

QuakeLogic QL-LinearWire 650 Pro

The **QuakeLogic QL-LinearWire 650 Pro** represents the next generation of **industrial-grade, mission-ready Wire Electrical Discharge Machining (EDM) systems**, specifically engineered and factory-configured to meet or exceed all mandatory technical, electrical, safety, and performance requirements specified under **U.S. Army Solicitation No. W911S226U2323**.

Designed explicitly for government manufacturing, maintenance, tooling, and fabrication operations, the QL-LinearWire 650 Pro delivers exceptional accuracy, repeatability, and long-term operational stability through its rigid mechanical structure, AC-servo motion architecture, and precision control platform. This system eliminates the compromises often found in commercial EDM equipment, providing a defense-grade solution built to withstand continuous industrial operation in demanding government facilities.

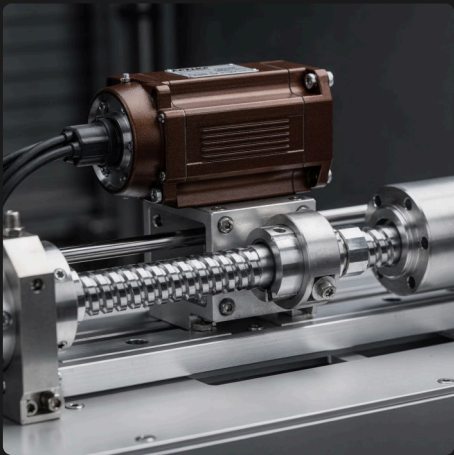


Machine Structure & Motion System

The QL-LinearWire 650 Pro is built on a **heavy-duty welded steel frame** specifically engineered to ensure superior vibration damping, structural rigidity, and long-term geometric accuracy under continuous industrial operation. This foundation provides the mechanical stability essential for maintaining tolerances in high-precision government manufacturing applications.

Motion & Drive Architecture

The machine employs an **AC servo drive system** across all primary axes (X/Y/Z/U/V), providing responsive, accurate positioning with exceptional repeatability. The precision ball-screw motion platform on all axes ensures consistent performance over millions of cycles, while the **simultaneous 4-axis interpolation capability (X-Y-U-V)** enables complex geometry cutting for intricate defense components. A centralized automatic lubrication system maintains optimal performance and extends component service life.



Axis Travel Specifications

All axis travel dimensions meet or exceed solicitation minimum requirements, providing operational flexibility for diverse government fabrication tasks:

<div><div>f</div><div><div>X-Axis</div><div>650 mm travel capacity</div></div></div>	<div><div>f</div><div><div>Y-Axis</div><div>500 mm travel capacity</div></div></div>
<div><div>↕</div><div><div>Z-Axis</div><div>480 mm travel capacity</div></div></div>	<div><div>⚙</div><div><div>U / V Axes</div><div>±60 mm taper adjustment</div></div></div>

Cutting Capability & Performance

The QL-LinearWire 650 Pro delivers **stable, repeatable cutting performance** across the full spectrum of conductive materials commonly utilized in defense and industrial fabrication operations. The system's advanced pulse generator technology, coupled with adaptive control algorithms, ensures consistent material removal rates and surface finish quality regardless of workpiece material or geometry complexity.

Performance Characteristics

- **Maximum taper capability:** $\pm 10^\circ$ at 200 mm workpiece thickness
- High-precision wire feeding with **servo-controlled wire tension** management
- Automatic wire threading capability for submerged machining operations
- Optimized flushing system designed for dimensional stability and chip evacuation

Material Compatibility

- Carbon and alloy steels
- Stainless steels (300/400 series)
- Aluminum alloys
- Tool steels (D2, H13, S7)
- Nickel-based and specialty conductive alloys

Dielectric System Excellence

The multi-stage filtration system achieves **≤ 5 -micron filtration performance**, ensuring consistent cut quality by maintaining dielectric fluid purity throughout extended production runs. This level of filtration is critical for achieving repeatable surface finishes and maintaining tight tolerances in precision government applications.

Work Envelope & Capacity

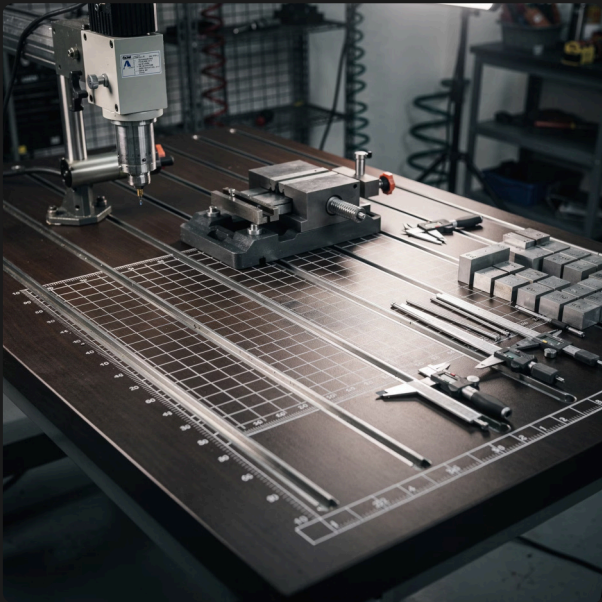
The extended working envelope of the QL-LinearWire 650 Pro supports both small precision components and larger-format workpieces without compromising accuracy or requiring workpiece repositioning. This versatility enables government facilities to consolidate multiple machining operations onto a single platform, reducing equipment footprint and operational complexity.

