



## CML International S.p.A.

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## TECHNICAL FEATURES



EB76 CNC robust design enables bending of tubes up to Ø76mm and pipe sizes up to 2½" sch.40 with radii as close as 1,3 time tube O.D. maintaining the high accuracy and repeatability necessary for today's demanding markets. Our intuitive control electronically assist the operator to set up tooling parameters saving time and material by eliminating the need for mechanical adjustments by experienced operators. Ercolina's® patented clamping system clamps itself to the bend die ensuring a balanced hold on the tube reducing marking and eliminating slipping, as the clamp system has no external flections acting on the bend axis there is no need for tie bars reducing setup time and the need for skilled operators. Pressure die setup time is also reduced while reducing stress on the tube as the die works directly on the tube in a linear direction eliminating complicated regulations while improving bend quality. Part quality is also significantly improved thanks to our powerful booster system reducing stress on tube and tooling while reducing wall thinning. Realizing complicated parts is easy with user friendly software interface which dramatically reduces trial and error by creating a graphical representation of the machine executing desired part program to guarantee operator success and reduce waste. Ercolina's® benders are engineered with the help of the latest computer-aided engineering technology and engineering design analysis software. We use exclusively 100% European material and state of the art components to guarantee years of trouble free production.

**Patented FST** finger clamping system concentrates large clamping effort in a small volume. Clamping effort pass through the clamps finger's and is exerted on itself does not support any effort. Clamping effort is directly proportional to the hydraulic pressure which can be set by the machine operator. Clamping set up position is easily attained without tools.

**Pressure die.** Control of bend quality is easy as pressure of pressure die is modified simply by regulating hydraulic pressure. The pressure die cylinder is mounted in the centreline plane of the tube maintaining a constant, correct pressure.

**Cast iron bend head.** The machines mechanical structures are made of high quality, state of the art spheroidal cast iron for years of service. Our oversized bend axis bushings made of AMPCO bronze with billet bend axis spindle are built to resist the tremendous forces exerted on the tooling spindle to insure the greatest possible rigidity and years of low maintenance service. The EB76 Bend head is very narrow at less than half a meter and extends almost 1,4 meters from machine to allow the passing of tubes under the head to realise complex part geometries.

**The Booster** permits the bending of even the most difficult tubes with low elastic values respect to desired radius. The Booster is also appreciated when bending thin wall tubes were allowed clamp pressure is limited. Booster speed and pressure can easily be regulated even during the bend cycle.

**2 axes positioning carriage** automatically positions tube along the linear axis DBB (distance between bends), and rotation axis POB (plan of bend). High precision encoders together with electric brushless motors provide an accuracy of 0.2mm or 0.2°. The motors ensure high speed precision movement of the two axes while gently positioning the part to next bend location. The positioning carriage is mounted to the spherical guides of the linear axis on a horizontal slide that is perpendicular to linear axis to center carriage axis to tooling centreline and to eliminate forces exerted on axis during bending to guarantee years of trouble free production.

**Mandrel retract system** that automatically extracts mandrel prior to completion of desired bend angle reducing stress on tube and tools leaving a smooth transition from bend to straight part of tube.

**Tooling pressure adjustment.** Ercolina's® "hydraulic spring" principle that leaves all tooling pressures to be set hydraulically with cylinders that work perpendicular to tube. This design not only eliminates the need for mechanical regulation but improves part quality as the tools work as a "hydraulic spring" maintaining a constant and uniform effort on tube.

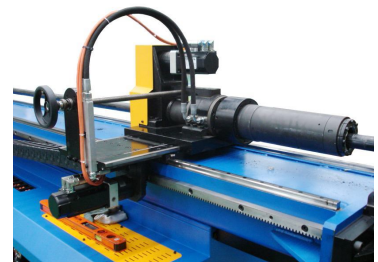
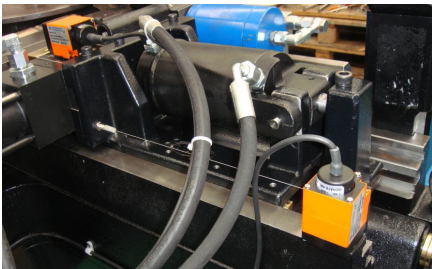
**Modular length extension.** Standard 4m length can easily be extended with a 2 meter extension module. Upon request the machine length can be extend up to 10m, extension modules can be easily assembly or in a short time by unskilled workers.

**Hydraulic unit.** All hydraulic components conform to international standards and equipped with independent cooling and cleaning circuit with filters that are quickly and easily replaced. Internal gear pump with a noise level less than 63db, and an automatic power saving feature puts machine in standby mode after 2 minutes of inactive use.

**Electrical cabinet.** All electrical components conform to UL, CSA and CE requirements.

**Safety.** Hand-held “dead man” handle actuates safety the machine from a distance, certified in class 3 safety requirements and approved by UL, CSA and CE safety standards.

