

46ESS-36: Combustor tests and test rigs

Ben Abdallah Ramzi

Despite the great improvement in the computational capacities combustor testing at relevant operation conditions (pressure, temperature and flow field) remains an important step in gas turbine combustor development. This Work provides an insight on the state of the art combustion tests methodology as well as the most sophisticated combustion test rigs.

The first part of this paper provides a summary of the combustion diagnostic methods and test rigs. Combustion diagnostic supplies the needed data for a combustion chamber to be designed according to its requirements. In this procedures laminar flame velocity, adiabatic flame temperature and a whole range of physicochemical properties are look into. Once a combustion chamber is designed further testing is necessary to ensure reliability under operating conditions. For this a high pressure combustor test is put into use. The high pressure combustor testing investigates, among other things, flame stability, emissions, as well as transient combustion phenomena. This is described in this work in depth.