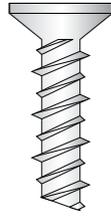


Screw Head Types

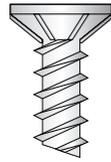
Countersunk

- Used in preformed countersunk recesses e.g. keeps, and window hardware such as shootbolts, espagnolette rods and tilt and turn gear
- Gives a flush finish when inserted



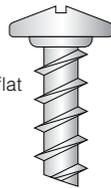
Ribbed Countersunk

- Ideal for reinforcement retention
- Countersinks into PVC-U to sit flush
- Ribbed collar reduces profile deformation



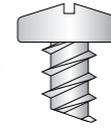
Shallow Pan

- Ideal for securing friction stays
- Good clamping properties from the flat under-head
- Collar under the head gives positive screw location



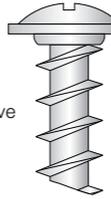
Full Pan

- Used for midrail retention or straight forward reinforcing retention



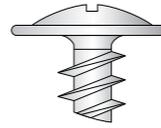
Shallow Flange Head

- Ideal for securing friction stays
- 1mm increase in head diameter over shallow pan allows for even greater clamping properties
- Collar under the head gives positive screw location
- Greater security with bigger diameter screw and head



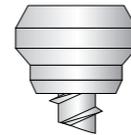
Wafer

- Used for fixing frame to frame, baypoles and sills



Nipple Head

- Drip rail screw



The Quality Quandary

Specifiers and fabricators use standards and tests as reference points that relate sometimes indirectly to real life and the demands that are placed upon the products which are supplied within the industry. It isn't easy to design tests that duplicate real life, but that should not absolve us of the need to make them relevant.

The current requirement is for fasteners to be able to withstand 240 hours of salt spray testing without showing signs of ferrous corrosion, or red rust as it's otherwise known. Although this serves as a benchmark for the industry, UK Fasteners surpasses these requirements.

UK Fasteners has a transparent and detailed testing policy backed up with independent results from the long established and respected UKAS testing laboratory Rotech. Test certificates are available upon request.



Why Choose UKF

- You can feel confident that our consistently reliable WindowMASTER® products and second to none service ensure complete piece of mind for the fabricator and installer alike.
- A wealth of technical knowledge throughout the company will help you to choose a cost effective solution for your fastener requirements whether it be for the standard range of carbon steel screws or stainless steel screws for commercial or specified contracts.
- ISO9001: 2000 confirms that both UKF and our manufacturers based worldwide work to a visible mandate of quality and process control.
- Our philosophy is to create long term mutually beneficial business relationships which is why we can offer a flexible range of managed inventory solutions to suit our customers needs.



