

Fourth
Edition

Alcomet
Guardian
security products

EXPANDED
PRODUCT
RANGE



Security Pins
Security Nuts & Bolts
Security Guards & Paints



Alcomet Guardian security products

At Alcomet we like to remain ahead of the game and with the price of Copper and Aluminium being at a premium, we have taken the time to listen to our customers' needs of protecting their investment.

Alcomet's Guardian Security Products are a range of products that have been tested and approved by specialist engineers to counter the problem of theft and vandalism in substations.

We all know the expense incurred in replacing earthing tape, not only in materials and labour, but in down time too. Therefore it makes sense to prevent the tape being taken in the first instance. Alcomet has a range of practical solutions to suit, which this brochure outlines. If you have any additional queries, please call the Alcomet team who will be more than happy to assist.

As an endorsement of quality and excellence, HM Queen Elizabeth II has honoured Alcomet with a Queen's Award for Enterprise: Innovation 2009, expressly for the development and launch of the Guardian Security Products range.



Earthing - don't let them
get away with it

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Security Nuts & Bolts

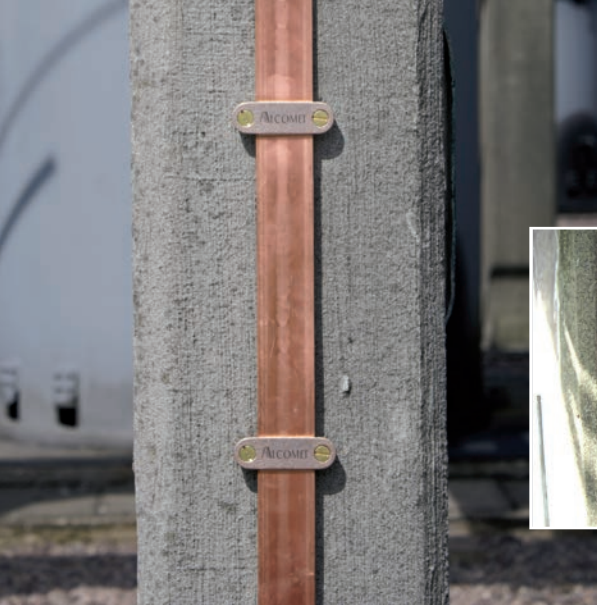
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Conventional Fixing Methods For Concrete & Brick

Conventional fixing of copper and aluminium earth tape is by the use of a metal or plastic fixing cleat. This type of fixing makes the material very easy to steal as the cleat has no security aspect to its design.

A steel anchor bolt has been used as a deterrent but has many downsides with its use.

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Problems With Steel Fixings

Products made from steel are susceptible to excessive corrosion as the pictures on this page demonstrate. After a short period of time the fixing starts to break down. This process is accelerated in bund areas where water is regularly present.

There is also a need for a barrier between a steel fixing and earth tape to prevent an electrolytic reaction. Using a plastic washer removes more material and is time consuming. This also makes it easy for thieves using a bolster chisel to knock the heads off, as the fixing head is raised from the earth tape. Tinning would be an alternative barrier method but is also time consuming and has potential Health & Safety issues with concrete possibly exploding when excessive heat is applied.

Tests concluded that it was also easy to remove the fixing heads quickly as only half the shank is attached to the head - thus making it ineffective as a security product.





**New Improved
Added Centring Mould
allows fitting with Guardian
Impact Drivers***

* Exclusive to Alcomet

Guardian Stainless Steel Security Pin

Easy and quick to install with either a Guardian Impact Driver or a hammer. With engineers' time being valuable and the benefit of increased productivity, added with its security features, the Guardian Security Pin is a winner. Simple but effective.

A longer pin is also available for use on decayed concrete surfaces. This allows you to reach a greater depth to find a more solid, secure fix.



