Pascal

Press machine system





Clamping

Clamp the workpiece

Clamp the die

Clamp the tool

Changing

Change the workpiece

Change the die

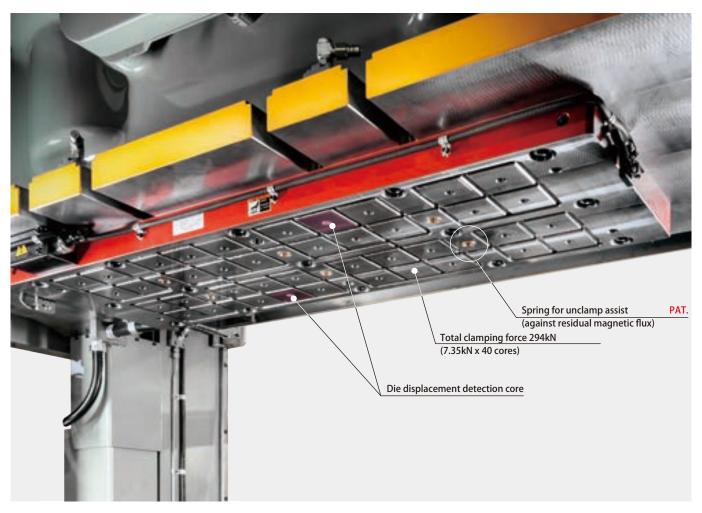
Change the tool

Control

Control them

Press mag clamp MGP

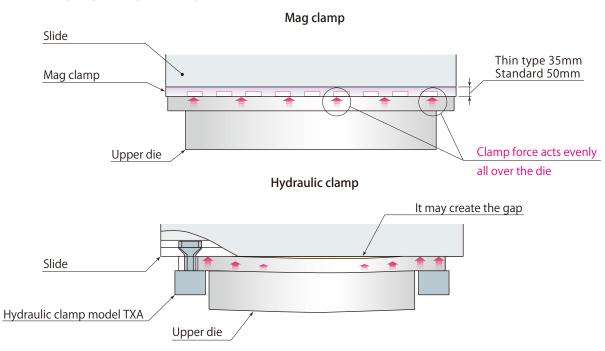
Clamping the center of the die helps to extend the dies lifetime



Practical example of 2,000kN High speed press

Clamping force can be evenly applied to all over the die plate

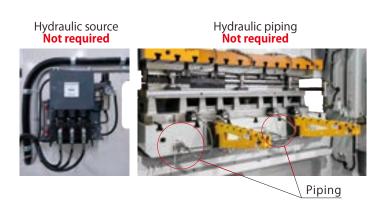
The die is stabley absorbed all over the face by the magnetic force and there is no force dispersion when clamping the die. It can restrain the gap between the machine and the die also enables the quality of the parts to improve.





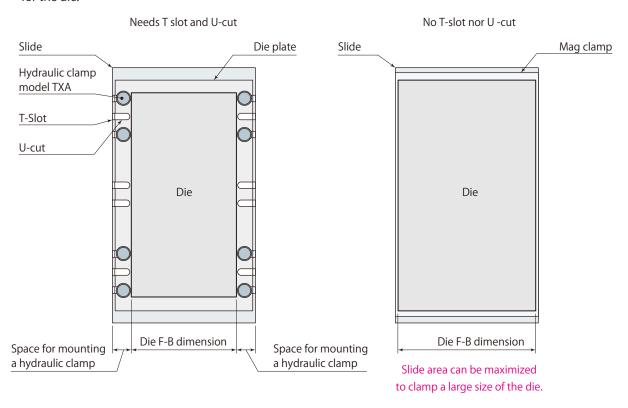
No hydraulic unit, no piping & Mainetance free

Mag clamp does not need hydraulic source also it has high durability since there is no driving mechanism. It can be used with maintenance-free.



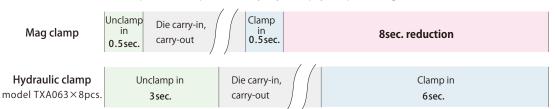
Suitable for the machine which cannot secure the space for a hydraulic clamp

The press mag clamp absorbes and fixes the mold by the magnetic force generated from the plate and there is no space required for mounting the clamp and therefore the slide or bolster surface can be used to the maximum. Also there is no need to standardize the mold size and no need for T-slots on the machine nor U-cuts for the die.



Clamp in 0.5 sec.

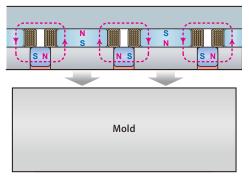
Clamp/Unclamp instantly by simply depressing the button



Clamp (Magnetized)

Neodymium magnet Alnico magnet Electromagnetic coil Magnet core Powerfully Super strong Polarity is inverted by Inverts the polarity permanent magnet electromagnetic coil of alnico magnet adheres mold Clamp plate Effective height of Mold magnetic flux:

Unclamp (Demagnetize)



- 1 Electromagnetic coil is energized for 0.5 sec.
- 2 Polarity of alnico magnet is inverted.

Lines of magnetic flux

- 3 Neodymium magnet and alnico magnet become homopolar.
- 4 Magnet core becomes strong magnet to adhere the mold.

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



2,000kN (200tonf) High velocity press machine Press mag clamp



Approx 20mm

800kN (80tonf) Press Press mag clamp



4,000kN (400tonf) Transfer press Press mag clamp & TXA

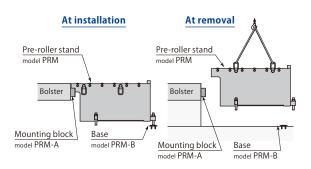
Pre-roller stand PAT.P

model PRM

With excellent rigidity better than existing Pre-roller and less displacement against the load, smoother and safer die change is achievable.



