TRAK® MACHINE TOOLS

Featuring
ProtoTRAK CNCs

# TRAK Knee Mills

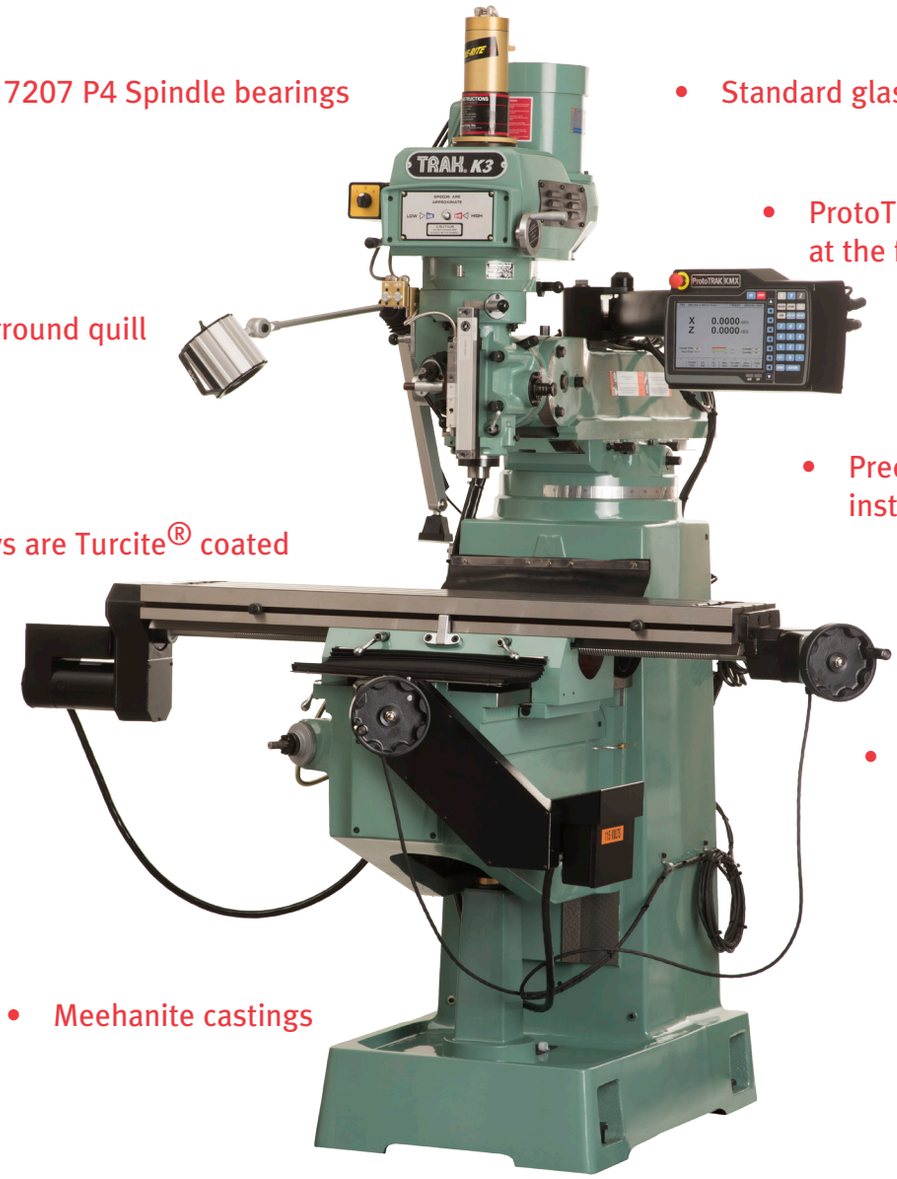
## Your Best Choice in Knee Mills Today!


SOUTHWESTERN INDUSTRIES, INC.

# TRAK Knee Mills

**The best built, best supported knee-type milling machines you can buy**

- Precision 7207 P4 Spindle bearings
- Standard glass scale for quill Z readout
- ProtoTRAK CNC integrated at the factory
- Chrome ground quill
- Precision ground ballscrews installed in the table and saddle
- Slide ways are Turcite® coated
- Wide way surfaces are hardened and ground
- Meehanite castings




## Outstanding Support at no Extra Cost

Only TRAK Knee Mills featuring ProtoTRAK CNCs are factory-integrated by us, the manufacturer of the control. That means an outstanding product and one source of parts and support. You will never be shuffled between machine and CNC supplier – the entire product is our responsibility.

**Our track record proves you can rely on us to live up to our responsibility to you.**

# TRAK Knee Mill Models


## ProtoTRAK EMX

Easy to use, yet full CNC functionality

*See page 6 for a complete description*

### TRAK-K3 EMX

- 2-axis CNC
- 3-axis DRO


## ProtoTRAK KMX

The best CNC we've ever made for knee mill applications (and that is saying a lot).

*See page 8 for a complete description*

### TRAK-K3 KMX

- 2-axis CNC
- 3-axis DRO

### TRAK-K3 KMX-3

- 3-axis CNC
- 3-axis DRO


## ProtoTRAK SMX

The most versatile CNC in our line with options you may add to configure for your application.

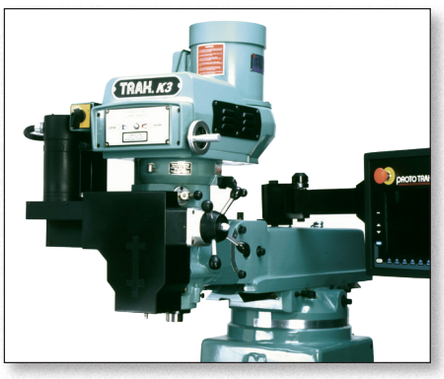
*See page 12 for a complete description*

### TRAK-K3 SMX

- 2-axis CNC
- 3-axis DRO

### TRAK-K3 SMX-3

- 3-axis CNC
- 3-axis DRO

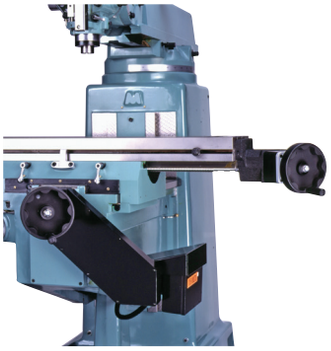



## Three-Axis CNC

TRAK Knee Mills with the SMX and KMX CNC are available as three-axis CNCs, with a quill drive for Z-axis machining. The mill can be run manually, as a two-axis or three-axis CNC. Manual quill control is with our unique Electronic Handwheel.

Note: For most three-axis CNC applications, we highly recommend our TRAK Bed Mills.

# Milling Machine Options



## TRAKing™/Electronic Handwheels

- Converts the mechanical handwheels into electronic handwheels for operating the table and saddle
- Enables the powerful TRAKing® feature
- Useful DRO features
- Not available with the ProtoTRAK EMX CNC

## Remote Stop/ Go Switch

- A hand-held switch to stop and continue program run


## Knee Power Feed

## Spray Coolant

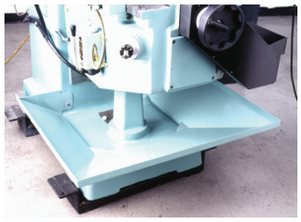
- The non-fogging coolant sprayer directs a fine stream of coolant to the tool and workpiece


## Vise

- Model DX6 6' Kurt vise and mounting hardware.


