

I always get questions on what choke someone should use with there shotgun. I will post the info on chokes and then the entire article for those who really want to read it. I will simply state that if you have an Improved Cylinder and a Modified you can do almost anything with you 3-Gun shotgun.

Standard Choke Constrictions in Inches		
(From Briley)		
DESIGNATION	Gauge	
	10/12/16/20	20/410
Cylinder	.000"	.000"
Light Skeet	.003"	.003"
Skeet	.005"	.005"
Improved Skeet	.007"	.007"
Improved Cylinder	.010"	.009"
Light Modified	.015"	.012"
Modified	.020"	.015"
Improved Modified	.025"	.018"
Light Full	.030"	.021"
Full	.035"	.024"
Extra Full	.040"	.027"
Super Full	.050"	---

Percentage Of Shot Inside 30" Circle			
CHOKE	20 Yds	30 Yds	40 yds
Cylinder	80%	60%	40%
Skeet	92%	72%	50%
Improved Cylinder	100%	77%	55%
Modified	100%	83%	60%
Improved Modified	100%	91%	65%
Full	100%	100%	70%

Choosing The Right Choke For Your Shotgun

by Layne Simpson • November 3, 2010 • [Comments \(42\)](#)

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Loads and hunting conditions factor into the equation

By Layne Simpson

The evolution of the shotgun from flintlock to modern repeater capable of firing fixed ammunition is important, as are other inventions such as smokeless powder, nonmercuric primers and plastic hulls, but all combined do not hold a candle to the importance of choke development. If not for choked barrels, shotguns built today would perform about the same as those built during the 1800s and earlier.

We may never know for certain who discovered that the range of a shotgun could be increased by reducing or “choking” its bore to a smaller diameter at the muzzle, but in the United States an Illinois duck hunter named Fred Kimble is usually given credit for coming up with the idea around 1866. Through the decades most guns had fixed chokes and while the introduction of aftermarket devices such as the Cutts Compensator with its screw-in choke tubes of various constrictions became popular with skeet shooters during the 1950s, few hunters used them.

Evolution of the interchangeable choke system took another leap forward in 1959 when Winchester introduced its glass-barreled Model 59 shotgun with the Versalite choke system but several more decades would come and go before the idea became universally accepted by hunters. The eventual adoption of the interchangeable choke system by shotgun manufacturers increased the versatility of the old scattergun by leaps and bounds and it saved shotgunners a lot of money as well. No longer is it necessary to buy extra barrels in order to have different choices in chokes; today’s guns come with a variety of screw-in chokes that can be switched with a twist of the wrist.

The amount of choke in a barrel is easily determined by subtracting the inside diameter of the choked area from the diameter of the bore, both measured with special gauges available from Brownells. If, for example, the bore of a 12-gauge barrel measures .729 inches and its choke measures .694 inches, it has .035 inches of constriction, which is rated as Full choke. The bores of 12-gauge guns can vary anywhere from .720 to .740 inches among various manufacturers but regardless of what the bore actually measures, the barrel is choked Full if its choke diameter is .035 inches smaller than the bore.

Chart No. 2 shows the amount of constriction assigned to various degrees of choke by Briley manufacturing, the largest manufacturer of screw-in chokes in the country. Choke for choke, constrictions are the same for the 10, 12, 16 and 20 gauges but differ for the 28 and .410 once we get tighter than Improved Skeet. This is done in order to keep the constriction percentages close

to the same. For example, if we squeeze down a 12-gauge, .729-inch bore by .035-inch, we are reducing its diameter by about five percent. If we reduce the .550-inch bore of a 28-gauge barrel by that same percentage, we arrive at a choke constriction of .026 inches, which actually falls between what Briley indicates as Full and Extra Full chokes for that gauge.

Every shotgunner should understand how to determine the amount of choke in a shotgun barrel but actually doing so is not an absolute necessity. Even with that knowledge, the only way to know for certain how a gun and load combination will perform downrange is to pattern-test it on paper. Anybody can do it; simply shoot a sheet of paper measuring around 40 inches square at 40 yards, draw a 30-inch circle around the highest concentration of pellet holes in the paper and then count the holes. If, for example, the ammo you are shooting is loaded with 1/4 ounces of No. 2 steel shot, it contains approximately 156 pellets (see Chart No. 3).

