

ARC1020



Equipment Spec

Introducing the ARC1020

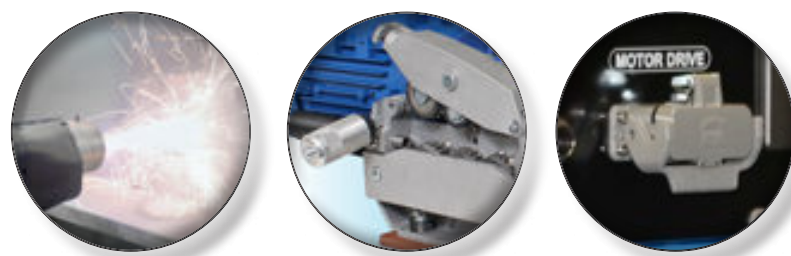


The ultimate in reliability and precision for ultra-high throughput, demanding production applications with anti-corrosion coatings.

DESIGNED
FOR THE
TOUGHEST
ENVIRONMENTS

Introducing the **NEW ARC1020**. The industrial pistol features a wire drive 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 new and unique, constant geometry (CG) head. The air cap & concentrator now incorporates a new quarter twist lock system held in position with a spring loaded location plunger. This ensures smooth and consistent spray

quality, & minimal downtime when changing consumable spares. Supreme flexibility is also a keynote of the ARC1020. The pistol connects to Metallisation energisers, either 1000 A or 1500 A 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. Please discuss your specific requirements with Metallisation.



RELIABILITY
POWER
CAPABILITY



ALARM
INDICATIONS
display on
all screens



A complete arc spraying system combining our NEW ARC1020 industrial pistol & (17) Model 1000 or 1500 Amp Energiser.

INDUSTRIAL

ROBUST DESIGN



System Overview

**DUTY
CYCLE
RATING
45°**



NEW INDUSTRIAL PISTOL:

- Unprecedented performance.
- Carbon fibre reinforced cover.
- Incremental tension adjustment.
- Sealed gearbox.
- Integrated spreader.
- 900 W Motor.

'17' SERIES ENERGISER:

- New high contrast digital touchscreen display.
- Data monitoring allows info to be read from energiser.
- Industrial plugs / sockets.
- 1000 or 1500 Amp options.

SUPPLIES:

- 5, 10 and 25 meter supplies packages for integration to energisers as standard.
- Conduits - 5 m as standard.
- Other lengths available.
- Quick release at pistol end.

WIRE DISPENSE:

- Suitable for fibre drum & larger capacity steel drums.
- Specifically designed to suit Arcspraying with each side being individually insulated.
- Small wire dispense options.

NEW FOR 2021

HIGH CURRENT

HEAVY DUTY

CLOSED ARC

Pistol

The NEW ARC1020 Pistol has been designed to give consistent throughputs with high coating quality. It is a heavy-duty unit with a robust construction, proven reliability and diagnostics. The drive box is factory lubricated and has hardened gears for longer life with 4 rollers per side and U-groove rollers for optimum wire contact & reliable drive. The new spray head has been designed to use lower air pressures with increased air flow. Included is an integrated spray stream spreader with independent control of rate of spread.

**SMOOTH
AND STABLE
PERFORMANCE
TIME AFTER
TIME**

OPTIONS

Part No.	Description
ARC1020-CT3.2	ARC1020 High Current, High Production Pistol for 3.2mm Wires <small>*1/8" zinc wires will not spray at 1500A</small>
ARC1020-CT4	ARC1020 High Current, High Production Pistol for 4mm Wires
ARC1020-CT4.76	ARC1020 High Current, High Production Pistol for 4.76mm Wires
ARC1020-WSK	ARC1020 Pistol Wire Straightener Kit (Pair)

900 W motor delivering
power and reliability

Fixed Tension
**Dependent on wire size

Fully driven
upper rollers

Four 'U' serrated
rollers per side
plus middle
guide roller

**FAST & SIMPLE
WIRE LOAD**

**UNPRECEDENTED
PERFORMANCE**

**WIDER, STRONGER
GEAR WHEELS**

Inbuilt spreader
offering variable spray

Carbon fibre
protective hood

Gull wing hood
design means
easy access to
terminals & tip
support tubes

Contact tube and
tip arrangement
for accessibility
& maintenance

Base plate with eight
hole configurations

Allowing mounting in a full
360 on the X plane or with its
fully encased gearbox and fully
encapsulated cover enabling
rotation through 360 on the Y
plane

Carbon
Fibre
Toughness

360°
Mounting

Inbuilt
Spreader



'17 Series' Energiser

The technology within the energiser is specifically designed to smooth the power required to give the optimum arcspray coating. A new but widely used Siemens Logo Logic Module 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.



