

When Warren Center went around the firearms manufacturing industry in the USA trying to get someone interested in making his Thompson Contender single shot pistol, he found no takers. Instead, a specialist manufacturing company, K.W.Thompson, who was looking to expand its industrial product range, thought it was a good idea. The rest is history.

A New Dimension from TC Switch Barrel Bolt Action



After launching the Contender, and moving handgun performance to a level never previously considered possible, TC then expanded into muzzle loaders and this rapidly became the largest part of its business. Other centrefire models were added to the range, including the G2 and Encore – both of which come in long and short-barrelled versions.

In 2007, TC was purchased by Smith and Wesson and in more recent times, the original TC factory in New Hampshire was closed down and all manufacturing moved to Springfield in Massachusetts to S&W's site.

TC has since established itself as a manufacturer of bolt action sporting rifles like the Venture in a number of configurations, and while this model was an original design, it remains a basically modern front locking bolt action.

2012 has seen TC take a giant step into an area that has long been dominated by European gun makers – the switch barrel rifle. While some specialist rifle makers in the USA have made switch barrel rifles, the main stream manufacturers have not gone down that track.

GUNS was fortunate enough to get a sample of the first switch barrel TC – the Dimension – on its arrival in Australia, just before the deadline for this issue.

The main feature of European switch barrel rifles has been that they are quite expensive, and additional barrels can cost as much as a new sporting centrefire rifle. While local pricing needs to be finalised, the \$US pricing looks to be very attractive for the additional bolts and barrels.

TC has certainly gone down its own path in designing the Dimension system and in doing so, has come up with a relatively simple and secure arrangement, although some special tools are required to do the barrel changeover.

Firstly, the aesthetics of the Dimension set it apart. How times have changes with respect to the style of bolt action rifles. If you read any reviews by gun writers of the last

Century, it was all about shiny blued steel and walnut stocks with hand cut checkering. The very thought of plastic stocks with contrasting inserts and bead blasted matte black metalwork would have generated paragraphs of outrage. Not any more!

The Dimension has a two-tone polymer stock with a deep and soft ventilated recoil pad. The gap between the barrel and the forend is large enough to store some emergency supplies. This said, its form has been designed to enhance its function and it handles very well. The large barrel channel also allows all sorts of barrels to be fitted to the Dimension without any fitting issues, as all the metalwork is supported in the receiver area.

The bolt on the Dimesion is a front locker, with three equally spaced locking lugs. These locking lugs engage recesses at the rear of the barrel and lock-up is completely independent of the receiver, that is basically a simple cylinder.

If you use cartridges of the same length and head size, it is not necessary to change the bolt. Otherwise a separate bolt is needed for each barrel with a different head size. There are four bolt categories in the Dimension system. Series A is for the small-head cartridges – the .204 Ruger and .223 Remington. The Series B bolt fires the .22-250 Remington, .243 Winchester, 7mm-08 Remington, .308 Winchester. The Series C bolt has the same head size as the Series B, but



OPPOSITE PAGE TOP: The stock design on the Dimension is very 21st Century. The scope is a Nikko Stirling 4-16X50 Gameking in conventional Weaver mounts.

OPPOSITE PAGE LEFT: Great accuracy from the .223 barrel – well under MoA with Winchester Varmint 55gn factory loads.

1. All the components for a two-barrel outfit including separate bolts and separate magazines and housings, along with the tools and barrel nut.

2. Separate bolts are required for different classes of cartridges. The bolts are marked A, B, C and D to identify their classification for each type of cartridge.

3. The TC Dimension test rig with .223 and .30-06 barrels and barrel switching tools.

accommodates the longer .270 Winchester and .30-06 Springfield. The Series D bolt is for the belted magnum 7mm Remington Magnum and the .300 Winchester Magnum.

In addition to the different bolts, the magazine assemblies are also interchangeable to suit the cartridge for which the rifle is chambered.

The test rifle came with a Series A assembly in .223 Remington and Series C assembly in .30-06. The Dimension comes without sights, but fitted with a set of Weaver bases screwed to the receiver. The TC literature states that a special scope mount bridge is available, the front of which attaches to a Weaver-type base that is integrally machined into the Knox form (the thick bit around the chamber) of the barrel.

