Southwestern Industries, Inc.

TRAK K3SX Knee Mill Specifications with the ProtoTRAK SMX Control

Machine Specifications

- Table Size –50" X 10"
- T-Slots – 5/8" x 3 x 2 ½"
- 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
- Power Requirement Control – 110V; 1P; 8A
- Power requirements, machine - 220/440V;3P; 8.5/4.25A
- Maximum Weight on Table – 850 lbs.
- Machine Weight – 2816 lbs.
- Machine dims l,w,h, - 71" x 59" x 84"
- Maximum rapid feed – 100 IPM
- 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

Machine Options

- Glass Scales on table and saddle
- Electronic Handwheels
- Remote Stop/Go switch
- Power Drawbar
- Halogen Worklamp
- Chip Pan
- Riser Block
- Knee Power Feed
- Coolant Pump
- Auto Lube Pump
- Spray Coolant
- Table Guard Enclosure
- Limit Switches
- Vise

ProtoTRAK SMX System Specifications

(O) indicates optional feature

ProtoTRAK System Hardware

- ProtoTRAK SMX CNC
- Two-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
- LED status lights built into display
- RJ45 Port and Ethernet card (O)
- Override of program spindle speed (O)
- USB Thumb drive flash memory 512 MB or more (O)
- Uncluttered front panel with few hard keys
- Quill glass scale

Software Features – General Operation

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

DRO Mode features

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

Program Mode features

- Auto Geometry Engine (O)
- Geometry-based programming
- Tool Path programming (O)
- Scaling of print data (O)
- Multiple fixture offsets (O)
- Programming of Auxiliary Functions (O)

- Event Comments (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
- Program data editing
- 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 rotate (O)
- Copy mirror (O)

Canned cycles

- Position
- Drill
- Bolt Hole
- Mill
- Arc
- Circle pocket
- Rectangular pocket
- Irregular Pocket (O)
- Circular profile
- Rectangular profile
- Irregular Profile(O)
- Circle Island (O)
- Rectangular Island (O)
- Irregular Island(O)
- Helix (O)
- Thread milling (O)
- Engrave(O)
- Face Mill (O)

Edit mode Features

- Delete events
- Erase program

- Spreadsheet editing (O)
- Global data change (O)
- G-Code editor (O)
- Clipboard to copy events between programs (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
- TRAKing (O)
- Trial run at rapid
- Real time run graphics with tool icon
- Countdown clock to next pause or tool change (O)

Program In/Out Mode Features
- Program storage to USB flash drive
- CAM program converter
- Converter for prior-generation ProtoTRAK programs
- DXF/DWG file converter (O)
- Selection of file storage locations
- Automatic file back-up routine
- Preview graphics for unopened files
- Networking (O)

Control Options
Advanced Features with Verify Option
- Verify – see a 3-D model machined before cutting chips
- Auto Geometry Engine ™
- Programmability of the optional Auxiliary Functions
- Additional Canned Cycles:
  - Irregular Pocket
  - Circle Island
  - Rectangular Island
  - Irregular Island
  - Irregular Profile
  - Engrave
  - Face Mill
- G-Code editor
- Countdown clock to next pause or tool change
- Total program time estimator
- Spreadsheet editing

- Global data change
- Scaling of print data
- Multiple fixture offsets
- Event comments
- Tool path conversational programming
- Mirror of programmed events
- Copy with or without offsets
- Copy Rotate
- Copy Mirror
- Clipboard to copy events between programs

Networking Option

- Networking via RJ 45 port

The DXF File Converter Option

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

CAM Out Converter Option

Save ProtoTRAK files as CAM files for running on different controls

TRAKing/Electronic Handwheels Option

Electronic Handwheels on X and Y (replaces the mechanical handwheels)
TRAKing of programs during program run
Go To Dimensions
Selectable Fine/Coarse handwheel resolution