

i450/150



Equipment Spec

Introducing the i450

The worlds lightest, most productive thermal spray machine ever produced



- Extremely portable
- Friendly control panel
- Multi-process capabilities

Introducing the **NEW ARC150/i450 range**. The most innovative arcspray technology available. All the benefits of industrial additive manufacturing; lighter design, incredibly strong, but now combined with a lightweight and slimline inverter energiser. This advancement in thermal spray technology incorporates an Inverter power source coupled with computerised controlled circuit and intuitive software to allow you full control optimising any arc spray. A lightweight pistol

for maximum operator comfort and a newly designed compact heavy-duty industrial drive system to allow flexibility for long supplies. Designed with state-of-the-art features and options, the energisers sophisticated control technology enables quick and easy switching between closed loop and open loop spraying. A strong, reliable technical system that offers significant advantages in terms of speed, flexibility in different applications and processes, repeatability and accuracy.

A PERFECT
BALANCE
OF WEIGHT
& CONTROL



LED BACKLIGHT

TFT SCREEN

A complete arc spraying system combining our ARC150(19) push/pull pistol & NEW 450 Amp energiser.



System Overview

**HIGH
PERFORMANCE
IN A COMPACT
PACKAGE**



NEW PUSH / PULL PISTOL

- Industrial 3D printed parts.
- Carbon fibre reinforced.
- Spray voltage measured at pistol.
- Ergonomic handle design.
- Reversible V-Rollers.
- Contact tips and air concentrator.

INVERTER ENERGISER

- Large, simple graphical user interface (GUI)
- Spray material selector for optimum control.
- Industrial plugs / sockets.
- 450 Amp capacity.

'19' SERIES DRIVE UNIT

- Compact design.
- Quick release MIG reel carriers which are easy to disassemble to feed in small access manholes.
- Lighter weight.

SUPPLIES PACKS:

- Lengths to suit.
- Industrial connections.
- Robust manifold & cover.
- Lightweight cooled conductors.

ERGONOMIC

ROBUST PARTS

FLEXIBILITY

SIMPLICITY



Pistol

The new ARC150(19) pistol has been adapted to suit the most demanding applications. Ergonomically designed for comfortable operation day after day whilst still using the same standard consumables. It gives consistent throughputs with high coating quality at 500A and thanks to the introduction of 3D printed parts it is now even lighter, whilst retaining its heavy-duty, robust and compact design. The synchronised wire drive allows for longer supplies whilst spray voltage is measured at the pistol for improved reliability and diagnostics.

REDUCES OPERATOR FATIGUE

OPTIONS

Part No.	Description
ARC150-CT16	ARC150 Pistol for 1.6mm wires
ARC150-CT20	ARC150 Pistol for 2.0mm wires
ARC150-CT23	ARC150 Pistol for 2.3mm wires
ARC150-CT25	ARC150 Pistol for 2.5mm wires
6910	Super Spreader Shroud Assy (With Solid Pipes)
6910-140	Super Spreader Shroud Assy (With Nylon Pipes)

Reversible U-Rollers mean twice the life



Carbon fibre toughness for the harshest environments.



Contact tube & tip arrangement



Proven ARC Geometry

ROBUST ROBOT MOUNTING

INDUSTRIAL 3D CARBON FIBRE PRINTED

STRENGTH, DURABILITY & COMFORT COMBINED

Ergonomic grip for true comfort



Super Spreader

The Super Spreader assembly option gives wider spread and better control



Carbon Fibre Toughness



Improved Maintenance Access



Reduced Weight Design

Inverter Energiser

The inverter 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. It provides the highest arc stability and reliability, flawless spray quality and is harsh environment tried and tested.



