

# Pascal

## Pascal mold change system



By means of Pascal Mold Change System,

# Reducing the risk of accidents at workplace

## Eliminating the shortage of skilled workers

## Reducing non-productive time

### Eliminate the need for overhead crane

Overhead crane operations are hazardous. Mold change by the changer table instead of the crane. →page 28

### Free up time for a skilled worker

There are very few employees per factory who can change molds, moreover, they may have many tasks on their hands. It is recommendable to create and work environment where anyone can change molds regardless of experience, gender, etc.

### Reducing crane operation

Fewer skilled workers are available to operate cranes in a high level. In order to reduce crane operations as much as possible "Automatic mold leveling and vertical leveling equipment" is being introduced. →page 30~33

### Reducing non-productive time

The time required to change molds and perform maintenance on the machine means the machines stop, which in turn means the production stops. Pascal helps reduce the time as much as possible and increase the production time.

### Reducing heavy workload in the machine

It is hard work to fix the mold in the machine with wrenches and spanners, also is dangerous to work with hands and feet under the mold or to crawl under the mold. Consider introducing magnetic clamps (→page 4~10) that enables safe, easy, and instantaneously mounting or dismounting of molds.

### Prohibition of mold rotating work by an overhead crane

Many crane manufacturers prohibit cranes from performing lifting and flipping operations. If an accident occurs where a crane is used for flipping operations despite the manufacturer's prohibition, the company will be held responsible. Consider installing a mold rotator to flip the mold during dangerous crane operations. →page 56~59



Detail info

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## Mold Change System

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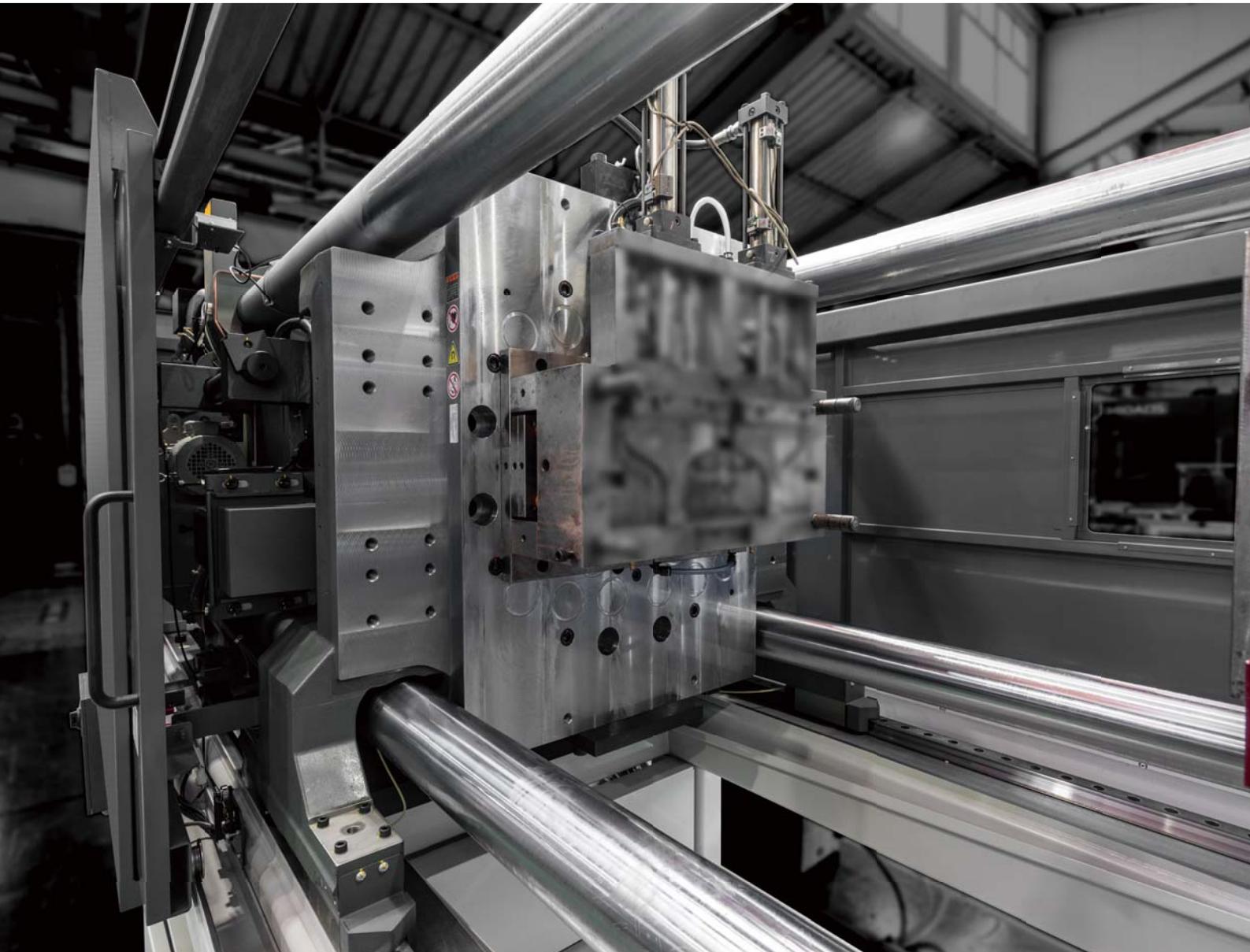
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# Mag Clamp

**Powerful permanent magnets(neodymium and alnico) clamp molds instantly.**

Pascal MAG CLAMP(Magnet clamp) is a mold clamping system for injection molding machines that clamps and absorbs molds using a powerful magnetic force.

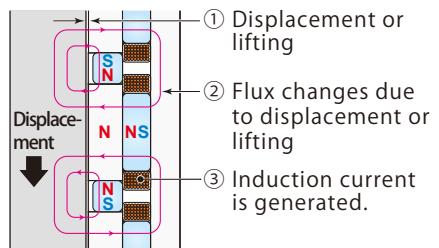




## Mold Displacement Detection System

The electromagnetic coil incorporated in the magnetic core near the center of the clamping plate detects any displacement or floating of the mold (When the mold moves, the induced current generated in the electromagnetic coil is detected as a signal). Pascal Mag clamp is less affected by caps, bolts, holes, and grooves on the mold plate, so it can reliably detect mold displacement and floating.

### When the mold moves



# Vertical mold loading

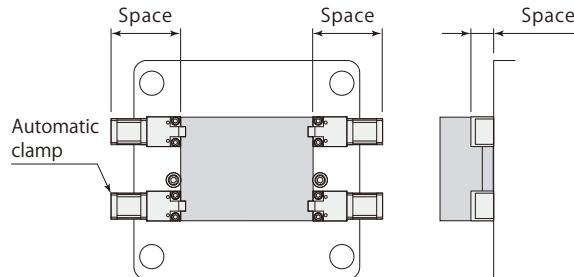
Not necessary to standardize mold plate size. (However, the clamping force of the mold depends on the size of the mold plate) Since the space for automatic clamp or mold mounting screws is not required, flexibility in mold design increases; enabling maximize the machine platen area.

Magnet

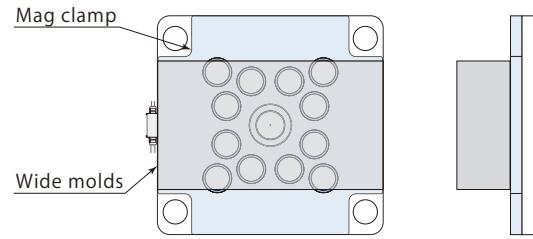


2,500kN (2,500ton) machine Vertical loading

Automatic clamps require mounting space on the machine platen.



Mag clamp allows greater flexibility in mold design.

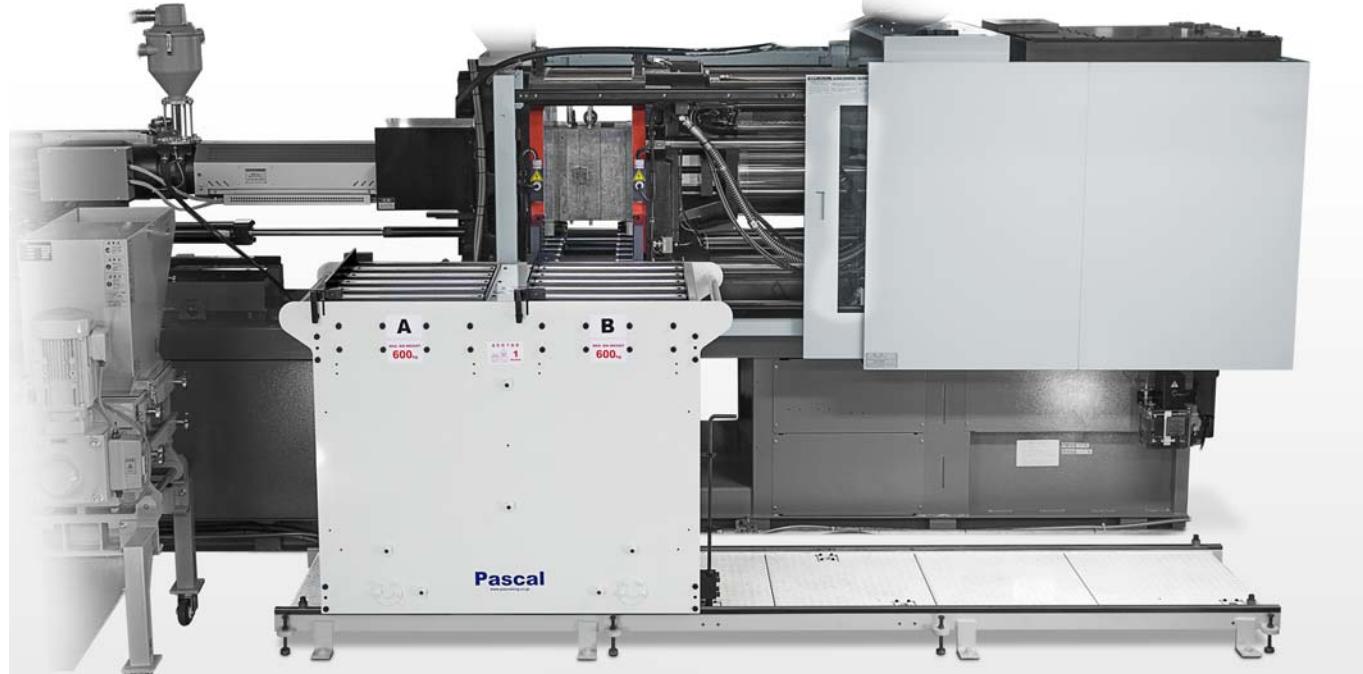


# Horizontal mold loading

Even when mold height is not standardized, horizontal mold loading is possible simply by adjusting the mold transferring level.

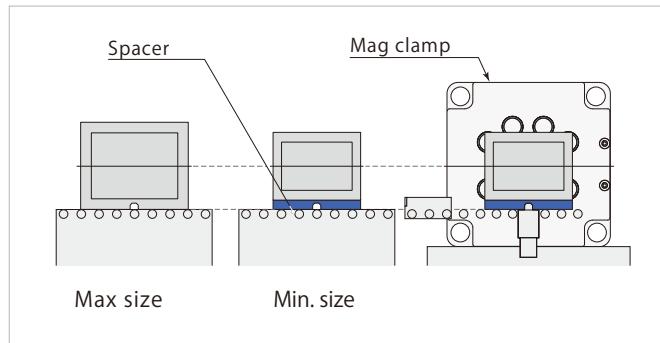
Magnet

Mag clamps can be used for both vertical and horizontal mold loading



500kN (50ton) machine Horizontal loading

Not necessary to remanufacture the mold plate.  
Only additional spacers are required for horizontal mold loading.



# Circle Core Mag Clamp PAT. P.

Low-cost model "Slim" type is added in product lineup.

In addition to the conventional standard shape of the clamp , a new "Slim" model with a simplified plate shape has been introduced to reduce costs.



3,500kN (350ton) machine: Vertical loading Circle core mag clamp

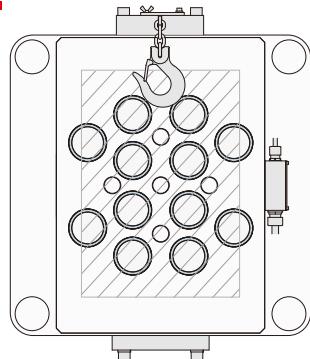
Magnet

1 BY 1

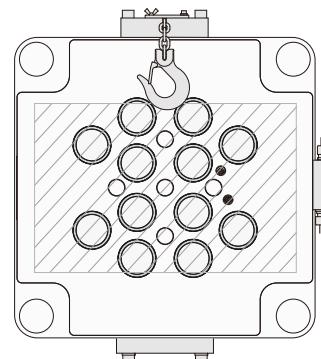
120 °C

Mold Displacement Detection System

Slim plate

**New****Slim model**

It is best suited for when the mold width fits inside the tie bar.

**Standard model**

It is best suited for when the mold width fits inside the tie bar.

### ■ Technical Data

Model No.	MFA	MRA
Plate	Slim	Standard
Clamp force kN	7	
Operating temperature °C	120	
Flux height mm	About 20 (Mold plate material: SS400)	
Plate thickness mm	50	
Power Voltage	AC200 / 220V , AC380V, AC440V, AC480V	
Way of Control	1 BY 1	
Machine tonnage kN	750~6,500	500~30,000
Sensor	Mold Displacement Detection System (Stationary / Moving platen)	

- Operating temperature is the temperature of the surface of the magnetic plate.
- Clamp force means the force generated by a magnet core.

# Multi Mag Clamp PAT.

It helps to significantly reduce the initial cost for Mag Clamp

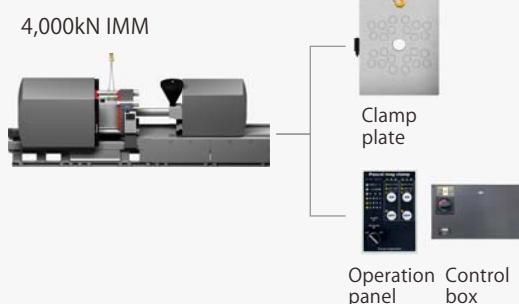
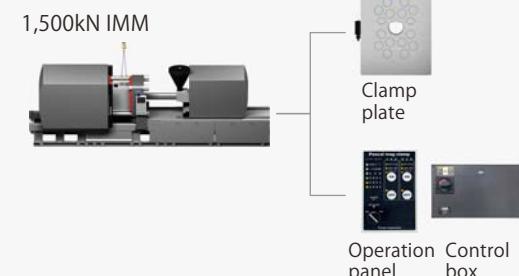
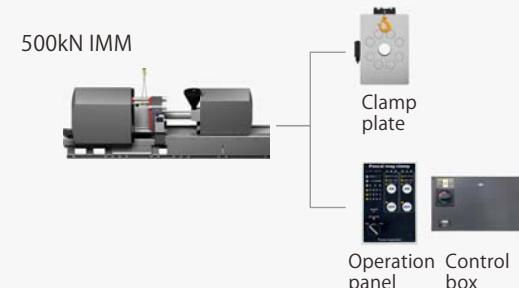
Multi Mag Clamp is a system that allows multiple Mag Clamps to share the control panel that was equipped for each Mag Clamp.



Magnet    Multi    120 °C    Proximity Switch    Slim plate    4,000kN up to

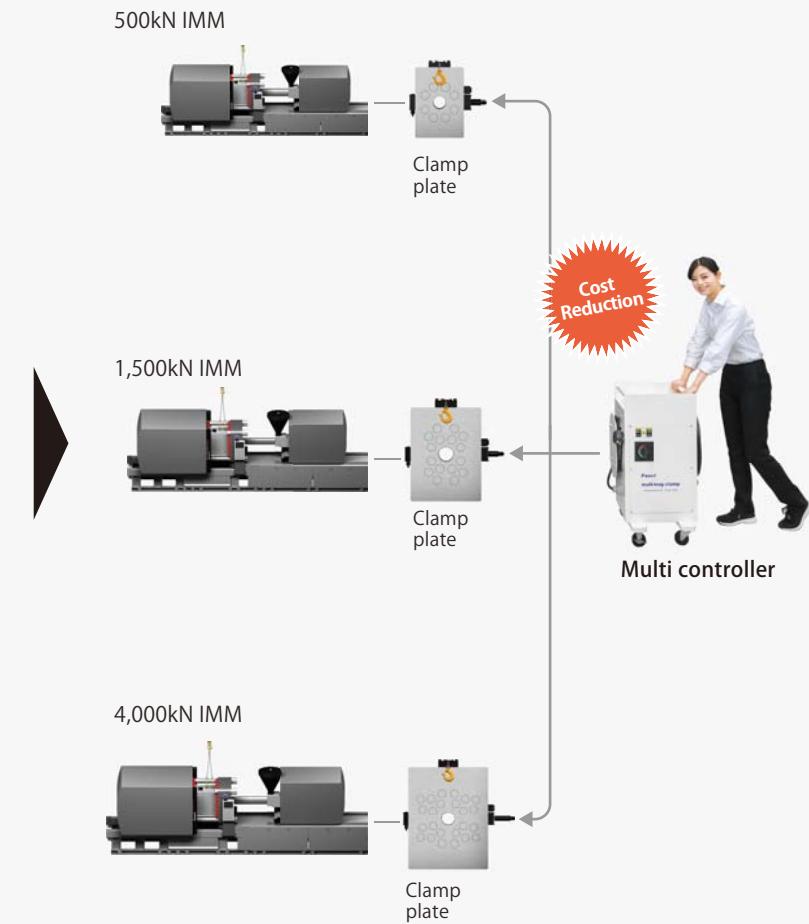
## 1 BY 1 Mag Clamp

Each Mag Clamp is equipped with a operation/control panel.



## Multi Mag system

Multi Controller **for multiple Mag Clamps**



## Multi Mag Clamp Specifications

Magnet

### ■ Multi Mag system System Constitution



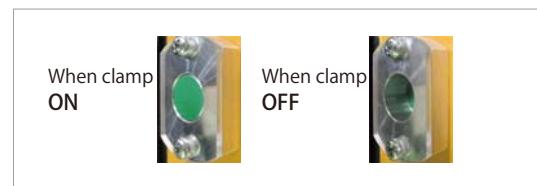
### ■ Multi Controller

This is a cart-type operation panel that can be shared by multiple mag clamps. Move it to the mag clamp and perform clamping/unclamping operations.



### ■ Indicator PAT.

Clamp status (ON or OFF) is indicated mechanically

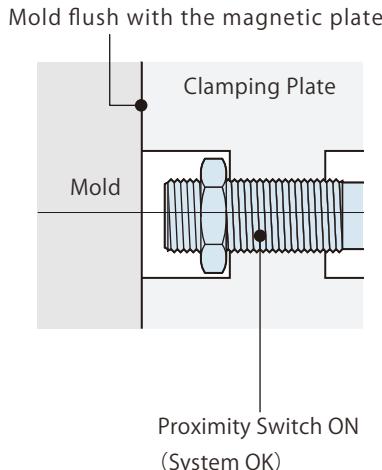


## Multi Mag Clamp Specifications

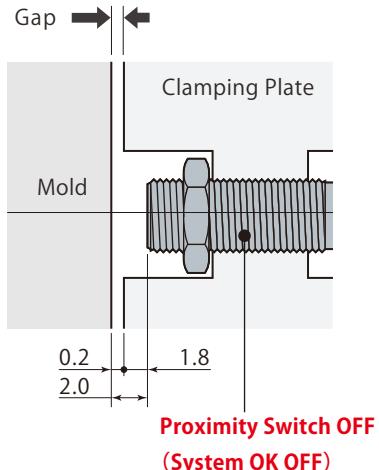
### ■ Sensor : Proximity Switch (Gap detection)

When the mold is more than 0.2mm away from the magnetic plate (floating), the proximity switch turns off and makes the moving platen stop. (The function differs from the conventional displacement detection. Contact Pascal for details.)

