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# Aspects of the long-range rifle

By Pim De Waard



I am often asked what to look for in a long-range rifle. Well, that's actually a pretty tough question and one for which I can only give you my personal opinion. All gunsmiths are likely to have their own philosophy when it comes to rifle systems and what aspects are likely to get your bullets going way further than they were originally intended to travel.

As a gunsmith, I build quite a lot of rifles on a daily basis. As some of you may already know, I have also designed a rifle specifically for LR/ELR/ULR shooting that has been featured in *On Target Africa* magazine. Now, upon request of our readers, I provide in-depth

information about rifles in general, as well as my thoughts regarding the Ascalon.

## The calibre

First things first. What do we need for consecutive hits at extreme distances? Well, in an ideal situation, and from a ballistics point of view, **"We need a heavy as possible bullet to be shaped as efficient as possible to fly as fast as possible"**.

However, the first and latter tend to bite each other and thus complicate things a little. When a bullet is heavy it's hard to make it go fast, whereas a light bullet will start quickly but tend to lose speed quickly. As a result it is more susceptible to the elements as it travels from A to B.

Basically we have two inclinations: One wants to go fast and the other wants to be heavy. Neither is right, but neither is wrong. I managed to acquire hits within six shots at two miles with a 400 gr (considered to be

relatively heavy in a CheyTac). However, my good friend Jan Combrinck managed to place some hits with a .300 Win mag shooting 176 gr Peregrine bullets at two miles as well. And then there's my buddy Turner Wilkinson who manages to get his puny 6 mm bullets out to 2 km.

So it's safe to say that the first thing we have to do is form our own opinion. And don't think too black-and-white, as there is also some grey area. Anyway, when deciding on a caliber, it is wise to take the following things into consideration:

**1. Availability.** Choosing a .416 Barret might be a wise choice from a ballistics point of view. However, even though bullets are reasonably available locally, cases and/or primers might very well not be. Choosing a .308 will give you as much options as choosing drinks at your favorite bar, but that .308 will only get you to about 1 km at sea level. For the sake of argument, and because I live below sea level myself, I am taking sea level as a base line here. A .308 up in the mountains will get you hundreds of metres further out. Anyway, you get the idea.

**2. Economics.** True, a .375 CheyTac is a beautiful calibre capable of more than we have yet to discover, but it's hard on your wallet. When you see your powder dispenser level drop like the level of Coke and brandy in your (again) half-empty glass, it is hard not to get slightly depressed. The brass isn't cheap either, not to mention the often very specialised high-quality bullets to get the most out of your rifle system. Also, choosing a cheaper calibre will give you more time to practice and this, too, helps achieve results in the long run (pun intended).

**3. Recoil.** Yes, a .50 BMG will carry a lot further than a .223, but when every shot feels like you are in a car accident, this tends to mess up your concentration as well. As one can imagine, taking a shot at targets well over a mile away requires a lot of concentration. Being too relaxed behind that .50 is likely to result in having the scope eyepiece surgically removed from your eye socket again. On the other hand, calibres where only the acoustics tell you your bullet is on its way are not very likely to travel

far either. Finding a calibre that you can comfortably shoot with much-needed concentration is therefore also imperative. Of course, training also helps, but here again I would like to refer to Point 2. If said training will render you bankrupt, the fun is gone from it pretty quickly.

**4. The rifle.** Getting a rifle to go with your calibre shouldn't be too hard, but here too your wallet size is a determining factor. To put it simply, big rifles are expensive, small ones less so. Fast calibres wear out your barrel quickly (but then you can always give me a call), while slow calibres tend to not make it, regardless of size. Heavy rifles also reduce recoil and light ones tend to kick like a water buffalo after it has had a few Red Bull energy drinks.

I am not making it easy, right? Well, have a look at what the pros use and then at your wallet and keep the above in the back of your head in terms of recoil and availability.

## The rifle

So, about that rifle. There are numerous types and systems and, to be honest, too much to mention separately and since I prefer a lathe over a keyboard, I will not go into that specifically. However, from a more technical point of view, I can give you some valuable pointers.

