



**National Center for Coatings Application
Research and Education (C-CARE)**

**Process Engineering
Lab Trials/Validation
Research & Development**



**Aerospace
Automotive
Heavy Manufacturing
Wood**

Lab specifications and product trials brochure

LAB SYSTEMS & SPECIFICATIONS

Climate Control System

The main coating lab area is equipped with a web based climate control system. Replicate your manufacturing facility's air temperature and relative humidity to create the same testing environments used during production. Wider range of conditions can be met based on current weather conditions

Enclosed Spray Booth

The large spray booth is equipped with a stand-alone climate control system. Maximum heating and humidification.

*worst case January conditions: 80° AT | 60% RH

Compressed Air System

Boge rotary screw system delivering free air at 140 CFM. Air distribution system - Prevost Aluminum High Flow Compressed Air Piping System (contamination free-flow Prevost airline distribution system).

Point of Use Filtering System

Three stage Tsunami Automotive Type Filtration. Filters down to .003 ppm for oil vapor. Meets ISO 85731 Air Quality Class.

Intake Air Filtration

All air throughout the facility is filtered down to 5 micron. Static pressure controlled to .05 inches of water column.

Main Drying System

Regenerative Drying System provides high quality clean air.

Loading Dock

Convenient Loading Dock for deliveries and pickup. Easy access with large overhead doors.

TEMPERATURE & HUMIDIFICATION RANGES

72° F | 55% RH

Summer

worst case:
July conditions

72° F | 40% RH

Winter

worst case:
January conditions



SOUTH BOSTON, VA WEATHER CLIMATE

Avg. Daytime Temperatures (Fahrenheit)

48°

January

88°

July

58°

Annual AVG

Permits

Virginia DEQ permitted for all types of coating technologies. DEQ Operating Registration Number: 21538

AUTOMATED & LARGE EQUIPMENT SPECIFICATIONS

Two Stage Large Enclosed Spray Booth

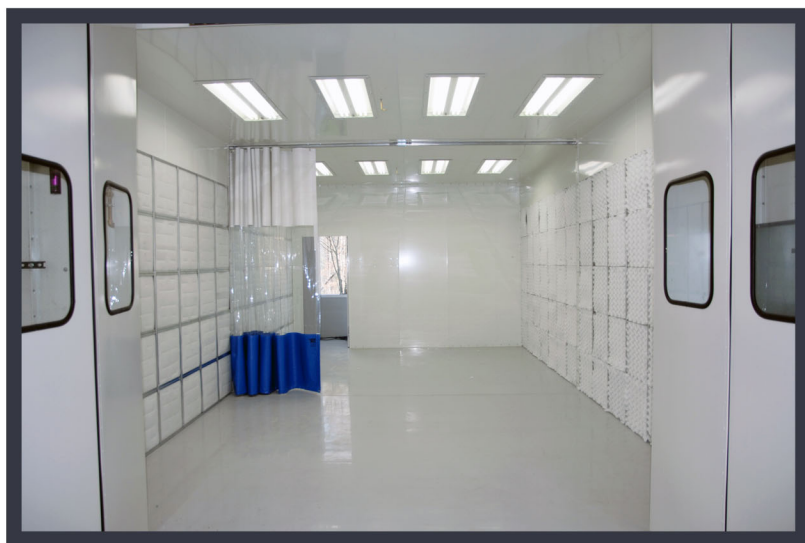


Fully programmable functionality.

