

## 3MA/4MA Breakaway PSI Ratings

**Breakaway PSI** is a term commonly used to identify the typical minimum pressure that would be required to move a cylinder's piston rod assembly from rest. Since each application is different and includes a wide variety of external forces and influences, Breakaway PSI is always relative to the application and the cylinder configuration. However, to provide examples of the typical Breakaway PSI for 3MA and 4MA Series cylinders, we have performed the following tests with "average" cylinder configurations. All cylinders had no external loads.

### Horizontal Tests

**Mid-Stroke Position** – Cylinders were positioned horizontally. Piston rod assemblies were placed into the mid-stroke position for 72 hours, and then air pressure at the cap end (back end) was introduced to the cylinder. The pressure was recorded at initial piston rod movement.

**Fully Retracted Position** – Cylinders were positioned horizontally. Piston rod assemblies were placed into the fully retracted position for 72 hours, and then air pressure at the cap end (back end) was introduced to the cylinder. The pressure was recorded at initial piston rod movement.

**Fully Extended Position** – Cylinders were positioned horizontally. Piston rod assemblies were placed into the fully extended position for 72 hours, and then air pressure at the head end (rod end) was introduced to the cylinder. The pressure was recorded at initial piston rod movement.

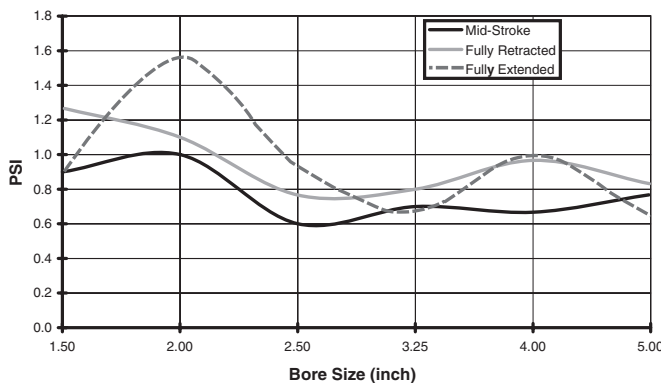
### Vertical Tests

**Fully Retracted Position with Rod End Up** – Cylinders were positioned vertically with rod end up. Piston rod assemblies were placed into the fully retracted position for 72 hours, and then air pressure at the cap end (back end) was introduced to the cylinder. The pressure was recorded at initial piston rod movement.

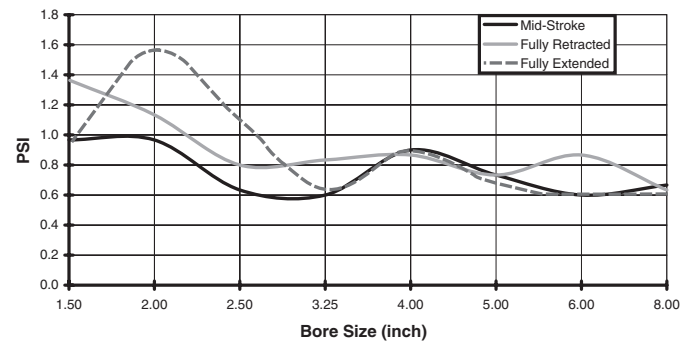
**Fully Extended Position with Rod End Down** – Cylinders were positioned vertically with rod end down. Piston rod assemblies were placed into the fully extended position for 72 hours, and then air pressure at the head end (rod end) was introduced to the cylinder. The pressure was recorded at initial piston rod movement.

**Average results of the tests have been charted below. Please note that the Breakaway PSI for your application may differ from these results.**

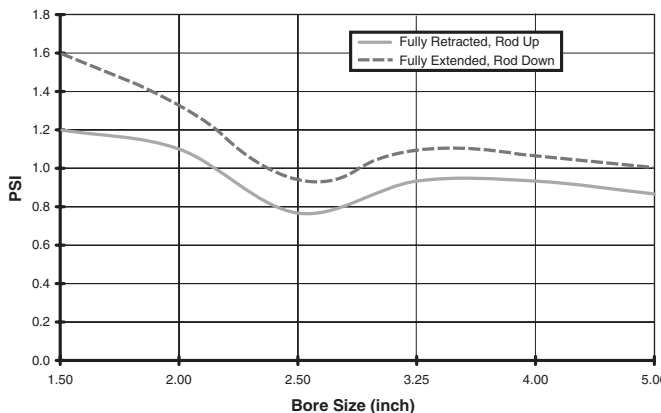
**3MA Horizontal Breakaway PSI Test**



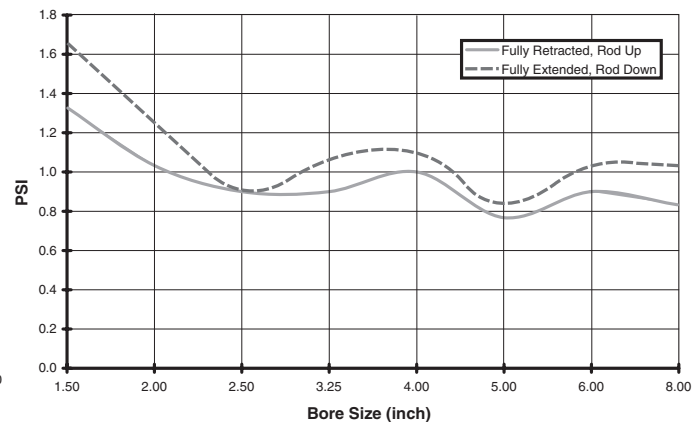
**4MA Horizontal Breakaway PSI Test**



**3MA Vertical Breakaway PSI Test**



**4MA Vertical Breakaway PSI Test**



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