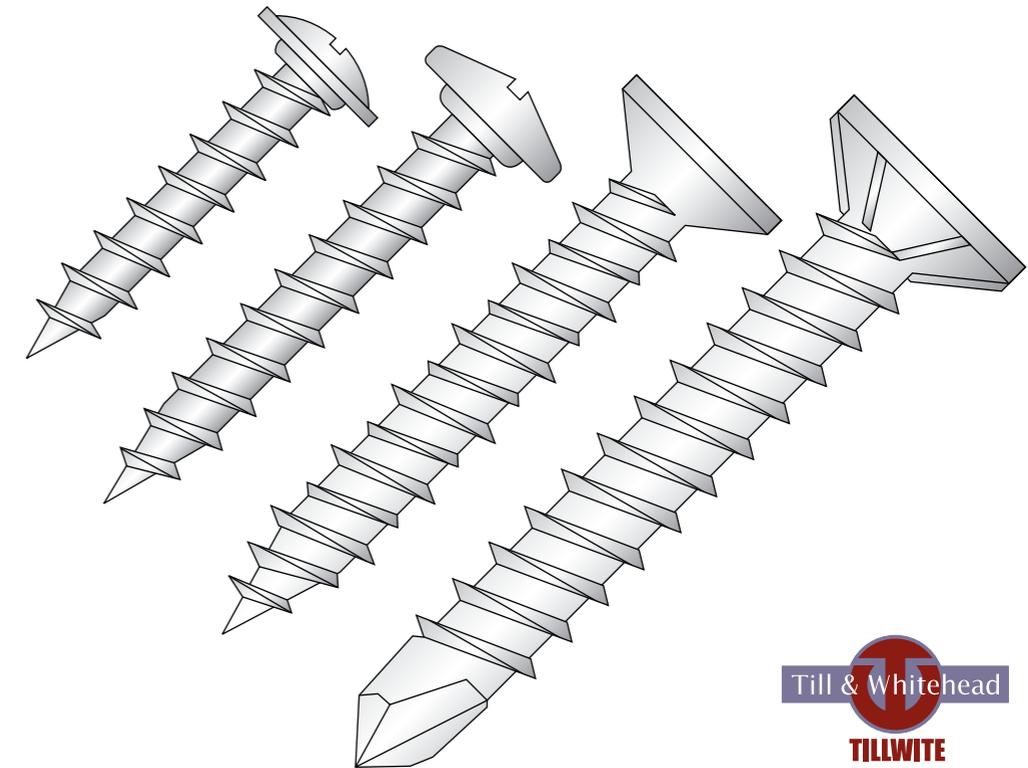
UK Fasteners

C1 Liddington Trading Estate Leckhampton Road Cheltenham GL53 0DL
Tel: 01242 577077 Fax: 01242 577078
E-mail: sales@ukfasteners.co.uk Website: www.ukfasteners.co.uk

Part of Till & Whitehead Ltd Reg Office: Bradley House, 66 Barrington Road, Altrincham, WA14 1HY

Which Screw Where?

A Guide to Fasteners for Specifiers and Fabricators



Which Screw Where?

Screws may be small and may not be the most glamorous component, but they can be the difference between the failure and success of your windows and doors. You may only be aware that you've selected the wrong screw when a window falls out, or you are inundated by complaints from disgruntled customers who have red rust streaking from their relatively new installation. Everyone thinks the worst will never happen to them. Until it does. It may be a cliché, but the only sure way to prevent disaster, is to appreciate that screws differ significantly in the materials they are made from and in the way that they are made. Like any product some are better and more consistently produced than others. But understanding this and knowing what is the best choice for your particular application isn't easy.

With the breadth of materials, coatings, head types, applications and performance standards

in the market it's no wonder that specifiers and fabricators run into trouble when trying to choose the right screw for the job. It's easy to assume that all fasteners are more or less the same. They aren't, of course. The performance of your products, and the reputation of your business depends on these 'not so simple' components. That's why it's important to have all the relevant facts and proof of performance at your fingertips to enable you to select the correct product for the job.

Which Screw Where? provides a clear and impartial guide to screws and materials, detailing the benefits and limitations of each product and the applications in which they should be used. As UK Fasteners offers the widest range of quality screws and materials in the UK our advice is not restricted to one product or material. We want you to make the correct choice each and every time.

Back to Basics

Below are some useful definitions and explanations of terms you will come across in this guide.

Sacrificial Coating

A finish/coating that is applied to the surface of a metal to give resistance to (in this instance) ferrous corrosion, in normal atmospheric conditions.

Price vs Cost

Some screws may be cheaper than others to buy, but wastage can be high and product life shorter. Other screws, although sold at a higher price, actually cost less in the long term because there is less wastage, and they last a lot longer than cheaper versions in the installed product. There is little point in installing components that fail before the expected lifetime of the window or door. What price would you put on the safety of the homeowner and your reputation?

Magnetic Personalities

Carbon steel, martensitic and Marutex are magnetic. Austenitic screws are not. But what are the benefits of using a magnetic screw?

Any window fabricator will tell you the benefits of having a magnetic fastener that will stay attached to the screwdriver bit during assembly. Efficiency and productivity fall if screws are dropped on the floor and have to be picked up or more need to be fetched from the box. A finance director will be quick to confirm that looking after the pennies will ensure the pounds look after themselves. Dropped fasteners discarded on the shop floor, equate to wasted profit. Magnetic screws also please the health and safety officer who no longer has to worry about the risk of an employee slipping on dropped screws or screws penetrating footwear.

Material Types

Carbon Steel

Carbon Steel

Carbon steel fasteners provide good corrosion resistance when mated with a similar material. Their relatively low price, magnetism and ability to drill through steel and aluminium often attract fabricators, but they are not suitable for all applications.

Although covered with a sacrificial coating for protection, the coating can be easily damaged - exposing the carbon steel to the elements and corrosion. Carbon steel will also break down when it comes into contact with a more noble metal, such as stainless steel. This makes it unsuitable for screwing into hardware items such as ferritic or austenitic hinge arms.

Applications: For affixing steel hardware such as reinforcing, keeps, espagnollette rods and shootbolts, tilt and turn gear and door hardware into PVC-U or reinforced PVC-U.

