

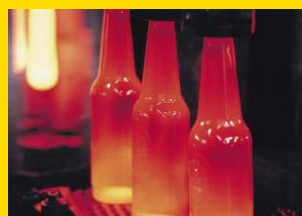


More than 100 years' experience in finding solutions for your business.

Australian Castolin Eutectic

Consumables and Equipment range

Specialist Welding
Thermal Spray
Surface Treatment
Brazing and Wear Solutions



Edition December 2015



YOUR RESOURCE FOR PROTECTION, REPAIR AND JOINING SOLUTIONS

ABN 21 060 672 979

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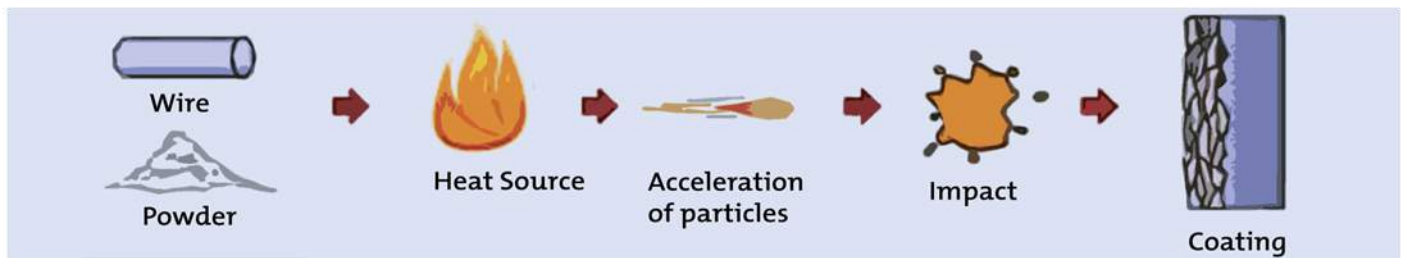


Thermal Spray Introduction

Coating overview

There are many different coating ways to protect against wear, repair and rebuild your parts, each with their respective advantages and constraints. Below you will find simplified overviews of the different coating processes, to get a quick initial choice for your application.

Simplified thermal spray



Coating families	Coating material	Base material	Heating of work-piece	Max coating thickness mm	Coating surface size	Coating structure	Coating micro-porosity	Bonding	Deposition rate	Deposition yield	Energy	Equipment investment
RotoTec	Powder. Metals & polymer	All metals	Low	3 (10)*	Medium to large	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Medium to high	Medium to high	Combustion gases	Low
ProXon	Powder. Metals	All metals	Low	2 (5)*	Medium to large	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Medium	Medium to high	Combustion gases	Low
Meta-Ceram	Powder. Ceramic	All metals	Low	0,4 (1)*	Medium	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Low	Medium	Combustion gases	Low
Eutalloy	Powder. Self-fluxing alloys	Steels, cast iron, (aluminium bronze)*	Medium to high	2 (10)*	Small & precise	Homogeneous	Negligible	Very good. Diffusion	Medium	Medium	Combustion gases	Low
Eutalloy SF	Powder. Self-fluxing alloys	Steels & cast iron	High	2 (6)*	Medium to large	Homogeneous	Negligible	Very good. Diffusion	High	High	Combustion gases	Low
Eutalloy RW	Powder. Self-fluxing alloys	Steels & cast iron	High	2 (6)*	Medium	Homogeneous	Negligible	Very good. Diffusion	Medium to high	Medium to high	Combustion gases	Low
EuTroloy	Powder or wire. Metals	Steels, cast iron, (aluminium bronze)*	Medium to high	2 (20)*	Large	Homogeneous	Negligible	Excellent. Fusion	Medium to high	High	Electricity & shielding gas	Medium
EuTronic Arc	Wire. Metals	All metals	Low	1 (20)*	Very large	Lamellar	3 to 10%	Good. Mechanical & micro-diffusion	Very high	Medium	Electricity & compressed air	Medium

Simplified surfacing polymer overview

Coating families	Coating material	Base material	Heating of work-piece	Max coating thickness mm	Coating surface size	Coating structure	Coating micro-porosity	Bonding	Deposition rate	Deposition yield	Energy	Equipment investment
MeCaTec	Paste or fluid. Polymer	All metals & others	None	10 (20)*	Large	Heterogeneous	Negligible	Good. Chemical	Medium	High	None	Negligible

■ Best ■ Second choice

(....) * request special precaution or coating material

Powder Spray Fusing

Eutalloy® - Eutalloy® SF



Simplified overview

Coating families	Coating material	Base material	Heating of work-piece	Max coating thickness mm	Coating surface size	Coating structure	Coating micro-porosity	Bonding	Deposition rate	Deposition yield	Energy	Equipment investment
Eutalloy	Powder. Self-fluxing alloys	Steels, cast iron, (aluminium bronze)*	Medium to high	2 (10)*	Small & precise	Homogeneous	Negligible	Very good. Diffusion	Medium	Medium	Combustion gases	Low
Eutalloy SF	Powder. Self-fluxing alloys	Steels & cast iron	High	2 (6)*	Medium to large	Homogeneous	Negligible	Very good. Diffusion	High	High	Combustion gases	Low



Best



Second choice

Powder Spray Fusing

Eutalloy® - Eutalloy® SF

Basic principles of Eutalloy® process Function

The powder is introduced into the torch flame and sprayed in a semi-molten state onto the preheated part, for fusion. Bonding is achieved by diffusion of the alloys into the base metal.



