QUAKELOGIC

QuakeLogic QL-CleanPro 1500: Industrial Fiber Laser Cleaning System

QL-CleanPro 1500 represents a transformative advancement in industrial surface preparation technology. This 1.5kW Continuous Wave (CW) fiber laser cleaning system delivers precision, power, and reliability for heavy-duty fabrication environments across North America. Engineered to replace conventional abrasive blasting methods, the QL-CleanPro 1500 eliminates consumable media, reduces environmental impact, and provides repeatable cleaning performance that meets the demanding requirements of modern manufacturing operations.

CUSTOMER SATISFACTION 100% GUARANTEED

MADE IN USA WITH GLOBAL MATERIALS SOURCED

Built on proven fiber laser technology, this system addresses the full spectrum of surface preparation challenges facing industrial facilities today. From heavy rust and mill scale removal to precise paint stripping and weld preparation, the QL-CleanPro 1500 delivers consistent results with minimal operator intervention. Its portable, shop-floor-ready design enables rapid deployment across multiple workstations, while integrated cooling and safety systems ensure reliable operation during extended production cycles.

Heavy Rust & Mill Scale Removal

Eliminates deep oxidation and industrial scale buildup with precision and speed

Paint & Coating Stripping

Removes industrial coatings cleanly without substrate damage or chemical residue

Surface Preparation

Prepares metallic surfaces for welding, coating application, or quality inspection

Contaminant Removal

Clears oxidation, grease, and surface contaminants for critical manufacturing processes

The system's portable architecture and single-operator mobility make it equally effective in fixed shop installations and field deployment scenarios. Whether supporting high-volume production lines or instructional environments, the QL-CleanPro 1500 delivers the performance, safety, and operational simplicity that industrial engineers and maintenance managers demand from capital equipment investments.

Laser Performance & Operational Capability

Laser Type

Continuous Wave (CW) fiber laser technology

Output Power

1,500 W (1.5 kW) nominal continuous output

Wavelength

Industrial standard fiber laser wavelength optimized for metallic surfaces

Duty Cycle

Engineered for extended industrial operation and high uptime

Performance Advantage

The QL-CleanPro 1500's 1.5kW continuous wave architecture delivers superior cleaning performance across the full range of industrial surface preparation applications. Unlike pulsed laser systems that concentrate energy in short bursts, continuous wave operation provides steady, controllable energy delivery that enables operators to maintain consistent cleaning depth and surface finish quality throughout extended work cycles.

This power level represents the optimal balance between cleaning effectiveness and operational safety. The 1,500-watt output generates sufficient energy density to remove heavy rust, mill scale, and industrial coatings from steel and metallic substrates without requiring multiple passes or excessive dwell time. For maintenance managers evaluating replacement of sandblasting operations, this capability translates directly to competitive cycle times and improved throughput.

Industrial Cleaning Capability

The system's fiber laser source operates at the industry-standard wavelength specifically optimized for absorption by ferrous and non-ferrous metals. This wavelength selection ensures maximum energy transfer efficiency during the cleaning process, minimizing wasted energy and reducing operating costs. The laser effectively targets oxidation layers, organic coatings, and surface contaminants while leaving the underlying substrate intact and undamaged.

Sandblasting Replacement

For fabrication facilities currently dependent on abrasive blasting, the QL-CleanPro 1500 offers a direct replacement path that eliminates consumable media costs, reduces dust generation, and improves workplace safety. The laser cleaning process produces no secondary waste streams requiring disposal, no airborne particulates requiring filtration, and no substrate embedding of abrasive particles that can compromise subsequent coating adhesion.

Stable power output ensures repeatable results across production runs. The system's advanced power control maintains consistent energy delivery regardless of ambient temperature fluctuations or utility voltage variations, enabling operators to develop standardized work procedures with predictable outcomes.

Thermal Management Architecture

Comprehensive water cooling protects all critical optical and electronic components during sustained operation. The integrated cooling system circulates temperature-controlled coolant through the laser source, scanning system, and beam delivery optics, maintaining optimal operating temperatures even during continuous duty cycles. This active thermal management extends component service life, reduces maintenance intervals, and ensures consistent beam quality throughout the workday. The cooling architecture is specifically designed for industrial environments where ambient temperatures may vary significantly between seasons, maintaining performance stability across the full operating temperature range specified for North American manufacturing facilities.

Mechanical Design & Cleaning Head Architecture

Integrated System Configuration

The QL-CleanPro 1500 consolidates all essential subsystems into a self-contained industrial enclosure designed for the demanding conditions of manufacturing environments. The single-chassis design integrates the fiber laser source, power conditioning electronics, thermal management system, control interface, and safety interlocks into a rugged package that withstands the vibration, temperature variations, and dust exposure common to fabrication facilities. This integrated approach eliminates the complexity of multi-unit installations while simplifying maintenance access and reducing potential failure points.

