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600Group

POWERFUL CONVERSATIONAL CNC SYSTEM FOR KNEE AND BED MILLS

MILLPWR^{G2}

2 or 3 Axis Control / 3 Axis Readout

Powered by

ACU-RITE®

From the moment you power up your MILL**PWR**^{G2}® system, you'll know it was built with convenience in mind. From the exceptional clarity of a large full-colour LCD display to the added advantage of full 3D contouring capabilities and menu-prompted conversational programming, essential functions are only a key stroke away. Use MILL**PWR**^{G2} as a full function digital readout system, a programmable CNC control or both. It's powerful enough to handle any job and easy enough for anyone to operate. No prior programming experience necessary.

POWERFUL EASY.

Faster set-ups, shorter run times and a major boost in productivity are just one "powerful easy" retrofit away. The new ACU-RITE MILL**PWR**^{G2} control and retrofit kits can turn just about any knee mill into a productive CNC machine.

USB and Ethernet compatible, the new G2 features a bright 12.1" high resolution display, 1.4 GHz dual-core processor and plenty of programming capabilities — estimated runtimes, expanded tool/datum offsets, enhanced tool paths, a dxf converter — plus much, much more.

The MILL**PWR**^{G2} is a contouring control that enables you to program conventional machining operations right at the machine in an easy-to-use conversational programming language. It is designed for both knee mills and bed mills with up to 3 axes closed loop controlled.

MILL**PWR**^{G2} was developed specifically for machinists where manual and automated operation are both useful and needed. It's designed to maximize throughput by significantly reducing set-up time, scrap, and other non-productive operations, thereby increasing your efficiency, productivity and profitability.

A closed-looped system with positioning feedback provided by ACU-RITE precision linear encoders (1µm/0.00005" resolution), MILL**PWR**^{G2} also includes Position-Trac™, an advanced, unique feature that enables you to easily, quickly and accurately re-establish work piece zero after shutting down, or power loss.

USER-FRIENDLY.

SAVE VALUABLE TIME.

Standardised menus make it easy to program common features, simply press any function key and follow the prompts. Use MILL**PWR**^{G2} for arcs, blends and circles in any size, shape or pattern your print requires. There is no need to set up rotary tables or other devices. MILL**PWR**^{G2} also includes an engrave option for engraving alphanumeric characters vertically, horizontally, diagonally or along an arc.

Save time with the skew feature, which enables the user to set up a work piece without perfectly aligning it along the X and Y axes. MILL**PWR**^{G2} will compensate for the angle offset from start to finish.

The teach position feature allows the operator to use a tool, electronic Edge Finder or indicator to create a program from an existing part.

Tool Library
Create a list of frequently used tools to save time while programming a part.

Tool Offsets
Automatically compensate for the tool's dimensions while machining.

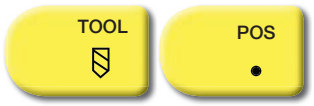
Custom Pocket/Islands
Clear a continuous closed contour with an irregular shape for multiple passes. Tool path estimated for reduced machine time.

Mirror/Repeat/Rotate
Easily manipulate part programs to save time and reduce program steps.

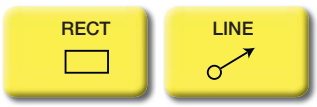
Explode
Explode a program step into several, more detailed steps for easier editing.

Reverse Step/Reverse Path
Switch the end points and tool offset of any step or path.

Change Steps
Change or edit the depth, offset, feed rate of several steps simultaneously.



Tool: Program tools by diameter, length, type, direction, speed.
Position/Drill: Drill, bore, position.



Rectangles: Pocket, frame, face, slot.
Lines: Defined by "from" and "to" points or by angles.

Circles: Pocket, frame, ring, helix.
Arcs: Defined by "from" and "to" points or by sweep, center or 3-points.

Hole Patterns: Full/ partial circles, linear row/column, rectangular frame and array.
Blends: Insert a corner radius between two lines, two arcs or lines and arcs.

USB Connectivity – Front & Back:
Loading and off-loading programs, importing data via USB is now a plug-and-play convenience, with USB ports located on both the front and the back of the new G2 control with mouse and keyboard support.

SHOP TOUGH.

DEPENDABLE.

