# HURCO®

>> 5-AXIS MACHINING CENTERS

mind over metal℠ / Your expertise combined with our technology to produce quality parts more profitably—that's *mind over metal℠*. That's Hurco.

## » From print to part to profit.

Since 1968, Hurco has focused on developing machine tool technology that makes machine shops more profitable. The two men who founded Hurco understood the connection between people and technology.

Technology should help you...not get in your way. Our founders believed technology should minimize tedious and redundant tasks so machinists can be more productive.

This idea that technology must support the machinist, not control him, remains central to our culture and our technology at Hurco.

Go from print to part faster. That's *mind over metal*[SM]...that's Hurco.

# *Why Hurco?*

## » Control Technology.

We develop machine tools and control technology that make our customers more profitable. We do conversational better than anyone in the industry... maybe that's because we invented it. Our engineers continually focus on ways to slash setup time so you can get down to the business of making chips.

Our 5-Sided No CAM Conversational Programming is the epitome of how technology can be used to simplify complex processes in order to make shops more productive and more profitable. Since the most efficient way for shops to increase profit margin on typical 3-axis parts is to adopt a 5-sided machining process, our engineers committed themselves to making the transition as easy as possible. In fact, the majority of 5-axis machining centers are used for 5-sided work versus full 5-axis jobs.

Transform Plane with Universal Rotary is the Hurco control feature that makes the transition  to 5-sided so easy. Our engineers figured out how to make programming for 5-sided essentially mimic 2.5D programming. You only enter one part zero and the control figures out the tilting and rotating movements. Even better, you don't need a CAM system. You can do all of the programming at the control without knowing G-codes and M-codes.

## » Accurate. Rigid. Reliable.

While the integrated control of each Hurco machine tool is what empowers you to increase productivity and profitability, the iron is the foundation. At Hurco, we have instituted exacting design standards to ensure each design decision promotes accuracy and precision that can only be accomplished with a rigid machine tool.

## » One-2-One Service℠.

When you rely on a piece of equipment for your livelihood, service AFTER the sale is critical. If you need help, you can count on Hurco. We do whatever it takes to make sure your Hurco is contributing to the bottom line. According to our customers, the Hurco service and support team is the best in the industry! Professional. Knowledgeable. Responsive. Just a few of the words our customers use to describe the Hurco One-2-One Service℠ team.

*"The* **five-sided software is great**. *It's* **very simple to use**. *Once I used the* **Transform Plane** *feature, everything else fell into place quickly. On our* **3-axis machines**, *we had* **six setups**. *Now, I do the same part on our* **Hurco VM10U** *and we only have* **two setups**."
-John Gregorich, Gregor Technologies
(recently acquired by Metals USA)

*"We put these Hurcos through the paces. They're tooled to the max and we don't baby them. We run the VM10U 24/7."*
-Keith Dalpe, EMM Precision



*"The* **knowledge** *and* **customer support from Hurco is outstanding.** *I even sold a machine to a fellow down the road. He asked me about our Hurcos and I told him about the* **phenomenal service network** *you have and the* **outstanding performance of our Hurco machines.** *This is still an industry that relies on word-of-mouth, which means a company's reputation for how they treat customers after they bought the machine is important."*
- Dave Bernhardt, NuCon Corporation

## 5-Axis is too complicated and too expensive.

### I've looked at 5-axis before but...

You don't have 5-axis work...or you think a 5-axis machine is too expensive for the kind of parts you manufacture. Maybe you ruled out 5-axis because you don't want to spend money on a CAM system or you just don't have the time to learn a new process. That's why you should seriously consider Hurco...we took all of those issues into consideration when we developed fast 5-sided conversational programming (no CAM needed).

We realized the most efficient way to fulfill our mission to make shops more productive and more profitable was to make the transition from 3-axis to 5-sided machining easy. Our 5-sided conversational programming doesn't require a CAM system and features like Transform Plane make 5-sided programming easy. You'll reduce setup time by as much as 70% or more by making the switch to 5-sided. Since your machine includes full 5-axis capabilities, you will be able to expand your business when you're ready to take on simultaneous 5-axis jobs.

## Multiple Setups

### I know there's a better way, but I don't have time to deal with it.

You can keep flipping parts, but you might not realize how much money it's costing you. Each time you handle the part to refixture it, you spend time blowing off the chips, unclamping the part, wiping off the vise, and clamping the part into the vise...and then there are the special fixtures you need to build. You also risk getting out of tolerance each time you refixture, which can lead to scrapped parts.

You can produce higher quality parts in a fraction of the time with Hurco's 5-sided conversational programming (no CAM needed). When you go from five setups to one, you can increase a part's profit margin by as much as 70%.

## CAD/CAM Programming

### We don't need an advanced control. We have CAD/CAM.

The beauty of the Hurco control is its power and flexibility in both conversational and NC, or both in the same program with NC/Conversational Merge. Our control supports ISO/EIA standards and is compatible with the most popular CAM systems. But our biggest advantage is our conversational 5-sided programming, which means for most jobs you can bypass the CAM department. In fact, most of our customers use CAM for the complex stuff and program at the control with conversational for the rest. Nobody makes it easier than Hurco.

**Service**

## I can't afford downtime.

Hurco machine tools are built to last. We use premium components and we do things the right way—no short cuts. If you do need help, you won't have the hassle of contacting multiple companies to solve the problem. With Hurco, there is one source of accountability because we have complete control from design to manufacture of the entire machine tool, including the control. If you have a problem, our One-2-One Service℠ team will make it right. To minimize downtime, we have introduced UltiMonitor™ with remote diagnostics and monitoring. Additionally, we continue to implement component-level systems so we can service your machine faster, such as our one-piece control module that can be easily swapped out in the field.

**High Mix/Small Batch Production**

## I don't know what job is coming next.

A true job shop must bring a sense of order to the the chaos of high mix/small batch manufacturing—different parts from multiple customers, which means multiple setups. You never know what you're going to get...you might start with a part print, a 3D solid model, or you might have the DXF file.

The Hurco control is flexible enough to handle it all. The control makes it easy to import 2D data from the DXF file and do basic editing of DXF geometries. With Concurrent Programming, employees can program at the control while another part is running. The intuitive interface of Hurco Conversational Programming makes it easy. No control gets a job running faster.

**Hiring/Training**

## I can't find qualified machinists.

Finding experienced employees who can hit the ground running is difficult for any business, but especially challenging in manufacturing. You want to grow your business, but you can't take on new orders if you don't have the manpower to meet delivery dates and maintain your quality standards.

The integrated Hurco control expands the hiring pool with conversational programming because it's easy to learn and easy to use. Less time and money spent on training. More chip time.

# "I bought my first Hurco because I wanted to have a lean, fast turn-around business."

During the past 22 years, Gregor Technologies has achieved an average annual growth rate of 25 percent, employs 60 people, and has 31 Hurco machine tools housed in their 70,000 square foot facility.

"We wouldn't be the company we are today if it wasn't for Hurco." John Gregorich

**Pictured: John and Janice Gregorich, Owners of Gregor Technologies (recently acquired by Metals USA)**

# *Success Stories*

## 5-Axis is too complicated and too expensive.

"You just position and cut. It **makes every operation just one operation**. Your handling time is none, your **setup time** obviously is **eliminated**. **Your blends are all perfect** because you control them all in the same operation, and your chance to **scrap the part** because you are taking it on and off the machine every time you change a side, **is eliminated...If you're not doing** this [**5-sided**], **you're going to get left behind.**"

Tim Friedmann - Triangle Precision

## Multiple Setups

"With the VM10U, **we went from nine operations to two** on this military part. We **save 40 minutes per piece** in **cycle time** alone and easily **save an hour and 10 minutes total**. Maybe even more important to our bottom line is the fact that the operator is running two other machines while the VM10U is making chips"

Charlie Gagnon - EMM Precision

## CAD/CAM Programming

"**Forty percent** of programs, even complex 2D jobs, are written quickly and easily on the shop floor using **conversational**...the remaining **60 percent** are prepared off-line using the **MasterCam** system. Whether it is a **digital file** or a **drawing** of an older component that is received from the customer, a **3D IGES** file or a **2D DXF** file can be **prepared quickly** and **downloaded directly to the control** on any of the Hurco machines **for immediate use.**"

Steve Holmes - TGM

## Service

"**Hurco** has the **best service network** I've seen during my 40 years in the industry. It's really something you should promote."

Dave Bernhardt - NuCon Corporation
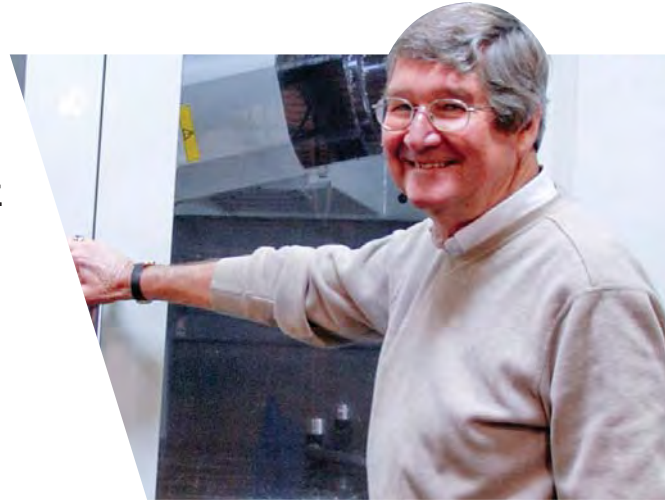
## High Mix/Small Batch Production

"The **DXF feature** as well as the **conversational programming helps** us to drastically **reduce programming time**. The Windows®-based control and the CAD editing tools coupled with a touch-screen controller help us to do program **changes quickly** and **easily**."

