CAX+ Series

Vertical 5 Axis Milling
Machining Centres

MODELS AVAILABLE: CAX 800/ CAX 1000/ CAX 1200

racerinternational.com

RACER

Crafting innovation on a grand scale.

For 34 years, Racer Machinery International has been a wholly Canadian-owned company standing tall as a pillar of innovation and excellence in manufacturing. We're more than just a manufacturer of machines; we're a team dedicated to building a stronger future for the industry as a whole.

Trusted Partner, Proven Track Record

Racer's expertise spans across a wide range of industries. From the classic engine lathe to the cutting-edge world of additive manufacturing, we deliver state-of-the-art solutions that cater to the specific needs of our clients. Our diverse clientele includes those in the automotive, aerospace, defense, and academic sectors, among many others. This versatility is a testament to our adaptability and commitment to staying at the forefront of technological advancements. Our success in supplying critical systems to esteemed institutions like the Canadian Armed Forces and the U.S. Navy underlines our unwavering commitment to reliability.

Innovation at Our Core

At Racer, a core value is prioritizing research and development (R&D). We understand that continuous investment in innovation is crucial to staying ahead of the curve. Our team is constantly pushing the boundaries of advanced manufacturing technologies, ensuring that the solutions we develop meet the evolving demands of various sectors. This dedication to R&D guarantees that our clients remain competitive in their respective fields, equipped with the latest and most effective machinery available.

Growth Through Collaboration

Racer actively supports domestic supplier development. We believe in fostering a strong and collaborative ecosystem within Canada's manufacturing landscape.

This commitment extends to fostering university R&D alliances, where we work alongside academic institutions to push the boundaries of what's possible.

Diversity and inclusion are also core values at Racer. We champion these principles within our team, promoting a skilled and future-proof workforce that reflects the rich diversity of Canada. Additionally, we actively support Industrial Technology Benefits (ITBs), strengthening the Canadian manufacturing ecosystem as a whole.

Manufacturing turnkey solution CNC machine tools providing North American built products to production operations worldwide.

A Force for the Future

Racer's commitment to growth is evident in our ongoing facility expansion. This massive project encompasses a staggering 40,000+ square feet, and upon completion, will create a hub for innovation and production excellence.
The expansion will not only benefit Racer itself but also contribute significantly to the economic growth of our communities. By creating new Canadian jobs and fostering partnerships with local suppliers, the positive impact will be far-reaching.

Finally, Racer plays a critical role in supporting Canada's Key Industrial Capabilities (KICs) for emerging technologies. Our expertise in advanced materials and production processes aligns perfectly with the needs of critical industries like aerospace, defense, and shipbuilding. By supporting these KICs, Racer ensures that Canada remains a leader in the ever-evolving landscape of advanced manufacturing.

