Sizing Bullets

Suggested sizing diameter is .001 over the standard jacketed bullet diameter. All lead bullets must be lubricated, but it is not absolutely necessary to size all cast bullets. Bullets must be sized if they are so large that they expand the case too much to freely enter the gun’s chamber. Sizing sometimes helps accuracy by making the bullet uniform in diameter. This insures uniform start pressure and better accuracy.

1. Screw the sizing die into any standard reloading press. Exact depth is not important.
2. Install the bullet seating punch into the ram. This fits all rams that use standard shell holders.
3. Place the red box on top of the sizing die, as shown.
4. Place bullet on the punch and push bullet through die.
5. When box is 3/4 full, lift the entire box off the die. Invert the box before opening.
6. For rifle and handgun loads, it is best to re-lube the bullets to insure the sized portion is recoated.

Guarantee

LEE RELOADING PRODUCTS are guaranteed not to wear out or break from normal use for two full years or they will be repaired or replaced at no charge if returned to the factory. Any LEE product of current manufacture, regardless of age or condition, will be reconditioned to new—including a new guarantee—if returned to the factory with payment equal to half the current retail price.
Water will cause molten lead to flame so be cautious to prevent a burn. A dark grey powder floating on the metal should be removed with a small scum on the top. Don’t remove this as it’s the tin that has separated from the lead. Wear safety glasses and gloves.

To harden your alloy, add tin and/or antimony. A rule of thumb for hardening lead alloys: For every 1% of tin added to your lead you will increase the brinell hardness by .3. For every 1% antimony you add, you will increase the brinell hardness by .92. Once you get above 40% tin, no additional hardness is obtained. If you do not own a Lee lead hardness test kit you can check the relative hardness by taking a bullet of known hardness, place it base to base with one of unknown hardness and squeeze them in a vise. The softer bullet will compress a greater amount. Adjust alloy to suit.

CASTING BULLETS
If you’re an experienced bullet caster, forget most of what was true when using the difficult to use cast iron blocks. The Lee Bullet Mold makes casting bullets easy and fast. No need to cast 50 to 100 before you start getting good bullets. Many times the first one you pour will be good, provided you follow the simple instructions. Because the aluminum mold blocks conduct heat fast, the metal must be extra hot for good bullets.

TAKE CARE OF YOUR MOLD
Your bullet mold is a precision-made tool. To preserve this built-in accuracy, it’s necessary to lubricate it properly. Beeswax or an anti-seize lubricant must be applied to the locating pin and sprue pivot points. Lack of lubrication will cause the sprue plate to gall and damage could be irreparable. When storing for long periods, lightly oil steel parts to prevent rust. Never wire bush or contact the mold with anything hard like steel.

PREPARING YOUR METAL
Wear safety glasses and gloves. After the metal has melted, it will have a grey scum on the top. Don’t remove this as it’s the tin that has separated from the lead. Flux the metal. Do this by placing a small piece (the size of a pea) of beeswax or paraffin into the molten metal and stir with the ladle until there is nothing but a dark grey powder floating on the metal. This should be removed with a small ladle. Always flux the metal after adding to the pot or if it needs it. The smoke caused by fluxing your metal can be ignited with a match. The wax may burst into flame so be cautious to prevent a burn.

CAUTION Your bullet mold will be damaged and your bullets will be of poor quality unless lubricated as in step #4.

BULLET METAL
Pure lead is too soft to make good bullets for all but very light loads or black powder guns. Our bullet weights are based on a 95/5 lead/tin alloy. Addition of tin to the alloy will improve the castability by lowering both the surface tension and viscosity. For every 1% of tin added to your lead you will increase the brinell hardness by .3, and for every 1% antimony you add, you will increase the brinell hardness by .92. Once you get above 40% tin, no additional hardness is obtained. For every 1% of tin added to your lead you will increase the brinell hardness by .3, and for every 1% antimony you add, you will increase the brinell hardness by .92. Once you get above 40% tin, no additional hardness is obtained. The approximate hardnesses of various lead alloys and the maximum load pressures that should be used in preventing leading of the bore are:

<table>
<thead>
<tr>
<th>Lead Type</th>
<th>Brinell Hardness</th>
<th>Maximum Load Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Lead</td>
<td>5 bhn</td>
<td>7,000</td>
</tr>
<tr>
<td>1-10% tin</td>
<td>12 bhn</td>
<td>34,000</td>
</tr>
<tr>
<td>Wheel weights</td>
<td>12 bhn</td>
<td>17,000</td>
</tr>
<tr>
<td>Lyman #2</td>
<td>15 bhn</td>
<td>20,000</td>
</tr>
<tr>
<td>Lead type</td>
<td>22 bhn</td>
<td>30,000</td>
</tr>
</tbody>
</table>

To make bullets easy and fast. No need to cast 50 to 100 before you start getting good bullets. Many times the first one you pour will be good, provided you follow the simple instructions. Because the aluminum mold blocks conduct heat fast, the metal must be extra hot for good bullets.