*E-stop integration
to link from and /
or to production
equipment*

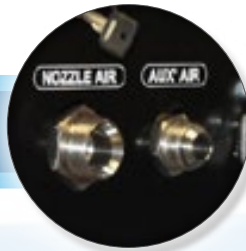
OPTIONS

Part No.	Description
S1000(17)-EIR-AUX	S1000(17) Energiser for ACD pistol with auxiliary air supply
S1000FV(17)-EIR-AUX	S1000FV(17) Energiser for ACD pistol with auxiliary air supply 200-220v
S1500(17)-EIR-AUX	S1500(17) Energiser for ACD pistol with auxiliary air supply
S1500FV(17)-EIR-AUX	S1500FV(17) Energiser for ACD pistol with auxiliary air supply 200-220v

*Push buttons with improved
dust ingress protection*



*High throughput
air connections*



*New high contrast
digital display*



*Rugged harting connectors
and claw sitting air input*



*Enlarged rectifiers rated for high
performance, duty cycle & long life*



100% DUTY CYCLE

HIGH POWER COMPONENTS



**Sturdy
Harting
Connections**



**Touch
Screen
Controls**



**High
Contrast
Display**



Supplies Package

The system supplies connect from the energiser to the pistol. They include the power, air & control cables & wire conduits in the suitable size for the system up to 25 m (Conduits - 5 m as standard). Refer to system configuration pages to select supplies lengths.

DESIGNED
TO
LAST

OPTIONS

Part No.	Description
SUP1020-S****(17)-5M	5Mtr Supplies Package for ARC1020-S****(17) System
SUP1020-S****(17)-10M	10Mtr Supplies Package for ARC1020-S****(17) System
SUP1020-S****(17)-25M	25Mtr Supplies Package for ARC1020-S****(17) System
QR1020-S****(17)-C	Quick Release Power Connectors Only for S1000(17) System Supplies

**** S1000 and S1500 versions available

Industrial connections
as standard



Air hose with
threaded fittings



Quick release as
standard at
pistol end

QUICK RELEASE SUPPLIES OPTION



Power cables are not provided with the quick release kits unless ordered with a complete supplies pack. Parts as are the Cable Sockets and the Cable Plugs ONLY

Bolt On Connectors mean
less chance of current failure

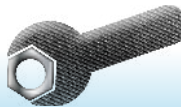


FOR (17) MODEL
ENERGISERS

5, 10 AND 25 METRE
OPTIONS AVAILABLE



Sturdy
Industrial
Connections



Bolt
On
Connectors



Twist & Lock
Connectors on
Quick Release



WIRE DISPENSE

Suitable for dispensing all zinc, aluminium or zinc/aluminium wires but specifically required for large diameter and stiff wires (4 mm/4.76 mm zinc and zinc/aluminium plus 3.2 mm aluminium).

Designed to ensure smooth wire feed to the pistol

Drum covers prevent dust contamination

Floor mounting points for fixed installations

150 / 250 KG FOR ZINC

200 KG FOR ZINC / ALUMINIUM

60 KG FOR ALUMINIUM



OPTIONS

Part No.	Description
STANDARD:	
2021-BWDD-FM	Big Drum Wire Dispense - Floor Mounted/Bolted
5006B	Wire Straightener (Optional)
FOR 1/8" ZINC WIRES ONLY:	
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)
6276/7	Clamp Blocks (Pair) 3/4"
5958	5/8" I/D-3/4" O/D Wire Conduit Tube

WIRE DISPENSING CONES (PULLEY) OPTION FOR 1/8" WIRES ONLY



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



6276/7



5958



Smooth
Wire
Feed



Large
Capacity
Drums



Rigid
Construction



Modular Wire Guide System

Our Modular Wire Guide System offers an innovative solution to the problem of arc failures due to points of high friction on the wire around bends. 45° modules can be linked together to create turns of 90°, 135° or 180° from the wire dispensing system. This also allows for improved consistency and longer runs.

