

SURFACE TREATMENT**ANODISING_HARD****DSF 1.2.2****Definition:**

Anodising is the common- name applied to methods of surface treating metals; the work piece is the anode in an electrolytic cell, usually to form oxide coatings for the purpose of increasing the performance of the surface.

In the case of aluminium, the anodising process forms a layer of aluminium oxide - Al_2O_3 - or corundum, which is very hard, relatively inert, electrically insulating and can absorb dyes to colour the film.

The anodic film is converted, not deposited, at the aluminium / aluminium oxide interface by the continuous formation and dissolution of a layer of oxide, this 'barrier' layer and its thickness is a function of the process time & starting voltage. A porous more structured layer approx. 50% of the film thickness, forms on the barrier layer, thus only half of the coating is ingress.

Treatment Information:

The engineering drawing will identify the area to be coated.

Hard Anodising: (ISO 10074)

This process puts emphasis on optimising technical properties rather than aesthetics to achieve a harder, thicker ($25\mu m$ - $70\mu m$) & denser film.

Applications include resistance to wear, corrosion & temperature. The coatings are darker, grey or tinged with yellow or brown and colour matching is not an option.

Note: Anodising processes are sealed, unless it is to be used as a primer. However, unsealed coatings are generally preferred when the hard- anodising is for wear resistance.

Appearance:

The finished article shall be free from visible defects such as blisters, pits or untreated areas and free from damage.

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SURFACE TREATMENT**ANODISING_HARD****DSF 1.2.2****Description:**

Components requiring high wear resistance and good corrosion resistance. At low loads, hardness values are compatible to case hardened steels and hard chromed materials.

Other applications may include short exposure up to 200°C or long exposures to high temperature although surface crazing may become evident.

Note: Hard anodising will result in a slight loss of tensile strength and the fatigue strength of the substrate, on thin materials, by up to 45%. Limited to dark colours.

ASM (DEK) preferred colour: Dark Grey.

Properties:

- Thicker & more durable outer coating.
- Offers higher level of hardness & abrasion resistance.
- Better adhesion for primers & glue.
- Electrically insulated.

ASM (DEK) Applications:

Components requiring high wear resistance & enhanced corrosion resistance.

Notes:

1. Component surface finish (0.8 µm Ra) need to be better than final finish as Hard Anodising increases surface roughness.
2. Tapped holes to be **free** from anodising residue.

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