Normal clamped status



When the mold detaches



### ■ Technical Data

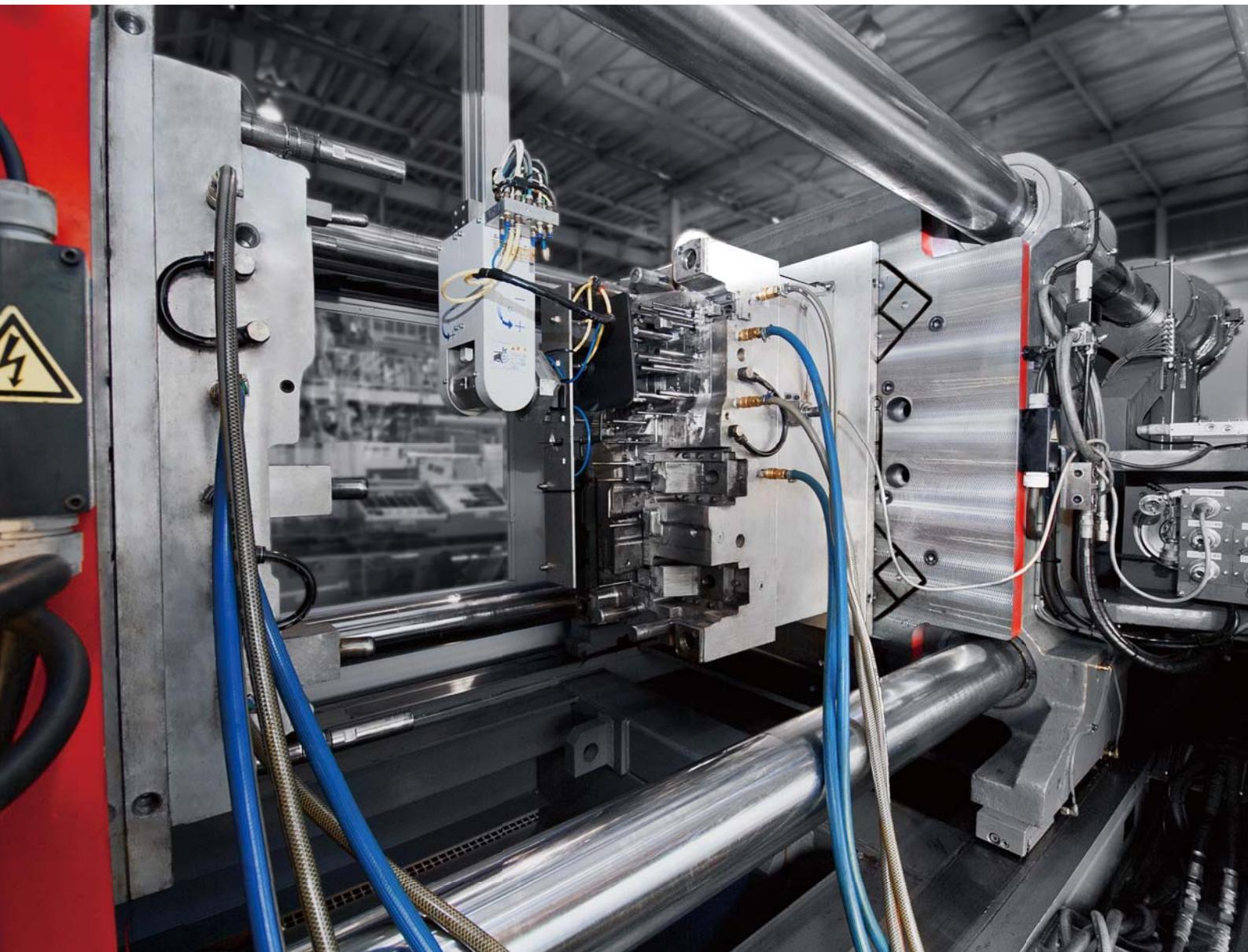
Model No.		MFA_M	MRA_M
Plate		Slim	Standard
Clamp force	kN	7	
Operating temperature	°C	120	
Flux height	mm	About 20 (Mold plate material: SS400)	
Plate thickness	mm	50	
Power Voltage		AC200 / 220V	
Way of Control		Multi	
Interlocking		Mold Open/Close (System Error)	
Machine tonnage	kN	800~4,000	500~4,000
Sensor		Proximity Switch (Stationary / Moving platen)	
Clamp status		Indicator	

- Operating temperature is the temperature of the surface of the magnetic plate.
- Clamp force means the force generated by a magnet core.

# Square Core Mag Clamp

Reliability backed up by a delivery record of 7,000 unit

Square core type of Mag clamp is selected for Multi-color/Vertical molding machines, high temperature (120°C and over) and 35mm thickness of Mag plate.



# Square Core Mag Clamp

Magnet

1 BY 1

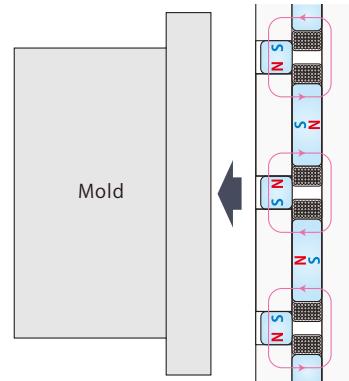
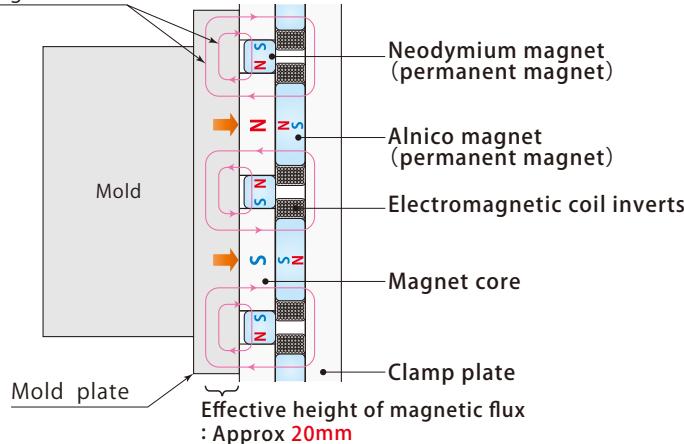
80°C /150°C /180°C

Mold Displacement Detection System

Thin plate available

## ■ Structure and Function

Lines of magnetic flux



### Clamp (Magnetized)

- ① Electromagnetic coil is energized for 0.5 sec.
- ② Polarity of alnico magnet is inverted.
- ③ Neodymium magnet and alnico magnet become homopolar.
- ④ Magnet core becomes a strong magnet to clamp the mold.

### Unclamp (Demagnetized)

- ① Electromagnetic coil is energized in 0.5 sec.
- ② Polarity of alnico magnet is inverted.
- ③ Magnetic flux of neodymium and alnico is not emitted from the surface of the magnet core so that the mold can be unclamped.

## ■ Technical Data

Model No.			MG□	
Clamp force	Standard 50,52*mm	70×70mm	7.35kN	
		75×75mm	7.84kN	
		115×115mm	15.68kN	
	Thin Type 35mm	32×100mm	3.43kN	
		50×50mm	2.45kN	
		100×100mm	7.84kN	
Operating temperature		°C	0~80	
Flux height		mm	20 (Mold plate material: SS400)	
Power Voltage			AC200 / 220V ±5% (50/60Hz)	
Sensor			Mold Displacement Detection System (Stationary / Moving platen)	

● Operating temperature is the temperature of the surface of the magnetic plate. 0 ~ 150°C or 0 ~ 180°C for heat proof type

● Clamp force means the force generated by a magnet core.

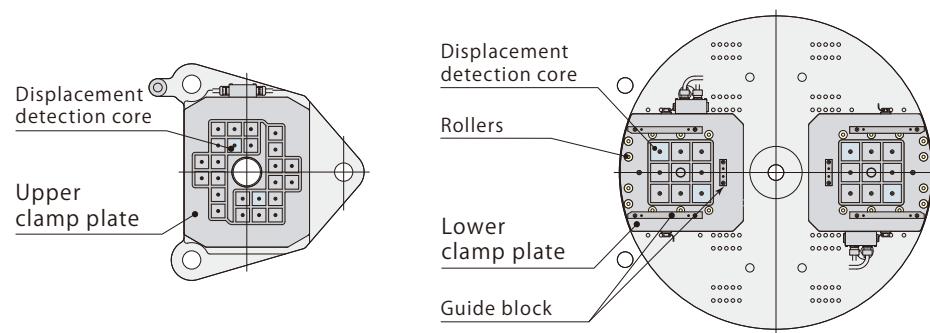
\* : For injection molding machines of 4,500kN or more, the plate thickness is 52mm.

# Mag Clamp for Vertical Molding Machines

The introduction of Mag Clamp to vertical molding machines can eliminate the need for bolt tightening in a narrow area at the machine (no temporary tightening or re-tightening work), resulting in a significant reduction in setup time. There is also need to standardize the mold size.



750kN (75ton) Vertical IMM (fixed table)



# Mag Clamp for Multi-Color Molding Machines

Overwhelmingly improved efficiency. In combination use of Mag Clamp with a die leveler ( → [page 30](#) ) or a die setter ( → [page 32](#) ) can further reduce setup time.

Magnet



6,000kN (600ton) Two-color IMM Vertical loading Mag clamp

Hand tightening method	Mag clamp
<b>Mold changing time 60min (250ton class)</b> <ul style="list-style-type: none"> <li>● Limited power exertion.</li> <li>● Easy to drop tools.</li> <li>● No visual.</li> <li>● Install bolts many times.</li> <li>● Need to move to operation / non-operation side to install / remove bolts.</li> </ul>	<b>Mold changing time 15min (250ton class)</b> <ul style="list-style-type: none"> <li>● Simply use the operation panel to clamp and unclamp the mold.</li> </ul>

# Mag Clamp System Constitution

Magnet

## Operation Panel

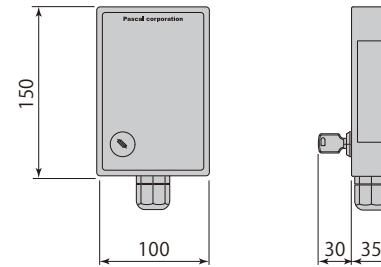
For vertical loading

model **ESMS-A**



For horizontal loading

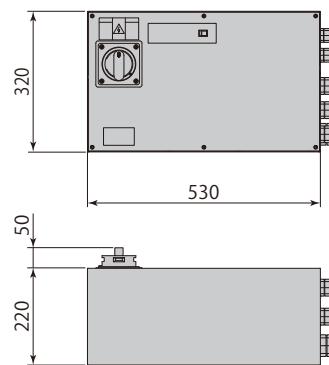
model **ESMS-B**



## Control Panel

model **EMGR** for Circle core mag clamp

model **EMGS** for Square core mag clamp



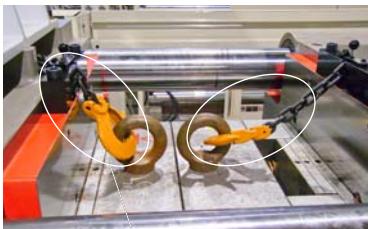
\* Size for model EMGR/S-A2J2

## Mag Clamp Specifications

### ■ Option

- Non standard voltage arrangement (50/60Hz)
- High temperature
  - 0 ~ 150°C
  - 0 ~ 180°C
- Rust proof, polish arrangement for clamp plate
- Additional magnet core
- Special core layout
- Horizontal loading arrangement
- DD mag clamp
- Proximity sensor to detect the mold cohered
- Indicator
- Mold fall protection hook
  - model MGR (Fixed side • Movable side)
- Die stopper

With a easily adjustable chain

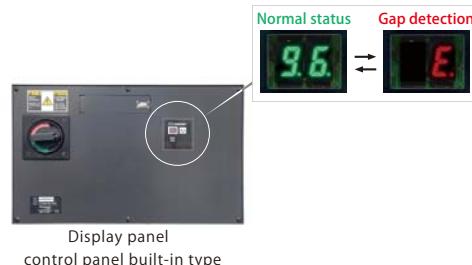


Mold fall protection hook

## DD Mag Clamp

The clamp with DD sensor which can numerically check the mold. It can detect the clamp force decrease caused by heat, mold base material and a clearance between the mold and magnet core.

As for DD mag clamp, the status indicator is added to the control box.



### New Indicator (Optional) PAT.P.

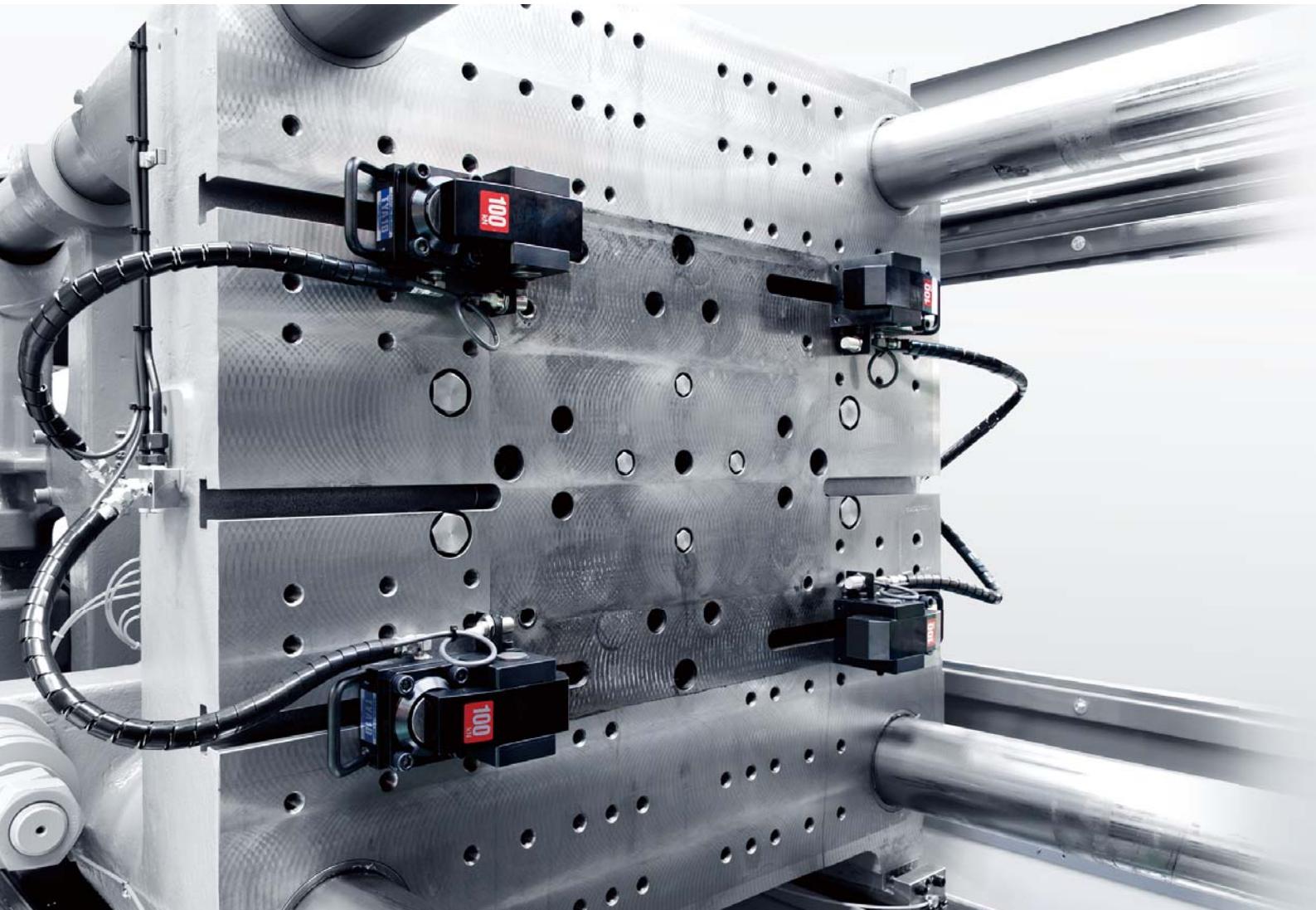
A mechanical indicator can be attached, which works with magnetic force of the plate.



# Hydraulic Clamp

Suitable for the application that does not accept the Mag Clamp.

Hydraulic

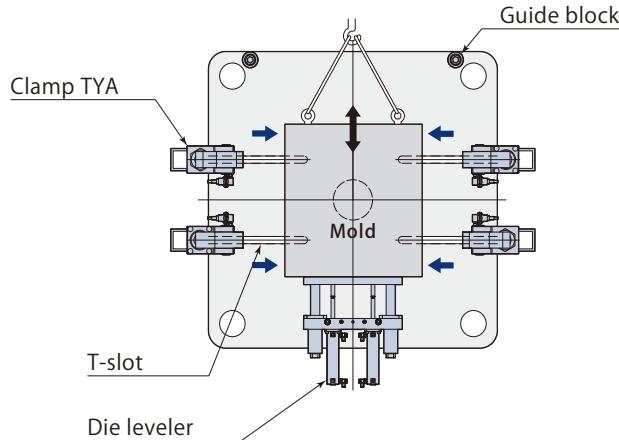


4,500kN (450ton) IMM Vertical loading Slidable clamp TYA

### ■ Slidable clamp & Die Leveler

Manual slide clamp

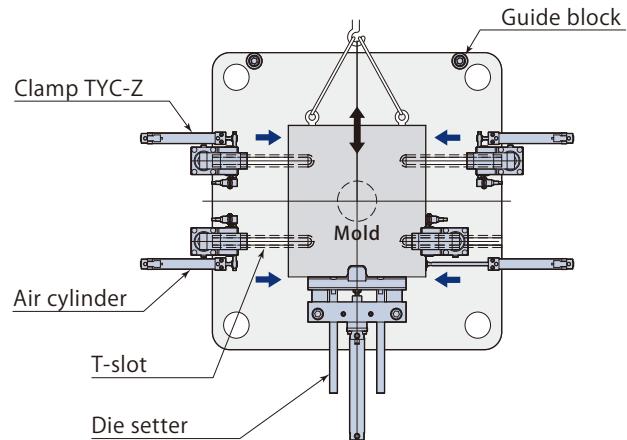
model **TYA** model **TYB** model **TYJ**



