

FORSTER PRODUCTS

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User Instructions for the Bushing Full Length Sizing Die

Issue 1

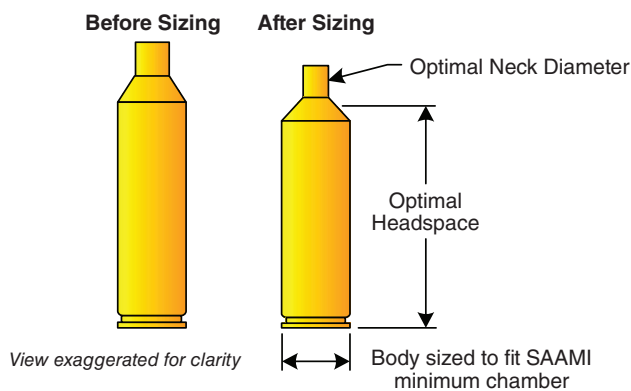
1.0 GENERAL INFORMATION

The Bushing Full Length Sizing Die offers advanced precision by allowing you to precisely control the amount of neck sizing tension in your reloaded brass while sizing the body and bumping the shoulder. This die improves accuracy and prolongs case life because the case's shoulder and body is sized down just enough to fit in a minimum-sized SAAMI rifle chamber, and bushing limits working of the neck.

Figure 1. Bushing Full Length Sizing Die



Figure 2. Before and After Using the Full Length Bushing Die



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 (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 which 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 worsens with each use of the die.

3.3 Prepare the Cases

1. Inspect all cases and dispose of those which 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 (OT1010 or HOT100).
4. Chamfer sharp corners of trimmed cases with a Forster Deburring Tool (DB1000).
5. Lightly lubricate the case body and shoulder with Forster High Pressure Lube (11071). Do not over-lubricate, as this may create pressure dents during sizing.

3.4 Prepare the Die

Clean inside die surfaces using a cloth patch saturated with gun-cleaning solvent. Die is supplied with an expander ball and decapping rod. The neck expander ball is removable for those who have controlled the neck wall thickness by outside neck turning their brass. Customized expander ball sizes are also available by special order.

3.5 Select the Neck Bushing

For best accuracy, use the least amount of bullet tension required. 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

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

1. Select a case which 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: cartridge case outside neck dia. - 0.002" = correct bushing size (number on bushing)

TIP

For increased bullet grip/greater press fit, subtract 0.003" instead of 0.002" in the formula above.

3.6 Insert Bushing and Adjust Decapping/Expander Assembly

Die uses interchangeable neck bushings available in thousandth increment sizes. These bushings should be interchanged to control bullet grip.

Figure 3. Bushing (Bush-XXX)



The positional height of the bushing within this die is user adjustable if desired. You have the capability to size the entire case neck or just a portion of the case neck.

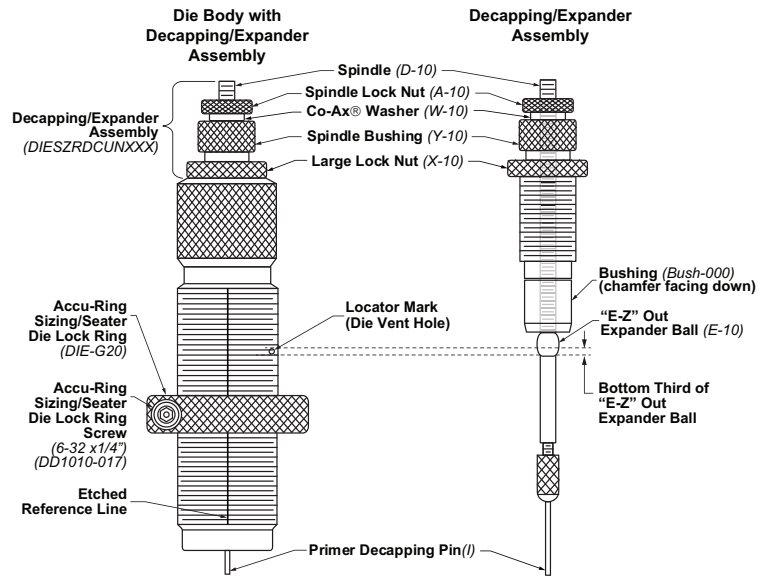
1. Loosen the Large Lock Nut (X-10) and remove the Decapping/Expander Assembly (DIESZRDCUNXXX) from the die body.
2. Insert the correct neck bushing, chamfered side down (Fig. 3), into the top of the die body.
3. With the Large Lock Nut loosened, screw the Lock Decapping/Expander Assembly back into the die body until contact is made with the neck bushing.
4. Turn the Spindle Bushing (Y-10) approximately 1/8 turn counter-clockwise. 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 body. The bottom third of the "E-Z" Out Expander Ball (E-10) should be lined up with the Locator Mark. The Spindle Bushing is now properly adjusted to maintain this bushing float.
6. Ensure the Spindle Lock Nut (A10) and the Co-Ax® Washer (W-10) are tight against the Spindle Bushing to prevent the Spindle (D-10) from moving.
7. The Sizing Die is now ready to size your cases.

