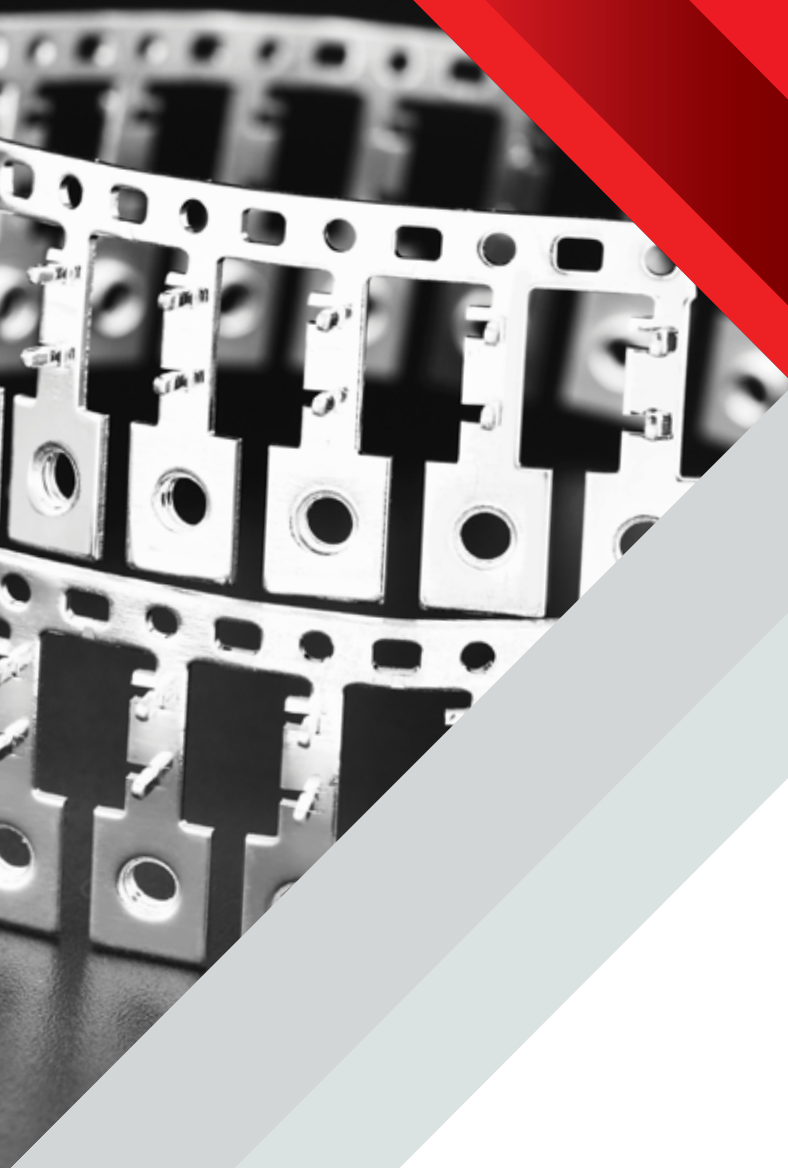




End-to-End Functional Electronic Coating Solutions



With nearly 70 years of expertise in surface finishing, Growel is a trusted name in electroplating solutions. In the dynamic electronics manufacturing industry, our comprehensive range of functional coating technologies are designed to enhance performance. Our solutions ensure benefits such as improved conductivity, superior solderability, and enhanced corrosion resistance. From tin plating and passivation to silver plating and reel-to-reel plating lines, we deliver high-quality solutions tailored to meet your exact specifications.

TRUST THE LEADER IN SURFACE FINISHING

PRETREATMENT

GINTRON GINDOX 114

- Non-foaming, electrochemical pretreatment process
- Quick removal of oxides

TIN PLATING

ALKALINE SATIN TIN SALT

- RoHS-compliant alkaline solution for both vat and barrel applications
- Smooth, non-porous matte finish
- Extremely high throwing power; simple to operate

GINTRON STANNOLUME BRIGHT ACID TIN

- Produces mirror-bright, silvery-white deposit
- Deposit exhibits low porosity, excellent solderability, ductility, and no delayed yellowing

GINTRON TINNOMATTE ACID TIN

- Sulphate-based, stable acid tin process
- Produces crystalline, and silvery-white matte deposits with outstanding ductility & solderability

GINTRON TINNOMATTE MT 100

- Single additive sulphate-based acid tin process
- Produces deposits with silky matte finish and exceptional ductility and solderability
- Suitable for plating of terminals, connectors, and bus bars

HIGH SPEED MSA-BASED TIN PLATING

GINTRON STANNOBRITE SN 21 (BRIGHT)

- Fluoborate & NPEO/OPEO free, low foaming, reel-to-reel plating process that produces easily solderable bright tin deposits
- Ideal for strips, wires, connectors and lead frames plating
- RoHS compliant; easy to treat effluent

GINTRON STANNOMATTE SOLDER 319 (MATTE)

- Produces pure tin, matte deposits with minimal carbon content, outstanding reflow characteristics, and reduced whisker formation
- REACH compliant, very low foaming type

TIN ALLOY PLATING

Lead-free solutions; ideal for solder cap applications on copper posts, and designed for flip chip technology. Perfect for fine pitch applications (50-100 μm): our process ensures impeccable soldering capabilities and robust electronic connections.

