

# Metallisation

Thermal spray equipment and consumables



## Equipment Specification

ARC528E-ACD Arc Spray System

## INTRODUCTION

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The following specification covers the standard range of ARC528E-ACD Arcspray system. For the specific offer, please refer to the attached quotation and cross-reference the part numbers for each piece of equipment.

The Metallisation Arc528E-ACD system offers the ultimate in reliability and precision for ultra-high throughput, demanding production applications with anti-corrosion coatings. Wire drive is supplied at the heavy-duty pistol by a highly accurate, powerful AC Inverter motor, through a robust gearbox and drive roller system. The high-performance pistol incorporates proven Metallisation technology, including a unique, constant geometry (CG) head. This ensures smooth and consistent spray quality and minimal downtime when changing consumable spares. Supreme flexibility is also a keynote of the Arc528E-ACD. The pistol connects to a range of proven Metallisation energisers, either 1000A or 1500A rated, with the drive unit controller internally mounted. In addition, the system can easily be integrated into other production equipment such as ductile iron pipe processing plants, with the spray rate linked to production speed, to ensure perfect coating at all times.

For lower throughput applications, the 528E-ACD pistol can also be connected to 250, 350 or 700 amp energisers. Please refer to the appropriate specification or discuss your specific requirements with Metallisation.

### ENERGISER

The energiser continues with proven engineering principles to offer extreme reliability at 100% duty cycle. The technology within the energiser is specifically designed to smooth the power required to give the optimum arcspray coating.

A new but widely used industrial PLC controller within the energiser has further simplified the internal controls, improving reliability and making fault diagnosis considerably easier. A further benefit is that the systems can be very easily integrated into production lines.

The high power components within the energiser have also been significantly over-rated with very high capacity diode banks, chokes and transformer – all in order to provide the ultimate in reliability and longevity in harsh environments.

In combination, the new, high throughput pistol and 1000 or 1500 amp energiser will benefit your production long into the future.

**Safety:** The equipment quoted will produce levels of noise, ultra violet light and dust that will require safety measures to be taken by those using the equipment. It may use pressurised gases. Careful consideration should also be given to the positioning of this equipment. It is the responsibility of the user to ensure that all appropriate measures are taken to ensure safe operation in accordance with local requirements. Metallisation will be pleased to advise as appropriate.

## BENEFITS

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### GENERAL BENEFITS

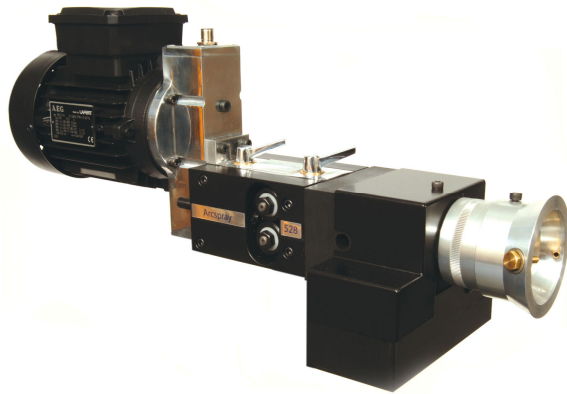
- Designed specifically for use in high demanding, high volume production environments where reliability is paramount
- Pull system ensuring quality coatings with consistent operation.
- Proven Arcspray system for automatic production environments
- High Throughputs reduce spraying times.
- Sealed/lubricated for life AC electric drive motor with inverter controller
- Uses 2.3mm to 4.76mm wire sizes without changing feed rollers.
- Easy to maintain, less than 3 minutes to change contact tubes and nozzles.
- Variable wire speed control allows spray rate to change with production requirements.
- Soft start for smooth start ups reducing electrical loading on components.
- Safety interlocks.
- Choice of coating textures.
- Over 70 high capacity systems supplied into high capacity, automatic applications.

