

SURFACING ALLOYS

Colmonoy®

Wallex™



WALLCOLMONOY
SURFACING ALLOYS

MAXIMIZING PERFORMANCE & EXTENDING THE USEFUL LIFE OF ENGINEERED COMPONENTS FOR OVER 80 YEARS

As the world's leading manufacturer of nickel-based hard-surfacing alloys, Wall Colmonoy coatings have been extending the service life of industrial parts for over 80 years.

COLMONOY® (nickel-based)

WALLEX™ (cobalt-based)

Products ideally suited to protect against wear

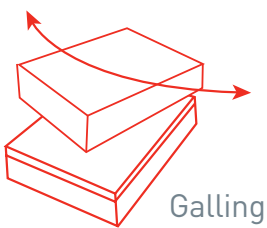
Our standard and custom range of Colmonoy® and Wallex™ Surfacing Alloys are an excellent defense against wear mechanisms such as abrasion, erosion, corrosion and high-temperatures encountered in service.

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

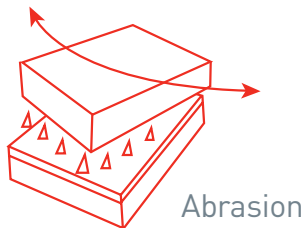
This means:

- 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.



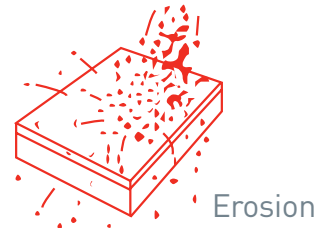
Galling



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 and nickel rods offer superior wear protection, retaining their hardness up to 600°C (1112°F) with significant resistance to oxidation.

WALLEX™ - Cobalt-based Alloys

These cobalt alloys have excellent wear and corrosion 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.

SoloCoat™ One-Step Self-Bonding Thermal Spray Powders –

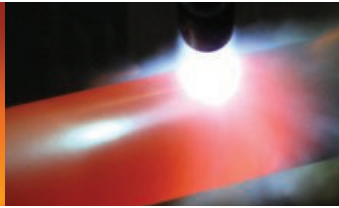
metallizing powders designed for application at low temperatures <260°C (<500°F).

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.



USED THROUGHOUT SUCH GLOBAL INDUSTRIES



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



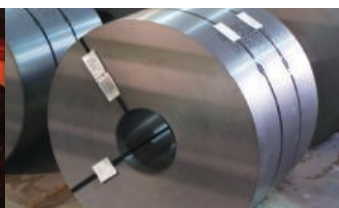
Bottom Plates, Guide Rings, Moulds, Neck Rings, Plungers, Preform Blanks



Banbury Mixers, Barrels, Extrusion Screws, Granulators, Pelletizers



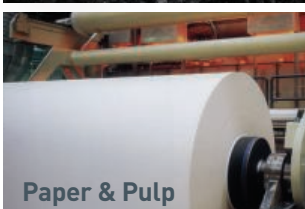
Boiler Tubes, Coal Breaker and Refiner Blades, Centrifuge Scrolls, Pug Mill Paddles, Steam Generator Pipes and Panels, Water Walls



