

# Metallisation

Thermal spray equipment and consumables



## Equipment Specification

ARC170-CL Arc Spray System

## TYPICAL SYSTEM CONFIGURATIONS

Pictured below is a range of typical system configurations. Variations of these configurations may be possible. Contact Metallisation to discuss your specific application requirements.

### STANDARD CONFIGURATION – PUSH WITH WIRE IN DRUMS

Most commonly used for in-house anti-corrosion applications where drums can easily be handled.



Wire in drums or coils (use 2-tier dispenser)

3m max.



Energiser and push/pull drive unit (can be mounted on energiser, wall, floor or trolley)

10m supplies from wire drive to pistol



Pistol

### STANDARD CONFIGURATION – PUSH WITH WIRE ON MIG REELS

Most commonly used for on-site anti-corrosion where the handling of drums is not easy



Energiser, MIG dispenser and push/pull drive unit (can be mounted on energiser, wall, floor or trolley)

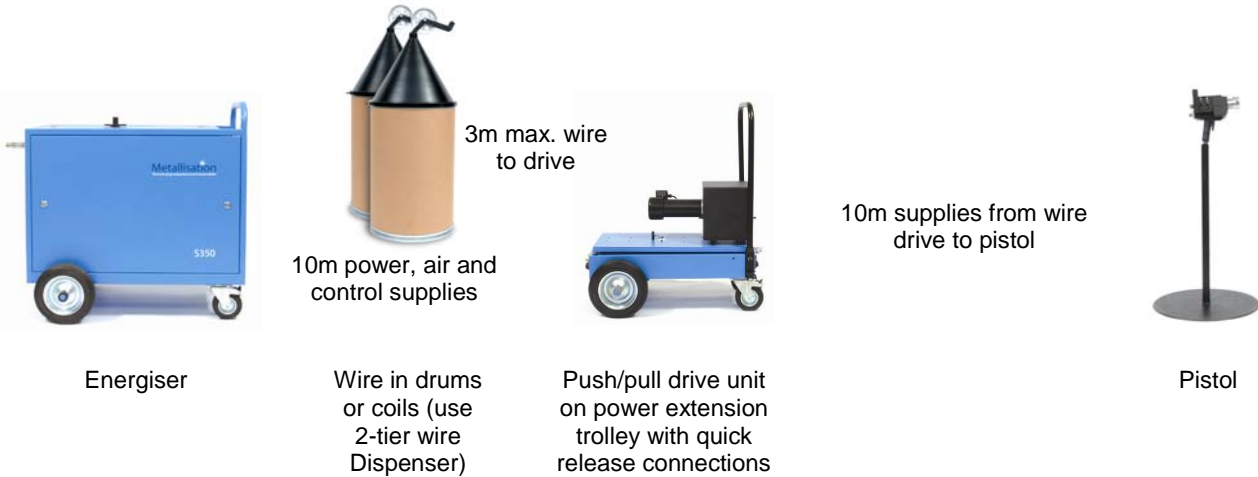
10m supplies from wire drive to pistol



Pistol

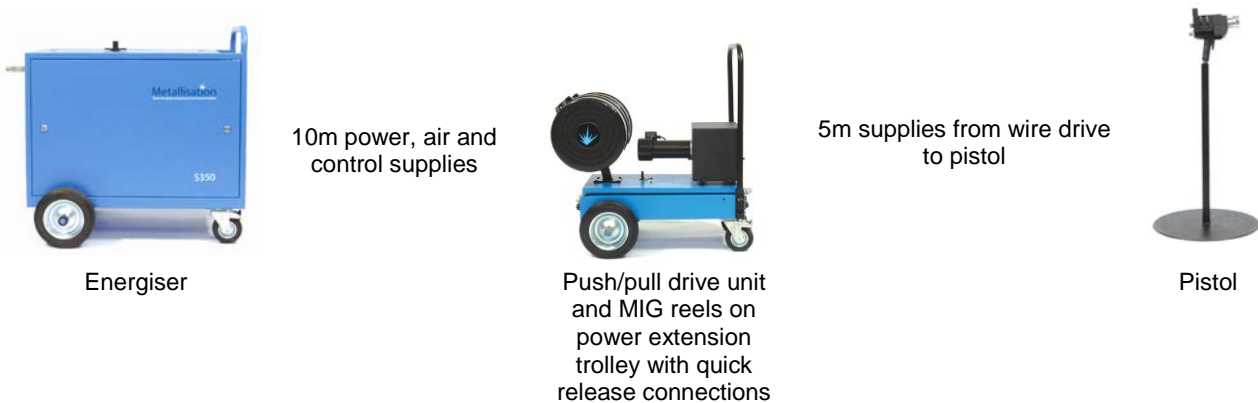
**EXTENDED CONFIGURATION – PUSH WITH WIRE IN DRUMS**

Most commonly used in on-site applications where it is a benefit to site the energiser remotely from the spray area where access limitations may apply. Drums allow longer spraying times between wire changes. The use of the trolley allows easy movement of the drive unit around the site and local quick release connection of the supplies for maintenance.



**EXTENDED CONFIGURATION – PUSH WITH WIRE ON MIG REELS**

Most commonly used in on-site applications where it is a benefit to site the energiser remotely from the spray area where access limitations may apply. The use of the trolley allows easy movement of the drive unit around the site and local quick release connection of the supplies for maintenance.



Note: for certain applications using large diameter stiff wires such as 3/16” zinc/aluminium alloy in drums, drum cones may not be suitable and a drum trolley will improve wire feed reliability. Refer to wire dispense section for more details.

## INTRODUCTION

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The following specification covers the standard range of Arc170 Arcspray systems. For the specific offer, please refer to a detailed quotation and cross-reference the part numbers for each piece of equipment.

