

TRAK MACHINE
TOOLS

 SOUTHWESTERN INDUSTRIES, INC.



Introducing

TRAK TMCs

Featuring the ProtoTRAK RMX CNC

The Toolroom Machining Center



Toolroom Ops

With the turn of a key, you enter into Toolroom Ops™. Now your TMC works like our popular TRAK DPM, only with an enclosure that keeps chips and coolant contained.

- Manual with DRO, 2 or 3-axis
- TRAKing®
- Optional Electronic Handwheels
- Contain Chips and Coolant

Production Ops

It's a full featured 3-axis machining center when you need to run low volume production. The amazing new ProtoTRAK RMX CNC delivers powerful capability with an easy-to-use interface.

- Low Volume / High Mix Jobs
- Powerful, Intuitive Tool Table
- 16-station Tool Changer
- Door Closed and Interlocked
- Complies with ANSI B11

POWERED BY PROTOTRAK YOU'VE GOT THIS.



The ProtoTRAK RMX CNC gives you powerful capability not found anywhere else. You'll be amazed at how easy a capable CNC can be.



This uncluttered control panel features a keyed switch to help you assure that only qualified machinists can run the machine in Toolroom Ops.

TRAKing®

We simply cannot say enough about this awesome feature.

You've written the program. Looked at the toolpath. Everything looks good, so you turn on the spindle and start to run. BUT...you have TRAKing. So before you press the GO button you press TRAKing and grab the handwheels. As you crank, the ProtoTRAK runs the program X, Y and Z. You control the speed, you control the direction the program runs, you can stop the spindle to move a clamp or brush off chips.

You're in control, not the CNC...that's **TRAKing**



Tool Table

INFO	ATC POS 1	TOOL # 4	DIA 0.7500	Face Mill	BASE	SET	PROGRAM TOOLS	ATC TOOLS	TOOL LIBRARY
TOOL TABLE									
LIB #	TOOL #	ATC LOC #	TOOL TYPE	MATERIAL	# FLUTES	DIAMETER	Z OFFSET	DIA MOD	Z MOD
1			Drill	HSS	2	0.7500	0.0000	0.0000	0.0000
2			Rough End Mill	HSS	2	0.7500	0.0000	0.0000	0.0000
3			Finish End Mill	HSS	2	0.7500	0.0000	0.0000	0.0000
4			Face Mill	HSS	2	0.7500	0.0000	0.0000	0.0000
ATC TOOLS									
1			Drill	HSS	2	3.0000	-0.1000	0.0000	0.0000
4			Face Mill	HSS	2	0.7500	0.0000	0.0000	0.0000
8			Finish End Mill	HSS	2	0.7500	0.0000	1.2000	0.0000
11			Face Mill	HSS	2	0.7500	-0.1000	0.0000	0.0000
TOOL LIBRARY									
104			Boring Bar	INSE RT	3	1.0000	0.0000	0.0000	0.0000
			Center Drill	HSS	2	0.7500	0.0000	0.0000	0.0000
101			Drill	HSS	3	1.2500	-0.1000	0.5000	0.5000

Convenient

- Set up tools at the same time you program by one tap of the Tool Table info key.
- Retain tool set ups in the Tool Library.
- Changes made to a tool automatically synced to all instances of that tool.
- Jog to position tools without leaving the tool table.

Certain

- Program Tools always clearly demarcated to eliminate confusion.
- Separate tables for Program, Library and ATC.
- Highlights confirm all instances of a tool in each table.

Easy

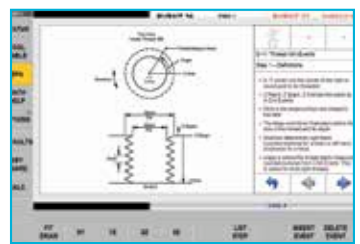
- Clear descriptions of tables and tool attributes.
- Simple touch off and entry of offsets.
- Videos and EPA instructions to guide you.



Touchscreen for an extraordinary user experience that keeps you working fast



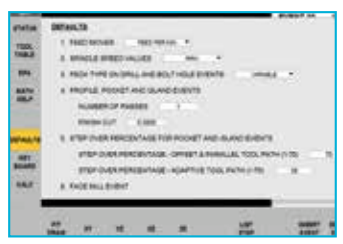
Powerful Features for manual milling in Toolroom Ops



Enhanced ProtoTRAK Assistance – instructions at your fingertips



Powerful solid model graphics for Verify and Parasolid converters



Defaults teach the ProtoTRAK RMX your machining style



Auto Geometry Engine® software to fill missing data for you as you program



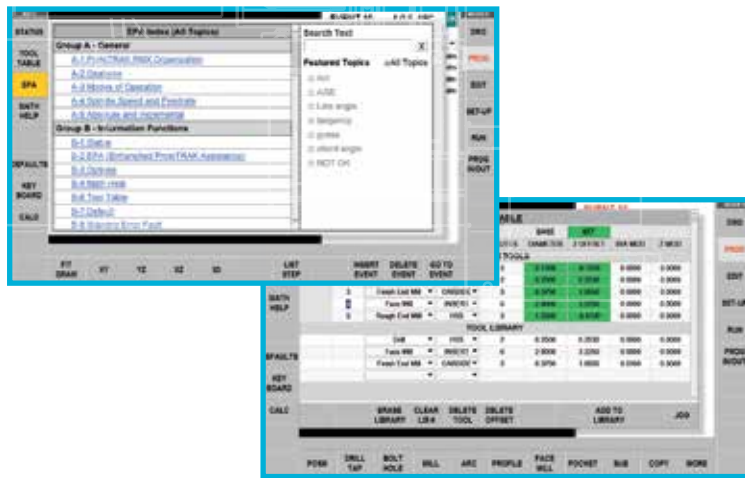
Easy, prompted programming events with graphics that update while you program

MORE TECHNOLOGY, STILL A PROTOTRAK

Programming

Programming is a simple process of selecting the event and then describing the geometry from print data.

