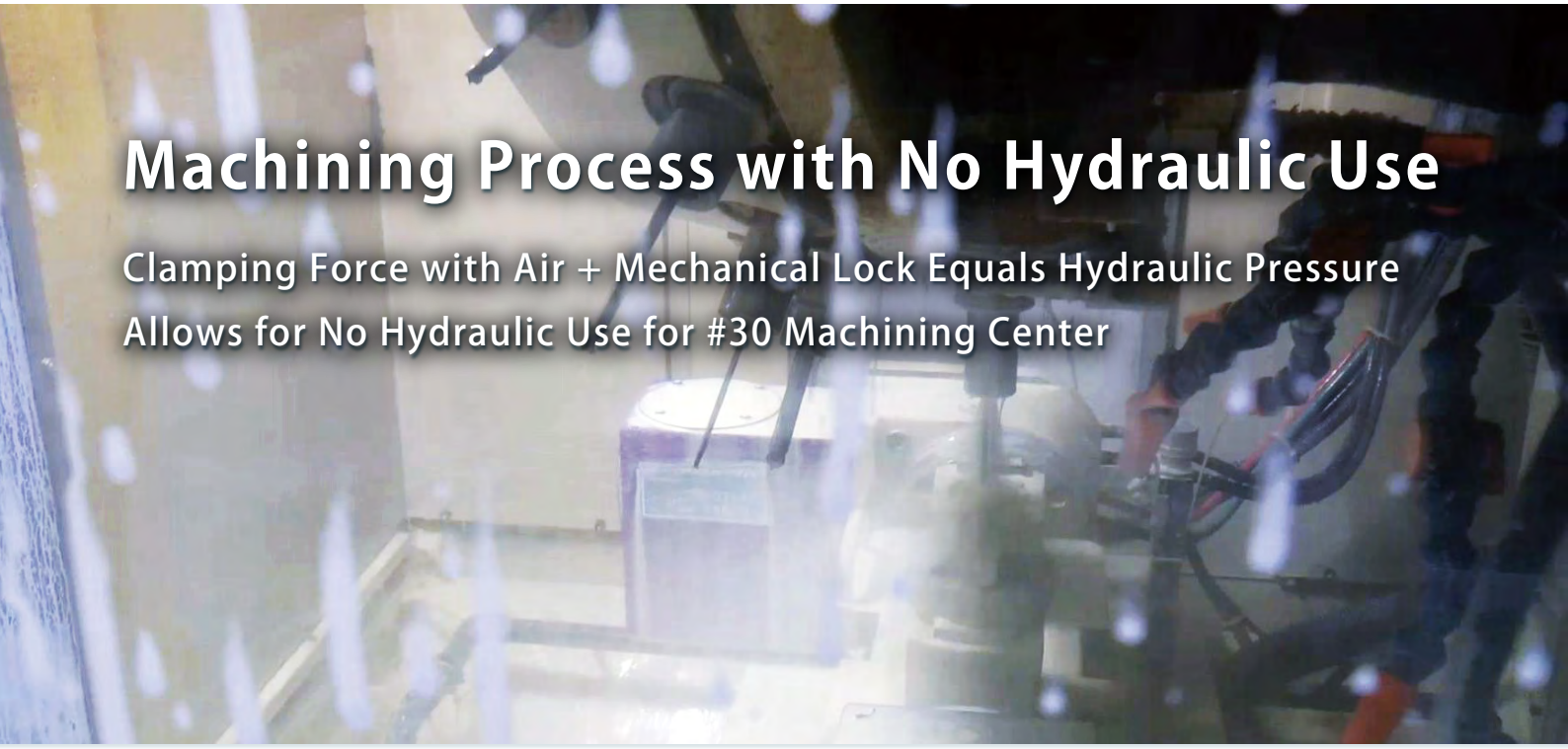
Pneumatic Expansion Locating Pin

Air Lock / Air Release

High-Power Pneumatic Clamp

Model WHE/WCE/SWE PAT.