The new Metallisation Arc170 offers high throughput with large diameter wires (1/8" and 3/16"), and is the recommended system for large scale, anti-corrosion applications. The Arc170's proven and patented Synchrodrive push/pull system has no motor in the pistol, resulting in a lighter, more maneuverable hand-held spray gun which has a 10m wire dispense distance. The system's robust design also includes the established Constant Geometry (CG) head, which ensures a smooth and consistent spray quality.

The new S700CL, 700 amp energiser still offers high spray rates for reduced spraying times over large areas but is now combined with closed loop current control. This enables the operator to set the spray current independent of wire type before starting the job, enabling easier setup and protection of the system from over-current. The control function is now controlled by a simple PLC which ensures improved reliability as less component parts are required. It also makes fault finding simple using a standard multimeter with the I/O for the PLC.

The S700CL energizer also features sealed electronics for excellent reliability in the harshest of spray environments. The design also allows for multiple customer-specific packaging options for the wire drive and dispense. In one option, for example, the unit is neatly mounted on the energiser, leaving it free to swivel and follow the operator when spraying. Other options include floor or trolley mounting of the wire drive unit.

**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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### NEW S700CL ENERGISER

- ✦ Closed Loop Current Control – easy setup / reliable spray rate / over-current protection.
- ✦ Easy setup – set the spray current before starting to spray
- ✦ Over-current limit protection – protects all parts of spray system from over-current, regardless of wire type
- ✦ PLC control for improved reliability and ease of maintenance / fault finding
- ✦ PLC program supplied on an EPROM in case the PLC needs reprogramming
- ✦ 700 Amp continuous operation at 100% duty cycle
- ✦ Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR)
- ✦ Large 'Site Capable' wheels and rigid handle offers excellent portability on site and in workshop
- ✦ Sealed electrical control circuit - reduces dust ingress for added reliability
- ✦ Clear displays and large controls give ease of operation