The system's wheeled cart configuration enables true single-operator mobility across the shop floor. Heavy-duty casters support the complete system weight while providing smooth rolling over uneven concrete surfaces, expansion joints, and minor debris typical of active production areas. Operators can reposition the unit between workstations without requiring material handling equipment or additional personnel, maximizing equipment utilization and minimizing production disruption during setup transitions.

Cooling System Integration

The fully integrated cooling system eliminates external chiller requirements and associated plumbing complexity. Internal coolant circulation, filtration, and temperature control operate autonomously, requiring only periodic coolant level verification during routine maintenance intervals. This self-contained thermal management reduces installation complexity, eliminates external utility dependencies, and simplifies facility planning for new deployments.

- Closed-loop coolant circulation system
- Integrated temperature monitoring and control
- Coolant filtration and conditioning
- Low-coolant level protection interlocks
- Minimal external utility requirements

Shop-Floor Deployment

The portable configuration supports both fixed-position installation and flexible deployment models. Facilities can assign the system to a dedicated cleaning station for high-volume applications or rotate it among multiple production areas to address variable demand. The wheeled cart design enables rapid response to urgent surface preparation requirements without production scheduling delays.

- Single-operator repositioning capability
- Heavy-duty industrial casters
- Stable operation on uneven surfaces
- Compact footprint for congested work areas
- Quick-connect utilities for rapid setup

Mobile Platform

Integrated cart design enables rapid deployment and single-operator repositioning throughout the facility

Handheld Cleaning Head Design

The ergonomic cleaning head balances high-power beam delivery capability with operator comfort during extended work sessions. Industrial-grade construction withstands the impacts, drops, and rough handling inevitable in production environments, while the balanced weight distribution reduces operator fatigue during overhead or vertical surface cleaning operations. Adjustable focal distance allows operators to optimize cleaning performance for different substrate conditions and contamination levels without tool changes or system reconfiguration.

The protective window assembly uses high-power optical glass specifically rated for continuous wave laser operation at full system output. This critical component protects internal focusing optics from spatter, debris, and environmental contamination while maintaining beam quality and energy transmission efficiency. The window design incorporates tool-free replacement capability, enabling operators to perform field changes during production shifts without specialized training or equipment. Additional spare protective lenses are included with the system, ensuring immediate replacement capability and eliminating downtime waiting for consumable deliveries.

Ergonomic Operation

Balanced weight distribution and contoured grip surfaces reduce operator fatigue during extended cleaning sessions

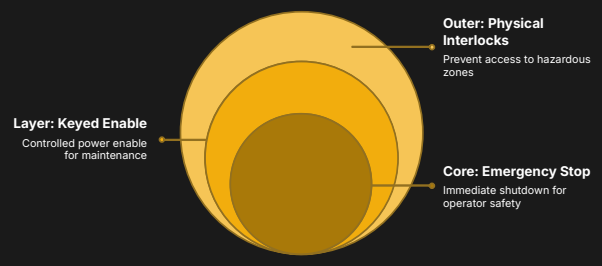
Protected Optics

High-power protective window shields internal optics from contamination with tool-free field replacement

Safety Systems & Regulatory Compliance

North American Certification

The QL-CleanPro 1500 ships with full CSA or equivalent North American safety certification, meeting all applicable electrical safety, laser safety, and industrial equipment standards required for Canadian and United States installations. This comprehensive certification addresses mechanical construction, electrical wiring and grounding, control system design, emergency stop functionality, and laser safety interlocks. For procurement specialists managing capital equipment acquisition, certified compliance eliminates post-delivery modifications and accelerates production deployment timelines.



Multi-layer safety architecture ensures operator protection and regulatory compliance throughout system operation.

Full compliance with **ANSI Z136 laser safety standards** ensures the system meets the rigorous safety requirements established for industrial laser operations. ANSI Z136 compliance encompasses hazard classification, control measures, warning signage, personal protective equipment specifications, and operator training requirements. This standardized approach to laser safety enables facilities to integrate the QL-CleanPro 1500 into existing safety management systems without developing custom protocols or procedures.

Integrated Control Measures

Physical and electronic safety systems work in concert to prevent unauthorized operation and ensure rapid shutdown capability during emergency conditions. The keyed laser enable control restricts system activation to authorized personnel, while clearly visible status indicators provide immediate visual confirmation of laser emission state to operators and nearby personnel. These passive safety features operate independently of software control systems, maintaining protection even during control system faults or power interruptions.

