Ballistics

By Tom Roster

Sub-Gauge Chamber Inserts

The shotgunning world is periodically confronted with "inventions" or ideas that seem simple in concept and desirable in design. This is good—a sign of a healthy industry. May those inventions keep coming.

Short chamber inserts to permit the shooting of a smaller-gauge shotshell in a larger-gauge barrel are just such an invention. Seemingly of recent vintage, small-gauge chamber inserts have, in fact, been around for decades but are just recently enjoying a resurgence in marketing.

The major improvement in the recent ones is that some of the brands now feature built-in extractors. Otherwise, they remain fundamentally the same as they were decades ago. Let's examine the concept of gauge-reducing chamber inserts plus review one design that works particularly well.

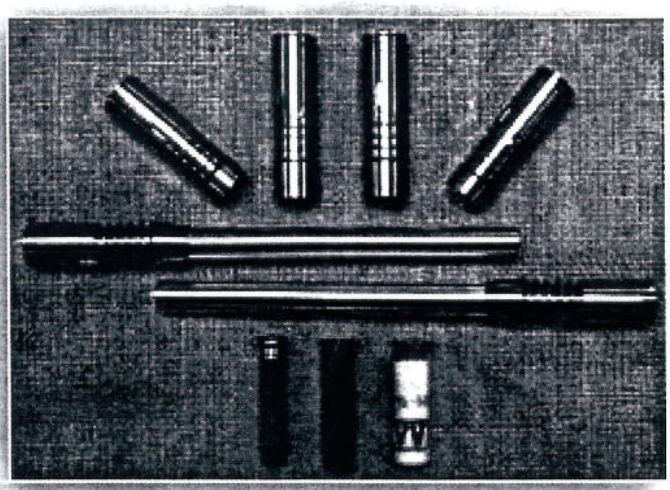
In concept, the attraction of the short, gauge-reducing chamber insert is that it is a much less expensive alternative for shooting a smaller-gauge shotshell in an existing larger-gauge shotgun than having to fork out hundreds or thousands of dollars for a separate smaller-gauge barrel or barrel set. The ultimate way to shoot the sub-gauges is to have on hand separate barrels that fit a single receiver. This way, the shooter can shoot a variety of gauges without changing the sight picture or upsetting the balance of the shotgun. Such guns exist in skeet shooting, for example. Known as four-barrel sets, these ultimate shooting systems commonly sell for $3,000-$5,000 minimum. Extra barrels can be had for a limited variety of shotgun models in the neighborhood of $300 (one barrel) to $1,000 or more (two-barrel sets) each.

While multiple barrels or barrel sets in multiple gauges for the same frame may be the most desirable alternative, it is by far the most expensive. It also requires the lugging around and protection of those extra barrels.

The second alternative, which has proven quite popular over the last few decades, has been sub-gauge tube inserts designed to fit the full length of a larger-gauge barrel. Like smaller-gauge barrels or barrel sets, the full-length, sub-gauge tube insert offers today's shooter a variety of screw-in chokes specifically fitted to the insert for ultimate versatility in patterns.

Full-length tube inserts relieve the gunsmithing firm of having to acquire or machine expensive monoblocs to fit an existing frame. So full-length tube inserts come in at significantly lower prices than separate barrels or barrel sets. But the full-length inserts, while less expensive, come with two significant negatives to the gun and shooter: they are only available for break-action shotguns, and they increase the total weight of the shotgun in a mostly weight-forward fashion, making it muzzle heavy. Most full-length tube inserts will increase the weight of the firearm by close to a pound per barrel. Even with modern machining and high-tech metallurgy, such as titanium (at still higher cost), most full-length tube inserts will still increase the weight of a double-barrel gun by more than a full pound. So by necessity, the most popular shotguns for full-length tube inserts have been the lightest double-barrel models.

Let's say you have a relatively heavy two-barrel shotgun and can't afford barrel sets, or no one will make them for your particular shotgun. Or perhaps your shooting style cannot tolerate another pound or more of full-length, muzzle-heavy tube inserts. What do you do? For many years, nothing. Budget permitting, you instead bought entire shotguns in separate gauges (even more expensive than four-barrel sets), usually with the added hassle of different barrel lengths, sighting planes, and gun weights/feel.



Seminole Gunworks' Chamber Mates

Today, however, there are at least four firms advertising short, gauge-reducing chamber inserts. Basically, these short inserts are not much longer than the chamber of your firearm. The claims are that they develop full velocity levels and just as good patterns at the same distances as full-length barrel sets or tube inserts.

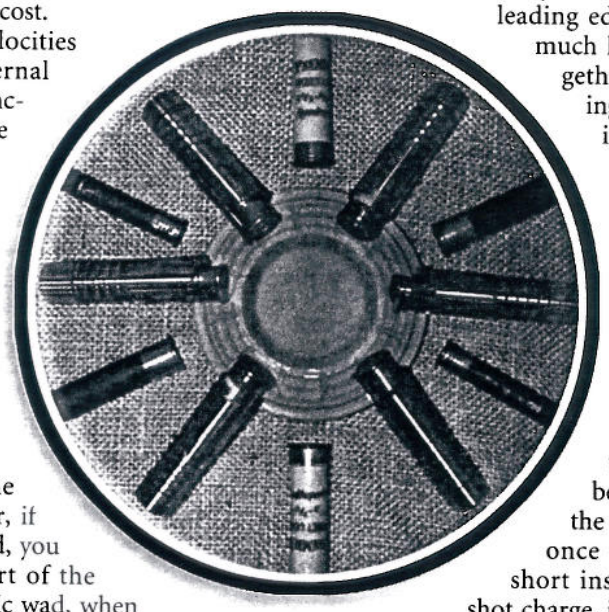
Are such claims exaggerated? From my testing so far, I would have to say that for most of the existing products, they are. The great assumption by the customer is that the short chamber inserts will function the same and deliver velocities and pattern values equal to full-length barrels or tube inserts but at greatly reduced cost and weight. From my testing, it doesn't always work out that way. Here's why.

The first ballistic problem with a short chamber-length insert is that you are hoping all of the propellant is completely burned in that smaller-gauge shotshell before the ejecta jumps from the short chamber insert into the larger-gauge bore proper. The second ballistic problem is that you are counting on the choke in the larger-gauge barrel to deliver pattern values equal to what would be delivered if the ejecta were choked by its own gauge's choking system. This means that you are also hoping that the choking of the shot at the muzzle of the larger-gauge barrel will somehow get the job done after the smaller-diameter ejecta has been subject to rattling down the larger-gauge bore for a couple of feet or more before entering that choke constriction. In many instances, these two ballistic challenges don't work out in practice as well as what may sound good in theory or advertising claims. More on this in a minute.

As to functioning, some short chamber inserts do not have built-in extractors. I tested one make recently, which required

the shooter, after each shot, to remove the short insert from the chamber, eject the hull with a ramrod of some type, then reinsert the device into the chamber before loading another smaller-gauge round. Do you really want to go through this for every shot?

At least one sub-gauge chamber insert manufacturer, Seminole Chokes and Gunworks (toll-free 866-410-28-20; www.chambermates.com), has seen fit to build extractors into its inserts. Called Chamber Mates, this Mims, Florida, firm's very well-designed and high-quality product completely relieves the three-step hassle described above. Chamber Mates can be used in any break-action shotgun of the proper chamber length without special fitting. The shooter simply installs the smaller-gauge insert and happily fires away. Hulls are removed by the gun's own extractor or ejector system, which meshes with the Chamber Mates' integral extractors. Chamber Mates offers you this important convenience with a weight amounting to only a few ounces added very close to the balance point of your shotgun—which completely eliminates the very muzzle-heavy effect of full-length tube inserts—and at a significantly reduced cost.



Now for the ballistics issues: velocities and patterns. To develop full internal ballistics, and assuming a proper-functioning primer and nothing defective about the powder charge, there simply has to be complete or nearly complete gas sealing for a given load in a given gauge to develop its full potential. The Achilles tendon of the short, sub-gauge inserts is that you are asking that the powder charge for a given load be completely burned and the full gas potential developed inside the insert (which is usually no longer than the chamber itself) before the ejecta exits into the bore proper. Or, if the powder is not completely burned, you are asking that the obturating skirt of the smaller-gauge shell's one-piece plastic wad, when leaping from the insert into the bore proper, expands fast enough and large enough in diameter *without rupturing* to continue the combustion process to its full potential. Those are two big demands. Can the short chamber inserts do this? Based on my testing, some can in *limited* applications; many cannot.

Where most of them fail in the gas-sealing department is when you are asking a tiny-gauge's wad, such as a 28 gauge, or worse yet, a .410-bore wad, to make the leap and continue the obturation process without significant gas leakage or outright rupturing of either the base of the wad or obturating skirt before the slower-burning powders in these two sub-bores achieve complete combustion. The toughest test is trying to accomplish this with the 28 gauge or .410 bore in a huge gauge, such as the 12.

