



**ADVANCE MFG. CO., INC.**



PRECISION  
MACHINING SPECIALISTS

MACHINING • WELDED FABRICATION • ASSEMBLIES

SERVING THE GLOBAL MARKETPLACE FOR OVER 50 YEARS

“QUALITY PRECISION MACHINING, CUSTOMER SATISFACTION, AND EXCELLENCE:  
ANYTHING LESS IS UNACCEPTABLE.”

–Tony Amanti, 1961



Original artist rendering

**Tony Amanti founded Advance Mfg. Co., Inc.** with a handful of employees, a few machines, and a pledge. For over 50 years, the company has adhered to this commitment – a testament to its steady, solid growth. Today, the company has grown to include 200 highly trained employees, cutting edge technology, and dozens of state-of-the-art machines. The once 10,000 square-foot shop is now a sophisticated, 120,000 square-foot, environmentally-controlled manufacturing, welded fabrication, and assemblies’ facility that is Quality certified.



Family owned since 1961



The Amanti Family, from left to right: Margie, Mark, Tony, Dave, Bill, and grandson, Jeff

No matter how complex or intricate the part, whether it will be used in the depths of the ocean or the far reaches of outer space, Advance Mfg. Co., Inc. focuses on quality and excellence beginning with the first stage of the project.

With customers that include prestigious industrial giants in power generation, aerospace, and semiconductors, as well as the U.S. Defense Department and NASA, Advance Mfg. has become one

of the premiere precision parts manufacturers in the country and a significant, world-class competitor.

The company’s product department has also engineered and designed over a dozen patented torquing systems, without which most of today’s jet engines flying could not have been built.

The company remains family-owned and managed, as three generations of Amantis continue the tradition of quality, customer satisfaction, and excellence.



**The road to Quality and Excellence starts here.**

No matter how complex or intricate the part, for use from the depths of the ocean to the far reaches of outer space, Advance Mfg. Co., Inc. focuses on quality and excellence beginning with the first stage of the project.

From **Administration to Receiving** raw materials, the exacting procedures and attention to detail ensure certifications and traceability.



