

Pneumatic Actuator Speed Control

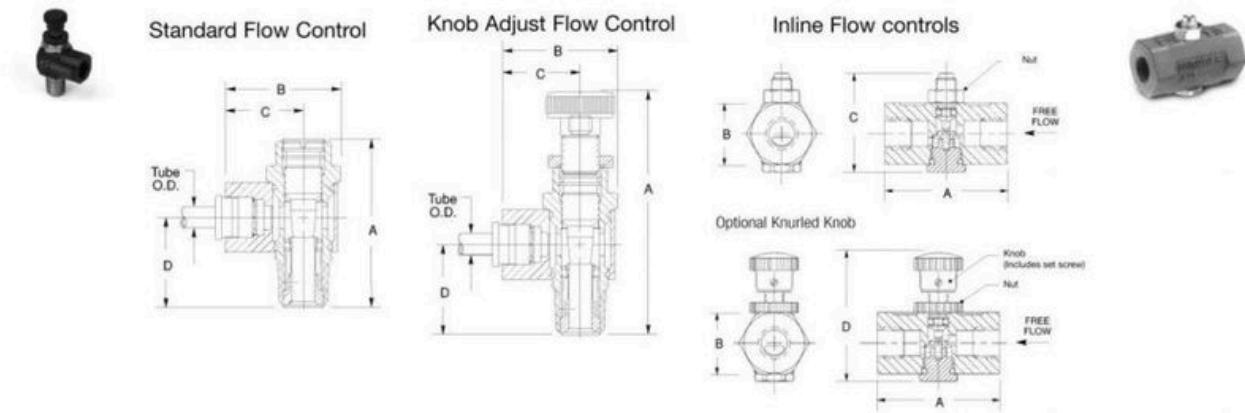
Controlling the speed of pneumatic actuators and keeping actuator speed constant

It is frequently helpful to know the basic practices for controlling pneumatic actuator speed, as well as a few guidelines for gathering the information to properly select the components.

If you are looking to control the speed of the pneumatic actuator in your application, the most effective way is to use a speed control valve or flow control valve to vary the amount of flow out of the exhaust port of the actuator.

In order to adjust the speed, the flow must be controlled, whereas adjusting the force of the actuator should be handled by controlling the pressure. Adjusting the pressure may have an effect on the speed, but is not a recommended method to control the speed.

To maintain a constant speed for your pneumatic actuator, size a fixed orifice for a constant flow on the exhaust port of the pneumatic actuator in conjunction with a pressure regulator on the input. The pressure regulator will ensure that the output pressure will remain constant (relatively) given a varying input pressure. The fixed orifice will maintain the desired flow to maintain the proper speed for your pneumatic actuator.



In order to properly size a flow control valve, you will need 3 things:

- A maximum pressure
- Thread size
- Tube size

Armed with this information, you can now select the proper valve for your application. These valves can be installed directly into actuator ports, directly installed into the valve exhaust ports, or simply installed into the exhaust line.

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In order to size the fixed orifice properly, you will need to know the supply pressure, fitting size, and desired flow of the output. After calculating the fixed orifice size, try a few similar sizes to ensure that you are getting the desired result.

Once again, the fixed orifice should be installed on the exhaust port of the actuator or into the exhaust line.

To size the pressure regulator, you will need to know:

- The port size
- Threads
- Input pressure
- Output pressure
- Whether it needs to be relieving or non-relieving pressure regulator.

Pressure regulators should almost always be placed upstream of the control valve. If one needs to be installed between the valve and actuator, then one with bypass flow path should be used.



The pneumatics experts in Cross's Automation group can help you to select the correct flow control valves, fixed orifices and pressure regulators. Contact us today to discuss your particular application.