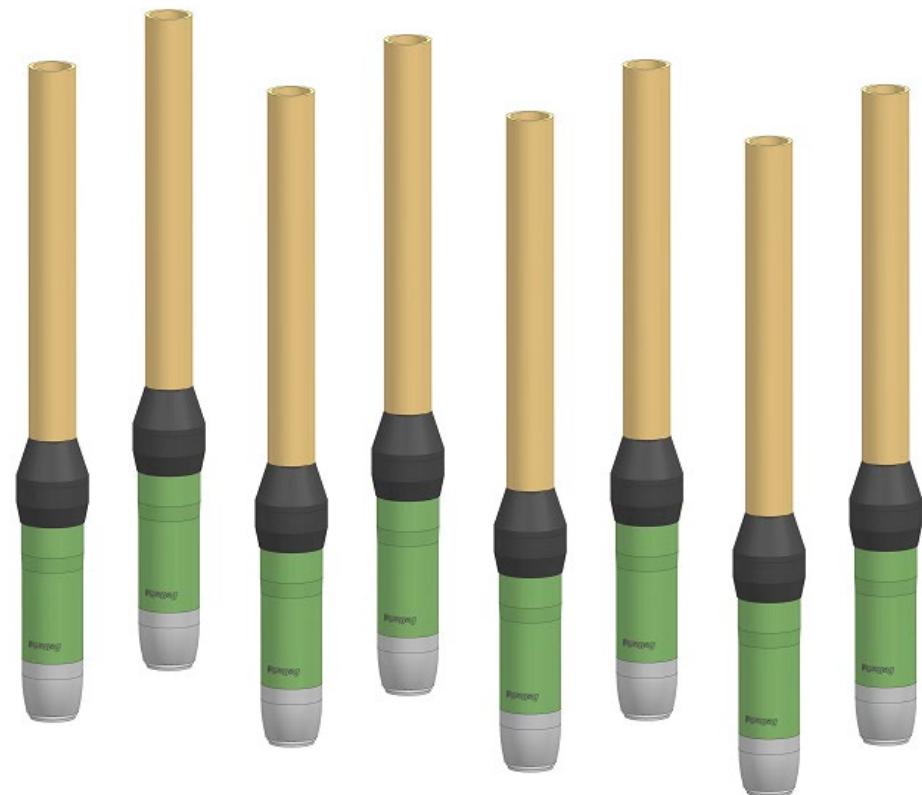




Baifu Technology Corp.

## BF XR-5b Electrostatic Powder Bell Spray Gun



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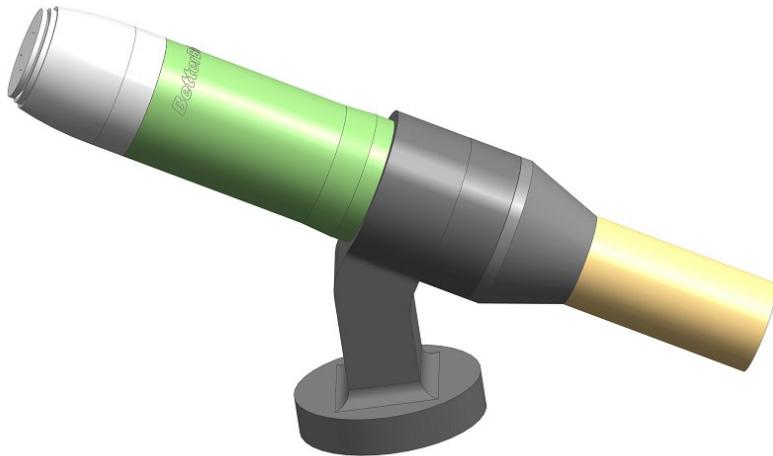
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## **BF XR-5b Powder Bell (Invention Patent Under Examination) – A Fully Superior Electrostatic Powder Bell Cup**

