SURFACING ALLOYS

Colmonoy®
Wallex®

WALLCOLMONOY
SURFACING ALLOYS

MAXIMIZING PERFORMANCE & EXTENDING THE USEFUL LIFE OF ENGINEERED COMPONENTS SINCE 1938

As the world's leading manufacturer of nickel-based hard-surfacing alloys, Wall Colmonoy coatings have been extending the service life of industrial parts since 1938.

COLMONOY® (nickel-based)

WALLEX® (cobalt-based)

Products ideally suited to protect against wear

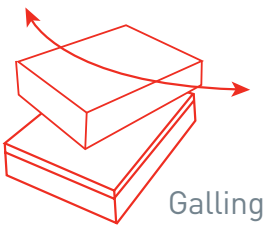
Our standard and custom range of Colmonoy® and Wallex® Surfacing Alloys are an excellent defense against wear mechanisms such as abrasion, erosion, corrosion and high-temperatures encountered in service.

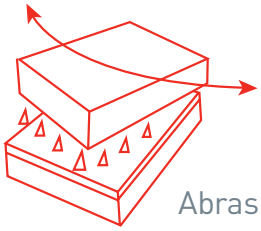
Parts protected with our Colmonoy® and Wallex® Surfacing Alloys – last significantly longer than unprotected parts.

This means:

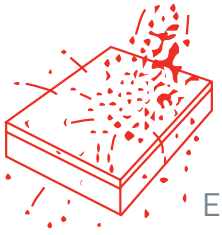
- Fewer replacement parts needed
- Less labor required to install them
- Minimizes down-time

The alloys are applied in a wide range of proven surfacing and thermal spraying techniques, including Laser Cladding, PTA, HVOF, and Spray & Fuse.


Galling


Abrasion


Corrosion


Erosion

Colmonoy® 4 Spray & Fuse on Glass Plunger

Our alloys are available as powder, rods, and wire in a full range of sizes and specifications. Powders can be Gas or Water atomized and produced to specific alloy formulations.

COLMONOY® - Nickel-based Alloys

The Colmonoy® family of nickel powder, rods and wire offer superior wear protection, retaining their hardness up to 600°C (1112°F) with significant resistance to oxidation.

WALLEX® - Cobalt-based Alloys

Wallex® cobalt alloys have excellent corrosion and abrasion resistance and can withstand elevated temperatures.

Customer-specific alloys

Many customers have applications which require specific alloys in order to achieve required coating properties. Wall Colmonoy's expert technical team work with customers to meet specific requirements.

Forms

To suit different application methods, our Surfacing Alloys are available as Powder, Rod, Wire, and Castings.

TYPES

Crushed – premium alloy form with high surface area and dense coatings for superior wear-resistance.

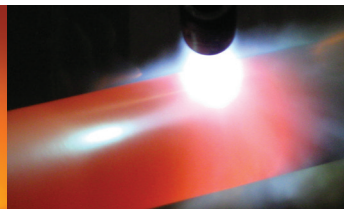
Atomized – nickel and cobalt alloys containing combinations of tungsten, chromium, chromium carbide or tungsten carbide for specific applications.

Composite – alloy particles of tungsten carbide in nickel or cobalt matrix; designed to resist sliding abrasion and abrasive wear.

Worldwide manufacturing facilities and high quality standards

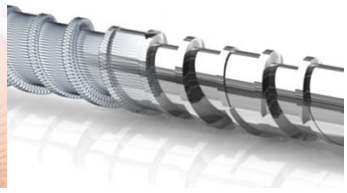
Our manufacturing facilities in North America and Europe are equipped with modern laboratory and testing facilities. Our products are manufactured to quality standards set by international and national industrial associations. We maintain the quality assurance of ISO 9001 / AS 9100.

USED THROUGHOUT SUCH GLOBAL INDUSTRIES



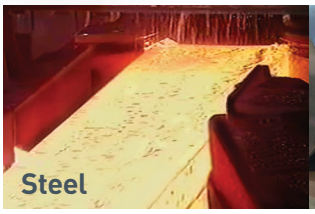
Compressor Rods, Sleeves, Plungers, Pump Shafts, Pony Rods, Sucker Rod Couplings, Thermowell, Valves

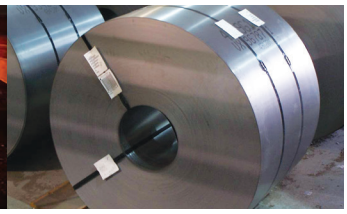
Bottom Plates, Guide Rings, Moulds, Neck Rings, Plungers, Preform Blanks