Metallurgical bonding with no dilution of Eutalloy® alloy, on stainless steel (enlarged x 500).

- A) Deposit
- B) Diffusion zone
- C) Base metal

Bonding of the coating alloy and base metal is similar to that obtained in brazing: a liquid phase is linked with a solid phase, by diffusion. The wetting qualities of alloys are due to the synergistic nature of certain constituents. These resist oxide formation on the substrate surface during spraying, and promote bonding with the base metal. An oxide free surface is essential. Melting ranges, depending on the type of alloy, vary between 850°C and 1100°C. Spraying distances vary between 6 and 20 mm.



Advantages

Eutalloy® provides a wide range of benefits compared with conventional arc welding process and PTA processes:

- No dilution of the base material.
- Best purity and performance of the coating alloy.
- Homogeneous and pore free coatings.
- Smooth surface for low post welding machining and also when compared with cold thermal spraying.
- Higher bond strength.
- Better shock resistance.
- Thicker coatings capabilities.



Applications

The Eutalloy® process is designed for protective coating of machine parts and tools subject to a variety of wear phenomena. Eutalloy®-type oxy acetylene torches are capable of delivering a wide range of alloys in powder form. The Eutalloy® system has a coating dimension range from 0.10 mm to thicknesses of several millimetres. The spraying followed by fusion method can fine-coat to 0.05 mm. The hardness of a deposit can vary from 15 to 65 HRC, depending on the alloy composition. Such deposits are perfectly homogeneous and dense.

Technical data

- Flame temperature: 3200 °C
- Particle velocity: not relevant
- Deposition rate: 2 to 6 kg/h
- Coating material: Self-fluxing
- Ni, Co or Fe base in powder form
- Coating thickness: 0.05 to 10 mm
- Coating density: 100%
- Noise level: 70 - 80 dB(A)

Powder Spray Fusing

Eutalloy® Equipment

SuperJet-S-Eutalloy®

SuperJet-S- Eutalloy® is an oxy-acetylene thermal spray torch, which delivers very precise anti-wear protective coatings, thanks to its sensitive controls. Alloy powders are sprayed onto the part to be coated and are fused simultaneously. Diffusion bonding with the base metal ensures that it does not reach its melting point. The dense coating is not affected by dilution and retains all its designed properties. For thermal spraying of Eutalloy® powders.

Advantages

- Flexible, multi purpose and fast.
- Rapid shut-off of acetylene and oxygen while maintaining setting.
- Reliable and precise coatings.
- Usable in all positions on a wide range of base metals, including steels, alloy steels, stainless steels and cast-iron.



SuperJet-S- Eutalloy® Kit



Contents of equipment case:

1 torch with heat shield.
3 tip assemblies for different flame sizes to be used according to the size of the part or type of coating required.

Also included are Eutalloy® powders for a wide range of applications.

Alloy types: 10680 10009 10185, and 10112.

Masking solution to protect the adjacent areas from undesirable overspray.

Accessories such as:

- adjustable spanner
- spark lighter
- welding goggles
- hose couplings
- set of nozzle cleaners *
- set of injector cleaners
- special screwdriver *
- cleaning pad *
- set of Teflon washers *

* packed in a plastic box

Other kits with different content are available on request. Please ask your local Castolin Eutectic company, Smenco Pty Ltd.

KoolTip Eutalloy® Option Kit



Special water cooled tip assemblies called KoolTip® kits are recommended whenever the SuperJet -S- torch is subject to high duty cycle usage or prolonged thermal reflections.

C6 water-cooled tip assembly kit contents:

- assembly with cooling device
- set of connecting water hoses
- special heat shield

Accessories such as:

- spark lighter
- welding goggles
- nozzle cleaner *
- injector cleaner *
- set of Teflon washers *

* packed in a plastic box.

