Figure No.	Title	Page No
Figure 2.1.	EDM Surface Profile	63
Figure 2.2	Waviness Profile	63
Figure 2.3.	Surface Roughness Profile	63
Figure 2.4.	Depth profile of the micro hardness measured in EDMed Sample	65
Figure2.5.	Optical micrograph of recast layer of machined sample obtained by standard EDM	66
Figure 2.6	Stress value between 2θ and $\sin^2 \Psi$	67
Figure 2.7	Barkhausen Noise analyzer with sensor	68
Figure 3.1	Main effect plot for mean of material removal rate for (a) positive	73
	polarity copper tool (b) negative polarity copper tool	
Figure 3.2	Main effect plot for mean of material removal rate for	75
	(a) positive polarity copper-tungsten tool (b) negative polarity copper- tungsten tool	
Figure 3.3	Main effect plot for mean of material removal rate for	77
	(a) positive polarity graphite tool (b) negative polarity graphite	
Figure 3.4	Main effect plot for mean of tool wear for (a) positive polarity copper	79
	tool (b) negative polarity copper tool	
Figure 3.5	Main effect plot for mean of tool wear for (a) positive polarity copper	81
	tungsten tool (b) negative polarity copper tungsten tool	
Figure 3.6	Main effect plot for mean of tool wear using (a) positive polarity	82
	graphite tool (b) negative polarity graphite tool	
Figure 3.7	Main effect plot for mean of micro hardness using (a) positive	85
	polarity copper tool (b) negative polarity copper tool	
Figure 3.8	Main effect plot for mean of micro hardness using (a) positive	86
	polarity copper tungsten tool (b) negative polarity copper tungsten tool	
Figure 3.9	Main effect plot for mean of micro hardness using (a) positive	89
	polarity graphite tool (b) negative polarity graphite tool	

Figure 3.10	Main effect plot for mean of surface roughness using (a) positive polarity copper tool (b) negative polarity copper tool	91
Figure 3.11	Main effect plot for mean of surface roughness using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool	93
Figure 3.12	Main effect plot for mean of surface roughness using (a) positive polarity graphite tool (b) negative polarity graphite tool	96
Figure 3.13	Main effect plot for mean of residual stress using (a) positive polarity copper tool (b) negative polarity copper tool	98
Figure 3.14	Main effect plot for mean of residual stress using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool	100
Figure 3.15.	Main effect plot for mean of residual stress using (a) positive polarity graphite tool (b) negative polarity graphite tool	102
Figure. 3.16	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity copper tool (b) negative polarity copper	103
Figure 3.17.	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool	106
Figure. 3.18.	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool	108
Figure. 3.18. Figure 3.19	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool	108 111
Figure 3.18. Figure 3.19 Figure 3.20	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Barkhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool	108 111 113
Figure 3.18. Figure 3.19 Figure 3.20 Figure 3.21	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Barkhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool	108 111 113 114
Figure 3.18. Figure 3.19 Figure 3.20 Figure 3.21 Figure 3.22	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Barkhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Material Removal Rate (MRR) using L9 orthogonal array (a) positive polarity copper tool (b) negative polarity copper tool	 108 111 113 114 117
Figure 3.18. Figure 3.19 Figure 3.20 Figure 3.21 Figure 3.22 Figure 3.23	Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Barkhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Material Removal Rate (MRR) using L9 orthogonal array (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Material Removal Rate (MRR) using L9 orthogonal array (a) positive polarity graphite tool (b) negative polarity graphite tool (b) negative polarity graphite tool (b) negative polarity polarity graphite tool (b) negative	 108 111 113 114 117 118
Figure 3.18. Figure 3.19 Figure 3.20 Figure 3.21 Figure 3.22 Figure 3.23	 Main effect plot for mean Bakhausen Noise (rms) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity copper tool (b) negative polarity copper tool Main effect plot for mean Barkhausen Noise (rms) using (a) positive polarity copper tungsten tool (b) negative polarity copper tungsten tool Main effect plot for mean Bakhausen Noise (peak) using (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Material Removal Rate (MRR) using L9 orthogonal array (a) positive polarity graphite tool (b) negative polarity graphite tool Main effect plot for mean Material Removal Rate (MRR) using L9 orthogonal array (a) positive polarity graphite tool (b) negative polarity graphite tool Variation of Barkhausen Noise (rms) with residual stress 	 108 111 113 114 117 118 120

Figure 3.26	Optical micrograph of recast layer and heat effected zone machined	122
	sample obtained by standard EDM	
Figure 3.27	Variation of Barkhausen Noise (rms) with microhardness	123
Figure 3.28	Variation of Barkhausen Noise (peak) with microhardness	123