Program complete prints or just write simple programs for single operations.

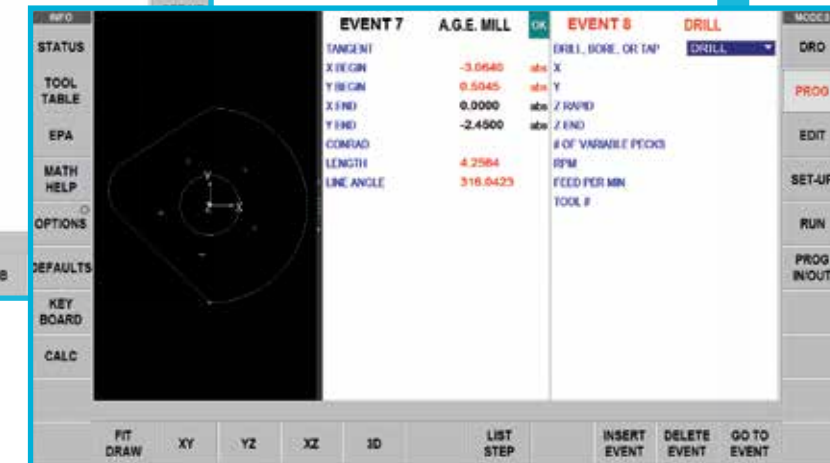


Flyout Windows

Tap an Info Key and a Flyout Window appears. Tap it again and you're back to where you started.



Tap the event you want
...and fill in the prompts



Swipe to Navigate, Tap to Enter

Simple changes to the program have never been easier. Move easily through your program by swiping, the line color in the drawing shows you which event you are viewing.

Defaults

Defaults customize the programming to your style. The prompts will autofill with the choices you make in Defaults, making programming even faster and easier.



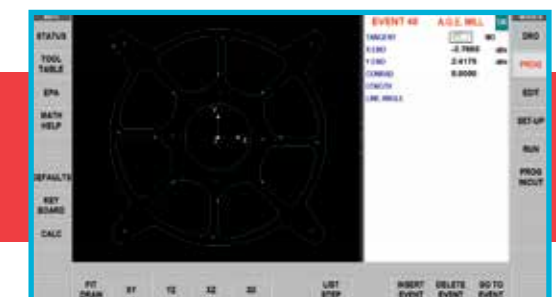
Options

Tap Options while programming the event and you'll have choices for how the geometry is machined.



Canned Cycles

There are over 25 canned cycles that make it easy to program even complex shapes right on the shop floor.



Interact with your part graphics

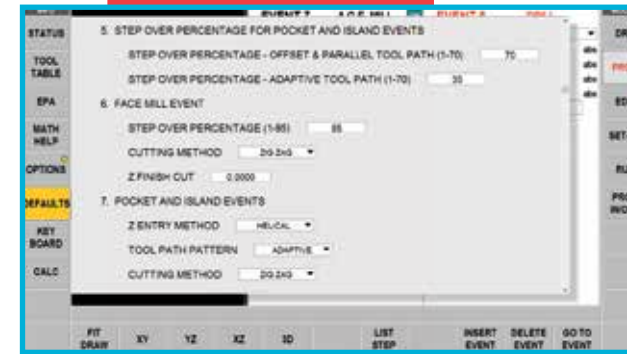
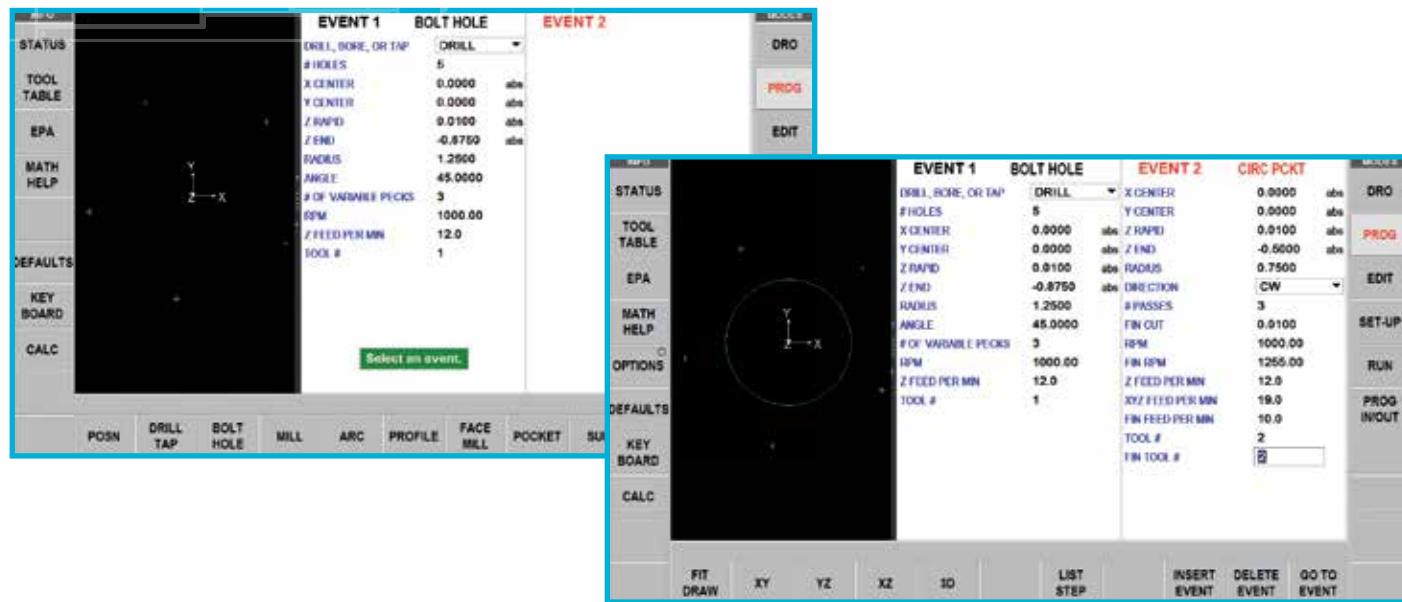
You can zoom, pan or rotate your drawings and 3D models by using the touchscreen.