Powder Spray Fusing

Eutalloy® Powders

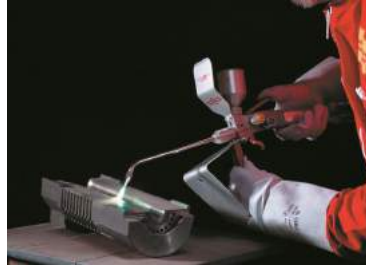


Product	Product Type	Applications / Features	Properties
Eutalloy 10009 BoroTec 500g, 2.5kg, 5 kg	Alloy Ni + 27% Cr,B,Si,Fe,C	Resurfacing cams, pushers, stops, guide wheels, filter press cake stone remover for sugar mill, decanting screw, steam gate components. Coating elements subject to friction. Finish by grinding Low friction coefficient. Good resistance to corrosion, erosion and abrasion under light load.	~63 HRC. ASTM G65 Wear 30mm³ vol, loss Service Temp 550°C (1020°F)
Eutalloy 10011 GritAlloy 700g, 2.5kg, 5 kg	Alloy 80% WC-W2C+ NiCrBSiFeC	Coating elements of chains, transport screw, wiper segments, brick die frames, claw excavators, rock drill, brush cutter rake, debarking knives. Excellent resistance to abrasion by fine to coarse sized abrasives.	~65 HRC. 80% tungsten carbides ASTM G65 Wear 8mm³ vol, loss Service Temp 550°C (1020°F)
Eutalloy 10092 Eutalite 700g, 2.5kg, 5 kg	Alloy Co+64% (Ni-Cr-W-B-Si)	A tough cobalt-base coating that will resist softening and scaling at elevated temperatures. High alloying additions of chromium and tungsten insure good hot hardness properties. Finishing by grinding.	~48 HRC ASTM G65 Wear 50mm³ vol, loss Service Temp 845° C (1550°F)
Eutalloy 10112 TungTec 500g, 2.5kg, 5 kg	Alloy 60% WC-W2C+ NiCrBSiFeC	Coating of machine parts used in the transport, handling and processing of minerals: transport screws, clay mixers, dies, segments, wipers, turbine impeller, fan impeller, pump screw, etc. Excellent resistance to erosion and abrasion by fine to coarse sized abrasives	~64 HRC. 60% tungsten carbides ASTM G65 Wear 9mm³ vol, loss Service Temp 550° C (1020°F)
Eutalloy 10185 BronzoChrom 500g, 2.5kg, 5 kg	Alloy Ni + 6% BSiFe	Coating of cast iron and steel moulds for plastic material and glass. Recoating shafts, eccentrics, bearings Soldering tungsten carbide biscuits on drilling stabilizers, etc. Well suited for metal-to-metal friction. Machinable with cutting tool.	~42 HRC. ASTM G65 Wear N/A Service Temp 760° C (1400°F) Excellent corrosion resistance.
Eutalloy 10224 NiTec 500g, 2.5kg, 5 kg	Alloy Ni + 4% BSiFe	Repairing glass mould edges, gear teeth, exhaust manifolds, pump bodies, brakes on drawing tools. Bonding layer before welding with electrode on cast iron that is difficult to weld, etc. Appropriate for new or worn cast iron.	~90 HRb. ASTM G65 Wear N/A Service Temp 760° C (1400°F) Good resistance to corrosion. Machinable with cutting tool.
Eutalloy 10680 ChromTec 500g, 2.5kg, 5 kg	Alloy Ni + 5% BSiFe	Repair of gears, cast steel, cast iron valve seats, moulds, keyways, bearing seating. Renewing drawing tools Correction of machining errors, etc. Finish by machining. Good resistance to shocks and oxidation while hot.	~95 HRb. Shear Strength 75,000 psi ASTM G65 Wear N/A Service Temp 760° C (1400°F)
Eutalloy 10999 Diamax 500g, 5 kg	Alloy NiCrBSiFe+ Tungsten Carbide	Coating of fan blades, cutting knives, screws, rasps. Distributor blades for fertilizer spreaders, cyclone blades, hopper for sand spreading machines, mouths of bag-gers, etc.	~80 – 85 HRa. 15% tungsten carbides Excellent resistance to erosion and abrasion by fine abrasives.

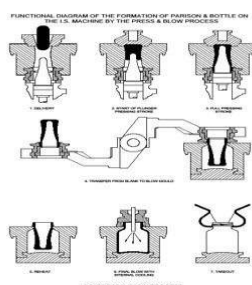
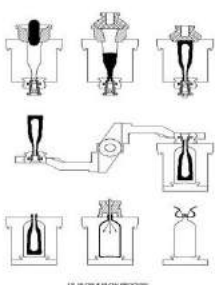
Many more powder types and specifications are available upon request. In addition we can manufacture custom blends and alloys to suit your specific requirements.

Powder Spray Fusing

Eutalloy® Powders for Glass Industry



Product	Product Type	Applications / Features	Properties
Eutalloy LTPE 8418 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy	Repair of mould damage on the seams or edges. Easy to machine or file.	~ 240 HV30 (~18 HRC) Grain size -106 µm. Low energy input for the fusion. Spot repairs.
Eutalloy LTPE 8422 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy	Repair or protection of mould components: seams, blow heads, guide rings.	~ 270 HV30 (~22 HRC) Grain size -106 µm. Low energy input for the fusion. Small to medium repairs.
Eutalloy LTPE 8426 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy	Brazing of tungsten carbides on stabilizers. Extensive repairs and preventive coatings on seams, edges and guides.	~26 HRC (~300 HV30) Grain size -106 µm. Low energy input for the fusion. Fast deposition.
Eutalloy LTPE 8431 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy with addition of Cr and Mo	Fast repairs and extensive preventive coatings on mould edges and guides.	~31 HRC Grain size -106 µm. Low energy input for the fusion. Good wetting properties and fast deposition.
Eutalloy LTPE 8435 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy with addition of Cr and Mo	Extensive repairs and preventive coatings on neck rings or blow head.	~35 HRC Grain size -106 µm. Low energy input for the fusion. Enhanced fluidity and fast deposition.
Eutalloy LTPE 8440 4.5 kg 12.5 kg	Self-fluxing, nickel base alloy with addition of Cr and Mo	Enhanced weldability at high hardness level on bottom plates, baffles and guide plates.	~40 HRC Grain size -106 µm. Low energy input for the fusion. Fast deposition with enhanced fluidity.



Powder Spray Fusing

Eutalloy® SF Process - One Step Spray & Fuse for high yield

Function

The Eutalloy® SF flame spraying process is designed to deposit a range of wear resistant powder coatings with high deposit efficiency. It uses the CastoDyn DS 8000 oxy-acetylene powder spray system equipped with an SF Lance to coat onto slowly moving or stationary even surfaces of massive steel parts in a one step spray & fuse operation.