I don't care whose insert you test, *if the inserts are no longer than the chamber,* when you fire .410 loads in a 12-ga. barrel, you will always find completely ruptured and blown-through bases in the recovered .410 plastic wads. The reason, of course, is that after jumping from the short chamber insert, the pencil-thin .410's obturating skirt was forced by gas pressure to expand so far to mesh with the grossly increased internal diameter of the 12-ga. bore, the gas pressure blew a gaping hole right through the base of the wad. There is no way that the load can develop its full velocity potential.

Now you may not measure this effect if you attempt to measure instrumental velocities using screen systems, the type of velocity measuring systems commonly sold for rifle and pistol, single-projectile velocity measuring purposes. There is a score of shotgunners, shotgun writers, and gunsmithing firms these days making the assumption that they can use them to measure instrumental shotshell velocities accurately. Well, you can't very well.

Screens, which rely on the shadows of ejecta, only work reliably and accurately when tiny shadows cast by short little bullets pass over them. Huge ejecta masses consisting of many inches of shot and plastic wads, etc., are not measured accurately by screen systems. The screens are also hyper vulnerable to being overwhelmed by muzzle blast from shotguns. In many instances, the shock wave from shotgun muzzle blasts trips one of the screens, and the actual ejecta itself trips the other screen. This gives a false velocity reading.

That is why the major US shotshell manufacturers use coil dysjunctors, not screen systems, to measure instrumental shotshell velocities. These devices do not rely on shadows. Also, they measure the center of the ejecta, not the leading edge, as screens do. Finally, they are much less vulnerable, if not immune altogether, to recording false velocity readings by being tripped by muzzle blast instead of the ejecta itself.

Then there is the question of patterns. If in fact the muzzle velocity developed by, say, a .410-bore load coming out of a short, sub-gauge chamber insert and then traveling down a larger-gauge shotgun barrel was the same as that obtained in an actual .410 barrel or full-length .410 sub-gauge tube insert, there is no way the .410 load from the short chamber insert would pattern as well from the larger-gauge barrel. This is because once the diminutive .410 wad exits the short insert, the petals spread, as does the shot charge, into the grossly larger-diameter barrel interior. This allows a much greater percentage of the shot charge to make contact with the inside of the larger-gauge barrel to suffer bore-scrub deformation than if the shot charge remained fully inside the plastic shot petals throughout entire bore passage—such as when .410 loads are fired down true .410-bore internal diameter barrels or tubes.

How is it that some short, sub-gauge tube insert manufacturers claim that patterns from their short inserts are as good as patterns from full-length tubes or barrels? Read the claims carefully. It would not be difficult for a 28-ga. load in a short insert to pattern well in a 20-ga. barrel or a 12-ga. load to pattern well in a 10-ga. barrel, for example. This equivalence tends to be achievable any time there are only "eight gauges" or less differential between the two. Because the difference in bore diameter in not that great, most wads eight gauges smaller can expand enough without rupturing to still make a proper gas seal, together with most of the shot still remaining in the petals during bore passage.

Where the acid test comes is when something as small as a .410 load is fired in a chamber insert in a larger-gauge barrel, a 28-ga. barrel included. Consider that the .410 bore is actually a "67½" gauge. That's a whopping 39½ gauges difference between the .410 bore and 28 gauge. This leap in diameter is so gross, there is no way the tiny .410 wad can do its job of both gas sealing and shot protection properly.

If you read claims of patterns from .410 loads fired from short tubes through larger-gauge barrels registering pattern densities as high as when such .410 loads are fired in full-length .410 tubes or barrels, I would suspect how the patterning was done. If in fact it was done properly, with statistically reliable sample sizes, and the patterns seemed about equal *over a variety of distances out to at least 50 yards*, then you can attribute it to the fact that the .410 loads coming from the short inserts emerged from the larger barrel at significantly lower velocity levels due to gas leakage. Lower velocity levels *always* increase pattern density. If the claimed velocity wasn't measured with a dysjunctor system, then the claim maker can be fooled with false velocity readings from screen systems.

On the other hand, if you're clever like Seminole, you design your .410 inserts to be a full 9" long, which does provide for complete combustion with the slow-burning propellants used in .410 loads before the ejecta leaps into the larger-gauge barrel. Then, instead of making exaggerated patterning claims, Seminole wisely conducted its pattern comparison tests for .410 patterns from its Chamber Mates inserts vs. full-length barrels or sub-gauge tubes at *20 yards*. And you will see—you can do the pattern testing yourself, as I have—that your Chamber Mates .410 inserts can pattern as well at this distance as full-length .410 barrels or tubes. But you will not see this if you compare .410 patterns from short chamber inserts against .410 patterns from full-length barrels or tubes at distances much farther than 25 yards. Beyond 25 yards, the full-length barrels or tubes will always win over the shorter chamber inserts.

The short tube inserts have the most value when trying to shoot sub-gauge ammo in larger-gauge barrels where the differential in gauge is no greater than about eight gauges. Short inserts are the most practical if they possess their own extractors *and* do not have to be custom fit to the chamber, two instances where Chamber Mates shine.

As far as the .410 goes, I have yet to see a short .410 chamber insert (which I define as not much longer than the chamber itself) produce equal velocities and pattern values as the same ammunition fired in full-length .410 tube inserts or .410 barrels themselves. The Seminole .410 Chamber Mate is one happy exception here because it is significantly longer than the chamber in which it is inserted. This ensures full .410 velocities from both 2½" and 3" .410 loads. And the Chamber Mates' .410 patterns are just as good out to 20 yards (but that's about it) as the full-length versions.

To correspond with the author or order Roster's new and greatly expanded 24-page 3rd edition reloading manual on buffered lead and bismuth shotshell loads or his instructional shooting videos or 75-page manual on shotgun barrel alterations (VISA/MC accepted), contact: Tom Roster, 1190 Lynnewood Blvd., Dept. SC, Klamath Falls, OR 97601; (541) 884-2974; e-mail troster@cdsnet.net

WARNING: The technical data provided herein was derived from a specific set of circumstances and conditions developed and practiced by the author. It is intended to be used only as a supplemental guide to the established safe practices of the remanufacture of ammunition, not necessarily explained herein in its entirety. Due to the variation of shotguns, reloading equipment, components, and practices of individuals, neither the author nor the publisher accepts responsibility for any bodily injury or equipment damage resulting from its use.

Seminole Gunworks Presents

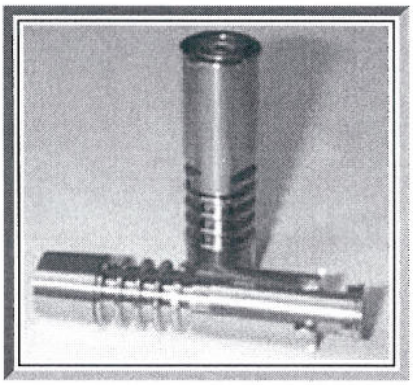
Sub Gauge Chamber Inserts

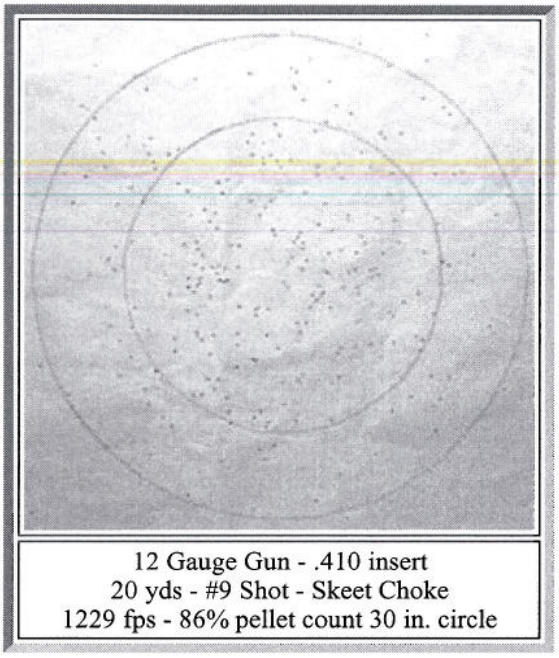
SEMINOLE CHAMBER MATES™

PATENT PENDING

Chamber Mates™ are lightweight sub gauge chamber inserts that allow you to safely fire and eject shells of a smaller gauge than your gun is chambered for. They are approximately the length of a fired shell, come with integral extractors that work in conjunction with the extractors of the gun to extract the spent smaller gauge shells, and unlike full length barrel tubes that change the feel and dynamics of your gun by adding upwards of two pounds of additional weight to the barrels, Chamber Mates™ weigh in at just a few ounces and provides your gun with the same feel and undisturbed balance, and with no noticeable increase in weight than when utilized in conjunction with the larger gauge shells that you normally use.

You are probably already saying to yourself that there is no way that you can fire small gauge shells thru the bore and choke of a larger gauge shotgun and achieve any satisfactory results, but there are some things in this world that just can't be explained, and this is one of them. Everything that we have been previously told about the science of ballistics tells us that this can't work, but it does. It may not work on paper or in mathematical formulas, but it works in practical application, and works well.





