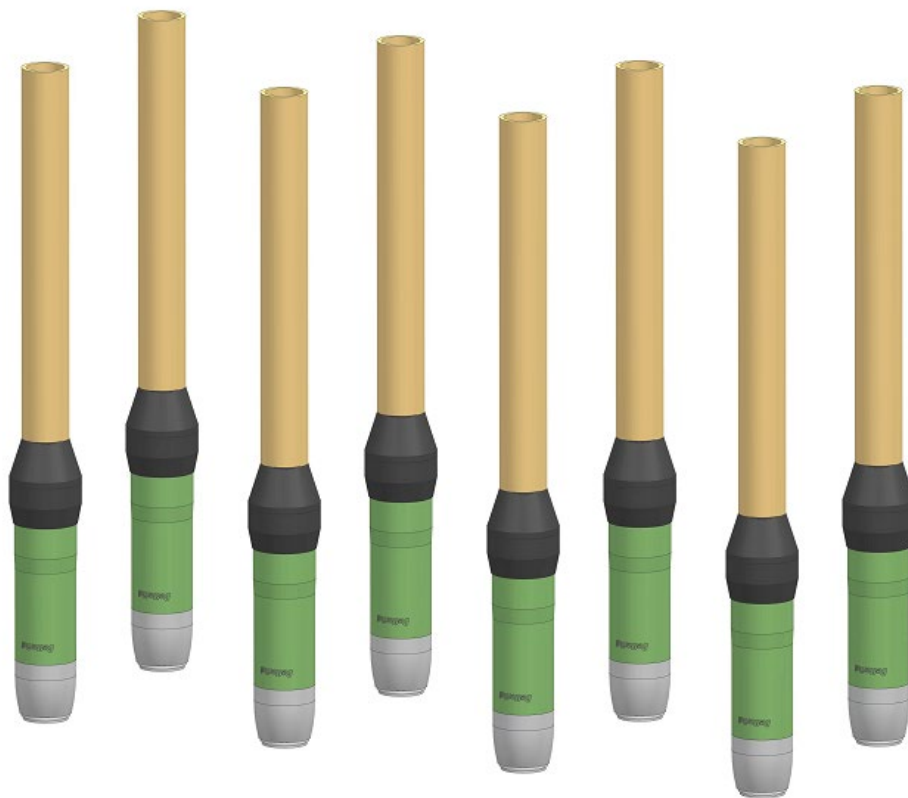


BF XR-5b Electrostatic Powder Bell Spray Gun



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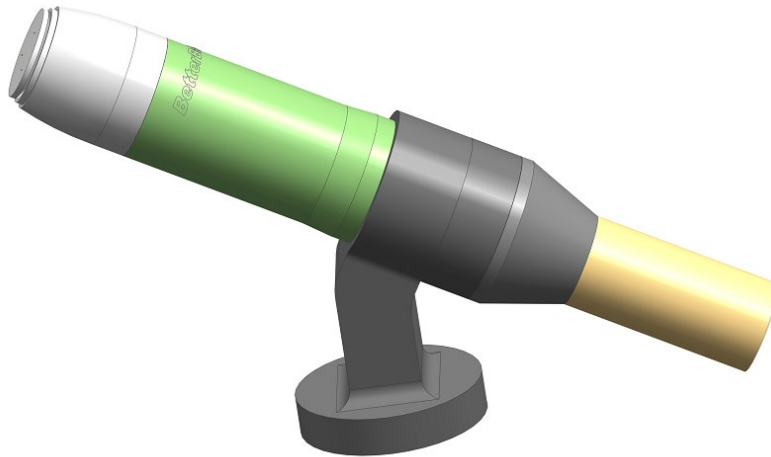
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BF XR-5b Powder Bell (Invention Patent Under Examination) –

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 μ a during normal operation, with a maximum not exceeding 80 μ 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 $\pm 5-7 \mu$ 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



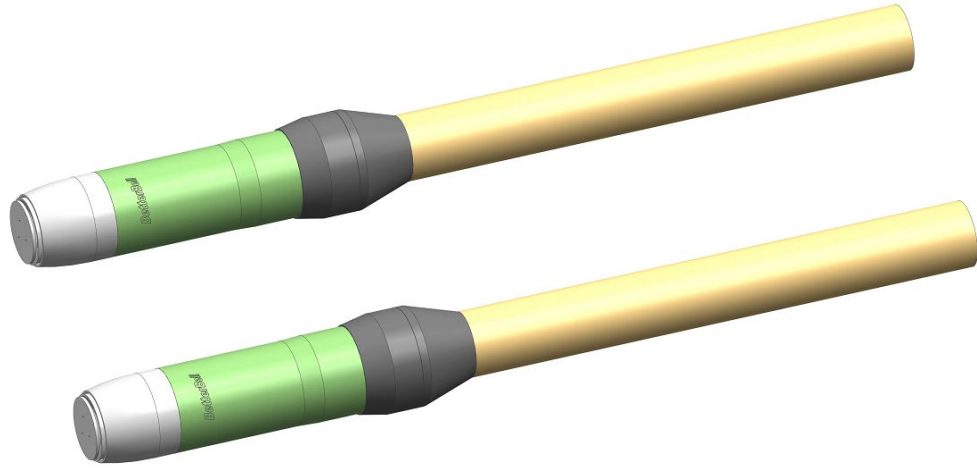
3. MDF boards and door electrostatic powder coating



