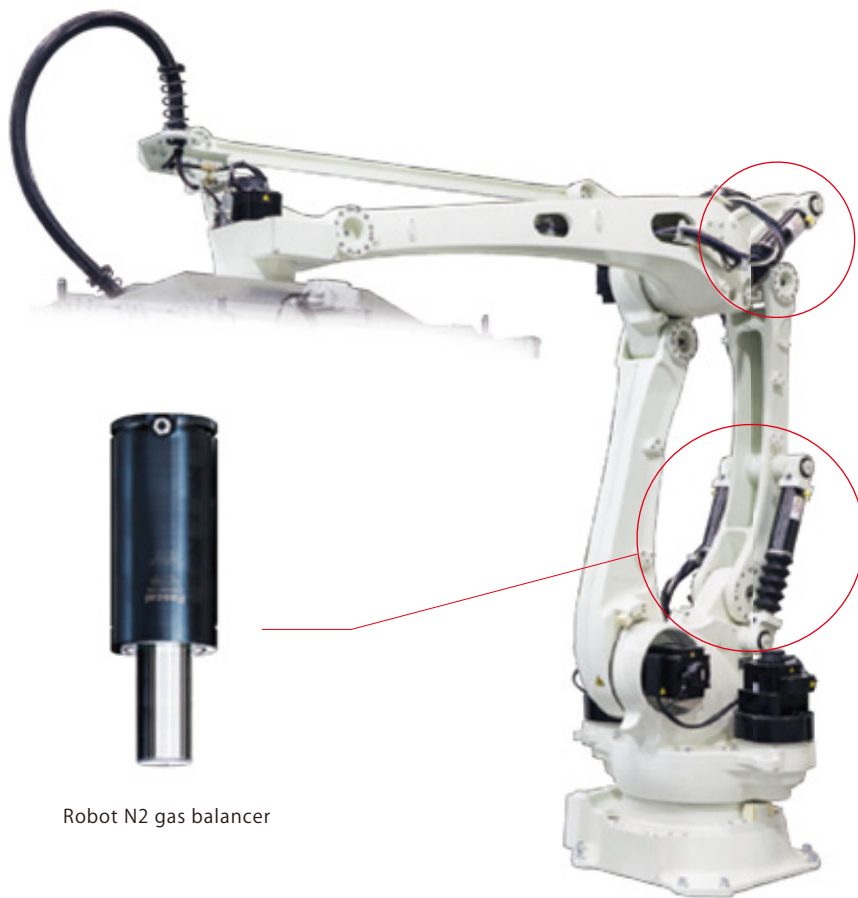


Pascal

Robot machine system

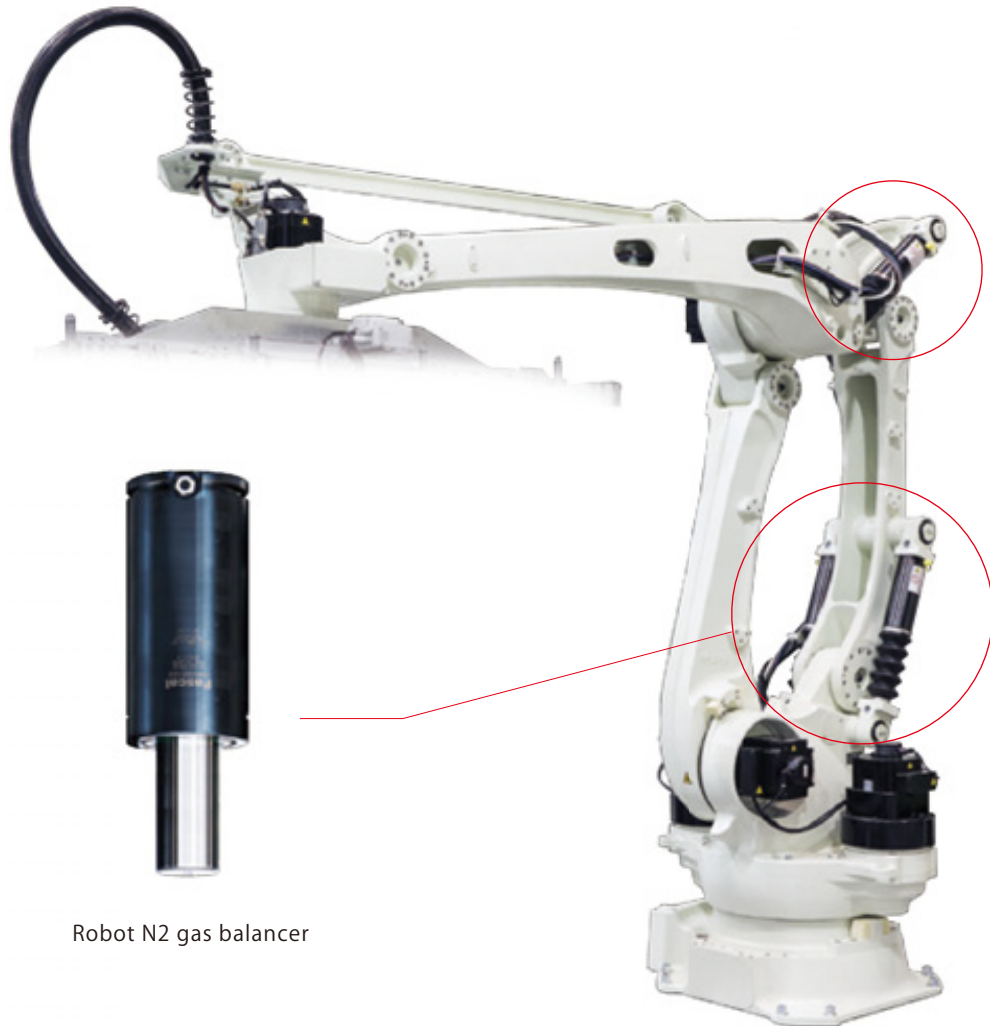


Robot N2 gas balancer

Realization of considerably lightweight and compact robot

The introduction of Gas balancer allows the downsize the robot and design a free stroke length and capacity.
The gas balancer with low spring constant reduces the burden on machine.

Weight reduction, High speed, Downsizing of robot

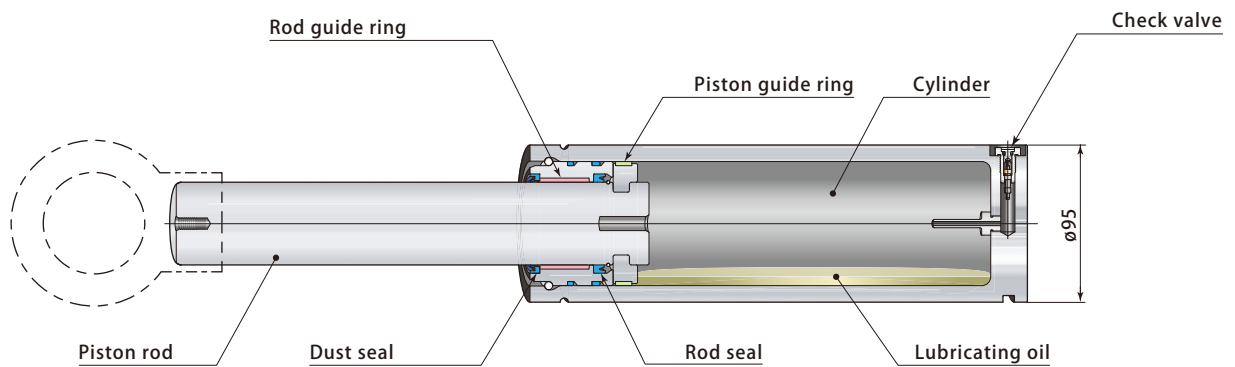


Robot N₂ gas balancer

Model		DNA3000-200
Max. charging pressure	MPa	15
Operating temperature	°C	0 ~ 70
Compressibility		1.62
Mass	kg	12.6

