

ARC528E-BL4-ICC



Equipment Spec

Introducing the ARC528E-BL4-ICC



The BL4 range of our 528 is our latest lineup of machine mount pistols, boasting unparalleled performance and reliability.



Introducing the NEW ARC528E-BL4-ICC system – the latest advancement in arcspray technology. This upgraded system builds on the trusted ARC528E platform, now equipped with a high-performance brushless 4-wheel drive motor for superior wire feed control. Paired with the robust and reliable S245/345-ICC-BL constant current energiser, this setup delivers stable, repeatable performance

across a wide range of spray applications. The energiser features intelligent closed-loop control and user-friendly interface software, allowing seamless adjustment between open and closed loop operation. Designed for demanding environments, this system offers enhanced control, process consistency, and flexibility—ideal for high-throughput, precision coating tasks.

**BRUSHLESS
DC
MOTOR**



- Industrial Build
- High Performance
- Simple Maintenance



A complete arc spraying system combining our ARC528E-BL4 brushless pistol & NEW BL model 250/350 Amp Energiser

CLOSED-LOOP

CURRENT CONTROL



System Overview



NEW BRUSHLESS PISTOL

- ✦ New brushless motor
- ✦ Armature voltage feed-back.
- ✦ Consistent throughputs.
- ✦ Contact tips easily changed.
- ✦ Carbon fibre reinforced.
- ✦ Industrial 3D printed parts.

BL SERIES ENERGISER

- ✦ Fan on demand saves power and reduces noise.
- ✦ Robust push button current control.
- ✦ Industrial plugs / sockets.
- ✦ Designed for Brushless Pistol.

SUPPLIES PACKS:

- ✦ Lengths to suit.
- ✦ Industrial connections.
- ✦ Robust protective cover.
- ✦ 5 or 10 meter supplies package as standard with all fittings appropriate to connect.