4. Hardware, home appliances, and building materials industries



XR-5b overall view



XR-5b Automatic bell spray gun

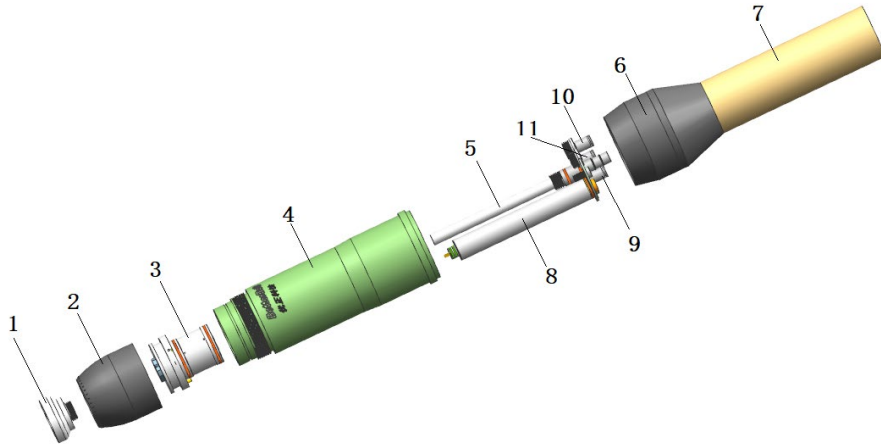
(available in green and black gun body colors)

XR5-GCU

Dual electrostatic charging system control unit, featuring 3 invention patents



XR-5b Explode view



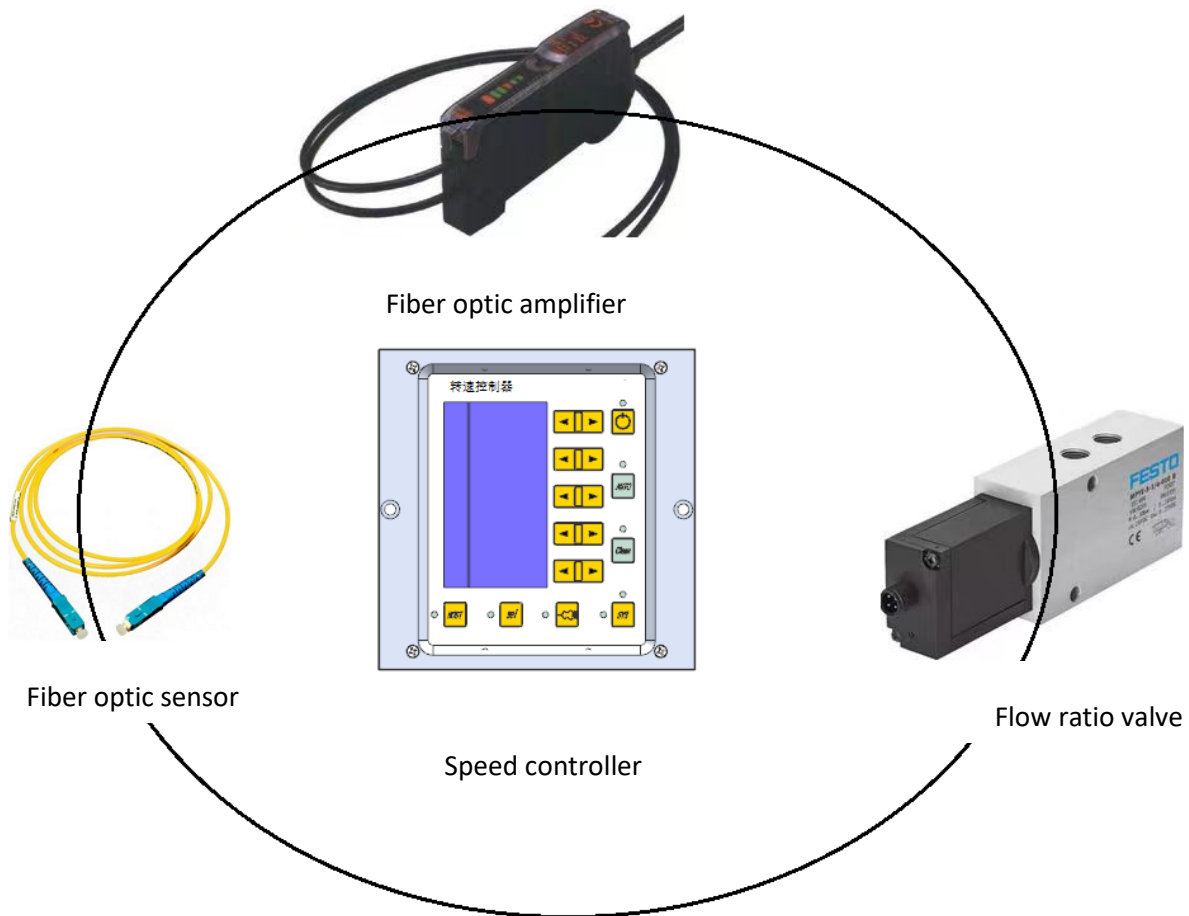
No.	Function Description
1	Bell cup head - Forms a uniform powder cloud
2	Shaping air shroud -Achieves the best powder cloud diameter
3	Dual turbine pneumatic motor -Achieves speeds from 3000 to 12000 rpm (max 21000 rpm)
4	Gun body - Main assembly of automatic bell spray gun
5	Powder inner tube - Powder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

XR-5b Automatic bell spray gun operation and features

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

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

Input Air parameters

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

XR-5 Bell spray gun technical data

Electric parameters

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

Specification

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

Applicable powders

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