*Receiving*

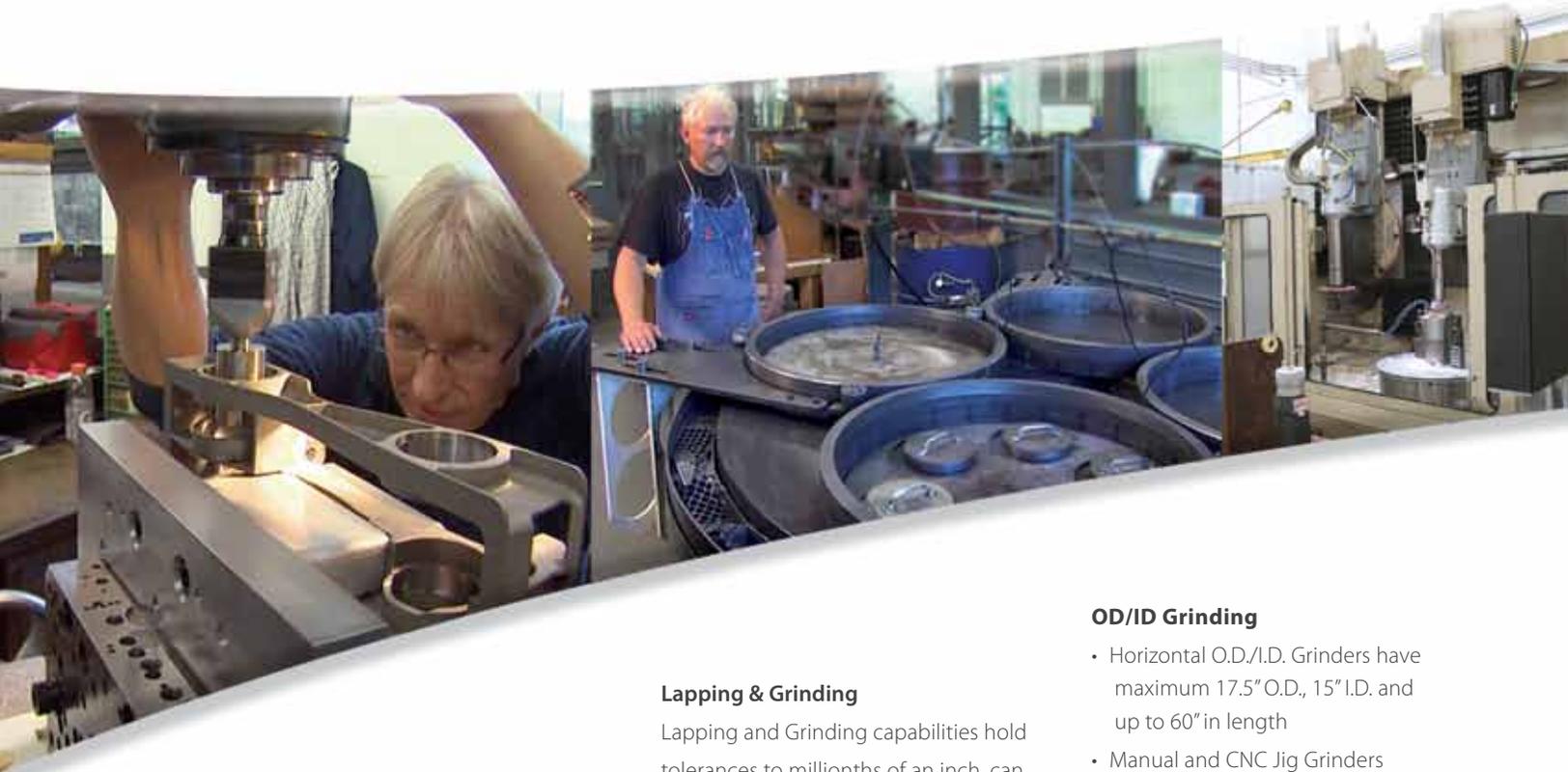
**Programming and Engineering Departments** use the latest CAD/CAM software – including PRO-E, UG-NX, and MASTER CAM, thus creating CNC machining programs from native 3-D models.

**Production Meetings** are held twice a week to discuss and monitor status of production cycles, quality, and performance, and to make any necessary adjustments in order to accommodate customers' changing needs.



*Nothing too small or to large...*

## CLOSE TOLERANCES • TWIN SPINDLES • CUSTOM TOOLING



### Jig Boring

Mainstays of accuracy in the industry, the Jig Boring machines hold close tolerances and provide some of the most intricate prototype machining available today.

### Lapping & Grinding

Lapping and Grinding capabilities hold tolerances to millionths of an inch, can measure flatness in lightbands, and allow lapping up to 36" in diameter.



*Lightbands*

Additional machines include:

- High pressure diamond **Engis** machine with 12" capacity that assists in preparation for finish grinding
- **Okamoto Surface Grinder** with capacities to 16" x 32"

### OD/ID Grinding

- Horizontal O.D./I.D. Grinders have maximum 17.5" O.D., 15" I.D. and up to 60" in length
- Manual and CNC Jig Grinders hold tolerances in the millionths
- CNC Vertical Grinder has twin spindles to grind both O.D. and I.D.
- Vertical grinding allows up to 48" in diameter by 48" in height
- **Blanchard Grinder** has a 44" capacity.

A specially-designed Cutter-Grinding Room enables Advance Mfg. to create custom tooling for increased efficiency and exacting results.



