

Metallisation

Thermal spray equipment and consumables



Equipment Specification

ARC340-PLC Arc Spray System

TYPICAL SYSTEM CONFIGURATION

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 – PULL WITH WIRE ON MIG REELS

Most commonly used in engineering workshops where a compact footprint is useful and a 5m supplies package length is sufficient. The Arc340 pistol is a robust unit and is suitable for hand spraying or tool post mounting.

The choice of energiser (S250 or S350) will be dependent upon the requirements of the application. Typically, smaller engineering works will require an S250, 250A energiser. However, some engineering materials can be suitably sprayed at 300A and above, making the S350, 350A energiser a viable alternative with throughput and productivity benefits.



Energiser
(S250 or S350)
and MIG dispenser

5m supplies from wire to
pistol



Pistol

INTRODUCTION

The following specification covers the standard range of ARC340-PLC Arcspray systems. For the specific offer, please refer to a detailed quotation and cross-reference the part numbers for each piece of equipment.

The Metallisation ARC340-PLC system is the preferred choice for general engineering applications. It is ideally suited to tool post and automation mounted applications with occasional requirements for hand spraying. The proven ARC340 pistol is now combined with a new range of PLC controlled, 250A and 350A switched voltage energisers.

The ARC340-PLC system with a S250, 250A energiser is ideally suited to many engineering applications. However, for some larger scale applications where a higher throughput is required, the S350, 350A energiser will enable higher spray rates and increased productivity.

The ARC340 is capable to spray anti-corrosion coatings also but may not be the most suitable solution for these applications. Alternative, more suitable systems could be the ARC140, ARC701 or ARC170 systems.

The PLC controller within the sealed electronics area of the energiser enables easy fault finding and offer over-current protection for the system. This means that the system will protect itself in the event of operator error when setting up spray parameters.

The ARC340 pistol on its own supersedes and can be fitted as a direct replacement to the ARC234, ARC240 and ARC375 pistols. With fairly minimal modifications, it can also be fitted to some competitor pull systems.

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

NEW S250-PLC AND S350-PLC ENERGISERS

- ✦ PLC control for improved reliability and ease of maintenance/fault finding
- ✦ Over-current limit protection – protects all parts of spray system from over-current, regardless of wire type
- ✦ PLC program supplied on an EPROM in case the PLC needs reprogramming
- ✦ 250 Amp or 350 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

- ✦ Uses 1.6mm to 2.3mm wire sizes without changing feed rollers.
- ✦ Air-cooled conductors reduce pistol supply weight and operator fatigue.
- ✦ Lightweight and good balance for ease of pistol manoeuvrability.
- ✦ Suitable for Anti-corrosion and engineering wires, steels, copper and bronzes etc.
- ✦ Easy to maintain, less than 3 minutes to change contact tubes and nozzles. Contact tubes and nozzles do not require adjustment.
- ✦ Low running costs as compared with gas systems.
- ✦ Steel reinforced conduits for extended service life.
- ✦ 5m supplies packages from the wire to the pistol
- ✦ Choice of coating textures
- ✦ Wire dispense packaging options allow wire dispenser to be compactly mounted on the energiser or separately on the floor / wall.
- ✦ Additional wire dispense units can be added for quick change of wires, e.g. bond coat and top coat.
- ✦ When wire dispenser is energiser mounted, it can rotate through 180° to follow the operator whilst spraying
- ✦ Quick release power, air and control couplings allow quick assembly / disassembly of package

ARC340 PISTOL

Part No.	Description
ARC340-CG16	Arcspray340 pistol for 1.6mm wires and air-cooled supplies
ARC340-CG20	Arcspray340 pistol for 2.0mm wires and air-cooled supplies
ARC140-CG23	Arcspray340 pistol for 2.3mm wires and air-cooled supplies



The ARC340 pistol is supplied with air-cooled conductor cables as standard. Solid cable versions are available on request.

TECHNICAL OVERVIEW

- Designed and used in practice predominantly for engineering coatings and automatic or semi-automatic applications
- Standard 1.6, 2.0 and 2.3mm wire size
- No requirement to change feed rollers when changing wire sizes.
- Quality coating
- CG (constant geometry head) ensuring smooth feed, repeatable wire alignment and no adjustment of contact tubes / nozzle arrangement required.
- Lightweight air-cooled conductor cables are fitted; which reduces the operator supported weight and further improves the overall balance of the Pistol. Solid cable version available on request
- Closed arc for improved spray conditions and efficiency.