DYNAMIC GRAPHICS KEEP YOU WORKING FAST

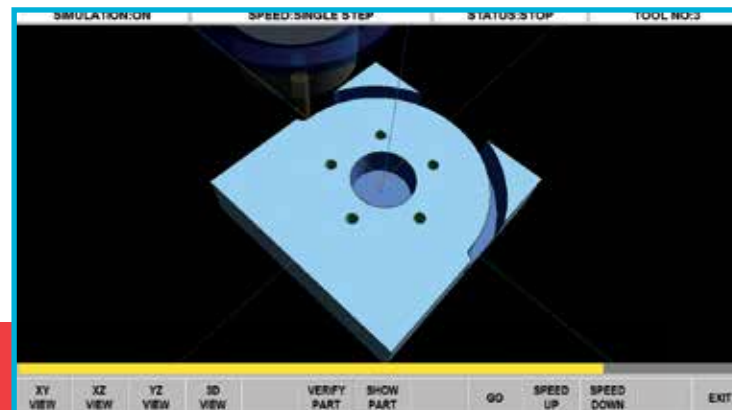
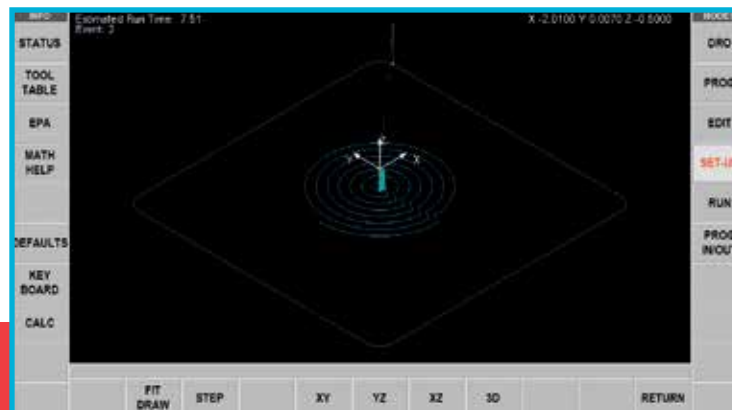
Adaptive Toolpath

Part drawings update in real time as you program.



The Adaptive Tool Path works with the Defaults to:

- Provide state of the art toolpath generation for faster machining
- Keep the load constant on the cutter to extend tool life
- Reduce wear and tear on the machine



Tool Path gives you a clear idea of where the tool will go with X, Y & Z locations given as you step forward and backward through the program.

Verify Part shows you a solid model tool path simulation of what you've programmed

The pocket on the left has a standard tool path. The pocket on the right was machined with **Adaptive tool path**.



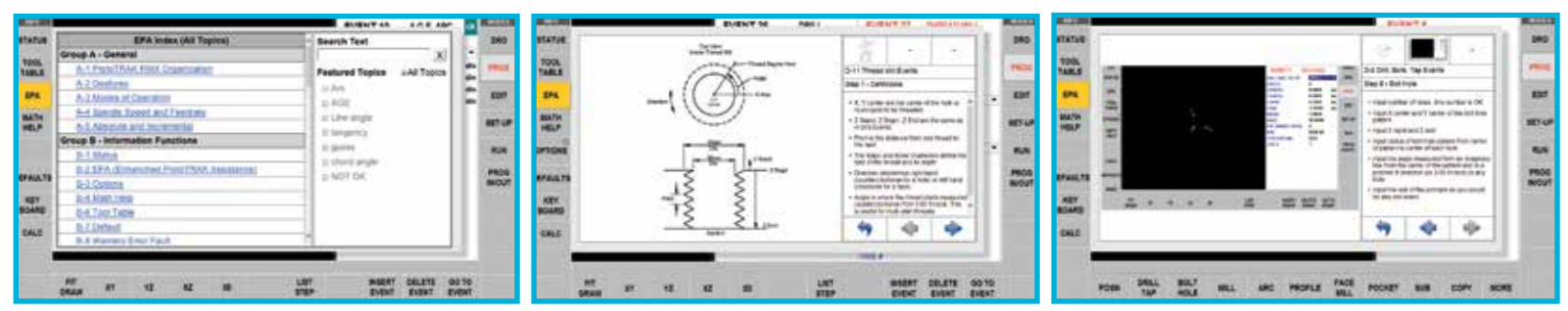
You have to see Adaptive to appreciate it. See our video at www.trakmt.com/TMC Better yet, call for a demo.

ENHANCED PROTOTRAK ASSISTANCE YOU'RE NEVER STUCK!