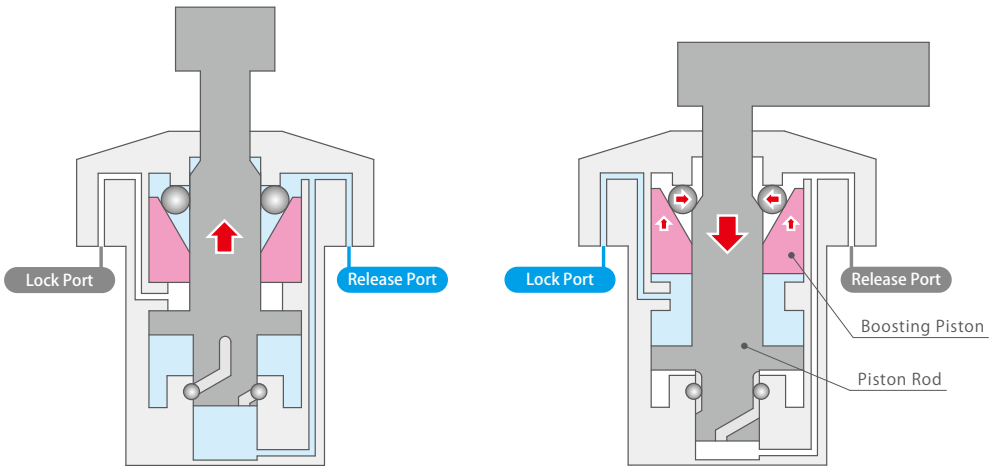
Air Lock / Air Release



Machining Process with No Hydraulic Use

Clamping Force with Air + Mechanical Lock Equals Hydraulic Pressure
Allows for No Hydraulic Use for #30 Machining Center

The High-Power Pneumatic Clamp is a **hybrid** system using **air pressure** and a **mechanical lock**



Released State

The piston rod ascends to release.

Locking Operation

(Swing Stroke + Vertical Stroke 2mm)

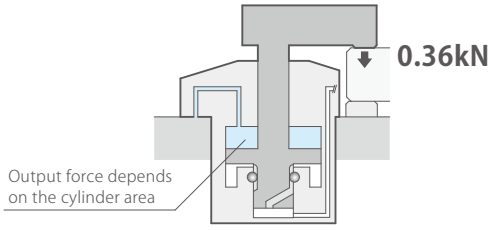
① The piston rod rotates while it descends along the cam.
② After swing completion, the piston descends vertically until the lever clamps the workpiece.

Locked State

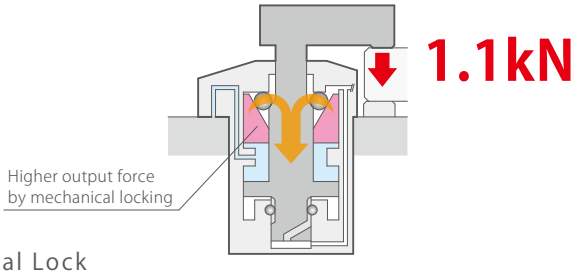
(Boosting Stroke 4mm)

The piston rod descends and the boosting piston activates. Exerts strong clamping force and holding force with the wedge mechanism.

Standard Comparison Pneumatic Clamp
Model WHA0400

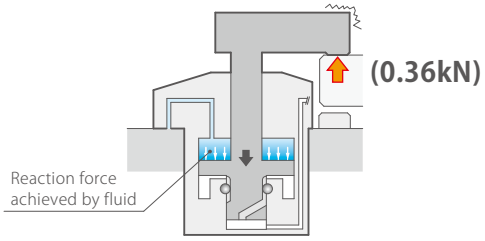


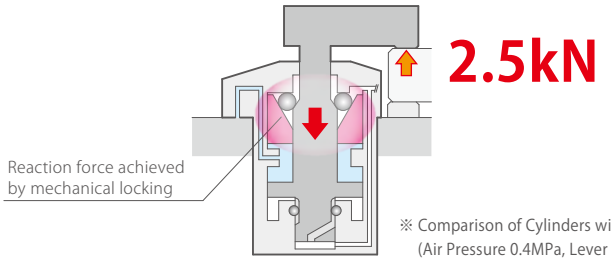
High-Power High-Power Pneumatic Clamp
Model WHE1600



Powerful Clamping Force with Mechanical Lock

Exerts approximately 3 times higher clamping force than the same size comparison pneumatic cylinder.