The water cooled SF Lance robust design has been engineered to perform higher powder deposition spraying rates with simultaneous fusion capabilities. This creates wear resistant requisite coatings from 0.8 mm to 3 mm thickness with strong metallurgical diffusion bonds to the steel substrate.

Advantages

- High deposition yield.
- No dilution of the base material.
- Best purity and performance of the coating alloy.
- Homogeneous and pore free coatings.
- Smooth surface for low post machining .
- High bond strength.
- Good shock resistance.
- Thick coatings capabilities.



Applications

A range of self fluxing Eutalloy® SF powder alloys has been developed to meet the precise granulometry and morphology tolerances of the SF Lance system thus ensuring highest possible deposition rates combined with efficient yield, reliable deposit quality and ease of application.

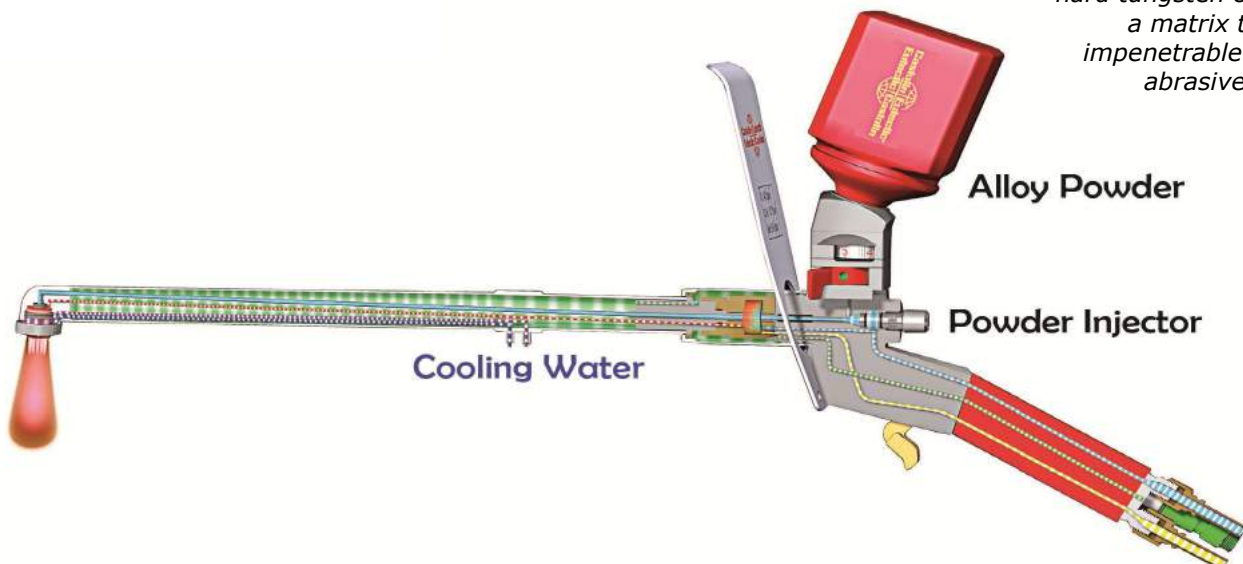
This comprehensive range of corrosion resistant nickel based Eutalloy® SF powder alloys is available to meet different hardness and machinability requirements when protecting industrial machine parts in service against wear by friction, abrasion, erosion, pressure etc.

Technical data

- Flame temperature: 3200 °C
- Particle velocity: not relevant
- Deposition rate: 2 to 10 kg/h
- Coating material: Self-fluxing
- Ni, Co or Fe base in powder form
- Coating thickness: 0.8 to 3 mm
- Coating density: 100%
- Noise level: 70 - 80 dB(A)



Coating with densely packed hard tungsten carbides in a matrix to form an impenetrable barrier to abrasive particles.



Powder Spray Fusing

Eutalloy® SF Equipment & Accessories

CastoDyn SF Lance

The CastoDyn SF Lance kit increases the already wide range of applications by allowing the CDS 8000 to perform spraying with simultaneous fusion.

Standard Spray Module	SSM 50	SSM 51	SSM 52 optional
Deposition rate	4-9 kg/h	2-4 kg/h	1-2 kg/h
Typical Yield	>90 %	>90 %	>90 %
Oxygen flow rate	2000 NI/h	1000 NI/h	500 NI/h
Acetylene flow rate-Flame	1900 NL/MN	950 NL/MN	475 NL/MN
Oxygen flow rate - Carrier gas	330 NL/MN	240 NL/MN	80 NL/MN
Flame power	~ 28 KW	~ 14 KW	~ 7 KW
Deposit thickness (one pass)	1-3 mm	0,8-2,5 mm	0,8-2 mm

Advantages

- Increased energy output for highest deposition rate.
- Advanced nozzle design delivers exceptional yield (>90%)
- Consumable : Eutalloy® SF powders



Schematic showing the assembly of SF Lance on CastoDyn DS 8000

Castolin Eutectic's modular CDS 8000 torch performs more flame spraying processes, with more alloy powder types than any other comparable system. Its robust, water-cooled design permits sustained high-intensity spraying, and is ideal for both automated and manual applications.

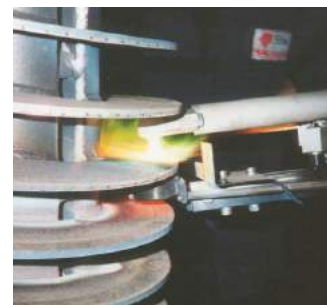


CastoDyn® SF Lance

The kit's two Standard Spray Modules (SSM 50 and SSM 51) offer different flame powers, so workplaces of any mass or thickness can be coated. Additional kits, options and configurations are available upon request. Please ask your local Representative.

