



## Mining Industry

Due to size, cost and lead time, replacement parts or components for heavy equipment are not typically available on short notice. However, many components with wear and/or surface defects can be repaired, rather than replaced.

Components with wear, corrosion, or scoring can be restored to their original dimensions using the SIFCO Process<sup>®</sup> of selective plating. The SIFCO Process<sup>®</sup> is a portable method of electroplating localized areas without the use of an immersion tank. The portability of the process enables technicians and operators to plate parts in their functioning state, saving money and minimizing down time. And the SIFCO Process<sup>®</sup> does not require extensive masking, special fixtures, or elaborate equipment.

Solutions such as copper, nickel, nickel-tungsten, and cobalt, are used in the mining industry for wear resistance, hardness properties and dimensional restoration. Deposits from SIFCO ASC have excellent adhesion and can be plated to size on-site, in workshops, or in-situ as required. Pre- and post-machining, under certain conditions, are not required.

### APPLICATION

- ▶ With the exception of Titanium, SIFCO Process<sup>®</sup> plating solutions can be applied to all base metals.
- ▶ Refurbish worn parts such as shafts, bearing seats, seal contact surfaces, bearing surfaces ID's, OD's and flat surfaces.

### THE SIFCO PROCESS<sup>®</sup> IS USED ON COMPONENTS FROM

- ▶ Caterpillar
- ▶ Komatsu
- ▶ Hitachi
- ▶ Terek
- ▶ Liebherr
- ▶ Volvo
- ▶ Kobelco
- ▶ Hyundai
- ▶ Doosan
- ▶ Furukawa
- ▶ SANDVIK
- ▶ Many others

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# Mining Applications

The SIFCO Process<sup>®</sup> extends the operational life of heavy equipment in the Mining Industry such as:

Off highway trucks • Dump trucks • Excavators • Bulldozers • Front wheel loaders • Graders • Drilling equipment • and more

Selective plating is used to restore many components such as:

## HYDRAULIC SYSTEMS

Pumps • Control valves • Spools • Housings • Craddles

## TRANSMISSIONS

Piston plates • Bearing retention bores • Shafts

## GEARBOXES

Bearing seats in housings • Gear shafts

## FINAL DRIVE

Differential Housings • Brake pistons and housings • Wheel axle bearing seats • Wheel hubs

## STEERING SYSTEMS

Spools • Housings

## ENGINES

Cylinder block deck liners and main bearings • Cylinder heads • Crankshafts • Cam shafts

## ADHESION OF SIFCO PROCESS<sup>®</sup> 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<sup>®</sup> 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.



Differential Housing Repair



Wheel Hub Bore Resize



Rear Axle Bearing Seat Resize



Pinion Gear Journal Bearing Defect Repair

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