T-Tech, Inc.
☎ 770.455.0676 www.t-tech.com

T | TECH
Quick Circuit Prototyping Systems

QUICK CIRCUIT QCJ5 SERIES
Intelligent Solution



QCJ5 setting the **NEW** standard for in-house prototyping!

Introducing the new Quick Circuit QCJ5 T-Tech's advanced PCB Prototyping system!
The QCJ5 delivers the precision, the speed, and automation required to take your prototyping capabilities to the next level.

Empower yourself with these QCJ5 standard features!

3 axis motion with 3.0" of z-axis travel	JVision® fiducial recognition and alignment
12, 24 or 32 position automatic tool change	Front Panel and Software Controls
ContactByTouch® automatic depth control	60,000 or 100,000 rpm spindle
CheckByTouch® tool detection w/linking	ALCOA MIC6® integrated precision vacuum table
PreTouch® pressure foot	254mm x 330mm (10" x 13") work surface
Integrated sound enclosure	IsoPro® software

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SPECIFICATIONS

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	QCJ5-60	QCJ5-100
Work Area	330 x 250 x 90 mm (13 x 10 x 3.5 inches)	
Board Area	330 x 250 mm (13 x 10 inches)	
Minimum Drill Hole Size	0.1 mm (0.004 inch)	
Minimum Trace	0.1 mm (0.004 inch)	
Minimum Clearance	0.1 mm (0.004 inch)	
Drilling Speed	150 Holes/min	
Milling Speed	3,800 mm/min (150 inches/min)	
Traverse Speed	3,800 mm/min (150 inches/min)	
Vertical Travel (Z Axis Travel)	76 mm (3.0 inches)	
Resolution	0.006 mm (0.000250 inch)	
Repeatability	0.003 mm (0.000125 inch)	
Axis Motion Control	X, Y, Z Stepper Motor	
Air Requirements	6.5 bar (95 PSI)	
Average Hits Per Bit	11,000	
Tool size	3.175mm (0.125 inch Shank Diameter) Industrial Standard	
Vacuum Table	Integrated	
Tool Depth Control	Automatic	
Pressure Foot System	PreTouch®	
Spindle Speed RPM	5,000-60,000 RPM	5,000-100,000 RPM
Spindle Motor Type	3 Phase 300 Watts	
Tool Change	Automatic	
Collet Actuation	Pneumatic	
Tool Pods	12, 24, 32	
Spindle Speed	Software Controlled	
Supported File Formats	Standard Gerber, Excellon/NC Drill, HPGL and Optional DXF	
Front Panel Controls	Standard	
Fiducial Recognition & Alignment	Optional*NOT AVAILABLE AT THIS TIME	
Solder Paste Dispenser	Optional	
Computer Requirement	1.5GHz Processor, 2GB RAM, Windows 10	
Power Supply	100-240 Volt, 50-60Hz	
Machine Dimensions	660 x 660 x 500 mm (26 x 26 x 20 inches)	
Machine Weight[1]	72 kg (160 lbs.)	

IsoPro® Software

"IsoPro is the world leading software for milling and drilling of circuit board rapid Prototyping."

T-Tech's industry leading IsoPro® software allows users to become productive immediately. View and edit standard CAD output, create single or multiple isolation paths, specify partial or complete copper removal, and edit standard CAD output data. IsoPro's® improved optimization reduces milling, drilling, routing, and calibration time. You may view machine status in real time with the new machine status bar. IsoPro® software provides a simple to learn method of controlling milling, drilling, and routing procedures. This industry leading intuitive software program comes with the purchase of any Quick Circuit System and is available for download at www.t-tech.com.

3 Axis Motion Control

"Pocket milling of microwave boards, de-panel, repair circuit boards, fabricate enclosures, or engrave text on panels and housings."

3-Axis motion control empowers you to increase your ability to approach requirements that standard XY milling machines are incapable of de-panel populated boards, repair circuit boards, fabricate microwave enclosures as well as pocket milling for microwave applications to name a few. The QCJ5 provides you with the equipment to take prototypes further down the design to test path, in house, in less than an hour.

Automatic Tool Change 12, 24 or 32 Position

"Projects run unattended and uninterrupted, adding valuable time back into your day."

The Quick Circuit QCJ5 offers you automated tool changing system choices ranging up to 32 positions. Automatic Tool Change allows your system to run unattended and uninterrupted, providing time savings up to 400%, adding valuable time back into your day.

ContactByTouch® Automatic Depth Sensing

"CBT calibrates the tool height and depth of cut automatically with each tool change, ensuring the highest level of precision and accuracy in all milling procedures."

The Quick Circuit QCJ5 provides software-controlled depth of cut settings, ensuring precision and accuracy in all milling procedures. ContactByTouch® automatic depth control allows you to enter the depth of cut directly into software. A calibration target in IsoPro allows you to locate a target on your board to set the depth of cut. This is the most accurate way for your software to set the depth of cut.

CheckByTouch®

"CheckByTouch calibrates the tool height at the start of your board and after each tool change for smart tool management."

