

THANKS FOR LOOKING CLOSER AT MAKINO'S NEW MACHINES
AND TECHNOLOGIES AT IMTS 2010. IN CASE YOU MISSED ANYTHING,

HERE'S A CHANCE TO TAKE
ANOTHER CLOSE LOOK.



IMTS 2010

At IMTS, we introduced a number of new machines and technologies. For most of you, IMTS was your first exposure to our exciting and industry-leading titanium machining technology, ADVANTIGE™.

IMTS also marked the introduction of the next generation of the most popular horizontal machining centers in our history—the a-Series. The a51nx and a61nx, with faster acceleration/deceleration, promise to be even more productive in any application.

Major advances in micromachining, EDM, hardmilling and automated systems were all on display. It was a lot to absorb in the short period of time that was IMTS 2010.

That's why—in addition to thanking you for stopping by our booth and/or attending one of our Lunch & Learn seminars—we're sending you this brochure, both as a reminder of what you saw there and an invitation to see more. Just go to makino.com, click on our Webinar Library icon (bottom right corner) and take a closer look at some of the most exciting innovations in modern machining.

Again, thanks for stopping by and we look forward to meeting you again. Of course, if you'd like to talk to us right now, just call **1-800-552-3288**.

Titanium Machining ADVANTiGE™ Technology:

4 TIMES MORE PRODUCTIVE.
2 TIMES THE TOOL LIFE.

Makino's ADVANTiGE technology overcomes the traditional challenges of low metal-removal rates and limited tool life associated with titanium machining. By improving spindle performance, coolant delivery, vibration damping, machine rigidity and cutting strategies, ADVANTiGE is capable of four times the productivity and double the tool life of conventional machining technologies.

The advantages of Makino's exclusive ADVANTiGE technology:

- Double the tool life
- Four times more productive



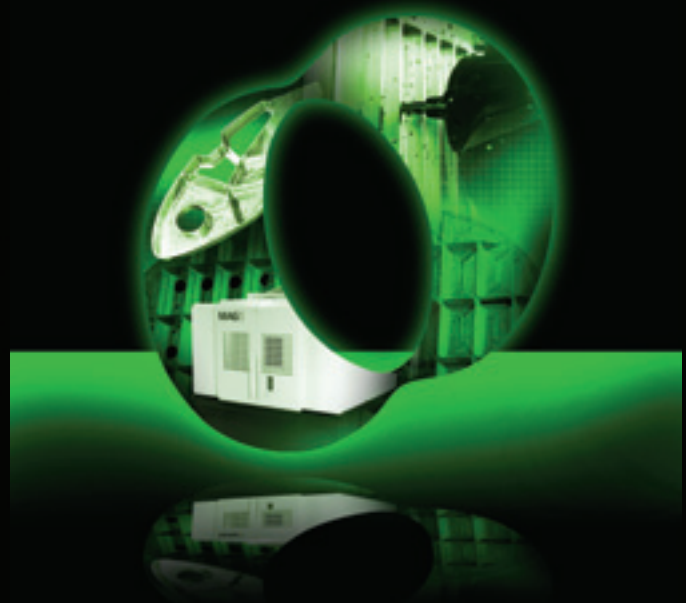
Machining aerospace aluminum with the Makino MAG1:

STABLE HOGOUTS. NO CHATTER. NO VIBRATION.

With a 300-cubic-inch metal-removal rate, the Makino MAG1 sets the industry standard for monolithic parts production. Now equipped with Makino's new Autonomic Spindle Technology, the MAG1 provides increased stability, while eliminating chatter and vibration at high feeds and speeds.

Aluminum aerospace machining with the MAG1:

- High metal-removal rates
- Industry-leading spindle design
- No chatter
- No vibration



Production Machining:

INTRODUCING THE NEXT GENERATION OF HORIZONTAL MACHINING CENTERS: a51nx.

At IMTS, Makino debuted the a51nx and a61nx horizontal machining centers. With their robust machine design, faster acceleration/deceleration and improved spindle performance, the a51nx and a61nx make the machine that revolutionized horizontal machining even better.