**SMOOTH
LOW FRICTION
FEEDING**

OPTIONS

Part No.	Description
COMPLETE ASSEMBLIES	
30393PLW	Wire dispensing cone (plastic with viewing window), 51cm drums inc 90° wire module to suit PTFE conduits-Large Wires (2.5-5.0mm)
INDIVIDUAL PARTS	
30390LW	45° Wire Guide Module-Large Wires (2.5-5.0mm)
30391LW	End Cap Connectors (A&B) 1/2" Outlet Thread-Large Wires (2.5-5.0mm)
8535	1/2" BSP to Hansen coupling
8548 & 8549	Transition Bush 1/2" BSP Male to 1/2" BSP female with leading edge & 1/2" BSP to 1/2" OD PIPE

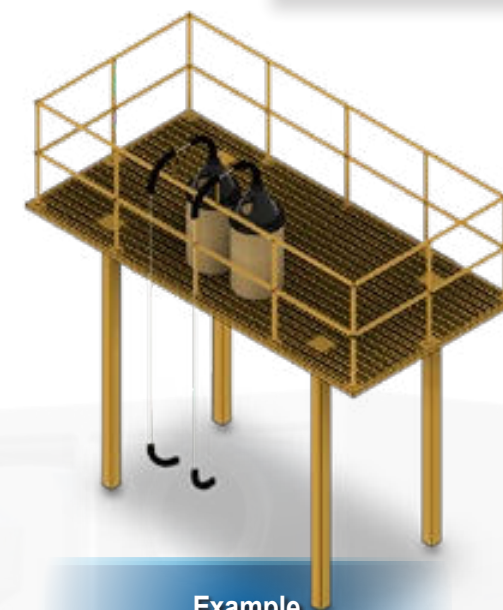
Connections to suit PTFE and Hansen Conduits



PTFE CONDUITS:
2 VARIANTS AVAILABLE TO
ACCOMMODATE DIFFERENT
WIRE SIZES



HANSEN CONDUITS



Example
Set-Up

The above illustrates the flexibility
of the system when wire drums are
situated further away and on a
different level



