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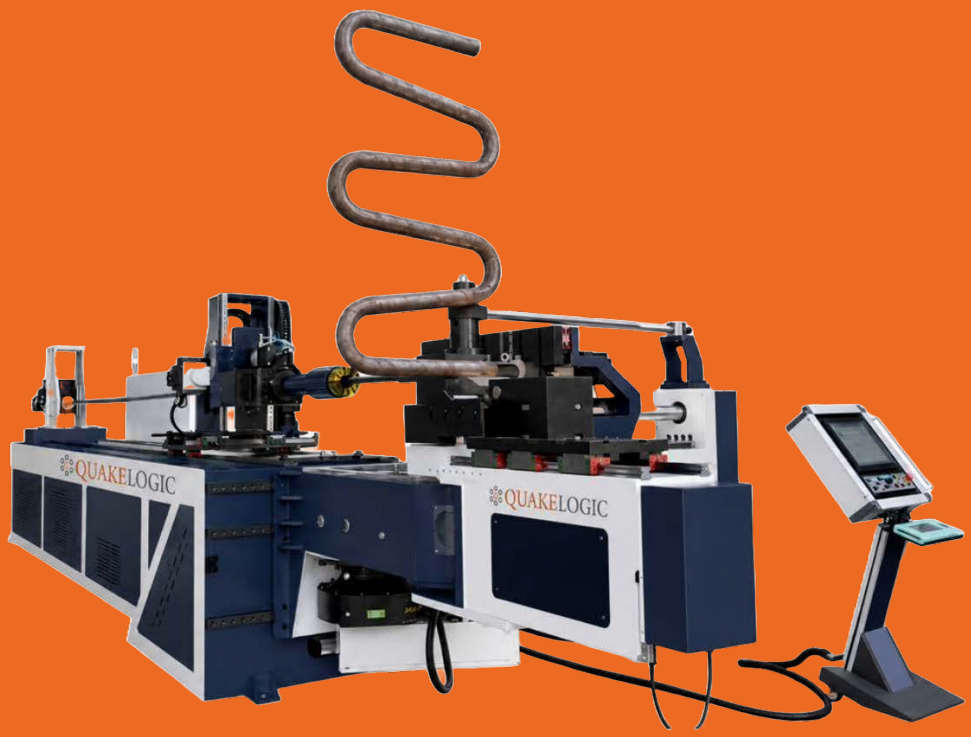
CNC TUBE BENDING SYSTEM



QL-BendMaster

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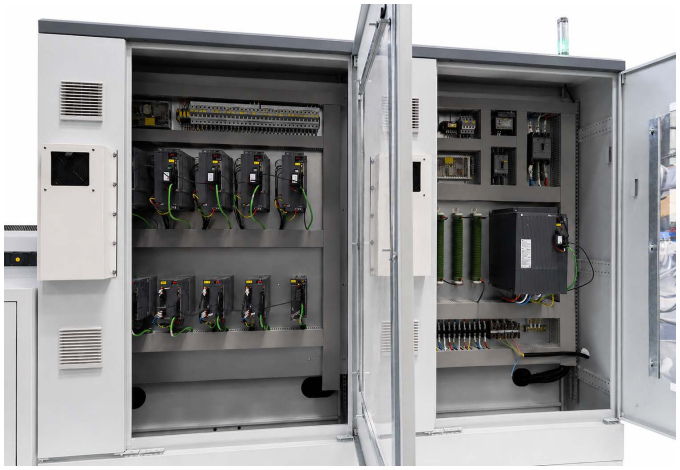
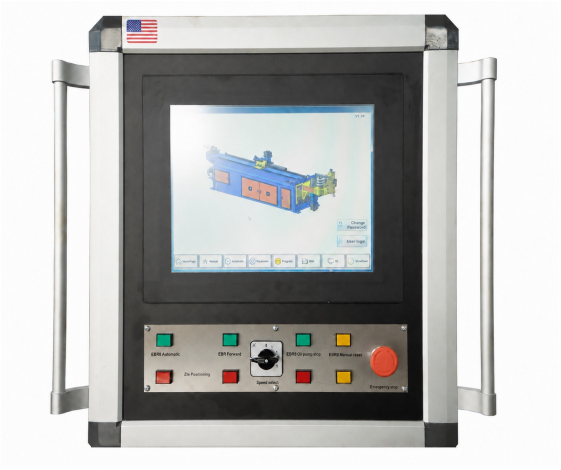




