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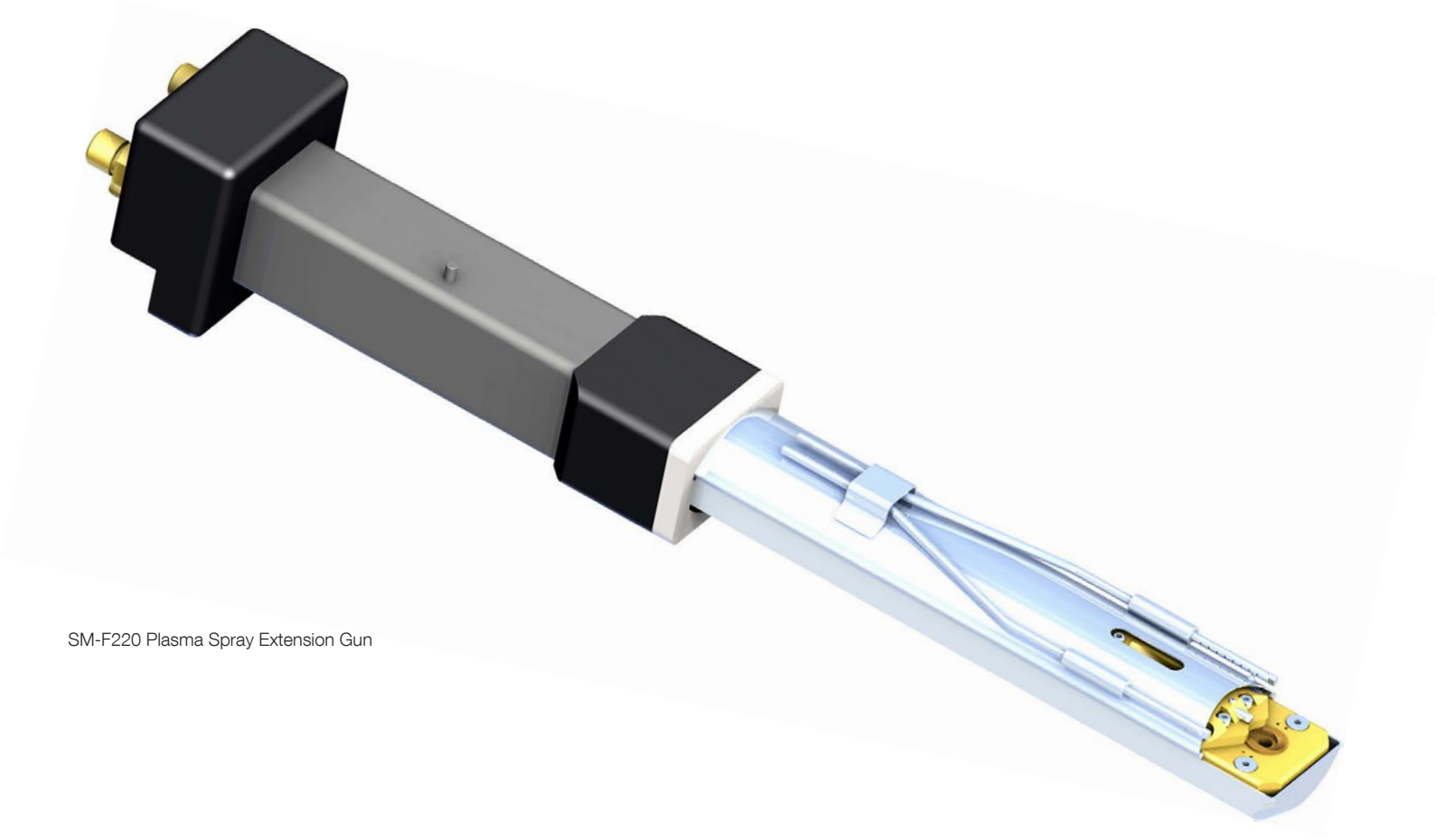
Product Data Sheet
SM-F220 Internal Plasma Spray Gun

The Oerlikon Metco SM-F220 internal plasma spray gun is engineered for reliable and universal performance for atmospheric plasma spray of internal bores. It has been designed to efficiently produce high quality plasma spray coatings for a variety of applications and can be configured for specific spray requirements.

