

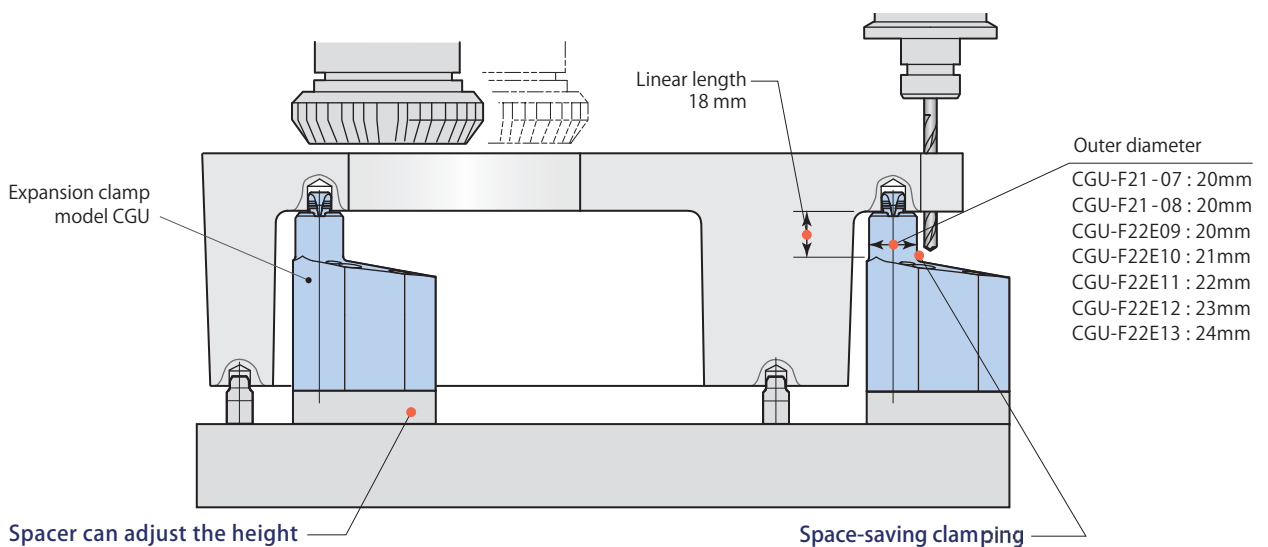
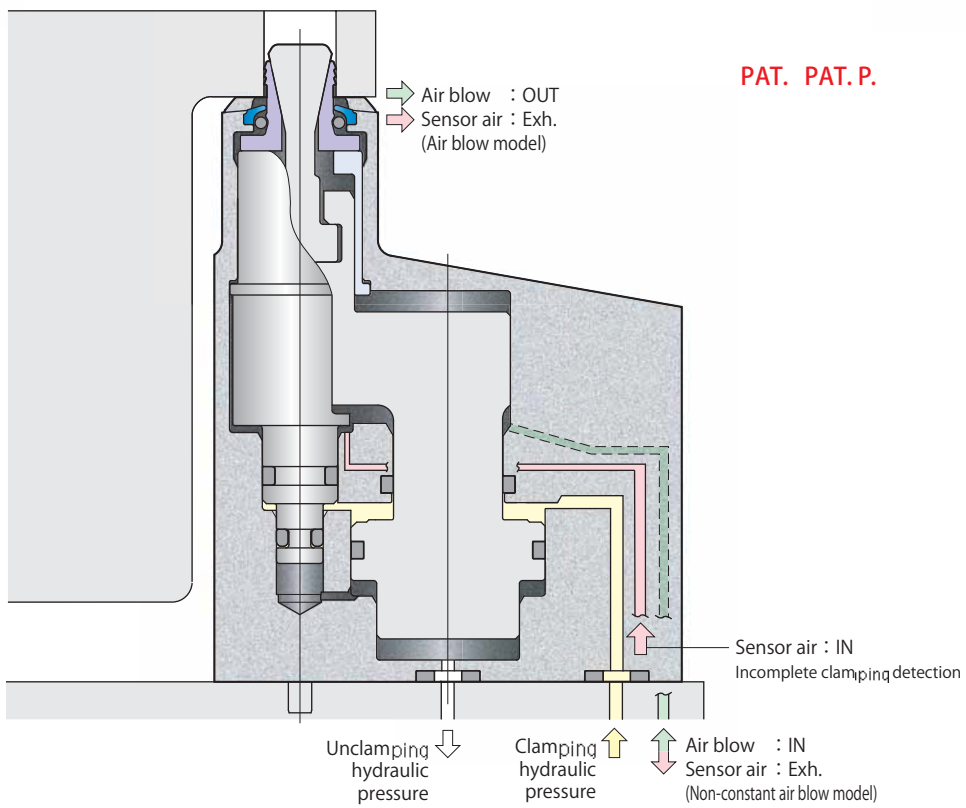
Air blow model  
model **CGU-F21-**  
4 Grippers  
ø7 8



