Movement of Clamp and Operating Principle (Example of O.D. Clamping)

1. Air is sent to rear chambers A and B.
2. The piston moves to the right side in the above figure while pushing and inflating the actuator (a workpiece can be inserted by sending higher air pressure than the jaw finishing pressure).
3. The workpiece is inserted.
4. By releasing the air form rear chambers A and B, the actuator clamps the workpiece with its membrane still inflated due to the previously applied jaw finishing pressure. The actuator's clamping force depends on the amount of membrane inflation.
5. In order to ensure the sufficient clamping force, a back pressure (reduction pressure) mechanism is incorporated.

Back pressure (reduction force)

In step 4, the air is released from rear chambers A and B. Subsequently, pressure is applied to these chambers at pressure lower than the jaw finishing pressure depending on the situation. (The jaws' clamping force decreases as this pressure becomes closer to the jaw finishing pressure.) This operation provides a solution for excessive clamping force without requiring remachining the workpiece at lower jaw finishing pressure.