Continuous Plating Engineered by Precision For the Automotive & General Electronics Industries

Company President Jim Belmonti—the engineering mind behind the family-owned business— stands with sons Gary and Jeff by the new continuous plating line for Precision Plating's "shop of tomorrow."

As one of the largest users of palladium in the U.S., Precision Plating Company of Chicago, IL, has consistently applied engineering principles to its market niche: rack, barrel and continuous plating of electronic parts for the automotive, communications, computer and other high-tech industries. The company got its start more than 90 years ago and has evolved into one of the foremost high-tech plating shops in the U.S.

When thinking about automotive finishing, one's first mental images are likely bumpers, grills, decorative rims, hubcaps, mirrors, engine parts and body panels. But there is a host of small—even tiny—plated electronic parts that one seldom thinks about. These parts give automobiles the "brains" to function at peak performance, including saving lives.

In this arena, one company stands out for having carved its niche in plating electronic parts for the "high tech" automotive, communications, computer and general electronics industries: Precision Plating Company, Inc., an ISO 9002-registered shop in Chicago.

The reason for its success is its consistent application of engineering principles to plating and manufacturing. Those principles are: (1) Consideration of all aspects of the job or product, from beginning to end—not just zeroing in on the finishing aspects; (2) application of creative principles—adding innovation and alternative methods instead of doing the job the way it's always been done; and (3) research and development of new processes—searching out more cost-effective, efficient methods of manufacturing.

With each new customer or job assignment at Precision, product superiority first begins with an engineering review of the plating requirement, followed by the establishment of a process to accomplish that requirement, process control during plating, and a quality audit after product completion.

It's during the engineering review that the areas for plating are calculated, running speeds estimated, and tooling and machine type factored in. While the obvious ways of doing the

Computers aid in maintaining process control, but the skillful eyes of engineers and operators guarantee consistent quality plating.

Being a leader in technology requires the use of wire bonding test equipment and the scanning electron microscope to find solutions to the smallest of challenges.

job are explored first, engineering innovation comes in when alternative methods are explored—alternatives that could save the customer production time, chemicals or other costs.

"Everyone is now so price-conscious and commodity-driven," says Jeff Belmonti, national sales manager. "We try to do a lot of value-adding to our service to keep our customers competitive."

The company even asks for difficult jobs. "Send us your problems and we'll work with you on them," says Jeff.

Precision's list of discerning clients is sizable, with highly recognized names from the Fortune 500 prominent on the list: Andrew Corporation, Breed, Delphi, Delphi-Packard, Ericsson, FCI, General Motors, Lear, Motorola, and Winchester Electronics—to name just a few. As can be deduced, Precision's customers are not confined to the Chicago area—its world of customers is much bigger and far afield.

Automotive Products

Company management is always open to ways in which it can diversify its specialized product line. Sometimes this means adding equipment or "staking" certain aspects of a new product venture. Sophisticated equipment alone is nothing, however, without the back-up of skilled engineering. Once again, that's where Precision shines. It offers prototyping and pre-production wire-bondable finishes for chemically etched lead frames, custom specification design services to help meet specific applications, and, of course, the troubleshooting and technical support services that accompany the work through the design and manufacturing process.

Precision Plating has even launched job-specific partnerships to save the customer money. For example, when the price of gold was skyrocketing in the 1980s, Precision joined with AT&T Electroplating Chemicals to provide palladium and palladium-nickel plating services as lower-cost alternatives to gold plating. These finishes also offer technical advantages. For the past 10 years, Precision has been in the forefront of the development of plating gold-flashed palladium and palladium-nickel (80/20).

Building for the Future

Jim Belmonti bought Precision Plating 10 years ago. Since that time, he and his team have increased sales more than 150 percent. The company's physical size has increased, too, in three increments—from the original building in the 1960s to a second addition in 1974 to still a third in 1996 (total square footage grew from 20,000 ft^2 to its current size of 65,000 ft^2). More than 150 people are on the staff.

"We are unique in that we're in transition from the old school of thinking to the new school and on to an even newer school," says Jeff. He credits his father's engineering mindset and a penchant for continuous improvement for the company's success. "That newer school involves an updated look to our manufacturing center, new equipment additions, higher technology in operations, and an even faster turnaround of jobs," he explains.

This transition involves the company's new continuous plating line "for the shop of tomorrow" that is physically housed in the latest addition. The computer-controlled line has interchangeable cell plating stations and the ability to plate up to 40 ft/min.