## Power Draw Bar

- A Torque-Rite R8 power draw bar factory installed with push button tool in/ out



## Chip Pan

## Halogen Work Lamp

- Convenient light with bright, long-lasting halogen bulb

## Tableguard

- Provides an enclosed work-space mounted on the table
- The sliding door is switched to prevent operation of CNC Run with door open

## Glass Scales

- A glass scale mounted on the table and saddle
- Not available on ProtoTRAK EMX products

# Machine Specifications

- Table Size – 50" x 10"
- T-Slots – 5/8" x 3 x 2 1/2"
- Table Travel – 32"
- Saddle Travel – 16"
- Knee Travel – 16"
- Ram Travel – 15"
- Maximum Quill Travel – 5"
- Quill Diameter -– 3 3/8"
- Spindle Taper – R8
- Spindle Speed – 60-4200 RPM
- Head Tilt – 45 deg. forward, 45 deg. back, 90 deg. left, 90 deg. right
- Spindle Motor Power - 3HP continuous
- Power Requirements, machine - 220/ 440V;3P; 8.5/4.25A
- Maximum Weight on Table – 850lbs.
- Machine Weight – 2816 lbs.
- Machine dims l, w, h - 71" x 59" x 84"
- Maximum rapid feed – 100IPM
- Way surface type - Dovetail X, Z Square Y
- Precision 7207 CP4 spindle bearings
- Chrome hardened and ground quill
- Meehanite® castings
- Slide ways are Turcite® coated
- Wide way surfaces are hardened and ground

# Additional Options

## Riser Block
- 4", 6" or 8"

## Coolant Pump
- Mounted inside the bed or machine column
- A manual switch is provided when not used with Auxiliary Functions

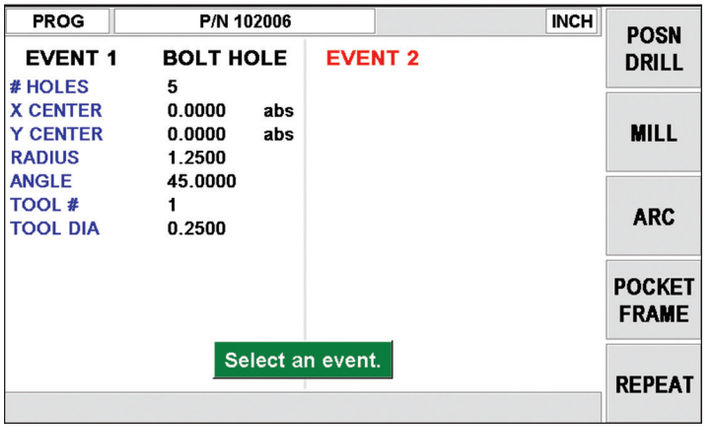
## Limit Switches
- Switches and brackets to set maximum travel limits
- Tripping the switch will cause servo motors to shut down
- Not available with the ProtoTRAK EMX CNC

## Automatic Lubrication Pump
- Provides lubrication to ways and ballscrews
- Programmable
- Alarms in case of problems

# ProtoTRAK EMX


## ProtoTRAK EMX

- Easy to use yet full CNC functionality
- Easy to learn and remember all the features
- We recommend this control when most of the work for the machine is simple
- Great for shops where different people use the machine occassionally
- Vo Techs love this CNC for teaching conventional milling and introduction to CNC on the same machine

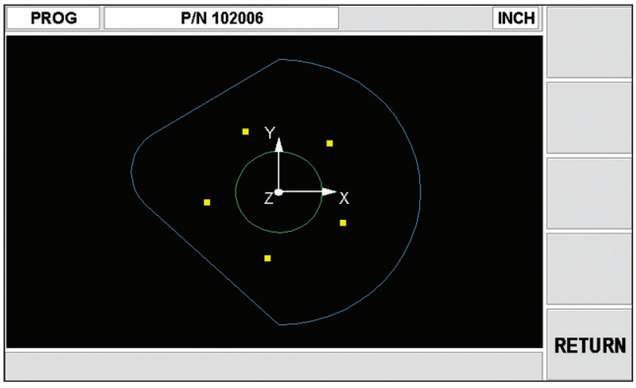



## Programming

- Program easily with simple selections and prompts in plain English
- The ProtoTRAK EMX defines the tool path for you once you define the part geometry

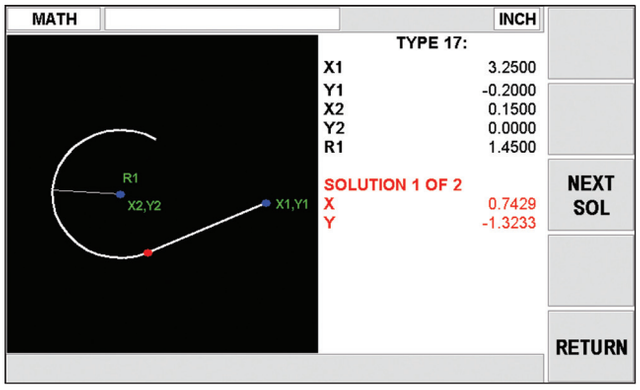
### Canned Cycles

- Posn/ Drill
- Bolt Hole
- Mill
- Arc
- Pocket
- Frame
- Rotate
- Repeat




## Part Graphics

- Press the LOOK key while programming to see programmed events with color graphics




## Math Helps

Quickly calculate intersections, points of tangency, arc centers and more.

## DRO Routines

- View the most useful DRO features in a clear, color display
- Press the Power Feed and Jog Buttons to let the servo motors do most of the work
- Ball screws provide smooth, positive control while hand cranking

## Easy Program Storage and Handling

- Save hundreds of typical programs on the internal flash drive
- Use the USB port to plug in a storage device or move programs between ProtoTRAKs and computers
- Use the optional USB flash drive that is configured to work with ProtoTRAK

## ProtoTRAK EMX Specifications

### Hardware

- Digital Servo Amplifiers – custom designed for ProtoTRAK operation
- D.C. Servo Motors – rated at 280 in-oz. continuous torque
- Precision Ball Screws
- Modular Design – simplifies service and maximizes uptime
- 115V/60Hz
- 10 amps
- Feedrate Override of programmed feedrate and rapid
- Polycarbonate Sealed Membrane Keypad to lock out contamination
- 7.0" Color LCD with adjustable contrast
- On board IDE flash memory storage for part programs
- 2 USB ports for interface with a storage device
- Rugged Industrial PC
- Glass Scale on quill for Z-axis position readout
- Jog button in DRO

### Options

- Remote Stop/Go (RSG) switch
- USB thumb drive for program storage and transfer

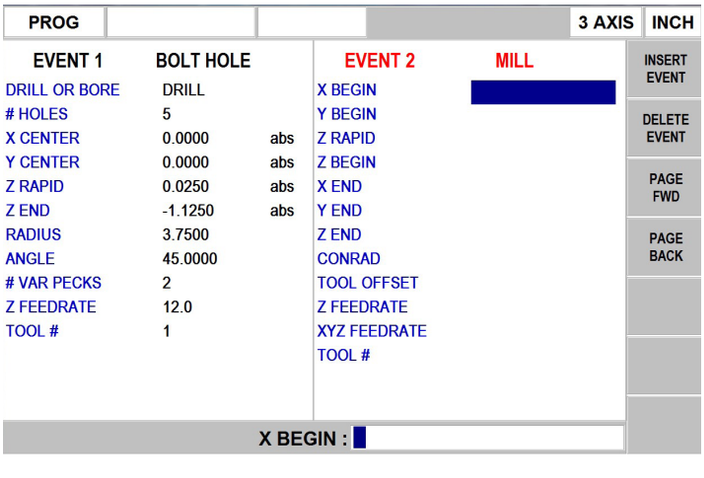
### Software

- Diameter Cutter Compensation
- Circular interpolation
- Linear Interpolation
- Conrad – provides automatic corner radius programming
- Incremental and Absolute dimensioning
- Error Messages – to identify programming mistakes
- Fault Messages – for system self-diagnostics
- Parts graphics display
- Look – a single button press to view part graphics
- Machine Tool Error Compensation
- Backlash Compensation
- Selectable Inch/mm measurement readout
- Jog from 1 to 100 inches per minute
- Continue Mill/eliminate repetitive data inputs while programming
- Context help information
- CAM to ProtoTRAK conversational language file conversion
- Teach
- Free offline programming available for download from our website