Non-constant air blow model  
model **CGU-F22E**  
2 Grippers  
ø9 10



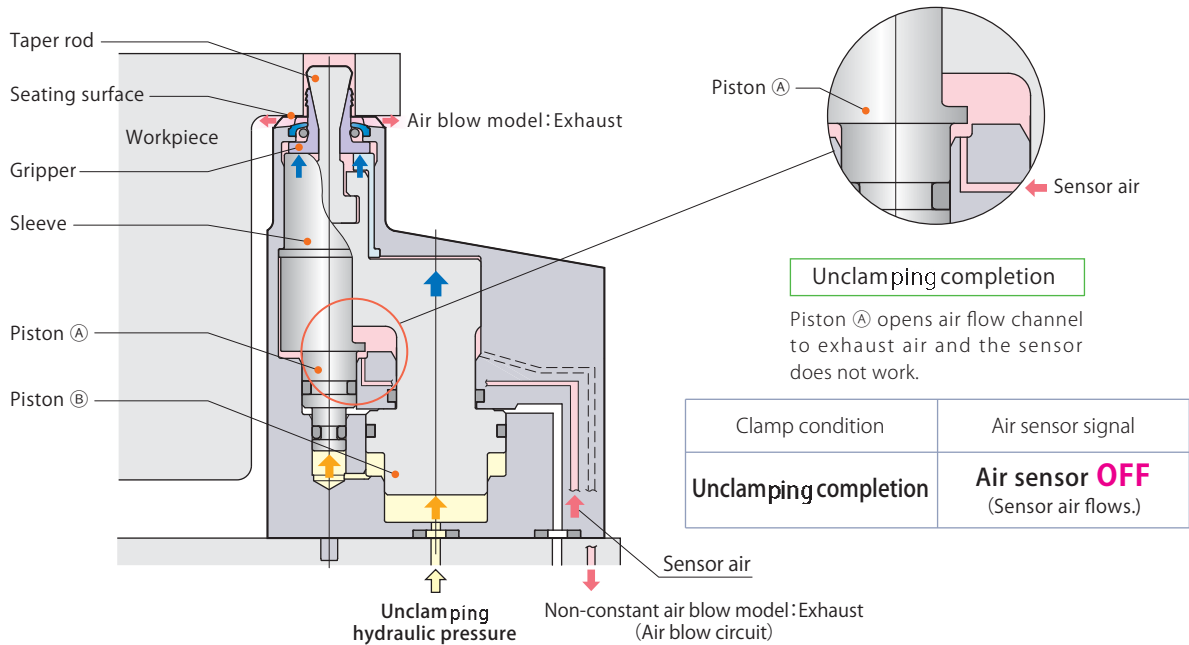
Non-constant air blow model  
model **CGU-F22E**  
3 Grippers  
ø11 12 13



