

# OTS-7800

## Electrostatic Spray Gun System-Robot Arm

**HYBRID**

2K/3K WATERBASED

2K/3K SOLVENT



ABB

YASKAWA

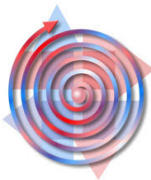
KUKA

FANUC

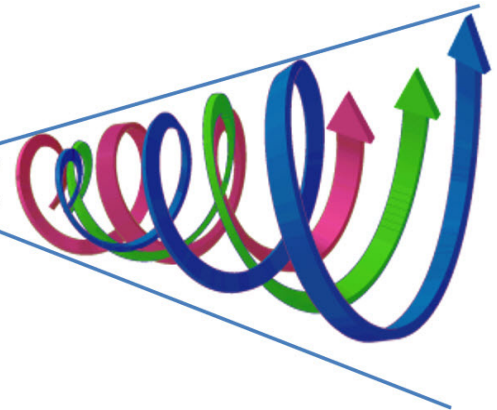
Kawasaki

EPSON

STÄUBLI



OTSON<sup>®</sup>  
Liquid Electrostatic



Round Tin Nozzle(A) Round Tin Nozzle(B) Round (FRP) Nozzle Flat (FRP) Nozzle

Solvent

Waterborne

DUAL  
Coating

H.E.T  
High Efficiency Technology



AUTOMATION



INTERNET OF THINGS



SMART PRODUCTION



GREEN ENERGY



SMART FACTORY



CYBER SECURITY



ARTIFICIAL INTELLIGENCE

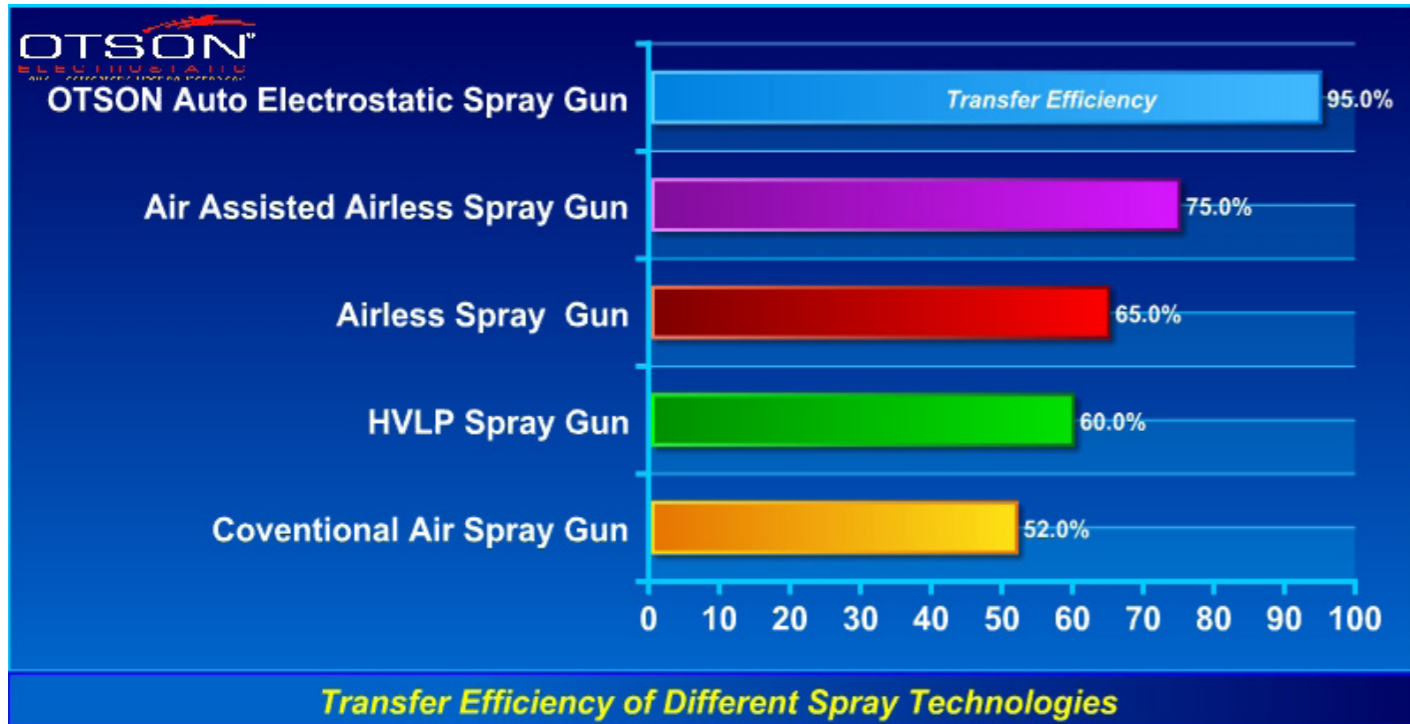


MACHINE LEARNING

## Overview

The OTS-7800 Auto Electrostatic Spray Gun -Robot Arm Kit is a highly efficient and cost-effective solution for applying coatings and paints in various industrial settings. The system utilizes electrostatic technology and special nozzle structures, such as tin Round nozzle, frp Round nozzle and frp flat nozzle, to produce smaller droplets that are more easily attracted to the grounded object, resulting in a consistent and high-quality finish.

One of the key benefits of the OTS-7800 Auto Electrostatic Spray Gun -Robot Arm Kit is its ability to cover a large surface area in a short amount of time, which can lead to increased production rates and ultimately a higher return on investment for your customers. The special nozzle structures and the electrostatic technology of the system provide the ability to handle a wide range of coatings and paints, including 2K and water-based paints, making it a versatile solution for various industrial applications. The system is also designed for easy maintenance, ensuring minimal downtime and increased reliability.



### Dual Coating for Solvent and Waterborne Paint



**2K/3K WATERBASED**

**2K/3K SOLVENT**



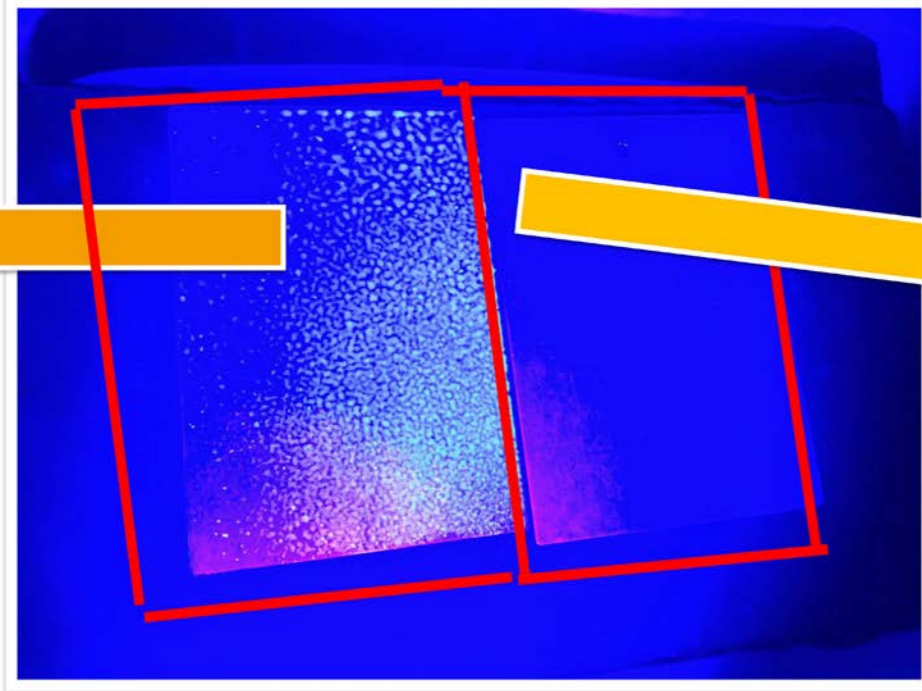
Additionally, the OTS-7800 Auto Electrostatic Spray Gun -Robot Arm Kit is designed to reduce CO2 emissions and overspray, which can help to save cost and be more environmentally friendly, ultimately leading to cost savings for your customers.

The system includes a fully automated control panel that provides high production rates and reduces labor cost. The control panel gives operators total control flexibility and allows the operator to change process parameters, not only between batches, but also within the same part. The simplified user interface control panel is capable of recording ten different coating parameters which is beneficial to apply in various objects easily and efficiently.



The OTS-7800 Auto Electrostatic Spray Gun -Robot Arm Kit is safe and compliant for use in various industrial settings, including potentially explosive atmospheres. It is certified by ATEX, the standard for equipment and protective systems in these environments. We provide customized solutions to meet our customers' needs, including integration of electrostatic high rotary atomizer technology and special nozzle structures for 2K and water-based paints. Our system increases production rates and cost savings for a high return on investment.