12 Gauge Gun - .410 insert
20 yds - #9 Shot - Skeet Choke
1229 fps - 86% pellet count 30 in. circle

All you have to do is take a look at the patterns and velocities achieved in our testing to believe it. Better yet, all you need to do is watch a clay target turn to dust or a bird crumple up and fall out of the sky and you will have all the proof you need.

Our hundreds of patterning and velocity tests and extensive field testing have proven that the velocity and pattern percentages produced when firing a smaller gauge shell thru a shotgun of a larger gauge is as good and many times better than what can be achieved when firing the same smaller gauge shell thru a standard shotgun or full length barrel tube of a matching gauge.

Click Below for More Info

Background F.A.Q.
Patterns Order
Directions for Use

Visit the Winners Circle to see Who is Winning Registered Events Using Chamber Mates

Winners Circle

For answers to questions and further information, contact us at sales@chambermates.com

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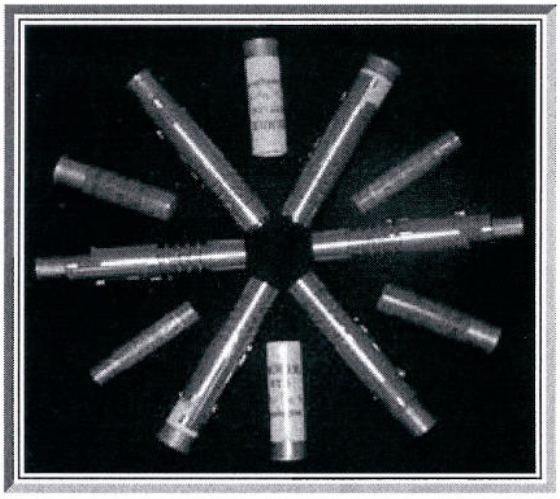
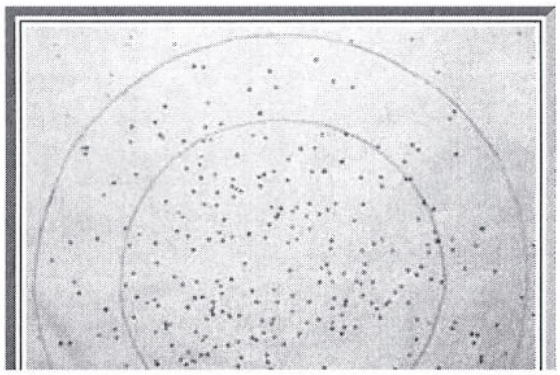
Background

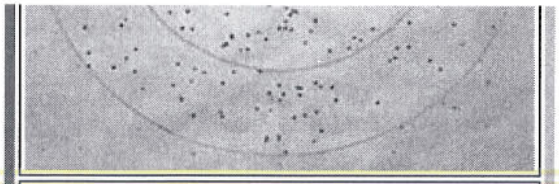
A few years ago while testing the patterns achieved thru back bored barrels, the thought occurred as to how much a barrel could be back bored and still maintain its velocity and patterning characteristics. We back bored a 12 gauge gun as large as it could safely be fired, which was approximately the same size as a 10 gauge gun. There seemed to be no loss of velocity and the gun patterned just fine. In the meantime, a lot of the new 3 ½ inch chambered 12 gauge guns came on the market with basically a 10 gauge barrel on them, so we knew that it was possible to push the limit farther, but it could not be safely achieved by back boring as there was just not enough metal left in the barrel to bore it any bigger.





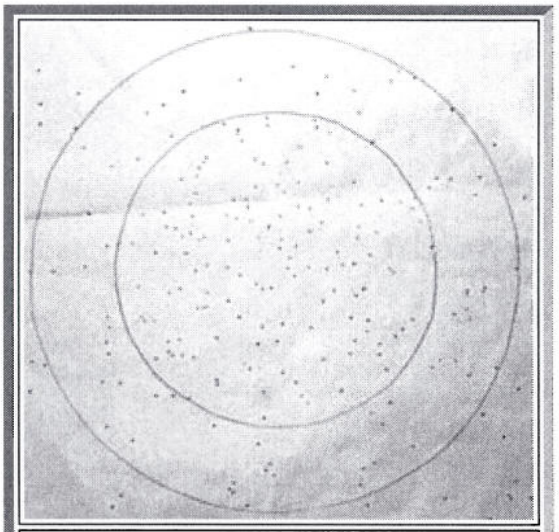
The only answer was to go in the other direction, which was to find a way to fire a smaller gauge shell thru a larger gauge gun in order to see what happened. The best idea we came up with to accomplish this was to make a chamber insert tube that would allow us to insert a smaller gauge shell into the insert tube and them load the insert tube like a shell into the chamber of a larger gauge gun.

Our first test was to build an insert tube to shoot a 28 gauge shell thru a 12 gauge



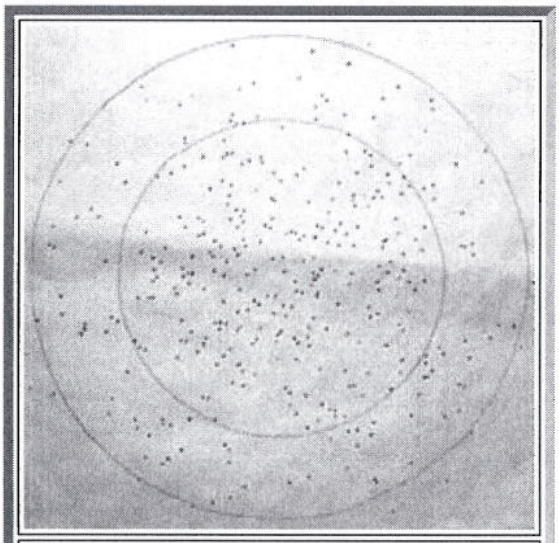
12 Gauge Gun - 28 ga insert
20 yds - 3/4 oz. #9 Shot - Skeet Choke
1224 fps - 74% pellet count 30 in. circle

Chronograph tests proved otherwise. The shells were maintaining and sometimes even bettering the velocities we got from the same shells when shot thru a real 28 gauge gun. There was just no explanation as to what was happening. There was no way the 28 gauge wad could be sealing in the 12 gauge barrel and gases had to be blowing by. Based on everything we have been led to believe about shotgun ballistics, what was happening was supposed to be impossible. It worked, so we didn't care what was supposed to happen.



12 Gauge Gun - .410 ga insert
30 yds - 1/2 oz. #9 Shot - Full Choke
1244 fps - 65% pellet count 30 in. circle

gun. This combination was as about as over bored as we thought could ever work. When the first shots were fired at the patterning board, we could not believe what we saw. The patterns were every bit as good as you would expect to achieve out of a 28 gauge gun. We assumed that the patterns were that good because there had to be a major loss in velocity making them very slow in order to hold together that good thru such a big barrel.



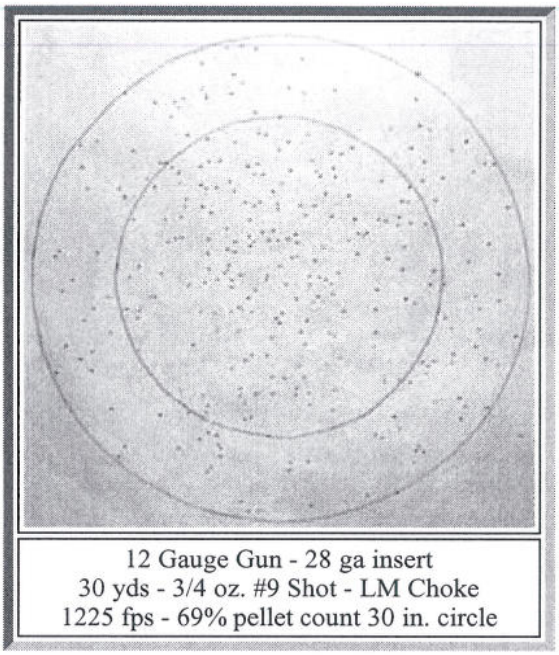
12 Gauge Gun - 20 ga insert
20 yds - 7/8 oz. #8 Shot - Skeet Choke
1150 fps - 91% pellet count 30 in. circle

The biggest surprise was that the patterns from the smaller gauge shells conformed to the 12 gauge choke constrictions. If we put in a 12 gauge skeet choke and patterned at 20 yards, we got essentially the same or better percentage of pellets within the 30 inch circle as we did when firing the same shell thru a skeet choke in a real 28 gauge gun. As the distance increased, the tighter chokes performed the same.

We knew since the 28 gauge inserts worked, it was a given that 20 gauge inserts had to work as well, so the next test was to make an insert for shooting a .410 shell thru a 12 gauge gun. This would be the real test, and to our astonishment, we got the same results. The patterns and velocities were the same

as using a real .410 gun. The 20 gauge insert was next, and we were not surprised when it worked just as well.

