

ABSTRACT

The purpose of the research to evaluation characteristics of coil variations on dynamic response and temperature distribution on flexible single core pot. This research uses two methods, they are calculation and experiment. Experimental testing, focused on the midpoint of measurement, until natural steady state is obtained. On 200 heating coil , the result is 179°C, if using 250 heating coil the result is 114°C, and then if using 300 heating coil the result is 113.8°C. In this study, modeling was also carried out in the form of transfer function equations and determining the value of characteristic parameters such as rise time (T_r), constan time (τ), and setting time (T_s) in experimental data including 1746 seconds, 795 seconds, 3180 seconds for 200 heating filament coil, then 1575.41 seconds, 717 seconds, 2868 seconds for 250 heating filament coil and 1792.93 seconds, 816 seconds, 3264 seconds for 300 heating filament coil. In the equation of the transfer function, the value of openloop gain (k) and time constan (τ) for each coil variation is 7.98, 4.25, 3.88 and 1036 seconds, 1235 seconds, 1260 seconds, where the k and τ value is obtained manually.

Keyword : Furnace Characteristic, Heating filament, transfer function.