

FORSTER PRODUCTS

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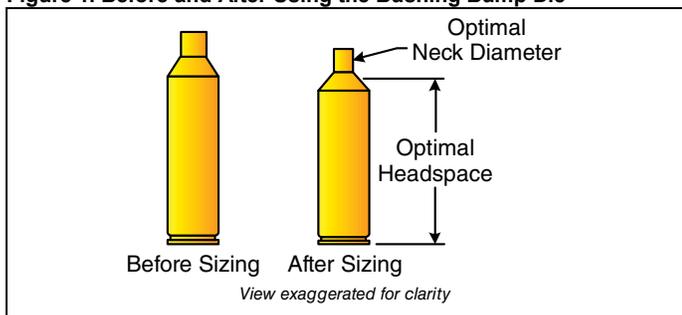
User Instructions for the Bushing Bump Neck Sizing Die

Issue 13

1.0 GENERAL INFORMATION

The Bushing Bump Neck Sizing Die offers advanced precision by allowing you to precisely control the amount of neck sizing tension in your reloaded cartridge brass. This die improves accuracy and prolongs case life because the neck is sized down as little as necessary while still "bumping" the shoulder of the case to maintain overall case concentricity.

Figure 1. Before and After Using the Bushing Bump Die



Over 90 interchangeable bushings are available in 0.001" increments. These precision bushings provide great flexibility in adjusting for case neck wall thickness when customizing the neck sizing. See Section 5.0, "Other Applications," for additional sizing options.

1.1 Features and Benefits

- "Smooth as Silk" Machining – Forster neck bushings are machined to a superior interior finish.
- Forster Cryogenic Treatment Creates Stronger Steel – In an aircraft-quality lab, heat-treated bushings are cooled to extremely low temperatures, then cycled through controlled exposure to heat. Super-cooled "cryo" treatment refines and closes the grain structure of steel. The denser metal surface reduces friction and wear and increases wear resistance. Not only will the bushings last longer, the improved dimensional stability results in better reloads!

2.0 SAFETY INFORMATION

- Always wear safety glasses.
- **Do not use on military brass with crimped primers.** Use a specially designed (decapping only) sizing die.
- Keep complete, chronological records of all reloads. These load data are useful for future load development.

- Primer** (manufacturer, type, lot)
- Case** (manufacturer, overall length, neck wall thickness, number of times fired, comments)
- Powder** (type, manufacturer, lot, charge)
- Bullet** (manufacturer, type, weight, lot)
- Cartridge** (overall length, comments)

3.0 PREPARATION

3.1 Have a 7/64 short arm hex key (Allen wrench) available.

3.2 Inspect Cases, Die and Die Components for Cleanliness

To keep the inside of your dies scratch-free, ensure the outside and inside of your cases are free of powder residue and other debris, case necks are deburred, and the die itself is kept clean. This precaution also applies to the "E-Z" Out Expander Ball (E-10) on the Decapping/

Expander Assembly, where brass chips and other debris may inadvertently be transferred to the case and die neck.

Chips that result from trimming and deburring, or a case that has not been deburred, are especially damaging to die interiors. These chips can become embedded in the die interior. The resulting brass against brass effect "galls," or wears away, minute pieces of brass on the case and gets worse with each use of the die.

3.3 Prepare the Cases

1. Inspect all cases and dispose of those that are split or separated.
2. Clean cases.
3. If the case neck walls vary in thickness, turn the outside neck to a consistent thickness using a **Forster Outside Neck Turner** (HOT1010 or HOT100).
4. Chamfer sharp corners of trimmed cases with a **Forster Deburring Tool**.
5. Lightly lubricate the case neck and shoulder with **Forster High Pressure Lube**. Do not over-lubricate, as this may create pressure dents during sizing.
6. If using the optional Expander Ball (see Section 6.0), apply a thin coat of dry lubricant to the inside of the case necks by pushing the cases down over the brushes of a **Forster Case Graphiter**.

3.4 Prepare the Die

Clean inside die surfaces using a cloth patch saturated with gun-cleaning solvent.