Powder Spray Fusing

Eutalloy® SF Powders



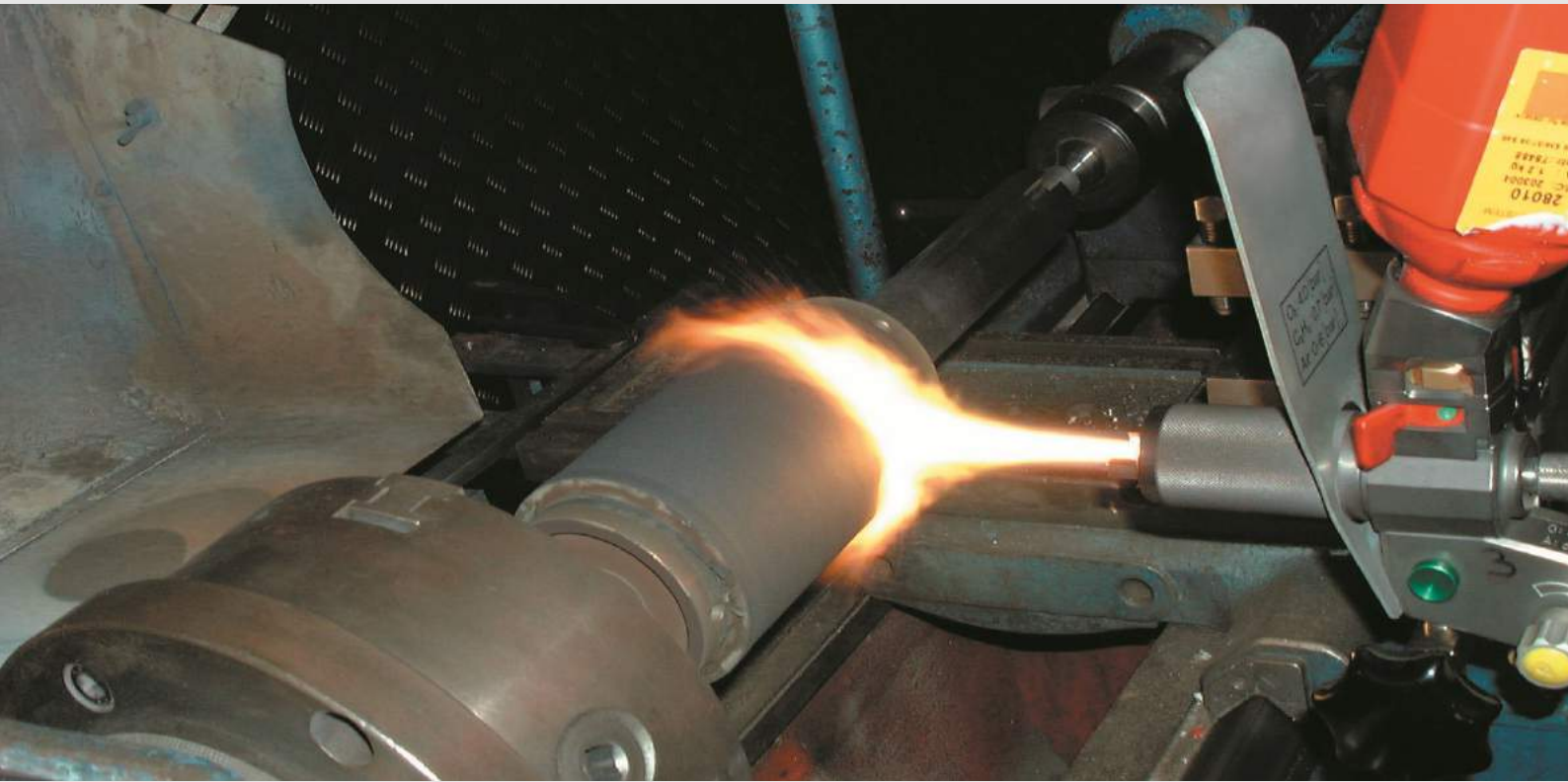
Product	Product Type	Applications / Features	Properties
Eutalloy SF 15211 4.5 kg	Ni-Cr-B-Si-Fe alloy and tungsten carbide	All round powder for anti-abrasion.	~60 HRC 60% tungsten carbides Excellent resistance to erosion and abrasion by fine to coarse sized abrasives
Eutalloy SF PE 8213 4.5 kg 12.5 kg	Ni-Cr-B-Si-Fe alloy and tungsten carbide	For thick coatings. Stabilizer in oil and gas drilling industry.	~55 HRC 55% tungsten carbides. Excellent crack resistance. Abrasion and corrosion resistance
Eutalloy SF PE 8215 4.5 kg	Ni-Cr-B-Si-Fe alloy and tungsten carbide	For smooth coatings and parts subject to severe abrasion such as agriculture parts, centrifugal screws.	~850 HV30 60% tungsten carbides. Excellent abrasion resistance even by fine particles.
Eutalloy SF PE 8217 12.5 kg	Ni-Cr-B-Si-Fe alloy and tungsten carbide	For parts needing a rough surface and subject to severe abrasion such as scraper blades, drill heads, scraper parts.	~62 HRC 70% tungsten carbides Best edge build-up capability. Abrasion and corrosion resistance.

