SELGA-COAT®

selective galvanic coatings of
aluminum alloys in self-contained tools

aalberts surface technologies

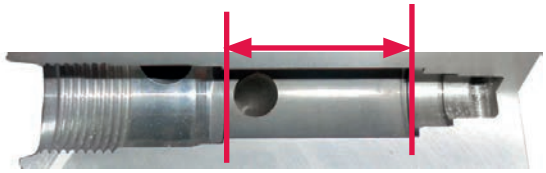
SELGA-COAT®

SELGA-COAT® is a further developed Aalberts surface technologies´ technology for the selective coating of parts made of aluminum-based wrought, cast and die-cast alloys. Precisely defined surface areas are coated with masking taking place in self-contained tools.

With the partial hard anodizing of aluminum-based alloys, the part being coated acts as an anode. The electrolyte circulates in high speed cycles with high current density between anode and cathode.

The use of high-speed electrolytes in conjunction with reactors tailored to components produces coatings with markedly improved properties in comparison to conventionally produced coatings. These improvements include better covering capacity, increased hardness, a more regular microstructure, vastly improved levelling properties and far cleaner surface quality. In general no further machining of the coated surface areas is required.

1/



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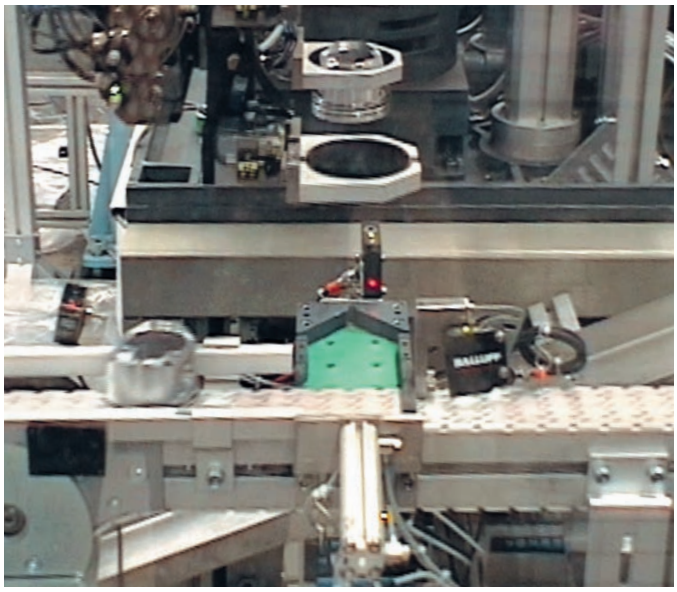

1/ Pump housing (detail): the area coated with SELGA-COAT® is marked in red.

2/ Automatic plant system for the selective hard anodizing of the first ring groove of engine pistons; the process consists of anodizing, rinsing and drying, with a machine cycle time of 12.5 seconds per piston.

SELGA-COAT®	process details	
Applications	SELGA-COAT® surface treatments have proved themselves to be excellent for the partial coating of among others • hydraulic power steering pumps • engine pistons (diesel, otto) • plates for stop & start systems • pump housings (power steering) • valve body assemblies • valve housings for electronic stability control (ESC) • heat exchangers for exhaust gas recirculation systems • aluminum plates for automatic transmissions We plan and realize manual and automatic plant systems to individual requirements.	Our plant systems are solid, component-specific and self-contained. They can be integrated into existing mechanical production lines without difficulty. The advantages of this complete integration of surface treatment into the manufacturing process are short processing, simple logistics, low emissions and a high level of operational and process reliability. All SELGA-COAT® plant systems work on the closed circuit principle. As coatings are applied selectively, only minimal amounts of electrolyte are lost thus maintaining the consumption of electrolyte at highly cost-effective levels. Depending on the application, the layers can be produced via Cr6-containing* or Cr6-free electrolytes. * Request for authorization submitted via Hapoc GmbH & Co. KG.
Performance characteristics of the SELGA-COAT® process	Hard anodizing of aluminum alloys: • increased corrosion and wear resistance • layer hardness between 300 and 500 HV • electrical insulation • rapid layer buildup, e.g. 12 µm in less than 1 min • thickness tolerances ±2 µm • lower roughness compared to conventional processes	Services: • development and design • job shop • production process-integrated plant systems for SELGA-COAT®