

## More Capability... More Power... More Productivity FROM YOUR GRINDER

### EXPERTISE IN TECHNOLOGY AND IMPLEMENTATION

Since our first retrofit installation in 1983, CNC Engineering has grown to become one of the largest retrofitters of GE Fanuc controls in North America. Our experience in all aspects of CNC retrofits provides us the expertise needed to implement technology to help our customer's improve productivity.

In today's rapidly changing manufacturing environment there is an increasing number of choices available for CNC control systems, PC based control options and integration with information systems. These can add up to complex technology choices. With our thorough understanding of CNC controls and grinding we can help you select the best solution for your application, develop a design that meets your needs, install the retrofit with minimal downtime, and provide services to help you maximize the benefits of your upgraded machine tool.

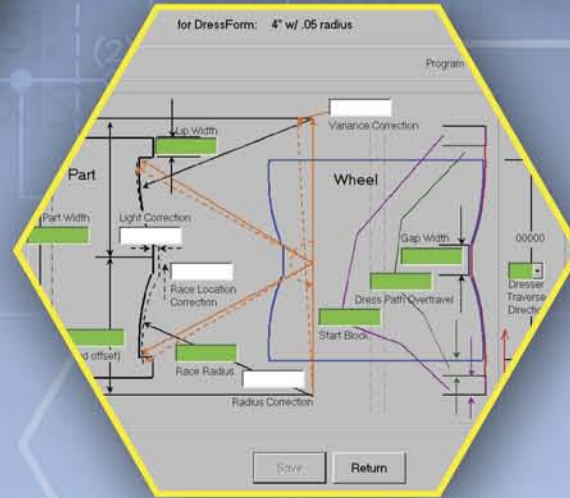
CNC Engineering's expertise includes control and drive systems, feedback systems, probes, mechanical components, and software development, including custom screens when needed.

### IMPROVE THE PRODUCTIVITY OF YOUR GRINDER

Our vast experience from retrofitting a wide variety of machines allows us to offer solutions that take into account a grinder's unique characteristics and can incorporate such things as adaptive cycles, CBN wheel technology, in-process gauging, dress verification, flagging and gap elimination. Custom programming, system integration, and training services help insure that the retrofit integrates with your company's manufacturing processes, operator and maintenance procedures.

Additionally, you can control your grinder with a grinding system that is more than just a modified milling or turning machine control, but a package designed specifically for grinding. CNC Engineering's Open Vision™ HMI Grind was developed from scratch by our grinding experts, and is the first grinding software designed specifically as a PC based front-end for GE Fanuc controls.





## INTUITIVE INTERFACE PROMOTES INCREASED CONTROL

Open Vision™ HMI Grind is a grinding package developed for Internal (ID), External (OD), and specialty grinding machines. The package combines the reliability of GE Fanuc controls with the flexibility of an industrial PC, allowing the use of third party software packages that run under the Windows environment. Some of the more common applications include in-process gauging, wheel balancing, flagging, SPC, SCADA, and spreadsheet applications. Data for these programs can be imported / exported over a local area network or a DNC system. The package also offers ease of use through simplified, intuitive menus, thus, reducing the number of keystrokes required to perform tasks.

## FEATURES TO ENABLE ENHANCED GRINDING

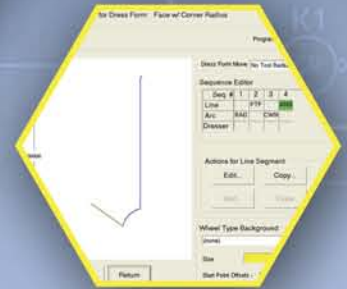
Open Vision™ HMI Grind has enhanced features when compared to proprietary controls supplied by many OEM's and is the culmination of years of programming, engineering and CNC grinding experience.

## The Software Has Been Designed With Traditional Grinding Capabilities Such As:

- Run-time display of size-correct-value
- Constant surface speed
- Skip dress
- Wheel offsets
- Axis data position and rate
- Grinding types such as plunge, oscillation, vector, all applied to any grind direction; face, backface, contour
- Wheel data including diameter, surface speed and power load

## And Enhanced Features Such As:

- Easily skip, insert or delete any operation sequence for ease of regrind
- Optional remote diagnostics
- Background edit
- On-line help
- Adaptive control capability
- Interfaces with Various Gages
- Conversational contour grind and dress programmer



## CONVERSATIONAL PROGRAMMER

The creation, editing, and viewing of programs has never been easier. The conversational programmer allows for programming of multi-surfaces and in doing so, one can employ multi-wheel and/or wheelheads in the same program. Furthermore, Open Vision™ HMI Grinding's conversational programmer supports sixteen different ancillary devices for controlling such things as auto loaders, swing down dressers, probing and placing/replacing gauge mechanisms.

With Open Vision™ HMI Grind, these tasks can be programmed either on the grinder or through an optional off-line conversational programmer.

The software also includes the ability to program by part reference. This is accomplished by employing a separate coordinate system for the work piece. The X axis zero point can be placed either at the work piece centerline or at a reference surface on the work piece. The "Capture Positions" feature enables the operator to quickly resolve work piece offsets and dresser alignment for easy set-up. Route and device operation positions can also be captured.

Open Vision™ HMI Grind simplifies the grinding process while providing helpful tools for operators and manufacturing engineers. Along with being able to quickly identify, by means of a color coded pictorial view, what operation and sequence is being performed at a particular time, the software provides the capability to log cycle events into a time-stamp log or debug the running of a program and store the results in a file or display them on the screen.

Taking advantage of the Windows platform Open Vision™ HMI Grind was written to include security features and the ability to perform system backups. Additionally, when required our software development team can create special screens to address the needs of specific processes.

Demonstrations of Open Vision™ HMI Grind and our controls systems are available upon request.



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## CERTIFIED PRE-ASSEMBLED RETROFITS MINIMIZE DOWNTIME

Retrofit systems are pre-assembled and pre-tested at our Enfield, CT facility while your machine remains online and running. The CPR (Certified Pre-assembled Retrofit) packages are then shipped to your location and installed with minimal downtime. The installation may be performed by CNC Engineering's install team, which is trained in quality workmanship and comprehensive safety procedures, by an authorized RIP (Retrofit Integration Partner) which are often local and familiar with your facility, processes and procedures or even by the end user themselves.

## TRAINING AND SUPPORT SERVICES

Following installation, on-site training is provided for operators and maintenance personnel. Hands-on exercises and interactive demonstrations enable students to apply newly acquired principles and skills, thus achieving a thorough understanding of the control and other newly added components. Instructions for troubleshooting and general maintenance are also provided. Additional training programs at your site or at CNC Engineering's training center may also be contracted.

A complete documentation package, which often surpasses that of the OEM, is provided in both CD and paper formats. An archive copy is maintained at CNC Engineering, so we can provide support after leaving your facility.

## IS YOUR GRINDER A...

ABA, Applied Grinding, Brown & Sharpe, Bryant, Butler Newall, Campbell, Cincinnati, Edgetek, Excello, Farrell, Gardner, Heald, ITM, Junker, KO Lee, Koyo, Knapp, Landis, Magerle, Moore, Motch, Nachi, Norton, Okuma, Pratt & Whitney, Producto, Service Network, Sheffield, Simmons, Sip, Studer, Thompson, Tschudin, Toyoda, UVA, Voumard

CNC Engineering  
has performed  
control retrofits  
on the above  
grinders and  
more!