200mm	600mm	700mm	600kg
Maximum Thickness	Maximum Width	Maximum Length	Maximum Weight
Accommodates thick-section defense components	Wide-format workpiece capacity	Extended length capability	High load capacity worktable

Worktable Specifications

The **850 × 650 mm worktable** exceeds solicitation minimum requirements and provides ample surface area for fixture mounting and workpiece positioning. The table's T-slot configuration accepts standard tooling and fixturing components, enabling rapid setup changes and secure workpiece clamping.

The table surface is precision-ground and includes integrated coolant channels for effective flushing during cutting operations. The robust construction supports the full 600 kg load capacity while maintaining flatness specifications across the entire working surface, ensuring consistent machining accuracy regardless of workpiece size or weight distribution.



This generous work envelope eliminates the need for expensive multi-setup operations on large components, reducing manufacturing time and improving dimensional consistency. Government facilities can process complete assemblies or multiple smaller parts in a single setup, significantly improving throughput for both maintenance depot operations and original equipment manufacturing requirements.

Control System, Electrical & Safety

Control System

The QL-LinearWire 650 Pro employs an industrial-grade CNC control platform featuring a comprehensive **English-language interface** optimized for government operators. The system provides real-time closed-loop control of all five axes (X/Y/Z/U/V) with integrated pitch-error compensation to maintain accuracy across the entire working envelope.

Multiple input options include keyboard, Ethernet (LAN), and USB connectivity, supporting diverse workflow requirements. The control system maintains full compatibility with Mastercam and other industry-standard CAD/CAM platforms, enabling seamless integration with existing government design and manufacturing infrastructure.







Electrical Compliance

The electrical system is configured specifically for U.S. government facilities with **208V / 60Hz / 3-Phase** power requirements. All electrical components are UL-listed, and the complete system conforms to the following standards:

UL 508A Industrial Control Panels — Comprehensive safety standards for industrial control panel construction and installation	NFPA 79 Electrical Standard for Industrial Machinery — National electrical code requirements for industrial equipment	OSHA 29 CFR 1910 Electrical Safety — Federal workplace safety requirements for electrical systems and equipment
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Safety Features

Comprehensive safety systems protect operators and equipment while ensuring regulatory compliance:

 Emergency Stop Dual independent emergency-stop circuits accessible from multiple operator positions	 Protection Systems Overtravel, overload, and wire-break protection with automatic fault detection
 OSHA Compliance Complete guarding, interlocks, and hazard labeling per federal workplace standards	 Documentation Complete SDS, JSA, and PPE documentation provided with equipment delivery

Delivery, Training & Support

The QL-LinearWire 650 Pro is delivered as a **complete turnkey system**, fully configured, factory-tested, and ready for immediate operation upon installation. QuakeLogic's comprehensive delivery and support program ensures rapid deployment and sustained operational readiness throughout the equipment lifecycle.

Included Services



Delivery & Installation

Complete rigging, installation, and commissioning by factory-certified technicians



Verification Testing

Full accuracy verification and acceptance testing per solicitation requirements



Operator Training

On-site comprehensive training for minimum three (3) Government personnel



Documentation

Complete operator, maintenance, and safety manuals in printed and digital formats

Warranty & Support

QuakeLogic stands behind the QL-LinearWire 650 Pro with industry-leading warranty coverage and support infrastructure designed specifically for government operations:

- **12-month full system warranty** covering all parts, labor, and travel expenses
- Spare parts availability **guaranteed for minimum 10 years** from delivery date
- **Lifetime remote diagnostics and technical support** via dedicated government support line
- U.S.-based engineering and service organization with security-cleared personnel



Our commitment extends beyond initial installation. The QuakeLogic service network provides responsive technical support, preventive maintenance programs, and rapid parts delivery to minimize downtime and ensure mission-critical manufacturing operations continue without interruption. All support services are delivered by U.S.-based personnel with comprehensive understanding of government facility requirements and security protocols.

Advancing Machining Precision with QuakeLogic Excellence

Empowering technical education programs, engineering laboratories, and precision manufacturing environments with uncompromising accuracy, reliability, and machining control, the **QuakeLogic QL-LinearWire 650 Pro** sets a new standard in instructional Wire EDM performance. Engineered for precision cutting, advanced tooling workflows, and complex geometric machining, the system delivers laboratory-grade motion accuracy, stable machining performance, and long-term operational durability.

Connect with QuakeLogic: Your Partner in Precision Wire EDM Technology

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For strategic collaborations, enterprise-level instrumentation solutions, and comprehensive technical inquiries.

Our Unwavering Commitment to Operational Excellence



Certified Quality Assurance

Complying with international standards for product reliability, performance, and safety.



Pioneering Industry Leadership

Delivering advanced spectroscopy and sensing technologies that ensure precision, repeatability, and ease of use.



Dedicated Client Success

Providing responsive technical support, calibration guidance, and complete after-sales assistance for every system delivered.

Explore Our Complete Product Portfolio



Scan to Access Cutting-Edge Solutions

Discover how QuakeLogic's advanced Wire EDM technologies can modernize your machining workflows, enhance instructional capability, and elevate precision manufacturing to new heights.

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