Defaults

make it personal

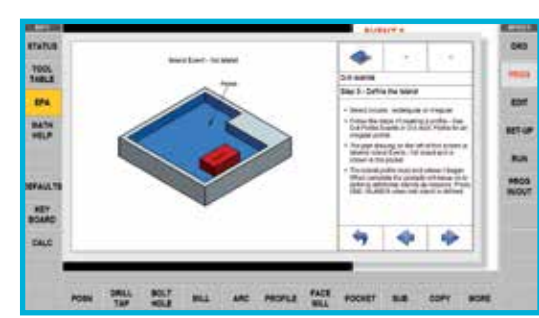
You have a style. The work you do, the material you cut, the tooling you use, they all make up your style. The ProtoTRAK RMX is the world's only CNC that you customize to your style. You do this easily by setting Defaults.



Context-sensitive information that you access by tapping EPA Info screen.

Diagrams will guide you through some of the more complex prompts.

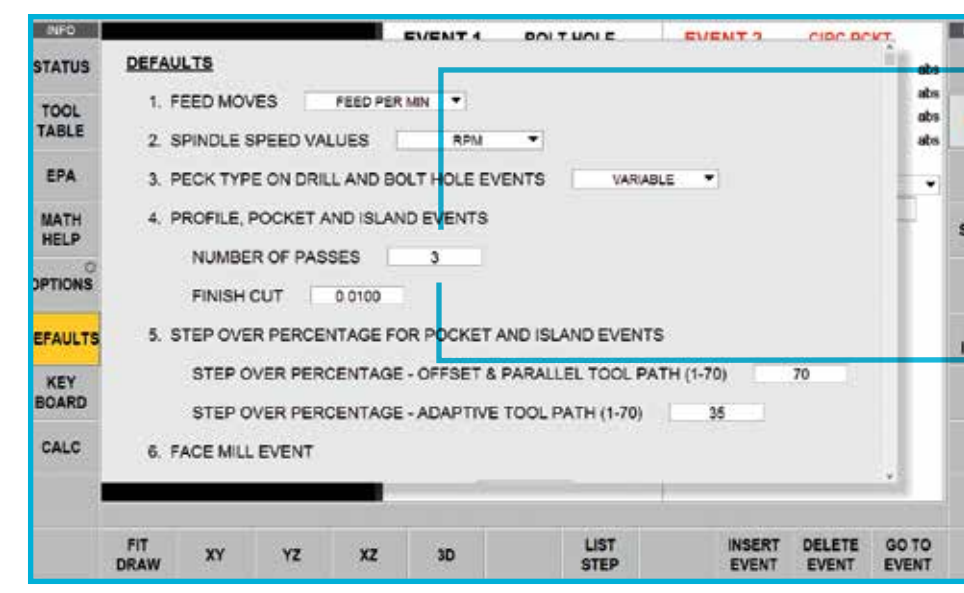
Screen shots mimic your program to help you apply the instructions right away.



Bulleted instructions provide you with a summary of what to do.



Videos supplement the help when nothing else will do.



We set the Number of Passes as a default

EVENT 2	CIRC PKCT	
X CENTER	0.0000	abs
Y CENTER	0.0000	abs
Z RAPID	0.0100	abs
Z END	-0.5000	abs
RADIUS	0.7500	
DIRECTION	CCW	
# PASSES	3	
FIN CUT		
RPM		
FIN RPM		
Z FEED PER MIN		
XYZ FEED PER MIN		
FIN FEED PER MIN		
TOOL #		
FIN TOOL #		

Now when we program, those values are already there.

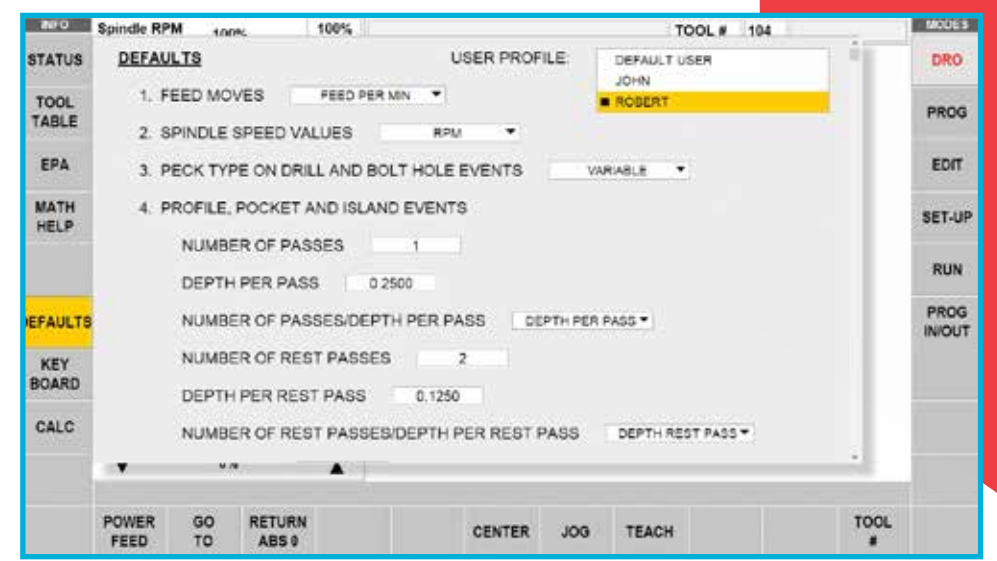
Setting Defaults makes programming even easier by loading in your preferences as you program. Once you select the event, your preferences are already there for you. If you're mentoring someone who is new to the craft, you can set the Defaults to help your student work within the parameters you define.

The EPA is an extraordinary resource that we will continue to refine and expand over time. You will have access to additional EPA content through software updates. The updates to the EPA that help you run the ProtoTRAK will be at no charge. It is a commitment to your satisfaction that you can only find in a ProtoTRAK.

