

Product Data Sheet

Metco 9MBM / 9MBH Plasma Spray Gun

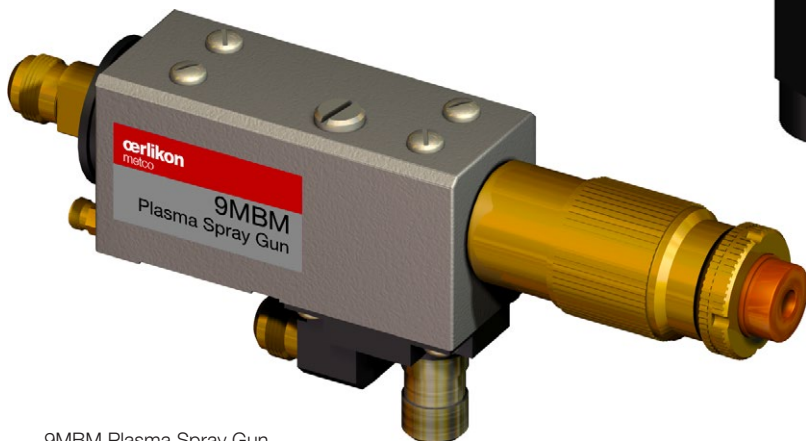
Engineered for reliable, top-of-the-line performance, Metco™ 9MB series plasma guns master the possibilities of the plasma spray process to produce high quality coatings that exceed market demands and specifications.

Designed and constructed with high performance hardware, the 9MB series plasma guns provide high kW range capability and offers extended component service life. The guns have been carefully engineered to achieve optimum heat transfer through uniform distribution of the cooling water within the nozzle. Extending the life of critical plasma gun components translates into decreased downtime, increased productivity, reduced maintenance and lower operating costs.

Metco's 9MB series plasma guns are designed and engineered with safety as an important element. Through extensive research and development, coupled with many years of experience, Oerlikon Metco has forged a system of reliable, safe plasma spray equipment, processes and procedures. When safety recommendations and specifications are followed, Oerlikon Metco's equipment can be utilized with complete confidence.



9MBH Plasma Spray Gun



9MBM Plasma Spray Gun

1 General Description

The 9MB hardware was designed by Oerlikon Metco for versatile, safe and easy operation. When changing from one spray material or plasma gas to another, the switch-over is fast – nozzles and electrodes are plug-in/pullout assemblies.

Water-cooled cables are attached to the bottom of the manual handheld gun to improve balance and prevent interference in close-up spraying applications. Watercooled power cables for the gun have right- and left- hand thread design, making it impossible to crossconnect them. Heavy plastic insulators are provided to protect the operator from electrical shock.

Metco's 9MB series plasma guns are available in two packaged variations:

- 9MBH Handheld Plasma Gun (Not CE conformant)
- 9MBM Machine-Mounted Plasma Gun—for automatic spraying; well-suited for integrated systems.