*NASA - Space Shuttle*



*OD/ID Cutter Grinder*

TOP-NOTCH, HIGH-SPEED MACHINING CENTERS HAVE 4TH AND 5TH AXIS, MULTIPLE PALLETS, PROBING



**Vertical Milling**

Many machines are arranged in work cells that reduce cycle times and increase efficiencies. Cost-savings are passed on to customers. These machines include:

- 5-Axis with ranges up to 30" x 120"
- 4-Axis with 15,000 RPM high speed spindles
- Twin spindle machines handle up to 60" x 30" x 33-1/2".



*Twin Spindle Vertical Milling*

- Large capacity, 120" of travel; 4th Axis rotary; adapted with laser tool management and probing capabilities
- Several complex, 5-Axis trunion-style machining centers, one with a time-saving, 12-pallet

magazine; laser tool management and probing that records, stores, and sends inspection data to our quality department.

**Boring Mills**

Sophisticated **Kuraki KBM-11X** machines provide:

- 4th and 5th Axis operation
- Tolerances down to .0001"
- Extended travel of 78" x 70" x 57" with spindle travel of more than 19"
- 4th Axis with precision to .0001°.



*Boring Mill*

**CNC Milling**

Horizontal milling machines include several 5-Axis CNC mills with up to 7 pallets.

- Up to 61" x 51" x 47"
- Pallet changer and probing capabilities.



*Pallet Changer*



*NASA - Life Support*

## WORK CELLS INCREASE EFFICIENCY, SAVE COSTS



### Manufacturing Cells

As a result of a joint 6-Sigma Black Belt event, Advance worked with General Electric to develop a 7,500 square foot, state of the art, dedicated work cell where entire families of parts can be manufactured in one location. This helps reach critical cost goals, delivery requirements, and total customer needs.

## LATHES: LARGE DIAMETER, EXTENDED LENGTH

### Vertical Turret Lathes

CNC Vertical Turret Lathes, including a **Doosan 850 Twin**, handle large diameter turning.



*Doosan 850 Twin*

### Lathes

From CNC lathes to a specialized Tool-max lathe with 236" extended length and a 24" diameter capacity to bore parts over 100" long, these machines include:

- **Danichi** – for large parts with 120" overall length and 25" diameter
- **Lagun/Geminis** – 24" diameter x 80" length of cut and maximum face plate diameter of 37"
- **Mori-Seiki SL65** – maximum 32" diameter by 30" length of cut
- Turn mill lathes that help eliminate costly set-ups.



*Vertical Turret*



*Line of Lathes*

6σ™

## CUTTING, HONING, CLEANING WITH CRITICAL ACCURACY



### EDM

Advance houses both conventional and wire cutting machines, including one of the largest in the industry: maximum capacity – 47" x 31" x 15".



EDM

### Honing

Horizontal Honing up to 60" in length by 15" in diameter, and Vertical Honing up to 8" in diameter by 12" stroke.



Honing



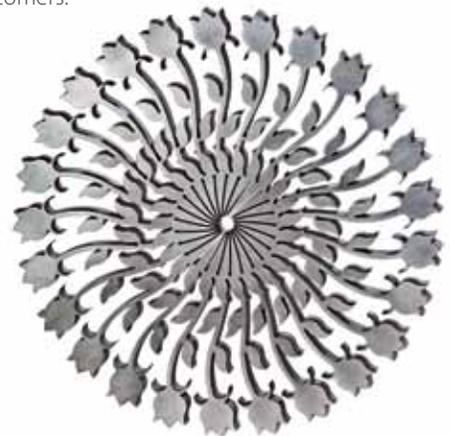
*Logo was cut out of a piece of stainless steel using a precision EDM wire machine. ID and OD slide in and out perfectly.*

### De-Burring & Aqueous Cleaning

De-burring is a very critical operation in manufacturing aerospace parts, and cleaning up after machining is essential to eliminate foreign object debris (FOD). As part of a waste-minimization program, Advance uses an environmentally safe aqueous with ultra sonic cleaning tank, and an ADF high pressure flush machine to assist in removing FOD from holes.