PRECISION CNC MULTI-PLANE MANDREL TUBE BENDING

The QL-BendMaster is an industrial CNC multi-plane mandrel tube bending system engineered for precision forming of aluminum alloy and CRES steel tubing in aerospace, maintenance, and fabrication applications. It handles tube diameters from 0.250 to 1.000 in., bidirectional bending to 360°, and coil bending with push-bend capability. Configured for existing Eaton Leonard VB 25 ELEC tooling, it preserves legacy tooling and tube-program assets on a modern, production-ready platform.

- Compatibility with existing VB 25 ELEC tooling and legacy tube data preserves prior tooling investment while modernizing the bending platform.
- Integrated 3-D visualization, bend simulation, and automatic spring-back calculation cut trial-and-error setup and reduce scrapped parts.
- CNC-controlled programmable pressure-die assist and multiple bend radii enable rapid production changeover with no manual adjustments.
- Integrated proximity laser scanner, safety mat, and dual emergency stops deliver OSHA, ANSI, and CSA-aligned operator protection.

STANDARD FEATURES »

- Automatic Mandrel Lubrication
- Lubricant Recycling
- Programmable Pressure Die
- 3-D Bend Simulation
- Spring-Back Compensation
- Remote Collet Control
- Proximity Laser Scanner
- Safety Mat Protection
- Dual Emergency Stops
- USB Backup/Restore
- Legacy Data Import
- Graphical CNC Controller

Key Features

- Multi-plane mandrel bending forms complex tube geometries with clockwise and counterclockwise rotation and bend angles up to 360°.
- 360° coil-bending with integrated push-bending method extends part complexity for continuous forming operations without secondary setups.
- CNC-controlled programmable pressure-die adjustment and position-controlled assist improve bend quality and reduce operator setup time.
- Multiple bend radii using multiple tools enable rapid production changeover with no manual adjustments between parts.
- Integrated 3-D part visualization and bend simulation validate programmed geometry before production, reducing scrap and rework.
- Automatic spring-back calculation compensates each bend for material behavior, improving first-part accuracy across alloys.
- Integrated automatic mandrel lubrication with lubricant recycling maintains bend surface quality and lowers consumable use.
- Internal memory stores thousands of part numbers with USB-based backup, restoration, and legacy data import capability.
- Compact-profile graphical CNC bend controller supports YBC, LRA, and XYZ tube-data entry with Edit Reverse and Test Bend functions.

PRODUCT FEATURES

Bending Method
Multi-plane mandrel bending · CW and CCW rotation · Bend angles up to 360° · 360° coil bending with push-bend

Tooling & Pressure Die
Compatible with Eaton Leonard VB 25 ELEC tooling · Multiple bend radii, rapid changeover · CNC programmable pressure-die adjustment · Position-controlled pressure-die assist