30390LW

30391LW

8535

8548 & 8549

OPTIONS FOR ALL WIRES

SAVES FLOOR SPACE



Reduces
Downtime



Smooth
Low Friction
Feed



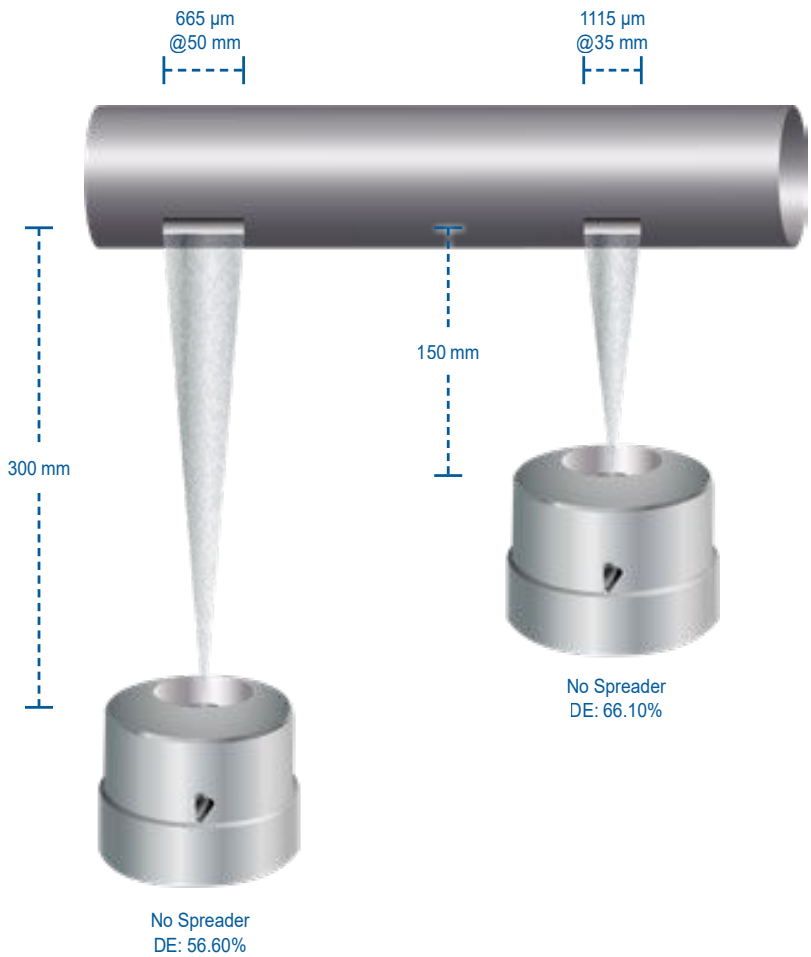
Roller &
Bearing
System



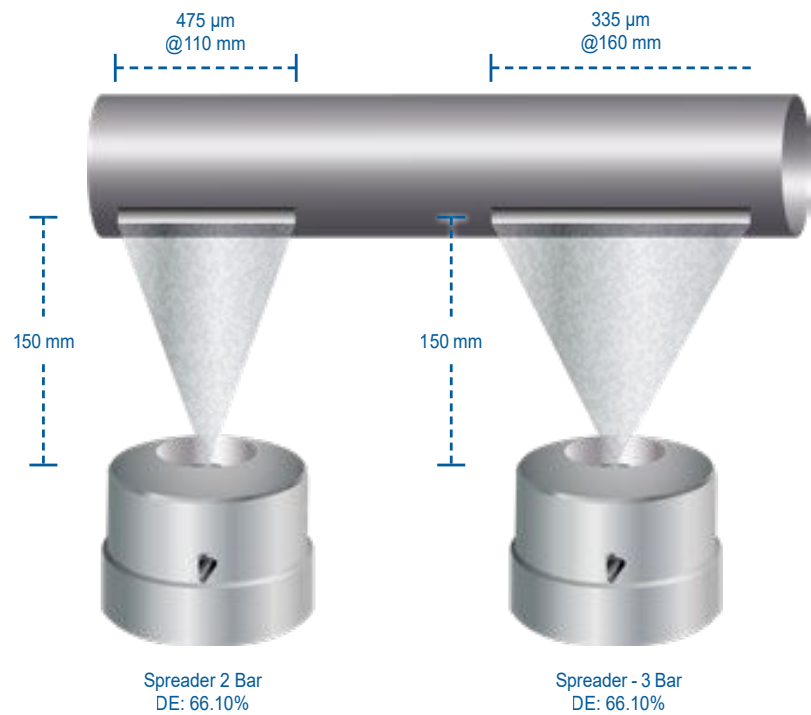
Auxiliary Spreader Examples

The ARC1020 pistol includes an integrated spray stream spreader with independent control of the rate of spread. There now follows some typical examples to better illustrate it's function (all examples completed at 1500 amps @ 100 mm/s traverse rate (3 bar nozzle pressure):