model **CGU**

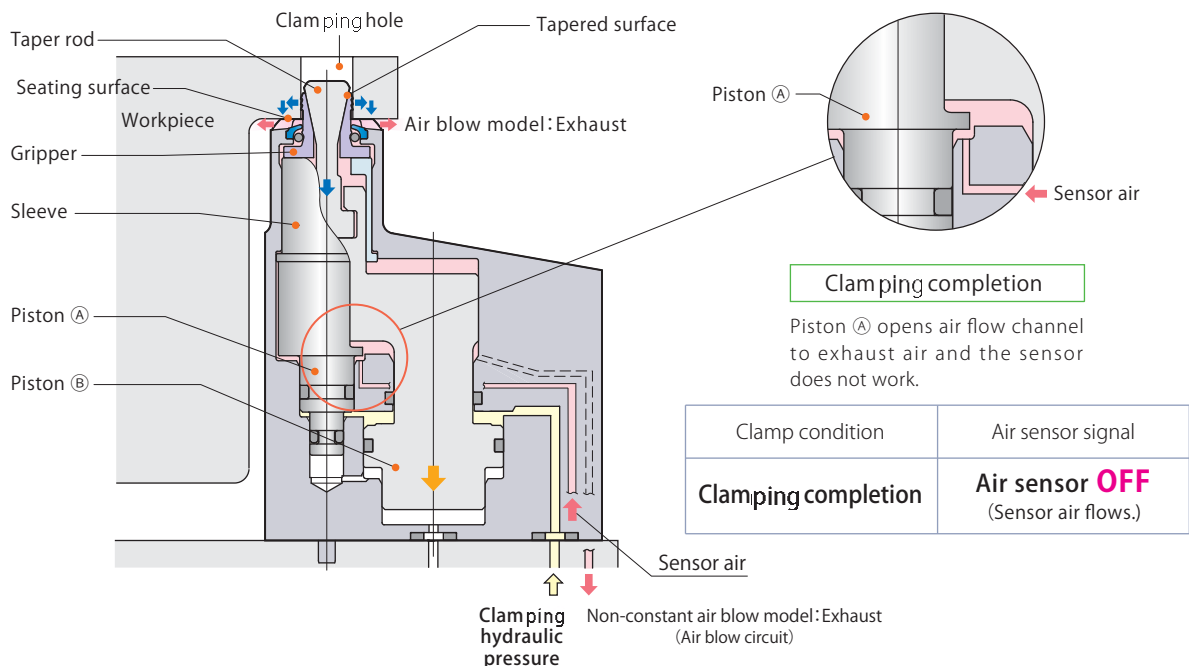
### Workpiece setting (Unclamping completion)

- ① Taper rod and gripper are raised by pistons ①, ② and sleeve. The gripper is drawn inward within the taper rod diameter.
- ② Set the workpiece onto the seating surface.