LIGHTWEIGHT

**HIGH
PERFORMANCE
IN AN EFFICIENT
PACKAGE**

DURABILITY

ERGONOMIC

RELIABILITY



Pistol

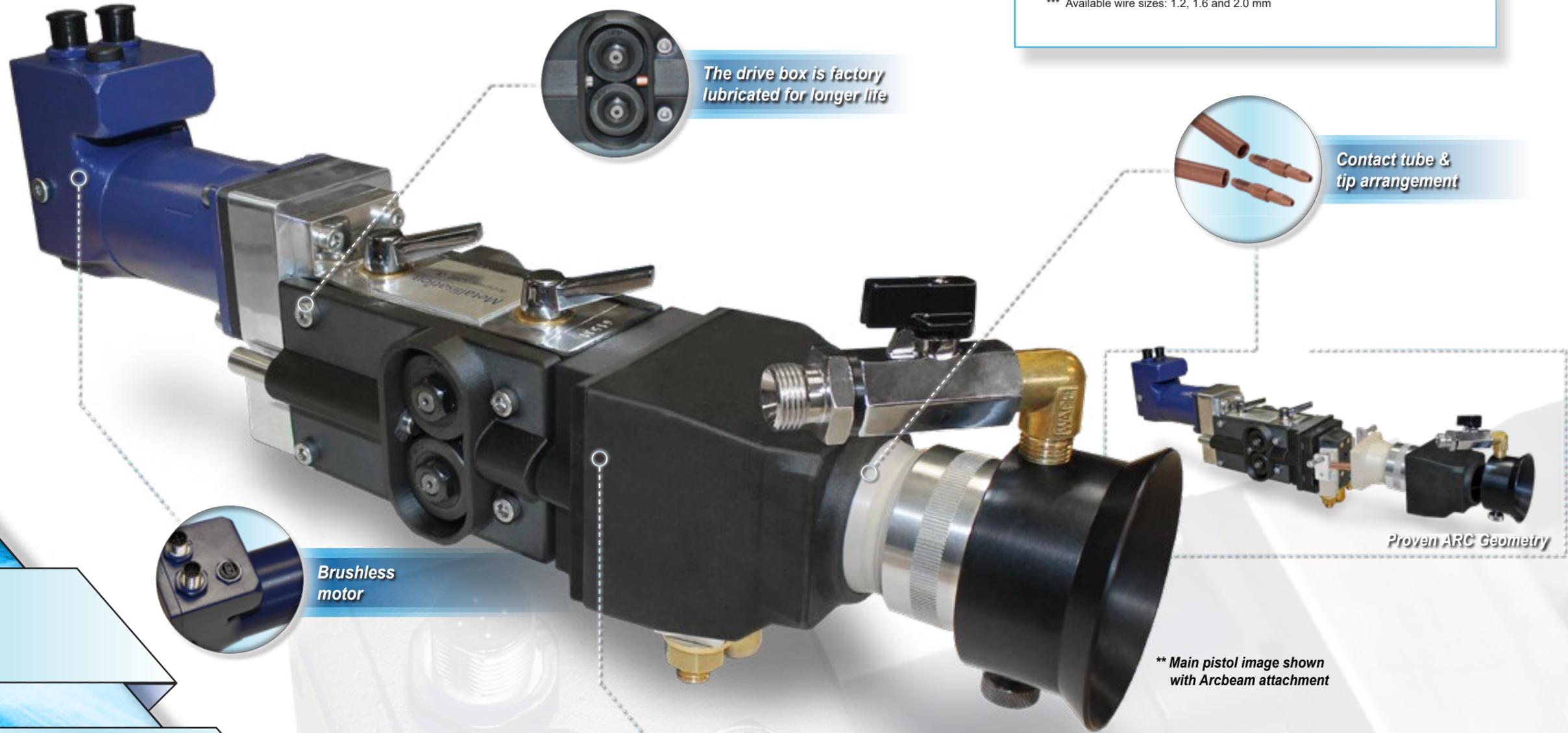
Our ARC528E-BL4-ICC pistols incorporate the new BL servo motors. These are more efficient due to the absence of brushes, resulting in less friction and wear. With no brushes to wear out, they offer greater reliability and longevity for continuous operation. They provide highly precise control over speed and position, enabling smoother operation and finer adjustments. It offers a simpler design with a more compact and lightweight motor compared to previous 528 models which are suitable for space-constrained applications.

HIGH TORQUE OUTPUT

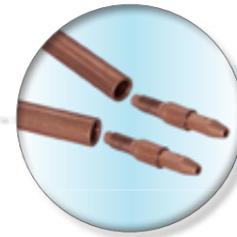
OPTIONS

Part No.	Description
ARC528E-BL4-IC-CT**	ARC528E Brushless Drive-4 (Integrated Controller) Pistol **mm Contact Tips
ARC528E-BL4-CT***AB	ARC528E Brushless Drive-4 (Integrated Controller) Pistol **mm Contact Tips with Arcbeam Attachment

** Available wire sizes: 1.2, 1.6, 2.0 and 2.3 mm
 *** Available wire sizes: 1.2, 1.6 and 2.0 mm



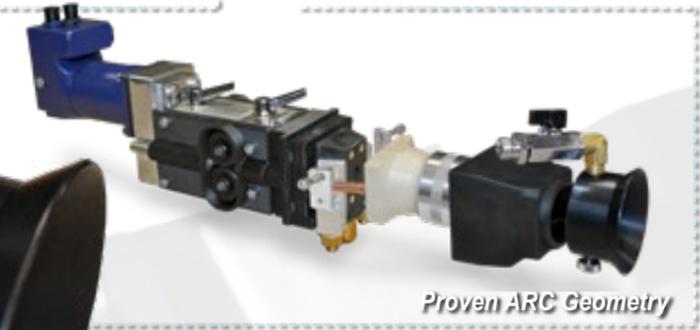
The drive box is factory lubricated for longer life



Contact tube & tip arrangement



Brushless motor



Proven ARC Geometry

** Main pistol image shown with Arcbeam attachment



Carbon fibre toughness for the harshest environments.