**Free-standing control tower** may be positioned by operator out of way of tube travel for optimized control. Tower complete with 17” Windows based touch screen control and “dead man” safety actuator control.



## CML56 software with real time part generation and anti-collision software on 17" Windows® based touch screen

**Manual menu.** Move independently all machine functions and axis.

**Automatic menu.** Produce part in automatic mode by selecting a program from a list with graphic representation of part. Current program blocks and axis positions are easily referenced. System devices such as lubrication system, booster and mandrel may be inserted or removed from program.

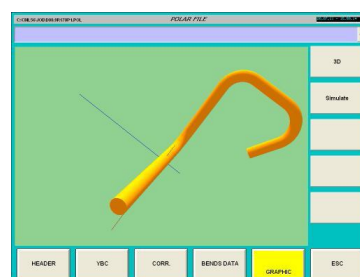
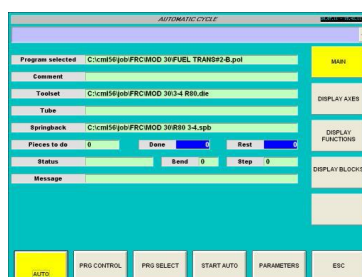
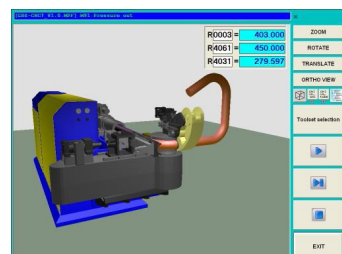
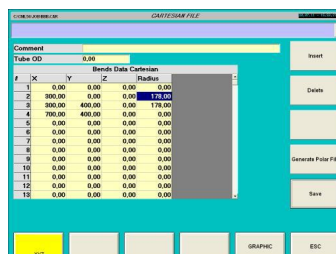
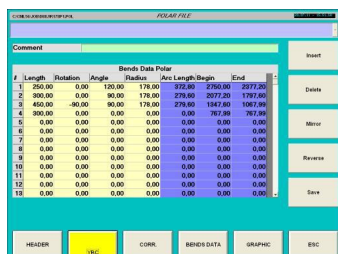
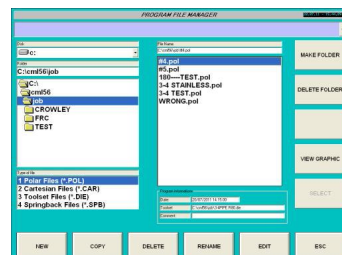
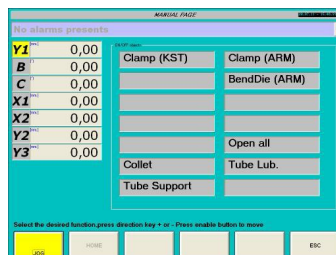
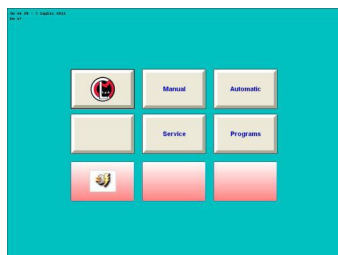
**File manager menu.** Select drive and folder, and manipulate files.

**YBC** Length rotation and angle data introduction.

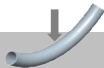









**YXZ** Insert Cartesian data which is automatically convert to YBC polar file.

**3D graphic display** with zoom, rotation, translation.

**Anti collision software simulates** bend cycle to produce desired part detecting possible collision between machine, tooling and tube. Tooling is selected from a drop down menu based on tooling sold with machine to increase simulation accuracy.



## Capacity

	Flexion modulus	cm <sup>3</sup>	20
	Tube	CE 42 kg/mm <sup>2</sup> US 52 kg/mm <sup>2</sup>	76,2 x 5 76,2 x 3
	Gas tube	CE 42 kg/mm <sup>2</sup> US 52 kg/mm <sup>2</sup>	2" 1/2 sch. 80 2" sch. 40
	Stainless	65 kg/mm <sup>2</sup>	76,2 x 3
	Copper / aluminium	30 kg/mm <sup>2</sup>	76,2 x 8
	Square	CE 42 kg/mm <sup>2</sup> US 52 kg/mm <sup>2</sup>	63,5x63,5x4,2 63,5x63,5x4,2
	Rectangle easy way	CE 42 kg/mm <sup>2</sup> US 52 kg/mm <sup>2</sup>	40x60x12 40x60x10
	Rectangle hard way	CE 42 kg/mm <sup>2</sup> US 52 kg/mm <sup>2</sup>	60x40x8 60x40x6
	Max tube OD	mm	76,2
	Min tube OD	mm	-
	Max bending radius	mm	250
	Min bending radius	mm	20

Power supply	kW	16
Hydraulic oil capacity	l	200
Noise level	dB	63
Weight	kg	2200