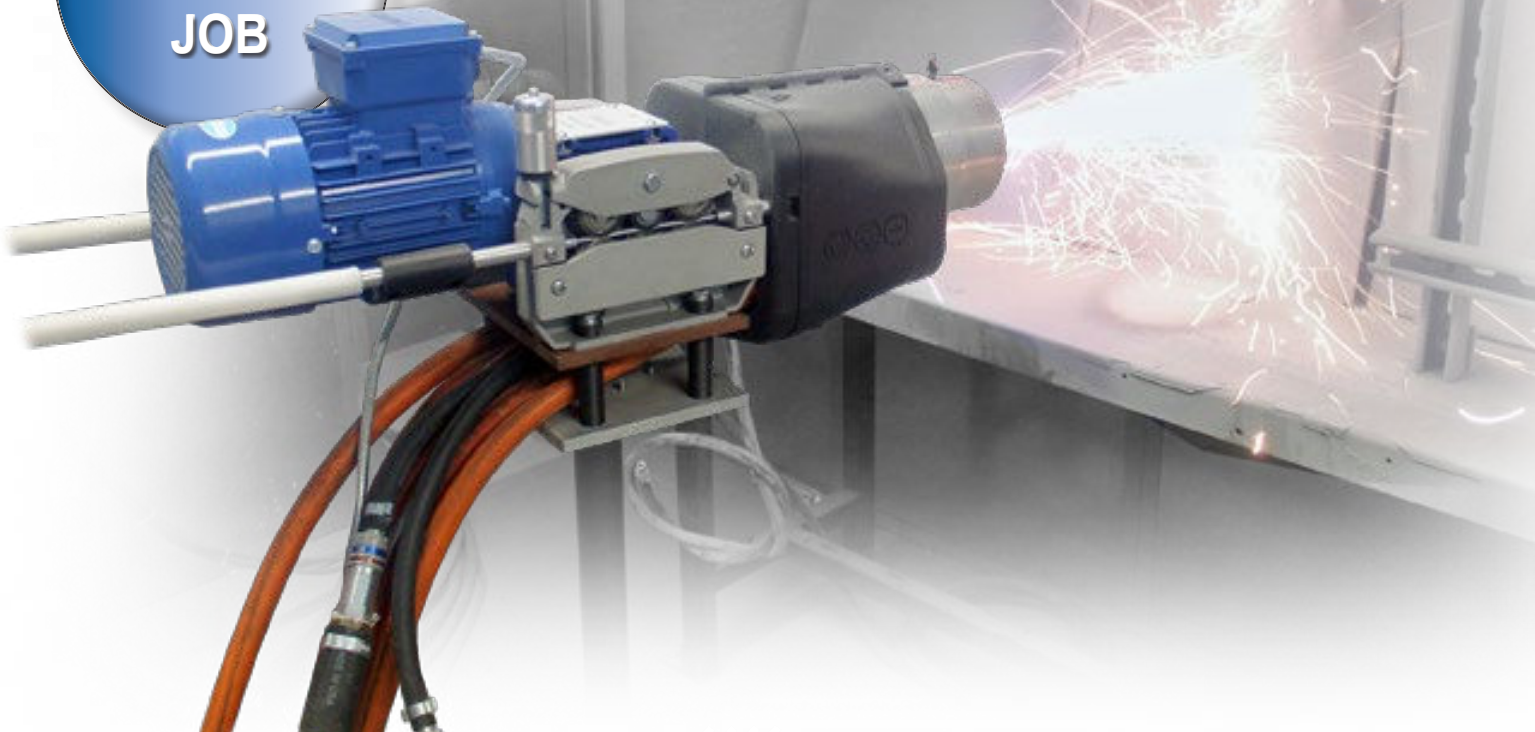
CONDITIONS:	
SPREADER	NO
MATERIAL	02E Zn
WIRE SIZE	(3/16")



CONDITIONS:	
SPREADER	YES
MATERIAL	02E Zn
WIRE SIZE	(3/16")



READY
FOR ANY
JOB



Deposit Efficiency depends on:

- Spray voltage – the lowest possible to maintain a stable arc.
- Air pressures – Nozzle air: 3-5 bar, Auxiliary air: 2-3 bar.
- Stand-off distance – see diagrams.
- Spray angle – as close to 90° as possible.
- Surface finish and temperature – 350°C is ideal.

NOTE:

All DE's are approximate and based on specific testing undertaken in lab conditions at Metallisation.





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:



EXAMPLES

Part No.	Description
ARC1020/S1000(17)-3205M	ARC1020/S1000(17) System, 3.2mm, 5M Supplies, Drum Dispense
ARC1020/S1500(17)-47625M	ARC1020/S1500(17) System, 4.76mm, 25M Supplies, Drum Dispense



System Inclusions

INCLUDING

- 1 x Pistol (wire size as indicated).
- 1 x Supplies package (length as indicated).
- 1 x S1000 or S1500(17)-PLC Energiser.
- 2021-BWDD-FM - Big Drum Wire Dispense - Floor Mounted/Bolted.

Useful Information

MATERIAL USAGE

MATERIAL	WIRE DIAMETER	THROUGHPUT (KG/HR)	COVERAGE m2/kg/100 µm
Metallisation Wire 01E/25E/28E Aluminium & Alloys	3.175 mm (1/8 ")	31.6 (@ 1000 A)	2.8
Metallisation Wire 01E/25E/28E Aluminium & Alloys	4.76 mm (3/16 ")	48 (@ 1500 A)	2.8
Metallisation Wire 02E Zinc	3.175 mm (1/8 ")	97 (@ 1000 A)	1.05
Metallisation Wire 02E Zinc	4.76 mm (3/16 ")	159 (@ 1500 A)	1.05
Metallisation Wire 21E Zinc/Aluminium 85/15	3.175 mm (1/8 ")	76.5 (@ 1000 A)	1.55
Metallisation Wire 21E Zinc/Aluminium 85/15	4.76 mm (3/16 ")	129 (@ 1500 A)	1.55

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.