Heymo Hormann - Clover Technologies Group

## Hiring/Training

"The **Hurco control is** really **easy to learn**. I was **making parts** on our 5-axis machine **the first day**. I took a training class later to make sure I was taking advantage of all the control's new features, which was really helpful."

Shane Sievers - Dreyer & Reinbold Racing

# Hurco Controls

## » Built from the ground up with 5-axis in mind.
Nobody else has the sophisticated technology that simplifies programming for 5-sided and enhances NC programs for simultaneous 5-axis.

### What makes us better than the competition?
Our control makes us better than anyone in the industry. Hurco technology minimizes setup and programming so you can start making chips faster. Your expertise combined with our control to produce quality parts profitably—that's *mind over metal*℠. That's Hurco.

### Nobody gets you from print to part faster than Hurco!
Our team of engineers is driven to develop new technology that makes shops more efficient and more profitable. Their contributions to 5-axis control technology continue to revolutionize the industry.

» **Conversational 5-sided programming (no CAM needed)** is equipped with Transform Plane to simplify the 5-sided process.

» **NC optimization** improves surface finish quality and includes features that enhance NC programs.

» **Patented motion control (UltiMotion™)** simultaneously reduces cycle time by 30 percent and improves surface finish quality.

**30%**

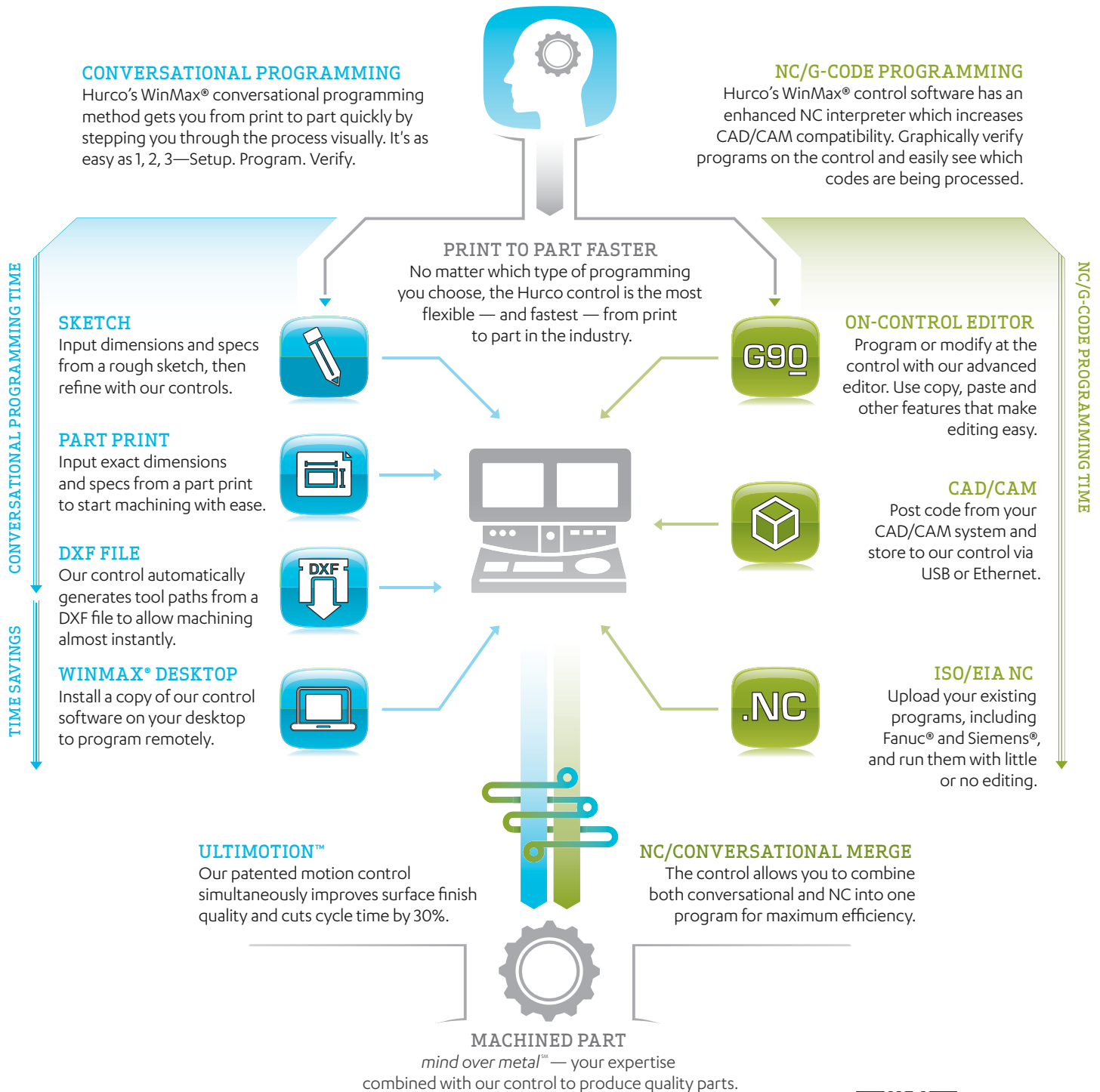What would a 30% reduction in cycle time mean to your shop?
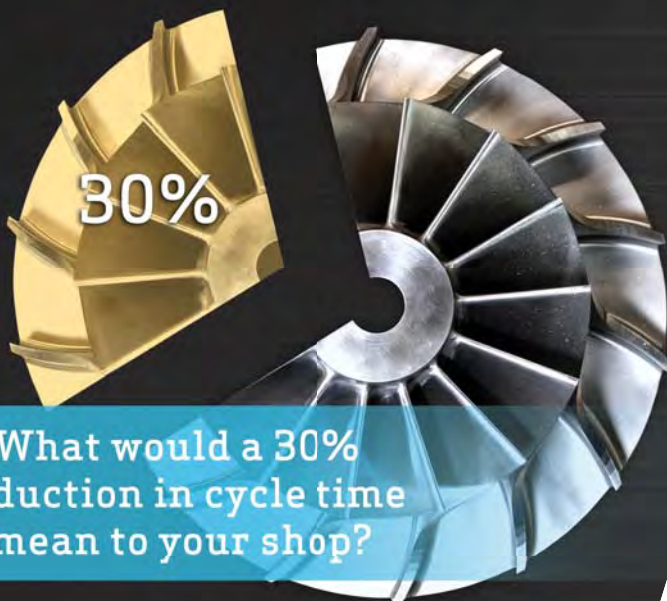
### UltiMotion™ Hurco Exclusive

*While our control is known for features that reduce setup and programming, our newest blockbuster feature simultaneously reduces cycle time and improves surface finish quality. Customers are reporting cycle time reductions of 30-40% with UltiMotion™ and it's only available from Hurco!*

# HURCO

*mind over metal*[SM] = More Margin Per Part

One control: equally powerful NC and conversational programming methods, or the ability to use the best of both. The most flexible control in the industry gets you from print to part to profit faster.

## CONVERSATIONAL PROGRAMMING
Hurco's WinMax® conversational programming method gets you from print to part quickly by stepping you through the process visually. It's as easy as 1, 2, 3—Setup. Program. Verify.

## NC/G-CODE PROGRAMMING
Hurco's WinMax® control software has an enhanced NC interpreter which increases CAD/CAM compatibility. Graphically verify programs on the control and easily see which codes are being processed.

### PRINT TO PART FASTER
No matter which type of programming you choose, the Hurco control is the most flexible — and fastest — from print to part in the industry.

**CONVERSATIONAL PROGRAMMING TIME**

**TIME SAVINGS**

**NC/G-CODE PROGRAMMING TIME**

### SKETCH
Input dimensions and specs from a rough sketch, then refine with our controls.

### PART PRINT
Input exact dimensions and specs from a part print to start machining with ease.

### DXF FILE
Our control automatically generates tool paths from a DXF file to allow machining almost instantly.

### WINMAX® DESKTOP
Install a copy of our control software on your desktop to program remotely.

### ON-CONTROL EDITOR
Program or modify at the control with our advanced editor. Use copy, paste and other features that make editing easy.

### CAD/CAM
Post code from your CAD/CAM system and store to our control via USB or Ethernet.

### ISO/EIA NC
Upload your existing programs, including Fanuc® and Siemens®, and run them with little or no editing.

### ULTIMOTION™
Our patented motion control simultaneously improves surface finish quality and cuts cycle time by 30%.

### NC/CONVERSATIONAL MERGE
The control allows you to combine both conversational and NC into one program for maximum efficiency.

