Woodworth Diaphragms

The diaphragm principle as applied to chucking, utilizes the inherent strength and accuracy of spring steel to achieve chucking pressure on internal or external surfaces.

Applications of this principle have been production proven in plain diameter and gear chucks in sizes ranging from 2" to 54".

Standardization of components assures interchangeability of parts, reducing time and tooling costs.

Diaphragm chucks are primarily for secondary operations, as grinding, hard turning, boring and facing. Locating surfaces should be pre - machined or a precision cast surface. Locating diameter tolerances should be held to total of .006" on smaller chucks to .015 on the larger size.

How a Diaphragm Works

Air is introduced through the spindle and adapter plate by means of a 1/4" pipe. When air pressure is applied, the piston moves forward about .030" and the movement is transmitted to the diaphragm via a push sleeve. As the diaphragm is flexed, the jaws open and the workpiece is loaded. To chuck the part, the air is turned off, and the jaws move toward the relaxed position until the jaw contacts the part. The part is now located on center. Consistent concentricity is controlled to a maximum runout of 1/3 of the part tolerance.