G.H.A.®

Golden Hard Anodizing
Multifunctional coating
for aluminium

Surface treatement on aluminum alloy

Maximum protection against bacteria, corrosion, friction and wear

- Surface Hardness
- Excellent corrosion resistance
- High wear resistance and low friction
- Compliant to MIL A8625F, UNI 7796 e
- UNI EN 14392:2008
- Compliant to FDATitle 21 CFR
- High thermal conductivity
- Non-stick non-toxix type
- Suitability for food contact according to DM 21.3.73, regulation 1935/2004/CE e DM n° 76 del 18/04/07
- Bactericidal treated surface

G.H.A.® is a special anodizing treatment of aluminum-based alloys with sealing of the micropores of the oxide (nanotubes) through Ag+ Silver Ions (PATENT No. EP1207220), always available on the surface and in the inner structure of the oxide layer.

PECULIAR PROPERTIES AND TECHNICAL FEATURES

Surface Hardness

The ceramic Al2O3 aluminum oxide layer obtained at low temperature guarantees surface hardness from 450 to 600 HV, depending on the type of alloy used.

Corrosion Resistance

Excellent resistance guaranteed by the combination of ceramic Al2O3 anodic oxide and Silver.
Duration of 1000-5000 hours in NSS salt spray according to UNI EN ISO 9227 on specially prepared samples.

Wear Resistance

The hard ceramic Al2O3 aluminum oxide surface layer, combined with the self-lubricating effect of Silver, provides excellent resistance to wear, with a reduction in the friction coefficient. Skid-on-cylinder tribological tests, performed ad hoc using a Tribomet testing machine, demonstrated a lower weight loss of the GHA treated sample compared to all other surface treatments tested such as hard oxide, Nickel-Teflon and chemical Nickel.

Tribological result on 3 anti-wear treatement samples (performed by Remet laboratory using TRIBOMET)

Ergal 55 samples treated with 25 micron thickness µm:	Surface Hardness $HV_{0,05/15''}$	ΔWeight gr.	Groove dept µm
GHA®	**520**	**0,0006**	**4 µm**
NICHEL-TEFLON	730	0,0013	19,5 µm
NICHEL CHIMICO	780	0,0025	30 µm

Bactericidal GHA Surface

Laboratory tests performed according to ISO 22196: 11 and JIS 2801: 10 have shown that the surface of the GHA treated products is bactericidal against the most common bacteria such as Escherichia Coli, Staffilococcus Aureus, Salmonella Typhimurium, Legionella Pneumophila, Pseudomonas Aeruginosa, as well as against the common fungus Candida Albicans.

Food Contact

Laboratory tests have shown that the GHA treatment, performed on food aluminum alloys, is suitable for contact with food according to the Ministerial Decree 21.3.73 and according to the D.M. n ° 76 of 04/18/07; in compliance with the European regulation 1935/2004 / EC and the technical standard UNI EN 14392: 08, and in compliance with the requirements of the FDA Title 21 CFR regulation.