

# Official Press Pack



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**HELP for  
HEROES**  
*Support for our Wounded*



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Help For Heroes

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**HELP** *for*  
**HEROES**  
*Support for our Wounded*



## WMS and the 3,080 yard shot

WMS Firearms Training has enjoyed an excellent relationship with Ewen Campbell and Gerald Cook from Desert Tactical Arms UK for a number of years. The Steel Challenge facility at WMS covers some 5,000 acres of glacially sculpted Welsh upland and is in many ways a shooting range made by nature.

The main impact area allows shooting to some 3,500 metres down into bullet consuming glacial moraine, or “badger sand” as it is locally known. The steel targets used are bullet proof and allow shot signature and audible confirmation of impact. The ground around absorbs bullets perfectly and allows signature of impact also.

We have previously shot to 1,500 metres in this area and out to 2,000 metres in another using .338 Lapua Magnum calibre rifles. This record shot project is a first for us.

The difficulty of seeing the fall of shot and being able to react quickly to the information provided by the last round are the main factors defining failure or success at long range shooting.

WMS provides the solution in the UK. Shooting at high altitude in arid conditions, heat and low humidity makes the job easier, which explains how some of the military snipers have made extraordinary shots in combat in recent years.

This project, based in Wales, which is not arid, or hot and only at 500 metres altitude, will be right on the edge of what is possible. The calibres chosen and the people shooting represent the very best in the field. The WMS range team are very experienced spotters and together we are going to try to “make the shot!”

For more information on our shooting courses, tuition, bespoke and corporate days please contact us.

Andrew Venables and John O'Brien

Directors, WMS Firearms Training Ltd

[www.wms-firearmstraining.org](http://www.wms-firearmstraining.org)

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# The 3,080 Yard Shot

On April 28<sup>th</sup> 2013 at WMS Firearms Training's Steel Challenge range in Wales we will attempt to recreate the furthest combat rifle shot ever confirmed as a hit.



That distance is 3,080 yards or 2,816 metres - that is 1.75 miles!

At this distance the time of flight of the bullet is long enough that the earth and the target has moved due to the rotation of the earth.

We will need to take into account the spindrift of the bullet as it will move laterally due to its very fast spin in a clockwise direction.

The environmental situation will be critical to our success; we must accurately measure the pressure, temperature and humidity on the day.

We will also need to measure the angle between us and the target, so we can lessen the gravitational element of our sight setting, depending on this angle.

Once we have this information we can use our ballistic calculator to tell us the elevation needed to hit our target.

However, the most challenging part of the shot by far will be the wind element. We can accurately calculate what a certain wind speed will do to the bullet's path, but we cannot accurately read the complex wind along the entire trajectory of the bullet.

Therefore it could be presented with multiple different strength and angles of wind.

We have however, got one of the best wind riding bullets available with a 10mph 90Deg wind only moving the bullet by .9 Mil @ 1,000 metres.

That's a 9cm at 100 metre adjustment and an on target error of 90cm if not adjusted for.

In comparison a .308 WIN bullet would be taken off its path by the same 10mph wind a mammoth 34cm adjustment on the scope with an error at the target of 3.4 metres!!

### **The Target**

On the day we will have reactive 1 metre steel targets, and paper targets enabling us to record a group.



## The Predicted Settings and data for the shot

### Elevation

39 Mils

This will be achieved by approximately 23 Mils of adjustment on the Kahles 6-24 x 56 scope.

That's 230 clicks on its double turn elevation turret.

That leaves 16 Mils still needed so we will achieve this using the 6 o'clock mil dot reticle in the scope.

The scope will need to be set at a magnification low enough to see the 16<sup>th</sup> mil dot on the first focal plane (when fully zoomed in the first focal scope will only show the middle of the reticle to the user).

This magnification has been estimated at 10x power.

With these sight settings the bore will be looking at a point about 110 metres above the target!

### Incline Angle

We will be shooting at an angle of approximately -6 Deg. If we did not put this element into the ballistic calculator we would miss the target by nine clicks or 2.5 metres high!