Technical data

Description	Characteristics
Maximum Current	350 Amps with air-cooled conductor cables (400A solid)
Weight	3.2 Kgs (air-cooled)
Weight – at a held height of 1.2 M	6.4 Kgs – inc Cables and air-cooled conductor cables
Width	102mm
Length	432mm
Height	240mm

Typical performance figures for the Arc340 pistol with 250A energiser

Material	Wire Diameter	Throughput (kg/hr @ 250A)	Coverage m ² /kg/100μ
Metallisation Wire 02E Zinc	1.6 / 2.0mm 2.3mm	26	0.82
Metallisation Wire 01E/17E/25E Aluminium & Alloys	1.6 / 2.0mm 2.3mm	6	2.88
Metallisation Wire 021E Zinc/Aluminium 85/15	1.6 / 2.0mm 2.3mm	22	1.00
Metallisation Wire 05E Copper	1.6mm	12.5	0.91
Metallisation Wire 30E,35E,45E, 55E,57E,60E 65E,80E,84E Steels	1.6mm	11.3	1.02
Metallisation Wire 75E Nickel Aluminium	1.6mm	13.6	1.09
Metallisation Wire 10E Aluminium Bronze	1.6mm	11.3	1.37
Metallisation Wire 15E Phosphor Bronze	1.6mm	15.8	0.91
Metallisation Wire 70E/71E Monel	1.6mm	14.3	1.02
Metallisation Cored Wire 103T FeCrB	1.6mm	7.2(@180A)	1.18

Typical performance figures for the Arc340 pistol with 350A energiser

Material	Wire Diameter	Throughput (kg/hr)	Coverage m ² /kg/100μ
Metallisation Wire 02E Zinc	2.0mm 2.3mm	36	0.82
Metallisation Wire 01E/17E/25E Aluminium & Alloys	2.0mm 2.3mm	8.5	2.88
Metallisation Wire 021E Zinc/Aluminium 85/15	2.0mm 2.3mm	31	1.00
Metallisation Wire 05E Copper	1.6mm	15(@300A)	0.91
Metallisation Wire 30E,35E,45E, 55E,57E,60E 65E,80E,84E Steels	1.6mm	13.6(@300A)	1.02
Metallisation Wire 75E Nickel Aluminium	1.6mm	16.4(@300A)	1.09
Metallisation Wire 10E Aluminium Bronze	1.6mm	13.6(@300A)	1.37
Metallisation Wire 15E Phosphor Bronze	1.6mm	19(@300A)	0.91
Metallisation Wire 70E/71E Monel	1.6mm	17.2(@300A)	1.02
Metallisation Cored Wire 103T FeCrB	1.6mm	7.2(@180A)	1.18

Throughput is assumed to be independent of wire diameter. Preferred wire diameter shown in bold. 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
SUP340-5-PLC	ARC340 5mtr supplies pack with air cooled cables

STANDARD SUPPLIES PACKAGE INCLUDES



Power, Air and
Control Cables



Wire Conduits

Technical overview

- ✦ 5 meter supplies package for integration to energiser.
- ✦ Steel reinforced conduits for extended service life.
- ✦ Lightweight air-cooled conductor cables reduce the operator supported weight & fatigue.
- ✦ Power cables fitted with twist and lock connectors into the energiser. Air hoses fitted with quick release fittings into the energiser.

TOOLKIT

Appropriate hand tools are supplied with the Arcspray system along with an operating manual and pistol case

ENERGISER

Part No.	Description
2220A-PLC	S250 (ARC340) Energizer with PLC control
2220AD-PLC	S250 (ARC 340) Energizer with PLC control (220/380/440V)
2227A-PLC	S350 (ARC340) Energizer with PLC control
2227AD-PLC	S350 (ARC 340) Energizer with PLC control (220/380/440V)



These energisers have been specifically designed for those users who are likely to spray a varying range of materials. Ideally suited for the General Engineering Workshop and Anti-corrosion industry.

