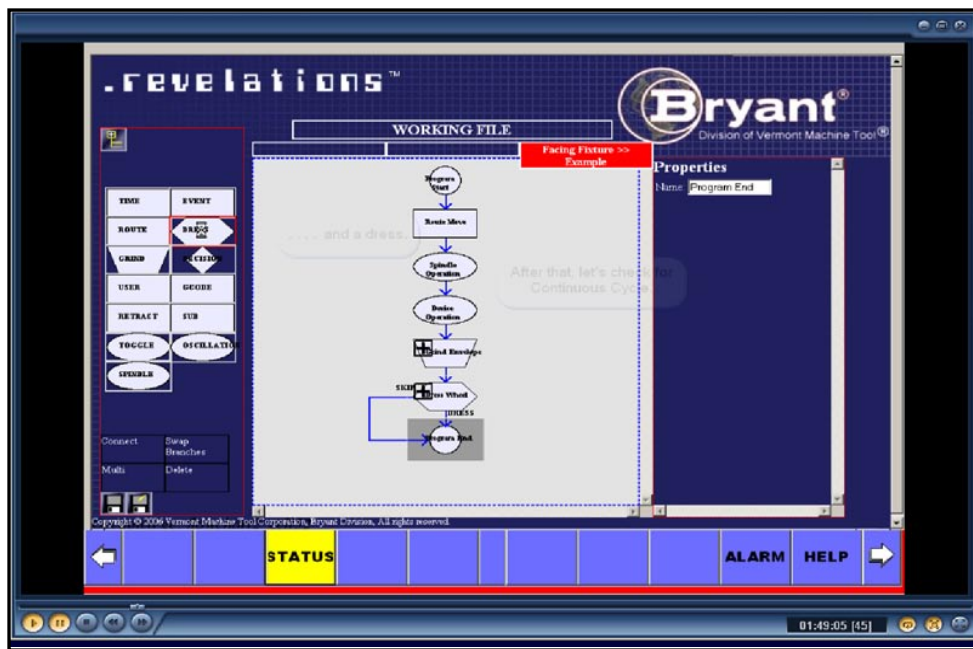


A REVELATION IN ADVANCED SOFTWARE TECHNOLOGY

By George Nelson

HERE ARE DETAILS ON A NEW SOFTWARE PACKAGE THAT
INCREASES PRODUCTIVITY, DECREASES PROGRAMMING, SETUP,
AND CYCLE TIMES, AND LEADS TO GREATER PROFITABILITY.

Bryant Grinder has always been at the forefront of grinding machine technology. Founded in Springfield, Vermont, in 1909, the company has the distinction of having introduced the first computer numerically controlled (CNC) grinding machine. Today, Bryant is leading the machine tool industry again with the introduction of its REVELATIONS™ CNC software.



WITH REVELATIONS™ SOFTWARE, ONE BUTTON CONVERTS THE INTUITIVE FLOWCHART TO TIGHT, EFFICIENT G-CODE.

REVELATIONS is intelligent, easy-to-use software that can be adapted for any machine tool that uses a PC-based control. With touch-screen controls and a familiar, simple operator interface, it is a powerful productivity tool for any production floor. Faster operator training, programming, setup, and cycle times, and less scrap all contribute to lower overhead and increased profitability.

“We created REVELATIONS in response to flaws we saw in our own and other companies’ control software and established the benchmark for CNC software in the machine tool industry,” says Craig B. Barrett, president and CEO of Bryant Grinder, a division of Vermont Machine Tool. “In an era of increasing global competition, for large manufacturers and small job shops alike, it’s no longer business as usual. Any shop or manufacturer using CNC machine tools can benefit from installing REVELATIONS software, maximizing their production and increasing profitability.”

Three-Button Operations

Based on Microsoft’s Windows, REVELATIONS was developed by Bryant machine operators, manufacturing engineers, and control software engineers. Their goals were to create control software that minimized screen navigation and was easy for both programmers and operators to use. REVELATIONS’ design allows users to call up any function or operation with three button pushes or less, increasing machine flexibility and reducing both setup and part-cycle time.

Currently running on a number of new and remanufactured grinding machines, REVELATIONS has proven itself as a tremendous tool on the production floor. With one customer’s part, cycle time was reduced from 157 to 29 seconds—a total savings of over two minutes per part. On that one machine alone the customer is realizing a savings of more than \$625,000 per year. At that customer’s shop rate, even a one-second cycle time reduction can translate to an annual cost savings of up to \$36,000.