※ Comparison of Cylinders with Piston Diameter ϕ40
(Air Pressure 0.4MPa, Lever Length 60mm)

Holding Force

Holding force is the force that endures reaction force (load), not the force that presses a workpiece.
The high holding force **enables heavy load machining and high accurate machining.**

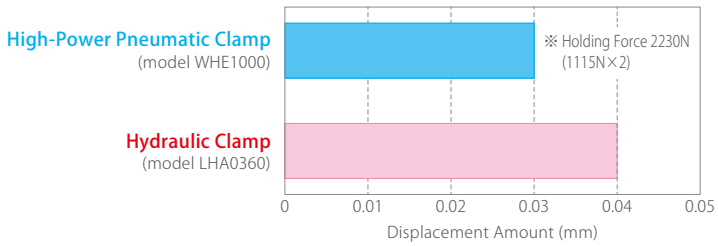
Holding Force Equivalent to Hydraulic Clamp

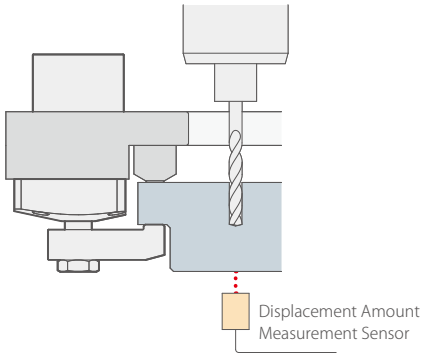
Displacement Amount

※ Results of machining by our own.

【 Machining Condition 】

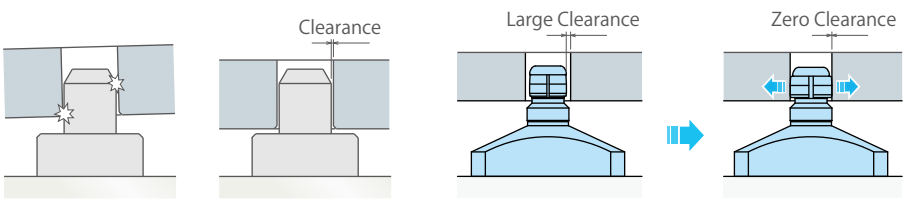
Drill Diameter	8.5 mm	Cutting Speed	25 m/min
Main Axis Revolution	936 rpm	Feed Speed	0.100mm/rev
Workpiece Material	S45C	Clamping Force	860N (430N×2)





3 μm Locating Repeatability Allows Robots to Load / Unload Smoothly

Locating workpiece side and tool side with high accuracy locating repeatability minimizes errors among processes.
This allows for process integration.



