

PlasmaPREPLATE Tinning Line

Chemical-free tinning of wire, tube, strip or PV ribbon



High-speed tinning and annealing of copper or aluminium wire, tube, strip or PV ribbon
Flux-free and chemical-free hot-dip tinning, in-line with drawing or rolling

Tinning Line Applications

Material	Copper and copper alloys, copper clad aluminium Aluminium and aluminium alloys, steel and other alloy
Material Form	Wire, rod, tube, ribbon, shaped wire, stranded conductors, braid, narrow strips
Line Configuration	Payoff > (rolling/drawing) > Surface Cleaning/Activation > (Annealing) > Tinning > Wiping > Cooling > Takeup In-line annealing optional In-line with drawing or rolling optional Flexible spool sizes with optional accumulator
Example Applications	PV ribbon, connector tinned strip and other narrow strips Capillary tubes for heat pumps, refrigerators or air-conditioning Tinned aluminium packing and decorative wire Conductors for power and signalling cables i.e. solid, rectangular, braided, bunched
Industry Sectors	Solar, cable, medical, automotive, aerospace, aviation, energy, oil and gas, marine, coaxial and instrumentation cabling, homeware goods, defence, food processing

Tinning Line Specifications

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Machine Type	HPPTL3 / HPPTL10
Dimension Range	Wire/rod: 0.3 mm - 10 mm Tube OD: 0.3 mm - 10 mm Strip: 0.1 mm - 30 mm [W] PV Ribbon product range: Interconnect: 0.8mm - 3.0mm [W] x 0.1mm - 0.3mm [T] Bus bar: 3.0mm - 8.0mm [W] x 0.2mm - 0.6mm [T]
Solder thickness	3 micron - 40 micron
Solder compositions	Sn, SnPb, SnAgCu, SnPbAg, SnBi, other on request
Material softness	Adjustable annealing rate, super-soft annealing possible
Machine Dimensions	Length: 6 m - 15 m Height: 4 m - 8 m Width: max 2.5 m Horizontal or vertical line configuration subject to space availability Length subject to cooling type and application
Production Output	max 400 kg/h, subject to cross-section and application
Production Speed	max 600 m/min, subject to cross-section and application max 210 m/min for PV ribbon production
Total Power Rating	HPPTL3: max 25 kW, subject to cross-section and application HPPTL10: max 70 kW, subject to cross-section and application
Cooling	Gas pre-cooling before tinning as necessary High-efficiency cooling tower
Atmosphere	Nitrogen, forming gas, hydrogen, gas mixtures Type of purging gas subject to application
Controls	PLC controls with user-friendly, touch-screen HMI Production recipe database and computer based surface quality control
Safety	CE/UL mark. Compliant to EU and USA safety regulations CE UL

Key Features

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Finished Tinned Product Properties

- Consistent coating thickness
- Smooth and bright coating finish (not porous)
- Strong corrosion protection and solderability
- Homogenous coating with strong intermetallic layer
- Finished coated wire drawable to small sizes
- Coating free from oxide, electrolyte or flux
- Variable finished material softness incl. super-soft
- Small and uniform grain size
- Computer enabled surface quality control

Operational Benefits

- No solder scrap due to flux contamination
- Low production cost per kg of output and kg of coating
- High production output per square meter of floor space
- Easy to operate machine with compact design
- No chemicals, no rinsing, no water treatment, no sludge
- No need for subsequent heat treatment of porous coating
- No warming-up/cooling-down time
- Low power consumption, smaller power connection
- Low purging gas and maintenance costs