

Product Data Sheet

Metco FLEXI ARC 300 Electric Arc Spray System

The Metco™ FLEXI ARC 300 Electric Arc Spray System is an all-purpose unit for applying coatings of solid and cored arc spray wire materials for a broad range of applications.

The FLEXI ARC 300 system is an excellent choice for a wide range of coating needs; whether for wear resistance, corrosion protection, frictional coatings or restoration coatings. It is capable of homogeneously melting either solid or cored arc spray wires, resulting in optimized and highly reproducible coating results. FLEXI ARC 300 is designed for safe, reliable operation and meets CE standards. It is recommended to apply coatings for applications such as:

- Boiler walls
- Rolls used in paper manufacturing
- Industrial fans to prevent particulate erosion
- Bearing seats
- Black coal plant conveyer worm gears
- General purpose wear and corrosion coatings
- Bond coats other thermal sprayed coatings

1 Description

The FLEXI ARC 300 Electric Arc Spray System is designed for manual operation. The system comes equipped with all hoses and cables, and is composed of four modules:

- FLEXI ARC 300 Wheeled Power Supply
- Hand-held LD/U2 Spray Gun
- 4 m (13.1 ft) Hose and Cable Package with 4 m (13.1 ft) Insulated wire guides
- Spool Holder / Decoiler with Push 1 Wire Drive Unit



1.1 FLEXI ARC 300 Power Supply

The FLEXI ARC 300 power supply is versatile for use with many different arc wire spray applications. Very stable inductance and voltage ensures that cored wires are fully alloyed during the spray process. The unit has been specifically engineered to meet the requirements of the electric arc thermal spray process and incorporates PLC (programmable logic control) technology for accuracy and repeatability of the system settings. It delivers the system-rated arc current of 300 A at 100 % duty cycle.

All controls and displays are logically arranged on an inclined panel, that is easy for the operator to read and access. The unit has a choke, which can be turned on or off depending on the wire to be sprayed.

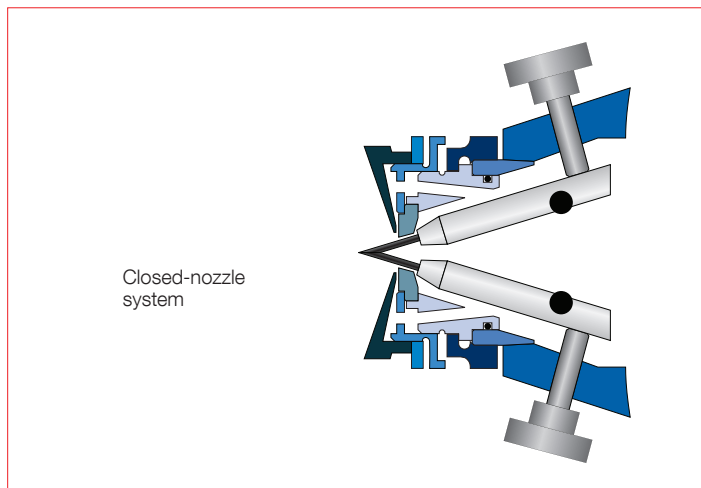
Connections for the hose and cable assembly are located on the front of the unit below the front panel, on a panel that inclines 45° downwards. This helps to prevent strain on the cable and hose connections. Connections for the air supply hose and electrical supply are on the back panel. The power supply is mounted on large wheels, making it stable and easy to move.

The internal electrical control elements are well-protected from the environment and spray dust. Convection cooling prevents spray dust getting into the power supply, decreasing the possibility of electrical shorts from metallic dust contamination. The power supply is protected against overloading, overheating and air pressure drops.

1.2 LD/U2 Spray Gun

The LD/U2 Wire Spray Gun is lightweight, handheld gun for general purpose spray work. It has low wear part requirements and is designed low maintenance. Wear components and gun hardware for different types of wires are quickly and easily changed, when necessary. A closed-nozzle system ensures high quality coating application.

The LD/U2 incorporates a powerful air motor and gear system to feed the spray wires smoothly and reliably. The insulated wire guides are attached to the gun using quick



connect fittings, to simplify and reduce the time necessary for wire changeovers. A push valve on the gun quickly starts and stops the wire feed.

1.3 Push 1 Wire Drive Unit

The Push 1 Wire Drive Unit is attached to the spool holder / decoiler. The spool holder / decoiler is mounted to the top of the FLEXI ARC 300 unit and can rotate for optimum positioning of the wire feed.