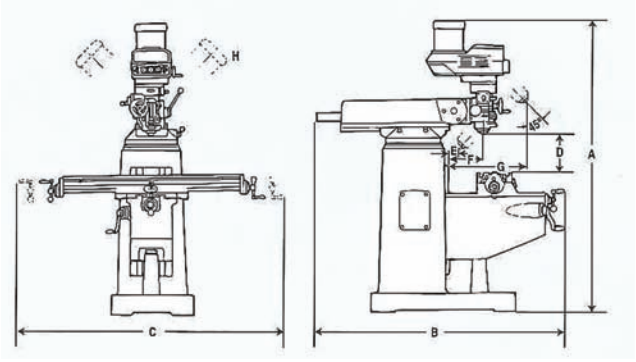
Every MILL**PWR**^{G2} system includes components that have been designed, manufactured and tested to withstand the elements of contamination found in even the harshest machine shop environment.

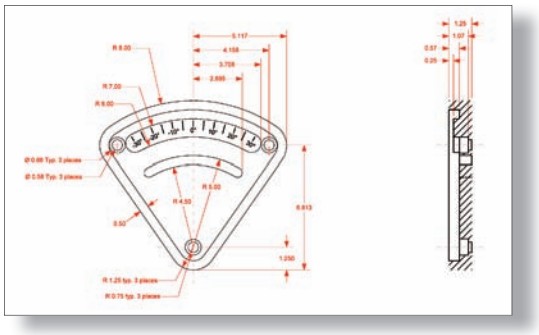
From the durable operator console to the hardened ballscrews and powerful DC servo motors, the components of each system are protected with die-cast metal enclosures, sealed keypads and interlocking lipseals to further protect from metal chips and other contaminants.

SPECIFICATIONS

	2VS	3VS	4VSQ
Table Size	9"x49" (230x1245mm)	10"x54" (254x1370mm)	10"x54" (254x1370mm)
No. of T-Slots	3	3	3
T-Slot Width	1.1" (28mm)	1.1" (28mm)	1.1" (28mm)
T-Slot Center Distance	2.08" (52mm)	2.48" (63mm)	2.48" (63mm)
Table Ways	Dovetail	Dovetail	Dovetail
Knee Ways	Dovetail	Square	Square
Column Ways	Dovetail	Dovetail	Square
Travels: X Longitudinal	38.18" (970mm)	39.56" (1005mm)	41.33" (1050mm)
Travels: Y Cross	14.17" (360mm)	15.55" (395mm)	15.35" (390mm)
Travels: Knee	13.97" (355mm)	15.55" (395mm)	13.97" (355mm)
Travels: Ram	18.5" (470mm)	22.04" (560mm)	21.85" (555mm)
Motor Hp. variable	3 (2.25Kw)	3 (2.25Kw)	5 (3.75Kw)
Variable Spindle Speed rpm Low Range High Range	85-4350 75-780 515-4350	85-4350 75-780 515-4350	85-4350 75-780 515-4350
Main Spindle Taper	R-8 or ISO-30	R-8 or ISO-30	ISO-40
Spindle Travel	5" (127mm)	5" (127mm)	5" (127mm)
Quill Feed (2 axis)		0015/.003/.006in/rev. (.004/.008/.015mm/rev)	
Quill Diameter	3.38" (86mm)	3.38" (86mm)	4.13" (105mm)
Column Turret Diameter	14.96" (380mm)	14.96" (380mm)	15.35" (390mm)
Knee Width	11.42" (290mm)	11.42" (290mm)	13.39" (340mm)
Column Bearing Length	16.54" (420mm)	17.91" (455mm)	16.93" (430mm)
Saddle/Table Bearing Length	19.88" (505mm)	20.28" (515mm)	20.28" (515mm)
Ram/Turret Bearing Length	16.14" (410mm)	17.32" (440mm)	17.13" (435mm)
Ram Length	28.94" (735mm)	41.73" (1060mm)	33.46" (850mm)
Table Load	665 lbs. (302kg)	665 lbs. (302kg)	1108 lbs. (503kg)
Net Weight	2100 lbs. (950kg)	2985 lbs. (1350kg)	3210 lbs. (1450kg)