The patterns were good and the velocity was just what it was supposed to be, so the next step was to see how it performed under actual field conditions. Off to the clays range we went to see if we could break any targets. After what we already knew about the patterns and velocity achieved in our tests, we were not nearly as surprised as the puller and our other squad mates were when the targets broke with authority. Even after seeing what was happening, their comments were that it can't work because there has to be blow by occurring around the wad that should lose velocity and blow apart the patterns.



12 Gauge Gun - 28 ga insert
30 yds - 3/4 oz. #9 Shot - LM Choke
1225 fps - 69% pellet count 30 in. circle

Although the chamber inserts broke targets, they needed testing on real birds. Tests in the dove field showed they could wipe those gray devils out of the sky just as good as a real gun of the same gauge. The same results were achieved on quail over pointing dogs.

A funny thing had happened thru all of our testing. We had been trying to find out how big of a back bored barrel could be used before velocity and pattern percentages were lost, and what we discovered instead was a way to shoot smaller gauge shells thru a larger gauge gun. We could literally turn one gun into four different gauges of guns by merely inserting our chamber inserts into the chamber of the gun while utilizing the same chokes.

We had been led to believe by every thing we have been told about shotgun ballistics that in order to successfully shoot a smaller gauge shell thru a larger gauge gun that you have to have full length barrel tubes because it is impossible to maintain velocity and pattern percentages otherwise. All of our tests have proven to the contrary. Unlike full length barrel tubes that change the feel and dynamics of your gun by adding upwards of two pounds of additional weight to the barrels, Chamber Mates™ weigh in at just a couple of ounces and provides your gun with the same feel and undisturbed balance, and with no noticeable increase in weight than when utilized in conjunction with the larger gauge shell that you normally use.

Home Order

Sub Gauge Chamber Inserts
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PATENT PENDING

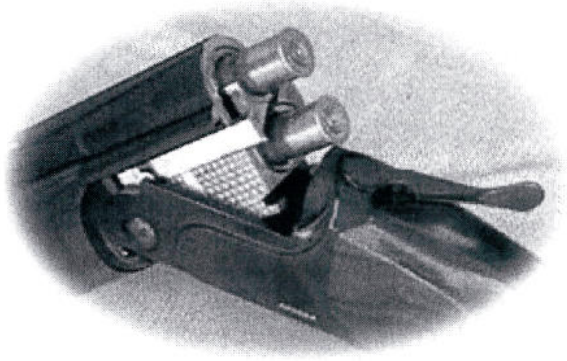
Patterns & Velocity

THE PROOF IS IN THE PATTERNS

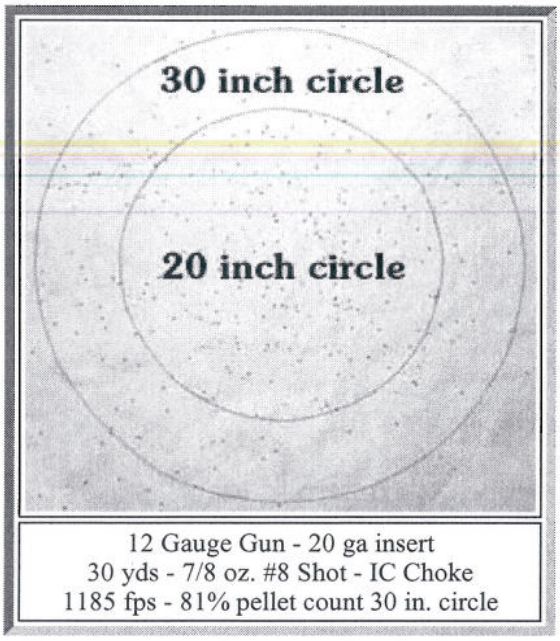
If you want to see some of the real results of our tests, take a look at some of the actual patterns shot!!

20 Gauge Patterns | 28 Gauge Patterns | .410 Gauge Patterns

The patterns and velocity achieved with Chamber Mates™ is on average as good and many times better than what can be achieved when firing the same smaller gauge shell thru a standard shotgun or full length barrel tube of a matching gauge.



For our tests, we patterned smaller gauge shells thru 10, 12, 16, 20, and 28 gauge guns using sub gauge inserts and then patterned the same shells thru actual small gauge guns for use as a comparison. We used more than a dozen different guns and 6 different brands of quality target load shells. Every shot fired was also chronographed to check velocity.

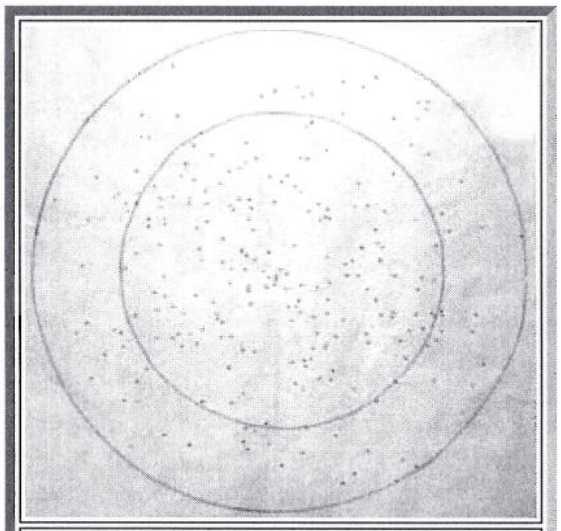


12 Gauge Gun - 20 ga insert
30 yds - 7/8 oz. #8 Shot - IC Choke
1185 fps - 81% pellet count 30 in. circle

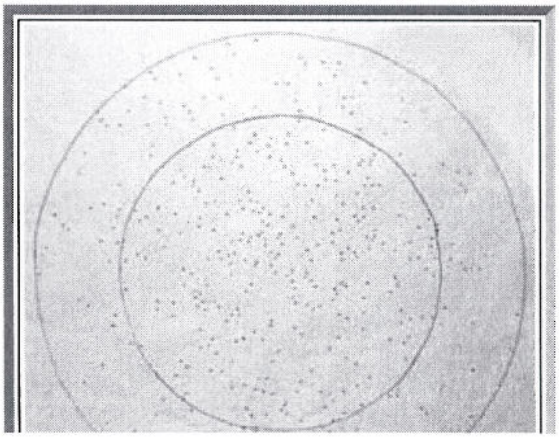
The patterns were analyzed by drawing both a 20 inch and a 30 inch circle centered around the densest area of the pattern. Every pellet hole was counted within both the 20 inch core and the outer 5 inch annular ring to get the total pellet count within the 30 inch circle. This told us the total percent of the load that hit within the 30 inch circle, the total percent of the load that hit within the 20 inch core, and the total percent of the load that hit in the outer 5 inch annular ring.

We cut open 5 of each type of shell we were using and counted the actual number of pellets to get the true average number of pellets in a given load and used that number as a basis for determining the actual percentages of the load that hit within the circles.

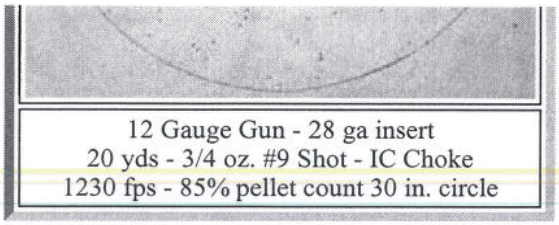
We could have achieved false higher percentages if we had stuck with what has previously been published as the number of pellets of a given size that are supposed to be in a load of a certain weight. We found for instance that there can be upwards of 50 more pellets in a 3/4 oz. load of #9 shot than the published data say there is. We think that this is due to the fact that lead shot with higher antimony percentages, such as are found in quality target loads, are lighter in weight thereby adding more pellets to a given load.



20 Gauge Gun - .410 ga insert
20 yds - 1/2 oz. #9 Shot - Skeet Choke
1215 fps - 77% pellet count 30 in. circle



Patterns were shot and chronographed thru all of the different gauges of inserts and all of the different gauges of actual small gauge guns at distances of 20, 30, and 40 yards. At 20 yards, # 8 and #9 shot were fired using skeet, improved cylinder and modified chokes. Full choke was also used at 20 yards for the .410. At 30 yards, #9 and #8, shot were fired using improved cylinder, modified, and full chokes, and at 40 yards, #8 and # 71/2 shot were fired using modified



12 Gauge Gun - 28 ga insert
20 yds - 3/4 oz. #9 Shot - IC Choke
1230 fps - 85% pellet count 30 in. circle

and full chokes. We did not bother doing any further testing of the .410 at 40 yards after the first few shots thru both sub gauge inserts and real small gauge guns revealed them useless at that distance.

As should be expected, the pattern percentages and velocities can vary one way or the other dependent upon the gun/load/choke combination being used. We are talking about both the sub gauge inserts and real small gauge guns here. The same exact shell could differ up to 50fps when shot thru 2 different guns using the same choke constriction and the pattern percentages produced could vary up to 10% or more. The same things can happen when shooting 2 different brands of shells out of the same gun using the same choke constriction.

