MCS

Machine Control Specialists Inc.

MCS4 Coil Winder Control
with CoilPro Software

MCS4 Coil Winder Control

High performance PC based motion control with CoilPro Software

Applications:

1. Multi Axis Winders
2. Multi Spindle Winders
3. Stick Winders
4. Multiple Winders
5. Foil Winders
6. Heavy Duty Winders
7. Pick & Place Machines
8. XYZ Positioning Tables
9. Coil Winder Control Conversions

Introduction:

Machine Control Specialists is proud to announce the Model MCS4 coil winder control system. It comes in a number of different configurations to satisfy every coil winding application. The control is available for new machines as well as a conversion for used machines.

The MCS4 is a Pentium PC based CNC control that uses the MCS multi processor motion board. The board uses a separate DSP processor for each axis. The control is capable of controlling virtually any combination of motors used for a spindle and multiple axis coil winding machine. The familiar PC environment makes it user friendly and easy to use.

Included CoilPro software utilizes the graphical features of Microsoft Windows 98/NT to make programming and operation as easy as 'Point and Click'. The control is easily networked.

Typical axis configurations use high speed low inertia brushless servomotors to provide accurate motions. An individual digital signal processor for each axis running a PID algorithm is the ultimate motion control technology.

Typical spindle drive configurations use high torque or high speed brushless servomotors depending on application. An individual digital signal processor running a PID algorithm provides the ultimate accuracy in positioning. A programmable brake is available to hold the spindle when stopped.

Packaging of the control system is customized to the application. The complete single PC with all servo amplifiers and I/O system are housed in one enclosure. The average multi axis winder may use a 4 by 4 foot enclosure. The average two axis stick winder may use a 2 by 4 foot enclosure. The monitor, keyboard, mouse and speakers are conveniently located near the operator.

The powerful I/O system is driven by a separate 32 bit processor to easily multitask machine functions.

The CoilPro Help System uses a Microsoft HTML file. It is the new standard help system for the Windows platform. As an information delivery system, the help system includes the complete MCS4 programming manual, service manual and training guide.

This help system offers some advantages over standard HTML. Such as the ability to implement a combined table of contents and index. Keywords are used for advanced hyper linking capability, searching and bookmarks.

The CoilPro Program Builder screen uses "Teach Mode" to create a coil program. Multiple methods allow Axes to be jogged and positions saved as program instructions. Complex instructions are selected from a drop menu then data is entered in a dialog box. While building a program, the context sensitive help system is available to assist in instruction selection.

The CoilPro I/O Control Screen is used to monitor real time I/O activity. Using a multi-threaded technique the program can watch all machine I/O points stimultaneously and display them in real time. While in the I/O Control Screen, an output toggle feature is available to easily flip outputs On and Off. This allows you to instantly see the result of operating an air cylinder with a switch or prox connected to an input.
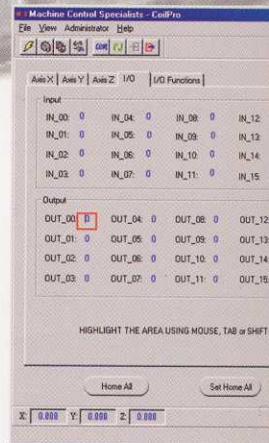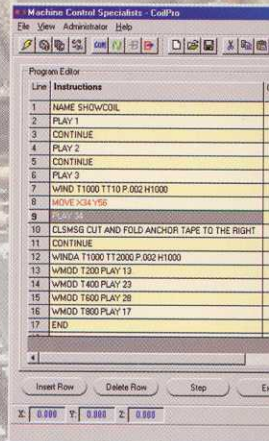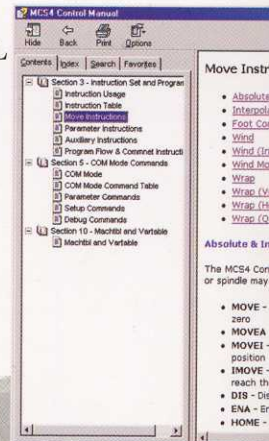
CoilPro is a graphical user interface (GUI) for the MCS4 Coil Winder Control System with full Multi-media capabilities. CoilPro is an application program for use with Microsoft Windows 98/NT. It is standard with all new MCS4 control systems, and also available as an upgrade for all earlier DOS based systems.

CoilPro is used to program, debug and run a coil program on a coil winding machine. It is also a training aid for learning and running hand labor intensive coils utilizing pictures, video, and audio. It includes a full context sensitive help system linked to the complete operation/maintenance manual with pictures, video and audio.