No uniform spray by other conventional sprayer

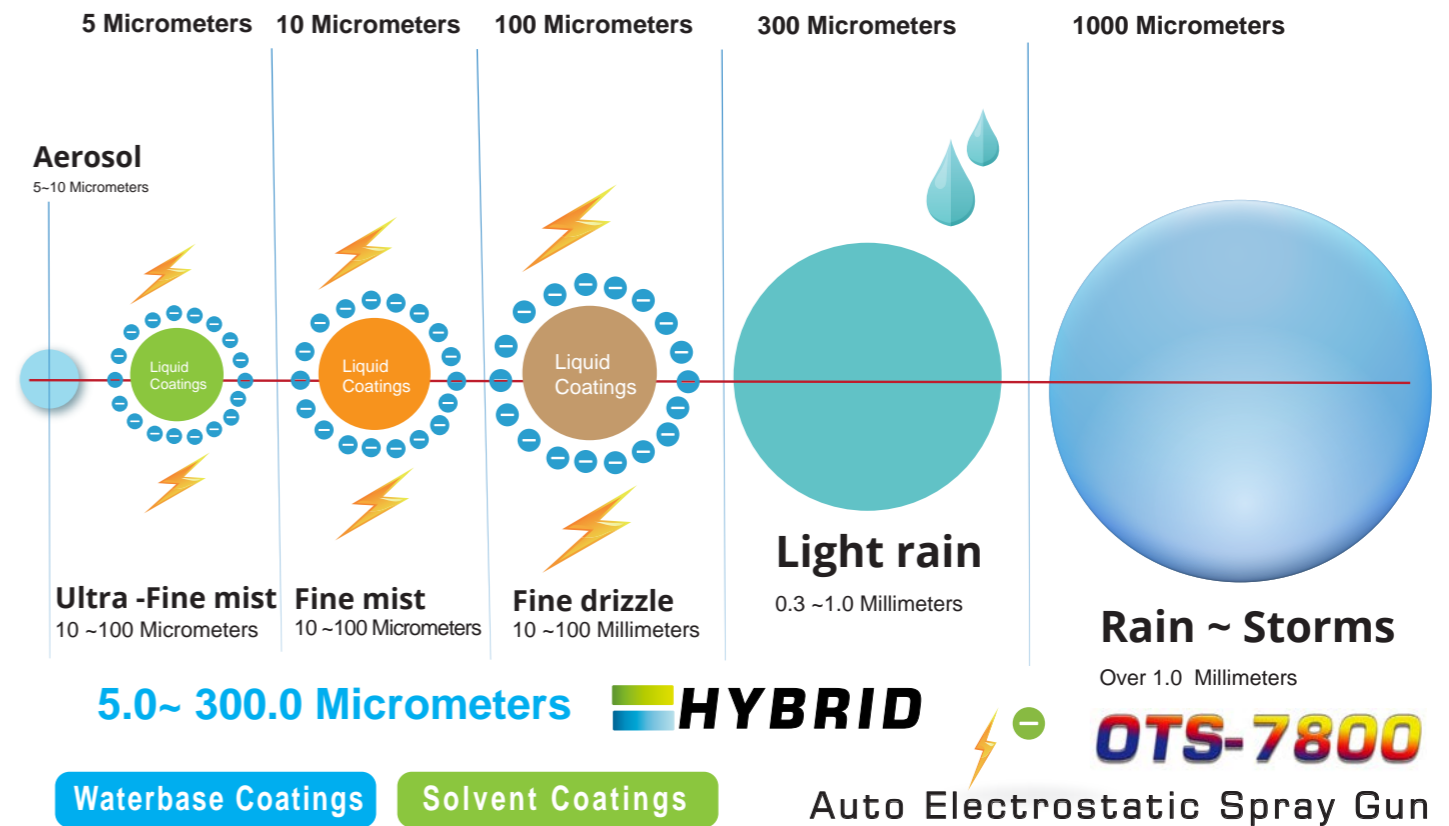


Uniform spray by OTSON electrostatic spray technologies



Different coatings thicknesses by OTSON Electrostatic Spray System

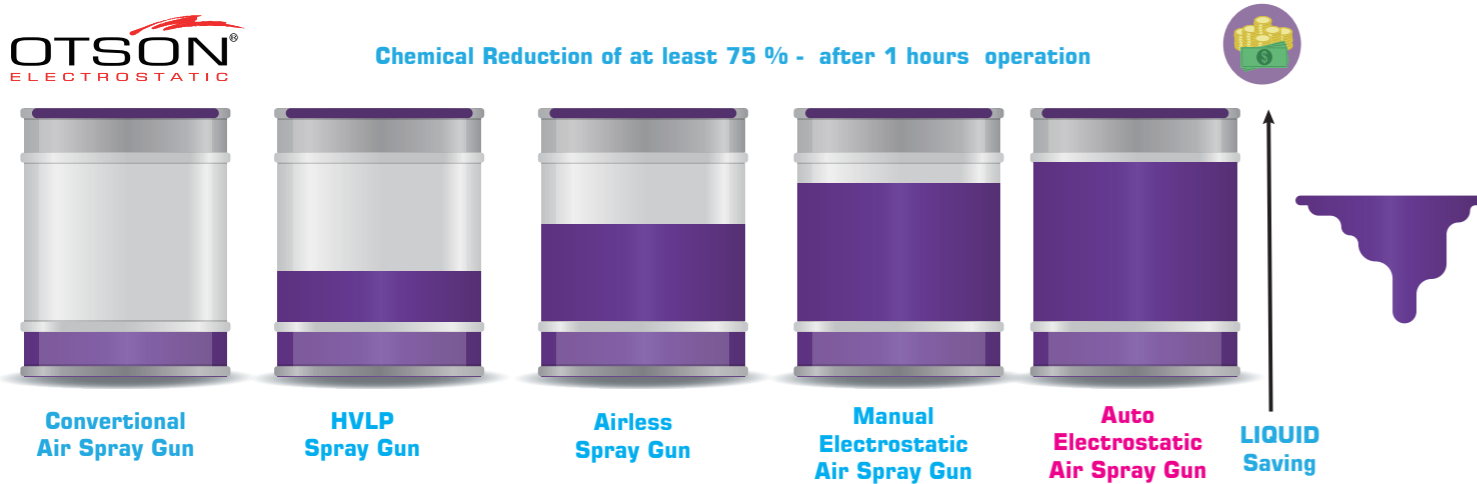
Uniform Coating Quality



## Benefits of Electrostatic Spray Technology

- **Improve Finishing Quality**
- **Reduce Refinishing Work**
- **Time Savings**
- **Reduce Paint Wastage**
- **Material Savings**

## Reduce Paints Costs



## Return-on-Investment (ROI)

By replacing Conventional Air Spray gun with Auto Electrostatic Spray Bell System

	Typical	Calculate Your Own Application
Paint price per litre	USD 10	
	X	X
Litre Used per Day	100 litres	
	X	X
Business Days per Year	220 days	
Electrostatic Transfer Efficiency	95%	
Annual Savings	USD 209,000.00	

## Features

- **Dual Coating- Solvent and Waterborne Paint**
- **Improve Coating Quality**
- **Reduce Air Pollution**
- **Reduce Water Pollution**
- **High Transfer Efficiency - Spray Painting**
- **High Atomized Nozzle**
- **Easy Handle for Long Term Operation**
- **Long Life Operation**
- **Low VOC Emissions**
- **Low Failure Rate and Easy Maintenance**
- **Light Weight Gun - 470g Only**

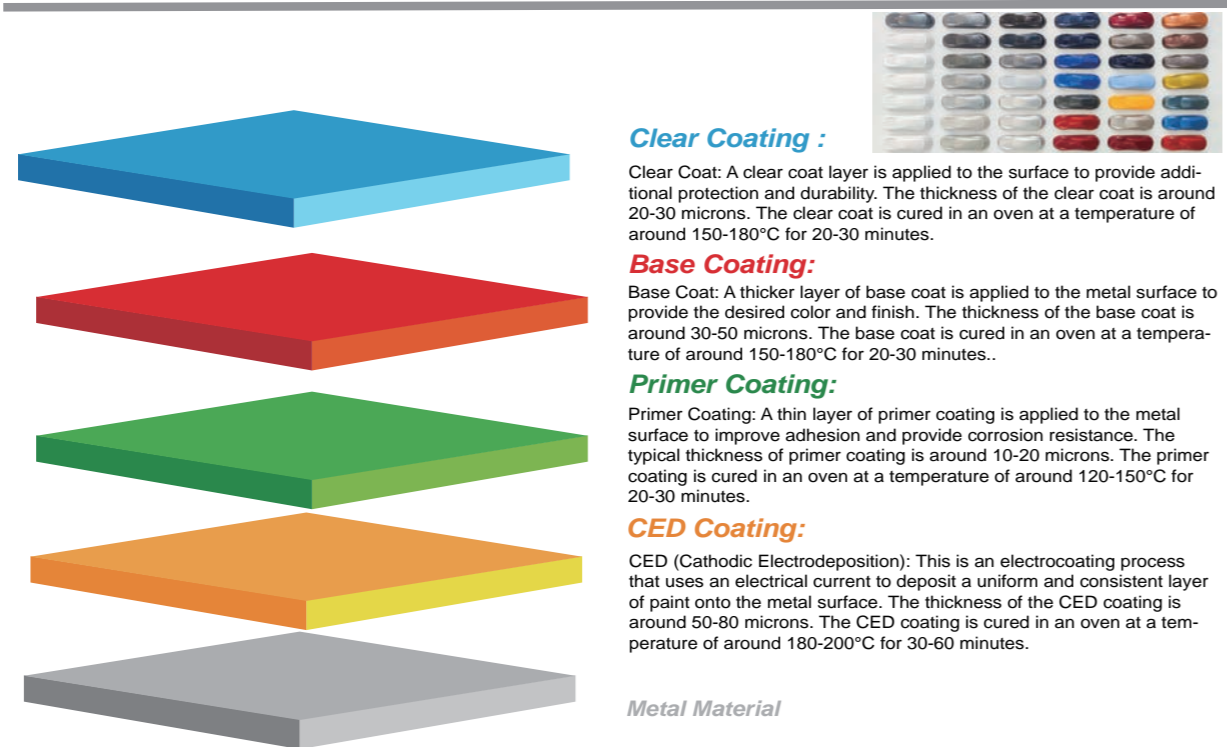


The Spray Direction of High Atomized Nozzle



The metal industry typically requires a multi-layer liquid coating system to provide protection and enhance the appearance of metal surfaces. The thickness of each layer depends on the specific requirements of the metal surface, but a typical sequence of layers for metal industry would include the following:

**OTSON** ELECTROSTATIC Pretreatment and coating process of metal parts in the metal industry



- **Surface Preparation:** The metal surface is cleaned and treated to remove any dirt, oil, or other contaminants that may affect the adhesion of the coating. The surface may be sandblasted, degreased, or chemically cleaned
- **CED (Cathodic Electrodeposition):** This is an electrocoating process that uses an electrical current to deposit a uniform and consistent layer of paint onto the metal surface. The thickness of the CED coating is around 50-80 microns. Curing time and temperature: The CED coating is typically cured in an oven at a temperature of around 80-120°C for 15-30 minutes.
- **Primer Coating:** A thin layer of primer coating is applied to the metal surface to improve adhesion and provide corrosion resistance. The typical thickness of primer coating is around 10-20 microns. Curing time and temperature: The primer coating is typically cured in an oven at a temperature of around 80-120°C for 15-30 minutes.
- **Base Coat:** A thicker layer of base coat is applied to the metal surface to provide the desired color and finish. The thickness of the base coat is around 30-50 microns. Curing time and temperature: The base coat is typically cured in an oven at a temperature of around 80-120°C for 15-30 minutes.
- **Clear Coat:** A clear coat layer is applied to the surface to provide additional protection and durability. The thickness of the clear coat is around 20-30 microns. Curing time and temperature: The clear coat is typically cured in an oven at a temperature of around 80-120°C for 15-30 minutes.
- **Final Inspection:** The coated metal parts are inspected to ensure they meet quality standards and customer specifications.

These layers are applied using liquid electrostatic spray equipment, which is capable of atomizing the coating materials into fine particles for precise and efficient application. The thickness of each layer can be adjusted based on the specific requirements of the metal surface and the desired end result.

**2K/3K Mixer and Color Change System- Disk Electrostatic Spray**

Color change valves, also known as paint dispensers, are a valuable investment for any business in the painting industry. These devices are used in paint shops to mix and dispense paint quickly and accurately, reducing waste and cleanup time.

One of the key benefits of a color change valve is its ability to automatically switch between different paint colors, which can save time and increase efficiency. This feature is especially useful for businesses that work on multiple projects and need to switch between colors frequently.