The unmatched accuracy and reliability of the a51 just got better:

- Faster acceleration/deceleration times
- Boosts spindle torque 19%
- Improved rigidity for higher metal-removal rates



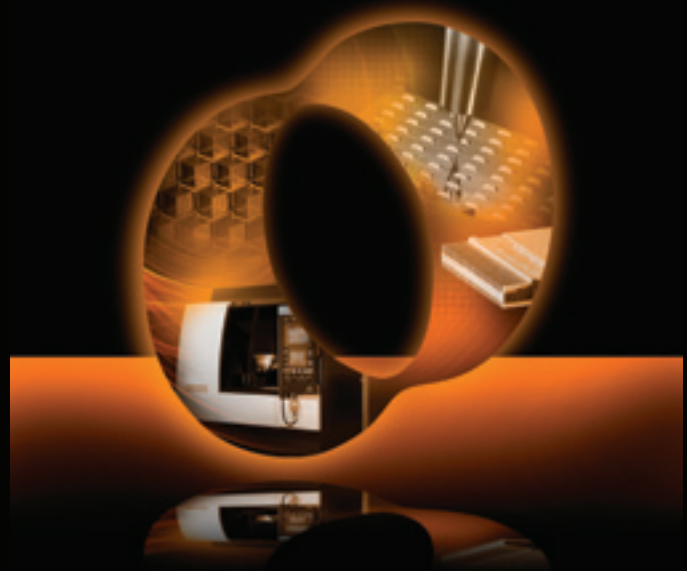
Makino Micromachining:

NO OPPORTUNITY TOO SMALL. NO PRODUCTION GOAL TOO AMBITIOUS.

At Makino, we're machining parts with micro-scale features to micron tolerances every day. With milling and EDM solutions that incorporate the most advanced technologies, Makino provides the precision necessary to bring your micromachining ideas from design to production.

Makino micromachining:

- Positioning repeatability less than 100 nm
- Fine-hole machining
- Ultra-precision milling and EDM solutions



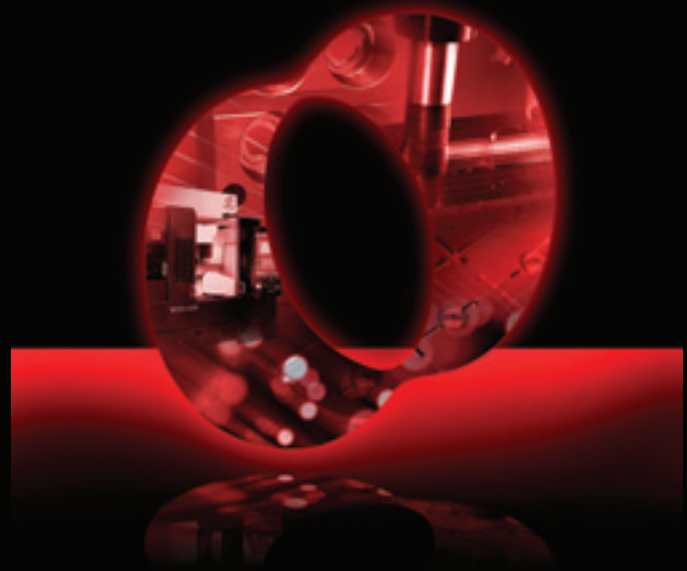
Die Mold:

THE WORLD'S MOST ACCURATE 5-AXIS MACHINING CENTER.

The V33i-5XB vertical machining center features a specially designed tilt-trunnion table with combined B- and C-axes to provide die/mold shops with a full 5-axis simultaneous milling answer for intricate 3-D shapes. Drawing on years of experience in machine design and precision engineering, this vertical machining center from Makino is capable of exceptional accuracies in complex cores and cavities.

The Makino 5-axis V33i-5XB VMC delivers:

- Sustained dynamic accuracy
- Long hours of continuous hardmilling
- Reduced part setups and increased accuracy in complex shapes



F5 Vertical Machining Center:

FAMILIAR MAKINO PERFORMANCE AND QUALITY AT A NOT-SO-FAMILIAR PRICE.

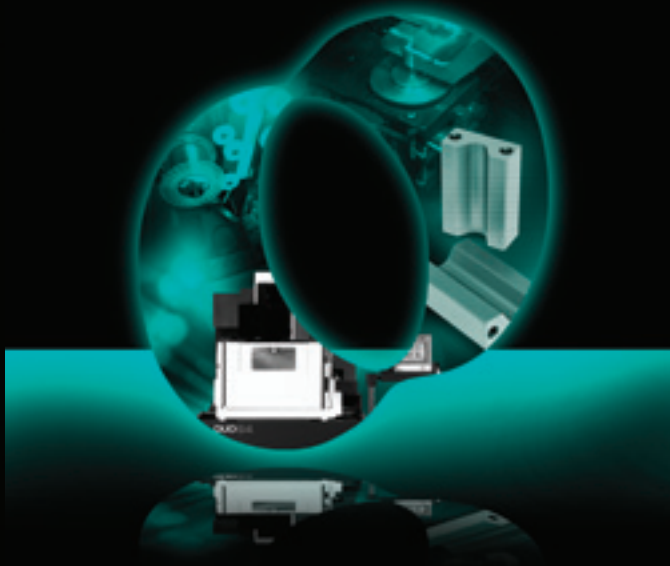
Providing stiffness and rigidity for chatter-free cutting, agility for high-speed hardmilling, and accuracies for tight-tolerance blends and matches typical of complex, 3-D contoured geometry associated with die/mold and medical production, the F5 is just what the doctor ordered. High-quality hardmilling performance in a machine any shop can afford.

