

Electric Arc Spray



Commonly referred to as twin wire arc or metallizing, electric arc thermal spray is one of the most productive and economical thermal spray processes. The coating material, in wire form, is deposited on targeted substrates in molten form, creating extremely strong bonds. These coatings can serve as protective, decorative, or functional purposes, and are known for longevity, durability, and versatility. Thermach's Electric Arc systems are designed to lower operator fatigue, are capable of robot integration, and significantly reduce maintenance costs.

MADE
IN THE **USA**

Manufacturer of Equipment & Parts
for the Thermal Spray Industry.

AT-400 Twin-Wire Electric Arc Spray System

The AT-400 high performance arc spray system combines the benefits of a “push” method wire feeder with the power of a 400-amp arc spray system.

Consisting of a robust wire drive unit, reliable power supply, and light weight torch, the AT-400 electric arc spray system was designed to control costs and operator fatigue. With the feedstock and drive system located on the control console instead of the torch, your operator will experience less fatigue, as well as save you cost, and maintenance time compared to that of a conventional pull or push/pull system.

In addition to our hand-held torches being light, they also utilize our patented QuickChange Wire Guides. Unlike conventional wire guides that are screwed into the torch head, our guides slip into the torch head, allowing operators to not only change guides out in seconds, but also allows them to rotate them 180°. These benefits alone, save time and costs.



1 FEEDSTOCK

Any electrically conductive material in wire form may be sprayed with the electric arc spray process. Wire can be fed from spools, reels, or drums.

Wires are generally categorized by the base metal that makes up the wire, which is either aluminum, cobalt, copper, iron, molybdenum, nickel, tin, or zinc.

2 WIRE FEEDER/CONTROL CONSOLE

Rugged QuickChange, four-drive roll per wire feed mechanism features U-groove or VK-groove drive rolls for slip-free wire feeding.

Metered bypass air is directed to the drive housings and routed into the coaxial cables. This air is used to blow debris and dust off the consumable feedstock prior to it entering the coaxial cables.

Faceplate controls consist of E-stop, Power Reset, Wire Jog, Maintain Air and Purge Air switches. Power supply controls include Voltage and Amperage adjustments with Digital LED displays.

All electronics are housed in a NEMA 12 rated enclosure.

Remote Control Capability.

3 POWER SUPPLY

Reliable, three phase, Inverter, constant potential DC power source. Provides arc voltages between 18-40 volts, permits operation between 100-400 amps at 100% duty cycle (wire dependent). An optional cap bank is available for spraying zinc wire down to 50 amps. Voltage should be kept at the lowest level consistent with arc stability, to provide smooth and dense coatings.

All functions are controlled by the AT-400 Wire Feeder.

Can be separated from wire feeder, up to 50 feet, when outfitted with custom power and control cables.

Fan On Demand feature operates cooling fan only when needed, minimizing dirt, dust and moisture buildup within the power supply, thereby minimizing maintenance.

4 TORCH

Consumable wire electrodes are fed through the internal wire guides and into the patented Quick Change Wire Guides. Compressed air blasts through the torch into the arc, atomizing the molten wire. The molten metal is then directed through an Air Cap that can be interchanged for any application.

Insulated coax cables connect the AT-400 Torch to the AT-400 Wire Feeder. These cables carry the required power to the torch head and also provide an internal pathway for the consumable wire to reach the wire guides of the AT-400 Torch.

The torch handle is supplied with an On/Off trigger switch and a selector switch providing the option for only compressed air.

The AT-400 Torch is supplied with several hard points for mounting to robots, manipulators, and fixtures.

COMMON EAS WIRE SIZES

SIZE	INCHES	mm
15 AWG	0.057	1.4
14 AWG	0.062 (1/16")	1.6
12 AWG	0.079	2.0
11 AWG	0.090	2.3
08 AWG	0.125 (1/8")	3.2



5 SIDE PANEL CONTROLS



WIRE COUNTER

Re-settable LCD meter that displays wire fed in feet/meters during spray operation.

TIME COUNTER

Re-settable LCD meter displays elapsed spray times. Timer is activated automatically whenever spray unit is operating.