**1. Tolerances.** Even though the trusty old AK-47 has proven very reliable, it is not very accurate. The reliability is due to its sloppy tolerances, but at long distances you would not be able to hit water with it even if you fell out of the boat. So we need tight tolerances, especially where it concerns the barrel and chamber. True, a grain of sand might ruin your day, but when you keep your stuff clean, that's not a real big concern. Barrel dimensions and tolerances are THE most important factor when it comes to long-range shooting. A sloppy gunsmith might give you a beautiful rifle, but if the tolerances of the lead in your chamber are too big, it has already ruled out the use of monolithic bullets. Gas will pass the bullet prior to hitting the lands and grooves, with disastrous consequences. And we are talking thousands of millimetres here, so it is not to be taken lightly. Tolerances on the bolt are also

important, but less so. Afterall, it needs to move in outdoor conditions, but it also needs to keep the cartridge in place in such a way that your bullet will not hit the lands and grooves like a drunk penguin on the ice.

**2. Rigidity.** A commonly overlooked factor is the rigidity of the entire rifle, especially the barrel. I always say a short and thick barrel is the most accurate, but a long one will get you speed. As with ballistics, these things bite each other again because for long-range shooting we want accuracy as well as speed.





As one can imagine, a long barrel is less rigid, but we still need one for speed. As a result, your typical long-range barrel is therefore usually thick and heavy. Heavy is good because it reduces recoil, but bear in mind having to keep enormously long and heavy barrels safely in place. Choosing a rifle system with this in mind is therefore critical. Next to that we need something to hold the entire contraption together, meaning we need a stock. Here, too, rigidity is very important. Let us say we have an action that can hold heavy barrels safely, but to compensate for that weight, we use a flimsy wooden stock. We are still not going to hit a lot. The rather violent barrel dynamics created by powder combustion and bullets (that actually do not really fit) forcing themselves through the barrel will have a serious effect on accuracy as well. Therefore a system that is rigid through and through is imperative for a reliable long-range platform.

**3. The stock.** We have almost chosen a stock that is rigid enough and also tightly keeps our tight tolerance action and barrel in place. However, that stock is going to have to be comfortable as well. What good would it do if lying behind it is about as comfortable as doing complicated yoga stands with a dislocated shoulder and a hernia? Remember that part about concentration? This is also where your stock comes into play. Lying behind it should feel like you saying "Honey, I'm home!" as you walk into your house following the scent of steaks on a braai. It needs to be part of you. In fact, it needs to **be** you. It should be unnoticeable to where you end and the rifle begins.

**4. The trigger.** This is a very personal matter. Some like a two-stage; others (like me) prefer a single stage. Also, the shape of the trigger and its pull weight are a matter of personal preference. And then there's the calibre and the violence it unleashes as it breaks. A 40 g trigger on a .50 calibre might cause you to encounter scopes in a non-desirable (and painful) black-eye manner. On the other hand, wondering if the safety is still on with a 2 kg trigger is also undesirable. One thing is for sure. It should break like glass with a

minimum of movement afterwards. Then and only then you can practice proper trigger techniques. Tip: proper trigger technique is where you are able to manipulate the trigger in such a way that the rifle does not (and I mean NOT) move at all after it broke AND your trigger hand does not in any way influence the recoil movement of the rifle as it fires.

**5. Lock time.** Lock time means the amount of time between the point where your trigger breaks up to the point when the bullet actually exits the muzzle. In all honesty, we can only manipulate this moment up to a certain point from when the trigger breaks to when the firing pin hits the primer. This is also why you rarely see hammer ignition, and primarily striker systems, in long-range rifles. Hammer ignition is a staggering three times slower than a striker system. The firing pin, as well as the weight of that firing pin, are of huge influence in lock time. As a rule, the shorter the lock time, the more accurate the rifle.

I hope this helps in choosing your next long-range contraption. Of course, there are many other aspects such as barrel brands, maintenance protocols, scopes, mounts and muzzle brakes but, as mentioned before, I prefer lathes over keyboards, so will leave it there for now.

## The Ascalon

How do all these aspects translate to the Ascalon? Well, I took the above into consideration and came up with the following (in order):