ROBUST ROBOT MOUNTING

INDUSTRIAL 3D CARBON FIBRE PRINTED

STRENGTH, DURABILITY & PERFORMANCE COMBINED



Efficient Brushless Motor



Requires Minimal Maintenance



Compact & Lightweight Motor



BL Version Energiser

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



Energy saving
AUTO-STANDBY mode

OPTIONS

Part No.	Description
S245-ICC-BL	S245 ARC528E-BL4 Energiser with closed loop current control
S345-ICC-BL	S345 ARC528E-BL4 Energiser with closed loop current control

Dust proof current control & closed loop indicator



LED & Ethernet fault alarm feedback



Sturdy control connections



100% DUTY CYCLE

INDUSTRIAL CONNECTIONS



New case design & rear handle



Inbuilt pistol control system



IP65 Gorilla Glass LED gauges



Claw and whip-check air connection on rear.



Sturdy Harting Connections



Push Button Current Set



Fan On Demand



Wire Dispense



Through the Metallisation wire dispensing cone, wire is neatly guided to a dispense point, then over the pulley to give a free passage of wire from the drum to pistol. Alternatively, a MIG dispenser is available designed specifically to suit Arcspraying.

OPTIONS

Part No.	Description
21252-51A	Wire Dispensing Cone with Adjustable Reeling Pulley Assembly (51CM)
21252-56A	Wire Dispensing Cone with Adjustable Reeling Pulley Assembly (56CM)
21252-59A	Wire Dispensing Cone with Adjustable Reeling Pulley Assembly (59CM)
6274/5	Clamp Blocks (Pair) 1/2"
7144	1/2" Dia Ptfе Tubing
ARC145-M	MIG Dispenser for ICC-BL style energisers

Plastic drum cone with viewing window



Variable position clamp pad assembly



150 / 250 KG FOR ZINC

200 KG FOR ZINC / ALUMINIUM

60 KG FOR ALUMINIUM

MIG dispensing assembly option



21252-51A
21252-56A
21252-59A



6274/5



7144

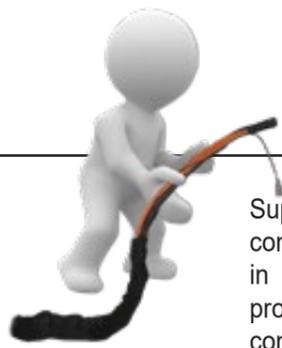
Smooth Pulley Action



Large Viewing Window



Built To Last



Supplies Package

Supplies packages for ARC528E-BL4-ICC systems vary dependant on the specific configuration of your system. A standard supplies package is 5 or 10 metres in length with all fittings appropriate to connect to the pistol and energiser. A protective cover is supplied for protection in a workshop environment. Various wire conduits are available to suit different applications and wire dispensing methods. The system supplies connect from the energiser to the pistol and include the power, air & control cables & wire conduits in the suitable size for the system.

**ROBUST
& STURDY
COVERS**

OPTIONS

Part No.	Description
SUP528E-BL4-5M	ARC528E-BL4 5m supplies pack for S245/S345-ICC-BL energiser
SUP528E-BL4-10M	ARC528E-BL4 10m supplies pack for S245/S345-ICC-BL energiser
QR528E-S250/350-C	Quick Release Power Connectors Only for S250/350 System Supplies (2 Cables)
QR528E-S250/350-P	Quick Release Hose & Power Connectors for S250/350 Pistol (2 Cables)



Twist & lock power cables and quick release air hose



Industrial connection on control cable



NB: Image demonstrates quick release fittings for the power and control cables plus the air hose. These are located approximately 1m from the pistol.

QR528E-S250/350-C
Cables / hoses are not provided with the quick release kits unless ordered with a complete supplies pack. Parts as standard are the **Cable Sockets** and the **Cable Plugs ONLY**.

QUICK RELEASE OPTIONS

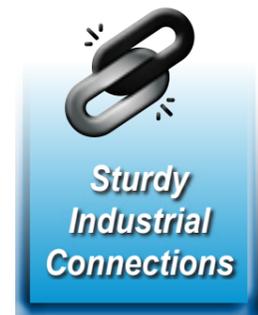
QR528E-S250/350-P
Desirable if a spare pistol is ordered and the user requires the second pistol to have its own quick release cables / hoses attached. With these kits cables, hoses and other necessary fittings **are included**.

