



**POLISHOK**

**I.R.P.**

**12g Ammo  
Effective  
Efficient  
Socially  
Responsible**

**XS**

**SIGHT  
SYSTEMS**

**BRIGADE QM**

**GEAR:  
ABOVE  
AND BEYOND  
STD. ISSUE**

ESTD | 1976

**AUTHENTIC**

**LaserMax**

**Rugged  
Reliable**



**The Choice of  
Professionals  
Worldwide**

## ALS Technologies: Less-Lethal Munitions

By: Frank Borelli, 11 July 2005

So, back in December of '04 I was contacted by ALS Technologies - manufacturer of less-lethal munitions - wondering if I'd be interested in evaluating and writing up some of their products. Hmm... Let me think: Do I really want to get a bunch of things that go BANG and play with them? Would they send me launchable projectiles? They said yes. Would they send me twelve gauge projectiles? They said yes. Would they send me hand-thrown munitions? They said yes. With all that positive response, how could I say no?

So in February I took possession of a collection of munitions from ALS Tech. The samples they sent me ranged from 37mm launched / fired munitions to 12g to distraction devices (flash-bangs). Now, I should say right up front that I don't have the operational expertise to properly evaluate some of the items they sent. I've been around when flash-bangs are used, but in February I couldn't have told you what made a flash-bang good or bad. I'd never fired a 37mm Foam Rubber Baton round (but a Mark 19 40mm belt fed grenade launcher had proven fun so I thought I'd enjoy the 37mm variant of launchable projectiles). Needless to say, I had to pursue a little bit of education and then use / evaluate what had been sent. Here's what I found out...

Testing some less-lethal munitions is a tricky business. So much of the effectiveness of these munitions is entirely dependent on the psychological perceptions of the target that it's difficult to properly estimate the downrange effect they will have. Certainly we can measure accuracy; look at impact and blunt trauma; assess whether or not the munitions performed as they are supposed to - but we have no way of accurately estimating their affect on the average human. Why? Because "average" is such a huge variant when we're talking about people. So, let's take a look at the things that we could measure objectively and some of our subjective observations.



First thing I unpacked from ALS Tech was the 37mm single-shot launcher and EOTech holoscope that they provided so I could play - I mean *test* some of the munitions. The launcher is actually manufactured by Penn Arms of Punxsutawney, PA - better known for its famous groundhog than for munitions manufacture - and sold by ALS Technologies as a service to the end-munition-user. Makes for one stop shopping. A complete User Manual came with the launcher and, although most use of the launcher seems straight forward, I encourage everyone to read the manual before using the tool. I was convinced within the first ten minutes of handling the launcher that any monkey could be taught to use it. What that means is that I figured it out without any trouble - and if I can, any cop / soldier can.

The locking latch is positive and easy to operate. Loading munitions is as simple as sliding them in the back of the launcher tube. Extraction of spent munitions was easy because of the ejector that lifts the spent shell out of the breech far enough to grab without any challenge. The crossbolt safety is exactly like that of my Remington 870 shotgun - "smooth on the right; ready to fight". The pop-up rear sight allows for aiming at three distances that I came to think of as "up close; farther away; farthest it'll reach". At the top of the barrel tilt release mechanism is the fixed rear sight that would be used for engagements inside of 25 yards. Once I put the EOTech on the launcher I dismissed the regular sights out of hand. The EOTech was by far a great performer and easy to use. Before I get into that: the launcher comes with a nice one-inch shoulder pad and sling swivels already in place. The pistol grip and vertical forgrip make it easy to hold. For anyone familiar with weapons the launcher is an easy tool to learn and elegant in its simple functionality.

About the EOTech Holoscope. ALS Tech was kind enough to provide me a Model 511 for the purpose of this T&E session. An adaptor (not provided) is required to mount the EOTech to the launcher, but - like virtually all EOTech models - the scope was easy to mount. Looking at the launcher, I would think Penn Arms / Combined Systems could incorporate the requisite picatinny rail into the top of the launch tube fairly easily - and this may in fact have already occurred and be available on newer models. If not, it's something they should consider.



OK: let me go through the list of 37mm munitions ALS Tech sent me and comment on them as I go:

37mm Pen-Prevent: This is a 37mm round that fires a "ballistic" bean bag that weighs 150 grams. The bag itself is flight-stabilized (as much as it's possible to stabilize the flight of a bean bag) by a nylon tail. The impact is supposed to cause a subject's breath to be knocked out of him, incapacitating pain and a pretty high psychological impact. Recommended distance for deployment is 7 to 20 yards and I had no trouble hitting man-size targets at fifteen yards.

