

입구 형상 변화가 전기사이클론 성능 특성에 미치는 연구
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A Study on the Performance Characteristics of Electrocyclone with Different Inlet Shapes

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Key Words: Cyclone(사이클론), Electrocyclone(전기사이클론), Collection Efficiency(집진효율), Pressure Drop(압력강하), Electric Field(전기장)

Abstract : Cyclones have low collection efficiency for fine particles because they rely on inertial forces to collect particles. Therefore, by applying an electric field of high voltage in a cyclone, the electric forces are incorporated into the centrifugal forces so that the cyclone efficiency can be enhanced. In this study, performance characteristics of electrocyclone with different inlet shapes, which include helical, tangential and involute types, were experimentally investigated and compared as a function of particle size and inlet velocity. The collection efficiency and pressure drop with various inlet shapes and values of inlet velocity in electrocyclone are graphically depicted.

A Theoretical Study of Shock Tube Effect on the Ballistic Range Performance

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Ballistic Range 성능에 미치는 충격파관의 영향에 관한 이론적 연구

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Key Words: Ballistic Range(발리스틱 레인지), Shock Tube(충격파 관), Ballistic Efficiency(발리스틱 효율), Unsteady Flow(비정상 유동), Projectile(발사체)

Abstract : The ballistic range has long been employed in a variety of engineering fields such as high-velocity impact engineering, projectile aerodynamics and aeroballistics, since it can create an extremely high-pressure state in a very short time. Since the operation of the ballistic range involves many complicated gas dynamic processes, optimization of various design parameters of the ballistic range is important for the durability of its components. In the present study, a theoretical analysis has been made to investigate various unsteady processes involved in the operation of the ballistic range. The results obtained are validated with the available experimental data. The effect of adding a shock tube in between the pump tube and launch tube on the performance of the ballistic range is studied. A significant performance enhancement is obtained in the ballistic range with shock tube.