Booth Curing Specifications:

- Purge Cycle
- Flash Cycle
- Bake Cycle
- Cool Down Cycle

Robot Setup Capacity



Dual Config Inside Working Dimensions	24' long 14' deep 10' high
Single Config Inside Working Dimensions	12' long 14' deep 10' high
Air Flow Type	Cross Draft
Air Flow Velocity	125 ft/min
In-Booth Lighting	125 FTC 6800 - 7200 Kelvin
Max Bake Temp	150° F
Air Flow Velocity in Bake Mode	65 ft/min
Compressed Air Outlets In Booth	1 High Pressure 2 Regulated Air
Curtain Divider	Pull Type
Access Door	12' high 10' wide

Robotics

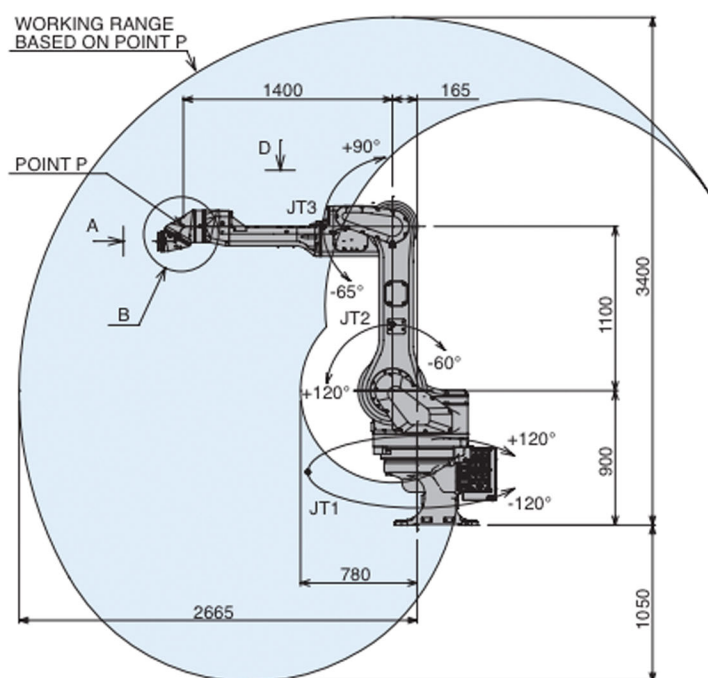
Kawasaki KG264 Painting Robot.

Delivery system can be configured with gear pumps, high pressure, and diaphragm pumps, including electronic two component proportioning systems.

Sames Bell Speed Controller.

Integrated bell controlling system with the e35 controller. Custom fabricated applicator mounting plates available. Other brand robotic technology available upon request.

Payload	wrist 20 kg, arm 30 kg
Horizontal Reach	2,665 mm
Vertical Reach	4,450 mm
Max. Painting Speed	1,200 mm/s
Wrist Type	3R ø70 mm (Roll Roll Roll - hollow wrist)



AUTOMATED & LARGE EQUIPMENT SPECIFICATIONS

Flat-Line

1 Material Feed Conveyor System

Total Width Capacity: 54"
Max Working Capacity: 52"
Line Speed: 0-5.7 meters/min
Max height: 4"

2 Panel Cleaner

Efficient cleaning sytem provides contamination free finishing. Vacuum, brush and air jets cleaning mechanisms.

3 Panel pre-heater

IR pre-heating up to 150° F.

4 Reciprocating Spray Machine

Dual spray reciprocators, pressurized spray cabin, spray all types of coatings, 4 +4 gun arrangement, PLC control system, dual trolley reclaim system, custom gun configuration available upon request.

Color Changing System: Automatic color system, 5 color capacity with flush out, PLC controlled, 45 second color change over capacity. Mounts provided on request, two circuit system.

5 Laminair/IR/Flash Off Oven

Up to 200°F Can be programmed to use either or both energy sources (IR/convection). Fully programmable to simulate all types of curing cycle parameters.



6 IR Convection/Jet Air Oven

Fully Programmable Jet Type (IR/convection), up to 250°F.

7 UV Curing

Muiltiple power output settings, Gallium and Mercury Bulbs. 56.5 arc length.



