F151-14 Metallisation Launches New HVOF System


Metallisation has launched a new Met-PCC HVOF system. This is the latest development in its range of liquid or gas fuelled High Velocity Oxygen Fuel (HVOF) systems.

The new Met-PCC HVOF system retains all of the simple control and operator interface features of the previous HVOF system and is available in two versions: The Met-PCC HVOF-L (liquid fuel), and the Met-PCC HVOF-G (gas fuel).

The Met-PCC HVOF-L system is designed to work with the MET-JET 4L pistol, but can also operate other pistols such as the JP5000. Metallisation is happy to technically review pistols from other manufacturers for suitability. The Met-PCC HVOF-G system has been interfaced with the Oerlikon Metco Diamond Jet (hydrogen) pistol and the Deloro-Stellite Jetkote (hydrogen) pistol and, again, other pistols could be technically reviewed for suitability.


In order to optimise functionality and reliability the Met-PCC HVOF system control elements have been re-designed. Utilising the latest technology the operator interface now has an intuitive Graphical User Interface (GUI), which includes the option to integrate video images into the display. The interface operates on a familiar touchscreen Windows PC platform with Intel Dual Atom processor, which is ideal for operator usability, integration and communication.

There are many advantages with the new Met-PCC HVOF systems. The gases are mass flow controlled for optimum repeatability of coatings. All spray parameters allow real time trending and monitoring of the operation, which allow the operator to set ‘out of range’ limits, providing much more control and ensure a high quality coating every time. The intuitive operator interface with PC control and touch screen make it easy to use and provides unlimited recipe and parameter recording.

The Met-PCC HVOF control system consists of a PC with a touch-screen operator interface, an ignition/gas box. For reliability of operation, the actual control of the individual operations of the system are controlled by PLC's in the gas box and powder feeder. The control system has added safety interlocks, which will not allow the system to operate unless specific pre-set limits are met, including coolant pressure, temperature and flow, oxygen pressure and flow, liquid fuel flow and carrier gas pressure and flow. The new system interface between the gas box, powder feeders and robot is now controlled by industry standard Ethernet allowing reliable connection between peripherals.


The MET-JET 4L liquid fuel pistol, integrated with the new HVOF system, has an optimised, single point fuel injection system to promote a complete, clean burn with the combustion chamber. The pistol comes with two nozzle length options: 100mm or 200mm, which enable a wide range of coating properties from hard ductile coatings to extremely hard brittle coatings. The new MET-JET 4L pistol will help to reduce costs, both in consumable spares and downtime when changing consumables, due to the simple nozzle design and pistol maintenance. The pistol also has steel powder feed tubes that do not melt during operation and a robust chamber pressure transducer, which provides accurate feedback to the GUI.

The Met-PCC HVOF with the met-jet 4l pistol provides high hardness, low oxide level coatings that have a high bond strength and low porosity. The system can provide thick, low stressed compressive coatings.

The new sturdy system has been designed for a long service life. Typical performance figures for the MET-JET 4L pistol with the Met-PCC HVOF-L controller are shown in the table below:

| MATERIAL | Reference | Throughput g/min | Deposit efficiency % |
|---|---|---|---|
| **WC Co Cr (86/10/4)** | **99745** | **70** | **49** |
| **WC Co (83/17)** | **99735** | **70** | **45** |
| **WC Co (88/12)** | **99725** | **70** | **45** |
| **Ni Cr B Si** | **99325** | **70** | **48** |
| **Inconel 625** | **99405** | **70** | **47** |
| **Copper** | **99407** | **70** | **63** |
| **Chrome Carbide** | **99785** | **70** | **50** |
| **Stellite™6** | | **70** | **44** |

All figures are approximate and dependent on many factors including powder type, parameters and fuel grade / quality.

For the **Met-PCC HVOF-L**, the supplies package to each of the pistols remains the same as the original Metallisation system, which is a 5m input and 10m output supplies pack, when used with the Metallisation MET-JET 4L pistol. If required, adapter kits will be available to fit at the pistol end to enable interchangeability of pistols.

For the **Met-PCC HVOF-G**, the supplies package to each of the pistols is bespoke to the specific system, as the hose requirements will vary more with gas fuelled systems. For systems using the Jetkote pistol, a 5m input and 10m output supplies pack for gas fuel systems is supplied.

As the operator interface is PC based it is extremely flexible to control. The functionality can be as complex or as simple as needed. As standard, the system can run in three modes of operation, manual recipe or external interface. With some additional hardware, the control system can be interfaced with an external robot/automation. If the robot is programmed in such a way, the spray system can select the appropriate robot program and number of passes for the robot to make for a given spray job. Alternatively, the entire robot programming can be included within the robot only. In this case, just the robot start sequence will be controlled by the spray controller.

The new Met-PCC HVOF is a truly unique, compact, flexible, easy to operate system, backed by Metallisation's 90 plus year industry experience, knowledge and customer support.

For more information on the new Met-PCC HVOF systems, please contact Stuart Milton, Sales Director, on +44 (0) 1384 252 464 or visit www.metallisation.com