3.5 Select the Neck Bushing

For best accuracy, use the least amount of bullet tension needed. New brass will generally work well with the bushing selection procedure outlined below; however, after brass has been fired more than four times, it work-hardens and may require smaller bushings to attain the same initial bullet grip.

NOTICE

Cartridges must have the correct clearance between their neck outside diameter and the rifle chamber' neck inside diameter. This clearance is necessary for the bullet to be released properly during ignition.

1. Select a case that has been fired in the rifle in which the reloaded cartridges will be used.
2. Determine the correct neck bushing size by using one of the following two methods to obtain the case neck measurement (in inches):

Bushing Selection Algorithm

$$[(\text{case neck wall thickness} \times 2) + \text{bullet dia.}] - 0.002" = \text{correct bushing size (number on bushing)}$$

Micrometer or Dial Caliper: Measure the outside neck diameter of several loaded cartridges. Ideally, this measurement should not vary more than 0.001". Use the smallest diameter in the formula below:

$$\text{cartridge case outside neck dia.} - 0.002" = \text{correct bushing size (number on bushing)}$$

TIPS

- For increased bullet grip/greater press fit, subtract 0.003" instead of 0.002" in the formulae above.
- If using moly-coated bullets, the neck bushing may need to be up to 0.003" smaller to maintain adequate bullet tension.

3.6 Insert Bushing and Adjust Lock Nut/Decapping Assembly

1. Loosen the Large Lock Nut (DIENUT-X-10-9/16-18) and remove the Lock Nut/Decapping Assembly from the die.
2. Insert the correct neck bushing, chamfered side down (Fig. 2), into the top of the die.
3. With the Large Lock Nut loosened, screw the Lock Nut/Decapping Assembly back in to the die until contact is made with the neck bushing.
4. Turn the Spindle Bushing (Y-10-1.350, Y-10-1.500, Y-10-1.625) approximately 1/8 turn counterclockwise. This action allows a slight amount of bushing float.
5. While holding the Spindle Bushing in its position, tighten the Large Lock Nut against the top of the die. The Spindle Bushing is now properly adjusted to maintain this bushing float.
6. Ensure the Small Lock Nut (DIENUT-A10-10-32) and the Washer (DIESZR-W-10) are tight against the Spindle Bushing to prevent the Spindle (DIESZR-D-10#) from moving.
7. The Bushing Bump Neck Sizing Die is now ready to size your cases.

Figure 2. Bushing (Bush-XXX)

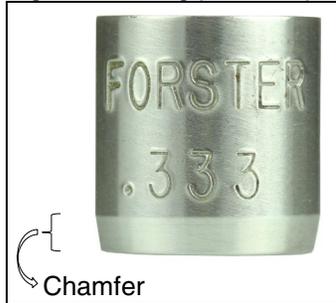
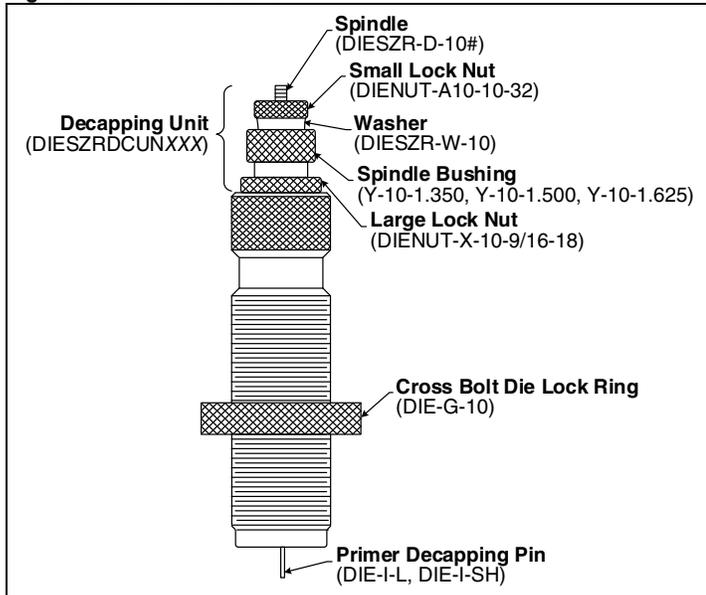


Figure 3. Die Nomenclature



4.0 CASE SIZING PROCEDURE

1. Install the die into any standard 7/8-14 thread reloading press or **Forster's Co-Ax® Reloading Press** so that it makes contact with the shell holder when the ram is at its uppermost position.
2. Tighten the Cross Bolt Die Lock Ring (DIE-G-10) by using a 7/64 short arm hex key on the Die Lock Ring Screw (6-32 X 1/2").
3. Insert a case into the reloading press.
4. Size the case by actuating the reloading press. (Ensure the die makes complete contact with the shell holder.)
5. Remove the sized case from the die.