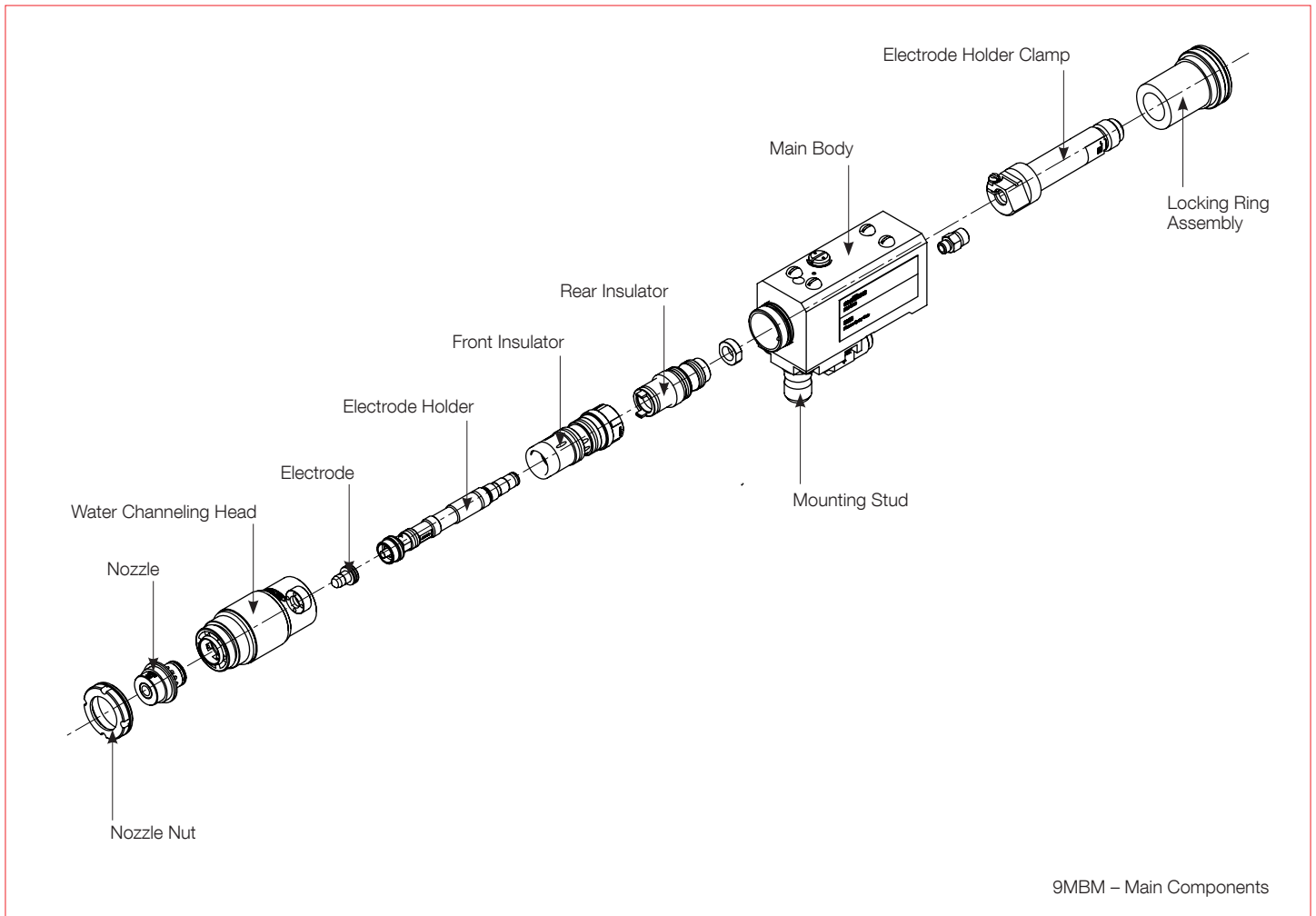
The handheld gun includes a switch for start and stop operation of the powder feeder unit. As a key safety feature,

the handheld gun also includes an emergency stop switch, that allows the operator to quickly shut down the plasma system from the remote spraying position.

With the exception of the handheld gun switches, used for powder feeder and emergency stop, the automatic plasma control unit performs all operations. It ignites and shuts down the 9MB gun, monitors and controls the arc current, the gun cooling water, and the plasma gas flow, according to pre-set parameters.

The 9MB was designed to operate efficiently with power levels up to 80 kW, (80 V @ 1000 A) in continuous operation mode (100 % duty cycle). When operating with the Metco 9MC plasma control unit, gun voltage is measured directly at the 9MB gun for improved parameter accuracy.

The 9MB series plasma gun is capable of operating efficiently with a single primary gas of pure argon or nitrogen and with multi-gas parameters of argon, nitrogen, hydrogen and helium.