REMOTE/LOCAL VOLTAGE CONTROL SWITCH

Allows for remote control of arc voltage when incorporating AT-400 to automation. Disables voltage panel control on faceplate.

REMOTE/LOCAL AMP CONTROL SWITCH

Allows for remote control of arc amperage when incorporating AT-400 to automation. Disables amperage panel control on faceplate.

PREFLOW ADJUST

Operator adjustment that lengthens or shortens time that air flow is started prior to arc start. Optimizes arc start for different wire feedstocks.

BURNBACK ADJUST

Operator adjustment that lengthens or shortens time that arc power and atomizing air are left on after trigger is released. Optimizes arc shut off which increases wire guide life.

DISPLAY/HOLD ADJUST

Holds last voltage and amperage values display from 0-10 seconds after spray operation is complete.

AT-400 BENEFITS

Our lightweight torch is only 2.3 pounds and has no moving parts. This reduces operator fatigue because of the lighter gun!

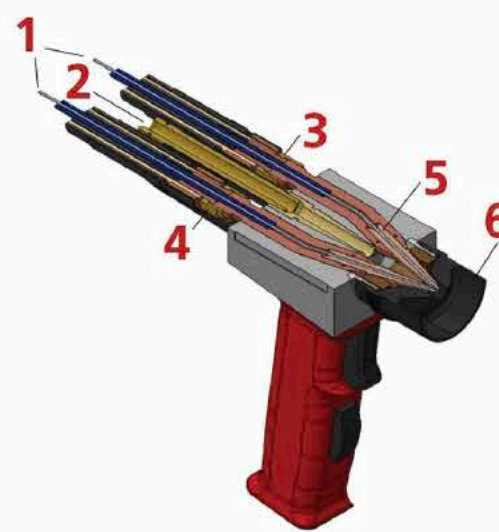
Only Thermach gives you QuickChange Wire Guides - patent pending!



This is a modular system designed to fit any workspace. Units can be separated up to 50 feet!

Our complete system weighs only 300 pounds!

TORCH NOMENCLATURE



- 1 | Wire
- 2 | Compressed Air
- 3 | Negative Voltage
- 4 | Positive Voltage
- 5 | Wire Guides
- 6 | Air Cap

Easy online quote requests at www.thermach.com.
Call (920) 779-4299. Email sales@thermach.com.

WHAT'S A THERMAL SPRAY COATING?

The term "thermal spray" is used to describe a group of coating processes that are used to apply metallic or non-metallic coatings. These processes can be broken up into four major categories: plasma, electric-arc, flame, and cold spray. While differing in methodology, all methods heat the coating material (in powder, wire, or rod form) to a molten or plasticized state and propel those droplets towards a prepared substrate to form a coating.

Thermal spray coatings are economical and versatile and are used to provide functional surfaces to protect or improve prepared substrates or components. With abilities to spray virtually any material that melts without decomposing, thermal spray offers vast possibilities when it comes to what it can coat.

Thermach offers several product systems for your thermal spray operation: Plasma, Electric Arc System (Twin Wire Arc), HVOF (High Velocity Oxygen Fuel), Powder Delivery and Custom Systems made specifically for your application.

BENEFITS OF THERMAL SPRAYING

Simple to use, with highly reliable surface results, Electric Arc Spraying creates some of the fastest coating rates of any coating method.

Whether your project calls for a smooth, rough, thin, or thick coating, Electric Arc Spray can provide the results you are looking for.

Benefits of Electric Arc Spray include:

- Cost Savings
- High Bond Strengths
- Faster & More Productive
- Applied at Lower Temperatures
- High Deposition Rates
- No Combustible Gases
- Easy to Operate & Automate
- Can Spray Pure Metals or Alloys
- No Cure Times
- Can Achieve Different Coating Textures
- Can Be Hand Sprayed
- Easy to Change Over Between Materials
- Not Subject to Degradation
- Low Residual Coating Stress

Equipment that lasts.
Precision parts
that work.

Made in the USA for
extreme conditions
everywhere.

Solutions that
allow your
coatings to excel.

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