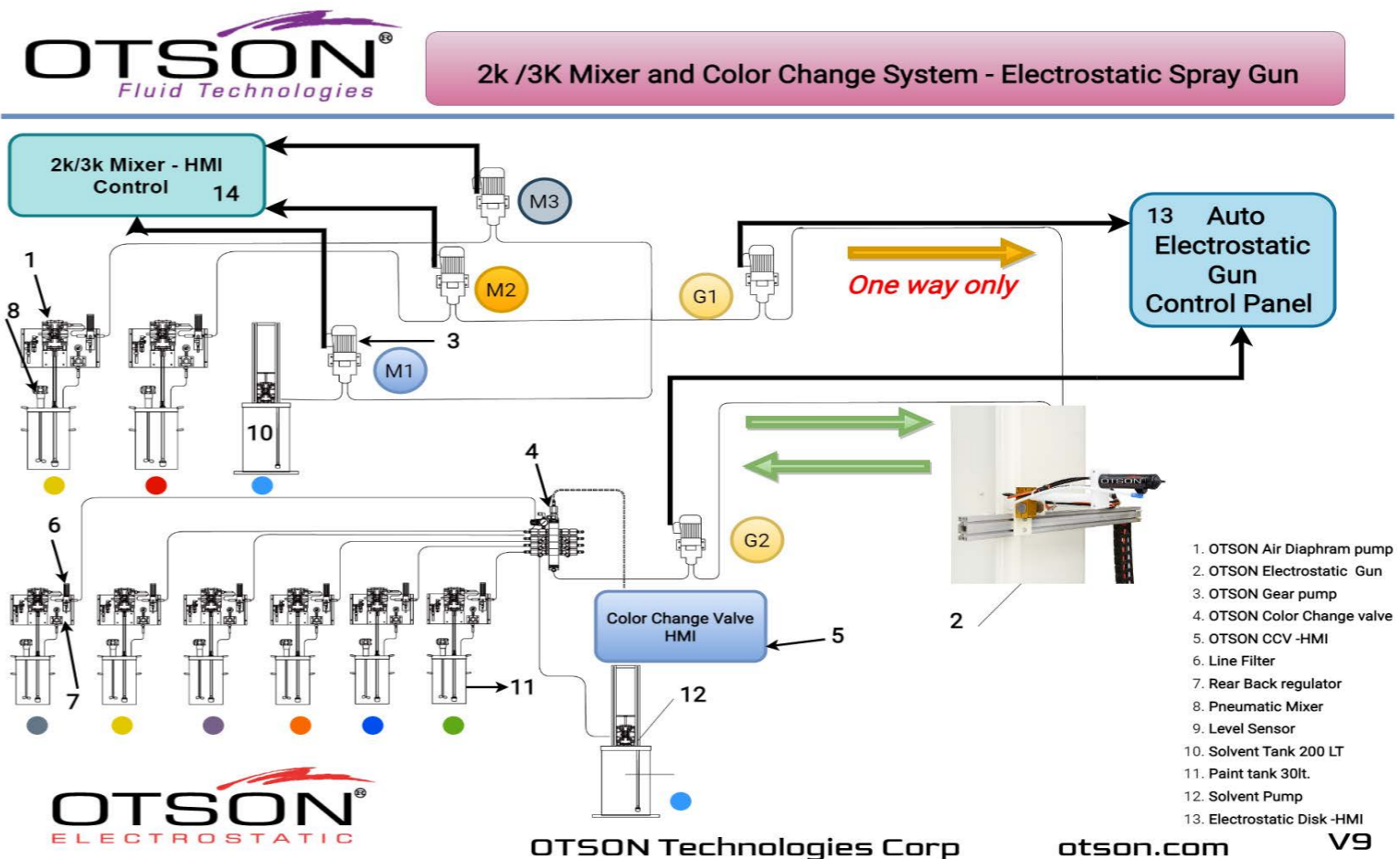
Another advantage of color change valves is their mixing capabilities. These devices can mix the paint with hardeners, reducers, or other additives as it is dispensed, ensuring that the paint is properly mixed and ready to use, which can help improve the quality of the paint job.

In terms of market view, the use of color change valves is prevalent in industrial paint application such as automotive, aerospace, and wood finishing industries. Many companies are investing in color change valves to improve their production efficiency and reduce cost.

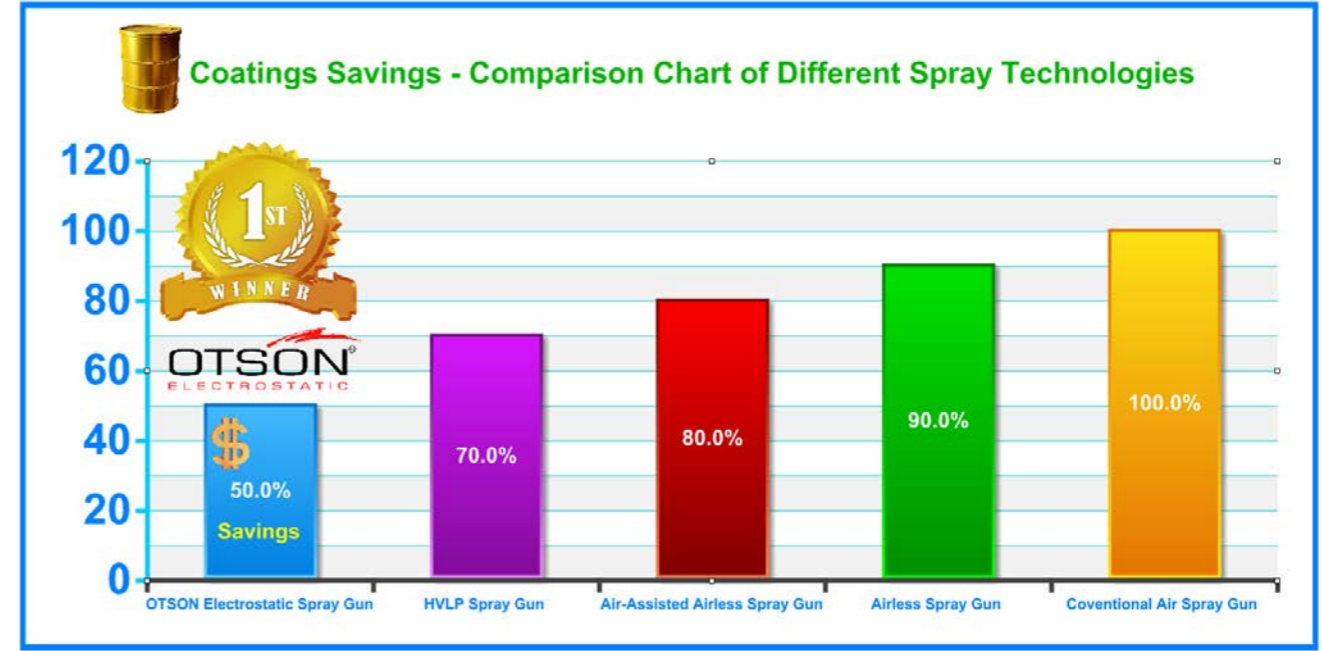
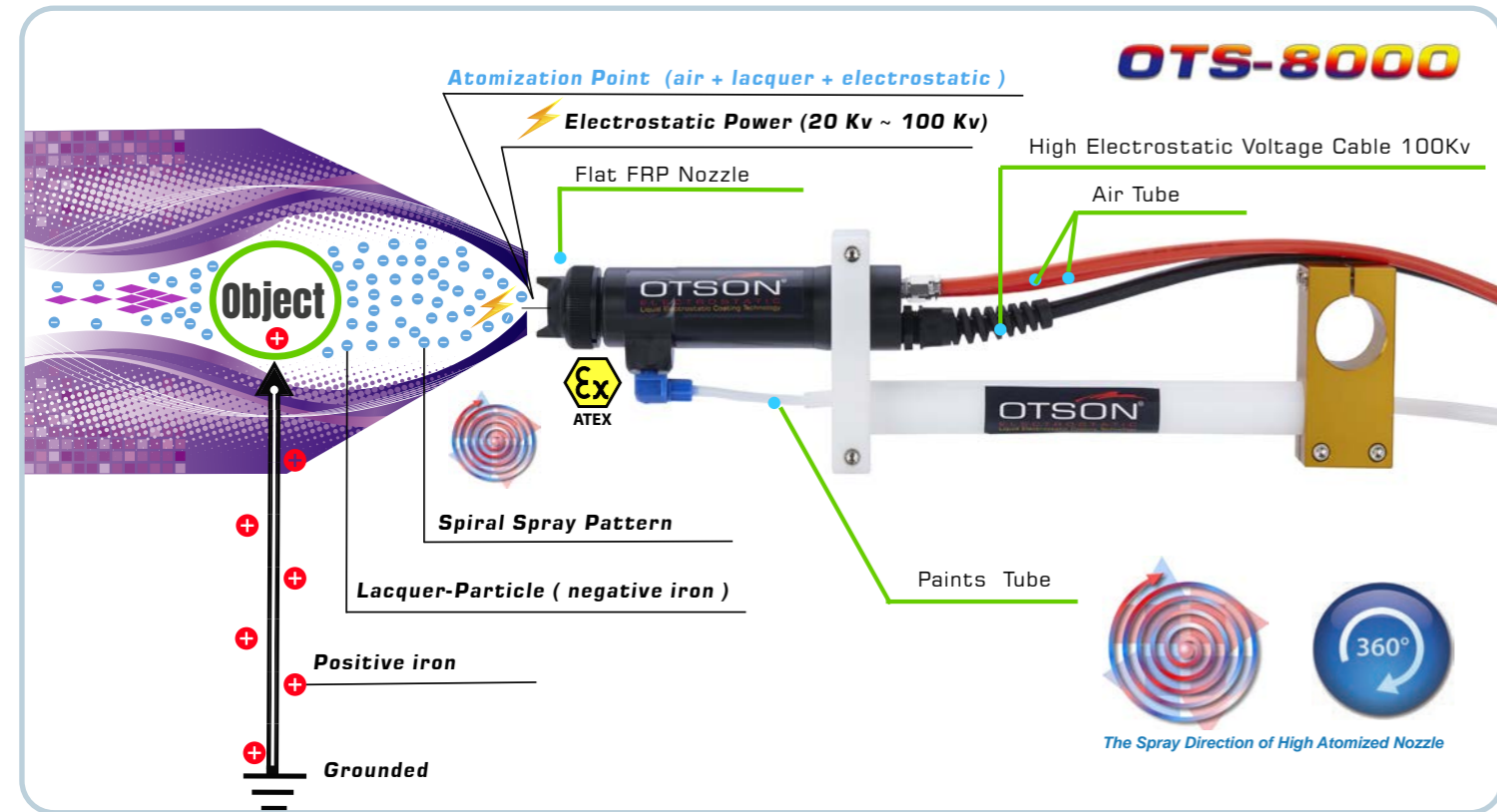
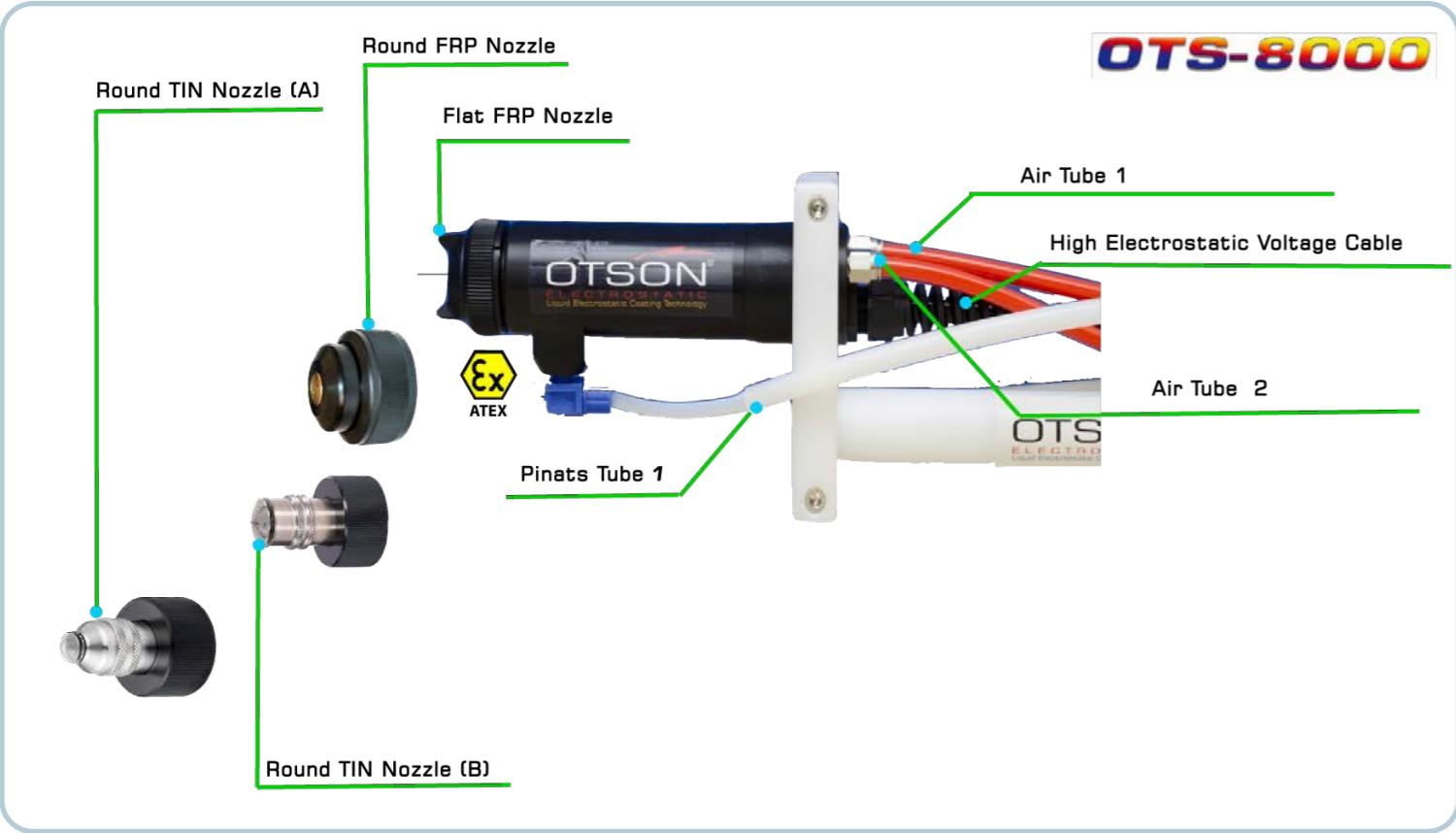
Overall, color change valves are an essential component of any paint shop, providing accurate and efficient paint dispensing and color change capabilities. Investing in a high-quality color change valve can help businesses in the painting industry to increase productivity, improve the quality of their paint jobs and save money in the long run.