DEDICATED CONDUITS FOR 5M LENGTHS

PTFE TUBING FOR LONGER LENGTHS



NB: Above image is an example only, of how the quick release cables and hoses connect to the rest of the supplies.



Optional Accessories



Arcbeam system kit



Remote operation & pendants



Arc extension



(19) series data kits connectivity & industry 4.0 feedback

A number of accessories are available to further enhance the arc spraying process:

- ✦ The Arc beam system kit.
- ✦ Arc Extension.
- ✦ Remote operation and pendants.
- ✦ Data kits.

They are easily integrable and designed specifically for the Metallisation arc spraying systems.

**FOOTPRINT REDUCING
ARC BEAM**

**SEMI-AUTO SAFE
OPERATION PENDANT**

OPTIONS

Part No.	Description	Part No.	Description
ARCBEAM SYSTEM KIT		ARC EXTENSION	
ARCBEAM-1.6/2.0	Arcbeam System Kit for ARC528E-ICC/ ARC340-PLC using 1.6mm or 2.0mm wires	ARCEXT-XX	Arcspray340/528 extension, 1.6mm wires, XXmm long
ARCBEAM-2.3	Arcbeam System Kit for ARC528E-ICC/ ARC340-PLC using 2.3mm wires	XX = Lengths available (150mm, 500mm, 1000mm, 1500mm)	
21601/*	3/8" QR Air Hose (* x 6 / 11 / 16 / 21 m)	21601/*	3/8" QR Air Hose (* x 6 / 11 / 16 / 21 m)
REMOTE OPERATION & PENDANTS			
ICC-PENDANT	Remote operation pendant for ICC energisers		
(19) SERIES ENERGISER DATA KITS			
DATA(16)-K	Data Kit for (16) Series Energizers		



ARC BEAM KIT

The Arc beam system kit reduces the arcspray footprint by forming a cone of compressed air outside the spray stream. This provides several benefits such as finer coatings and improved deposit efficiency when spraying onto small components.



ARC EXTENSION

The Arc extension is suitable for internal bores (min diameter 75 mm) or recesses and has a variable deflected spray from 0 to 75 degrees. It is available in 4 standard lengths, 0.15 m, 0.5 m, 1 m and 1.5 m. Refer to the Detailed Specifications section of this document for further information.



REMOTE PENDANTS

The remote pendant allows remote operation of the system when a pistol is mounted to a robot or manipulator. It connects into the energiser in a dedicated socket on the rear of the energiser. If remote connection is made, the pistol cannot be operated from the pistol buttons and there is no need to remove the pistol control cable from the front of the energiser.



DATA KITS

The data kit allows spraying parameters and operational data to be read from the energiser. It connects via an Ethernet cable to a port that is installed on the rear of the energiser. The Ethernet cable can then be connected into a PLC, or an HMI screen or via a web browser on a laptop and the values will be written to specified registers.



Packaged Systems

Our most commonly supplied systems are offered as a package with a single part number. Part numbers are made up of the pistol followed by the desired energiser, wire size and supplies length. Note: the closer the drums are to the pistol the better the efficiency as there is less wire drag / wire slip. Examples are provided below:



Typical System Configurations

Metallisation has the right configuration for all requirements. Below are some typical set ups. Variations of these configurations may be possible. Please contact Metallisation to discuss your specific application requirements.



STANDARD CONFIGURATIONS



5m as standard from wire to pistol. Longer lengths are possible*

PULL WITH WIRE DRUMS

- ① ICC-BL Model Energiser - 250A or 350A.
- ② Wire in drums or coils (use 2-tier wire dispenser - 3m max wire drive to drive)
- ③ 5 or 10m supplies from energiser drive to pistol.
- ④ ARC528E-BL4 Pistol.

