



GEFIT Livernois Engineering

EC1600 Electrocam Tube Cut-off System

The EC-1600 Electrocam cut-off system is a high speed, stand alone cut-off device that has been developed specifically for high speed tube manufacturing, such as that used in the heat exchange industry. This EC-1600 cut-off features a servo-motor driven and controlled "flying-cut" action system.

The EC-1600 Electrocam cut-off system features an extremely smooth cutting action, producing highly reliable cut-off accuracy. The EC-1600 automatically synchronizes the cut-off speed with the mill line speed without any controls or drives connected to the machine. The EC-1600 tube speed encoder meters the speed of the incoming tube and instantly synchronizes the proper cut-off speed to suit. Smaller length tubes are cut in "gang" style or multiple cut-off cycles.



GENERAL CAPABILITIES OF THE EC1600 CUT-OFF

Tube Height: 0.375" to 1.500" (12.70 mm to 38.10 mm)
Tube Width: 0.060" to 0.500" (1.50 mm to 12.70 mm)
Tube Length: One part/cycle: 18" to 63" (457.2 mm to 1600 mm)
Two parts/cycle: 8" to 31.5" (203.2 mm to 800 mm)
Input Fin Feed Rate: 220 cycles/min Max up to 450 ft/min (137m/min)
Material Flow: Left to Right OR Right to Left

Note: Mill/cut-off speed may have to be reduced when cutting short parts.

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The EC-1600 also assures the most accurate cut-off length possible by cutting both ends of each tube allowing accuracy of $\pm 0.3\text{mm}$ on cut tube length with SPC Cpk of 1.33. The cut quality will be square with a minimum end deformation and maximum burr of 0.08mm. Longer tubes may be cut in lengths of 1601mm to 3000mm.

The EC-1600 tube cut-off machine will handle tubes in either vertical or horizontal orientation. Each unit is fitted with a large main drive servo-motor to compensate for the higher accelerations required by the high-speed operation. The servo-motor, coupled through a cam box oscillator, mechanically synchronizes the carriage shuttle position to the cutter position. There is no internal tube drive, therefore, the tube conveyance must rely upon external machinery.

Tube length changeovers are accomplished by simply entering new length parameters into the CRT. A servo-motor drives two threaded shafts. The shafts position both outboard cutter heads equally from the fixed center head, accounting for the very high accuracy and repeatability of cut lengths. The length dimensions in both millimeters and inches are displayed on the CRT monitor. The EC-1600 includes three cutter heads, each consisting cut-off tool with holder, cut-off die set and cut-off die holder.

Note: *The maximum input speed is dictated by part length and is reduced for shorter parts.*

The EC-1600 stand alone tube cut-off machine will be specifically tooled for processing one size aluminum welded seam oval tube. Additional tube profile sizes will require changeover details.

The standard EC-1600 Tube Cut-Off machine utilizes a PLC and Servo Control component manufactured by Giddings & Lewis and selected by Livernois Engineering for reliable and efficient operation. Circuit-breakers and relays manufactured by Allen Bradley will be to IEC Standards.

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