# ProtoTRAK KMX CNC


## ProtoTRAK KMX

- The best CNC we've ever made for knee mill applications (and that is saying a lot).
- Easy to learn and use with thoughtful features that make work easier
- Improved AGE® capability gives you the power of CAD for finding missing print data while you program!
- Outstanding graphics
- Powerful offline programming for using our Advanced Software Options
- We recommend this ProtoTRAK for most Knee Mill applications due to its amazing combination of price, features and ease of use
- Can handle anything from quick manual jobs to complex profiling



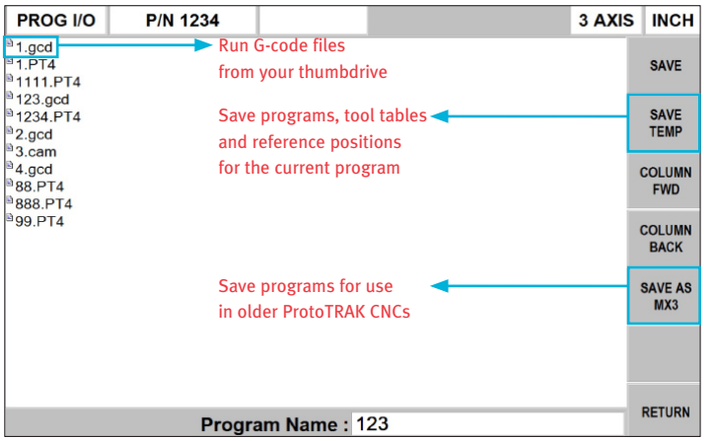

## Powerful Canned Cycles

- Position
- Drill
- Bolt Hole
- Mill
- Arc
- Face Mill
- Circle Pocket
- Rectangular Pocket
- Irregular Pocket
- Circular Pocket
- Rectangular Profile
- Irregular Profile
- Subroutine Repeat
- Subroutine Rotate
- Subroutine Mirror
- Copy Repeat
- Copy Rotate
- Copy Mirror

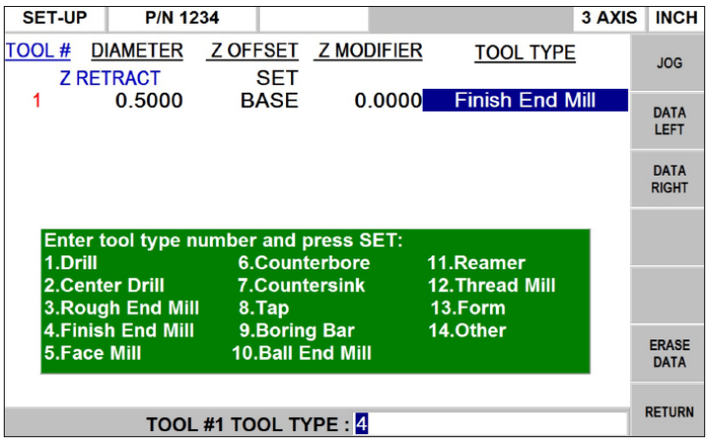

## AGE™ the Auto Geometry Engine

Program complex profiles easily with the powerful AGE™ feature. Enter the information you have and the AGE™ will calculate missing points for you while you program.

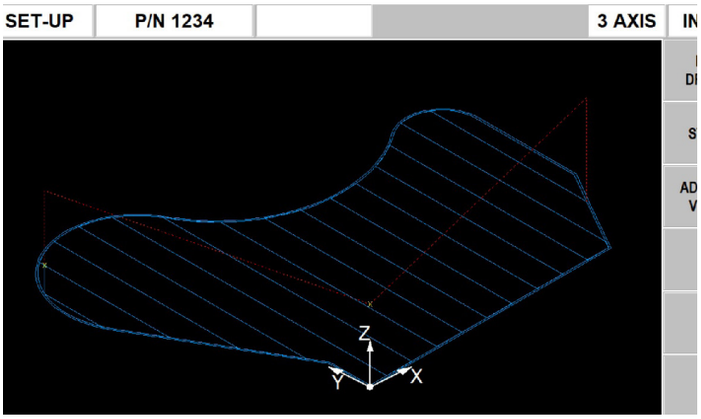
## Advanced File Management



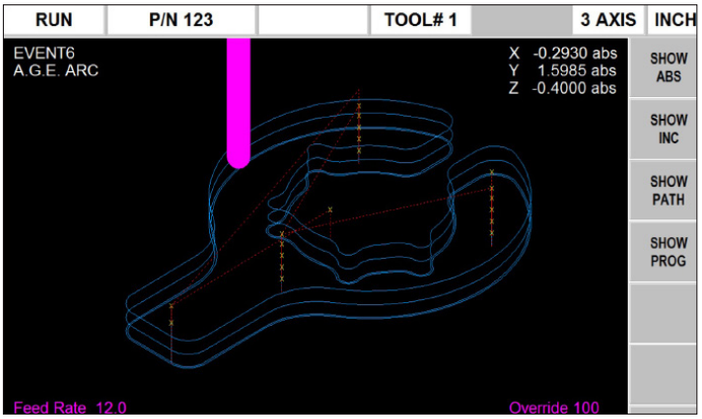

## Convenient Tool Table



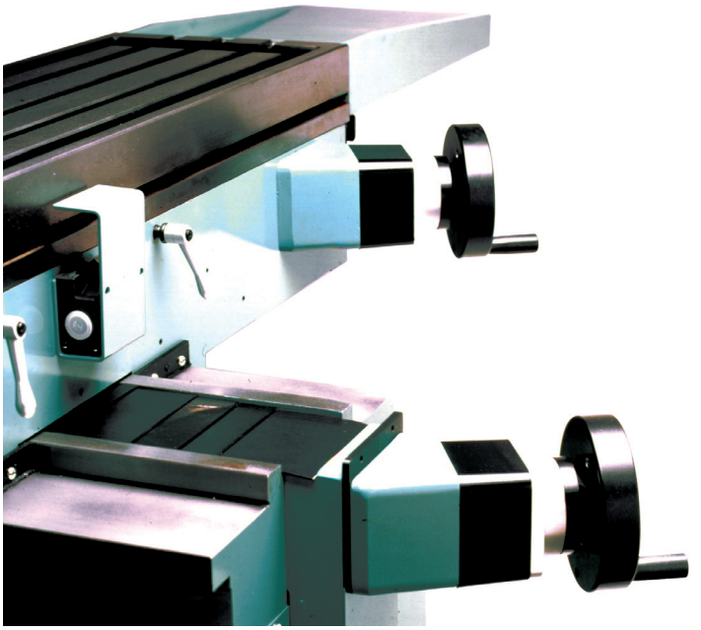

## Check your program with convenient graphics




## View your programmed toolpath during program run



# Options for the ProtoTRAK KMX



## TRAKing®/ Electronic Handwheel Option

- Electronic handwheels on X and Y (replaces the mechanical handwheels)
- TRAKing® of programs during program run
- GoTo Dimensions
- Selectable Fine/Course handwheel resolution

*Once you use TRAKing®, you will never want to crank manual handles again!*

## KMX Offline Programming

- All features of the ProtoTRAK KMX organized to run on your PC
- Program and setup your jobs and then load into the ProtoTRAK KMX
- Windows® operating system

## Converter Package for Offline

(requires purchase of KMX Offline Programming)

**Verify**

- Solid model representation of parts and toolpaths

**DXF File Converter**

- Import and convert CAD data
- DXF or DWG files
- Automatic Gap Closing with Chaining
- Layer Control
- Easy, prompted process

**Parasolid File Converter**

- Generate ProtoTRAK KMX programs from the data in the solid file
- 3D CAD format
- No specialized knowledge required

# ProtoTRAK KMX Specifications

## ProtoTRAK KMX Hardware

- Two- or three-axis CNC, 3-axis DRO
- 9.0” Color LCD
- Rugged industrial PC
- 2 USB ports for interface with a storage device, keyboard and mouse
- RJ45 Port and Ethernet card for Networking
- 110V, 1P, 10A