### MACHINED PART
*mind over metal*[SM] — your expertise combined with our control to produce quality parts.

*Technology only available from Hurco. Go to www.hurco.com/ultimotion*

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# Hurco Controls
## Conversational Programming

## Letter + Part Serialization

*Not only do you have the ability to add TrueType® fonts to your parts, you can place the letters along a contour, place them horizontally, or vertically. Parts can be serialized based on letter and number combinations you define. The control will automatically increment the machined serial number each time you run the part. Additionally, the control accepts text files with pre-defined serial numbers.*

## Thread Milling

*Select the Thread Milling canned cycle and a one-page screen provides a simple way to quickly enter the dimensions.*

## Patterns

*Multiple Pattern Blocks make programming easy...loop rotate, loop translate, loop linear, loop angular, pattern locations, scale, and mirror image. Our Mirror Image is the best in the industry.*

## Tool Change Optimization

*Tool Change Optimization (TCO) automatically reduces the number of tool changes by rearranging the program for optimal efficiency, which reduces setup time and cycle time. You can turn TCO on or off for all of the program or a section of it.*

# » Nobody does 5-sided better than Hurco.
## Easy as 2D. Program at the control. No CAM needed.

## Transform Plane makes 5-sided easy.

Transform Plane essentially changes programming on a 5-axis machining center back to 2.5D programming that you would do on your 3-axis machine. You don't need to worry about the tilting or rotating. You define your part origin one time, and Transform Plane manages all of the other part origin locations.
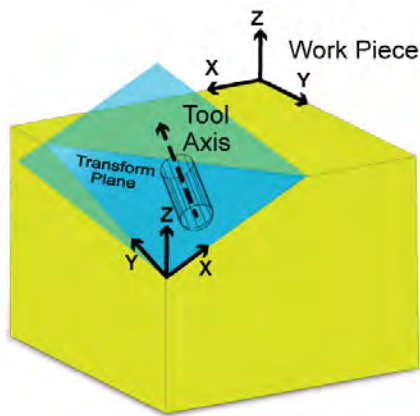


› Tranform Plane makes the transition to 5-sided easy. Simply establish the initial part origin and program the first side of the part. Then, tell the control the axis angle(s) to the next side.

› Program the features on that side of the part and tell the control the axis angle(s) to the next side.

› Follow the same steps for each side of the part. Transform Plane figures out the tilting and rotating required.

## Lines & Arcs with AutoCalc + UltiPocket™

You can program almost any complex contour using Lines & Arcs and you won't have to trig out missing data—AutoCalc does it for you.

With just a click of a box, UltiPocket™ will program advanced pocketing routines with unlimited islands and helical plunge.
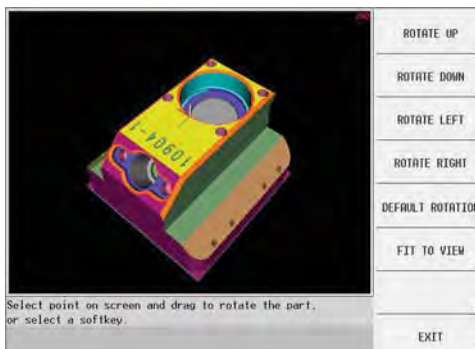


Our Helix Segment is the best in the industry. In addition to using the Helix Segment for thread milling and helical plunging, you can program an arc segment by defining the X start, the Y start, and the polar sweep angle—the control calculates the arc end points for you.

## Quickly Import Complex Contours

*The control's Lines & Arcs data block feature enables the geometry of complex contours to be quickly imported into the part program.*

## Easy Hole Selection

*Select hole operations based on the hole diameter.*

## Pockets, Islands, 3D Geometry

*Easily create conversational part features, such as pocket boundaries, pocket islands, hole operations, and 2.5D geometry swept or translated for 2.5D mold features.*
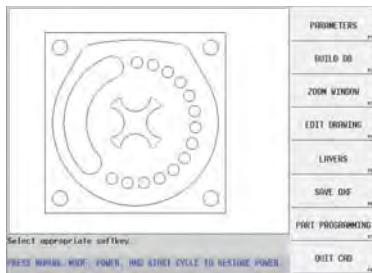
## » Three steps and you're making chips.

Eliminate data entry errors. Bypass the CAM station. Quickly add or edit part features if needed.
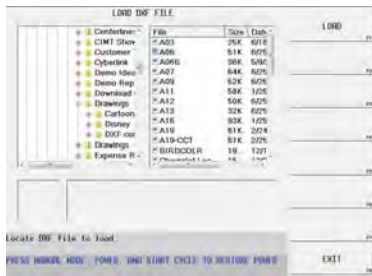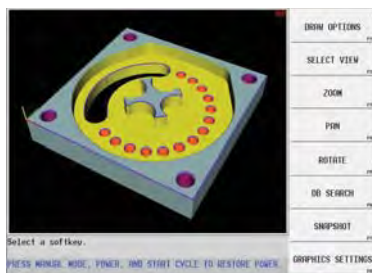


### 1. Import the CAD file

Our DXF Transfer feature lets you quickly import 2D data from the DXF file, which eliminates errors and lets you program right at the control.



### 2. Select + AutoProgram

Select the features you want to add to the part program. Simply press the on-screen button and the data is stored in the program. Enter the Z-depth and select the tool.



### 3. Verify the program

Press the Draw Button, and the Advanced Verification Graphics feature displays a 3D solid rendering of the tool path on the screen.

**BONUS** Easy editing! While DXF Transfer is not a CAD system, the intuitive programming interface lets you do basic editing of DXF geometries, chain the contours, and select hole operations based on the hole diameter.

## NC/Conversational Merge

*NC/Conversational Merge makes it easy to combine conversational features, such as pattern operations, scaling, tool probing, part probing, and unlimited work offsets with NC programs.*

## Tool Path Linearization

Before        After

## Tool Center Point Management

*TCPM eliminates the need to account for the machining center's centerlines of rotation. Instead, simply program from part zero. Position the part anywhere on the table. No need to repost the program.*

# » ISO/EIA NC + Enhancements That Make NC Better

Standardized NC. Easy editing. CAD/CAM compatability. Graphical verification. Features that enhance NC programs.

**G90** **Easy Editing** Save time. Eliminate hassle. Our control is equipped with quick copy/paste/cut functions so you can quickly edit existing programs right at the control. No need to send back to the CAM station and waste time waiting for a few quick changes.

**CAD/CAM** We have added an enhanced NC interpreter that makes our control compatible with the most popular CAD/CAM systems. You can send your part program to the control via Ethernet, USB thumb drive or FTP.

**.NC** **ISO/EIA** Since the Hurco control supports ISO/EIA standards, you can upload existing Fanuc® or Siemens® programs. Machinists who have Fanuc® experience will feel completely comfortable operating the Hurco in NC Mode.

## Hurco Exclusive

**Graphical Code Search** is only available from Hurco. It simplifies the tedious task of searching for code associated with a feature when you need to make a quick change.
1 Using the control's graphics screen, simply select the feature you need to edit.
2 The corresponding code appears automatically.
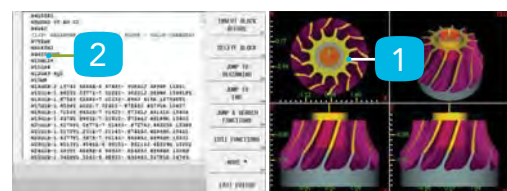
**Tool Path Linearization** drastically improves the surface finish quality of NC programs because it removes the looped line segments on the part that are formed from the XYZBC or AC moves that a CAM system uses, and it eliminates gouging of the workpiece.



Without Tool Path Linearization

With Tool Path Linearization
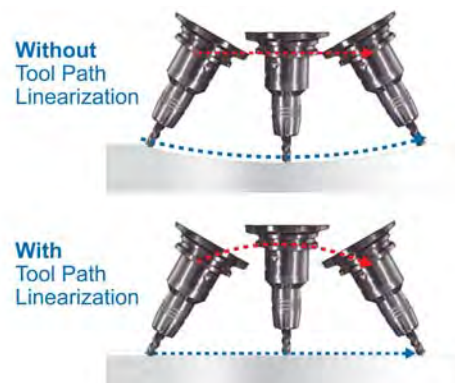
## Customizable Digital Readout Overlay (DRO)

You decide what information is the most important for you to see and how you want it to appear.

## Faster Graphics Engine

Because of significant technological advancements, the new engine we use to run the verification graphics is almost seven times faster than the previous version.
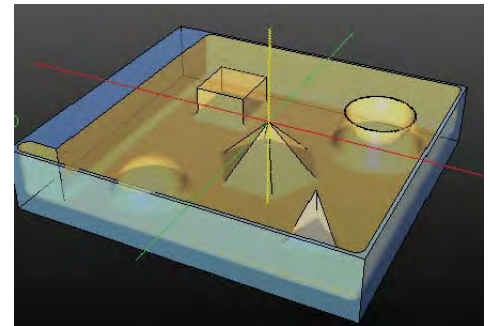
### Comparison

We compared how much time it took for this graphic to draw on a control with the previous engine and one with the new Fast Draw Engine.