2 Features and Benefits

- High power capability: optimum performance at levels up to 80 kW
- High heat output capabilities: plasma gas temperatures up to 16,000 °C (28,880 °F)
- High plasma gas velocity: in excess of 3,050 m/s (10,000 ft/s).
- Dual Gas Capability: operates with either argon or nitrogen as the primary plasma gas.
- High Particle velocities: up to 610 m/s (2,000 ft/s)
- Nozzles designed with Thin Annular Passage Cooling (TAP): precisely direct the cooling water for optimum heat transfer and even distribution within the hardware.
- The design of the electrode allows for impinged water cooling to be directed into the critical tungsten tip area, resulting in improved electrode life.
- Long life gas insulators: fabricated from heatresistant ceramics, ensure durability and uniform gas flow at high power levels.
- Modular construction: permits the use of high performance hardware with both handheld and machine mount gun variations.
- Adaptable with extensions: allows for internal diameter spraying (e.g., cylinder walls), or for spray applications in hard-to-reach areas.
- Improved hardware accessibility: allows easy replacement and changeover of nozzles, electrodes and gas insulator assemblies.
- High power levels: extended nozzle and electrode life.
- Higher spray rates: shortens production time.
- Advanced technology: broadens range of capabilities.
- Ease of operation, maintenance, and installation: ideally suited for general purpose and advanced coating applications
- Operates with: SCR-controlled power supply units
- Historically proven nozzle design: offers economical replacement cost.
- Fully operational with nitrogen as the primary fuel gas: economical operating parameters with high heat energy output.

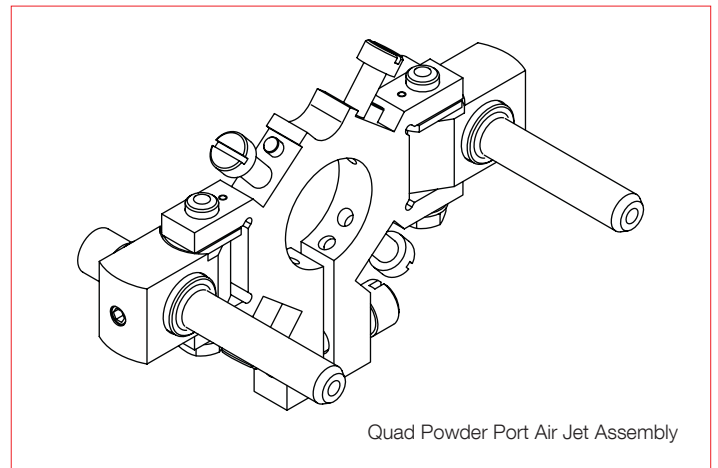
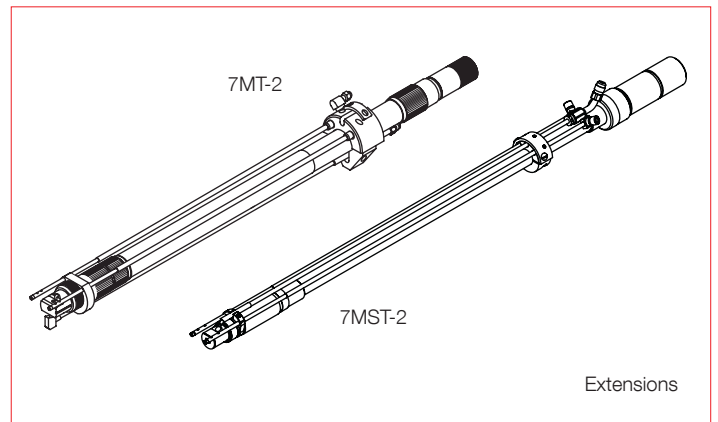
3 Accessories and Options

- A wide range of accessories and optional parts are available for the 9MB series plasma spray guns:
- Gun Extension Modules

Type	Length	Minimum Bore Diameter
7MT-2	610 mm (24 in)	75 mm (3 in)
7MST-2	610 mm (24 in)	51 mm (2 in)

