

Technical Specification: EV Charging Gun

1. Product Overview

The EV Charging Gun is a key component used for electric vehicle charging systems, providing a secure electrical connection between charging equipment and vehicle batteries. The product is designed for high-frequency operation with requirements for mechanical strength, electrical insulation, environmental resistance, and long-term reliability.

2. Material Specifications

2.1 PC/ABS Housing

- Material: Polycarbonate + ABS alloy
- Characteristics: High impact resistance, good surface appearance, excellent dimensional stability
- Applications: Outer housing, protective cover, handle structure
- Advantages: Lightweight, durable, and suitable for precision injection molding

2.2 PA66 + Glass Fiber Components

- Material: PA66 + 30% Glass Fiber reinforced nylon
- Characteristics: High strength, heat resistance, and excellent structural rigidity
- Applications: Internal supports, terminal holders, locking components
- Advantages: Maintains dimensional stability under mechanical and thermal stress

3. Performance Specifications

- Operating Temperature: -30°C to +50°C
- Protection Level: Designed for dust and water resistance applications
- Mechanical Life: Suitable for repeated connection and disconnection cycles
- Electrical Safety: High insulation performance to ensure safe charging operation

4. Structural Design

- Housing Design: Ergonomic handheld structure with reinforced ribs for impact resistance
- Terminal Support: Precision positioning structure to maintain connector alignment
- Locking System: Mechanical locking mechanism to prevent accidental disconnection
- Cable Interface: Reinforced strain relief structure to reduce cable bending stress
- Sealing Design: Optimized interface structure for environmental protection

5. Injection Molding Requirements

- Material Drying: Engineering plastics require proper moisture control before molding

- Mold Design: Optimized gate location and cooling channels to reduce warpage
- Process Control: Accurate control of temperature, pressure, and cooling time
- Quality Control: Dimensional inspection and appearance inspection after molding

6. Common Applications

- AC EV charging stations
- DC fast charging systems
- Home charging equipment
- Commercial charging infrastructure
- Industrial electric vehicle charging solutions