20,000kN(2,000tonf) press machine Die 8ton 4-rows model





6,000kN(600tonf) press machine 2-rows model

PRM1 Roller frames 2-rows model

Model		PRM1-1250	PRM1-1600	PRM1-2000	
Roller frame pitch	mm	600 ~ 1600	600 ∼ 1600	600 ∼ 1600	
Die travel mm		1250	1600	2000	
Overall length of pre-roller stand mm		1300	1650	2050	
Mass *1	kg	430	520	680	
Max. allowable load	kN(ton)	80 (8)	80 (8)	80 (8)	
Quantity of rollers		12	16	20	
Bolster height	Ister height mm 500~1300		500~1300	500~1300	

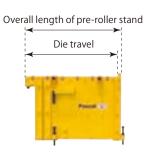
^{*1 :} Roller frame pitch for 1000mm. The mass of the bolster mounting block is not included.

PRM2 Roller frames 4-rows model

Model		PRM2-1250	PRM2-1600	PRM2-2000	
Roller frame pitch	mm	600 ~ 1600	600 ~ 1600	600 ~ 1600	
Die travel	mm	1250	1600	2000	
Overall length of pre-roller	stand mm	1300	1650	2050	
Mass *1	kg	640	770	940	
Max. allowable load	kN(ton)	80 (8)	80 (8)	80 (8)	
Quantity of rollers		24	32	40	
Bolster height	mm	500~1300	500~1300	500~1300	

*2: Roller frame pitch for 1000mm,1400mm,Bolster height 700mm. The mass of the bolster mounting block is not included.



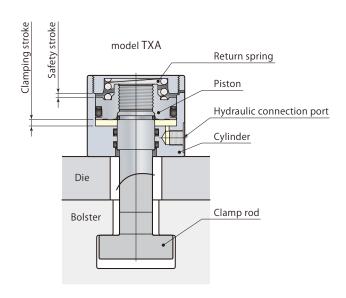


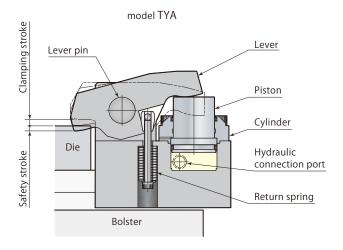


Stamping die clamping system



4,000kN(400tonf) Press Pascal clamp TXA & TYA







model TXA

Manual slide, piston type of clmap. It is suitable for the die with a U-cut.







model **TYA**

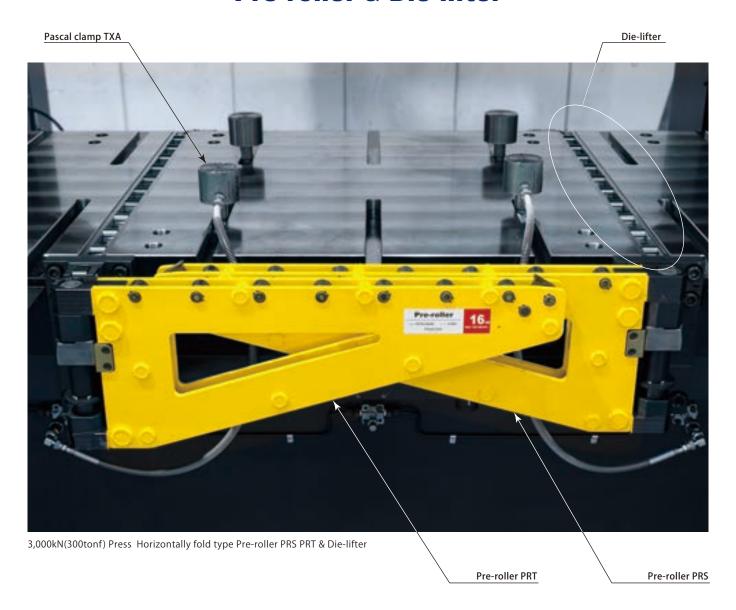
Manual slide type of clamp with lever. It is suitable for the die without U-cut.



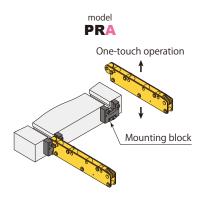
with air cylinder.

(TYA+Automatic slidable function)

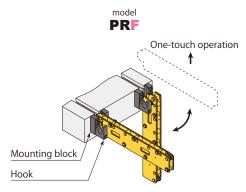
Pre-roller & Die-lifter



Pre-roller model PR (Extension arm rollers)



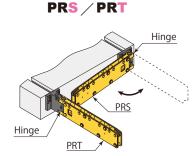
Removable & fold type



Horizontally fold type

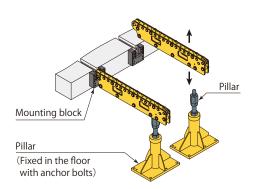
model

model



Heavy load type

model PRC



Die-lifter model DLF



With DLF series, heavy dies are lifted by hydraulic force. The rollers enable operator to move the die easily and smoothly.

Die-roller model DRA



A spring lifting roller that does not need hydraulic source. The compact design allows an easy installation just to slot it in the machine T-slots.



Pascal traveling clamp

A die clamping system which has changed considerably the stamping style in the world.



