

# Metallisation

Thermal spray equipment and consumables



## Equipment Specification

MK74 Powder Flame Spray System

## INTRODUCTION

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The following specification covers the entire standard range of MK74 flamespray system. For the specific offer, please refer to the attached quotation and cross reference the part numbers for each piece of equipment.

Weighing only 1.85kg (4Lb), the Metallisation MK74 powder spray pistol can be hand held or machine mounted to spray a wide range of powders. Its robust construction will ensure long periods of trouble-free operation. The MK74 is easy to ignite and has excellent flame stability, thanks to its nozzle system. A special air cap narrows the spray pattern to densify the coating which is particularly beneficial when spraying ceramics where very high deposit efficiencies can be achieved. The MK74 can spray ceramic coatings as well as self fluxing alloys and all other metallic powders.

**Safety:** The equipment quoted will produce levels of noise and dust that will require safety measures to be taken by those using the equipment. It will use pressurised air and will also use flammable 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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- ✦ High deposit efficiency
- ✦ Suitable for spray/fuse coatings
- ✦ Quiet operation
- ✦ Sprays ceramics and metals
- ✦ Powder feed vibrator allows spraying of poor flowing powders
- ✦ Optional remote powder feeder
- ✦ Integrated feed rate adjustment without changing parts
- ✦ Rugged construction combined with light-weight and balance for ease of handling
- ✦ Flow meters for optimal setting of parameters and fault finding
- ✦ Flow meters include large pointers for ease of checking from a distance
- ✦ Air Regulator and Filter (A.R.F.) unit supplies nozzle air and powder feed vibrator air from one inlet.

## TYPICAL APPLICATIONS

- ✦ Small engineering repairs
- ✦ Spray/fused coatings
- ✦ Shaft reclamation
- ✦ Self fluxing alloys for extreme wear applications
- ✦ Glass mould plungers
- ✦ Steel mill table rolls

## MK74 PISTOL

Part No.	Description
<b>PISTOLS</b>	
<b>GAS-MK74</b>	<b>Gas-Mk74 Powder Pistol - Metal Powders</b>
<b>GAS-MK74-C</b>	<b>Gas-Mk74 Powder Pistol - Ceramic Powders</b>
<b>OPTIONAL CONVERSION KITS</b>	
<b>GAS-MK74-CK-M</b>	<b>Mk74 Conversion Kit to change From Ceramics to Metals Spraying</b>
<b>GAS-MK74-CK-C</b>	<b>Mk74 Conversion Kit to change From Metals to Ceramics Spraying</b>
<b>GAS-MK74-CK-PF</b>	<b>Mk74 Conversion Kit to connect to Powder Feeder</b>



### TECHNICAL OVERVIEW

- ✦ Primarily for spraying engineering coatings (Self Fluxing Alloys, Bond Coat materials and Ceramics).
- ✦ Flame produced by burning Acetylene and Oxygen gases.
- ✦ Nozzle designed to provide flame stability and easy lighting.
- ✦ Finger tip operation of the trigger valve below the canister ensures instantaneous stop/start control of the powder feed.
- ✦ Simple pistol maintenance for reduced downtime when changing consumables.
- ✦ Sturdy, robust design for long service life.
- ✦ The spreader air cap provides a narrow spray pattern and densifies the coating. This is particularly necessary when spraying ceramics.
- ✦ The optional pistol conversion kits allow easy conversion from one type of pistol to the other.
- ✦ The optional powder feeder kit is required when the supply of powder is provided by a dedicated powder feeder instead of the pistol mounted powder canister.

### Technical data

Description	Characteristics
Weight – excluding hoses	1.85kg (4Lbs)
Width	125mm
Length	210mm
Height	335mm
Compressed air usage	25m <sup>3</sup> /hr @ 5.5 bar
Oxygen usage	1.2-2.6 m <sup>3</sup> /hr @ 1.5-2.2 bar
Acetylene usage	0.9-2.28 m <sup>3</sup> /hr @ 0.8-1.03 bar

### Typical performance figures for the MK74 pistol

Material	Throughput kg/hr	Deposit Efficiency %
Metallisation Powder 99325/10 Ni/Cr/B/S	5.8	87
Metallisation Powder 99636/16 Ni/Al	4.0-5.8	82
Metallisation Powder 99205/35 Al/Ti Oxide	1.3	83

The gas and oxygen pressure and consumption figures shown cover the full range of possible nozzle assemblies which could be used.

