

HART-COAT[®]

hard anodizing of aluminum alloys



surface
technologies

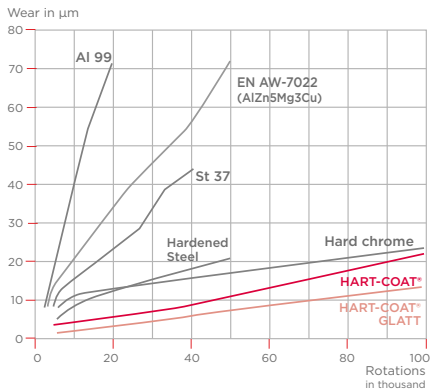
HART-COAT®

The HART-COAT® process, also known as HC, is an electrolytic treatment for aluminum substrates during which a hard and thick aluminum oxide layer is formed. The essential purpose of this surface treatment is to provide protection against wear and corrosion as well as further functional improvements to components from almost all industrial sectors.

The process corresponds to ISO 100 74. HART-COAT® layers are built up by anodic oxidizing in a specially formulated, cold, acidic electrolyte. By means of electric current, a protecting aluminum oxide layer is produced on the surface of the workpiece being treated.

Compared to conventional anodized layers, HART-COAT® layers are thicker and provide better wear resistance.

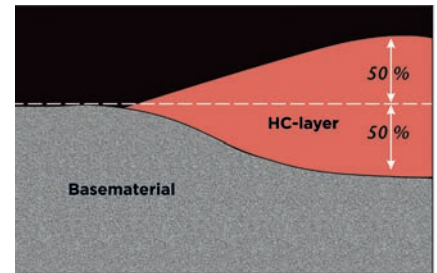
HART-COAT® layers can be applied where properties like corrosion resistance, wear resistance, dimensional accuracy, anti-friction properties or insulation are required for aluminum substrates. HART-COAT® layers show a good adhesion to the base material. Nearly all wrought, cast and die-cast aluminum alloys destined for industrial use are suitable for treatment with HART-COAT®.



Wear behavior of HART-COAT® layers compared to other materials (Taber-Abraser measurements, abrasive wheel CS 17, load 10N).



Winch coated with HART-COAT®.



This schematic scene of a cross section of a 50 µm thick HART-COAT® layer (HC layer) shows that 50 % of this conversion layer grow into the substrate and 50 % outwards. In case of HART-COAT®-GLATT (HC-GL) there is a 2/3 penetration and 1/3 buildup.

HART-COAT®	HC	HC-CU	HC-GD	HC-GL
Suitable materials	for wrought aluminum alloys as well as sand and permanent mold cast	for aluminum alloys with a high copper content (2 % to 6 %)	for die-cast aluminum alloys with high copper and/or silicon content	for wrought, cast and die-cast aluminum alloys with limited copper, silicon and lead content
Applications	pneumatic and hydraulic cylinders, compressor wheels, lifting gear, insulator spacers, hot-plates, screw conveyors, spacers, clamping and retaining mechanisms, cylindrical tubes, rocker arms, surgical instruments	guide pulleys, pistons, nozzles, valves, roller bearings, centrifuges, camera components, bearing shells, cam plates, levers, pulleys, coils	housings, guide cylinders, guide plates, mounting plates, clothes iron plates, damping chambers, gears and rack drives, clutch components, cylinder heads	for components requiring an especially smooth and wear-resistant surface
Layer properties depending on alloy	high wear resistance, improved corrosion resistance, improved hardness, optimum anti-friction properties, optimum adhesion, high thermal insulation, high electrical insulation, good dimensional accuracy, resistant to temperature, suitable for consumer goods			