These facts makes it impossible for us to tell you exactly what velocity and pattern percentage you should expect to get when shooting a 28 gauge load of #9s thru a 12 gauge gun at 20 yards using a skeet choke. What we can tell you is that you can expect to get as good or even better results with that combination than you can when shooting a 28 gauge load of #9s thru a real 28 gauge gun at 20 yards using a skeet choke. You should always pattern your gun to see which choke/load combination works best in your gun.

The bottom line is that the patterns and velocity achieved when firing the smaller gauge shells thru the larger gauge guns is on average as good and many times better than what can be achieved when firing the same smaller gauge shell thru a real smaller gauge gun.

THE PROOF IS IN THE PATTERNS

If you want to see some of the real results of our tests, take a look at some of the actual patterns shot!!

20 Gauge Patterns | 28 Gauge Patterns | .410 Gauge Patterns

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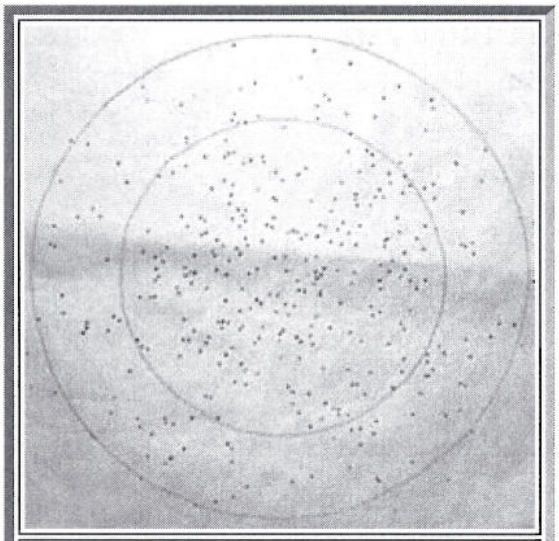
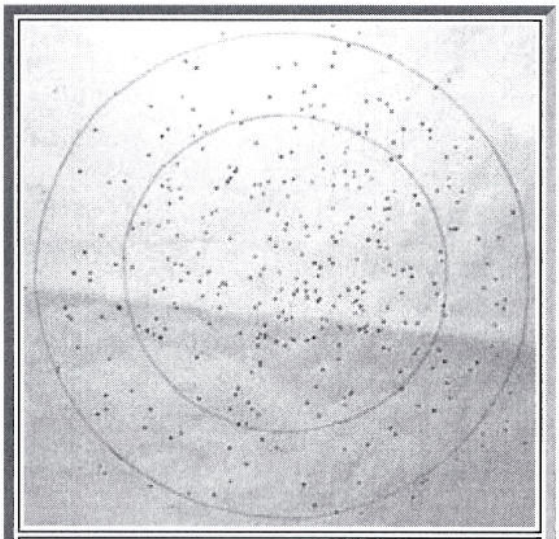
PATENT PENDING

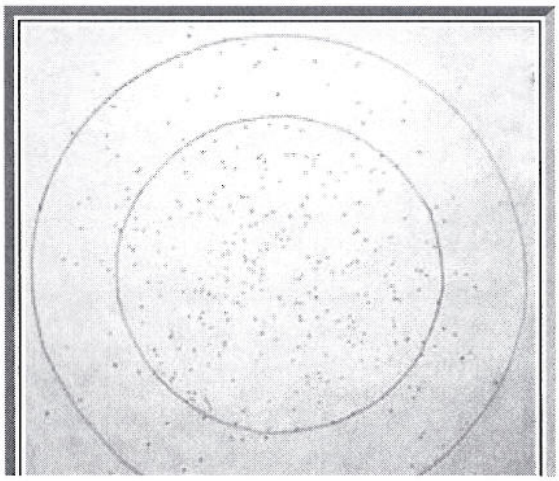
20 Gauge Patterns

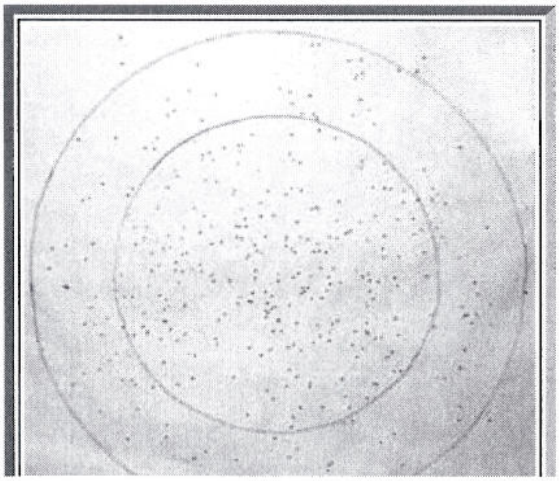


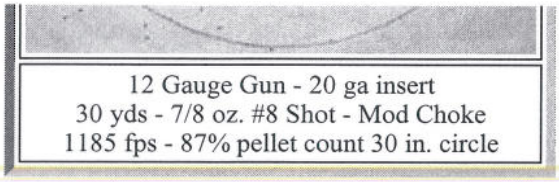
12 Gauge Gun - 20 ga insert
20 yds - 7/8 oz. #8 Shot - Skeet Choke
1150 fps - 91% pellet count 30 in. circle



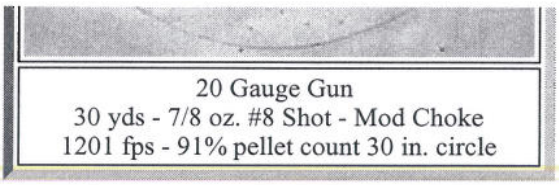
20 Gauge Gun
20 yds - 7/8 oz. #8 Shot - Skeet Choke
1181 fps - 86% pellet count 30 in. circle



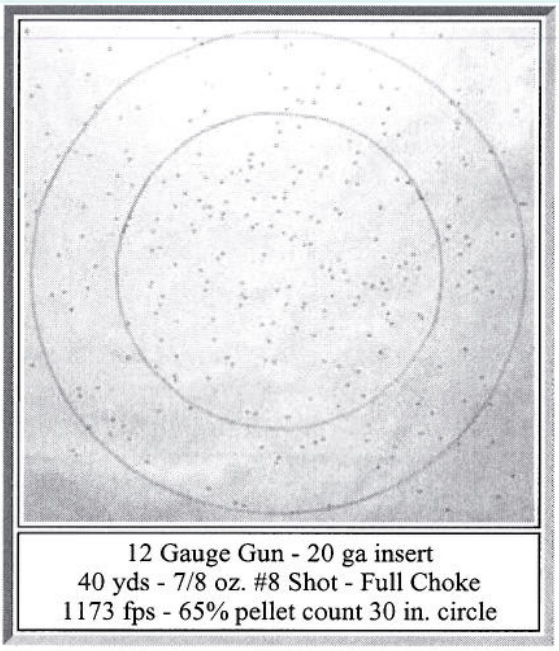




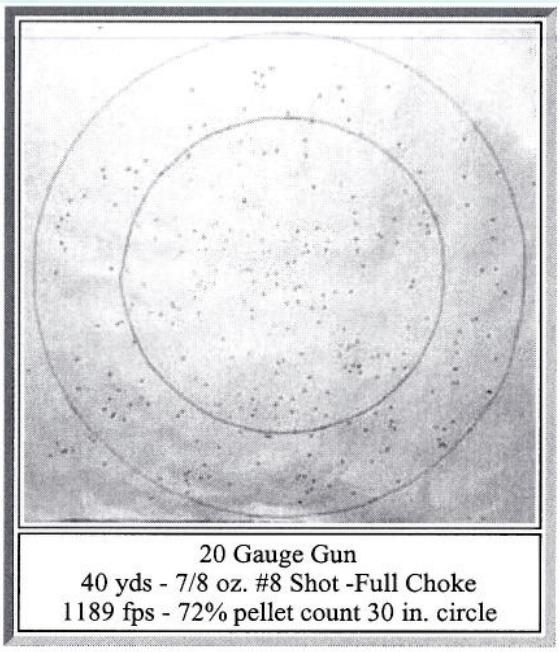
12 Gauge Gun - 20 ga insert
30 yds - 7/8 oz. #8 Shot - Mod Choke
1185 fps - 87% pellet count 30 in. circle



