The newest member of Eaton Leonard’s electric tube bender (ELEC) family, model VB 42 ELEC provides continuous, trouble-free production of high-strength tubes up to 50.8 mm (2.0") capacity.

The standard model includes a wealth of advanced tube bending features, including position-controlled pressure die and position-controlled pressure die assist, patented programmable clamp die and reversible bend arm rotation. Precision, hardened, linear roller bearings are incorporated on all moving slides, for smooth, precise positioning and long dependability.

All-electric design, without the use of hydraulics, ensures maximum performance in a clean, quiet package. In addition, electric operation offers energy savings compared to conventional hydraulically-operated tube benders.

A unique, servo-controlled pressure die enables programming of pressure die speed and timing with “soft touch” contact against the tube. This feature eliminates pressure die marking of the tube, even on thin wall, soft materials. Additionally, servo control with advanced software automatically calibrates the pressure die reach, without any manual adjustments, enabling quick setup.

The patented servo-controlled clamp die actuator provides constant clamp die gripping force through a wide range, simplifying tool setup and ensuring consistent bend results. Programmable force of the clamp die is saved in the Lightspeed control for instant adjustment during changeover.

A compact, low-interference bend arm provides superior clearance for the most complex part shapes. This design provides maximum clearance from tool post centerline to the front of the bend arm and low spindle height. Its efficient bend arm drive system incorporates Eaton Leonard’s patented parallel linkage, powered by a high torque servomotor with fast, dynamic response.

Machine programming and monitoring are easily accomplished through the Lightspeed touch screen interface. This versatile, operator-friendly control incorporates a PC-based processor and commercially-available I/O devices. The Lightspeed control incorporates a 15" high-resolution active matrix flat panel display and separate keyboard for easy programming. Interface to Eaton Leonard’s Vector 1 tube data center is standard, providing closed-loop inspection and bender data correction.
**VB 42 ELEC CNC TUBE BENDER**

**Standard Mechanical Features:**
- All electric design – no hydraulics – ensures clean, quiet operation and repeatability
- Electric, servomotor-driven bend head provides fast axis speed, rapid acceleration and high torque
- Clockwise and counterclockwise bend arm rotation feature for additional bending application flexibility
- Patented servo-controlled clamp die adjustment with programmable forces for simple, repeatable setup
- Extra-performance rack and pinion carriage with direct-drive servomotors delivers exceptional accuracy and repeatability
- Patented parallel link-driven bend arm design eliminates chains and conventional components for enhanced reliability
- Precision linear bearings on pressure die, follower slide and centerline radius for easy adjustment and reliability
- Compact, low interference bend arm provides maximum clearance for intricate parts
- Variety of collets available for different applications, including “Rubberflex” quick-change, jaw type and special collets
- Position readout on clamp die adjustment speeds setup and allows values to be recorded in the control for future reference
- Servo-controlled pressure die provides automatic adjustment, and “soft touch” feature reduces marking of the tube
- Position-controlled pressure die assist for precise process control and repeatability

**Lightspeed Control Features:**
- Open architecture PC-based control with menu-driven programs ensures easy programming
- Windows operating system provides maximum flexibility and programming versatility, while allowing for networkability
- 3D graphic rendering of the part shape provides quick verification of the current part configuration
- Stores thousands of different part shapes, with specific setup information, for instant access
- Interface with Eaton Leonard tube data center for closed-loop bending programming, data correction and off-line storage.
- Feedrate override speed control provides multiple velocity combinations on every axis for versatility

**Typical Accessories**
- Three-position headshifter for multi-radius, multi-plane and compound bend applications. Capable of bending maximum diameter on all positions
- SEMiAutomatic and fully automatic loaders include non-mandrel and over-the-mandrel versions
- Mandrel bending package and automatic mandrel lubricator. Powered and programmable mandrel tangent adjustment available
- Extended bed lengths
- Square/Rectangular bending package
- Pendant-mounted control console

**Specifications**
- **Max. Tube O.D.**:
  - Mild Steel: 50.8 mm (2.0") x 2.4 mm (.095") wall
  - Stainless Steel: 50.8 mm (2.0") x 2.1 mm (.083") wall
  - Aluminum: 50.8 mm (2.0") x 3.04 mm (.120") wall
- **Max. Centerline Radius**: 203 mm (8.0")
- **Centerline Height (Std.)**: 25.4 mm (1.0")
- **Standard Tube Length Over Mandrel**: 1,500 mm (60")
- **Maximum Bend Angle**: 156°
- **Operating Speeds – Maximum**:
  - Bend Arm Rotation: 45 RPM
  - Carriage Rotation: 100 RPM
  - Carriage Travel: 89 m/min. (3500 IPM)

- **Repeatability**:
  - Bend Arm: ± 0.05°
  - Carriage Rotation: ± 0.05°
  - Carriage Travel: ± 0.10 mm (± .004")

- **Machine Dimensions (Std.)**:
  - Length: 3.85 m (150")
  - Width: 1.23 m (48")

*The maximum wall thickness is based on tubes at the maximum tube diameter bent on a 2x0 bend radius and a 3-ball mandrel. Carbon steel rating is based on 60,000 psi UTS and stainless steel is based on 90,000 psi UTS. Aluminum rating is based on 18,000 UTS. Maximum rated capacities are estimates and bending applications approaching these specifications should be reviewed by Eaton Leonard engineering. Please don’t hesitate to contact us for additional assistance.