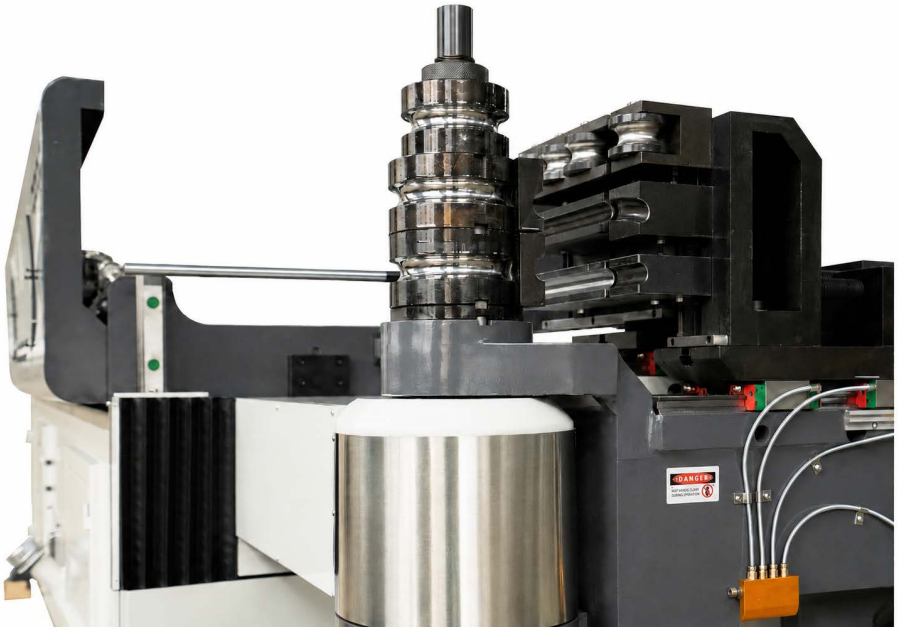
CNC Control & Programming
Compact graphical bend controller · YBC, LRA, XYZ data entry · 3-D visualization and bend simulation · Automatic spring-back compensation

Data & Connectivity
Storage for thousands of part numbers · Vector 1 and FIF file compatibility · Integrated USB port · USB backup and restoration

Lubrication
Integrated automatic mandrel lubrication · Lubricant recycling capability

Safety
Proximity laser safety scanner · Machine safety mat protection · Minimum two emergency-stop controls · OSHA, ANSI, CSA configured

For more information about the features, specifications, and available configurations of the QL-BendMaster, please contact QuakeLogic.



FORMING CAPACITY

SPECIFICATION	VALUE
Tube Outside Diameter Range	0.250–1.000 in (6.4–25.4 mm)
Tube Wall Thickness Range	0.028–0.120 in (0.71–3.05 mm)
Maximum Tube Length	Up to 5 ft (1,524 mm) round seamless stock
Maximum Bend Angle	Up to 360°
Coil Bending	360° coil-bending capability
Minimum Bend-to-Bend Distance	1 in (25.4 mm)

OPTIONAL FEATURES & ACCESSORIES

INSTALLATION & COMMISSIONING

Complete on-site installation, setup, configuration, commissioning, and operational verification for turnkey deployment.

OPERATOR TRAINING

On-site training covering CNC programming, controls, tooling setup, features, error handling, and safety procedures.

