



installation instructions

For **GRAPHALLOY Bushings**

PLEASE FORWARD TO INSTALLATION FOREMAN

GRAPHALLOY bushings are normally designed to be pressed into a housing. After pressing in, the bushing will be near its final size. If high accuracy is required, allow the bushing and housing to stand for 24 hours to reach final size.

First time users of GRAPHALLOY bushings are often surprised by the size of the interference fit. Typical fits range up to .5% or more of the OD size of the bushing. Because of the strength and resiliency, it is not normally necessary to shrink-fit GRAPHALLOY bushings into their housings.

GRAPHALLOY bushings designed for higher temperature applications can have interference fits of .010 to .025" (.25 to .63 mm) or more depending on:

- the maximum operating temperature expected,
- the materials of the shaft and housing, and
- the size of the bushing.

GRAPHALLOY materials have a coefficient of thermal expansion about half that of carbon steel. The bushing must be designed with enough press fit to maintain an interference fit at the elevated temperature.

Installation at room temperature: The most common installation is to press the bushing, dry, into its housing. Dipping the bushing in water or a solvent will make for an easier installation.

Installation into heated housings: Bushings may be dropped into a heated housing and shrink fit. Some customers also cool the bushing first to increase the clearance between the bushing and the heated housing.

If you have questions about the design or the magnitude of the press fits, please contact our engineering department.

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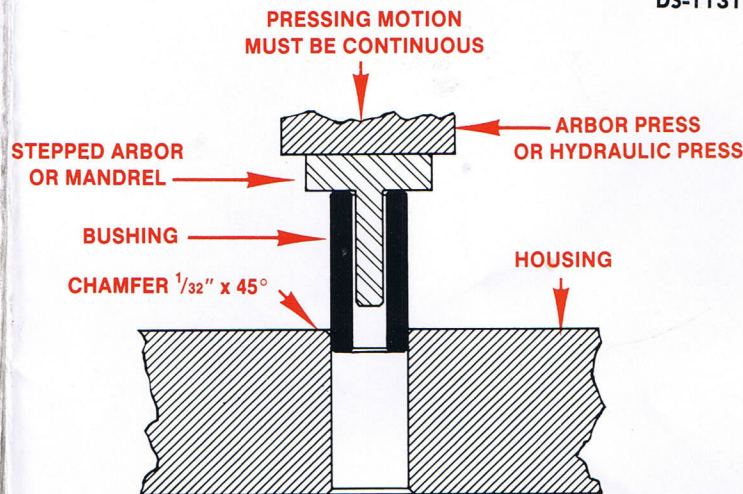


Fig. 1 — Normal Method of Pressing GRAPHALLOY Bushing into Housing by Arbor Press or Hydraulic Press

Each GRAPHALLOY Bushing is normally pressed into its housing by means of an arbor press or hydraulic press (Fig. 1). The housing I.D. should have a chamfer of $\frac{1}{32}'' \times 45^\circ$ to facilitate entry of the bushing. A stepped mandrel or arbor should be used to insure that the bushing will be positioned straight with the hole before installation. The small O.D. of the arbor should be $\frac{1}{16}''$ smaller than the I.D. of the bushing, and the large O.D. of the arbor should be larger than the O.D. of the bushing. *The pressing motion must be continuous with no interruption until the bushing is completely in place.*

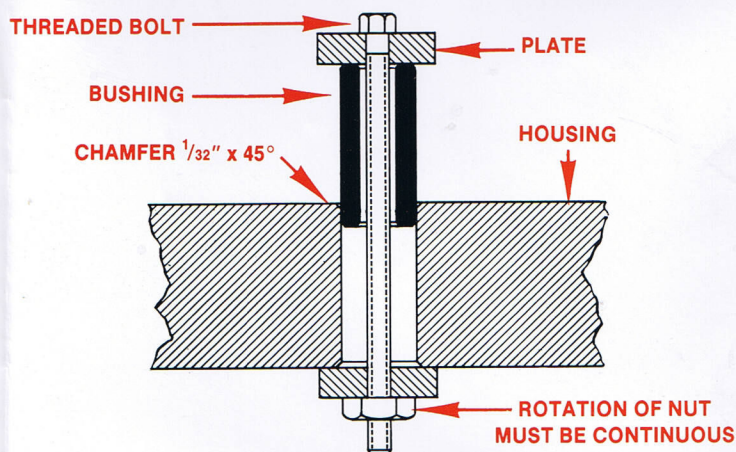


Fig. 2 — Bolt-and-Nut Method of Pressing GRAPHALLOY Bushing into Housing

Where more practicable, the bushing may be pressed into the housing by the bolt-and-nut method; that is, with a plate against the upper end of the bushing (Fig. 2). *The nut must be continuously drawn up!*

GRAPHALLOY® Bushings and Brushes-Unique Since 1913

GRAPHITE METALLIZING CORPORATION

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