TIP

To have the bushing set your neck tension, the expander can be removed.

Note that when the expander is removed, this places more importance on consistent neck wall thickness. Neck turning will be required to maintain consistent neck tension.

Figure 4. 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 it makes contact with the shell holder when the ram is at its uppermost position.
2. Tighten the Accu-Ring (DIE-G-20) 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.

TIPS

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

1. Slightly loosen the Die Lock Ring Screw on the Accu-Ring. Hold the Accu-Ring in place while turning the die to the required depth.
2. Tighten the Accu-Ring and continue sizing cases.

5.0 AFTER USE

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

6.0 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.

7.0 ACCU-RING

7.1 General Information

The Accu-Ring is a sizing/seater die lock-ring which provides reference marks in increments of thousandths of an inch (0.001”).

NOTICE

Reference lines marked on dies coincide with the Accu-Ring.

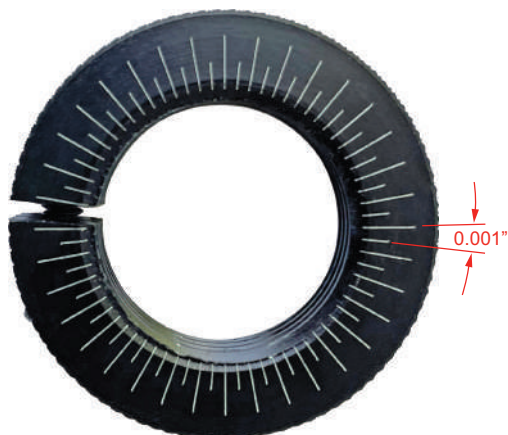
- Accu-Ring lines may fade with extended use

These reference marks make it easier to set up your sizing and seating dies by helping you to zero in on what you want the headspace length of your cases to be.

NOTICE

The distance of 0.001” is the distance between a long and short reference mark as shown in Figure 5. This distance indicates the up or down adjustment of the die in the Co-Ax® Reloading Press. (Actual up or down movement of the die is 0.000998” per reference mark, which, for all intents and purposes, is one thousandth of an inch (0.001”).)

Figure 5. Accu-Ring Reference Marks

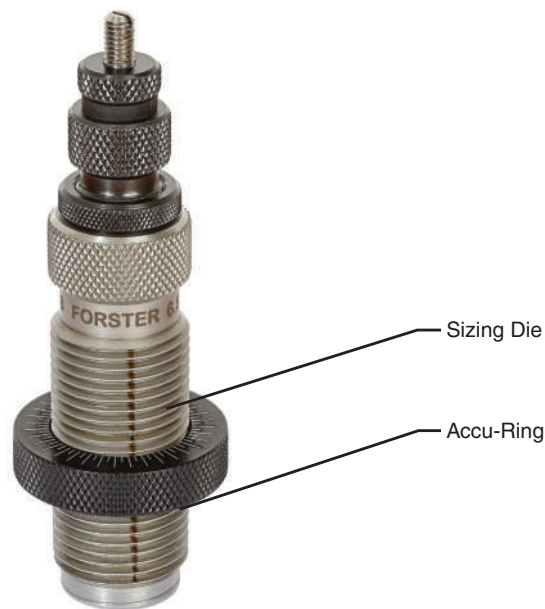


7.2 Use

To use the Accu-Ring reference marks, use the reference line on your die, as shown in Figure 6. Then turn the die:

- Clockwise, to increase the amount of shoulder bump, or
- Counterclockwise to decrease the shoulder bump (i.e., increase the case's headspace length).

Figure 6. Accu-Ring Use



Note that there are many factors which could influence the final amount of shoulder bump during sizing, such as:

- Ductility or springback of the case brass.
- Type of case lube used.
- Pulling an expander ball or mandrel through the case neck.
- Amount of slack in the linkage of your reloading press.

NOTICE

Ensure you tighten or “lock-up” the Accu-Ring after making an adjustment and before resizing the case or you will not obtain consistent results.

Table 1. Accu-Ring Order Guide

Order Number	Description
DIE-G-20	Accu-Ring sizing/seater die lock ring

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.

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