Robot N₂ gas balancer

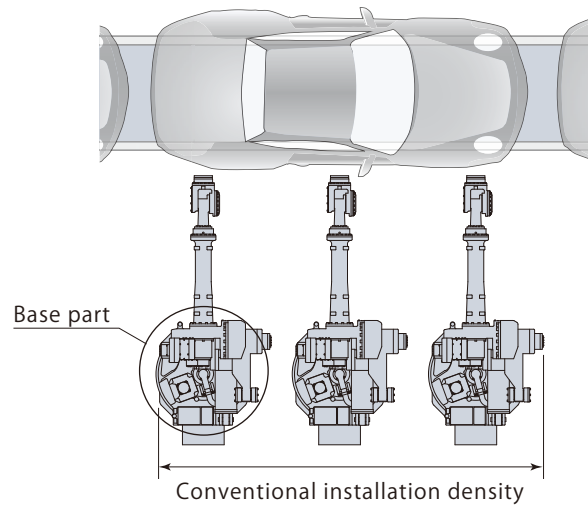
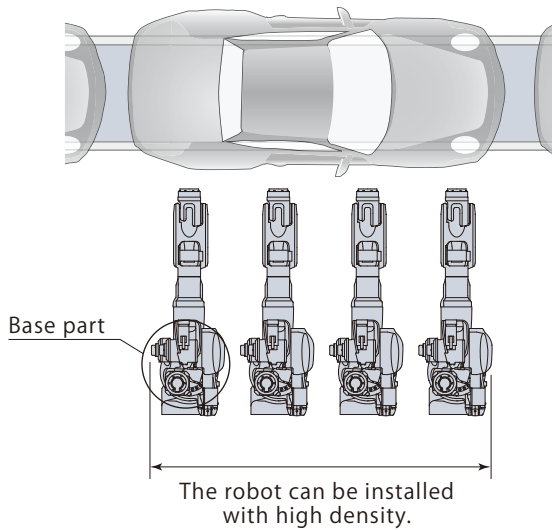
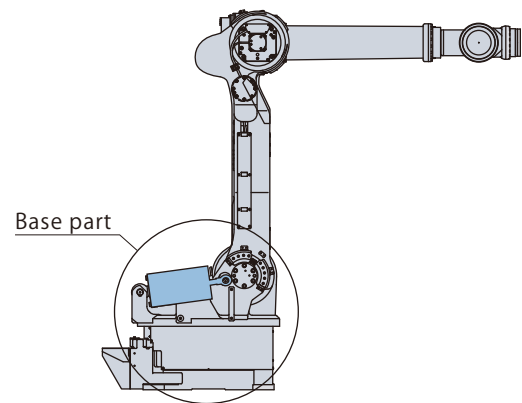
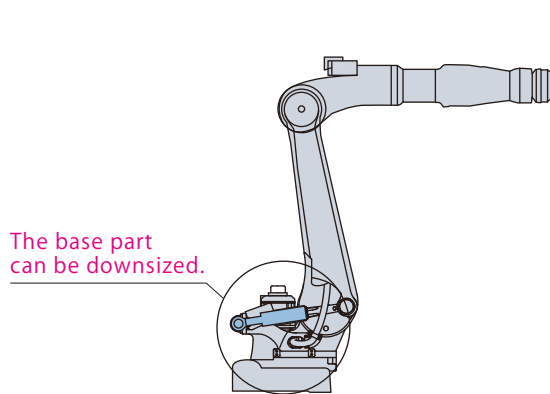
Structure



Gas balancer vs Coil spring

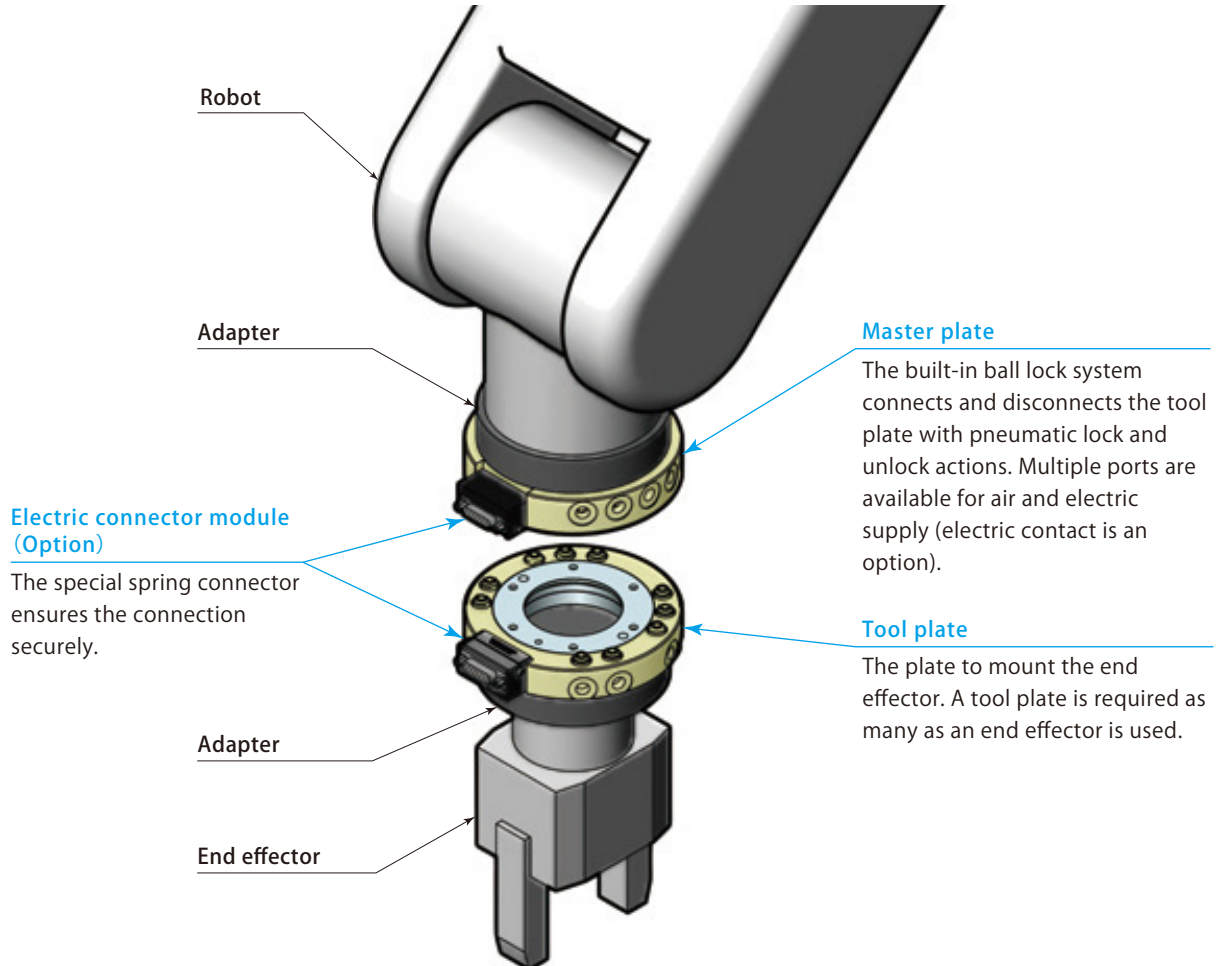
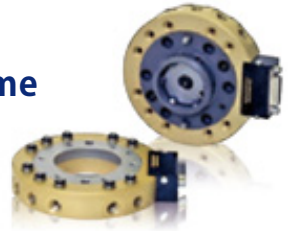
Robot gas balancer

Coil spring



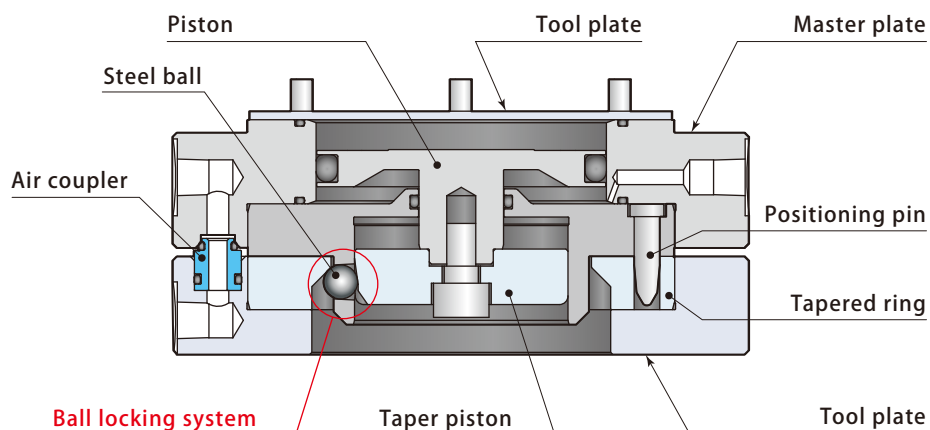
Multifunctionality of robot and shortening the set-up time