OPTIONS

Part No.	Description
i450	i450 Inverter Energiser with closed loop current control, remote control of pistol, current & air pressures, inclusive of pendant 450A 415V

Dust proof current control & closed / open loop switching



Wire Usage and spray time monitors



Sturdy power connections



Robust casing & handles to enable sling lifting



Error reporting notifications



Claw and whip-check air connection on rear



100% DUTY CYCLE

INDUSTRIAL CONNECTIONS



Simple Graphical Interface



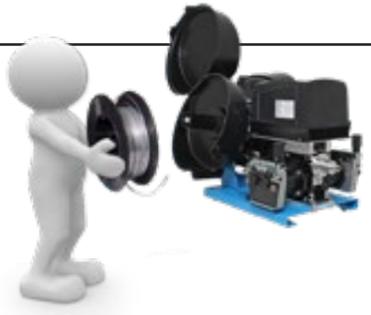
Material & Wire Size Selectors



Infinite Voltage Selector



'19 Series' MIG / SPOOL Wire Dispense



The drive unit is now more compact than ever, but that doesn't mean it's any less durable. The addition of a top set of driven rollers provides an even more reliable, positive wire feed. Quick release MIG covers make it easy to disassemble & fit through small manholes. Alternatively there is the option to dispense from layer spools which also features the quick release feature.

OPTIONS

Part No.	Description
DR150(19)-**M	ARC150(19) Drive unit for MIG Dispensing (**mm)
DR150(19)-**S	ARC150(19) Drive unit for SPOOL Dispensing (**mm)