30,000kN(3,000tonf) Transfer press Traveling clamp

Pascal traveling clamp model TRA



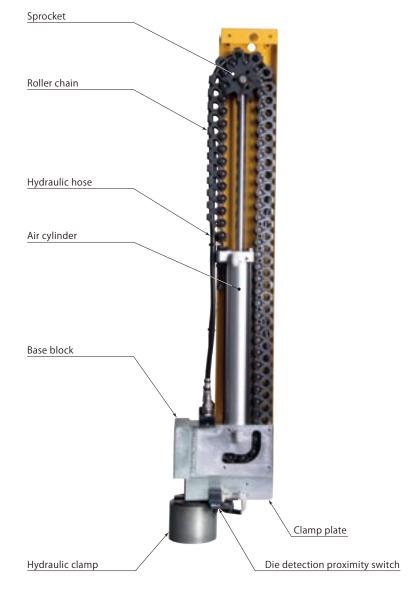
34,000kN(3,400tonf) Transfer press



23,000kN(2,300tonf) Transfer press



6,000kN(600tonf) Transfer press



Pascal pump X63

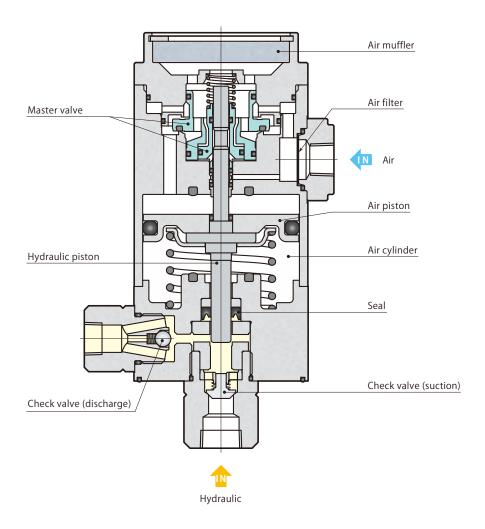
New series of Pascal pump model X63 which pursues more reliability.



Air-driven, Compact, High performance hydraulic pump

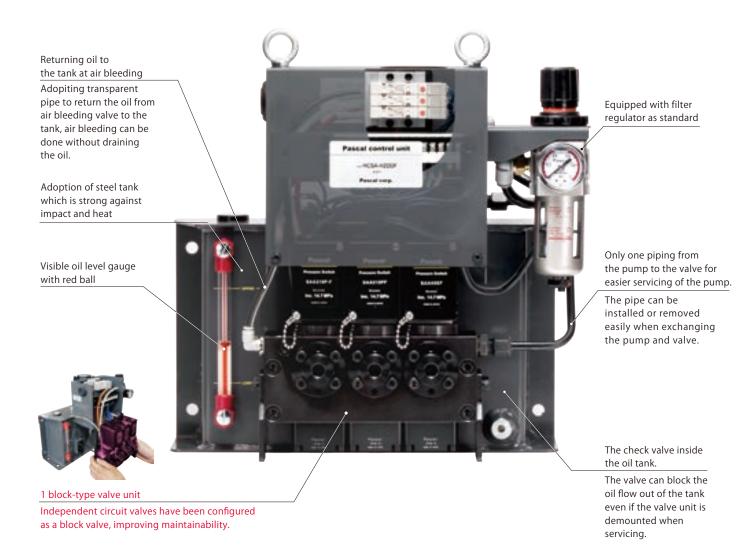
High cycle, reliable reciprocation of air and hydraulic piston ensures a repetitive suction and discharge oil process. As discharge pressure hikes up to the circuit set pressure, reciprocation goes slow eventually. Pascal pump stops at the time the discharge pressure reaches the set pressure then keeps balancing air and oil discharge pressure. At the balanced condition, Pascal pump never consumes air and there is no power loss or oil temperature rise unlike an ordinary electric motor pump.

In the event of pressure drop (oil leakage) in the circuit, the pump immediately reacts to start pumping for recovering the pressure loss. When leaking oil, the pump restarts pumping and the sound of pumping is like an alarm for leakage to call operator for servicing.

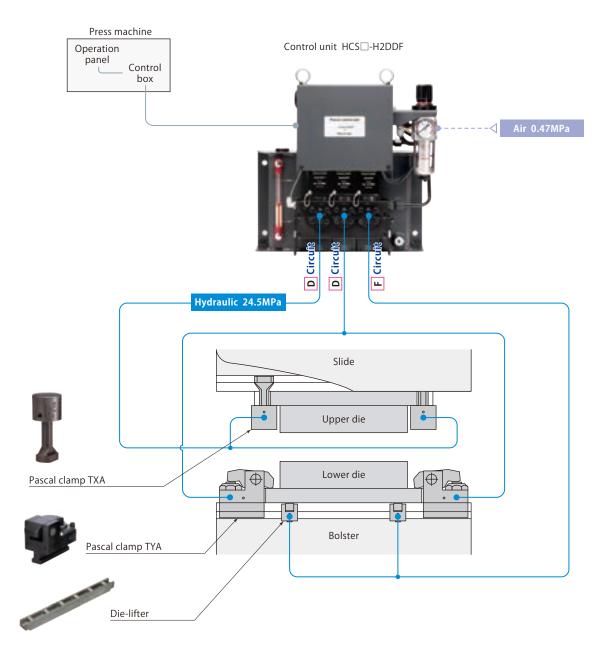


Pascal control unit HCS

A new, easy-to-maintain hydraulic control unit



Example of hydraulic circuit DDDF Circuits (Solenoid operated)