## Software Features – General Operation

- Clear, uncluttered screen display
- Prompted data inputs
- English language – no codes
- Soft keys - change with context
- Windows® operating system
- Selectable two or three-axis CNC (3-axis models)
- Color graphics with adjustable views
- Inch/mm selectable
- Convenient modes of operation (see below)

## DRO Mode Features

- Incremental and Absolute dimensions
- Jog at rapid with override
- Powerfeed X, Y or Z (3-axis)
- Teach-in of manual moves
- Servo motor return to 0 Absolute
- Tool offsets from library
- Go To Dimensions (Optional with TRAKing®)
- Fine/Course handwheel resolution (Optional with TRAKing®)

## Program Mode Features

- Auto Geometry Engine
- Geometry-based programming
- Tool Path programming
- Scaling of print data
- 3-axis Geometry conversational programming (3-axis models)
- Incremental and Absolute dimensions
- Automatic diameter cutter comp
- Circular interpolation
- Linear interpolation
- Look – graphics with a single button push
- Event editing within the program
- Conrad – automatic corner radius
- Math Helps with graphical interface
- Tool step over adjustable for pocket routines
- Selectable ramp or plunge cutter entry
- Subroutine repeat of programmed events
- Nesting
- Subroutine Rotate about Z-axis for skewing data
- Subroutine Mirror of programmed events
- Copy repeat for editing of repeated events
- Copy rotate for editing of rotated events
- Copy mirror for editing of mirrored events
- Run Island, Helix, Thread Mill and Engrave events when present in an imported ProtoTRAK program

## Canned Cycles

- Position
- Drill
- Bolt Hole
- Mill
- Arc
- Circle pocket
- Rectangular pocket
- Irregular pocket
- Face Mill
- Circular profile
- Rectangular profile
- Irregular profile

## Set Up Mode Features

- Service Codes
  - Software
  - Machine Setup
  - Advanced Diagnostics and Service logs
  - Operator Defaults and options
- Set pocket and Face Mill step-over (in service codes)
- Tool names
- Tool library
- Tool length offset with modifiers
- Tool path graphics with adjustable views
- Verify – solid model representation of finished part (as programmed)

## Run Mode Features

- TRAKing® (optional)
- 3D CAM file program run
- 3D G-code file run with tool comp
- Real time run graphics with tool icon

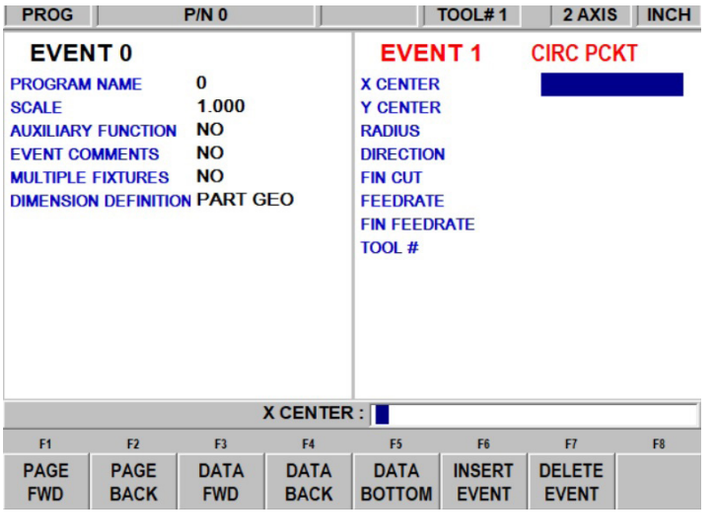
## Program In/Out Mode Features

- Program Storage to USB Flash Drives
- CAM program converter
- Converter for prior-generation ProtoTRAK programs
- DXF / DWG file Converter (Offline version only)
- Preview Graphics for unopened files
- Networking
- Save Temp to save current program, tool offsets and home positions for running the next day with minimal setup

# ProtoTRAK SMX CNC


- The most powerful CNC for Toolroom work in the world
- A powerful but easy to use basic operation with options you may add to configure your application
- Optional Parasolid and DXF Converters save you time by taking the dimensions directly from the drawing
- We recommend this ProtoTRAK model for more complex applications such as profiling and pockets

## Easy and Powerful Programming The ProtoTRAK Way




## Powerful Canned Cycles

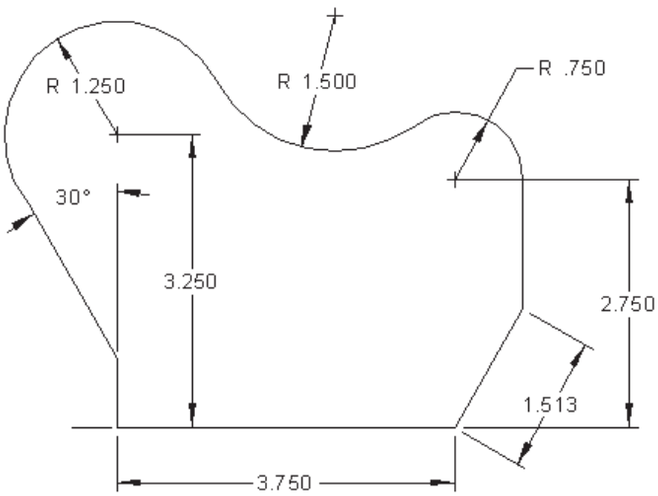
(O indicates optional)

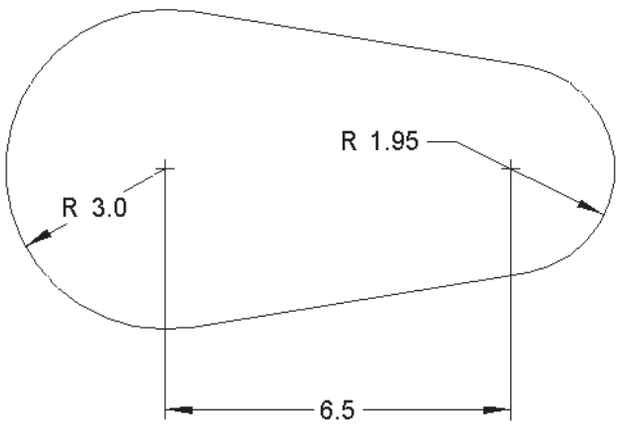
- Position
- Drill
- Bolt Hole
- Mill
- Arc
- Circle pocket
- Rectangular pocket
- Irregular pocket
- Face Mill
- Circular profile
- Rectangular profile
- Irregular profile (O)
- Circle Island (O)
- Rectangular Island (O)
- Irregular Island (O)
- Helix (O)
- Thread Milling (O)
- Engraving (O)
- Face Mill (O)

## Auto Geometry Engine

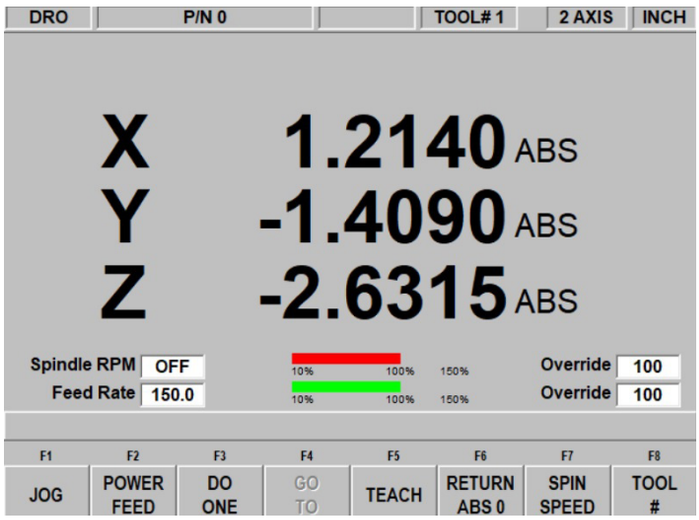
The Auto Geometry Engine (A.G.E.) is powerful software that automatically fills in missing print dimensions as you program. It is CAD capability embedded into CNC programming.