**1. Tolerances.** A lot of time and effort is taken into chambering Ascalon

barrels. In fact, with the larger calibres, a collaboration with my favorite bullet magician, Alliwyn Oberholster, is often the case. Obviously Ascalons are not designed to only shoot Peregrines, but I often pick Alliwyn's brain to decide on tolerances, throat angles and land/groove dimensions. Not to mention twist rates and bullet weights. The bolt also runs tightly in its action, but not too tight. Too often have I seen shooters having to end their game due to a stuck bolt. However, the placement of where the trigger engages the firing pin is halfway of the bolt, whereas conventional bolt actions engage the firing pin at the rear. This ensures that the bolt stays level and not slightly diagonal (as with conventional actions) when the firing pin engages the trigger. Furthermore, the Ascalon bolt is equipped with a floating and replaceable bolt head. This, too, ensures proper cartridge alignment, but also gives the option of using more than one calibre. The Ascalon XL is capable of using cartridges from .308 to .408, and the soon-to-be-available Ascalon XXL is even capable of firing cartridges up to .50 BMG. Since long-range shooters tend to use almost nuclear loads, the Ascalon has a unique extraction system in order to ensure case extraction even when a somewhat enthusiastic load, in combination with neck sizing only, has been used. Last, but not least, the firing pin tolerances are almost up to Formula 1 specifications, leaving little or no room for primers to flow back in to the firing pin hole and



- 1 Height adjustable butt pad.
- 2 Unique bolt design for positive primary extraction with high pressure cartridges
- 3 Hyperion scope mount for (extreme) added elevation (210 MOA)
- 4 Elevated rail design for extreme angled shooting
- 5 Rotatable pivot attachment for 6 and 12 'o clock bi-pod attachment
- 6 Highly effective muzzle brake suitable for extreme calibers

## Ascalon components



- 7 Height adjustable bag rider
- 8 Stock rods placed symmetrically in relation to the rifle bore for efficient recoil reduction
- 9 Mid bolt placed trigger to ensure proper bolt alignment
- 10 Barrel block to ensure extreme rigidity, especially for extreme barrel lengths. Also functions as a barrel swap system, a recoil lug and safety measure
- 11 Handguard with cooling capacity included in barrel block to ensure stability

### Technical information

Steel parts:	Hardened 17-4 PH to ensure rigidity as well corrosion resistance.
Aluminium parts:	Aircraft grade 7075 Aluminum.
Barrel:	Lothar Walther Stainless steel (other brands upon request available).
Trigger:	Remington 700 compatible. Standard for Ascalon is a high grade Bix'n Andy match trigger.

### Available calibers

Ascalon XL (depicted): .308 up to .408 and anything in between.

Ascalon XXL: .308 up to .50 and anything in between.

thus creating more room for pressure.

2. **Rigidity.** Okay, so that huge chunk of metal between the barrel and the action is not just there because I had some spare metal in my workshop. It is, in fact, the heart of the Ascalon and ensures the rigidity of the entire system. Yes, it also acts as a recoil lug, a way to easily swap barrels and as a safety measure, but more importantly it enables the Ascalon to hold 30 mm thick, 40 inch long barrels with no trouble at all, thus creating a very rigid but also heavy system.
3. **The stock.** The actual design of the Ascalon is virtually 'stockless'. On top of the action (and connected to the barrel block) is a rail to hold (and elevate) scopes. Underneath is only a sort of housing for the trigger mechanism and something to attach your grip to. Both also help direct the recoil through the two rods mounted above and underneath the action towards the shoulder piece and eventually the shoulder. However, without

revealing too many secrets, this is also done in such a manner that heavy calibers are a lot more gentle on the shooter's shoulder. Remember that part about concentration? Right, so that helps in more than one way. Last, but not least, it is designed in such a way that the shooter is able to comfortably lie behind it. Due to the adjustable bag rider (no, that is not a monopod, but is meant to work in combination with a bag), the user is able to manipulate the stock in such a manner so as become very relaxed in order to (a) concentrate on aiming without (b) having to worry if your shoulder will still have the same colour when you are done shooting.

4. **The trigger.** I intentionally chose Rem 700 style triggers since these have the largest aftermarket possibilities. However, Ascalon rifles come standard with Bix'n Andy triggers from Austria. Simply one of the best triggers on the market. By the way. These triggers are without a safety. As can be

seen, with an Ascalon rifle you only know a safety is engaged by moving the bolt upward.

5. **Lock time.** A short as possible lock time is achieved by a strong firing pin spring, a light body, a short travel and the fact that the trigger engages the trigger halfway on the bolt, eliminating the need for long springs and strikers.

### So that is why I build rifles the way I do.

Whether Ascalons or other systems based on Remmies, Howas, Als, Savages, Ultimatum Deadlines, Bat Machines and so on. Are you interested in having a rifle built? Or maybe one of my Dutch Long Arms products such as the Hyperion Tac scope mount or an Ascalon XL or XXL? Feel free to Contact Turner Wilkinson, Dutch Long Arms representative in South Africa, or myself. You dream it ... we build it (and ship it to South Africa when we are done, of course). 🇳🇱

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