The idea of this is to leave one of these mounts attached to the barrel with its scope, so that the rifle does not need to be sighted in every time the barrel is switched. The rear of the mount has to be detached from the receiver to allow the barrel to be switched. This operation is based on the assumption that the mount alignment will not change when the rear of the mount is re-attached to the receiver.

For the purpose of getting this somewhat urgent review done in time, I fitted the Dimension with a set of conventional Weaver rings and a 4-16X50 Nikko Gameking AO scope. One advantage of using the fore mentioned TC scope mount, is that it is a rail

with the option of positioning the rings at different intervals. The fixed bases are fairly wide apart, and scope with short body tubes may be hard to fit in the right eye position.

The trigger on the Dimension is adjustable for weight only, via hex screw through to top of the trigger group in the receiver. The instructions indicated that a tool was supplied for adjusting the trigger, but the tool illustrated in the instructions was not in the kit with the other tools. Instead there was a small conventional hex key. The trigger spring, as is the case with a lot of US rifles, still keeps the trigger release weight fairly high when the adjustment is backed right off – probably a public liability requirement. Not that the trigger was bad – it had a release weight around 1500g with a crisp release.

Operation of the action is typical of a 3-lug bolt action. The bolt only rotates 60 degrees and the trade-off is that a little more effort is required in the early part of its opening movement compared to a 2-lug bolt.

Removal of the bolt from the receiver is something of a ballet, and a read of the instructions is recommended for new users. If the bolt is pulled back with the bolt release actuated in a conventional manner of removing a bolt, the underside of the bolt will foul the nose of the comb of the stock and it will not come back far enough to remove it from the receiver.

The trick is to rotate the bolt 180 degrees

when the bolt handle is about 50mm out of the rear of the receiver. This turns the bolt upside down and allows the curved upper section of the bolt shroud to easily clear the stock. The bolt needs to be removed when doing a barrel change.

Now we get to the interesting part – changing barrels. The action needs to be removed from the stock to do this. A multi-purpose tool is supplied that contains a hex key that fits the two action bolts.

With the barrelled action out of the stock and the magazine housing out of the way, a special tool called the LOC (Locking Optimised Components) Leverage Tool is screwed up tight by hand into the front action screw hole. This unit has two holes in it, and either hole can be used to insert the spigot of the LOC Torque tool.

The gear teeth on the small diameter gear on the Torque Tool are meshed with the gear teeth on the Torque Collar on the barrel that hold the barrel in place.

By turning the Torque Tool while stabilising the assembly with the Leverage Tool, the Torque collar will loosen and it can be screwed off with the fingers. The barrel can then be pulled directly out of the receiver, and the new barrel inserted. The barrel section is a snug fit in the receiver and needs to be aligned and gently pushed into place until it engages the barrel alignment pin in the receiver. The Torque Collar can then be replaced and screwed up finger tight and then

SPECS

MODEL. THOMPSON CENTER DIMENSION

Calibres

.30-06 and .223 tested.
.204, .243, .22-250.7-08,
.270, .30-06, 7mm Rem Mag
and .300 Win Mag. available

Action

Three-lug front locking bolt
with 60 degree lift. Left
hand option available.

Barrel

22" for medium cartridges,
24" for long and magnum
cartridges. Interchangeable barrels
with 5R match grade rifling.

Weight

3.1kg

Magazine:

3-shot removable box

Sights

Weaver bases mounted on
receiver. Special TC barrels
mount rails available
as an accessory.

Trigger

Factory set for sear
engagement. Adjustable
for release weight.

Stock

Polymer with soft touch
grip panels. Aluminium
pillar bedding.

Accessories:

LOC System barrel
changing tools.

RRP

Dimension Rifle
\$949

Dimension Barrel including
mag & housing
\$319

Dimension Bolt Assembly
\$199

Dimension Bridge
Mount Assembly
\$129

Dimension Scope Rings
\$49



1



2



3



4



5

finally tightened with the Torque Tool. When the Torque Collar reached the correct tension, the Torque Tool disengages with an audible 'click'.

All the bolt locking lugs are contained in the barrel, so headspace is always correctly set for each barrel-bolt group. Each bolt and barrel assembly is stamped with their respective Series codes so the wrong bolts are not combined. The magazine housing also needs to be changed when changing cartridge categories. After becoming familiar with the system, I found that changeover time was less than 5 minutes.

The combination sent for testing was a good one – being both at the smaller end in .223 and the longer end – the .30-06. This combination required both a barrel change and a magazine housing change.

