oerlikon
metco

Product Data Sheet
MultiCoat5 HVOF-GF

MultiCoat™5 HVOF-GF is the latest generation thermal spray controller platform from Oerlikon Metco. Combining simple operation with the latest technology and safety features in a compact cabinet, the universal MultiCoat5 HVOF-GF is an outstanding choice for spray shops of all sizes.

1 General Description

Oerlikon Metco has taken our many decades of experience in the design of thermal spray controllers to pack MultiCoat5 HVOF-GF with advanced features that ensure reliable, repeatable and safe operation. the MultiCoat5 platform is an ideal choice for single process applications as well as up to four thermal spray technologies.

The operator controls the entire spray process via a touch screen, where ease of use is a very important consideration. Hot buttons provide quick access to start/stop process. Values are simply and intuitively entered via the touchscreen. Our unique Clarity2 user interface makes controlling your entire production coating process as easy as plug and spray.

MultiCoat5 HVOF-GF comes with pre-installed and ready to use Edge Gateway using OPC UA protocol to transmit data. Leverage data aquition to deliver more value using our optional Metco IIoT Cloud service.

The built-in Remote Maintenance System allows Oerlikon Metco to remotely analyze and troubleshoot the customer's controller via a secure Internet connection, thus reducing costly service calls and downtime.

MultiCoat5 HVOF-GF incorporates the latest safety features. A multi-level monitoring and alarm system notifies the operator of out-of-range conditions and safely shuts down the system in critical situations.

A sophisticated and intuitive trending and reporting package is standard, which aids parameter monitoring, parameter development and quality control.

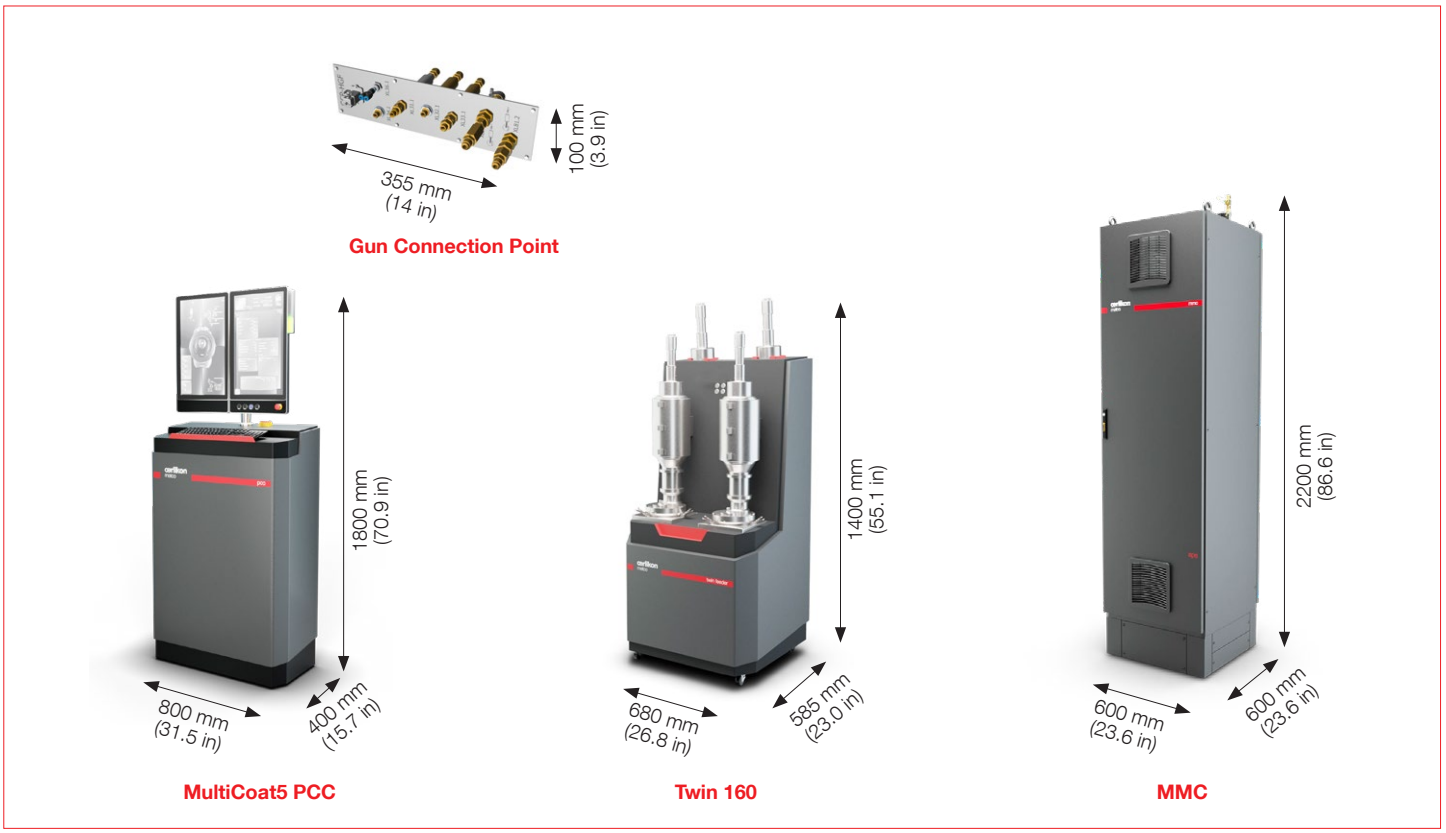
Among the other standard MultiCoat5 HVOF-GF features are a multilingual user interface, the ability to store spray parameters and highly responsive digital mass flow control for process gases.

