

Schmidt

Products



**SOLUTIONS FOR THE
FOOD, BEVERAGE
DAIRY, BREWERY
MARKETS**

Solutions

**People &
Service**

API Heat Transfer

...world leaders in heat transfer technology



**...A brand respected
by Processors
worldwide in the
Food and Beverage
Industries.**

*With over 125 years of
service to the Beverage,
Liquid Food, Brewery and
Dairy Industries, API Heat
Transfer's Schmidt-Bretten
Division has the experience
and products to ensure the
highest quality final product.*

API Heat Transfer is well known in industrial markets as a full service supplier of Shell & Tube Heat Exchangers under the Basco and Whitlock brands of Air-Cooled Heat Exchangers under the Airtech brand, and of Plate Heat Exchangers under the Schmidt brand. We have been engineering, designing, manufacturing and providing after-sales service of these products to OEM and End User customers in the Compressor, Fluid Power, Power Generation, Process, Pulp & Paper, Marine, Off-Highway and Truck & Bus markets for many years.

However, API Heat Transfer also serves the liquid food, dairy, beverage and brewery markets with a complete offering of component plate and frame heat exchangers and complete thermal process systems.

For over 125 years, the Schmidt name has been synonymous with superior engineering, quality processing equipment and exceptional service to the sanitary markets. Headquartered in Bretten, Germany, about two hours from Frankfurt, API Schmidt-Bretten is recognized for their world-class evaporation systems, efficient pasteurizers, and innovative dealcoholization plants. With complete sales and service operations in Buffalo, New York, API Schmidt-Bretten is well positioned to support our customers needs on a global basis.



Sigma Thermal Process Systems

API Schmidt-Bretten is recognized as a leader in the supply of complete thermal process systems for a wide range of applications. Known for combining modern technology and high quality components with extensive engineering expertise, Schmidt systems are built to provide superior final product quality and long service life. All of our equipment is designed, manufactured, assembled and commissioned by API Heat Transfer to ensure total customer satisfaction.

SigmaStar Concentration Plants

Designed for the concentration of fruit juices, malt, beer, yeast, gelatin, broth, and other liquid food products to remove water and stabilize prior to product storage. The heart of the system is the patented SigmaStar® plate with its unique metal-to-metal contact that provides excellent product distribution with minimal thermal processing time.

Advance Aroma Recovery Systems

Captures and concentrates a full range of volatile aromatic compounds or essences, resulting in a natural aroma with high yields. This system is extremely versatile and can be used to produce a wide range of aroma concentrates.

SigmaVac Deaeration Plants

For the removal of dissolved and entrained oxygen from juices, beverages and mashes. Deaeration improves product quality, extends shelf-life and prevents the formation of foam during filling.

SigmaTec Dealcoholization Plants

For the reduction of the alcohol percentage or removal of alcohol from beer, wine and champagne. The award-winning SigmaTec® process uses low temperature processing with minimal aroma loss.

Other Systems Available Include:

- Pasteurizers
- Aseptic and UHT Systems
- Hot Water Sets
- Desulphurization Plants
- Reconstitution Plants



A five-effect SIGMASTAR® Plate Evaporator installation



*SIGMATHERM
Pasteurization plant
with deaeration*

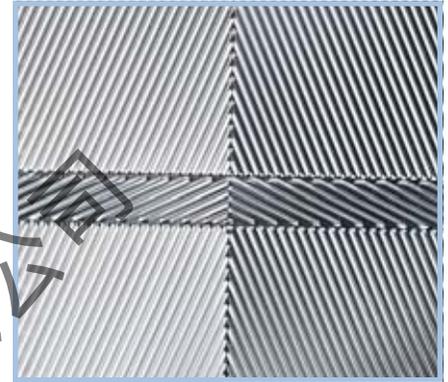


SIGMASTAR® concentration plant with aroma recovery

Sigma Plate Heat Exchangers

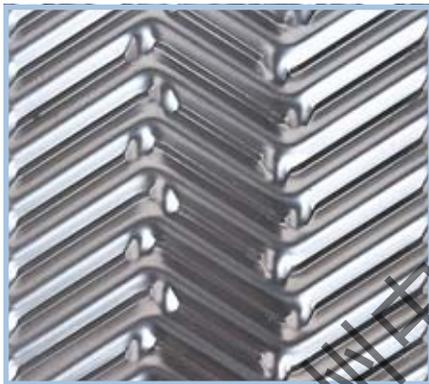
Sigma heat exchanger plates are manufactured primarily from stainless steels, with titanium, titanium-palladium, Hastelloy, Incolloy and SMO 254 also available. API Heat Transfer has invested heavily in our Plate Heat Exchanger business, installing two of the most modern pressing lines in the world. Starting with coiled steel, fully automated positioning, cutting, and stamping reduces cycle times and ensures uniform quality. Proper management of material flow and residence time maintains proper thickness throughout the entire plate.

