Frequent cleaning a thing of the past

Mexichem, Altamira, Mexico **Case story**

Mexichem reduced maintenance needs and increased production capacity in one of its PVC plants when exchanging two alternately operating shell-and-tube interchangers for two Alfa Laval spiral heat exchangers. As an added bonus the extra heat recovered by the new heat exchangers resulted in annual steam savings of 110,000 euros.

The need for frequent cleanings required Mexichem to have two shell-and-tubes in alternate operation in the PVC slurry interchanger position to minimize downtime.

The interchanger position was a bottleneck when Mexichem needed to ramp up production to meet increasing sales on the international market.

Alfa Laval spiral heat exchangers

The plant's engineers searched for way to boost production capacity and reduce maintenance needs. Alfa Laval recommended Mexichem to switch to spiral heat exchangers. The company installed its first two units in 1998.

The Mexichem engineering group worked closely with Alfa Laval from the beginning of the project. "The accurate and timely support from Alfa Laval were important factors when we chose Alfa Laval as a supplier", says Armando Obregón, Project and Construction Quality Engineer at Mexichem.

"Alfa Laval is a supplier with reliable, high quality products. Thermal performance, materials, design and welding are all top class", Armando Obregón continues.

Easy installation

The high thermal efficiency of a spiral heat exchanger makes it very compact. The two new units at Mexichem have significantly higher capacity than the previous shell-and-tubes, yet they could easily be fitted into the available space.

Miguel Angel Rivera Hernández, Engineering Manager at Mexichem, explains there has been little need for service or advice from Alfa Laval after commissioning. "The performance is so good we hardly think about cleaning anymore. Now we only take the spiral heat exchangers out of operation once a year when the entire plant is overhauled", he says.

Mexichem has installed six additional spiral heat exchangers in various positions in their plants after the first two were installed in 1998.

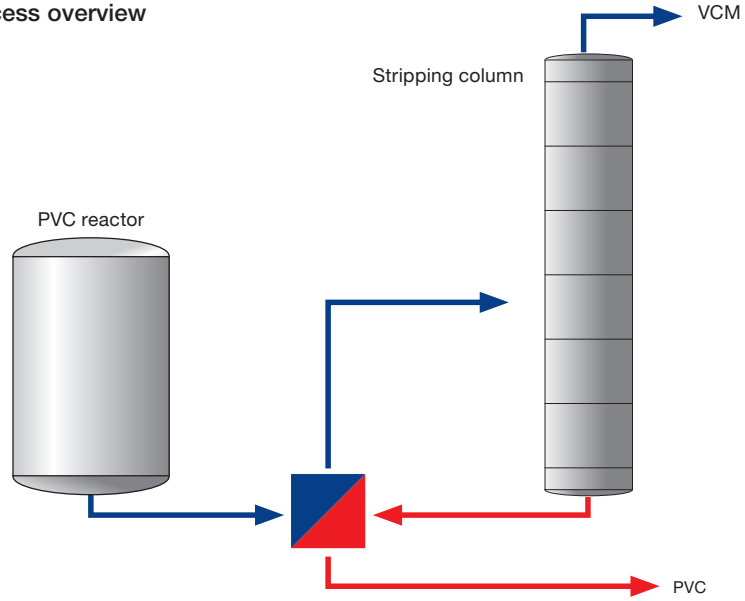
Added benefits

Installing the two spiral heat exchangers not only led to increased production capacity and lower maintenance costs. Thanks to the better heat recovery in the heat exchanger the consumption of steam and cooling water has dropped significantly.

Steam savings after the revamp amount to 110,000 euros per year. Considering this saving alone, the payback time for the investment was about one year.

The staff at Mexichem is very pleased with the results. "In future projects, Alfa Laval will be our first choice for heat exchangers", Armando Obregón concludes.

Process overview



The PVC slurry interchanger recovers heat from the stripping column and uses it to preheat the feed. Exchanging the existing shell-and-tubes for two Alfa Laval spiral heat exchangers resulted in dramatically reduced maintenance needs and increased production capacity. As an added bonus the new heat exchangers recover more heat, leading to annual steam savings of 110,000 euros.

Miguel Angel Rivera Hernández, Engineering Manager and Armando Obregón, Project and Construction Quality Engineer at Mexichem, in front of two of the plant's spiral heat exchangers. "The performance is so good we hardly think about cleaning anymore", Armando Obregón says.

About the company

Mexichem

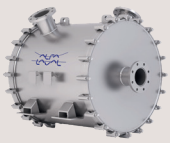
Mexichem is a global leader in plastic piping systems as well as in the chemical and petrochemical industries in Latin America.

Mexichem has commercial activities in more than 50 countries and manufacturing in 31. The company has over 100 production plants spread across 86 sites, 8 R&D laboratories and more than 17,300 employees.

The company's products are marketed worldwide and generate sales of more than USD 5 billion annually.

Mexichem operates 4 PVC plants in Latin America with a total production of 1,000,000 tpa.

SpiralPro



Design temperature

-100°C (-148°F) to 400°C (752°F)

Design pressure

Full vacuum to 100 barg (1450 psig)

Maximum heat transfer area

900 m² (9,688 ft²)

Material of construction

Carbon steel, 316L/304/316Ti, 2205 Duplex, Titanium, Nickel alloys

Duties

Liquid-to-liquid or steam heater

SpiralCond

Design temperature

-100°C (-148°F) to 400°C (752°F)

Design pressure

Full vacuum to 100 barg (1450 psig)

Maximum heat transfer area

2,500 m² (26,910 ft²) (for stacked columns)

Material of construction

Carbon steel, 316L/304/316Ti, 2205 Duplex, Titanium, Nickel alloys

Duties

Vacuum condensation or evaporation

Unique features

Built with unique features that prevent fouling, Alfa Laval spiral heat exchangers ensure efficient, reliable performance with high uptime and low maintenance requirements.

SelfClean

Design that prevents fouling

RollWeld

Automated, reliable channel closures

HighP

A custom solution for high-pressure duties

ALOnsite

Qualified support at your facility

Learn more at
www.alfalaval.com/spirals

How to contact Alfa Laval
Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com.