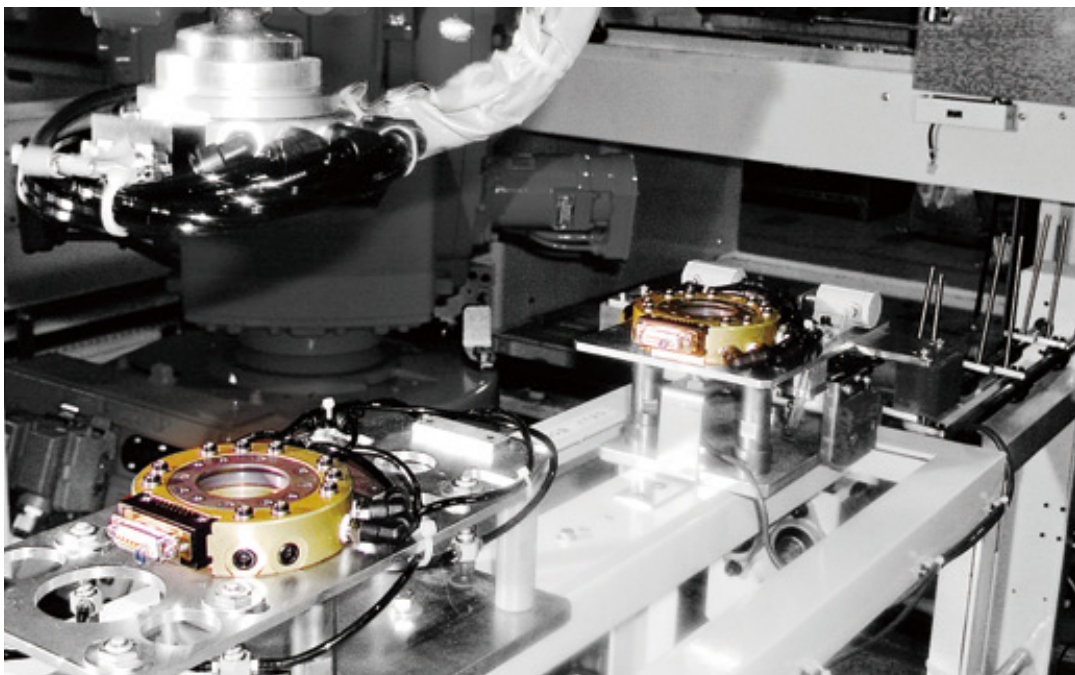
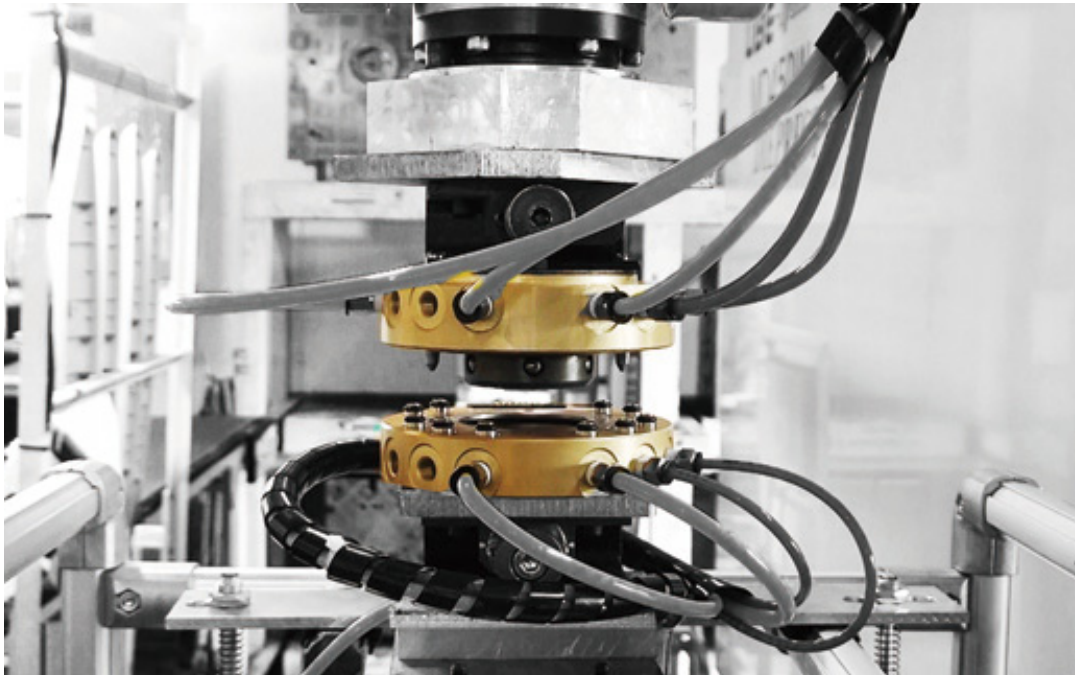
Robot tool changer is designed for an automatic change of end effectors for robot. It enables the robot to be multi-function also to shorten the set-up time, which can support high-mix, low-volume production.



Applicable payload 5 10 20 40 60 100 150 200 kg

8 models are developed as a series



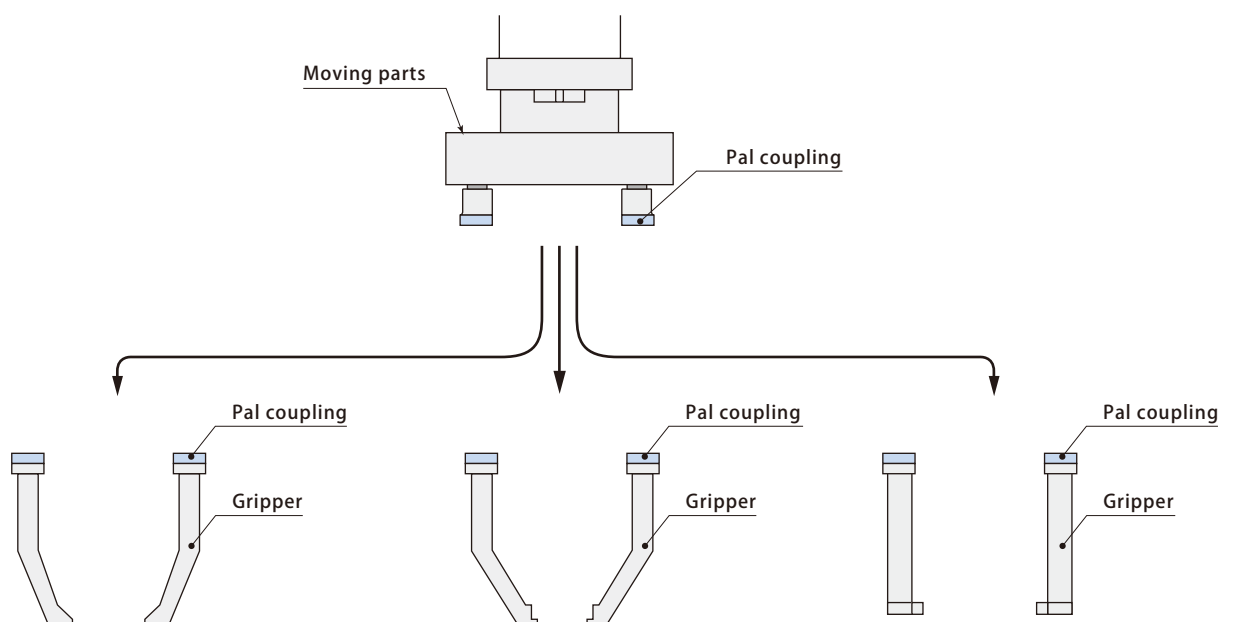


Pal coupling for change of grippers

Single clamp can provide highly accurate centering and high rigid clamping by engaging the octagonal taper cone to restrain X, Y and θ axes as well as the seating surface to restrain Z axis.

Repeatability $3\mu\text{m}$

Space saving for storage shelf

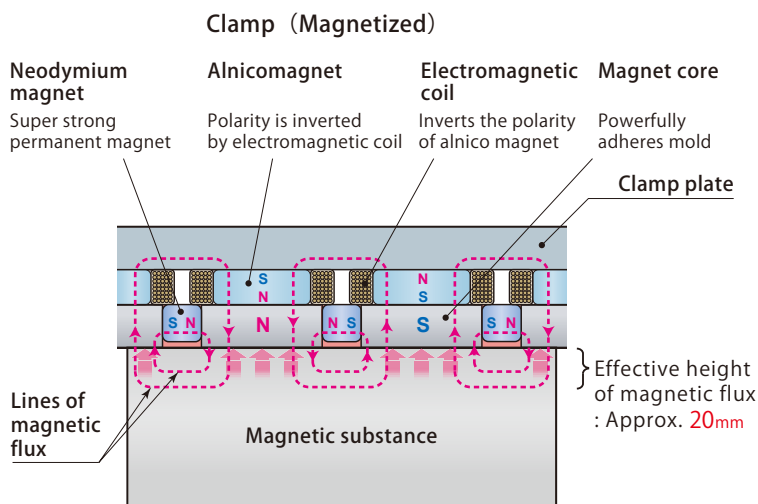
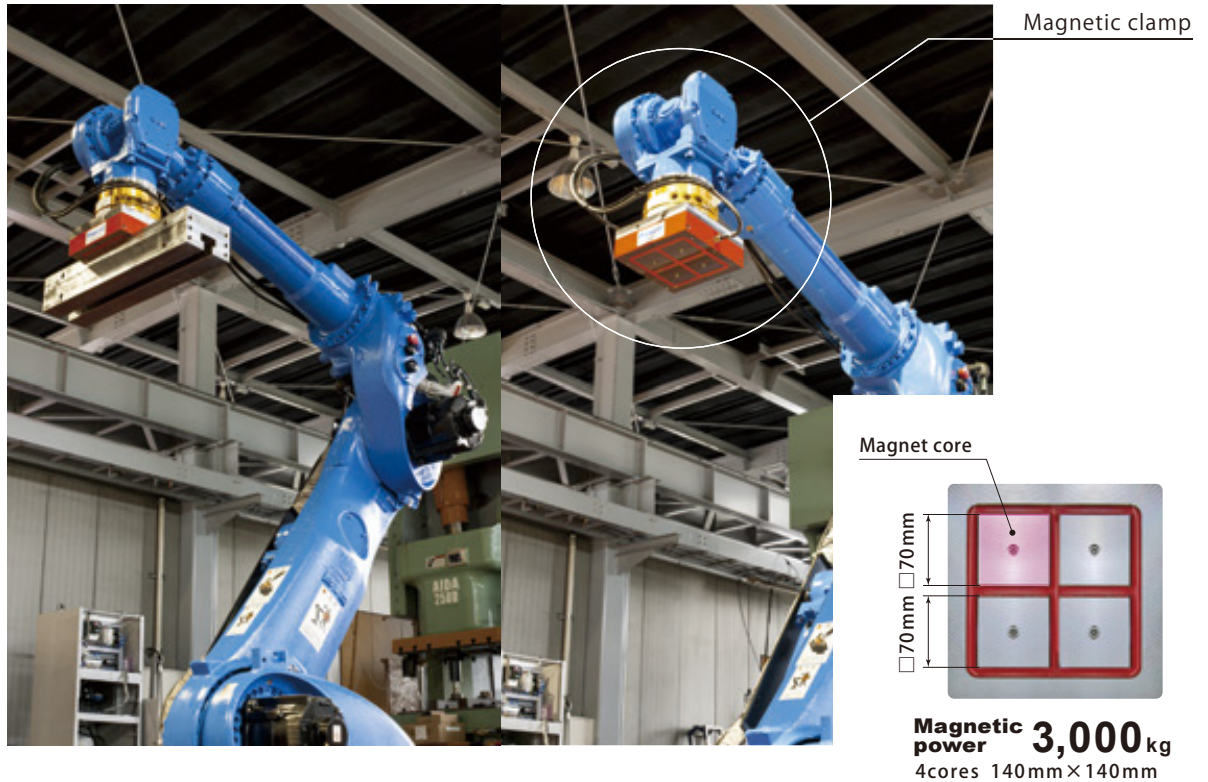


Magnetic gripper for loading / unloading various workpieces

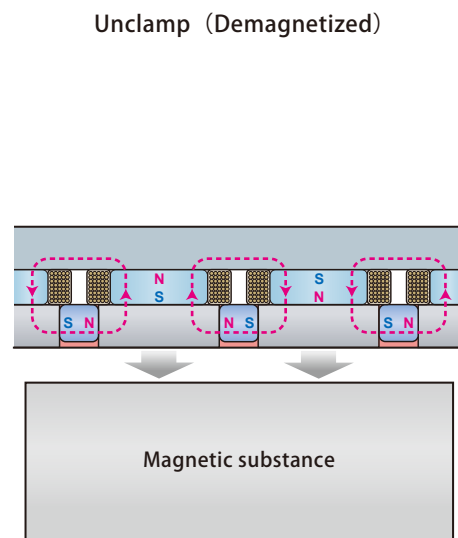
Clamp instantly with super strong permanent magnet. Energization required only when switching on and off.
The electric power is not consumed during clamping.