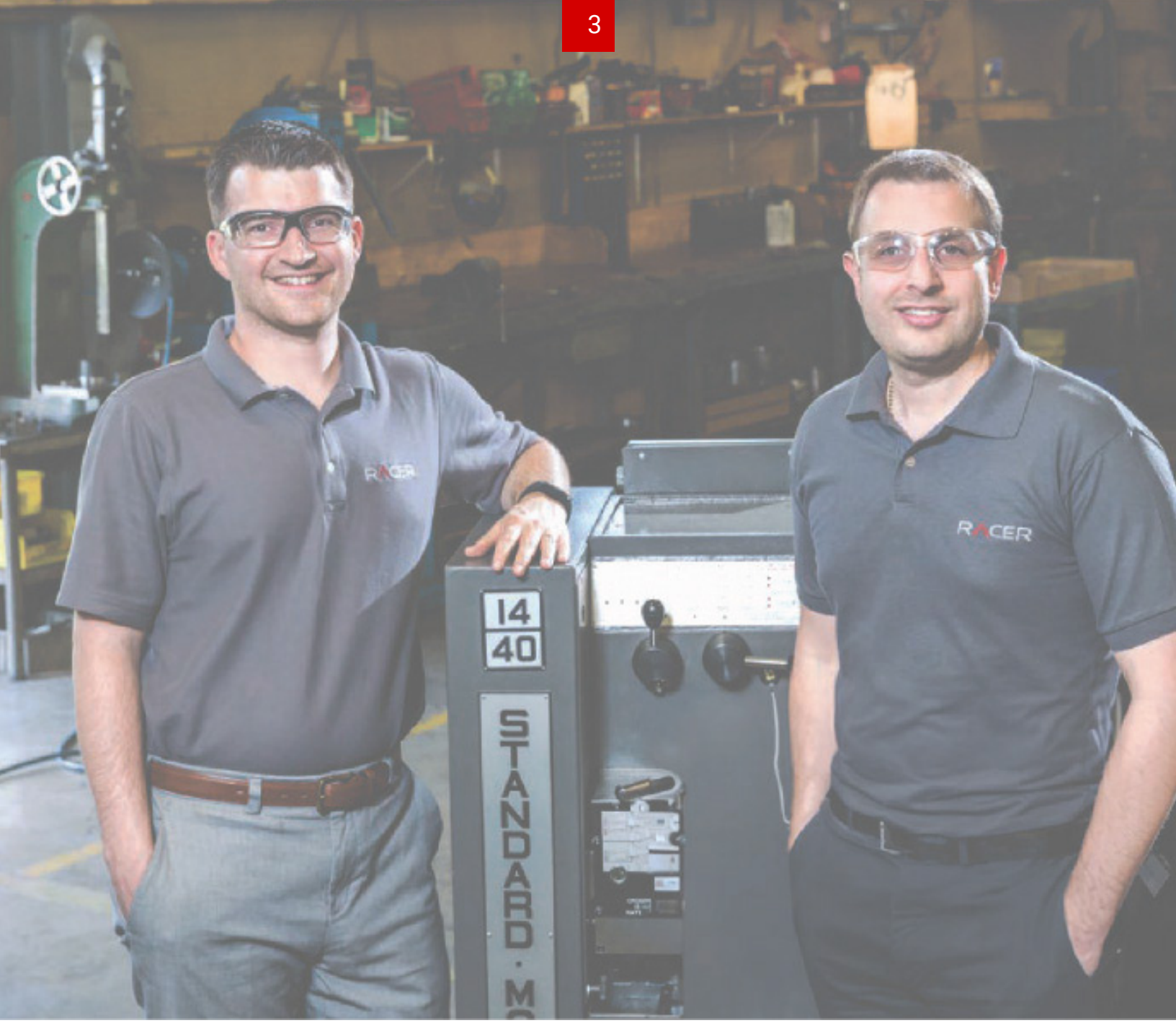


Photo courtesy of Canadaina Metalworking Magazine (2018)

Racer Machinery International's story is one of continuous advancement, fueled by both technological innovation and a global vision. The company's pioneering spirit took flight in the 1990s with the introduction of the Megatronic PC-CNC Controller, solidifying their position at the forefront of CNC machinery development.

This spirit of innovation was coupled with a strategic move towards global competitiveness in 2003, symbolized by the transformation of Racer Machinery Company Ltd. into Racer Machinery International Inc. Racer's dedication to quality and craftsmanship was further bolstered in 2014 with the integration of the esteemed Standard Modern™ brand, adding over 80 years of manufacturing excellence to their portfolio.

A landmark moment unfolded in 2020 as the Federal Economic Development Agency invested nearly $1.4 million in Racer, propelling the company towards aerospace excellence. This government-supported investment signifies a strategic move for Racer's future growth and innovation in this demanding sector. Racer Machinery International's commitment extends beyond borders.

Securing a contract to supply the U.S. Army underscores their role as a reliable provider of high-quality North American-built machinery, further cementing their position as a trusted partner delivering dependable solutions for defense applications on a global scale.

Skilled workforce and industry expertise

Pardeep, from Racer Machinery International, works on a tool changer.

Our industry experience extends beyond mere project execution – it encompasses a deep understanding of market trends, regulatory requirements, and customer needs.

By staying abreast of industry developments and actively engaging with clients, suppliers, and industry stakeholders, we continuously adapt and evolve to deliver cutting-edge solutions that drive our clients' success.