Banbury Mixers, Barrels, Extrusion Screws, Granulators, Pelletizers

Boiler Tubes, Coal Breaker and Refiner Blades, Centrifuge Scrolls, Pug Mill Paddles, Steam Generator Pipes and Panels, Water Walls





Concast Grids, Rolls (Work, Pressure, Transfer, Table), BOF Hoods, Water Boxes

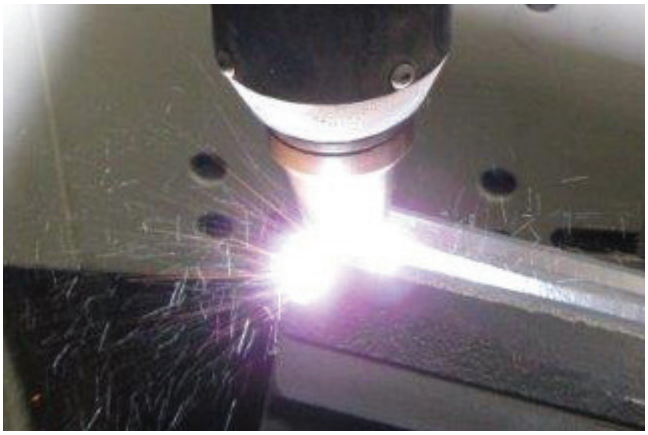
Bucket Teeth, Mining Picks, Grates

Chipper Anvils and Segments, Debarking Knives, Knife Clamps, Wire Guides

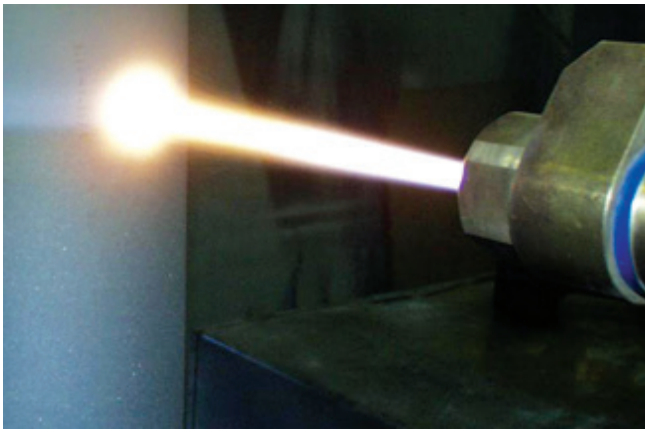
Conveyor Chutes, Harvester Teeth Cutting Blades

APPLICATION PROCESSES

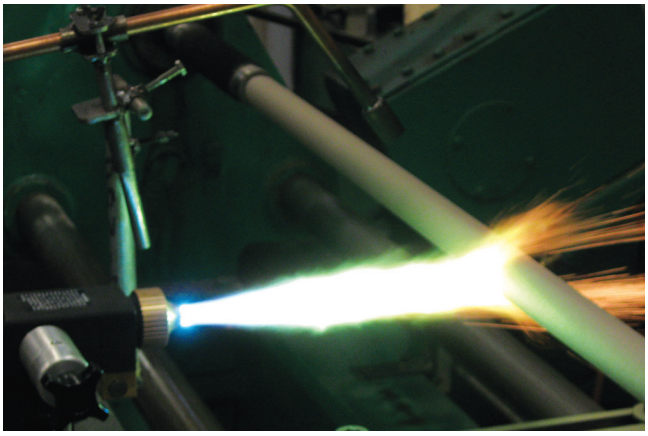
LASER CLADDING
Colmonoy® 88 L Laser Cladded to Pump Sleeve



PLASMA TRANSFERRED ARC
Colmonoy® 21A PTA applied to a Glass Mould by Plasma Transferred Arc



HVOF
Colmonoy® 88 HVOF sprayed to Pump Sleeve



SPRAYWELDER
Colmonoy® 62 SA sprayed by **Spraywelder™ System** to Downhole Pump Plunger

We also provide hard-surfacing products for wire or rod application.

