sifco asc
A QUAKER HOUGHTON COMPANY

Advancing Selective Plating Technology

Electric Motor and Generator Repair

The SIFCO Process® of selective plating is a portable method of electroplating localized areas without the use of an immersion tank. It's used for many different, demanding repair and OEM applications on electric motors and generators.

SIFCO ASC deposits have excellent adhesion and can often be plated to size eliminating the need for post-machining. Premachining is limited to a thin cut and only needed in cases where corrosion pits or scratches need to be removed prior to plating. The SIFCO Process® does not require extensive masking, special fixtures, or elaborate equipment and it can be used to perform repairs in the shop or on site in the field.

APPLICATIONS

The primary areas of application are bearing housing, commutators and rotor journals.

End bells, which house the bearings that support the motor shaft, experience fretting corrosion during operation. The SIFCO Process® is used to plate these bores to size with copper, tin or nickel. Machining the bores, prior to plating, is only necessary to re-establish concentricity.

Plating a worn bearing housing can take less than thirty minutes and is a cost-effective alternative to machining the bore oversized and pressing in a pre-machined sleeve, or flame spraying and machining to the print dimension.

DC motor and generator slip rings can develop copper oxide films, which reduce electrical conductivity and cause arcing and pitting, especially during locked motor start-up. Corrosive environments can also cause excessive damage and shorten life. Worn or corroded contact areas can be quickly restored to factory like condition. Copper can be built back to dimension and a silver conductivity and protective layer can be added during the same plating operation.

WITH THE SIFCO PROCESS® YOU CAN:

- Build up worn bearing journals
- Resurface end bells and stator housings
- Repair slip rings
- Extend life of commutators and brushes
- Extend life of high speed bearings

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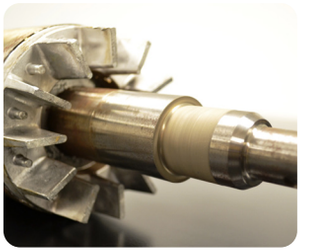
Electric Motor Applications

COST-EFFECTIVE PERMANENT REPAIRS

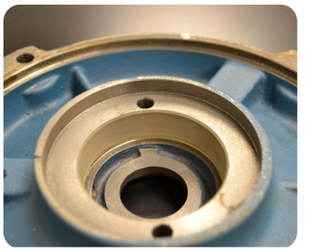
- Repair Components in Place
- Reduce Equipment Downtime
- Eliminate Expensive Disassembly and Shipping Costs
- Expand In-House Maintenance and Repair Capabilities

Selective plating is used to restore many components

- Salvage mismachined or worn end bell bearing housings with copper, tin or nickel.
- Salvage mismachined or worn bearing journals with copper and nickel.
- Restore worn commutators with nickel for increased brush life and reduce radio interference.



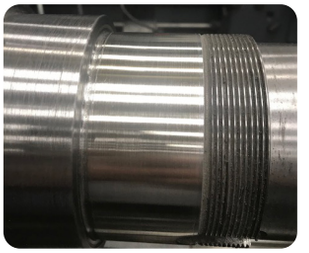
Nickel on a Bearing Journal OD



Nickel Plated ID on an End Bell

SAMPLE REPAIRS

- 2500 kW Allison generator 380 mm (15 in) diameter slip rings.
- 400 kW motor for plastic compound extruder.
- 300 kW motor-generator from a sumbarine.
- 250 ton air conditioning motor housing flange faces and end bells.
- Feedback generator commutators.
- Railroad traction motor commutators
- 112 kW LAC 280, motor for boiler feeder.
- 16 kW 1200 rpm motor Asea LAT 200.
- Navy shipboard repair of slip rings and generator shafts



AeroNikl® on Electric Motor Shaft

ADHESION OF SIFCO PROCESS® DEPOSITS

By using ASTM C633-79 Standard Test Method for Adhesion or Cohesive Strength of Flame Sprayed Coatings, SIFCO ASC established values for adhesion of SIFCO Process® deposits which indicate that the cohesive strength of the deposit exceeds that of the cement. For example, the minimum tensile strength value established (at the point of cement failure during testing) for Nickel High Speed is 22,803 kPa (11,200psi) on a SAE 4130 steel base material.

Additional qualitative tests, as described in AMS-QQ-N-290 were conducted in which the plated areas were subjected to high stresses and strains. These tests consisted of compressive and tensile bend tests as well as chisel tests into the deposit. The results showed excellent adhesion to the base material.

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