The main point of interest in testing the Dimension, apart from the normal one of seeing how well it shoots, was to see what difference in point of impact occurred with (a) changing calibres, and (b) removing and replacing the same barrel.

The Dimension arrived only a few days before the GUNS deadline, so there was only one somewhat hurried opportunity to shoot it with factory loads. Some Federal 150 gn Power Shok and 168gn Winchester Ballistic Silvertip loads were rounded up for the .30-06 and some Winchester 55gn Varmint Specials were used to try out the .223.

The barrels supplied with the Dimension system are listed as match grade with 5R rifling. 5R rifling is a rifling developed in Russia which uses 5 lands and 5 grooves instead of the traditional 6 lands and grooves. In addition, the sides of each land are cut at a 65 degree angle versus a sharp 90 degree angle

1. The TC Dimension receiver is relatively light. Trigger is adjustable and Weaver bases are standard.

2. The Dimension stock has generous clearance around the barrel channel and has an aluminium pillar bedding system for the receiver to fully float the barrel.

3. The LOC tools in place ready to unscrew the barrel nut. The Torque tool disengages when the correct load setting is reached when re-fitting a barrel.

4. The barrel simply pushed into the receiver and is held in place by the barrel nut. The Weaver base on the barrel is for the special TC scope base.

5. The three-lug bolt engages the locking surfaces in the barrel extension and lock-up is independent of the receiver - no headspace issues with this setup.

on standard rifling. 5R rifling's design causes less bullet deformation, because the edges of each land do not cut into and deform the bullet jacket to the degree of 90 degree rifling. With less jacket deformation, there should be less fouling and what is there will be easier to remove from the angled grooves. The TC Dimension comes with a conditional MoA accuracy guarantee such is the company's confidence in this system.

The first test of the repeatability of the Dimension system was done using my trusty Bushnell collimator. The .223 barrel was the first to be aligned on the collimator so that there was a good chance of it getting on the target when sighting in with the first shots and also to take note of the crosshair position on the collimator scale, which is

marked in 2 MoA graduations. My standard setting when putting a scope on a rifle for the first time is to get the vertical crosshairs lined up exactly with the vertical scale in the collimator, and set the horizontal setting above the centre point to accommodate the height of the scope above the barrel, as the collimator is located on a spigot that fits into the bore at the muzzle, a fixed height above the bore.

On changing to the .30-06 barrel, I was pleasantly surprised to see that the vertical crosshairs remained exactly aligned although the horizontal wires were 8 MOA lower than those on the .223 setting.

This provides a guide only, and shooting a rifle lined up with a collimator is the only way to ensure that it is going where you want it, but at least this process get you on the paper.

The shooting tests were necessarily brief.

I did not have much time to organise any .30-06 ammo and used most of my supply in getting the rifle sighted in, which had to be done at 100 metres on the small Hunting Club targets because of the range rules on the day.

Once on the paper, I fired the last 5 rounds to get an idea of the point of impact. The TC Dimension is a light rifle, and it is a lively outfit to shoot off the bench with 168gn .30-06 loads, so I was not unhappy to give it a break and switch to the .223.

The .223 was sighted in with the last of a box of Norma 55gn loads and then the serious work was done with Winchester Varmint Special 55gn loads. After a few fouling shots and minor scope adjustments, the next 5 shots just about went into one hole – exceptional performance from a light weight hunting rifle.

The point of impact for the .223 loads was a good 300mm different from that of the .30-06 barrel with the scope on the same setting, which supported the results seen with the collimator. Frontier Arms advised that TC had not supplied any of its special bridge mounts with the first shipment of Dimensions, and it will be worth waiting for one of these mounts if you are going to be regularly changing barrels.

The New TC Dimension is a significant innovation from this well established US gun maker and is very well priced for all the parts of its system. The current recommended retail prices for the Dimension and system components are shown below.

For more information about the availability of the TC Dimension system, contact the Australian distributor, Frontier Arms at www.frontierarms.com.au or Ph: 08 83732855. 



LEFT: Not tested but this shows how the TC bridge mount works with the base remaining attached to the barrel by the front of the mount so a scope can be permanently mounted to each barrel.

BELOW: The TC Dimension is a fairly light rifle but thanks to its deep and soft ventilated recoil pad, was not too eye watering to shoot with 168gn .30-06 loads off the bench.

