

Jacketed Vessel

Introduction

Jacketed vessels are one of the most widely used heat transfer solutions in chemical, petrochemical, pharmaceutical, food, polymer, and specialty process industries. These vessels consist of an inner process shell surrounded by an external jacket through which a heating or cooling medium is circulated. The design enables precise temperature control of process fluids during reactions, mixing, dissolution, crystallization, polymerization, or storage.

At Euroslot Pars, we manufacture high quality jacketed vessels using proven fabrication technologies and strict quality control procedures. Our vessels are engineered to deliver uniform heat transfer, high mechanical integrity, and long-term reliability under demanding industrial conditions.

Process Overview

In a jacketed vessel system, thermal media such as steam, hot oil, chilled water, or glycol are circulated through the outer jacket while the process fluid is contained inside the main vessel shell.

The heat transfer mechanism occurs through the vessel wall by conduction, ensuring controlled heating or cooling without direct contact between the utility medium and the product. Depending on the process requirements, the jacket can be configured as:

- Conventional single wall jackets for moderate heating and cooling duties.
- Dimple jackets to improve turbulence and heat transfer coefficient.
- Half pipe coil jackets for high pressure and high temperature services.
- Full coverage jackets for uniform thermal distribution.

Features

- High thermal efficiency with optimized jacket geometry for maximum heat transfer area.
- Uniform temperature distribution, minimizing hot spots and thermal gradients.
- Wide material selection, such as carbon steel, stainless steel (304/316L), duplex, and alloy steels.
- High mechanical integrity, designed in accordance with ASME Section VIII and relevant project specifications.
- Customizable nozzle arrangement for process connections, vents, drains, safety valves, and instrumentation.
- Excellent surface finish for hygienic or corrosion resistant applications.
- Provision for insulation and cladding to reduce heat losses and improve energy efficiency.

Applications

- Pharmaceutical mixing, crystallization, and formulation vessels
- Food and beverage processing such as syrup preparation, fermentation, and pasteurization
- Petrochemical intermediate storage tanks
- Heating or cooling of high viscosity fluids such as bitumen, waxes, and oils

