REPAIR & MAINTENANCE

New Tungsten Carbide Nickel Oxyacetylene Torch Powder Formulation Offers 9% Cost Savings, Excellent Results for Olive Processing Equipment

- Olive oil production equipment hardfaced with EWAC 002P, a new nickel/60% tungsten carbide formulation for stainless steel food processing screws.
- EWAC Alloys Limited, now part of the ESAB family of brands, is leading provider of total solutions for wear-related applications.

Situation

Olive oil is major commodity in Mediterranean countries, as they cultivate 95% of the world's 750 million olive trees. Extracting olive oil involves grinding, churning (malaxation) and centrifugation of the fruit. As with the processing of other plant fibers, abrasion of contact surfaces is an issue. To extend service life, equipment manufacturers hardface the stainless steel screws, which comes in contact with the olive paste.

Because some hardfacing materials cannot be easily produced in wire form, they have to be applied using an oxyacetylene torch and the spray-and-fuse (hot metallizing) process.

Complication

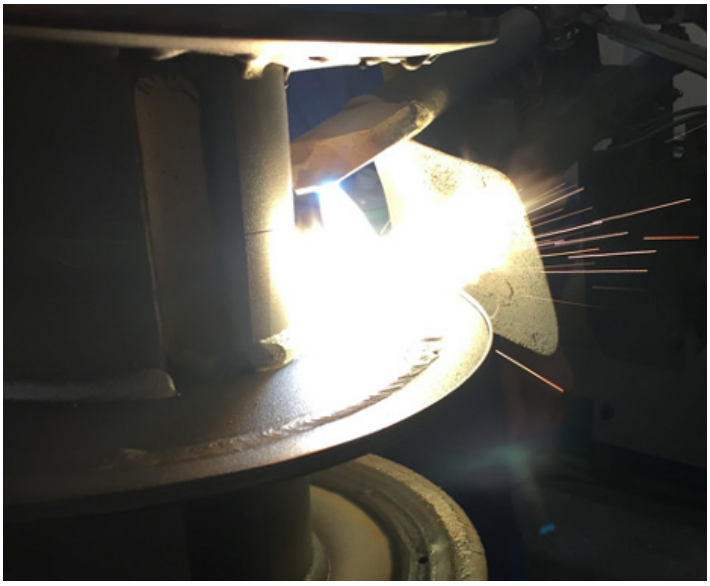
To ensure uniform wear, the coating needs to be applied in uniform thickness and without porosities.

Solution

ESAB's Italian Application Specialists worked with EWAC's Export Head & R&D Head to design a customised nickel alloy powder containing 60% tungsten carbide with excellent spray-ability, fluidity and superior abrasion resistance properties.

Results

With the support of EWAC R&D and in-house manufacturing process capabilities, ESAB was able to offer the customer a 9% cost savings while maintaining all customer's technical requirements.



BENEFIT #1

Excellent Application Performance

The overall performance of fused thermal spray powder deposits results from the combination of optimised chemical composition, controlled grain size, shape, distribution, powder flow properties, metallurgical, mechanical and wear factors.

ESAB's Italian Application Engineering team provided onsite feedback to EWAC team in India. Working together they created a modified powder formulation — a blend of self-fluxing nickel alloy (NiCrBSiB) + 60% tungsten carbide — that met all of the olive oil equipment manufacturer's needs.

The resulting powder, EWAC 002P, has excellent "flow ability" and a consistent melting rate so as to achieve uniformity in the thickness coating. Further, EWAC 002P avoids the spitting and clogging problems common to the process. It yields a smooth coating with high visual appeal and little to no spatter or porosity. Finally, the EWAC 002P coating meets all of the required application performance properties.

EWAC 002 P Coating Properties

Deposit Rockwell C Hardness:	60-64
Typical Hot Hardness:	Up to 750°C
Tungsten Carbides Vickers Hardness:	1800 – 2200 Hv
Wear Resistance (ASTM G-65 schedule A volume loss):	7 – 12 mm^3

ESAB also offers a full portfolio of filler metals and equipment for Repair & Maintenance applications. Contact your ESAB sales representative to learn more, or visit esab.com/repairandmaintenance.

BENEFIT #2

€25,000 Annual Savings

Tungsten carbide nickel powders can cost upwards of €60/kg and the Italian equipment manufacturer required thousands of kg per year in its operation. By providing a suitable powder that offered equivalent performance at 9% lower cost, ESAB gained a portion of the customer's business and was able to save them about €25,000 annually. In addition, with a second, qualified source for its nickel-tungsten carbide powder, the customer has an even more secure supply chain.

BENEFIT #3

Broader Regional Product Portfolio

In November 2017, Colfax (ESAB's parent corporation) acquired EWAC Alloys Limited, with facilities in Mumbai, India. EWAC has more than 50 years of experience in the preventive maintenance and repair of industrial machinery. Its range of cost effective solutions to wear-related problems includes specialty welding electrodes, gas brazing rods and fluxes, atomised metal powder alloys, flux cored wires, polymer compounds and wear resistant plates.

ESAB is pleased to offer its customers in the European and Asia markets access to the EWAC line of consumables, and especially its R&D capabilities to develop customised powders for wear application needs in a broad variety of industries.

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GLOBALLY CERTIFIED MANAGEMENT SYSTEMS

XA00221521 / NA / ENG / 09-24-20