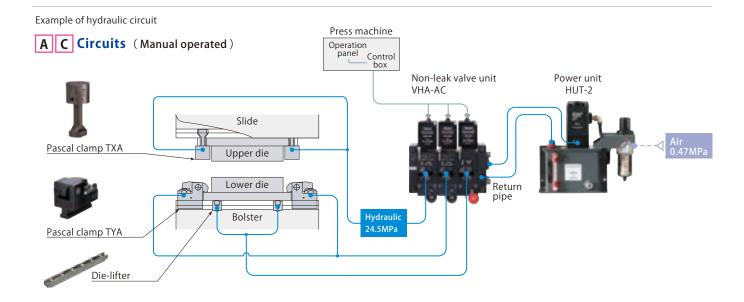


Manual operated

Pascal control system

Power unit HUT & Non-leak valve unit VHA



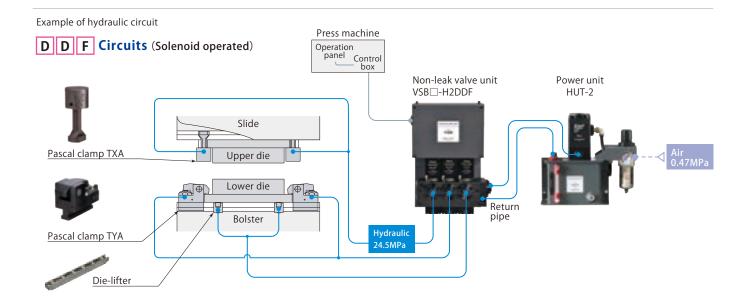






Power unit **HUT** & Non-leak valve unit **VSB**

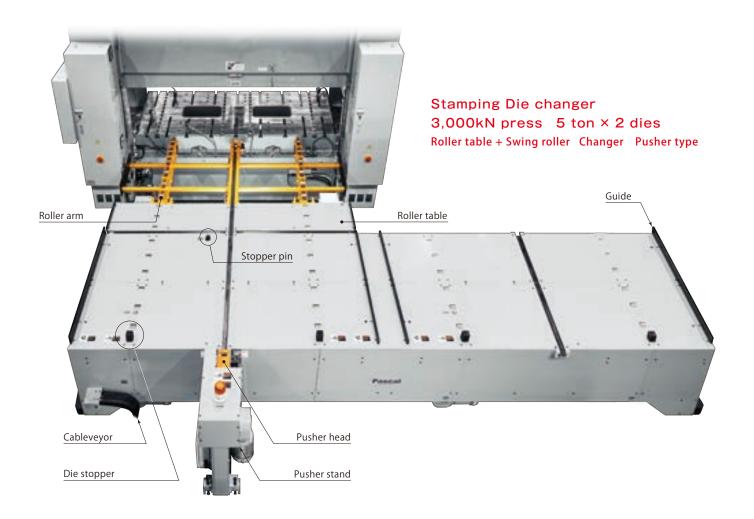






For space and cost saving

The Proposal instead of moving bolster



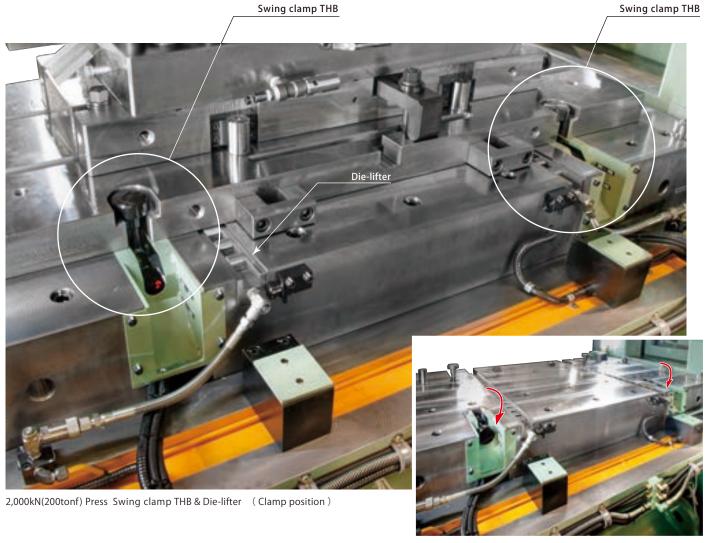


Die stage 6,300kN press 10 ton × 1 dies Die stage+Swing roller Pusher type



Swing clamp THB

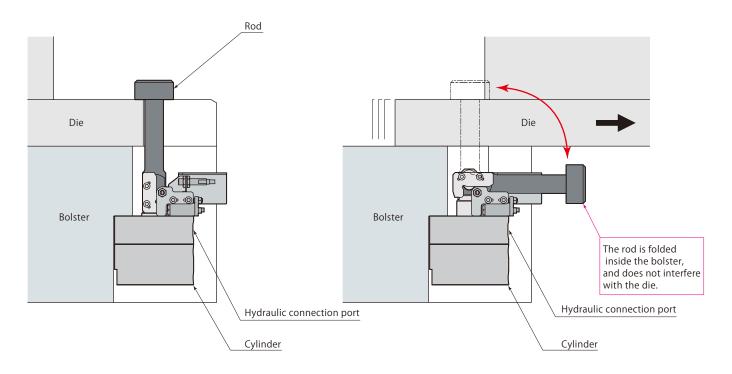
A specially designed swing clamp that is suitable for the application with a die changer



(Unclamp position)

Clamp position

Unclamp position (at Die changing)

