Diaphragm Chucks

Collection of internal and external gripping diaphragm chuck design examples created for a variety of parts and operations
Diaphragm chucking

Diaphragms grip internally or externally by the flexing action of the basic plate they are constructed of.

The diaphragm is spread open or closed in, ground for part size and the return inherent spring action creates the grips force as needed. This process naturally creates excellent concentricity and repeatability. They are designed with a flex point and controlled amount of travel providing excellent longevity.

The grip force can be light or quite powerful and can also be assisted by springs or drawbar / tube for additional grip force. It is simply released by the return springs or drawbar/ tube action.

They are basically a one piece construction designed for a specific part but can be designed with interchangeable pads or inserts for various diameters.

It is machined leaving 3, 4, 6, 8 or 12 jaws which provides naturally good chip escape yet with extreme accuracy many times greater than a conventional 3 jaw chuck.

The diaphragms flexing action allow it to somewhat conform to the shape of the part; this will minimal chucking pressure and reduce part distortion.

They are also available with slots to create many “finger” type grip areas and have proven to be excellent for very minimal part distortion.

They can be used in turning, drilling / milling, gear machining, and many grinding applications.

They can adapt to most machines and use the actuation available or designed with their own built in.
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

External diaphragm & External s.o.e. collet
Drawbar actuation
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

Replaceable inserts for part size changes

External diaphragm Drawbar actuation
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

Spring loaded center

Replaceable inserts for part size changes

External diaphragm

Drawbar actuation
B-34838

Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

Replaceable inserts for part size changes

External diaphragm
Drawbar actuation
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

External diaphragm
Drawbar actuation

Manual clamps
Internal diaphragm
Spring chuck/air release

B-36597

No pull down - The diaphragm does not move relation to the part.

Removeable inserts for part size changes
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

External diaphragm
Drawbar actuation
Low pull down - The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

External diaphragm
Drawbar actuation
Low pull down -
The diaphragm moves little in relation to the part, allowing an unsquare face to be used for location.

Removeable inserts for part size changes

External diaphragm
Drawbar actuation