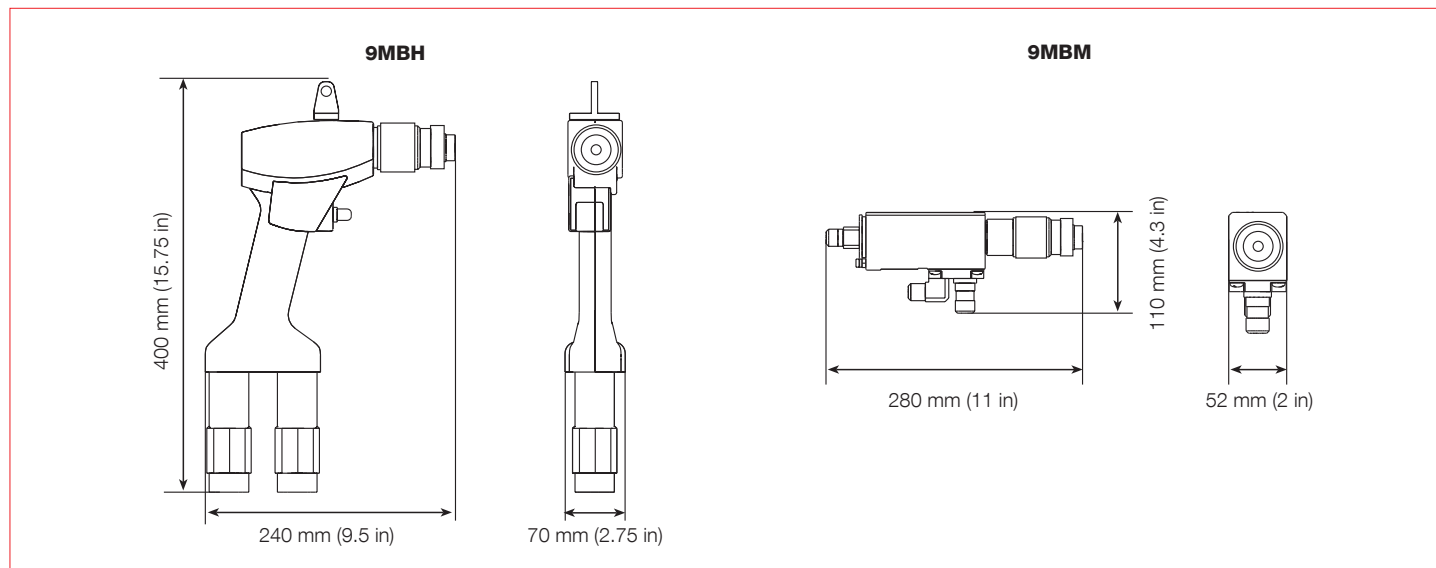
- Workpiece Cooling
- Quad powder port air jet assembly – holds up to four powder ports and provides air jet cooling to workpiece.
- Machine Mounts for extensions
- Right-angle Cable Connections
- Hoses and Cables
- Mounting Stud
- Tool Post
- Gun Hook/Suspension
- Cable Support

For a complete list of optional parts and spare parts please refer to the parts lists section of the reference manual.



4 Technical Data

4.1 Dimensions



4.2 Specifications

Power rating

Maximum	80 kW
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Weight

9MBM	3.6 kg	7.9 lb
9MBH	3 kg	6.6 lb

Cooling Water

Inlet temperature	< 18.3 °C	< 65 °F
Inlet pressure	8.7 to 9 bar	125 to 130 psi
Flow	14 to 17 l/min	3.7 to 4.5 gal/min
Quality		
Conductivity	< 5 µS/cm	
ph Value	6.6	

Deposite Efficiency

Typical	< 75 %
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Spray rate

Typical	< 75 g/min	< 10 lb/hr
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Plasma Controller

Compatible with all Oerlikon Metco plasma controllers

Poweder Feeder

Compatible with all Oerlikon Metco powder feeders

Information is subject to change without prior notice.