Skilled Workforce

At Racer Machinery International, our greatest asset is our skilled workforce, whose expertise and dedication drive our success in meeting and exceeding production demands. Our team members (50 in Canada, and 120 internationally) possess a wealth of knowledge and experience, honed through years of hands-on training and a commitment to excellence.

Whether it's operating cutting-edge machinery or troubleshooting complex production challenges, our workforce demonstrates unwavering professionalism and proficiency, ensuring that every task is completed to the highest standards.

Industry Experience

In addition to our skilled workforce, Racer boasts extensive industry experience that sets us apart as a leader in automotive manufacturing solutions. Over the years, we have forged strong partnerships and executed successful projects across the automotive sector, delivering innovative solutions that enhance efficiency, quality, and profitability for our clients.

From designing custom machining solutions to optimizing production workflows, our track record speaks volumes about our ability to understand and address the unique challenges of the automotive industry.

Canada invests $1.4 million in advanced CNC solutions

Cambridge-based Racer Machinery International Inc. (RACER) is on the cusp of an exciting development in its journey within the aerospace industry.

The Federal Economic Development Agency for Southern Ontario (FedDev Ontario) has announced a substantial investment of nearly $1.4 million in RACER. This investment is poised to enhance the company's productivity, global competitiveness, and pave the way for over 30 new jobs.

It's a significant move that reaffirms the company's commitment to innovation and growth within the global supply chain.

FedDev visiting Racer Machinery International Facility (2022)

FedDev Ontario's Support for Racer Machinery International

On October 13, 2022, in a press release from Cambridge, Ontario, Valerie Bradford, Member of Parliament for Kitchener South–Hespeler, made a significant announcement on behalf of the Honourable Filomena Tassi, Minister responsible for the Federal Economic Development Agency for Southern Ontario. The government has allocated nearly $1.4 million in support of Racer Machinery International Inc., a family-owned aerospace manufacturer located in Cambridge, Ontario.

With this repayable investment, the company is set to revolutionize its manufacturing processes, reducing material waste and ultimately boosting productivity. As a result, this project will create and sustain up to 31 jobs and increase annual domestic and international sales by as much as $7 million.

This investment is a testament to the ongoing collaboration between government, businesses, and the aerospace sector in southern Ontario.

"Today's investment in Racer Machinery International Inc. is great news for Cambridge and Canada's aerospace sector. The project will help the company boost global competitiveness and support 31 local jobs while contributing to the growth of the aerospace sector here in southern Ontario."

– Valerie Bradford, Member of Parliament for Kitchener South–Hespeler.

Canada

Investing in the future through collaboration

At Racer Machinery, we're driven by a constant desire to push the limits of what's possible. We believe that by working together with the best minds in the industry, we can achieve incredible things. That's why we've partnered with leading organizations and academic institutions to leverage their expertise and accelerate our progress.

In Collaboration With:

- Commonwealth Center for Advanced Manufacturing (CCAM)
- Canadian Manufacturers & Exporters (CME)
  Automotive Parts Manufacturers Association (APMA)
- McMaster University
- University of Virginia

Members of:

- Advanced Manufacturing Technology Association (AMT)
- Ontario Aerospace Council (OAC)
- Ontario Made (program)

By working alongside these esteemed partners and organizations, Racer Machinery is positioned to make significant contributions to the future of manufacturing. Through collaboration, knowledge sharing, and a shared vision for excellence, we're building the future of innovation, together.

We're proud to collaborate with some of the biggest names in the manufacturing industry, leveraging our expertise to deliver tailored solutions that meet the exacting standards of our esteemed partners.

Key Partnerships

Strength in meeting comprehensive support demands

Beyond repairs, we offer comprehensive solutions to empower your team.

- Expert programming services to optimize your machines.
- Comprehensive machine service and maintenance plans.
- Operator training to maximize machine efficiency and safety.
- Customer training to keep your team informed and empowered.
- Maximize uptime with expert troubleshooting and repairs.
- Prevent breakdowns with proactive maintenance plans.
- Boost productivity with machine optimization and performance tuning.
- Eliminate programming errors with our skilled technicians.
- Get the parts you need fast with our extensive inventory.

