THE EVALUATION AND SELECTION OF CONTROL CHARTS FOR INTEGRATED SPC AND EPC

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ABSTRACT

STATISTICAL PROCESS CONTROL (SPC) AND ENGINEERING PROCESS CONTROL (EPC) ARE TWO COMMON TECHNIQUES USED IN THE PROCESS CONTROL FOR REDUCING MANUFACTURING PROCESS VARIATION. SPC APPLY CONTROL CHARTS TO MONITOR THE PROCESS VARIATIONS, AND EPC REDUCE THE PROCESS VARIATION THROUGH ADJUSTING SOME MANUFACTURING PARAMETERS. IN THE RECENT YEARS, SOME RESEARCHERS TRY TO INTEGRATE SPC AND EPC CONCEPTS INTO THE PROCESS CONTROL TO OBTAIN MORE QUICKLY AND ACCURACY INFORMATION OF MANUFACTURING PROCESS. THEREFORE, IN THIS RESEARCH, WE INTEGRATE EPC AND SPC TECHNIQUES, AND TWO KINDS OF PROCESS VARIATIONS, STEP CHANGE AND TREND CHANGE, ARE STUDIED. SIX CONTROL CHARTS THAT MOST COMMONLY USED IN SPC ARE SELECTED AND EVALUATED. SIMULATION RESULTS IN VARIOUS MANUFACTURING PARAMETERS ARE INVESTIGATED, THE RESULTS SHOWN THAT WHEN SPC AND EPC ARE INTEGRATED, CUSCORE HAS THE BETTER PERFORMANCE OF SIX CONTROL CHARTS.

Keywords : STATISTICAL PROCESS CONTROL, ENGINEERING PROCESS CONTROL, CUSCORE

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