œrlikon metco

Product Data Sheet
UniCoat3 HVOF-LF

UniCoat™3 HVOF-LF 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 UniCoat3 HVOF-LF 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 UniCoat3 HVOF-LF with advanced features that ensure reliable, repeatable and safe operation.

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.

UniCoat3 HVOF-LF 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.

UniCoat3 HVOF-LF 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.
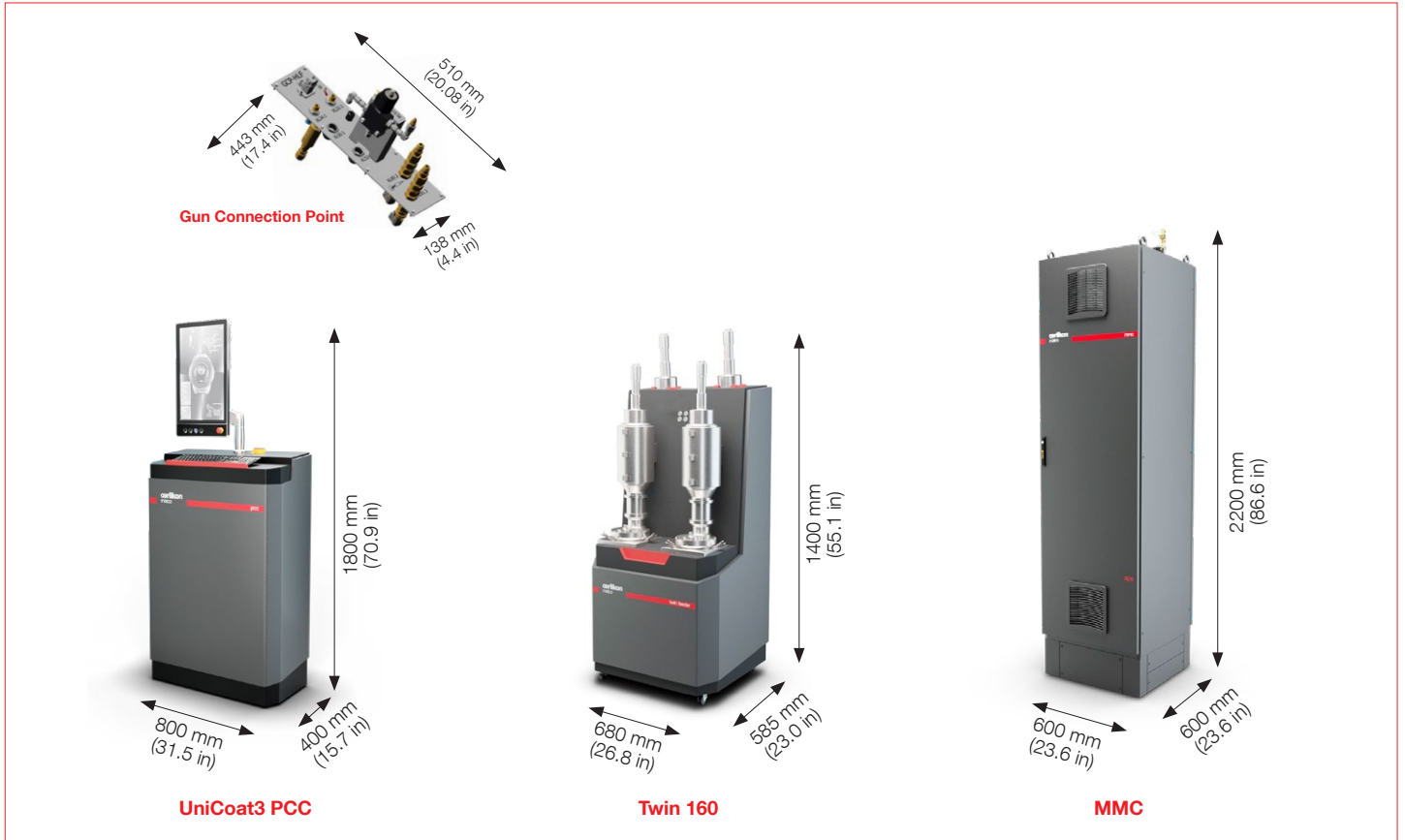
Among the other standard UniCoat3 HVOF-LF features are a multilingual user interface, the ability to store spray parameters and highly responsive digital mass flow control for process gases.

UniCoat3 HVOF-LF Controller for Thermal Spray

1.1 Main Components with Dimensions

1. UniCoat3 Process Control Center (PCC)
2. Twin 160 Powder Feeder
3. Media Management Center (MMC)
4. Gun Connection Point

Gun Connection Point — 510 mm (20.08 in), 443 mm (17.4 in), 138 mm (4.4 in)

UniCoat3 PCC — 1800 mm (70.9 in), 800 mm (31.5 in), 400 mm (15.7 in)

Twin 160 — 1400 mm (55.1 in), 680 mm (26.8 in), 585 mm (23.0 in)

MMC — 2200 mm (86.6 in), 600 mm (23.6 in), 600 mm (23.6 in)