** Sizes available: 1.6mm, 2.0mm, 2.3mm, 2.5mm



Quick release
MIG covers



Additional top set
of driven rollers



Heavy duty (0.55kW)
electric inverter drive



Profiled drive rollers for
1.6, 2.0, 2.3 or 2.5mm



Ultimate performance &
reliability of wire feeding



WIRE SPECIFIC ROLLERS

GROOVED & SMOOTH SETS

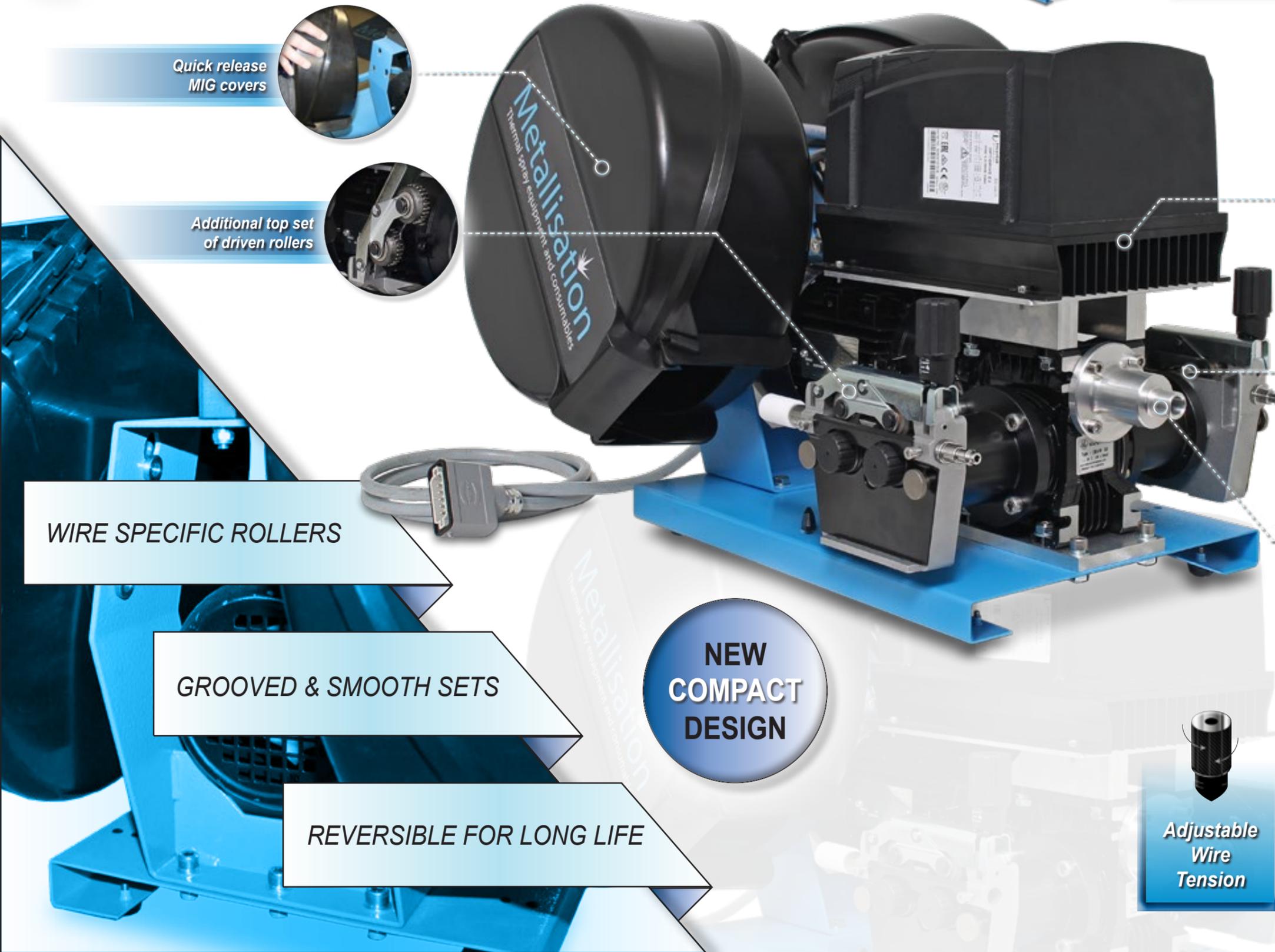
**NEW
COMPACT
DESIGN**

REVERSIBLE FOR LONG LIFE

Adjustable
Wire
Tension

Profiled
Drive
Rollers

Maintenance
Free
Gearbox



'19 Series' Drum 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. As before the drive unit is now more compact than ever, and there is still the addition of a top set of driven rollers providing even more reliability.



OPTIONS

Part No.	Description
DR150(19)-**D	ARC145(19) Drive unit for Drum Dispensing (**mm)
** Sizes available: 1.6mm, 2.0mm, 2.3mm, 2.5mm	
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

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



Smooth Pulley Action



Large Viewing Window



Built To Last

Trolley Option



The (19) series trolley allows movement of the drive unit and wire dispense around the site independently of the energiser. It has a new compact design and the facility to 'hide' the supplies connections within the trolley in order to prevent dust ingress.



OPTIONS

Part No.	Description
DR1XX(19)-ET	Extension Trolley for (19) Series Drive Units

Channelling for supplies preventing dust & damage



Braked front castors



Heavy duty rear wheels



NEW COMPACT TROLLEY

REMOVEABLE COVER



Trolley with the top cover removed.

Demonstrating where the supplies connections sit.



Trolley with the top cover in place.

Demonstrating how supplies connections are protected from damage and dust ingress.



Trolley with the drive in position.

A compact and secure set up ready for the harshest environments.



Dust Limiting Cover



Braked Front Castors



Rugged Rear Wheels



Supplies Package

The system supplies connect from the energiser or trolley to the pistol. They include the power, air & control cables & wire conduits in the suitable size for the system (up to 20m). Refer to system configuration pages to select supplies lengths.

OPTIONS

Part No.	Description
SUP150(19)-10M	Arcspray 150(19), 10M Supplies Package for Electric Drive, S500(19)
SUP150(19)-15M	Arcspray 150(19), 15M Supplies Package for Electric Drive, S500(19)
SUP150(19)-20M	Arcspray 150(19), 20M Supplies Package for Electric Drive, S500(19)
SUP150(19)-10EX	Arcspray 150(19), 10M Extension Supplies Package for Electric Drive, S500(19)
SUP150(19)-20EX	Arcspray 150(19), 20M Extension Supplies Package for Electric Drive, S500(19)



Robust conduits



Twist & lock power cables and quick release air hose



Industrial connections as standard



CONDUCTOR CROSS SECTION



Lightweight air-cooled conductors reduces operator fatigue



ROBUST & STURDY COVERS

FOR i450 ENERGISERS

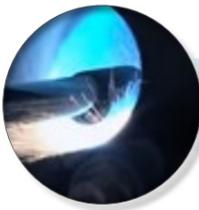
5-20 METRE & EXTENDED OPTIONS



Optional Accessories



Arc beam system kit



Arc extension



Remote operation & pendants

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

-  The Arc beam system kit.
-  Arc Extension.
-  Remote operation & pendants.

