

BEST PRACTICES 3.0

Control Air Flow of Cylinders with Confidence and More Reliability

Output force of a pneumatic cylinder is function of air pressure as cylinder speed is function of its air flow.

$$s = 28.8q / A$$

where s = speed (inches per second); q = airflow in standard cubic feet per minute (SCFM); and A = piston area, in²

*(Note: inlet pressure must be held constant)

However, controlling the air flow of a pneumatic actuator is not the sole factor in determining its speed. Other factors that may affect a pneumatic actuator's speed include port and tubing sizes.

The most common industry practice to control the air flow of a pneumatic actuator and hence its speed is to control the flow rate at the actuator's exhaust port. The resulting decreasing or increasing in back pressure causes the actuator's piston to travel at a faster or slower speed which is usually controlled by installing a meter-out flow control or needle valve.

SMC's next generation pneumatic flow controls, AS-FS Series, can put more reliability and repeatability in speed control at your fingertips with a simple turn of the knob.

The AS-FS Series flow control has added a numeric scale that will "count off" and visually display the number of revolutions on the needle valve for easier, more repeatable adjustment of actuator speed. Previous generations of flow controls made adjusting the air flow of pneumatic actuators a tricky and time intensive trial and error process.

AS-FS Series with its numeric scale now removes this guesswork enhancing confidence in setting actuator speed.

As an additional measure of confidence and reliability, the AS-FS has added a Push-to-Lock adjustment knob to ensure that once the air flow to the actuator is set at its optimal level that tampering becomes difficult.

Other features:

- Meter-Out, Gray Colored Adjustment Knob
- Meter-In, Blue Colored Adjustment Knob

Available in:

- Inch Thread: 10-32 UNF and 1/8", 1/4", 3/8", 1/2" NPT
- Inch OD Sizes: 1/8", 5/32", 1/4", 5/16", 3/8", 1/2"
- Metric Thread: M5x0.8, R1/8", R1/4", R3/8", R1/2"
- Metric OD Sizes: 2, 3.2, 4, 6, 8, 10, 12, 16 mm

For more information about flow (speed) controls, visit www.smcusa.com