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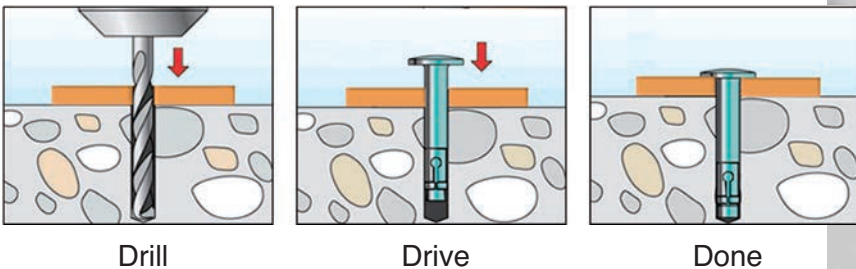
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Problem Solved

Whether you are fixing earthing tape horizontally or vertically to concrete / brick structures, the Guardian Security Pin is the fixer's dream. The pin is easy and quick to install and extensive tests have concluded they deter theft. A thieves nightmare.

Fixing



Benefits

- Easy to fit with either Guardian Impact Drivers or a hammer.
- Hammer becomes obsolete with the New Guardian Impact Drivers (which also reduce likelihood of RSI Injuries).
- No health and safety issues, conventional steel fixings have - tinning and the use of heating appliances eliminated.
- Specialist equipment required for removal. Over 1,000kgs of force needed to remove fixing.
- Product covered by ETA (European Technical Approval).
- Made from high corrosion resistance stainless steel.
- Increased speed of fixing – increased productivity. (up to 10 times faster installation over traditional steel fixings).
- Head covers 100% of shank and pressed / formed from 1 piece of metal preventing the head from being snapped off.
- No need to create a barrier between anchor and earthing material.
- No plastic washer or tinning required, unlike when using conventional steel fixings.



Testing

The only way for thieves to steal material after installing with the Guardian Security Pin is to grind off the pin heads or by cutting between each pin. It simply takes too much time, too much effort and makes too much noise !!!

Not only were extensive tests carried out in installing the Guardian Security Pins but the material was put through a series of extreme simulated theft scenarios to prove its security values.



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Pin Withstanding Attack

Made from high corrosion resistant stainless steel, the Guardian Security Pin can withstand aggressive attack. The pin's head covers 100% of the shank as the product is pressed / formed from 1 piece of metal. This prevents the head from being forcefully removed. Thieves try to remove - but soon give up !!





**A physical
barrier makes a
difference !**

Guardian Concrete Cover Guard

To avoid the possibility of theft by sawing off the earthing tape between the Guardian Security Pins, cover guards have been specifically designed to protect the material.

Made from a specially selected grade of material the guard can easily be formed.

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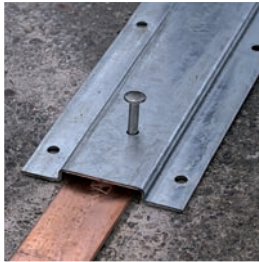
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Earthing - don't let them
get away with it

Easily Installed

The Guardian Security Pin is used to secure the cover guard. To complement the Guardian Security Range a tinned copper washer is available from stock to enable the guard to be earthed.

Fixing



Benefits

- Easy to fit.
- Increase speed of installation using the Guardian Impact Driver.
- Low height to avoid being a tripping hazard.
- Specialist equipment required for removal. Over 1000 kgs of force needed to remove Guardian Security Pins.
- Deters vandalism.
- Eliminates theft.



Using The Guardian Cover Guard

Previously there have been two methods of addressing earthing joints when installing the Guardian Cover Guard. The first is to cover the joint which is costly in terms of time and effort in mating the guards. Once installed it has good security features but prevents the joint from any future testing / inspection.

The second method is to leave the earthing joint exposed which does enable any testing / inspection to be carried out. The BIG problem is the joints are prone to attack. Crow bar attacks can easily break the joint putting the network at risk and costly to repair.

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Problems With Joints

When joints are left uncovered they remain vulnerable. The general result, if they are attacked, is damage to the joint itself. If the joint fails the cost to put the circuit back to working order is heavy.

