

# Adapting for the Future: Custom Precision Technologies



The staff at Custom Precision Technologies (CPT) in Florida faced a tragic crisis in early November 2008. Their entire facility burned to the ground from a random fire, and they lost all their equipment including their OMAX® 80160 JetMachining® Center. CPT was in immediate recovery mode as they searched for a temporary place to set up shop again and to resume their part production and supply services. Various clients, mostly from the assembly machining and aerospace industries, were still counting on them to fulfill their orders in a timely fashion.

An OMAX field representative arrived on the scene as CPT's Waterjet Specialist Drew Phillips was speaking to the fire marshal. A makeshift team of OMAX and CPT employees expedited a replacement OMAX waterjet for the company later that month.

"We will take an OMAX waterjet as soon as you can get us one," Mr. Phillips said to the field representative. The responsive OMAX customer service left a positive impression with him when OMAX quickly offered a floor model previously demonstrated at a trade show.

CPT's reliance on abrasive waterjet technology became even more apparent after the shop fire. Although CPT couldn't fit a Model 80160 into their smaller temporary shop, they chose a Model 5555 to suit their waterjet cutting needs until they could rebuild at their previous location. When it came time to move into their permanent facility, CPT wanted to add a larger scale OMAX jet cutting machine based on the project demands they experienced from their previous JetMachining Center.

Choosing the 80X was an easy decision for CPT. Evaluating their cutting work, they realized that keeping

most of their cutting work in-house instead of outsourcing would save money. With the size of many of their projects, they needed the largest cutting bed they could get.

With an X-Y cutting travel of 160 inches x 80 inches, the 80X became an indispensable shop tool for cutting CPT's full plate materials, which commonly comes in dimensions of 4 feet x 12 feet. They discovered traditional machining by EDMs and lasers did not produce the satisfactory cut quality for their needs, or the faster turnaround time.

Initially, a large percentage of CPT's cutting projects were affiliated with the aerospace industry. With the advantages of cold process waterjet machining, cutting exotic materials without heat-affected zones (HAZ) appealed to their customers, said Mr. Phillips. Introducing heat to metals can increase material hardness to the cut areas of the part. When the cut edges are harder than the rest of the part, the metal part contains material stress. Their aerospace clients were particularly strict about not having HAZ on their metal components since these parts go directly into an area in the airplane engine where combustors, augmenters, and nozzles endure extreme heat during





operation. With aerospace tapering off in their area, CPT applied this same concept to other markets such as marine and racing industries. Thus, CPT makes it their responsibility to meet their customers' material quality requirements.

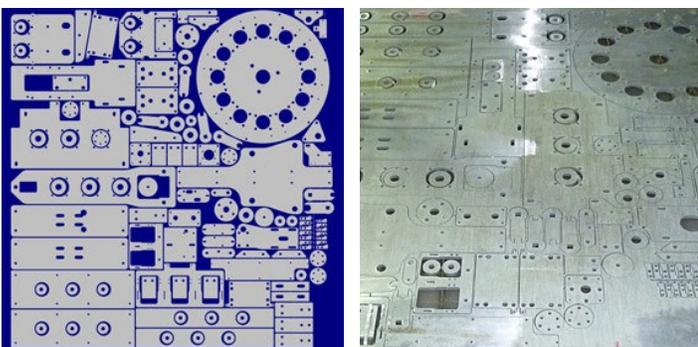
Another reason CPT chose OMAX waterjet technology was the Tilt-A-Jet® cutting head option. The accessory's taper removal capability offered unmatched part precision compared to what other waterjet cutting services were touting in their region.

"We knew from the get-go we couldn't have a standard waterjet," Mr. Phillips said. "We needed a Tilt-A-Jet for the kind of work we do. Being able to have zero taper on our parts has been most valuable when cutting locator holes."

Most of the work done on their Tilt-A-Jet involves preparing parts with locator holes so their customers can conduct subsequent machining processes. Sometimes the locator holes require true positioning of 0.005 of an inch.

"With taper, that's just not possible," Mr. Phillips said. "I can't even tell you how much the Tilt-A-Jet helps with accomplishing those projects."

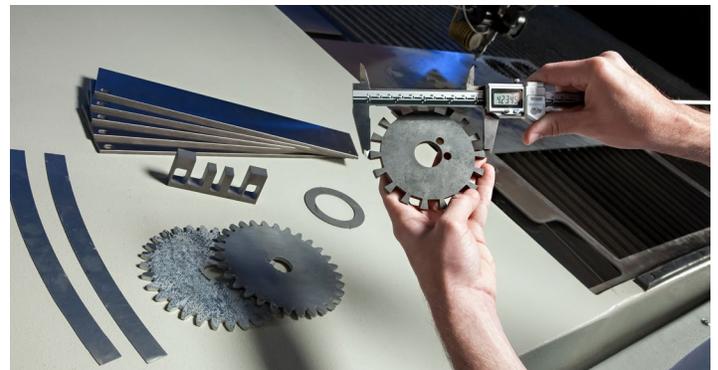
Operating a Tilt-A-Jet with highly advanced nesting software allows CPT to get the best parts yield when cutting from an expensive exotic sheet of metal, such as



titanium, nickel-based alloys, high temperature and super alloys, all of which add up when you consider price per pound. Tilt-A-Jet precision makes way for strategic nesting of parts on stock plate, even allowing an operator to cut parts within parts by using as much of the remaining space left on the sheet. This sort of output from the OMAX accessory is what keeps their business competitive, he said.

CPT gains a competitive advantage between cost and speed with this combination of hardware and software. With the capability of producing more parts faster than other shops in the region, CPT is able to lower their prices and stay ahead of the competition.

When customers ask them to produce even tighter tolerances for locator holes, CPT runs a MAXJET®5 Minijet Nozzle on their Model 5555. The Minijet produces a



smaller jet stream than the standard OMAX nozzle and cuts narrow widths between 0.020" to 0.025".

The company's typical projects with the Minijet involve small parts with narrow slot openings so another part can drop through the slot to complete a section fitting. They've also been asked to pierce 1/8th inch holes in polycarbonate, graphite, nylon, and titanium sheets. With the Minijet, CPT benefitted from more efficient parts nesting and even greater parts yield with minimal taper.

In just a few short years, CPT's business broadened to additional markets where the advantages of abrasive waterjet keep both OMAX machines at high capacity. More clients interested in leaner manufacturing processes, such as improving lead time and quality solutions, rely on CPT's waterjet cutting services. Their temporary facility setback is now just a memory as they focus on customer satisfaction and expand their business in exciting new directions.

### CUSTOM PRECISION TECHNOLOGIES

**OWNER:** Debbie Hanley

**FOUNDED:** 2002

**LOCATION:** Pompano Beach, Florida

**WEBSITE:** [www.cptprocessing.com](http://www.cptprocessing.com)

**SPECIALIZES IN:** Cutting two-dimensional near net shapes with tight tolerances

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