

Product Data Sheet

Sulzer Metco SmartArc™ Advanced Electric Wire Arc Thermal Spray System

The Sulzer Metco SmartArc™ is a state-of-the-art, advanced electric wire arc spray system for high productivity that produces repeatable coatings of unsurpassed quality.

A premium system, SmartArc has innovative engineering that ensures it will produce highly reliable electric wire arc spray coatings, while being cost-effective and having outstanding ease-of-use and serviceability.

With applications in a wide variety of industries, SmartArc is the answer for swift, cost-effective thermal spray coatings for wear protection, restoration of component dimension and corrosion protection. Some examples of applications where SmartArc produces excellent value are:

- Industrial rollers used in printing and textiles, paper and pulp production, embossing and steel manufacturing,
- Automotive mufflers and exhaust pipe seam welds,
- Aviation and aerospace components requiring bond coatings and machinable restoration coatings,
- Hydroelectric turbine parts for power generation,
- Aluminum extrusion mills,
- Tube mill weld seams.

When used with Sulzer Metco's extensive portfolio of high quality wire arc materials, SmartArc delivers superior coatings, at high deposition rate, and with ease.



SmartArc™ PPC Console and 350RU Power Supply (shown with optional Power Supply Truck)



SmartArc™ PPG Wire Arc Spray Gun

1 General Description

The high power capacity (400 Amps) allows SmartArc to deposit coatings from both hard and soft wires very quickly and economically. Hard wire coatings produced using the SmartArc system have excellent bond strength, high hardness, low porosity and are easily machined. When soft wires are used, exceptionally high speed coatings rates of up to 32 kg/h (70 lbs/hr) are possible.

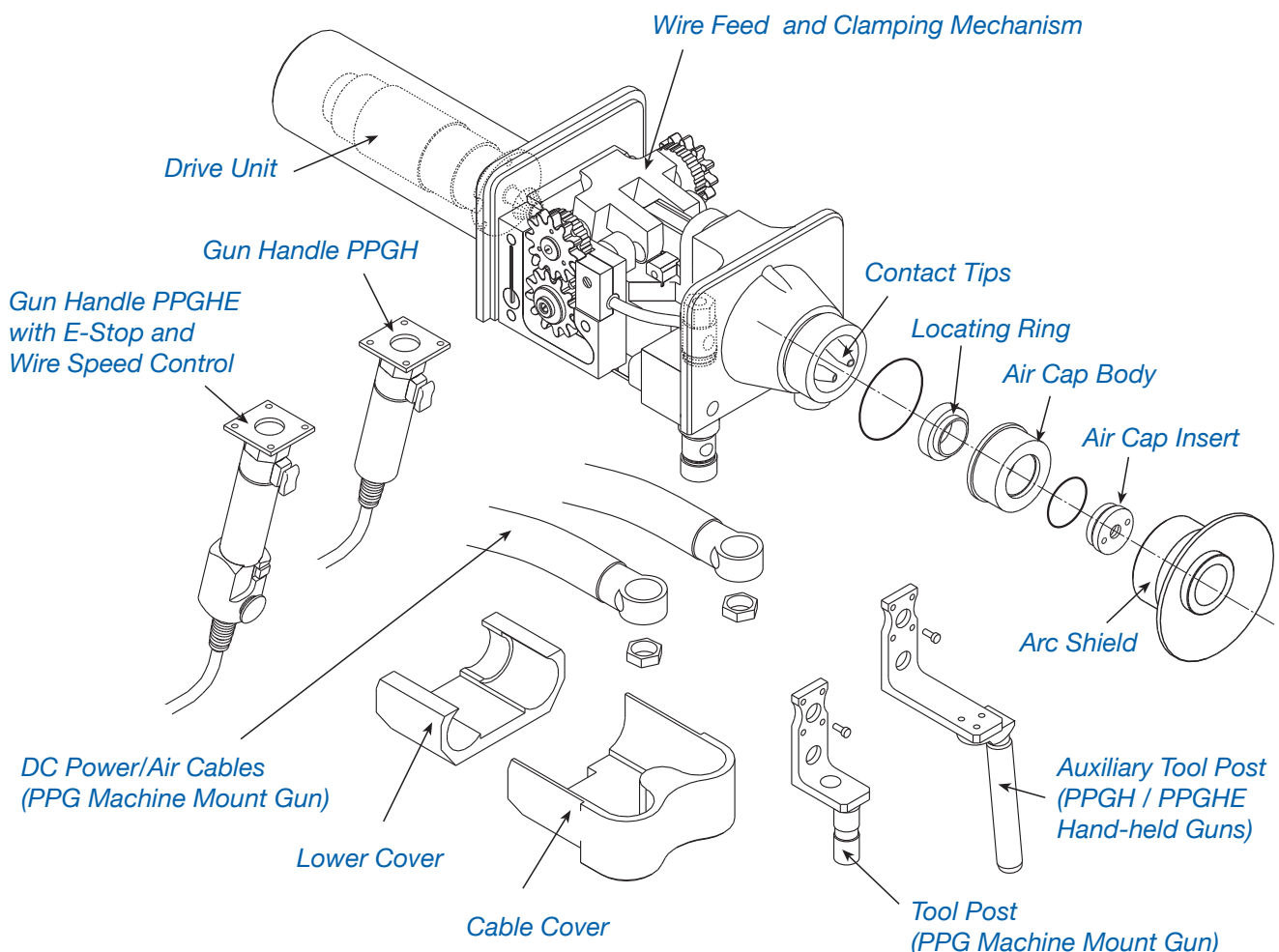
SmartArc incorporates a leading-edge gun head design that delivers low-turbulence, nearly laminar air flow. This results in high deposition rates, very dense, low oxide coatings and a reduction in consumables and maintenance. Voltage measurement is at the gun for reliability of coating results.