The pictures shown to the right clearly illustrate a failed attempt to remove the guards at the location of a joint.

Fortunately in this attack the joint was still intact - but this would have been costly to repair if it had not been.





Guardian Removable Joint Covers

Removable Joint Covers have been developed to solve the big problem of how to protect joints. Quick and easy to install the Joint Covers prevent attack and potential damage. In the event of the connection needing testing the cover can be removed by unscrewing the unique Guardian Security Nut and screwed back and secured after testing. A unique shaped driver socket is needed to remove the Security Nut - without it you won't get it off!

The Joint Covers mate perfectly with the Guardian Cover Guards therefore they automatically become attached to the earth system.

Joints are covered and protected so now attacks are unlikely !!



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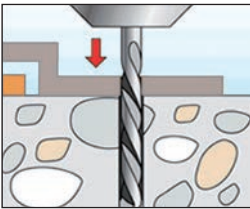
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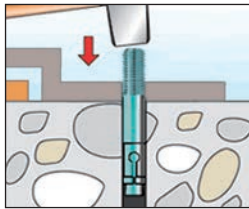
Problem Solved

The Guardian Removable Joint Covers protect all combinations of joints - 90 degree angle, tee, straight and cross. By using the Guardian Security Nut and Guardian Threaded Pin the cover is secured - only a special tool can remove.

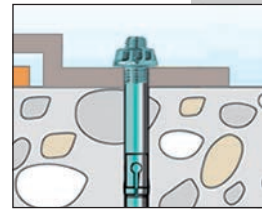
Fixing



Drill



Tap in



Tighten

Benefits

- Easy to fit.
- Specialist equipment required for removal. Over 1,000kgs of force needed to remove fixing.
- Guardian Security Pin used for fixing is made from high corrosion resistance stainless steel.
- Requires special tooling to remove.
- Allows easy access for testing.
- Fully protects joints.



Cross



Straight

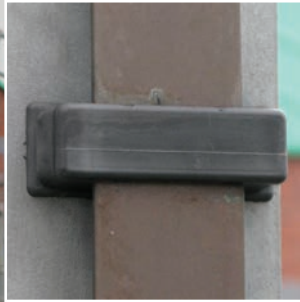


Tee



Corner

* The number of drill holes may vary on the cover products shown.



Conventional Fixing Methods On Metal Structures

Conventional fixing of copper and aluminium earth tape is by the use of a metal or plastic fixing cleat. This type of fixing makes the material very easy to steal as the cleat has no security aspect to its design. A thief's dream !

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Problems With Conventional Fixing Methods

When copper earthing is used on metal structures the fixing methods used enabled easy removal by thieves. If plastic self locking cleats have been used they simply pull the material out of the fixing by hand - no security deterrent at all.

Copper needs to be protected on metal structures. If copper earth is suspended and not attached to a structure it needs to be protected to ensure it cannot be removed. Tests have shown that when copper is protected on concrete alone, thieves simply remove from where it is still exposed and unprotected. The pictures on the right of the page illustrate this. The cost to repair remains high so it's essential to protect both the earthing on concrete and metal at the same time.





Guardian Security Star Bolts

Like the Guardian Security Pin the Star Bolt is easy and quick to install. With engineers' time being valuable and the benefit of increased productivity, added with its security features, the Guardian Star Bolt and Shear Nut - A winning combination.

Straightforward yet powerful !



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Problem Solved

Guardian Star Bolts have been designed with security in mind. The use of a shake washer is recommended to avoid shear nuts loosening in cases where there is a possibility of vibration. The Star Bolts are quick and easy to install and extensive tests have concluded they deter theft.

Benefits

- Easy to fit.
- Unique insert tool needed to secure and remove.
- Low profile head to avoid been forcefully removed.
- Made from high corrosion resistant stainless steel.
- Increased speed of fixing compared with conventional methods
- increased productivity.
- Cost effective - at least half the cost against traditional fixings which have no deterrent.