Keep magnetizing even in power outage

Energization required only when ON and OFF



- 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 turns out to be a strong magnet to clamp the object.



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

Expansion clamp for workpiece transfer unit

The gripper to grasp the workpiece is no longer required, which can realize lightweight and downsized workpiece transfer unit resulting in selection of one size smaller robot.

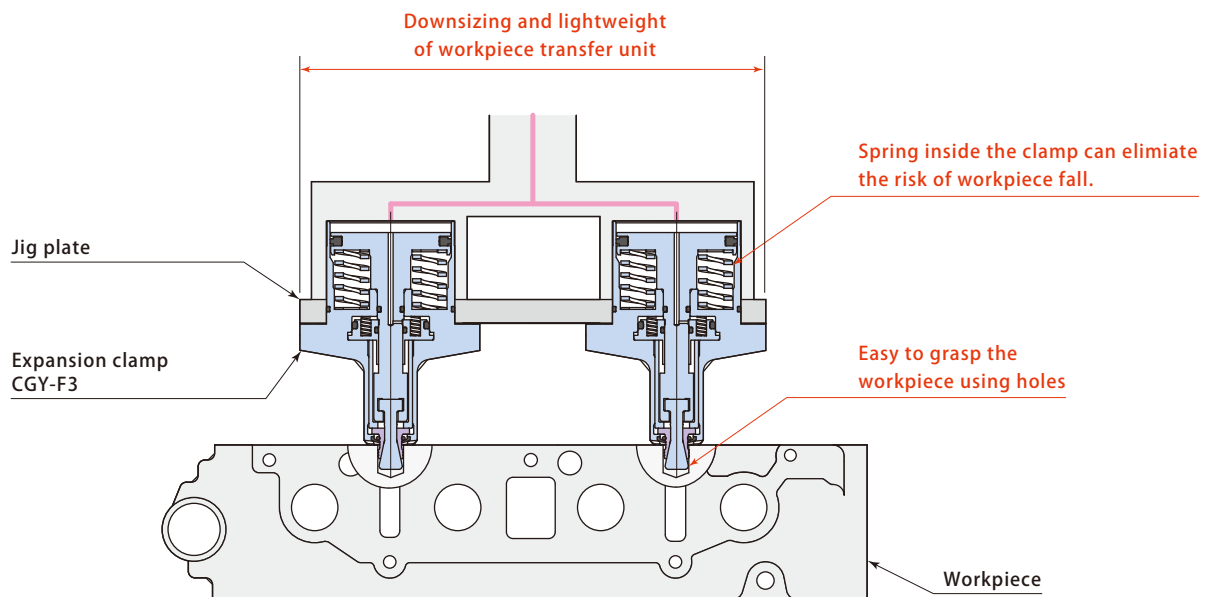
Downsize & weight reduction of workpiece transfer unit



Expansion clamp
CGY-F3

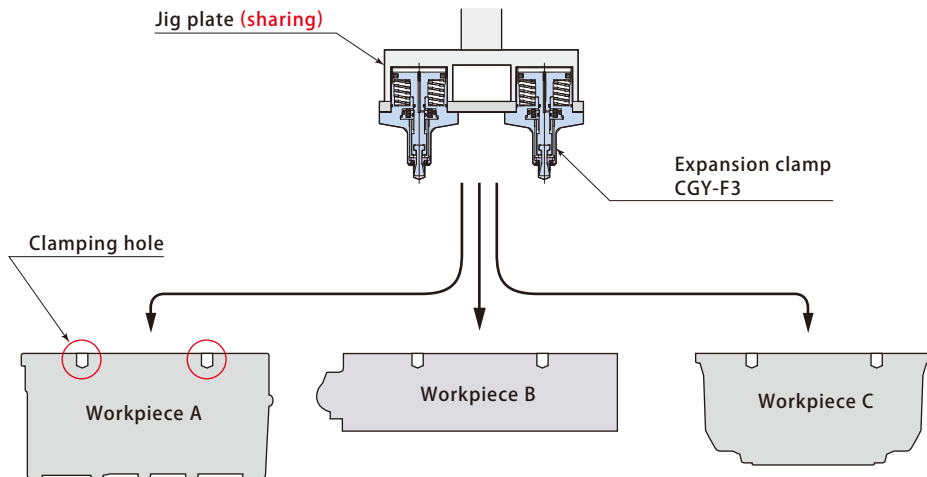
(Spring clamp / Air unclamp)

Clamping force 0.75 kN Mass 0.97kg

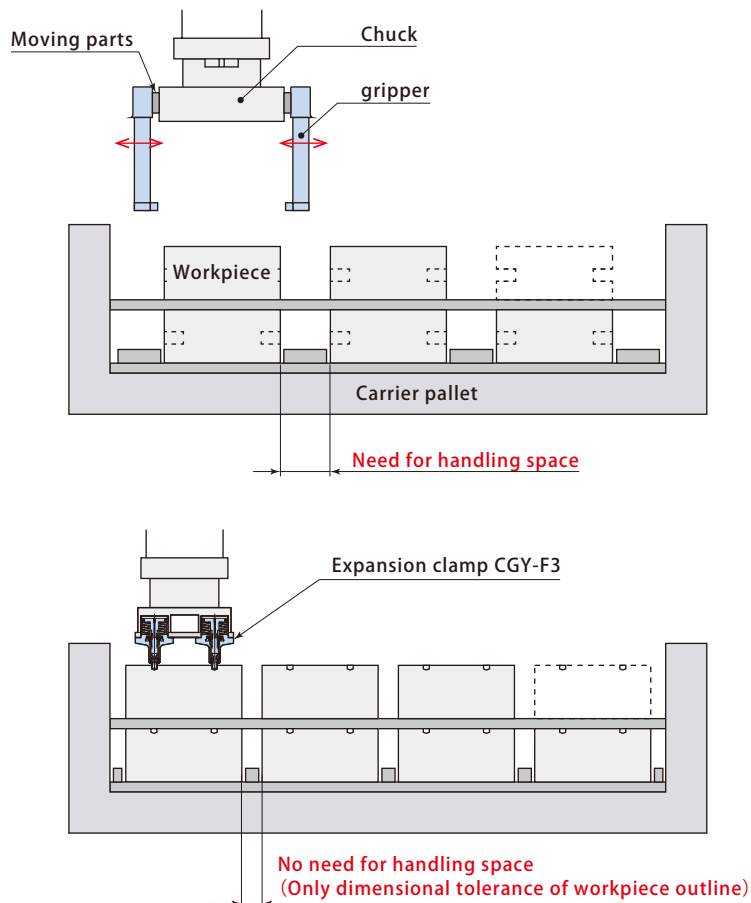


Expansion clamp

As workpiece is grasped using the holes, by means of unifying the diameter and position of the holes on workpiece, a common jig plate can be used for various shape and size of the workpiece (No need to prepare multiple jig plate).



