Abstract

            This thesis was established aimed to study the significant factors which effect to inside diameter of Hub-C2, the Hub-C2 is key component part of DDS. (Digital Data Storage) that produced by molding injection of multi –cavity mold.

The target goal of this research was to develop the optimized injection condition that can be inject Hub-C2 by completed 16 cavity and inside diameter of all cavity are satisfied customer specified requirement furthermore the process capability index (Cpk) was used for measure the improvement level of before and after developing.

            This time researcher was applied of statistical method in quality improvement tool especially Design Of Experiment by "TAGUCHI" method for screening the key factors. In the first experiment founded material POM. Type " B" was deliver the consistency of inside diameter rather than material POM. Type "A" otherwise some factors was strong effect to inside diameter for some cavity too, thus the second Design Of Experiment was performed under Box – Behnken theorem and utilized RSM. (Response Surface Methodology) to find out optimization for each significant factors.

Barrel temperature is the one of factor that significant effect to inside diameter for 7 cavities illustrates as cavity H,K,L,M,N,O and P furthermore Cooling time , Holding time and Holding pressure are strongly effected for all cavities.

            From confirmation run of optimized injection condition faced all of 16 cavities of inside diameter was conformed specified requirement and in term of average process capability index (Average Cpk.) was increased from 0.8 to 1.88 when compare before and after developing thus the defective ratio are obvious reduced.