Many more Eutalloy SF alloys are available, Please ask your local Representative.

Powder Cold Flame Spraying

RotoTec® Proxon® MetaCeram® Eutalloy® RW

Powder Cold or Hot Flame Spraying



Simplified overview

Coating families	Coating material	Base material	Heating of work-piece	Max coating thickness mm	Coating surface size	Coating structure	Coating micro-porosity	Bonding	Deposition rate	Deposition yield	Energy	Equipment investment
RotoTec	Powder. Metals & polymer	All metals	Low	3 (10)*	Medium to large	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Medium to high	Medium to high	Combustion gases	Low
ProXon	Powder. Metals	All metals	Low	2 (5)*	Medium to large	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Medium	Medium to high	Combustion gases	Low
Meta-Ceram	Powder. Ceramic	All metals	Low	0,4 (1)*	Medium	Lamellar	5 to 15%	Good. Mechanical & micro-diffusion	Low	Medium	Combustion gases	Low
Eutalloy RW	Powder. Self-fluxing alloys	Steels & cast iron	High	2 (6)*	Medium	Homogeneous	Negligible	Very good. Diffusion	Medium to high	Medium to high	Combustion gases	Low



Best Second choice

(...) * request special precaution or spray powder

Powder Cold Flame Spraying

RotoTec® Proxon® MetaCeram® Process Cold Spraying

Function

RotoTec®, ProXon® & MetaCeram® are «cold» processes whereby a new alloy or ceramic is reliably coated onto a cylindrical surface of a metal workpiece or part. The sprayed coatings are applied to the desired thickness at temperatures that do not overly stress, change the base metal properties or create distortion. These «cold» processes mean that the part should not exceed about 150°C during coating.

These thermal spray powders are categorized into the following processes:

- ProXon® process where the self-bonding powders are «cold» sprayed in «one-step».
- RotoTec® & MetaCeram® processes where the powders are sprayed in «two-steps». The first step is to «cold» spray a bond coat to ensure the bonding with the part. The second step is to «cold» spray a final coating with the required wear resistance properties.

Advantages

- Low heat input to the base metal minimizes distortion, warping and changes in the base metal.



- «Cold» is key to simplicity, efficiency, speed and reliability.
- Wide range of powders can be sprayed.
- Spraying equipment is inexpensive.
- Easy to handle.
- The low level of noise and fumes during spraying facilitates setting up a new low cost spraying facility.

In particular, parts suitable for coating consist of those which can be rotated and require repair due to wear on surfaces which are cylindrical in shape. This represents a wide range of applications, consisting of shafts, journals, rolls and bearings on areas such as bearing seats, press fits, seal and packing zones.

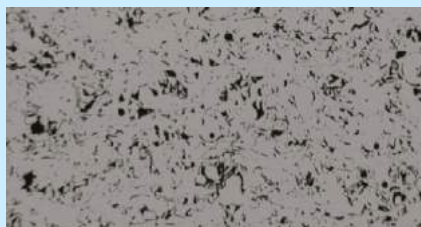
Technical data

- Flame temperature: 3200 °C
- Particle velocity: up to 50 m/s
- Deposition rate: 1 to 6 kg/h
- Coating material: Alloys and ceramics in powder form.
- Coating density: 85 - 95%
- Noise level: 70 - 80 dB(A)

Applications

«Cold» powder flame sprayed coatings have a very broad field of applications. Both metals and ceramics are sprayed for different application needs.

These «cold» thermal spray powders are applied with a flame powder spray system, such as the oxy-acetylene CastoDyn DS 8000. The powder is fed with help of injector effect or a carrier gas (nitrogen, argon or air) into a gas flame (often acetylene/oxygen). The flame heats the powder particles and propels the droplets towards the substrate forming a dense coating with good bonding properties. Due to the moderate transfer of heat to the powder particles and to the work piece, the base metal stays relatively cool.