### Temperature

We will need to keep on top of the temperature because each degree Celsius of temperature error will equate to:-  
2clicks per degree or 563mm up or down per degree change in temperature.

### Pressure

At a pressure change of just 10Hpa. For example from 1013Hpa down to 1003Hpa we will get an elevation shift of 5 clicks or 1.41 metres at the target in the downward direction = low miss!

### Spin Drift

Spin drift will require 11 clicks or 3 metres of adjustment to account for it; this could be quite a large percentage of the windage adjustment.

### Coriolis

At the heading we are shooting the Coriolis effect will need 2 clicks or 563mm of adjustment to allow for the fact the earth has moved by the time the bullet arrives at the target.

## **Wind**

If the wind is a nice constant 10mph all the way to the target we will be very pleased and set the sight for 53clicks or 14.9 metres at the target end!

If we have a 1 mph error in our wind call we will have an error of 6 clicks or 1.69 metres at the target.

## **Time Of Flight**

The 352 Grain .375 projectile will leave the barrel of our HTI at 3,080 feet per second (that's a bit of a coincidence as its target is 3080 yards away!)

It will take the bullet 5.7 seconds to reach its target.

On its final approach the bullet will be falling at an angle of approx 6Deg::that's about 500mm per 50 metres of flight.

## **Super Sonic to Subsonic transition**

The bullet will have another challenge as it reaches 4 seconds and about 2450 metres into its flight. Here it will slow down to the transonic speed region.

At the point where a projectile slows down from greater than the speed of sound to subsonic speeds buffeting can occur and depending on the design of the bullet can ruin accuracy past this point.

Our bullet will have to cross this transition region and continue for a further 300 metres at a subsonic speed.

It will have a velocity of somewhere around 850fps as it reaches the target.

## **Outlook**

All this data points towards a very, very challenging shot. We hope that the weather in Wales is kind to us!

Even if the weather isn't good we will go to the firing line with probably the best sniper rifle system, calibre and scope combination ever put together, along with our Desert Tactical Arms company shooters who are some of the best marksmen in the world! Watch this space...

# The Calibre

The .375 CHEYTAC Desert Tactical Munitions cartridge is a specialised rimless, bottlenecked, centrefire cartridge for long-range sniper rifles.

A rifle is only as accurate as the ammunition you shoot through it. We developed our own DTA line of ammunition to guarantee exceptional precision and consistency from lot to lot so that the military sniper, LE sniper, or long distance shooter can count on absolute consistency.

The DTM .375 CheyTac cartridge is made from some of the best match grade components available, enabling precision and accuracy with every shot.

## Origins Of The CheyTac Cartridge

The .375CheyTac is a cartridge that was developed by Dr. John D. Taylor and machinist William O. Wordman and their company Cheyenne Tactical .

In 2001 the CheyTac company foresaw the possible military need for a cartridge for anti-personnel, anti sniper and anti-material roles with a (supersonic) precision range further than any existing chamber offerings. It was hoped it would fill in a gap in the market for long-range cartridges between the NATO long-range service cartridges .338 Lapua Magnum and the .50 BMG.





The physical size is midpoint between the .338 LM and the .50 BMG and performance-wise outranges and delivers more energy than the .338 LM and boasts ballistics superior to that of the .50 BMG, with greatly reduced recoil and enhanced precision. The .50 BMG is still, however, superior in its ability to deliver a payload to targets out as far as 2,000 metres with offerings such as armour piercing, explosive and incendiary bullets.

## History of the CheyTac case

The .375 Cheyenne Tactical is based on the .400 Taylor Magnum, which in turn is based on a modified .505 Gibbs, necked down to 0.375 inches (9.52 mm). The .505 Gibbs is an old English big game cartridge that was designed to accommodate 39,160 psi (270 MPa) pressure. One of the disadvantages to these old cartridge cases, intended for firing cordite charges instead of modern smokeless powder, is the thickness of the sidewall just forward to the web. During ignition, the cartridge's base, forward of the bolt face, is not supported. The case is driven back against the bolt face which results in the stretching of the case, particularly the sidewall immediately forward of the web. When the sidewall resists the outward expansion against the chamber, the pressure stretches the case thereby increasing its length and resulting in the sidewall becoming thinner at that stretch point.