20 Gauge Gun
30 yds - 7/8 oz. #8 Shot - Mod Choke
1201 fps - 91% pellet count 30 in. circle



12 Gauge Gun - 20 ga insert
40 yds - 7/8 oz. #8 Shot - Full Choke
1173 fps - 65% pellet count 30 in. circle



20 Gauge Gun
40 yds - 7/8 oz. #8 Shot -Full Choke
1189 fps - 72% pellet count 30 in. circle

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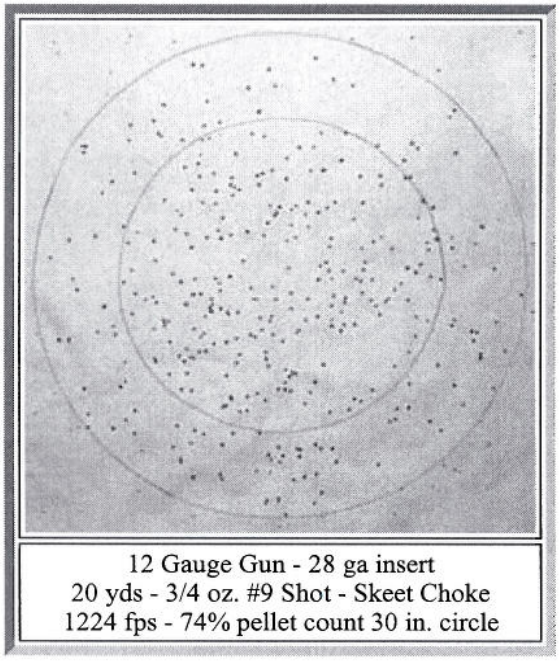
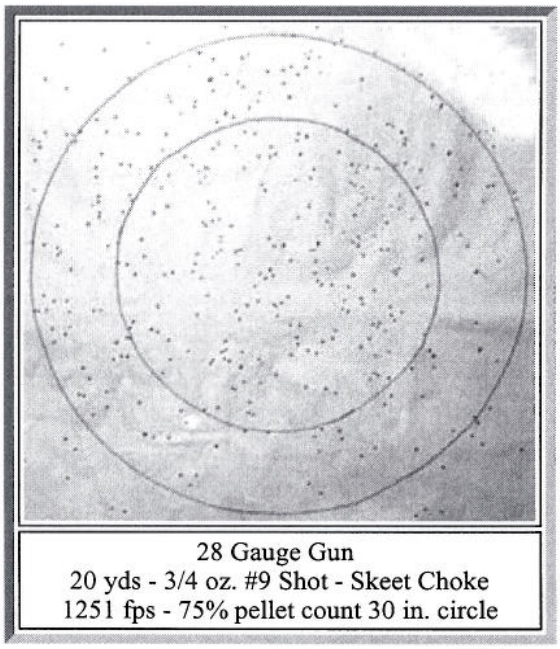
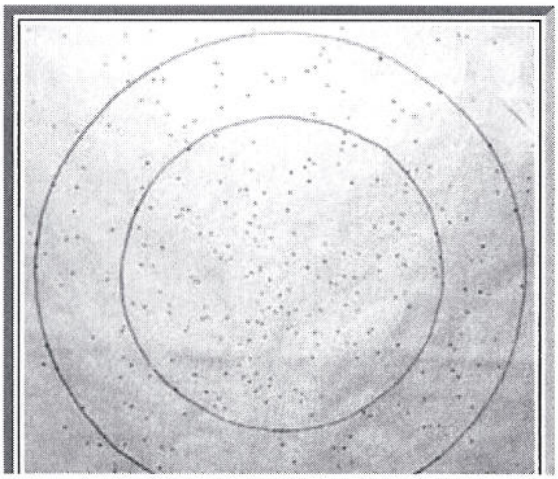
28 Gauge Patterns

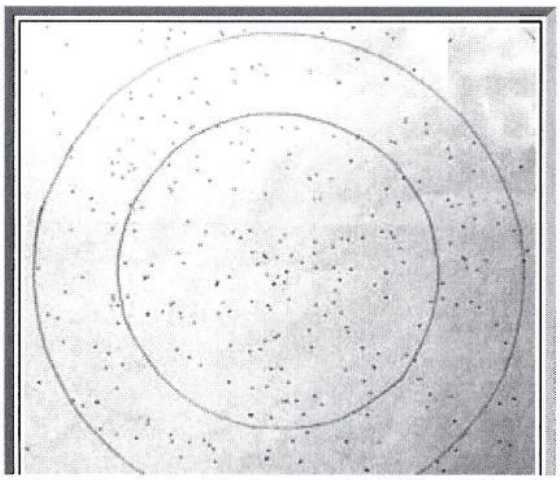


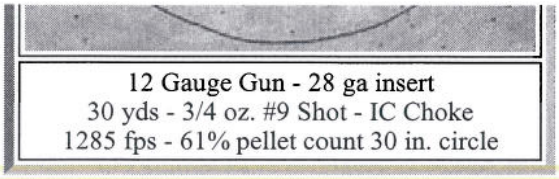
12 Gauge Gun - 28 ga insert
20 yds - 3/4 oz. #9 Shot - Skeet Choke
1224 fps - 74% pellet count 30 in. circle



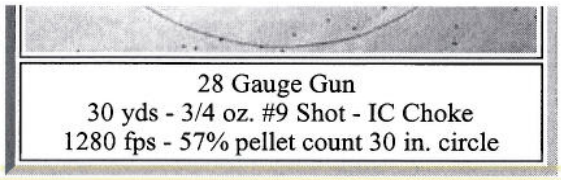
28 Gauge Gun
20 yds - 3/4 oz. #9 Shot - Skeet Choke
1251 fps - 75% pellet count 30 in. circle



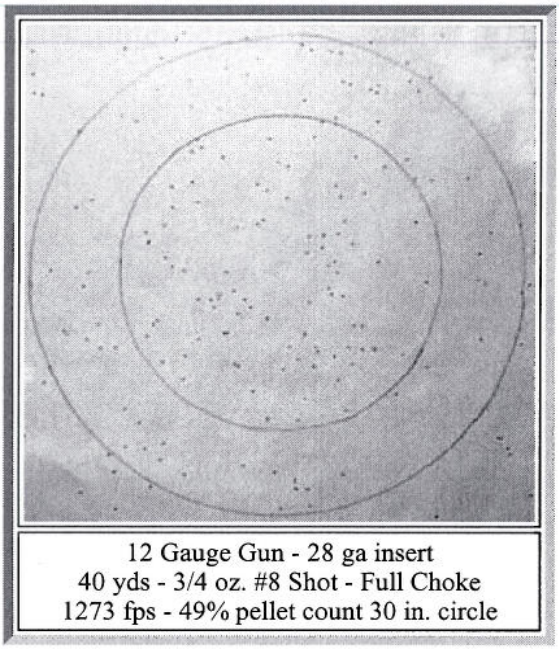




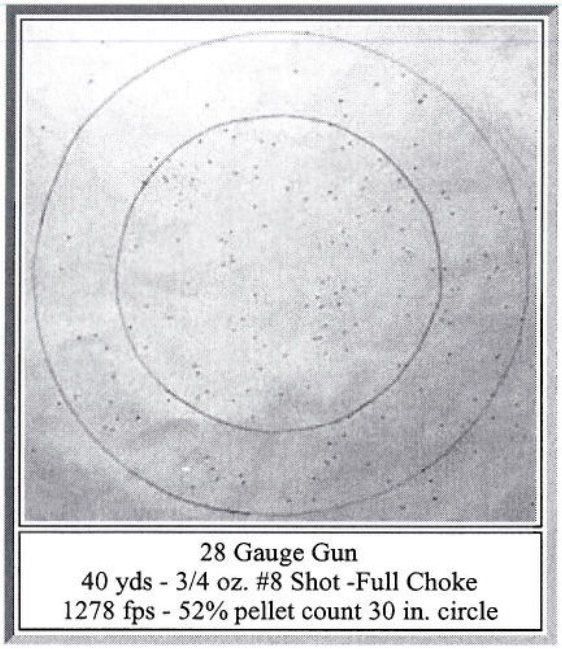
12 Gauge Gun - 28 ga insert
30 yds - 3/4 oz. #9 Shot - IC Choke
1285 fps - 61% pellet count 30 in. circle