37mm Foam Rubber Batons: Also called "Interlocking Rubber Baton Projectile", this is a 37mm round that fires three 21-gram rubber projectiles that look kind of like solid rubber spray paint can tops - only downsized. A little research shows that most rubber projectiles were developed to be "skip fired" at targets, meaning that you fired them at the ground in front of your target and it would SKIP off the ground and up into the target. The ALS Tech Rubber Batons round was designed to be fired directly at the subjects from ranges between ten and thirty-three yards. Direct fire certainly makes aiming easier and leaves less to go wrong as a result of impacting the ground first. Mud, snow, divots... all could affect the end result of skip firing. Skip firing would create an awful lot of potential liability that I wouldn't want to absorb since you have less control over where the rounds would impact your target. I'd rather trust my own aim and control over the weapon than the unknowns of the ground.

37mm Hornet's Nest, .60 Caliber: Ouch. This round fires 24 36-grain .60-caliber rubber pellets. Again, designed for direct fire instead of skip firing, the .60 caliber Hornet's Nest has a recommended range for deployment of ten to seventeen yards. The published incapacitation information states that the Hornet's Nest will cause, "...controlled and directed incapacitation by blunt impact trauma and excruciating pain." "...designed to result in behavior modifications or retreat... or immediate response to issued commands." Any of us who have been in the business long enough know that how subjects react to pain varies to different extremes - but the reality is this: if you're in a position where lethal force is a possibility and conditions permit the deployment of less-lethal options first, it's an option that should be explored. What's the worst that's going to happen? You'll find the less-lethal not sufficiently effective and have to use lethal force anyway? At least you can document that you tried *not* to use lethal force before being pushed into a no-choice situation.

Now, I couldn't find any volunteers to let me fire any of these projectiles at them (because I work with relatively intelligent people) but I had no trouble keeping the projectiles on target at the recommended distances for engagement. Recoil firing them was not excessive - in fact, shooting these was fun.

In addition to the 37mm munitions listed, ALS Tech also sent me a collection of twelve-gauge less lethal along with some hand-thrown items. I'll review the twelve-gauge stuff in next week's review and the hand-thrown items shortly thereafter.

In the meantime, if your agency / unit is looking for less-lethal munitions, check out ALS Tech. You can find them online at <http://www.alstechnologies.com> and, more than likely, they have what you're looking for at reasonable pricing.

Also, don't forget to check out the new [Recreational Equipment Evaluations](#):

[Aeris Atmos Bouyancy Compensator +](#)-----11 July 2005

[AquaLung Titan Regulator +](#)-----11 July 2005

[Florida Keys Dive Center \(dive center\)](#)-----18 July 2005

[HydraStorm Matrix Hydration System](#)-----18 July 2005

[Lake Rawlings, VA \(dive site\)](#)-----25 July 2005

Plus others!!!

Don't forget to check out this week's [Highlighted Training Article](#) about the benefits of time off or "Down Time".

[I have a comment on this article.](#)



**New American Truth** eMagazine

Dedicated to ALL citizens who oppose terrorism and injustice.

Subscribe Today!

**Subscribe To New American Truth**

Email:



**POLISHOK**

**I.R.P.**

**12g Ammo  
Effective  
Efficient  
Socially  
Responsible**

**XS**

**SIGHT  
SYSTEMS**

**BRIGADE ON**  
ESTD | 1978  
AUTHENTIC

**LaserMax**

**Rugged  
Reliable**



**The Choice of  
Professionals  
Worldwide**

## ALS Technologies: Twelve Gauge Less-Lethal Munitions

By: Frank Borelli, 18 July 2005

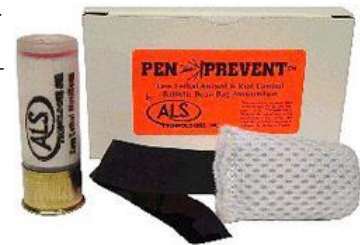
In the same box that last week's reviewed 37mm munitions was a collection of 12 gauge less-lethal munitions as well. Since I'm much more familiar with operating a shotgun than I am a 37mm munitions launcher, testing was easier. In the box were several rounds of each of the following: Pen-Prevent Tail Stabilized; Rubber Fin Rocket, Stabilized; OC Rubber Fin Stab Rocket; OC Muzzleblast; Hydro-Kinetic, Impact Bag; Aerial Pest Control; and Bore Thunder. If you're like I was, those names didn't always give me an idea of the purpose of each round. Sure, I understood "OC Muzzleblast", but "Pen-Prevent" didn't immediately strike understanding in me.