### GENERAL BENEFITS

- ✦ High throughputs of Zinc, Aluminium and Zinc / Aluminium 85/15 – reduces spraying time
- ✦ 700 amps continuous operation – reduces spraying time
- ✦ Large wires for greater efficiencies.
- ✦ Push Pull system for a more stable arc ensuring quality coatings with consistent operation.
- ✦ Patented Flexible Drive system (Synchronised).
- ✦ Pistol to Dispenser length available as 10m as standard.
- ✦ Pistol to Energiser length available as 10m or 20m as standard.
- ✦ DC motor drive sealed/lubed for life – greater reliability
- ✦ Variable wire speed control – gives variable spray rates
- ✦ Soft start for smooth start-ups - reduces electrical loading on components.
- ✦ Suitable for anticorrosion wires 3.17mm (1/8") to 4.76mm (3/16").
- ✦ Easy to maintain, less than 3 minutes to change contact tubes and nozzles.
- ✦ Choice of coating textures.
- ✦ Low running costs as compared with gas systems.
- ✦ Steel reinforced conduits for extended service life.
- ✦ Quick release power, air and control couplings allow quick assembly / disassembly of package

## ARC170 PISTOL

Part No.	Description
ARC170-CG32	Arc170 Pistol for 3.17mm (1/8") wires
ARC170-CG316	Arc170 Pistol for 4.76mm (3/16") wires



The Pistol has been designed to give consistent high throughputs of anti corrosion materials with high coating quality. It is a heavy-duty unit with robust but compact construction.

### TECHNICAL OVERVIEW

- ✦ For spraying Anti-corrosion coatings on large surface areas in the spray shop and onsite environment.
- ✦ Spreader Air Jets to allow a wider spray pattern for large surface areas
- ✦ Simple to operate.
- ✦ Quality coating.
- ✦ CG (constant geometry) head ensuring smooth feed, repeatable wire alignment and no adjustment of contact tubes required.
- ✦ The Wire Drive Unit utilises intermeshed steel wormshaft and bronze wormwheels, being driven by a lightweight, flexible drive.
- ✦ Closed arc for improved spray conditions and coating quality.

### Technical data

Description	Characteristics
Maximum Current	700 Amps
Weight	3.4 Kgs
Weight – at a held height of 1.2 M	10 Kgs – inc Cables and Hoses
Width	110mm
Length	275mm
Height	350mm

### Typical performance figures for the Arc170 pistol

Material	Wire Diameter	Throughput (kg/hr @ 700A)	Coverage m <sup>2</sup> /kg/100μ
Metallisation Wire 01E Aluminium	3.17mm (1/8")	21	2.88
	4.76mm (3/16")	24	
Metallisation Wire 02EZinc	3.17mm (1/8")	72	0.82
	4.76mm (3/16")	92	
Metallisation Wire 021E Zinc/Aluminium 85/15	3.17mm (1/8")	70	1.00
	4.76mm (3/16")	75	

For Aluminium wire, the deposit efficiency has been proven to increase by approximately 5% when sprayed at 350A instead of 700A. Deposit efficiency for Zinc and Zinc/Aluminium 85/15 does not change with spray current.

With larger wire diameters, the throughput has been proven to increase.

All data provided is an approximation and is offered as guidance only as performance can vary depending on application and parameters.

## TOOLKIT

Appropriate hand tools are supplied with the Arcspray system along with an operating manual.

## SUPPLIES PACKAGE

Part No.	Description
SUP170-10M	10M Supplies Package 3.17mm (1/8") & 4.76mm (3/16") wires
SUP06-EXT10H	10M PET supplies, high power

### STANDARD SUPPLIES PACKAGE INCLUDES



**Power cables**  
2 off



**Air hose**  
1 off



**Pair of Wire Conduits**



**Control cable**  
1 off



**Flexible Drive**  
1 off

### Technical overview

- 10 meter supplies package available as standard, Optional 10m extension.
- Supplied with all fittings appropriate to connect to 170 Pistol and S700CL Energiser.
- Steel reinforced conduits for extended service life.