28 Gauge Gun
30 yds - 3/4 oz. #9 Shot - IC Choke
1280 fps - 57% pellet count 30 in. circle



12 Gauge Gun - 28 ga insert
40 yds - 3/4 oz. #8 Shot - Full Choke
1273 fps - 49% pellet count 30 in. circle



28 Gauge Gun
40 yds - 3/4 oz. #8 Shot -Full Choke
1278 fps - 52% pellet count 30 in. circle

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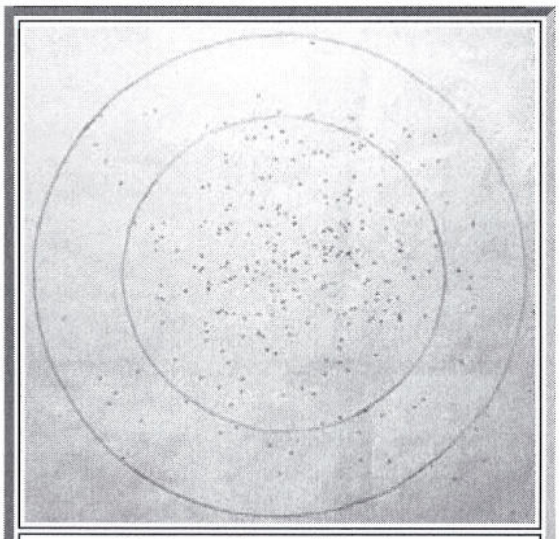
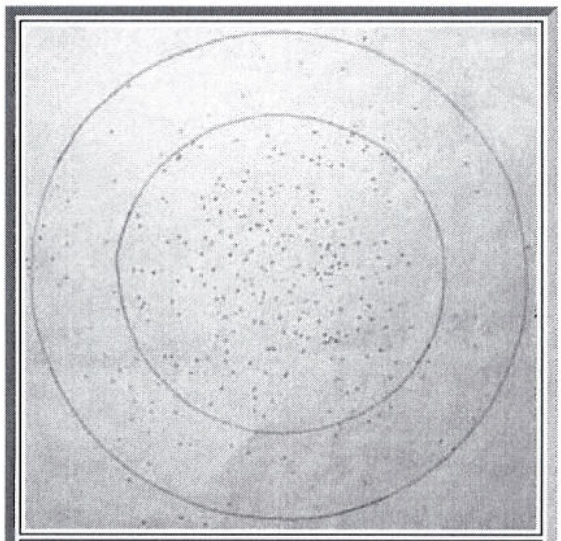
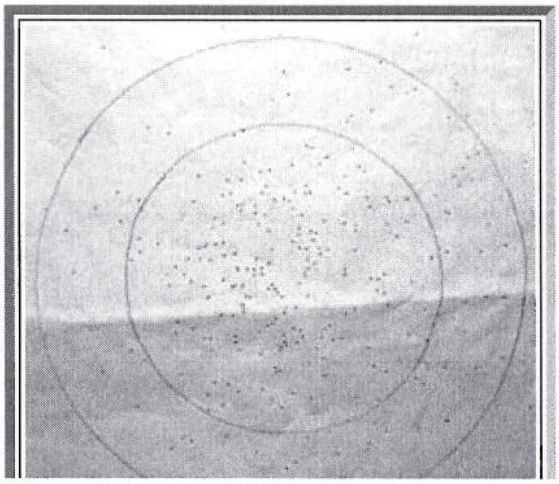
.410 Gauge Patterns

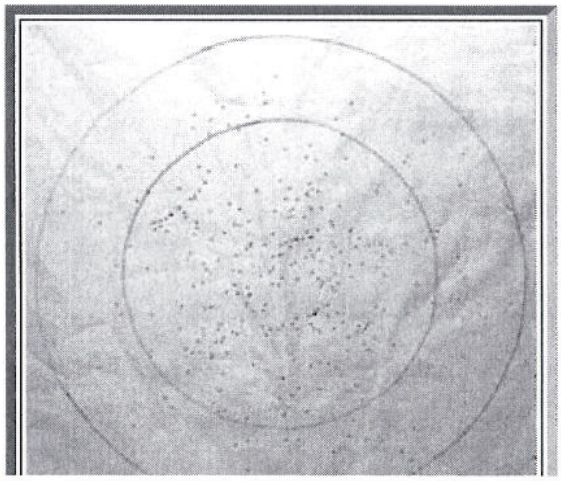


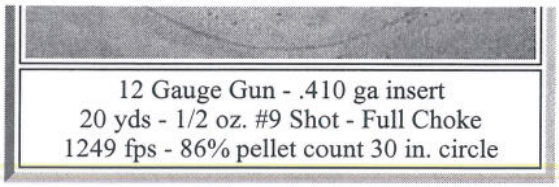
12 Gauge Gun - .410 ga insert
20 yds - 1/2 oz. #9 Shot - Skeet Choke
1250 fps - 86% pellet count 30 in. circle



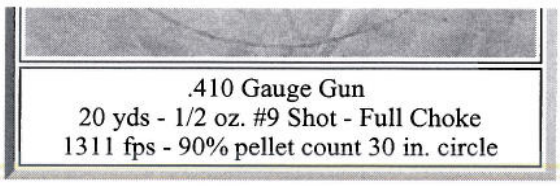
.410 Gauge Gun
20 yds - 1/2 oz. #9 Shot - Skeet Choke
1281 fps - 90% pellet count 30 in. circle



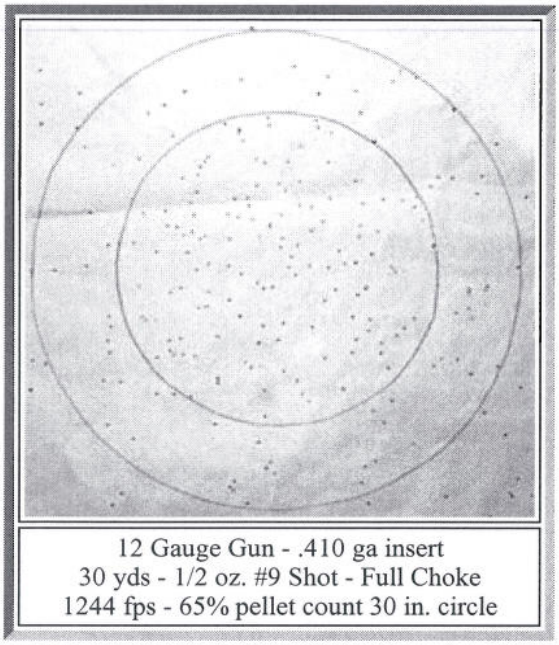




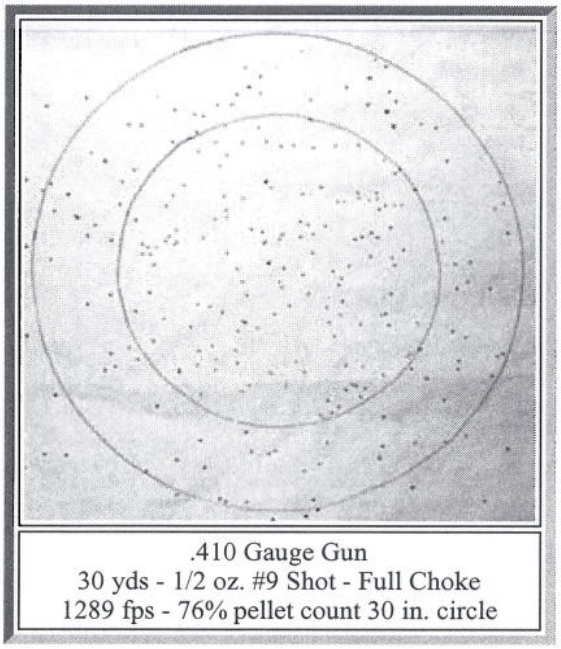
12 Gauge Gun - .410 ga insert
20 yds - 1/2 oz. #9 Shot - Full Choke
1249 fps - 86% pellet count 30 in. circle



.410 Gauge Gun
20 yds - 1/2 oz. #9 Shot - Full Choke
1311 fps - 90% pellet count 30 in. circle



12 Gauge Gun - .410 ga insert
30 yds - 1/2 oz. #9 Shot - Full Choke
1244 fps - 65% pellet count 30 in. circle



.410 Gauge Gun
30 yds - 1/2 oz. #9 Shot - Full Choke
1289 fps - 76% pellet count 30 in. circle

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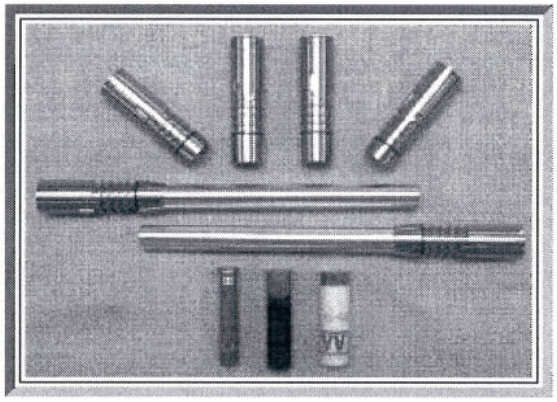
Frequently Asked Questions



Q. How big are Chamber Mates™?
A. The 20 & 28 gauge Chamber Mates™ are the size of a fired shell and weigh less than a couple of ounces each. Because .410 shells use slow burning powders the .410 Chamber Mates™ have a 6 inch extension that allows the slow burning powder enough time to completely burn off to full velocity before jumping out into the bigger bore. They weigh just over 3 ounces each including the extension tube.

Q. What are Chamber Mates™ made of?
A. Chamber Mates™ are made of 17-4 stainless steel and are built to withstand years of use.

Q. What gauges are Chamber Mates™ available in?
A. 12 gauge to 20, 28 & .410, 16 gauge to 28 & .410, 20 gauge to .410, 28 gauge to .410, and 10 gauge to 20 gauge. There is not enough wall thickness to safely cut ejector slots for the 10 gauge to 12, 16 gauge to 20, and 20 gauge to 28 gauge, therefore those conversions will not be available.

Q. What holds the Chamber Mates™ in the gun?
A. A rubber o-ring located 3/4" from the front end of the tube hold them snugly in the chamber of the gun.

Q. How well do they pattern?
A. The patterns percentages produced are on average as good as and many times even better than what can be achieved when firing the same smaller gauge shell thru a standard shotgun or full length barrel tube of a matching gauge.

Q. What about the Velocity?
A. Chronograph tests show that shells fired thru Chamber Mates™ on average produce the same velocities and many times higher than what we got from the same shells when fired thru a real smaller gauge gun.