**2K/3K WATERBASED**

**2K/3K SOLVENT**



**Features**



**OTS-7800 Auto Liquid Electrostatic Spray System**



The OTS-7800 Auto Liquid Electrostatic Spray Gun from OTSON comes equipped with standard accessories, including an air regulating valve, electrostatic power supply, and a round (TIN) nozzle, with an additional set available as an option. Customers may choose from a set that includes a round (FRP) and flat (FRP) nozzle. When combined with a paint tank, gear pump, paint filter, paint stabilizing valve, air dryer, and air compressor, this electrostatic spray gun forms a complete set of liquid electrostatic spraying equipment. The customer can carry out spray operations easily by pouring paint into the bucket.

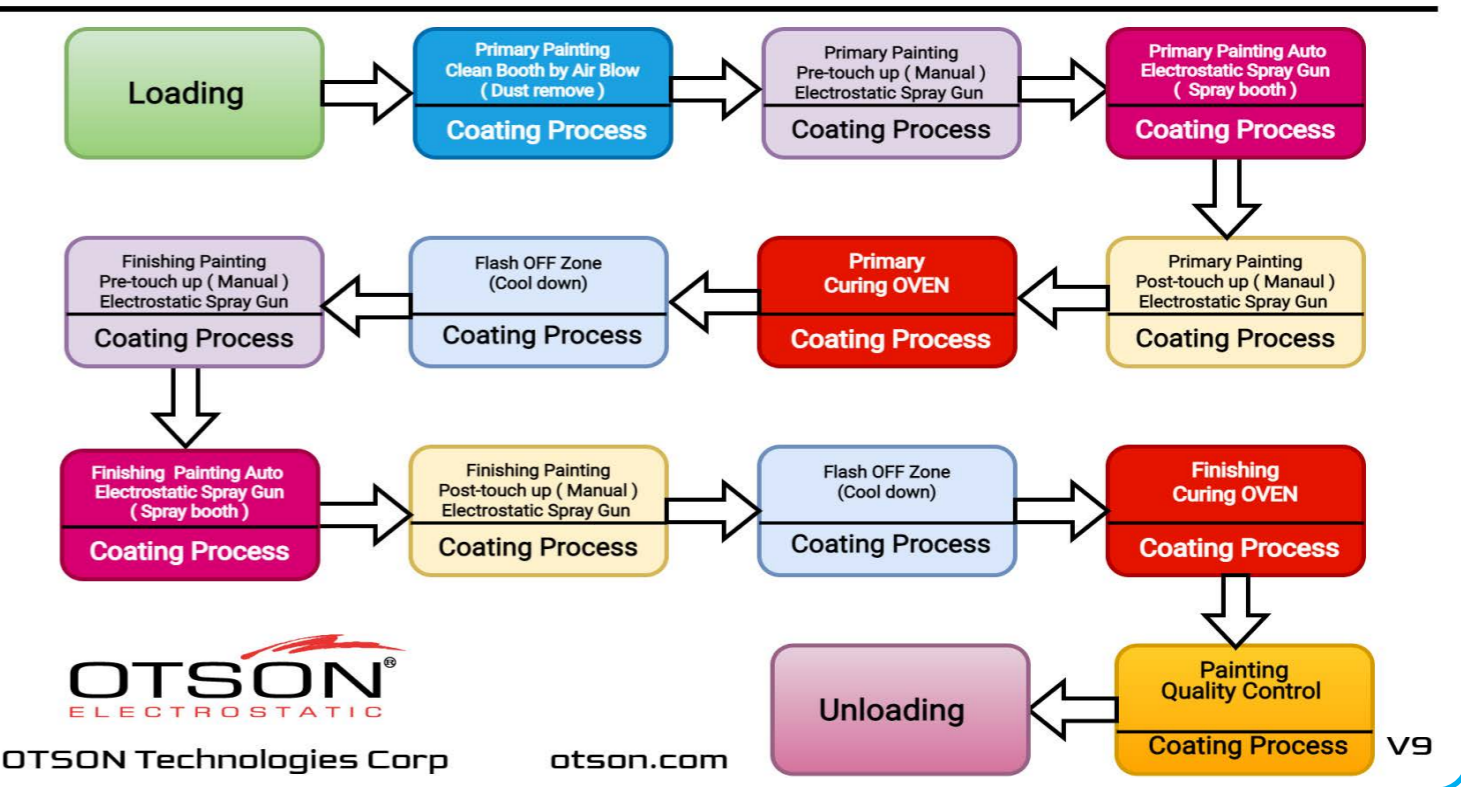
The 2K-3K Electronic Mixing & Dosing System is an advanced system designed for use in a liquid electrostatic spray system. It is used to control the mixing and dosing of two or three liquid components in a precise and accurate manner. The system uses electronic sensors and controls to measure and adjust the flow rate of each component, ensuring that the correct proportion of liquids are mixed and sprayed. The end result is a more uniform and efficient application of the sprayed liquid, resulting in improved product quality and increased

**The Process Steps of Auto Electrostatic Spray Gun Coating System**

**OTSON** Innovative Liquid Electrostatic spray Paint Shop Solutions- industry 5.0



**OTSON** Paint Shop Technologies The Process Step of Automatic Electrostatic Gun Coating System



**OTSON Technologies Corp** otson.com

The 2K-3K Electronic Mixing & Dosing System typically comprises of the following components:

- **Metering Pumps:** These pumps are used to accurately control the flow rate of each component, ensuring that the correct proportion is mixed and sprayed.
- **Mixing Chamber:** The mixing chamber is where the two or three liquid components are combined and mixed together.
- **Control Unit:** The control unit is the heart of the system and is responsible for monitoring and adjusting the flow rate of each component. It may use electronic sensors, computer control and software to manage the mixing and dosing process.
- **Display Unit:** A display unit is used to show the operator the current status of the system, including the flow rate of each component, total amount of liquid mixed and any alarms or faults that may arise.

The system may also be equipped with additional features such as automatic cleaning, continuous monitoring, and alarms for low level and low pressure, to ensure the reliable and consistent operation of the mixing and dosing process.

Overall, the 2K-3K Electronic Mixing & Dosing System provides precise control over the mixing and dosing of two or three liquid components, which results in a more efficient, consistent and uniform application of the sprayed liquid.

