



## Pneumatic to Pneumatic Rotary Type Positioner Model IP5100

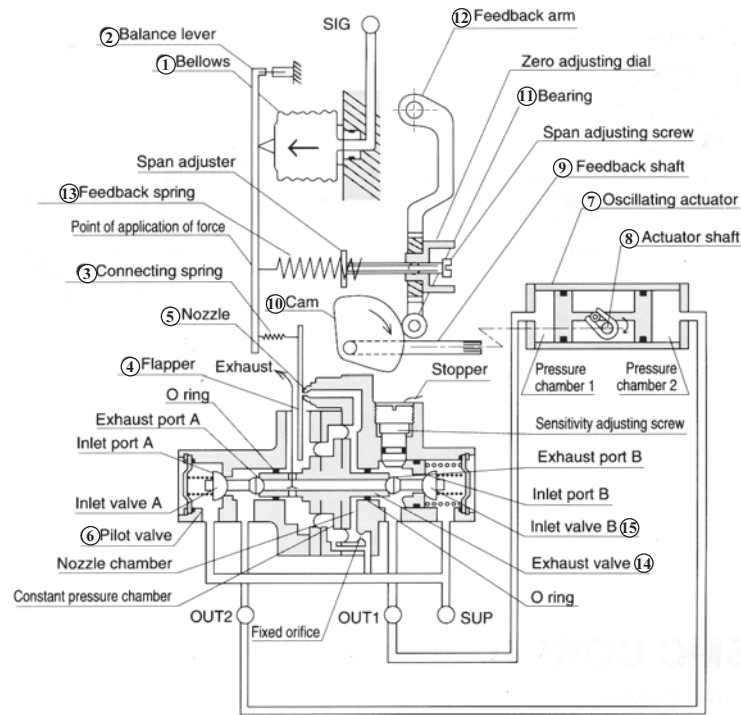
### I. Operation

**A. Principle** – When the input pressure applied to the SIG port of the positioner increases, bellows (1) presses balance lever (2) to the right and left. As this movement moves flapper (4) to the right and left through connecting spring (3), the gap between nozzle (5) and flapper (4) widens, and the nozzle back pressure of pilot valve (6) drops. As a result, the pressure balance in the constant pressure chamber is broken, and exhaust valve (14) presses inlet valve B(15) to the right. Then the inlet port B opens, and output pressure OUT1 increases.

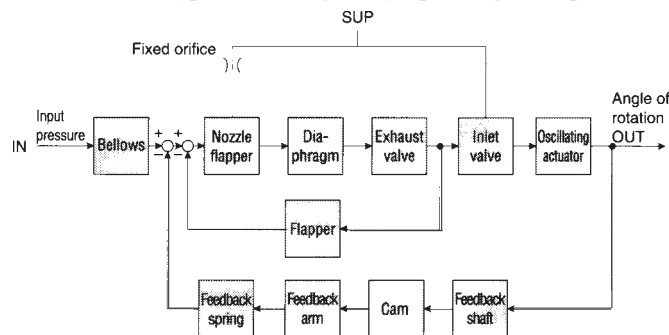
In the meantime, the movement of exhaust valve (14) to the right and left opens exhaust port A, and output pressure OUT2 decreases. Therefore, pressure difference is generated between pressure chamber 1 and pressure chamber 2 of oscillating actuator (7), and actuator shaft (8) turns in the direction of the arrow. The movement of actuator shaft (8) deflects feedback arm (12) to the right through feedback shaft (9), cam (10), and bearing (11). Such deflection increases the tension of feedback spring (13) and acts on balance lever (2).

Since oscillating actuator (7) moves until the tensile force of feedback spring (13) and the force generated by bellows (1) balances, it is always set in the position proportional to the input pressure. When the signal air pressure decreases, the operation is reversed.

*IP5100 Principle of Operation*



*IP5100 Type Block Diagram of Operating Principle*

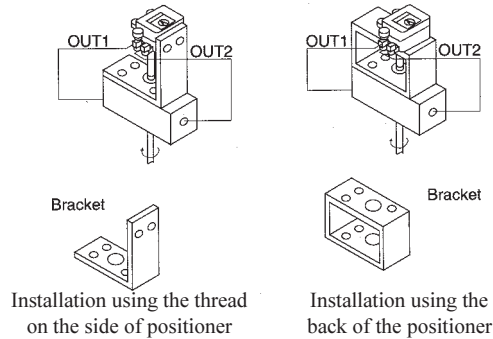




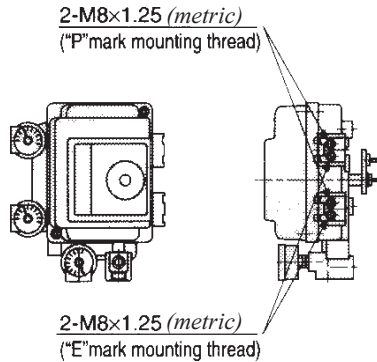
## Pneumatic to Pneumatic Positioner: Rotary Type IP5100

### II. Installation (for custom applications)

- A. **Mounting** – Make a bracket to mount the positioner and rotary actuator according to their mounting method, and mount them by using mounting thread on the side or at the back of the positioner so that the feedback shaft of the positioner and the main shaft of the rotary actuator becomes nearly aligned.



When the positioner side is used for mounting, the "P" mark mounting thread is interchangeable with the existing IP310 type, while the "E" mark mounting thread is interchangeable with the existing IP610 and IP6100 types. The fork lever assembly type M, interchangeable with the existing serration couplings, can be used as it is.



### B. Precautions

1. Avoid impact to positioner while transporting and handling
2. Operate within specified temperature range to prevent deterioration of seals.
3. Attach a body cover to the positioner when it is in use or left in the field in order to avoid rain water.
4. Take measures to avoid dew condensation if the positioner is exposed to high temperature and humidity during transportation or storage or when it is left on the site.
5. The zero point is subject to the mounting position. Adjust the zero point after installation on the side.