During the design of the .375 CheyTac cartridge casing particular attention was directed towards thickening and metallurgically strengthening the case's web and sidewall immediately forward to the web to accommodate high chamber pressures. In modern solidhead cases, the hardness of the brass is the major factor that determines a case's pressure limit before undergoing plastic deformation. Lapua Ltd. solved this problem when it used the .416 Rigby as the parental case to the .338 Lapua Magnum. Lapua created a hardness distribution ranging from the head and web (hard) to the mouth (soft) as well as a strengthened (thicker) case web and sidewall immediately forward of the web. This method results in very pressure resistant cases.

## The bullet

The DTM .375CheyTac uses a 352 Grain monolithic copper hollow point bullet. It has a ballistic coefficient of .890!

The monolithic construction of the bullets eliminates inherent problems found with jacketed lead core bullets. Concentricity between the bullet body and the boat tail is machined perfectly true.

Meplat, or nose tip diameters, are always the same perfectly round shape and flat on the end with bullet overall length precisely maintained. The solid copper bullets are consistent every time, being within .40 grains in maximum weight deviation and concentric within .0001" and within .00015" in diameter.





### Our Mission

Desert Tactical Arms was founded in May of 2007, the company was created to protect freedom for all nations and people by providing the most compact, accurate, and reliable precision weapon systems in the world. Desert Tactical Arms strongly supports civil rights, especially the right of every individual to own firearms to protect themselves, their family, and their property and the use of firearms in defence, hunting, and shooting sports.

We recognize that to preserve the right of gun ownership there must be a strong network of firearms dealers and we strive to support our dealer network with attractive sales programs, training, timely delivery schedules, and unrivalled customer service.

**Nick Young**

President

# The Rifle

The Desert Tactical Arms Hard Target Interdiction Rifle (HTI)



HTI

Presenting the ultimate compact and precision sniper rifle system the DTA HTI seen here in .375 CheyTac calibre.

The bullpup rifle design boasts an overall length 12" less than the equivalent length barrel on a conventional bolt action rifle making the most compact rifle system in the world.

The HTI rifle is manufactured using light weight super strong polymers and an aluminium chassis to create a package that is up to 10lbs lighter than the competition, weighing in at 19.7 lb (9.93 kg).



The HTI is a multi calibre system that can be switched between .375 CheyTac and .50 BMG. This can be done in the field by the operator using only one tool. The most important aspect of this is that it can change calibre whilst maintaining zero each time the barrels are removed and refitted. Each barrel/calibre will have its own zero. The zero point for the different barrels can simply be built into the ballistic PDA or charts creating a seamless change of calibre every time.

Conventional rifle systems consist of a barrel action and chassis. The action then has to be bedded or bonded to the chassis. The HTI is made from a solid piece of aircraft grade aluminum (ANSI 7075-T6) from the hand guard to the butt plate. The barrel clamps directly into the chassis eliminating the need for any bedding or bonding.



## .375 MAGAZINE IN HTI

The HTI has an ambidextrous magazine release; the picture above shows a .375 CheyTac Magazine in the rifle.

The rear Mono pod has a coarse adjustment by pushing down on the thumb wheel and a fine adjustment by turning the thumb wheel. The coarse stage gives you 90mm of travel with the fine adjustment another 70mm.





**50BMG MAG**

The magazines are proprietary and designed to protect the tip of the bullets from impacting with the front of the magazine under recoil or transportation. This is achieved by retaining the rounds on the cartridge shoulder. This is very important in the heavy recoiling .375 CheyTac and .50 BMG configurations so that the last round in the magazine is kept in the same perfect condition as the first. Both magazines have a 5 shot capacity, with the last round being the most at risk as it receives the recoil impulses from the first four shots.



**.375 CHEYTAC**



The butt plate consists of a soft cushioned rubber to aid comfort and an aluminum plate for strength. It is released by the button shown above which allows the bolt and stroke reducer to be removed from the rear of the action.