The CheckByTouch® function of the Quick Circuit QCJ5 allows you to replace broken tools automatically. This option in IsoPro® allows you to measure the tool length at the beginning of your milling or drilling process and when finished, before changing tools IsoPro® checks the length and compares it to the start value. By comparing these values, if a tool wears excessively or breaks while milling, IsoPro® alerts you, pauses the mill and allows you to restart the milling or drilling mid circuit until the end of the file.

Tool Linking

"The tool linking routines in the IsoPro® software allows for smart tool management."

The IsoPro® software automatically links common tools and when the maximum number of holes are drilled that you specify, the system will automatically return the used tool, picks up a new tool, and continues drilling. For milling you specify the length of milling path and IsoPro® links the tools accordingly.

Accelerated Precision and Accuracy

"Create resolutions as fine as .004 mm (.000250") with traverse speeds as high as 150 in/min."

The Quick Circuit QCJ5 is capable of producing resolutions as fine as .006 mm (.000250") at traverse speeds as high as 150 inches per minute. Improve the quality of your fine pitched SMT, R/F Microwave, high speed digital and RF designs. Achieve the ultimate in precision, accuracy, and quality at maximum speeds!

Trace and Space Insulation Width

"Mill traces as small as 0.100mm (0.004 inch) and spaces as small as 0.100mm (0.004 inch)."

The precision of the Quick Circuit and the micro-grain carbide tooling and programmable tool feeds and speeds make it easy to produce fine line spaces and traces.

Variable Speed Spindle

"Available with a choice of 60,000 or 100,000 RPM and manual or automatic tool change."

The precision made, dynamically laser balanced spindles are the best in the industry. IsoPro® automatically sets the tool feed and speed based on your material, tool diameter, and tool type.

JVision® Fiducial Recognition and Alignment *NOT AVAILABE AT THIS TIME*

"Automatically Align circuit boards for front to back registration or multilayer alignment."

IsoPro® and the powerful QCJ5 JVISION® Camera works together to automatically align prototypes with your digital data for rework, de-paneling and more.

JVISION® fiducial recognition provides QCJ5 prototyping system users with the ability to align a circuit board for multilayer production or rework, through the use IsoPro® software managed fiducial recognition.

The JVISION® method of fiducial recognition provides alignment accuracy that is not available on a pin-only alignment system. JVISION® combined with the QCJ5's 3.0 inches of vertical z-axis travel, provides users with the ability to easily de-panel populated SMT circuit boards. If rework of your board is required, JVision allows you to align your prototype accurately and confidently for further refinement.

ALCOA MIC6® Fully Integrated Precision Vacuum Table

"Secure materials to the precision flat surface ensuring accurate depth of cut."

The Quick Circuit QCJ5 is equipped standard with a fully integrated precision flat vacuum table allowing users to create prototypes on standard, exotic, thin or flexible materials with greater precision. The combination of our matched PreTouch® pressure foot and integrated vacuum table ensure that any material is held secure and precision flat, greatly increasing the ability to create a consistent depth of cut on analog, digital, RF/Microwave, or small fragile prototypes.

PreTouch® Pressure Foot

"PreTouch® system applies evenly distributed pressure to the substrate prior to the drilling or milling operation"

The Quick Circuit QCJ5 features a state-of-the-art pneumatic pressure foot that applies evenly distributed pressure to the substrate prior to the drilling or milling operation. The PreTouch® technique secures the material to the table prior to determining material height, or entry of a selected milling tool. You are able to drill 100 micron-.004" holes with controlled feed rates and precision. The ability to easily and precisely regulate the pressure applied makes the QCJ5 system ideal for working with delicate materials such as Rogers TMM, RO3000/4000/5000/6000, and other soft or flexible circuit board materials.

The Quick Circuit QCJ5 PreTouch® pressure foot provides increased accuracy in all milling processes. The PreTouch® pressure foot contacts the material prior to all tooling procedures ensuring that all material is precision flat, prior to all milling procedures. The amount of pressure applied by the PreTouch® pressure foot may be varied based on the material being milled. Increased pressure for thicker substrates, reduced for thin/flexible materials. Pressure is automatically set in the software or can be easily adjusted on the front control panel.

Integrated Sound Enclosure

"The sound enclosure comes integrated on all the QCJ5 Systems."

The integrated Sound Enclosure covers your Quick Circuit with sound dampening acoustical foam, reducing noise level to a quiet 63db while providing a safe environment for the Quick Circuit system.

Integrated Front-Panel Controls

"Front panel controls provide the convenience of local access to common system commands."

When operating the milling machine, all commands on the front panel are included in the IsoPro software. Sometimes this is not convenient to reach for a mouse when standing in front of the equipment. For this reason, we have the integrated Front-Panel controls. The QCJ5 is the only desktop milling system on the market to provide the convenience of front panel control of common system commands.

Home Position	Drill Feed Rate
Home Position Pause	Z-Axis Up /Down
X/Y Jog Continuous or Incremental	Pressure Foot Up/Down
Jog Feed Rate	Pressure Foot Up/Down Force Adjustment
Mill Feed Rate	Vacuum Table
Spindle RPM Adjustment	Material Change