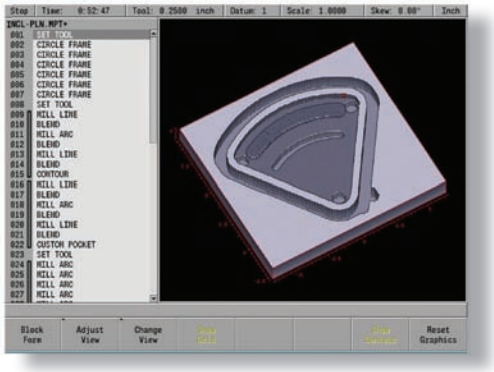
	2VS	3VS	4VSQ
A Height	89" (2255mm)	88" (2230mm)	89" (2255mm)
B Depth	66" (1675mm)	71" (1790mm)	106" (2700mm)
C Width	99" (2520mm)	76" (1920mm)	78" (1970mm)
D Table to Spindle	3.15"-17.12" (80-435mm)	3.94"-19.01" (100-483mm)	4.52"-18.5" (115-470mm)
E 45° Inward	0-19.68" (0-500mm)	1.57"-16.53" (40-420mm)	0-18.89" (0-480mm)
F Spindle ø to Column	4.53"-23.03" (115-585mm)	9.45"-29.92" (240-760mm)	7.28"-29.13" (185-740mm)
G 45° Outward	6.89"-29.39" (175-645mm)	12.20"-27.16" (310-690mm)	7.48"-29.33" (190mm-745mm)
H Head Tilt	90° right & left	90° right & left	90° right & left





FROM SKETCHES TO PROGRAM TO FINISHED PARTS.

IN MINUTES!



Bring a brainstorming session to life with simple features that reduce programming time. DXF file input allows the operator to import part geometry directly from a CAD file. After the DXF file has been loaded, save on MILL**PWR**^{G2}'s large internal memory, USB or on your PC (via Ethernet) for easy retrieval later on.

VERSATILE.

CONVENIENT. EFFICIENT.

Use MILL**PWR**^{G2} as a full function DRO, an intelligent power feed or a programmable CNC. This versatile system allows the operator to switch from full automatic mode to manual mode in just seconds. Import and run G-Code files from CAD/CAM programs to machine full 3D contoured parts. With optional spindle control, you can automatically control your spindle's speed and/or direction on milling machines that are equipped with an electronic variable speed spindle.

Travel Limits
Establish maximum travel limits with software, instead of costly mechanical switches that reduce travel.

Feed Rate Override
Adjust the feed rate without exiting the milling function or program. Spindle speed override in optional spindle control console.

Reference Tables
Look up recommended surface speeds in seconds.

Remote Stop/Go
Start and pause movement with a hand held switch

Jog Control
Move quickly from one location to another utilizing one or all axes simultaneously.

Full Function DRO
Significantly improve efficiency, productivity and profitability; may be used automatically or manually.

Immediate Part-View Graphics
Verify part-programs before and during machining to reduce errors and scrap; use zoom features for intricate details.

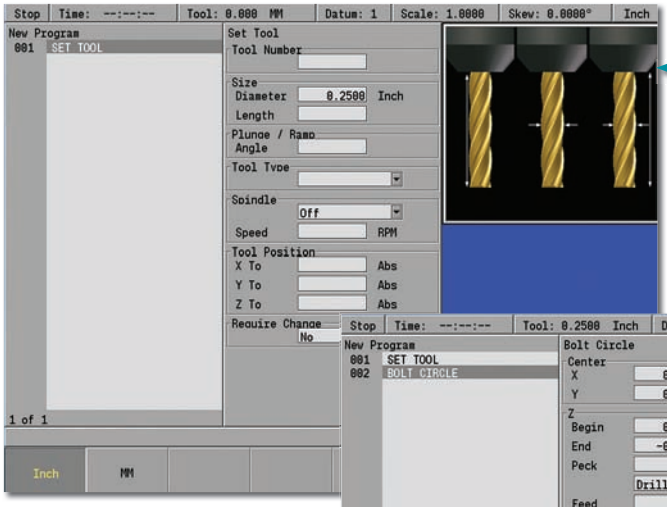
Built-In Calculator
Solve geometry and trigonometry problems. Save time and avoid errors by transferring results directly to your part program.

