

SELECTING THE CORRECT FENCE FOR CONTAINING WILD BOAR



Tornado Wire is Europe's leading specialist manufacturer of knotted wire fences for agricultural, forestry and infrastructure projects



THE CHALLENGE OF CONTAINING WILD BOAR

Wild boars are very robust animals, able to cross and tear the fence. The European Wild boar can weigh 150 to 160 kg for the male and 100 kg for the female, making it a relatively heavy animal that is able to bring considerable force to destroying a fence.

Maximum protection,
minimum lifetime
costs

Over the last 50 years, Tornado has become the name in quality fencing across the agricultural, equestrian, forestry and infrastructure sectors.

We are the only fencing manufacturer to have evolved from a fence contracting business. Therefore, we know what it takes to design, manufacture and install the perfect fence.

Our unique understanding of how a fence needs to perform, combined with our meticulous attention to detail in all our processes and our hugely experienced team, allows us to create the fencing solution you are looking for; maximum protection with minimum lifetime costs.

CONSIDERATIONS WHEN CHOOSING A WILD BOAR FENCE

Behaviour and motivation of the animal

The motivation of an animal to breach a fence is critical when choosing fence specification. Containing an animal within a small area usually requires a stronger fence than one which would be to exclude them from an area. Wild Boar can and do jump, but a fence height of 1.2mtr should deter them. They also dig and attention should be paid to preventing a breach of the fence in this way.

Our experience shows that the most common way a boar would breach a fence moving the vertical wires with its snout to create a fence failure. Preventing the boar from getting its snout between the vertical wires is most desirable. This can be achieved in several ways.

Terrain

Consideration to the type of terrain and year-round conditions should be made. Undulating ground could leave voids underneath the fence that could allow passage through the fence line.

Other fauna

It is important that the fence does not become a wall that stops the movement of all animals, so a balance between security and allowing other wildlife to pass as freely as possible is critical



TYPES OF FENCE

Electric (Plastic net or wire)

The use of temporary nets made of conductive plastic polywires is sometimes seen to protect crops from animals. In order to be effective it needs daily checking to ensure that vegetation has not caused a short circuit and that the electric is running across the entire length. Electric fences are most effective when the animals contained have been "trained" not to approach the fence.

There is also a risk that species such as deer could become trapped in the fence. The electric running cost can also be expensive.



2mm low carbon steel knotted fence

Woven wire nets made from low carbon steel are common throughout Europe. They provide good protection against livestock in low pressure areas. They are not very resistant to either deliberate or accidental damage. The fence quickly loses its shape and can be hazardous to non-threat species such as Deer that can become trapped in the fence.

2.5mm high tensile knotted fence

Purpose manufactured for the application using premium grade High Tensile wire. High tensile wire is elastic and will regain its shape after accidental damage or animal attack.

The fence provides a clearly visible barrier and when completed the fence will not need any maintenance to keep providing security. It is easily rolled up at the end of life for recycling.



UNDERSTANDING FENCE NOMENCLATURE

T15/155/15

KNOT TYPE/WIRE TYPE

The combination of letters denotes firstly the knot type (T=Titan fixed knot) No other letter tells you that the horizontal and vertical wires are 2.5mm. An "L" would show the wire was 2mm diameter

Tornado uses wire in a narrow specification band allowing the fence to be evenly tensioned across all horizontal wires for optimal service performance. It is not necessary to employ a heavy selvedge wire with high tensile fences.

HORIZONTAL WIRES

The number of horizontal wires and their spacing is key in the design of a fence. It is usual for a wire fence to have smaller spacings at the bottom where strength is needed and larger gaps at the top.

