

## Abstract

In physical vapor deposition on a magnetron cathode, temperature of sensitive components must be kept under threshold limit, so as to ensure the cathode reliability, the process reproducibility, and the best quality of thin films. This can be achieved by an adequate design to enhance the dissipation of heat generated at the cathode. In this paper, temperature distribution and streamlines velocity of the cathode coolant inside a cathode magnetron are analyzed by using CFD solver ANSYS FLUENT in the single-phase method in combination with  $k-\varepsilon$  standards turbulent model. The results show that the design is appropriate under the calculation parameters, and for high heat densities some improvements are necessary to enhance heat dissipation and keep temperature under the threshold limit.