**OTSON** Innovative Liquid Electrostatic spray Paint Shop Solutions- industry 5.0



**Round TIN Nozzle - B**



**OTS-7800 Auto Electrostatic Spray Gun**

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## Specification

### OTS-7873 /7833 Microcomputer Control Panel ( 10" Man-Machine Interface )

- **Input Voltage:** AC 200V ~ 415V 50hz / 60hz (3 phase ) ± 5%
  - **Power Consumption :** 2.5 KVA
  - **Dimension :** 420 (L) x 730 (w) x 1710 (H) mm
  - **Weight :** 110 kg
  - **Servo Motor Controlled Reciprocator.**
  - **Touch Panel Interface by using 10" Color Screen.**
  - **Memory Capacity up to 200 sets of Operation.**
  - **Color Change Control ( 2 colors ) Interlocking**
  - **Door-in-Door Design to Achieve Efficient Anti-Dust Effect.**
- Coatings: Solvent-base & Waterborne Coatings



### OTS-7853 / 7813 Microcomputer Control Panel ( 10" Man-Machine Interface )

- **Input Voltage:** AC 200V ~ 415V 50hz / 60hz (3 phase ) ± 5%
  - **Power Consumption :** 2.5 KVA
  - **Dimension :** 420 (L) x 730 (w) x 1710 (H) mm
  - **Weight :** 110 kg
  - **Servo Motor controlled reciprocator.**
  - **Touch Panel interface by using 10" colour screen.**
  - **Memory capacity up to 200 sets of operation.**
  - **Door-in-Door design to achieve efficient anti-dust effect.**
- Coatings: Solvent-base Coatings



### 6 Axis Robot Arm - for painting

Maximum Load of Robot: 20 kg

Number of axis: 6  
 Maximum horizontal reach: 2,779 mm  
 Maximum vertical reach: 4,582 mm  
 Repeatability: ±0.5 mm  
 Controller: NX100  
 Motion range (°)

Maximum speed (°/s) :2.0 m/s

Robot applications: Coating and paintings



## Specification

### OTS-7813 & OTS-7833 Liquid Electrostatic Power Supply

Out Voltage	0~70 KV DC(-) -OTS-7800	0~100 KV DC(-)-OTS-8100
Out Current	50 microamperes	
Intercepting Current	20~150 microamperes	
Input Voltage	220V AC (50Hz)	
Weight	12 kg	
Dimensions	300(L)x120(W)x350(H) mm	
Coatings	Solvent-base Coatings	



### OTS-7873 ,OTS-7853 Liquid Electrostatic Power Supply

Out Voltage	0~110 KV DC(-)	
Out Current	50 microamperes	
Intercepting Current	20~150 microamperes	
Input Voltage	220V AC (50Hz)	
Weight	12 kg	
Dimensions	300(L)x120(W)x350(H) mm	
Coatings	Solvent-base & Waterborne Coatings	



### Gear Pump

Input Voltage : AC 220 V ~ 380 V ±10% 3 Phase

Horsepower : 1/4 HP

Dimension : 130 (L) x 600 (w) x 30 (H) mm

Weight : 13 kg

Output : 3cc or 6cc / rev 200 cc ~ 3000 cc / min (digital control)

Spray Hose : Double-layer Teflon paint hose

Pump Material : Hardened Steel CMoWCrVCo HRC = over 63)

Titanium plated for durable use and wearing resistance.



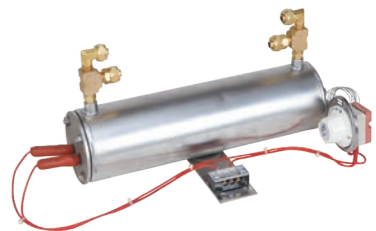
### Air Heater

Dimension : 410 (L) x 170 (w) x 150 (H) mm

Weight : 5 kg

Input Voltage : AC220V , 500W

Temperature : 0 degree C ~ 120 degree C



### Water Filter & Oil Filter

Dimension: 170 (L) x 340 (w) x 90 (H) mm

Weight : 3 kg

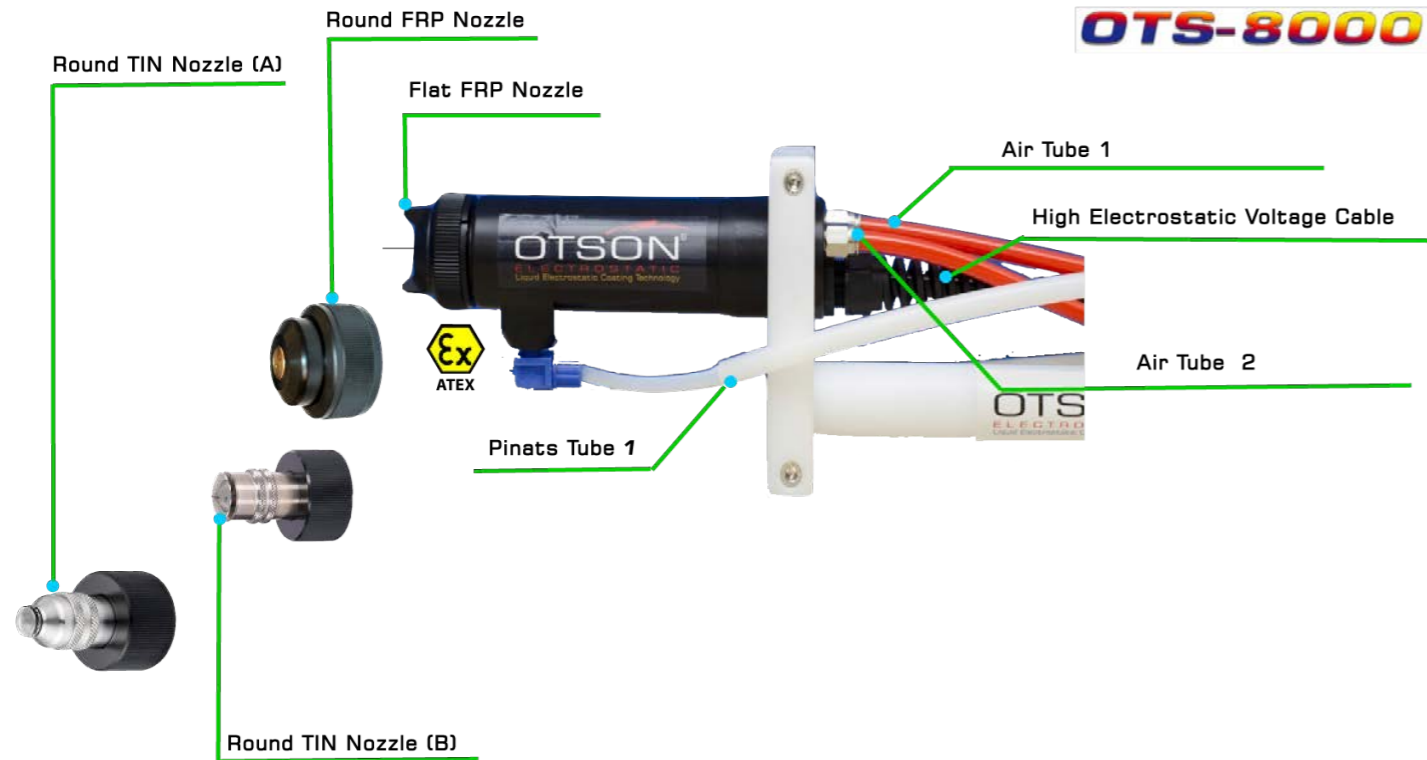
Water Filter : 3650 l/s

Oil Filter : 1900 l/s

MAX Operation Pressure : 150psi







**OTS-8000**

<b>Model Number</b>	<b>OTS-8000</b>
Spare atomizer, without cable or hose	0.5 kg
Material of Auto Liquid Electrostatic spray gun	FRP (no magnetic)
Life cycles ( valves/bell /bearings/couplings) depend on air quality and Maintenance	1~5 years

<b>Pneumatic supply</b>	
Maximum air pressure	6 bar (87 psi)
air consumption	From 7 - 40 (4 - 23) m3/h (cfm)

<b>Paint supply</b>	
Maximum Fluid Pressure	6 bar (87 psi)
Maximum Fluid Outlet	800 (27) cc/min (oz/min)
Minimum Fluid Outlet	100 (3) cc/min (oz/min)
Viscosity scale (for minimum results)	8 to 30 seconds NK-2 Cup
(2): with a product density < 1.1 gr/cm3 and/or of the combination bell and air shroud being used	

<b>Performances</b>	
Transfer Efficiency	85% ~98%

<b>Color change</b>	
Paint consumption	25 cm <sup>3</sup> (paint circuit) & 25 cm <sup>3</sup> (pump circuit)
Paint feeding	OTSON GEAR PUMP (2 color change)
Rinsing product consumption	300 cm <sup>3</sup> (not included rinsing box)
Standard process time	10 sec (with REVERSE FLUSH)
Optimized process time	5 sec (with REVERSE FLUSH on circuit 1 & 2)

<b>Same Color (head rinsing + Nozzles)</b>	
Time	6 sec.
Rinsing product consumption	50 cm <sup>3</sup> .

<b>High Electrostatic Voltage</b>	
Voltage maxi.	110 kV
Current maxi.	50 μA

## Specification

### Liquid Electrostatic Spray Gun

Input Voltage	0~110KV DC(-)
Gun Length	225 mm
Gun Weight *(no nozzle , hv cable ,spraying tube and air tube )	470 g
Fluid and Air Pressure	0 ~ 7 kg/cm <sup>2</sup> (6.86 bar) (0~100) psi
Operating Pressure	Air Supply
Coatings	Solvent-base & Waterborne Coatings



### Round ( TIN ) Nozzle - A type

Gauge :	12 mm
Atomization air pressure :	4 ~ 6 Bar
Flow Rate :	20 ~ 300 ml/min
Fan pattern width :	40 ~150 mm
Air :	180 NI / min



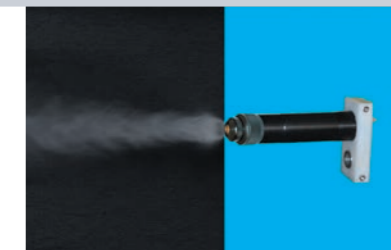
### Round ( TIN ) Nozzle - B type

Gauge :	22 mm
Atomization air pressure :	4 ~ 6 Bar
Flow Rate :	20 ~ 300 ml/min
Fan pattern width :	70 mm
Air :	180 NI / min



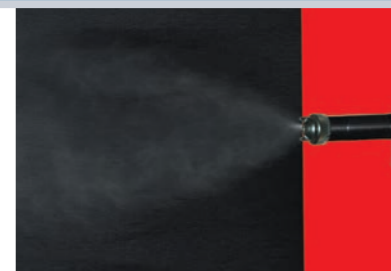
### Round ( FRP ) Nozzle

Gauge :	12 mm
Atomization air pressure :	4 ~ 6 Bar
Flow Rate :	50 ~ 300 ml/min
Fan pattern width :	160 mm
Air :	180 NI / min