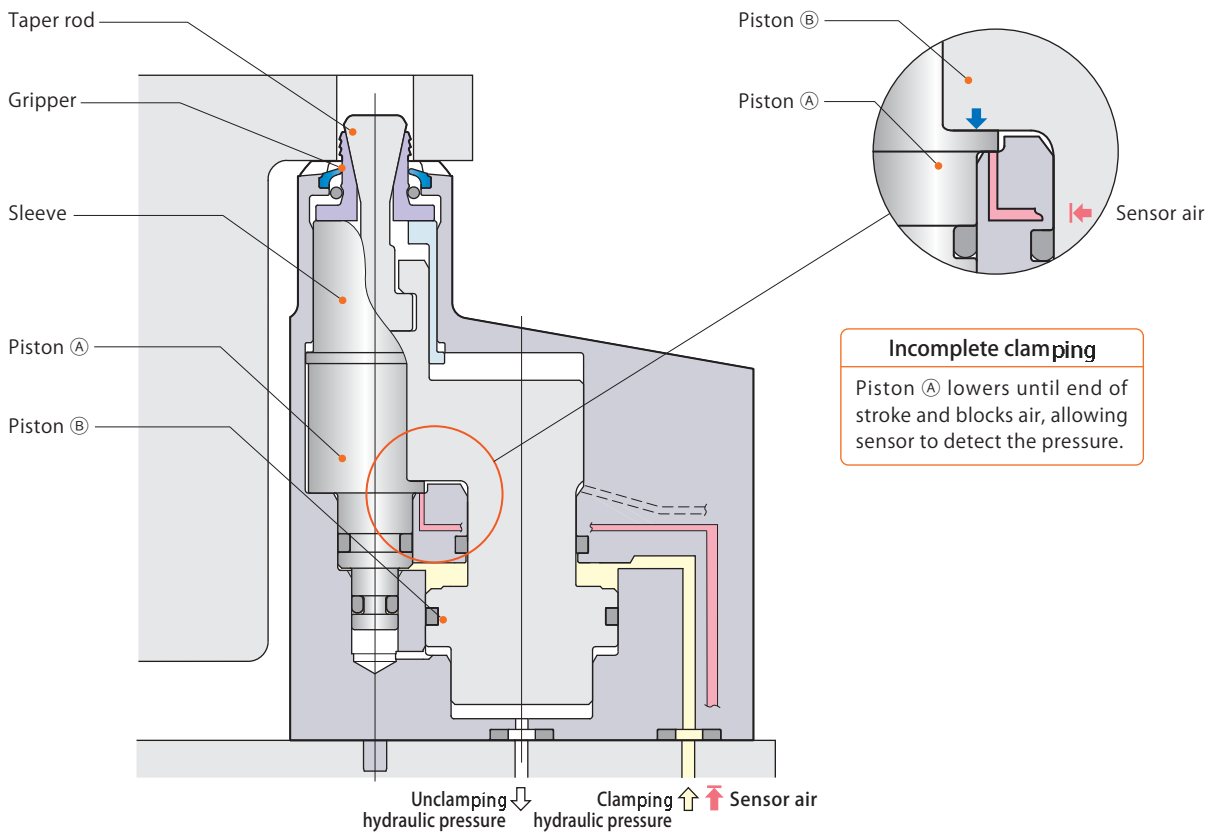
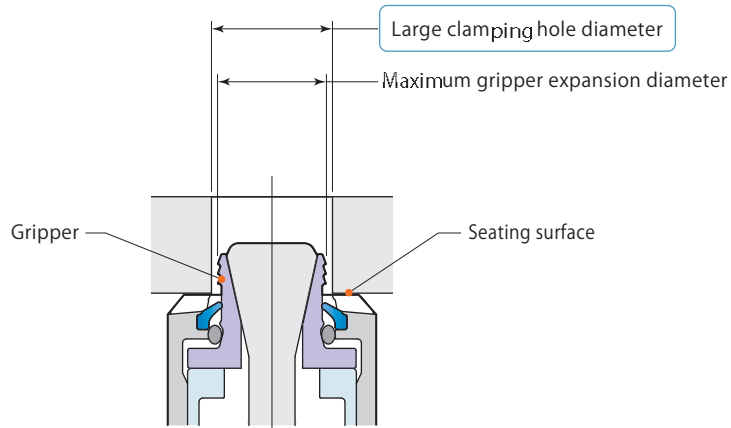
### Workpiece holding (Clamping completion)

- ① Piston ② and taper rod lower with piston ① being held at upper stroke end position by clamping hydraulic pressure.
- ② The gripper expands horizontally along the tapered surface to grip inner face of clamping hole holding its position at upper stroke end by piston ① and sleeve.
- ③ The gripper securely grips the inner face of clamping hole and pulls the workpiece down firmly onto the seating surface.
- ④ Workpiece holding is completed by the sensor air, clamping and unclamping hydraulic pressure.