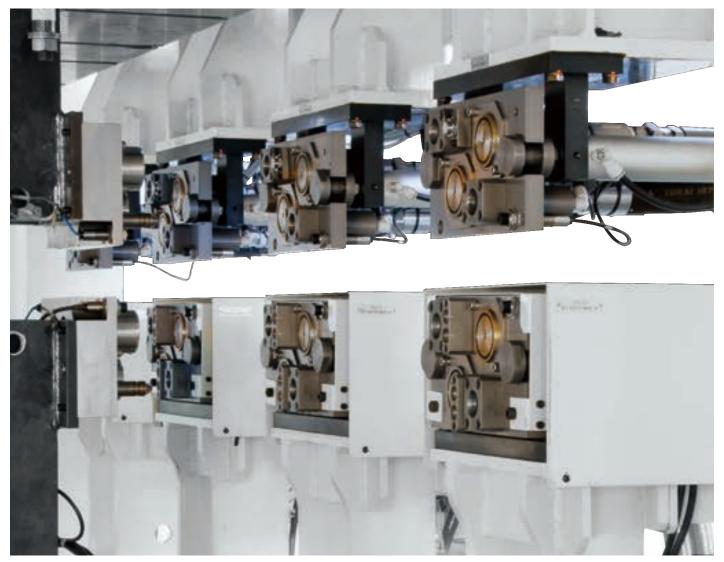


Pascal coupling system

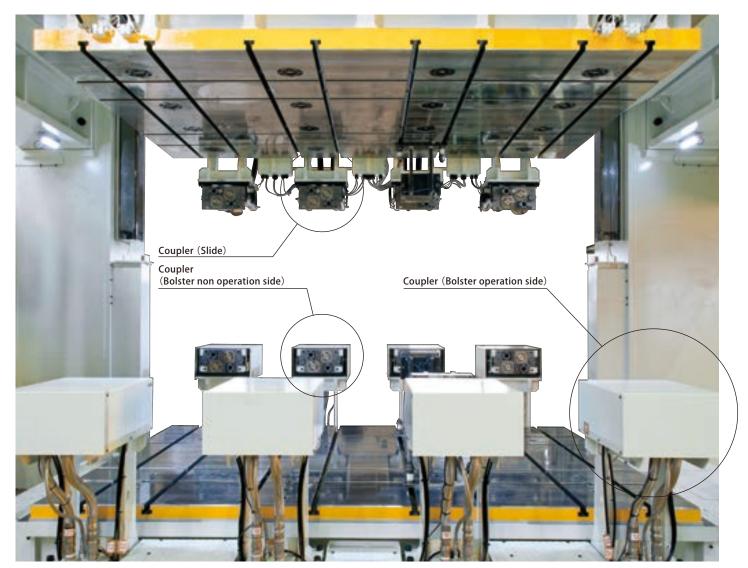
Pacal coupling system for the hot press and hydroforming press

 Fluid
 Hydraulic, Water, Air / Connector

 Piping size
 3/8" 1/2" 3/4" 1" 1 1/4" 1 1/2" 2"

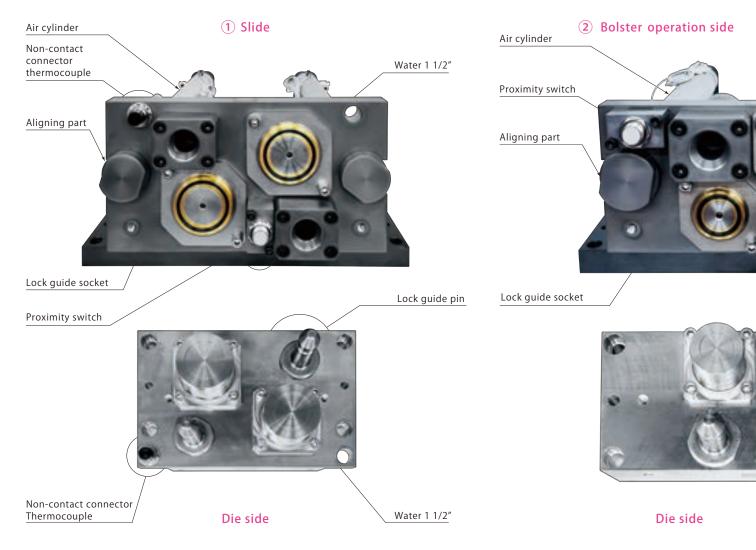


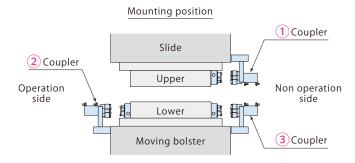
12,000kN(1,200tonf) Hot press Coupling System