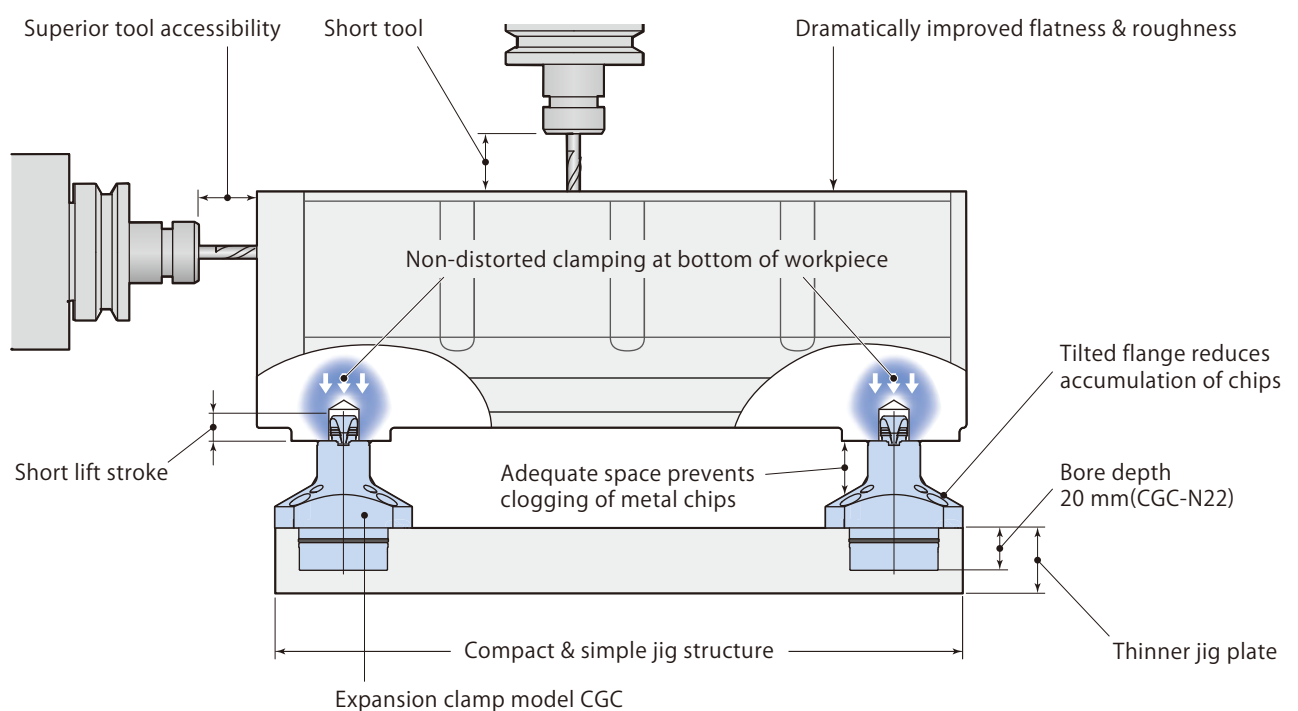
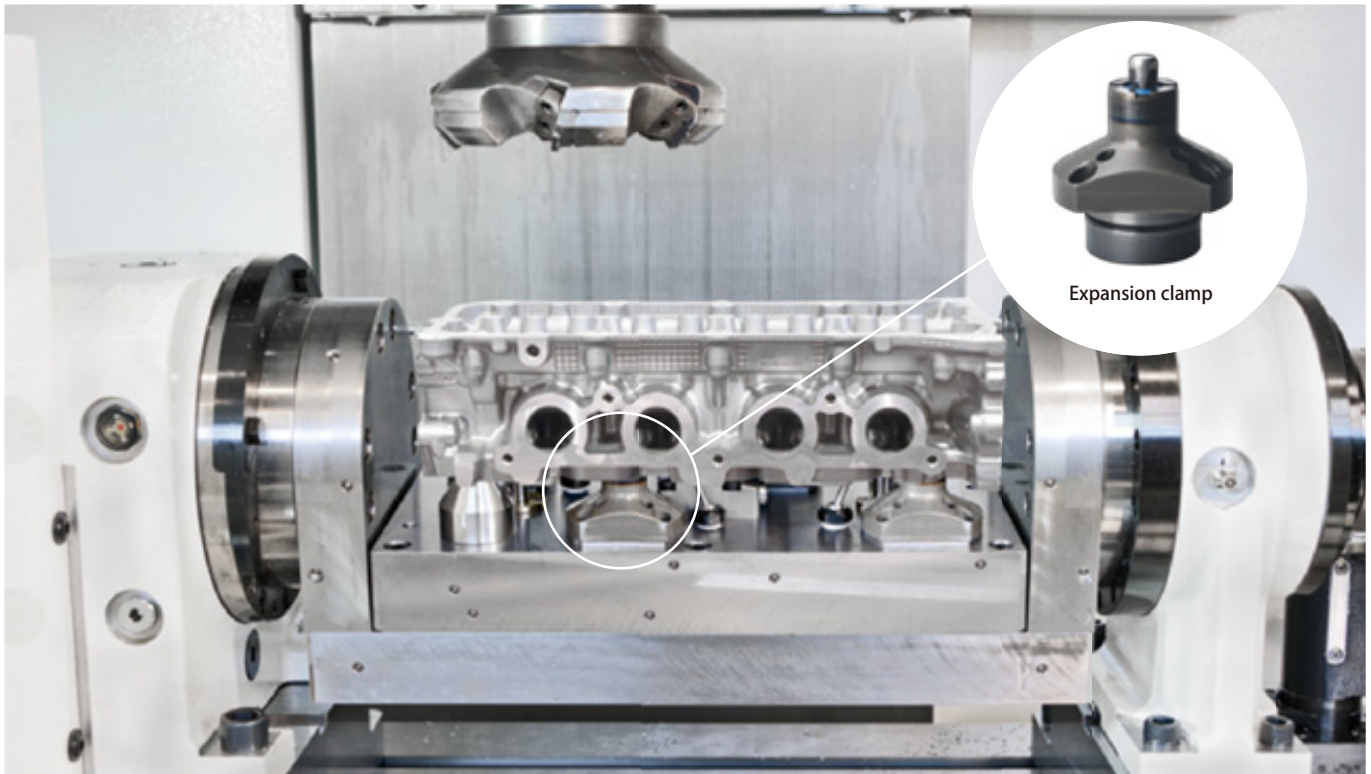
The expansion clamp which clamps upper surface of the workpiece has no need for handling space of gripper to grasp the workpiece, therefore the space for carrier pallet can be optimized and the transport cost can be reduced.



Expansion clamp, ideal for making extremely compact jig

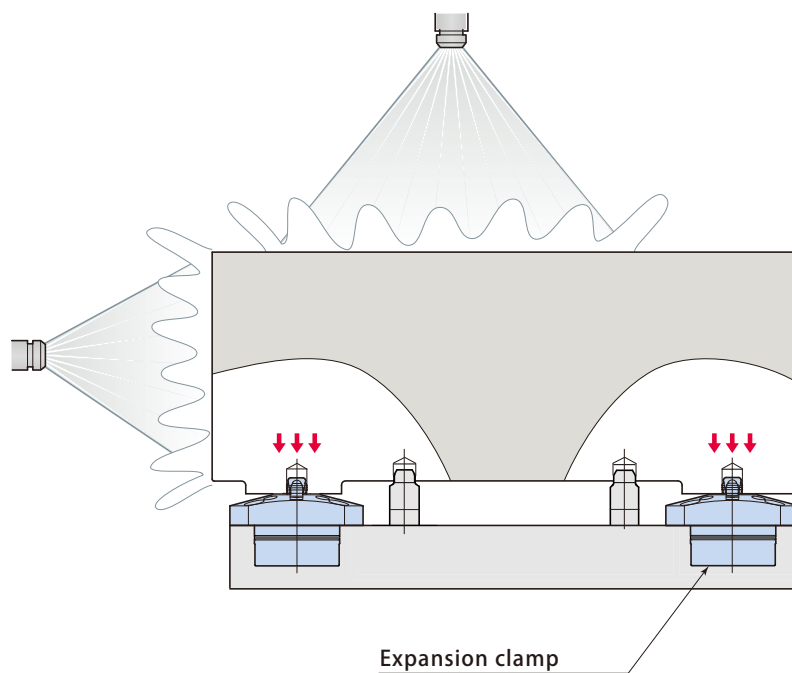
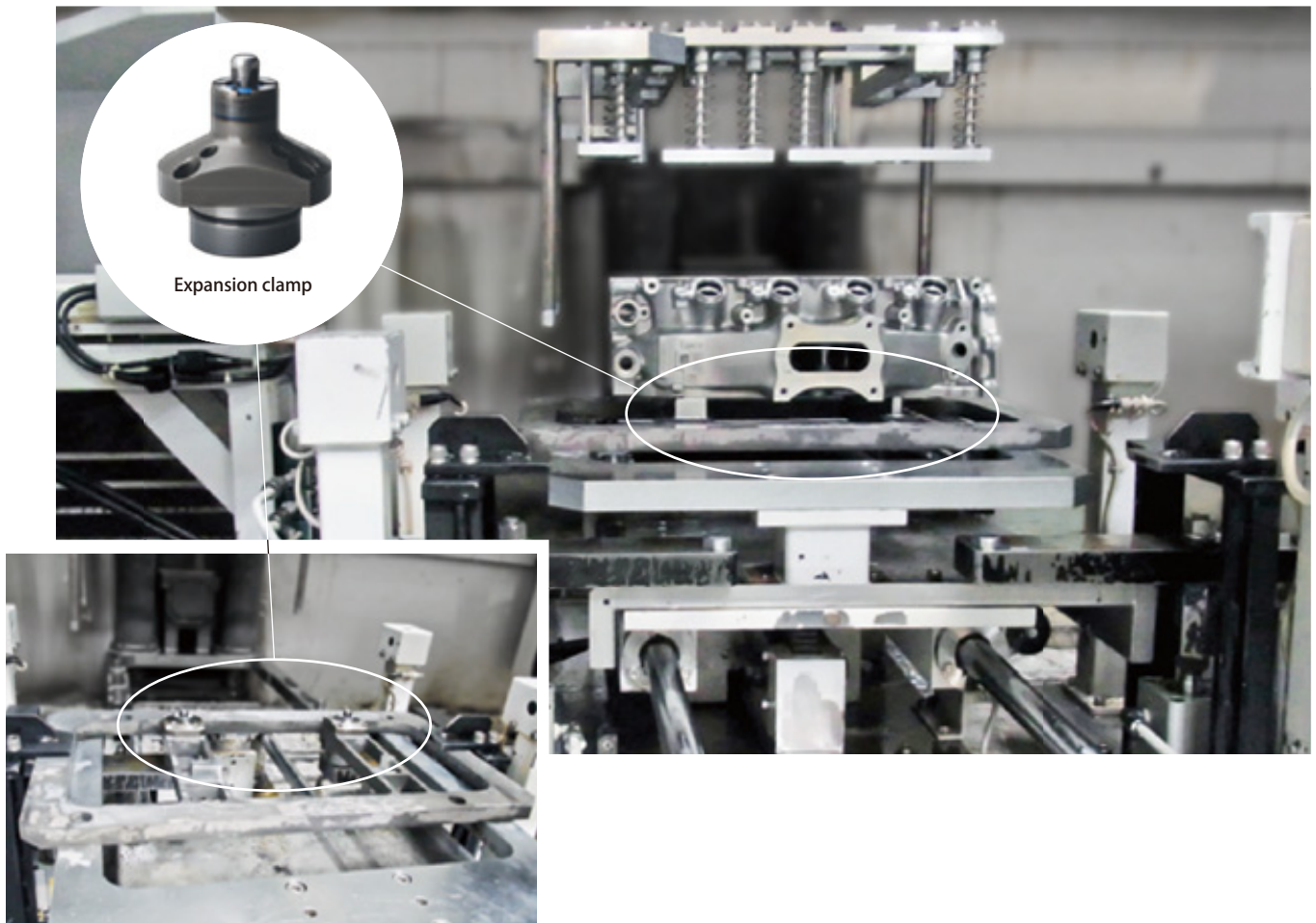
The downsizing of jig has been realized by development of expansion clamp.

