

# HIGHLAND ELECTROPLATERS

Specialists in surface protection to all industries



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ELECTROPLATERS



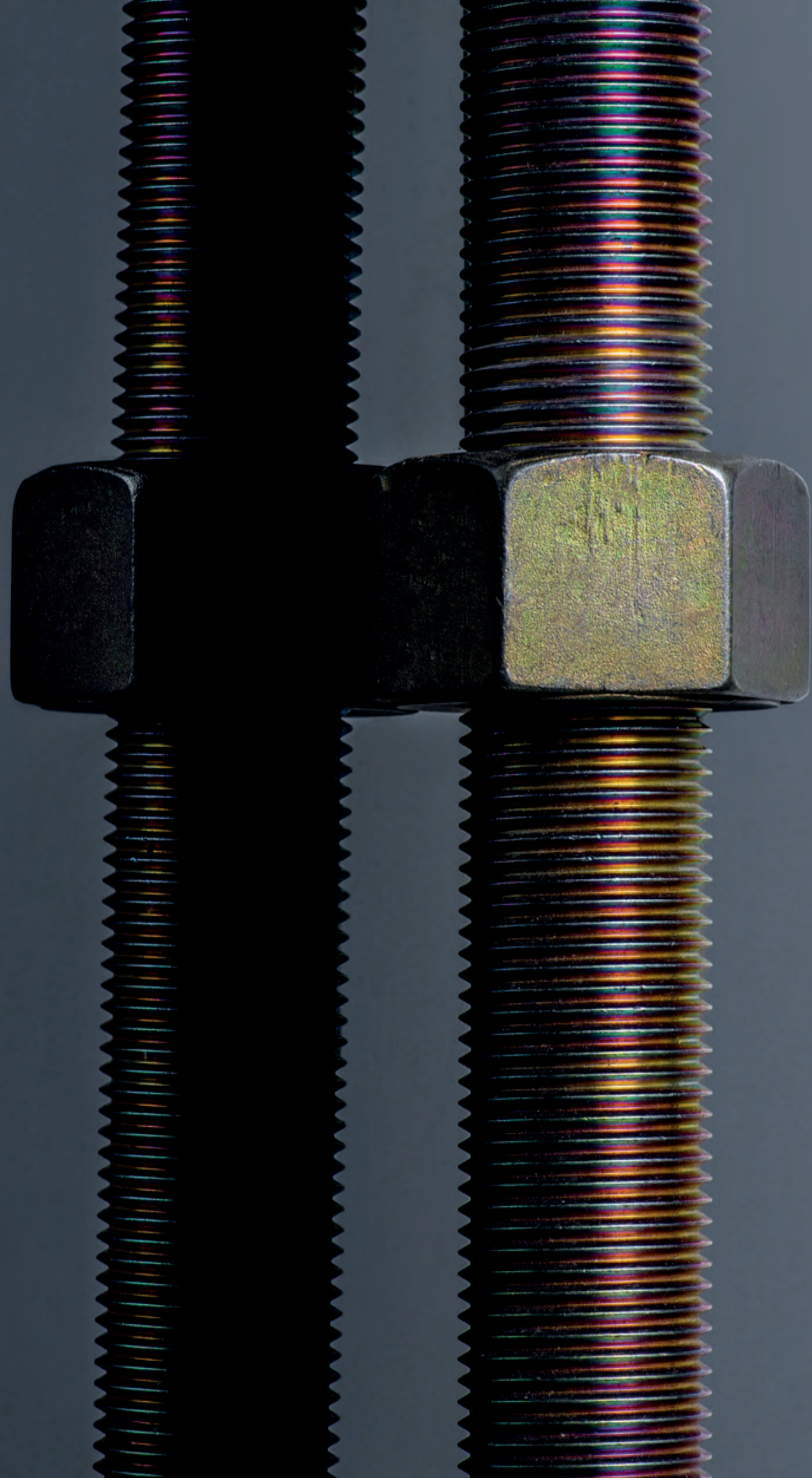
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Quality plating and coating  
Adding value and technical excellence



## About Us

Highland Electroplaters Limited, a part of the DMI group of companies, provide a high quality, speedy surface coating service throughout Scotland and the north of England.

Established in 1987 and located in Kirkhill Industrial Estate, Dyce since 1990, Highland Electroplaters arrange efficient collection, processing and delivery of components.

Processes offered include electroplating of copper, silver and zinc/nickel, anodising, phosphating, electroless nickel plating, enlube, xylan, molykote and everslik spray baked coatings.

Highland Electroplaters Limited Quality Management System is approved to BS EN ISO 9001.



# Alocrom / Anodising

Highland Electroplaters have various methods of protecting and treating aluminium components including electroless and electroplated coating.

Sulphuric acid anodising can be used to improve corrosion and wear resistance and improve the cosmetic appearance of a surface. Dyes can be applied to give a wide range of colours.

Hard and semi-hard anodising can be applied to give thick, wear and corrosion resistant coatings to aluminium components. Sulphuric acid, hard and semi-hard anodising produce an electrically resistant surface coating.