**Previous Engine**
7 minutes : 36 seconds

**Fast Draw Engine**
1 minute: 6 seconds

## Roughing Stock Allowance

You can specifiy stock allowance with or without a finishing operation. If the Z finish allowance is zero, only the walls will be finished.

## Virtual Program Lockout

You have complete control. You can set the level of access for programs and parameters, including Full Lockout or Partial Lockout.

## Mill Frame with Enhanced Corner Geometry

The addition of the Corners Tab to the Mill Frame screen lets you define the type of corner, the angle, the length, and/or the radius.
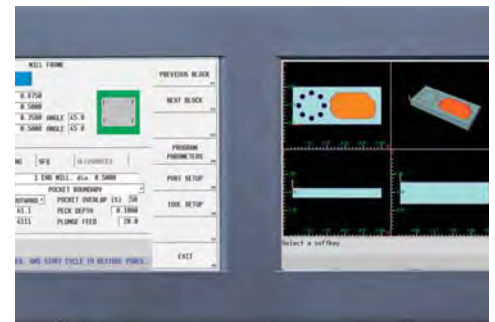
## Hurco Exclusive Operational Features

### True Interrupt Cycle

No need to teach the control the path the tool takes when retracting and returning to the part—the Hurco control does it for you.

When you press the Interrupt button, the spindle stops cutting, the coolant shuts off, and the tool automatically retracts to Z home.

You can jog the machine in any direction to check the part or change tool inserts. Then, simply press two buttons and the cycle automatically resumes right where it left off—at the speed you choose.
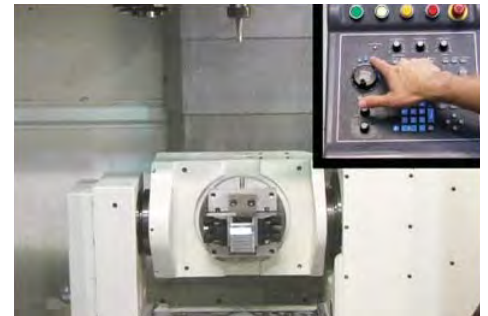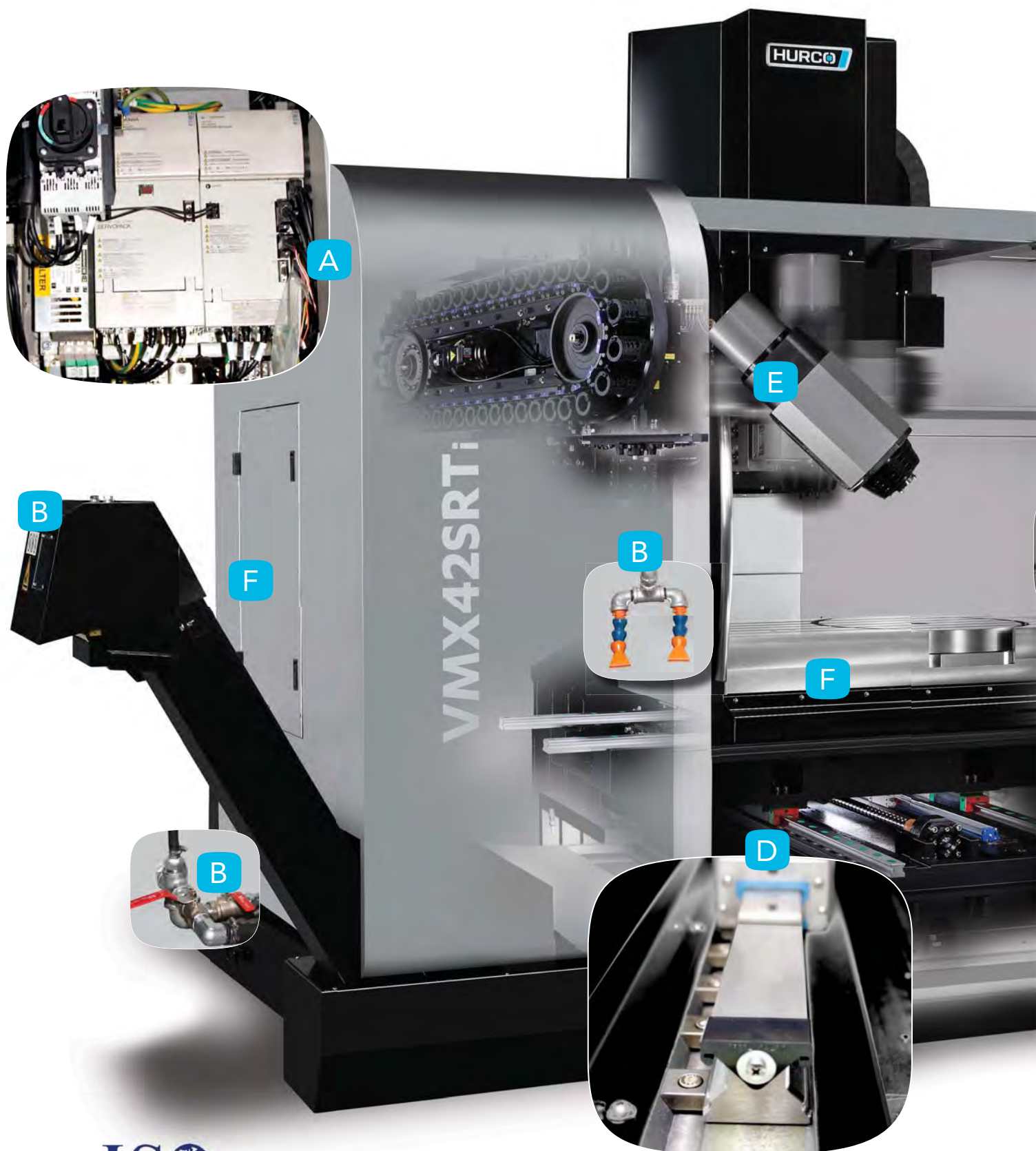
### UltiMonitor™

UltiMonitor™ combines powerful networking with remote monitoring capabilities. You can monitor your Hurco equipment from your web browser via control views and live video (camera included).
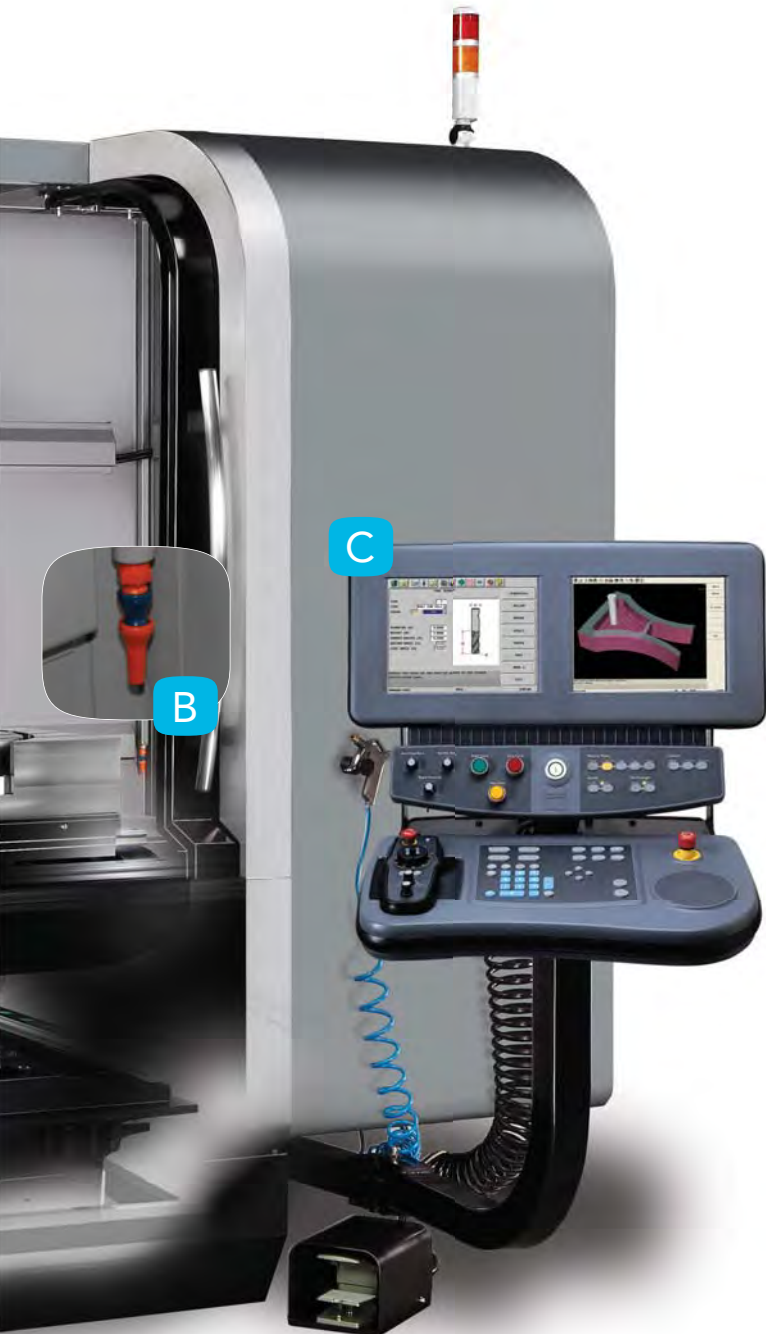
*See the True Interrupt Cycle feature in action!*

# 5-Axis Machining Centers



HURCO

A

B

F

VMX42SRTi

E

B

F

B

D

ISO
9001:2008
REGISTERED

**A** High accuracy components from partners who are experts in their field—such as Yaskawa drives, servos, and motors.

**B** Comprehensive washdown and chip management system, which includes coolant ring with adjustable nozzles, a dedicated pump system, and adjustable washdown nozzles that are strategically placed for optimum effectiveness.