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

## HOSES

### GENERAL SPECIFICATION

Red	Tubing to EN 559:2003 for Acetylene
Blue	Tubing to EN 559:2003 for Oxygen
Black	Tubing to EN 2398 for Compressed Air

### HOSES FROM REGULATORS TO FLOWMETERS

Part No.	Description
21141	Flowmeter Hose Acetylene x 3m (red hose)
21223	Flowmeter Oxygen Hose x 3m (blue hose)



Part number 21223  
Oxygen hose – 3m



Part number 21141  
Acetylene hose (red) – 3m

### Technical overview

- Supplied with fittings appropriate to connect to all Metallisation supplied flamespray equipment
- Non-standard lengths are available on request

### HOSES FROM FLOWMETERS TO PISTOL

Part No.	Description
21182	Acetylene Hose Complete x 6m
21502	Flamespray Oxygen Hose x 6m
21503	Flamespray Nozzle Air Hose x 6m
21504	Motor/Vibrator Air Hose x 6m



Part number 21182  
Acetylene hose – 6m



Part number 21502  
Oxygen hose – 6m



Part number 21504  
Vibrator air hose – 6m



Part number: 21503  
Nozzle air hose – 6m

### Technical overview

- Supplied with fittings appropriate to connect to all Metallisation supplied flamespray equipment
- Acetylene and oxygen hoses fitted with safety check valves to prevent back-feeding of gases.
- Non-standard lengths are available on request



## FLOWMETERS AND MOUNTING PANEL

Part No.	Description
26900A	New Flamespray Mounting Board
21129P	Flowmeter Powder Spray



Part number 26900A  
Flamespray mounting panel  
(Shown with standard ancillaries fitted)



Part number 21129  
Flowmeter for wire systems

### TECHNICAL OVERVIEW

- Use with Metallisation regulators to ensure correct mixture of acetylene and oxygen is fed to the pistol to give the optimum flame the material sprayed
- Mounted in protective steel and Perspex case to provide protection in industrial environments
- Standard left hand threads for fuel gas (acetylene) to avoid incorrect connection
- Large floats, indicators and scale divisions offer good visibility at a distance
- Used as primary diagnosis tool for fault finding
- Flamespray mounting panel (pictured) offers a convenient method of mounting all the required ancillaries (quoted and supplied separately)

## REGULATORS

Part No.	Description
21238	Acetylene Regulator
21236	Oxygen Regulator



Part number: 21238  
Acetylene regulator



Part number: 21236  
Oxygen regulator

### TECHNICAL OVERVIEW

- High flow regulators with minimal restriction offer reliability of operation and more repeatable lighting of the pistol through optimised gas flow rates.
- Used together with Metallisation flowmeters and flame arrestors.
- Complies with BS5741 and IS02503 standards.

## FLAME ARRESTORS

Part No.	Description
21123	Flashback Arrestor Oxygen (9/16")
21122A	Flashback Arrestor Acetylene/Propane/Hydrogen (9/16" LH)



Part number: 21123  
Flame arrestor, oxygen



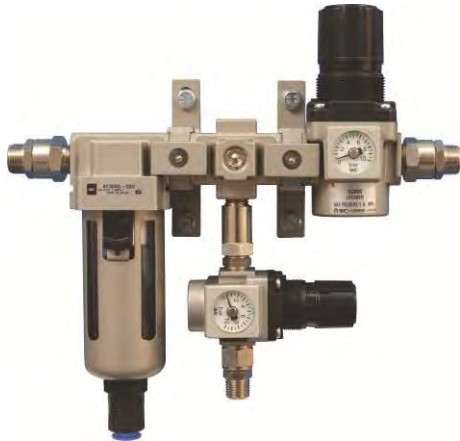
Part number: 21122A  
Flame arrestor, propane/acetylene

### TECHNICAL OVERVIEW

- Use together with Metallisation regulators and hoses with check valves for maximum safety.
- Mount to the regulator.
- Sintered metal flame arrestor quenches the flame front resulting from a flashback.
- Pressure relief valve safely vents excess pressure and fumes.
- Pressure sensitive cut-off valve, incorporating a tamper-proof reset mechanism, prevents the re-ignition of unburnt gases after a flashback.

