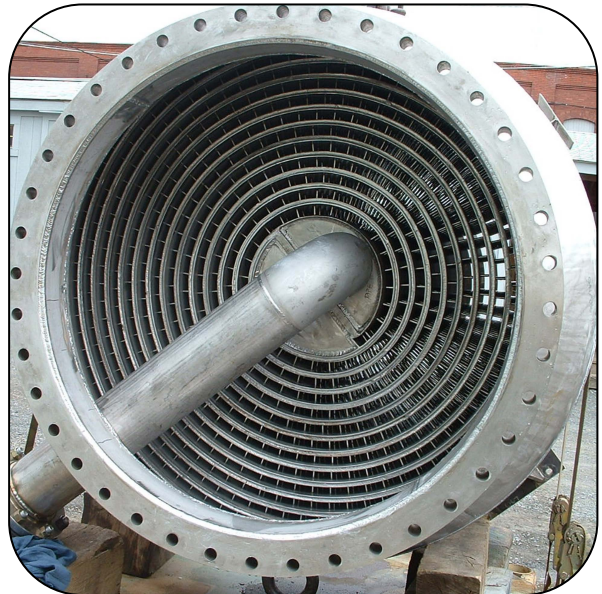




## GOOCH THERMAL SYSTEMS, INC.



## Spiral Heat Exchangers

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## Spiral Heat Exchangers



**STEEL / COKE OVEN BY-PRODUCTS, Ammonia Liquor Cooler**  
Type 1.1-H, 304/304L SS, 100" L x 60" OD 2100 ft<sup>2</sup> (195 m<sup>2</sup>)



**AGROCHEMICALS, Gas Cooler / Condenser**  
Type 2-V, 316/316L SS, 75" L x 64" OD, 650 ft<sup>2</sup> (60 m<sup>2</sup>)



**PETROCHEMICALS & REFINING, Steam Heater / Oil Additive**  
Type 3.1-H, Carbon Steel, 110" L x 55" OD, 1000 ft<sup>2</sup> (93 m<sup>2</sup>)

### About Gooch Thermal Systems

Gooch Thermal Systems, Inc. is the largest American manufacturer and supplier of spiral heat exchangers. Our spiral heat exchangers are custom-designed for demanding cooling, heating, condensing, and heat recovery applications. The spiral heat exchanger is often best suited for services that foul, plug, or are difficult to perform in conventional shell & tube and plate heat exchangers.

Established in 1989, GTS has supplied spiral heat exchangers to a diverse range of customers and end users for over 20 years. Our main markets include the chemical process & allied industries, municipal wastewater treatment, international EPC contractors, and consulting engineering firms.

### Our Mission

At Gooch Thermal Systems, our primary objective is to provide proven and soundly engineered solutions to difficult heat transfer problems. Our engineers have extensive knowledge and experience in spiral heat exchanger design, construction, and application. In every application, we strive to improve the performance of a process by increasing thermal efficiency, minimizing downtime, and generating a high economic rate of return for our clients.

#### GTS spiral heat exchangers are ideal for:

- Fouling fluids and process slurries
- Non-Newtonian fluids and suspensions
- Mixed vacuum vapors with inert gases
- Liquids with suspended solids or fibers
- Sewage sludge and plant effluents



## Key Features & Benefits

The spiral heat exchanger is a compact, welded plate heat exchanger with two concentric spiral flow passages, one for each fluid. Its many advantages include:

### ▪ Superior Heat Transfer & Low Fouling

Good flow distribution, countercurrent flow, a single flow passage for each medium, and uniform rectangular flow cross-sections contribute to the optimal use of pressure drop to generate high heat transfer coefficients, especially in fouling and other difficult services.

### ▪ Self-Cleaning & Online Reliability

Intense turbulence and high shear rates scrub and flush away deposits as they form – making spirals a superior choice for handling process slurries, sludge, and other fluids containing suspended solids or fibers.

### ▪ Small Footprint & Easy Accessibility

A compact design means minimal installation and servicing area. The internal heat transfer surfaces are easily accessible for inspection, maintenance, or cleaning by opening the covers. There are no removable internal parts such as tube bundles or plate packs.



**CHEMICALS, Overhead Column Condenser**  
Type 2-V, 316/316L SS, 140" L x 50" OD, 1000 ft<sup>2</sup> (93 m<sup>2</sup>)



**PULP & PAPER, Foul Condensate Stripping Column Preheater**  
Type 1.1-H, 316/316 L SS, 100" L x 65" OD, 1850 ft<sup>2</sup> (170 m<sup>2</sup>)

## TYPICAL DESIGN PARAMETERS

<b>Materials<sup>1</sup></b>	Carbon Steel, 304 SS, 316 SS Duplex 2205, Nickel Alloys, Titanium	<b>Surface Area / Unit</b>	Typical: 5 – 3500 ft <sup>2</sup> (0.5 – 350 m <sup>2</sup> ) Maximum: 7000 ft <sup>2</sup> (700 m <sup>2</sup> )
<b>Design Pressure<sup>2</sup></b>	Typical: 50 – 300 psig (3.5 – 20 barg) Maximum: 600 psig (40 barg)	<b>Channel Plate Width</b>	6 – 80 inch (150 – 2000 mm)
<b>Design Temperature</b>	Typical: 300 – 500 °F (150– 260 °C) Maximum: 1600 °F (870 °C)	<b>Channel Spacing</b>	0.2 – 1.5 inch (5 – 38 mm) Larger spacing (special design)

<sup>1</sup> Any material that can be cold-formed and welded.

<sup>2</sup> Pressure vessel design according to ASME Code Section VIII, Division 1

# Quality in Thermal Engineering

**Our History:** In the 1920s, the Swedish company AB Rosenblads Patent developed the concept of a spiral "plate" heat exchanger for low grade heat recovery from fiber-laden streams and fouling effluents in the Scandinavian pulp & paper industry.

At Gooch Thermal Systems, our commitment to innovative solutions in heat transfer is derived from our historical ties to Rosenblads. GTS ownership and our engineers previously worked for former Rosenblads subsidiaries, American Heat Reclaiming Corp. (AHRCO) in the USA and Rosenblads-Canzler GmbH (ROCA Apparatebau) in Germany.

As a leading supplier of spiral heat exchangers, we take pride in this tradition of excellence as we continue to serve our valued clients by furnishing custom-built products and optimized solutions for their most demanding heat exchanger services.



**Chemicals**

**Pulp & Paper**

**Petrochemicals**

**Tar (Oil) Sands**

**Petroleum Refining**

**Wastewater Treatment**

**Steel & Coke Production**

**Hydrocarbon Processing**

**Pharmaceuticals & Biotech**

**Sugar, Starch & Edible Oils**

**Alcohol & Renewable Fuels**

**Metals & Mining (Al, Cu, Zn)**



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