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

**FOOTPRINT REDUCING
ARC BEAM**

**SEMI-AUTO SAFE
OPERATION PENDANT**

OPTIONS

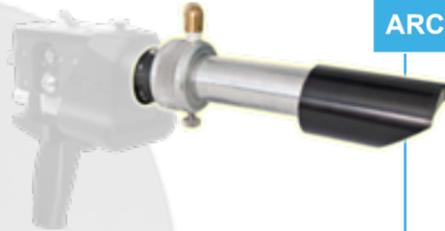
Part No.	Description	Part No.	Description
ARCBEAM SYSTEM KIT		ARC EXTENSION	
ARCBEAM(150)1.6	Arcbeam System Kit for ARC150 using 1.6mm or 2.0mm wires	ARC150-EXT-XX-YY	Arcspray 150 Extension Deflector XXmm Long YYmm Wires
ARCBEAM(150)2.3	Arcbeam System Kit for ARC150 using 2.3mm or 2.5mm wires	XX = Lengths available (150mm, 500mm, 1000mm, 1500mm) YY = Wire Sizes available (1.6mm, 2.0mm, 2.3mm, 2.5mm)	
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			
PLC-REMOTE-H	Remote operation plug & cable for PLC energisers with Harting Connectors	PLC-PENDANT-H	Remote Operation Pendant for PLC Energizers with Harting Connection



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.

The kit includes the non-opaque parts visible in the exploded illustration to the left.



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.

The extension includes the non-opaque parts visible in the illustration to the left.



REMOTE PENDANTS

The remote pendant allows remote operation of the system when a pistol is mounted to a robot or manipulator. It connects into 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.



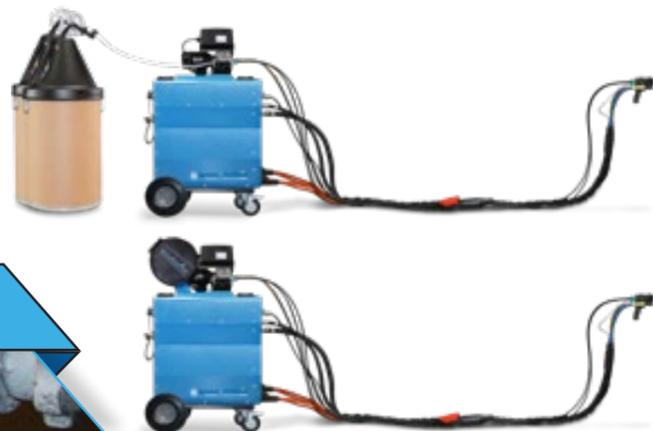
Packaged Systems

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, supplies length and wire dispense method. Examples are provided below:



Complete Drum &

MIG Systems



Useful Information

TIME TO SPRAY

Material	Area (m ² @ 100 µm)	Time
Metallisation Wire 02E Zinc	1 10 100	1.6 mins 16 mins 2 hrs 40 mins
Metallisation Wire 01E/17E/25E/28E Aluminium & Alloys	1 10 100	2 mins 20 mins 3 hrs 20 mins
Metallisation Wire 21E Zinc/Aluminium 85/15	1 10 100	1.6 mins 16 mins 2 hrs 40 mins

The table on the left shows the approximate time it would take to spray a given area with 100 µm coating thickness.

For thicker or thinner coatings, the spraying time varies in proportion to the thickness. For example, it takes approximately 2 minutes to spray a 1 m² area of zinc at 100 µm. It would take 4 minutes to spray the same area at 200 µm.

The given times are approximate 'gun-on' spray times and do not make any allowance for stoppages, wire changes, part manipulation etc.

Note: The information given above is intended for guidance purpose only. Material usage and time taken will depend on a number of factors, these including the quality of the prepared substrate and the shape and size of the job.