HELPFUL HINTS
NEVER DROP BULLETS DIRECTLY from the mold into the lead pot. Metal will splash onto the mold faces and prevent complete closure. BE EXTREMELY CAREFUL not to get any water into the molten lead. Even a small drop will explode into steam and violently spatter hot lead a surprising distance. GLASSES AND GLOVES ARE MANDATORY when handling molten metal. LOADS SHOULD NOT EXCEED 34000 PSI with plain base bullets. This means most pistol loads can be loaded without gas checks.

INFORMATION TO PREVENT DAMAGE TO YOUR BULLET MOLD FOLLOW INSTRUCTIONS EXACTLY.

These steps are critical

1. Save yourself a lot of time by cleaning your mold before the first use. Use any volatile solvent to clean the cavities of the machining oils used in the manufacturing process. White gas/cigarette lighter fluid on a cotton swab works well.

2. Smoke the cavities with a match, beeswax candle, or a butane lighter. The smoke provides a micro insulating layer in the cavity allowing easy fill out and easy release from the mold. Smoke the cavities whenever the bullets begin to stick when casting. You will find that after some use the mold will become “seasoned” and smoking will not be required as frequently or at all. Do not use Drop Out Mold Release Spray.

3. Pre-heat your mold by laying it on top of your mold block for at least 30 seconds. If the lead sticks and solidifies on the mold block it’s not hot enough.

4. Lubricate your mold using beeswax or Permatex® anti-seize lubricant or equivalent. DO NOT USE Lee Liquid Alox as it will bake on the mold surface, preventing proper closure. DO NOT USE paraffin wax as it does not provide adequate high temperature lube and tends to migrate to the cavities, causing wrinkled bullets. Lightly touch the preheated mold alignment pins and the sprue pivot point screw. It will instantly wick into the sprue plate pivot area and allow gall free operation of the sprue plate. As soon as you feel the sprue plate bind, touch the now hot sprue pivot point with lube.

5. If you are using a six cavity mold be certain the sprue lever cam surface is in contact with the mold block side and there is a gap between the edge of the sprue plate and the formed stop on the sprue lever. Should you inadvertently fill the mold without the sprue plate closed, place a screwdriver or similar device under the sprue cam as shown before cutting.

6. Fill mold through the sprue plate, puddle enough so all of the sprues are connected. Leave a ⅛” to ⅜” gap between the sprue plate and the nozzle when filling the mold cavities. NOTE Resting the sprue plate on the bottom pour spout while filling will pressure cast the cavities and may push molten material into the vent grooves, causing flashing on bullet.

7. Immediately after sprue solidification operate the sprue lever if equipped or rap the sprue tang with a wood dowel. (A frosted surface will appear on the sprue puddle upon solidification.)

8. Open the mold and drop the bullet onto a soft cloth. (An old towel works well.) It may require a few taps on the handle bolt to free the bullets.

9. Continue casting until the mold becomes too hot. This will be apparent when it takes too long for the metal to solidify and the bullets are frosty. Frosty bullets may be desirable when using lee liquid alox. Our tests indicate the lube adheres better and they can be shot at higher velocities without leading.

10. The mold can be cooled by touching it to a wet sponge. CAUTION Water will cause molten lead to explode violently, splattering hot lead everywhere!

OUT OF ROUND BULLETS
This condition is always due to the mold not being fully closed. Check your mold faces for a lead splash out of round. Should you inadvertently fill the mold without the sprue plate closed, place a screwdriver or similar device under the sprue cam as shown before cutting.

[See TROUBLESHOOTING next page]

Bullets for modern cartridges will be stated size to plus .003. Most bullets from Lee molds can be used as cast. Sizing should not be considered as an absolute necessity. However, all cast bullets must be lubricated. When using a hard alloy like linotype multiply the listed bullet weight by .93 to obtain your approximate bullet weight.