With A.G.E. you can make easy work out of programming incomplete prints or part sketches like the ones below. The A.G.E. doesn't take more time to use, it works automatically as you program.



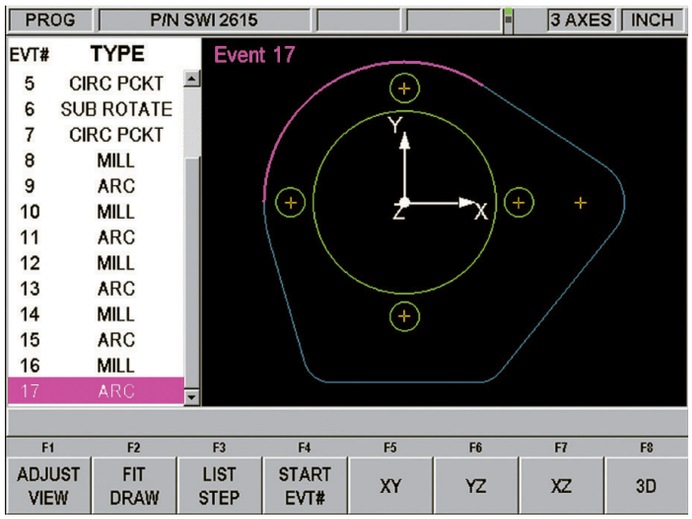



# Powerful Capability | Only in the ProtoTRAK



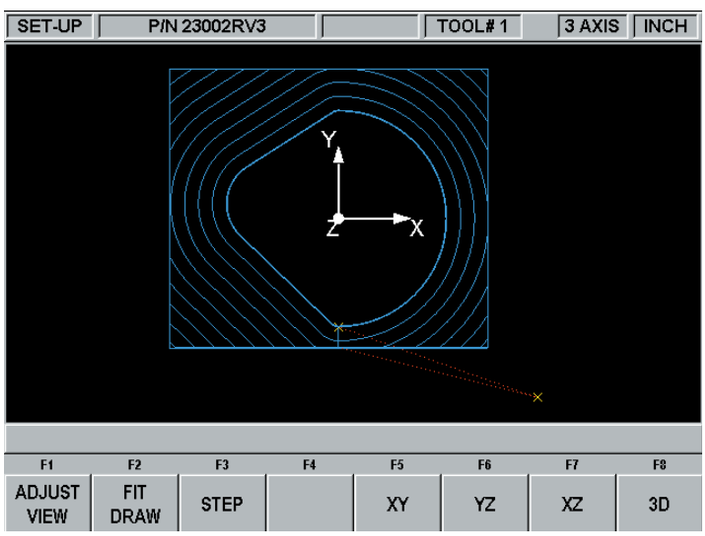

## CNC Power, even when working manually

- Incremental and Absolute Referencing
- Large, easy-to-read dimensions display
- Convenient features such as Jog, Teach and Power Feed



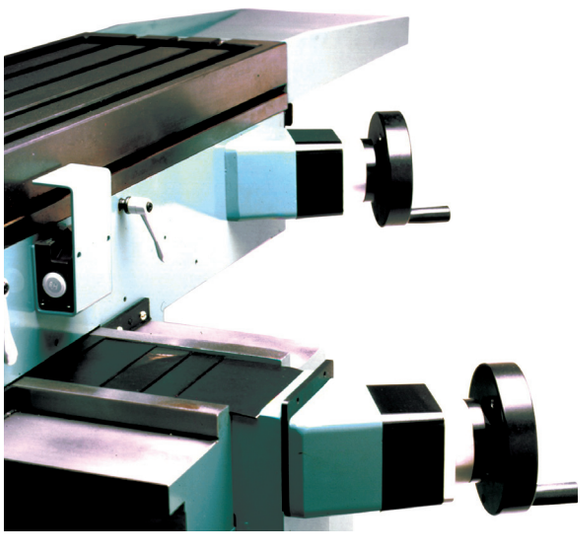

## List-Step Graphics

- See a full screen view of your programming progress with the push of a button
- Use the list step graphics to easily isolate program problems




## Profiles and Pockets

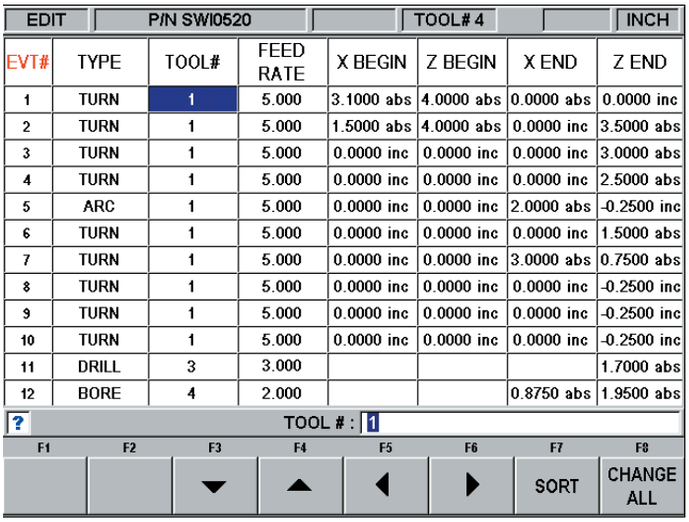
- Easily program pockets and profiles of all shapes with powerful canned cycles



## Electronic Brains in the Handles

- The feel of manual control of real handwheels, but our electronic handwheels bring the power of the CNC to your fingertips through features such as TRAKing and DO ONE.

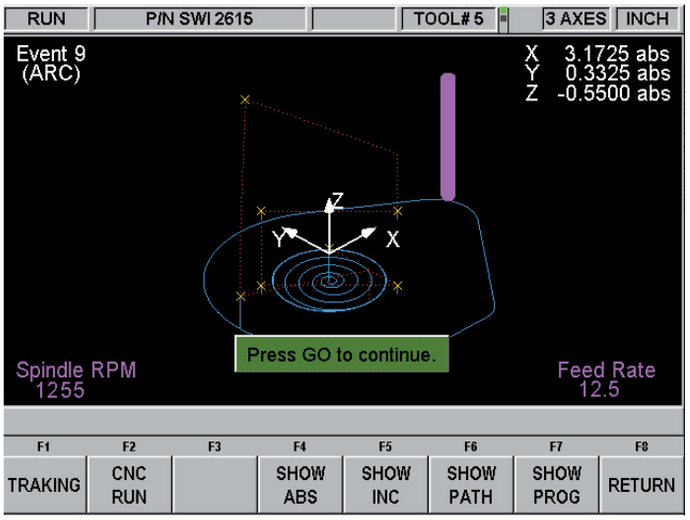
# Powerful Capability | Only in the ProtoTRAK




| EVT# | TYPE | TOOL# | FEED RATE | X BEGIN | Z BEGIN | X END | Z END |
|---|---|---|---|---|---|---|---|
| 1 | TURN | 1 | 5.000 | 3.1000 abs | 4.0000 abs | 0.0000 abs | 0.0000 inc |
| 2 | TURN | 1 | 5.000 | 1.5000 abs | 4.0000 abs | 0.0000 inc | 3.5000 abs |
| 3 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | 3.0000 abs |
| 4 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | 2.5000 abs |
| 5 | ARC | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 2.0000 abs | -0.2500 inc |
| 6 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | 1.5000 abs |
| 7 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 3.0000 abs | 0.7500 abs |
| 8 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | -0.2500 inc |
| 9 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | -0.2500 inc |
| 10 | TURN | 1 | 5.000 | 0.0000 inc | 0.0000 inc | 0.0000 inc | -0.2500 inc |
| 11 | DRILL | 3 | 3.000 | | | | 1.7000 abs |
| 12 | BORE | 4 | 2.000 | | | 0.8750 abs | 1.9500 abs |