API Schmidt-Bretten produces a wide range of plate sizes, corrugation patterns and depths. The corrugations enhance thermal performance by increasing the effective surface area and inducing turbulence whilst offering low flow resistance. However, because different food and beverage products create unique challenges to heat transfer due to their viscosity, homogeneous nature or fiber content, we offer a variety of designs to ensure the right solution for each individual application.



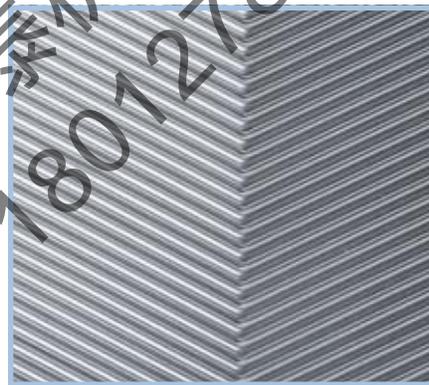
SIGMA X series
high performance plates

Suitable for clean, homogeneous, solid-free liquids; particularly suitable for heat recovery for capacities up to 750 gpm and high NTU values.



SIGMA 2 series
pasteurization plates

For all viscous, fibrous or pulpy liquids in the food and beverage industries, e.g. for pasteurization of pumpable products with capacities up to 1100 gpm.



SIGMA 7 series plates

Suitable for all liquids, even those with fine suspended solids; for industrial and food applications up to a capacity of 8800 gpm.



SIGMAGAP F series
free-flow plates

Suitable for fibrous products with large suspended solids; for capacities up to 650 gpm.

Sigma Plate Heat Exchangers

No less important than the proper selection of the thermal plate is the proper selection of the frame. Product application, plant environment and maintenance serviceability requirements all play a role in the selection of the type of frame best suited for the installation.

That is why API Schmidt-Bretten offers the most common frame styles required by Food, Beverage, Dairy and Brewery processors. Our epoxy painted, mild steel tie bar tightened frame offers the lowest cost design often suitable for many applications. Our stainless steel tie bar tightened frame provides a superior, long lasting finish that will stand-up to the harshest plant environments. Finally, our spindle tightened stainless steel frame combines durability with easy opening making it ideal for applications where frequent visual inspection of the plates is required. All frames are supplied with fittings as required, the most common being a quick disconnect clamp style. Connector grids are available to divide a single frame into multiple sections.



Mild Steel Tie-Bar Tightened Plate Exchanger



Stainless Steel Tie-Bar Tightened, Model 66



Sanitary Twin Spindle Tightened Model 37 Plate and Frame Heat Exchanger

API Schmidt-Bretten offers a variety of gasket materials and designs. Material options include Nitrile, EPDM, Viton, Silicone and Compressed Fiber. These can be attached to the thermal plates via our food grade adhesive or mechanical bonding. We believe our mechanical bonding design is the best in the industry due to the ease and security to which it attaches to the plate.



Beverage & Brewery

The Schmidt-Bretten Company's roots may run the deepest in the Brewery Industry. The original patent awarded Wilhelm Schmidt back in 1879 was for a counter-current spray-type cooler designed for cooling wort. From those entrepreneurial beginnings, API Schmidt-Bretten has evolved into a major worldwide supplier of highly efficient, compact Plate Heat Exchangers and complete Thermal Process Systems. Both large multi-national brewing companies and small regional breweries benefit from our experience and superior products.

Like Brewery, API Schmidt-Bretten's experience in the beverage market is extensive. From our wide

range of Plate Heat Exchangers designed for heating, cooling, regeneration, chilling and pasteurizing a variety of citrus and non-citrus beverages, to our complete Thermal Processing Systems designed to evaporate, deaerate, pasteurize, or aseptically process beverages, API Schmidt-Bretten has the people, products and solutions.

It takes high quality process equipment to produce high quality beverages. It also takes economical, thermally efficient heat transfer equipment to provide the best ROI. We understand these requirements and will always look for the best value to meet our customers' most important criteria.