The Evolution of a Company—From Picture Frames To Sophisticated Electronics

The evolution of a business often takes some interesting twists and turns, and Precision Plating Company has a lot of history behind it. The forerunner of the company, a metal picture frame factory, was purchased in 1904 by Robert Zacharias—a man who believed in standing behind the quality of company products. Each picture frame was accompanied by a certificate of guarantee that allowed the customer to return it at any time, free of charge, if the plating was defective.

In 1937, because of its guarantee for quality, the company was suggested by a friend as a source for plating and soon began taking in work from other companies. With the advent of World War II came the demand for precious metal plating on small parts to exacting tolerances, and the Robert Zacharias Company became one of the leaders in the precious metal plating industry. Eventually, because of the war, it became necessary to stop plating the religious pictures and concentrate on plating for the military. At this point, the company name was changed to Precision Plating Company.

In 1989, James G. Belmonti, who had been Precision Plating's vice president of operations for 18 years, bought the business from the Zacharias family. Jim was instilled with the same quality values that had made the company successful for years and brought an additional strength—an engineering mind and a respect for plating that launched the company into the high-quality plating operation it is today.

One of Precision Plating's strengths is its wide assortment of machining equipment for building both prototype and production plating lines. Jim Belmonti says, "In addition to being experts in plating, we also have to be knowledgeable in materials handling."

A Full House Of Finishing Services

Precision Plating is indeed a full-service company, offering more than the typical plating shop. For some of its customers, Precision engineers are involved with the customer's engineers in the actual design of the end product. They spend time with them in discussing selective plating options, helping to reduce costs and create a better product. Continuous personal contact and technical advice are just part of the service. Allowing Precision to manage their supply chain and maintain inventory of their products are specialized services that a few customers utilize.

"We plate and wait for some of our customers, using our facility to store their finished parts," says Jeff. "They get the convenience of having a ready supply of parts on demand without the headache of where and how to store them. We take care of that for them."

Precision often functions as an intermediary with molders and stampers, too. "We're not afraid to cross the line out of our core competency," explains Jeff. "We'll do anything that helps us be the best we can be at plating."

Finishes offered by Precision Plating are hard and soft gold, bright and matte silver, palladium, palladium-nickel (80/20), palladium-cobalt (80/20), copper, nickel sulfate and sulfamate, tin/lead solders (60/40 and 90/10; variations available on request), and bright and matte acid tin. Other services offered are chromate conversion coatings, application of CFC-free lubricants, passivation and electropolishing. All finishes are available in rack, barrel and continuous plating techniques.

Ready for the Year 2000

Precision Plating is uniquely outfitted to meet every need in selective plating techniques, with a total of 20 continuous lines dedicated to deliver—and deliver quickly. For reel-to-reel preformed contacts, Precision can microplate gold, silver, palladium, palladium-nickel and palladium-cobalt or offer controlled depth plating with gold, copper, nickel, tin, solder, palladium, palladium-nickel and palladium-cobalt. Stripe on flat stock is available in gold, palladium, palladium-nickel, tin, solder and silver.

Located in the new addition is a deionized water plant. Process reliability depends on contaminant-free, high-quality water that is provided through this system. Conservation and continuous filtration are necessary factors in keeping production costs down and quality up. Deionized water is distributed throughout the plant.

While Precision Plating's 20 continuous lines include all the engineering bells and whistles, the company's rack and barrel lines are operated with the same engineering attention to detail. Standard equipment on these includes totalizers as well as amp/hr meters for process control and bag filters for maintaining solution integrity. Solutions are analyzed as often as necessary in the company's in-house chemical laboratory.

Engineering Plating Is Precision's Vision

Jim Belmonti, president, designed a vision statement for Precision Plating that succinctly summarizes its company-wide philosophy: "To be the provider of choice for the application of highly engineered plating finishes that result in 100 percent customer satisfaction."

If growth is a positive indicator, Precision Plating Company is doing an admirable job of proving that, with engineering, the impossible is possible—and the best is yet to come. *P&SF*

Editor's note: Thirteen years ago, former *P&SF* editor Steve Isham wrote a very thorough feature on Precision Plating that details selective plating processes and engineering innovations. For reference, look for "Continuous Precision," *Plating and Surface Finishing*, **73,** 21 (January 1986).

Deionization units (resin columns in background) are used to recycle 60 percent of water usage.