### ■ Auto Slide Clamp & Die Setter

Auto slide clamp with a pneumatic cylinder

model **TYC-Z** model **TYC-R**

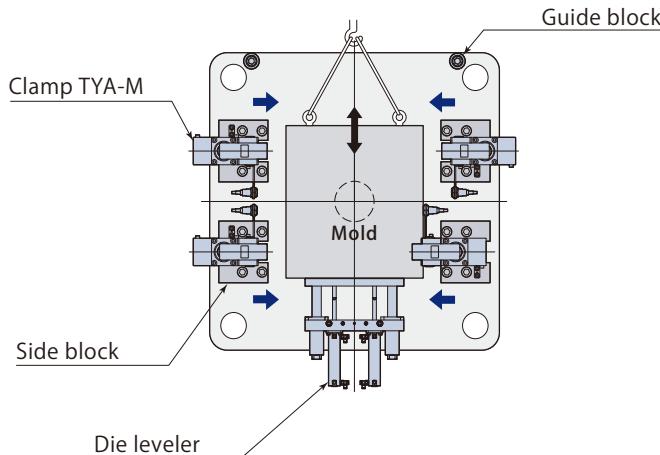


### ■ T-slot-less Slide clamp with Die Leveler

T-slot-less clamp and guide block

Slideable clamp without the machine T-slots

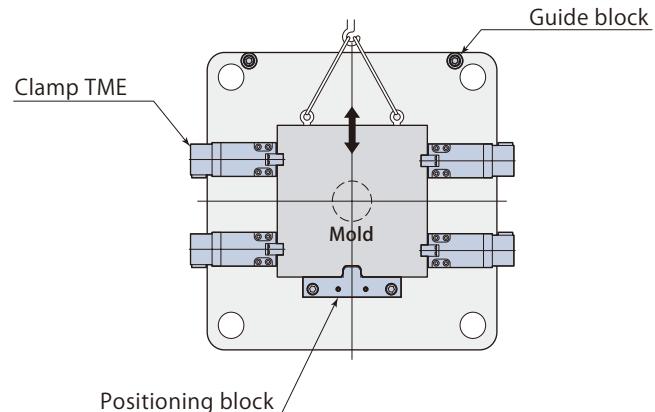
model **TYA-M** model **TYC-M**



### ■ Bolted clamp and Positioning block

Bolted clamp

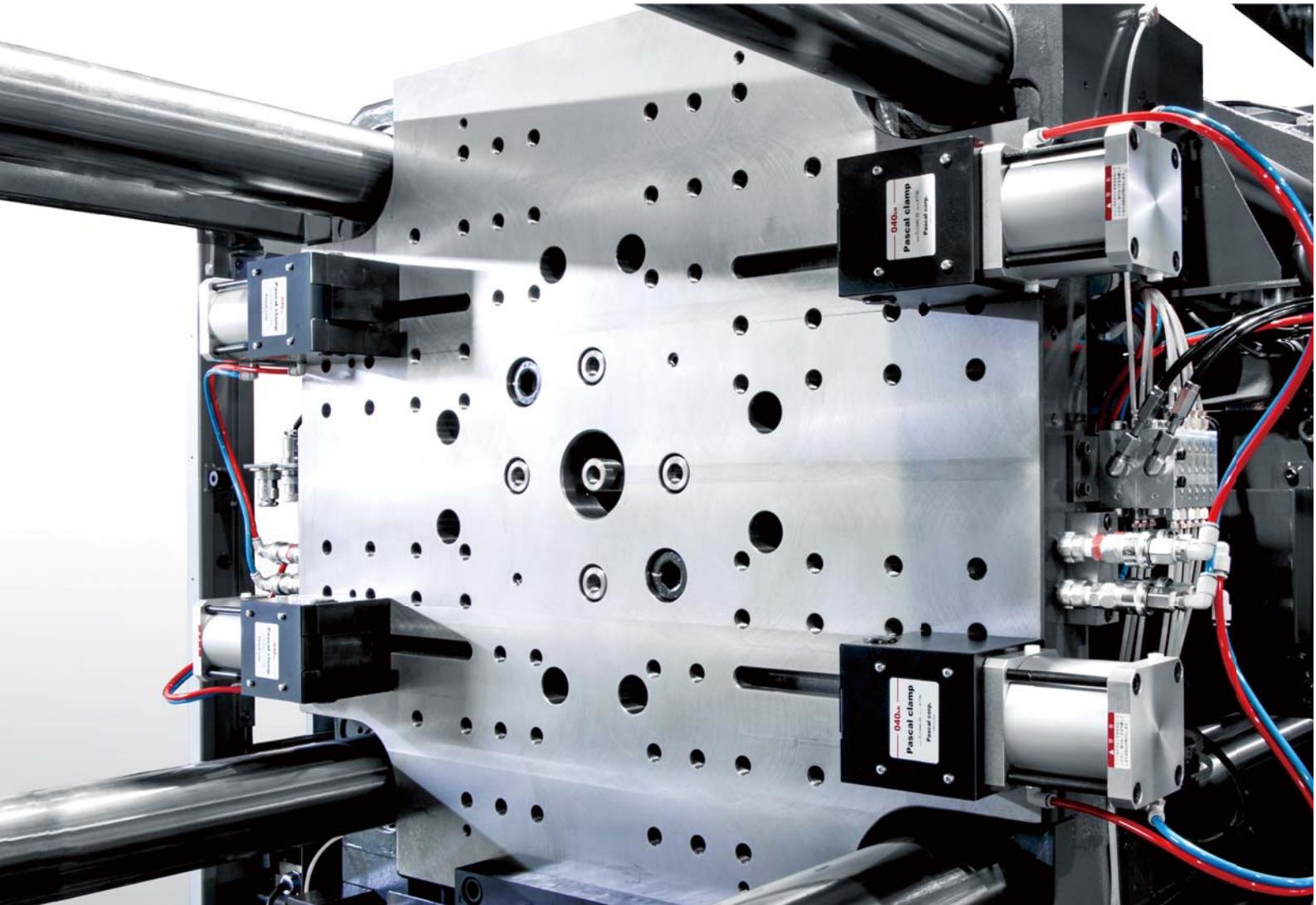
model **TME** model **TKB**



# Pneumatic Clamp

Air-driven mechanical clamp which is suitable for the machine that cannot adopt Mag clamp.

A i r

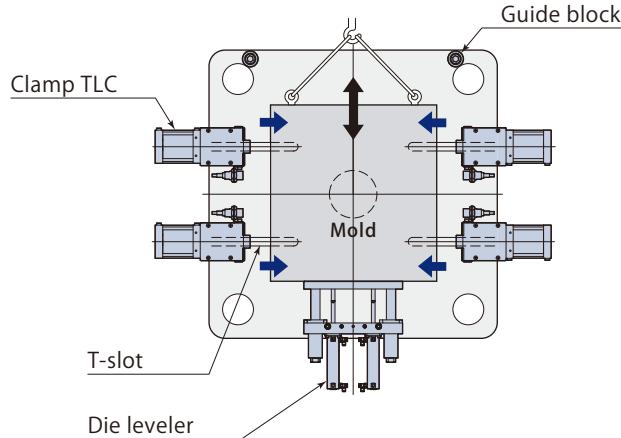


2,200kN(220ton) IMM Vertical loading Slidable clamp TLC

### ■ Slidable clamp & Die Leveler

Manual slide clamp

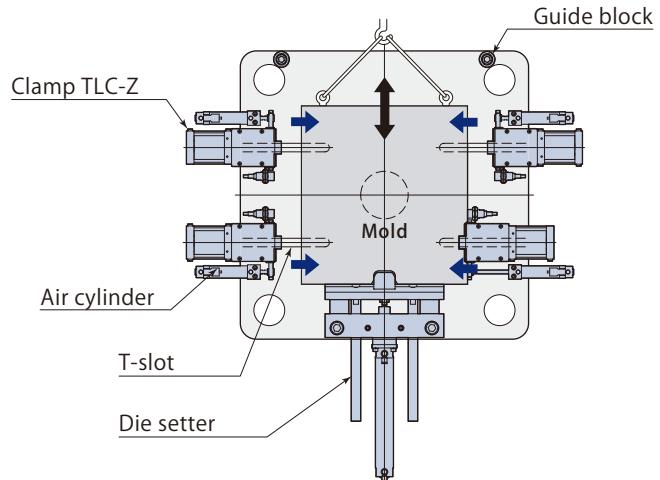
model **TLC**



### ■ Auto Slide Clamp & Die Setter

Auto slide clamp with a pneumatic cylinder

model **TLC-Z** model **TLC-R**

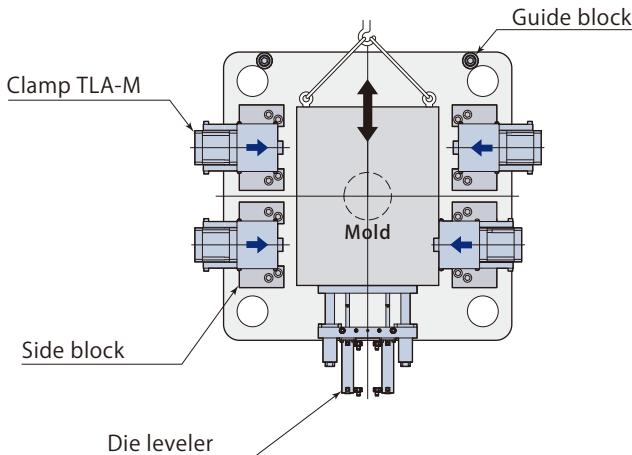


### ■ T-slot-less Slide clamp with Die Leveler

T-slot-less clamp and guide block

Slideable clamp without the machine T-slots

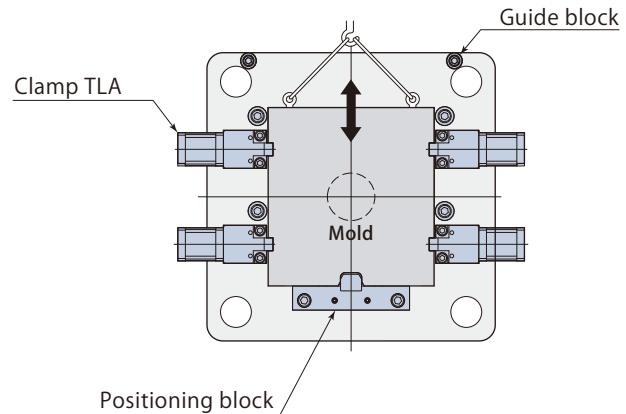
model **TLA-M**



### ■ Bolted clamp and Positioning block

Bolted clamp

model **TLA**



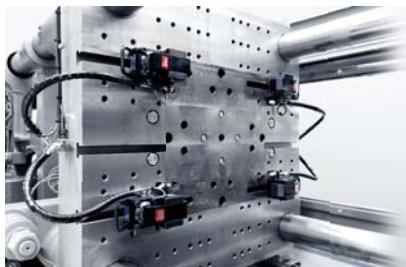
## Hydraulic • Pneumatic Clamp Examples

Hydraulic

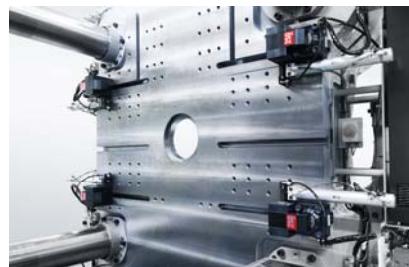
A i r

Long Stroke

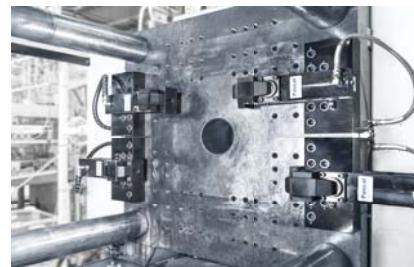
Hyd. Slidable clamp TYA



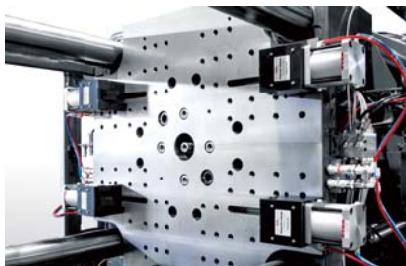
Hyd. Automatic slidable clamp TYC-Z



Hyd. Clamp, T-slot-less slidable type TYA-M



Air Slidable clamp TLC



Air Automatic slidable clamp TLC-Z



Air Clamp, T-slot-less slidable type TLA-M



Vertical IMM

### Slidable clamp Long stroke type



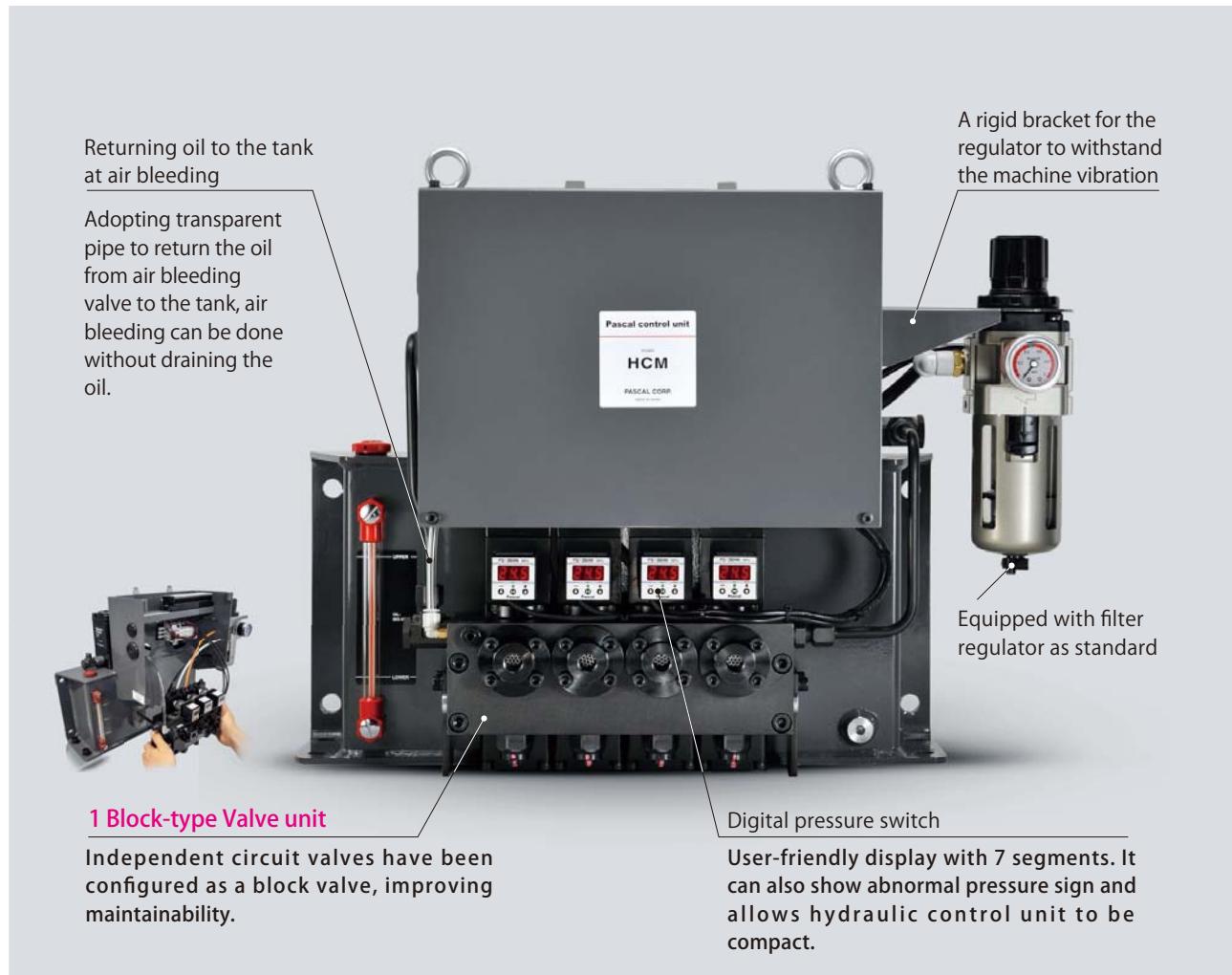
There is a risk of mismounting the wrong size of mold in case of choosing long stroke type of clamp.

<p><b>model <b>TYB</b></b></p> <p>The max. 5mm (in case of using a lever spacer, max. 15mm) of dimensional variation can be absorbed.</p> <p>Pin engagement groove</p> <p>Magnet</p> <p>Install the spacer tightly on the clamp body.</p> <p>Pin</p> <p>The spacer is pulled up at unclamping.</p> <p>Lever spacer</p>	<p><b>model <b>TYJ</b></b></p> <p>The max. 10mm lever stroke can accommodate dimensional variation of clamping height.</p> <p>Thick ness +10 mm Allow</p> <p>50 mm</p> <p>45 mm</p> <p>40 mm</p> <p>Mold plate thickness</p>
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## Hydraulic • Pneumatic Clamp System Constitution

### Control unit HCM

New control unit model HCM for easy maintenance



## Hydraulic • Pneumatic Clamp System Constitution

Hydraulic

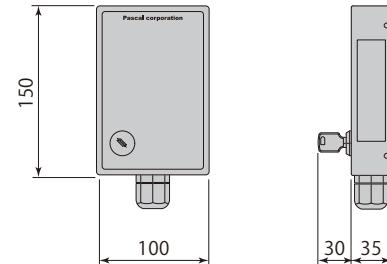
Air

### Operation Panel

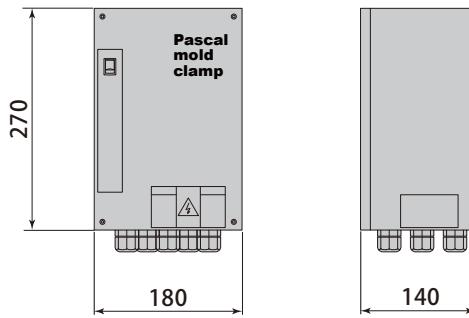
For vertical loading

model **ESTL-A**

For horizontal loading

model **ESTL-B**

### Control Panel

model **ECTL**

## Hydraulic • Pneumatic Clamp System Constitution

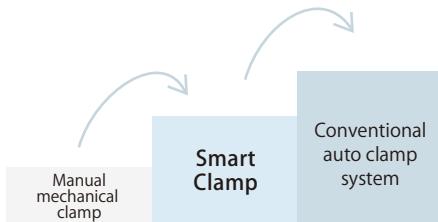
Hydraulic

Air

# Operation Panel ELC-B/Smart Clamp

### Operation panel ELC-B/Smart clamp

Simple, economical clamp system with more functionally limited than conventional system. A new system is being seen as an intermediate between manual and automatic clamp systems.



Recommended to those who

Intends to reduce initial cost for auto clamp and increase installation rate.

Intends to have simply clamp / unclamp the mold automatically .

	Smart Clamp System	Conventional auto clamp system
Introduction cost	◎	○
Operation panel	Operation panel model <b>ELC-B</b> 	Operation panel model <b>ESTL-A</b> 
Control unit	Control unit (To be installed in the machine control box) 	Control box model <b>ECTL</b> 

### Applicable system

#### ■ Hydraulic clamp

TYA	○
TYC-Z/R	×
TYA-M	○
TME	○
TKB	○

#### ■ Pneumatic clamp

TLC	○
TLC-Z/R	×
TLA-M	○
TLA	○

# Mold Change System (Horizontal Loading)

By combining the clamping system with a mold change table, a mold change system that does not depend on an overhead crane can be realized.



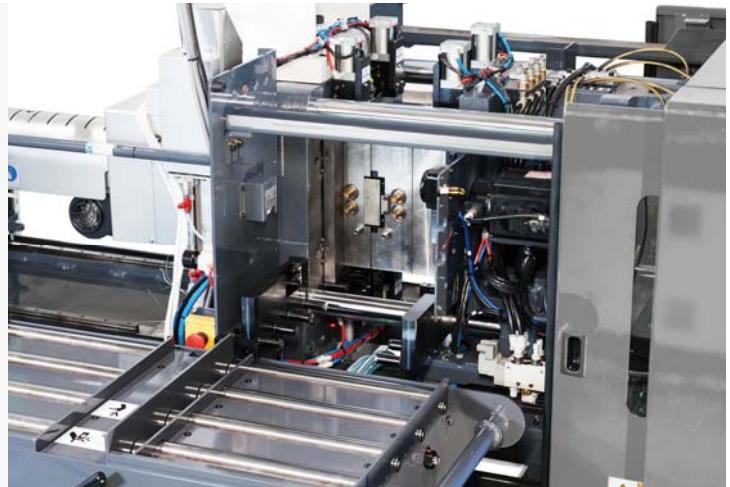
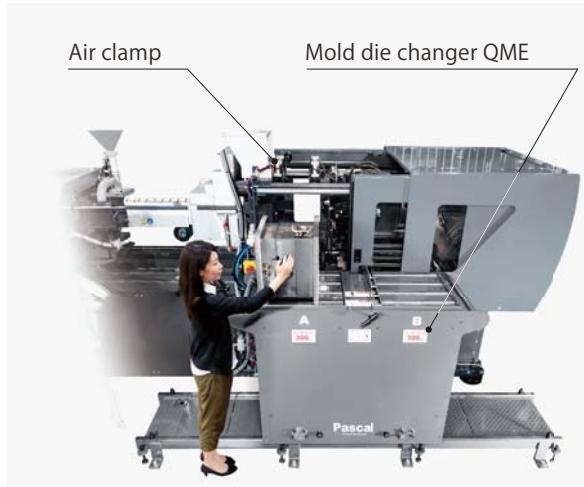
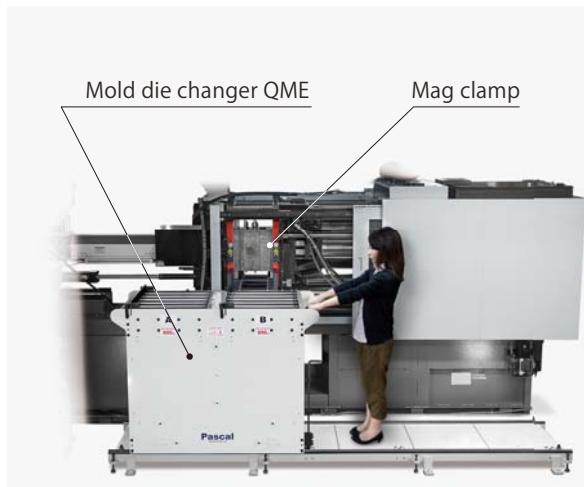
Carelessly coming under the craned mold.