Most commonly used for high volume production applications such as tube mill weld repair, multi-void tubes coating, capacitor coating and LPG cylinders etc. The material in drums minimises downtime due to material changes.

EXAMPLES

Part No.	Description
ARC528E-BL/S345-1605M	ARC528E-BL4-ICC/S345-ICC-BLSystem, 1.6mm, 5M Supplies, MIG Dispense
ARC528E-BL/S245-1210M	ARC528E-BL4-ICC/S245-ICC-BLSystem, 1.2mm, 10M Supplies, Drum Dispense



MIG System Inclusions

INCLUDING

- ✦ 1 x Pistol (wire size as indicated).
- ✦ 1 x Supplies package (length as indicated).
- ✦ 1 x S245-ICC-BL or S345-ICC-BL Energiser.
- ✦ 1 x ARC145-M MIG dispenser and drive unit.
- ✦ 1 x Toolkit.

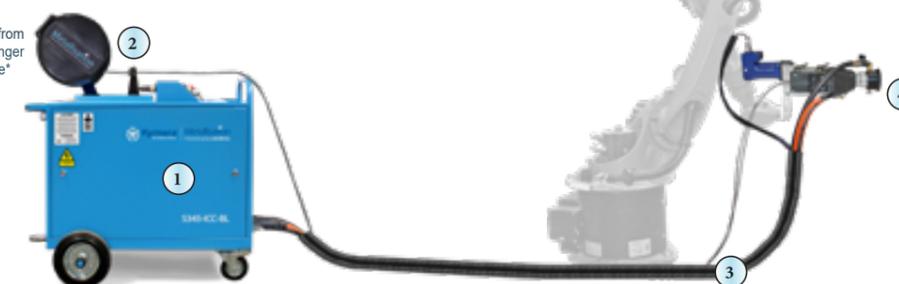


Drum System Inclusions

INCLUDING

- ✦ 1 x Pistol (wire size as indicated).
- ✦ 1 x Supplies package (length as indicated).
- ✦ 1 x S245-ICC-BL or S345-ICC-BL Energiser.
- ✦ 2 x 21252-51A Wire Dispensing Cone with Adjustable Reeling Pulley Assembly (51CM)
- ✦ 4m PTFE conduit & 2 x clamp blocks (pair).
- ✦ 1 x Toolkit.

5m as standard from wire to pistol. Longer lengths are possible*



Most commonly used for lower volume production applications and mainly engineering coatings where materials are not available in drums or coils.

PULL WITH WIRE IN MIG REELS

- ① ICC-BL Model Energiser - 250A or 350A.
- ② MIG Reel Dispense (can be mounted on Energiser, wall, floor or trolley).
- ③ 5 or 10m supplies from energiser to pistol.
- ④ ARC528E-BL4 Pistol.

* Standard distance from wire to the pistol is 5m. Within the industrial applications, longer lengths are achieved. Consideration must be taken to minimise the drag / resistance of the wire during feeding. In practice, this means keep the wire run as straight as possible and use free running, large diameter pulleys when changing wire direction. When running in conduit, PTFE should be used.

Detailed Specifications



ARC528E-BL4-IC-CT PISTOL

Detailed Specifications

- Brushless DC Motor Technology
- Closed arc for improved spray conditions and efficiency.
- No requirement to change feed rollers when changing wire sizes.
- Standard 1.6, 2.0, 2.3 and 2.5mm wire size.
- Contact tips accessible and easily changed without dis-assembling the spray head.
- CG (constant geometry head) ensuring smooth feed, repeatable wire alignment and no adjustment of contact tubes required.
- Long contact tube and tip arrangement – improved coating quality and reliability due to optimised heat dissipation.
- Armature voltage feed back for closed loop wire speed control.
- Tacho feedback for Motor speed display and integration into closed loop production systems.
- The drive box is factory lubricated for longer life.
- A range of spray head sizes to accommodate high spray rates, large wire diameters and fine coatings, small wire diameters.
- Designed to spray both anti-corrosion and engineering coatings.