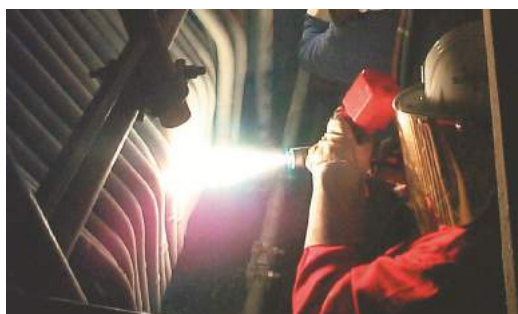


Microstructure of a «cold»
Sprayed coating



Powder Cold Flame Spraying

Proxon® MetaCeram® Powders



Product	Product Type	Applications / Features	Properties
RotoTec® 50000	Alloy Ni-Al-Mo	Bond coat for RotoTec® 19000 and MetaCeram 25000 and 28000 powder families, on all metals except Cu and Mg.	Fusion reaction during spraying creates strong bond with substrate.
RotoTec® 19850	Alloy Cu-Al	Compressor pistons, trunnions and pulleys.	Typ hardness HRb 65-75 Very good machinability by turning. Low coefficient of friction.
ProXon® 21021	Alloy Ni-Al-Mo	Bearing seatings, guides, slides, feathering sides. Press fit bearings.	Typ hardness HRb 75-80 Used without bonding layer. Max. service temperature 800 °C. Thick deposit capability (<3mm).
ProXon® 21022	Alloy Ni-Al-Mo-Cr B, Si	Pump and motor shafts, bearing fits, seal surfaces, general reclamation repairs.	Typ hardness HRb 80 Used without bonding layer. Max. service temperature 650 °C. Thick deposit capability (<3mm).
ProXon® 21023	Alloy Fe-Ni-Al	Bearing seatings, guides, slides, feathering sides.	Typ hardness HRb 90 Used without bonding layer. Max. service temperature 800 °C. Thick deposit capability (<3mm).
ProXon® 21031	Alloy Ni-Cr-Al-Fe-Mo	For components subject to wear and corrosion such as fan blades, shaft sleeves and roller bearing seats	Typ hardness HRb 90 Used without bonding layer. Thick deposit capability (<3mm).
ProXon® 21071	Alloy Cu-Al	Compressor pistons, trunnions and pulleys.	Typ hardness HRb 60-70 Used without bonding layer. Good machinability. Low coefficient of friction. Thick deposit capability (<4mm).

Low Temperature Powder Alloys

RotoTec® LT 29230 Zinc	Zn base	Sign panels, pylons, gantries, metallic structures, machine casing, port equipment, repair of accidental damage to galvanized structures.	Zn >99% - Low melting temperature. Sacrificial layers ensuring cathodic protection of ferrous supports against corrosive atmospheric phenomena.
RotoTec® LT 29240 Babbitt	Alloy Sn-Sb-Cu	Antifriction alloys. Resurfacing bearings. The best adhesion is obtained by preparatory tinning using CastoTin 1.	Excellent behaviour under friction. Low melting temperature.

Many more powder alloys are available upon request. Please ask your local Representative.

Powder Cold Flame Spraying

MetaCeram®

Ceramic and refractory powders for "Cold" two step spray process

Product	Product Type	Applications / Features	Properties
RotoTec® 50000	Alloy Ni-Al-Mo	Bond coat for RotoTec® 19000 and MetaCeram 25000 and 28000 powder families, on all metals except Cu and Mg.	Fusion reaction during spraying creates strong bond with substrate.
MetaCeram® 28010 25010	Cr2O3	On RotoTec 51000 bonding layer. Cable gland seatings, shaft protector sleeves, seam ring joint seatings, plungers, pump shafts, feed chutes. High hardness, excellent resistance to corrosion, low coefficient of friction.	Microhardness ~2400 HV10g Max. service temperature 500 °C Product density 5.2 kg/dm
MetaCeram® 28020 25020	Al2O3 TiO2(2.2%)	On RotoTec 51000 bonding layer. Seam ring joint seatings, cable gland seatings, shaft protector sleeves, electrical isolation of machine parts, press rings for making radial tyres, sifting plate. Good electrical insulation (dependent on deposit thickness). High hardness, excellent resistance to corrosion.	Microhardness ~1950 HV10g Max. service temperature 1000 °C Product density 4.0 kg/dm
MetaCeram® 28030 25030	Al2O3 TiO2(13%)	On RotoTec 51000 bonding layer. Printer cylinders, paper transport rollers, thread guide, wear and sliding plates, induction oven parts. Good resistance to corrosion and good friction properties.	Microhardness ~1600 HV10g Max. service temperature 1000 °C Product density 4.0 kg/dm
MetaCeram® 25040	TiO2	Titanium dioxide coatings offer the best finish capability and provide excellent resistance to mild cavitation. Do not use when resistance to abrasion is critical. Applications: pump sleeves, impellers, prop shafts, thread guides.	Typical hardness HRC 57 Max service Temp. 540°C
MetaCeram® 28095	Mo	Used without bonding layer. Sliders, bearings, spindle guide, cable gland seatings, pistons for high-pressure pumps. Good resistance to abrasion and excellent coefficient of friction. Non-magnetic deposit.	Microhardness ~900 HV10g Max. service temperature 400 °C Product density 10.2 kg/dm
MetaCeram® 25088	ZrO2 + 32% Al2O3, SiO2, TiO2	Eutectic 25088 is suitable for use as a thermal barrier coating, to resist wetting by molten metals or to resist hard particle abrasion. Applications: Heat treat fixtures, Pouring troughs, Ingot Moulds, Tuyeres.	Typical hardness HRC 55 Max service Temp. 980°C

Many more powder alloys are available upon request. Please ask your local Representative.

CastoDyn® DS8000 & SF Lance Auto Feed System



Optional set up for Automated powder feed.

- CastoDyn EP Controller
- Individual powder injectors to suit each product group.
- Fine Carrier Gas control
- Less operator fatigue
- Higher production rates