Faster Cycles, Increased ROI

Cycle time reductions come both from the streamlined G-code and the flexibility of REVELATIONS. Canned G-code might look like the following example:

```
G1G90X100
If [#500EQ1]GOTO10
G1G90X101
If [#501EQ1]GOTO10
G1G90X101.1
If [#502EQ1]GOTO10
G1G90X101.2
```

Depending on the machine’s control, each “if” statement, each math statement, or each “think” statement can result in up to 10ms delay in cycle time due to line-by-line block processing time. In this example there are three delay statements for a loss of 30ms. Every hundred loss statements results in an additional one second of cycle time on every part. A typical canned cycle may contain several

thousand loss statements. The same code in REVELATIONS would appear as:

```
G1G90X100
G1G90X101
G1G90X101.1
G1G90X101.2
```

As experienced using a GE Fanuc 30i control, and using the same formula, REVELATIONS software eliminates the 10ms delay for each of the three “if” statements, reducing cycle time on those three statements alone by 30ms. For every 100 loss statements eliminated, cycle time is reduced by one second and, for example, at a customer’s shop rate of \$150, profitability is increased by as much as \$36,000.

Logical, Visual, and No Limits

REVELATIONS has just one programming screen with logical, visual flow charts to speed machine programming. With its unlimited sequence capability and self-configurable software, it lets users create a process with no limitations, making the machine faster, more flexible, and easier to operate.

Programmers design custom machine cycles in any sequential order. Then the software automatically generates the

VERSATILE FEATURES

- Single screen flowchart programming, and single screen for set-up and run.
- Supports any number of axes in any combination; any number of wheel, work and dresser spindles; all standard types of grinds and dresses including contour and profile; multi-path operations, including simultaneous operations in multiple paths; any number of programmable devices including loaders, gauges, wheel balancing; and any number of programmable trigger inputs from the machine: switches, positions, registers.
- Any combination or sequence of grinds, dresses, devices or other operations in any cycle.
- Grinds and dresses can contain any combination of nested operations: feeds, reverse feeds, dwells, and others.
- Skip dressing and any other desired program branching.
- Wheel, work, and dresser RPM adjustable at any point in a programmed cycle, as are oscillation parameters.
- Recognizes and translates G-code programs, and programmer can view and edit ladder from the PC.
- Servo parameters viewed and programmed from the PC.
- Ethernet connection to customer LAN for remote programming, and telemaintenance via Ethernet for real-time troubleshooting and software updates.
- Alarm, user log, and cycle operation history.
- Multiple password levels, and run-time strip chart of wheel drive horsepower, servo load, and multiple configurable events.
- Simulation mode for proving part programs, and context-sensitive help and complete user’s manual.

setco
RESET | Repair & Rebuild Services

Expert Spindle Repair, Rebuild & Retrofit Services

- Most Any Make & Model
- Belt-driven, CNC, Gear-driven & Motorized Designs
- Emergency Repair Services!
- Visit Our Website and **Save \$100**
www.setcousa.com

Western Service Center
5572 Buckingham Drive
Huntington Beach, CA 92649
866-362-0699 Toll Free
714-372-3730 Ph
714-372-3750 Fax

Great Lakes Service Center
41180 Vincenti Court
Novi, MI 48375
877-773-5349 Toll Free
248-888-8989 Ph
248-888-0765 Fax

Midwest Service Center
5880 Hillside Avenue
Cincinnati, OH 45233
800-543-0470 Toll Free
513-467-7262 Ph
513-467-7249 Fax

© 2006 Setco Sales Co. **setco** Set for Life

JCMT
精誠機床
JING CHENG MACHINE TOOL

Maximum module up to 30mm spiral bevel gear, zero bevel gear and hypoid gear by generating method.

■ Products range:

- CNC Spiral bevel gear generator series (Module 2.5mm-30mm, Diameter 125mm-1720mm)
- CNC Gear pointing machine series(diameter:30mm-400mm)
- CNC Spiral bevel gear lapping machine series(diameter:500mm)
- CNC Horizontal gear shaping machine (Max.diameter:1600mm)

Auxiliary machine series

- CNC gear cutter sharpener
- manual gear tester
- CNC spiral bevel gear tester
- Spiral gear cutter measuring machine

∅1720mmx30mm **YH6016 CNC spiral bevel gear generator**

TianJin Jingchen Machine Tool Works Co., Ltd.

