

Aluminum Coil Coating Production Line



[Specifications of Aluminum Coil Coating Production Line](#)

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a、 Unwinding unit

There are two sets for unwinding, while one of the sets is working and the other is preparing the aluminum coil. This insures continuous production, and improves using rate of the aluminum coil.

b、 Cutting, splicing unit

The cutter cuts the head and tail of the coil, and uses the splicer to splice them. The splicer adopts the splicing mode of mold pressing. The tie-in can endure large pulling force.

c、 1# driving unit, storing unit for unwinding

The 1# driver of damp mode establishes the cleaning segment intension with 2# driver. The moving roller supports in the storing set should be stoped in a high place while the unwinding segment will continue working normally, and it should fall to output the storage to insure the segments behind are still working normally after the unwinder stops to change the coil. After changing of the coil, the unwinding segment runs over the

line-speed. The moving roller support rises to the storing place, and then the unwinding segment gets the right speed.

d、 Cleaning and de-fatting

It uses deep soiled technology to clean out the fat and impurities left on the surface. At present, we usually use the acid de-fatting liquid, which main compositions are phosphoric acid, hydrofluoric acid, nitric acid and some assistant compositions like: saponification and eliminating bubble material. We suggest to use the German Henkel Aluetch acid de-fatting liquid, which temperature is 5 - 50 . During the producing, we should test orderly the PH value of the liquid in the flume. The line is a twice de-fatted process, but the users can choose once time de-fatted process according to the material. After de-fatted, the leftovers on the aluminum coil should be cleaned out. This needs two working procedures of deep soiled first and then spraying with pure water. After cleaned, the water is removed and the roller is pressed with cold junction, and then it goes to the next step

e、 Chemical film

Users can choose roller coating procedure to react on the surface of the aluminum coil without oil to form the compact film. Considering the environment, at present the non-chromate procedures is adopted, and we suggest to use German Henkel Alodine 5200 treating liquid which PH value is < 7, temperature 5 - 50 . The titanium procedures instead of traditional chromate procedures greatly decrease the difficulty and the costs of sewerage treatment.

f、 Drying and cooling

The water on aluminum film is dried, and then the fastness is formed on film with high temperature. The hot wind is less than 100 , after dried, it cools down to room temperature.

g、 Primer paint coating

It uses three rollers reverse coating. The paint coating roller, paint cohering roller and volume adjusting roller are high precision rollers. We can have different thickness of damp film by adjusting the space between paint coating roller and volume adjusting roller. The speed of the paint coating roller is 1.4—1.7 times of the production line speed while the volume adjusting roller is 1—10m/min. Adjusting above two speeds, the intension of aluminum panel, the place of back on roller and the circumfluence of the paint, we can have a good surface quality of the coating. Usually, the thickness of dry primer painting is 10um.

h、 Drying of the primer painting

The aluminum panel enters into the stove to be dried and solidified, after coated by the based coating machine to get a steady capability of physical chemistry. The stove has two segments of heat-exchanging circuit wind. Users can choose three modes of heating: fuel, gas and electricity. The temperature is designed according to the kind of the painting, producing speed, the width and thickness of the aluminum panel and so on.

The acrylic acid and epoxy painting require the panel temperature of 170 - 205 , while the polyester painting requires the panel temperature of 190 - 220 .

i、Cooling

After being dried, the aluminum panel comes out of the stove, cooled by wind first, then cooled by water cooling roller, finally enters the surface coating segment when the temperature is achieved nearly room temperature.

j、Face paint coating

It uses three rollers reverse coating. The paint coating roller (rubber), paint cohering roller and volume adjusting roller are high precision rollers. We can have different thickness of damp film by adjusting the space between paint coating roller and volume adjusting roller. The speed of the paint coating roller is 1.1—1.3 times of the production line speed, and the feeding roller is 1.4—1.7 times of the production line speed, and the volume adjusting roller is 1—10m/min. Adjusting all rollers' speeds in accordance with producing speed, the intension of aluminum panel, the place of back on roller and the circumfluence of the paint, we can have a good surface quality of the coating. Usually, the thickness of dry primer paint is 17um.

k、Back paint coating

It uses two rollers reverse coating. The paint coating roller is a rubber roller, while the paint cohering roller is a high precision steel roller. We can have different thickness of damp film by adjusting the space between paint coating roller and paint cohering adjusting roller and the rotating speed of coating roller. The speed of the paint coating roller is 1.2—1.5 times of the production line speed, and the feeding roller is 0.3—0.5 times of the production line speed.

l、Drying of the face paint

The aluminum panel enters into the stove to be dried and solidified, after being coated by coating machine to get a steady capability of physical chemistry. The stove has three segments of heat-exchanging circuit wind. Users can choose three modes of heating: fuel, gas and electricity. The three segments' temperatures are designed according to the kind of painting, producing speed, the width and thickness of the aluminum panel and so on. The acrylic acid requires the panel temperature of 170 - 205 , and the polyester paint requires the panel temperature of 195 - 220 , and the fluorocarbon paint requires the panel temperature of 240 - 260 .

m、Cooling

After being dried, the aluminum panel comes out of the stove, cooled by wind first, then cooled by water cooling roller, finally enters the 3# driving machine when the temperature is achieved nearly room temperature.

n、2#,3# driving unit

The 2# driver is the main one, of which linear speed is the same with the production line speed, while the linear speed of 3# driver is controlled by the closed loop intension and it establishes the coating intension with the 2# driver.

o、Storing unit for winding, 4# driving unit

The moving roller support in the storing set should stop in a low place while the winding segment works normally, and it should rise to output the storage to insure the segments work normally when the winder stops to change the coil. After changing of the coil, the winding segment runs over the line-speed. The moving roller support falls to the storing place

, and then the winding segment gets the right speed.

p、 Winding unit

This unit establishes intension with the 4# driver to wind the aluminum coil closely and orderly.