A unique feature of SmartArc is load-sharing; a patented motor control method that provides “push-pull” coordination of the wire feed stock. As a result, wire feed is very smooth, allowing wire conduit cables of up to

15 meters (50 feet). This allows the SmartArc PPG gun to be mounted on a robot or other gun manipulation equipment, for added precision and automation. When the gun “pull” motor, acting as the controller, needs assistance, SmartArc senses the load and has the console motor “push” harder to ensure highly consistent wire feed.

Truly automated, SmartArc incorporates a rugged and reliable PLC (programmable logic control) computer technology for its advanced feature capability and provides diagnostics tests that are easily interpreted by the operator.

Three gun models are available for the SmartArc system. The PPG gun (CE conformant) is a machine-mount push-pull design. Hand-held models are also available as the PPGH and the CE-conformant PPGHE. The PPGHE gun incorporates an integrated, system-wide E-stop on the handle and a wire speed control.



SmartArc™ Gun • Main Parts Overview

2 Features and Benefits

- Modular design allows for superior flexibility in work configurations.
- Advanced controls deliver outstanding spray process reliability.
- Unique load-sharing control method produces “push-pull” action for smooth and consistent wire feed and allows long distances between the controller and the gun.
- PLC (programmable logic control) automation ensures coating reliability and simple operation.
- Diagnostic system provides ease of use and reliable results.
- Spray hard, soft or cored wires with equal ease (with optional hardware for soft wires).
- High power allows spraying of even the hardest wires quickly.
- Adjustable, air-actuated clamp makes feeding of hard, soft or cored wires far more reliable.
- Voltage measurement at the gun ensures repeatable coating results.
- Low turbulence, near laminar air flow for fast spray rates of very dense, low oxide coatings.
- Fixed position gun contact tips assure consistent, repeatable coatings.
- Quick release wire connector and pull action at the gun allows fast and simple changeover of wire feedstock.
- Machine-mount and hand-held gun options are available for production flexibility.
- Machine-mount guns can easily be mounted on a robot or other gun manipulators for precision and production automation.
- Relocation of the coaxial power cables Improves gun balance on hand-held guns.
- Controller, power supply and gun conform to CE standards.

3 Accessories and Options

3.1 General

Sulzer Metco offers a selection of options and accessories for the SmartArc system and gun for complete operating flexibility.

3.2 Gun Options

SmartArc systems and guns are factory equipped to spray 1.6 mm (14 gauge) hard wires. Sulzer Metco has gun hardware options to accommodate different wire materials including:

- 1.6 mm (14 gauge) soft and aluminum wires
- 2 mm hard, soft and aluminum wires
- 2.3 mm (11 gauge) soft wires

Customers may need to change console or gun drive rollers for softer wires. Proper configurations are in the SmartArc instruction manual.

Air Caps: Fine Spray Air Cap, which provides a smooth coating surface is standard with SmartArc guns. Customers can choose from several air cap options as appropriate for specific production requirements

3.3 System Options

Power cables, control cable packages, interconnecting extension cables, air supply cables and wire feed cables are available in various lengths to suit specific application needs. Larger wire spools are also available.

