

TECH DATA - LO-Profile® Pneumatic Cylinders

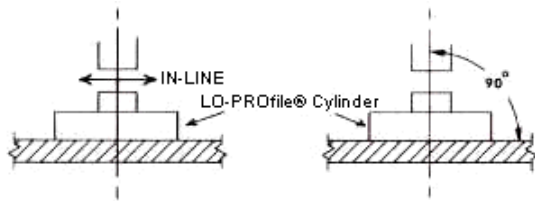
Mack Corporation

LO-Profile® Cylinders

Mack Corporation presents an expanding line of proprietary products for the automation and automatic processing industries. These products are unique in concept, of advanced design and manufactured to the highest quality standards for universal application in equipment destined to improve quality, increase production and reduce manufacturing cost.

Mounting Recommendations

LO-Profile® Cylinders should be centered with the thrust line of the work load within a few thousandths of an inch and square within a fraction of a degree. Mount an oil/mist unit upstream for internal lubrication. Where such devices are not practical, replace seals and lubricate internal parts at regular intervals. SERVICE KITS are available with seals and factory approved lubricant.



Cylinder Calculations

In most cases, force output from a cylinder can be calculated with more precision than predicting load requirements for it's application. A good "rule of thumb" is to select a cylinder which gives a force at least 130% of the estimated operating load.

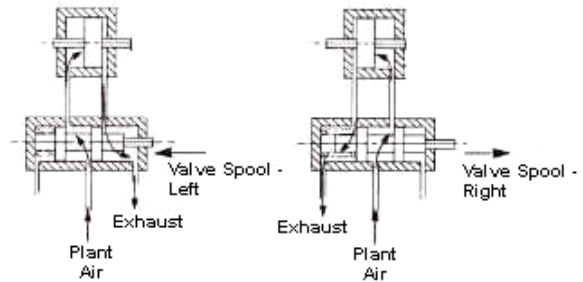
Force out put from a cylinder is constant over the full range of travel and is simply the product of operating pressure times the effective area of the piston. $FORCE(lbs) = PRESSURE(psi) \times NET\ AREA(sq.in.)$. Mack Corp engineering specifications include piston head and rod diameters (with net areas) together with maximum operating pressure to aid in these calculations.

Permanently attached to each cylinder is a metal nameplate specifying the part number, serial number, company name and maximum operating pressure. All products have the appropriate safety factor but - **DO NOT EXCEED THE MAXIMUM OPERATING PRESSURE.**

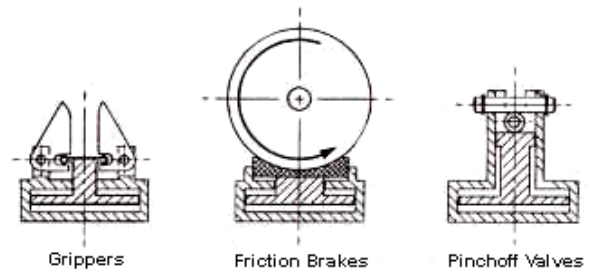
The effect of seal friction can usually be ignored except for small cylinders operating at low pressure. There is a phenomenon called "stiction" with exceptionally high break-away friction when cylinders stand idle for long periods. Seal friction will quickly return to a much lower level following the first few cycles.

When planning control circuits using plant air, a design operating pressure of **80 PSI** should be used since higher pressure may not be available when drain is heavy in the overall system. Pressure in a branch line can be reduced with a pressure regulator.

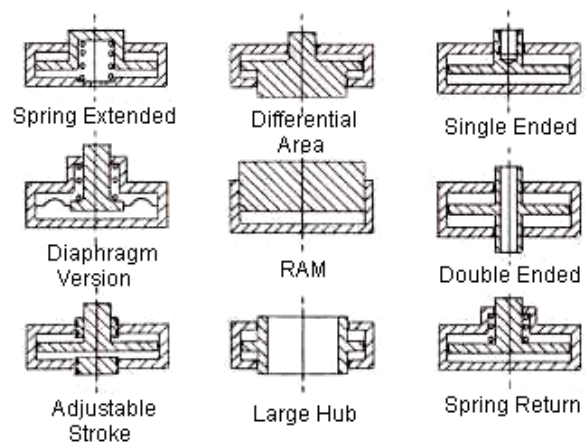
SIMPLE FOUR WAY CONTROL CIRCUIT



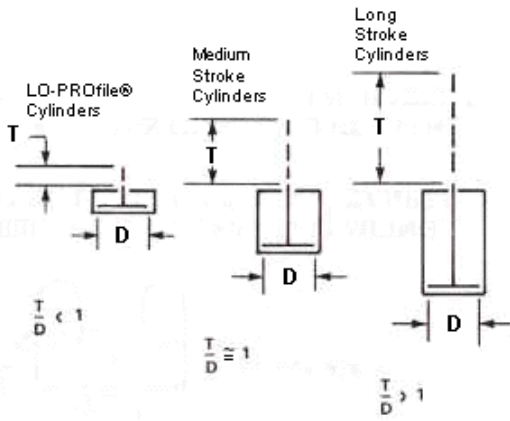
LO-Profile® Cylinders In Specialized Configurations



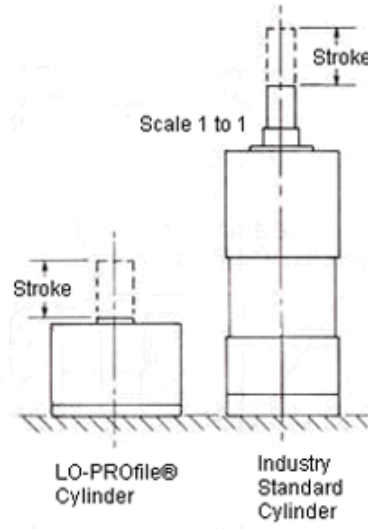
LO-Profile® Cylinders In Conventional Configurations



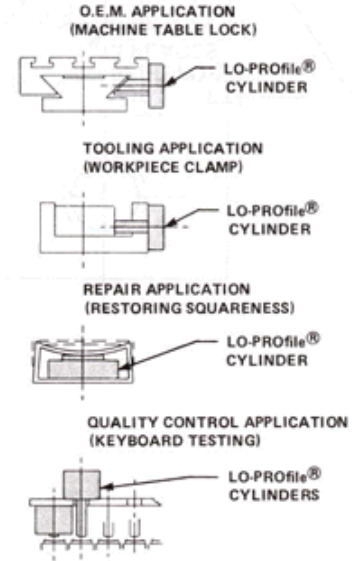
CYLINDER CLASSIFICATION



Envelope Comparison



TYPICAL APPLICATIONS



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[Short Stroke Cylinder Wall Chart](#)

[Robotic Structures Wall Chart](#)

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