

WHAT IS ANODISING?

On exposure to air, aluminium will immediately form a stable oxide layer. This natural oxide film is however, very thin, approximately 1/100th of a micron, and will provide little corrosion resistance under normal atmospheric conditions.

Anodising is the controlled formation of aluminium oxide at the surface of items made from aluminium and its alloys. The anodic coating is produced by passing an electric current through a dilute acid solution using the work as the anode. The thickness, density, hardness and colour of the coating can be varied depending on the solution and the processing conditions.

By modifying the processing conditions a wide range of properties and coatings can be achieved, making anodising an ideal surface engineering technique for a wide range of applications.

THE MAIN TYPES OF ANODISING PROCESSES IN REGULAR USE

SULPHURIC ANODISING

Sulphuric anodising or 'normal' anodising is used extensively for general protective and decorative applications. It produces a clear film which can be left natural or dyed to produce a range of colours.

The nature of sulphuric films enables them to be used with a range of pre-treatments to produce a variety of attractive visual finishes.

CHROMIC ANODISING

Chromic anodising is normally used for the corrosion protection of critical engineering components that require only a thin film with minimum dimensional effect or to ensure maximum fatigue integrity. It is also used for crack detection and is an ideal pre-treatment for paint.

Chromic anodising is the preferred treatment for components containing deep crevices, since any residual electrolyte is non-corrosive to aluminium.

HARD ANODISING

Hard anodising uses formulated acid solutions normally operated at low temperatures, under high current density and voltage conditions. This produces an exceptionally hard coating with excellent wear, abrasion and corrosion resistance, and high electrical resistivity. The Dioxal process is the main hard anodising process used at Acorn. The "Hardas" and "Hardex" processes are variations of the hard anodising process. The colour of the anodic film is dependent on the alloy type used.

The films are usually supplied unsealed for maximum abrasion resistance, but can be further treated with dyes, solid phase lubricants or chemically sealed for high levels of corrosion protection.

By careful selection of the correct processing conditions, anodising can offer the complete answer to any aluminium coating problems.