Unhooking the mold stepping on the machine tie bar.



**Improving the above work with hazards by horizontal change system**

**Magnet****Mold Changer****■ Mold Change system (Horizontal Loading) Pneumatic clamp and Mold Die Changer QME****■ Mold Change system (Horizontal Loading) Mag Clamp and Mold Die Changer QME**

# Locate Ring and Die Leveler

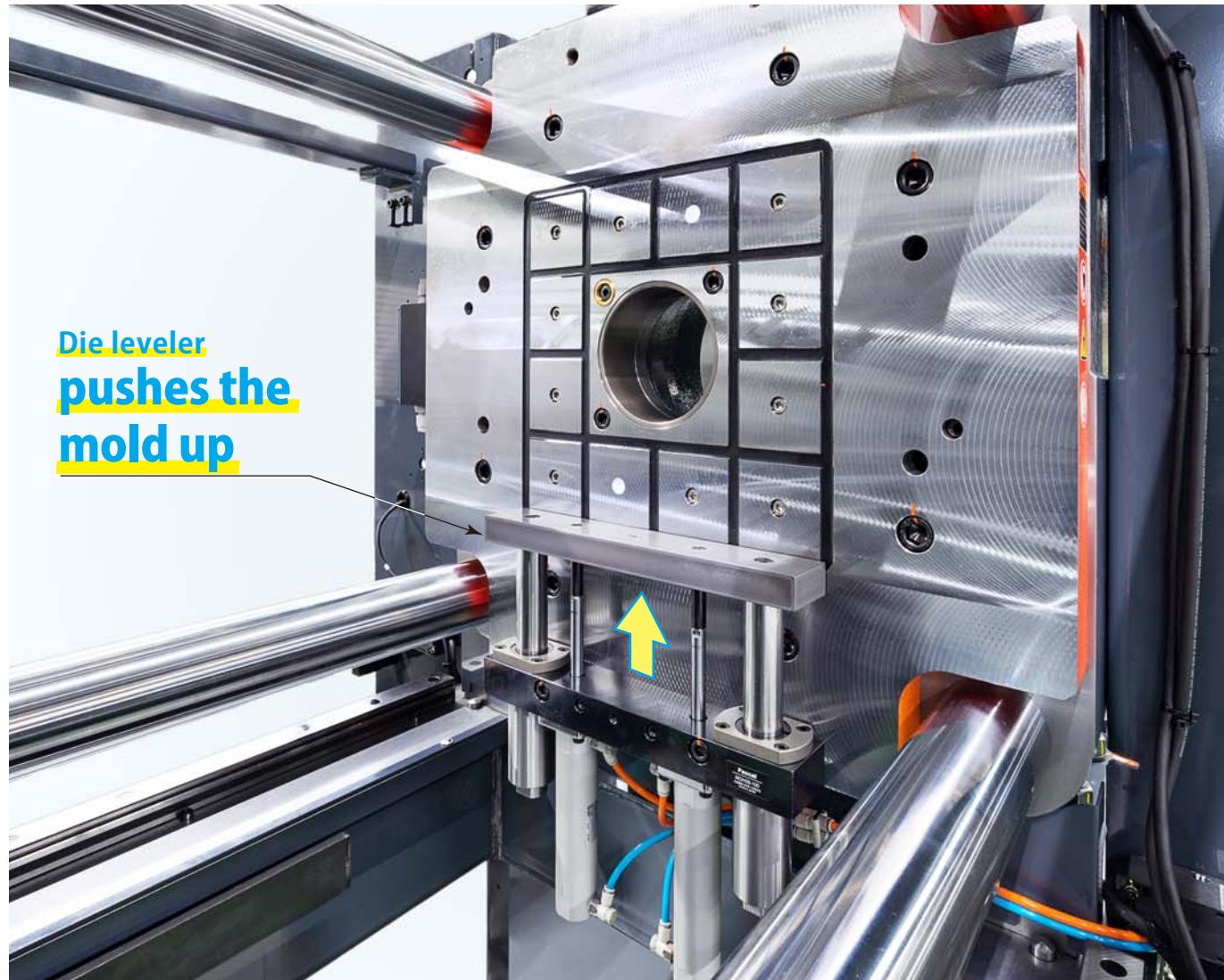
It can automate the leveling of the mold

The leveling can be achieved by the die leveler after the mold is positioned by the locating ring.

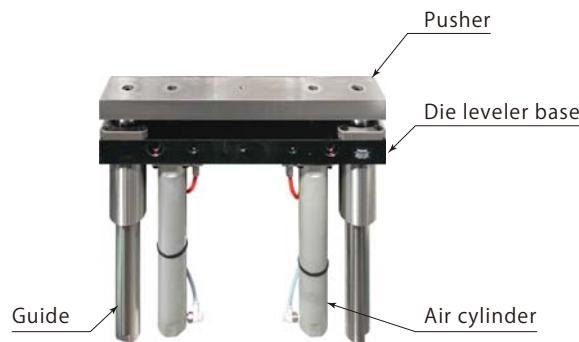
Positioning tool

Leveling

Up to 2.5 ton mold



1,000kN (100ton) IMM Vertical loading Die leveler & Locate ring & Mag clamp

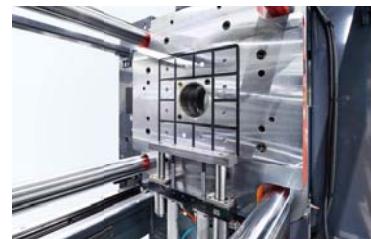
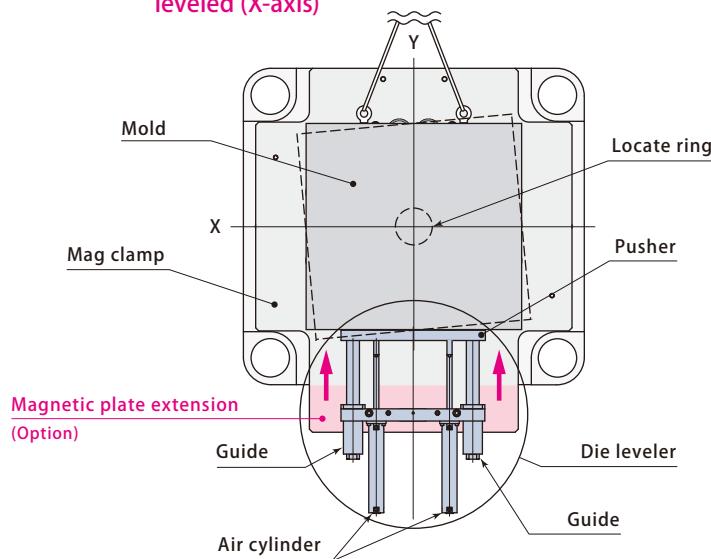


Operation panel



Model No.	MDH04	MDH08	MDH12	MDH25
Mold Weight kg	400	800	1,200	2,500

When the pusher raises after the mold is centered by the locating ring, the tilted mold is correctively leveled (X-axis)



1,000kN (100ton) IMM Die leveler &amp; Mag clamp



2,800kN (280ton) Two-color IMM Die leveler

# Die Setter

Offering a Die Setter in place of locate ring

The mold positioning (X-Y axis) can be securely and easily done by simply placing the mold on the die setter.

Positioning tool

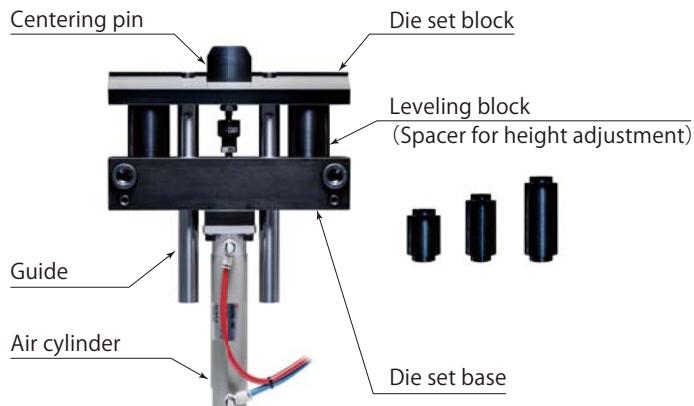
Leveling

Perpendicularity

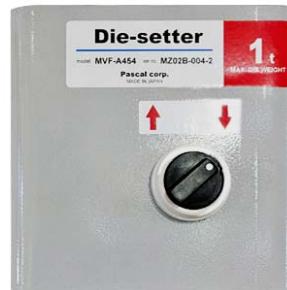
Mold Weight Max. 15 tons



3,500kN (350ton) IMM Vertical loading Die setter & Mag clamp



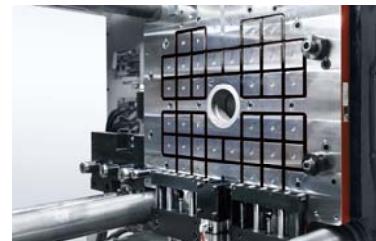
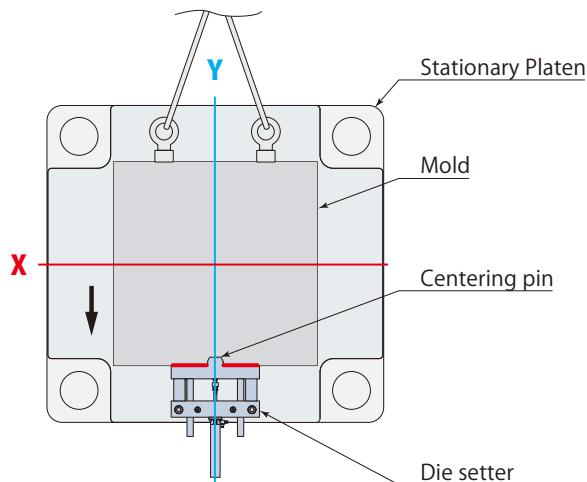
Operation panel



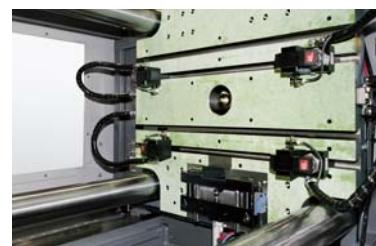
Model No.	MDL01	MDL03	MDL04	MDL06	MDL10	M DL15
Mold Weight kg	1,000	3,000	4,000	6,000	10,000	15,000

The level(X) is fixed by placing the mold on the die setter.

Vertical position (Y) is fixed by the center pin.



3,500kN (350ton) IMM Horizontal loading  
Die setting roller & Mag clamp



1,800kN (180ton) IMM Vertical loading  
Die setter & Hydraulic clamp, slidable type TYA040

# Octagonal Locate Ring

For positioning a hoop insert mold

Positioning tool

Centering

Up to 2000kN Injection molding machine

Mold positioning with octagonal (octagonal tapered cone) locate rings eliminates insert point misalignment and robot re-teaching, resulting in significant setup improvements.

**Octagonal** locate block  
(Locate ring cylindrical)



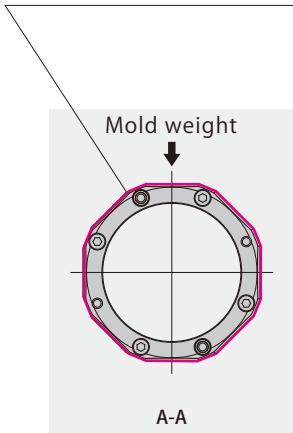
Mold side

**Octagonal** locate ring  
(Base)



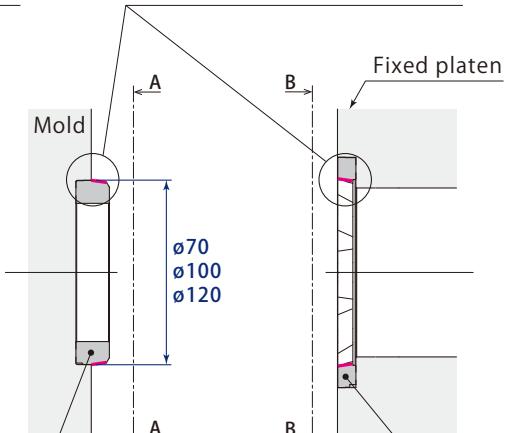
Fixed platen side

High rigidity can be obtained by receiving mold weight on multiple faces.



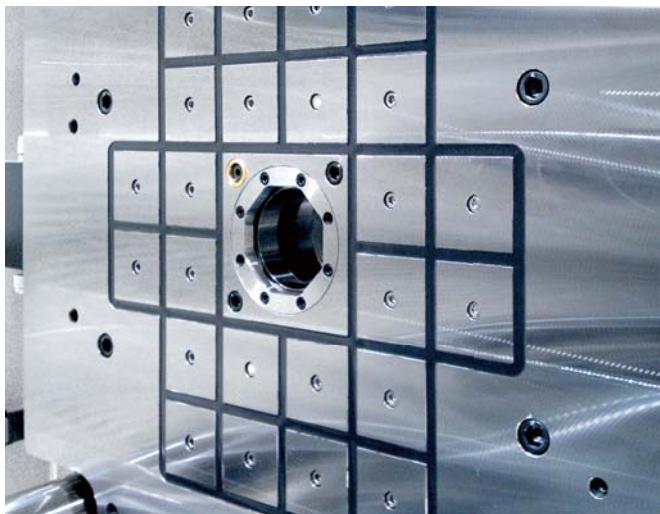
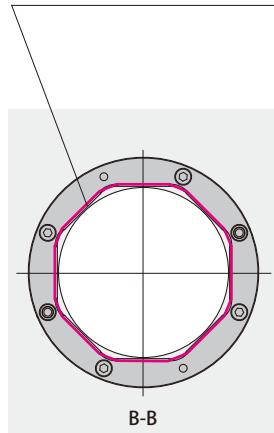
Octagonal locate block  
MCL 70P / MCL 100P / MCL 120P

Taper allows easy mold setting.



Octagonal locate ring  
MCL 70S / MCL 100S / MCL 120S

Restrained 8-faces can provide easy centering.



1,800kN (180ton) IMM Vertical loading  
Octagonal locate ring & Mag clamp



500kN (50ton) Vertical IMM  
Octagonal locate ring (positioning for upper mold) & Roll

# Mag Ejector Rod/Ball-Lock Ejector Rod

Painful ejector rod change is dramatically improved.

By separating the rod into fixed and detachable sections, one-touch detachment of the detachable rod is possible. This product has been adopted in many cases as a setup improvement product.



40,000 pieces have been sold

Ejector replacing time is reduced from 5.5 min. to 20 sec. on a 5500kN Injection Molding Machine

■ Before Time-consuming work Dangerous work



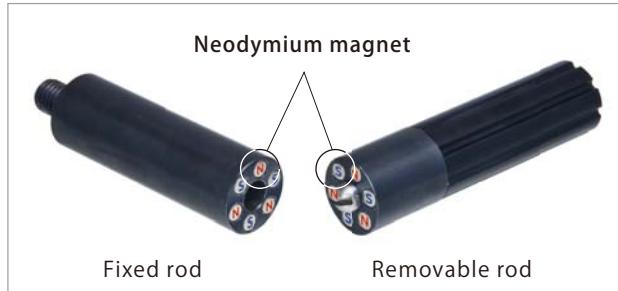
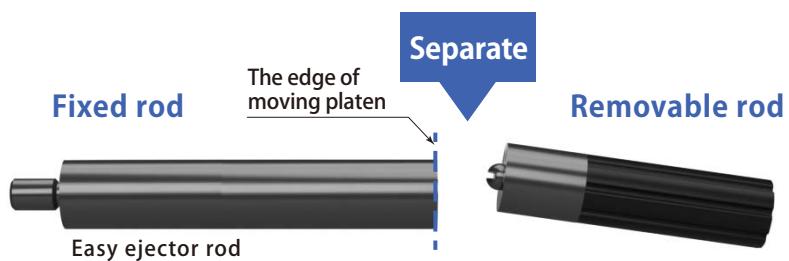
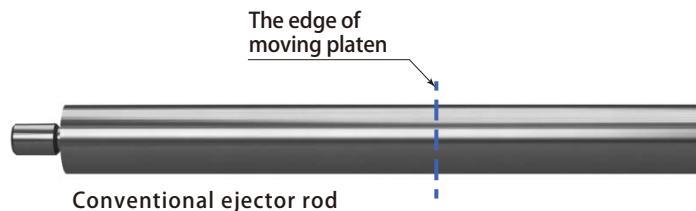
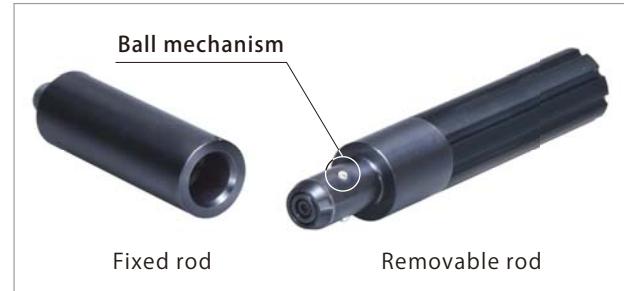
■ After Easy Safe Tool-less



Ejector Rod

Magnet

Ball Lock

**Easy** ejector rod**Ball lock** ejector rod

## Product Line

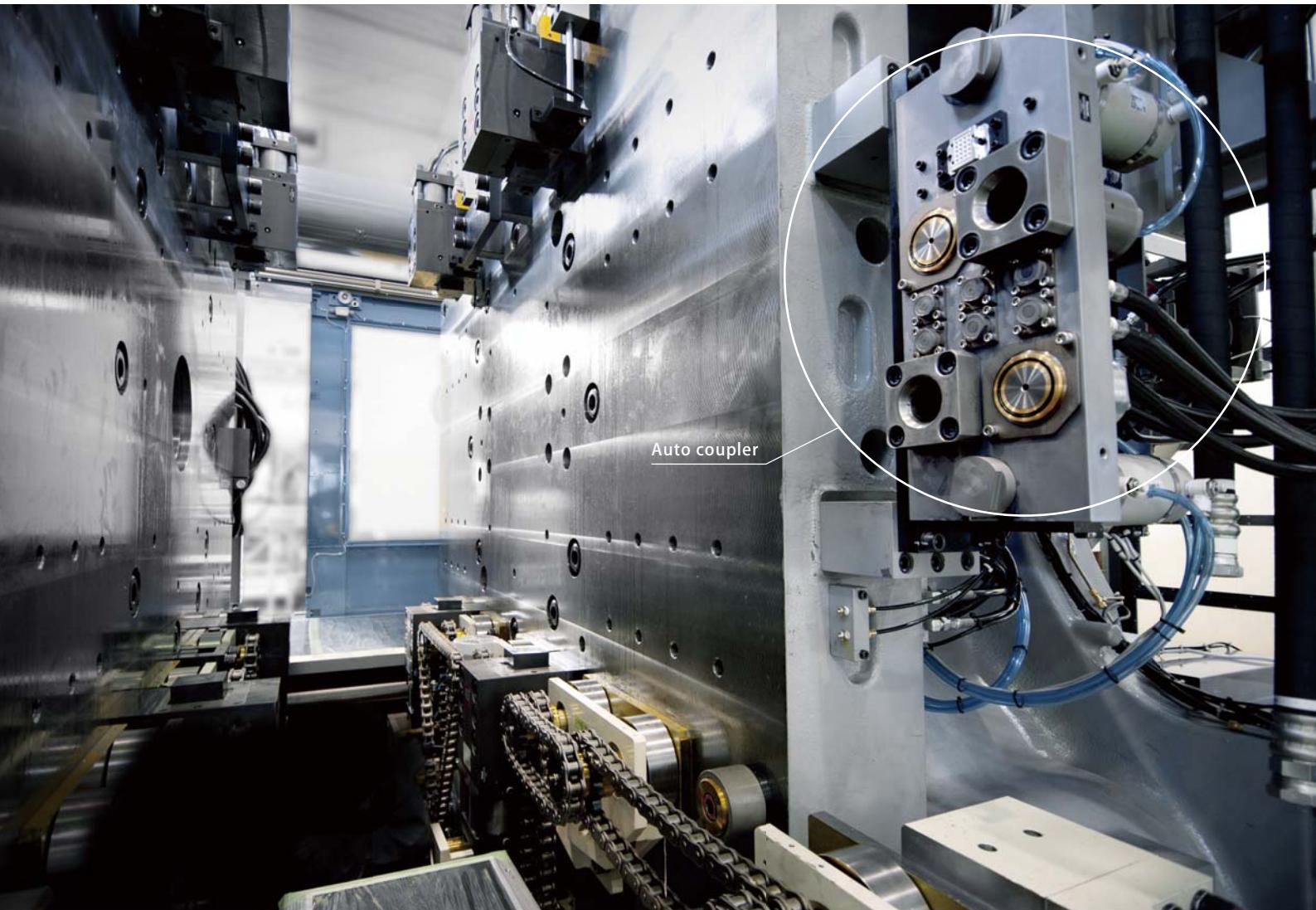
Name of Product	Mag Ejector Rod	Ball-Lock Ejector Rod
Ease to use	◎	○
Machine tonnage	up to 13,000kN	up to 25,000kN
Rod Diameter mm	ø26, ø40	ø26, ø40
Ejector Stroke	up to 300mm	up to 350mm