**C** Advanced control with multiple 5-axis features that reduce programming/setup time, and improve surface finish. New WinMax®9 features increase productivity.

**D** Rigid, reliable iron due to rigorous manufacturing standards—such as hand-scraped frame mounting points and wedge clamped linear rails with double reinforcement as load requires.

**E** Reliable spindles with the right balance of power and speed for your application.

**F** Efficient design with ergonomic details, such as extra large, hinged side doors; extra big front door opening; and tables that move all the way forward.

## SMARTPOWER

During the last decade, we have increased the energy efficiency of our machine tools.

- » SMART CONTROL POWER SUPPLY (40% MORE EFFICIENT)
- » SMART POWER CONTACTS (34.5% MORE EFFICIENT)
- » SMART 2.0kW SERVO SIZE (33% MORE EFFICIENT)
- » SMART COIL DEVICES (30% MORE EFFICIENT)
- » SMART SPINDLE DECELERATION (20% MORE EFFICIENT)
- » SMART TRANSFORMER (18.8% MORE EFFICIENT)
- » SMART BTU GENERATION (18% MORE EFFICIENT)
- » SMART SIGMA SERVOS (11.8% MORE EFFICIENT)
- » SMART LED LIGHTING

# *5-axis vertical / swivel head*
## VMX42SRTi

±90°

> » **Premium Components + Meticulous Manufacturing = A Rigid and Reliable Machine Built to Last.**
>
> **Oversized linear rails, high resolution encoders, an integral spindle**, and **pre-tensioned double-nut ball screws** are just a few of the premium components resident in the Hurco SR 5-axis mills. The frame mounting points are scraped by hand and we **wedge clamp** the linear rails for increased rigidity.

## Go from print to part faster with Hurco 5-axis SR mills.

Machine design provides excellent versatility. C-axis table has unlimited angular movement. Stout table handles heavy loads.

## Benefits of 5-Axis SR by Hurco

> **Unlimited angular movement** of C-axis table reduces cycle time. Competitive machines are often limited to +/- 360 degrees, which requires the table to unwind multiple times during the cycle.

> **Stout table** accommodates increased table load for heavier parts. Many competitive machines drop off at 750-800 pounds.

> **Versatility. Extra large table** supports secondary operations or 3-axis work.

> **Flush rotary table (SRT only) is embedded,** which supports taller parts due to more than 3.5 additional inches of clearance in Z.

> **Improved chip control** with ability to run the machine horizontally.

> **Maximum tool access** for swept surfaces and complex contours due to the configuration of the 5-axis SR machining centers.

> **Larger linear rails** mounted to a machined shoulder for increased rigidity.

> **Integral spindle** equipped with ceramic bearings.

> **LED lighting** shines brighter and saves energy.

> **Yaskawa Sigma 5 drives.**

*See the Hurco 5-axis SR machining centers in action!*

Additional machining centers in this series:

VMX42SWi, VMX60SWi, VMX42SRi and VMX60SRi

## *5-axis vertical / trunnion*
## VMX42Ui



**»** **Built tough to handle the rigors of 5-axis machining.**
**Premium components**, such as **oversized linear rails, high accuracy encoders**, and **Yaskawa Sigma 5 drives, servos, and motors** result in a rigid and reliable 5-axis mill you can count on for the most complex applications. We intentionally took the time to use an **integrated trunnion table design** instead of simply adding a trunnion table to a 3-axis machine, which means our 5-axis machines give you **more clearance in Z**.

## Go from print to part faster with U-Series 5-Axis.

Expert design with integrated trunnion table. More Z-axis. More torque. Seamless integration. Better undercut. Premium components.

### Benefits of Trunnion U-Series 5-Axis by Hurco

› **More clearance in Z.** While many competitive models simply add a trunnion table to a 3-axis machining center to simulate a 5-axis machine, we made sure our trunnion style 5-axis machines were designed from the ground up to maximize work volume and the Z-axis.

› **Seamless integration** of pneumatic and/or hydraulic fixtures is another benefit of our rigorous design standards. We purposely designed these machines so you can easily feed the cables for these types of fixtures through the shoulder.

› **More torque at low RPM.**

› **Better undercut.** The trunnion style 5-axis machine rotates +110 degrees compared to the swivel head type of 5-axis machine that rotates +90 degrees.

› **High resolution encoders** for increased precision.

› **Yaskawa Sigma 5 drives, servos, and motors** promote performance and reliability.

› **Larger linear rails** are wedge clamped and mounted to a machined shoulder for increased rigidity.

› **Pre-loaded and stretched ball screws** with additional anchor to the Z-axis.

› **LED lighting** shines brighter and saves energy.

*See the Hurco 5-Axis U-Series machining centers in action!*

*This product is subject to the export control laws of the United States and/or other countries. Hurco complies fully with the export control laws and regulations of the United States and the jurisdictions in which it does business. In its standard configuration, this product includes control software capable of machining in three axes plus positioning in two separate axes ("three plus two") and/or multi-sided five-axis machining. This product is capable of simultaneous contouring in five axes only with the addition of supplemental software subject to separate approval.

Additional machining centers in this series:
VM10Ui, VM10UHSi, VMX30Ui, VMX60Ui and VTXUi

# *Accessories*

## » Instant productivity.

**Coolant Through the Spindle (CTS)**  Hurco's CTS has two times the flow rate (measured in gallons per minute) than the competition. If you're doing deep hole drilling, CTS will pay for itself quickly with increased productivity and extended tool life. CTS is also recommended for pocket milling because you can cut faster and your tools last longer. Additionally, CTS provides cooling to fight heat dissipation, which helps to preserve accuracy. Hurco offers 300 and 1,000 psi CTS options.

**Thermal Stabilization Package**  Our spindle oil chiller is thermo-statically controlled to ward against spindle head growth. It is the most efficient way to preserve spindle life and preserve accuracy.

**Part Probing**  Hurco offers a Conversational Part Probing package with fully-featured conversational data blocks that allow you to execute hands-free part and inspection probing, and full support of Renishaw® part probing.

**Tool Probing**  Hurco has two compact, yet robust, tool setting probe packages for accurate measurement of tool length and diameter in a free spindle state or in rotation. The basic package uses a stylus touch application and the non-contact package uses a laser beam non-contact application. Full support of Renishaw® tool probing.

# » Rotary tables to expand your capabilities.

## Rotary/Tilt Tables

| Model | Table Dia | ThruHole Dia | Table Height | Center Height | Accuracy | | Repeatability | Clamping Force | | Max Load | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Rot | Tilt | Rot | Rot | Tilt | Horz | Vert |
| HT 100 | 110 mm | 30 mm | 207 mm | 150 mm | 30 sec | 60 sec | ±2 sec | 235 Nm | 235 Nm | 35 Kg | 20 Kg |
| HT 200 | 200 mm | 30 mm | 270 mm | 210 mm | 25 sec | 50 sec | ±2 sec | 490 Nm | 833 Nm | 100 Kg | 50 Kg |
| HT 250 | 250 mm | 70 mm | 300 mm | 225 mm | 15 sec | 60 sec | ±2 sec | 588 Nm | 1,176 Nm | 100 Kg | 60 Kg |
| HT 320 | 320 mm | 110 mm | 350 mm | 255 mm | 15 sec | 30 sec | ±2 sec | 1,392 Nm | 1,392 Nm | 200 Kg | 100 Kg |

## Rotary Tables

| Model | Table Dia | ThruHole Dia | Table Height | Center Height | Accuracy | Repeatability | Clamping Force | Max Load | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Horz | Vert |
| H 160 | 165 mm | 39.8 mm | 185 mm | 140 mm | 25 sec | ±2 sec | 245 Nm | 160 Kg | 80 Kg |
| H 200 | 200 mm | 39.8 mm | 185 mm | 140 mm | 25 sec | ±2 sec | 245 Nm | 160 Kg | 80 Kg |
| H 250 | 250 mm | 70 mm | 220 mm | 180 mm | 25 sec | ±2 sec | 441 Nm | 300 Kg | 125 Kg |
| H 320 | 320 mm | 70 mm | 220 mm | 210 mm | 25 sec | ±2 sec | 441 Nm | 300 Kg | 125 Kg |
| H 400 | 400 mm | 150 mm | 250 mm | 250 mm | 15 sec | ±4 sec | 902 Nm | 500 Kg | 300 Kg |
| H 500 | 500 mm | 180 mm | 290 mm | 310 mm | 15 sec | ±4 sec | 1,225 Nm | 350 Kg | 600 Kg |
| H 630 | 630 mm | 254 mm | 320 mm | 400 mm | 15 sec | ±4 sec | 3,432 Nm | 400 Kg | 800 Kg |