Fixed Pin

Difficult to Load/Unload
Some Clearance

Expansion Locating Pin

Easy to Load/Unload
Zero Clearance and High Accuracy

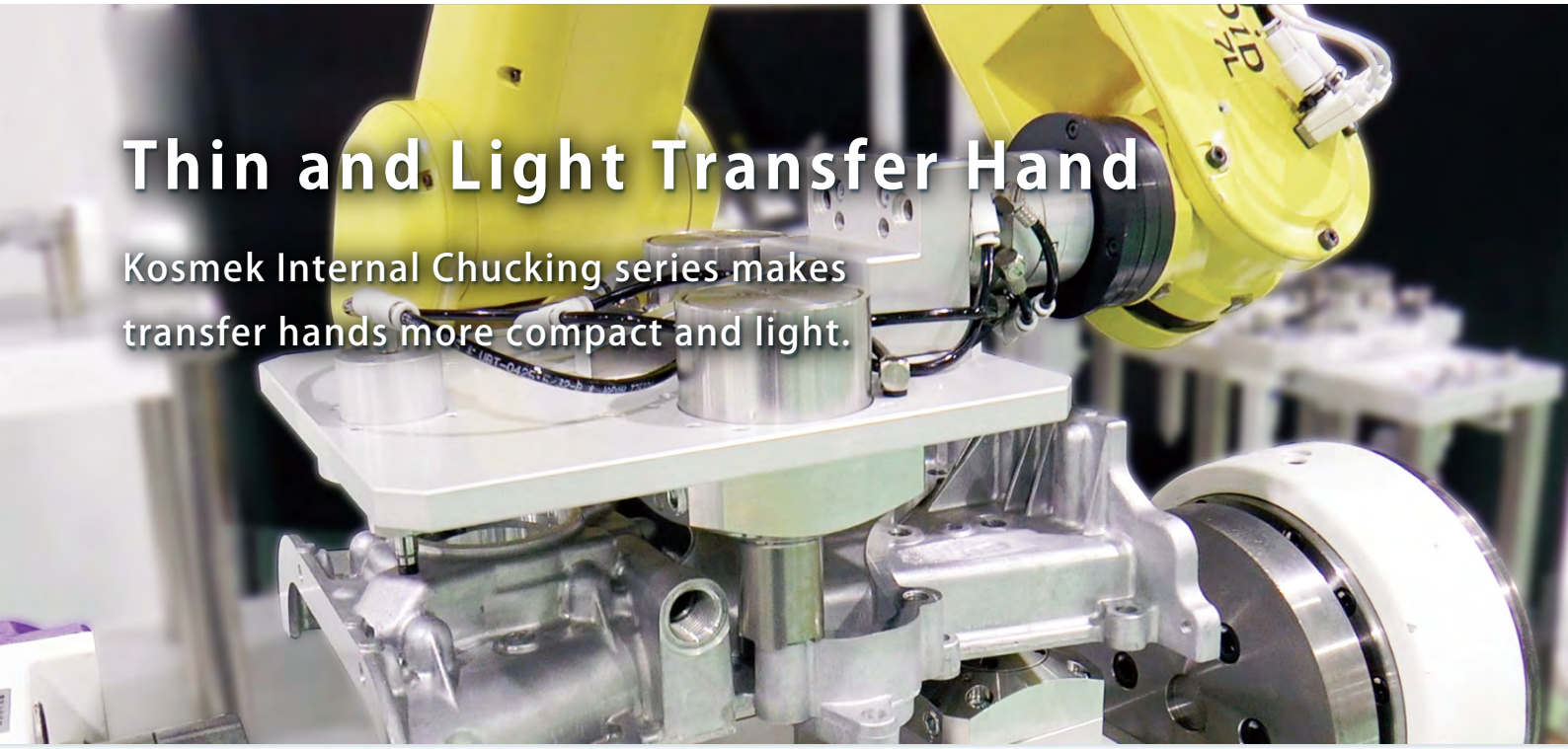
Model **VWM** PAT.

Pneumatic Expansion Locating Pin

Air + Spring Lock / Air Release

Robotic Hands for Irregular Shaped Workpiece

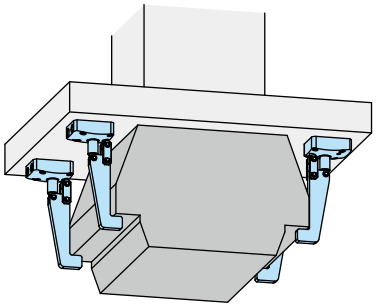
Model SWE/WCE/WHE PAT.



Thin and Light Transfer Hand

Kosmek Internal Chucking series makes transfer hands more compact and light.

Minimizes Hand Weight and Space for Irregular Shaped Workpiece



Automobile Component

Model WCE PAT.