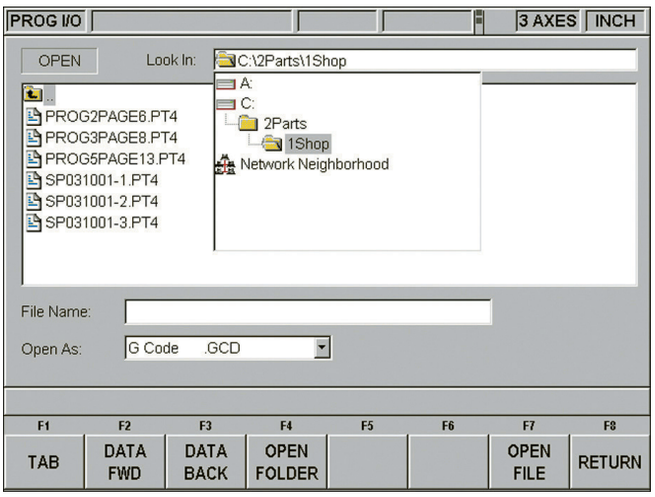
## Spreadsheet Editing

- View data for your whole program at once
- Sort and make changes to a group of events with the press of a button



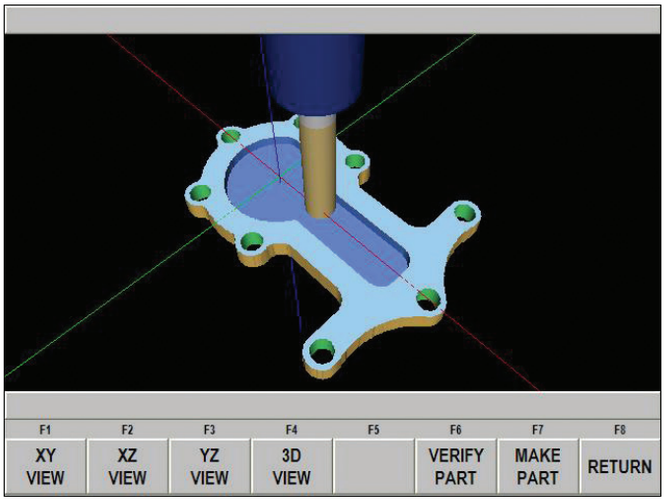

## Tool Path Graphics

- See where the control plans to move the tool prior to machining
- Easily catch mistakes with error messages, colors, and selectable views




## Advanced File Management

- Access different drives, copy and rename files and look at part graphics before opening a file
- Back up programs easily with the automatic back up routine




## Verify Machining Simulation

- Verifies ProtoTRAK or G-Code generated programs for errors
- Watch tools machine and display the finished part

## Networking

- Network your ProtoTRAK with a server or another ProtoTRAK
- File, share, or back-up programs from your machine
- Collaborate easily - centralized file management helps assure revision control

## Run-Time Clock

- Easily see on the ProtoTRAK display how much time remains before the control is programmed to stop for a tool change

*Not all features are found on all ProtoTRAK models and some features are optional. See the specifications.*

# DXF Converter Option

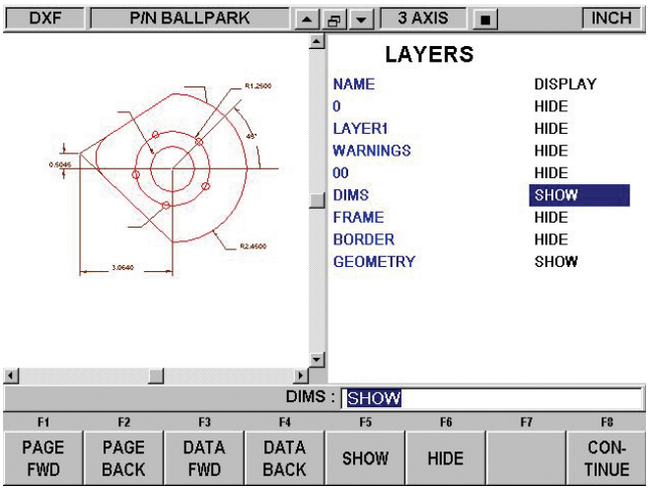
A Simple Process that your machinists control

Easily convert dimensions from a DXF or DWG file into a ProtoTRAK program.

- Works with ProtoTRAK SMX CNCs on the shop floor or with the ProtoTRAK Offline system
- Easy process that ProtoTRAK machinists can learn in minutes
- Milling and turning versions available

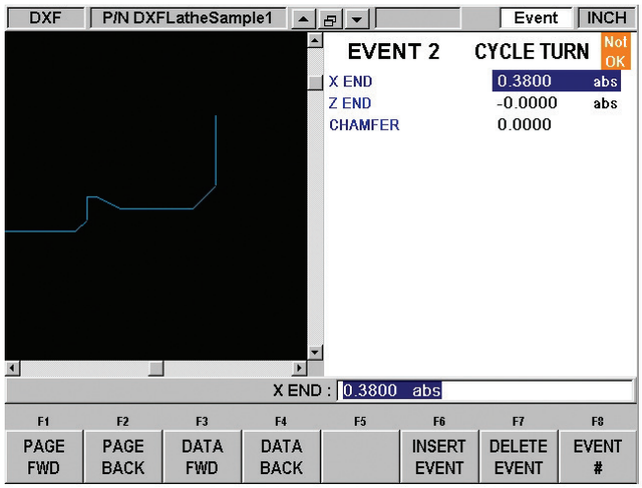
## Layer Selection

- View the entire file and select the layers you want to machine



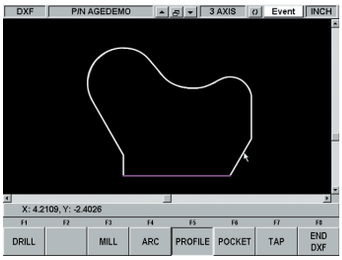

## Interactive, Prompted Selection of Geometry

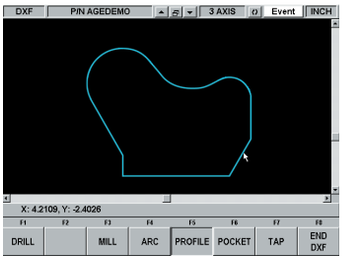
- Program events in the order you choose
- Once the event type and dimensions are loaded it's easy to fill in the prompts




## Chaining

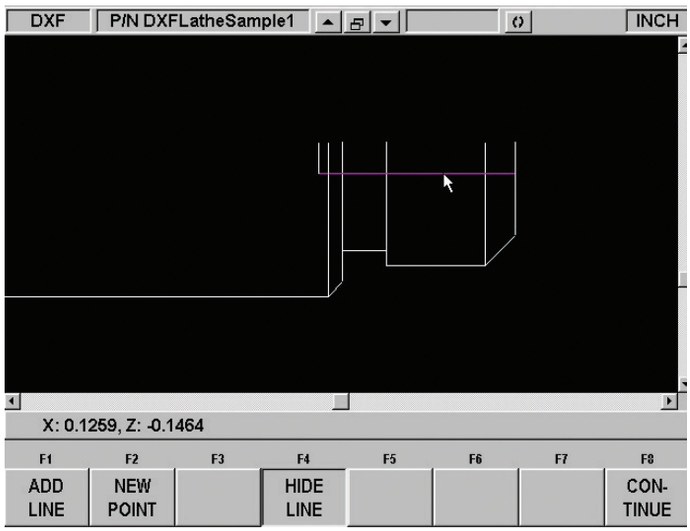
- Program the entire geometry of Pocket or Profile peripheries with just two clicks – tell ProtoTRAK where to start then tell it which direction to go. The rest of the connected events are loaded automatically
- The seven events below were programmed as easily as clicking two lines




## Line Editing

- If lines drawn in a DXF file can't be machined as drawn, the DXF converter enables you to insert or hide lines to get past these problems. No need to go back to the CAD department.