MultiCoat5 HVOF-GF Controller for Thermal Spray

Life-Cycle Status: **ACTIVE** (see Section 5)

1.1 Main Components with Dimensions

1. MultiCoat5 Process Control Center (PCC)
2. Twin 160 Powder Feeder
3. Media Management Center (MMC)
4. Gun Connection Point



1.2 Clarity2 Operator Interface

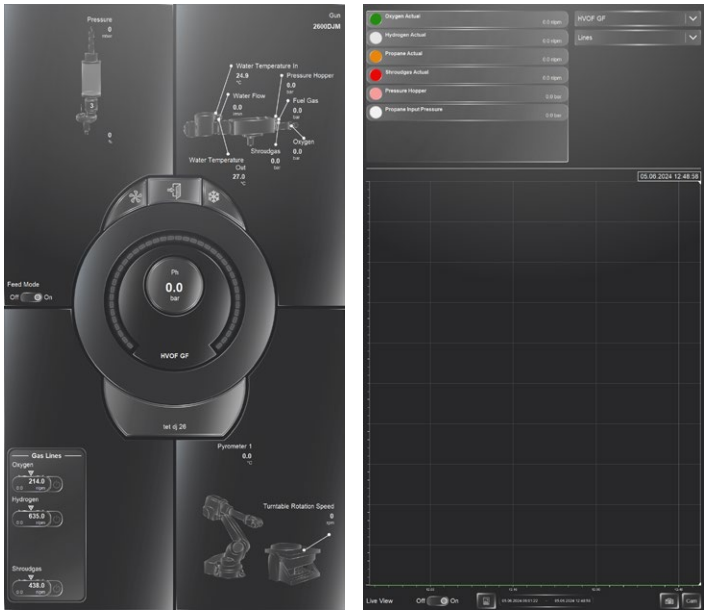
The operator interface consists of a projected capacitive touch, multitouch, anti-glare analog-resistive 21.5 in. TFT touchscreen display with intuitive visualization software. Hot buttons quickly bring the operator to the most frequently needed screens. Entering of parameter values is quick and easy using the anti-glare touchscreen. Selection of the spray gun to be used sets the operating limits for the gun, thereby enhancing safe operation.

A multi-level alarm system notifies the operator visually on signal tower and audibly to out-of-bound and critical issues.

Parameter data can be read and set in metric or U.S. customary units. Standard, selectable languages for the user interface are:

- English
- German
- Chinese
- Japanese

Other languages can be supplied as a factory-installed option.



MultiCoat5 HVOF-GF – Touch Screen Operation

1.3 Remote Maintenance System

The Remote Maintenance System is a standard feature of MultiCoat5 HVOF-GF. It uses a secure AES-encrypted VPN Ethernet-based connection (Customer must supply access router and internet access or data plan for the optional mobile 2G, 3G and 4G/LTE. If internet access is via the customer's network, VPN access is needed) to connect the MultiCoat5 HVOF-GF controller directly to Oerlikon Metco's service department. It can be used to troubleshoot and diagnose the system status.

The Advantages:

- Faster response on system issues reduces downtime
- Significantly reduces costly service calls
- Improves productivity with direct demonstration access to Oerlikon Metco experts
- Safe and secure, since the encrypted connection must be initiated by the customer

1.4 Metco IIoT Connectivity

Oerlikon Metco IIoT enables you to improve your production process and enables an easier, faster and more efficient operation. Your company benefits from access to machine data improving availability, reducing scrap rate and increasing throughput.

- Possibility to consolidate process related machine data- from one or multiple systems on a central platform for easy access
- Access to raw data for further analysis in case of quality issues
- No need to physically access one or multiple machines
- Enables locally storage and centralization data for historical analysis and quality control purposes.

1.5 Trending and Reporting

The trending and reporting package is an outstanding feature of MultiCoat5 HVOF-GF.