A 2.5mm dia. high tensile wire with a tensile strength of 1235-1390 N/mm² has a breaking strength 70% higher than a fence constructed with horizontal wires of 2mm dia. 1200-1400 N/mm²

OVERALL FENCE HEIGHT

The figure here relates to the overall height of the fence. It is not always the height above ground as it is possible to either bury or turn out the net at the (or indeed crank it an angle at the top) For a Wild boar fence we would recommend that you either bury or turn out at least 30cm. An overall height of 125cm will allow deer to jump the fence whilst providing good security against Wild Boar

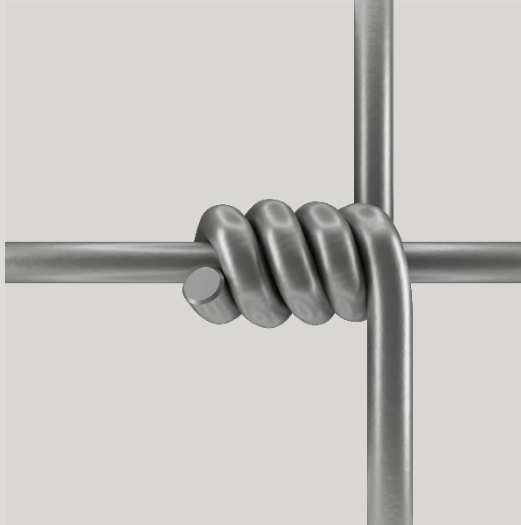
VERTICAL WIRE SPACING

The space between wires can provide both strength and a means of animals not getting horns, snouts or hoofs stuck in the fence.

Tornado has a vertical wire specification of 2.5mm dia. 695-850 N/mm² This is particularly important in a Wild Boar fence when vertical wires may come under attack. Competitor wire at 2mm dia - 400-550 N/mm² would provide significantly less security against deformation of breaking

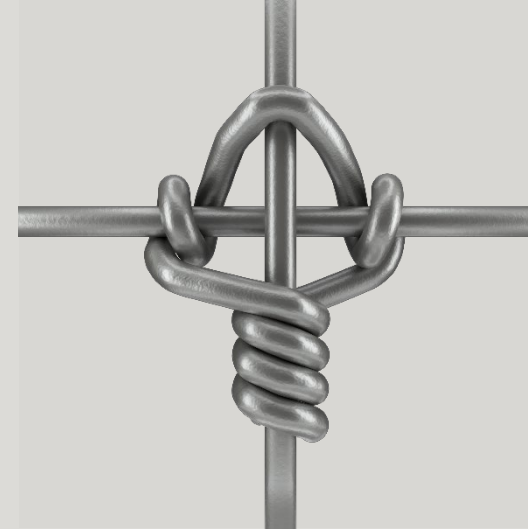
KNOT TYPE

A knotted fence can be constructed in a few ways. Each of these knot types has their strengths and weaknesses and it is critical to select the correct one for the application



HINGE JOINT

- ✓ Provides a cost-effective method of manufacturing a fence and is useful where flexibility is needed. This could be when there are many turns in a fence line or low pressure on the fence
- ✗ Separate pieces of wire for each joint means the fence can sag and deflect under downward pressure. Fences of this construction are particularly susceptible to damage from falling branches. The knot can unwind with lateral force.



FIXED KNOT (TITAN)

- ✓ The Titan fixed knot fence features a single continuous vertical wire. This provides the fence with a good deal of rigidity and when erected under the correct tension will provide good protection against damage. The robust design of this knot makes it particularly suitable for applications with heavy animals or significant pressure from livestock.
- ✗ The fence is heavier and more costly than the hinge joint.