EXAMPLES

Part No.	Description
ARC150/i450-1610M	ARC150/i450 system, push/pull, 1.6mm, 10m supplies, MIG dispense
ARC150/i450-2520D	ARC150/i450 system, push/pull, 2.5mm, 20m supplies, drum dispense



MIG System Inclusions

INCLUDING

- ✦ 1 x Pistol (wire size as indicated).
- ✦ 1 x Supplies package (length as indicated).
- ✦ 1 x i450 Inverter Energiser.
- ✦ 1 x DR150(19)-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 i450 Inverter Energiser.
- ✦ 1 x DR150(19)-DRUM dispenser and drive unit.
- ✦ 2 x 21252-51A Wire Dispensing Cone with Adjustable Reeling Pulley Assembly (51CM).
- ✦ 1 x Toolkit.
- ✦ 4m PTFE conduit & 2 x clamp blocks (pair).

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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.



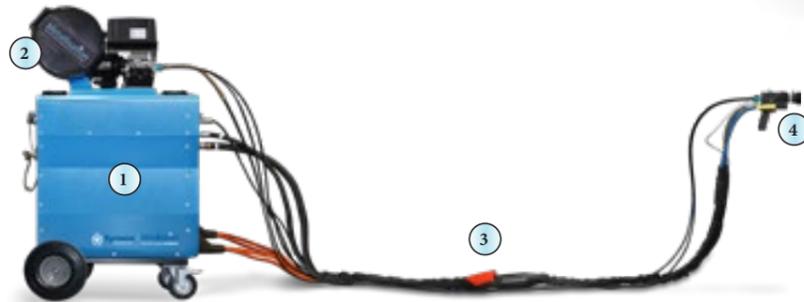
THE PERFECT SOLUTION FOR EVERY APPLICATION

TYPICAL EXTENDED TROLLEY CONFIGURATIONS

Extended Supplies	Pistol Supplies	Total Max
10 m	5 / 10 / 15 / 20 m	50 m
20 m		
10+20 m		
20 + 20 m	10 m	

Note: Maximum total supplies pack length is 50 m. This can be a combination of 30+20 or 40+10.

STANDARD CONFIGURATIONS



Most commonly used for anti-corrosion and engineering. MIG reels are easier to move around and most materials are available on MIG reels.

PUSH / PULL SYSTEM WITH WIRE IN MIG REELS

- 1 Inverter Energiser - 450 A.
- 2 Drive Unit & MIG Reels (can be mounted on Energiser, wall, floor or trolley).
- 3 5 / 10 / 15 / 20 m supplies from wire drive to pistol.
- 4 ARC150(19) Pistol.

EXTENDED CONFIGURATIONS



MIG:

Most commonly used in hard to reach areas such as boilers/vessels where access for the energiser is limited. Also used to spray longer objects where easy movement around the workpiece is needed.

DRUM:

For very long access applications where there is a benefit to remotely site the energiser away from the spraying area and maintain the benefit of having wire in drums.

PUSH / PULL SYSTEM WITH DRIVE ON FLOOR

- 1 Inverter Energiser - 450 A.
- 2 Extension Supplies can be 10 or 20 m complete supplies or a combination of: 10+20 (making 30 m) or 20+20 (making 40 m) - joined with sleeve.
- 3 Drive Unit (on floor / shelf) & MIG Reels (or Drum) with quick release connections.
- 4 Standard supplies: 5, 10, 15 or 20 m (maximum of 10 m when using 20+20 extension).
- 5 ARC150(19) Pistol.



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

PUSH / PULL SYSTEM WITH WIRE IN DRUMS

- 1 Inverter Energiser - 450 A
- 2 Drive Unit (can be mounted on Energiser, wall, floor or trolley).
- 3 5 / 10 / 15 / 20 m supplies from wire drive to pistol.
- 4 ARC150(19) Pistol.
- 5 Wire in Drums or coils (use 2-tier wire dispenser - 3m max. wire to drive).



MIG and DRUM configurations most commonly used as above but with this configuration the ability to extend the supplies is increased further.



The extension supplies from the energiser to trolley are securely joined and protected.