The SM-F220 plasma spray gun is ideal for use on complex geometries and internal bore applications such as aerospace and land base gas turbine transition ducts, compressor casings and combustion liners. It effectively sprays most plasma thermal spray powders using pure argon or argon / hydrogen plasma process gases.

As a long-standing benchmark of the industry, Oerlikon Metco plasma extension guns are highly regarded for their dependable performance. OEMs have specified this gun for coating specifications having complex geometries or internal bores. Robustly designed, the SM-F220 is an excellent choice for mass production operations.

The SM-F220 can coat internal bores as small as 85 mm (3.3 in) and 250 mm (9.8 in) in length while maintaining optimal coating results.



SM-F220 Plasma Spray Extension Gun

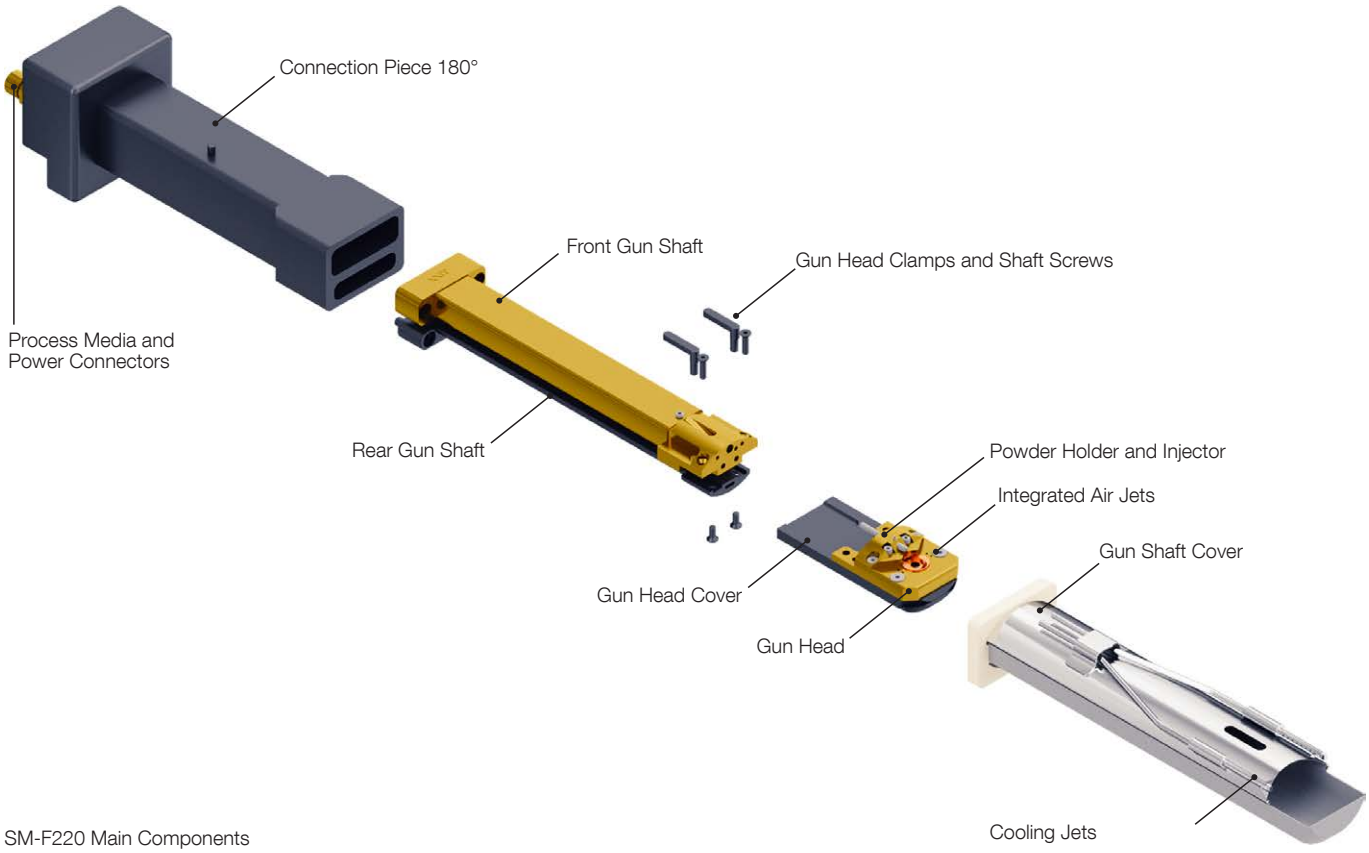
1 General Description

The SM-F220 is designed for machine mount operation and can easily be used with a robot or Oerlikon Metco's Rota-plasma HS1 gun manipulator when part geometry or weight makes it inconvenient to rotate the part during spraying.

The process media and power connections to the gun are configured at 180° relative to the gun shaft, and the gun has a spray angle of 90° with external powder ports.

A clamshell cover for the gun shaft and a unique gun shaft cooling air system help protect the SM-F220 gun shaft from heat and prevents the build up of powder over spray. A protective cover on the underside of the gun head provides heat and electrical insulation.