Detects clamping hole diameter that is too large

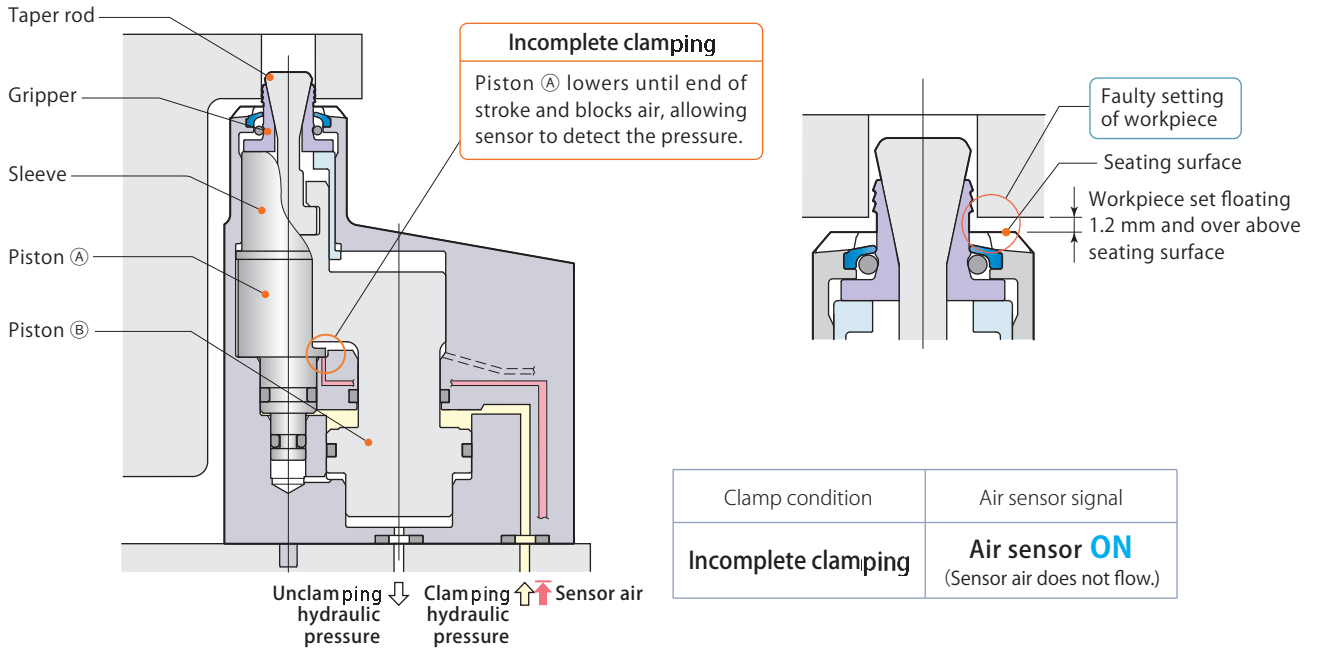
When the inner diameter of clamping hole exceeds tolerance value, then gripper will fail to gain grip on workpiece even when extended to maximum reach. Piston ① lowers until end of stroke as it is pushed down by piston ② and blocks sensor air, which triggers air sensor and detects incomplete clamping.



Clamp condition	Air sensor signal
Incomplete clamping	<b>Air sensor ON</b> (Sensor air does not flow.)

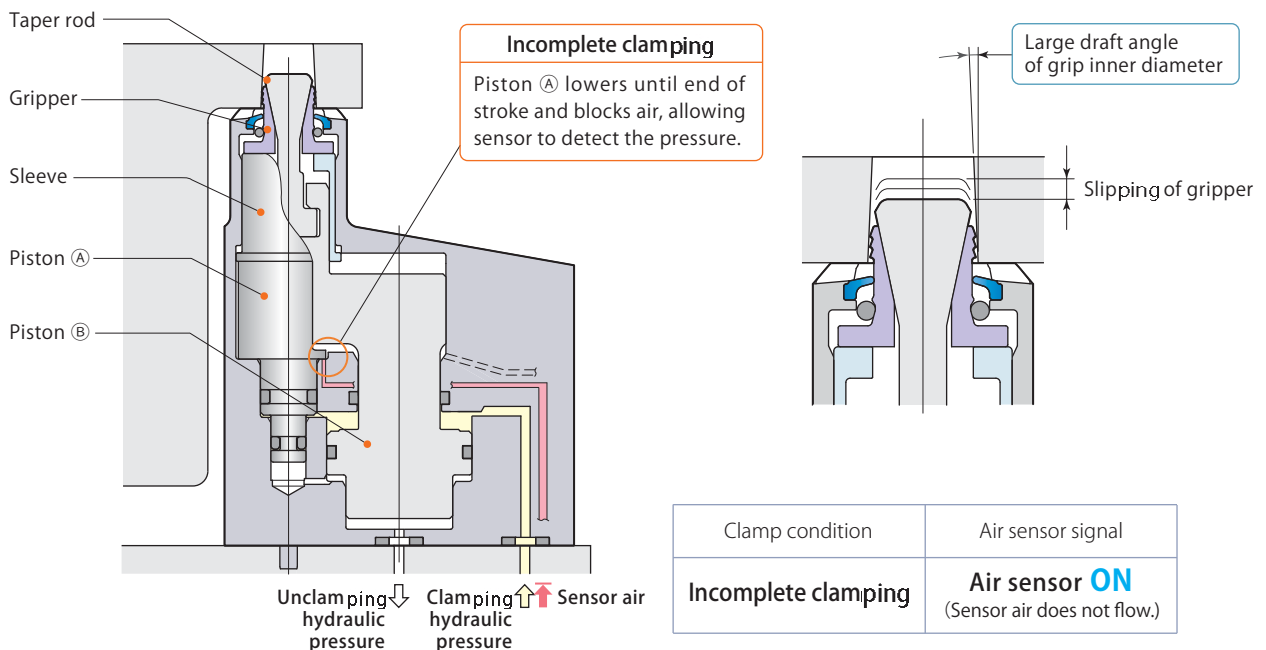
Detects deformation of workpiece and floating of workpiece

