

Loop Reactor

Product Coding
PXXXXXXXXX

Introduction

Loop reactor is a continuous tubular reactor system widely used in petrochemical, polymerization, and specialty chemical processes where precise control of reaction conditions and high conversion efficiency are required. It consists of a closed loop piping circuit equipped with circulation pumps, heat exchangers, and injection points that ensure continuous circulation of the reacting fluid.

Our company has solid experience in manufacturing key components and skids for loop reactor systems, including piping spools, internal elements, manifolds, and auxiliary equipment, manufactured in accordance with international pressure vessel and piping standards.

Features

- **Continuous high efficiency operation:** The closed loop configuration allows stable reaction conditions with uniform temperature and concentration profiles.
- **Excellent heat removal capability:** Integrated heat exchangers and large heat transfer surface area enable effective control of highly exothermic reactions.
- **High mixing performance:** Forced circulation through pumps ensures homogeneous phase distribution and prevents hot spots or stagnant zones.
- **Robust mechanical design:** Designed for high pressure and high temperature services with thick wall piping, reinforced elbows, and fatigue resistant welds.

Applications

- Polyethylene and polypropylene polymerization processes
- Slurry, solution, and bulk polymerization systems
- Specialty chemical synthesis requiring high heat removal
- Hydrogenation, oxidation, and isomerization reactions
- Continuous petrochemical and refinery upgrading processes
- Pilot plants and commercial scale production units



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