PUSH / PULL SYSTEM WITH DRIVE ON TROLLEY

- 1 Inverter Energiser - 450 A.
- 2 Extension Supplies can be 10 or 20 m complete supplies or a combination of: 10+20 (making 30 m) or 20+20 (making 40 m) - joined with sleeve.
- 3 Drive Unit (on extension trolley) & MIG Reels (or Drum) with quick release connections.
- 4 Standard supplies: 5, 10, 15 or 20 m (maximum of 10 m when using 20+20 extension).
- 5 ARC150(19) Pistol.

Detailed Specifications



PISTOL

Detailed Specifications

- Industrial 3D printing technology.
- Closed arc for improved spray conditions and efficiency.
- Air concentrator for fine coatings and contact tip cooling.
- Push button design for easy operation and maintenance.
- Standard 1.6, 2.0, 2.3 and 2.5mm wire size.
- Contact tips accessible and easily changed without dis-assembling the spray head.
- Lightweight air-cooled conductor cables are fitted; which reduces the operator supported weight and further improves the overall balance of the pistol.
- Long contact tube and tip arrangement – improved coating quality and reliability due to optimised heat dissipation.
- Spray voltage measured at the pistol for improved reliability and diagnostics with long supplies packs.
- Profiled drive rollers suitable for 1.6/2.0mm and 2.3/2.5mm wires. Rollers have 2 grooves and can be reversed for long life operation.
- Retrofittable to (16) range energisers (NB: requires drive modification).

Key Information

Width	95 mm (3.7 ")
Length	265 mm (10.4 ")
Height	240 mm (9.5 ")
Weight	1.96 kg (4.3 lbs)
Weight – at a held height of 1.2 m	4.7 kg (10.4 lbs)
Maximum Current	500 Amps

Typical Performance Figures

MATERIAL	WIRE DIAMETER	STAND OFF DISTANCE	THROUGHPUT (KG/HR @ 500 A)	SUBSTRATE COVERAGE m ² / kg / 100 μm	COVERAGE QUANTITY kg / m ² / 100 μm
Metallisation Wire 01E Aluminium	2.5 mm	100 mm	12.60	3.64	0.27
		150 mm		3.11	0.32
Metallisation Wire 02E Zinc	2.5 mm	100 mm	52	1.14	0.88
		150 mm		1.07	0.94
Metallisation Wire 02E Zinc (With Super Spreaders)	2.5 mm	100 mm	52	1.13	0.89
		150 mm		1.06	0.95
Metallisation Wire 21E Zinc/Aluminium 85/15	2.5 mm	100 mm	34	1.33	0.75
		150 mm		1.28	0.78
Metallisation Wire 28E Arctec	2.3mm	*	12	3.85	-
Metallisation Wire 72E Inconel 625	1.6mm	*	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. All data provided is an approximation and is offered as guidance only as performance can vary depending on application and parameters.

Detailed Specifications



i450 ENERGISER

Detailed Specifications

- 450 Amp Continuous operation (100% duty cycle).
- Lightweight & slimline.
- Dust proof push button controls.
- XL Simple Graphical User Interface (GUI).
- Voltage Feedback.
- Wire feed controls from the energiser.
- Wire usage and spray time monitors.
- Onscreen product guides.
- Spray material selector for optimum control.
- Spray wire diameter selector.
- Closed Loop Current Control – easily switchable / reliable spray rate / over-current protection.
- Burn-back control for efficient starts.
- Infinite voltage control.
- Data Log for easy review of spray jobs.
- Error reporting screens.
- Robust casing and handles to enable sling lifting.
- Rugged tyres & castors for all work sites (trolley optional).
- Additional 110v socket.
- 220V/380V/415V input supply options available (hard wired).
- Standard 14 pin receptacle for MIG/TIG options.