### Flat ( FRP ) Nozzle

Gauge :	3 mm
Atomization air pressure :	4 ~ 6 Bar
Flow Rate :	100 ~ 400 ml/min
Fan pattern width :	300 mm
Air :	180 NI / min



**iOTSON**  
Paint Shop Technologies

Dashboard of Electrostatic Spray Coating – Paint Shop

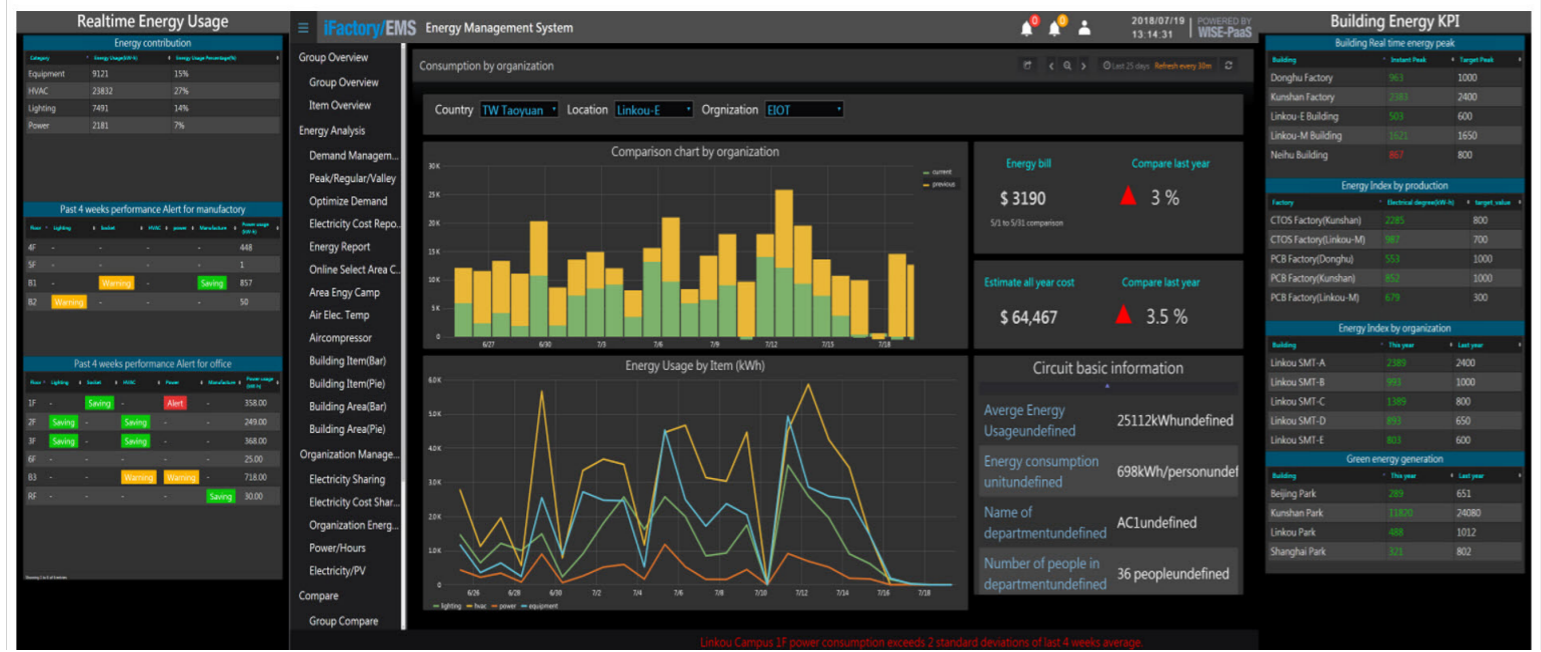


Round FRP Nozzle



OTS-7800 Auto Electrostatic Spray Gun

**iOTSON** Energy & Environment-Dashboard of Paint Shop  
Paint Shop Technologies



Flat FRP Nozzle



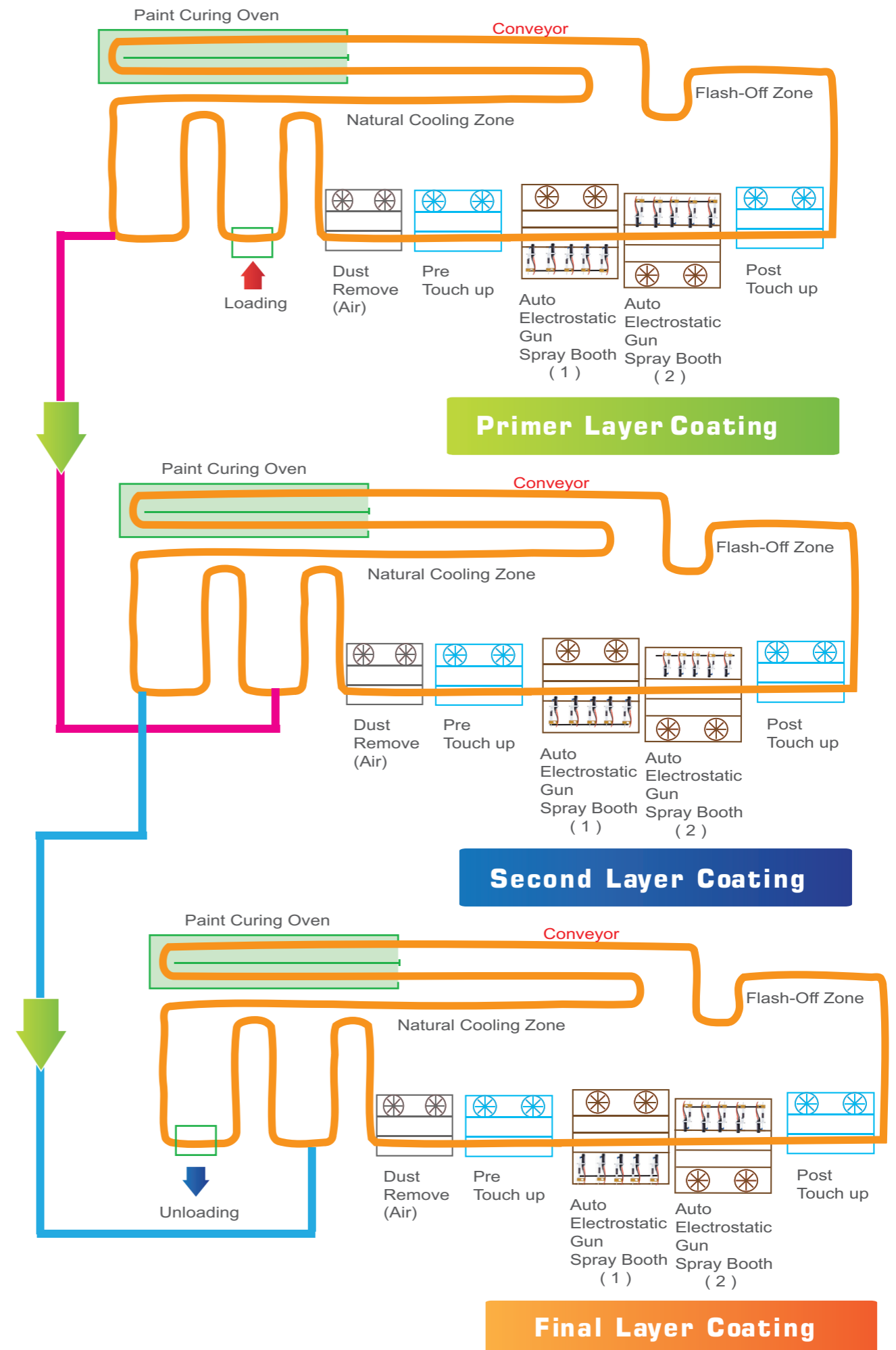
OTS-7800 Auto Electrostatic Spray Gun

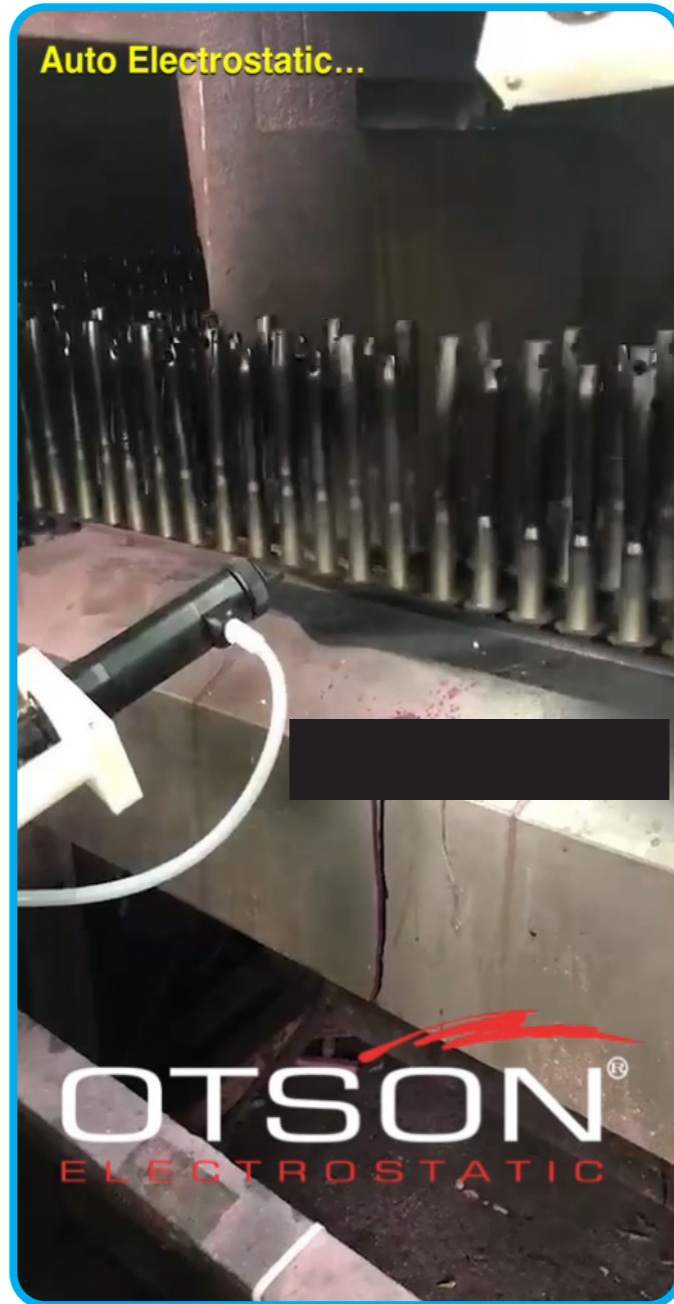
## Application - Industries



- Small parts
- Bicycle
- Application
- Small parts
- Bicycle
- Computer Housing
- Stationery
- Wooden Furniture
- Hardware
- Lockers
- Freezers
- Iron Railing
- Display Cases
- Office Partitions
- Medical Equipment
- Rest room Partitions
- Roller Bars
- Metal Doors
- Decorative Lamps
- Electrical Home Appliances
- Car Accessories, Teflon Pot
- Sports Equipment
- Handcraft
- Files
- Desks

