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Tools **WILSON** Gages
FOR ACCURATE UNIFORM HANDLOADS

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INSTRUCTIONS FOR THE WILSON INTERCHANGEABLE BUSHING NECK DIE

The neck die is made using a reaming method, which maintains the alignment we consider necessary to good case preparation while allowing choice of neck diameter. Both the case and the sizing bushing fit closely and do not float.

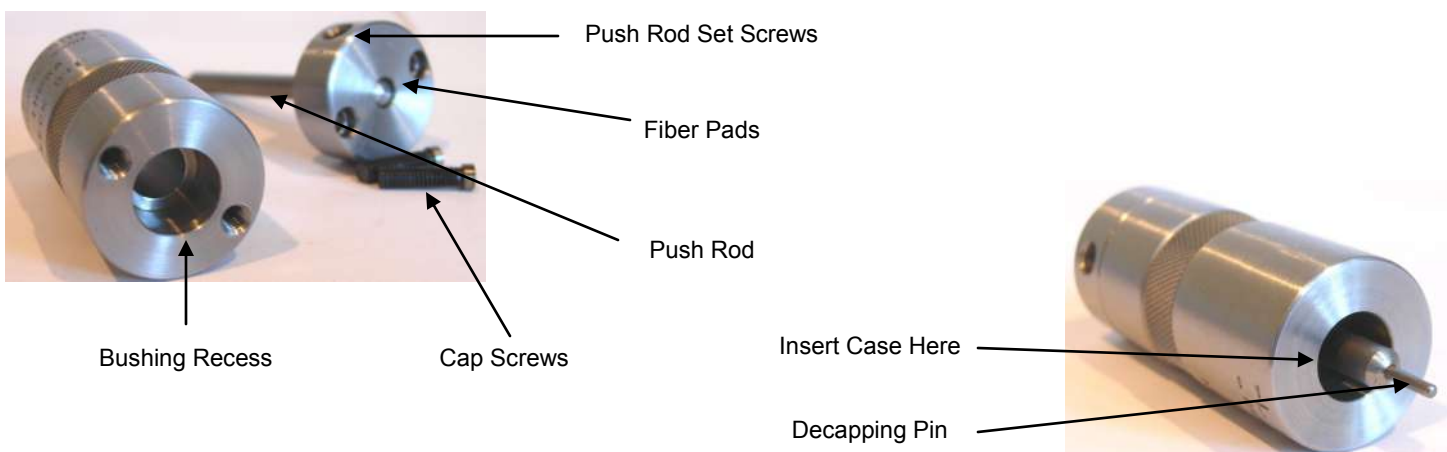
The Wilson Neck Die as normally packaged contains the die body, cap and de-capping push out assembled, a 3/32" hex wrench, the sizing bushing or bushings, if ordered at the same time are packaged separately in the box.

Installing the Bushing:

1. Wipe off oil from exposed surfaces
2. Prepare to remove the .219" diameter push out rod. Do not pull out immediately. Take the 3/32" hex wrench and "set" the retaining pads holding the rod by tightening, then loosening each of the two set screws recessed into the round outside of the short cap attached to the larger body of the die. The tightening should be firm, but do not overdo it... this is a small wrench.
3. When the set screws are loosened, the rod can be pulled out with little effort. The purpose of the initial tightening is to upset the fiber pads against the rod sufficiently so that they don't fall out when the rod is removed.
4. Remove the push out. In the end of the retainer cap, loosen one screw and remove the other. Swing the cap around the clamp lightly to expose the bushing recess in the end of the body.
5. Wipe out excess oil in the case chamber and the bushing recess. Make sure the bushing recess and the mating surfaces of the cap and body are clean and insert the sizing bushing with the size marking up, exposed. It fits very closely and must be aligned properly to go in, but should slide in freely to just below the body surface. Do not force it... if clean and undamaged, the recess will accept the bushing easily.
6. If the bushing doesn't go in far enough, remove and clean again. A cartridge case is handy to push out the bushing from the other end.
7. With the bushing in place, swing the cap back over it and tighten the screws moderately. Make sure the pads are still in place and slide the push out rod back in with the decapping pin toward the case chamber.
8. Adjust the setscrew pressure on the pads so that the push out can move easily with a few pounds pressure, but is in no danger of falling out. Very little tightening is required to maintain the friction and then it becomes very stable. Be sure not to tighten the set screws with the rod out... this will push the pads out. Do not tighten the set screws onto the rod with the pads missing it will scar the rod.

Using the Neck Die

1. Wipe the cases to be resized with a dry or very lightly oiled cloth. Oil just tends to carry grit into the die and make it harder to keep clean.
2. Insert the case into the die and tap it in flush or press it in with an arbor press.
3. Pound it or press it back out with the push out rod. Usually this will also decap the case. If the primer is corroded in, crimped in, or held too tightly for any reason, or if the die's grip on the neck is insufficient, decapping may require a support for the head of the case. Decapping can also be done outside the die, or course. The push out decapping rod supplied with the neck die is excellent for this, used with our regular decapping base. The user who wishes to use this die with a light arbor press instead of holding it in his hand will find this base useful. We make a Stainless Neck Die Decapping base for this purpose.