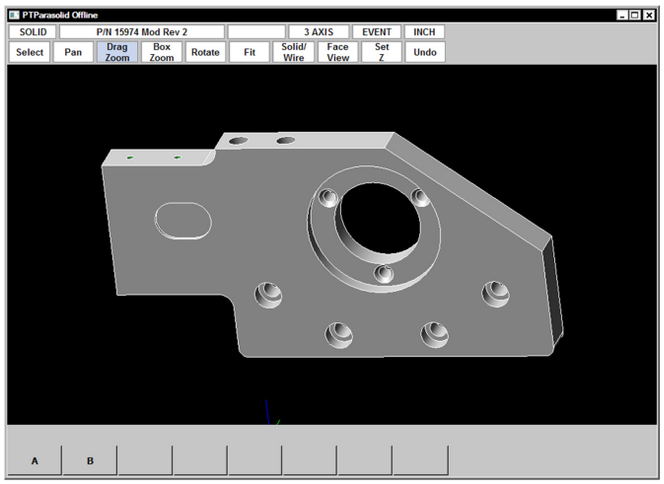
# Parasolid Converter Option

Easily generate ProtoTRAK mill programs from Parasolid 3D CAD files.

- Save ProtoTRAK programming time – easy to do on the shop floor with your ProtoTRAK SMX CNC
- Input .x_t format (Parasolid) 3D CAD files
- Easy process that ProtoTRAK machinists can learn in minutes

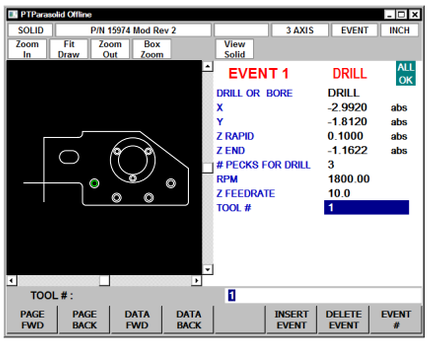
## Intuitive 3D Model

- Powerful viewing tools include Zoom, Pan, and Rotate
- Enhances understanding and facilitates programming



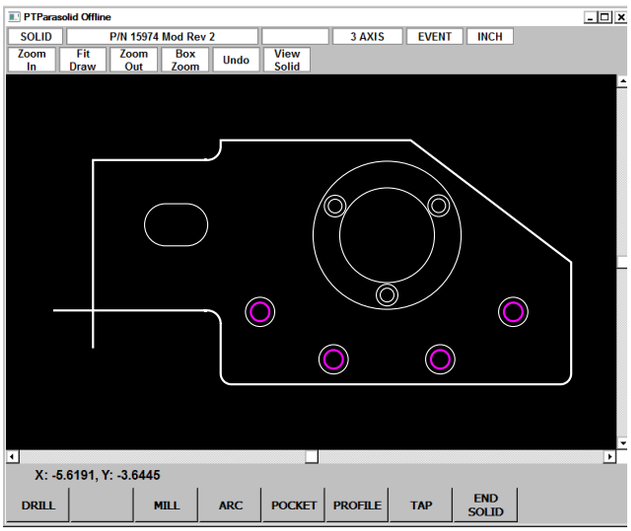

## Interactive, Prompted Selection of Geometry

- Program events in the order you choose – select event type and click on the geometry (excludes geometries with bottom contouring)
- X and Y dimensions loaded automatically
- Point and click to load Z dimensions
- Automatically compensates for drill point length



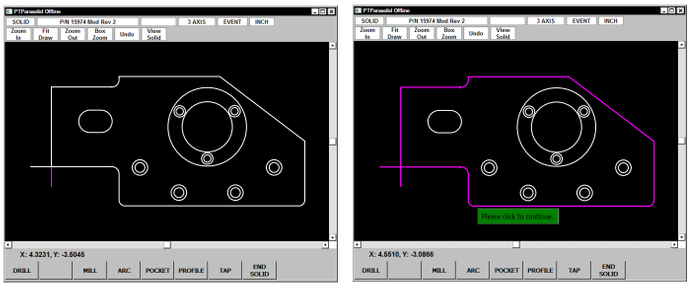

## Event Groups

- Create event groups of items you want to machine the same way
- Click similar circular geometries, create an event, and the data from the first event will automatically fill in for the rest of the events




## Chaining

- Program the entire geometry of Pocket or Profile peripheries with just two clicks – tell ProtoTRAK where to start then tell it which direction to go in. The rest of the connected events are loaded automatically
- The 16 events for the below profile were loaded by simply clicking two lines



# Specifications for the ProtoTRAK SMX for Mills

*(O) – optional feature*

## Control Hardware

- Two or three-axis CNC, three-axis DRO
- Real handwheels for manual operation
- 10.4" color active-matrix screen
- Industrial-grade Pentium® processor
- 1 GB Ram
- 4 USB connectors
- RJ45 port and Ethernet card (O)
- Override of program feedrate
- Override of program spindle speed (O)
- LED status lights built into display
- USB thumb drive flash memory 512 MB or more
- Uncluttered front panel with few hard keys
- 110V, 1P, 12A

## Software Features – General Operation

- Clear, uncluttered screen display
- Prompted data inputs
- English language – no codes
- Soft keys - change with context
- Windows® operating system
- Selectable two or three-axis CNC
- Color graphics with adjustable views
- Inch/mm selectable
- Convenient modes of operation (see below)

## DRO Mode Features for Manual Machining

- Incremental and absolute dimensions
- Jog at rapid with override
- Powerfeed X, Y or Z
- Do One CNC canned cycle
- Go To dimensions (O)
- Teach-in of manual moves
- Servo motor return to 0 absolute
- Spindle speed setting with override (O)
- Tool offsets from library
- Fine/Course handwheel resolution (O)

## Program Mode Features

- Geometry-based programming
- Tool path programming (O)
- Scaling of print data (O)
- Multiple fixture offsets (O)
- Programmable Auxiliary functions (O)
- Event comments (O)
- Three-axis Geometry conversational programming (O)
- Incremental and absolute dimensions
- Automatic diameter cutter comp
- Circular interpolation
- Linear interpolation
- Look – graphics with a single button push
- List step – graphics with programmed events displayed
- Alphanumeric program names
- Canned cycles:
  - Position
  - Drill
  - Bolt Hole
  - Mill
  - Arc
  - Circle pocket
  - Rectangular pocket
  - Circular profile
  - Rectangular profile
  - Irregular profile (O)
  - Irregular pocket (O)
  - Circle Island (O)
  - Rectangular Island (O)
  - Irregular Island (O)
  - Helix (O)
  - Thread milling (O)
  - Engraving (O)
  - Tapping (O)
  - Face Mill (O)
- Programmable Spindle Speeds (O)
- Program pause
- Conrad – automatic corner radius
- Math Helps with graphical interface
- Auto load of math solutions
- Tool step over adjustable for pocket routines
- Pocket bottom finish pass
- Selectable ramp or plunge cutter entry
- Subroutine repeat of programmed events
- Nesting
- Rotate about Z axis for skewing data
- Mirror of programmed events (O)
- Copy (O)
- Copy Drill to Tap Event (O)
- Copy Rotate (O)
- Copy Mirror (O)
- Auto Geometry Engine™ (O)

## Edit Mode Features

- Clipboard to copy events between programs (O)
- Spreadsheet editing (O)
- Global data change (O)
- G-Code editor (O)

## Set Up Mode Features

- Program diagnostics
- Advanced tool library
- Tool names
- Tool length offset with modifiers
- Advanced diagnostic routines
- Software travel limits
- Tool path graphics with adjustable views
- Program run time estimation clock (O)

## Run Mode Features

- Trial run at rapid
- 3D G Code file run
- Real time run graphics with tool icon
- Countdown clock to next pause or tool change (O)
- TRAKing of programs during program run (O)

