

Magneto Hydrodynamic Generator

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Abstract

Energy provides the power to progress. The natural resources of a country may be large but they can only be turned into wealth if they are developed, used and exchanged for other goods. This cannot be achieved without energy. Availability of sufficient energy and its proper use in any country can result in its people rising from subsistence level to the highest standards of living. It is interesting to note that more than half the population lives in Asia where the energy consumption is barely 8-10 % of the world's total. (More than half the world's primary energy consumed in North America and Western Europe.) Apart from the conventional energy sources of production of electricity which are Hydro, Thermal, and Nuclear, technological advances in progress for generation of electricity by direct means, i.e., without rotating parts such as 'Magneto Hydro Dynamics (MHD)'. Direct conversion of heat into electrical energy by means of MHD converters has not yet made its technological break-through though Magneto Hydro Dynamic generators are being actively examined in laboratories throughout the world. In India considerable studies have been carried out in this field by a team of scientist under the National Council of Science and Technology (NCST). It has been proposed to evolve a pilot MHD generation plant during the next few years in the country. The basic principle of MHD generation is the same as that of a conventional electrical generator, namely that the motion of a conductor through a magnetic field induces a voltage in the conductor. In MHD method gasses at high temperature are passed at high velocity through a magnetic field at right angles to the direction of flow and electricity is collected at stationary electrodes placed on opposite sides of the channel. This type of generation would greatly simplify the equipment and is likely to be developed in the next two decades.

Keyword: MHD Generator, plasma, Faraday & Lorentz Law, Ionization of gas, Fleming's Right hand rule