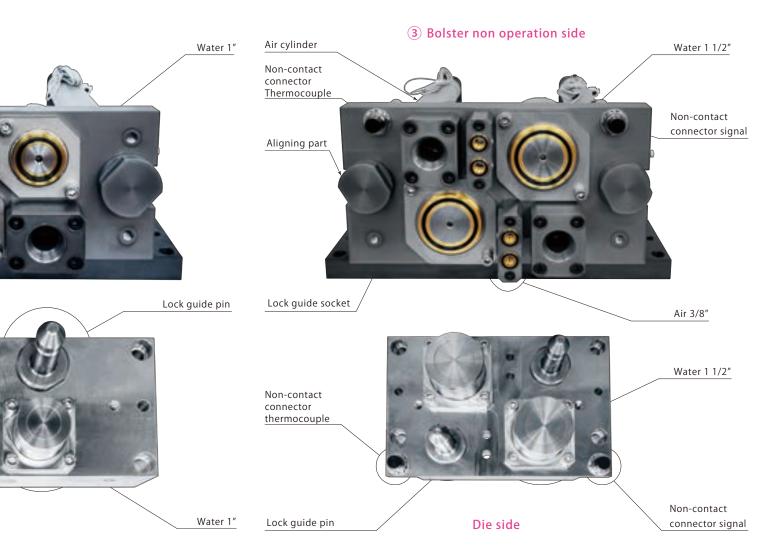


12,000kN(1,200tonf) Hot press Coupling System

12,000kN(1,200tonf) Hot press coupling system example





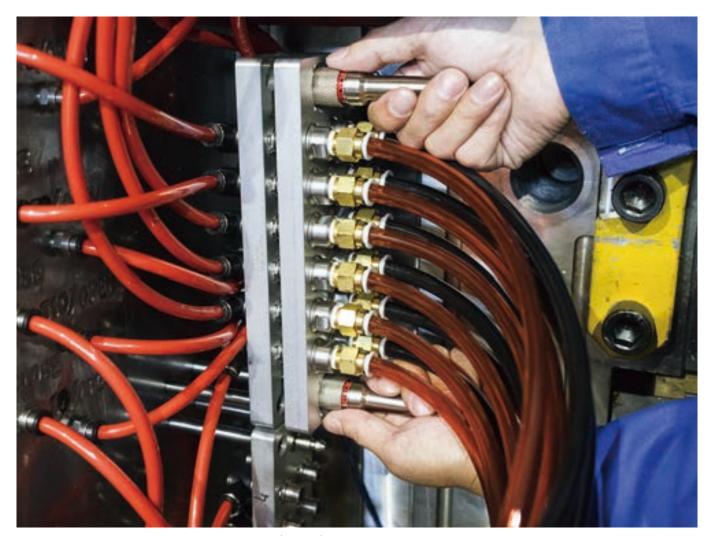




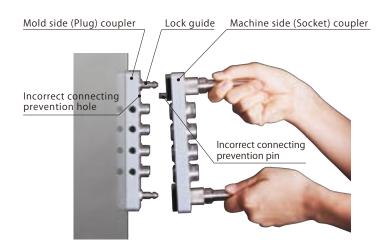
Multi coupler

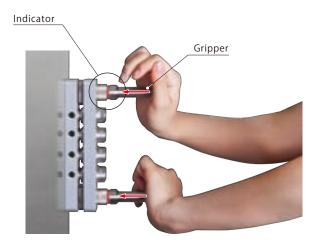
Multiple couplers are connectable easily and securely by pushing the gripper slightly.

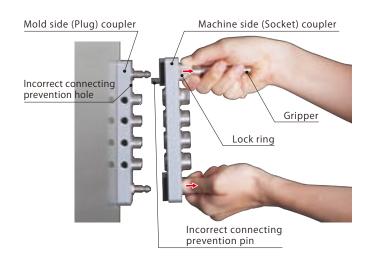
It prevents misplace of couplers and can shorten the coupling time.

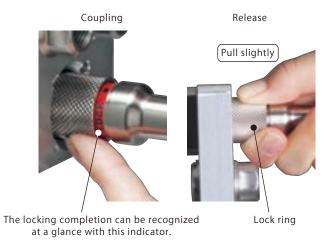


18,000kN (1800ton) IMM Multi coupler Open model



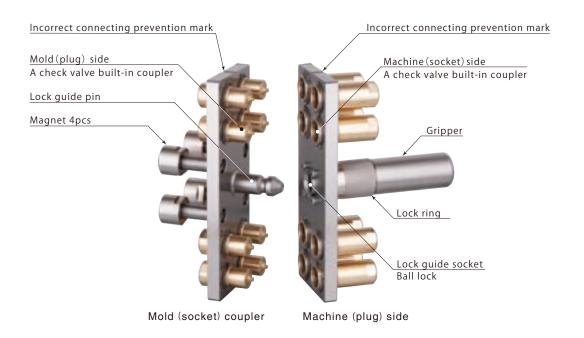






Check valve model

A manual coupler which check valve is operable by a pilot pressure.



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



8,500kN(850ton) IMM

Open (Check valve-less) model

An open type of coupler has no check valve, and the pressure loss is small. Malfunction caused by foreign substances besing caught into the coupler does not occur.

Double row type Single row type Lock guide socket Lock guide pin Lock guide pin Lock guide socket Incorrect Incorrect Incorrect connecting Incorrect connecting connecting connecting prevention pin prevention pin prevention hole prevention hole Open type coupler Open type coupler Open type coupler Open type coupler (socket side) (plug side) (socketside) (plug side) Gripper Gripper Mold side (plug) coupler Machine (socket) side Mold (plug) side Machine (socket) side

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





Mold side

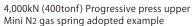
6,000kN(600ton) IMM

mini N2 gas springs

Compact and durable N2 mini gas spring









Mini N2 gas spring



4,000kN (400tonf) Progressive press lower Mini N2 gas spring adopted example

New proposal of N2 gas spring in place of coil springs

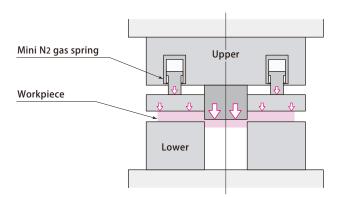
Pascal N2 gas spring contains a stronger force rather than an ordinary coil spring and exhibits excellent characteristics and durability on the application that requires a large load and stroke.

