

46ESS-07: Start Systems For Industrial Gas Turbines

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An industrial gas turbine engine needs necessary subsystems to start up, supply with fuel and oil, and monitor its performance (so that a hot start will not damage the inner engine).

The starter duty is to drive the HP spool to a sufficient high RPM and air mass flow so that, when fuel is added and the ignition takes place, the system will stabilize at idle RPM, sustaining itself.

The first thing this topic gives is an insight to the mechanics of a general starting system for industrial gas turbine engines: why it is made the way it is, which functions it must accomplish and which solutions have been found to accommodate the demands of safety, reliability and availability.

After that, two main starting systems are analysed: hydraulic and electro-mechanical; for each of them the advantages, limitations, and wished development are discussed, with an eye to their present employment.

Finally, a review based on the current researches of the biggest companies working on this sector will try to predict the future trend of this technology.