- Next-generation SGI.4 software for high feed rate, tight-tolerance machining of complex, 3-D contoured shapes
- Superior accuracy and unparalleled surface finish
- Patented 20,000-rpm spindle technology



Wire EDM:

FASTER CUTTING WITH LOWER WIRE CONSUMPTION. DUO SERIES.



Makino's DUO Series of wire EDM machines cut up to 30% faster and use 60% less wire. The DUO64 you saw performing at IMTS 2010 offers enhanced performance, accuracy, speed, ease of operation and maintenance with features such as dual wire-guide options, DuoSpark generator, dual-anchored ballscrews and dual high-pressure flush pumps.

DUO Series highlights:

- Cuts up to 30% faster
- Uses up to 60% less wire
- Available in two wire-guide options

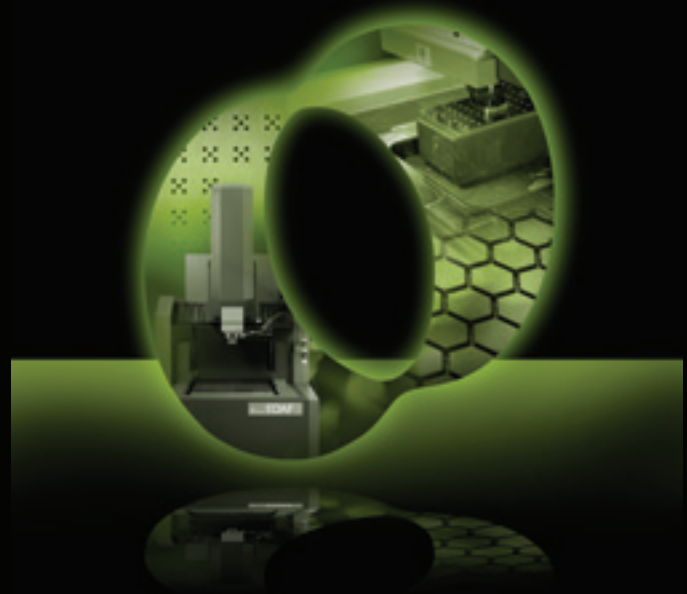
RAM EDM:

NEW EDAF3 RAM EDM WITH MAKINO'S NEW ARCFREE TECHNOLOGY.

Offering the most sophisticated spark-gap monitoring and arc-prevention technology available today, Makino's new EDAF3 enables manufacturers to burn applications, fully unattended, worry-free. Our exclusive ArcFree technology helps prevent destructive DC arcs that typically lead to time-consuming cleanup procedures or scrapped parts.

The EDAF Series machines offer:

- Improved servo system for rapid response to signals from the spark-gap monitoring circuits
- Cycle time reductions of 10% to 20%
- New mechanical design for increased rigidity and reduced thermal distortion
- Surface-finish capabilities 50% better than conventional achievable surface finishes



Simple Automation for 4- and 5-Axis Machining: THE MAKINO MMC-R AUTOMATION SYSTEM.

Introducing Makino's new MMC-R automation system for robotic fixture-plate distribution in 4- and 5-axis machining. Ideal for high-product mix, low-volume production runs, the MMC-R's simple automation enables manufacturers to increase spindle utilization and reduce setup times through accurate and reliable machine loading, unloading and part storage. Most important, the MMC-R gives today's manufacturers the competitive edge required for tomorrow's global marketplace.

Machining automation with the Makino MMC-R:

- Simple automation for 5-axis machining
- Increased spindle utilization
- Reduced setup time
- Ideal for high-product mix, low-volume production runs



Makino Engineering Services: LOVE THE SCARY PARTS.

Makino Engineering Services has an unmatched history of creating robust production-ready processes—including machinery, fixtures, tools, programs and documentation—for parts with complex geometries, demanding deadlines, challenging budget constraints and Six Sigma standards. We've solved production challenges and engineered tightly integrated manufacturing systems for hundreds of manufacturers. All with a guaranteed cycle time, lower cost per part and improved quality. Don't be afraid of the scary part.



LOOK CLOSER. LOOK DEEPER.
WATCH OUR FREE SEMINARS AND WEBINARS
AT MAKINO.COM/LIBRARY.



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