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HV-50
Mass Flow Controlled HVOF System

Introduction
Flame Spray Technologies, the most innovative and responsive supplier of thermal spray equipment and consumables, introduces the

Mass Flow Controlled, Computerized
HV-50 HVOF System

It represents a new step forward in equipment design and has been developed to meet the increasing customer demands for better process control, system flexibility, safety features and the unnecessary duplication of system peripherals whilst at the same time offering truly outstanding value.

Fig.1 HV-50 HVOF System

Copies in PDF format are available, please contact Flame Spray Technologies to receive a copy.

The information contained in this document is offered as a guide only. It does not form any part of any sales contract as guaranteed performance of the delivered product.
The HV-50 is built to the highest standards using the latest process control technology to ensure optimum system performance and therefore maximum coating quality and consistency. Its modular construction incorporates unique design features that make the HV-50 the most user friendly and flexible HVOF spray system available. From standard core components, each system is effectively custom built to meet the individual customer demands.

The HV-50 is an HVOF system designed to control and handle all commercial available HVOF Guns including the JP-5000, Jet-Kote, Diamond Jet, and the HV-2000.

The **HV-50 HVOF System** can support most powder feed units depending on the customers preferred feeder. The HV-50 design ensures that it can be easily integrated within existing coating facilities and other peripheral equipment.

The versatile control system combined with the benefits of advanced closed loop mass flow control technology, ensures the consistency of coating quality and accurate repeatability of process parameters.

The HV-50 is completely operator friendly, utilising a colour “Touch Screen” that allows process visualisation during operation and programming. Up to 100 spraying “recipes” can be stored in the PLC.

### Main features of the HV-50:

- Multiple gun technology; can handle most HVOF spray guns including; JP-5000, Jet-Kote, Diamond Jet and the HV-2000
- Modular construction increases safety and flexibility.
- Closed loop mass flow controllers for all process gases including liquid fuel and carrier gas.
- Cooling air on/off control via touch screen
- Designed to integrate with a range of customer specified powder feeding systems
- The process controller is PLC based providing maximum reliability and flexibility.
- A graphical “Touch Screen” control panel provides clear and user friendly access to process control parameters and monitoring functions
- All process control parameters are closed loop for maximum coating quality and consistency
- Superb flexibility, reliability and performance at a sensible price.
- The HV-50 is designed so it can also be integrated with peripheral equipment or auxiliary components, such as heat exchangers, dust collectors, etc.
- Fully compliant with all relevant CE directives
**HV-50 HVOF System**

The HV-50 System from Flame Spray Technologies is an advanced and reliable HVOF coating system that provides the repeatability and accuracy required in today’s thermal spray production environment.

The HV-50 System consists of the following components:

- HV-50 Touch Screen Control Console (integrated in Electric Module or Wall mounted)
- HV-50 Control Module
- HV-50 Jam-Box Module
- HV-50 Gas/Fuel Module
- PF-50 Powder Feeder
- HVOF Gun
  - JP-5000, Jet Kote, Diamond Jet or the HV-2000
- Cable and Hose Package
- English Manual

The HV-50 system can be equipped with most HVOF spray guns, powder feeders and heat exchangers, depending on customer requirements.

**HVOF Guns**

The HV-50 is capable to operate all commercially available HVOF Guns.

![Fig. 4a Diamond Jet](image)

Fig. 4a Diamond Jet

![Fig. 4b Jet Kote](image)

Fig. 4b Jet Kote

![Fig. 4c JP-5000](image)

Fig. 4c JP-5000

![Fig. 4d HV-2000](image)

Fig. 4d HV-2000
HV-50 Touch Screen Control Console

The Touch Screen control panel provides all programming features and visualization of all set and actual spraying parameters. Different menu’s can be selected to enable the operator to overview the entire process data. The Touch Screen control panel is compact and can be either mounted on the cabin wall or on the floor, using a tool post.

![Fig. 3 Touch Screen Control Panel (Wall Mounted)]

HV-50 Control Module

The Electrical Module contains the PLC unit and software to control all system modules. All process parameters are closed loop controlled for maximum reliability and repeatability. Up to 100 spraying “recipes” can be stored in the PLC. System status and all alarm and safety features are constantly monitored by the controller.

![Fig. 4 AP-50 Control Module]

Optional: Remote Diagnostics

The HV-50 Control Module can use an integrated modem to enable “remote diagnostics” via telephone line or internet. In this way, FST has remote access to the HV-50 PLC for failure analyses, system errors and trouble-shooting. This feature can potentially save extensive costs in detecting and correcting problems.
HV-50 Gas/Fuel Mass Flow Control Module

The Gas Module contains the Mass Flow Controllers for all the gases and/or fuel (Kerosene), all pressure sensors and valves. For safety reasons, the Gas Module cabinet is continuously vented. Also, all gas lines and fittings are manufactured from stainless steel. The Gas Module also controls the compressed air for component cooling. The cooling air can be switched on/off from the Touch Screen controller. The system will give a visual alarm if the air or gas pressures are too low. The gases and/or Kerosene are controlled by the latest generation Mass Flow Controllers to ensure reliable and repeatable coating production. The standard HV-50 HVOF system is equipped with MFC’s for Oxygen, Hydrogen, Natural Gas and/or Kerosene (Fuel selection will depend on the selected HVOF Gun).

The cooling water flow is measured and water flow minimum value is monitored and integrated in the E-stop loop. Also measurement of water temperature supply and return line (also with limit set points) is included in this Module.

HV-50 Jam-Box Module

A separate Jam-Box Module for water and fuel/gas integration and connection box for the HVOF gun. Usually the Jam-Box Module is mounted inside the spray booth, with water and gas/fuel integration for the HVOF Gun connection. The module includes a High Voltage Discharge Ignition unit (if required).
PF-50 Powder Feeder

The FST Powder Feeder model PF-50 is an open-loop pressurized unit specifically designed for thermal spray applications. Based on the proven volumetric-feed technology, the PF-50 is an economical powder feeder for all powder-based thermal spray processes. Its proven design has become a standard in the thermal spray industry and offers unparalleled powder feeding accuracy and repeatability.

Fig. 6 FST PF-50 Powder Feeder

Other powder feeders are available upon request.