- Sports Equipment
- Handcraft Computer
- Housing
- Stationery
- Wooden Furniture
- Hardware
- Lockers
- Freezers
- Iron Railing
- Display Cases
- Refrigerators
- Heavy Machinery
- Office Equipment



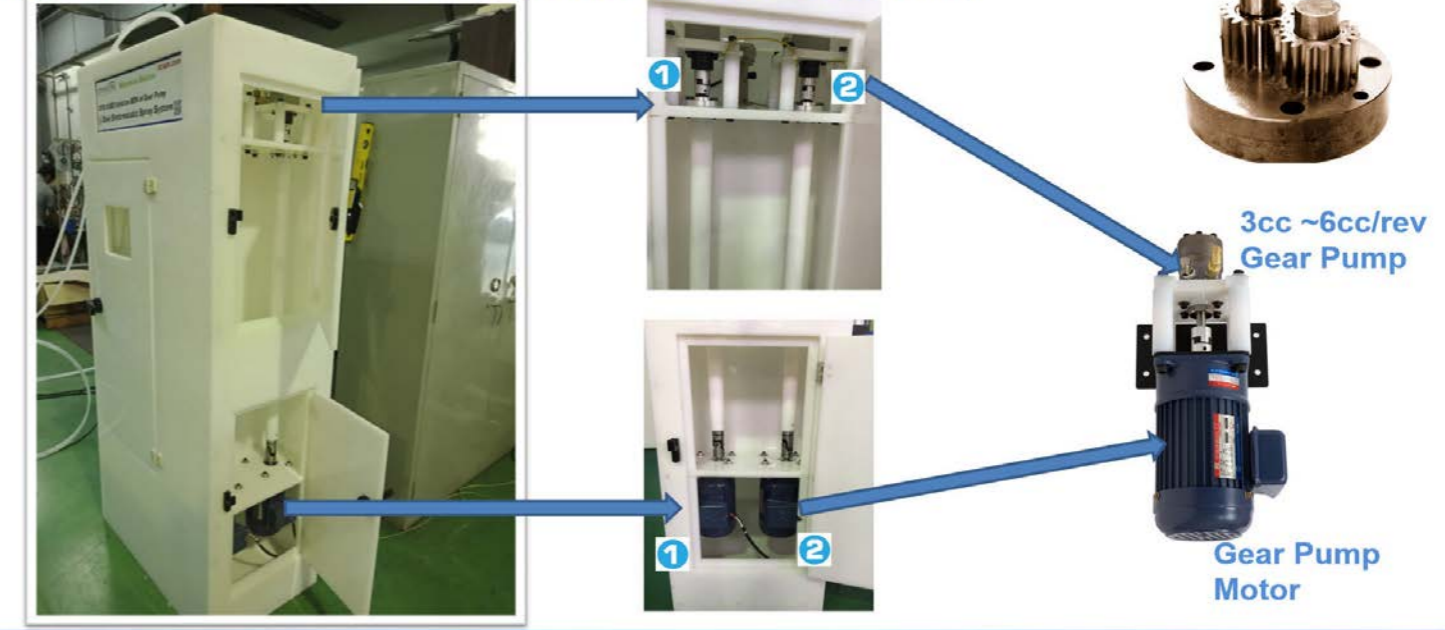


**Easy Paint Kitchen for Waterbase and Solvent Paints**



**Dimension: 76x43 x170 cm    Weight : 80 Kg**

**Easy Paint Kitchen for Waterbase and Solvent Paints - Gear Pump**



Model /Function	OTS-7873+G2	OTS-7853+G2	OTS-7833+G2	OTS-7813+G2	OTS-7803+G2
<b>a. Microcomputer Control Subsystem</b>					
Microcomputer Control Panel ( HMI ) x 1 set	10"	10"	10"	10"	
Memory Capacity for Storage Coating Parameters	199 sets	199 sets	199 sets	199 sets	
Air Flow Control x 1 set	Manual	Manual	Manual	Manual	Manual
Paints Flow Control (A) x 1 set	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Manual
Paint Flow Control (B) x 1 set	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Manual
Color Change Control ( 2 colors ) x 1 set	Manual	Manual	Manual	Manual	Manual
Atomizer Control x 1 set	Manual	Manual	Manual	Manual	Manual
Electrostatic Power Supply Control x 1 set	0~110KV	0~110KV	0~110KV	0~110KV	0~70KV
Electrostatic Power Display x 1 set	LED	LED	LED	LED	LED
Electrostatic Current Display x 1 set	LED	LED	LED	LED	LED
Electrostatic Spark Protection System x 1 set	YES	YES	YES	YES	YES
Paints,Coatings	Solvent-base & Waterborne	Solvent-base	Solvent-base & Waterborne	Solvent-base	Solvent-base
<b>b.Spray Subsystem</b>					
High KV Electrostatic Spray Gun x 3 sets	Yes	Yes	Yes	Yes	Yes
High Atomization Spray Nozzle x 3 sets	Round , Flat	Round , Flat	Round , Flat	Round , Flat	Round , Flat
H.V Cable x 3 sets	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m
Teflon Spraying Tube x 3 sets	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m
PU Air Tube x 6 sets	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m	11m ~ 40m
<b>c.High Voltage Electrostatic Power Subsystem</b>					
Electrostatic Power Supply x 1 set	Max 110KV	Max 110KV	Max 100KV	Max 100KV	Max 70KV
<b>d. 6 Axis Robot Arm</b>					
6 Axis Robot Arm x 3 sets	Yes	Yes	Yes	Yes	Yes
Safety Sensor x 1 set	Yes	Yes	Yes	Yes	Yes

Model /Function	OTS-7873+G2	OTS-7853+G2	OTS-7833+G2	OTS-7813+G2	OTS-7803+G2
<b>e.Paint Supply Subsystem</b>					
OTS-4000 (optional) Colour Change Valve +HMI	2~20 Colours ( Auto Clean )	2~20 Colours (Auto Clean )	2 ~ 20 Colours ( Manual Clean )	2~20 Colours ( Manual Clean )	2 Colours
OTS-4200 (optional) 2K and 3K Mixer system +HMI	2K and 3K	2K and 3K	2K and 3K	2K and 3K	2K and 3K
Gear Pump + Motor +controler (A) x 1 set (optional) 3cc / rev 200cc~1500 cc /mim	3cc / rev	3cc / rev	3cc / rev	3cc / rev	3cc / rev
Gear Pump + Motor (B) x 1 set (optional) 6cc / rev 200 cc ~ 3000 cc / min	6cc / rev	6cc / rev	6cc / rev	6cc / rev	6cc / rev
<b>f . Air Supply Subsystem</b>					
Air Heater -Air Temperature Control x 1 set	Manual	Manual	Manual	Manual	Manual
Air Filter ( screening oil and water ) x 1 set	Auto	Auto	Auto	Auto	Auto
<b>g. Smart Monitor Sensor Subsystem (optional)</b>					
Air Flow	Local / Remote monitor	Local / Remote monitor			
Paint flow	Local / Remote monitor	Local / Remote monitor			
Paint Pressure	Local / Remote monitor	Local / Remote monitor			
Air Pressure	Local / Remote monitor	Local / Remote monitor			
Environment VOC Detect Sensor	Local / Remote monitor	Local / Remote monitor			
Monitor motor	Local / Remote monitor	Local / Remote monitor			
Smoke Sensor	Local / Remote monitor	Local / Remote monitor			
Air Temperature and Humidity	Local / Remote monitor	Local / Remote monitor			
AI Dashboard System	Local / Remote monitor	Local / Remote monitor			
Power Consumption monitor	Local / Remote monitor	Local / Remote monitor			
<b>h. Safety Subsystem (optional)</b>					
Safety Light Curtains Interlocking with disc system	Auto	Auto			
Automatic Miniature Fire Extinguisher ( For Spray Gun and Control Panel system Only )	Auto	Auto			
<b>I. Security System (optional)</b>					
Remote Digital Video Monitor System (RDVRS)	Local / Remote monitor	Local / Remote monitor			
<b>j. Small water-borne -Paint kitchen</b>					
Special Isolation paint kitchen with 2 gear pump and air allegator	Yes		Yes		