## AIR REGULATION AND FILTRATION UNIT

Part No.	Description
21222P	Arf Unit - Powderspray



Part number: 21222P  
Arf Unit - Powderspray

### TECHNICAL OVERVIEW

- ✦ The ARF unit is made up of a filter bowl and 2 lockable regulators.
- ✦ High flow and regulation characteristics suitable for flame spray applications.
- ✦ A single supply feeds 2 outlets for nozzle and powder vibrator air.
- ✦ Air is unlubricated to ensure clean, uncontaminated coatings.
- ✦ Snap-lock facility on regulator to prevent accidental changes to settings.
- ✦ All service parts can be changed without disconnecting hoses for ease of cleaning and maintenance.
- ✦ Filter bowls have large filter elements for minimum pressure drop.
- ✦ Filter bowls have sight glasses to prompt the operator to clean bowls.

## POWDER CANISTER VIBRATOR

Part No.	Description
8550	Vibrator Assy
21504	Motor/Vibrator Air Hose x 6m

### TECHNICAL OVERVIEW

- ✦ Pneumatic Vibrator to assist feed of non-free flowing powders.
- ✦ Supplied with a bolt to fit into the top of the pistol.
- ✦ An on/off valve is included for air supply.





## POWDER FEEDER

Part No.	Description
2007MF-PF(2800)	Mass flow powder feeder – 2.8L hopper
2007MF-PF(3350)	Mass flow powder feeder – 3.35L hopper
2007MF-PF(2.8)-QR	Mass Flow Powder Feeder, 2.8 Ltr with Quick Release hopper
2007MF-PF(3.35)-QR	Mass Flow Powder Feeder, 3.35 Ltr with Quick Release hopper
QRPFH-2.8	Quick Release Powder Feeder Hopper (2.8 L)
QRPFH-3.35	Quick Release Powder Feeder Hopper (3.35 L)
QRPF-BRKT	Quick Release Powder Feeder Hopper Support Bracket for 2 hoppers
MET-TROL**	Metallisation Ancillary Trolley
6688C	Heater Jacket & Plug Assembly

### TECHNICAL OVERVIEW

- ✦ Mass flow control of carrier gas = repeatability.
- ✦ Volumetric feed via hopper and rotating disc design.
- ✦ Two disc variants to allow optimum feeding of a wide range of powders.
- ✦ Parameters are displayed on the powder feeder.
- ✦ Feed disc rotational speed is controlled via a closed loop AC inverter for improved feeding accuracy.
- ✦ Controlled directly at the powder feeder for stand-alone operation.
- ✦ Multiple power feeders can be integrated into the system.



### SPECIFICATION AND SUPPLY REQUIREMENTS

Description	Characteristics
Canister capacity	2,800cc or larger as indicated
Electrical supply	240/110V 1ph, 5A*
Weight	40kg
Dimensions (mm)	W-400 x D-400 x H-700

\* Use a suitable MCB or Motor / T rated fuses

## PACKAGED SYSTEMS

Our most commonly supplied systems are now being offered as a package with one part number.

Part No.	Description
<b>MK74-36C</b>	<b>MK74 Complete system, 3m input hoses, 6m output hoses for Ceramics</b>
<b>MK74-36M</b>	<b>MK74 Complete system, 3m input hoses, 6m output hoses for Metals</b>

### **MK74-36C SYSTEM CONSISTS OF:**

- ✦ GAS-MK74-C - Gas-Mk74 Powder Pistol - Ceramic Powders.
- ✦ Set of 3m input hoses.
- ✦ Set of 6m output hoses.
- ✦ New Flamespray Mounting Board.
- ✦ Powder Spray Flowmeter.
- ✦ Regulators.
- ✦ Flashback Arrestors.
- ✦ Powderspray Arf Unit.
- ✦ Vibrator Assy.
- ✦ Tool Kit for Mark 74 Powder Pistol.

### **MK74-36M SYSTEM CONSISTS OF:**

- ✦ GAS-MK74 - Gas-Mk74 Powder Pistol - Metal Powders.
- ✦ Set of 3m input hoses.
- ✦ Set of 6m output hoses.
- ✦ New Flamespray Mounting Board.
- ✦ Powder Spray Flowmeter.
- ✦ Regulators.
- ✦ Flashback Arrestors.
- ✦ Powderspray Arf Unit.
- ✦ Vibrator Assy.
- ✦ Tool Kit for Mark 74 Powder Pistol.

## NOTES

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# Metallisation

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