Testing

The only way thieves can steal material after installing with the Guardian Star Bolts is to grind off the bolt heads or cut in between each bolt. It simply takes too much time, too much effort and makes too much noise !!!

Not only were extensive tests carried out in installing the Guardian Star Bolt but the material was put through a series of extreme simulated theft scenarios to prove its security values.



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Star Bolt Withstanding Attack

Made from high corrosion resistant stainless steel, the Guardian Star Bolt can withstand aggressive attack. The Star Bolt head covers the shank as the product is pressed / formed from one piece of metal. This prevents the head from been forcefully removed. Thieves try to remove - but soon give up !!





Guardian Metal Cover Guard

To avoid the possibility of theft by sawing off the earthing tape between the Guardian Star Bolts, cover guards have been specifically designed to protect the material.

Made from a specially selected grade of stainless steel material the guard can easily be formed. The guards can also protect material that cannot be secured to a structure. This is achieved by using two pieces of guard back to back sandwiching the material inside. The metal is secured inside the guards by using Guardian Star Bolts and shear nuts.



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Earthing - don't let them
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Easily Installed

The Guardian Star Bolt, shake washer and shear nut is used to secure the cover guards. 6.5mm holes are drilled through earthing and structure to enable the 6mm bolt being placed through pre drilled guards.

The Guardian Star Bolt is tightened with a unique tool, shear nut snaps off and job done.

Fixing



Benefits

- Easy to fit.
- Unique tool bit required for removal.
- Prevents easy removal of earthing.
- Deters vandalism.
- Eliminates theft.



Conventional Nuts & Bolt Fixings

Standard nuts and bolts have been used to secure joints. The pictures illustrate typical situations. These are easily removed with standard tools.

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Problems With Conventional Nuts & Bolts

The pictures shown clearly illustrate the problems that arise when thieves and vandals remove nuts and bolts. Removing standard nuts and bolts is easy work compared to cutting through the material with metal cutters or by sawing. Making the theft of earthing light work.

Even when the material is secured with the Guardian Concrete Solution the rest of the material remains vulnerable if it's not protected, as the middle picture illustrates. Again, when the nuts and bolts are removed, the costs to repair and make safe are extensive.





Guardian Security Nuts & Bolts

The Guardian Pin Hex Bolt and Guardian Security Removable Nuts have been specifically designed to avoid being removed. Unlike traditional fixings special tools are required to enable removal. Made from high corrosion resistant stainless steel so rusting is not an issue.

The range is complemented with flat and spring washers in all standard sizes.



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Problem Solved

By using Guardian Security Nuts and Bolts equipment will be safe from attack. The unique design prevents removal unless you use special tools. All tools and attachments needed for use with the Guardian range are available in a specially produced tool box; ensuring you keep your tools safe - you don't want them getting into the wrong hands !

Benefits

- Easy to fit.
- Unique tools required for removal.
- Made from high corrosion resistant stainless steel.

* New anti climb top hats available.

NEW





Guardian Security Paints

Where it's not possible to protect earthing tape with a Guardian Security Guard a range of Security Paints are available.

The range includes:

- Guardian Camouflage Paint**
- Guardian Anti-handling Paint**
- Guardian Bitumastic Paint**



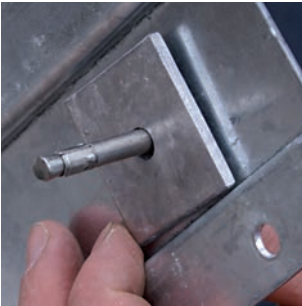
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Additional Products



Tinned Copper Washer

In a worst case scenario the Guardian Security Guard could become live. The tinned copper washer is used to earth the guard.



Bicon Jointing Paste

For jointing similar and dissimilar metals. Assumes a high conductivity joint by sealing out air and moisture to prevent corrosion and reformation of oxide film.



Copper Top Hat

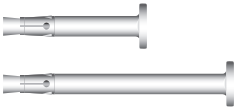
For attaching earth leads – Circuit Main and Field Earths.



