

Axial Flow-Feed Diffuser

Product Coding
P310102XXX

Introduction

Feed diffuser or inlet distributor in reactors is designed to reduce the incoming fluid velocity and ensure uniform distribution across the reactor, typically over the catalyst bed. It is usually mounted on the inlet nozzle flange, placed in a groove between flanges, or, in upflow configurations, installed above the nozzle. As the reaction gas flows through the particle bed in a radial reactor, the large cross sectional flow area, low flow velocity, and short flow path contribute to its key characteristic: a minimal pressure drop. Depending on process conditions, flow dynamics, and mechanical load requirements, the design may incorporate perforated plates, V-Wire screens, mesh screens, slotted or corrugated sheets, often with an impingement plate to reduce velocity. To achieve proper distribution, the open area is generally 3 to 5 times greater than the inlet nozzle cross section, with structural reinforcement provided based on static and dynamic considerations.



Features

- Uniform flow distribution in typically axial flow reactors (also in some radial flow reactors)
- Protection of catalyst beds and internals from erosion
- Handling of thermal shock and quenching
- To prevent fluidization of catalyst beds
- Customizable geometry



Applications

- Catalyst beds
- Fixed bed hydrogenation
- Reforming reactors
- Catalyst beds
- Cation and anion resin beds
- Leach reactors
- Nutrient reactors
- Enzyme packed columns



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