The compact jig helps downsizing machine and workpiece transfer unit, which allows minimizing the line space and reduction of the investment for facilities considerably.

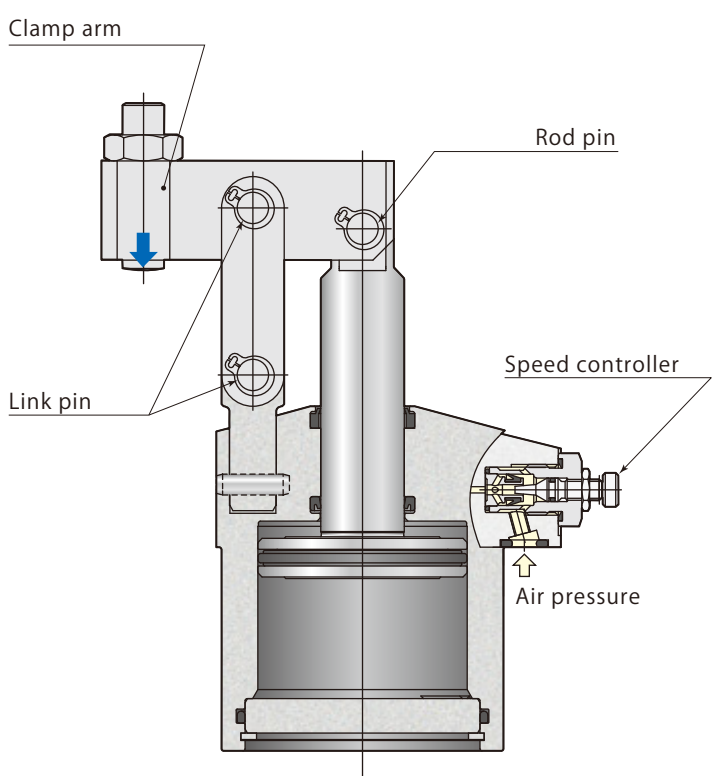
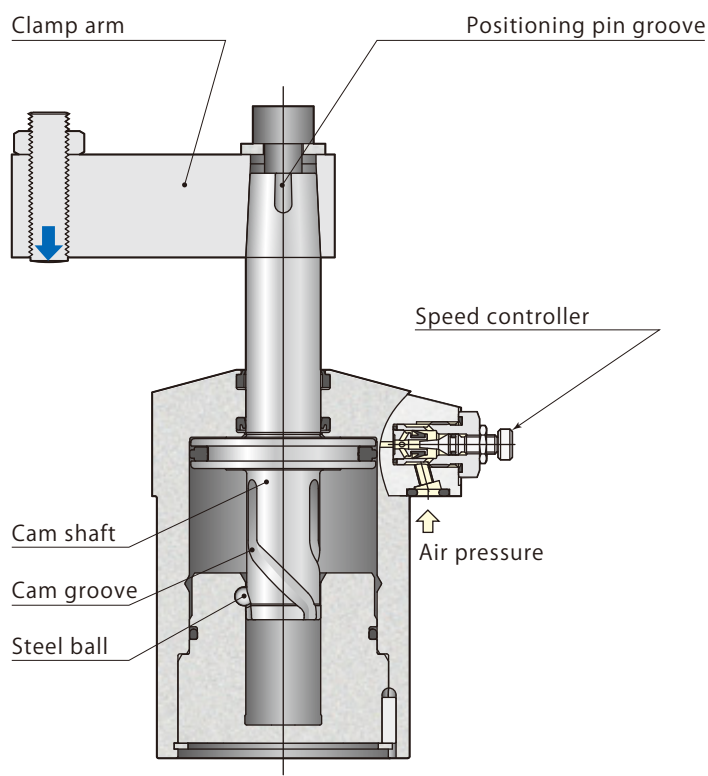


Expansion clamp for cleaning machine

It clamps the workpiece at the bottom and enables cleaning from 5 faces of it without any interferences.



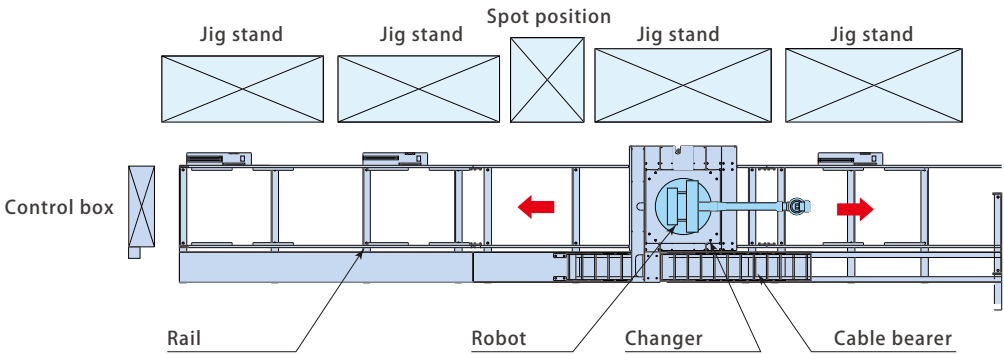
Swing and Link clamp to fix the workpiece



Transfer carriage for welding robot

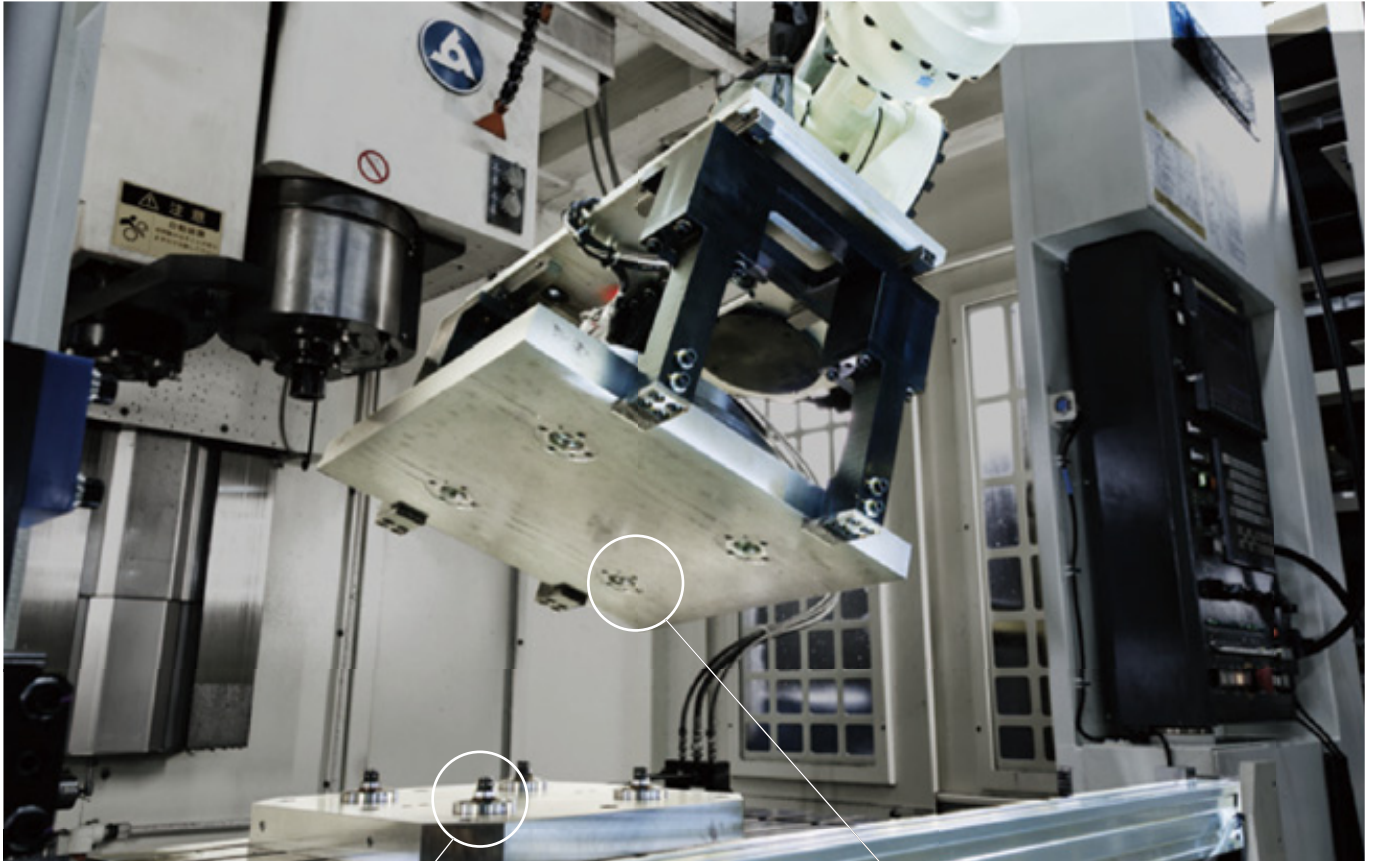


Weight of robot for cargo	kN	Max. 17.6 (1.8 tf:including weld gun)
Dimension of installation point to changer	mm	1,000×1,000
Traveling distance of changer	m	8.6