### Water Jet

A 87,000 PSI Flow water jet has a 4' x 8' capacity for increased cost savings to customers.



*Intricate cutting pattern with the Water Jet*

## FINISH PROCESSES • SPECIALIZED TESTING



### Welding and Fabrication

Advance has certifications for MIG and TIG welding and fabrication for aerospace, commercial industries, and the U.S. Defense Department.

Qualified welding processes are:

*GTAW, GMAW, SMAW, MTB & PTAW*

Our welding/brazing procedures complies with many Military, Aerospace and Commercial specifications including, but not limited to:

*NAVSEA S9074-AQ-GIB-010/248*

*NAVSEA S9074-AR-GIB-010/278*

*NAVSEA T9074-AD-GIB-010/1688*

*NAVSEA 0900-LP-001-7000*

*MIL-STD-1595, MIL-STD-2219(AWS D17.1)*

*MIL-B-7886(AWS C3.4), ASME Section IX*

*Various AWS specifications*

Materials include, but are not limited to:

*HY80/100, HSLA80/100,*

*CuNi & NiCu, Stainless steels,*

*Dissimilar base metal combinations*

*Inconel cladding*

*Stellite hardfacing*

In addition, a Plasma-Stellite machine hard-faces parts for power generation and other industries.



*Plasma-Stellite Machine*

### Induction Heat Treating

Because of customer needs, the company expanded into the highly specialized Induction Heat Treating field. After procuring the latest equipment, the company now designs and manufactures its own induction heat treating tooling and fixtures.



*Induction Heat Treating*

### Non-Destructive Testing

Advance holds NDT certifications for FPI, LPI, and visual red dye penetrants. With one of the largest MPI machines in the area, the company can handle parts up to 144" in length.



*Red Dye*



*FPI*

## QUALITY INSPECTIONS EVERY STEP OF THE WAY



A hallmark of working with Advance Mfg. Co., Inc. is the environmentally, electronically controlled Inspection Department, where CMM machines are programmed to measure and inspect the closest-tolerance parts throughout the entire manufacturing process.

### **Inspection**

As an added method of increased efficiency, Advance has several Satellite Inspection Stations throughout the shop that allow for in-process inspection.



*Satellite Inspection Station (SIS)*

Quality Engineers and the company's Compliance Manager insure that specifications are exact and results are on-target.



*Rigid Borescope Inspection*



*Large Capacity CMM*

## TURN-KEY SOLUTIONS FOR PARTS ASSEMBLY



### Assembly

A 5,000 square-foot designated assembly area accommodates complex and upper level assemblies, large and small, some of which are integrated with mechanical, electrical, pneumatic, and hydraulic sub-assemblies.



*Vacuum Pump Assembly*

### Outside Processes

In addition to in-house capabilities, Advance coordinates and oversees outside processes using customer-approved sources. These can include heat treating, painting, plating, or other value-added requirements.



*Outside Process*

### Shipping

Vacuum seal, expandable foam, and/or custom-constructed boxes ensure safe, successful delivery of critical parts.



*Expandable Foam*



*Vacuum Seal*

## PRODUCTS ESSENTIAL FOR TODAY'S JET ENGINES



### Product Department

Beyond precision machining, welded fabrications, and assemblies, Advance manufactures – and has patented –



*Design*

hydraulic and computerized torque systems that integrate precision tooling and are vital to the assembly and disassembly of jet engines.



*Engineering and Design*



*Product Department*

## WINNING GOLD ON THE WORLDWIDE SPORTS STAGE

Advance Mfg. Co., Inc. machined the runners for the sled used by the United States 4-Man Bobsled Team at the 2010 Olympic Games.

Team members and officials credited the precision machining of those runners as instrumental in helping the team bring home the gold medal for the first time since 1948.

*USA Bobsled Team wins gold at the 2010 Olympics.*





*Family Owned Since 1961*



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