# Auto Coupling System

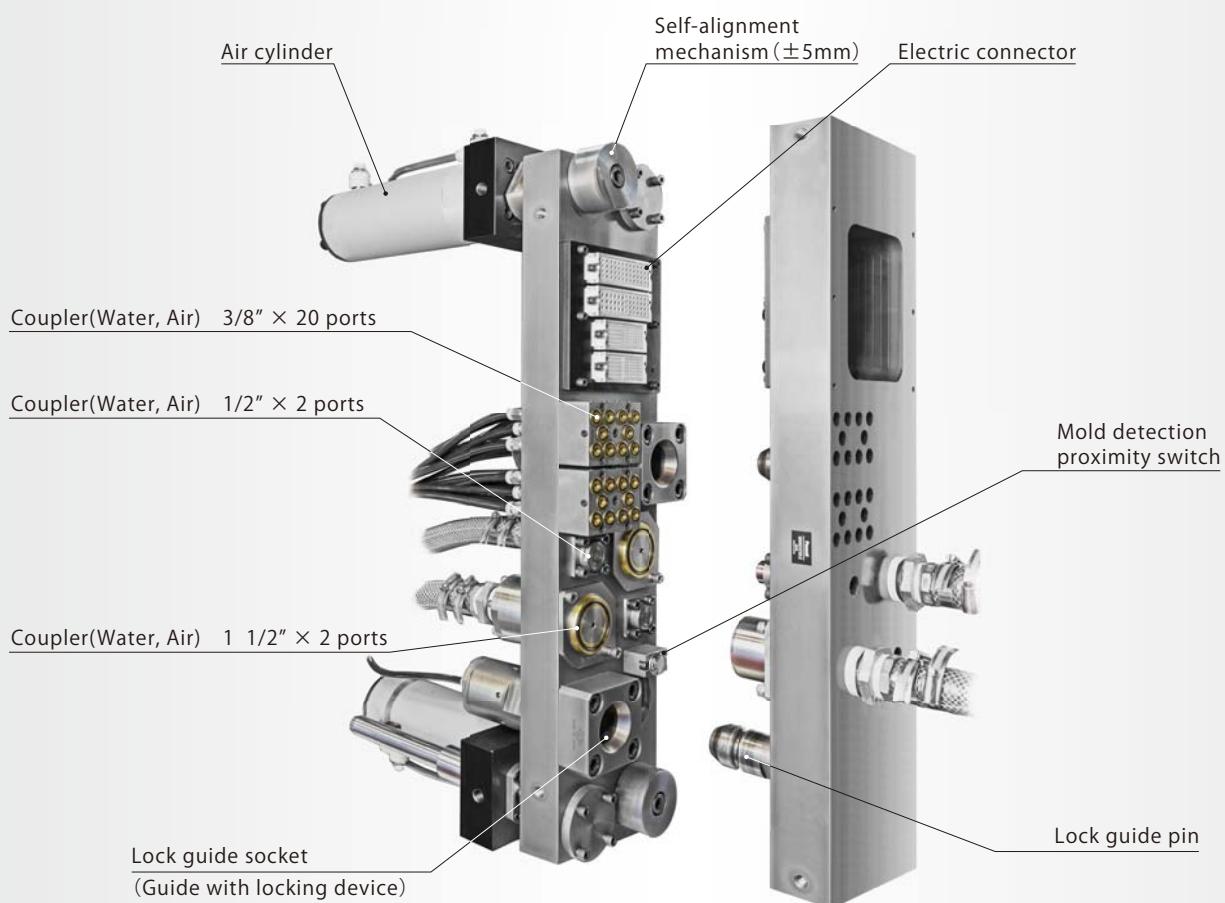
Multiple piping integrated on a block and couple/decouple automatically.

Automatic coupling system with a large number of delivery records for injection molding, press and diecasting machines.

Coupler



3,5000kN (350ton) IMM Horizontal loading Auto coupler & Hydraulic clamp TKC



Module Coupler, Electric connector, Lock guide, Mold detection proximity switch(Special)

Fluid Hydraulic, Water, Air

Connection port 3/8" , 1/2" , 3/4" , 1" , 1 1/4" , 1 1/2" , 2"

# C&C Coupler

Mold loading and connection at the same time

A simple mechanism coupler that can be kept coupling by means of mold clamp.

Coupler

Module

Coupler, Electric connector

Fluid

Hydraulic, Water, Air

Pressure

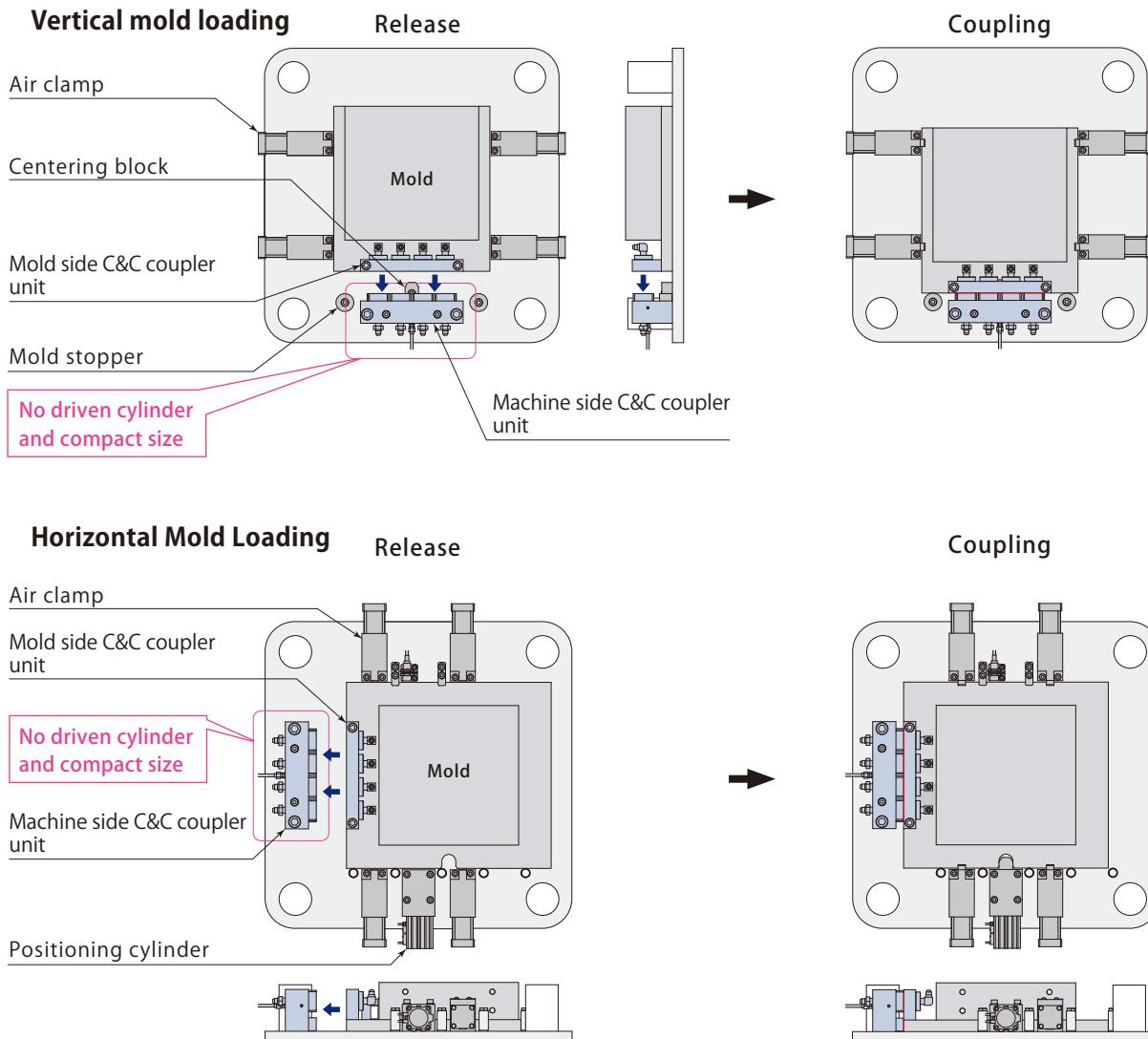
Max. 1MPa

Connection port

1/4"



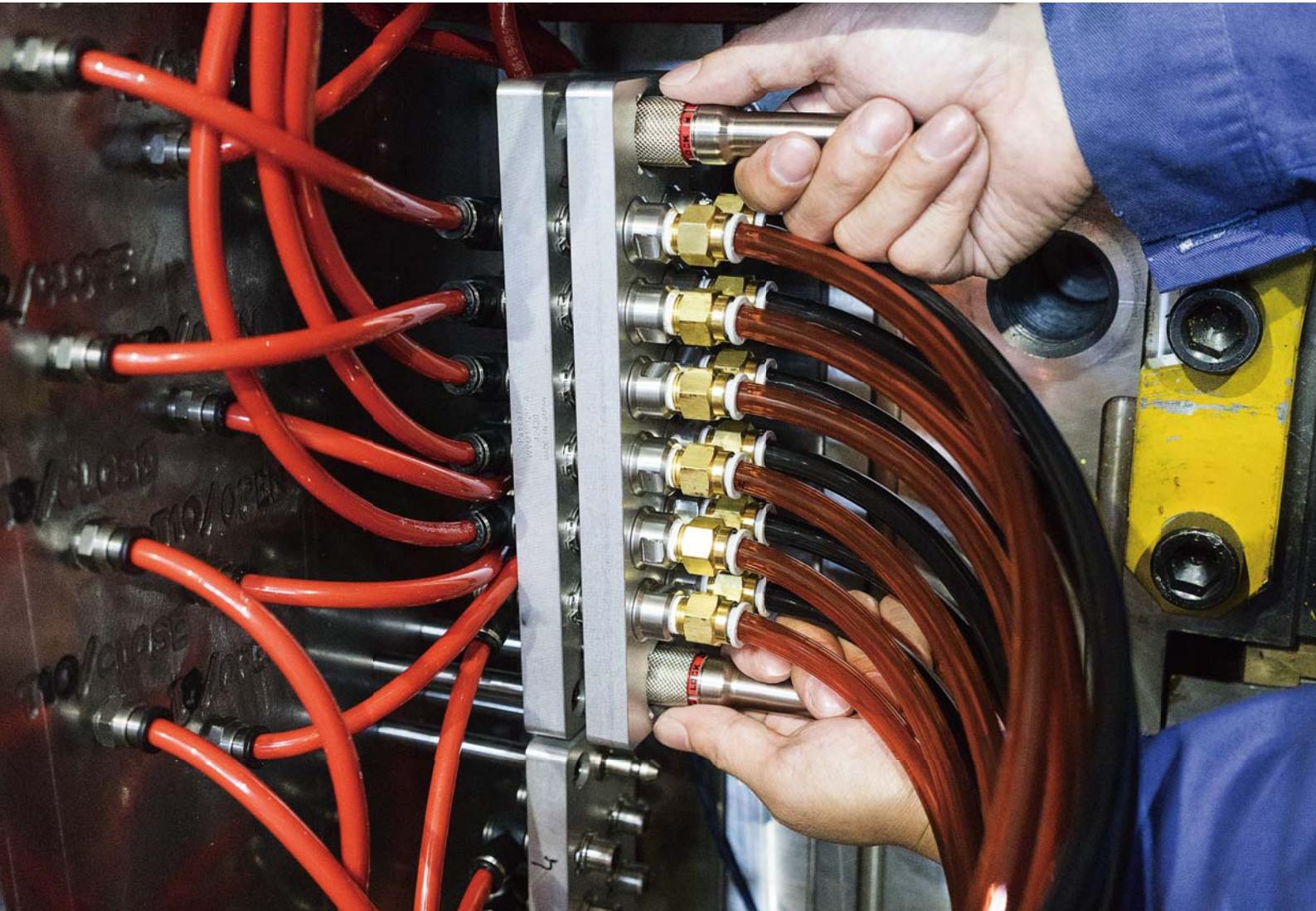
2,500kN (250ton) Two-color IMM Horizontal loading Fixed side Mag clamp & C&C coupler



# Multi Coupling System

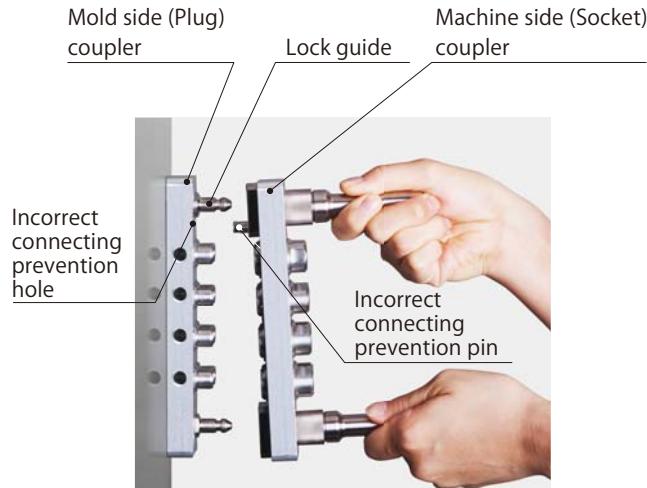
It can easily and securely connect multiple couplers by simply pushing lightly on the gripper, also shortens coupling time and prevents misplaced or forgotten connection.

Coupler

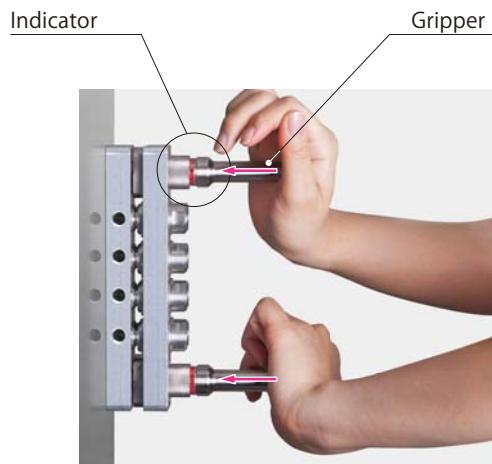


18,000kN (1,800ton) IMM Multi coupler Open model

## Coupling

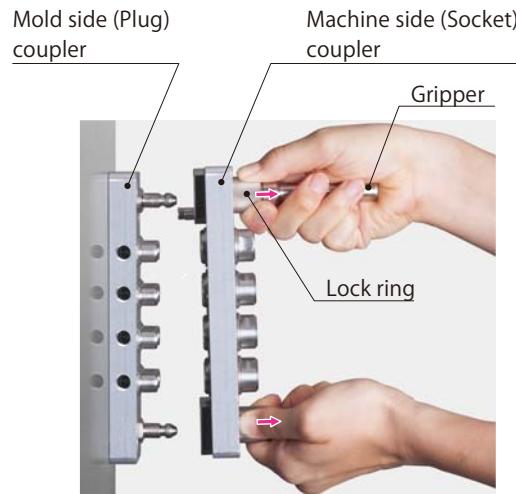


Insert coupler(female) along with a lock guide



Push the gripper lightly and locking complete

## Release



### Coupling

The coupler can be disconnected by pulling the lock ring holding the gripper



The locking completion can be recognized at a glance with this indicator.

### Release



Lock ring

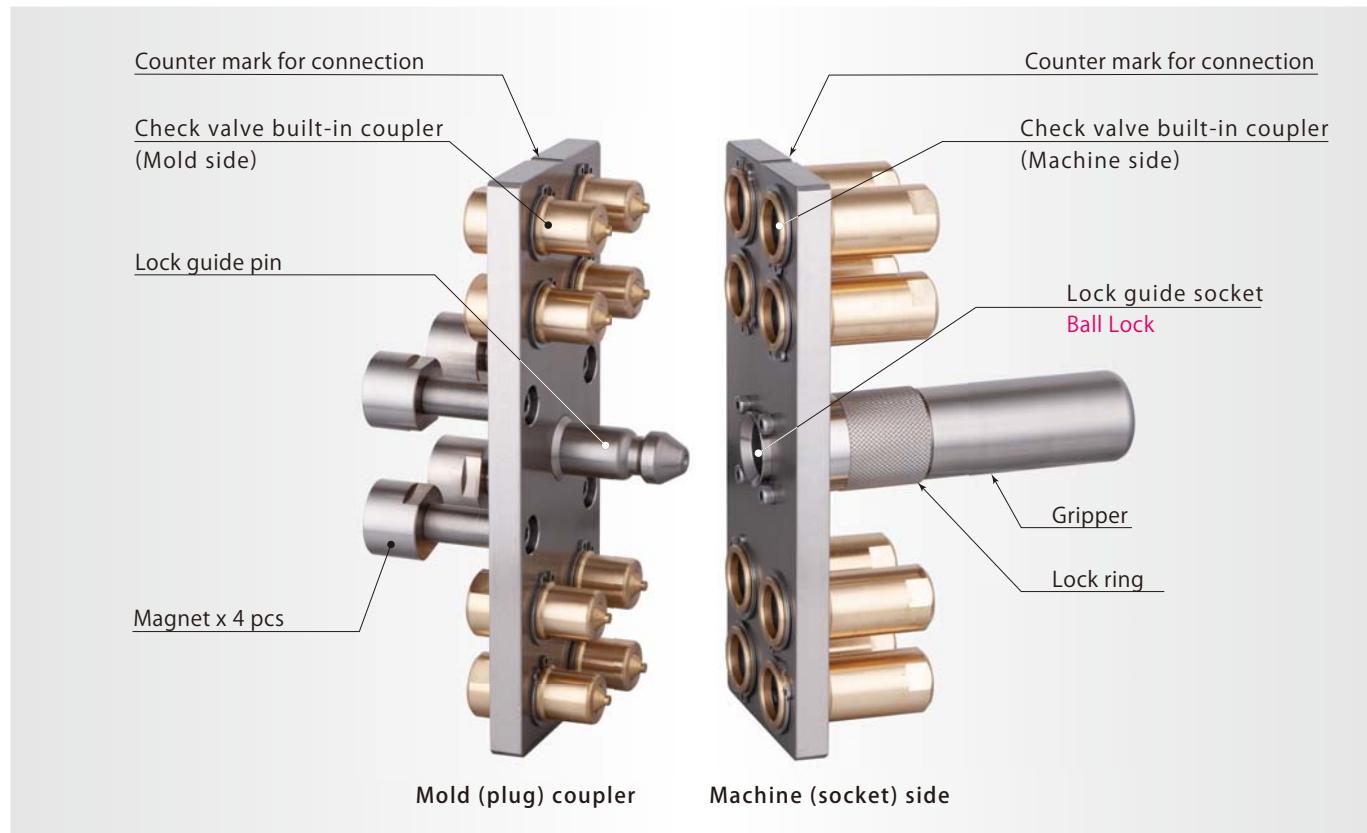
## Multi Coupling System Model

Coupler

### Check Valve model model MCC

It can easily and securely connect multiple couplers by simply pushing lightly on the gripper.  
It also shortens coupling time and prevents misplaced or forgotten connections.