Pallet clamp for pallet transfer

Repeatability $3\mu\text{m}$



Pallet clamp

Locate ring



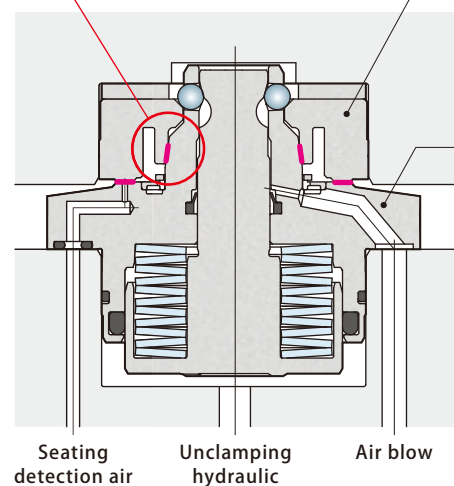
Pallet clamp CPC

Locate ring CPS

Solid tapered structure

Locate ring

Pallet clamp



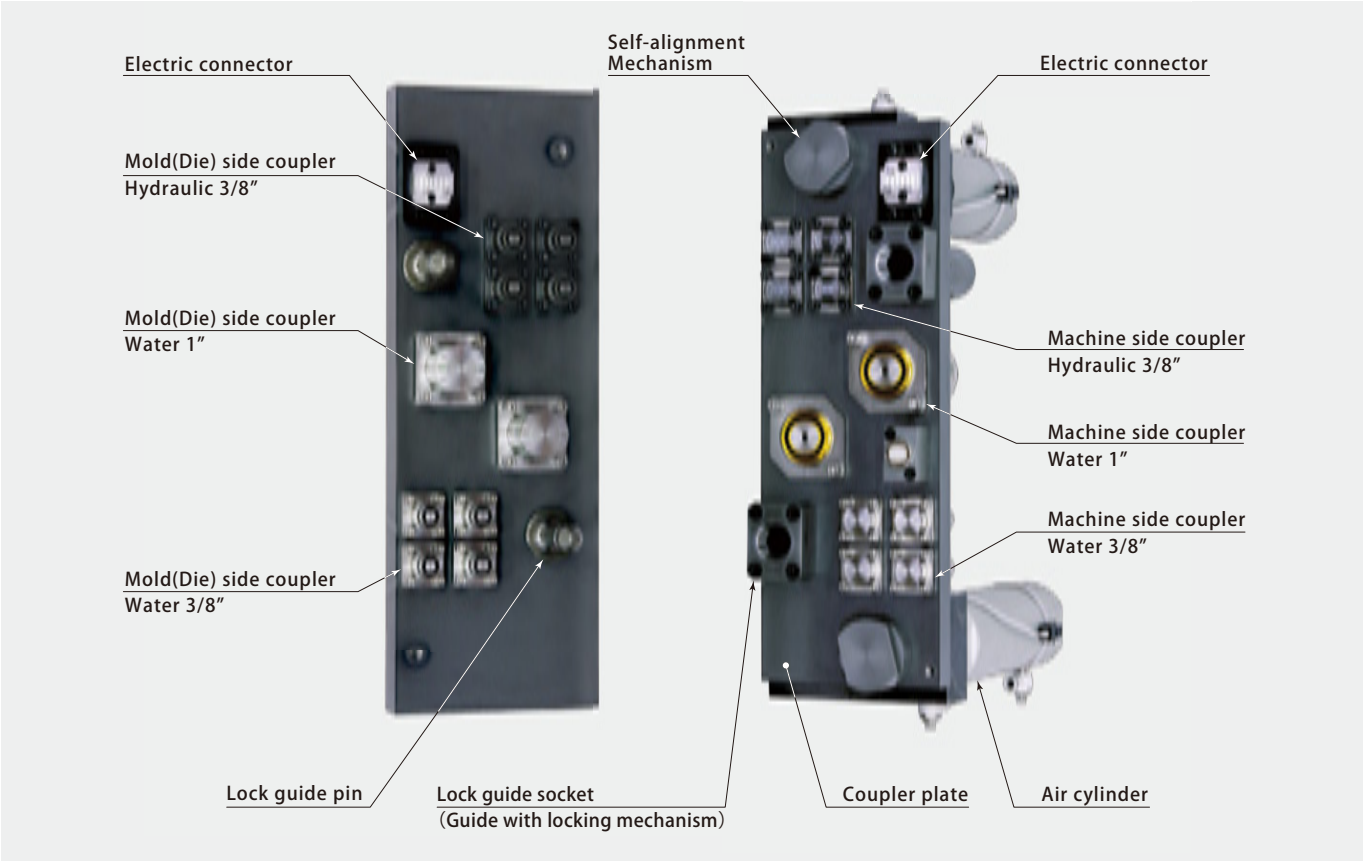
Seating detection air

Unclamping hydraulic

Air blow

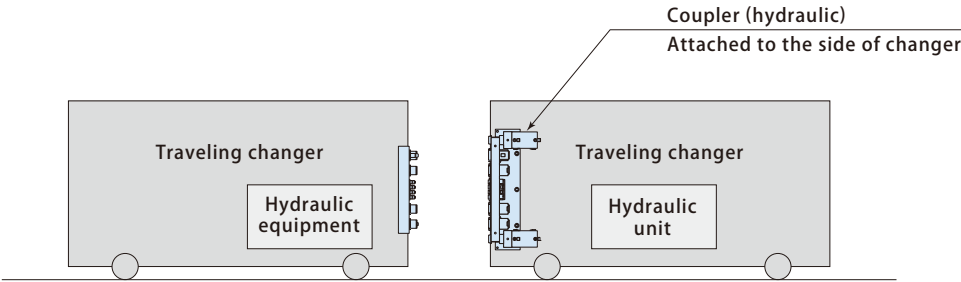
"For automatic connection/disconnection
of hydraulic, water and air piping"

It has many supply records for IMM, press machine and other industrial machinery.