	Initial deflection	Initial force	Stroke	Durability	Maintenance	Space-saving
Gas springs	○(Not required)	0	0	0	○ (Easy)	\circ
Coil springs	× (Required)	×	×	×	\times (It takes effort)	×

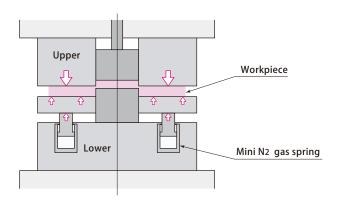


Load comparison between model DSD and coil spring 40.0 Coil springs 10units 35.0 30.0 Loading (kN) 25.0 20.0 Mini N₂ gas spring Coil springs DSD38-20 1unit 15.0 Initial deflection 10.0 5.0 Coil spring 1unit 10 12 16 18 20 22 24 26 28 30 Stroke (mm)

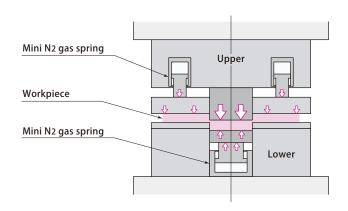
Mini N2 gas spring in the upper die



Mini N2 gas spring in the lower die



Mini N2 gas spring in the upper and lower die



Model		DSD			DSA					DSC		
Cylinder diame	ter mm	ø32	ø38	ø50	ø19	ø25	ø32	ø38	ø50	ø32	ø38	ø50
Initial force	kN	6.6	10.3	20.2	1.06	2.38	5.34	7.98	16.9	3.82	7.98	14.8
Stroke	mm	10 ~ 80		10 ~ 50					10 ~ 50			

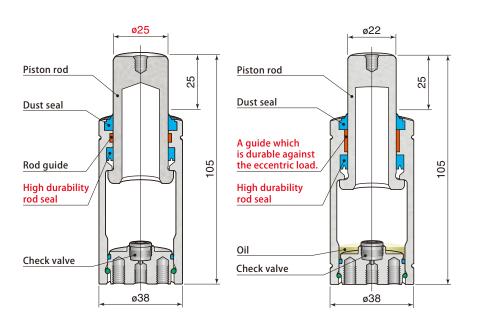
model DSA model DSD model DSC Large diameter rod High durability against side-load **Compact body**

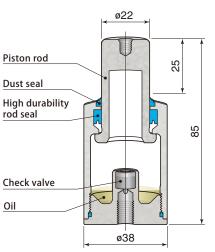
High initial force Rod seal, sleeve-less construction

Rod seal, sleeve-less construction

Rod seal, sleeve-less construction

*Model DSC is weaker against the side-load compared with model DSA due to the guide-less structure.





model DSD38-25

model DSA38-25

model DSC38-25

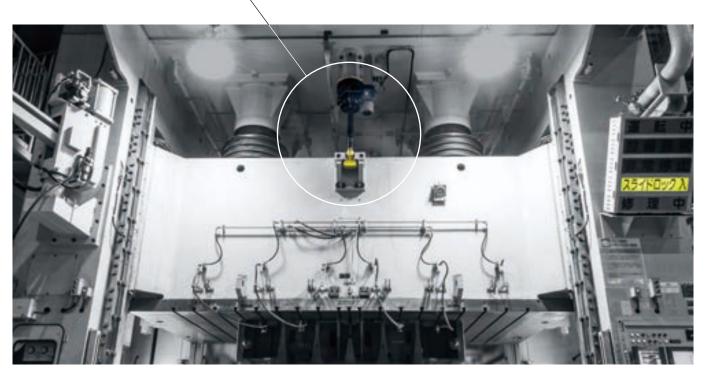
Initial force	10.3 kN (1051 kgf)	7.98 kN (814 kgf)	7.98 kN (814 kgf)
Max.	0.52/100 mm	0.52/100 mm	_
side-load	(Allowable eccentric angle 0.3°)	(Allowable eccentric angle 0.3°)	

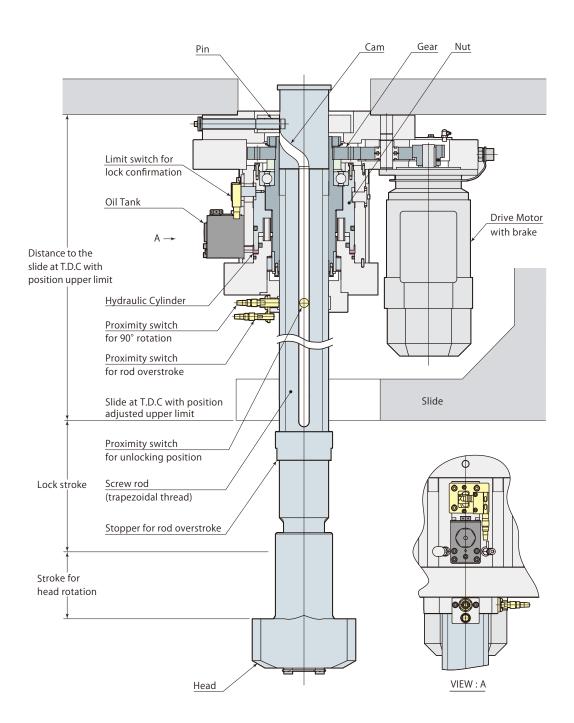
Slide lock PAT.

The electric slide-fall protection system which eliminates the risk of physical injury accident or damages on the dies.



Slide lock





Coil rotator

Roller gear driven type model SMR-V (With V block)

Model SMR rotates the table with high rigidity roller gear and large sized sprocket, which enables excellent in durability and safety by introducing roller gear driven type (PAT.).