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.



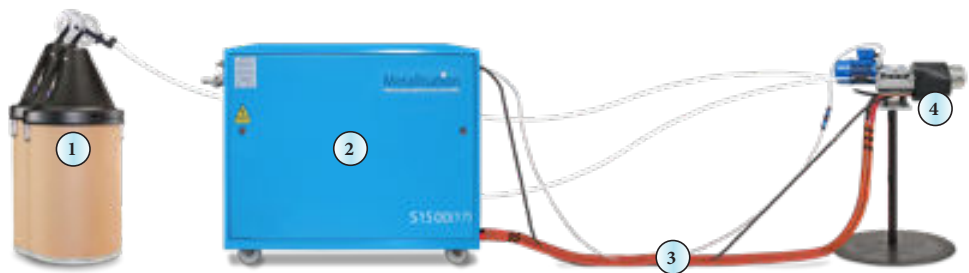
NOTE:

Drums should be 10 m max from the pistol with conduits in as straight lines/wide radius as possible.

THE PERFECT
SOLUTION
FOR EVERY
APPLICATION

STANDARD CONFIGURATIONS - 5 M

FOR
1/8" WIRES
ONLY



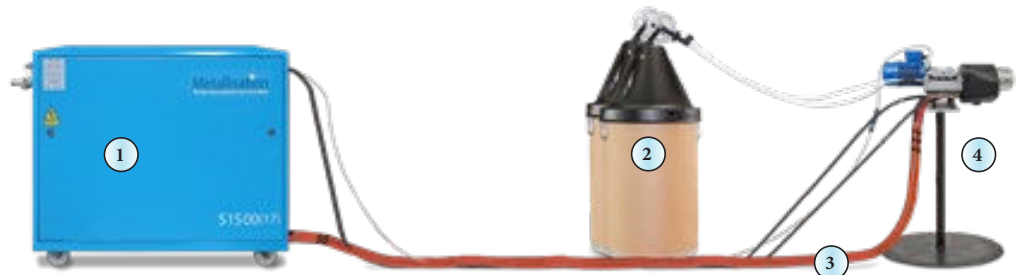
Most commonly used for in-house or on-site anti-corrosion applications when using 1/8" wires.

STANDARD DRUM DISPENSE

- ① Standard drum dispense.
- ② (17) Model Energiser - 1000 or 1500 A.
- ③ 5 m supplies from wire drive to pistol.
- ④ ARC1020 Pistol.

STANDARD CONFIGURATIONS - 10 / 25 M

FOR
1/8" WIRES
ONLY



Most commonly used for in-house or on-site anti-corrosion applications when using 1/8" wires.

STANDARD DRUM DISPENSE

- ① (17) Model Energiser - 1000 or 1500 A.
- ② Standard drum dispense.
- ③ 10 / 25 m or bespoke supplies from energiser to pistol.
- ④ ARC1020 Pistol.

BIG WIRE CONFIGURATIONS - 5 / 10 / 25 M



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

BIG WIRE DRUM DISPENSE

- ① (17) Model Energiser - 1000 or 1500 A. Big wire drum dispense.
- ② Big wire dispense (4 mm+).
- ③ 5 / 10 / 25 m or bespoke supplies from wire drive to pistol.
- ④ ARC1020 Pistol.

Detailed Specifications



Key Information

Width	240 mm (9.4 ")
Length	850 mm (33.5 ")
Height	290 mm (11.4 ")
Weight	30 kg (66 lbs)
Maximum Current	1500 Amps @100% duty cycle

Typical Performance Figures

MATERIAL	WIRE DIAMETER	THROUGHPUT (KG/HR)	COVERAGE m2/kg/100 µm
Metallisation Wire 01E/25E/28E Aluminium & Alloys	3.175 mm (1/8 ")	31.6 (@ 1000 A)	2.8
Metallisation Wire 01E/25E/28E Aluminium & Alloys	4.76 mm (3/16 ")	48 (@ 1500 A)	2.8
Metallisation Wire 02E Zinc	3.175 mm (1/8 ")	97 (@ 1000 A)	1.05
Metallisation Wire 02E Zinc	4.76 mm (3/16 ")	159 (@ 1500 A)	1.05
Metallisation Wire 21E Zinc/Aluminium 85/15	3.175 mm (1/8 ")	76.5 (@ 1000 A)	1.55
Metallisation Wire 21E Zinc/Aluminium 85/15	4.76 mm (3/16 ")	129 (@ 1500 A)	1.55

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.