Key Information

Width	82 mm (3.2 ")
Length	436 mm (17 ")
Height	164 mm (6.5 ")
Weight	4.25 kg (9.4 lbs)
Maximum Current	450 Amps

Typical Performance Figures

MATERIAL	WIRE DIAMETER	THROUGHPUT (KG/HR @ 250 A/ current shown)	SUBSTRATE COVERAGE m ² / kg / 100 μm
Metallisation Wire 02E Zinc	1.6mm / 2.0mm	26 / 36.0 (@350A)	0.82
	2.3mm		
Metallisation Wire 01E/17E/25E/28E Aluminium & Alloys	1.6mm / 2.0mm	6 / 8.5 (@350A)	2.88
	2.3mm		
Metallisation Wire 021E Zinc/ Aluminium 85/15	1.6mm / 2.0mm	22 / 31.0 (@350A)	1.00
	2.3mm		
Metallisation Wire 05E Copper	1.6mm	12.5 / 15 (@300A)	0.91
Metallisation Wire 30E,35E,45E, 55E,57E,60E 65E,80E,84E Steels	1.6mm	11.3 / 13.6 (@300A)	1.02

*Unless specified the above figures are based on spraying at around 4-6" (100mm-150mm) from nozzle to target piece.

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.

Detailed Specifications



S245/S345(19)-PLC ENERGISER

Detailed Specifications

- 250 / 350 Amp Continuous operation (100% duty cycle).
- Large 'Site Capable' wheels and rigid handle offers portability on site and in workshop.
- Dust proof push button control - for current setting.
- Fan on demand (energy saving and noise reduction when not spraying).
- PLC control for improved reliability and ease of maintenance / fault finding.
- Sealed electrical control circuit - reduces dust ingress for added reliability.
- Specifically designed to suit only ARC spraying.
- LED and Ethernet fault alarm feedback.
- LED mode indicator for closed / open loop mode.
- Closed Loop Current Control – easily switchable / reliable spray rate / over-current protection.
- Robust industrial connections as standard for all control cables.
- Claw and whip-check air connection.
- Air regulators with 'lock-off' potential.
- Digital air pressure switches with display for easy setting and diagnostics
- Thermal switch on rectifiers.
- Heat sink increased for better thermal dissipation.
- Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR). Shake-proof terminals minimise risk of loose control connections.
- Switched output voltage control.
- 220V/380V/415V input supply options available (hard wired).
- Remote operation E-stop kit allows energiser to be started/ stopped remotely via a pendant or interfaced into an automation E-stop circuit. It comes with a plug that can be wired as required.
- ICC energiser interface signals include: Air/Voltage on/off, motor on/off, motor on lamp, air on lamp, system reset, reset lamp, motor speed (0-10v), spray voltage (0-50v), spray current (0-10v), spray fault, tacho input to vary spray current with line speed (4-20mA or 0-10v)
- 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.

Key Information

	S245-ICC-BL	S345-ICC-BL
Dimensions (W x L x H)	670 mm x 1220 mm / 910 mm 26.4 " x 48 " x 36 "	
Weight	243.8 kg (537.5 lbs)	253.8 kg (559.5 lbs)
Input Power Requirements	380/415/460 V 50-60Hz 3 Phase	
Optional Input Power	200/220 V 3 phase 50/60hz	
Fusing Required	21A @ 415 Vac 23A @ 380 Vac 40A @ 220 Vac 44A @ 200 Vac	26A @ 460 Vac 29A @ 415 Vac 31A @ 380 Vac 55A @ 220 Vac 60A @ 200 Vac
Max Power Consumption	15 KVA (46 Vdc/250 A output)	21 KVA (46Vdc/350 A output)
Typical Power Consumption	8.5 KVA (Zinc 26 Vdc/250 A output) 12 KVA (Aluminium 35 Vdc/250A output)	12 KVA (Zinc 26 Vdc/350 A output) 16 KVA (Aluminium 35 Vdc/350 A output)
Duty	0-250 AMPS @ 100% Duty Cycle	0-350 AMPS @ 100% Duty Cycle
Output Voltage	0-49 Vdc Switched High/Low & 1 – 5 (Nominal Spray Voltage 19 to 44Vdc)	
*Typical air consumption	1.3m ³ /min @ 5.5 bar(g) (for 4.5 bar(g) nozzle pressure) with arcbeam an additional 0.85m ³ /min is required	
*Max air consumption	1.6m ³ /min @ 6.5 bar(g) (for 5.5 bar(g) nozzle pressure) with arcbeam an additional 1.05m ³ /min is required	

*Air consumption figures are for guidance only and will vary depending on pistol head set up.