Powder Hot Flame Spraying

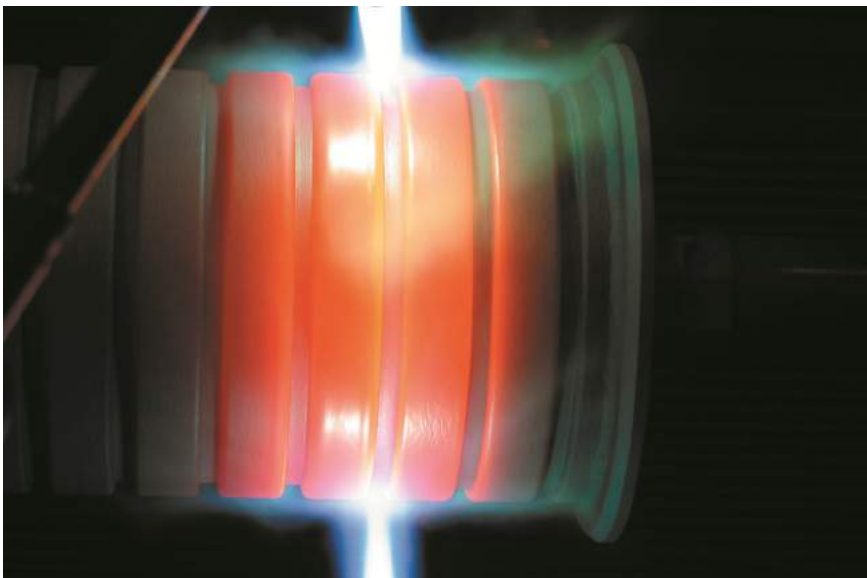
Function

Eutalloy® RW is a 2-step hot flame spraying process.

The first step is to «cold» spray a thin, regular layer of «RW» self-fluxing quality powder onto a pre-cleaned, preheated steel substrate using a oxy-acetylene powder spray system such as the CastoDyn DS® 8000.



The second step is then to heat the "RW" powder deposit "red hot" using a flame torch, such as the CastoFuse torch, until a reflective fused surface finish is visible locally. An induction system or an oven can also be used. Strong metallurgical diffusion bonding of the resultant wear resistant coating is thus achieved without melting or dilution with the substrate. The coating thickness may then be further increased by continuing to spray & fuse the powder simultaneously followed by controlled slow cooling to ambient temperatures.



Second step: red hot fusion using the CastoFuse® flame torch

Applications

The Eutalloy® RW process is designed to hot flame spray a range of wear resistant powder coatings onto fast rotating or stationary even surfaces. Final «RW» pure precision coatings are characterised by smooth surface finish requiring little or no post machining operations for optimum service performance.



Microstructure of a 2-step sprayed & fused coating

Advantages

- Smooth surface for low or no post machining.
- No dilution of the base material.
- Best purity and performance of the coating alloy.
- Homogeneous and pore free coatings.
- High bond strength.
- Good shock resistance.

Powder Hot Flame Spraying

Eutolloy® RW Powders



Product	Product Type	Applications / Features	Properties
Eutalloy® RW 12112 RW 13112	Ni-Cr-B-Si-Fe alloy and tungsten carbide	Recoating wear pieces of agricultural machines, mixer blades, ceramic press feeder plungers. Resurfacing pump wear sleeves, steel industry transport rollers.	~710 HV30 35% tungsten carbides. Excellent resistance to erosion and abrasion.
Eutalloy® RW 12494 RW 13494	Alloy Ni-Cr-B-Si-Fe	Coating incineration boiler tubes. Machine elements in food and chemistry industry. Machinable with cutting tool.	~310 HV30 Very good resistance to corrosion. Suitable for friction under light loads.
Eutalloy® RW 12495 RW 13495	Alloy Ni-Cr-B-Si-Fe	Coating of wear sleeves for pumps, glassworks feed plunger, valve parts: seats, flaps, etc.	~390 HV30 Suited for impact and friction. Machinable with cutting tool.
Eutalloy® RW 12496 RW 13496	Alloy Ni-Cr-B-Si-Fe	Coating cylinder rods, wear sleeves, pump pistons and faucet parts. Resurfacing coal dust separators, etc. Excellent resistance to corrosion and especially to seawater.	~680 HV30 Very low coefficient of friction and good abrasion resistance.
Eutalloy® RW 12497 RW 13497	Alloy Ni-Cr-B-Si-Fe-Mo-Cu	Coating protective couplings, cylinder rods, wear and seal sleeves, Pelton turbine, injection needle valves, etc. Coating stainless steel pieces.	~740 HV30 Excellent frictional and corrosion resistance. Excellent corrosion resistance.
Eutalloy® RW 12999 RW 13999	Ni-Cr-B-Si-Fe alloy and tungsten carbide	Coating fan blades, mixers, transport screws, tensioning pulleys, guides. Wear parts for agricultural equipment, etc.	~760 HV30 40% tungsten carbides. Excellent resistance to abrasion.
Eutalloy® RW 17535	Alloy Ni-Cr-B-Si	Coating paper mill and household waste boiler tubes. Resurfacing machine parts operating in corrosive environments. Excellent resistance to oxidation while hot. Good resistance to cracking. Machinable with cutting tool.	~480 HV30 High Cr alloy. Well suited for metal-to-metal friction.
Eutalloy® RW 53606	Alloy Ni-Cr-Mo-Si-B-Cu	Boiler tubes, shafts and sleeves in waste incineration, chemical, pulp and paper industries. Excellent wear and corrosion resistance to both reducing and oxidizing environments.	~600 HV30

CastoFuse® Kit



Kit with optional lances

Technical data

The advantage of local heating using the CastoFuse® torch is obvious compared with an oven. Local preheating and fusing prevents the dispersion of heat in the rest of the workpiece, to the surrounding area and into the oven walls. CastoFuse® offers the heat where needed. Furthermore, only a small investment is required.

Advantages

- Performance: nozzles designed specifically to fuse self-fluxing.
- powder coatings.
- Safety and ease-of-use: unique rapid shut-off lever.
- Full line: assortment of lances to ensure optimum flame power.