**Application - Industry**

**Application - Spray Range**



*Meeting the requirements of each industry....*

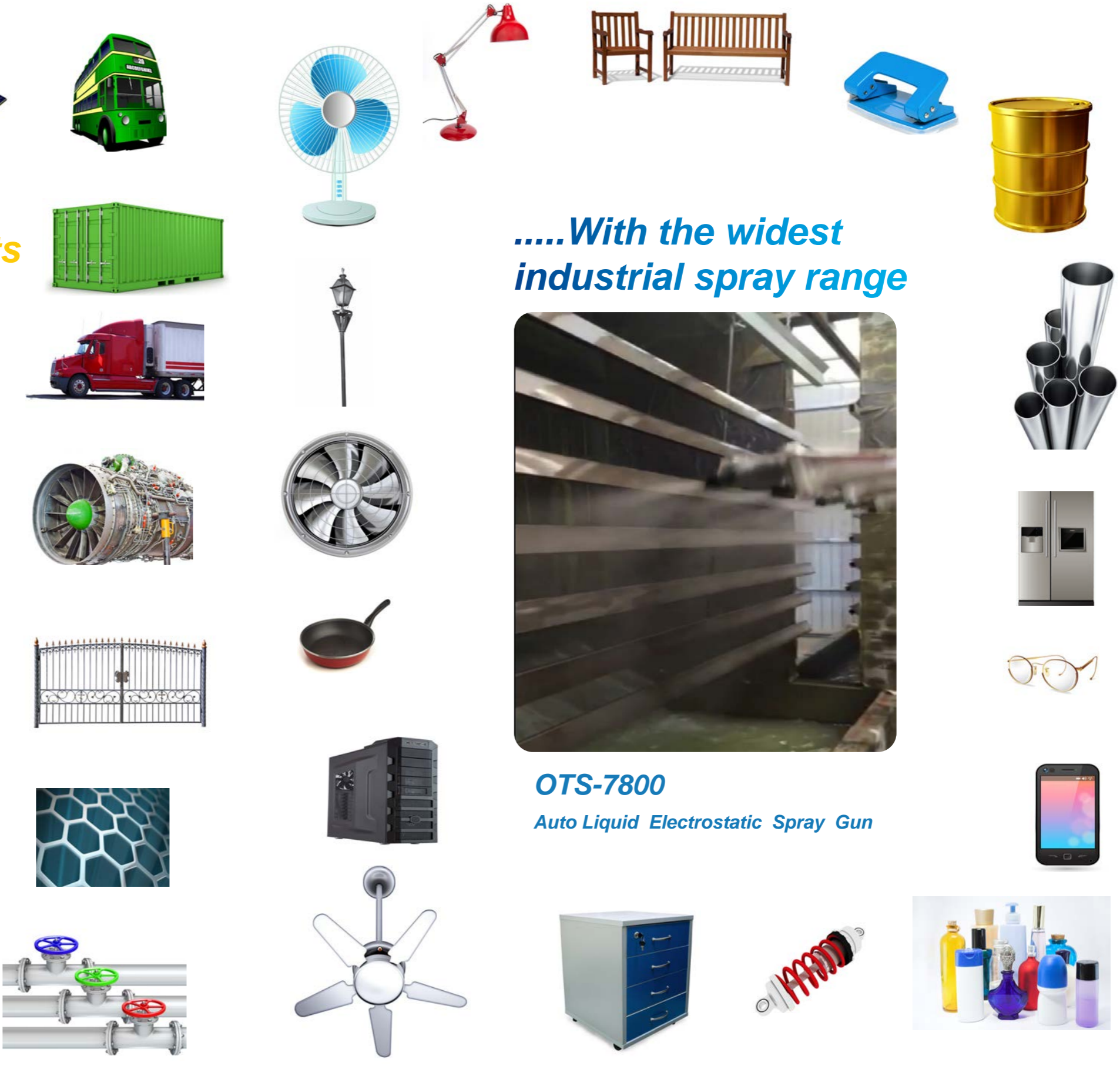


**OTS-7800**  
Auto Liquid Electrostatic Spray Gun

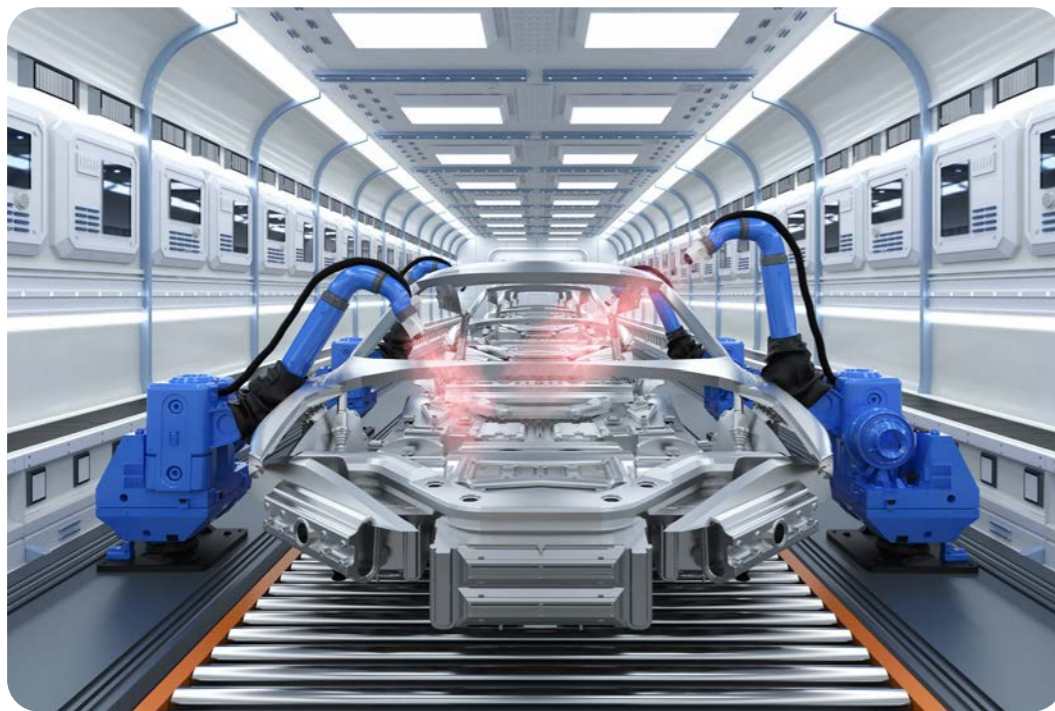
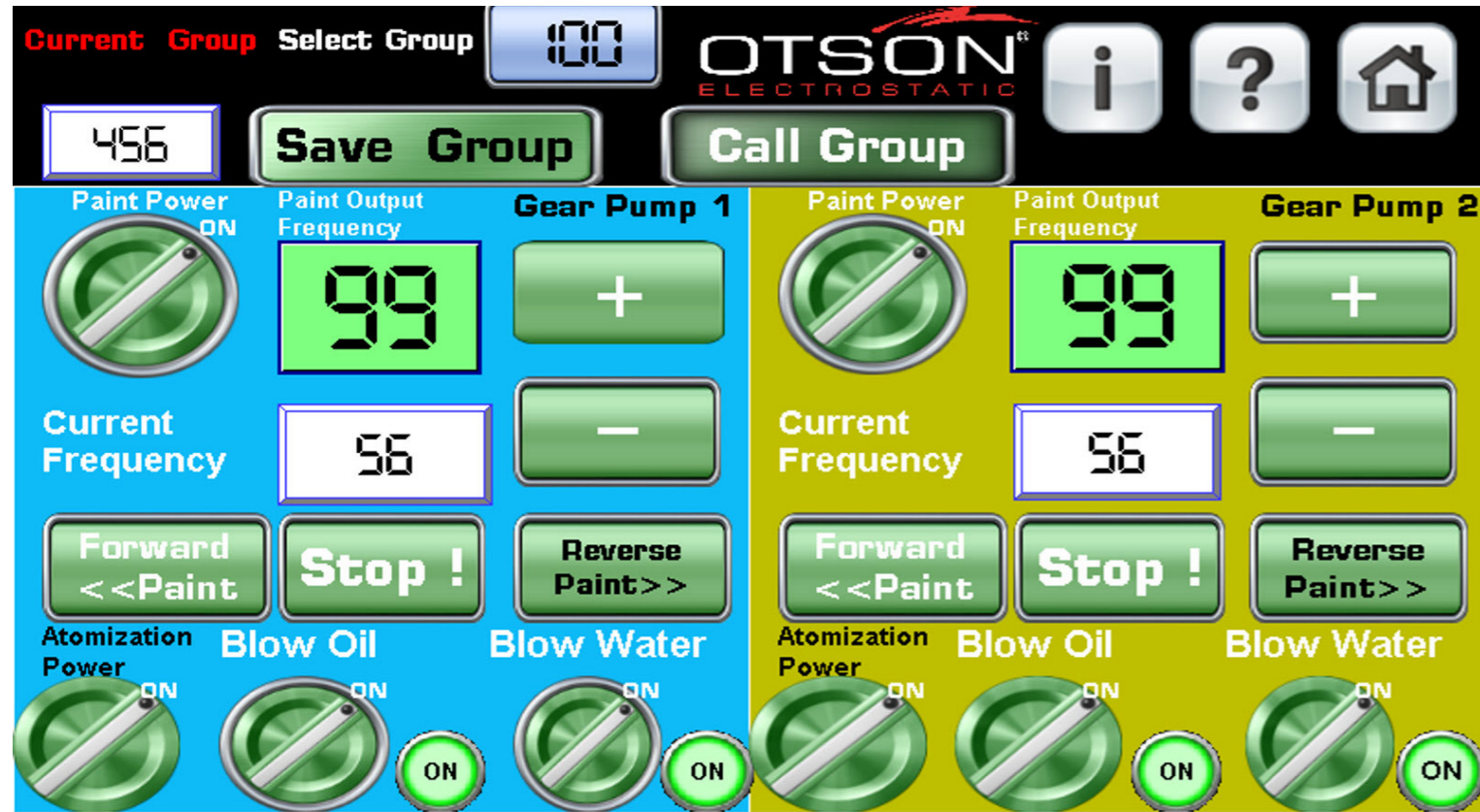
*.....With the widest industrial spray range*



**OTS-7800**  
Auto Liquid Electrostatic Spray Gun



**10" Touch Panel Industrial (HMI)**



Electrostatic Current UMA

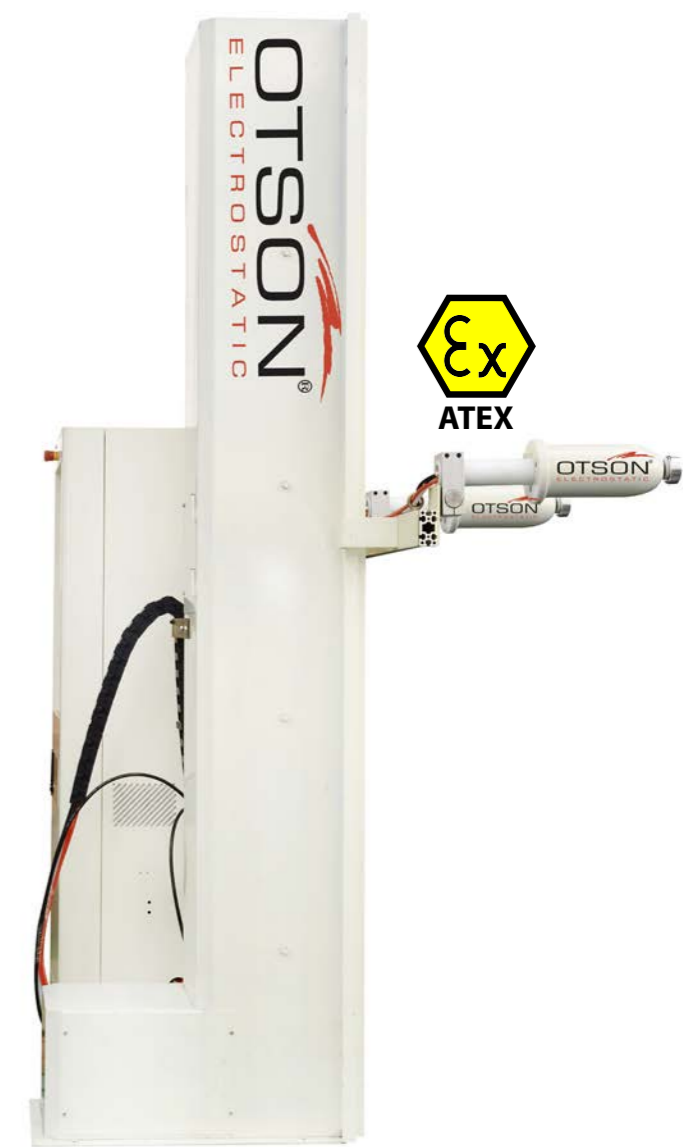
054

Electrostatic Voltage KV

-79.8



**OTS-9000**  
Auto Electrostatic Spray Bell System



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