EPA

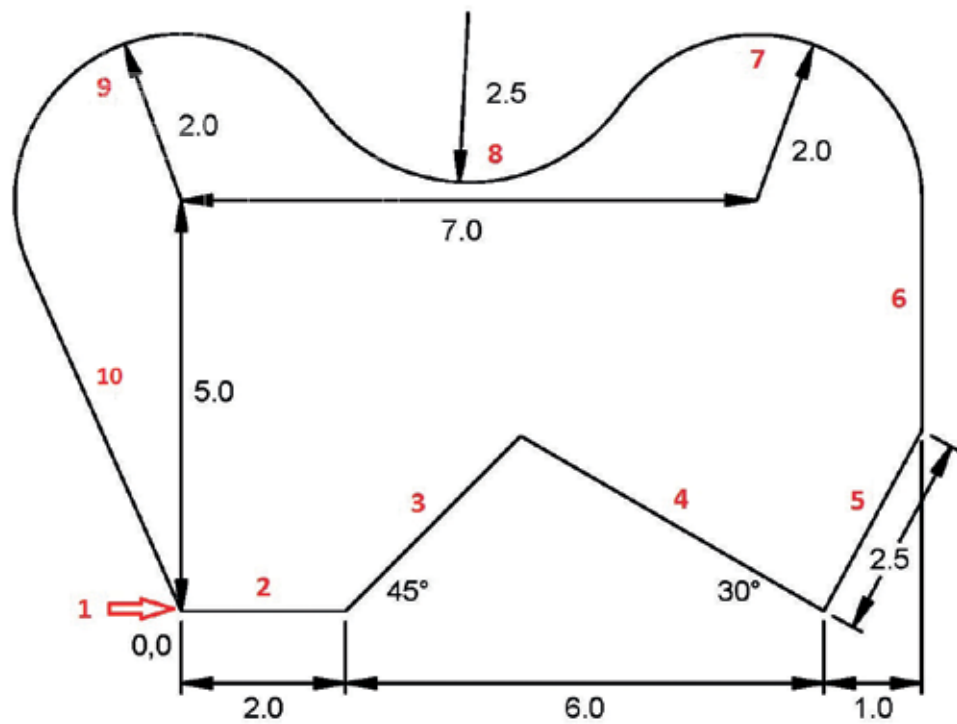
User Profiles

Your shop is a busy place, often with multiple users and different jobs being swapped in and out on the same machine. With profiles each user can set their own defaults or you can setup profiles for different types of cutting and for different materials.



The ProtoTRAK RMX is the only CNC that can teach you how to use itself

AUTO GEOMETRY ENGINE (A.G.E.) CAD POWER WHILE YOU PROGRAM



This print lacks the dimensions for several intersections and even one arc center. . . Yet you can easily program the complete profile using A.G.E.

The Auto Geometry Engine® (A.G.E.) is the answer to missing print data. It is powerful software that automatically fills in missing print dimensions as you program. It is CAD capability embedded into ProtoTRAK RMX programming.

Here is a snapshot of how A.G.E. works

The line is dashed to let us know that is the A.G.E.'s guess for what we want. Solid means it isn't guessing, it knows from what we've given.

The data in red were calculated by the AGE. The data in black were entered by us.

G means we guessed. And the A.G.E. uses guesses to help solve for missing dimensions.

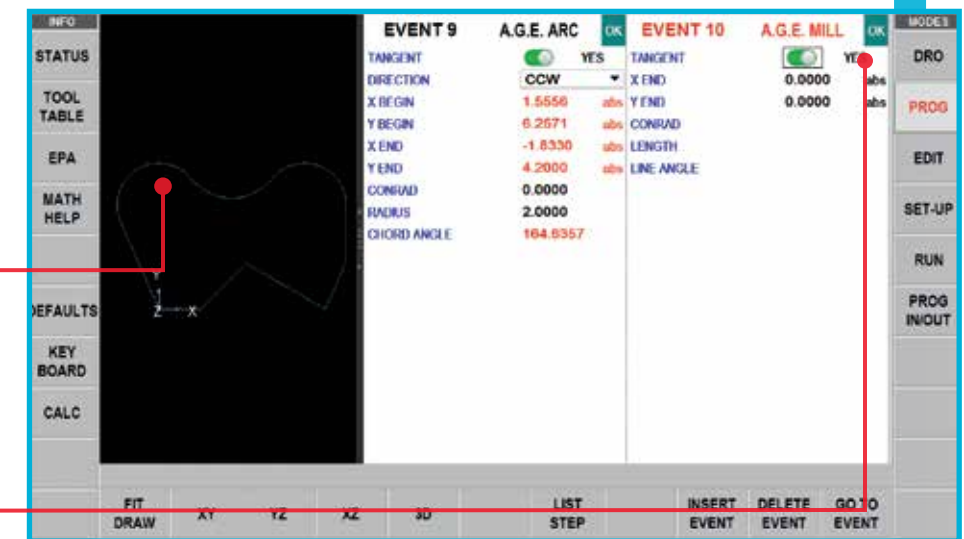
Not OK NOT OK tells us that event 9 isn't yet fully defined. Stay tuned, the A.G.E. will define it with a little more info.



Now, by entering the information for event 10, AGE can complete event 9

Notice that the arc has become solid. Also, the red numbers show that most of the data was calculated for you by the A.G.E.

OK OK means the geometry is complete so we can get ready to run the part. And we didn't have to go back to the CAD guy for missing data.



It really is that good!



And thanks to the new touchscreen, A.G.E. now has **Tap to Guess**

We tapped the screen here and the A.G.E. entered the data from our fingertip as a guess. Yes, really!

The foregoing is just a bit of the programming for the part above. You can see the rest at www.trakmt.com/TMC Better yet, call us for a demo and play with it yourself.