RACER provides the highest level of training service, and support in the industry. Training includes three days of programming/applications training at a local university.

Additionally, the customer's maintenance personnel are invited for the last week of assembly and run off at our plant. After installation at the customer's facility,

RACER service personnel and engineers, work with three groups of customer personnel, namely, maintenance, operators and highlevel engineers to ensure understanding of the equipment to make in house support as effective as possible.

Customer Support

Installation

Training

Applications

Technical components and features

The CAX+ Series from Racer Machinery represents a significant leap forward in 5-axis vertical milling. This series features a double-driven table design, delivering unmatched stability and precision for large, intricate workpieces. Choose from three table sizes (Ø800mm, Ø1000mm, Ø1200mm) to perfectly accommodate your project's needs. With a combined A-axis tilt of ±120° and a full 360° C-axis rotation, the CAX+ empowers you to conquer complex angles and geometries with exceptional ease.

The CAX+ Series is engineered for high-performance and maximum productivity. Experience exceptional positioning and repeatability accuracy for the most detailed work. Powerful spindle options (up to HSK-A100 taper, 20,000 rpm) and rapid feed rates (up to 50 m/min) ensure efficient machining. Furthermore, the CAX+ boasts industry-leading automatic tool changer capacities (standard 64 tools, expandable up to 120), minimizing downtime and maximizing workflow.

With its robust build, high load capacities (up to 2600kg), and diverse chip conveyor options, the CAX+ Series is the ideal solution for shops demanding unmatched performance, versatility, and capacity in 5-axis machining.

Key Features

- Double-driven table design for large workpieces.
- Table size options (Ø): 800mm, 1000mm, 1200mm
- ±120° A-axis tilt and 360° C-axis rotation for conquering complex machining angles.
- Powerful spindle options (up to HSK-A100 taper, 20,000 rpm)
- Built for heavy-duty applications
- Diverse chip conveyor options (screw, chain, or scrape) for efficient chip removal.

Ideal Applications

- Precision Engineering
- Armed Forces & Defense
- Aerospace
- Medical

Models Available

CAX 800 | CAX 1000 | CAX 1200

Custom sizes available

Providing solutions across diverse industries

Aerospace Industry

Racer Machinery International is a leading provider of precision CNC machine tools, serving a wide range of industries, including the aerospace sector. The company's machines are ideal for various applications in the aerospace manufacturing process.

Racer's CNC machines are used to produce a variety of aerospace components, including:

- Aircraft parts: **Fuselage sections, wings, tail assemblies, landing gear components, and engine parts**
- Rocket components: **Motor cases, nozzles, and structural components**
- Satellite components: **Antennas, solar panels, and structural elements**

