ASSOCIATED FASTENING PRODUCTS, INC.

Guide to Plating and Coating for Fasteners in the Agriculture Industry

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The agriculture industry relies on heavy-duty equipment that must perform reliably under harsh conditions. To meet these performance needs, rotating and vibrating parts must be securely attached with fasteners that are equally durable. For agricultural machinery manufacturers, sourcing the right fasteners is a crucial aspect of overall product quality.

While fastening products may represent only a small portion of a project's budget, they represent a very large percentage of a piece of equipment's total parts. Even though many agricultural machines require standard industrial fasteners, these parts must still be optimized for reliable use. Durable, high-performance fasteners are often plated or coated to improve performance and achieve application-specific goals. In this eBook, we'll discuss the difference between plating and coating processes as well as the types of fasteners used throughout the agricultural industry.

Plating vs. Coating

Plating and coating are two commonly used methods of adding durability and aesthetic appeal to a fastener. However, they each achieve different results and are not interchangeable.

Plating

Plating, specifically electroplating, is the process of adding a metallic finish to fasteners using an electro-deposition technique. The metal that is deposited becomes fused to the fastener's surface, forming a permanent protective layer for enhanced durability.

While there are several styles of plating, the most common technique involves applying zinc with a clear chromate. This not only provides an appealing bright silver appearance but also ensures reliable protection against corrosion. With zinc plating, it's easy to control the thickness level based on application requirements.

Coating

Coating is a process that applies powders or other chemical additives to the surface of a fastener. The process is commonly performed by dipping the fasteners into a chemical bath. After removal, they are spun at high speeds to remove excess coating material. This dip and spin process allows for coating thickness levels to be carefully controlled.

One common coating material for fasteners is zinc flake. However, the coating process can achieve twice the thickness of electroplated zinc. For this reason, coating tends to offer superior corrosion protection. One drawback is that coating can result in uneven thicknesses, leading to thread interference problems that do not occur with electroplating.

Differences Between Plating and Coating

The biggest difference between plating and coating is that plating fuses new material to the fastener while coating adds an additional layer that sits on the surface. Electroplating is also a more controllable process, resulting in uniform thicknesses. Another key difference is that while coating can be applied to any surface, electroplating requires a conductive material. No matter what performance criteria you require from your fasteners, Associated Fastening Products offers an extensive range of plating and coating options to meet your needs. Our solutions have been developed with the unique needs of industrial applications in mind and provide everything from corrosion and chemical resistance to improved appearance.

Considerations for Agriculture Equipment

The agriculture industry involves unique challenges that must be considered when sourcing fasteners. For example, agricultural equipment is exposed to harsh environmental factors, like chemicals, fertilizers, nitrogen, and UV light. Nitrogen, in particular, is very harmful to metal fasteners.

Without durable fasteners, agricultural equipment is more prone to downtime, which can be costly and hold up important operations. Farming and harvesting run on seasonal schedules that cannot be delayed. To prevent these issues, all of the fasteners used in agricultural equipment must be able to withstand demanding conditions.

Coatings not only improve the durability and performance of fasteners but can also prevent unnecessary erosion and replacement costs. However, it should be noted that even the best coatings and plating cannot prevent the consequences of using poor base materials for the fasteners themselves. While stainless steel is a cost-effective choice, it is not as strong as other metals and may not be able to endure harsh agricultural environments. It's always important to consult an industry expert like Associated Fastening Products to ensure you source the best material for your fastening needs.

By partnering with a trusted supplier, you can protect your brand image and ensure only correct, high-quality parts are installed in your equipment. At Associated Fastening, we offer every fastening product the agricultural industry needs, including:

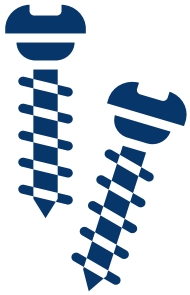
- Bolts
- Nuts
- Screws
- Studs
- Nails
- Anchors
- Retaining pins

Standard Fasteners for the Agricultural Industry

Agricultural equipment manufacturing requires several types of permanent and temporary fasteners. These types of hardware hold two or more components together, making them essential for equipment assembly. Depending on the type of agricultural equipment, a combination of nails, screws, bolts, and rivets are used. In some applications, these fasteners are designed to be non-permanent and can be removed and then reattached. Others, like rivets, are designed to remain firmly and permanently in place after installation.

Screws

Screws are a type of non-permanent fastener that has a threaded length that tapers to a point. Using force and rotary motion, they are embedded into a substrate material or driven through multiple components to hold them together. In some cases, screws can be inserted into an existing hole that features matching threads. Screws can be removed and reattached multiple times without losing any of their structural integrity. They provide greater tensile strength than nails and are available in a wide range of lengths, materials, and design options.