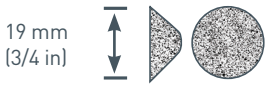
PROCESS	WCC (USA) MICRON SIZE	WCL (UK) MICRON SIZE
PTA Welding	-150+53 µm	-180+63 µm, -150+53 µm, -125+45 µm
Laser Cladding & EHLA Alloys	-150+53 µm	-150+53 µm, -125+45 µm, -53+20 µm, -63+15 µm
HVOF Alloys	-63+20 µm	-63+20 µm, -53+20 µm, -45+15 µm
DJ Alloys	-53+5 µm	N/A
Spraywelder™ & Other Systems	-106+38 µm	SA: -106+38 µm, M: -125+45 µm
Fusewelder™ Alloys	-106+20 µm	-106+20 µm

Spraywelder™ System

The Spraywelder™ System offers tight spray patterns and high spray rates to produce dense, wear resistant overlays. The Model J-3 is the culmination of more than 70 years of technical innovation following the invention of our first thermal spray gun.

The Spraywelder™ is easy to operate, safe and versatile. It has built-in efficiency:

Tight spray patterns



98% of the spray powder hits the part within a 19 mm (3/4 in) target

High Spray Rates - up to 8 kg (19 lbs)/hr with standard model, and 14 kg (30 lbs)/hr with high-output unit.

Dense coatings – flame energy of up to 92,000 BTUs and increased target efficiency deliver hot metal spray particles to the base metal. The final result is a strong, dense overlay.

Reliable – The Spraywelder™ is designed from our vast field experience and built for years of daily use.

THE 5-STEP SPRAYWELD™ PROCESS

1. **Surface Preparation** - Degreasing, Undercutting, Grit Blasting
2. **Preheating** - Time varies with type of base metal
3. **Spraying** - Utilizing the Spraywelder™, oxy-acetylene or oxy-propylene gases, compressed air and a lathe
4. **Fusing** - Via oxy-acetylene torch, controlled atmosphere furnace or induction
5. **Finishing -** By machining or grinding

Fusewelder™ Torch

The Fusewelder™ Torch is a special oxy-acetylene torch which preheats the base metal, sprays powdered alloy and fuses deposits to the workpiece – all with one integrated unit.

Superior Results with easy, trouble-free operation:

Precision control – plunger-type valve assembly provides instant powder flow shut-off.

Durability – sturdy metal hoppers and heavy-duty copper tips with wear-resistant inserts.

Versatility – spraying small, narrow areas and even overhead work is possible.

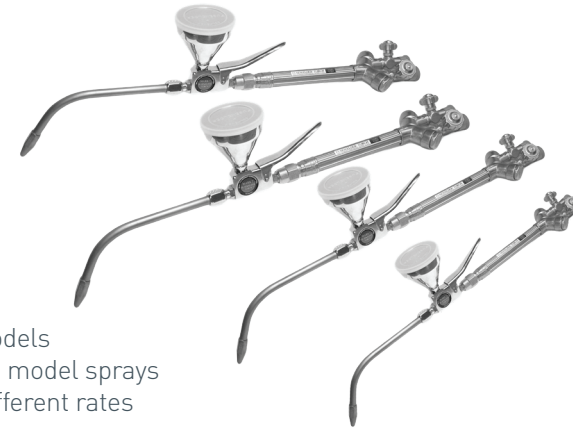
Powders - Fusewelder™ powders are designed for use in the Fusewelder™ Torch.

It may also be used to apply Spraywelder™ powders and Nicrobraz® high-temperature brazing filler metal powders.

Easy Maintenance – entire torch is easily disassembled for quick clean-up and maintenance.

Safety - supplied with built-in flash-back arrestors and reverse flow check valves.

Flexibility - Four models are available with different powder spray capacities for fine detail work or larger components.



4 models
each model sprays
at different rates

Surfacing-Alloys-Brochure-1025DO

WORLD HEADQUARTERS

101 W. Girard | Madison Heights, MI 48071

Tel 248-585-6400

Web wallcolmonoy.com | Email wcc@wallcolmonoy.com

EUROPEAN HEADQUARTERS

Alloy Industrial Estate | Pontardawe Swansea Wales (U.K.) SA8 4HL

Tel +44 (0) 1792 862287

Web wallcolmonoy.co.uk | Email alloyproductsales@wallcolmonoy.co.uk

WALLCOLMONOY

Wall Colmonoy. Making Metals Work Harder Since 1938.

MADISON HEIGHTS | LOS LUNAS | CINCINNATI | OKLAHOMA CITY | CANADA | WALES (U.K.) | FRANKLIN | SUZHOU (CHINA)