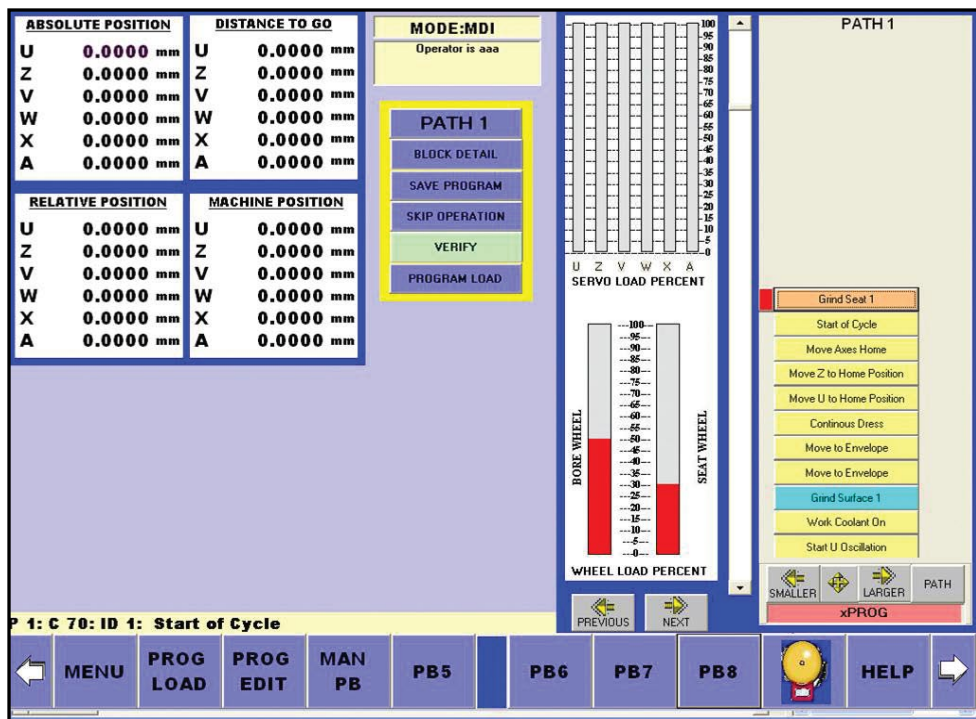
Headquarters:
Add: 10, Lixin oad, Dongli Economy development zone Tianjin P.R. China
Tel: 0086-22-24981172 Fax:0086-22-24981170 Post Code:300300
Web: www.tj-jcmt.com Email:jingcheng@tj-jcmt.com

USA office Sales & Service:
Address: 3921 Sandstone Drive El Dorado Hills, CA 95762
Tel: 916-939-3400/916-235-4505 Fax: 916-939-0912
Contact: Alan Avis
Email: alan@ottotool.com or kathy@lanex.com.cn

Czech Republic Agency:
Address: Kolbenova 61619002 Prague 9 Czech Republic
Tel:+420 283890111 +420 283892115 +420 306505108
Fax: +420 283893129
Contact: Jiri Horacek
E-mail: gearSpect@kovofekt.cz

Brazil Agency:
Telephone: 55114702-4433
Fax: 55114702-4433
Contact Person: Fernando B. Gandara Mendes
Mobile: 55119938-6131
Email: fernando@ghc-equipamentos.com.br

Germany Agency:
Address: UBTL Unternehmensberatung Vertrieb und Marketing
D-47661 Issum Heideweg 41
Telefon: 0180 100 192 4046
Telefax: 0180 548 200 41233
Contact: Theo Loy
E-mail: UBTL@freenet.de



MACHINE MONITORING SCREEN SHOWING WHEEL POWER GRAPH.

G-code and downloads it into the control. Unlike software using canned or macro-grind cycles that can drastically limit production times, REVELATIONS allows the programmer and operator to customize the cycle to best fit part and production requirements, with any number of

grind surfaces, individual grind states, dresses, and operations.

The programmer enters the operation sequences such as route moves, dwells, device toggles, decision branching, and custom G-code. There are user-selectable trigger and event inter-

actions that range from gauge stages and stock sensors to push-buttons, softkeys, and position triggers, among others. In addition, the software recognizes any number of programmable devices, including gauges, loaders, fluid control, counters, and others.

REVELATIONS incorporates adaptive features including horsepower grinding, CBN adaptive dress, adaptive skip dressing, acoustic dressing, and out-of-round grinding, with built-in learning capabilities. It can even add multiple axes on the fly.