### NEW 1000A OR 1500A ENERGISER

- Over-current limit protection – protects all parts of spray system from over-current, regardless of wire size or type
- PLC control for improved reliability due to less wiring and ease of maintenance / fault finding
- Remote stop/start and E-stop linking for control by or of production equipment
- Speed control link to production line to vary spray rate with production speed. Enables even coatings to be applied during ramp-up, shut down or production variances.
- PLC program supplied on a separate EEPROM
- New style diodes provide massive overcapacity and long life
- Larger heavier transformer and improved transformer cooling and New heavier output chokes
- 1000 Amp continuous operation at 100% duty cycle at 25°C ambient or;
- 1500 Amp continuous operation at 100% duty cycle at 25°C ambient (1000 Amp continuous operation at 100% duty cycle at 50°C ambient)
- Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR)
- Sealed electrical control circuit - reduces dust ingress for added reliability
- Clear displays and large controls give ease of operation
- Integrated Arc current monitor - Stops pistol and supplies an output signal linked to production equipment if arc current stops i.e. due to wire out.
- 24v Safety relay circuit for external interlocks, extraction, acoustic, door locks etc.
- All inputs and outputs are available for external use via sockets at the rear of the energizer. Hence the system is extremely easy to integrate into automatic machinery.

## ARC528E PISTOL

Part No.	Description
ARC528E-ACD-2.3	Arc528E AC Drive pistol for 2.3mm wires
ARC528E-ACD-1/8	Arc528E AC Drive pistol for 1/8" wires
ARC528E-ACD-4MM	Arc528E AC Drive pistol for 4mm wires
ARC528E-ACD-3/16	Arc528E AC Drive pistol for 3/16" wires



The Pistol has been designed to give consistent throughputs with high coating quality. It is a heavy-duty unit with a robust construction. Standard head is shown.

### TECHNICAL OVERVIEW

- ✦ Designed to spray Anti-corrosion coatings.
- ✦ Standard 2.3mm, 3.17mm, 4mm and 4.76mm wire size.
- ✦ No requirement to change feed rollers when changing wire sizes.
- ✦ CG (constant geometry head) ensuring smooth feed, repeatable wire alignment and no adjustment of contact tubes required.
- ✦ The Drive box is factory lubricated for longer life.
- ✦ Closed arc for improved spray conditions and efficiency.
- ✦ Motor speed feedback for display and integration into closed loop production systems.

### Technical data

Description	Characteristics
Maximum Current	1500 Amps
Weight	10.5 Kgs
Weight – at a height of 1.2 M	21 Kgs – inc Cables and Hoses
Width	220mm
Length	530mm
Height	190mm

### Typical performance figures for the Arc528E-ACD pistol

Material	Wire Diameter	Throughput (kg/hr)	Coverage m <sup>2</sup> /kg/100μ
Metallisation Wire 02E Zinc	3.17mm	103.3 (@ 1000A)	0.82
Metallisation Wire 02E Zinc	4mm	168 (@ 1500A)	0.82
Metallisation Wire 01E/17E/25E Aluminium & Alloys	3.17mm	27.3 (@ 1000A)	2.88

Throughput is assumed to be independent of wire diameter. All data provided is an approximation and is offered as guidance only as performance can vary depending on application and parameters.

## SUPPLIES PACKAGE

Part No.	Description
SUP528E-1000-5M	5m Supplies Package for S1000 System
SUP528E-1000-10M	10m Supplies Package for S1000 System
SUP528E-1000-25M	25m Supplies Package for S1000 System
SUP528E-1500-5M	5M Supplies Package for S1500 system
SUP528E-1500-10M	25M Supplies Package for S1500 system
SUP528E-1500-25M	25M Supplies Package for S1500 system
7144	1/2" Dia PTFE Tubing
SUP528QR-1000	ARC528E Quick release kit for 1000A systems
SUP528EQR-1500	Quick release kit for 1500A system

### STANDARD SUPPLIES PACKAGE INCLUDES

- ✦ Power cables with twist locks at the energiser and lugs at the pistol ends
- ✦ Air hose with snap coupling at energiser and threaded fitting at pistol ends.
- ✦ Motor drive and control cables.