Two things had to happen before I could start to shoot, measure, review and evaluate. First, I had to figure out what I was supposed to be seeing downrange. Second, I had to learn enough about the expected results to make sure I knew what environmental conditions I had to worry about. After all, testing an OC Muzzleblast round by shooting it into the wind might be a bad idea. So, that in mind, I got online to do some research; talked to some friends of mine who **do** know about such things; and I (you'll like this one) read the information provided by ALS Technologies about their products.

What I'll do to make this relatively easy to follow is review each of those types of projectiles in the order I listed them above. Testing for all of them was performed with [my Remington 870](#) - a shotgun familiar to those of you who have been reading the Blackwater Equipment Reviews for any length of time. Here we go...

### Pen-Prevent Tail Stabilized:

I've seen beanbag rounds before and I knew they were available in munitions launcher calibers, such as 37mm or 40mm, but I had to wonder about the capabilities of a twelve gauge (12g) beanbag round. To me it seems like an awfully small frontal cross-section going pretty fast... what about penetration concerns? From the research I did, penetration problems have apparently been associated with 12g 1.75" (diameter) beanbag projectiles. ALS Tech addressed this by developing a triple-layered material that assists in energy dispersion and minimizes the chances of penetration. The 616-grain (40 gram) projectile was designed to engage targets at distances ranging from seven yards to twenty yards. I only had three test rounds, so I fired one each from seven, fifteen and twenty yards. I fired them on an eight-ring sized section of a B27 target tacked onto a large chunk of clay. The difference between point-of-aim (POA) and point-of-impact (POI) was not significant and the indentations in the clay caused by the blunt trauma impact of the beanbag projectile averaged about two inches. Now, I have no way of correlating that to the blunt trauma these rounds would deliver on a human subject. I wasn't using any specially mixed clay. Still, the slap of the beanbag against the paper/clay target was obvious, even through my earmuffs and I wouldn't want one of these hitting me. The ALS Tech materials state that this round causes incapacitation due to loss of breath, psychological effect, pain and/or extreme discomfort. Not a doubt in my mind that it would have these affects on a normal person. However, as with almost any pain-compliance tool, if the human target is under the influence of drugs, alcohol or mental/emotional instability, there is no way to estimate the effectiveness of any pain compliance tool.



### Rubber Fin Rocket, Stabilized:

I had heard of rubber bullets before, and knew that they were available for use in crowd control less-lethal delivery systems, but I never realized that they were so easy to use. Actually, the ALS Tech version is. I can't speak about the others (yet). What makes the ALS Tech Rubber Fin Rocket easy to use (for me) is that, once again, ALS Tech has designed it as a direct fire behavior modification round. As we saw in [last week's review on the 37mm ALS Tech munitions](#), direct fire is more desirable than skip firing. There are too many variables that come into play when you have to bounce a round off the ground in front of your target. Not only can you wrongly estimate the distance and angle, but deformities in the ground can also affect the end result. With a direct fire round you simply line up your sights like always. Proper sight alignment, proper sight picture. Breath control, trigger press, follow through. (Yeah; I know I left out stance and grip, but didn't figure this crowd of readers would mind). ALS Tech projects the same results / pain compliance with the Rubber Fin Rocket as with the Pen-Prevent beanbag round. However, effective range is listed as twenty yards to forty-five yards and there are warnings about the dangers of engaging targets from too close range and/or aiming at the wrong part of the body. Any time a less-lethal munition comes with warnings that use the words, "...massive skull fractures, rupture of vital organs, heart compression and or serious skin lacerations," you should take the hint: make sure you are properly trained before trying to use any of the less-lethal munitions manufactured today. That warning comes from ALS Tech too: document proper training. Again, I received three for testing and fired them from twenty, thirty and forty-five yards. The forty-five yard shot (same target set up as described above) was just off the paper target eight-ring at about the four o'clock position. Remembering that forty-five yards is the maximum recommended distance, that much difference between POA and POI shouldn't be considered a negative reflection on the



munition.

#### **OC Rubber Fin Stab Rocket:**

Now here's a round that just gives me cold chills. Understand that I've been an OC Instructor more than ten years and I really don't like being exposed to the stuff. I've done it several times in various instructor programs and (accidentally) on the street in miscellaneous arrest situations. So, when I received this test ammo and realized that it combined a fin stabilized rubber projectile with an OC powder filling I recognized one more reason why I like to obey the law. ALS Tech says these rounds are designed for engaging targets at distances between fifteen and twenty-five yards - and I received three of them as well. (I received three of every 12g round tested so I can quit noting that). After checking wind direction, I engaged my paper/clay target from fifteen, twenty and twenty-five rounds. POA and POI were good to go. OC Powder dispersion was easy to see (even though it was - thankfully - blowing in the other direction). An odd note here: the twenty-yard test round stuck in the clay rather than hitting and bouncing off. I don't believe this is a note about penetration problems as much as it's probably a comment on the low-tech target I was using. Since it stuck in the clay, no OC powder cloud resulted. When I pulled out the rocket, the powder sifted out and I beat feet back to the firing line.