High-Power Pneumatic Link Clamp

Air + Spring Lock / Air Release

Self-Lock Function with Spring

Compact and High-Power Clamp Cylinder with Self-Locking

Compact and high-power clamp cylinder with exclusive mechanical locking structure.
Internal self-locking holds workpiece even when air supply is stopped.
Introduced for Irregular Shaped Workpiece Transfer Hand

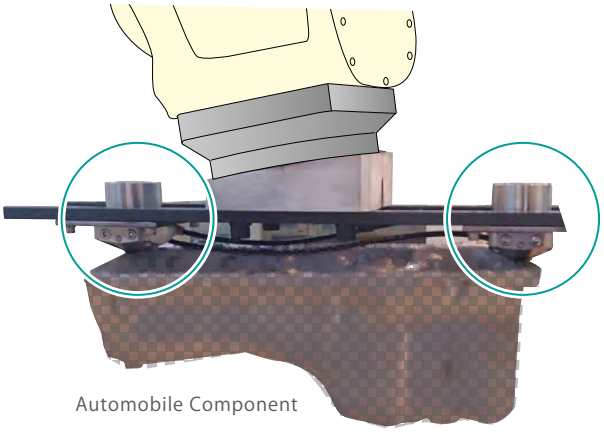
Minimizes Hand Weight and Space for Heavy Workpiece

Model SWE PAT.

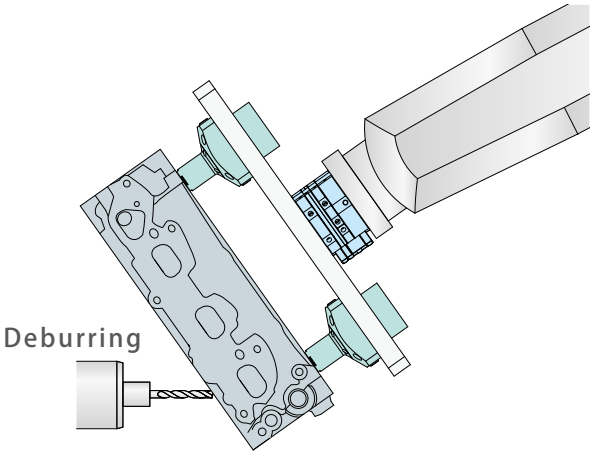
High-Power Pneumatic Hole Clamp

Air + Spring Lock / Air Release

Self-Lock Function with Spring Pin Diameter ϕ6mm ~



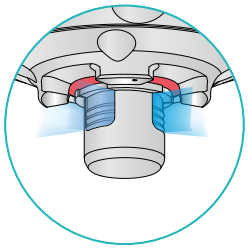
Transfer Heavy Workpiece with Light Hand



5 Faces Accessible with No Interference

Energy Saving with Light Hand

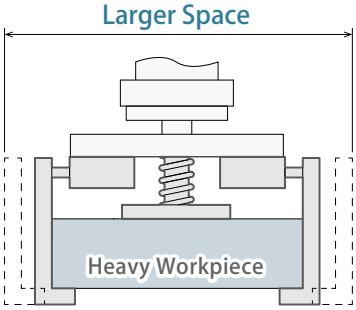
Compact and high-power clamp cylinder with exclusive mechanical locking structure. Internal self-locking holds workpiece even when air supply is stopped.
Introduced for Irregular Shaped Workpiece Transfer Hand



Air Blow

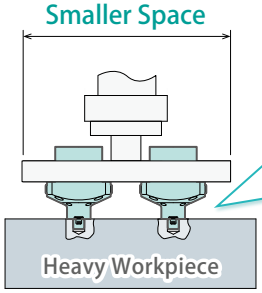
Hole clamp and workpiece hole can be cleaned by air blow.