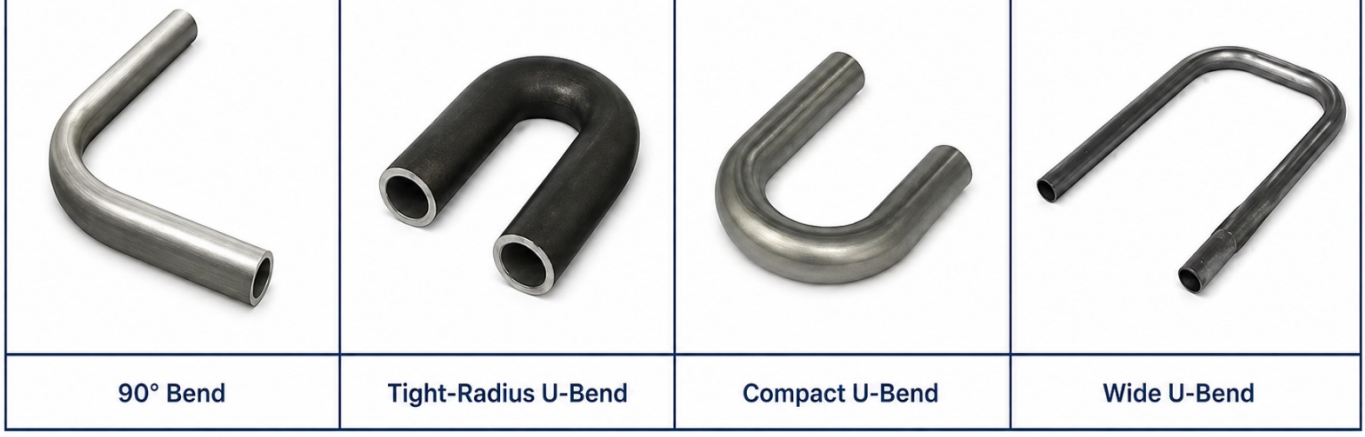
DOCUMENTATION PACKAGE

Complete machine assembly prints, one hard-copy operator manual, and one electronic manual copy on USB.

LEGACY DATA MIGRATION

Import and transfer of existing tube-program data from Eaton Leonard Vector 1 and FIF-format files.

TYPICAL BENDING APPLICATIONS



TECHNICAL SPECIFICATIONS (CONT.)

SPECIFICATION	DESCRIPTION
System Type	CNC Multi-Plane Mandrel Tube Bending System
Bending Method	Multi-Plane Mandrel Bending
Tube Outside Diameter Range	0.250–1.000 in (6.4–25.4 mm)
Tube Wall Thickness Range	0.028–0.120 in (0.71–3.05 mm)
Maximum Tube Length	Up to 5 ft (1,524 mm) round seamless
Maximum Machine Length	≤ 140 in (3,556 mm)
Maximum Machine Width	≤ 50 in (1,270 mm)
Bending Rotation	Clockwise (CW) and Counterclockwise (CCW)
Maximum Bend Angle	Up to 360°
Coil Bending	360° coil-bending capability
Push Bending	Integrated push-bending method
Minimum Bend-to-Bend Distance	1 in (25.4 mm)
Multi-Bend Radii	Multiple tools, rapid changeover, no manual adjustment
Supported Aluminum Alloys	5052-O (WW-T-700/4); 6061-T4; 6061-T6 (WW-T-700/6 / AMS-T-7081/6)
Supported CRES Steel	304 1/8H CRES per AMS-T-6845
Electrical Supply	480 V, 60 Hz, max 25 A
Pneumatic Supply	Facility shop air, ≤ 125 PSI (8.6 bar)

SPECIFICATION	DESCRIPTION
Mandrel Lubrication	Integrated automatic system
Lubricant Management	Integrated recycling capability
Tooling Compatibility	Eaton Leonard VB 25 ELEC tooling
Remote Collet Control	Load/unload within machine safety zone
Pressure Die Adjustment	CNC-controlled, programmable
Pressure Die Assist	Position-controlled
CNC User Interface	Compact-profile graphical bend controller
Tube Bend Data Entry	YBC, LRA, and XYZ formats
3-D Part Visualization	Graphical 3-D rendering of part geometry
Bend Simulation	Integrated 3-D simulation pre-production
Spring-Back Compensation	Integrated automatic calculation
Programming Functions	Sequence modification, Edit Reverse, Test Bend
Program Storage	Internal memory for thousands of part numbers
Legacy Compatibility	Vector 1 and FIF file import/transfer
USB Interface	Integrated USB port, backup/restoration
Safety Systems	Proximity laser scanner, safety mat, ≥ 2 E-stops
Safety Compliance	Configured for OSHA, ANSI, and CSA requirements

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QL-BendMaster

Corporate Headquarters:

QUAKELOGIC INC.
2008 Opportunity Dr., Suite 130
Roseville, CA 95678, USA

Monday – Friday
9:00 AM – 5:00 PM (PST/PDT)

Contact Us:

Phone: +1 (916) 899-0391
Email: sales@quakelogic.net
Web: products.quakelogic.net

About QuakeLogic:

QuakeLogic Inc. is a California-based engineering and technology company providing innovative, reliable, high-quality solutions to customers worldwide.

Our Commitment

We are committed to quality, innovation, and customer satisfaction — building lasting partnerships through reliable solutions and dependable support.

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