Expensive equipment and industrial installations are subject to daily attack by abrasion, corrosion, erosion, wear and tear creating enormous costs to industries.

The application and use of our anti-wear product range consisting of welding and brazing alloys, thermal spray powders, wear resistant plates and cold repair compounds can increase the service life of vital machinery and parts dramatically.
PART: Kiln Tyre

BASE MATERIAL: Cast steel

Problem:
Spalling and cracks on Kiln Tyre due to severe pressure and heat

Solution:
• Remove damaged metal by gouging and grinding.
• Preheat weld area to approx. 150°C
• Rebuild worn/cracked section with Electrode Gold 510/B90 a high deposition nickel base maintenance electrode
• for welding in difficult positions (or root runs) use Electrode Gold 520/NI 82

Recommendations:
• Keep Interpass temperature at 150 °C
• Apply stringer beads avoid excessive weaving.
• Stress relieve (heating coils) by heating to 450 °C
• And slow cooling.

Economics:
• To order a new part is costly and time consuming, delivery of new part can take many months
• The loss of production is enormous.

Repair can be done within 3– 4 days. Savings of up to 200,000 Euro can be achieved
By using above named gold products.
Part: Screw
Machine: Carbon Mixer
Base Material: low alloy steel

Problem: heavy wear on mixer blades (screw and shaft)

Solution A: (best)
- Remove damaged/old material by grinding/gouging (gold 110)
- Preheat mixer segment to approx. 200 °C
- Use electrode gold 320/330 to repair/rebuild badly worn section
- Coat blades with 788 GT using the Gas brazing method apply 788 GT approx. 3-5 mm thick
- Coat corners/edges where wear is most intensive with powder 2070 SF using thermal spray/fuse process. spray gun art. 2010 or similar guns/
- Coat worn shaft area with electrode Gold 760/780 approx 3 mm thick
- **Benefit: up to 300% increase in lifetime**

Solution B: (second best)
- Remove damaged/old material by grinding/gouging (gold 110)
- Preheat mixer segment to approx. 200 °C
- Use electrode gold 320/330 to repair/rebuild badly worn section
- Use electrode gold 760/780 to coat mixer blades (approx. 3mm thick)
- Use electrode 750/760 to coat shaft area (approx, 3mm thick)
- **Benefit: Up to 100 % increase in lifetime**
Shafts are mostly made from low alloy heat treatable steels. However in the case of pump shafts high alloy stainless steels or nickel alloy are also used.

Shafts are subject to metal/metal friction and are showing wear after some time in operation.

New shafts can be expensive and are not always readily available.

By the method of repair welding or spraying such valuable shafts can be easily and quickly repaired.

The following products have proven successful for shaft repair.

1) Welding process: GMAW(MMA)
   A) Gold 330 high alloy Cr Ni.type electrode
   B) Gold 510/B90 high Nickel alloy electrode
   C) Gold 620 high alloy bronze type electrode

2) Welding process: FCAW( MIG/MAG)
   A) 330- MF fluxcored CrNi wire
   B) 620-MF gas shielded bronze alloy wire

Machine: Electric Motor
Part: Shaft
Basematerial: Un/low alloy steel
Problem: Wear on bearing area due to friction. Equipment looses efficiency, causing increase in operating costs and possible breakdown.
Solution: Rebuild (spray) bearing areas using Thermal Spray Process (Uni/Mini spray) and Flame spray powder BSW 2121 CS + 2185CS
Benefit: Repair is quick and there is no distortion of shaft due to low heat input (max 150 C)

Above method is the most efficient and most used method for shaft rebuilding.
**Machine:** Excavator/Bulldozer  
**Part:** Buckets  
**Basematerial:** Un/low alloy steel  
**Problem:**  
Wear on bucket and bucket teeth due to abrasion, friction and impact by coal, sand, stone etc. Equipment loses efficiency, causing increase in operating costs.  

**Recommended Solution:**  
Protect bucket lips, sides and other wear areas by applying a wear resistant high alloy Chromium Carbide material.  
**Welding process:** SMAW (stick electrodes)  
**Welding material:**  
A) Gold 750  
B) Gold 760  
Use Gold 760 for severe abrasion  
Welding process: GMAW (Wire welding)  
Welding material:  
A) 750 MF/OA  
B) 760 MF/OA  
MF Wire (gas shielded)  
OA Wire (no gas required)  

**BUCKET TEETH:**  
**Base material:** Austenitic Manganese steel/Cast steel  
**Welding Process:** SMAW (stick electrodes)  
1) Use Gold 740 (HMN) for rebuilding if teeth are badly worn.  
2) Use gold 730 for points (edge)  
3) Use Gold 750 to protect top and sides  
4) Use gold 760 for severe abrasion  
All the above alloys are also available as Flux cored wires for GWAW (MIG/MAG) or open arc welding.  
**BENEFIT:**  
prolong lifetime of equipment up to 300%  
Increase efficiency, reduce power consumption
SAVING TIME AND MONEY BY REPAIRING GEARS

By using the right technique and the right filler material large savings can be achieved. There are many shapes, sizes and materials in use today. The choice of welding process will depend on availability of equipment and/or size of gear to be repaired.

Depending on the base material of the gear the following materials have proven successful.

**Base material Low alloy steel**

Welding process: SMAW (Stick)

1) Gold 710 (HB 40) low alloy
2) Gold 330 (High Chrome alloy) for best results
3) Gold 620 (Manganese bronze alloy)

**Base material High alloy steel**

Welding process: SMAW (Stick)

1) Gold 330 (High Chrome alloy) for best results
2) Gold 620 (Manganese bronze alloy)
3) Gold 720 (High speed steel alloy HRC60)

**Base material Cast Iron:**

Welding process: SMAW (Stick)

1) Gold 420 (Ni Fe Alloy)
2) Gold 720 (Manganese bronze alloy)

All the above recommended Filler materials are also available as TIG Rods for TIG Welding

Hard facing of Gears:
To improve the lifecycle of certain gears the application of hard facing alloys such as Gold 720 (high speed steel) and Gold 750 Chromium Carbide has proved successful.

Welding Tips:
Asses Analysis of base metal
Choose suitable filler material
Preheat accordingly.
Consider type of wear (metal/metal etc)
Products for repairing of Pump/Bearing housings.

CORROSION AND WEAR ON PUMPHOUSING.

Base material: wear resistant Cast iron. Difficult to weld, as material is hard and tends to crack when heat is applied.

Solution: Use BSW CRC 5 a epoxy base polymer material which can be applied without heat or pressure and is resistant to wear and corrosion.

Wear on Cast Iron Bearing housings

Use Gold 410/420 a Ni based Welding electrode for rebuilding. Can be welded at low amperages (low heat input) Easy machinable.

Cracked Gear box housing .

Base material Cast Iron.

Use Gold 110 to prepare (open) cracks for welding. Then use Gold 410 or 420 to repair/join cracks. Apply low heat technique (low amperage) and skip welding.

GOLD 110 FOR METAL PREPERATION

A use full product for gouging, cutting and piercing of cast iron steel and nickel alloys.

Easy to use no special equipment or training needed, does not require compressed air or oxygen.