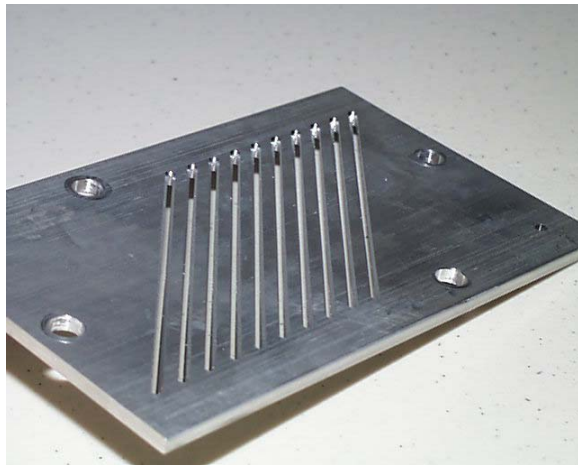




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Application Notes

Part:..... Time study of small grooves machining
Material: 1/8" x 3" x 5" - 6061 Aluminum
Machine Used:..... M8 Raptor
Features Utilized: High Speed Spindle, ATC and Z Probe
Software Used: Datron Conversational Language
Total Cycle Time: See Machining Details



Machining Details:

Tool 1: 45 degree single lip end mill at 30,000 rpm x 100 i.p.m. feed in two passes = 79 seconds per 10 lines

Tool 2: 1mm (.039") d/f end mill at 48,000 rpm x 50 i.p.m. feed in one pass = 77 seconds per 10 lines

Tool 3: 10 degree single lip end mill at 45,000 rpm x 75 i.p.m. feed in two passes = 194 seconds per 10 lines

Application Summary:

Based on the required tooling of 1/4" and less, the M8 Raptor machining system offers numerous advantages over traditional machining methods. The high frequency spindle traditionally offers substantially reduced cycle times compared to traditional machining. Based on the test performed, the cycle time for a complete disk (360 x 3" long lines) would be as follows: 48 minutes for the 45 degree bevel, 46 minutes for the .040" straight sided inner wall and 116 minutes for the 10 degree bevel on the reverse side. Therefore the total cycle time would be 3 1/2" hours. The .040" tool path could be eliminated with a customized tool which would be a combination 45 degree bevel with an end mill tip. This tool should reduce the cycle time to 2 3/4 hours. The spray mist coolant system offered minimal burring with no additional degreasing operation required. The compact footprint, machining capacity, efficient power requirements, and transportability of the equipment, make the M8 Raptor a versatile machining system for dynamic industrial environments. In conclusion: Complementing existing machining equipment, with the ability to machine efficiently with tooling of 1/4" and less, Datron high-speed machines are chosen for their capabilities and improved cycle time.