## Rotary Accessories

Power Tail Supports

Tail Stocks

3-Jaw Scroll Chucks

# *Control Specifications*

| Model | Dual | Single |
|---|---|---|
| Display | › Dual monitors<br>› Dedicated program and graphics screens<br>› 12-inch color LCD<br>› Touch screen<br>› Adjustable tilt and brightness | › Single monitor<br>› Toggle between program and graphics screens<br>› 12-inch color LCD<br>› Touch screen |
| Storage | 64 GB Solid State Drive | |
| RAM Memory | 2 GB | |
| Chip | 2GHz Dual Core Intel® Processor | |
| Input / Output | › USB 2.0 port on the control console<br>› Two USB 2.0 ports on the electrical cabinet<br>› Ethernet LAN port | |
| Processing Speed | › Dynamic variable look ahead capable of over 10,000 blocks (with UltiMotion™)<br>› 600 block look ahead<br>› Up to 2,277 bps processing | |
| Software | WinMax®9 | |
| Buttons  A | › Control power  › Spindle RPM override  › Coolant select  › Test run mode<br>› Emergency stop  › Rapid override  › Auto / manual  › Store position<br>› Start / stop cycle  › Spindle on / off    machine mode<br>› Feed hold  › Tool change  › Single cycle mode<br>› Feed rate override    (auto/manual)  › Auto interrupt cycle | |
| Remote Jog  B | Included | Optional |
| Keyboard  C | › Easy to use<br>› Ergonomically angled<br>› Designed for industrial environment | |
| Serviceability | › Field replaceable module<br>› Configuration auto-backup to flash drive for easy recovery<br>› Remote diagnostics | |
| Input Peripherals | › Stylus pen for precise touch-screen input<br>› Full computer keyboard | |
| Part Print Holder | › Top-mounted part print holder<br>› Side-mounted notebook holder | Not Available |

## » Modular Design Minimizes Downtime.

The one-piece control module can be quickly and easily swapped out in the field.

A

B

C

## WinMax® Software/Features

**New (WinMax®9)**
- Customizable Digital Readout Overlay
- DXF Scaling
- Fast Draw Graphics Engine
- Font Magnification
- Mill Frame with Enhanced Corner Geometry
- Multiple Options to Store Tool Probing Results
- Roughing Stock Allowance
- Stick Lettering
- Tool Life Management
- True Type Fonts along a Contour
- WinMax Desktop Complete
- Z Offset Shift

**5-Sided/5-Axis**
- 3-D Tool Compensation
- Automatic Safe Repositioning
- Rotary Axes Centerline Probing
- Simultaneous 5-Axis
- Tool Center Point Management
- Transform Plane
- Tool Path Linearization

- Tool Vector Canned Cycles
- Tool Vector Input
- Tool Vector Retract M140
- Universal Rotary

**Programming**
- 4th Axis Rotary Wrap
- 99 Work Offsets (G-Code)
- 200 Tool Offsets
- AutoCalc
- Canned Cycle Blocks
- Canned Hole Cycles
- Concurrent Programming
- Context Sensitive Help
- DXF Transfer
- Frame Mill
- Helical Interpolation
- ISO/EIA NC Support
- Inch-Metric Toggle
- Indexer Routine
- Industry Standard NC (ISNC)
- Leadscrew Compensation
- Lines & Arcs
- Linear Repeat
- Mirror Image

- NC/Conversational Merge
- NC Editor
- NC Probing Cycles
- NC Productivity Package (NCPP)
- Pattern (Scaling, Rotation, Translation)
- Peck Mill
- Program Manager Function
- Program Parameters
- Program Review with Cut/Copy/Paste
- Programmable Safety Zones
- Rectangular Repeat
- Rigid Tap
- SelectSurface Finish Quality (SFQ)
- Serial Number (Letter & Part Serialization)
- Slots
- Speed and Feed Edit while Running
- Swept Surface with 3D Mold
- Thread Milling
- Tool & Material Library
- Tool Change Optimization
- True Type Lettering Package
- UltiPocket with Helical Ramp Entry

- Unlimited Work Offsets (Conversational)

**Verification**
- Automatic Error Check
- Advanced Verification Graphics with 3D Solid Rendering
- Graphics Display (Tool Path, Solids, Projection in 3 Planes, Isometric)
- Graphics Error Verification
- Graphics Scaling
- Graphics Zoom
- Real Time Tool Simulation

**Operational**
- Auto Interrupt Cycle
- Automatic Tool Home
- Backlash Compensation
- Control and Machine Diagnostics
- Coolant Select (Dual)
- Displayed Spindle Load Monitor
- Distance To Go
- Estimated Run Time
- Feed Hold Button
- Feed-Rate Override
- UltiMonitor™

# Machine Specifications
## Swivel Head

| | | VMX42SRTi | VMX42SRi | VMX60SRi | VMX42SWi | VMX60SWi |
|---|---|---|---|---|---|---|
| **Travel** | **X Travel** | 42 in<br>1,067 mm | 42 in<br>1,067 mm | 60 in<br>1,524 mm | 42 in<br>1,067 mm | 60 in<br>1,524 mm |
| | **Y Travel** | 24 in<br>610 mm | 24 in<br>610 mm | 26 in<br>660 mm | 24 in<br>610 mm | 26 in<br>660 mm |
| | **Z Travel** | 24 in<br>610 mm | 24 in<br>610 mm | 24 in<br>610 mm | 24 in<br>610 mm | 24 in<br>610 mm |
| | **B, C Travel** | ± 90°, 360° | ± 90°, 360° | ± 90°, 360° | ± 90° | ± 90° |
| | **Spindle Nose to Table** | 6 in<br>152 mm | 6 in<br>152 mm | 4 in<br>102 mm | 6 in<br>152 mm | 4 in<br>102 mm |
| **Capacity** | **Table Size** | 50 x 24 in<br>1,270 x 610 mm | 50 x 24 in<br>1,270 x 610 mm | 66 x 26 in<br>1,676 x 660 mm | 50 x 24 in<br>1,270 x 610 mm | 66 x 26 in<br>1,676 x 660 mm |
| | **C Table Size** | ⌀ 23.6 in<br>⌀ 600 mm | ⌀ 24 in<br>⌀ 610 mm | ⌀ 24in<br>⌀ 610 mm | Optional<br>C or A Table | Optional<br>C or A Table |
| | **Table Load Max.** | 1,100 lbs<br>500 Kg | 1,100 lbs<br>500 Kg | 1,100 lbs<br>500 Kg | 3,000 lbs<br>1,360 Kg | 3,000 lbs<br>1,360 Kg |
| | **T-Slot Size** | 18 mm | 18 mm | 18 mm | 18 mm | 18 mm |
| **Spindle** | **Spindle Speed Max.** | 12,000 rpm | 12,000 rpm | 12,000 rpm | 12,000 rpm | 12,000 rpm |
| | **Spindle Power** | 48 hp<br>36 kW | 48 hp<br>36 kW | 48 hp<br>36 kW | 48 hp<br>36 kW | 48 hp<br>36 kW |
| | **Spindle Torque** | 87 ft-lbs / 118 Nm<br>@2,900 rpm | 87 ft-lbs / 118 Nm<br>@2,900 rpm | 87 ft-lbs / 118 Nm<br>@2,900 rpm | 87 ft-lbs / 118 Nm<br>@2,900 rpm | 87 ft-lbs / 118 Nm<br>@2,900 rpm |
| **ATC** | **Tool Capacity** | 40 | 40 | 40 | 40 | 40 |
| | **Tool Type** | CAT 40 | CAT 40 | CAT 40 | CAT 40 | CAT 40 |
| | **Tool Diameter Max.** | 2.9 in<br>75 mm | 2.9 in<br>75 mm | 2.9 in<br>75 mm | 2.9 in<br>75 mm | 2.9 in<br>75 mm |
| | **Tool Length Max.** | 11.8 in<br>300 mm | 11.8 in<br>300 mm | 11.8 in<br>300 mm | 11.8 in<br>300 mm | 11.8 in<br>300 mm |
| | **Tool Weight Max.** | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg |
| **Feedrate** | **Rapid Traverse per minute** | X= 1,378 in / 35m<br>Y= 1,378 in / 35m<br>Z= 1,181 in / 30 m | X= 1,378 in / 35m<br>Y= 1,378 in / 35m<br>Z= 1,181 in / 30 m | X= 1,181 in / 30 m<br>Y= 1,181 in / 30 m<br>Z= 787 in / 20 m | X= 1,378 in / 35m<br>Y= 1,378 in / 35m<br>Z= 1,181 in / 30 m | X= 1,181 in / 30 m<br>Y= 1,181 in / 30 m<br>Z= 787 in / 20 m |
| | **Rapid B, C Traverse** | 50 rpm,<br>100 rpm | 50 rpm,<br>33.3 rpm | 50 rpm,<br>33.3 rpm | 50 rpm,<br>N/A | 50 rpm,<br>N/A |
| | **Feedrate Max. per minute** | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m |
| **Size** | **Machine Height** | 124.3 in<br>3,156 mm | 124.3 in<br>3,156 mm | 118.2 in<br>3,002 mm | 124.3 in<br>3,156 mm | 118.2 in<br>3,002 mm |
| | **Required Floor Space** | 202.4 x 157.4 in<br>5,141 x 3,998 mm | 202.4 x 157.4 in<br>5,141 x 3,998 mm | 224.3 x 182 in<br>5,696 x 4,623 mm | 181 x 157.4 in<br>4,598 x 3,998 mm | 224.3 x 182 in<br>5,696 x 4,623 mm |
| | **Machine Weight** | 16,640 lbs<br>7,548 Kg | 16,640 lbs<br>7,548 Kg | 20,000 lbs<br>9,071 Kg | 15,686 lbs<br>7,130 Kg | 19,075 lbs<br>8,652 Kg |

Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.
Information may change without notice.
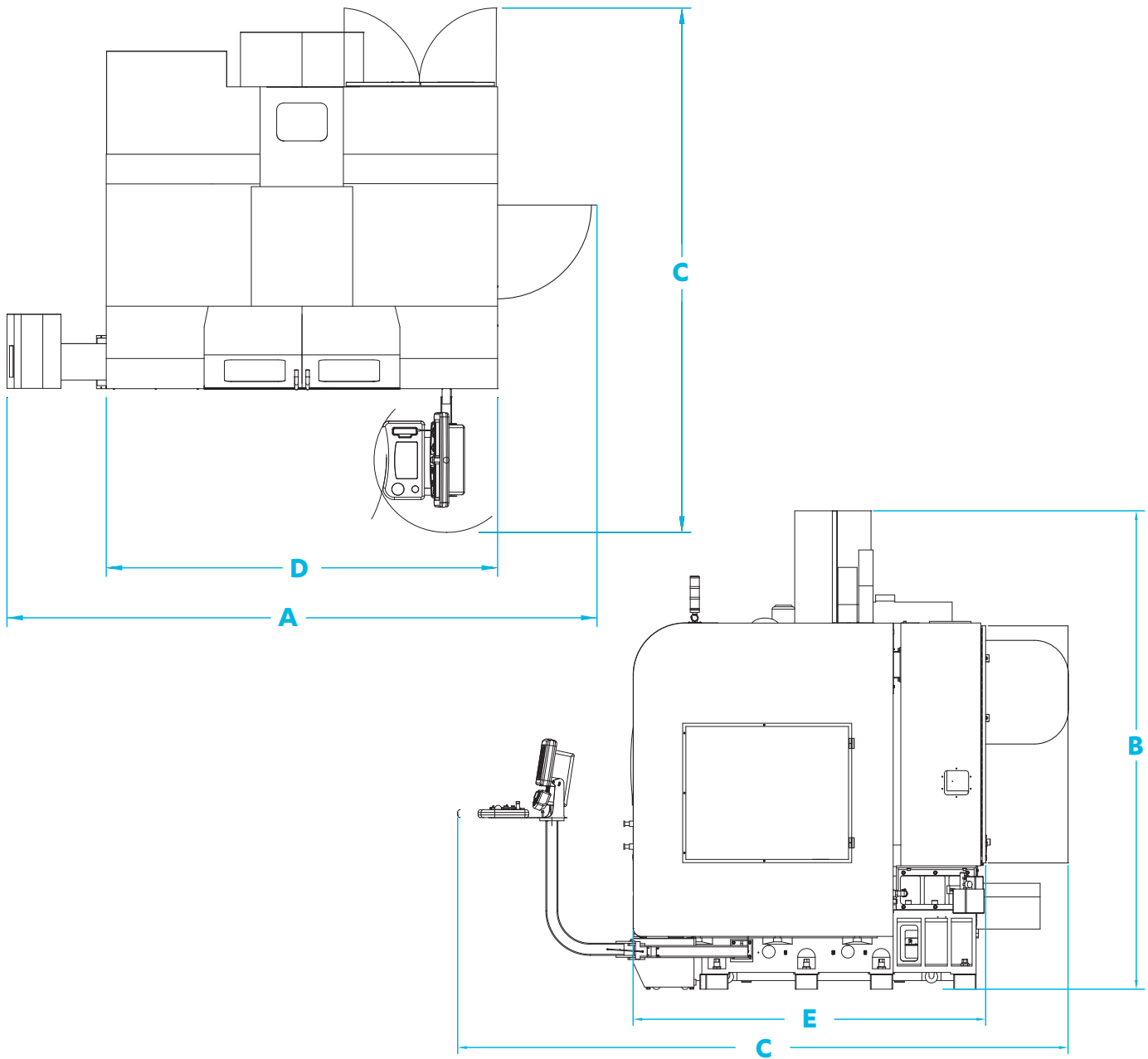
| | | VMX42SRTi | VMX42SRi | VMX60SRi | VMX42SWi | VMX60SWi |
|---|---|---|---|---|---|---|
| **Max.** | **A** | 202.4 in<br>5,141 mm | 202.4 in<br>5,141 mm | 224.3 in<br>5,696 mm | 181 in<br>4,598 mm | 224.3 in<br>5,696 mm |
| | **B** | 124.3 in<br>3,156 mm | 124.3 in<br>3,156 mm | 118.2 in<br>3,002 mm | 124.3 in<br>3,156 mm | 118.2 in<br>3,002 mm |
| | **C** | 157.4 in<br>3,998 mm | 157.4 in<br>3,998 mm | 182 in<br>4,623 mm | 157.4 in<br>3,998 mm | 182 in<br>4,623 mm |
| **Min.** | **D** | 124.8 in<br>3,169 mm | 124.8 in<br>3,169 mm | 150 in<br>3,804 mm | 110.3 in<br>2,800 mm | 150 in<br>3,804 mm |
| | **B** | 95.3 in<br>2,420 mm | 95.3 in<br>2,420 mm | 96.5 in<br>2,450 mm | 95.3 in<br>2,420 mm | 96.5 in<br>2,450 mm |
| | **E** | 87.1 in<br>2,213 mm | 87.1 in<br>2,213 mm | 87.5 in<br>2,221 mm | 87.1 in<br>2,213 mm | 87.5 in<br>2,221 mm |