PREVENTING DIGGING UNDER THE FENCE

TORNADO®

BURY THE FENCE

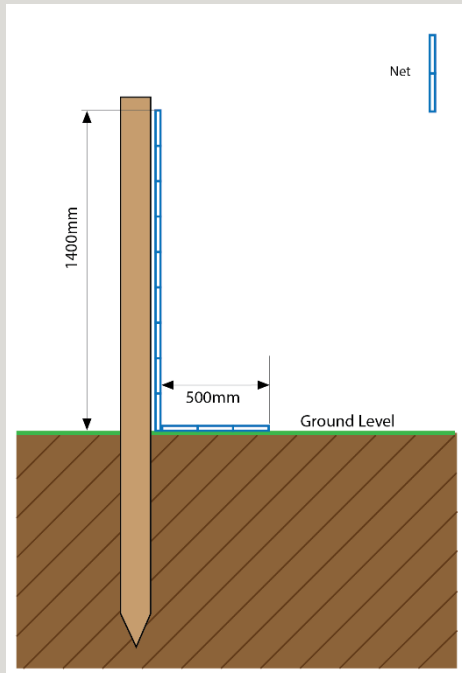
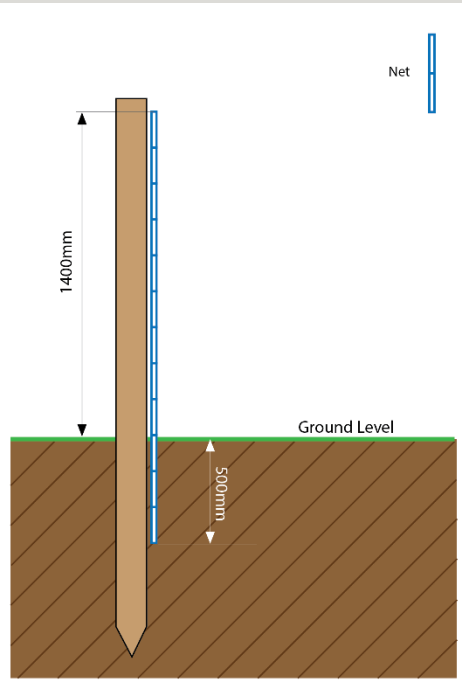
To avoid the fence being breached through digging it is possible to dig a trench along the fence line and bury the bottom of the fence in this trench. The depth of this trench is usually between 30cm and 50cm and is backfilled

Zinc and zinc aluminium coated agricultural fence service life can be affected significantly when exposed to extremely acidic or saline environments and this factor should be considered when designing your fence installation. For typical service life to be achieved it is recommended that the product must be installed in an atmosphere with corrosively class C1, C2 or C3 (very low/low/ medium) in accordance with ISO 9223 and must not come into contact with substances that will accelerate corrosion, including but not limited to fertilisers, pesticides, herbicides, salt water and soils of pH lower than 5.5. Particularly at sites with peaty and wet ground. A soil test should be carried out if you intend to bury the fence.

TURN OUT THE BOTTOM OF THE NET

Incorporating a hinge into the solid vertical wire allows the net to be turned out at ground level and negates the need for a trench to be dug. Experience shows that turned out nets are just as effective as burying at deterring wild boar from digging under the fence line.

Alternatively, a line of barbed wire offset from the fence on the animal side can be utilized to keep the animals away from the fence line



POSTS – MATERIAL SELECTION, SPACING AND STRAINING POSTS

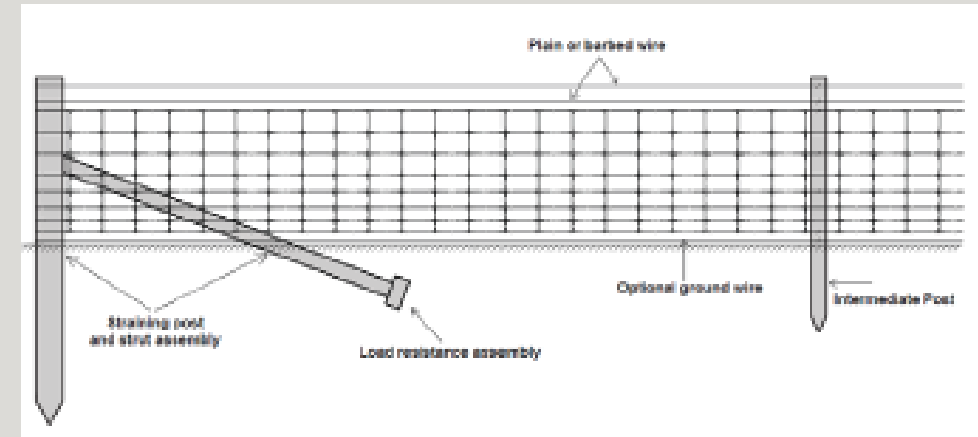
A high tensile wire fence is only as strong as the posts it is attached to. Attention should be paid to selection of post material and their secure installation



POST MATERIAL

Autoclaved spruce or fir poles are most suitable for this application. The use of thin section steel posts is not recommended for high tensile fences. Fence posts should be of best quality sourced from sustainable sources.