CoilPro will operate in a network environment for receiving production requirements from a cell controller as well as reporting production data to the cell controller.
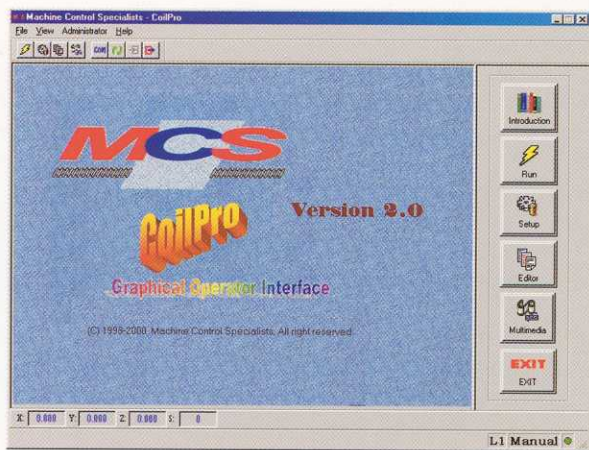

The CoilPro Run Screen is used during startup and normal production. It has large buttons for loading programs, homing, changing operation modes, etc. The buttons are touch screen compatible. A number of numeric readouts give real time axis positions, cycle count, cycle time, etc. A special large readout is used for turns count for easy operator viewing. The multi-media window is used for displaying pictures or video linked to the winding program, which can be used to help train new operators.

The Axis Setup screen is used to jog and find home positions. You can change jog speed from 0 to full speed. All axes position are displayed in real time. The "Set Home" feature makes homing easiest in the industry. A multi-level security feature can keep important parameters, like axes home position from being inadvertently changed.
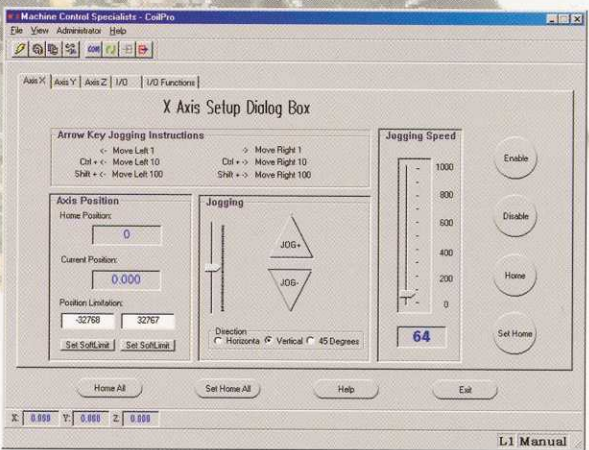
The multimedia Editor Screen is used to edit a multimedia table. A specific table will be used with each coil program to "Play" multimedia files while running that program. The editor is used to choose multimedia files from disk and test play and/or insert to the table. Each selected file is linked by the editor to coil program. The editor and multimedia play system currently supports WAV sound format, AVI movie format and JPEG bitmap image formats.
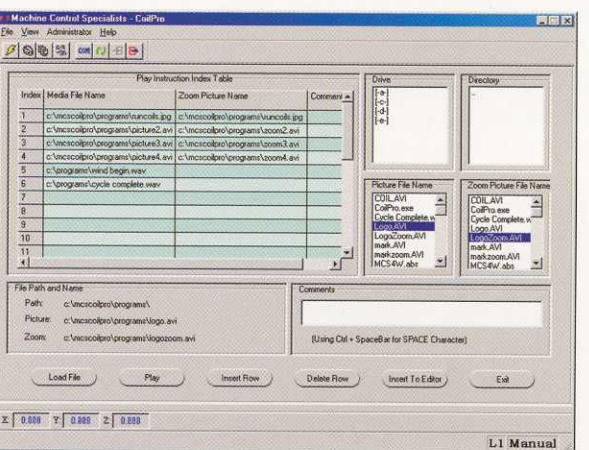
Control virtually any coil winding machine with optional configurations.

