

Unitherm[®] Kit

Oxyacetylene Fusion Torch & Powders

Fusion powder spray torch system for joining and surfacing steels, stainless steels, nickel alloys, cast Irons, brass and bronze.

Features

- The Unitherm torch connects to standard Oxyacetylene equipment.
- Powders are available for every job, from joining to hardfacing.
- Easy To Use
- Good for applying thin, delicate deposits or building up thick sections.
- Deposits are smooth, so subsequent machining is generally not required.

Characteristics

With the **Unitherm** process, metal powder is fed into an oxyacetylene flame and fused to a heated metal surface. Particles are shielded from oxidation by the gas envelope as they proceed from the torch to the work piece and this protection continues until the deposits solidify. Anyone familiar with gas welding can quickly master this process. The **Unitherm** torch can apply many types of metal coatings safely and effectively.

Application

The **Unitherm** is used to build up or join most every metal where thin or thick sections are required. Cracked castings are easily joined or sealed, hardfacing can be applied in thin deposits are needed. Sweeps, chisel plows or augurs are common applications. The Unitherm can be used to repair glass molds or resurface parts subjected to high heat. Deposits help resist the detrimental effects of abrasion, impact, corrosion, friction and heat.



Unitherm Torch Kit

The Unitherm Kit includes everything you to start spraying.

Part #	Description	Contents
9810	Standard Kit (no powders)	Unitherm Torch , 8" blowpipe, #8 tip, and empty 1lb powder module.
9820	Standard Kit Plus Powders	Items listed above plus 1lb each of Olympia P , Polaris P , Apollo P and Jupiter P powders.

Olympia® P

Powder – Gas

For fusion spray applications on steels, stainless, cast iron and nickel alloys.
For thin hard overlays.

Features

- Tungsten Carbide Particles
- Nickel Base
- No Softening After High Temperature
- Smooth Deposits
- Good Corrosion Resistance
- Hardness 58 – 65 RC
- Excellent Wetting Action
- Good Edge Retention

Characteristics

Olympia P is the most effective powder for combating wear caused by abrasion such as cement, sand and gravel. This product gains its superior wear resistance from pure tungsten carbide particles held firmly in place in a nickel base matrix.

Applications

Uses for **Olympia P** include the following:

- Muller Plows
- Pug Mill Knives
- Pulverizing Plows
- Augers
- Sand Mixers
- Screw Conveyors
- Cutting Bits
- Drill Bits
- Drill Collars
- Harrows
- Fly Ash Chutes
- Mill Plows
- Coal Feeder Screws
- Clam Shell Lips
- Cane Knives

Technical

For thin overlays preheat area to a blue color and pre-spray alloy evenly with torch, 2" from work. Follow with torch only and reheat area, watching to see metal "wet out". Additional material is sprayed on in the conventional manner, make certain previous thin pass is liquified.

Use copper or carbon strips to mask areas not to be coated. Avoid excessive heating. Adjust flame to neutral with powder feed level depressed.

Can be used with any compatible hot spray torch.

Venus® P

Powder – Gas

For fusion spray applications on copper and all copper alloys.
To join, clad and steel.

Features

- Tensile Strength 43,000psi
- Hardness 57 Rb
- Good Corrosion Resistance
- Excellent Machinability
- Low Friction Surface
- Good Electrical Conductivity
- Highly Ductile

Characteristics

Venus P is a copper based alloy developed for flame spray applications on copper, brass and bronze. This material is easy to apply in thin or heavy layers and the resultant deposits are easily machined. **Venus P** is not recommended for use on ferrous metals.

Applications

Uses for **Venus P** include the following:

- Molds
- Impellers
- Brushings
- Journals
- Pumps
- Heating & Refrigeration Equipment: Condensers, Compressors & Coils and Filters
- Electrical Equipment: Bus Bars, Breakers and Contacts

Technical

For thin overlays preheat area to a blue color and pre-spray alloy evenly. Follow with torch only and “wet out” previous deposit. Additional powder may be applied in conventional manner. Flame should be adjusted to neutral with powder feed lever depressed. Avoid excessive heating. Use copper or carbon strips to mask area not to be overlaid.