#### **OC Muzzleblast:**

This was the one I had to be even more careful with when it came to environmental conditions. The only projectile fired here is the blast of 80 grains of OC powder. When it's pushed out of the end of a twenty-inch 12g barrel, the OC spreads into a large cloud on the push of the gas blast. At a range as little as ten feet that OC cloud can be four feet across - more than sufficient to engage multiple targets. The ALS Tech information says this round can be used at ranges between zero and fifteen feet. I'll make two comments here and move on: 1) I'm not pointing a "less-lethal" weapon at someone within ten feet and expecting it to still be less-lethal. Any manufacturer can say that all they want. I'm just not personally comfortable doing it. 2) Even at fifteen feet, you'd better be sure of the environmental conditions or wearing the right protective equipment. At fifteen feet that OC cloud can easily be six to eight feet across (from my twenty-inch barrel) and that's a big cloud to try to escape if the wind shifts. The expected effects of this munition is the same as what you'd expect from OC Spray: disorientation through tearing and burning sensation in the eyes; violent coughing; burning sensation in all affected skin / mucus tissues; extreme... well... snot flow. It ain't pretty. Handcuff, search and provide copious amounts of cold water.

#### **Hydro-Kinetic, Impact Bag:**

This has to be - in my opinion - the most unique munition I was sent for testing. A direct fire 12g liquid-filled impact projectile that will not only affect the target's behavior but also mark them for you. When you're looking for that guy in the crowd after you've shot him (if you lose him?), he's going to be the one holding his belly over the big wet spot. The Hydro-kinetic impact bag was designed by ALS Tech specifically to alleviate penetration concerns inside of twenty-one feet. With a recommended engagement distance between two yards and eight yards, the large majority of approved engagement distance is well within that twenty-one foot distance. (Again, I'm uncomfortable engaging a target with a 12g projectile at a distance of only six feet) During my three test shots, the indentations in the paper/clay target from these projectiles were similar to that of the beanbag rounds. The difference? My test fire ranges were three yards, five yards and eight yards. Three yards is only nine feet and I didn't observe anything that looked like a penetration problem. The round really smacked the paper layers and put about a 1.5" - 2" dent in the clay. POA / POI relation looked good, but it's hard to get them really far off when your greatest engagement distance is eight yards (24 feet).

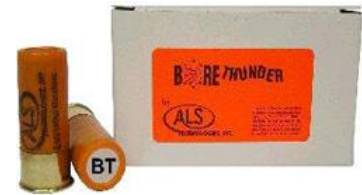


#### **Aerial Pest Control:**

When I first read the name of this munition I thought it was for hunting crows, pigeons, etc. Those animals are what I consider "aerial pests". Oddly enough, in the Performance Characteristics ALS Tech has online, "animal/bird control" is listed. I didn't realize that this is a round designed to cause a distraction by exploding in the air, thereby affecting the behavior of "pests" on the ground. Designed to produce a loud explosion accompanied by a bright flash seventy-five to one hundred feet from the muzzle, the mixture of light/sound is meant to cause a diversion / distraction. My test rounds each performed as advertised. I test fired them just before dark, with the sun just above the horizon, but light diffused by terrain and foliage. I fired the first two with my earmuffs on and was impressed by the light/sound release. For the last one (stupid me) I took off the earmuffs. The 100-140dB sound, even released some 75 to 100 feet away is d\*mned loud. The combination flash / bang is enough to make you flinch and turn away.

#### **Bore Thunder:**

Almost like the Aerial Pest Control, but not 75 or 100 feet away: RIGHT THERE AT THE END OF YOUR BARREL. The Bore Thunder round produces a 175-182dB explosion / concussion and it is loud even through earplugs **and** muffs. It would definitely ring your chimes if you were in a room and this round was fired in at the floor or ceiling. Designed to be fired just that way - aimed at the floor or ceiling and never intentionally at a subject - the Bore Thunder round would be an acceptable substitute for a hand-thrown flash-bang, circumstances allowing (or mandating?). There is a fire hazard concern and you have to be sure that there are no flammable materials in your target area. *Ether*, gasoline, alcohol, acetone fumes, etc are a bad thing when you're using this munition.



The above list is a sampling of the 12g munitions available from ALS Technologies. Each performed as the documentation said it would. If your agency / unit is looking for less-lethal munitions, check out ALS Tech. You can find them online at <http://www.alstechnologies.com> and, more than likely, they have what you're looking for at reasonable pricing.