### Technical overview

- ✦ 5, 10 and 25 meter supplies packages for integration to Energisers as standard.
- ✦ Other lengths of power, air and control cables possible to meet your requirements.
- ✦ 5 meter wire feed from wire dispenser to ARC528E-ACD Pistol as standard.
- ✦ Longer wire feed runs possible depending on application. Check with Metallisation.
- ✦ 7144 PTFE tubing used for dispensing wires from drums if required

## QUICK RELEASE SUPPLIES OPTION

When ordered with a supplies package, the quick release supplies option enables the pistol to be rapidly removed from its installation position. Quick release fittings are supplied for the power and control cables plus the air hose. These are located approximately 1m from the pistol. This option is particularly useful for continuous production plants where downtime is costly, enabling the rapid disconnection and reconnection of the pistol.

## ENERGISER

Part No.	Description
2241-EIR	S1000 Energiser, with inbuilt pistol controller
2242-EIR	S1500 Energiser, with inbuilt pistol controller



This Energiser, with inbuilt controls, has been specifically designed for those very high throughputs in continuous production environments and is ideally suited for the Anti-corrosion industry.

Note: 1500A energiser has 6 power cable connections on the lower front of the energiser instead of 4 on the 1000A.

## TECHNICAL OVERVIEW

- ✦ 1000 Amp continuous operation at 100% duty cycle at 25°C ambient or;
- ✦ 1500 Amp continuous operation at 100% duty cycle at 25°C ambient (1000 Amp continuous operation at 100% duty cycle at 50°C ambient)
- ✦ Over-current limit protection – protects all parts of spray system from over-current, regardless of wire size or type
- ✦ PLC control for improved reliability due to less wiring and ease of maintenance / fault finding
- ✦ Remote stop/start and E-stop linking for control by or of production equipment
- ✦ Speed control link to production line to vary spray rate with production speed. Enables even coatings to be applied during ramp-up, shut down or production variances.
- ✦ PLC program supplied on a separate EPROM
- ✦ New style diodes provide massive overcapacity and long life
- ✦ Larger heavier transformer and improved transformer cooling
- ✦ New heavier output chokes
- ✦ Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR)
- ✦ Sealed electrical control circuit - reduces dust ingress for added reliability
- ✦ Clear displays and large controls give ease of operation

- ✦ Integrated Arc current monitor - Stops pistol and supplies an output signal linked to production equipment if arc current stops i.e. due to wire out.
- ✦ 24v Safety relay circuit for external interlocks, extraction, acoustic, door locks etc.
- ✦ All inputs and outputs are available for external use via sockets at the rear of the energizer. Hence the system is extremely easy to integrate into automatic machinery
- ✦ System reset after fault is simplified and can be remotely connected for instance to the main machine PLC on the plant to which it is fitted.

## Energiser specification

Description	Characteristics	
	1000A Energiser	1500A Energiser
Input Power Requirements	380/440V 50-60Hz 3 Phase	
Fusing Required	70A/Phase (415V input)	90A/Phase (415V input)
Max Power Consumption	46KVA	50 KVA
Duty	0-1000 Amps @ 100% Duty Cycle, 25°C ambient	0-1500 Amps @ 100% Duty Cycle, 25°C ambient
Output Voltage	0-45Vdc (nominal), Manual H/L, Switched 1 - 5	
Air Requirements	1.85m <sup>3</sup> /min @ 5.5bar (65cfm @ 80psi)	
Weight	500 Kgs	525 Kgs
Dimensions (W x L x H)	700mm x 1080mm x 985mm	
Indicators	Wire Speed, Air, Power, Motor Stop/Start	
Switches	Panel/Remote, Motor Start, Motor Stop, Air On/Off, Power On/Off, Reset	
Additional interface	All inputs and outputs are available for external use via sockets at the rear of the energizer	

# Metallisation

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