Key Information

i450	
Dimensions (W x L x H)	370 mm x 1000 mm x 710 mm 15 " x 39 " x 30 "
Weight	94.5 kg (208 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	37 A @ 460 Vac 40 A @ 415 Vac 44 A @ 380 Vac 76 A @ 220 Vac 84 A @ 200 Vac
Max Power Consumption	29 KVA (46 Vdc/500 A output)
Typical Power Consumption	16 KVA (Zinc 26 Vdc/500 A output) 22 KVA (Aluminium 35 Vdc/500 A output)
Duty	0-450 AMPS @ 100% Duty Cycle
Output Voltage	0-49 Vdc Switched High/Low & 1 – 5 (Nominal Spray Voltage 19 to 44 Vdc)
Air Requirements	1.5 m ³ /min @ 5 bar (53 cfm @ 72.5 psi)



GUI DISPLAY

- LED backlight, TFT screen.
- 16.7 million colours.
- 800 x 480 resolution.
- This ultra tough XL 7 " polycarbonate protected screen allows clear visibility of the set up even with shaded safety glasses.

Detailed Specifications



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	500 Amps
Compressed Air	0.7 m ³ / min @ 3.5 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.
- 1.6 mm to 2.5 mm zinc or zinc/aluminium wires can be sprayed through any length extension.
- 1.6 mm engineering wires can be sprayed through any length extension.
- 2 mm to 2.5 mm aluminium wires can only be sprayed through the 0.15 m extension.
- With wire conduit lengths >10 m, extension lengths should not exceed 1 m.

Technical Information

Maximum Current	500 Amps
Compressed Air	0.7 m ³ / min @ 3.5 Bar



REMOTE OPERATION

Detailed Specifications

- The 'REMOTE' items consist of a 10m cable and pre-wired plug to connect to the energiser. The other end is free to allow connection to customer automation/robot etc.
- The 'PENDANT' items consist of a remote operation pendant to start/stop the system and also have 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 a 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.

Note:

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

Detailed Specifications



SPREADER OPTIONS

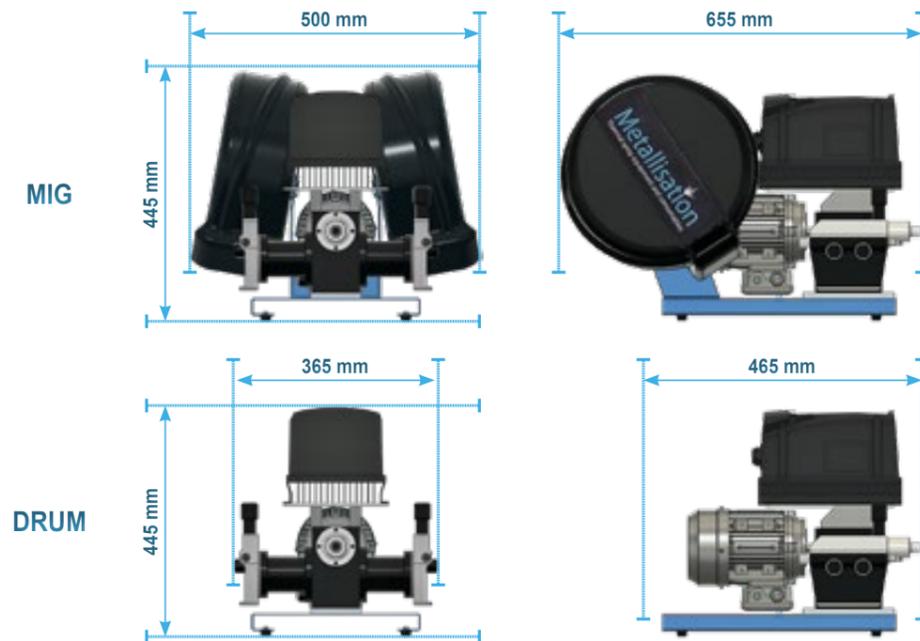
Detailed Specifications

- The Super Spreader assembly options give wider spread and better control.
- Available with nylon or solid pipes.

Technical Information

Spreader Compressed Air	0.57 m ³ / min @ 2.5 Bar
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DRIVE UNIT DIMENSIONS



MIG Configuration

Width	500 mm (19.7 ")
Height	445 mm (17.5 ")
Length	655 mm (25.8 ")
Weight	28.2 kg (62 lbs)

Drum Configuration

Width	365 mm (14.4 ")
Height	410 mm (16.1 ")
Length	465 mm (18.3 ")
Weight	24.2 kg (53 lbs)



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