### 10M EXTENSION SUPPLIES (SUP06-EXT10H) INCLUDES



**Power cables**  
2 off



**Air hose**  
1 off



**Control cable**  
1 off

### Technical overview

- 10m Power Extension Trolley (PET) supplies package available as standard Up to 20m available for certain applications (check with Metallisation)
- Supplied with all fittings appropriate to connect to S700 Energiser and Power Extension Trolley
- Quick release power, air and control couplings allow quick assembly / disassembly of package

## ENERGISER

Part No.	Description
2226-PLC	S700 (ARC701/170) Energizer with closed loop current control



The S700 Energiser has been specifically designed for those users who wish to spray large areas at high throughputs of anticorrosion materials.

### TECHNICAL OVERVIEW

- ✦ Closed Loop Current Control – easy setup / reliable spray rate / over-current protection
- ✦ PLC control for improved reliability and ease of maintenance / fault finding
- ✦ 700 Amp continuous operation (100% duty cycle)
- ✦ Specifically designed to suit only Arcspraying.
- ✦ Large 'Site Capable' wheels and rigid handle offers portability on site and in workshop
- ✦ Clear displays and large controls give ease of operation.
- ✦ Sealed electrical control circuit - reduces dust ingress for added reliability
- ✦ Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR).
- ✦ Switched output voltage control

### S700 energiser specification

Description	Characteristics
Input Power Requirements	380/440V 50-60Hz 3 Phase
Fusing Required	55A/Phase (415V input)
Max Power Consumption	32 KVA
Duty	0-700 Amps @ 100% Duty Cycle
Output Voltage @ 440V supply voltage	0-50Vdc (nominal) Switched High/ Low & 1 – 5
Air Requirements	1.45m <sup>3</sup> /min @ 6bar (50cfm @ 90psi)
Weight	282 Kgs
Dimensions (W x L x H)	665mm x 900mm x 913mm

## WIRE DRIVE UNITS

Part No.	Description
ARC170-EDA32	ARC170 Electric Push / Pull Wire Drive Unit 3.17mm (1/8") wire
ARC170-EDA316	ARC170 Electric Push / Pull Wire Drive Unit 4.76mm (3/16") wire



The ARC170 wire drive unit is a push/pull system. With a drive mechanism that operates through an electric DC drive motor with a flexible drive cable up to the pistol. This unit is fitted with a 1m flying lead and a 5m-extension cable.

### TECHNICAL OVERVIEW

- ✦ Electric DC Drive Motor, Thyristor Controlled, for smooth wire feed
- ✦ Push / Pull mechanism positively drives the wire to the pistol
- ✦ Ease of loading and unloading of wires, using "Quick Fit" couplings on Conduits
- ✦ Easily adjustable wire tensioners for a consistent feed of different wire sizes and materials
- ✦ Different sized drive rollers for 3.17mm (1/8") and 4.76mm (3/16") materials

## WIRE DISPENSE

### WIRE DISPENSING CONES (PULLEY)

Part No.	Description
21252	Wire Dispensing Cones – variable position (2 required)
2006-DSP	Wire Dispenser Support Plate



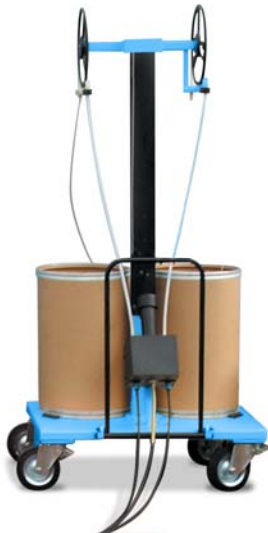
#### Technical overview:

The Metallisation wire dispensing cone offers the ability to conveniently dispense anti-corrosion wires from production packs (drums). The wire is neatly guided to a dispense point, then over the pulley to give a free passage of wire from the drum to pistol. Benefits include:

