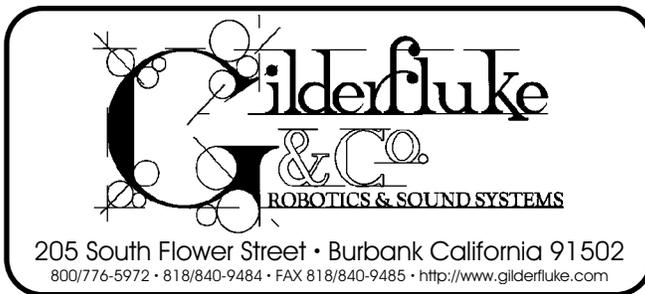


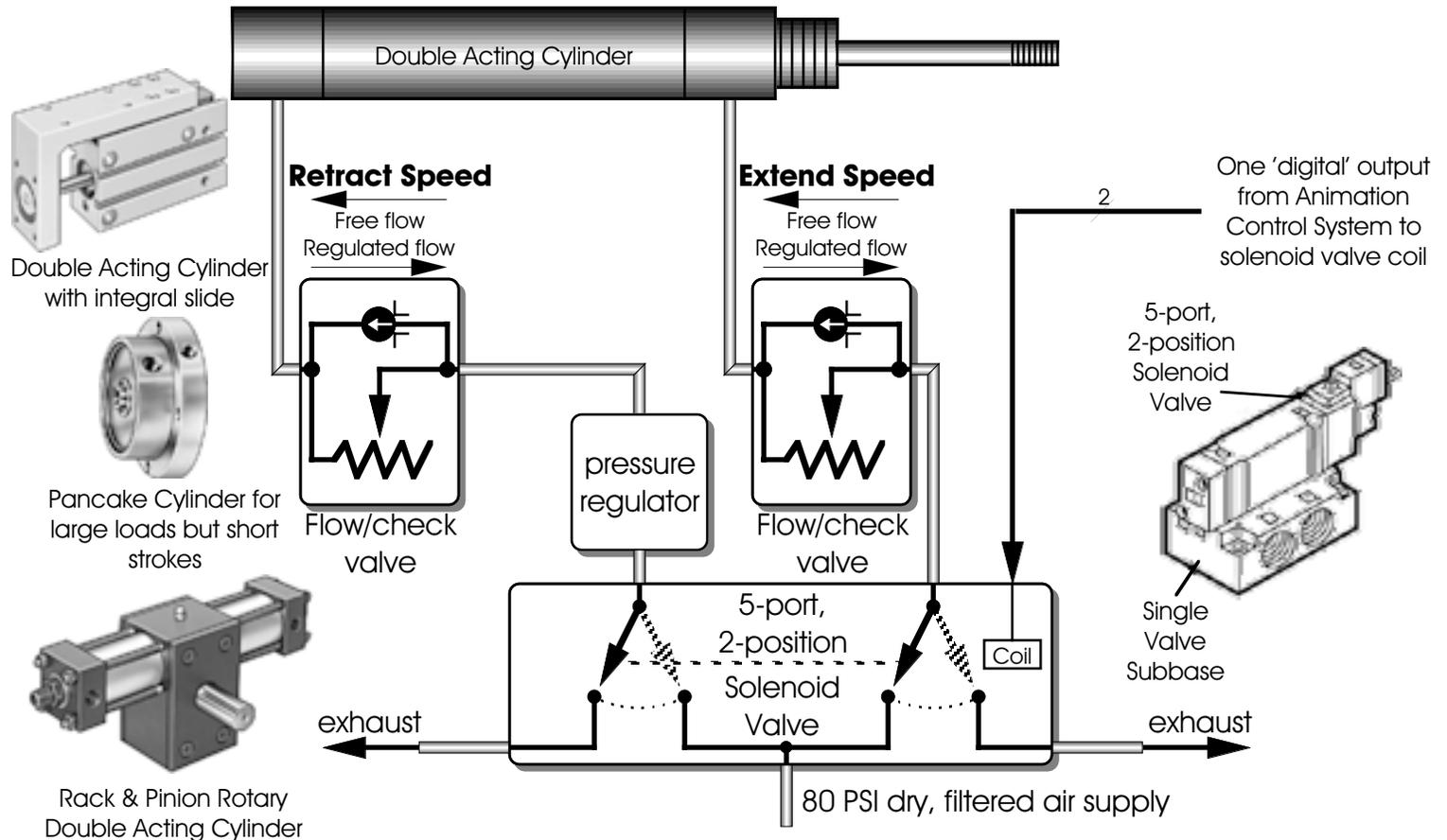


Toll-O-Matic
Rotary Vane and Rack &
Pinion Rotary Actuators



Clippard 15006
1/8" NPT to 10-32

Double Acting Cylinder Plumbing (using one 5-port, 2-position valve):



This is the way we recommend plumbing double acting cylinders if we don't need to stop them mid-stroke. It will allow the piston to be moved between the two extremes, and reversed smoothly mid-stroke when needed. Because you are regulating pressure flow out of the cylinder, this style of hookup usually will have a slightly better response time than traditional plumbing methods. The flow controls, which are a needle valve and check valve, don't interact when adjusted.

A 5-port, 2-position solenoid valve has five ports and one solenoid coil on it. One port is the compressed air supply input, two ports are exhaust, and two ports go to the cylinders (normally labeled 'C1' and 'C2' or 'A' and 'B'). When the coil isn't energized, one cylinder port is attached to the supply port and the other goes to exhaust. When the coil is energized, the cylinder connections are reversed and the piston moves. This is about the most common type of solenoid valve, and all valve manufacturers make them.

SMC valves are rated for a lifespan of 50,000,000 cycles and are available from McMaster-Carr (562/695-0677 www.mcmaster.com) as their part number **62165K11**. These can mount on single valve subbase plates **62165K71**. Manifolds with four (**62165K43**) and eight positions (**62165K47**) are more often used. If you are moving something VERY large, you can use the larger SMC valves. If bought directly through a SMC distributor, you will have additional choices for valves and plumbing connections. Miniature air fittings are available from SMC, Clippard (877/245-6247 www.clippard.com), McMaster-Carr, and others.

If the solenoid valve you are using will let you do so, you can put simple needle valves on the solenoid valve exhaust ports in place of the flow/check valves shown. With the SMC valves, you can only do this only on the single valve mounts.

The regulator is used to minimize 'jumps' when changing directions. It compensates for the larger piston surface area on the tail end of most cylinders. When properly adjusted, the cylinder can be reversed mid-stroke without jumping. A typical regulator is the Clippard MAR-1. A 'balanced' type of cylinder (rotary actuator, double rod cylinder, or any other application with the load on both sides of the piston balanced) will let you eliminate the regulator. If you are not going to be reversing the direction of a cylinder mid-stroke, or don't care if it jumps, you can eliminate this regulator.