

Shotgun Chokes: Specs and Recommendations

By [Randy Wakeman](#)

Choke Tube Muzzle Dimensions + or - .0015

Choke Type	10 ga. Std.	12 ga. *Inv.	12 ga. *Inv. +	20 ga. *Inv.	12 ga. Fixed	16 ga. Fixed	20 ga. Fixed	28 ga. Fixed	.410 Fixed
Turkey	0.730	0.670	0.697						
X-Full		0.691	0.697						
Full	0.740	0.697	0.708	0.594	0.685	0.624	0.585	0.527	0.398
Improved		0.708	0.720		0.695		0.590		
Modified									
Modified	0.758	0.715	0.728	0.605	0.705	0.657	0.595	0.539	0.402
Improved									
Cylinder	0.768	0.719	0.737	0.609	0.716	0.661	0.603	0.543	0.404
Skeet		0.727	0.74	0.612	0.719	0.665	0.621	0.551	0.404
Cylinder		0.737	0.754	0.615	0.725	0.673	0.625	0.551	0.409
Bore	0.775	0.727	0.742	0.617	0.729	0.667	0.617	0.547	0.412

*Inv. = Invector Choke

Browning has always defined "shotgun" to me, and they have been a leader in the field as far back as I can remember. The above chart tracks the Browning shotgun barrel and choke specifications inclusive of the differences from fixed choke to Invector screw choke to the current Invector Plus barrels and chokes. A perusal of the above information shows that many of the assumptions and old wives tales attributed to shotgun dimensions are just plain wrong.

You'll read in the literature about "standards." For example that .729 in. is the standard bore diameter for "American" twelve gauges, and .725 in. is the "European standard." Current Browning 12 gauge barrels are neither. It is fallacious to assume that any individual gun has either of those exact bore diameters. That is one of the reasons why we need to mic our bores to begin to uncover the constriction / patterning relationship in our individual gun.

Perhaps you've heard the old advice that "if a dime won't fit down the muzzle of a 12 gauge, it is "full choke." Well maybe, but maybe not. We need to pattern to see what any shell / barrel / choke combination actually does. There is no other way, as "choke" is *performance* based, *not* constriction based, and the markings on a choke tube indicate neither.

Note that "cylinder" is a choke, not the same as actual bore diameter. It may be .010" over bore diameter, as in 12 gauge Invector specs, or it may be a constriction as in 20 ga. Invector specs, or 12 gauge fixed choke specs.

While skeet shooting one afternoon, a few folks "assumed" that I was running the field with a modified or tighter choked 20 gauge, as all the birds were inkblots. It wasn't the case at all. My gun was actually a B-80 20 gauge with a "cylinder" Invector tube, so assumptions and appearances can be misleading.

Perhaps you've heard the notion that, "those old Belgium Brownings have really tightly choked barrels." Actually, that is normally not the case. What has happened, with the shift to plastic wad cups that eliminate contact between the shot pellet and the shotgun bore, less constriction is generally needed to achieve a certain pattern percentage.

Added to that, the plastic wad cup reduces the potential "bore" of our shotguns by its own thickness and we are now effectively shooting a smaller gauge shell. This increases the choke effect at the muzzle as well, as the percentage of constriction goes up in concert. I wondered why my IC 12 ga. A-5's threw such beautifully dense, even patterns of 1-1/4 oz. #5 shot at 40 yards; far tighter performance than "improved cylinder" is supposed to give.

That was eight hundred or so pheasants ago and now the relationship of shell construction and constriction (though still an inexact trend) has become clearer to me. A plastic shot wad, .013 in. constriction, relatively large nickel-plated lead shot, and a 1-1/4 oz. or heavier payload can produce patterns far tighter than we might assume at first blush, perhaps astonishingly so.

The Winchester 101 was the first production shotgun to have screw-choke, which have become standard fare. The combination of new

plastic wads of varying thicknesses, increasingly progressive-burning shotshell powders, and the gravitation to heavier payloads left many manufacturers a bit puzzled, understandably so. Then, along came steel shot with thicker shot wads yet, and it became a further nightmare to stamp a choke tube with any particular performance designation.

No matter what your choke tube marked, I guarantee you that it is "wrong." Choke tubes just aren't smart enough to know what loads we might feed our individual shotguns, so again we need to pattern our guns with the shells we are going to hunt or break clays with.

Manufacturers have absolutely no clue what a particular shotgun will do with all the loads out there, nor should they. For example, I can tell you of all the millions of shotguns ever sold, the number that were designed to perform with "Hev-13" or "Winchester Xtended Range" high density shot. That's easy, even for me--that would be zero. It is very difficult to design and manufacture a shotgun for projectile materials that have yet to be produced. Shot size, composition of shot, wad type, muzzle velocity, and payload weight all can dramatically affect what pattern a given gun will throw. There is no "standard" load that most manufacturers pattern with, and that remains part of the reason the designation on a choke tube does not mean anything specific.

There are starting points, however. The best thing anyone can do is to establish a baseline through patterning with factory chokes and a specific load. If we have no idea where we start at, we don't know if we are really improving things or not, much less by how much. The Browning fixed choke constrictions above have always been a reasonable guideline for me.

Recommendations are necessarily vague, but for skeet or other 25 yard (and under) work, I like to see at least some constriction, .003 in. to .006 in. For 27 yard 5- stand trap there is no much thing as too dense of a pattern, so .030 to .035 in. constriction is a reasonable start.

For reasonably close game, out to 35 yards or so, the .015 in. constriction area is a good starting point. When you need to be prepared for longer wing-shots; the .025 in. constriction chokes are a

reasonable compromise. Not much looks good past 50 yards that I've seen.

Turkey chokes are a unique animal, as the maximum 24 inch 100% lethal pattern is not the goal, but more the density of the 8-10 inch fist with which we want to punch the head. A trend is a .050 in or greater constriction extended tube with an extremely generous parallel section.

Most chokes today are "conical-parallel," meaning we have a tapered cone to give us the constriction, and a parallel (a.k.a. "cylindrical") section that has been shown to allow the shot mass to stabilize and reduce flyers. It is not that all factory chokes are garbage, some produce excellent patterns, but some are clearly better not being used.

After we have a baseline of performance, the best thing anyone can do is go to choketube.com and get a couple of similarly constricted extended Carlson's choke tubes to compare. I won't tell you they are the "only" choke tubes on the market by any means. I will tell you that, as a generality, there are none better at twice the price.

Your pattern board will prove to you exactly what improvement you get. Particularly in the tighter constrictions, when used with larger shot, or with heavier payloads, the results may astound you. Expect particularly amazing results when compared against shorter factory tubes, like the standard Invector / Winchoke. If you have plastic fouling issues, you can also expect those to diminish or disappear. Make no mistake, crud clinging to the inside of a choke tube can destroy the proficient patterns we all seek, in a hurry.