Nuts and Bolts

Nuts and bolts are fasteners that are installed together to hold components in place. Bolts have threads, similar to screws, but usually feature a thicker head. While screws have a pointed end, bolt ends are flat. A nut is a circular shape that has been cut to fit snuggly around the bolt. When the nut is applied and tightened, components can be held together in the middle.

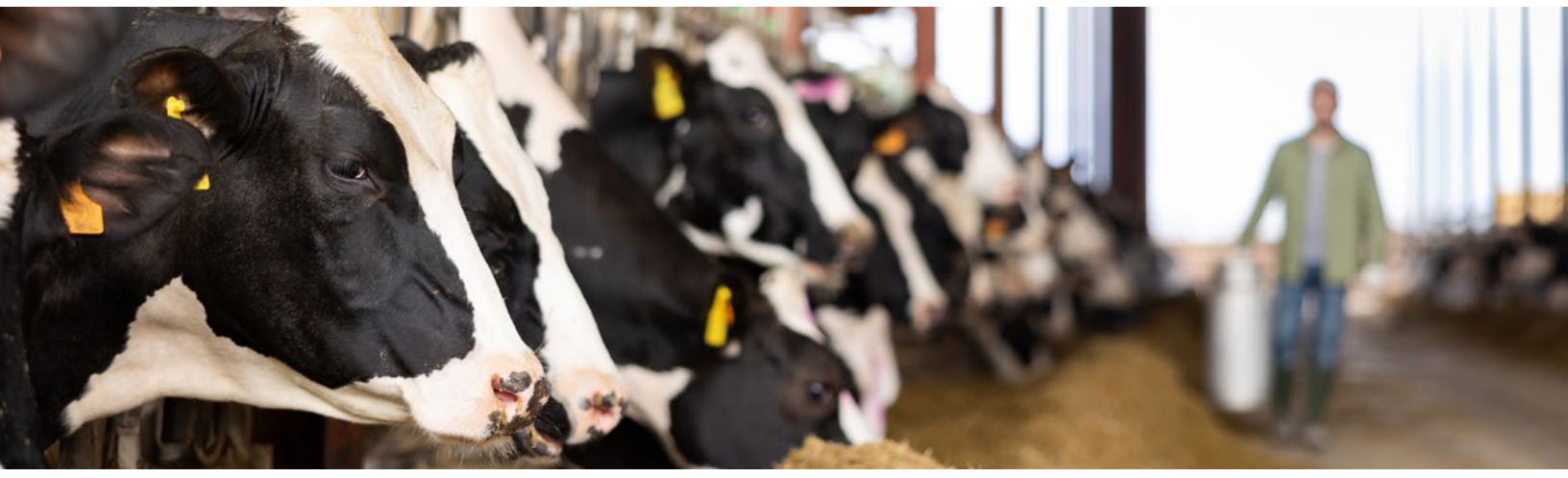
Rivets

Rivets are short lengths of metal with a head on either side that permanently bends into position after installation. Rivets hold two or more components together permanently.

Agricultural Fastening Solutions from Associated Fastening Products, Inc.

While fasteners are small components, they play an important role in equipment operation. Weak or corroded fasteners lose holding power, putting both operators and equipment at risk. To prevent these issues, it's important to not only select the right base material but the proper protective coating as well. Techniques like electroplating, powder coating, and other metal coating methods greatly improve product performance and reliability.

At Associated Fastening Products, we bring over 30 years of expertise to the agricultural fastening industry. In addition to offering an extensive range of **standard products**, we can also provide custom solutions developed with specific application challenges in mind. To get started improving the quality of your fasteners, **request a quote** today or **get in touch** with any questions.



ASSOCIATED FASTENING PRODUCTS, INC.

About Us

Associated Fastening Products, Inc. was established with the understanding that there was a need for quality, consistency and excellent customer service in the industry.

Associated Fastening Products, Inc. is an established company with a proven track record for over 30 years, in the manufacturing and distribution of both standard and special fasteners. We continue to thrive and expand our business.

We have a broad range of capabilities in the areas of machined products, cold head fasteners, nylon insert locknuts, as well as a garden variety of standards. In addition, we possess the ability to provide specialty and hard to find items. As a full line supplier we provide the OEM market with the service, quality and variety of products that has made us a leader. Our multiple distribution points throughout the USA give us additional flexibility in servicing our customers.

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Contact Us

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