

## **Effects of Positioning of Ports on Performance of Diffusers**

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### **Abstract**

Unless a control is established upon the disposal of wastes, the ecological-cycle is in great danger of being irreversibly disturbed. The multi-port diffusers, which produce a high initial dilution, are used very widely and efficiently, and they yield greater assurance to satisfy the limiting conditions dictated by regulations. The near-field dilution of an effluent discharged from a submerged diffuser is greatly related to the jet characteristics. Therefore, the accurate design information on the energy losses and the flow distribution of a multi-port diffuser is very important. Small differences from the estimated hydraulic characteristics may cause great deviation on the system efficiency and the overall performance.

In this experimental study, the performance of the ports of a multi-port diffuser is related to the discharge and form loss coefficients. The effects of the port spacing, the port location, the port diameter and the submergence of the diffuser on the discharge coefficient and the form loss coefficient are investigated. The ports are located either on one side or both sides or alternately. The port spacing is varied from three pipe diameters to a very large distance, nominally infinity.