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## COMPREHENSIVE REVIEW OF JET BLAST DEFLECTOR

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### Abstract

*A Jet Blast Deflector (JBD) is a critical safety feature employed in aviation environments, particularly at airports and aboard aircraft carriers, to mitigate the hazards posed by the high-speed exhaust generated by jet engines. These structures are designed to redirect and dissipate the intense energy of jet blast, protecting personnel, equipment, and surrounding structures from damage or injury. JBDs are engineered to withstand extreme thermal and mechanical stresses, utilizing materials such as reinforced steel or composite alloys with heat-resistant properties. Advanced systems integrate cooling mechanisms, such as water or air circulation, to manage the high temperatures associated with jet exhaust. The geometry and placement of deflectors are optimized based on airflow dynamics to ensure efficient redirection without causing adverse turbulence. In addition to their functional role in safety, JBDs play a crucial part in operational efficiency, enabling high-density aircraft operations in confined spaces like carrier decks and taxiways. As aviation technology advances, innovations in deflector design continue to enhance their effectiveness, including modular systems for flexibility and aerodynamic shaping to reduce drag effects.*

### Author Keywords

Jet Blast Deflector (JBD), Aviation Safety, Thermal Stress Resistance, Airflow Dynamics, Operational Efficiency

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