MCS4 Features

Standard System Configuration:
1. Pentium based PC
2. SVGA Video board and monitor
3. 4GB Hard Disk minimum
4. 1.44MB Floppy
5. CD Rom drive
6. 32MB Ram minimum
7. Mouse and keyboard
8. MCS4 Motion board (S-X-Y-Z)
9. MCS4 Intelligent I/O board

Standard Configurable Axes:
1. Up to 16 servo axes available
2. S-X-Y-Z Servo axes standard
3. Easily cascade boards for more axes
4. Optional 5th microstepper axis

Standard Digital Inputs:
1. Up to 32 User definable inputs
2. AC or DC any voltage
3. Sinking or Sourcing
4. Safety Shield/ Guard input
5. Tailstock input
6. Wire break detect input
7. Foot pedal switch
8. E-stop/Power off input

Standard Digital Outputs:
1. Up to 32 User definable outputs
2. AC or DC any voltage
3. Sinking or Sourcing
4. Master power relay

Optional Analog Inputs:
1. Variable speed foot pedal
2. Manual speed potentiometer

Optional Analog Outputs:
1. (16) Hysteresis Brake Current regulators
2. (4) 0-10 Volt outputs

Motion Control Inputs (1-16):
1. High speed 3 channel encoder inputs
2. Drive fault inputs

Motion Control Outputs (1-16):
1. 12 bit DAC with +/-10 Volt output
2. Drive enable output
3. 2 Phase bipolar stepper motor output
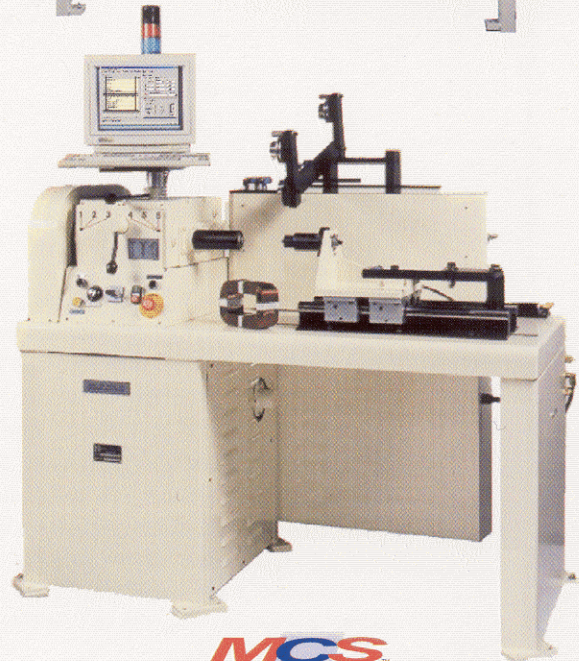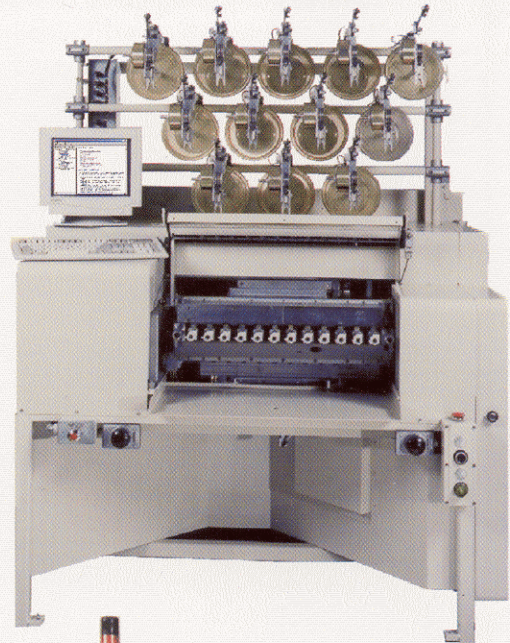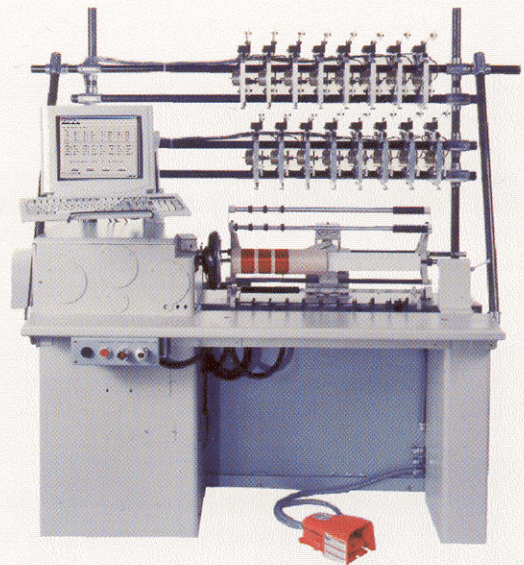4. Step & Direction for microstepping

Memory:
1. 4GB Hard Disk (upgradable)
2. 32MB Ram (upgradable)

Ports:
1. Standard parallel printer port
2. Standard RS32 serial port
3. Optional USB port
4. Optional ethernet network port

Operating System and Software:
1. Windows 98/NT Graphical User Interface
2. Coil Pro Software
3. Fully network compatible

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