Keyed Enable Control

Physical key switch prevents unauthorized system activation and laser emission

Emergency Stop (E-STOP)

Immediate shutdown capability terminates laser emission and system operation instantly

Safety Interlocks

Required interlocks prevent laser emission under unsafe operating conditions

Emission Indicators

Highly visible warning lights indicate active laser emission status to all personne

Personal Protective Equipment Package

The turnkey system includes all essential personal protective equipment required for safe operation, eliminating the need for separate procurement of laser safety consumables. This comprehensive PPE package ensures immediate operational readiness upon installation and provides facilities with properly specified safety equipment that meets ANSI requirements for the system's laser class and wavelength.

ANSI-Rated Laser Safety Eyewear

Three (3) complete sets of laser safety eyewear are included with the system, providing wavelength-specific protection rated to ANSI Z136 optical density requirements. The eyewear specifications match the QL-CleanPro 1500's fiber laser wavelength, ensuring adequate protection against both direct beam exposure and diffuse reflections. Multiple sets enable simultaneous operation by primary operators and safety oversight personnel, while providing backup units for cleaning, maintenance, or replacement scenarios.

Portable Laser Safety Curtain

The included portable laser safety curtain (minimum 3 m × 2 m) enables operators to establish temporary Nominal Hazard Zones (NHZ) around cleaning operations in open shop-floor environments. The curtain material provides rated attenuation of laser energy at the system's operating wavelength, preventing diffuse reflections from exposing personnel outside the immediate work area. Portable mounting hardware allows rapid deployment and reconfiguration as work locations change throughout the facility.

Compliant Warning Signage

All required laser safety signage compliant with ANSI Z136 requirements ships with the system, including door/entrance warnings, laser emission indicators, and wavelength-specific hazard labels. Pre-printed signage eliminates facility responsibility for generating custom safety warnings while ensuring consistent visual communication of laser hazards. Adhesive-backed labels and standalone signs accommodate different mounting locations and facility requirements, from permanent installations to temporary work areas requiring portable hazard communication.

Turnkey Implementation & Knowledge Transfer

Complete Delivery & Commissioning Scope

The QL-CleanPro 1500 ships as a turnkey solution that includes all equipment, delivery logistics, on-site installation, and functional verification required for immediate production deployment. This comprehensive scope eliminates the coordination complexity and hidden costs associated with piecemeal procurement approaches, while ensuring a single point of accountability for system performance and regulatory compliance. For maintenance managers planning capital equipment installations, the turnkey delivery model reduces project risk and accelerates time-to-production.

FOB Destination delivery to Bathurst, New Brunswick, Canada includes all transportation logistics, customs clearance, and final-mile delivery to the installation site. The supplier assumes responsibility for equipment condition during transit, eliminating customer liability for shipping damage and simplifying receiving procedures. This delivery model is particularly valuable for remote or challenging delivery locations where specialized handling or transportation equipment may be required to navigate site access constraints.

01

Equipment Supply

Complete system including all subsystems, safety equipment, and initial consumables

02

Logistics & Delivery

FOB Destination transport to Bathurst, NB with customs and final-mile coordination

03

Installation & Setup

On-site positioning, utility connections, and system configuration by factory technicians

04

Commissioning & Verification

Functional testing, safety system validation, and performance confirmation

Installation Services

Factory-trained technicians perform all on-site installation activities, including equipment positioning, utility connections, control system configuration, and initial power-up procedures. The installation process follows documented procedures that ensure consistent setup across all deployments while accommodating site-specific requirements and constraints.

Commissioning activities verify proper operation of all subsystems prior to operator training. Functional testing confirms laser output power, cooling system performance, safety interlock operation, and control system response. This systematic verification approach identifies and resolves any installation issues before transferring the system to production personnel, maximizing equipment uptime from day one.

Comprehensive Operator Training Program

The included training program delivers the knowledge and practical skills required for safe, effective system operation. A minimum of one (1) full day of on-site instruction ensures operators develop competence with system controls, cleaning techniques, routine maintenance procedures, and emergency response protocols. Factory-trained instructors provide hands-on demonstration using customer workpieces and actual production scenarios, enabling operators to practice techniques and develop confidence before assuming independent operation responsibilities.

Safe Operation Procedures

Comprehensive coverage of laser safety principles, hazard awareness, and control measure implementation

System Operation Best Practices

Hands-on instruction in cleaning head manipulation, parameter selection, and quality optimization