Intermediate posts should be 8-10cm diameter and should be machine pointed and be free of knots, strong enough to be driven into the ground using mechanical post driver



STRAINING POSTS

Fence strainer posts should be of the best quality, sourced from sustainable sources

They should be machine pointed and be free of knots, strong enough to be driven into the ground using mechanical post driver. The posts should be well anchored with a strong support strut/brace (see diagram) – Support brace to be morticed into strainer post about 2/3 the height of the completed fence.



Case Study – Outbreak of African Swine Fever in the Gaume region of Belgium – September 2018



Background

In September 2018 a wild boar carcass infected with the ASF virus was discovered in forest in the Gaume region of Belgium. The cabinet of the Minister of Agriculture commissioned an Engineer to organize a meeting between the different actors concerned (hunters, forest rangers, fence contractors, Vet...). After considering different solution they agreed the best course of action was to install a knotted wire fence to create a protected area from which the virus could not escape

Selection of Specification of Fence

T10/120/15 was selected here as a good combination of security, cost and its ability to allow other animals to pass through or over it.

Small game like hare, foxes and badgers would be still able to pass through the 15cm spacings and bigger animals like deer would be able to clear the 120cm height. However, each case will be different taking into account the nature of the local wildlife and budgetary needs of a specific project.



Case Study – Outbreak of African Swine Fever in the Gaume region of Belgium – September 2018



Installation of Fence

On October 20th just 28 days after the discovery of the virus the first fence was started.

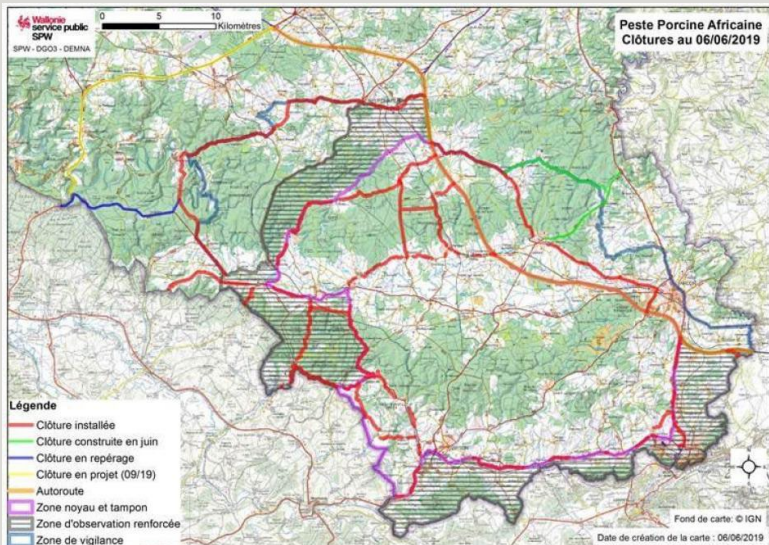
Because the fence was urgent several contractors were appointed. The way that the Government has allocated the zones was based on the efficiency, and speed of installation. With his teams, Cloture Neuville was able to install almost 4km each day!