Fluid	Hydraulic, Water, Air
Pressure	Max. 0.8MPa
Connection port	Rc1/4, Rc3/8
Number of port	6, 8, 12



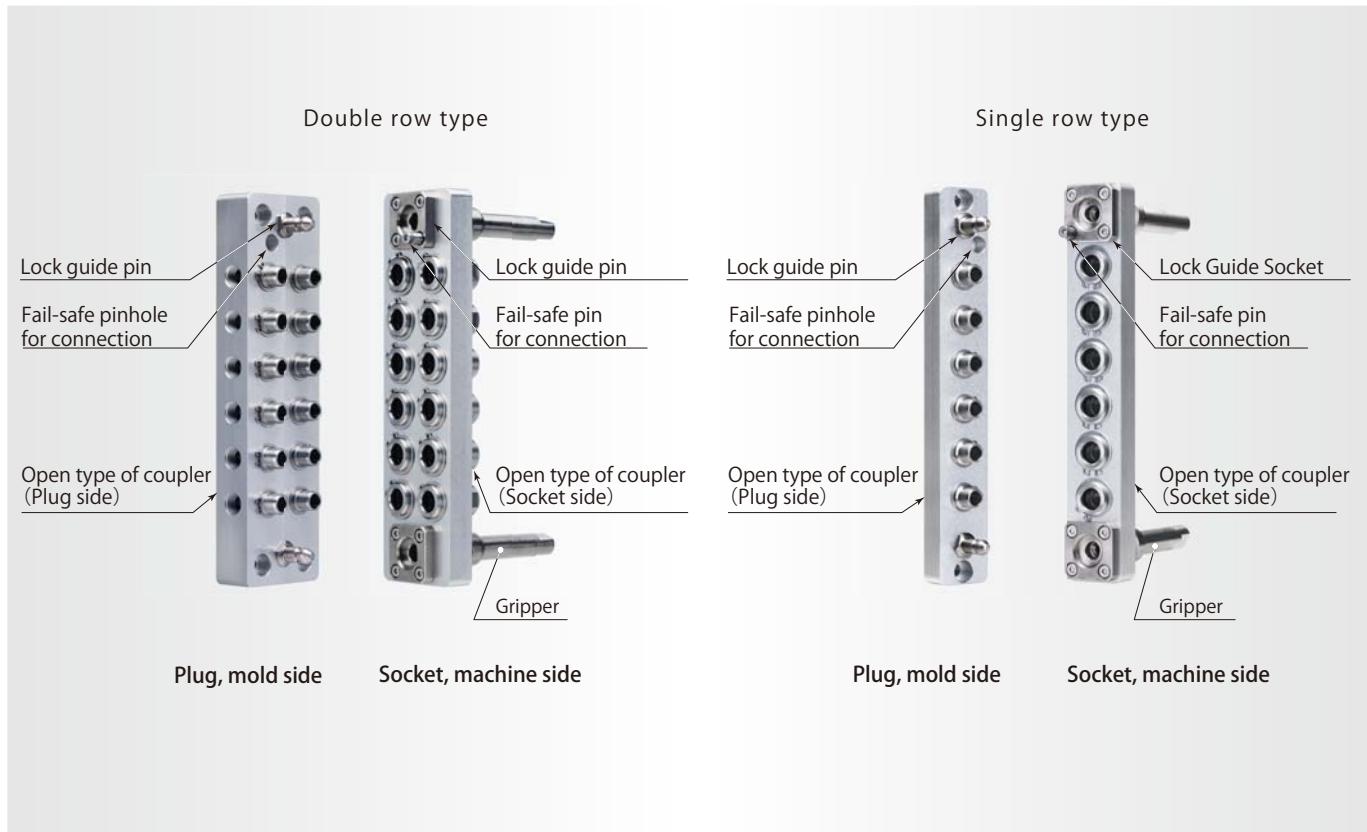
## Multi Coupling System Model

Coupler

### Open (without check valve) model model MCA

The open type of coupler has no check valve, resulting in less pressure loss and eliminating malfunctions caused by foreign substances or sludges entering the coupler.

Fluid	Hydraulic, Water, Air
Pressure	Max. 0.8MPa
Connection port	Rc1/4, Rc3/8
Number of port	6, 8, 12



# New Valve Stand

Coupler

A innovation for temperature-control piping begins with New Valve Stand

The aligned hose arrangement preventing misplaced hoses can speed up piping work.

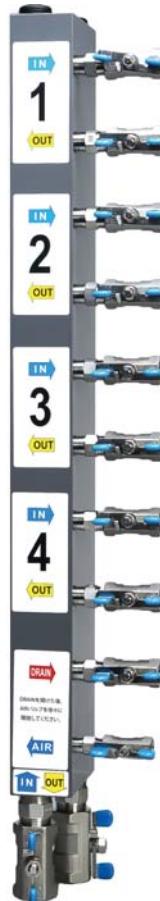
Fluid Hydraulic, Water, Air

Pressure Max. 1MPa

Connection port Rc3/8

Number of port 4, 6, 8, 12

## Horizontal connection model model MBA



Stationary platen



Moving platen



3,500kN (350ton) IMM New valve stand horizontal connection model

## New Valve Stand

Coupler

The hoses do not create obstruction on the floor and around the machine, which contributes to a safer, tidier plant.

Fluid

Hydraulic, Water, Air

Pressure

Max. 1MPa

Connection port

Rc3/8

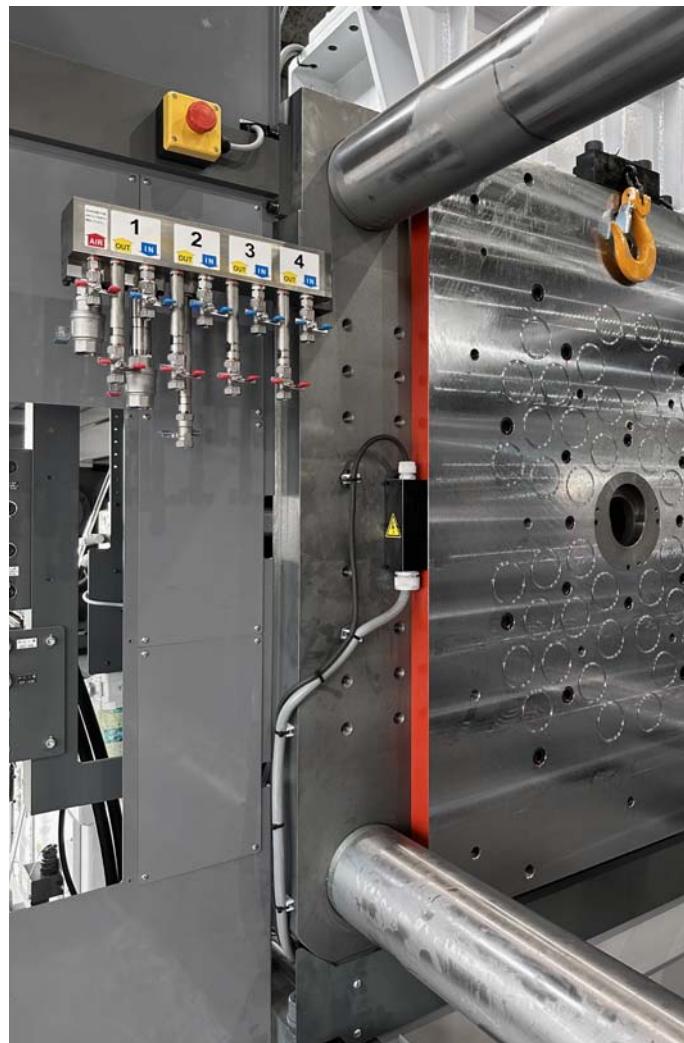
Number of port

2, 3, 4

### Vertical connection model model **MBA-V**

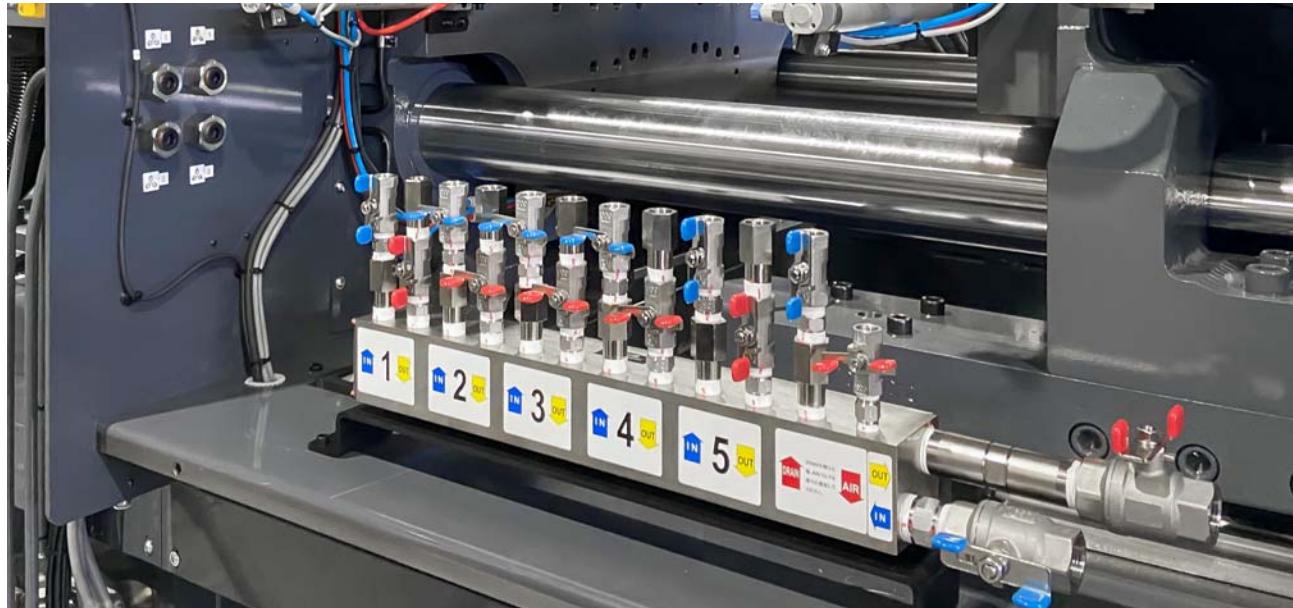


Rear view



5,500kN (550ton) IMM New valve stand Vertical connection model

## New Valve Stand Examples



3,500kN (350ton) IMM horizontal mounting inside New valve stand horizontal connection model



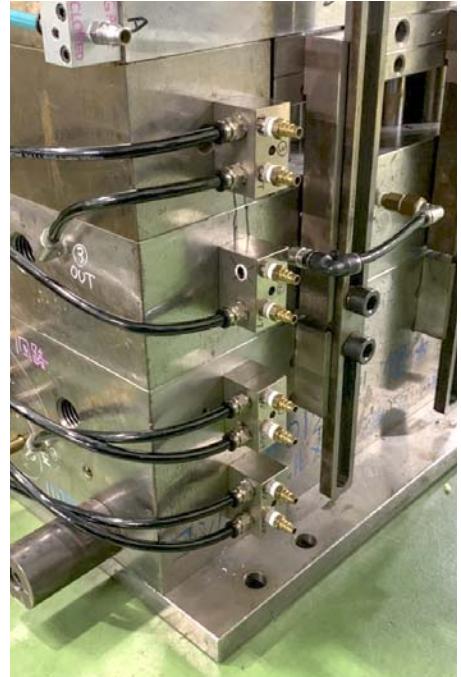
1,800kN (180ton) IMM bed mounting New valve stand horizontal connection model

# Magnet Branch

## One-touch mounting of manifold using permanent magnets

Flexible mounting of coupler connection ports and manifolds improves coupling operations.

Coupler



Neodymium magnet  
(permanent magnet)

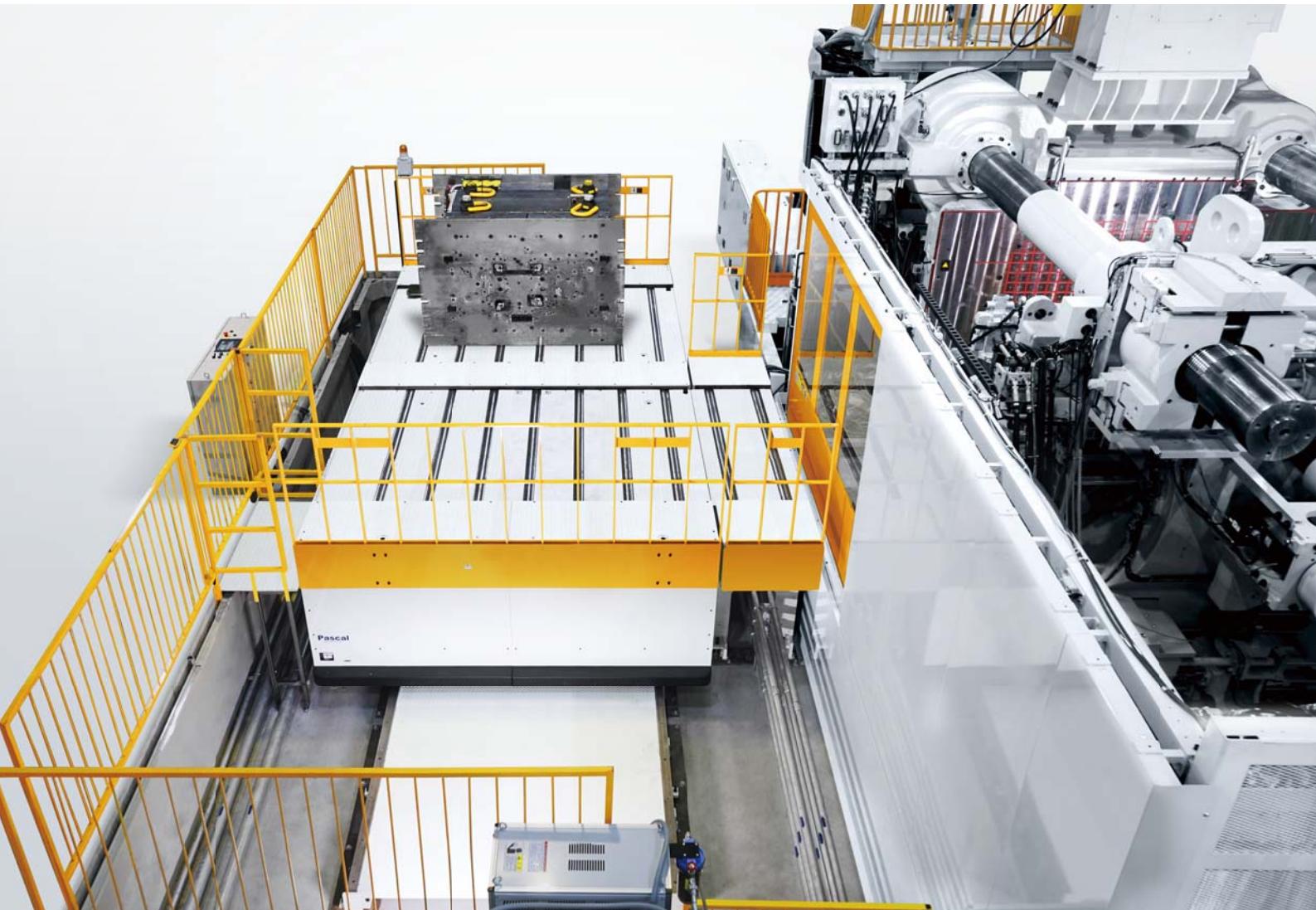
Model	Magnet Branch	
Compatible fluid	Water, air, mineral hydraulic oil	
Number of circuits	2 circuits (6 ports)	
Adsorption force	300 N	
Material	Steel (electroless nickel plating)	
Port size	6×Rc1/4	6×Rc3/8

# Mold Die Changer

To ensure mold change operation to be quicker and safer

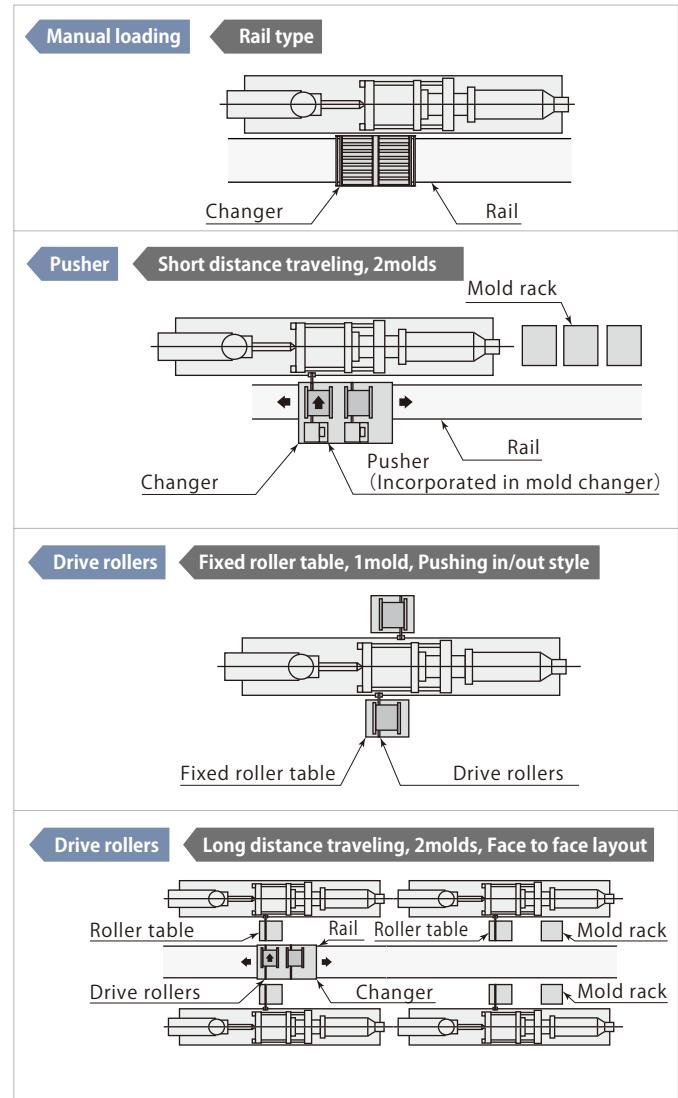
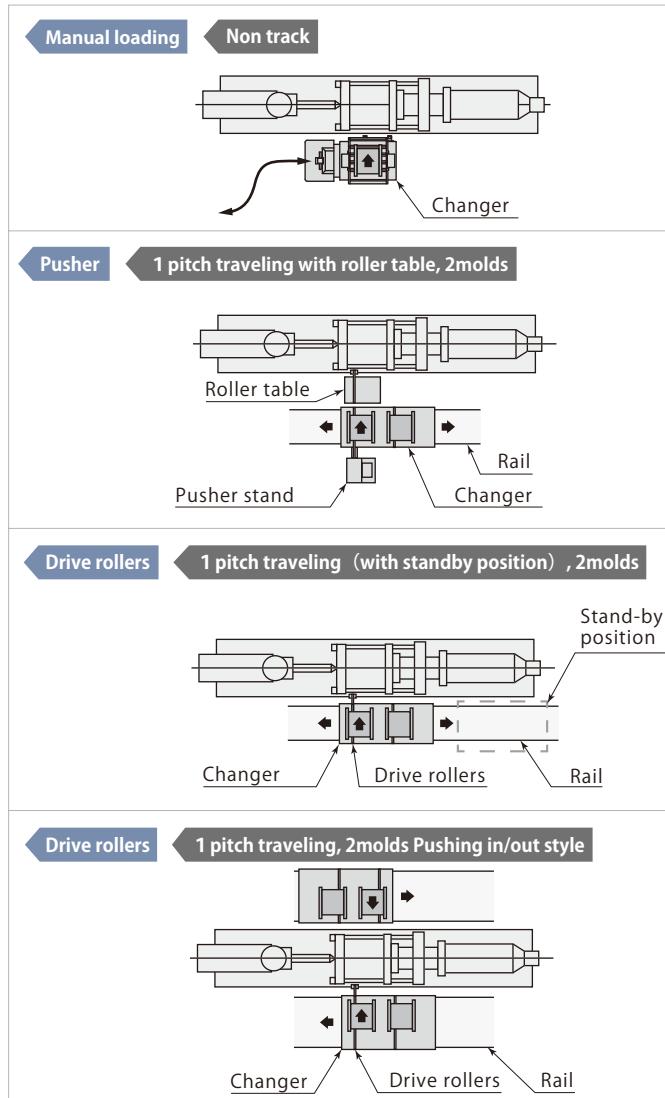
A mold changer is an automatic mold change system that significantly shortens the time required for changing molds compared to the conventional method of changing molds using a forklift or overhead crane.