TECHNICAL OVERVIEW

- ✦ PLC control for improved reliability and ease of maintenance/fault finding
- ✦ Over-current protection
- ✦ Continuous operation current ratings (250A and 350A) at 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
- ✦ 220V/380V/440V input supply options available (hard wired)

S250 energiser specification

Description	Characteristics
Input Power Requirements	380/440V 50-60Hz 3 Phase
Optional Input Power	220V 50-60Hz 3 Phase
Fusing Required	20A/Phase (415V input)
Max Power Consumption	12 KVA
Duty	0-250 Amps @ 100% Duty Cycle
Output Voltage	0-50Vdc (nominal) Switched High/ Low & 1 – 5
Air Requirements	1.28m ³ /min @ 6bar (45cfm @ 90psi)
Weight	205 Kgs
Dimensions (W x L x H)	680mm x 900mm x 913mm

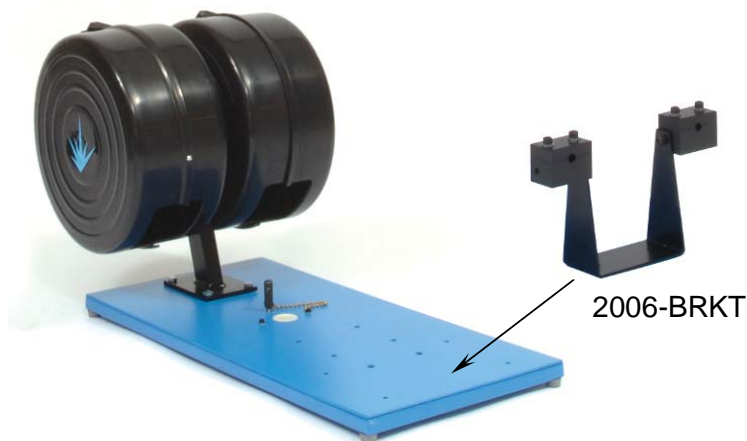
S350 energiser specification

Description	Characteristics
Input Power Requirements	380/440V 50-60Hz 3 Phase
Optional Input Power	220V 50-60Hz 3 Phase
Fusing Required	28A/Phase (415V input)
Max Power Consumption	16 KVA
Duty	0-350 Amps @ 100% Duty Cycle
Output Voltage	0-50Vdc (nominal) Switched High/ Low & 1 – 5
Air Requirements	1.28m ³ /min @ 6bar (45cfm @ 90psi)
Weight	215 Kgs
Dimensions (W x L x H)	680mm x 900mm x 913mm

WIRE DISPENSE

MIG REEL WIRE DISPENSER

Part No.	Description
2006-MIG	Wire Dispenser for MIG Reels
2006-BRKT	MIG Reel conduit bracket assy



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 and most engineering materials available on MIG reels.
- ✦ Designed to ensure a smooth wire feed to the pistol.

OPTIONS

ARCBEAM

Part No.	Description
ARCBEAM	Arcbeam System Kit for ARC340/ARC528E, 1.6mm wires
ARCBEAM(2.0)	Arcbeam System Kit for ARC340/ARC528E, 2.0mm wires
ARCBEAM(2.3)	Arcbeam System Kit for ARC340/ARC528E, 2.3mm wires



Also comes with 6m air hose to connect to energiser (can be longer on request)

Technical overview

- ✦ Reduces Arcspray footprint by forming a cone of compressed air outside the spray stream.
- ✦ Finer Coatings
- ✦ Improved Deposit efficiency when spraying onto small components (less overspray).
- ✦ Less apparent porosity.
- ✦ Increased hardness due to higher oxide content

Technical data

Description.	Characteristic
Maximum Current	350 Amps
Compressed Air	0.7m ³ / min @ 3.5 Bar

ARC EXTENSIONS

Part No.	Description
ARCEXT*150	Arcspray340/528 extension, 1.6mm wires, 150mm long
ARCEXT*500	Arcspray340/528 extension, 1.6mm wires, 500mm long
ARCEXT*1000	Arcspray340/528 extension, 1.6mm wires, 1000mm long
ARCEXT*1500	Arcspray340/528 extension, 1.6mm wires, 1500mm long



Also comes with 6m air hose to connect to energiser (can be longer on request)

Picture shows extension fitted to ARC140 pistol

Technical overview

- ✦ Suitable for internal bores (min Diameter 75mm) or recesses.
- ✦ Variable deflected spray from 0 to 75 Degrees

Technical data

Description.	Characteristic
Maximum Current	200 Amps
Compressed Air	0.6m ³ / min @ 4.5 Bar

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