Cooling air jets integrated into the SM-F220 gun head help cool the workpiece and clean off over spray dust.



SM-F220 Main Components

2 Features and Benefits

- Robust design for high production operation.
- Long spray cycles: ideally suited for mass production environments where reliable, continuous spray operations are critical.
- Sprays internal bores as small as 85 mm (3.3 in) in diameter or width, and up to 250 mm (9.8 in) deep.
- Spray nozzle just 22 mm (0.87 in) from end of gun allows complete coating of many closed-end bores by slightly angling the gun relative to the coating surface.
- Modular design, including gun head, can be completely disassembled for replacement of parts when required, using included tool kit.
- Revolutionary vented air jet: built into the gun head nozzle plate eliminates the need for external cooling jets.
- Cooling jets integrated into the shaft assembly help keep the gun free of over spray and protect the gun from heat.
- Choice of powder injectors for different types of powders and spray rates.
- Ideal water cooling: extends the life of the nozzle and electrode in mass production applications, reducing downtime and maintenance costs.
- Low operating costs: resulting from excellent deposition efficiency and powder throughput capability.

3 Accessories and Options

Oerlikon Metco carries a complete portfolio of wear and spare parts for the SM-F220 spray gun. For a complete list, please refer to the parts list section of the reference manual. In addition, hoses and cables are available in a variety of standard and custom lengths.