Use copper or carbon strips to mask areas not to be coated. Avoid excessive heating. Adjust flame to neutral with powder feed level depressed.

Can be used with any compatible hot spray torch.

Jupiter® P

Powder – Gas

For fusion spray applications on steels, nickel alloys, stainless, and cast iron.
For joining, cladding and sealing.

Features

- For Thin Or Thick Overlays
- Excellent Machinability
- Impact Resistance
- Hardness 10 – 15 RC
- Nickel Base
- Excellent Hard Face Cushion
- Excellent Weldability

Characteristics

Jupiter P has a wide range of applications. Deposits may be applied with precision as thin as 0.004". Deposits are easy to machine.

Applications

Uses for **Jupiter P** include the following:

- Sealing cracks on cast-iron housings
- Build-up worn areas of all types
- Brushings
- Journals
- Pumps
- Water Jackets

Technical

For thin overlays preheat area to a blue color and pre-spray alloy evenly. Follow with torch only and "wet out" previous deposit. Additional powder may be applied in conventional manner.

Flame should be adjusted to neutral with powder feed lever depressed. Avoid excessive heating.

For best machinability on cast iron, remove all small projects that may melt from flame heat.

Can be used with any compatible hot spray torch.

Polaris® P

Spray Powder – Gas

For fusion spray applications on steels, stainless, cast iron and nickel alloys.
For thin overlays or buildup.

Features

- For Thin Or Thick Overlays
- Hardness 35 – 42 RC
- Superior Toughness
- Machine With Carbide Tools
- Corrosion Resistant
- Nickel Base
- Moderate Impact Resistance
- Abrasion Resistant

Characteristics

Polaris P has been developed to provide good abrasive wear resistance along with impact resistance. Deposits may be applied thin, or they may be built up to replace metal in areas of heavy wear.

Deposits of **Polaris P** are also resistant to heat scaling and corrosion due to steam, sea water and a variety of chemical compounds.

Technical

For thin overlays preheat area to a blue color and pre-spray alloy evenly. Follow with torch only and “wet out” previous deposit. Additional powder may be applied in conventional manner. Flame should be adjusted to neutral with powder feed lever depressed. Avoid excessive heating. Use copper or carbon strips to mask area not to be overlaid.

Use copper or carbon strips to mask areas not to be coated. Avoid excessive heating. Adjust flame to neutral with powder feed level depressed.

Applications

Polaris P applications would include:

- Tools
- Dies
- Molds
- Pump Parts
- Shafts
- Bearing Surfaces

Can be used with any compatible hot spray torch.

Apollo® P

Powder – Gas

For steels, nickel alloys, stainless steels and cast iron. For thin, hard overlays.

Features

- Abrasion Resistance
- Low Friction Surface
- Hardness 58 – 65 RC
- Heat Resistant
- Corrosion Resistance
- Machine By Grinding

Characteristics

Apollo P provides the utmost in abrasion wear resistance. After high temperature exposure, the deposit regains full hardness. Deposits are exceptionally smooth and non-porous. **Apollo P** is non-magnetic and will not spark.

When wear resistance is most critical the deposits of **Apollo P** will significantly increase the service life of a wide variety of equipment.

Applications

Apollo P applications include:

- Molds
- Dies
- Guides
- Augers
- Blades
- Nozzles
- Patterns
- Mixers
- Chutes
- Wear-Pads
- Cams
- Screws
- Plungers

Technical

For thin overlays preheat area to a blue color and pre-spray alloy evenly. Follow with torch only and “wet out” previous deposit.

Additional powder may be applied in conventional manner, not to exceed 1/4” thickness. Flame should be adjusted to neutral with powder feed lever depressed. Avoid excessive heating.

Can be used with any compatible hot spray torch.