



Computation of Transverse Injection  
Into Supersonic Crossflow With  
Various Injector Orifice Geometries

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# Computation of Transverse Injection Into Supersonic Crossflow with Various Injector Orifice Geometries

By Lancert Foster

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Computational results are presented for the performance and flow behavior of various injector geometries employed in transverse injection into a non-reacting Mach 1.2 flow. 3-D Reynolds-Averaged Navier Stokes (RANS) results are obtained for the various injector geometries using the Wind code with the Mentor's Shear Stress Transport turbulence model in both single and multi-species modes. Computed results for the injector mixing, penetration, and induced wall forces are presented. In the case of rectangular injectors, those longer in the direction of the freestream flow are predicted to generate the most mixing and penetration of the injector flow into the primary stream. These injectors are also predicted to provide the largest discharge coefficients and induced wall forces. Minor performance differences are indicated among diamond, circle, and square orifices. Grid sensitivity study results are presented which indicate consistent qualitative trends in the injector performance comparisons with increasing grid fineness. This item ships from La Vergne, TN. Paperback.



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