- 27.56 x 15.75" table
- 20 x 16 x 20" of travel
- 40 taper spindle
- 15/10 hp motor
- 84 x 129.25" footprint
- 7,260 lb



- 35.43 x 19.69" table
- 30 x 20 x 20" of travel
- 40 taper spindle
- 15/10 hp motor
- 97 x 135" footprint
- 8,360 lb

TRAK IMC10



- 44.09 x 19.68" table
- 40.75 x 20 x 20" of travel
- 40 taper spindle
- 15/10 hp motor
- 111 x 135" footprint
- 9,900 lb

TRAK IMC12



- 51.18 x 23.62" table
- 50 x 27 x 25" of travel
- 40 taper spindle
- 22.5/15 hp motor
- 133.88 x 144.78" footprint
- 14,300 lb



TRAK TMC Specifications Summary

For full, updated specifications see trakmt.com/TMC

MODEL NAME	TMC5	TMC7	TMC10	TMC12	TMC14
Table Size	27.56 x 15.75"	35.43 x 19.69"	44.09 x 19.69"	51.18 x 23.62"	62.99 x 23.62"
T-Slots (width x pitch)	3 @ .709 x 3.937"		5 @ .709 x 3.937"		
Travel (X, Y, Z) /w soft limits	20 x 16 x 20"	30 x 20 x 20"	40.75 x 20 x 20"	50 x 27 x 25"	60 x 27 x 25"
Spindle Taper	40 Taper				
Spindle Speed Range	50 - 8,000 rpm (12,000 rpm Optional)			50 - 8,000 rpm	
Spindle Nose Diameter	3"			3.75"	
Tool Clamping Force (90 psi)	1,500 lbs			2,200 lbs	
Tool Holder Type	CAT 40 or BT 40				
ATC Tool Capacity	16				
Max Tool Weight w/ Holder	15 lbs				
Max Tool Diameter	3.14"				
Carousel Speed	.8 sec from station to station				
Tool Selection System	Bi-directional / shortest path				
Spindle Motor Power (continuous)	10 HP			15 HP	
Spindle Motor Power (peak)	15 HP			22.5 HP	
Power Requirements	208V / 3P / 69A / 88A* 480V (O) / 3P / 46A*			208V / 3P / 96A / 115A* 480V (O) / 3P / 49A / 58*	
Max Weight of Workpiece	1,000 lbs			2,200 lbs	2,640 lbs
Height - Table to Bottom of Bed	38"			38.37"	
Min Spindle dist. Nose to Table	3.5"			2.25"	
Max Spindle dist. Nose to Table	23.5"			28.75"	
Tool Carousel to Table dist.	18"	17.5"		21.5"	
Spindle Center to Head Face	16.5"	18.25"	18.25"	27.56"	
Min Machine Height	90"			105"	
Max Machine Height	106.5"			111.45"	
Footprint of Machine	85 x 129.25"	97 x 135"	111 x 135"	133.86 x 144.76"	157.48 x 144.76"
Weight - Net / Shipping (lbs)	7,260 / 7,610	8,360 / 8,710	9,900 / 10,250	14,300 / 14,800	16,500 / 17,000
Rapid Traverse (Toolroom / Production)	400 / 1,000 ipm				
Coolant Capacity (gallons)	56			71	
Coolant Pump and Wash Power	750 Watts				
Air Pressure CFM or SCFM	90 psi - 2.5 CFM or 18 SCFM			3.0 CFM, 25 SCFM	
Air Quality	Air dried / water separator upstream of the TMC				
Lubrication Pump	2 liters				
Auger	Standard				

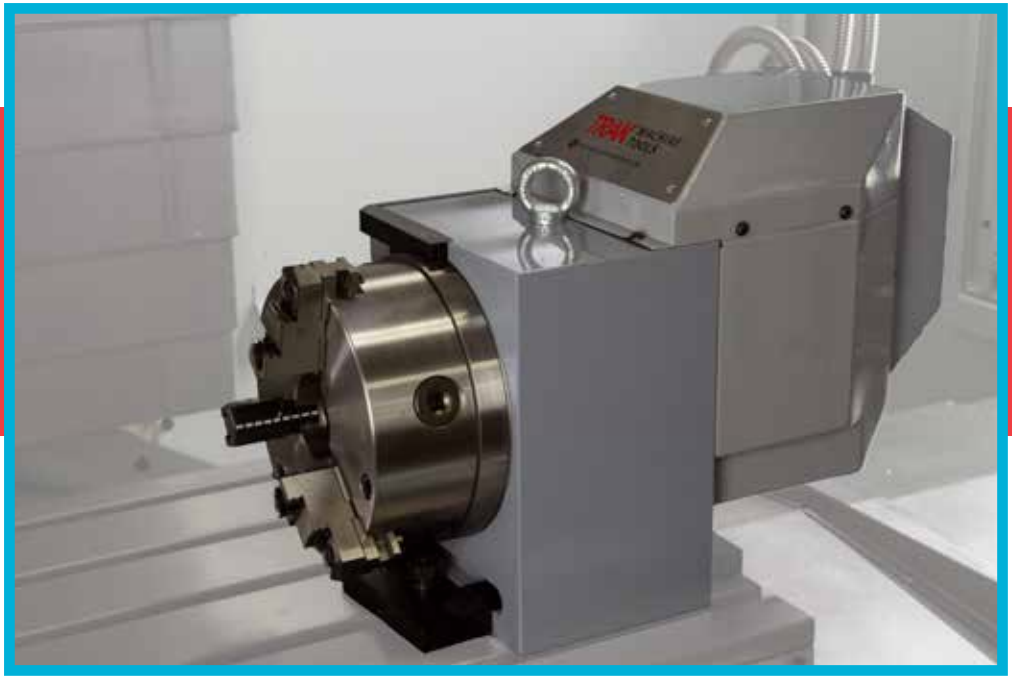
- 62.99 x 23.62" table
- 60 x 27 x 25" of travel
- 40 taper spindle
- 22.5/15 hp motor
- 157.48 x 144.76" footprint
- 16,500 lb

*with all options

ProtoTRAK TMC Hardware Options

4th Axis

Provides full control of 4th axis machining and engraving through the ProtoTRAK RMX CNC. It includes a 8" 3-jaw chuck. The system can also be used as an indexer. Optional tailstock sold separately.



