The Los Angeles Silhouette Club

Mountain Molds

By: Glen E. Fryxell

It seems as though everybody has their own idea of what the perfect cast bullet should look like (I know that I certainly do!). You might think that custom mould makers would be rolling in business to answer this market need, but the traditional cherry-based method of making bullet moulds is both costly and time consuming, and only allows bullets of one diameter to be produced from a given cherry. The relatively high cost of this process tends to dampen the enthusiasm of many would-be mould designers. Modern CNC machining methods allow the operator to lathe bore most any mould design that can be captured in a CAD file. All this then requires that the bullet design be reduced to the appropriate series of dimensions, angles, arcs, etc. Modifications to a given design only require a few keystrokes at a computer, instead of machining a completely new cherry. Dan at Mountain Molds has made capturing this information very easy with his calculation spreadsheet and drawing program. I recommend that you go to his website: http://www.mountainmolds.com and play with his software to see how easy (and how fun) this is. The ease of this process allows you to run through several design iterations and quickly refine your design to optimize those features that you want to capture, or to take an existing design and tailor the bullet diameter to fit your particular gun. Once you have the bullet you want, you simply click on a button to place the order. He plugs your numbers into his CNC and your mould comes out the other end and is shipped to your door. Custom-made 2-cavity bullet moulds for $75 are hard to ignore!

I like lots of lube, lots of bearing surface and lots of meplat. I tend to lean towards a Keith-style lube groove(s) -- wide, flat-bottomed, and with beveled edges. Concurrently, I like wide driving bands to allow the lands to “bite” the bullet more firmly. Best bullet alignment is obtained with those bullets that have bearing surface over at least half of their length. Review of the accurate bullet designs that exhibit long range stability and don't tend to tumble on impact and penetrate in straight lines (Keith SWC's, SSK FP's, LBT LFN, etc.) reveals meplats of 65-75% of bullet diameter. Larger meplats lead to bullets that have marginal stability and can tumble on impact (wadcutters, some WFN's, etc.). This observation has led me to adopt a 73% meplat as my approximation of ideal (nose length and ogive radius also factor into this, but that's a separate discussion). So those are the basic design concepts that led me to design these moulds. You may have different ideas that you can incorporate into your mould designs just as easily as I did mine.

Dan offers moulds made in both aluminum and brass, so I bought 2 of each in order to compare and contrast. Dan's basic mould design changed after I ordered the first mould, to include a 3rd alignment pin (for more positive alignment), and to use 3/16" 4140 steel for the sprue plate, instead of the tool steel that had been used

previously. The new sprue plate design has the striker plate at the 12 o'clock position instead of the 3 o'clock position. He has also cut the sprue plates so the back side of the striker plate is cut at a 45 degree angle, which saves material (holding costs down), but it also makes closing the sprue plate after dumping bullets a smooth, sliding motion rather than a striking motion, a change that I like very much and one that should add to mould longevity. The first mould I ordered from him took 3 weeks to arrive, the second order of 3 moulds took 4 weeks to get here. Outstanding turnaround for custom work! The workmanship displayed in all 4 moulds is excellent.

The 4 moulds I had Mountain Molds (his spelling, not mine...) make for me were:

> A .404" 200 grain Keith-style SWC, designed for the Herter's .401 Powermag revolver

> A .312" 100 grain Keith-style SWC for the .32 H&G Magnum

> A.412" 300 grain GC-FP for the .405 Winchester

> A .453" 325 grain FP for the .45 Colt

All of these bullets were designed as hunting bullets, have meplats that are 73% of bullet diameter and the 3 revolvers bullets have deeply cut beveled crimp grooves. I did not have a crimp groove put on the .405 Winchester bullet as I will be using this in a single-shot and therefore don't need a crimp.

The Keith-style SWC bullet designed for .401 Herter's Powermag dropped from the blocks at .404" and weighed 199 grains when cast of WW alloy sweetened with 1-2% tin. This is exactly the diameter I wanted for this bullet as the Herter's (Hawes) revolver has .405" throats and a groove diameter of .403".

.40 caliber Keith-style SWC for the Herter's .401 Powermag made by Mountain Molds.

Bullets were "sized" .405" and lubed with homemade moly lube (equal parts by weight beeswax and Sta-Lube Extreme Pressure Moly-Graf grease). The bullets were round (i.e. diameter didn't vary from point to point, a common problem with mass-produced bullet moulds), and dropped from the cavities smoothly and easily. This bullet has provided the best accuracy of the 10 or so bullets tried in this revolver to date. The best load tried so far is 18.0 grains of Accurate Arms #9 with a CCI 350 primer for 1405 fps, with 5 shots going in to about 2" at 25 yards (6 1/2" barrel).