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



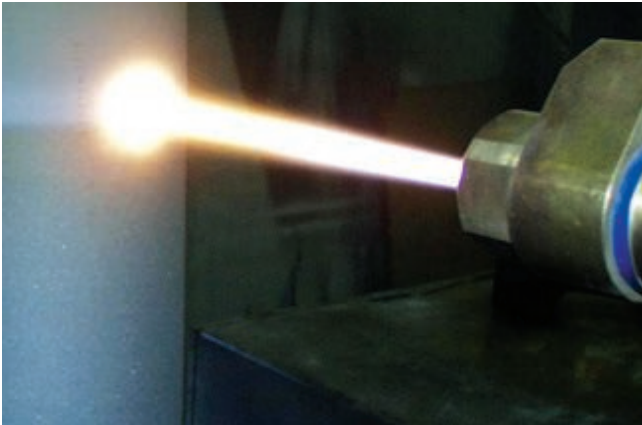
LASER CLADDING

Colmony 88L Laser Cladded to Pump Sleeve



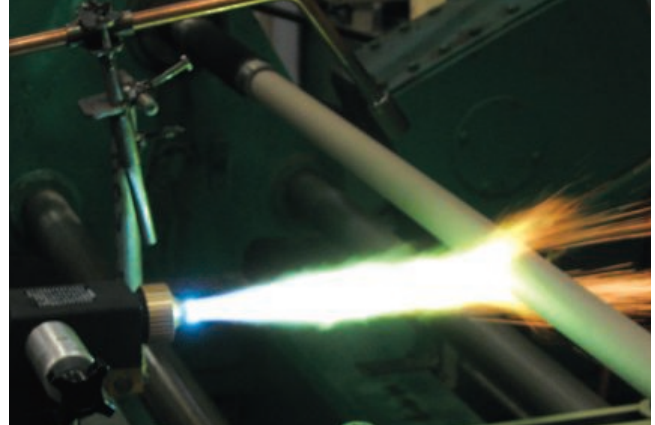
PLASMA TRANSFERRED ARC

Colmony 21A PTA applied to a Glass Mould by Plasma Transferred Arc



HVOF

Colmony 88 HVOF sprayed to Pump Sleeve



SPRAYWELDER

Colmony 62SA sprayed by **Spraywelder™ System** to Downhole Pump Plunger

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

EQUIPMENT	NOMINAL PARTICLE SIZE RANGE (µm)		MESH SIZE	
Laser	L1: 150 - 53	L2: 180 - 63	L1: 100 / 270	L2: 80 / 230
PTA	PTA/P4: 150 - 53	P5: 180 - 63	PTA/P4: 100 / 270	P5: 80 / 230
HVOF	HV: 63 - 20	DJ: 53 - 15	HV: 230 / 635	DJ: 270 / 15 micron
Spraywelder™ System	106 - 38		140 / 400	
Fusewelder™ Torch	106 - 20		140 / 635	
M-Grade	125 - 45		120 / 325	

“Tight spray patterns and high spray rates to *produce low-porosity overlays*”

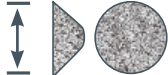


Spraywelder™ System

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 65 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

19 mm (3/4 in)  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.

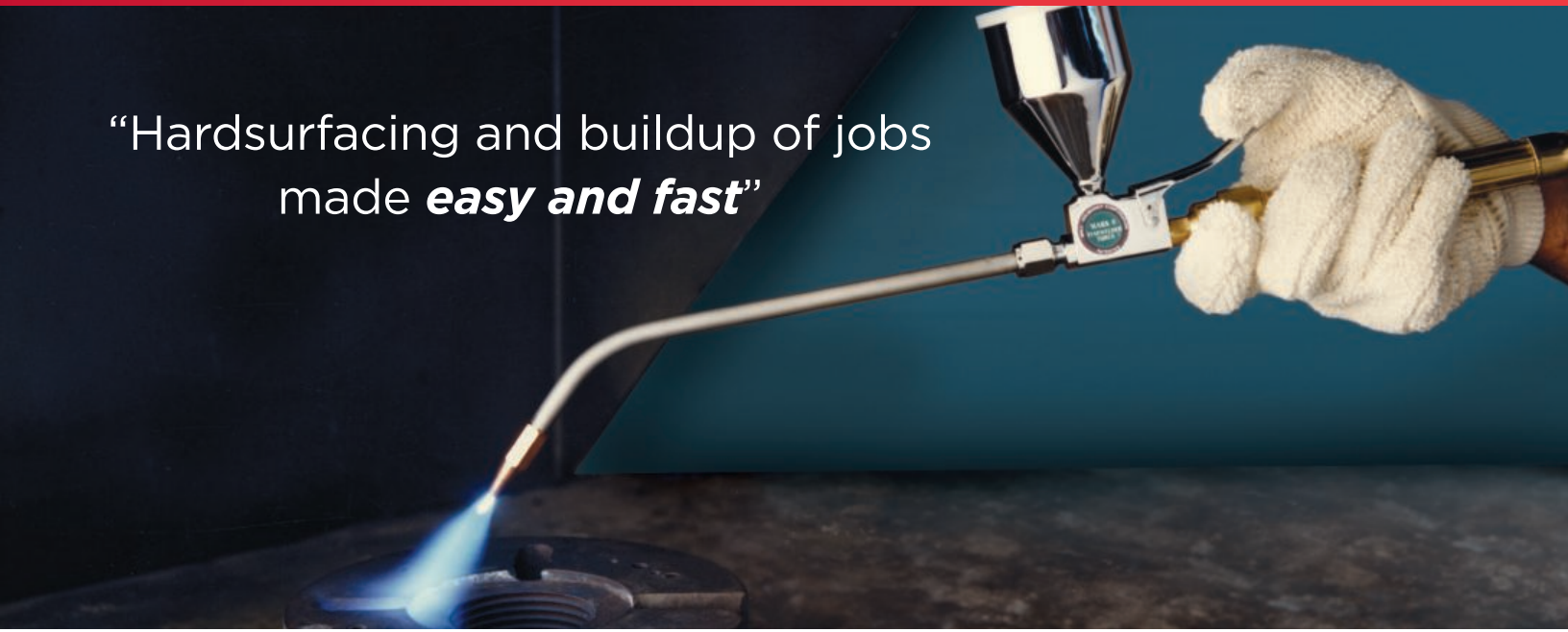
Dense coatings - flame energy of up to 92,000 BTUs and increased target efficiency deliver hot metal spray particles to the base metal. The final result is a strong, dense overlay.

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

“Hardsurfacing and buildup of jobs made *easy and fast*”



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

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WALLCOLMONOY

Wall Colmonoy. 80 Years of Making Metals Work Harder.

CINCINNATI | LOS LUNAS | OKLAHOMA CITY | PUNE (INDIA) | WALES (U.K.) | WINDSOR (CANADA)

The information provided herein is given as a guideline to follow. It is the responsibility of the end user to establish the process information most suitable for their specific application(s). Wall Colmonoy Corporation (USA) assumes no responsibility for failure due to misuse or improper application of this product, or for any incidental damages arising out of the use of this material.