- **Exclusive pneumatic turbine motor technology:** isolates particles (such as powder) from entering, eliminating concerns about turbine motor contamination by powder.
- **Innovative bell cup head design:** prevents short-term powder accumulation, eliminating issues such as “powder spots” and “pinholes.”
- **Closed-loop speed automatic control system:** ensure consistent speed across all bell spray guns, enhancing efficiency and coating uniformity.
- **Streamlined gun body design** minimizes powder accumulation.
- **Industry’s only dual electrostatic charging technology:** automatic regional power control and constant current charging technology.
- **Patent-pending electrostatic high-voltage charging technology:** applied in class 3 medical equipment, delivering ultra-high electrostatic voltage (110kv) with ultra-low electrostatic current (approximately 20 $\mu$ A during normal operation, with a maximum not exceeding 80 $\mu$ A).
- **Superior powder adhesion :** ultra-high voltage and ultra-low current enable a high powder transfer efficiency—even for poor conductive workpieces.
- **Outstanding powder atomization:** achieves an excellent powder effect with superior coating uniformity (flat surface spraying variation of just  $\pm 5-7 \mu\text{m}$ ), far surpassing traditional electrostatic powder spray guns.
- **Fewer wear parts & stability.**
- **Uniform electric field charging:** minimizes the “thick edge” effect as much as possible.
- **High-flow high-concentricity, high-sealing powder pump:** delivers a higher powder transport volume with lower air consumption.
- **Maximum safety:** when the bell gun approaches a grounded surface, the electrostatic voltage and current automatically decrease, completely preventing sparking.

## Electrostatic powder bell spray gun application

### 1. Coil electrostatic powder coating



## 2. *Epoxy-coated rebar electrostatic powder coating*



## 3. *MDF boards and door electrostatic powder coating*



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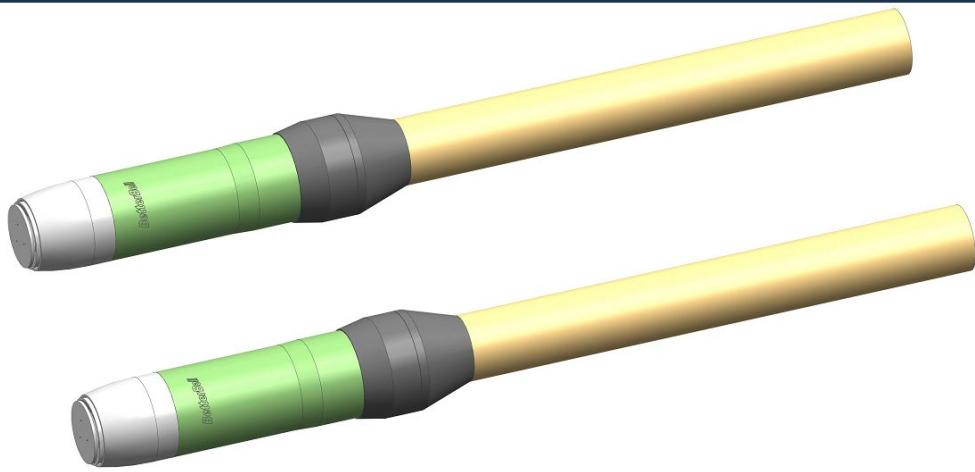
## 4. *Hardware, home appliances, and building materials industries*





# Baifu Technology Corp.

## *XR-5b overall view*



**XR-5b Automatic bell spray gun**

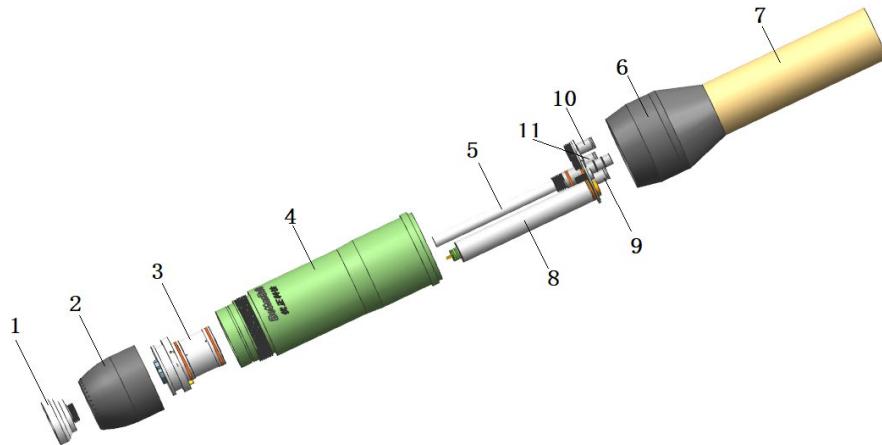
**(available in green and black gun body colors)**