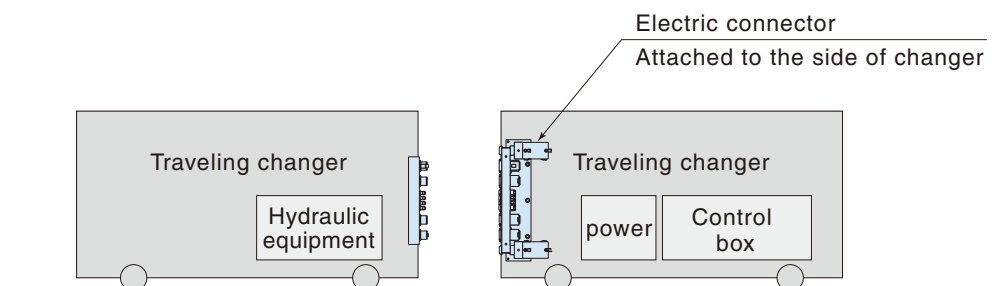
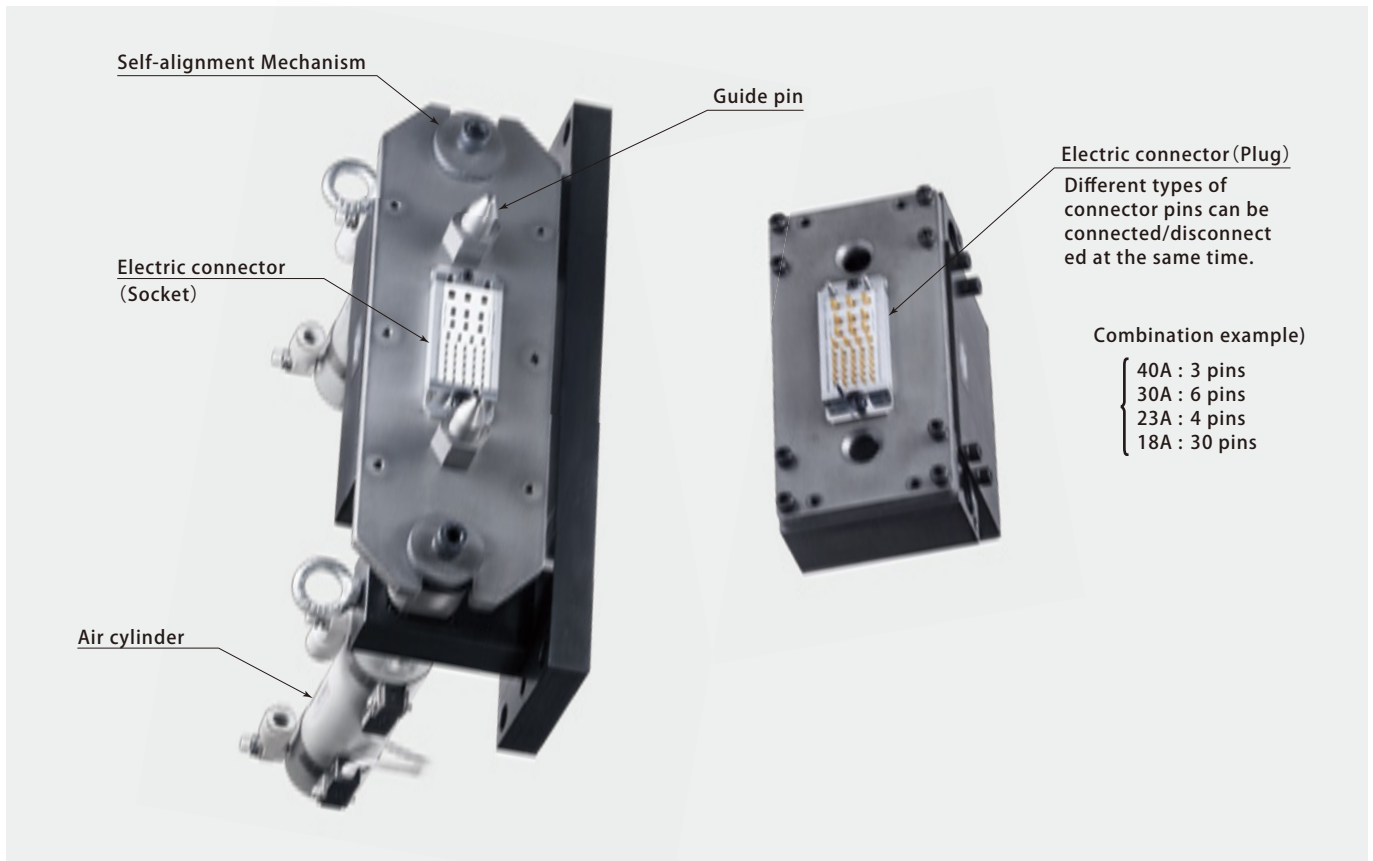
Fluid	Hydraulic	Water	Air
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Connection port	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
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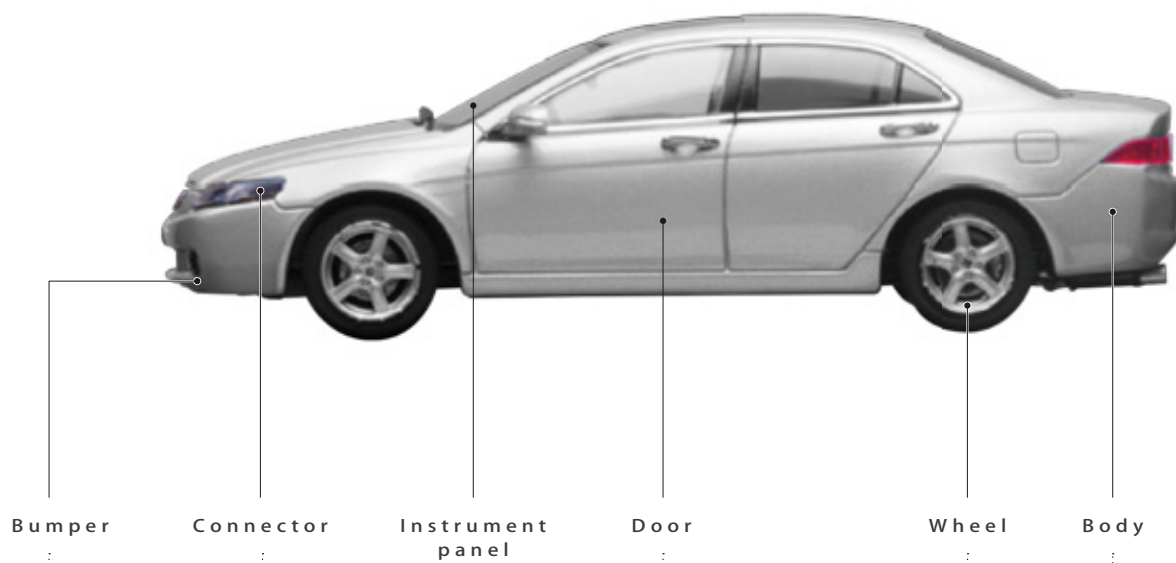


For automatic connection / disconnection of signal and power supply cable

It has many supply records for IMM, press machine and other industrial machinery.



Pascal all products



For plastic molding



Mag clamp

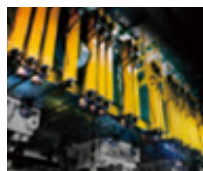


Mold die clamping system



Auto coupling system

For sheetmetal stamping



Traveling clamp



Stamping die clamp

For automotive parts die & mold

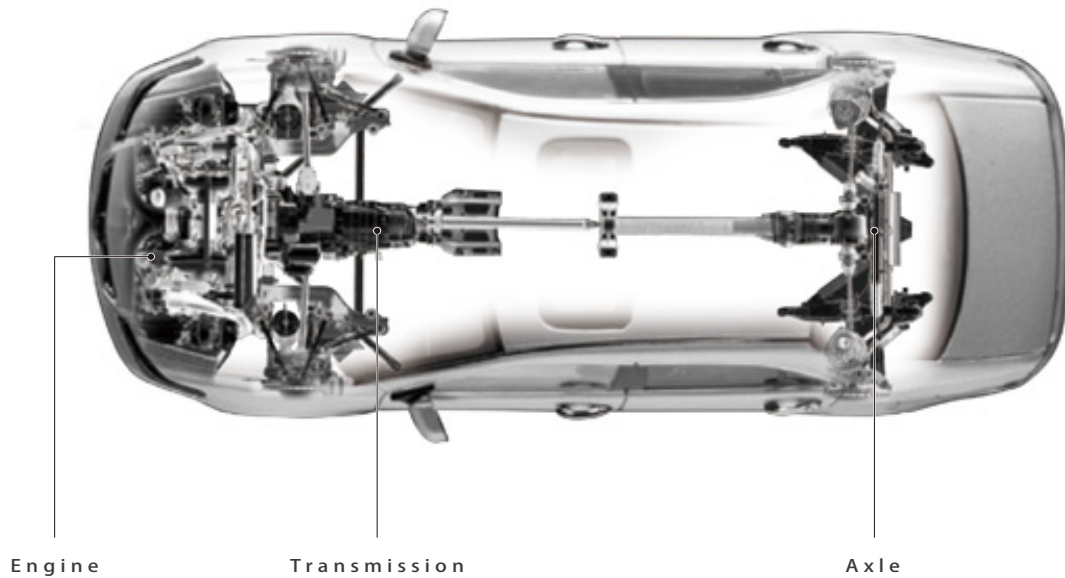


N2 gas springs

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

Molding machine :
Bumper ,
Instrument panel
etc...

Pascal products support
automotive production lines globally.



For die cast machine



Die-clamping
system



C-plate mag clamp

For metal cutting work



Work clamp



Pallet clamp

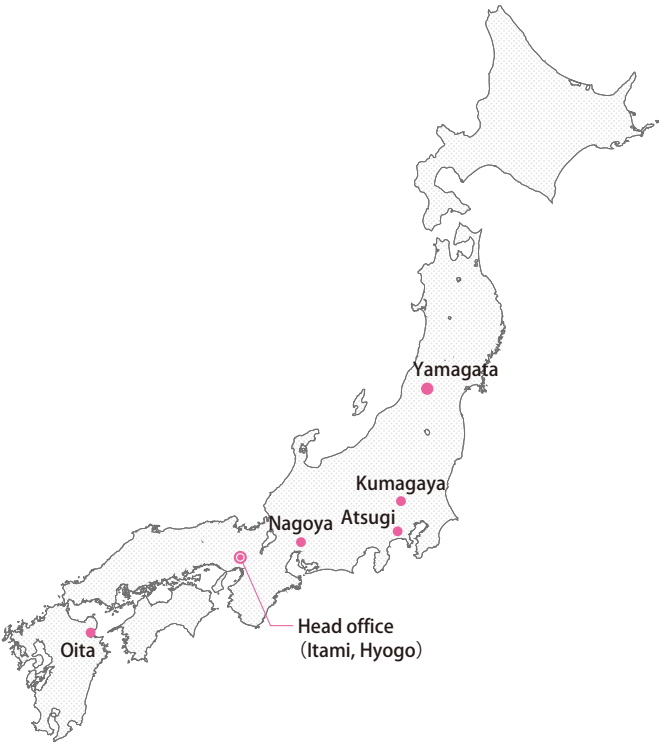


Index table



N₂ gas balancer

DOMESTIC LOCATIONS



Head office / R & D center ● Itami, Hyogo

Sales office ● Osaka, Hyogo
● Kumagaya, Saitama,
● Atsugi, Kanagawa
● Nagoya, Aichi

Plant ● Oita
● Yamagata



Head office / R & D center



Oita plant



Yamagata plant

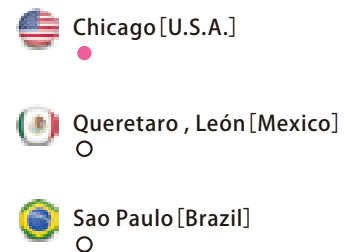
GLOBAL NETWORK



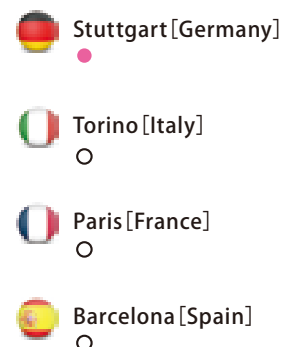
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