**Alcomet is an official distributor
of P&B Weir earth leads
– contact us for stock details**

Guardian Security Products

Products For Protecting On Concrete & Brick



Guardian Security Pin

Made from high corrosion resistant stainless steel for securing earth tape and Guardian Cover Guards.

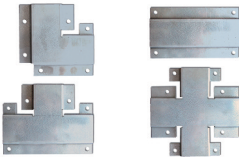
Guardian Security Pin, Standard	GSP01C
Guardian Security Pin, Extra Long	GSP03C



Guardian Cover Guard

To protect earth tape and stranded conductor.

Max width 25mm	GCG25C
Max width 40mm	GCG40C
Max width 50mm	GCG50C
Max width 75mm	GCG75C
Max diameter 22.9mm (150sqmm)	GCGST



Guardian Removable Joint Covers

Removable to enable access earth tape and stranded conductor.

Tee 40mm width	GJC40T
Angle 40mm width	GJC40A
Cross 40mm width	GJC40C
Straight 40mm width	GJC40S
Tee 50mm width	GJC50T
Angle 50mm width	GJC50A
Cross 50mm width	GJC50C
Straight 50mm width	GJC50S



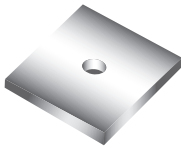
Guardian Security Pin, Nut & Socket for Removable Joint Cover

Needed to secure and remove joint covers.



Pin, Nut, Driver Socket Set	GSP02C
Stainless Steel M6 Removable Nuts	GRN06
Security M6 1/2" Driver Socket	GDS06





Guardian Tinned Copper Washer

Used to connect Guardian Security Guard to earth.

40mm width

GCW40

50mm width

GCW50



Bicon Jointing Paste

For jointing similar and dissimilar metals. Assumes a high conductivity joint by sealing out air and moisture to prevent corrosion and reformation of oxide film.

Tubes 225ml

BJP01



Drill Bits & Attachments

For metal and concrete for use with Guardian Security Pin.

Guardian Impact Driver, Slip On

GID01



Guardian Impact Driver, SDS

GID02



6mm dia' SDS, Masonary

GDB06C



6.5mm dia' HSS, Metal

GDB065

8mm dia' HSS, Metal

GDB08



Guardian Anti Climb Top Hat

For attaching earth leads – Circuit Main and Field Earths.

Items are stocked in thicknesses of 3mm to 7mm in both widths.

Guardian Anti Climb Top Hat 40mm

GACTH40

Guardian Anti Climb Top Hat 50mm

GACTH50



Guardian Galvanised Seal Spray

Used to seal cut or exposed edges of Guardian Cover Guards.

Guardian Cold Bright Galvanised Spray 400ml

GSC04

Products For Protecting On Metal Structures & Security Paints

Guardian Security Star Bolt

Stainless Steel Star Bolt used to secure earth tape to metal structures and secure copper sandwiched between two Guardian Metal Cover Guards.



Stainless Steel Star Bolt 20mm - M6	GSB20
Stainless Steel Star Bolt 30mm - M6	GSB30
Stainless Steel Star Bolt 40mm - M6	GSB40
Stainless Steel Star Bolt 50mm - M6	GSB50
Stainless Steel Star Bolt 60mm - M6	GSB60



Guardian Security Sheer Nut & Washer

Stainless Steel Sheer Nut and Washer for use with the Guardian Security Star Bolt.

Stainless Steel Sheer Nut - M6	GSN06
Stainless Steel Washer - M6	GSW06



Guardian Security Key Wrench

For use with the Guardian Security Star Bolt.

Star Bolt Key Wrench - M6	GSKW06
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Guardian Security One-Piece Screwdriver

For use with Guardian Security Star Bolt.

Star Bolt Screwdriver M6	GSD06
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**NEW
SIZE**

Guardian Cover Guard

Stainless Steel cover to protect earth tape.