Mold Changer



30,000kN (3,000ton) IMM Horizontal loading  
Mold changer : Powered, Drive rollers type 2 molds & Mag clamp

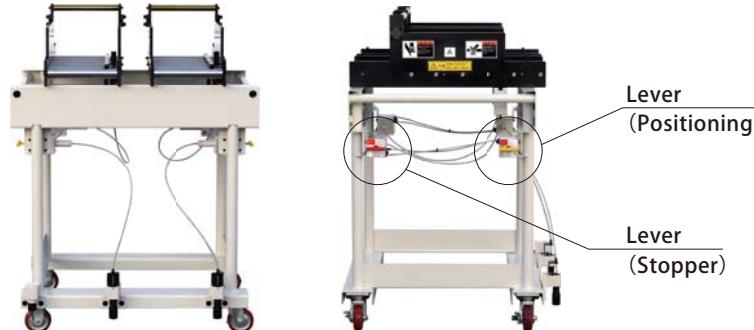
## Examples for layout



## Mold Die Changer Lineup

Mold Changer

Manual loading, Non track, Non elevated table type model **QMF**



Model No.	QMF1	QMF2
Machine (Tonnage)	400~1,000 kN (40~100 tonf)	400~600 kN (40~60 tonf)
Max. Mold Weight	600 kg	300 kg
Number of Stage	1 mold	2 molds

Manual loading, Non track, Table elevation type model **QMA**



Model No.	QMA1
Machine (Tonnage)	400~1,000 kN (40~100 tonf)
Max. Mold Weight	600 kg
Number of Stage	1 mold

## Mold Die Changer Lineup

[Mold Changer](#)

Battery-powered, Non track, Table elevation type model **QMB**



Model No.	QMB1	
Machine (Tonnage)	400~4,500 kN (40~450 tonf)	
Max. Mold Weight	1,500 kg	2,500 kg
Number of Stage	1 mold	

Manual loading, Rail type model **QME**



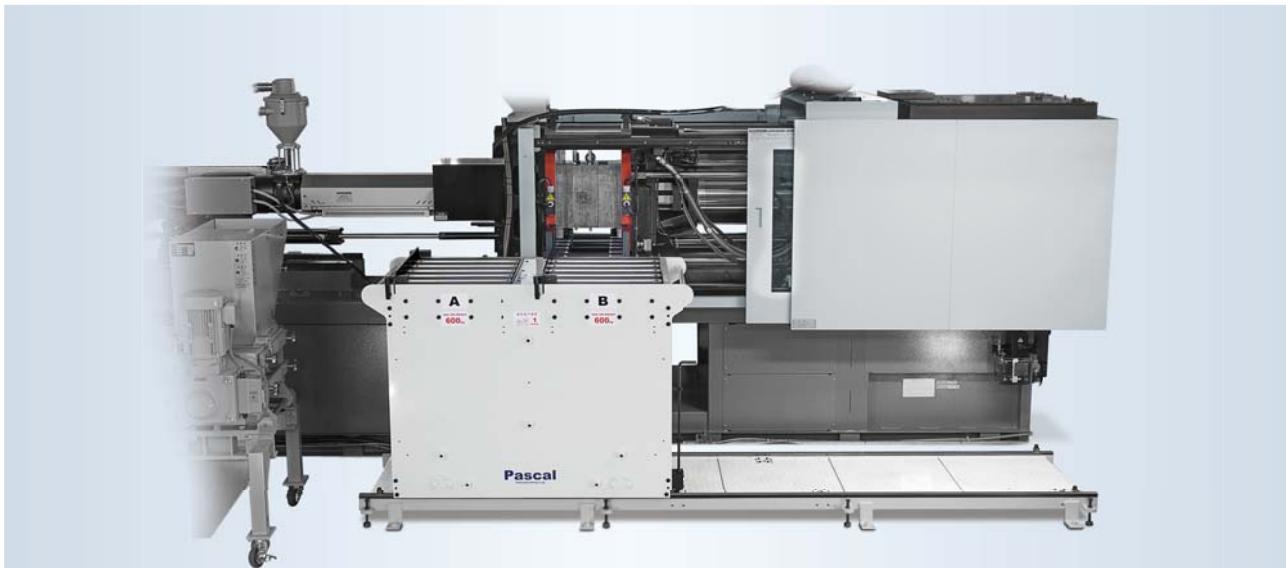
Model No.	QME						
Machine (Tonnage)	500 kN (50 tonf)	800 kN (80 tonf)	1,000 kN (100 tonf)	1,300 kN (130 tonf)	1,500 kN (150 tonf)	2,000 kN (200 tonf)	2,500 kN (250 tonf)
Max. Mold Weight	300 kg	400 kg	400 kg	600 kg	800 kg	1,000 kg	2,000 kg
Number of Stage	2 molds						

## Mold Die Changer Examples

Mold Changer



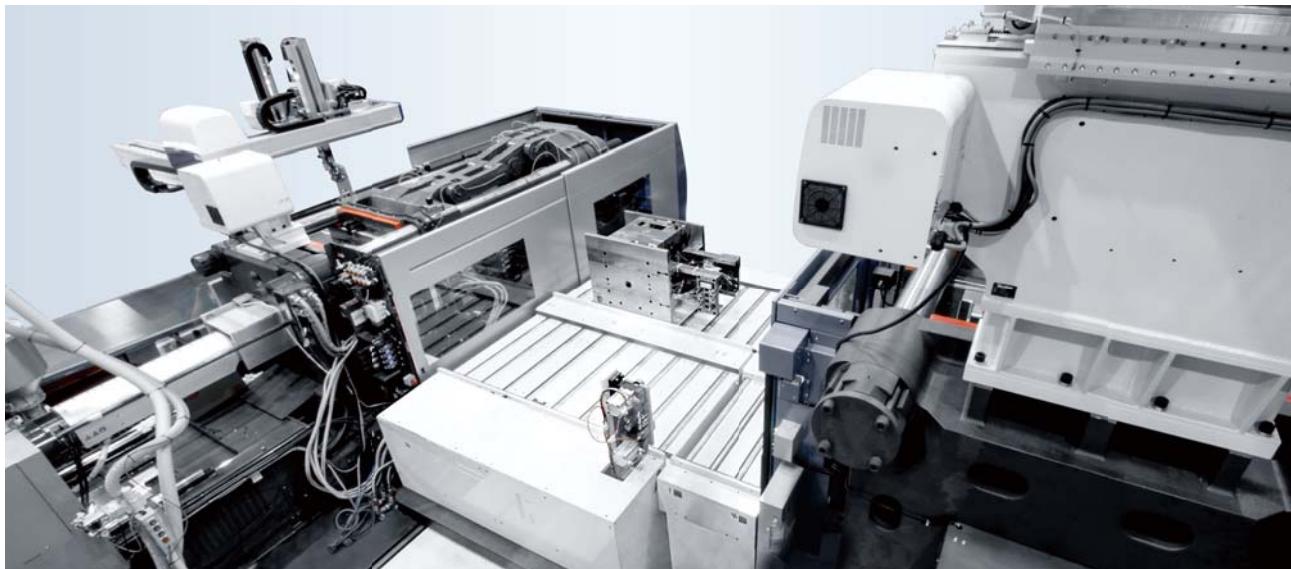
500kN (50ton) IMM Horizontal loading Mold changer : Manual loading, Non track, Table elevation type



1,750kN (175ton) IMM Horizontal loading Mold changer : Manual loading, Rail type

## Mold Die Changer Examples

Mold Changer



4,500kN (450ton) IMM Horizontal loading Mold changer : Powered, Drive rollers type



12,700kN (1270ton) IMM Horizontal loading Mold changer : Powered, Drive rollers type

# Mold Rotator model SMR

Electric Motor driven

## Roller gear driven, Rolling type

The unique roller gear driven system (PAT.) provides semi-permanent durability.

The rigid roller gear mechanism with excellent safety features provides sufficient rigidity to withstand sudden stops during operation.

Mold rotator

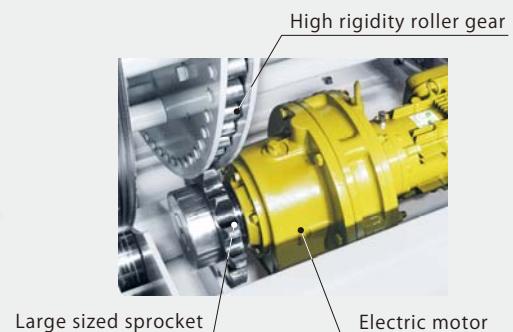
Rotatable weight 500kg

Maintenance Free

Rotation weight : 1, 3, 5, 10, 15, 20, 30, 50 ton



Back cover(Standard equipment)  
PAT.P.



Large sized sprocket

Electric motor

# Workpiece Rotator model SMR005

Electric Motor driven

Suitable to 180 degree rotate small workpieces

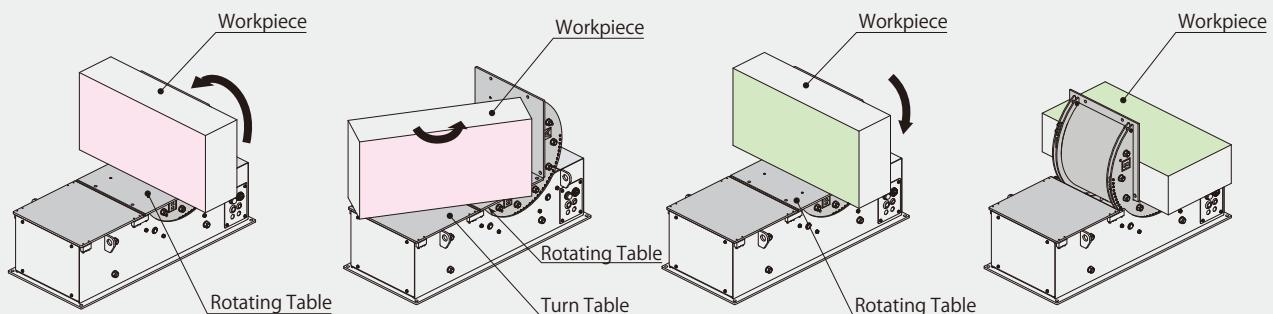
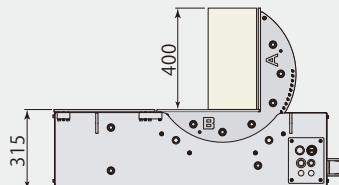
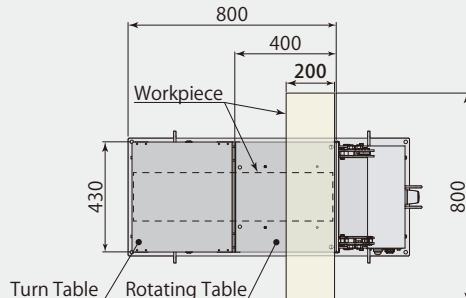
This compact rotator can easily rotate workpieces 90 deg or 180 deg without using an overhead crane.

Mold rotator

Rotatable weight 500kg

Maintenance Free

**Rotation weight : 500 kg**



# Mold Rotator model SMF-M

Electric Motor driven

## Flat table, roller gear type

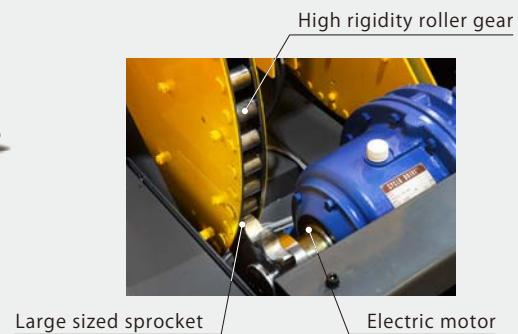
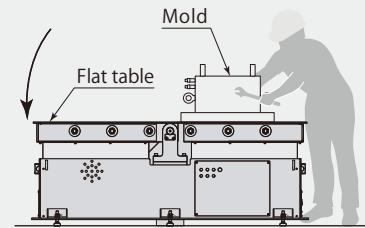
The unique roller gear driven system (PAT.) provides semi-permanent durability. Maintenance work can be performed on the flat table.

Mold rotator

Rotatable weight 3 ~ 5ton

Maintenance Free

Rotation weight : 3, 5 ton



# Mold Rotator model **SMF-H**

Hydraulic

## Flat table, hydraulic cylinder type

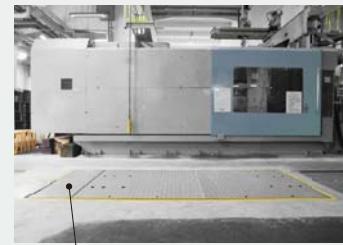
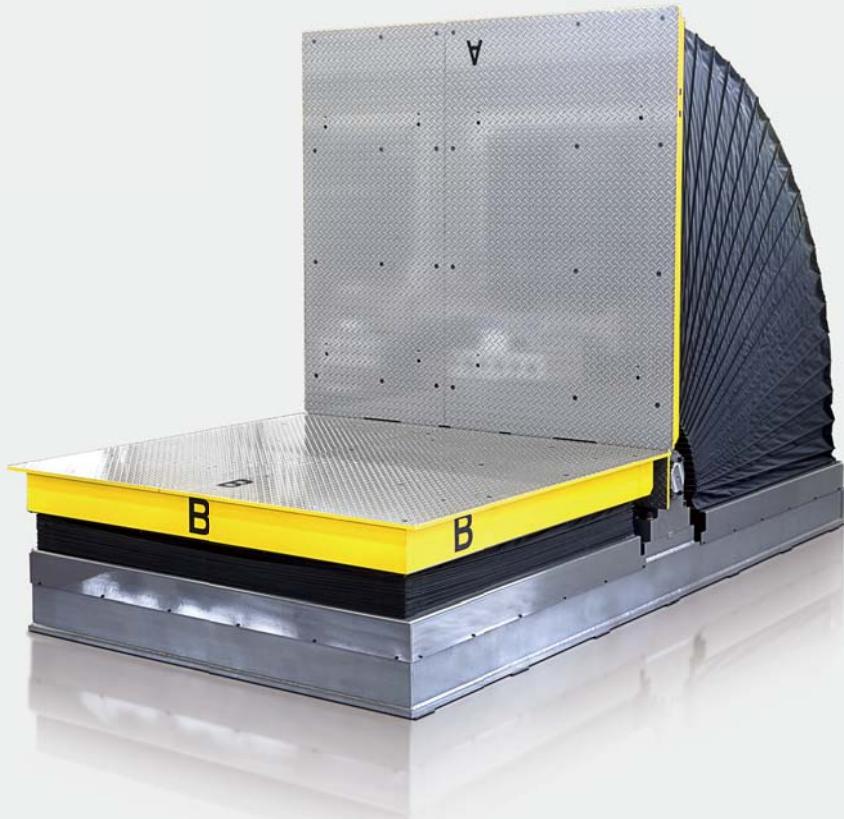
The model SMF-H adopts a unique hydraulic cylinder drive system that receives force from all axes, eliminating sliding wear on the structural parts and ensuring superior durability. Also, it can be embedded in the floor and the table is rigid enough to be passed by a forklift or a truck.

Mold rotator

Rotatable weight 10 ~ 30ton

Embeddable in the floor

Rotation weight : 10, 15, 20, 30 ton

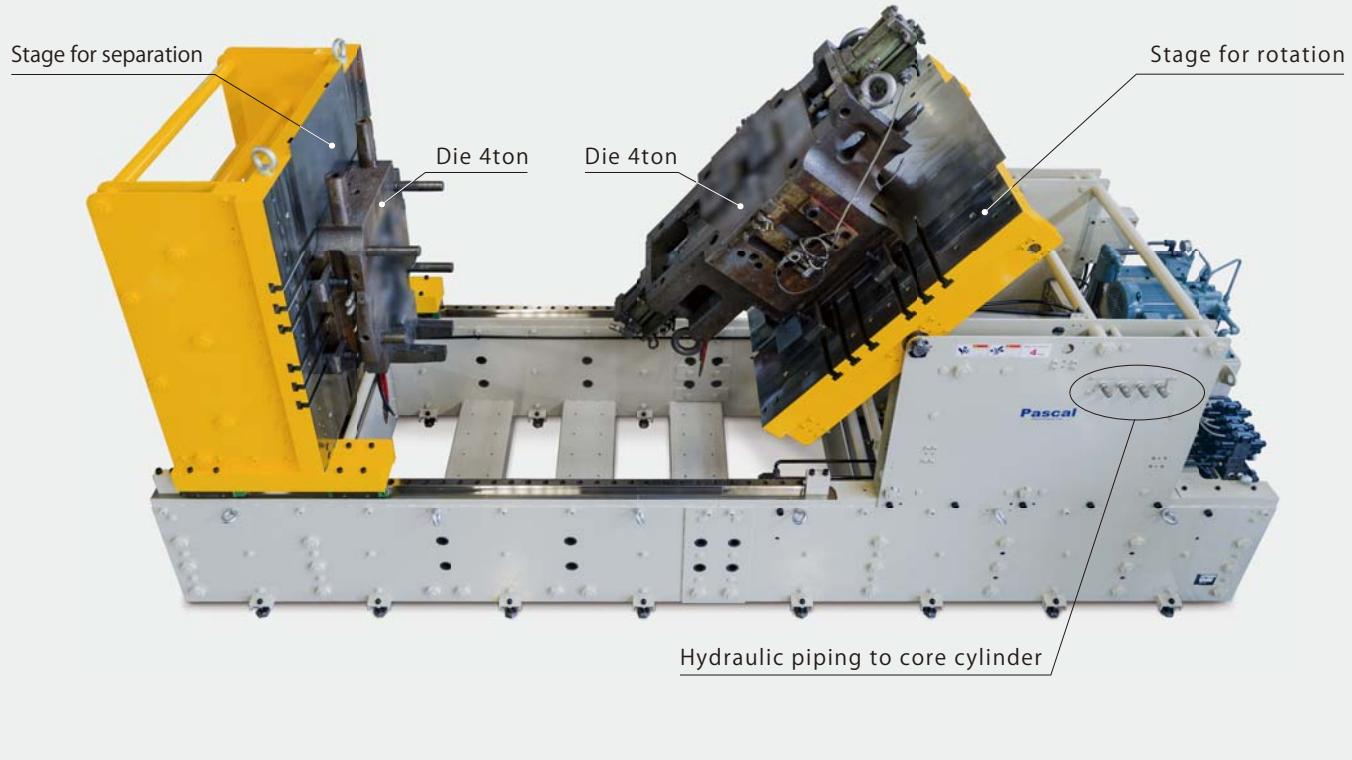


Picture of 20ton mold type

# Die Splitter with separation

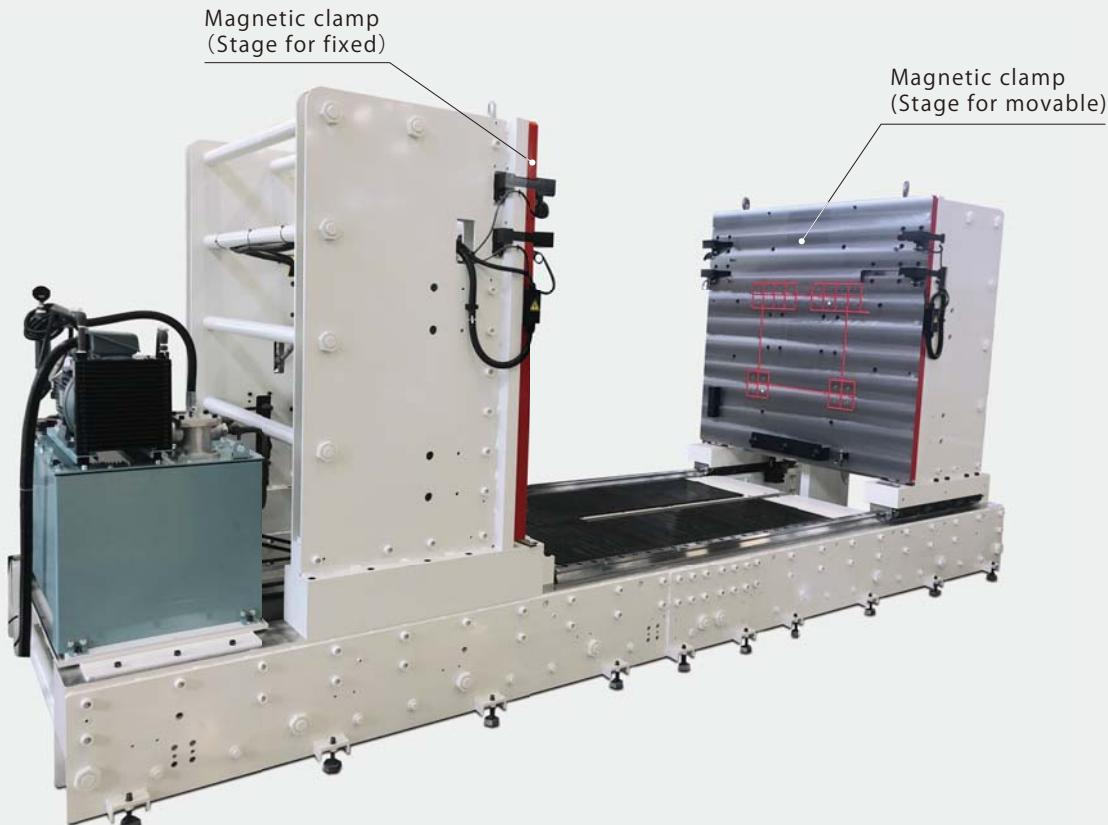
This device can be used to safely perform mold maintenance outside the machine without reducing the operation rate of the molding machine.

