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The Trouble with Chokes

By Randy Wakeman

The trouble and confusion with a specific choke on a shotgun is that the marking on your choke tube (or barrel) may have nothing at all to do with the type of pattern an individual gun actually throws. In fact, no matter what a choke tube or barrel is marked it will seldom or never give exactly the pattern percentage that industry standards say it will.

The definitions of "choke" are performance based, not based on the constriction at the muzzle of a scattergun. The designations are defined by the percentage of the pellets from the shotshell that land in a 30 inch circle at a distance of 40 yards. Generally, cylinder means 40%, skeet 45%, improved cylinder 50%, skeet II 55%, modified 60%, improved modified 65%, full 70%, and extra full choke 75%.

It does not matter at all what a choke tube may be marked. If 60% of our pellets land in a 30 inch circle at 40 yards, that is a modified choke whether our tubes say skeet or full on them.

The only way to get some idea of what your gun is doing is to pattern your gun. Not a particularly fun task, for me it's like watching paint dry. But, if we want to get an idea of the actual pattern downrange, we need to pull the trigger. Otherwise we are just guessing.

There is no substitute for patterning a shotgun. That is why there can be no accurate answer

given to the questions, "what choke should I use?" or "what choke does my gun have."
Several factors come into play affecting our pattern percentage. The easiest to understand is the hardness of the shot. Cheap "chilled shot" has very low antimony content, and as a result this shot easily deforms shot when the initial setback of the shot column occurs upon firing and during its trip down the barrel. Smashed pellets don't fly well, dropping out of the shot cloud and decreasing the pattern percentage downrange. Antimony costs more than lead, so hard shot costs more.
The code words of "chilled," "extra hard," and "magnum" shot roughly correlate to increases in antimony content, but that isn't always marked on the bag. "West Coast Extra Hard Premium Magnum Shot" is as good as I've ever used for clays work, and is 6% antimony, about as hard as shot gets for the reloader. Most of the premium target shotshells run 5-6% in their antimony content, where "field grade shot" is in the 3% or so antimony range. As pellet size goes up, it takes less antimony to help the shot retain its shape.
Chilled shot is the softest, usually running about 2% antimony or less. Small diameter chilled shot is cheap, and that is what you can expect in promotional dove or "universal loads" in the boxes with birdies and duckies on them.
Shot hardness directly affects the pattern you will achieve, as will shot roundness, uniformity, and finish. Nickel plated shot is generally acknowledged to be the best, followed by copper plated shot.
Wad makers like to say that their wads give better patterns, powder makers like to say that powder makes the difference. Those are stories for another day. But, without question, shot quality makes a *big* difference.
The main thing to remember is that a shotshell and an individual shotgun, forcing cone, barrel, and choke all function together as a system. To find the best system for our application, we need to do our own testing and patterning. Nothing replaces that. Even a moderate amount of patterning helps point the way to the most effective loads for an individual shotgun.

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