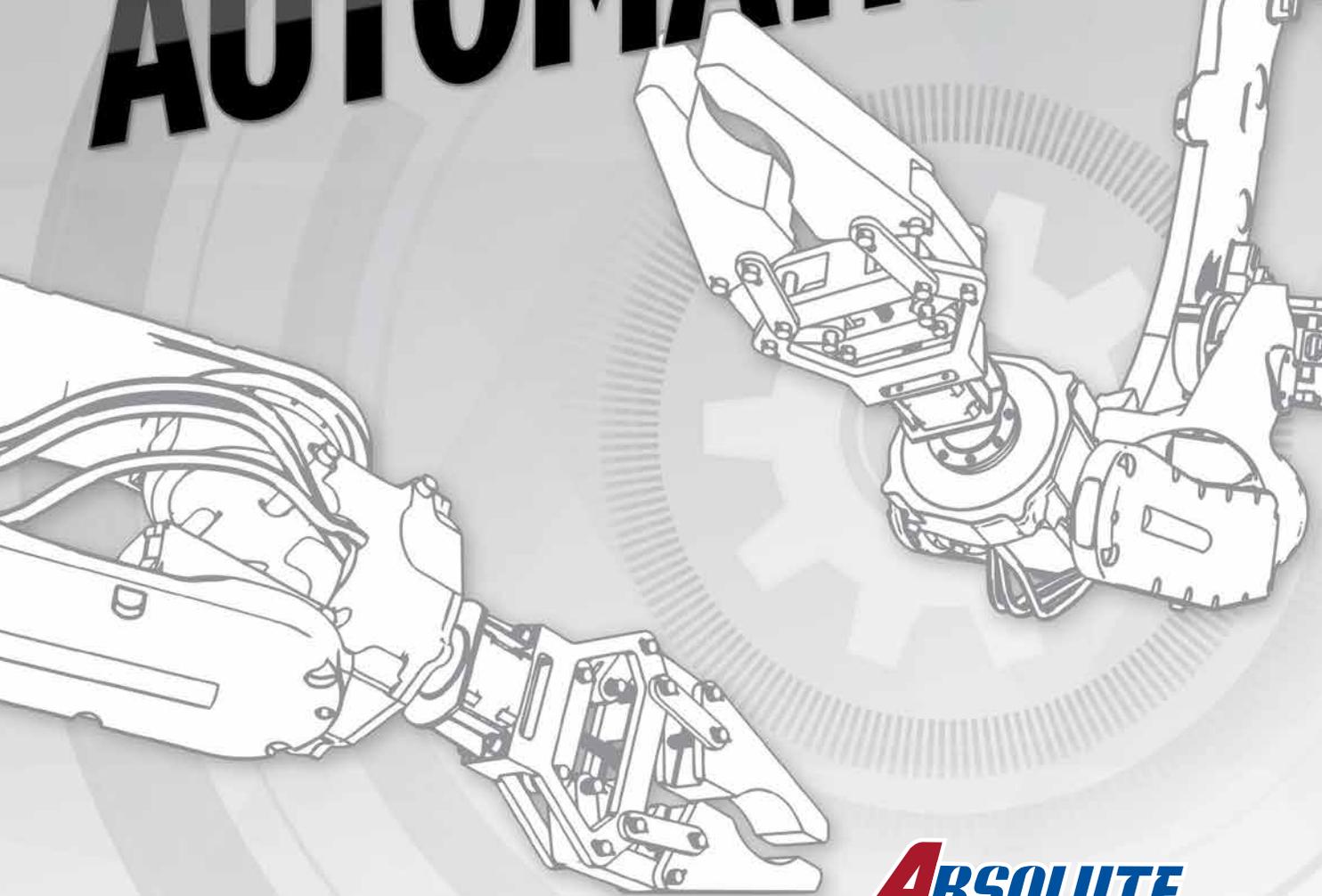


EMBRACING AUTOMATION



**ABSOLUTE
MACHINE TOOLS**

An Employee-Owned Company

absolutemachine.com

Automation... It's Easier Than You Think!

Automation is becoming the foundation of modern manufacturing, whether it is a complete lights-out solution for high-volume production or a cobot tending a machine in a job shop. Yet many manufacturers think getting into automation is both expensive and complicated. It's not. Absolute can help.

The challenges today's manufacturers face demand comprehensive solutions, solutions that require careful thought and skillful planning to execute well. Shrinking availability of skilled labor and continual cost-reduction pressures are magnifying the importance of integrated solutions.