**Die weight 8 ton (4 ton per each side)**



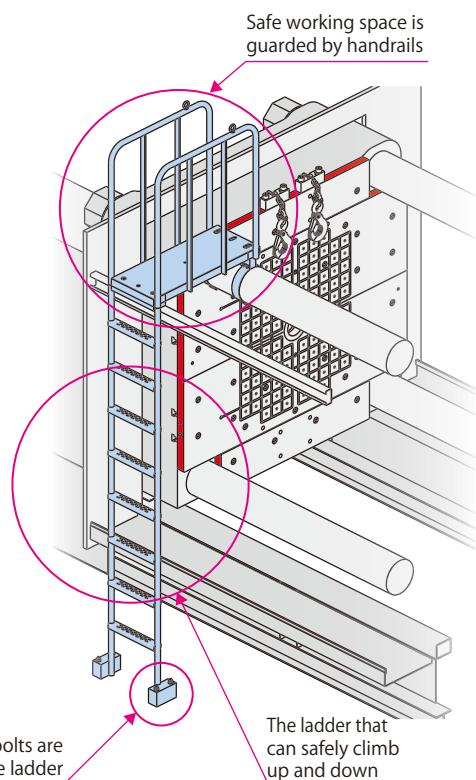
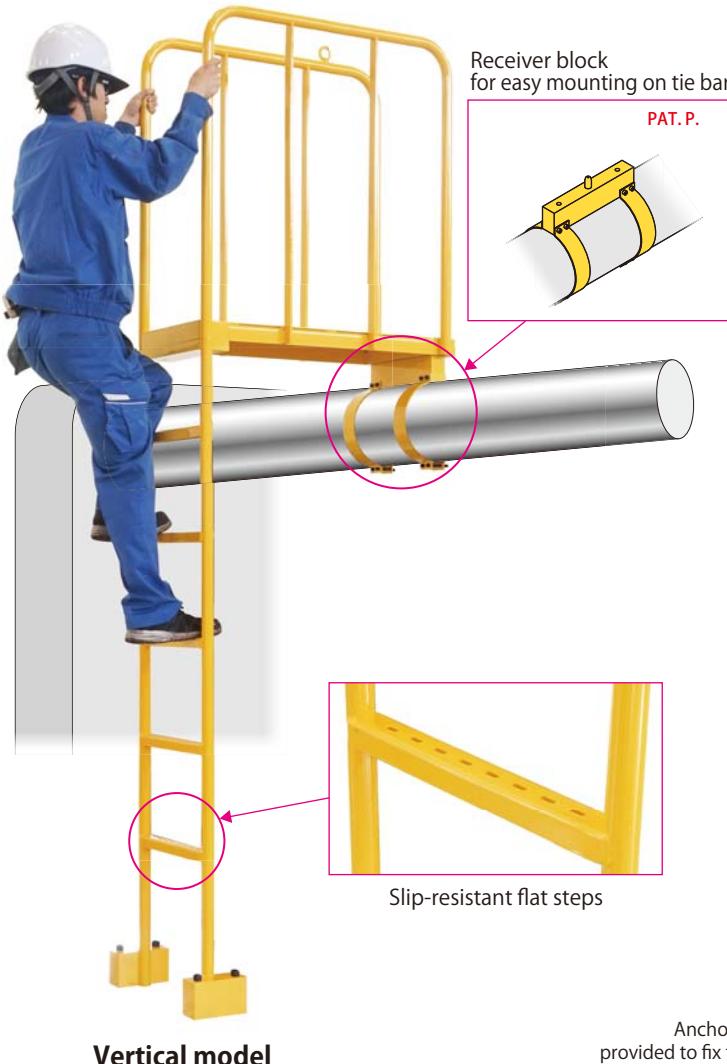
# Mold Separator with magnetic platen

**Die weight 15 ton (7.5 ton per each side)**



# Safety Ladder

For coupling and uncoupling crane hooks during mold change operation at large injection molding machines  
The operator can safely approach the mold with a safety belt climbing up and down the ladder.



## Safety Ladder

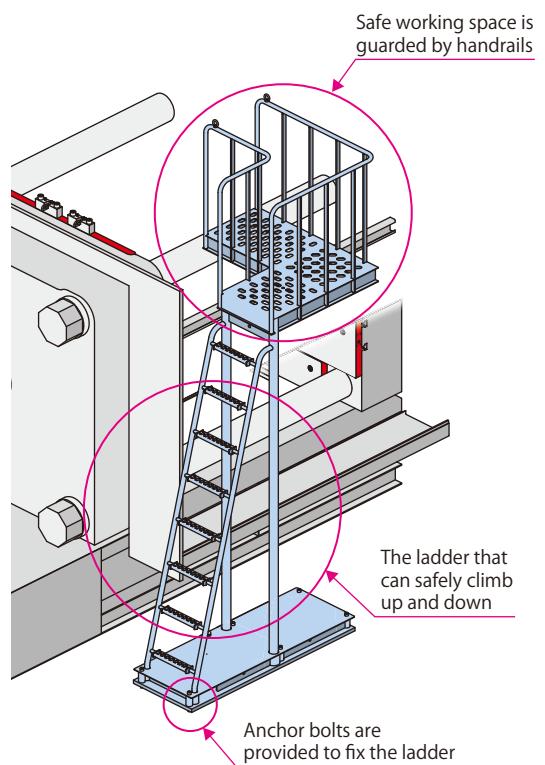
For high-place work at large injection molding machinesvertical molding machines

The work space guarded by handrails is secured.



**Standard model**

For high-place work at vertical molding machines



## DOMESTIC LOCATIONS



Head office / R & D center

- Itami, Hyogo

Plant

- Oita
- Yamagata

Sales office

- Osaka, Hyogo
- Kumagaya, Saitama
- Atsugi, Kanagawa
- Nagoya, Aichi
- Yamagata

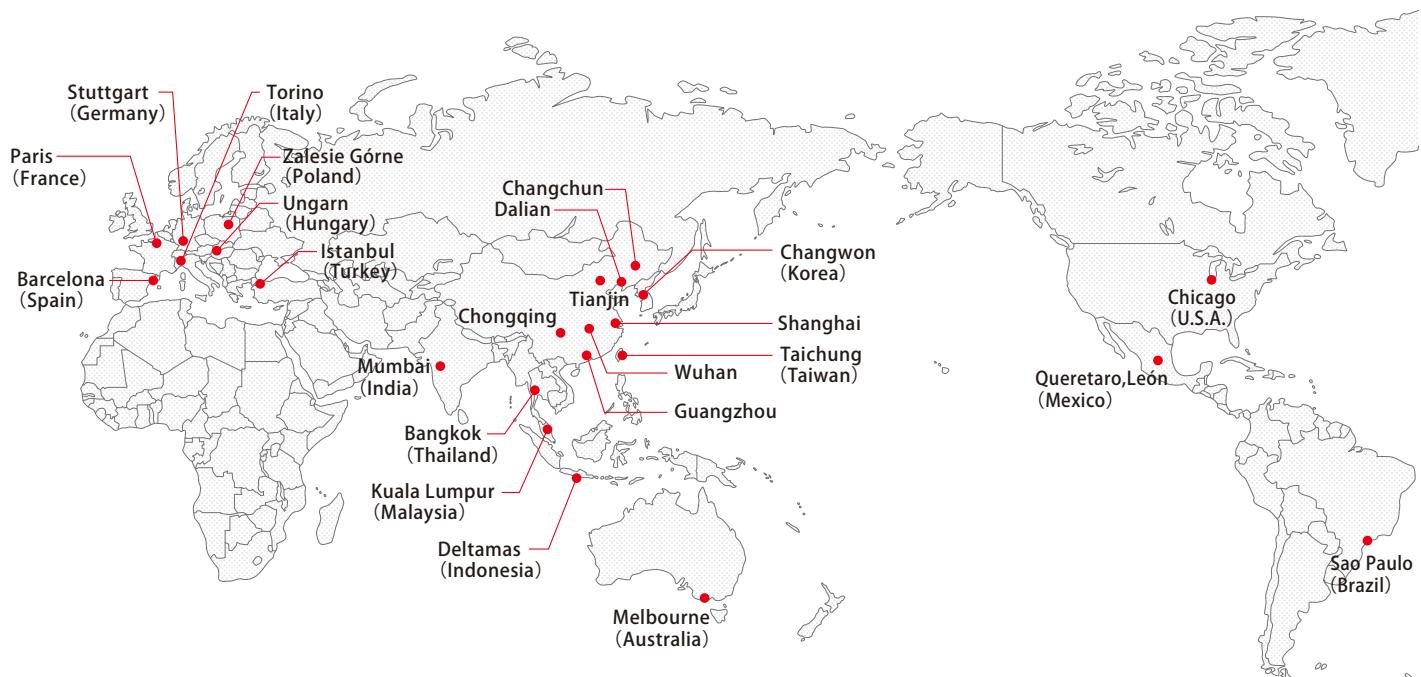


Oita plant



Yamagata plant

## GLOBAL NETWORK



### ASIA

- Dalian [China]
- Bangkok [Thailand]
- Shanghai [China]
- Changwon [Korea]
- Changchun [China]
- Deltamas [Indonesia]
- Tianjin [China]
- Kuala Lumpur [Malaysia]
- Wuhan [China]
- Mumbai [India]
- Chongqing [China]
- Melbourne [Australia]
- Guangzhou [China]
- Taichung [Taiwan]



Dalian plant

### AMERICA

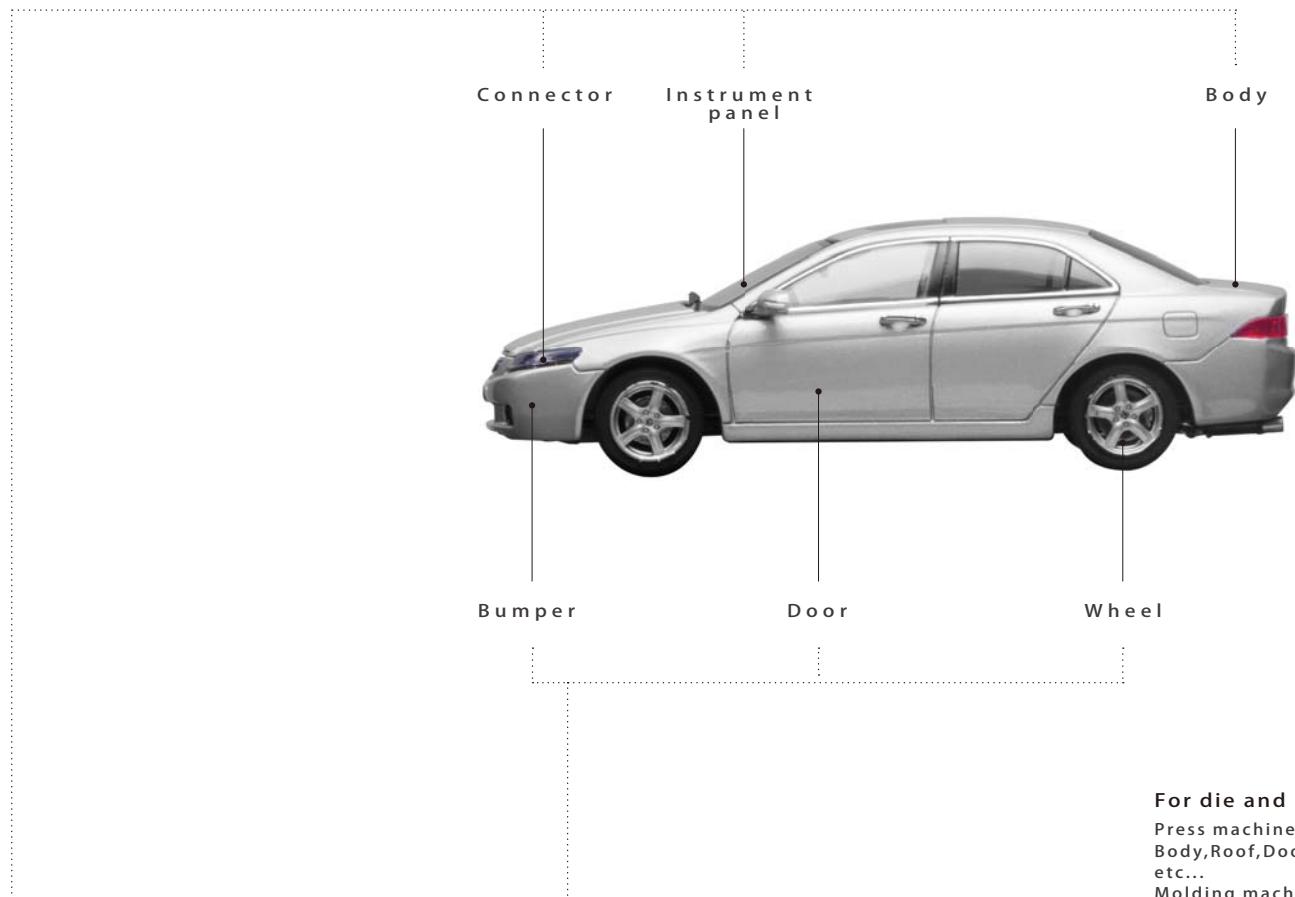
- Chicago [U.S.A.]
- São Paulo [Brazil]
- Queretaro, Leon [Mexico]

### EUROPE

- Stuttgart [Germany]
- Paris [France]
- Torino [Italy]
- Barcelona [Spain]
- Istanbul [Turkey]
- ◇ Zalesie Górne [Poland]
- ◇ Ungarn [Hungary]

- Plant
- Subsidiary
- Sales office
- Liaison office
- Agent
- ◇ Sales representative

## Pascal products are supporting



For sheetmetal stamping



Traveling clamp



Stamping die clamp

For plastic molding



Mag clamp



Mold die clamping system



Auto coupler

For die and mold

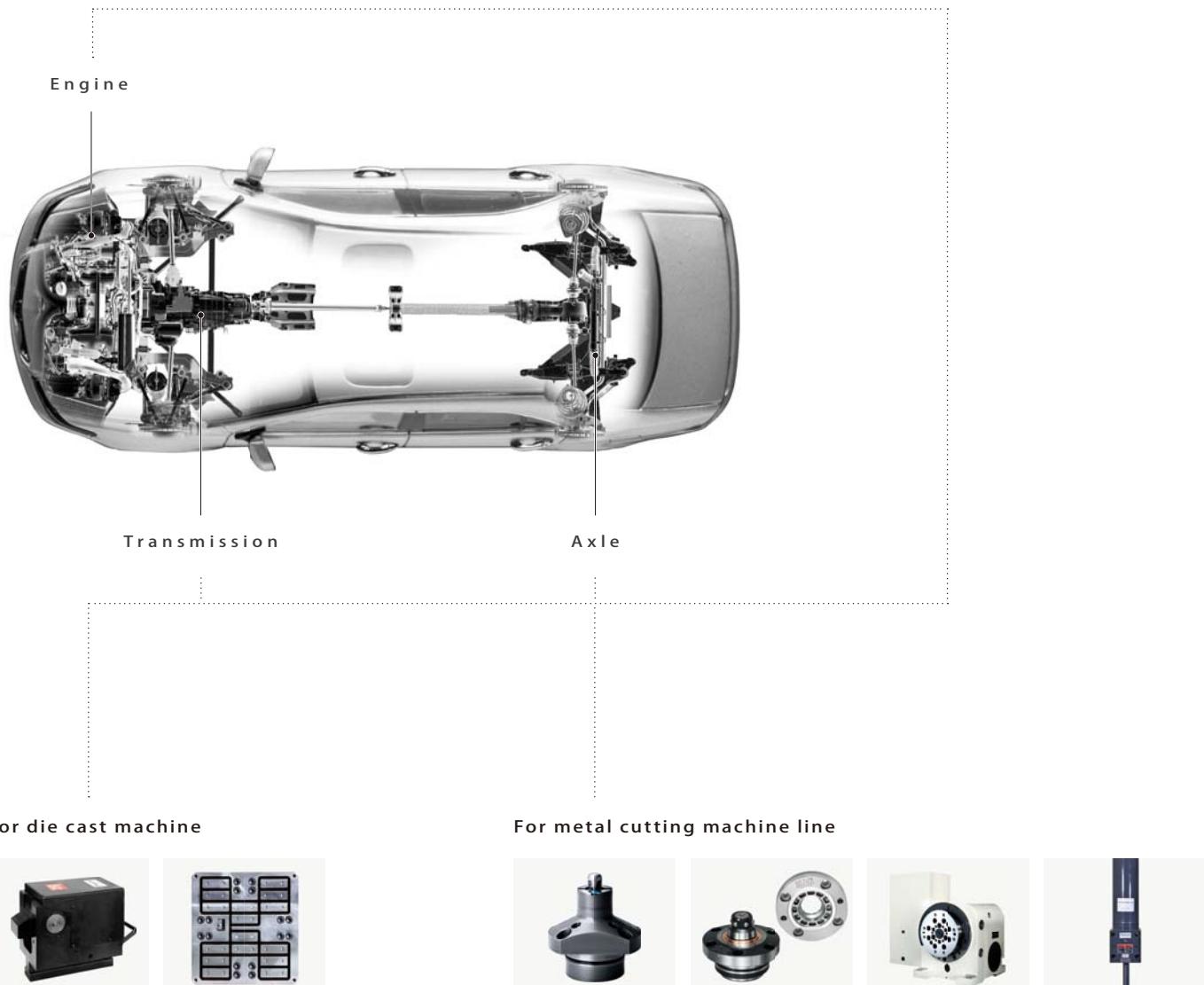
Press machine:  
Body, Roof, Door  
etc...

Molding machine:  
Bumper,  
Instrument panel  
etc...



N2 gas springs

automotive production lines in the world.



Die-clamping system

C-plate mag clamp

Work clamp

Pallet clamp

Index table

N2 gas balancer

# Pascal



CERTIFICATE OF APPROVAL ISO9001  
Pascal Corporation  
Head office, Oita plant, and Yamagata plant