The Push 1 Wire Drive Unit augments the wire drive in the LD/U2 Spray Gun with a second powerful air motor that is connected to the power supply. In addition, it incorporates pressure slip rollers that decrease the friction between the arc spray wires and the insulated wire guides. This ensures uniform wire feeding, even when spraying in confined spaces, such as boilers, where sharp bend in the wire guide tubes may occur during spray operations.

2 Features and Benefits

Effective

- Versatile system that applies a broad range of quality coatings for wear and corrosion protection.
- Can be used with cored or solid, soft and hard arc wire materials.
- Very stable inductance and voltage ensures that cored wires are fully alloyed during the spray process.
- Power supply operates at 300 A, 100 % duty cycle, without overheating or overloading.

Efficient

- Simple to use and maintain.
- Simple, easy to read and access control panel.
- Operates in confined spaces, even if the wire guide tubes are sharply bent.
- Hand-held, lightweight gun.
- Fast and simple wire changeover.
- Push valve on gun for quick start / stop of the wire feed.

Economical

- Fan-free, convection-cooled power supply prevents contamination from overspray dust.
- Low wear part requirement with long-lasting contact tips.

3 Options and Accessories

Oerlikon Metco supplies many options for the FLEXI ARC 300 Electric Arc Spray System, including gun hardware for different wires and spool adapters for dorn or basket style spools (standard equipment uses hasp spools). Please contact your Oerlikon Metco Sales Representative for more information.

3.1 Spray Kits

The Metco FLEXI ARC 300 Arc Spray System is versatile, and can be used with many different types of wires and wire sizes using optional Spray Kits. Customers can choose the spray kit configuration desired on a new arc system. All spray kits include the following hardware:

- One (1) pair air cap nozzle plate and nut
- Two (2) contact tips
- Two (2) LD/U2 drive rollers
- Two (2) Push 1 drive rollers
- Two (2) Push 1 wire guide nozzles
- Two (2) 4 m wire guide tubes
- Two (2) 4 m teflon tubes

Spray Kit	Order Number	Wire Type	Wire Size
Hard Wire Spray Kit 1 ^a	1062783	Hard wires	1.6 mm (14 AWG)
Hard Wire Spray Kit 2 ^b	1062784	Hard wires	2.0 mm
Soft Wire Spray Kit 1 ^a	1062785	Zinc, 85Zn/15Al, 95Al/5Mg	1.6 mm (14 AWG)
Soft Wire Spray Kit 2 ^a	1062786	Zinc	2.0 mm
Soft Wire Spray Kit 3 ^a	1062787	Zinc, 85Zn/15Al, 95Al/5Mg	2.5 mm, 2.3 mm (11 AWG)
Soft Wire Spray Kit 4	1062788	85Zn/15Al, 95Al/5Mg	2.0 mm
Soft Wire Spray Kit 5	1062789	Aluminum	1.6 mm (14 AWG)
Soft Wire Spray Kit 6	1062790	Aluminum	2.0 mm
Soft Wire Spray Kit 7	1062791	Aluminum	2.5 mm, 2.3 mm (11 AWG)
Soft Wire Spray Kit 8	1062792	Sprababbitt ^c , Tin	2.0 mm
Soft Wire Spray Kit 9	1062793	Sprababbitt ^c , Tin	2.5 mm, 2.3 mm (11 AWG)
Cored Wire Spray Kit 1 ^a	1062794	Cored Wires	1.6 mm (14 AWG)