## **XR5-GCU**

**Dual electrostatic charging system control unit, featuring 3 invention patents**



## XR-5b Explode view



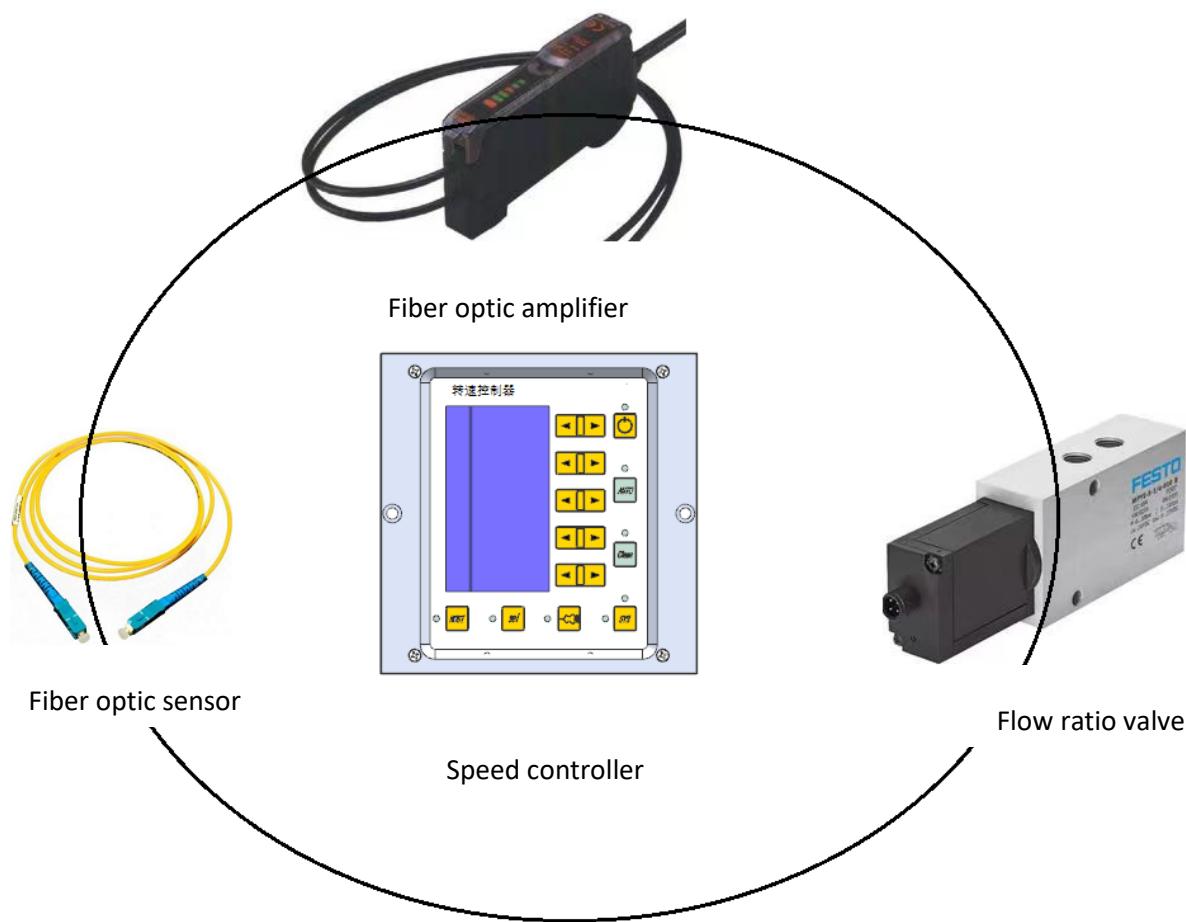
No.	Function Description
1	<b>Bell cup head</b> - Forms a uniform powder cloud
2	<b>Shaping air shroud</b> -Achieves the best powder cloud diameter
3	<b>Dual turbine pneumatic motor</b> -Achieves speeds from 3000 to 12000 rpm (max 21000 rpm)
4	<b>Gun body</b> - Main assembly of automatic bell spray gun
5	<b>Powder inner tube</b> - Powder transport pipeline
6	<b>Connection rod nut</b> - Connects the gun and extension rod
7	<b>Extension rod</b> - Fixes the automatic spray gun
8	<b>High voltage module</b> - Generates electrostatic high voltage to uniformly charge the powder cloud
9	<b>Pattern air connector</b> - Adjusts air pressure to achieve the best powder cloud diameter
10	<b>Turbine motor speed air connector</b> - Adjusts air pressure to achieve optimal working speed
11	<b>Cleaning air connector</b> - Protection function