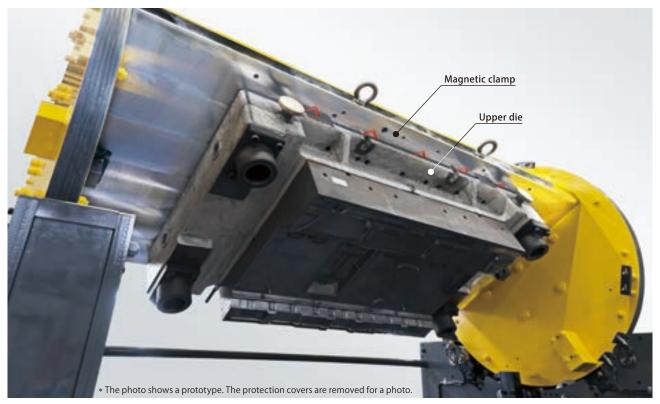


		Roller gear driven (electric motor) type SMR-V
Max. rotation weight	ton	3, 5, 10, 15

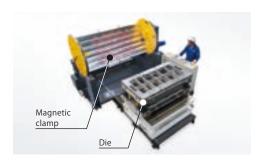
180° die rotator for upper die

model **SMP** PAT. P

To avoid fatal accidents caused by a damage or removal of sling wire.



180° die rotator for upper die



robot tool changer

Max payload 5 10 20 40 80 160 230 kg

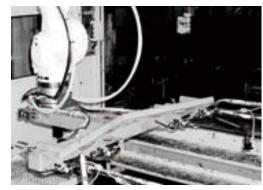


model RHA / RHB





In the welding line



For sheetmetal stamping

DOMESTIC LOCATIONS



JAPAN

Head office / R & D center

● Itami, Hyogo

Plant

- Oita
- Yamagata

Sales office

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

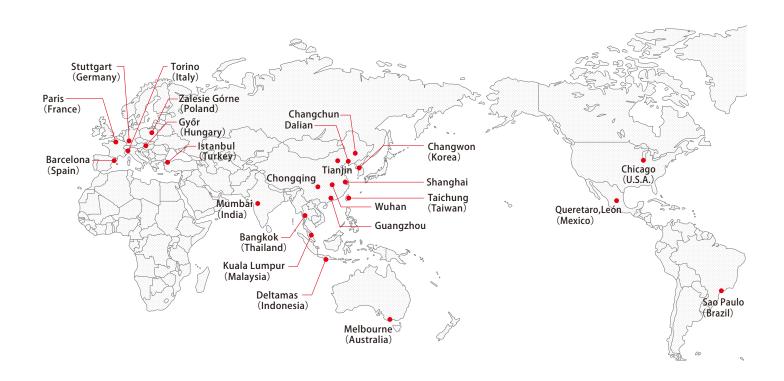






Yamagata plant

GLOBAL NETWORK



ASIA

- Dalian [China]
- Shanghai [China]
- Changchun [China]
- Tianjin [China]
- Wuhan [China]
- Chongging [China]
- Guangzhou [China]
- Taichung [Taiwan]

AMERICA

- Chicago [U.S.A.]
- Sao Paulo [Brazil]
- (●) Queretaro, Leon [Mexico]

EUROPE

- Stuttgart [Germany]
- () Paris [France]
- () Torino [Italy]
- Barcelona [Spain]
- Olstanbul [Turkey]
- ♦ Zalesie Górne [Poland]
- 🔵 🔷 Győr [Hungary]
 - Plant
- Subsidiary
- Sales office

- Liaison office
- Agent
- Sales representative



○ Mumbai [India]

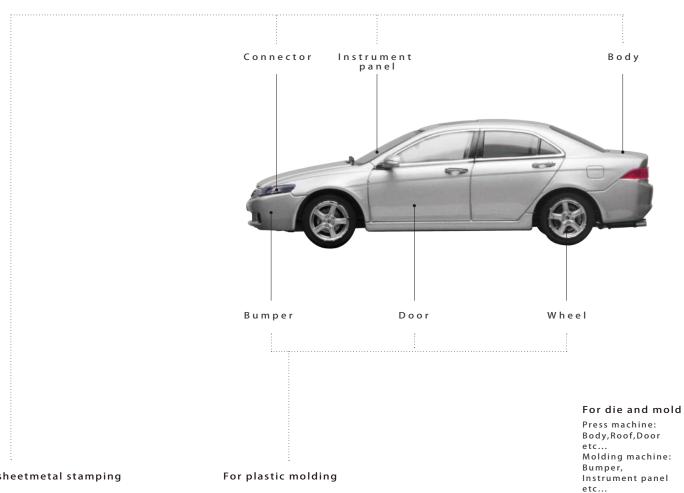
Bangkok [Thailand]

Changwon [Korea]

Deltamas [Indonesia]

Kuala Lumpur [Malaysia]

Pascal products are supporting



For sheetmetal stamping



Traveling clamp



Stamping die clamp



Mag clamp



Mold die clamping system



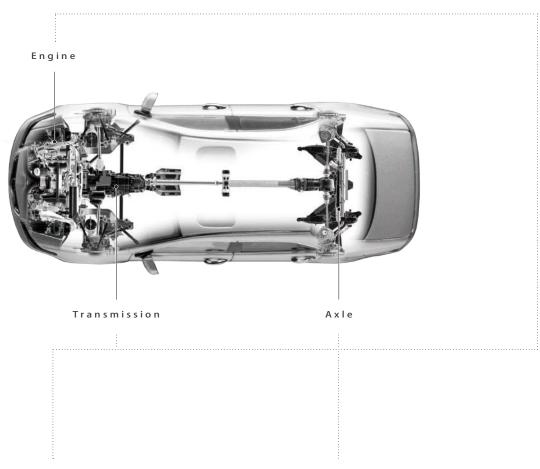
Auto coupler

Molding machine: Instrument panel



N2 gas springs

automotive production lines in the world.



For die cast machine



Die-clamping system



C-plate mag clamp

For metal cutting machine line







Pallet clamp



Index table



N2 gas balancer

Pascal



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