## Program In/Out Mode Features

- CAM IN program converter
- CAM OUT converter to run ProtoTRAK programs on different controls (O)
- Converter for prior-generation ProtoTRAK programs
- DXF / DWG Converter (O)
- Selection of file storage locations
- Automatic file back up routine
- Preview Graphics for unopened files
- Networking via RJ45 port (O)
- Program Storage to USB Flash Drives

*Specifications are subject to change or modification.*

# Options for the ProtoTRAK SMX

### Advanced Features Option

- Verify Machining Simulation
- Auto Geometry Engine™
- Spreadsheet editing
- Global data change
- Scaling of print data
- Multiple fixture offsets
- Event comments
- 3-axis conversational programming
- G Code editor
- Program run time estimation clock
- Additional Canned Cycles:
  - Irregular Profile
  - Irregular Pocket
  - Circle Island
  - Rectangular Island
  - Irregular Island
  - Helix
  - Thread Milling
  - Engraving
  - Copy Drill to Tap
  - Face Mill
  - Mirror of programmed events
- Copy with or without offsets
- Copy Rotate
- Copy Mirror
- Clipboard to copy events between programs

### DXF File Converter

- Import and convert CAD data into ProtoTRAK programs
- DXF or DWG files
- Chaining
- Automatic Gap Closing
- Layer control
- Easy, prompted process you can do right at the machine

### Networking Option

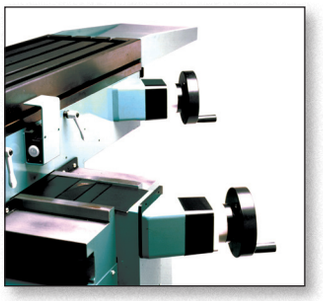
- Networking via RJ45 port

### CAM OUT Converter

- Regenerate a CAM file with revisions from the shop floor

### Auxiliary Functions Option

- Program control of coolant
- Spindle off
- Output to programmable indexer or rotary table



### TRAKing/Electronic Handwheels (Our favorite option!)

- TRAKing of programs during program run
- Go To Dimensions
- Selectable Fine/Coarse handwheel resolution

### Parasolid Converter Software

- Generate programs from solid files
- Process commonly used .x_t files
- Dozens of time-saving features

### Offline Programming

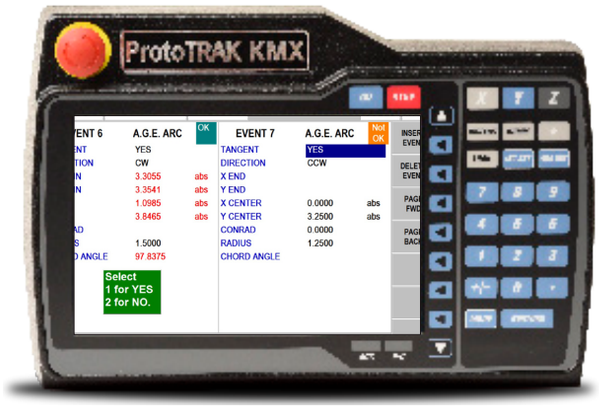
- The ProtoTRAK SMX user interface for Windows® PC
- Program and modify files from current and past ProtoTRAK models

# Retrofit ProtoTRAK CNCs | Make your manual machines more productive

We have transformed thousands of Bridgeport® and similar knee-type milling machines from outdated manual machines to highly productive ProtoTRAK CNCs. With experience earned over 30 years, we know how to give you the best possible outcome.


## ProtoTRAK EMX

- 2-axis CNC retrofits




## ProtoTRAK KMX

- 2 or 3-axis CNC retrofits


## ProtoTRAK SMX CNC

- 2 or 3-axis CNC retrofits

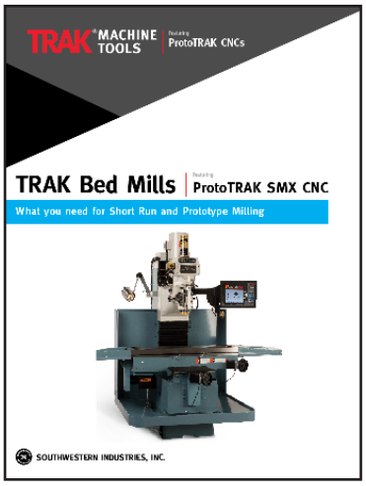
The Retrofit Kit includes everything: motors, CNC, hardware, ballscrews, fasteners, and even cable ties.


## Custom and General Kits Are Available for the following brands of machines:

* note, not all models may be retrofitted – contact your Southwestern Industries representative.

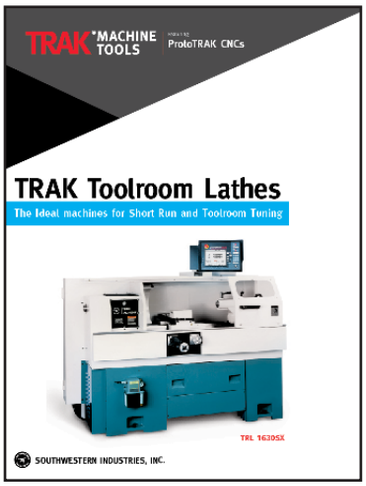
| | | | | | |
|---|---|---|---|---|---|
| Acer | Birmingham | Enco | Kondia | Pasma | Supermax (YCI) |
| Acra Mill | Bridgeport | Euro-Mill | Lagun | Royal | Vectrax |
| Alliant | Chevalier | First | Marina | Santec | Victor |
| Astro | Classic | Hurco | Merlin | Seiki | Webb |
| Atlas | Clausing Atlas | Kalamazoo | Microcut | Sharp | Wells Index |
| Atrump | Comet | Kent | Millport | Siber-Hegner/Santec | Willis |
| Besmer | Do-All | Kingston | MSC | Southbend | Wilton |

# More TRAK Machines for Short Run/Protoype work




## TRAK Bed Mills

- Highly recommended for 3-axis CNC Toolroom and prototyping applications.
- Solid ram moves long the column providing mass for heavy cuts
- 4 models starting at around $32,000
- Travels up to 60" in X, 23" in Y and 20.5" in Z




## TRAK TRL Lathes

- The world's best CNC lathes for short-run turning.
- Full CNC function but with features that make even manual work easier and more productive
- ProtoTRAK ELX or SLX CNC are always easy to program and run
- 5 models starting at on $19,995

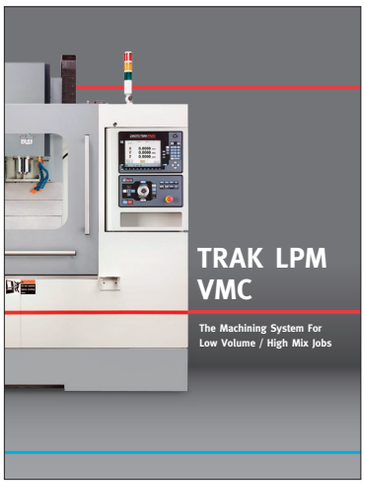

## ProtoTRAK KMX Upgrades

- Upgrade your older ProtoTRAK CNC with the all new ProtoTRAK KMX
- Upgrades for previous generations of retrofits, TRAK Knee Mills and TRAK Bed Mill starting from only $4295
- Exciting new features will give you a great boost in productivity!

# Also from TRAK Machine Tools: Unique Solutions for Low Volume/High Mix Production


## TRAK 2op

- Productive: Get more from the people you already have!
- Versatile: Reduce your cost of production on a wide variety of jobs




## TRAK LPM VMC

- A complete system that integrates the Control, Tool Setting and Workholding
- Reduce the labor spend in Setup
- Change from job to job in a few minutes

**Want to see more? Check out our website or Call (800) 876 - 0601 for demo**


TRAK® MACHINE TOOLS

SOUTHWESTERN INDUSTRIES, INC.

2615 Homestead Place
Rancho Dominguez, CA 90220

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www.trakmachinetools.com

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