Outcome

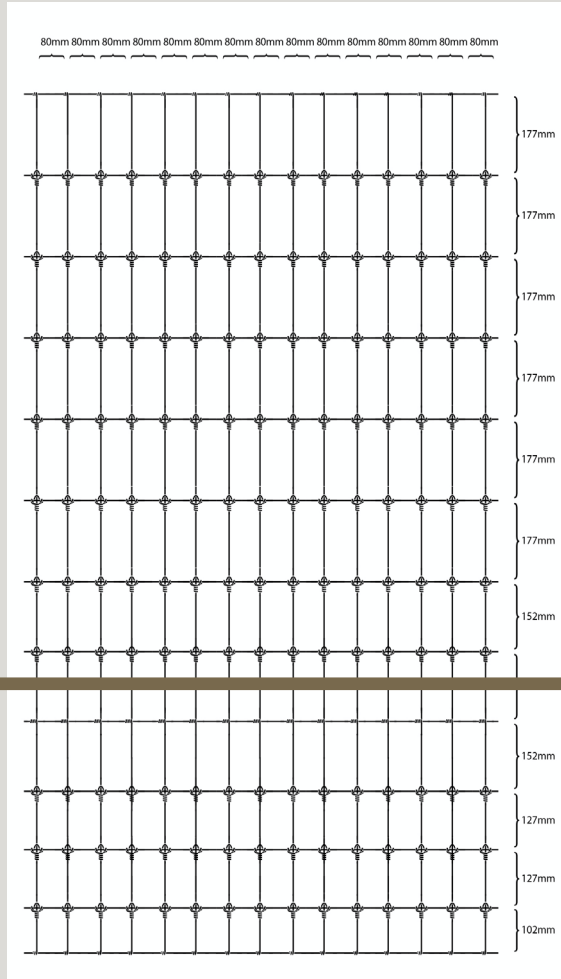
A total of 240km of fence was installed. In 2019 1,588 carcasses were analyzed within the perimeter affected by African swine fever, 573 were positive.

No cases of the fence being breached were found and although there is likely to be some virus that remains within the area, the outbreak was contained and has not spread to other areas

Life returned to normal in Gaume with no new cases in the ensuing years. A combination of fast action and specification of the correct fence led to this positive outcome.

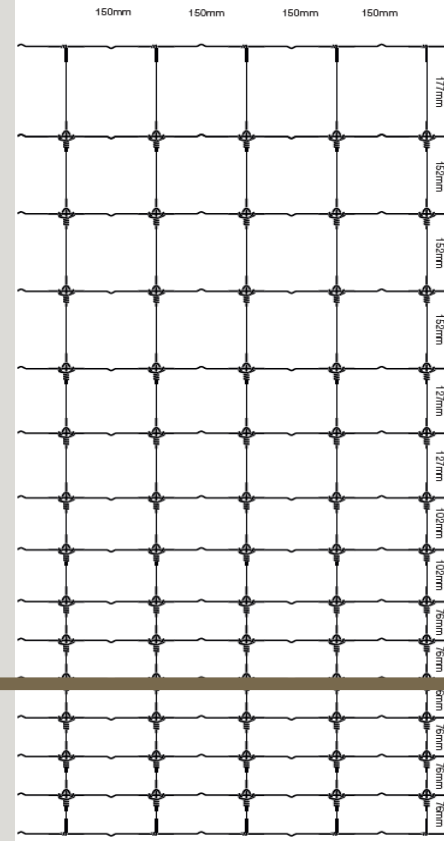


Most Secure



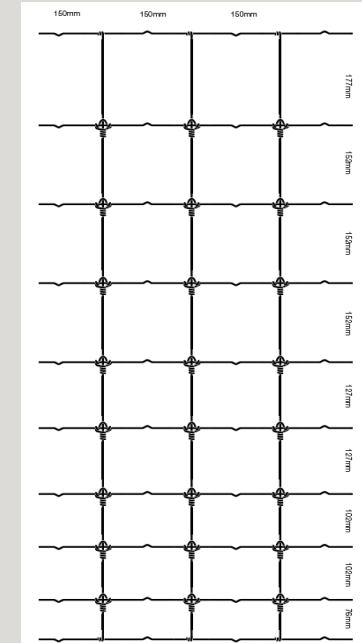
T13/190/8 C5 (50cm buried or turned out)

Balanced Solution



T15/155/15 (30cm buried or turned out)

