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Performance characteristics of spark gaps with hydrogen-nitrogen & hydrogen-argon gas mixtures

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This paper describes an investigation into the performance of sparkgaps with hydrogen-nitrogen, argon-hydrogen mixtures and a hydrogen only gas fill. The spark gap was operated in both self-breaking and triggered modes of operation to quantify the voltage hold-off and trigger voltage requirements as a function of gas mixture and gas recovery time. An un-triggered spark gap was operated and the self-break voltage measured over a range of pressures and pulse repetition rates from 1Hz to 1,000Hz for each of the different gases. For operation in a triggered mode, the required trigger voltage was measured for different pressures across a range of pulse repetition rates for the different gas mixtures.
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