12,000 RPM Spindle*



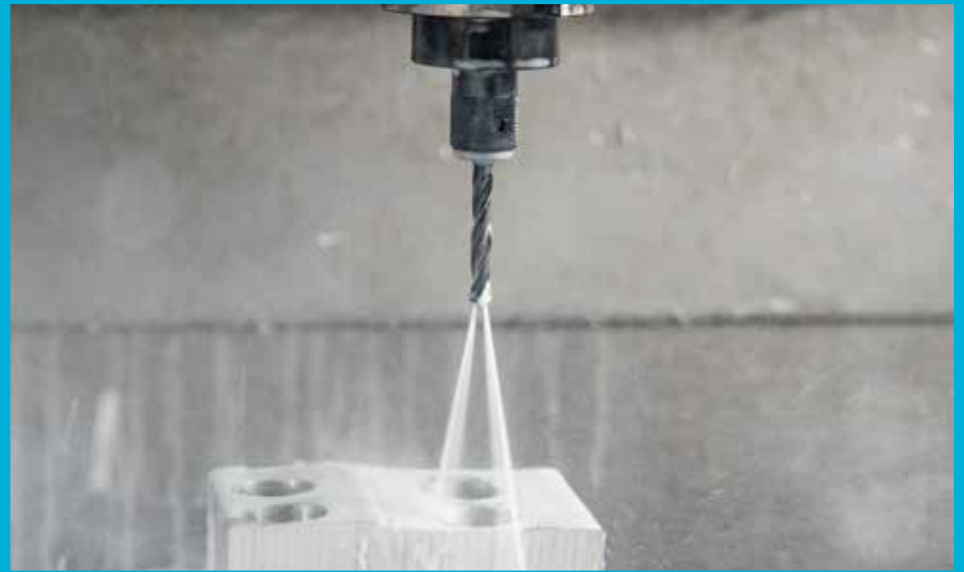
Tooling Cart



Other Options

- Internal Memory Drive
- USB Memory Stick
- Vise Kit
- Remote Stop/Go Switch
- Transformer
- Electrics 4th Axis Ready
- Retention Knobs - Cat 40 Tooling
- Gripper - BT40 Tooling
- Electronic Handwheels

Coolant Through Spindle*



*TMC5, TMC7, TMC10 only

ProtoTRAK TMC Specifications Summary

The Versatile Machine That Works Two Ways

Toolroom Ops - when you need the TMC to work like a TRAK Bed Mill, but with chips and coolant contained

- Optional Electronic Handwheels (X, Y, & Z)
- Selectable 2 or 3 axis CNC
- Full DRO for manual operations
- Keyed switch access

Production Ops - when you need to run small to medium production quantities

- 16-tool carousel tool changer along with manual tool change for additional tools
- Convenient Tool Table fly out window
- Fully enclosed ANSI compliant operation

Software Features – general operation

EPA (Enhanced ProtoTRAK Assistance)

- Context responsive help w/ control operations
- Step-by-step instructions, diagrams and videos

Watch Me videos for quick introduction to ProtoTRAK RMX operation

What's New videos for quick review of upgraded features in new releases

Clear, uncluttered screen display

Fly out windows for quick access to features & info

Programming Defaults to simplify part programming

User profiles for Defaults

Event Options to modify Defaults or select additional functionality

QWERTY touchscreen keyboard

Calculator

Prompted data inputs

English language – no codes

Soft keys - change within context

Windows® operating system

Selectable two or three-axis CNC

Color graphics w/ adjustable view

Gestures for pan, zoom, rotate

Inch/mm conversion

Convenient modes of operation

Networking

Program Mode Features

Circular interpolation

Linear interpolation

Advanced Adaptive Tool Path

Geometry programming

Toolpath programming

Auto Geometry Engine® (A.G.E.) – Built-in CAD to fill in missing print data

Alphanumeric program names

Automatic Scaling of print data

Nesting

Multiple Fixtures

Incremental and absolute dimensions may be mixed on a single point

Automatic diameter cutter comp

Program data editing

Part graphics update while programming

Selectable display between size of drawing and number of events

List Step graphics relate Events to Drawing

Editing of programmed data

Swipe to move through programmed Events

Canned Cycles (Event types):

Position

Drill / Bore / Tap / Helical Drill

Bolt Hole Drill / Bore / Tap / Helical Drill

Mill

Arc

Circular profile

Rectangular profile

Irregular Profile (with Auto Geometry Engine)

Face Mill

Circle pocket / Rectangular pocket

Irregular Pocket (with Auto Geometry Engine)