Setup features are simplified by a graphical operation sequence display. Operators can position the machine by touch or data entry and can direct operations to be skipped. There is a size correction grid, a tool offset grid, and path enable/disable, allowing the operator to customize the operations needed to complete a particular part. Logical sequencing, pop-up windows, online manuals and schematics, and context sensitive help screens guide the operator through each step in the process, minimizing operator errors during machine start-up or part changeover.

Automatic Configuration

REVELATIONS was designed for maximum flexibility. It automatically reconfigures itself to run virtually any grinder, lathe, machining center, hobber, gear shaper, or special machine that uses a PC-based controller. It recognizes the number of axes, spindles, peripheral devices, and other features on the machine. Just by reading a listing of those items, it automatically reconfigures itself for that machine.

REVELATIONS must be purchased for and installed on each machine it controls. With only one screen to run the entire machine, it reduces operator training time from days to a few hours. Operators quickly become familiar with the common interface and can be easily cross-trained to run multiple machines. Cross-training and faster training times contribute to a company's lean initiatives, allowing for greater employee mobility and flexibility.

REVELATIONS graphically displays dressing forms and grinding profiles, and its built-in intelligence helps prevent the machine from crashing and creating bad parts. Monitoring machine operation becomes much simpler with REVELATIONS' graphing features, cycle time breakdowns, and log files that include cycle, operator, and machine logs.

Engineering Flexibility

REVELATIONS allows engineers using browser-based workstations to collect production data and manage machines based on that data. In addition, engineers can run part simulations and generate production estimates directly from their workstations long before a grind program

reaches the production floor. This type of simulation reduces setup time and lets the engineer manipulate cycles to fit production requirements.

With its optional Ethernet capability, REVELATIONS lets Bryant engineers troubleshoot and often resolve software, hydraulic, pneumatic, or electrical issues for machines anywhere in the world, minimizing downtime and reducing the need for service trips.

Online Documentation

For both machine operators and maintenance personnel, a "help" menu accesses all documentation, with hyperlinks for each and every stage of the process. All hydraulic, electrical, and pneumatic diagrams are also available on the machine.

According to Robby Little, a Bryant software engineer instrumental in developing REVELATIONS, "When I was a service technician, when I arrived on site to make repairs, more often than not the customers didn't have the necessary documentation for me to do my work," he says. "Digitizing

the operator's manual and schematics not only lessened downtime, it eliminated the burden of cataloging the machine documentation."

The Traditions of the Precision Valley

Since 1909 Bryant Grinder has been manufacturing innovative, state-of-the-art grinding machines and spindles designed for high-productivity and high-precision applications. As a recognized leader in the field of precision grinding, Bryant offers a complete line of CNC controlled grinding equipment, new parts, new spindles and spindle remanufacturing services of all types and different manufacturers. Vermont Machine Tool was founded in 1983, specializing in remanufacturing, retrofitting, retooling, and modernizing high quality machine tools to today's exacting standards. Bryant Grinder merged with Vermont Machine Tool in 2002, maintaining the long-standing machine tool manufacturing tradition of Vermont's Precision Valley.

"Over the course of time, so many machine tool innovations have come out of this region," Barrett says, "and we're proud of our heritage and continue to combine 'Yankee ingenuity' with advanced technology."

NOTES:

REVELATIONS™ is a trademark of Vermont Machine Tool Corporation. Bryant® and Bryant Grinder® are registered trademarks of Vermont Machine Tool Corporation. Bryant Grinder is a division of Vermont Machine Tool Corporation. Vermont Machine Tool® is a registered trademark of Vermont Machine Tool Corporation.

ABOUT THE AUTHOR:

George Nelson is sales manager for Bryant Grinder. To learn more call (802) 885-5161 or go online to [www.bryantgrinder.com]. To contact Vermont Machine Tool call (802) 885-4521 or go to [www.vermontmachinetool.com].

TALKGEARS

POWERFUL RESOURCE FOR GEAR MANUFACTURERS

A PLACE WHERE GEAR INDUSTRY PROFESSIONALS CAN GATHER AND CONNECT ANYTIME...

TALKGEARS.COM

MAXIMUM STORAGE in minimum space

Made by American Craftsmen in the USA

Stor-LOC Modular Drawer System

880 N. Washington Ave. Kankakee, IL 60901
Toll Free: 1.800.786.7562 • Fax: 1.800.315.8769
email: sales@storloc.com
www.storloc.com

THEM

US

With 8 Billion Encoder Solutions

Encoder.com

Has One Just Right for You!

Encoder Products Co.

"For World Class Performance"

© 2002 Encoder Products Co.