## XR-5b Automatic bell spray gun operation and features

Max. operating electrostatic voltage	<b>110 kv, normal operating voltage setting 90 kv</b>
Max. operating electrostatic current	<b>80μa (maximum normal operating electrostatic current is only around 20μa)</b>
Recommended operating rotation speed	<b>V= 8000 rpm</b>
Max. rotation speed under normal condition	<b>V= 12000rpm(maximum speed setting of the speed control unit, can be adjusted with authorization for higher speeds)</b>
Max. operating rotation speed under normal condition	<b>V=3500rpm</b>
Max. powder delivery flow rate	<b>550 g/min.(with 4 kg pressure and 5M powder hose to achieve this powder flow rate)</b>
Optimal operating powder delivery flow rate	<b>200~300 g/min.</b>
Cleaning and pressure-holding air pressure setting	<b>6 kg (only activated when cleaning the bell spray gun)</b>
Spray pattern air pressure setting	<b>0.3~2.0 Kg.</b>

**XR-5b** Dual turbine pneumatic motor rotation speed detection and speed control (Optional function)  
----Closed-Loop speed automatic control system



Speed signal detection - speed signal amplification and transmission - speed control (closed-loop control)



## XR-5b External input parameter data

### Input Electrical parameters

XR-5b Automatic bell spray gun		Parameter
<b>Input voltage range</b>		<b>100-240 VAC</b>
<b>Frequency</b>		<b>50-60Hz</b>
<b>Power supply fluctuation</b>		<b>±10%</b>
<b>Ovvoltage category</b>		<b>OVC II</b>
<b>Connected load</b>		<b>40 VA</b>
<b>Rated output voltage (output to spray gun)</b>		<b>12 V</b>
<b>Rated output current (output to spray gun)</b>		<b>1.0 A</b>
<b>Power supply board</b>		<b>100-240* VAC Max. 100W</b>
<b>Solenoid valve</b>		<b>24 VDC Max. 3W</b>
<b>Protection class</b>		<b>IP54</b>

### Input Air parameters

XR-5b Automatic bell spray gun		Parameter
<b>Compressed air connection</b>		<b>8mm</b>
<b>Maximum input pressure</b>		<b>7.0 bar</b>
<b>Maximum water vapor content in compressed air</b>		<b>1.3 g/m<sup>3</sup></b>
<b>Maximum oil vapor content in compressed air</b>		<b>0.1 mg/m<sup>3</sup></b>



## XR-5 Bell spray gun technical data

### Electric parameters

XR-5b Automatic bell spray gun		Parameter
<b>Input voltage</b>		eff.12 V
<b>Frequency</b>		20kHz (Average)
<b>Max. output real electrostatic voltage (supports testing)</b>		110 kV
<b>Polarity</b>		Negative (Optional: positive)
<b>Max. output electrostatic current of high-voltage pack (supports testing)</b>		80 μA
<b>Operating real electrostatic current of high-voltage pack (core data, GND and PE not co-linear, supports actual testing)</b>		Approx. 20 μA
<b>Ignition protection</b>		Ex 2 mJ T6
<b>Temperature range</b>		5°C~+40°C (+41°F~+104°F)
<b>Maximum surface temp.</b>		Approx. 50°C
<b>Protection class</b>		IP54

### Specification

XR-5b Automatic bell spray gun		Parameter
<b>Weight</b>		1.7k g
<b>Max. of bell gun body</b>		83mm
<b>Max. diameter of spray gun connection joint</b>		97mm

### Applicable powders

XR-5b Automatic bell spray gun	
<b>Organic plastic powder</b>	Applicable
<b>Metal powder</b>	Applicable
<b>Enamel powder</b>	Cannot.