Quickest and Cheapest

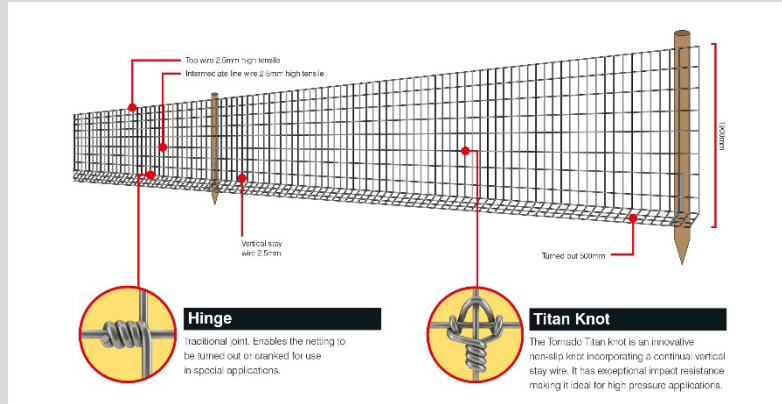


T10/120/15 (line of barbed wire on bottom)

OUR RECOMMENDATIONS

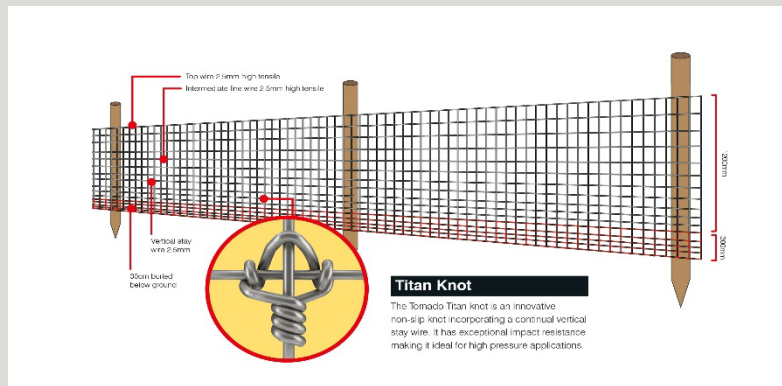
T13/190/8

This would make the most secure fence. 50cm turned out on the ground would make a finished fence height of 140cm. It is the most expensive of the fences per metre but would be less expensive to install than a buried fence. The height and closeness of the vertical wires would make it likely that other animal's movement across the fence line would be impacted also.



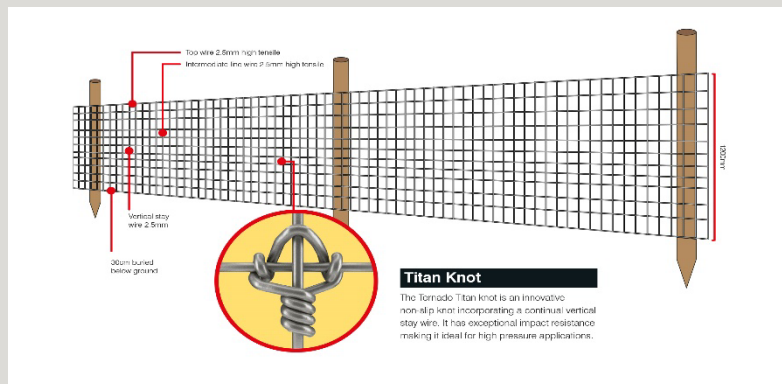
T15/155/15

30cm of this fence would be buried leaving 125cm of fence height. This fence would require a 30cm deep trench to be dug along the length of the fence line. It would be possible to have this fence designed with a turned-out bottom piece to provide digging protection whilst allowing it be installed quickly and more cost effectively.



T10/120/15

This fence is not buried, however an offset wire of barbed wire should be run at ground level. The fence will be the quickest to install, costing the least and is proven to be effective in containing Wild Boar.



Tornado Wire

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TORNADO®

FENCING THAT LASTS

**TALK TO
THE FENCING
PEOPLE**