

Air Volumes and Pressure While Running a Pneumatic Press

Air pressure normally represented by the units PSI - pounds per square inch – is the driving variable to creating force from a pneumatic cylinder or press. As an example a 4” diameter air cylinder can achieve 1200lbs of force at a pressure of 100 psi, where as a 3” diameter air cylinder will achieve just 640 lbs force at the same pressure.

Air volume normally represented by CFM – cubic feet per minute – is the driving variable for speed and responsiveness of the air cylinder of press system.

The more volume the press can receive, the more efficient the cycle times and quickness to respond to directional changes. AIM Joraco valves and plumbs its presses to achieve the maximum efficiency of the equipment.

An important factor to allowing your press to work at its optimal capacity is the hose fitting and connections that are attached in your facility to the press.

Rubber hose and quick disconnect fitting are NOT recommend for several reasons. Firstly, the constant cycling of the press in some operations millions of cycles, creates a pressure wave through the air line system, the repeated bursts of air creates pressure drops that cause the rubber hose to expand and contract every cycle, and eventually the rubber hose or the connection points will fail. To minimize this, it is recommended to use rigid piping or Parker Poly-Flo lines designed for heavy usage in applications where the pressure cycles On/off such as a pneumatic press application.

Secondly, the quick disconnects do not offer enough air volume to allow the press to breath and cycle trouble free. Pressure drops of more than 15 psi are not recommended as the pneumatic valving and logic controllers will see the drop as a removed signal causing erratic behavior of the press. As example the volume of a typical hose quick disconnect with a nipple ID of 0.185" has an area of 0.027 In².

Using a Legris style pneumatic fitting or rigid connection with for a ½" hose – has an ID of 0.426" and an area of 0.335 In².



BAD

GOOD

BAD

GOOD

AIM Joraco rates its press lines at 100psi to simply represent 100% "Full Scale" output of its equipment. For instance, our Model 800 at 100psi has an output of 5,000lbs if your application requires 4000 lbs, the pressure can be set down to 80 psi (80%) of Full Scale. Our presses can operate at 50PSI to 100PSI, and the press line is designed with overlapping models to achieve force from 50 to 32,000 lbs depending on models.