GINTRON STANNOMATTE SOLDER SN BI:

Produces dull, silky Tin-Bismuth coatings (Bi: up to 10%)

GINTRON STANNOMATTE SOLDER SN AG:

Produces fine, crystalline, matte Tin-Silver coatings (Ag: up to 5%)

GINTRON STANNOSTAR SN NI:

Acidic, fluoride-based electrolyte. Produces fine crystalline, Bright Tin-Nickel deposits (Sn 60-65%, Ni 35-40%).



TIN PASSIVATION



GINTRON STANNOLUME POST DIP

- Chrome-free passivation for tin plating
- Helps retain solderability, appearance and low contact resistance

GINTRON STANNOLUME NP

- Protects tin plated components from deterioration during storage and/or during exposure to elevated temperatures (100 - 200°C) during downstream manufacturing
- Processed components retain desirable properties such as solderability, low contact resistance, corrosion resistance, appearance etc.

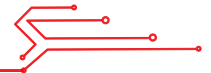
TIN STRIPPER



GINTRON GROWSTRIP TL 3000SP

- Effective stripper for tin/tin alloys from copper
- Designed for spray application as well

SILVER PLATING



CYANIDE-FREE SILVER PLATING PROCESSES

SILVERGLOW NC 203

- Electrolytic silver plating; deposit hardness: 150-200 hv
- Suitable for contacting surface - improves service life
- Deposit exhibits excellent electrical, bonding and soldering characteristics

SILVERGLOW NC 201

- Mildly alkaline; high chemical stability and outstanding deposit quality
- Produces sulphur-free silver deposits at a speed of 0.6 $\mu\text{m}/\text{min}$

GINTRON SILVA IM - IMMERSION SILVER

- Protects board from oxidation and improves service life
- Suitable for press fit SMD application for HDI boards, fine pitch & BGA components
- Shelf life: >1 year, passes 2-3 reflow cycles

SILVERNIX BRIGHT SILVER PROCESS

- Suitable for both vat and barrel plating. Room temperature operated silver plating
- Bright, hard, pore-free and ductile deposits
- Recommended for electrical and electronic applications

ANTI-TARNISH FOR SILVER

- **ARGOCOAT 13:** Anti-tarnish process for silver
- **SILVERGUARD 16/16E:** Solvent-free, excellent anti-tarnish process for silver



REEL-TO-REEL PLATING PLANT

OTMK



Growel introduces cutting-edge German Reel-to-Reel Manufacturing Technology to India, revolutionising the plating of lead-frames, connectors, busbars, wires, and other components in a wide range of industries, including electric mobility, electronics, and electrical applications. Teaming up with OTMK GmbH, a leader in reel-to-reel plating plants, we're empowering engineers to precisely plate metals onto specific locations on parts.

COMPONENTS

- Connectors & lead-frames
- Wires and strips
- Press-fit pins
- Precision stamped parts
- Busbars

REEL-TO-REEL CONNECTOR PLATING LINE

- Control depth plating
- High-speed selective strip plating
- Spot plating on thick materials
- Homogeneous layer plating
- Horizontal selective tin plating
- Front & rear side plating

ELECTRO PLATING LINE (CDF/EDF/EPL)

- High-speed plating line for moulded lead-frames with uniform plating
- Frames up to 100 mm by 320 mm can be plated at 2400 strips per hour
- Excellent electro deflash
- Stack/slotted magazine system with auto-loading/unloading
- High pressure rinse up to 800 bar

AUTOMATION FEATURES

- Precision quality control with SPC analysis
- Automatic troubleshooting system
- Coating thickness monitoring
- Seamless auto-loading & unloading
- Negligible change over time
- Optimal current distribution
- Low precious metal consumption
- AI-powered automation



About Growel

India's trusted leader in metal finishing and surface treatment since 1957

We are pioneers in electroplating, paints, lubricants, surface treatment intermediates, and mission critical equipment. We partner with customers in diverse industries to provide comprehensive solutions backed by in-depth domain knowledge. Our R&D is recognised by the Indian Council of Science & Technology; our plants and processes are IMS certified. Additionally, we are AS9100 aerospace certified - meeting the stringent standards of NASA, FAA, and the DOD.



Grauer & Weil (India) Limited

Regd. Office: Growel Corporate, Akurli Road, Kandivli (E), Mumbai 400 101, India

☎ 91 22 66993000 | 📞 91 8082 048 048 | ✉ enquiries@growel.com

www.growel.com

Chemicals | Engineering | Paints | Lubricants | Real Estate



Scan QR Code to
download the brochure

GC/FEC/0824/100

DISCLAIMER: Our recommendations are provided in good faith and reflect our expertise. However, as the conditions of product usage are beyond our control, this information is provided with the explicit understanding that Grauer & Weil (India) Limited shall not be held responsible to any individual for any resulting outcomes. This statement is not an endorsement to use any product in contravention of existing patent rights.