Q. What about chokes?
A. If you want a skeet pattern, put in the skeet choke. For longer shots, tighten up your chokes accordingly as normal. The patterns produced by the smaller gauge shells conform to the constriction of the larger gauge choke selected.

Q. What kind of guns can I use Chamber Mates™ in ?
A. Chamber Mates™ are designed for use in over & under, side by side or single shot break open guns only. They can not be used in pumps or autoloaders.

Q. Do I need to send my gun in to get the Chamber Mates™ fitted to it?
A. No. Chamber Mates™ fit into any break open shotgun regardless of make or model and require no special fitting allowing you to switch them from one gun to another.

Q. How do I get the spent shell out of the Chamber Mates™?
A. Chamber Mates™ come with integral extractors that work in conjunction with the extractors in the gun that extract the spent smaller gauge shells while leaving the inserts snugly in the chamber for the loading, firing, and extraction of additional shells. In this manner, all you have to do is load, shoot, and extract the smaller gauge shells in the exact same manner as you would the larger gauge shells normally used in the gun.

Q. Will the small gauge shells set the triggers for the second shot in my gun?
A. We have found that in 98% of guns that we have used them in that the inertia triggers will reset even with the .410. However, in just a few guns, the 28 and/or the .410 shells may not reliably set inertia triggers every time that will require having your inertia triggers changed to mechanical triggers. This is a cheap and simple procedure that any competent gunsmith can perform for you. If your gun already has mechanical triggers, double triggers, or hammers, you will not encounter any problems.

Q. What is the best type of ammo to use?
A. Quality target loads with one piece plastic hulls and base wads such as Winchester AA and Remington STS or Premier performed the best and load and eject with ease. Other brands of shells with 2 piece wads and/or paper base wads and thin brass (aluminum or steel in some shells) have a tendency to swell and stick in the insert tube in some guns. Experimentation with different brands of shells is the best way to determine which shells will work in your gun since some of the cheaper shells will work in one gun and not another. Quality target loads work in all guns and are always your best bet.

Q. Can I use Reloads?

A. Yes. Reloads from any shell that was successfully fired and ejected thru the insert tube will work with excellent results. It is recommended that you resize all hulls before reloading as this returns the brass to it's original size, especially if the shells were not previously fired thru the insert tubes.

Q. Can I shoot 3 inch shells in the 20 gauge and .410 conversions?
A. Yes. All 20 gauge and .410 insert tubes are 3 inches long and will allow you to safely fire 3 inch shells in 2 3/4 inch chambered guns.

Q. Can I use steel or tungsten shot?
A. No. It is not recommended to use any type of hard shot as we do not know what happens when the shot and wad are traveling down the barrel. It could be possible to scratch your bore.

Q. Can they be used in Damascus twist barrels?
A. No. Damascus twist barrels are not safe to use with smokeless powder ammunition.

Q. What about recoil?
A. It is virtually eliminated. Great for people who flinch and for introducing women and children to the shotgun sports.

Q. Can they be used for clay target competition?
A. Yes. You can shoot 4 different gauges with the same gun while maintaining the same feel and undisturbed balance, and with no noticeable increase in weight than when utilized in conjunction with the larger gauge shell that you normally use.

Q. Are they legal for clay target competition?
A. Yes. The NSSA/NSCA rules state that any gun of a larger gauge that has been converted to shoot smaller gauge shells is legal so long as the small gauge shells being used conform to the legal shot size and charge weight specified for use in registered competition.

Q. Can they be used for hunting?
A. Yes. Chamber Mates™ are great for all types of upland hunting. For waterfowl hunting in areas where lead is not allowed, bismuth shot can be used.

Q. What kind of Warranty is offered?
A. Chamber Mates™ have a lifetime warranty against manufacturers defects and have a 30 day money back satisfaction guarantee for performance. If you do not like them for any reason, you can return them for a full refund. Returns after 30 days of purchase subject to 25% penalty fee.

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Sub Gauge Chamber Inserts

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SEMINOLE CHAMBER MATES™

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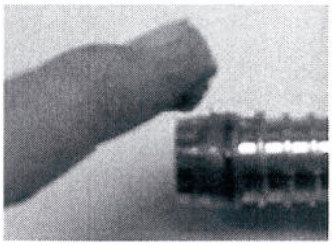
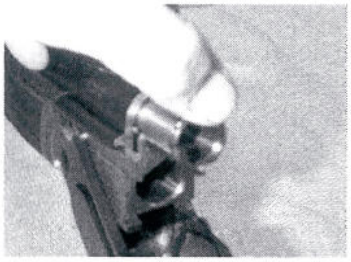
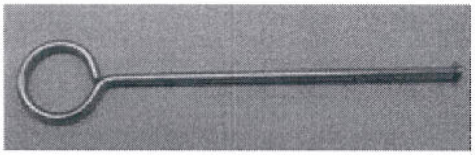
Directions for Use



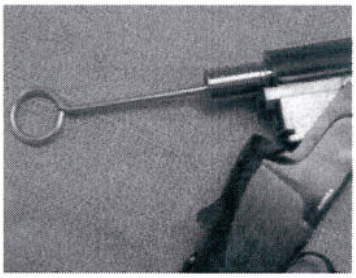
Grease the O-Ring located at the forward end of the tubes before attempting to insert the Chamber Mates™ into the chamber of your gun.

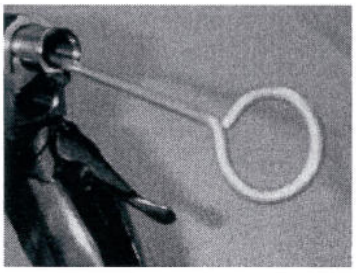
Gently slide the Chamber Mates™ into the chamber of your gun making sure that you position them whereby the extractors are in alignment with the extractors of your gun. Once they are aligned, push the Chamber Mates™ fully into the chamber.





To remove, stick the supplied removal tool thru the breech end of the insert tube, hook it over the front edge of the tube and pull it out.





In the event that a tube becomes difficult to remove using the removal tool, a cleaning rod or a 1/2" dowel rod with a fired 28 gauge hull over the end of it can be used to bump them out from the muzzle end.

WARNING!

*** For use in Break Open Shotguns only. Do not attempt to use in autos, pumps or bolt actions.**
*** Thoroughly clean your chamber and barrel after each use.**
*** Do not attempt to use in shotguns other than the gauge they are designed for.**
*** Do not attempt to use shells of a gauge other than the conversion gauge.**
*** Do not attempt to load a live shell until the insert tube is fully seated in the chamber of the gun.**
*** For use with lead or bismuth shot only. Do not attempt to use steel or tungsten shot.**
*** Do not attempt to use in Damascus twist barrels.**

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Sub Gauge Chamber Inserts
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SEMINOLE CHAMBER MATES™
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Online Order Form

To order by phone, call (800) 980-3344

In Florida call 321-383-2281

Name

Shipping Address

City

State/Province

Zip/Postal Code

Country

Home Phone

Work Phone

FAX

Email Address

Method of Payment ◉ VISA ○ MasterCard ○ Discover

Card #

Exact Name Appearing on Card

Expiration Date

Billing Address

City

State/Province

Zip/Postal Code

Select the Items and state the Quantity that you wish to Purchase

** 28 and/or .410 gauge shells may not reliably reset inertia triggers every time in some some 12 gauge guns. In most guns, they work fine. If you encounter this problem, try shooting the top barrel first. Many times this helps. Also give your triggers a good cleaning. If neither of these solve the problem, your inertia triggers will need to be changed to mechanical triggers. This is a cheap and simple procedure that most gunsmiths can perform for you. If your gun already has mechanical triggers, double triggers, or hammers, you will not encounter any problems.

Sets (Sold in sets only) (2 inserts of the same gauge)	Quantity of Sets	Price Per Set
☐ 10 gauge gun - 20 gauge inserts		$239.99 Available Spring 2003
☐ 12 gauge gun - 20 gauge inserts		$239.99
☐ 12 gauge gun - 28 gauge inserts		$239.99
☐ 12 gauge gun - .410 gauge inserts		$289.99
☐ 16 gauge gun - 28 gauge inserts		$239.99 Available Spring 2003
☐ 16 gauge gun - .410 gauge inserts		$239.99 Available Spring 2003
☐ 20 gauge gun - .410 gauge inserts		$289.99
☐ 28 gauge gun - .410 gauge inserts		$239.99

Internet Special Combo Pack (1 set of each sub-gauge tubes for 12 gauge gun) (Save $117)	Quantity of Combo Packs	Price per Combo Pack

☐ **12 gauge gun - 20 gauge, 28 gauge, & .410 gauge inserts combo pack**		**$649.99**

Prices do not include Shipping Charges - Choose shipping method below:

UPS Ground

Submit Reset

Chamber Mates™ have a lifetime warranty against manufacturers defects and have a 30 day money back satisfaction guarantee for performance. If you do not like them for any reason, you can return them for a full refund. Returns after 30 days of purchase subject to 25% penalty fee.

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