Customers today seek guidance in assembling complete turnkey system solutions, as well as assistance with machine tool choice and application. Our staff is trained to help manufacturers work through this process choosing the right equipment to maximize their investment and achieve production goals.

Steve Ortnier, Founder and President
Absolute Machine Tools

Since 1988, Absolute has provided cost-effective engineered solutions and comprehensive services for manufacturers in industries such as aerospace, agriculture, automotive, construction/mining, energy, medical, and defense suppliers – matching the right part to the right machine, creating an effective solution. We have worked with several of our principal machine tool builders since the beginning, because we believe longstanding and stable OEM/distributor relationships are important.

Our comprehensive product offerings and knowledgeable applications engineering support allows Absolute to partner with North American manufacturers to build and install systems from single automation solutions to major customized turnkey platforms. Absolute can provide robotic cells, pallet shuttle systems, automatic loaders and unloaders, and complete flexible manufacturing systems or FMS.

So, if you're looking for a partner, not just someone to sell you a piece of equipment, Absolute is here with affordable, cost-effective engineered solutions to maximize your manufacturing operations.



Affordable. Easy to Use. Immediate Automation.



The moment Productive Robotics' OB7 is delivered to your door, you have all the equipment needed to connect it to your CNC machine. OB7's simple setup and minimal integration requirements make it the most cost-effective solution for machine shops. Using a "no programming" simple teaching platform, simply show OB7 how to do the job and it quickly learns. OB7 works 24/7 "lights out" keeping the spindle turning, optimizing productivity and efficiency on day one.

Featuring the world's only true 7th axis cobot designed and manufactured in the USA, OB7 has the ultimate flexibility and dexterity to reach around objects or obstacles. This eliminates having to position the OB7 in front of the machine's door—blocking both the work area and the operator. OB7 frees up space for operators while also allowing them to focus on other tasks like preparing tooling and planning next jobs.

With 4 models to choose from, OB7 cobots integrate quickly and seamlessly into your existing operations, easily adding new automation possibilities to your existing production lines or machines. These cobots are simple to set up with minimal learning time. They can handle small or large batch jobs and work safely without guarding. OB7 cobots also reduce Bureau of Workers' Compensation injury claims by helping to eliminate "continuous repetitive motions" that often affect employees.

CNC Packages Starting @ \$34,900

All packages include:

- Control Tablet
- PRI Parallel Gripper
- Robot Work/Assembly Table
- Rolling Robot Stand
- General equipment interface with 8 outputs, 8 digital inputs, 4 analog inputs, 2 channel pneumatics with regulators (works interchangeably on mills & lathes)
- 4" Pneumatic Air Vise
- CleanTech 160mm chip fan with $\frac{3}{4}$ shank
- Robot Arm
- Software
- Computer
- Control Handle
- Backup Power Supply
- 1-Year Hardware Warranty and Software Upgrades Included



There are several collaborative robots out there, but OB7's 7 axes allow us to place the robot next to the machine door rather than in front of it, freeing up space for our machine operators. The ease of setting up OB7 has also made us profitable in our job shop environment from day one.



Marvin Rodriguez, VP of Operations
True Precision Machining



Improve Machine Performance, Demand Response, and Competitiveness



CNC AND ROBOT

Introducing Mitsubishi's Machine Tending Robotic Cell for CNC applications. Load, unload, and palletize your parts in any low-to-high volume application.

This cost-effective robot cell allows for quick & easy setups, high performance & accuracy, safety-first functionality, and maximum portability for job shops and larger scale production environments. Users can also learn the one-step process of integrating the robot cell to a CNC machine using Mitsubishi's Direct Robot Control function – all done with one single Ethernet cable.

Each configuration includes the robot base, the industrial robot, and a teach pendant.

Mitsubishi's Machine Tending Robotic Cell allows you to concentrate on what you do best: produce parts with minimal inefficiency. We take care of the rest: from base design, safety design, and robot mounting to adding custom components. When it arrives, you are ready to start programming and making parts!



