



Wahoo.

Here's something that is just it, in my book, literally and figuratively. It's a Match Rifle barrel that is truly ready to go, for anyone. The problem has been finding a correct barrel for the man with tools. Most are just, somehow, wrong. Either they're too short, too heavy, poorly chambered, questionable overall quality, wrong twist, over-pressured, or, guess what, all these things. It's hard to assemble your own NRA Match Rifle when the barrel, the heart of the gun, is compromised. The rest is easily more possible now than ever. Lee Penzkowski of Northern Competition will sell you one of these, and I'd say buy it. It's a Badger with a Wylde chamber, 26-inch finished length at 0.875 muzzle diameter, 0.750 parallel end section, gas port located one inch ahead of standard (corresponding gas tube is available), and it comes with a stripped bolt so no worries. Sells for under four-hundred dollars. Get it 1-8 or 1-6.5 twist. There are options, including fluting at a fair-rate, but out of the box and onto the gun, it's equivalent to having had a custom builder do your barrel, but you put it on yourself. This has been a long time coming, and, well, here it is. I've known builders to offer such things to customers, but Northern Competition is the first I've encountered that keeps them in stock. They have Service Rifle barrels too, with float tubes.

Why that matters is because a cut-rifled barrel can be contoured prior to rifling. Why that matters is because taking metal away from the outside of the barrel also changes its inside, as said. As expected, reducing the outer diameter usually increases the inner diameter, and since barrel contouring, the way we need it done at least, makes a barrel smaller outside toward the muzzle than at the chamber, then that's not the best thing we could have. There's zero

consensus that a bore should ever be larger diameter at the muzzle, internally, than elsewhere.

Now, why that really matters to us is that an AR15 barrel just about has to have a few step-downs cut into it. Most barrels are around one-inch diameter prior to any contouring. Unless someone wants a brute of a barrel, it needs taken down a good deal. Different barrel dimensions, and the reasoning behind them, are discussed in the specific project rifle

segments, but the short course is that all are going down a good 0.200 for a good stretch before they go on one of my rifles, and some go down more than that. Service Rifle barrels in particular are forced into significant reductions. Ultimately, they're down to 0.720 beyond the front sight housing, after stepping down radically from (usually) 1.000 inches to the front sight housing required diameter of 0.750. Turning a barrel down from one inch to less than three quarters of an inch will affect its internal dimensions. Rest assured.

The whole trick here is getting a barrel maker to consider the importance of this and, well, do it. It's easier for a cut-rifled maker to engage this option because, again, it doesn't matter to his tooling if the barrel is contoured like an hourglass — the cutting tool will still cut precisely and the interior will be uniform.

Land diameter uniformity is very important. Cut-rifled barrels tend to check out outstandingly. Their makers are cognizant of land diameter because it's what they are working with in forming the grooves. Follow? The lands are more important than the grooves, but many barrel makers and pseudo-technoids tend to go on about groove diameter (usually just called "bore" diameter) and one reason is that it's a lot easier for most folks to measure. Why are the lands so daggone important? Because that's what drives the bullet, that's why. The lands do just about all of whatever is done to a bullet, good and bad; the bullet just slides along the grooves.

HIGH POWER BARRELS?

Are there really such things that makes one barrel, and we're talking about someone's product, better than another for use on an across-the-course or Long Range rifle? Aside from twist rate selection or rifling format, not really. One thing that does seem to be a benefit to longevity, but probably not a lot else, is groove depth, which is the same as land height, but not necessarily, or directly, land diameter. Lemmesplain: when a barrel blank is drilled, the size of this pilot hole means ultimately larger or smaller land diameter. The depth of the groove then determines bore diameter, and that's fairly well universally set-

ted on at 0.2240 (but can vary a little). Obermeyer barrels are well-known for extra-height lands, which means smaller drilled diameter to start. His .224 caliber barrels usually require a 0.217 pilot, which is about 0.002 smaller than others. Krieger has 0.218. Both these barrels last a good long while because deeper grooves (taller lands) tend to shoot better longer, and they are also made with good steel. I said "good steel" and by that I realize that many barrel makers use, for instance, the same 416 stainless, but there are different representations of it, represented, of course, by different suppliers. Good makers get the "good stuff" sampled and certified.

BARREL LIFE

IT'S REALLY A QUALITY OF LIFE ISSUE

Mostly, barrel wear is throat erosion. The throat is the area several inches ahead of the chamber. That's where the turmoil takes place. Temperatures skyrocket to the point to equal a skyrocket, and burning propellant cuts into the steel. The higher the flame temperature, the more fuel involved, and the longer time the cutting is confined to a smaller and narrower area, the more the steel gets hurt. Material is displaced and the surface is damaged. The displacement causes the effect of lengthening or "pushing" the chamber throat and the surface damage can hurt the bullet jacket.

Factors that influence erosion all revolve around the dynamics of the flame and the gas it produces, plus a couple that have to do with the barrel himself. As said, the more flame getting directed into a smaller area for a longer time the more intense the cutting effect. Some propellants burn at a lower temperature. That's not reason enough to use them, because while they give more rounds they may not necessarily give more accurate rounds. Or they may. Specifically, many ball-type or spherical propellants will extend barrel life, and it can be as much as an additional 1000 rounds (assuming that 5000 would be the "done" standard for a single-base extruded propellant, such as a 4895). Some double-base extruded propellants, on the other hand, have higher flame temperatures (ball powders are double-based also).