DIGITAL DISPLAYS

- Easy to read with scale and numerical display.
- Higher accuracy than traditional gauges.
- Warning alert status (ammeter turns red if over-current).
- Wide viewing angle with high contrast for ease of viewing inside or out.
- IP65 rated and Gorilla glass screens.

Detailed Specifications



Technical Information

Maximum Current	450 Amps
Compressed Air	0.7 m³ / min @ 3.5 Bar

ARC BEAM SYSTEM KIT

Detailed Specifications

- Reduces Arcspray footprint by forming a cone of compressed air outside the spray stream.
- Finer coatings resulting in lower porosity.
- Improved Deposit efficiency when spraying onto small components (less overspray).
- Increased hardness due to higher oxide content.
- Air hoses with quick release connections to connect the accessories to the auxiliary air supply on the energiser.



Technical Information

Maximum Current	200 Amps
Compressed Air	0.6m³/ min @ 4.5 Bar

ARC EXTENSION

Detailed Specifications

- Available in 4 standard lengths: 0.15 m, 0.5 m, 1 m, 1.5 m.
- Suitable for internal bores (min Diameter 75 mm) or recesses.
- Variable deflected spray from 0 to 75 Degrees.
- Air hoses with quick release connections to connect the accessories to the auxiliary air supply on the energiser. Lengths supplied to suit our standard 5m and 10m packs: 21601/6 and 21601/11.



Data available:

- Motor indication** (on when power is supplied).
- Air ON indication** (on when the air solenoid is open).
- Reset Required Indication** (on when a reset is required).
- Spray Current** – output value = actual spray current.
- Spray Voltage** – output value = actual spray voltage.
- Motor Speed** – output value = actual motor speed feedback.
- Nozzle Air Pressure** – output value = nozzle air pressure in bar
- Auxiliary Air Pressure** – output value = auxiliary air pressure in bar.
- Fault indications** (over temperature, low air pressure, over current).

DATA KIT

Detailed Specifications

- The data kit allows information to be read from the energiser. It connects via an Ethernet cable to a port that is installed on the rear of the energiser.
- The Ethernet cable can be connected directly into a Siemens PLC, into an HMI screen (either programmable or not) that has an Ethernet port (for example, Proface or Simatic screen), or to a web browser on a laptop.
- Once connected, the values from the energiser will be written to specified registers.
- Industry 4.0 feedback.

Detailed Specifications



Note:

Pendant comes with 10m control cable to connect to energiser (can be longer on request).

REMOTE OPERATION

Detailed Specifications

- The 'PENDANT' consists of a remote operation pendant to start/stop the system and also has an E-stop button for safe operation.
- Allows remote operation of the system for when pistol is mounted to a robot or manipulator.
- Connects into energiser in a dedicated socket on the rear of the energiser. If remote connection is made, the pistol cannot be operated from the pistol buttons.



Part Numbers:

ARC145-M	MIG Dispenser for BL-ICC style energisers
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MIG REEL WIRE DISENSER

Detailed Specifications

- 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.



Part Numbers:

2006-2T	2-Tier Wire Stand - Without Wire Straighteners
5006A	Wire Straightener (Arc) Pair

TWO TIER WIRE DISPENSE

Detailed Specifications

- Suitable for dispensing raw materials that are only available in coil form.
- Can fit MIG reels to centre core.
- Includes 6m of conduit to feed to the drive unit and clamp pads.
- 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.
- Optional wire straightener can be supplied for use with stiff wires (typically 2.3mm engineering wires).



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