Islands including Pocket and Island shapes

Subroutine Repeat / Mirror / Rotate

Subroutine Convert Drill to Tap

Copy - Mirror / Rotate / Convert Drill to Tap Helix

Auxiliary - Part Change Position,

Coolant On/Off, Air On/Off

Engrave - Horizontal / Radial / Vertical / Mirror

Thread Mill

Program pause

DRO Mode Features

Incremental and Absolute dimensions

Graphical Override of Axis Feed and Spindle RPM

Jog at rapid with override

Power feed X, Y or Z

Teach-in of manual moves

Programmable Go To dimensions

Servo return to 0 absolute

Tool offsets from Tool Library

Line Center calculation

Circle Center calculation

Advanced Features

Adaptive Pocket Roughing

Verify Make Part – solid model simulation of programmed toolpath

Finish Tool #

Rest Machining

Multiple Fixture Offsets

Event Comments

G-code editor

Search Edit

Tool Library Flyout Window

Automatic Tool Syncing between carousel, program and library tools

Pictures and notes saved in Part Programs

Save and Open Temp

Program I/O Look

Chip Clear

Clipboard

DXF File Converter (Optional)

Import/convert CAD data into ProtoTRAK programs
DXF or DWG files

Chaining

Automatic Gap Closing

Layer control

Easy, prompted process right at the machine

Island and Profile Events

TRAK MTConnect (Optional)

Machine networking through ProtoTRAK® ethernet connection or USB Wi-Fi adapter

Collect machine data throughout shop

Monitor machine status, receive notifications and analyze data throughout your machines' history

Parasolid File Converter (Optional)

Import and convert 2.5D CAD data into ProtoTRAK programs

X_T files

X, Y and Z dimensions are transferred into program events

2D and 3D views of part

Add or remove geometry

Chaining

Easy, prompted process you can do right at the machine

Island and Profile Events

Offline Programming (Optional)

ProtoTRAK RMX user interface for Windows PC

Program parts and simulate CNC Run

Modify files from current and former ProtoTRAK models

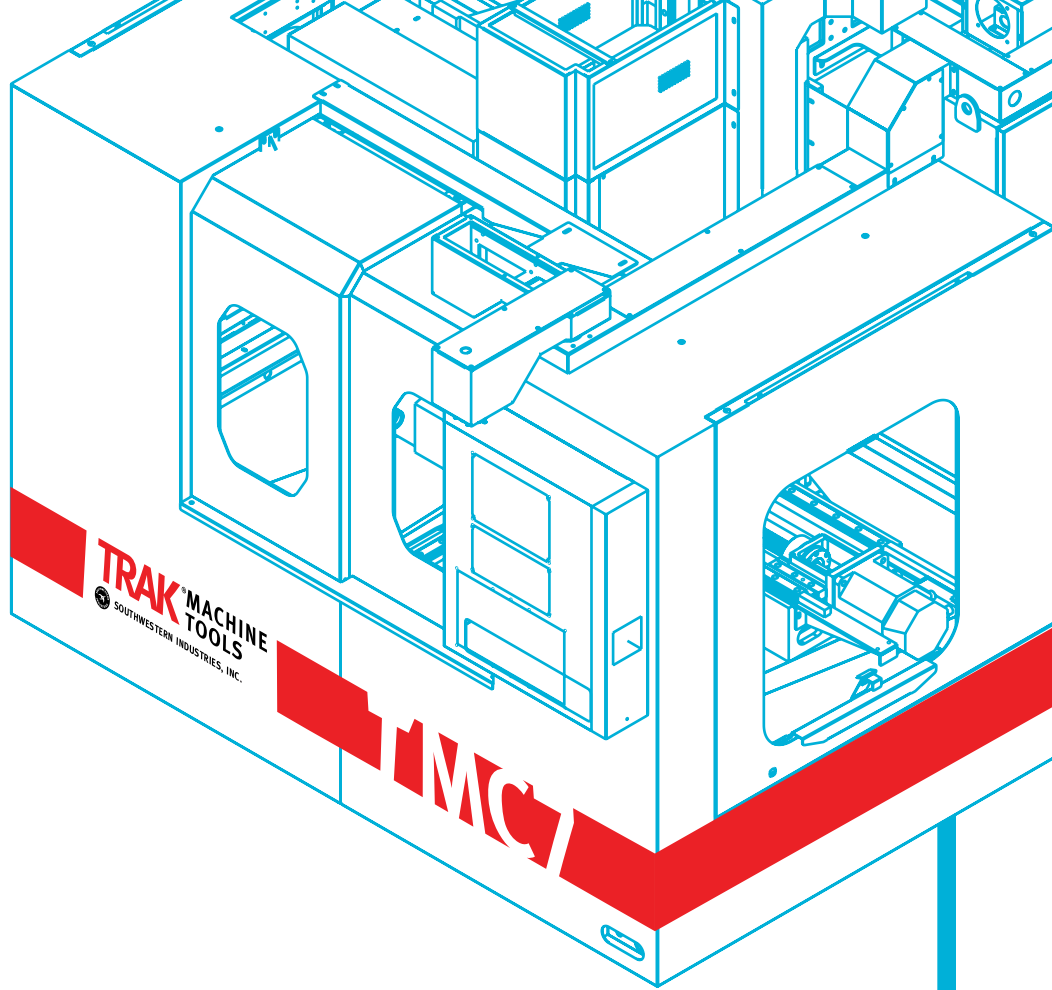
Auxiliary Functions (Optional)

Enables programming and control of:

- Pulse indexer (optional)
- Auxiliary output to control optional secondary device

CAM File Out Converter (Optional)

Write, save and then run programs with RX Canned Cycle Events on legacy ProtoTRAK controls in either .CAM events or .GCD format.



Get to know the new TRAK TMCs featuring the ProtoTRAK RMX today!

Visit www.trakmt.com/TMC

Call for a demo in your shop at 800-421-6875

Visit one of our showrooms nationwide www.trakmt.com/locations

Sign up for an Open House or Trade Show event near you: www.trakmt.com/events



TRAK MACHINE TOOLS



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