# Machine Specifications
## Trunnion Table

| | | VM10U<sub>i</sub> | VM10UHS<sub>i</sub> | VMX30U<sub>i</sub> | VMX42U<sub>i</sub> | VMX60U<sub>i</sub> | VTXU<sub>i</sub> |
|---|---|---|---|---|---|---|---|
| Travel | X Travel | 21 in<br>533 mm | 21 in<br>533 mm | 30 in<br>762 mm | 42 in<br>1,067 mm | 60 in<br>1,524 mm | 31.5 in<br>800 mm |
| | Y Travel | 16 in<br>406 mm | 16 in<br>406 mm | 20 in<br>510 mm | 24 in<br>610 mm | 26 in<br>660 mm | 27.5 in<br>700 mm |
| | Z Travel | 19 in<br>483 mm | 19 in<br>483 mm | 20.5 in<br>520 mm | 20.5 in<br>520 mm | 20.5 in<br>520 mm | 20 in<br>510 mm |
| | A, C Travel | -30° / +110°, 360° | -30° / +110°, 360° | -30° / +110°, 360° | -30° / +110°, 360° | -30° / +110°, 360° | -30° / +110°, 360° |
| | Spindle Nose to Table | 1.4 in<br>35 mm | 1.4 in<br>35 mm | 3.5 in<br>90 mm | 3.5 in<br>90 mm | 3.5 in<br>90 mm | 5.9 in<br>150 mm |
| Capacity | Table Size | ⌀ 7.8 in<br>⌀ 198 mm | ⌀ 7.8 in<br>⌀ 198 mm | ⌀ 9.8 in<br>⌀ 248 mm | ⌀ 13.7 in<br>⌀ 348 mm | ⌀ 19.7 in<br>⌀ 500 mm | ⌀ 24 / ☐ 20.9 in<br>⌀ 610 / ☐ 530 mm |
| | Table Load Max. | 330 lbs<br>150 Kg | 330 lbs<br>150 Kg | 440 lbs<br>200 Kg | 550 lbs<br>250 Kg | 880 lbs<br>400 Kg | 880 lbs<br>400 Kg |
| | T-Slot Size | 10 mm | 10 mm | 12 mm | 12 mm | 18 mm | 18 mm |
| Spindle | Spindle Speed Max. | 10,000 rpm | 20,000 rpm | 12,000 rpm | 12,000 rpm | 12,000 rpm | 12,000 rpm |
| | Spindle Power | 12 hp<br>8.9 kW | 10 hp<br>7.5 kW | 18 hp<br>13.4 kW | 24 hp<br>18 kW | 24 hp<br>18 kW | 24 hp<br>18 kW |
| | Spindle Torque | 42 ft-lbs / 57 Nm @1,500 rpm | 2.2 ft-lbs / 3.0 Nm @ 20,000 rpm | 158 ft-lbs / 214 Nm @ 600 rpm | 175 ft-lbs / 237 Nm @ 720 rpm | 175 ft-lbs / 237 Nm @ 720 rpm | 175 ft-lbs / 237 Nm @ 720 rpm |
| ATC | Tool Capacity | 20 | 20 | 40 | 40 | 40 | 48 |
| | Tool Type | CAT 40 | BT 30 | CAT 40 | CAT 40 | CAT 40 | CAT 40 |
| | Tool Diameter Max. | 3.5 in<br>89 mm | 2.4 in<br>100 mm | 3.2 in<br>80 mm | 2.95 in<br>80 mm | 2.95 in<br>80 mm | 2.95 in<br>80 mm |
| | Tool Length Max. | 9.8 in<br>250 mm | 9.8 in<br>250 mm | 11.8 in<br>300 mm | 11.8 in<br>300 mm | 11.8 in<br>300 mm | 11 in<br>280 mm |
| | Tool Weight Max. | 15.5 lbs<br>7 Kg | 11 lbs<br>5 Kg | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg | 15 lbs<br>6.8 Kg | 15.4 lbs<br>7 Kg |
| Feedrate | Rapid Traverse per minute | X= 945 in / 24 m<br>Y= 945 in / 24 m<br>Z= 945 in / 24 m | X= 945 in / 24 m<br>Y= 945 in / 24 m<br>Z= 945 in / 24 m | X= 1,378 in / 35 m<br>Y= 1,378 in / 35 m<br>Z= 1,181 in / 30 m | X= 1,378 in / 35 m<br>Y= 1,378 in / 35 m<br>Z= 1,181 in / 30 m | X= 1,181 in / 30 m<br>X= 1,181 in / 30 m<br>Z= 787 in / 20 m | X= 1,378 in / 35 m<br>Y= 1,378 in / 35 m<br>Z= 1,378 in / 35 m |
| | Rapid A, C Traverse | 25 rpm | 25 rpm | 25 rpm | 25 rpm | 25 rpm | 25 rpm |
| | Feedrate Max. per minute | 600 in<br>15.2 m | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m | 900 in<br>22.9 m |
| Size | Machine Height | 105.7 in<br>2,685 mm | 105.7 in<br>2,685 mm | 112.2 in<br>2,850 mm | 117.8 in<br>2,991 mm | 122.7 in<br>3,116 mm | 128 in<br>3,250 mm |
| | Required Floor Space | 125.9 x 117.4 in<br>3,198 x 2,982 mm | 125.9 x 117.4 in<br>3,198 x 2,982 mm | 155.1 x 156.5 in<br>3,939 x 3,974 mm | 181 x 152.5 in<br>4,598 x 3,876 mm | 224.3 x 182 in<br>5,696 x 4,623 mm | 139.5 x 239.8 in<br>3,545 x 6,090 mm |
| | Machine Weight | 7,392 lbs<br>3,360 Kg | 6,825 lbs<br>3,102 Kg | 11,616 lbs<br>5,280 Kg | 15,840 lbs<br>7,200 Kg | 18,800 lbs<br>8,545 Kg | 27,560 lbs<br>12,525 Kg |

Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.
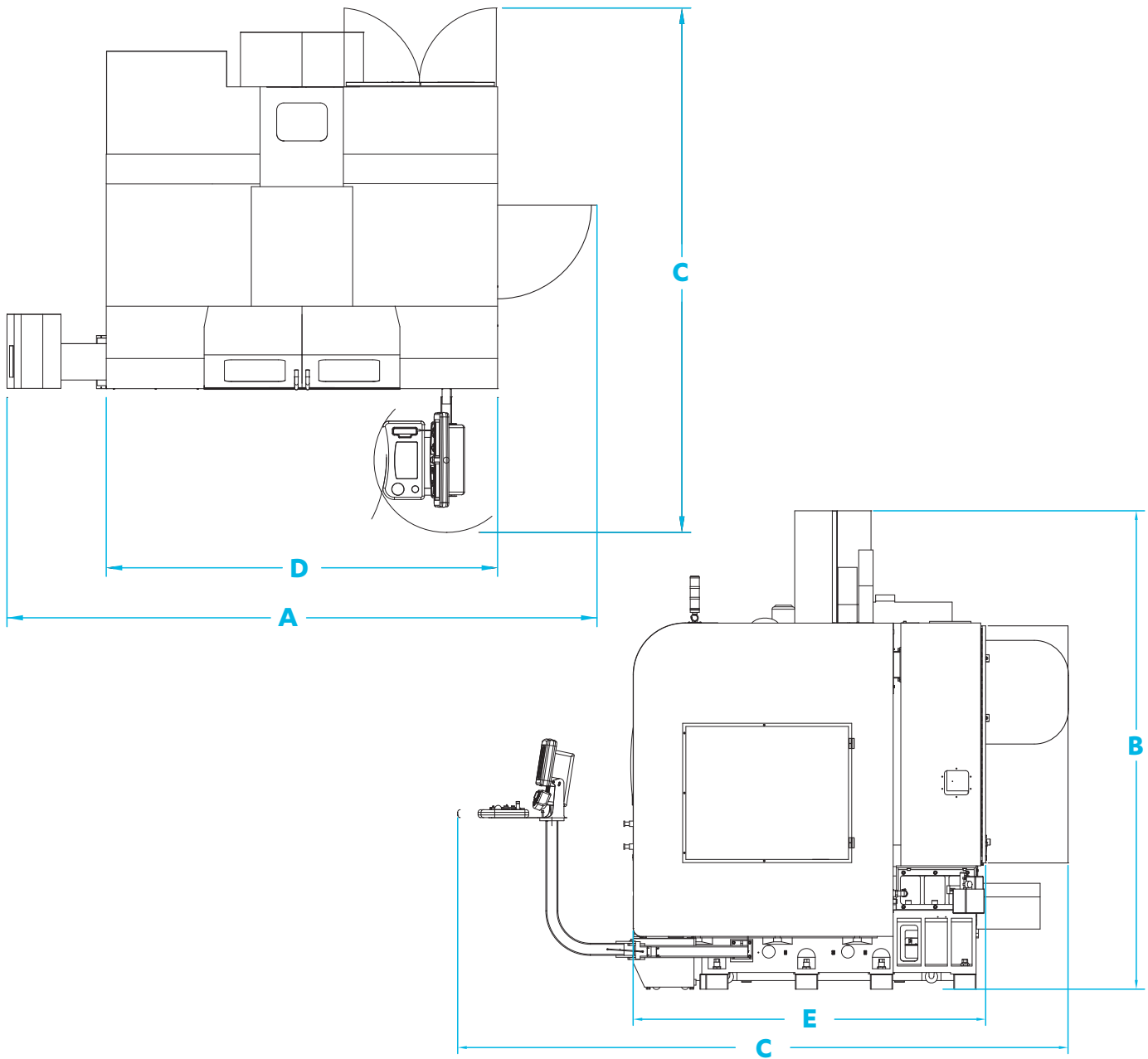Information may change without notice.

| | | VM10Ui | VM10UHSi | VMX30Ui | VMX42Ui | VMX60Ui | VTXUi |
|---|---|---|---|---|---|---|---|
| **Max.** | **A** | 125.9 in | 125.9 in | 155.1 in | 181 in | 224.3 in | 139.5 in |
| | | 3,198 mm | 3,198 mm | 3,939 mm | 4,598 mm | 5,696 mm | 3,545 mm |
| | **B** | 105.7 in | 105.7 in | 112.2 in | 117.8 in | 122.7 in | 128 in |
| | | 2,685 mm | 2,685 mm | 2,850 mm | 2,991 mm | 3,116 mm | 3,250 mm |
| | **C** | 117.4 in | 117.4 in | 156.5 in | 152.5 in | 182 in | 239.8 in |
| | | 2,982 mm | 2,982 mm | 3,974 mm | 3,876 mm | 4,623 mm | 6,090 mm |
| **Min.** | **D** | 71.1 in | 71.1 in | 85.9 in | 110.3 in | 150 in | 107 in |
| | | 1,806 mm | 1,806 mm | 2,180 mm | 2,800 mm | 3,804 mm | 2,705 mm |
| | **B** | 91.9 in | 90.9 in | 98.4 in | 96 in | 109.6 in | 101.6 in |
| | | 2,335 mm | 2,309 mm | 2,500 mm | 2,438 mm | 2,780 mm | 2,580 mm |
| | **E** | 69 in | 67.8 in | 96 in | 87 in | 87.5 in | 156 in |
| | | 1,751 mm | 1,721 mm | 2,439 mm | 2,210 mm | 2,221 mm | 2,970 mm |

HURCO®

mind over metal℠

# HURCO® NORTH AMERICA

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