Maintenance & Consumables

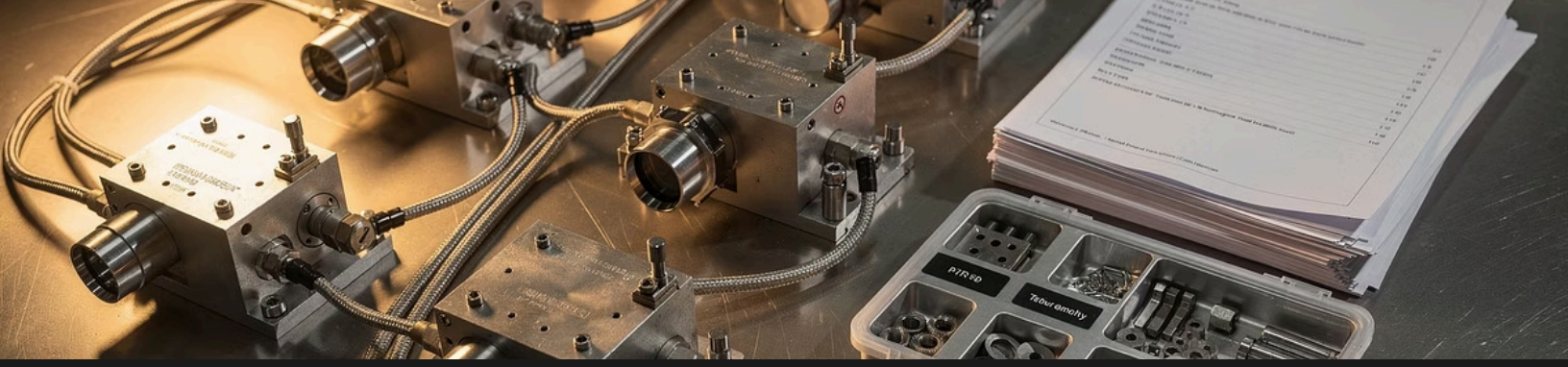
Routine maintenance procedures, protective window replacement, and consumable management

Training curriculum emphasizes laser hazard awareness and control measures required by ANSI Z136 standards. Operators learn to recognize beam paths, control specular reflections, establish Nominal Hazard Zones, and verify proper operation of safety interlocks and warning systems. This safety-first approach ensures operators understand not just how to operate the equipment, but why specific procedures and precautions are necessary to maintain a safe working environment.

Technical Documentation Package

Complete operator and maintenance manuals provide detailed reference material supporting long-term system operation and troubleshooting. Documentation includes system specifications, operating procedures, maintenance schedules, consumable replacement instructions, and diagnostic procedures for common fault conditions. Laser safety documentation addresses ANSI Z136 compliance requirements, including hazard classification, control measures, and training record templates.

The included Risk Assessment Report provides detailed Maximum Permissible Exposure (MPE) calculations and Personal Protective Equipment (PPE) specifications for the installed system configuration. This engineering analysis supports facility laser safety programs by documenting hazard zones, required control measures, and PPE selection criteria. For safety managers developing site-specific laser safety procedures, this technical foundation eliminates the need for independent hazard analysis while ensuring compliance with regulatory requirements.



Warranty Coverage & Lifecycle Economics

Comprehensive System Warranty

The QL-CleanPro 1500 includes a two (2) year comprehensive warranty covering all major subsystems and components. This extended warranty period reflects manufacturer confidence in system reliability while providing customers with financial protection against premature component failures during the critical early operational period. The comprehensive coverage eliminates deductibles, minimum charges, or per-incident fees that can accumulate unexpectedly with limited warranty structures.

Warranty coverage extends to the laser source, cleaning head assembly, power supply electronics, and control systems—essentially all components subject to operational wear or electronic failure. This inclusive approach ensures customers receive factory-supported repairs for any failure mode except operator damage or consumable depletion. For maintenance managers developing equipment lifecycle budgets, the two-year warranty period provides predictable cost protection during the initial ownership phase.

Fiber Laser Source

Complete coverage of laser resonator, pump diodes, fiber delivery, and power control electronics

Cleaning Head Assembly

Protection against mechanical failures, optical degradation, and focusing system defects

Power & Control Systems

Coverage of power conditioning, control electronics, safety interlocks, and user interface components

Consumables & Spare Parts Availability

The system ships with a complete initial consumables kit containing all wear items required for startup and early operation. This kit includes spare protective windows for the cleaning head, replacement filters, and other routine maintenance items. Immediate availability of consumables eliminates production delays during the critical commissioning and ramp-up period while allowing operators to practice consumable replacement procedures without supply chain dependencies.

Ongoing consumable and spare parts availability through North American distribution channels ensures rapid replenishment and minimal inventory investment. Suppliers maintain regional stock of all critical wear items, enabling next-day or two-day delivery to most Canadian and United States locations. This localized supply chain reduces the working capital tied up in on-site spare parts inventory while maintaining protection against unplanned downtime from consumable depletion.

Advancing Surface Preparation Performance with QuakeLogic

Empowering industrial and instructional fabrication environments with **high-power laser cleaning efficiency**, **Canada-ready safety compliance**, and **long-term operational reliability**, the **QuakeLogic QL-CleanPro 1500** sets a new standard for **1.5kW CW industrial laser surface preparation**—engineered to replace abrasive blasting while delivering precise, controlled, and repeatable results.

Connect with QuakeLogic: Your Partner in Industrial Laser Cleaning & Surface Preparation

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