



4050 S. Clark, Mexico, MO 65265  
www.grafs.com • 800-531-2666

## **REDDING** Bushing Selection

*Please note: Redding, RCBS, Hornady and Wilson Bushings are interchangeable.  
Forster Bushings are unique and will only work in Forster bushing dies.  
Call 1-800-531-2666 if you have any questions.*

There has been some confusion regarding the correct diameter bushing that should be used with Redding Bushing Style Sizing Dies. The most common misconception is that the bushing diameter is determined by the neck diameter of fired cases or the neck diameter of the chamber that the reloaded ammunition will be fired in. The bushing diameter is related to the chamber neck diameter, but only indirectly, in that the loaded cartridges must have adequate clearance at the neck to allow the bullet to be released properly upon firing.\*

The easiest way to determine the proper diameter bushing is to measure the neck diameter of several loaded or dummy cartridges with an accurate micrometer. (These dummy cartridges can be loaded with your old set of dies or a borrowed set.) Then, simply subtract 0.001" from the cartridge that had the smallest average measurement. This will allow for a slight amount of spring back and create a proper press fit for the bullet.

Another method of determining bushing size, is to measure the neck wall thickness of the cartridge cases with a ball type or tubing micrometer. Double this measurement and add the bullet diameter to calculate the neck diameter of a loaded cartridge. As above, subtract 0.001" from this figure to determine bushing size. This method is the least desirable of the two, as a ball micrometer is fairly expensive and more difficult to read consistently than a conventional micrometer.

If you're starting with new cases, the neck wall thickness can be determined as above with a ball micrometer, or you can seat boat-tail bullets in a few cases and measure their neck diameter. Generally, the neck diameter of new cases is small enough to hold a bullet without sizing. As a last resort, you can measure the neck wall thickness of the cases with a caliper. Be aware that you may not select the correct bushing on the first try when using a caliper to measure neck wall thickness, due to the reduced measuring accuracy of the caliper.

The above methods of determining bushing size require that the cases being sized have a fairly uniform neck wall thickness or have been neck turned. If the neck wall thickness varies more than 0.002", it may be necessary to use a bushing a couple of thousandths smaller than your calculations indicate, and then use a

size button in the die to determine the final inside neck diameter.

After loading your first few cartridges, it's a good idea to test the grip that the case neck is exerting on the bullet. The simplest method to perform this test is to press the tip of the loaded cartridge against the edge of your reloading bench with moderate pressure. The bullet should not be seated deeper in the case if you have sized at least one caliber of the case neck. If the bullet is seated deeper in the case, switch to the next smaller size bushing and start again.

It has come to our attention through customer calls and our own use of the bushing style sizing dies that in certain instances, a given neck sizing bushing will produce a case neck diameter that can be several thousandths of an inch smaller than the actual diameter of the bushing. This idiosyncrasy occurs when the neck diameter of the fired case is a great deal larger than the diameter of the neck sizing bushing, such as occurs when factory chambers are on the large side of the tolerance range and the brass is on the thin side. Typically, we have not noticed any problems until the case neck is reduced more than 0.008-0.010".

Solutions include, increasing bushing diameter to compensate and/or the use of a size button. Reducing the neck diameter in two smaller steps by using an intermediate diameter bushing will also help. More concentric necks will also result using this method, as the case necks are stressed less during sizing. Don't forget to properly chamfer the inside and outside of the case mouths and apply a light coating of lubricant to the case necks before sizing.

To determine bushing range for standard calibers see "Redding Bushing Range Chart".

\* We recommend that the neck diameter of the largest loaded cartridges measure at least 0.002-0.003" smaller than fired cases measured at the same location. This ensures that there is a clearance of at least 0.001-0.0015" all around the neck of the loaded cartridge. This clearance allows the case neck to expand and safely release the bullet upon firing.

*Courtesy of Redding Reloading.*