Providing solutions across diverse industries

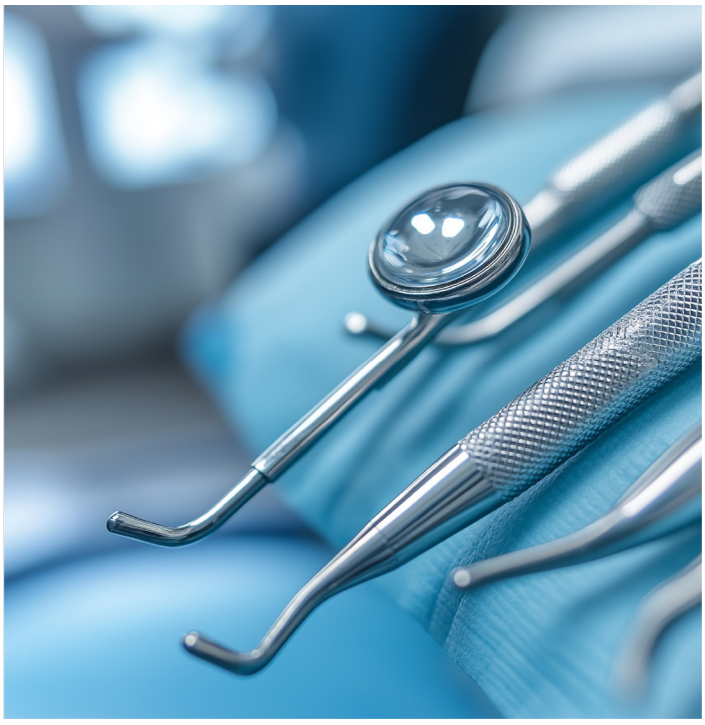
Armed Forces & Defense Industry

Racer Machinery International has proudly served as a critical supplier to the U.S. Navy's nuclear shipbuilding enterprise for over six decades. They've played a vital role not just in recent years, but throughout the history of modern naval lathe technology.

Their commitment to providing Standard Modern lathes has ensured the continued success of American shipbuilding efforts, from the mightiest nuclear carriers to essential supply vessels.

In addition:

- Weapons components: **Barrels, receivers, triggers, and other firearm parts**
- Naval equipment: **Components for ships, submarines, and other naval vessels**