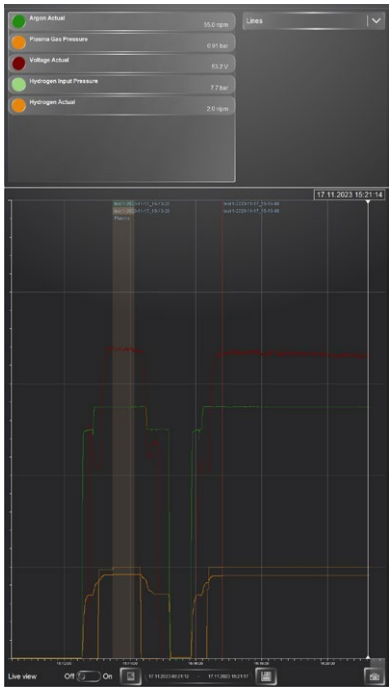
Trending records of all parameters can be set and monitored from the operator panel. The data can be recalled on-screen and display as many as 16 spray parameters at a time, which are user selectable for up to 30 days. For additional data monitoring, an optional Metco™ IIoT service is available. (See datasheet DSE-0126) The operator can also set the run time and the excursion limits for the screen (any values that go beyond the set limits are clipped). Each parameter is assigned a different graph color. The MultiCoat5 then tracks the values in real time.

Reporting is set up prior to a spray run by the operator. When configuring a report, the operator can enter header information to identify the report. Reports show both the actual spray data and deviations beyond allowable values.

Trending and reporting data can be exported in Excel and saved for later recall and output to a flash drive.

Use the trending and reporting package for:

- Spray parameter development
- Process control
- Spray run quality control
- Customer reporting for coating of critical components
- Spray gun and system maintenance scheduling
- General system troubleshooting
- Operator training and qualification



Trending Data Shown On-Screen

Product ID		**Start time**	24.08.2022 07:54:45
Serial Number	2022-08-24_07-54-45	**Stop time**	24.08.2022 08:01:36
		Duration	00:06:50

Type	Process		
Process	HvofGf	**Start time**	24.08.2022 07:54:45
Recipe Name	HVOFGF Methane	**Stop time**	24.08.2022 08:01:36
Operator	Service Oerlikon	**Duration**	00:06:50

Gun	2700DJM

Parameter	Unit	Set Value	Min Value	Max Value	Average	Deviation	Evaluation
Oxygen	nlpm	190.0	189.2	192.5	190.0	0.2	-
Methane	nlpm	202.0	200.5	203.5	202.0	0.5	-
Shroudgas	nlpm	320.0	319.5	320.5	320.0	0.2	-
Oxygen Pressure	bar	-	8.1	8.2	8.2	0.1	-
Methane Pressure	bar	-	7.5	7.6	7.6	0.1	-
Hydrogen Pressure	bar	-	7.5	7.6	7.6	0.1	-
Shroudgas Pressure	bar	-	6.9	6.9	6.9	0.0	-
Carrier Gas 3	nlpm	12.0	12.0	12.0	12.0	0.0	-
Insert 3 Pressure	bar	-	6.1	6.1	6.1	0.0	-
Water Flow	l/min	-	17.4	18.7	18.2	0.2	-
Water Temperature In	°C	-	18.8	19.8	19.2	0.3	-
Water Temperature Out	°C	-	24.1	25.3	24.6	0.3	-
Water Conductance	µS	-	0.0	0.0	0.0	0.0	-

Sample Report

1.6 Gun Connection Point

MultiCoat5 HVOF-GF spray systems are supplied with a gun connection point that can be installed inside the spray booth to connect to the MultiCoat5 MMC console.This unit acts as an intermediate connecting point for the supply of Oxy-fuel and gun cooling before routing both to the spray gun.

Allows Easy to replacement of gun hoses and incorporates flame arestor to ensure safe operation.

Gun Connection

1.7 Full-Featured Handling Interface

This feature functions with an external controller (such as a robot) to

- Start / stop the process, powder, auxiliary gases, reporting
- Get status handling system and spray system
- Call stored spray recipes
- Remotely control the chiller and exhaust with BUS interface

Supported protocols:

- Discrete
- Profinet

2 Outstanding Standard Features

Productivity and Ergonomics

- Easy to use, touchscreen graphical user interface with visualization software
- Stores up to 10000 recipes
- Metric or U.S. customary unit display
- Selectable display language
- Multi-range input voltages for worldwide usage

Process Control

- Closed-loop monitoring and control of process media flows
- Real-time monitoring with very fast screen updating
- Monitoring of water flow and temperature
- Full powder feeder integration with Twin Feeder.
- Supports Fluidized Bed Feeder 9MPE-DJ-CL20
- Control for one pressure-regulated auxiliary air lines
- Automated ignition sequence
- Interfaces for exhaust, chiller, spray booth, powder feeder and handling
- Full-featured handling interface by an external controller