AUTOMATED & LARGE EQUIPMENT SPECIFICATIONS

Hang-Line

- 1

Automated Conveyor Product Handling System
Oven doors open/close independently as parts move through the system. Conveyor system interconnects with robotic control system.
- 2

Wet Spray Booth
Open face-cross draft type. Air flow velocity: variable from 50-200 fpm. Inside working dimensions: 8' wide | 12' deep | 10' high. Lighting: 125 FTC Candle @ 6800 - 7200 Kelvin. Compressed air: 1 High Pressure, 2 Regulated Air. Robotic capacity.
- 3

Powder Coat Booth
8' wide | 12' deep | 10' high. 1 high pressure outlet. Lighting: 125 FTC Candle @ 6800 - 7200 Kelvin. Recirculating filtration cartridges: 10,000 cfm at .5 micron efficiency.
- 4

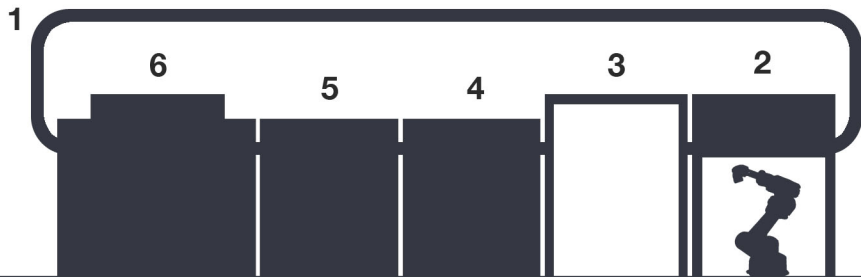
IR Convection Oven
Fully programmable control system to achieve consistent curing results. Four vertical elements and one top and bottom horizontal elements. Power output programmable: 0-100% infinite control. Convection intake and exhaust air flow. Oven has viewing window and IR temperature sensing portal.
- 5

3D UV Curing Oven
3D UV curing has a four lamp curing oven with 3-dimensional reflectors. Power options from 10% to 100% for matching or meeting any curing requirements. Convection intake and exhaust air flow. Gallium or Mercury Lamp Setup Available, specialized curing options available upon request. UV Lamps: 800 mm long. Power: 120 W/cm. Maximum 160 W/cm. Each lamp can be individually controlled for output to provide precise curing efficiency.
- 6

High Temp Convection Curing Oven
High Temp Convection Curing Oven: Up to 400° F. Large 6' wide 8' high doors to allow access for racking parts to perform batch oven curing, or conveyor (two options).

Max Part Size	36" width 24" depth 160" high
Variable Line Speed	0.5 -12 meters/min
Spindle Rotation*	180° - 360° or cont.
Spindle Rotation Variable Speed	0:20 - 2:00 mins
Max Load	400 lbs

*no part rotation in High Temp Conv. Oven



APPLICATION TECHNOLOGY

Material Delivery Technology

Low, medium and high pressure pumps. 10:1 ratio to 40:1 ratio. Gear pumps, diaphragm pump, two component mixing systems (electronic proportioning and pump based). Specialized pumping solutions on request.



Atomization Application Technology

Gun application tech, rotary atomizers, electrostatic, hvlp, conventional, compliant, powder coat, air assisted airless, airless, automatic guns, manual gun. Special applicators and brand specific equipment available upon request.



Proportioning & Dosing Technology

Designed for multi-color, two component, in-booth applications. Choose between pump-based or meter-based plural component systems. Predefined tolerance limits. Off-ratio material will not reach your product. Available in low and high pressure, two component mixing, constant flow rate.



COATING LAB SERVICES



Coating Systems & Process Validation

Simulate Control Conditions
Eliminate downtime at your manufacturing facility

Robotic Path Programming

Increase transfer efficiency
Test new technology
Path programming capabilities
Develop most efficient paint processing sequences and procedures



Lab Testing

Quality assurance
ASTM testing
ISO testing
Controlled conditions

Research & Development

Develop new coating technology
Test new coating atomization technologies
New automation technologies
Surface engineering



Process Engineering

Development of new processes
Reduce startup costs
Reduce costly mistakes in equipment specification & configurations

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