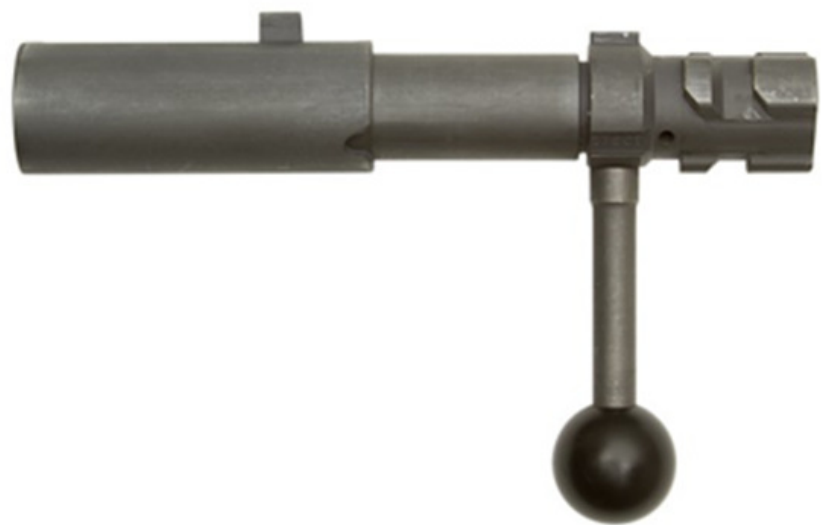
The HTI has an adjustable cheek piece for setting up the perfect cheek weld.

The HTI bolt has a collapsible sleeve design to allow the bolt to move rearward fully in the bullpup design. The bolt has a tool free strip down design to access the striker spring and firing pin. The bolt uses a six lug design with a 55 Deg bolt lift.

The trigger is adjustable for creep, weight and position within the trigger guard. The trigger weight can be adjusted between 1 and 6 lbs.

There is an ambidextrous safety catch designed to be operated by the trigger finger with or without gloves on.

### HTI Bolt

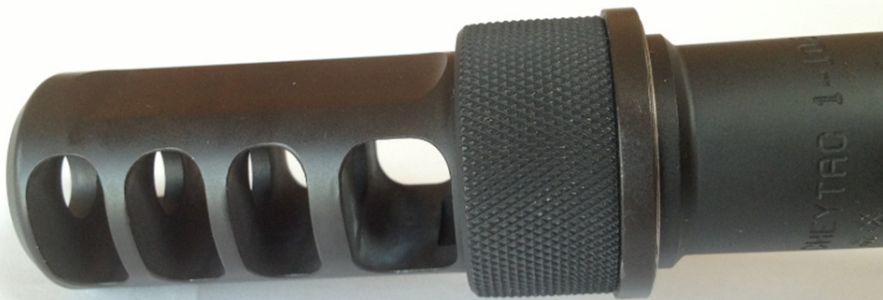




The HTI is equipped with a 29" match grade barrel made by Lothar Walther. It has a twist rate of 1 in 10.5". The barrel is fixed into the chassis by

the four action screws and a cam. The action screws are torqued to 80 inch pounds using a "T" handle wrench. The rifle is guaranteed to shoot 0.5 MDA at 100 metres using qualifying factory match ammo.