Chart 1			
Percentage Of Shot Inside 30" Circle			
CHOKE	20 Yds	30 Yds	40 yds
Cylinder	80%	60%	40%
Skeet	92%	72%	50%
Improved Cylinder	100%	77%	55%
Modified	100%	83%	60%
Improved Modified	100%	91%	65%
Full	100%	100%	70%

If you count 94 pellet holes, your gun placed 61 percent of the shot charge inside the 30-inch circle. Referring to chart No. 1 reveals that the load is delivering Modified performance. To get a better picture of how the gun is performing, shoot at least five patterns with the same load and take the average of the results.

Keep in mind that just because your gun delivers Modified (or whatever) performance with one load doesn't necessarily mean it will do the same with other loads. Also keep in mind that just because the barrel of a gun or its screw-in choke was marked "Modified" or "Improved Cylinder" at the factory does not mean it will deliver Modified or Improved Cylinder choke performance with all loads.

Different loads from various manufacturers or even different loads from the same manufacturer can vary in a number of ways and those variations can result in a difference in performance even though choke constriction remains the same. Even though the load you just tested delivered Modified performance, another load might deliver Improved Cylinder performance while the next might perform as if your gun is choked either tighter or looser.

Chart 2		
Standard Choke Constrictions in Inches		
(From Briley)		
DESIGNATION	Gauge	
	10/12/16/20	20/410
Cylinder	.000"	.000"
Light Skeet	.003"	.003"
Skeet	.005"	.005"
Improved Skeet	.007"	.007"
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The same rule also applies to different guns. If you test two seemingly identical shotguns with exactly the same amount of choke constriction in their barrels, one might deliver Improved Cylinder choke performance with Load A while the other gun delivers Modified performance with the same load. Like I said before, the only way you will know for certain how a particular gun and load combination is performing is to spend some time with both at the pattern board.

One of the great things about screw-in chokes is they give us the option of conveniently and inexpensively trying different constrictions with different loads. If you hunt flooded timber where most shots are taken inside 20 yards, you need the largest pattern your gun will shoot while maintaining adequate pellet density. If that box of shells you recently bought is delivering overly tight patterns for those conditions, just screw out the Modified or Improved Cylinder choke and screw in a Skeet or Cylinder choke.

Moving to the opposite extreme, if the box of ammo you have is not delivering a dense enough pattern at 30 yards for consistent multiple pellet strikes on mallards, simply replace the Modified

choke with Full or perhaps even Extra Full. But be careful when using extremely tight chokes as once the optimum amount of choke is reached for a particular load, a further increase in constriction can actually have a negative effect on pattern quality.

Chart 3		
Number Of Pellets Per Ounce		
SHOT SIZE	LEAD*	STEEL
8	585	---
7 1/2	410	---
6	225	316
5	170	243
4	135	191
2	87	125
1	---	103
BB	50	72
BBB	---	61
T	---	52
F	---	40

*Pellet counts for bismuth and Tungsten-Matrix shot are about the same for lead

Choosing chokes for specific hunting conditions is quite important. For shooting where most birds are taken inside 25 yards, Skeet and Improved Cylinder are our most useful chokes. When teamed up with the right load, those two deliver adequate pattern density for shots out to 25 long paces and yet pattern diameter is large enough to make hitting birds that flash by just off the muzzle of your gun quite easy.

For most of the waterfowling I do Improved Cylinder is the most useful although Modified comes in a very close second. While less useful for all-around use than more open chokes, there are times when Improved Modified is a good choice. As a rule, and depending on the load used, Improved Modified will extend range by five to 10 yards over Modified with some loads and yet at closer ranges it is easier to hit with than Full choke. When hunting with a side-by-side or over-under double, I often use Improved Cylinder in one barrel and Improved Modified in the other. About the only time I ever use chokes tighter than Improved Modified is when pass-shooting at longer ranges.

Those rules work for most of my guns and me but only pattern testing will determine if they work equally well for you and yours. To determine the maximum effective range of a choke/load combination for wingshooting, start by shooting paper at 20 yards and then back off from the pattern board in five-yard increments, shooting patterns at each range.

Once you see the percentage of shot inside a 30-inch circle drop below 65 percent you have exceeded the maximum range for that particular combination. While I realize it takes only one pellet through the brain or spine to drop a bird for keeps, I also realize it is possible for all pellets to miss those targets and if that happens multiple pellet strikes will usually deliver enough energy for a clean kill.

Chart 4				
Approximate Effective Pattern Diameters (In Inches)				
	10 Yds	20 Yds	30 Yds	40 yds
Spreader	23"	37"	51"	66"
Cylinder Bore (no choke)	20"	32"	44"	57"
Improved Cylinder	15"	26"	38"	51"
Modified	12"	20"	32"	46"
Full	9"	16"	26"	40"