Message Display Unit: An optional Message Display Unit provides operational status of the system and any fault messages should they occur. The unit can be

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

including a wide pattern Fan Air Cap, a narrow pattern High Velocity Air Cap, a High Profile Air Cap when a rough surface finish is desired and a Focused Air Cap having a narrow spray pattern that provides higher deposit efficiencies.

Extensions: Extension modules in several lengths and spray angles are available:

- 330 mm (1 foot), 0° spray angle (straight ahead)
- 660 mm (2 foot), 0° spray angle (straight ahead)
- 330 mm (1 foot), 90° spray angle
- 660 mm (2 foot), 90° spray angle

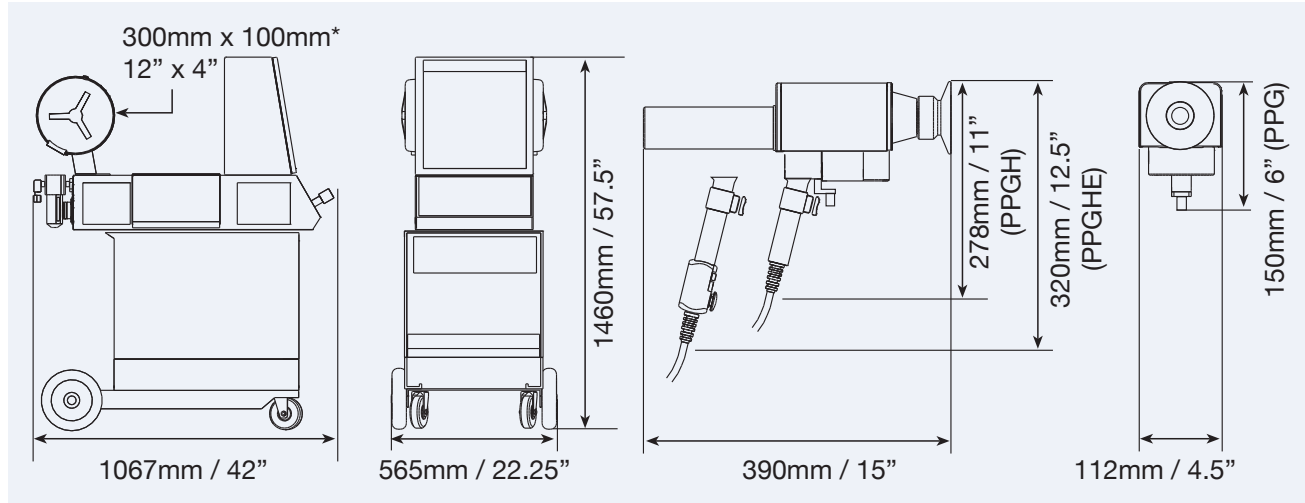
Please refer to the SmartArc PPGT data sheet for more information on these extension modules.

mounted on top of the electrical control cabinet or remotely located (factory installation only).

Power Supply Truck: Using this optional hand truck, the entire SmartArc system (power supply and console) becomes portable. It is an ideal accessory for on-site use and in shops where the system is used in several locations.

4 Technical Data

4.1 Dimensions



4.2 Specifications

350RU Power Supply			
Input Amperage	82 / 72 / 41 / 36	A	
Input Voltage	208 / 230 / 400 / 460	VAC	
Input Frequency	50 / 60	Hz	
Output Voltage	10 - 46	VDC	(100% duty cycle)
Output Amperage	80 - 400	A	(100% duty cycle)
Weight	174	kg	
	383	lbs	
Maximum ambient temperature	40°	C	
	104°	F	
PPC Console			
Air Pressure	2.4 - 4.2	bar	
	35 - 60	psi	
Air Flow	58 - 105	m ³ /h	
	2200 - 4000	ft ³ /hr	
Weight	132	kg	
	290	lbs	
Gun			
Wire Size*	1.6	mm	hard wire
	14	gauge	
Models (specify when ordering)	PPG		machine-mount, with tool post
	PPGH		hand-held
	PPGHE		hand-held, CE-conformant with E-stop
Weight	6.3	kg	PPG
	14	lbs	
	5.4	kg	PPGH, PPGHE
	12	lbs	

*as equipped at factory; options are available or different configurations

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