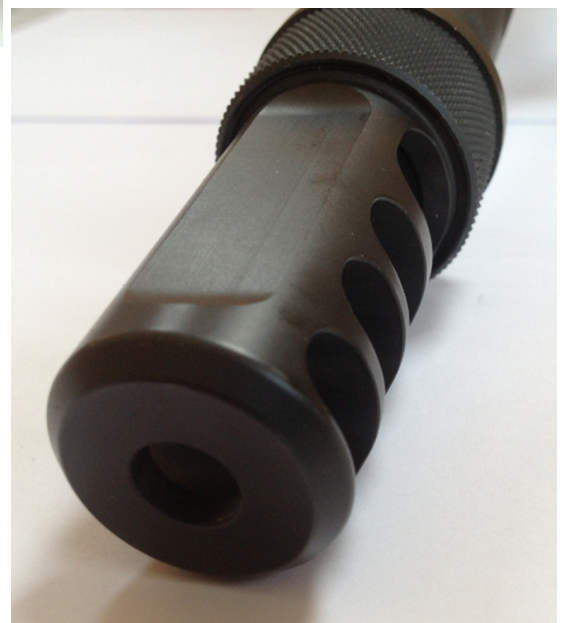
The HTI model has a fixed floating fore-end with a modular picatinny rail system at 3, 6 and 9 o'clock positions, allowing the fitting of rail sections where needed. There is a flat 12 o'clock picatinny rail running the full length of the system. This is designed for optics, night vision and the like. The rail has QD sling attachment points on the left and right with a rear fixing point in the chassis on both sides.



The Desert tactical arms muzzle breaks for the .375 CheyTac and 50BMG have four ports and have been designed using high speed cameras to analyse harmonics, barrel whip and muzzle flip.

The result is an extremely efficient break that does not induce any whip into the barrel allowing it to recoil straight backwards, thereby maintaining maximum accuracy.

The muzzle break has an external thread to allow a suppressor to be attached over the top of it without removing the break.



# The Scope



We are very pleased to announce that the next stage in Desert Tactical systems integration has arrived, with the establishment of a partnership with Kahles Optics. Kahles is a sister company to the oldest maker of the world's finest scopes, known worldwide for producing the best glass, coatings, and legendary hunting optics, that consistently outperform the competition. Though perhaps a lesser known fact, those same fantastic lenses and coatings are also found in the high-end

products from Kahles. For the majority of Kahles' history they have produced military optics, but for the last 25 years the owner has kept the focus for both companies sharply on sporting optics, and restricted Kahles from building military scopes. In 2010 however, those restrictions were lifted, and Kahles aggressively expanded back into the tactical scope market, coupling the best glass in the world with cutting-edge mil-spec precision optics. Their optics include the: K3-12x, K6-24x, and K1-6x. Since their new line released just 2½ years ago, they have already won several military contracts throughout Europe and the Middle East.

**A Look Inside Kahles: 115 years of Optical Artisans** Kahles is headquartered in a newly constructed, state-of-the-art facility in Vienna, Austria. Their machine shop is a technological marvel of CNC turning centers and screw machines humming along quietly under the "sound dampening" thermal regulating ceiling panels. These are custom designed and developed by Kahles themselves, to keep the shop temperature exact at all times. This allows them to produce parts with space shuttle precision.

An assembly line of optical artisans, each with his own set of magnification tools, cleaning solutions and parts, assemble each phase of the scope building process. Every employee is a true precision craftsman, with a lifetime of technical experience, displaying loyal workmanship and pride for a company that has grown to become a part of their being. Final inspection processes are extremely stringent; they set and test all aspects of the scope (adjustments, parallax, magnification, light transmission, etc.).

Entering their warranty department was a relief because their warranty shelves were virtually empty. It was a privilege to see what 115 years of business had created and it was as beautiful as watching a performance by a professional symphony. It was obviously a very efficient operation that produces thousands of scopes every year.

**Honesty in marketing practices:** Kahles takes honesty very seriously and will not employ marketing gimmicks by claiming power ranges that are not true like many other scope companies regularly do. For example, some companies may claim a scope is 1-8x when it is really 1.8-7.2x, thereby using creative rounding to give the product a marketing boost. Kahles power ranges are 100% what they claim them to be and at those power settings they have some of the widest fields of view in the industry.