The meplat diameter on this bullet is .295", which is actually larger than that found on the highly respected .44 Keith SWC (Lyman/Ideal 429421, meplat diameter .275"). Since it is the meplat that is responsible for creating the wound channel, I anticipate this bullet should do just fine on deer sized game, and I intend to hunt with it this fall. As for larger sized game, I would prefer a heavier bullet (from a revolver).

The Keith-style SWC designed for the .32 H&R Magnum was also nice and round, and also fell from the blocks with ease. Bullets were .313" in diameter and weighed 101 grains when cast with WW alloy. Again, this is just the diameter that I wanted, and an

excellent fit for my .32s. Sized .312" and lubed as above, and loaded into .32 H&R Mag cases over 6.5 grains of Accurate Arms #7 and a CCI 550 primer grouped 5 shots into 1 1/8" at 25 yards. Velocity was 1174 fps from the 6" S&W Model 16 .32 H&R Mag. This is a very clean load, and is ideally suited to small game and vermin.

.32 caliber Keith-style SWC for the .32 H&R Magnum made by Mountain Molds.

300 grain GC-FP bullet for the .405 Winchester made by Mountain Molds.

I have a 14" Contender barrel that started off life as a .41 Magnum. It has a .411" groove diameter and was re-chambered to .405 Winchester. When fired from a Contender, the .405 Winchester must be kept at or below about 42,000 psi peak pressure to keep back-thrust within the capabilities of the Contender's frame. "Load From a Disc" calculations suggest that this is possible by keeping velocities with 300 grain bullets below 2000 fps with powders slower than the IMR 3031 and H335 class. The flat-point bullet that I designed for the .405 Winchester was put together explicitly for this gun. Previous work with 370 grain cast bullets at 1700 fps revealed that recoil was, shall we say "brisk", and trajectories were somewhat curvaceous. The standard weight for the .405 Winchester is 300 grains and I wanted a useful hunting bullet of this weight both to flatten trajectory and to reduce recoil (relative to the 370s that I had been using). Since it's a single shot, there is no need for a crimp groove, so I didn't ask for one (besides, that gives me that much more bullet metal for positive engagement with the lands). It has 2 wide, flat grease grooves, and a GC shank cut for Hornady .416 GC's. These bullets drop from the blocks at .412" diameter and weigh 290 grains when cast of water-quenched WW alloy. Adding a GC and lube raises their weight up to 298 grains; exactly what I was looking for. When seated on top of 55.0 grains of H4895 and sparked with a Fed 215, this bullet delivers 1929 fps and is very accurate. This combination is remarkably flat-shooting, and now constitutes my preferred load for this gun.

The fourth mould I asked Dan to make for me was for the .45 Colt. I have a Ruger Super Blackhawk that I converted to .45 Colt with .480" chambers and .452" throats, and I wanted a 325 grain plain-based bullet with a 73% meplat specifically for this gun. This 2-cavity brass moulds drops bullets that weigh 325 grains and measure .453-.454" in diameter when filled with WW alloy. Sized .452" and loaded on top of 21.3 grains of H110 with a CCI 350 primer, this bullet delivers 1227 fps and good accuracy from the 7 1/2" Ruger. With a .330" meplat and 325 grains of bullet weight this promises to be an excellent hunting bullet! It is my intention to introduce a large pig to one (or more) of these bullets this fall. I'll let you know if he's impressed.

325 grain PB-FP mould for the .45 Colt made by Mountain Molds.

The two Keith-style SWC moulds were cut from aluminum, while the 2 ogival flat-point moulds were cut from brass. The surface finish of the brass moulds is

beautiful. The aluminum moulds show more tooling marks than do the brass moulds (which one would expect, that's just the basic nature of the two different metals), but the cavities on all 4 are well cut and release their bullets easily and smoothly. Bullet finish in all cases is smooth. I couldn't tell any significant difference in terms of how long it took moulds cut of each metal to warm up (that's more a function of how much molten metal one is pouring into the mould blocks, besides I pre-warm my moulds as I'm melting the alloy). Overall, these Mountain Molds drop some of the roundest bullets that I've ever cast, and they deliver bullets that were either spot on, or very close to the target diameter. In summary, Dan makes exactly what you order, his moulds produce bullets that are round and the right size, and his turn-around time and prices are quite good.

- Glen E. Fryxell

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