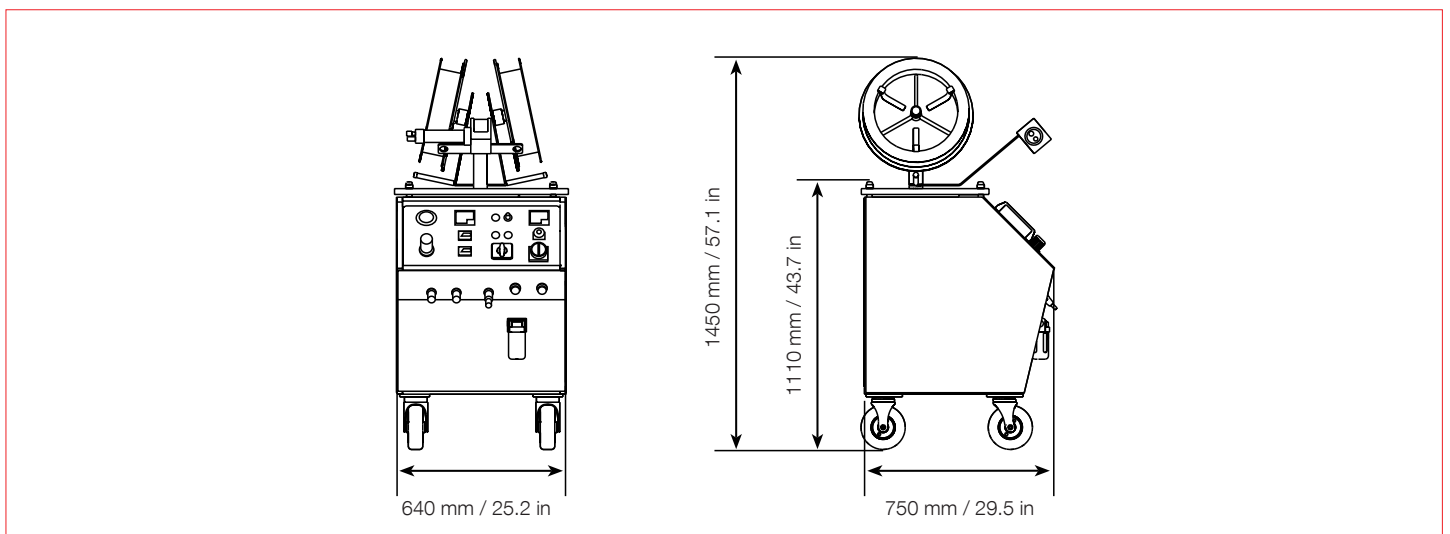
^a Can be specified for factory configuration on new spray equipment.

^b Use of 2.0 mm hard wires is not recommended; high melting point 2.0 mm hard wires should be completely avoided.

^c For Sprababbitt, better results are obtained using larger diameter wires.

4 Technical Data

4.1 Dimensions



4.2 Specifications

Power supply

Weight (without spool holder)	228 kg 503 lb	224 kg 495 lb	224 kg 495 lb	224 kg 495 lb
Electrical requirements ^a	200 V, 50/60 Hz	400 V, 50/60 Hz	415 V, 50/60 Hz	460 V, 50/60 Hz
Primary current	< 44 A	< 23 A	< 22 A	< 21 A
Fuse	50 A	32 A	32 A	32 A
Nominal power	< 14 kVA	< 14 kVA	< 14 kVA	< 14 kVA
Secondary current	300 A	300 A	300 A	300 A
Voltage	18 to 42 V (12 steps)	18 to 42 V (12 steps)	18 to 42 V (12 steps)	18 to 42 V (12 steps)
Open circuit voltage	21 to 47 V	21 to 47 V	21 to 47 V	21 to 47 V
Duty cycle (at full amperage)	100 %	100 %	100 %	100 %
Cooling	Ambient air – convection	Ambient air – convection	Ambient air – convection	Ambient air – convection

Wire Drive Unit

Push 1

Weight	2.6 kg	5.7 lb
Speed control type	Stepless	
Wire feed	1 slip roll per wire	

Spray Gun

LD/U2

Weight (with air motor)	2.8 kg	6.2 lb
Nozzle system	Closed nozzle system	
Wire Feed	1 roll per wire	

Air Requirements

Supply pressure (max.)	10 bar	145 psi
Atomizer air	1500 NLPM @ 4 bar	3424 SCFH @ 58 psi
Air motor air (each, 2 total)	350 NLPM @ 4 bar	799 SCFH @ 58 psi
Air purity	Filtered, dry, oil-free, in accordance with DIN ISO 8573 Class 1	
Recooled air temperature (min.)	25 °C	77 °F

Hose and Cable Set

Length	4 m	13.1 ft
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Wire Materials

Compatibility	All solid and cored electric arc wires available from Oerlikon Metco in appropriate wire sizes	
Wire diameters ^b	1.6 mm, 2.0 mm, 2.3 mm, 2.5 mm	14 AWG, 0.079 in, 11 AWG, 0.098 in
Spray rates (examples)		
Aluminum	9 kg/h	19.8 lb/h
Steel	15 kg/h	33.1 lb/h
Bronze	18 kg/h	39.7 lb/h
Nickel / Chrome	16 kg/h	35.3 lb/h
Tin	60 kg/h	132.3 lb/h
Molybdenum	9 kg/h	19.8 lb/h
Cored Wires	15 kg/h	33.1 lb/h

^a Other voltages available on request

^b When using hard wires, 1.6 mm (14 AWG) wires are recommended. Other wire diameters are recommended only for soft wires.