

# Testing Manual for Stainless-steel Cathode Plate

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## 1 . Before Testing

Please clean the surface of the plate by using 65. C ph=2 sulfuric acid solution.

If there were copper stripping machine, please run the blank cathode on the machine. The pictures below indicate the cathode without adequate clean.

This could result in the copper cathode falling in the cell.



Picture 1. Copper Cathode Formation Without Proper Clean of the Cathode

Criteria	Recommend range
Cu <sup>2+</sup> Concentration	45 ~ 55g/l (EW) 28 ~ 35g/l (ER copper residue removal process)
H <sub>2</sub> SO <sub>4</sub> Concentration	160 ~220g/l (EW) 160 ~250g/l (ER copper residue removal process)
Cl <sup>-</sup> Concentration	<0.1g/l
Temperature of Electrolyte	55~70°C
Density of Electrolyte	1.20~1.28 t/m <sup>3</sup>

Please test our cathode plates under situation listed in the table for better performance.

## 2. During Testing of Cathode Plate

1). Please calibrate the cathode before inserting in the cell. The flatness tolerance for the conductive bar is =±2 mm. The verticality tolerance for the cathode blade is =±5mm.

2). Please check the connection between the conductive bar of the cathode and the bus bar.

3). Please check the circulation of the electrolyte. It is crucial for the electrolyte to circulate constantly. Also, please closely control the quantity of organic additives that are used in the electrolyte. This is to prevent the organic additives floating on the surface.

4). Please do not leave the unpowered cathode in the cell, especially for long period. If they were not in use, please remove them from the cell, clean them, and hang them vertically on a rack.

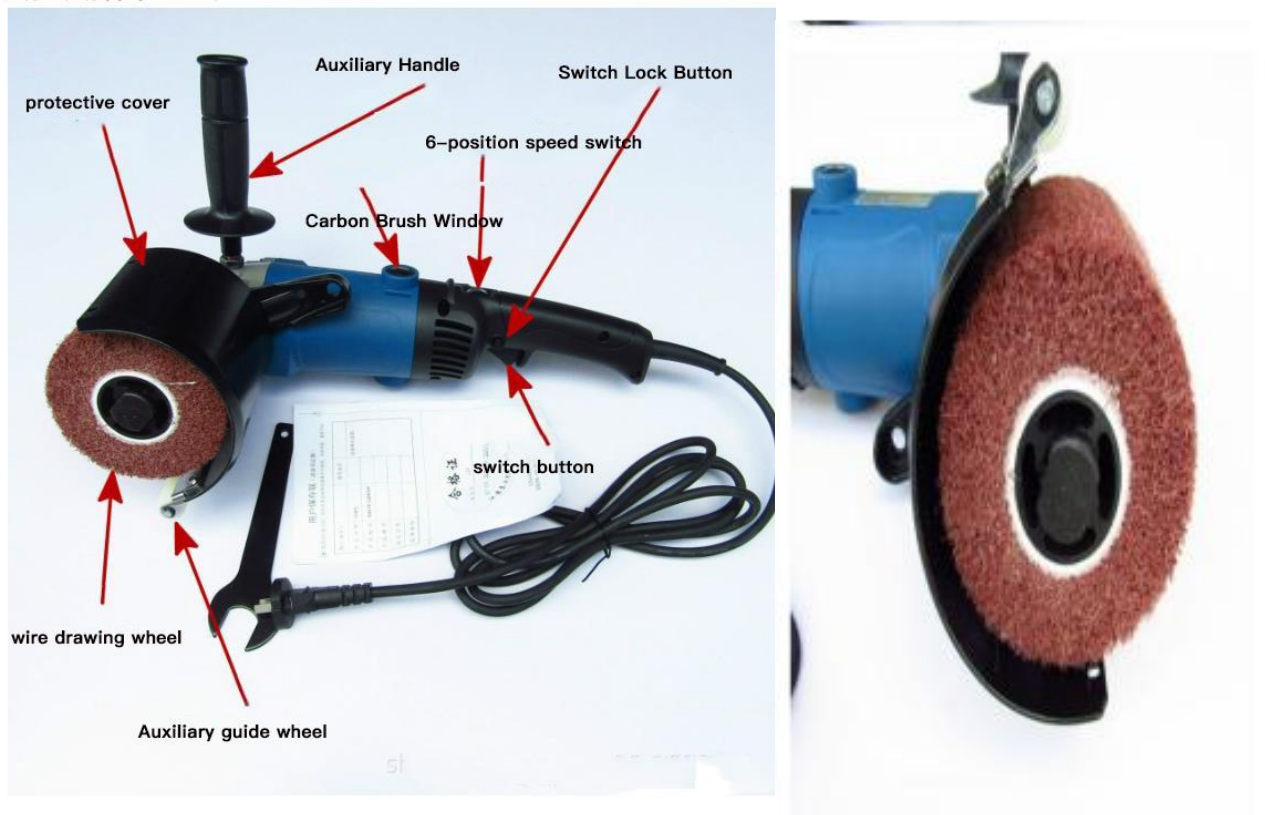
### **3. Maintenance of the Stainless-steel Cathode**

(1). When cleaning the surface of the cathode please do not use detergent that containing bleach or abrasive. Also, please do not use steel-wire ball to clean the surface. The above washing method could scratch the surface of the stainless-steel blade surface. Then, please use clean water to remove the detergent.

(2). If there is dust and dirt on the surface of stainless steel cathode plate, they can be washed with weak detergent or warm water. The trademark and film on the surface of stainless steel cathode plate can be washed with warm water and weak detergent. The binder composition can be scrubbed with organic solvent (such as ether and benzene).

(3). Please use soft cloth with neutral detergent grease to clean the lubricating oil on the surface of stainless steel cathode plate. If bleach and various acids are attached to the surface of stainless steel, which can be washed with water, soaked with sodium carbonate solution, then rinse with neutral detergent or warm water. The rainbow pattern on the surface of stainless steel is caused by excessive use of lubricating oil. It can be washed off with neutral detergent. The rust caused by dirt on the surface of stainless steel can be washed with 10% nitric acid or abrasive detergent.

(4). The machine that we recommend for polishing the surface of the cathode plate is illustrated in picture 2. For deep scratches, bumps, caused by improper operation, first remove any debris on the surface. Then, we suggest gently grind the scratches with 1200- 1500 mesh, and use fine fiber material for a polishing treatment. After completion, please use fine wool polishing material for a secondary polishing treatment. During the polishing process, it is strictly prohibited to use coarse sand for polishing to prevent the generation of new scratch marks.



Picture 2. Hand-held Polishing Machine

Name: Polishing Machine (Wire Drawing Machine)

Application: With wire drawing wheel, it is widely used in electrical appliances (microwave ovens, range hoods, disinfection cabinets, etc.), lifts, kitchen utensils, stainless steel shelves, handrails, underground cars, food machinery, chemical containers, stainless steel wire drawing and polishing. Technical Parameters.

Model No. S1N-FF-120x100

Voltage 220V

Power frequency 50HZ

Rated power 1400W

Rated speed 690-3800r/min

Grinding wheel size 120x100mm

Weight 4.7kg(net)