- ✦ Suitable for dispensing Zinc, Aluminium and Zinc/Aluminium wire
- ✦ Specifically designed to suit Arcspraying with the each drum being individually insulated from each other.
- ✦ Variable position clamp assembly allows the clamp to be rotated to give the smoothest wire transfer path from the drum to the pistol.
- ✦ Drums available in 250 Kg for Zinc, 200kg for Zinc/Aluminium and 60Kg for Aluminium.
- ✦ Needs to be used with a wire drive unit (not included in the wire dispensing cone package) and drive support plate (shown above)

## DRUM TROLLEY

Part No.	Description
2006-DT	Arc170 Drum Trolley



### Technical overview

- ✦ Required for dispensing 3/16" Zn/Al and 1/8" Aluminium wire
- ✦ Additional height of dispensing pulleys ensures smooth, no kink dispensing of wire
- ✦ Specifically designed to suit Arcspraying with the each drum being individually insulated from each other
- ✦ Fitted Pulley to ensure a smooth wire feed to the pistol
- ✦ Large 'Site Capable' wheels
- ✦ Mounting provided for Wire Drive Unit
- ✦ Includes vinyl dust covers for drums (Not Shown)

## MIG REEL WIRE DISPENSER

Part No.	Description
2006-MIG	Wire Dispenser for MIG Reels

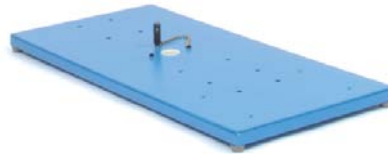


### Technical overview

- ✦ Specifically designed to suit Arcspraying with the MIG reels being individually insulated from each other.
- ✦ Brake tension to ensure wire does not uncoil.
- ✦ MIG reel dust cover to ensure more consistent spraying.
- ✦ All common anti-corrosion materials available on MIG reels.
- ✦ Designed to ensure a smooth wire feed to the pistol.

## TWO TIER WIRE DISPENSER

Part No.	Description
2006-2T	S350/S700 2 Tier Wire Stand



### Technical overview:

- ✦ Suitable for dispensing raw materials that are only available in coil form
- ✦ Wire straighter to ensure smooth wire feed to the pistol
- ✦ Specifically designed to suit Arcspraying with each coil being individually insulated
- ✦ Variable brake tension to ensure wire does not uncoil.
- ✦ Designed to ensure a smooth wire feed to the pistol.
- ✦ Rigid construction
- ✦ Lower tier swings out for Ease of loading and unloading of the Coils.
- ✦ Castors fitted to the bottom of the dispenser allowing excellent manoeuvrability.
- ✦ Shown above with the drive support plate (included in the 2 tier package)

## POWER EXTENSION TROLLEY

Part No.	Description
2006-PETH	High power extension trolley for ARC170/701 systems



### Technical overview

- Power extension trolley designed to allow the energiser to be sited away from the spray job
- Large 'Site Capable' wheels and rigid handle offers excellent portability on site
- Quick release power, air and control couplings allow quick assembly / disassembly of package
- Drive support plate bolts to trolley

## OPTIONS

### REMOTE PENDANT

Part No.	Description
2227-PENDANT	Remote Pendant for Stop / Start / Spray and Wire Feed



Also comes with 6m control cable to connect to energiser (can be longer on request)

- ✦ Allows remote operation of the system for when pistol is mounted to a robot or manipulator.
- ✦ Connects into energiser in place of the pistol control cable
- ✦ Eyelet to support pendant.
- ✦ Stop / Start Button Control.
- ✦ Key switch for Spray and Wire Feed.
- ✦ Safety Key control to lock off Spray and Wire feed when not in use.

### CONVERSION KITS

Part No.	Description
ARC170-CK32	Arc170 4.76mm (3/16") to 3.17mm (1/8") Conversion Kit
ARC170-CK316	Arc170 3.17mm (1/8") to 4.76mm (3/16") Conversion Kit

- ✦ Conversion Kits include all required Driver Rollers, Nozzle, Aircap, Contact Tubes and Wire conduits

# Metallisation

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