

# Complete Processing of Advanced Cooling Designs

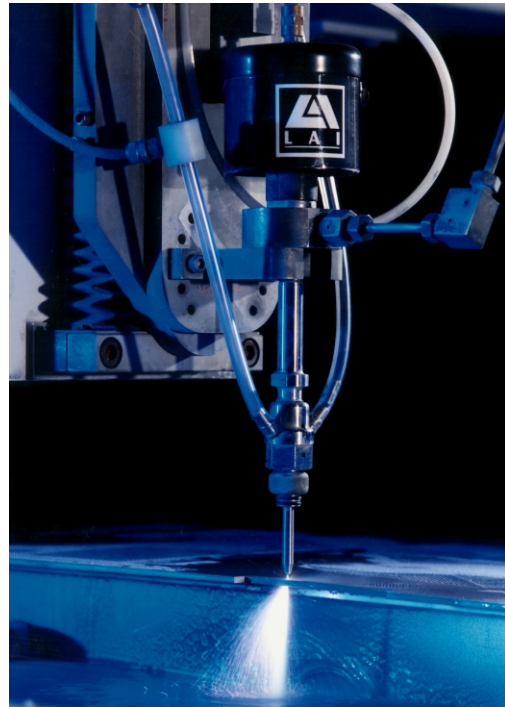
## Shaping the Future of Turbine Cooling Holes

### INNOVATIVE SOLUTIONS FOR POWER GENERATION

LAI uses advanced laser, EDM and abrasive waterjet technology to process precision components for industrial and aerospace gas turbines. Precision five-axis laser machining centers cut, weld and drill pre-formed, three-dimensional and rotary parts.

LAI's specialized waterjet operations, which cut slots in spacer bands and rings, excel at near-net cutting of difficult-to-machine materials, including stainless steel, Inconel and titanium. The world leader in precision shaped hole drilling with abrasive waterjet technology, LAI processes blades, buckets, blisks, shrouds, nozzles, vanes, impingement plates and other precision turbine parts.

- Hole diameters as small as 0.018 inches
- Angles from 25 to 90 degrees
- Custom shape geometry drilling



### COMPLETE PROCESSING OF ADVANCED COOLING DESIGNS FOR TURBINE COMPONENTS



LAI has pioneered development of processing shaped cooling holes using an enhanced abrasive waterjet milling technology that eliminates thermal distortion, re-cast layers and the need for secondary operations. LAI's Advanced Drill-to-Flow Abrasive Waterjet Process™ drills precision shaped holes to diameters as small as 0.018 inches. This innovative process provides a number of advantages over non-traditional machining methods, including:

- Cycle time reduction.
- Superior hole quality.
- Greater design freedom.
- Tighter flow control.
- Improved hole profiles.
- No re-cast or globules.
- Lower processing cost.
- Drilling through thermal-barrier-coated parts.



**LAI International**  
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# Complete Manufacturing Services for Industrial Applications



## LASER MACHINING

### Laser Cutting

- Accuracy to  $\pm 0.0005$  inches ( $\pm 0.013$  mm)
- Multiple-head systems, with up to six heads, cut parts faster
- Five-axis laser trimming of complex three-dimensional parts

### Laser Machining of Tubes

- Burr-free, oxide-free finishes
- Tubing from 5/16 to 1 inches (7.938 to 25.4 mm) in diameter

### Laser Drilling

- Angled, shaped holes
- Diameters as small as 0.004 inches (0.102 mm)

## WATERJET MACHINING

### High-Definition Waterjet Cutting™

- Accuracy to  $\pm 0.002$  inches ( $\pm 0.051$  mm)
- Cuts material up to 18 inches thick (45.72 cm)
- Multiple-head cutting for faster processing

### Waterjet Drilling and Screen Manufacturing

- Diameters as small as 0.016 inches (0.406 mm)
- Angles from 20 to 90 degrees
- Tolerances to  $\pm 0.002$  inches ( $\pm 0.051$  mm)
- Custom hole drilling to any shape

### Five-Axis Waterjet Machining

- Multiple five-axis waterjet workstations
- Precision cutting, trimming and drilling of complex 3-D parts

## HIGH-SPEED MACHINING

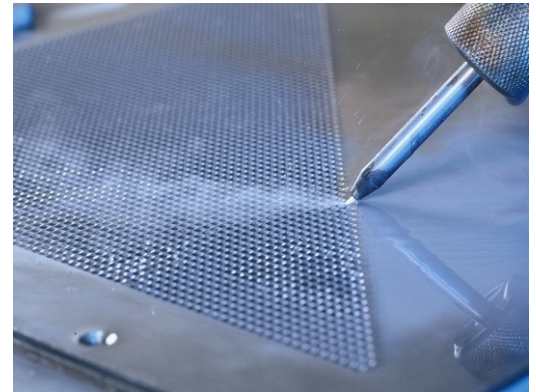
- Five-axis high-speed machining
- Multiple workstations
- High-speed spindles (up to 20,000 r.p.m.)

## EDM PROCESSING

- High-speed EDM
- EDM hole drilling
- Wire EDM
- Plunge EDM

## ADDITIONAL CAPABILITIES

- Conventional CNC machining
- Milling
- Drilling
- Five-axis grinding
- Grit blasting
- Turning
- Tumbling
- Welding



## FINISHED PARTS

LAI provides complete supply chain management for its customers, from acquiring and processing raw materials into final products to manufacturing finished assemblies. LAI offers value-added services such as inventory control, project management, final inspection and customized shipping. Other in-house services include assembly, kitting and specialized packaging.



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WORLDWIDE SERVICES



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