1100mm lengths - Max 40mm	GCG40M
1100mm lengths - Max 50mm	GCG50M
1100mm lengths - Max 75mm	GCG75M



Drill Bit

For use with Guardian Security Star Bolt.

6.5mm dia' HSS, Metal	GDB065M
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**NEW
SIZE**

Guardian Anti Climb Top Hat - Tinned Copper

For attaching earth leads – Circuit Main and Field Earths. Comes complete with M12 Security Fixings and Washers.

Guardian Anti Climb Top Hat 40mm	GACTH40D
Guardian Anti Climb Top Hat 50mm	GACTH50D
Guardian Anti Climb Top Hat 75mm	GACTH75D



Guardian Security Paints

Used to disguise and protect copper tape.

Guardian Camouflage Paint	GSC01
Guardian Anti-handling Paint	GSC02
Guardian Bitumastic Paint	GSC03



Paintbrush

For applying Guardian Security Paint.

Width 50mm	GPB20
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Security Nuts & Bolts

Guardian Security Pin Hex Bolts

Stainless Steel unique patterned bolt for bolted connections.



M8 x 30mm	GPHB08X30
M8 x 40mm	GPHB08X40
M8 x 50mm	GPHB08X50
M10 x 20mm	GPHB10X20
M10 x 40mm	GPHB10X40
M10 x 50mm	GPHB10X50
M10 x 100mm	GPHB10X100
M12 x 25mm	GPHB12X25
M12 x 30mm	GPHB12X30
M12 x 40mm	GPHB12X40
M12 x 50mm	GPHB12X50
M12 x 60mm	GPHB12X60
M12 x 80mm	GPHB12X80

Guardian Security Pin Hex Bolt Insert

For use with Guardian Security Pin Hex Bolt.



1/2" Driver Socket - M8	GPHIB08
1/2" Driver Socket - M10	GPHIB10
1/2" Driver Socket - M12	GPHIB12

Guardian Security Pin Hex Bolt Key Wrench

For use with Guardian Security Pin Hex Bolt.



M8	GPHKR08
M10	GPHKR10
M12	GPHKR12





Guardian Security Removable Nuts

Stainless Steel unique patterned nut for use with Guardian Security Pin Hex Bolt.



Stainless Steel - M8	GRN08
Stainless Steel - M10	GRN10
Stainless Steel - M12	GRN12

Guardian Security Driver Socket

For use with Guardian Security Removable Nut.



1/2" - M8	GDS08
1/2" - M10	GDS10
1/2" - M12	GDS12

Guardian Security Washers

Stainless Steel Washers for use with Guardian Security Nuts and Bolts.



Stainless Steel Flat Washer - M8	GRN08
Stainless Steel Spring Washer - M8	GRN08
Stainless Steel Flat Washer - M10	GRN10
Stainless Steel Spring Washer - M10	GRN10
Stainless Steel Flat Washer - M12	GRN12
Stainless Steel Spring Washer - M12	GRN12

Drill Bits

For use with Guardian Security Pin Hex Bolt.



11mm dia' HSS, Metal	GDB11
13mm dia' HSS, Metal	GDB13

* Other sizes available to order

* Sheer nuts available in all sizes for permanent connections



Electrical Metals & Components Alcomet

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Alcomet Guardian Security Products are a range of products that have been tested and approved by specialist engineers to counter the problem of theft and vandalism in substations.

Other Earthing Stocked Items

- Copper & Aluminium Earthing Tape (Many Company Logo'd)
 - Fryolux
- Cuprotective Brazing Rods
 - Silfos Brazing Shim
- Scotchbrite Brazing Preparation Pads
 - Brazing Clamps
- Conventional Galvanised and Stainless Steel Nuts, Bolts and Washers
 - Transition Washers
- Exothermic Welding System
 - Equipotential Earth Mats
- P&B Weir Earth Leads – Circuit Main and Field Earths

We are constantly reviewing and updating our products, for the latest information please call us on: **01384 404488** or visit our website at: www.alcomet.net

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