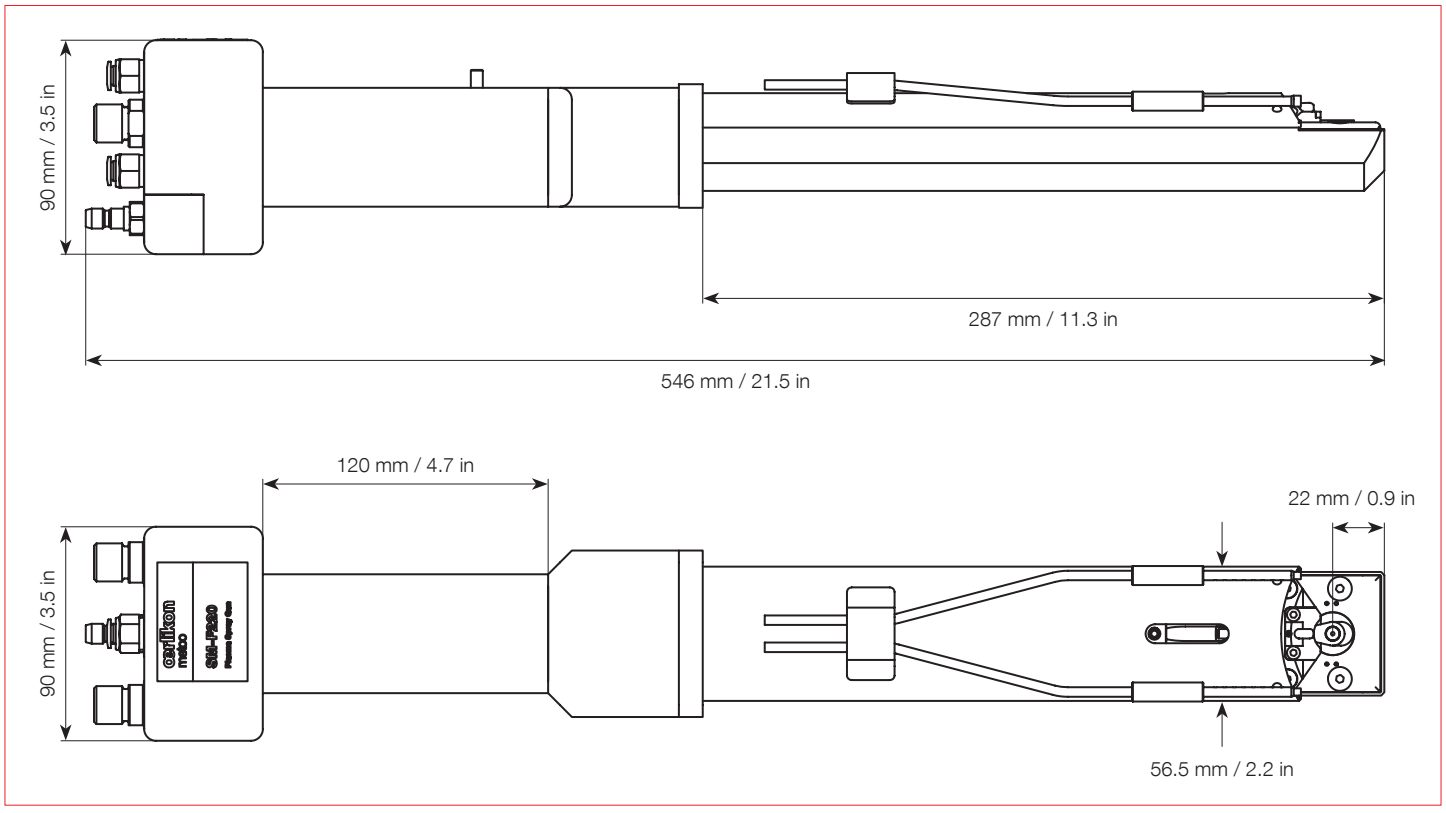
Complete Gun Head Module: Rapidly change out the gun head for subsequent maintenance and rebuild, allowing spray production to quickly resume. Recommended for high volume and mass production operations. Item no. 1058711.

Powder Holder and Injector Assemblies: A variety of injector assemblies are available for different spray application requirements.

Description	Use	Item No.
2.0 mm Ø	Coarse powders	1091821 (standard)
1.5 mm Ø	Fine powders	1051289
3 x 1 mm rectangular	High spray rate	1051678

4 Technical Data

4.1 Dimensions



4.2 Specifications

Electrical		
Power Rating (100 % duty cycle)	16 kW	
Current	≤ 400 A	
Weight		
Without hoses and cables	4.5 kg	10 lb
Geometric Constraints		
Minimum bore diameter	85 mm	3.3 in
Maximum bore depth	250 mm	9.8 in
Cooling Water		
Inlet temperature	18° C	65 °F
Inlet pressure	13.5 bar	196 psi
Flow	9 to 12 l/min	2.4 to 3.1 gal/min
Quality		
Total hardness	≤ 10 ppm	
Conductivity	< 5 µS/cm	
Dissolved oxygen	≤ 10 ppm	
pH	6.6 to 7.4	
Plasma Gas		
Argon		
Purity	99.95 %	
Flow	20 to 90 NLPM	46 to 205 SCFH
Hydrogen		
Purity	99.995 %	
Flow	≤ 6 NLPM	13.7 SCFH
Plasma Controller		
Compatibility	MultiCoat™; UniCoatPro Plasma™	
Powder Feeder		
Compatibility	All Oerlikon Metco powder feeders	

Information is subject to change without prior notice.

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