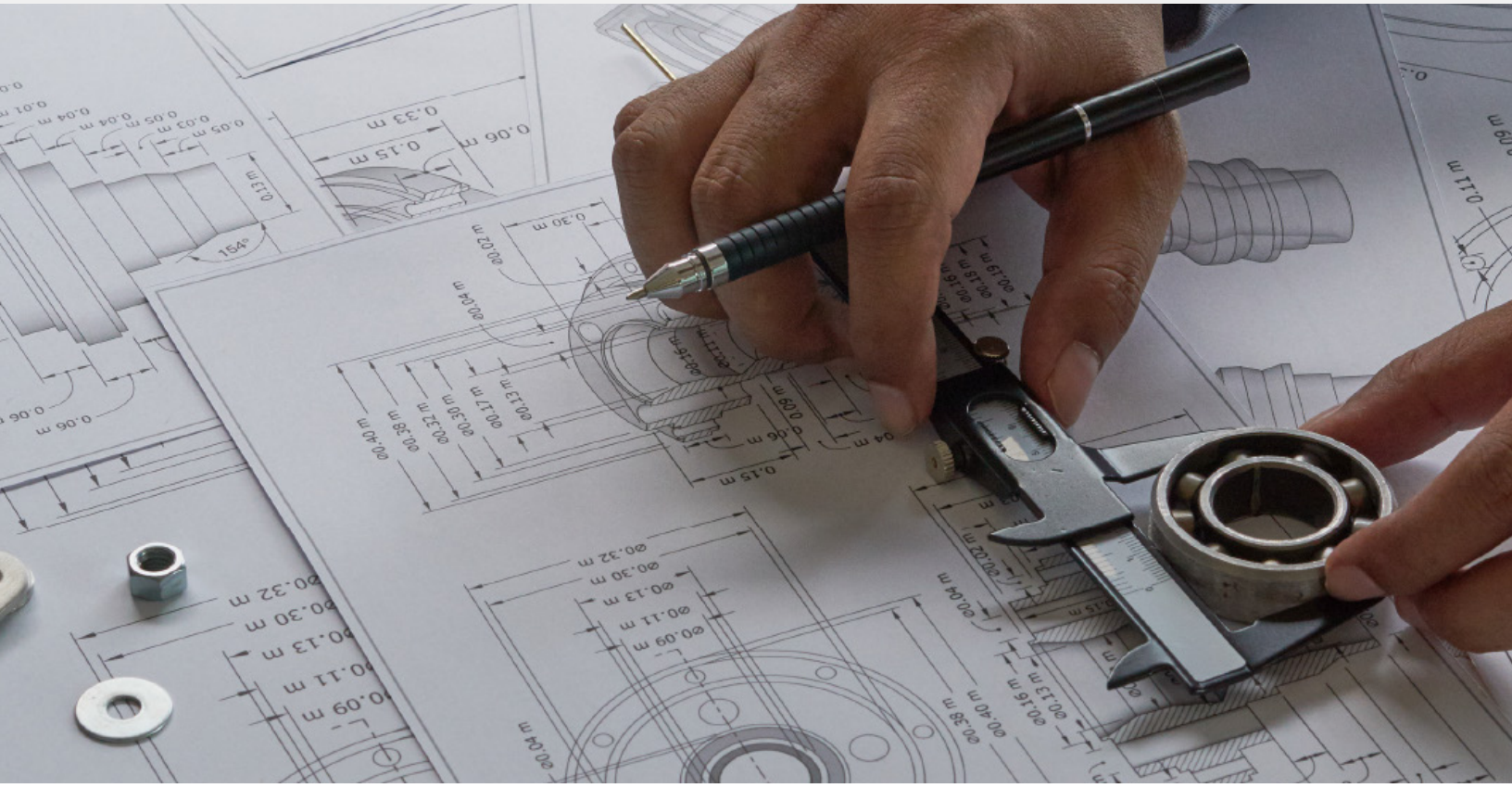
Medical Industry

The company's machines are ideal for various applications in the manufacturing of medical equipment.

Racer's CNC machines are used to produce a variety of medical components, including:

- Surgical instruments: **Scalpels, forceps, clamps, and other surgical tools**
- Medical implants: **Joint replacements, dental implants, and other implantable devices**
- Diagnostic equipment: **Components for MRI machines, X-ray machines, and other diagnostic devices**
- Medical devices: **Components for pacemakers, defibrillators, and other medical devices**

Providing solutions across diverse industries



Precision Engineering

Racer Machinery International is a renowned supplier of precision CNC machine tools, meticulously crafted to meet the exacting requirements of the precision engineering industry.

- High-Tolerance Components: Our machines are ideal for producing components that require extremely tight tolerances, such as those used in aerospace, medical, and electronics industries.
- Complex Geometries: We can handle intricate and complex shapes, enabling the production of advanced precision components.
- Fine Finishing: Our machines are capable of producing smooth, high-quality finishes, essential for many precision engineering applications.

The future of machining is collaborative

Command your machines with confidence.

At Racer Machinery International, we understand the colossal impact of collaboration. That's why we've strategically aligned ourselves with industry titans – Siemens and FANUC – to forge a powerhouse of CNC control for our machines.

FANUC

FANUC elevates your machining game with the powerful Series 0i-F CNC, a versatile workhorse for diverse applications.

Master Complex Machining: The 0i-F boasts increased control with more axes and program paths, allowing you to conquer intricate parts and multi-tasking workflows.
Boost Efficiency: High-speed auxiliary functions and an expanded standard feature set streamline your operation, maximizing productivity and minimizing downtime.
Effortless User Experience: The operator-friendly design features a large 15-inch display and a familiar QWERTY keyboard, minimizing training time and maximizing comfort.

SIEMENS

Siemens, a global leader in automation and digitalization, brings cutting-edge control technology to the table. Their innovative solutions seamlessly integrate with our machines, prioritizing user-friendly interfaces and robust capabilities to tackle any machining challenge.

Siemens offers a dynamic CNC duo: SINUMERIK ONE and 828D. These advanced control systems cater to various applications, ensuring optimal performance for your specific requirements.

SINUMERIK ONE- The next-generation powerhouse, ideal for complex, multi-axis machining and future-proof scalability.

Digital Native: Optimizes production with real-time data analysis for Industry 4.0 integration.
Advanced Performance: Delivers exceptional precision with the PPU 1740 control unit. Modular Design: Easily adapts to changing needs with customizable axes, spindles, and software.

SINUMERIK 828D- A versatile option for basic to mid-complexity machining tasks.

User-Friendly: The intuitive interface simplifies operation and minimizes training time. Reliable Performance: Delivers consistent accuracy and control for various applications.

Phantom Machine Technology

Racer Machinery International Inc. and its team of innovative engineers have developed a groundbreaking technology that is revolutionizing the machine tool industry. Phantom Machine Technology™ represents a significant advancement in every aspect of machine tool production, from manufacturing processes to end-user operations.

