CASE STUDY

Alternative Energy: Cooling Gasoline

Exergy engineered a precision tube-in-tube heat exchanger to cool hot gasoline vapor from **125°C down to 30°C** — delivering compact, maintenance-free thermal performance for demanding industrial gas-cooling applications.

The Objective

Design a heat exchanger capable of cooling hot process gas from 125°C to 30°C while maintaining constant pressure and flow conditions. The system required durable, reliable performance under steady operating parameters with dependable gas connections.

Tight installation constraints and material compatibility requirements called for a compact, efficient design that would integrate easily into the existing setup.

The Challenge

The customer's process required cooling a continuous gas stream where both pressure and flow rate remained constant, demanding precise thermal control without compromising system integrity.

- Compact design for tight installation constraints
- Material compatibility requirements
- Tube stub connections for secure and sanitary gas inlet/outlet fittings
- Seamless integration into existing setup

The Solution

Exergy engineered a **tube-in-tube heat exchanger (Model #03315-01)** specifically optimized for high-performance gas cooling, constructed entirely of **316L stainless steel**.

- Inner Tube: 0.75" OD × 0.065" wall
- Outer Tube: 1.25" OD × 0.065" wall
- Tube stubs on all ports

125°C

Inlet Temperature

Hot gasoline vapor entering the exchanger

30°C

Outlet Temperature

Cooled gas exiting the system

316L

Stainless Steel

Full construction for corrosion resistance

0.75

Inner Tube OD

0.065" wall thickness precision tubing

Results & Benefits

Precise Thermal Control

Successfully cooled gasoline vapor stream from 125°C to 30°C while maintaining consistent flow and pressure throughout operation.

Long-Term Durability

All-316L stainless steel construction provided exceptional corrosion resistance and long-term structural integrity under continuous process conditions.

Seamless Integration

Compact, maintenance-free design integrated seamlessly into the existing system with tube stub connections ensuring secure gas fittings.

Low Operating Costs

Dependable thermal performance and maintenance-free operation delivered reduced lifecycle costs for the customer's industrial process.

This case highlights **Exergy's expertise** in engineering precision heat exchangers for demanding gas-cooling applications in industrial environments — backed by an ISO 9001:2015 Certified Quality Management System.