

# Ecogalvanic Ltd

## Non-organic surface treatment

### **In basic**

The thickness of a layer, which is based on electrolytic plating, directly depends on the amount of electricity that has passed through this surface.

The plating of the surface of a detail is also depending on the detail's shape. The thickness of the plating on the detail is much thicker on sharp edges and corners, but thinner in inner corners and other low current areas. The variation on the thickness of the layer has also other impact factors such as detail's placing in the bath, bath leading ability and detail's attachment on the hanger.

When a new part is constructed, in order to have a good surface quality, consider the possibilities and limitations of electrolytic plating.

### **Material finish**

The final result of plating is depending on the quality of the detail's finish. A detail that is casted with pores and other unevenness cannot have the same finish as a polished detail. A drawn wire has often drawn marks after the treatment. Details of different materials that are combined –composite materials (e.g. copper and steel) often get a shade on the plated surface.

### **Layer thickness**

The difference in thickness of the layer depends on the shape of the detail and must be considered. On inner surfaces, corners, etc. the layer is much thinner than on other parts of the detail. Due to practical and economical reasons it's often not advisable if not impossible to have minimum demands on such kind of surfaces. Minimum thickness should be applied on surfaces that can be touched by a ball 20mm diameter.

### **Threads**

The beginning of the thread should be deburred. For outside threads 6e measurement gauge should fit. With very high demands on the thread the customer should supply this gauge. Details with outside threads are not suitable to be plated in barrel because it has increased risk of beating marks.

### **Welding and Soldering**

Often corrosion protection is applied on steel materials. This corrosion resistance often contains oil or wax. With welding occurs a heat oxide on the side of the welding. If it's not taken away before surface treatment dark areas can occur on the soldering.

### **Draining holes**

When plating on racks the detail is dipped in the bath and if the liquid cannot exit the detail naturally one or several draining holes must be drilled. When 2 flat surfaces are put together on one-piece chemicals can remain in this area due to bad rinsing and rust can appear in a later stage.

### **Fixing**

When plating on racks the details are attached to a hanger. Depending on the detail's shape it can be necessary to apply one or several holes to be able to fix them on the hanger.

### **Detail characteristics**

If the detail has hardness about 330 HBS (equal to 1100N/m<sup>2</sup>) it is required heat treatment after surface treatment. If the hardness is extending 440 HBS (equal approx. 1450 Nmm<sup>2</sup> breaking point) the details should not be treated with conventional electrolytic methods.

Hardened details get on their surface heat oxide and if the end result is going to be good it's required that the heat oxide should be taken away. This can be done by tumbling or blasting.

### **Quality variations**

Variations in the process can occur < 1 % as dropping marks from the hanging points, burning marks and other surface defects. If the 0-tolerance princip is demanded it is necessary to use special treatment /control due to the demands from the customer.

This is **not included** in the offer.