Coatings: **Yellow zinc** - in excess of 240 hours salt spray corrosion resistance, according to BS7479:1991
Zinc - in excess of 240 hours salt spray corrosion resistance, according to BS7479:1991
Dacrotised - in excess of 240 hours salt spray corrosion resistance, according to BS7479:1991

Advantages:

- Relatively low price
- Self drills through steel and aluminium
- Magnetic properties aid application
- Good corrosion resistance when mated with a similar material

Disadvantages:

- Protective coatings can be easily damaged on insertion by burrs on the hardware and abrasion from the screwdriver bit
- Active corrosion of the screw takes place when it comes into contact with a more noble metal, e.g. the austenitic or ferritic arm of a friction stay

UKF: Offers carbon steel fasteners that surpass the necessary requirements and provide up to 500 hours salt spray corrosion on yellow zinc and zinc, and up to 1000 hours for dacrotised.

Austenitic Stainless Steel

There are two types of austenitic screw - one piece austenitic and bi-metallic austenitic. Reinforcing material must be considered.

Austenitic/Carbon Steel Bi-metallic

The head and majority thread portion of an austenitic bi-metallic screw is made from austenitic stainless steel. The last two or three threads and drill point are manufactured from carbon steel. The austenitic portion of the fastener gives the corrosion resistance you require, while the carbon steel gives you the hardness necessary to self drill into steel, effectively pulling the austenitic portion behind it. The austenitic head and thread can be distorted by misuse or incorrect choice of screwdriver bit. If the carbon steel tip remains in contact with the reinforcement, corrosion may occur. Worst still should the weld break, you are not fixed into reinforcing. That is why it is vital that your bi-metallic screw is manufactured and applied so as to leave the carbon steel portion sitting clear in the void of the reinforcement chamber.



Applications: Suitable for any reinforced application

Coatings: Various coatings for aesthetic reasons and to protect the carbon steel portion

Advantages:

- Excellent corrosion resistance of austenitic portion
- Self drills through both steel and aluminium
- Low cost

Disadvantages:

- Non-magnetic
- Relatively soft austenitic portion may be susceptible to breakage
- Higher price due to manufacturing technique
- Corrosion may occur if the carbon steel portion comes into contact with reinforcement

UKF: Offers bi-metallic fasteners

One Piece Austenitic

One Piece Austenitic

Austenitic is a stainless steel with a higher proportion of chromium (18-20%) than martensitic with the addition of 8-10.5% nickel.

Applications: Aluminium reinforced profiles

Coating: None

Martensitic Stainless Steel

The two main types of martensitic are unmodified 410 and modified. The two types are as different in their characteristics as chalk and cheese.

Unmodified 410 Martensitic

Unmodified 410 martensitic fasteners are stainless steel, but do not offer a total solution for window and door fabrication. A 410 martensitic one-piece screw has to be hardened in order to drill through steel. The hardening/heat treatment process destroys the chromium rich passivation layer, and a new sacrificial coating has to be added to enhance the corrosion resistance. As with carbon steel, this coating can be removed by burrs around the hardware holes and abrasion from the screwdriver bit.

Applications: 410 martensitic fasteners are generally used for securing friction stays and other hardware into reinforcement

Coatings: Various but always sacrificial

Advantages:

- Magnetic
- Self drills through steel and aluminium
- Relatively low price

Disadvantages:

- Reduced corrosion resistance
- Protective coatings can be easily damaged on insertion by burrs around the hardware and abrasion from the screwdriver bit
- May be susceptible to stress corrosion cracking and hydrogen embrittlement

UKF: Offers 410 fasteners

Which Screw Head is for you?

See 'Screw head types' for a summary on screw head designs.

Advantages:

- Excellent corrosion resistance
- Low cost

Disadvantages:

- Non-magnetic
- Cannot drill through steel

UKF: Offers austenitic stainless steel fasteners

Marutex Modified Martensitic Stainless Steel

Marutex Modified Martensitic Stainless Steel

Not to be confused with ordinary 410 martensitic, Marutex is manufactured from modified martensitic material and contains higher amounts of chromium (13.5%), some nickel (0.48%) plus molybdenum (2%), which is not found in 410 martensitic. Molybdenum is generally used in higher grades of austenitic, such as 316 marine grade.

Marutex is heat-treated in such a way as not to destroy the chromium rich passivation layer, so it needs no sacrificial coatings to enhance its corrosion resistance. This process also gives it excellent hardness and ductility. Marutex can be self-drilled easily into steel and aluminium reinforcement without any distortion. With these characteristics and its magnetic properties, Marutex remains UK Fasteners' flagship product.

Applications: Suitable for any reinforced application

Coatings: None

Advantages:

- Excellent corrosion resistance
- Excellent axial, torsional and pull out values
- No thread deformation on insertion
- Magnetic
- Self drills through both steel and aluminium
- Unique head markings give total traceability
- BBA certification through UKFasteners

Disadvantages:

- None

UKF: Offers Marutex stainless steel fasteners