3D GRAPHICS SYSTEM.

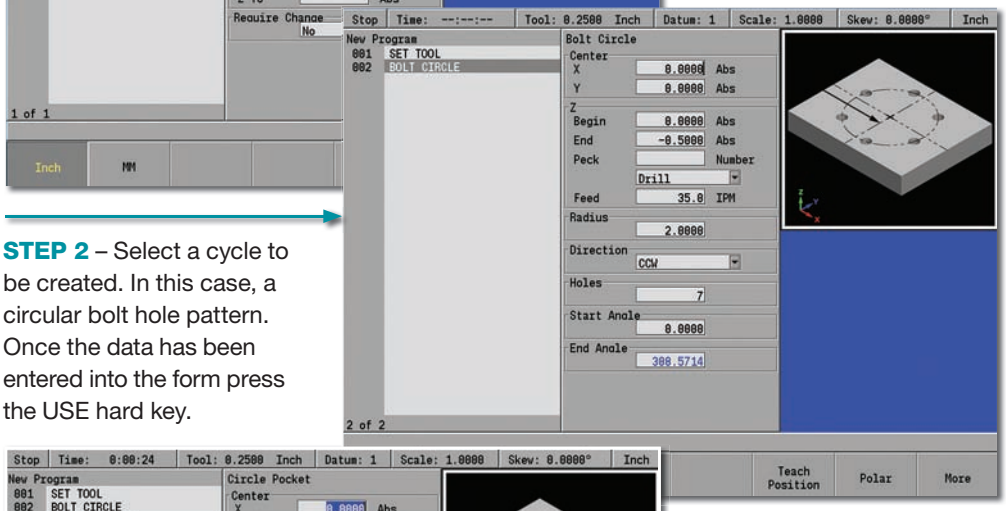
IMPROVES EFFICIENCY & ACCURACY

Intuitive navigation menus eliminate the need for multiple screens.

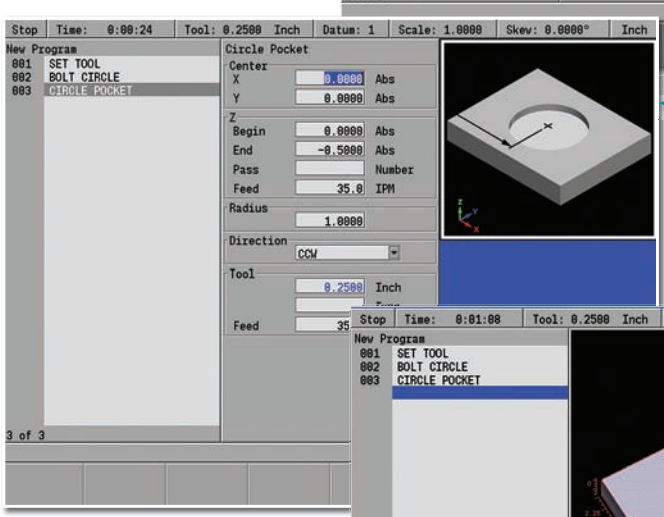
Program cycles using a simple, easy-to-understand set of machinist language prompts, are accompanied by content-specific "help" graphics. Here is a step-by-step look at the new G2 graphical interface, as a simple bolt hole circle and pocket are entered.