Check case length and trim to length, if necessary. The case is now ready for priming and powder charge.

TIP

It is preferable to adjust headspace without removing the Die from the press, using the following technique:

1. Slightly loosen the adjustment screw on the Lock Ring.
2. Hold the Lock Ring in place while turning the Die to the required depth.
3. Tighten the Lock Ring, and continue sizing cases.

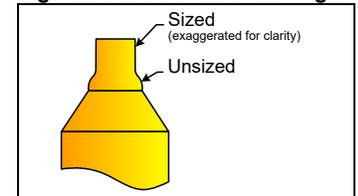
5.0 OTHER APPLICATIONS

5.1 Partial Neck Resizing

The Bushing Bump Neck Sizing Die may easily be adjusted to resize only a portion of the neck length (see Fig. 4). The partially-sized neck allows the unsized section to better align the cartridge in the rifle chamber. This action places the bullet close to the lands of the rifling with equal pressure at top and bottom.

1. Loosen the Large Lock Nut.
2. Turn the Spindle Bushing counterclockwise to the desired point. (The greater the turn, the smaller the sized area on the case neck.)
3. Tighten the Large Lock Nut.

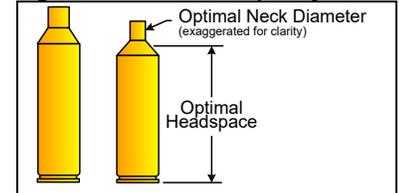
Figure 4. Partial Neck Resizing



5.2 Shoulder Bump Only

By removing the neck bushing, the Bushing Bump Neck Sizing Die may be used to bump the shoulder without changing the case neck diameter (see Fig. 5). This action maintains proper headspace in any chamber, be it custom or factory.

Figure 5. Shoulder Bump Only



5.3 Case Neck Forming

When using neck bushings to form "wildcat" calibers, squeeze the cartridge necks down using 0.010" increments. Neck reaming and/or outside neck turning are usually required after or during neck-forming conversions. Always proceed with extreme caution when developing loads for converted wildcat calibers.

6.0 "E-Z" OUT EXPANDER BALL (E-10) OPTION FOR NECK EXPANSION

Although the Bushing Bump Neck Sizing Die is designed for prepared cartridges that normally do not require a Forster "E-Z" Out® Expander Ball, it may be ordered separately (see Section 8.0) and installed on the Spindle. This technique may be advantageous when using commercial brass "as is" or to correct damaged case mouths ejected from semi-automatic rifles. For more information, see "User Instructions for the Bench Rest® Full Length Sizing Die" found under "User Instructions" at the **Resources** section of our website.

Forster can also manufacture neck reamers to custom specifications.

7.0 AFTER USE

Oil the die with good quality gun oil before storing die until the next use.

8.0 REPLACEMENT PARTS

Every product component is available individually. A complete list of component order numbers and prices is available on our website. Go to forsterproducts.com, then click **Replacement Parts**.

For best prices, contact your Forster distributor. Experienced distributors are an integral part of the shooting sports. Please make frequent use of their knowledge and support them. To find a Reseller, go to forsterproducts.com, then click **Distributors**. If your distributor cannot supply you, please contact us by email, fax, or phone.

WARRANTY

All Forster Products are warranted against defects in materials and workmanship for the life of the product. Parts excluded from the warranty are those that, by nature of their function, are subject to normal wear (such as springs, pins, etc.) or that have been altered, abused, or neglected. If the product is deemed defective by workmanship or materials, it will be repaired, reconditioned or replaced (at Forster's option). This warranty supersedes all other warranties for Forster Products, whether written or oral.