Safety

- Multi-level alarm system with safe shutdown in critical situations
- Built-in E-stop system
- Built-in combustion gas detection in MMC cabinet
- Electronics safely separated from processing media
- CE conformity

Quality Control

- Sophisticated built-in trending and reporting software with output features
- Built-in remote maintenance software allows for off-site troubleshooting
- Help button for quick access to the user manual or creation of an exportable file of all configuration, logging and alarm data for troubleshooting
- Enables monitoring and recording of maintenance activities while activating alerts and notifications to guarantee timely execution of maintenance tasks
- The advanced user management feature enables the creation of unique user accounts with customized access privileges

3 Recommended System Configurations

Controller	Spray Gun (Choice of)	Powder Feeder (Choice of; up to 4 powder feed lines)
MultiCoat5 GF	■ All Diamond Jet Gas Fuel, Automatic Spray Guns (see datasheet DSE-0026)	**Volumetric:** [a] ■ Twin-160 **Gravimetric:** ■ 9MPE-DJ-CL20 [b] ■ SinglePro

[a] Full integration with MultiCoat5 HVOF-GF including recipe integration
[b] Fully intergrated through a special interface box. Start/stop functionality only, all other functions are set at feeder; each feeder equipped with 1 hopper; up to four feeders may be run in parallel for which interface cables are required

4 Specifications

Compatible Fuel Gases				
Hydrogen	H_2	Flow	800 NLPM	1826.4 SCFH
		Recommended Pressure	18 bar	261 psi
		Purity	99.9 %	
Ethylene	C_2H_4	Flow	250 NLPM	570.8 SCFH
		Recommended Pressure	14 bar	203.1 psi
		Purity	99.9 %	
Methane	CH_4	Flow	250 NLPM	570.8 SCFH
		Recommended Pressure	14 bar	203.1 psi
		Purity	99.9 %	
Propane	C_3H_8	Flow	100 NLPM	228.3 SCFH
		Recommended Pressure	12 bar	174.0 psi
		Purity	99.9 %	
Secondary Process Gas				
Hydrogen [a]	H_2	Flow	80 NLPM	182.6 SCFH
		Pressure	18 bar	261 psi
		Purity	99.9 %	
Oxygen	O_2	Flow	400 NLPM	913.2 SCFH
		Pressure	18 bar	261 psi
		Purity	99.9 %	
Nitrogen [b]	N_2	Flow	600 NLPM	1370 SCFH
		Pressure	14 bar	203.1 psi
		Purity	99.9 %	
Compressed Air [b]		Flow	600 NLPM	1370 SCFH
		Pressure	14 bar	203.1 psi
		Purity	ISO 8573.1-1.4.1	
Power				
Voltage			110 VAC	230 VAC
Line Frequency			50 Hz	60 Hz
Amperage			16 A	
Compatibility				
Spray Guns			All Metco Diamond Jet gas fuel, automatic spray guns	
Powder Feeders			Twin 160, SinglePro, Metco 9MPE-DJ-CL20	
Housing				
Protection Class			IP52	IEC 60529
Color			RAL 7021	

[a] Ignition gas
[b] Shroud gas

5 Options and Accessories

- External interface to control the MultiCoat5 HVOF-GF controller through a robotic handling interface
- Gun/hose package with standard length
- Fully embedded AccuraSpray (optional) for monitoring and controlling coating quality
- PiP video surveilance embedded in MC5 HMI

Information is subject to change without prior notice.

6 Life-Cycle Status and Support Options

Our four-phase life cycle model keeps you informed about available services and support options throughout the life span of your equipment

6.1 MultiCoat5 HVOF-GF

- Current Life Cycle Status: Active
- Inception Date: December 2023

During the Active phase, you have our full support and range of services. Using our life-cycle services will keep your equipment in the best operating condition

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6.2. Keeping You Informed

We will notify you early and transparently about your options as your equipment enters into the next life-cycle phase, providing your equipment is registered with Oerlikon Metco.

6.2.1. Life-Cycle Notification

Provides early information about the upcoming life-cycle phase change and how your equipment can be best supported.

6.2.2. Life-Cycle Status Statement

Provides information about the current life-cycle status and all available options and services to maintain your equipment in best condition.

6.3. The Oerlikon Metco Difference

Benefit from our selection of comprehensive services designed to ensure:

- Consistent spray quality, with little to no parameter shift
- Compliance with your ISO quality requirements
- Maximized equipment uptime
- Extended overall equipment lifetime
- Fast availability of spare parts

6.4. Your Best Value for Peak Performance

Choose from our broad portfolio of services to keep your equipment in top condition now and in the future

- Spare parts
- Preventive maintenance
- Repair Service
- Customer training

Take advantage of an Oerlikon Metco Service Agreement tailored to your specific needs!

For more information on your service and support options, please contact your Oerlikon Metco Account Manager.

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