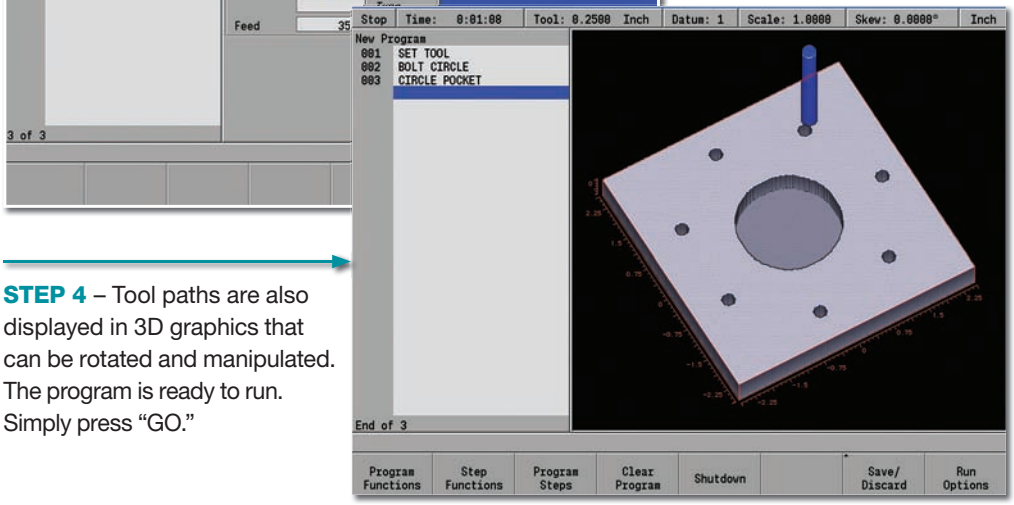
STEP 1 – All programs begin with the tool. Parameters are entered in the middle column and are graphically supported in the right column for each field.



STEP 2 – Select a cycle to be created. In this case, a circular bolt hole pattern. Once the data has been entered into the form press the USE hard key.



STEP 3 – Create a second cycle. Adding a circular pocket that is mapped in real time within the help graphic screen.



STEP 4 – Tool paths are also displayed in 3D graphics that can be rotated and manipulated. The program is ready to run. Simply press "GO."

MILLPWR G2

SPECIFICATIONS

DRO Mode	
Multiple Datums (Fixture Offset)	99
Skew	Yes
Zero Reset	Yes
Near Zero Warning	Yes

PGM Mode	
Estimated Machining Time	Yes
View Graphics	2D Line / 3D Line / 3D Solid
Block Form	Yes, w/ User Override
Custom Pocket & Islands	Yes, Ramp Feed & Optimised Path
Replication (Repeat, Rotate, Mirror)	Yes
Engrave (Line / Arc)	Yes
Program Manager Navigation	Tree w/ Program Type Filter
Long Program Names	Yes
Program Preview	Listing & Graphic w/ Estimated Machining Time
Explode Step	Hole Patterns & Repeat / Rotate / Mirror
Reverse (Step / Path)	Yes
Shift Steps	Yes
Auto Save (Program)	Yes
Program Size Limit (MPT only)	9999 Steps
DXF File Import	Yes
G-code Program	Yes, w/ Graphics Support/Simple Edit
On-Screen Help	User Manual Viewer (Text & Graphics)
Parts Counter & Clock	Yes
Manual / Auto Z Control	Yes, 3 Axes
Optional Stop (G-code Only)	Yes
Feed Override	Potentiometer
Error Compensation	Linear & Bidirectional Non-linear

Hardware	
Processor	1.4 GHz Dual Core Celeron® Processor
Display	12.1" 1024 x 768 Color TFT LCD
Internal Storage	2.5 GB Flash (User)
Remote Pendant (Stop / Go)	Yes
Housing	Die Cast Metal (Bezel & Back Sheet Metal)
Connections	Ethernet, USB (x2)
Protection	IP 54 (front) / IP 40 (Back)

Accessories & Options	
Knee Scale for Coupling Z (Quill) and W (Knee)	Provides positional feedback in the control
Electronic Edge Finder or Touch Probe	Electronically set datums quickly and easily
Offline Software	Create programs on Windows compatible PC

Control now available in English, French, German and Spanish language options.

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Clausing Precision Drills
- Clausing Belt-drive Drills
- Clausing Gear-head Drills
- Clausing Radial Drills

Clausing Precision Mills
- Clausing Bed Mills
- Clausing CNC Bed Mills
- Clausing Knee Mills
- Clausing EVS Knee Mills
- Clausing Universe Mills

Clausing Precision Lathes
- Clausing Large Swing Centre Lathes
- Clausing Large Swing CNC Lathes

Clausing Precision Grinders
- Clausing Manual Grinders
- Clausing 2 Axis Hydraulic Grinders
- Clausing 3 Axis Hydraulic Grinders
- Clausing Automatic Grinders

Clausing Precision Saws
- Clausing Horizontal Bandsaws
- Clausing Vertical Bandsaws

ACU-RITE offers a complete line of digital readouts and precision linear encoders.

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