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.
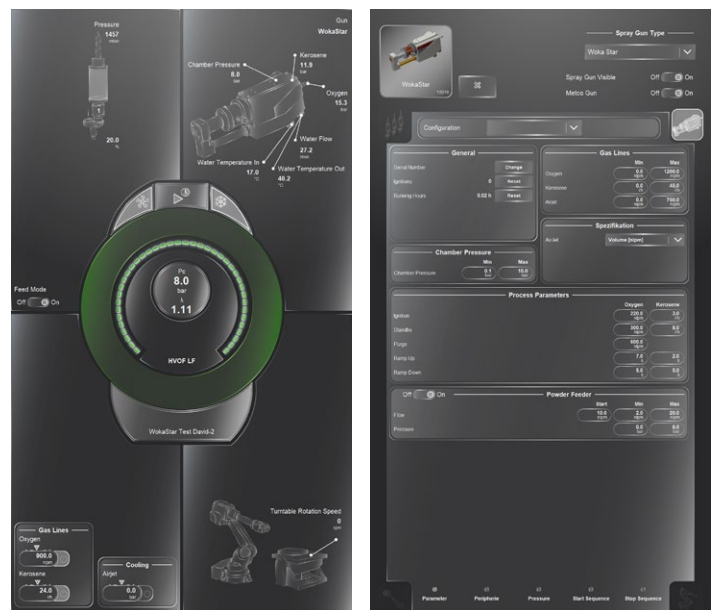
UniCoat3 HVOF-LF – Touch Screen Operation

1.3 Remote Maintenance System

The Remote Maintenance System is a standard feature of UniCoat3 HVOF-LF. 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 3G and 4G/LTE. If internet access is via the customer's network, VPN access is needed) to connect the UniCoat3 HVOF-LF 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 Trending and Reporting

The trending and reporting package is an outstanding feature of UniCoat3 HVOF-LF.

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 UniCoat3 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

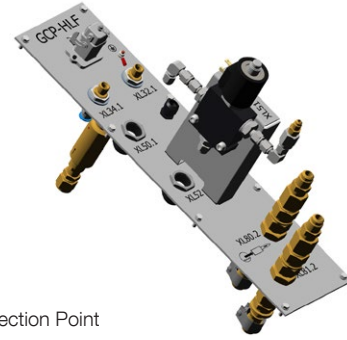| Type		Process		
Process		HvofGf	Start time	24.08.2022 07:54:45
Recipe Name		HVOFGF Methane	Stop time	24.08.2022 08:01:36
Operator		Service Oerlikon	Duration	00:06:50

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

1.5 Gun Connection Point

UniCoat3 HVOF-LF spray systems are supplied with a gun connection point that can be installed inside the spray booth or as a wall breakthrough 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 Point

1.6 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 line
- 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
- 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

3 Recommended System Configurations

Controller	Spray Gun (Choice of)	Powder Feeder (Choice of up to 4 powder feed lines)	Chiller
UniCoat3 LF	■ WokaStar™-610-Sz ■ WokaJet™-410-Sz	**Volumetric:** [a] ■ Twin-160 ■ SinglePro **Gravimetric:** ■ 9MPE-DJ-CL20 [b] ■ SinglePro	■ 90 kW cooling capacity

[a] Full integration with UniCoat3 HVOF-LF 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

Power supply		
Voltage	100 to 120 VAC	
	200 to 240 VAC	
Frequency	50 / 60 Hz	
Current - Maximum	16 A	
Housing		
Protection Class	IP52	IEC 60529
Color	RAL 7021	
Process Media		
Oxygen		
Flow	up to 1200 NLPM	up to 2739.6 SCFH
Pressure	min. 22 bar	min. 319 psi
Purity	Class 3, 99.9 %	
Connector	Swagelok, 1/2 in	
Kerosene		
Flow	up to 30.0 l/h	up to 7.9 gal/h
Pressure	up to 20 bar	up to 290 psi
Connector	Swagelok, 3/8 in	
Cooling Water		
Flow	min. 39 l/min	min. 10.3 gal/min
Quality		
Conductivity	< 40 µS, potable water	
Hardness $CaCO_3$	< 50 ppm	
Inlet Temperature	11 to 24 °C	51.8 to 75.2 °F
Inlet Pressure	14 to 20 bar	203 to 290 psi
Connector	Swagelok, 3/4 in	
Cooling	90 kW, depending on gun and process parameters	
Exhaust		
Air Flow	> 15000 m^3/h	> 8830 ft^3/min
Environment		
Temperature	10 to 40 °C	50 to 104 °F
Humidity	< 75 %, non-condensing	
Air Jets		
Supply Pressure	8 to 16 bar	116 to 232 psi
Pressure	up to 6 bar	up to 87 psi
Air Quality	Dry and oil-free	
Compatibility		
Spray Gun	WokaJet-410-Sz, WokaStar-610-Sz	
Powder Feeder	Twin-160, SinglePro, 9MPE-DJ-CL20	

5   Options and Accessories
- Metco IIoT connectivity
- External interface to control the UniCoat3 HVOF-LF controller through a robotic handling interface
- Gun/hose package with standard length

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

Active	Mature	Limited	Obsolete
▪ Full range of services and support		▪ Services available ▪ Spare parts or compatible solutions ▪ Replacement options are available	▪ Repair services may be available ▪ Spare parts availability while stock lasts ▪ Replacement options are available

6.1 UniCoat3 HVOF-LF
- Current Life Cycle Status: Active
- Inception Date: May 2024

During the Active phase, you have our full sup-port 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, pro-viding 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 sup-ported.

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 ser-vices de-signed to ensure:
- Consistent spray quality, with little to no parame-ter 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 tai-lored to your specific needs!

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

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