This patented process revolutionizes manufacturing by reducing pollutants, creating a safer and healthier workplace. Machine operators also benefit from significantly lower noise levels, reducing health hazards associated with constant exposure to loud equipment.

Machines equipped with Phantom Machine Technology™ deliver exceptional results. Cutting times are drastically reduced, tooling lasts longer, and setup is incredibly easy. The technology's versatility allows for customization to meet your specific needs. Our machines are designed for minimal maintenance, reducing downtime and maximizing productivity. This translates to lower operating costs and increased efficiency.

Phantom Machine Technology™ ensures exceptional precision and accuracy in your manufacturing processes. This means you can produce high-quality components that meet even the most stringent standards.

Our machines are built to last, designed to withstand the rigors of demanding industrial environments. This durability translates to long-term reliability and minimal downtime. Our team of experts can tailor our machines to meet your specific needs and requirements. Whether you need a machine for high-volume production or a specialized application, we can provide a solution that fits your exact needs.

Benefit from our dedicated customer service and technical support team, available to assist you throughout your partnership. Our team is committed to providing prompt and efficient support, ensuring that you get the most out of your investment in Racer Machinery International.

Key Features of Phantom Machine Technology

Environmentally Friendly

The manufacturing process behind the weldment frame generates less waste compared to traditional casting methods.

Lower Cost

The innovative weldment frame design offers a more cost-effective manufacturing alternative to cast iron frames.

Vibration Dampening

The weldment construction effectively absorbs vibrations that can mar surface finishes and reduce tool life.

Trunnion Table	Unit	CAX 800	CAX 1000	CAX 1200
Move type			Double driven table	

Work Table

Worktable Size	mm	Ø800	Ø1000	Ø1200
T-Slot		14H11 x 7	Ø1000	14H8 x 12
Max. Workpiece	mm	Ø800 x H560	2000	Ø1200 x H900
Worktable Load	kg	1300	1000	2600

Movement

X Axis Travel	mm	800	800	1200
Y Axis Travel	mm	1010	1010	1100
Z Axis Travel	mm	650	650	1000
Spindle Nose to Worktable	mm	150 ~ 800	150 ~ 800	300 - 1250
A Axis Rotating Angle			± 120°	
C Axis Rotating Angle			360°	
X/Y/Z Positioning Accuracy	mm		+/- 0.004	
X/Y/Z Repeatability Accuracy	mm		+/- 0.002	
A/C Positioning Accuracy	arc-sec		+/- 8	
A/C Repeatability Accuracy	arc-sec		+/- 4	

Spindle

Spindle Taper		CAT-50 / HSK A63	HSK-A63	HSK-A100
Max Spindle Speed	rpm		20000	
Spindle Drive Method			Built-in	
Spindle Power (S1-100% / S6-40%)	kW		25 / 35	

Feeds	Unit	CAX 800	CAX 1000	CAX 1200
Rapid Speed (X/Y/Z)	M/min		50	
Cutting Feed (X/Y/Z)	M/min		20	
A Axis Max Speed	rpm		60	50
C Axis Max Speed	rpm		100	80
A Axis Working Torque (R/M)	Nm		1040 / 2080	1040 x 2 / 2080 x 2
C Axis Working Torque (R/M)	Nm		401 / 800	1040 / 2080
A Axis Clamping Force	Nm		3200	3200 x 2
C Axis Clamping Force	Nm		2000	3200

ATC

Tool Magazine		64 std. / 96 / 120
Max Tool Diameter & Empty Adjacent Tool	mm	125/245
Max Tool Weight	kg	25

Cutting Coolant System

Coolant Thru Spindle	20bar (380V / 50Hz 2.2kW / 60Hz 4.0kW) 70bar (380V / 60Hz 5.5kW)
Chip Conveyor	Screw type 0.2kW x2 Chain type / Scrape type 0.2kW

Others

Power Consumption	kVA	75	100	120
Machine Size (w/swinging Control Panel)	mm	5060 x 2405 x 3850 (64T)	963 x 2240 x 3395 (64T)	6440D x 5270W x 4862
Machine Weight	kg	19200	24500	29200

Get in Touch.

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