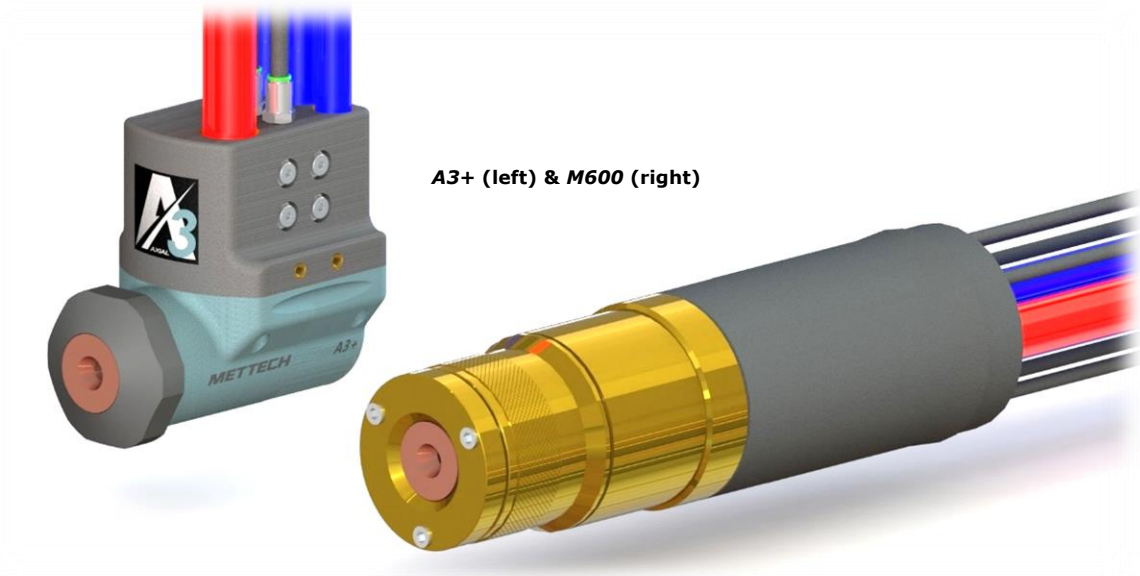




## Axial III Plus Plasma Spray Torch

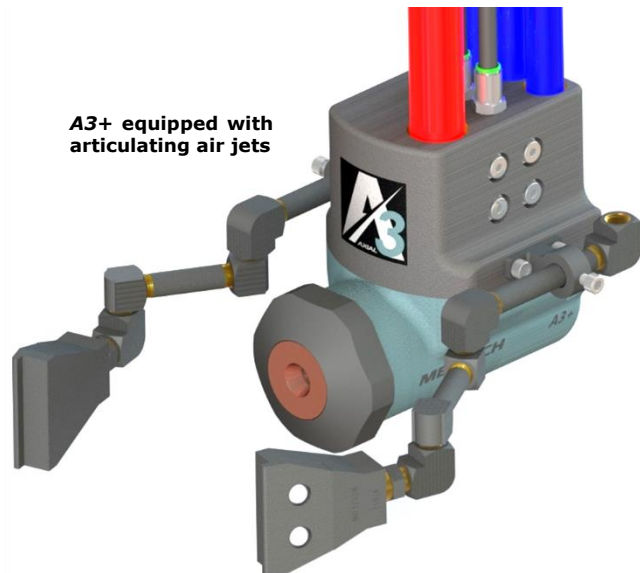
The **Axial III Plus** is a smaller, lighter, and more ergonomic version of the original *Axial III M600* torch that produces the same high-quality coatings at high feed rates and deposition efficiency.



A3+ (left) & M600 (right)

### Key Innovations

- Maintains *Axial III M600* plasma geometry, coatings, and parameters.
- 90° cable configuration to reduce overall length and allow easy access to fasteners for assembly and disassembly.
- Optimized part features and dimensions to reduce overall mass.
- Larger gas jet lines to reduce back pressure.
- Integrated features to reduce the total number of parts.
- Multi-start threaded nozzle cap and threaded cathodes for quick and easy fastening.
- Pre-aligned suspension injector assembly to eliminate the need for manual alignment.
- Modified anode retainer design and tolerances for better electrode alignment.
- Refined electrical cable contacts for easier assembly and disassembly, greater longevity, and more secure electrical connection.
- High-velocity and high-force articulating air jets for more effective substrate cooling and blow-off.



A3+ equipped with articulating air jets

## Quantitative Improvements

Feature	M600	A3+	Improvement
Length – torch & contact block	23.6 in (59.9 cm)	6.1 in (15.5 cm)	74% reduction
Mass – torch & contact block w/o cables	15.75 lbs (7.14 kg)	6.70 lbs (3.04 kg)	57% reduction
Average Assembly/Disassembly Time	5min:21sec	2min:28sec	54% reduction
Number of Parts	84	61	27% reduction
Gas Jet Back Pressure @ 250 slm	27 psi (1.86 bar)	20 psi (1.38 bar)	26% reduction

## A3+ Specifications

<b>Plasma jets</b>	3 converging
<b>Plasma chemistry</b>	Ar, N <sub>2</sub> , H <sub>2</sub> (He)
<b>Plasma flow</b>	100 – 300 slm
<b>Power range</b>	30 – 150 kW
<b>Arc current</b>	100 – 250 amps/jet
<b>Feedstock injection</b>	axial with plasma flow
<b>Spray distance</b>	2 – 10 in (50 – 250 mm)
<b>Mass</b>	6.7 lbs (3.04 kg)
<b>Length</b>	6.1 in (15.5 cm)

## About Mettech

Northwest Mettech Corp. is a manufacturer of innovative plasma spray equipment featuring axial injection. Since 1990, Mettech and our worldwide network of distributors and partners have provided solutions to demanding coating requirements.

Key offerings of our product line include:

- *Axial III M600* and *Axial III Plus* plasma spray torches with the associated control system and power supplies.
- Suspension Plasma Spray (SPS) equipment to produce nano-structured coatings.
- Service, support, and contract coating development.

## Industrial Applications

- Aerospace & Industrial Gas Turbines:
  - Thermal barrier coatings for turbine blades, vanes, combustion liners, and ducts.
  - Ceramic abradable coatings for turbine shrouds.
  - Metallic abradable coatings for compressor housings.
- Pulp & Paper:
  - Wear and corrosion-resistant coatings for rolls, doctor blades, and other parts.
- Semi-conductor manufacture:
  - Plasma etch-resistant coatings for etching chambers.
  - Dielectric coatings for electrostatic chucks.
- Solid Oxide Fuel Cells:
  - Electrolyte layer, anode, and cathode.
- Automotive:
  - Wear-resistant coatings for shifter forks, etc.
- Medical:
  - Biocompatibility coatings for implants.
  - Anti-viral coatings.

## Contact Information

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