TIPS ON OPERATION

- All the die parts except the friction pads are made of steel and can rust. A little light oil such as W-D 40 between uses is a good idea.
- If the push out rod tends to fall out or be driven out when tapping the case in or out... tighten the retaining screws slightly.
- If the sizing and push out operation seem too hard... the push out rod may be gripped too tightly. Check as to whether you can move it by hand.
- Be sure the right bushing is installed. If a tight bushing for thin-wall cases is used on a thick-wall case in the .22 calibers, excess sizing can crimp the case neck onto the .218" push out rod. If the cartridge case seems to "come up hard" at the beginning of sizing, stop immediately and drive the case out with the push out. Inspect the bushing for brass pick-up and push out for scratches. If either occurs, polish with fine abrasive cloth to clean it up.
- Do Not drive the case below the surface of the die. A little farther and the shoulder will contact.
- If the sizing bushing won't enter its chamber even when everything else is clean, check the chamber for dents at the entrance and bushing for "bruises" which even hardened steel can get when dropped or bumped against something else as hard or harder. Both the bushing and its chamber are well protected when assembled, but in the open, both can be damaged. Keep the bushing recess covered by the secured cap, even when not using, and don't let your collection for bushings rattle around loose. A last cause of bushing non-entry is an oversize bushing, which we try to prevent, but realize might happen. A good micrometer should show the bushing to measure not over .5017".

Bushing size selection:

Option 1 Measure a Loaded Round:

The easiest way to tell what size bushing you need is to measure your loaded rounds at the neck. The micrometer reading will indicate bullet diameter plus twice the wall thickness of the neck. The bushing diameter must obviously be less than this, and we select .003" smaller. Figuring the springing back of the neck after sizing, it would give about two thousandths "grip" on the bullet.

Option 2 Measure Wall Thickness x 2 add Bullet Diameter:

.223 + (.012 x 2) = .247 Now subtract .003 = .244 Bushing

How are L.E. Wilson Inc. Bushings Different?

Reloaders who want a firmer grip on the bullet or who have harder brass in springing back more would select a smaller bushing. We make our bushings in .001" increments. The size marked on them refers to the middle of the bushing, which is reamed with a .003" taper. Since the case neck only reaches the middle, sizing 3/16" of the neck, a slightly tighter sizing can be achieved by turning the bushing over, with the marking in. This is mainly an emergency step to be taken if the brass has hardened, springing back more, and will no longer hold the bullet; or for fine-tuning the sizing to provide less additional "squeeze" than using the next smaller bushing in the normal way.

How much does it size the neck?

All the dies we are now making size the neck to 3/16" from the end, a practice many bench rest shooters prefer. We can increase the length of sizing on your die about 3/32" by shortening it and reaming deeper, at a cost not yet set. If interested, please inquire. A \$30 modification fee does apply plus shipping of about \$7.50 for one die.

My case will not fit in the die

Clear the die of oil and dust first. Please be sure to try an unloaded, clean, fired case in the neck die to make sure the body fits without sizing. Push a fired case into the neck die without the bushing in the die. The head of the case should go flush with the bottom of the die. If it won't go flush... push it out with the push-out rod. Clean the die and case again. If it still won't go flush, push the case out again. We then need to open your neck die to fit your fired cases.

Please send in three (3) fired cases and the neck die without the bushing. Neck dies are made to S.A.A.M.I specifications for MAX cartridge. Many chambers are larger than that. Not all chamber reamers are created equal. We do not charge to open up the die, but we do have a minimum \$7.50 shipping and handling charge.

Neck Die Blank Chambering:

1. Neck Die Finish Length = Case Length + .167 NOT INCLUDING THE CAP (This will size 3/16 of the neck)
2. Center drill blank to ensure drill starts straight
3. Next Drill body use a drill that is .020 smaller than smallest diameter of body of case you are chambering. Drill depth = Case Length plus .050 to .080 depending on size of drill. This is from point of drill back.
4. Now taper bore body to .004 under finish diameter
5. Ream until the head of the case is flush with the end of the die. This reamer should be piloted with a long .350 diameter bushing to ensure alignment.

LIMITED WARRANTY

All L.E. Wilson products are warranted against defective workmanship or materials under normal use for one year from the date of purchase. "Normal use" means as described in accompanying instructions. "Date of purchase" is for the first user of the product. The warranty applies only to the first user and does not cover consequential or incidental damages. If the user believes he has a defective tool he is asked to contact L.E. Wilson, Inc. P.O. Box 324 Cashmere, WA 98815 / 509-782-1328 describing the problem. The tool or part will be repaired or replaced at our option with no expense to the user except for correspondence costs. The part or tool must be accompanied by proof of purchase that shows source, date of purchase, and cost. All states have implied warranties created by law that apply to all consumers and most products so the above limitations and exclusions may not apply to you.