

The Preliminary Design of an Annular Combustor for a Mini Gas Turbine

Bronwyn C. Meyers

Abstract

This study involves the redesign of the combustor liner for a 200N mini gas turbine engine using first principles and the design methods of the NREC series as shown in Figure 1. The combustor design was performed using five different operating conditions as the input parameters. During the design process, some parts of the NREC process required modification due to the results being impractical or the requirements being different for a small engine compared to a typical gas turbine. The result of applying the procedure is 12 design options to choose from for the engine in question (CAT 200 KS). The multiple designs stem from either accepting certain compromises or variations in variables that are not dictated in the standard NREC design process.