TYPICAL APPLICATIONS

BEVERAGE:

- Juice Pasteurization
- Juice Chilling
- Concentrate Cooling
- Mash Deaeration
- Concentration of Syrups, Juices & Coffee
- Aroma Recovery

BREWERY:

- Wort Cooling
- Beer Chilling
- Wort Aeration
- Flash Pasteurization
- Heat Recovery
- Non-Alcoholic Beer Processing
- Concentration of Yeast, Malt Extract and Wort

Liquid Food & Dairy

Liquid Food covers a tremendous spectrum of different products ranging from low viscosity homogeneous fluids to high viscosity fibrous fluids, and everything in-between. Often times the physical properties of a liquid food product will change with temperature and applied shear rate. Starch blooms upon heating causing its viscosity to increase rapidly. Some concentrates are shear sensitive causing pressure losses to be dependent upon plate rates.

Dairy products can be just as challenging to thermally process. Many dairy-based products have the tendency to foul on the heat transfer surface. Protein deposits form an insulation resulting in reduced

thermal efficiency over time. However, through proper design of fluid plate velocity and temperature approach the Schmidt-Bretten Plate Heat Exchanger will provide for long production runs between cleanings. In fact, we believe designing for good CIP is just as important as designing for the liquid product.

All of this means you need more than a simple computer program to size a heat exchanger properly. You need experience. At API Schmidt-Bretten we have the experience! Our Plate Heat Exchangers and Thermal Process Systems are designed to provide superior product quality with long production runs.



TYPICAL APPLICATIONS

LIQUID FOOD:

- Ketchup & Mustard Deaeration
- Syrup Heating and Cooling
- Liquid Egg Processing
- Honey Deaeration
- Heating & Cooling of Various Sauces
- Liquid Sugar Processing
- Fruit Processing

DAIRY:

- Milk Pasteurization
- Cream Cooling
- Ultra Pasteurization
- Farm Milk Coolers
- Dairy Evaporators
- HHST Systems
- Ice Cream Mix Pasteurization

API Heat Transfer

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Plate Heat Exchangers
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Contact your local API Sales Representative
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toll-free @ 1-877-API-HEAT
e-mail @ sales@apiheattransfer.com

Other Products Available from API Heat Transfer

Brazed Plate Heat Exchangers



Off-the-shelf, standard units reflect the latest in plate heat exchanger technology for maximum performance and low cost. Ideal for OEM or aftermarket applications. Many models stocked and ready to ship. Models for process or refrigeration applications.

Welded Plate Heat Exchangers



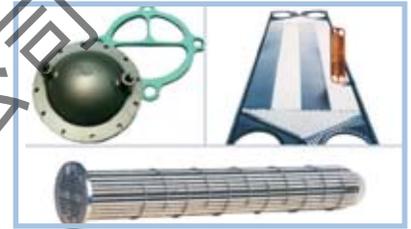
The Sigmawig all-welded plate heat exchanger has operating temperatures as high as 750° F and as low as -320° F, and operating pressures as high as 360 PSI. The unique concept of this rugged heat exchanger makes it a viable solution for many heat transfer needs previously thought only suitable for shell & tube designs.

Semi-Welded Plate Heat Exchangers



Combines the high thermal efficiency, compact design, and low volumetric liquid hold-up of a plate heat exchanger with the leak prevention of a shell & tube. Ideal for ammonia applications.

Genuine Manufactured Parts



Contact API Heat Transfer to order all your replacement parts. Only genuine parts manufactured to the original specifications of your heat exchanger will ensure proper performance. Many items such as gaskets, bonnets, and PHE thermal plates are available from stock.

Air-Cooled Heat Exchangers



High efficiency, brazed aluminum coolers for cooling a wide variety of liquids and gases with ambient air. Lightweight, yet rugged. Capable of cooling multiple fluids in single unit. Models can be supplied with cooling fan and a variety of drives.

PCR



Designed specifically for air dryer OEM's, the all-aluminum brazed PCR combines a regenerative economizer with a refrigerant cooling section and a built-in moisture separator to provide the most compact, efficient 3-in-1 heat exchanger available. Capacities from 76 to 600 SCFM @ 100 psi with exiting RH below 25%.

Hubbed Shell and Tube Heat Exchangers



Straight or U-tube, fixed or removable tubesheet general purpose exchangers designed to cool oil, water, compressed air and other industrial fluids. A variety of port configurations and materials are available. Diameters from 3" (7.62 cm) to 12" (30.48 cm).

Hubbed Shell and Tube Heat Exchangers



A wide variety of TEMA types are available using pre-engineered or custom designs in various sizes and materials. Shell diameters from 6" (15.24 cm) to 60" (152.4 cm), ASME, TEMA, API, ABS, TUV, PED and other code constructions available.