ARC1020 PISTOL

Detailed Specifications

- Industrial 3D printing technology.
- Closed arc for improved spray conditions and efficiency.
- Designed to spray anti-corrosion coatings.
- Large diameter air-cooled contact tubes/tips – extended life.
- Standard 3.17mm, 4mm and 4.76mm wire size.
- The drive box is factory lubricated and has hardened gears for longer life.
- Drive box has 4 rollers per side and U-groove rollers for optimum wire contact and reliable drive.
- Motor speed feedback for display and integration into closed loop production systems.
- Integrated spray stream spreader with independent control of rate of spread.

Detailed Specifications



Key Information

	S1000(17)	S1500(17)
Dimensions (W x L x H)	700 mm x 1080 mm x 1000 mm 27.5 " x 42.5 " x 39.3 "	
Weight	519 kg (1144 lbs)	549 kg (1210 lbs)
Input Power Requirements	380/415/460 V 50-60 Hz 3 Phase	
Optional Input Power	200/220 V 3 phase 50/60 Hz	
Fusing Required	80 A @ 415 Vac 87 A @ 380 Vac 150 A @ 220 Vac 160 A @ 200 Vac	125 A @ 415 Vac 134 A @ 380 Vac 232 A @ 220 Vac 250 A @ 200 Vac
Max Power Consumption	43.5 kVA	67.5 kVA
Duty	0-1000 Amps @ 100% Duty Cycle, 45°C ambient	0-1500 Amps @ 100% Duty Cycle, 45°C ambient
Output Voltage	0-45Vdc (nominal), Manual H/L, Switched 1 - 5	
**Typical air consumption	2m³/min @ 5.5bar (4.5 Bar Nozzle pressure), with Super Spreader (@ 2.5 bar) a further 0.35m³/min is required	
**Max air consumption	2.5m³/min @ 6.5bar (5.5 Bar Nozzle pressure), with Super Spreader (@ 5.5 bar) a further 0.7m³/min is required	

***THE KVA IS BASED ON A STANDARD SUPPLIES PACKAGE LENGTH, NOTE THAT IF SUPPLIES LENGTHS INCREASE, THE VOLTAGE MUST ALSO BE INCREASED, THUS AFFECTING KVA.
** AIR CONSUMPTION FIGURES ARE FOR GUIDANCE ONLY AND WILL VARY DEPENDING ON PISTOLHEAD SET UP



DIGITAL DISPLAYS

- Easy to read with 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.
- Spray current easily controlled the from the Set Demand screen. This is achieved via the touch buttons either side of the % figure.

S1000 / S1500(17)-PLC ENERGISER

Detailed Specifications

- 1000 or 1500 Amp Continuous operation (100% duty cycle).
- 1000 Amp system has 4 power cable connections.
- 1500 Amp system has 6 power cable connections.
- Rugged harging connectors.
- PLC control for improved reliability and ease of maintenance / fault finding.
- Sealed electrical control circuit - reduces dust ingress for added reliability.
- High throughput air connections.
- Low maintenance electrical power connections.
- Push buttons with improved ingress protection.
- Latest version of Siemens Logo PLC; SD card allows easy program updates, RJ45 communications available.
- 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.
- New MCB's to provide additional electrical protection (used in-conjunction with customers own supply/fusing).
- Over-current limit protection – protects all parts of spray system from over-current, regardless of wire size or type.
- New style diodes provide massive overcapacity and long life.
- Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR).
- Integrated Arc current monitor - Stops pistol and supplies and 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 energiser. 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.
- The –AUX variants have a regulated auxiliary air supply to enable the fitting and control of a super-spreader attachment.



Metallisation
thermal spray **solutions**

Metallisation Ltd

Peartree Lane
Dudley
West Midlands
DY2 0XH
United Kingdom

Tel: +44 (0)1384 252464

Fax: +44 (0)1384 237196

Email: sales@metallisation.com

Website: www.metallisation.com