When workpiece has significant deformation or when it is set poorly with gap of 1.2 mm above seating surface, then even when the gripper lowers until end of stroke, the workpiece is not held on seating surface. At this time, piston ① lowers until end of stroke as it is pushed down by sleeve and blocks sensor air, which triggers air sensor and detects incomplete clamping.



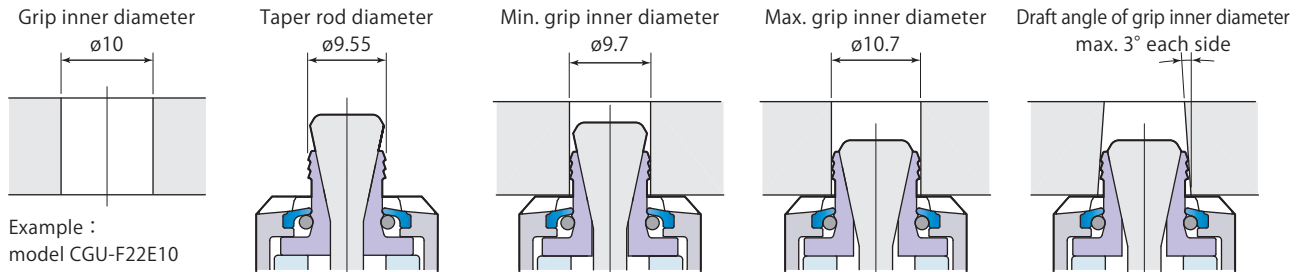
Detects incomplete gripping

When the inner diameter of clamping hole is slightly larger than allowable value, or when the draft angle of grip inner diameter is large and results in incomplete gripping by the gripper, piston ① lowers until end of stroke as sleeve pushes it down and sensor air is blocked, which triggers air sensor and detects incomplete clamping.



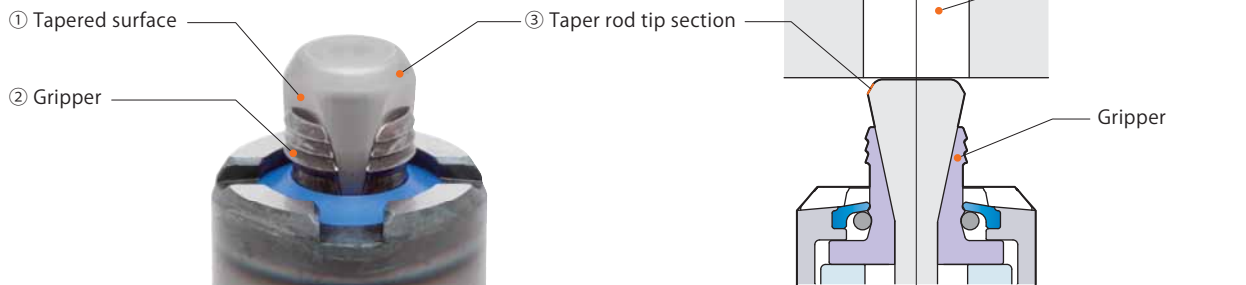
### Large gripper expansion stroke

The gripper expands horizontally 1.0mm, which enables the accommodation of dimensional variations in diecast bore diameters and ensures workpiece is held securely.



### Taper rod and gripper with superior durability

- ① The holding force of expansion clamp is transmitted from tapered surface to gripper, making it possible for the gripper to hold onto inner face of clamping hole and hold the workpiece on the seating surface for secure workpiece clamping.
- ② Special steel with superior abrasion resistance is used for gripper to improve durability.
- ③ Tip section of taper rod has larger diameter than gripper and is well chamfered to be a better guide when setting the workpiece.



### Seating surface can be reground (Max.0.1 mm)

- ① When seating surface is damaged, the flange section can be dismantled and reground.
- ② Flange can be easily dismantled and reassembled at production site.



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