Alocrom gives a measure of corrosion resistance and can be used as a surface key for paint, lacquer or rubber bonding. Alocrom produces an electrically conductive surface coating.

# Copper

Copper is commonly used throughout the offshore oil and gas industry as a solution to galling problems on stainless steel couplings and threads. Copper is also used extensively in the manufacture of circuit boards. There are many benefits to coating with copper:

- Good electrical conductivity - copper has nearly the same electrical conductivity as silver but at a far lower cost.
- Anti-galling – copper solves the galling problems that come with threaded couplings.
- Anti-corrosion – copper is highly corrosion resistant.

There are many applications for copper coatings in industry. Copper is applied as a masking material in the case hardening process used in the manufacture of engineering components. Copper is also used widely in the manufacture of couplings, threads and seal surfaces for offshore and general engineering.



# Electroless Nickel / Enlube

Electroless Nickel is used because of its unique combination of physical properties, particularly those of hardness and corrosion resistance in aggressive conditions. Electroless nickel gives excellent uniformity of deposition and can be coated onto steel, aluminium and brass.

It provides an excellent corrosion barrier. It has a high hardness value and therefore provides good abrasion and wear resistance. Electroless nickel also reduces galling and absorbs electromagnetic interference. It also has the benefit of being able to choose the phosphorous level by solution control.

Electroless nickel is used to great effect in the computing and telecommunications industries where great use is made from its electromagnetic shielding abilities. It is also widely used in the offshore oil and gas, hydraulics, marine, aerospace, printing, electronics, food processing and automotive industries.

Enlube is an electroless nickel composite plating process incorporating up to 33% PTFE. The PTFE is uniformly dispersed throughout the deposit and the coatings have non-stick, low-friction properties and can be plated over high-phosphorous electroless nickel, is highly wear and corrosion resistant.



# Zinc-Nickel

As its name suggests, zinc nickel plating is an electro-deposition of zinc nickel alloy containing between 10-15% of nickel. Optimum corrosion resistance is achieved with 14% nickel. The coating willingly accepts a wide variety of passivations (clear, yellow, olive and black) which further improve the corrosion resistance of the coating.

Zinc nickel has several advantages over the other zinc alloy coatings. It offers significantly improved corrosion protection at less deposit thickness, giving longer protection.

Any corrosion that is produced is less voluminous, giving benefits particularly where fastenings or close tolerance components are plated. Zinc nickel also has a greater temperature stability, maintaining high levels of corrosion protection even after being heated.

Even though it is a new technology, zinc nickel has already proved itself in the automotive and aerospace industries where it has allowed manufacturers to offer extended corrosion warranties. It is also now being used in the offshore oil and gas industry where it is mainly used for stud fasteners and clamps.

# Phosphating

Phosphate coatings are being used to treat iron and steel surfaces and provides a chemical conversion coating which improve the oil retention and lubrication performance of applied lubricant films or provides an excellent base for other processes.

Benefits of phosphating include corrosion resistance and the prevention of metal to metal contact and thus the reduction of galling, torque force and prevention of seizure.

Phosphated articles are used in industries worldwide. They have been used in the oil and gas industry and in the manufacture of industrial fasteners, torque tensioner equipment and other components for industrial machinery. Phosphating is also used in the manufacture of precision engineering applications and turbine engine castings.

Surface preparation by way of "Bead" or "Abrasive" blasting is carried out when called for in client specifications. Bead blasting is mainly utilized in the preparation of intricate stainless-steel components prior to the application of spray/bake coatings.

Abrasive blasting using aluminium oxide is carried out primarily to carbon steel components to provide a sound, clean surface suitable for coating with phosphate and/or spray/bake coatings.

# PTFE/Molykote

Xylan, Everslik and Molykote are applied using a spray gun technique and the coated components are then baked at high temperature to provide good lubrication and controlled friction properties.

Coating with PTFE provides high levels of corrosion and heat resistance allowing them to be deployed in corrosive and high operating temperature applications. They provide a high level of chemical resistance and are available in a wide range of colours and formulations.

PTFE coated articles are used widely throughout industry. They provide abrasion resistance in steel springs and wear resistance in valve parts. They provide anti-galling and corrosion resistance in threaded fasteners. PTFE coated articles have been used in various engineering applications due to the built-in surface lubrication that they provide.

# Silver

Silver is extremely malleable, is capable of taking a high polish and is resistant to most common acids. Silver has high thermal conductivity and the lowest electrical resistivity of any metal at normal temperatures.



The benefits of using silver in any application are that it is highly conductive of electricity and heat. It offers a very high corrosion resistance and is an excellent high-pressure sealant.

Silver is used in many areas, such as in the military (where it is used in the bearings of jet engines as well as deposited on the circuit boards of the missile guidance systems and radar), to mobile phones (where it is used in the circuitry as the semi-conductor of choice). Silver has even been used to coat normal window glass as it conserves heat in winter and coolness in summer.