Machine Tending Robot Cell Intro Package starting at \$49,900
Includes cage, cart, & RV-8CRL

Robot Specifications

	RV-8CRL	RV-7FR	RV-7FRL
Payload Capacity	8 kg	7 kg	7 kg
Maximum reach	931 mm	713 mm	908 mm
Axes	6 (J1-J6)	6 (J1-J6)	6 (J1-J6)
Maximum Speed	10,500 mm/sec	11,604 mm/sec	10,977 mm/sec

Stand Dimensions

	3x3 w/enclosure	4x4 w/enclosure	3X3 wo/enclosure	4X4 wo/enclosure
Length	36 in	48 in	36 in	48 in
Width	36 in	48 in	36 in	48 in
Height	82 in	82 in	33 in	33 in
Weight	845 lbs	1082 lbs	649 lbs	831 lbs



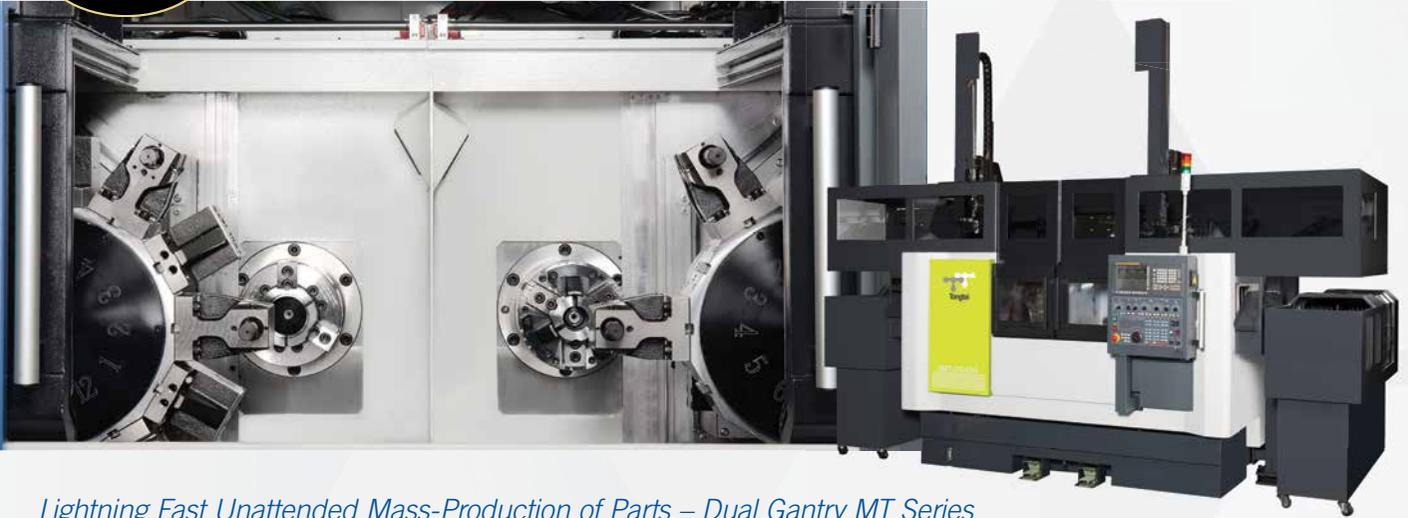
Tongtai VP-10 High Speed Vertical + RV-8CRL Package starting at \$134,900



**VP-10 Travel Specifications:
40.2"(x) x 20.1"(y) x 23.6"(z)**



Automation – Compact & Complete



Lightning Fast Unattended Mass-Production of Parts – Dual Gantry MT Series

Tongtai's MT Series was designed around customer demands for built-in automation in high productivity environments. It was built with individual machining zones for machining two completely different parts within one machine and includes twin spindles and twin gantry loaders/unloaders armed with dual grippers for fast loading and unloading of blanks and finished parts. Features two 14 pallet work stocker systems on either side of the machine while the two 3-axis gantry robots travel at up to 6300"/minute and can index the rotary axes 180° in only 1 second, contributing to a load/unload time inside the machine of only 5 seconds.



Production Machining in a Compact Footprint Design – HS Series with Side Auto Loader

Tongtai's HS Series is a uniquely designed high speed 30° slant bed turning center built strong with box ways and large servo motors for super accurate positioning. It is equipped with a 12-station bi-directional turret providing .45 second indexing to the adjacent tool and 1.8 seconds to the 180° opposite tool station. The HS-22 was designed with a unique automated loading/unloading system that loads from the side. Part swap time is only 4.8 seconds inside the machine, while a 14-pallet work stocker is built into the system to enable long periods of unattended operations.



VTX-5 Drill/Tap Center & OB7 Cobot for \$99,900

Absolute has created an ABSOLUTELY AFFORDABLE cost-effective solution by bundling the Tongtai VTX-5 with the OB7 cobot from Productive Robotics. The Tongtai VTX-5 is a lightning fast compact machining center equipped with a 21-station turret-type tool changer that can change tools in 1.4 seconds with only 1.9 seconds chip to chip, thanks to the 2362"/min rapid traverse in all axes. A standard 7.5 HP 12,000 RPM direct drive spindle provides rigid tapping speeds up to 6,000 RPM. A 24,000 RPM spindle is perfect for aluminum and magnesium parts, as well as graphite. It's partner, the OB7 cobot, is the only true 7-axis cobot in the world. The 7th axis eliminates positioning it in front of the machine's door—blocking the operator. Instead, place it to the side and the 7th axis will reach around into the machine to load and unload parts.