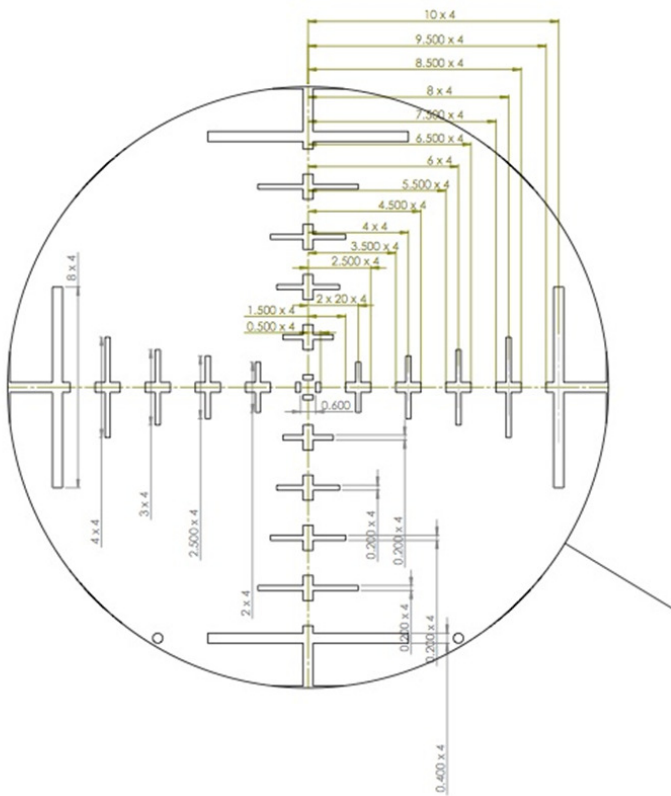


The Kahles DTA scope has been designed to complement the Desert Tactical Arms rifles. The DTA reticule found in the Kahles scope has been designed to provide a clean view at the same time as giving all the information needed for the job in hand.

The centre of the reticule has a circle to pinpoint the target whilst still being able to see the exact desired point of impact.

The fine measuring lines are near the middle of the reticule to use the clearest possible portion of the glass and keep movement to a minimum when measuring.

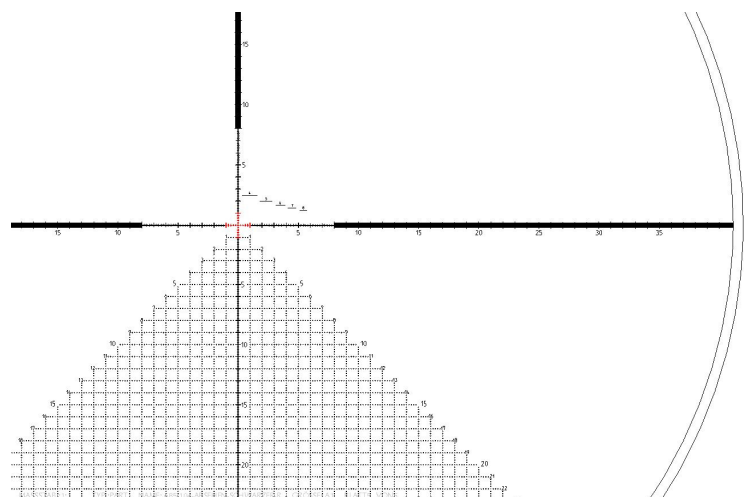
There are range finding stadia lines that show 1 metre high and 500mm wide from 400 to 800 metres.



We have a Mil dot grid system down in the lower area of the scope to allow fast hold off points for extended ranges without adjusting turrets.

There are aiming points all the way down the 6 o'clock cross hair to allow elevation hold off.

The Kahles DTA scope and reticule coupled with the DTA HTI rifle provide an off the shelf package that can reach out to extreme ranges, distances that have never been seen before!





# About Help For Heroes

Everyone at H4H is passionate about helping our heroes, most of us have links to the Services; some have partners, friends or relatives who've been injured or have lost a loved one. We take the time to listen and understand what's needed and do our very best for our heroes every single day.

We have a complete open door policy and welcome all of our supporters to visit us or pick up the phone to find out just what a difference your donations are making to the lives of our heroes.

# Support From The Event

During this exciting day there will be the opportunity to donate to try your hand the 3,080 yard shot both as a team and single shooter. We will also be taking donations for the lunch supplied.

All donations will go straight to this fantastic and worthwhile cause.

Event Number: 20130402-0834-1151