Current Method Linear Cylinder

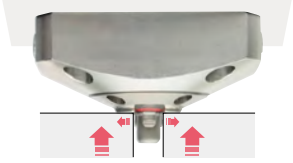


Reduce the Hand Weight

Transfer Hand with High-Power Pneumatic Hole Clamp



Gripper expands and pulls 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

Company Profile

KOSMEK LTD. Head Office

Company Name	KOSMEK LTD.
Established	May 1986
Capital	¥99,000,000
Chairman	Keitaro Yonezawa
President	Tsutomu Shirakawa
Employee Count	250
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, Tokyo-Mitsubishi bank, Ikeda bank

Sales Offices

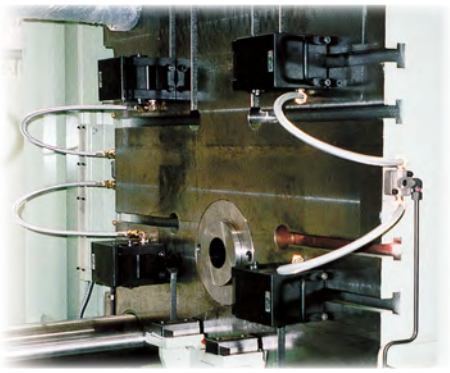
Sales Offices across the World

Japan 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
USA KOSMEK（USA）LTD.	**TEL. +1-630-620-7650**	FAX. +1-630-620-9015 650 Springer Drive, Lombard, IL 60148 USA
Mexico KOSMEK USA Mexico Office	**TEL. +52-442-161-2347**	Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla, Queretaro, QRO 76230 Mexico
EUROPE KOSMEK EUROPE GmbH	**TEL. +43-463-287587**	FAX. +43-463-287587-20 Schleppeplatz 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 KOSMEK LTD. - INDIA	**TEL. +91-9880561695**	F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India
Thailand Thailand Representative Office	**TEL. +66-2-300-5132**	FAX. +66-2-300-5133 67 Soi 58, RAMA 9 Rd., Suanluang, 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



■ Mold Change System for Diecast Machines

Kosmek Diecast Clamping Systems

■ FA・Industrial Robot Related Products

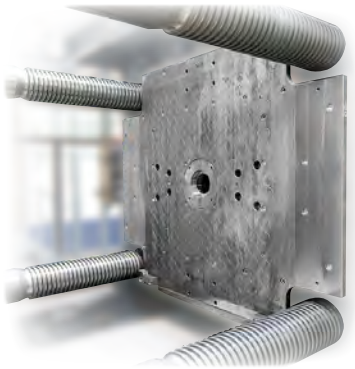
Factory Automation Industrial Robot Related Products

■ Die Change System for Press Machines

Quick Die Change Systems

■ Work Clamping System for Machine Tools

Kosmek Work Clamping Systems



■ Mold Change System for IMMs

Quick Mold Change Systems

KOSMEK

Harmony in Innovation

HEAD OFFICE	1-5, 2-Chome, Murotani, Nishi-ku, Kobe 651-2241 TEL.+81-78-991-5162 FAX.+81-78-991-8787
BRANCH OFFICE (U.S.A.)	KOSMEK (U.S.A.) LTD. 650 Springer Drive, Lombard, IL 60148 USA TEL. +1-630-620-7650 FAX. +1-630-620-9015
MEXICO REPRESENTATIVE OFFICE	KOSMEK USA Mexico Office Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla Queretaro,QRO 76230 Mexico TEL.+52-442-161-2347
BRANCH OFFICE (EUROPE)	KOSMEK EUROPE GmbH Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria TEL.+43-463-287587 FAX.+43-463-287587-20
BRANCH OFFICE (INDIA)	KOSMEK LTD - INDIA F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India TEL.+91-9880561695
THAILAND REPRESENTATIVE OFFICE	67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250 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.

ISO 9001
JQA-QMA10823
KOSMEK HEAD OFFICE

JAB
CM009

http://www.kosmek.com

CAT.NO.SBR-KDC008-01-GB
Printed in Japan

2018. 07 First 1Ry