

An ECM machine tool consists of four main subsystems: the power source, the electrolyte cleaning and supply system, the tool and tool feed system and the work and work holding system. Some of these hybrid processes are electro-chemical grinding (ECG) [15], electro-chemical honing (ECH) [16], and electro-chemical spark machining [17–22]. V.K. Jain Some of the allied ECM operations are electro-chemical boring, electrochemical broaching, electro-chemical ballizing, electro-chemical drilling, electro-chemical deburring, electro-chemical die sinking, electro-chemical milling, electro-chemical sawing, electro-chemical micromachining, electro-chemical turning, electro-chemical trepanning, electro-chemical wire cutting, electrostream drilling and shaped tube electromachining (STEM) [1]. Shaped tube electro-chemical drilling (STED) has been successfully used to drill small diameter high-aspect-ratio holes in difficult to machine materials such as nimonic alloys (Figure 11.15) [14]. The electrolyte supply and cleaning system consists of a pump, filters, piping, control valves, heating/cooling coils, pressure gauge and a tank/reservoir. However, work holding devices are made of electrically non-conducting materials having good thermal stability, corrosive resistance and low moisture absorption. These elements should be made of anti-corrosive materials because the electrolyte used is corrosive in nature.