Turning Towards Automation



Absolute maximizes profitability in the precision production turning industry by matching the right part to the right machine. This means partnering with our engineering staff to analyze part complexity, materials, tooling, tolerances, and lot sizes, to match the best machine to those requirements. Absolute Machine Tools has hundreds of years of combined experience doing just that. We offer 3 versatile brands specifically engineered for chipmaking production processes. **Nexturn Swiss** lathes include both exchangeable and non-guide bushing models with maximum bar capacities from 12mm to 51mm. Nexturn turret-type non guide-bushing fixed headstock machines process 45mm, 56mm and 67mm diameter bars. **LICO** multi-axis multi-slide CNC screw machines offer overlapping of up to 5 tools in the cut simultaneously rivaling screw machine speed with CNC quality and versatility. **QuickTech** multi-tasking, multi-function CNC mill/turn centers are equipped with up to 56 total tools and 24 B-Axis live tools. With up to 10 axes working simultaneously between the main and sub-spindles and bar capacities up to 65mm, these machines can drop complete parts quickly with no secondary operations, saving labor and increasing profitability. All of these brands can be easily and inexpensively robot loaded or bar feeder loaded for minimizing labor cost in production turning jobs.



Nexturn SA-20B + TRACER 20
Bar Feeder Package = \$129,900

Automation That Drills Deep



Precihole Machine Tools, a global leader in Deep Hole Drilling and Hole Finishing Technologies has been on the forefront of integrating automation and robotics in their solutions for more than 30 years. Producing a complete line of machines for Gun Drilling, BTA Drilling, Boring, Trepanning and Skiving & Roller Burnishing. Precihole has a gamut of automation and robotics options for their machine tools. Automation options range from loading/unloading parts on one machine without human assistance or integration between multiple machines in a cell. Precihole machines can interface with virtually any robot manufacturer.

Following are examples where Precihole has successfully integrated robotics and automation into their solutions:

- Robotic pick and place automation cell for mass production of gun barrels.
- Robotic automation for a transfer line on a Skiving and Roller burnishing machine for automotive parts and hydraulic cylinders.
- Conveyor automation for gun drilling a wide variety of automotive transmissions and other shafts.
- Gantry style automation for deep hole drilling of stainless steel billets used in the oil & gas industry.
- Completely automated transfer line of 24 machines for hydraulic steering assembly.



Go Small or Go Big... we've got your Automation Turnkey Solutions



Since 1978

Customers with larger automated turnkey projects partner with Absolute for competitive cost-effective engineered solutions. But our commitment to your success doesn't stop there. Together with our customers, Absolute works with You Ji directly to discuss, plan and implement your automated turnkey solutions. There's a lot of money and expectations at stake with projects of this magnitude, and it is important that our customers are included in the design and decision making process to ensure that we create the perfect solution envisioned by the end-user. Working together in a "team environment" will ensure success now and in the future. Here you will see an automated turnkey project that consisted of 9 linked cells which included 27 machines and 9 Fanuc robots for steel heavy truck wheels. The cell has a production capacity of 360 wheels per hour or one finished wheel every 6 seconds! Each cell consisted of a FANUC robot tending 3 You Ji machines including 2 customized YV-600 vertical turning centers and a vertical machining center. Each cell also has an integrated laser engraving machine to mark the wheels without adding to cycle time.

You Ji has been in the business of building BIG CNC machines since 1978, and now occupies 66,000M² of factory space in Kaohsiung City, Taiwan. The company's niche is Vertical Lathes, Boring Mills, Horizontal Lathes and Machining Centers, and Double-Sided Milling Machines. Absolute Machine Tools has been You Ji's partner for nearly 30 years. AMT has sold nearly 2,500 units and installed and serviced these machines in countries such as Mexico, Canada, Romania, Singapore, China and India. You Ji's Vertical Turning Lathes are the bread and butter of their business with table sizes ranging from 8" to 315" and turning heights up to 200".



ABSOLUTE MACHINE TOOLS

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Headquarters, Lorain, OH



Technical Center, Livonia, MI



Technical Center, Lehi, UT



Technical Center, Mason, OH



SALES & SERVICE LOCATIONS



- ★ Direct Office
- Distribution

Automation... It's Easier Than You Think!