SCHMIDT-BRETTEN SIGMAWIG ALL WELDED PLATE HEAT EXCHANGERS

API Heat Transfer

...world leaders in heat transfer technology

All-Welded Sigmawig Plate Heat Exchangers

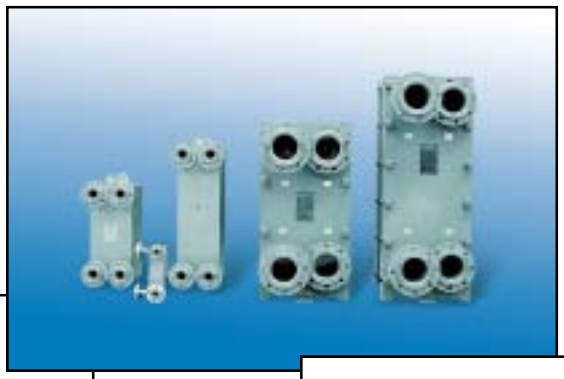
... offer the same superior thermal efficiency our customers have come to expect from our Sigma-line of gasketed Plate & Frame Heat Exchangers, but are designed and constructed with the integrity and safety found in welded Shell & Tube Heat Exchangers.

API Schmidt-Bretten Sigma Plate Heat Exchangers are recognized worldwide for quality and reliability in a wide variety of thermal processes. To meet the demand for special applications requiring the high thermal efficiency and compact design of a plate & frame heat exchanger but without the pressure, temperature or fluid limitations created by the use of a perimeter plate gasket, API Heat Transfer can now offer our Schmidt Sigmawig All-Welded Plate Heat Exchanger.

The Sigmawig All-Welded Plate Heat Exchanger does not use elastomer gaskets to seal each plate. Instead, the thermal plates are sealed by TIG welding without filler. This greatly eliminates the risks of leakage and diffusion.

This innovative gasket-less design makes it possible to significantly extend the application range of plate heat exchangers. Plate exchangers are well known for their thermal efficiency, compact footprint and lower cost compared to shell & tube exchangers. However, shell & tube units traditionally are known to provide greater reliability and safety for the more difficult process applications due to their rugged welded construction. The all-welded construction of the Schmidt Sigmawig plate heat exchanger makes it possible to use the Sigmawig in the harshest of operating conditions - formerly considered solely shell & tube territory

SIGMAWIG - all welded plate heat exchangers

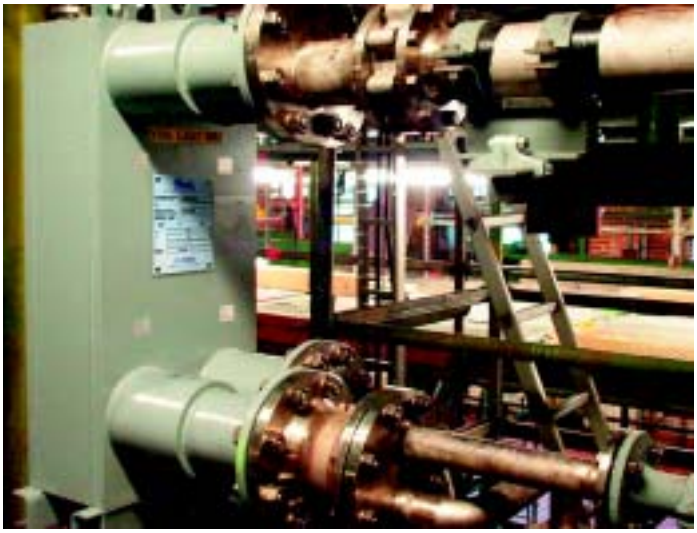


all stainless steel units

carbon steel frame

The Best Choice for Tough Applications

The Sigmawig all-welded plate heat exchanger consists of the required number of corrugated thermal plates arranged in alternating passages for counter-current flow, similar to gasketed plate heat exchangers. However, unlike the traditional plate & frame design which uses elastomer gaskets on the perimeter of each plate to create the seal, the plates of the Sigmawig units are sealed together hermetically by TIG welding the seams without filler. This greatly increases the maximum operating temperature and pressure.



SIGMAWIG ST 30 for steam condensation

Cross section of plate pack

The fishbone geometry of the flow channels built by the plates effects high turbulence on the fluids that results in optimum heat transfer. The counter-current flow arrangement is the most thermally efficient for transferring heat.

The welded plate pack is clamped into either a stainless steel or epoxy painted carbon steel frame. Standard connections are flanged or threaded. Units are built to ASME Code construction.

Typical applications can be found in the following industries:

- Chemical
- Pharmaceutical
- Industrial
- Transportation

SIGMAWIG ST12 in a heating-cooling circuit for tempering of chemical reactor

The Sigmawig Advantage

FEATURE	BENEFIT
welding replaces gaskets	higher level of safety and security when processing harsh fluids
	eliminates downtime and cost associated with gasket replacement
rugged construction	all-welded construction creates strong unitary design well suited for environments subject to vibration
corrugated plates	highly efficient heat transfer due to induced turbulence
counterflow design	optimum flow resulting in minimum heat transfer surface required
compact design	minimum space required resulting in cost savings for cabinet size, foundations, installation and/or piping
small liquid content	optimized control of process, higher level of security when handling dangerous products
temperatures up to 482°F/250°C	excellent for steam, thermal oils, edible oils or other high temperature applications
operating pressures up to 363psi/25 bar or -1 barg vacuum	excellent for condensation of refrigerants, high pressure heating, or other applications requiring higher operating pressures

SIGMAWIG ST 40 tempering of chemical reactor

SIGMAWIG ST 12 tempering of chemical reactor thermoil/ ethylenglycol

Compact reactor heating-cooling module

Technical Specifications

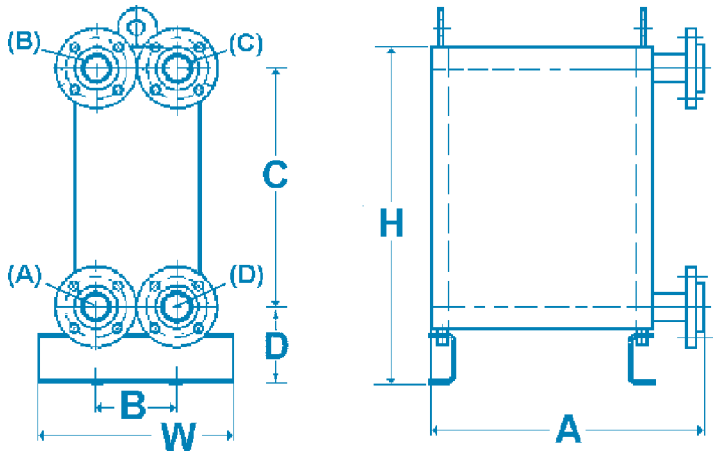
Materials of Construction

Thermal Plates: 316 Stainless Steel
Titanium
Hastelloy
904L

Frame: Painted Carbon Steel
Stainless Steel

Approvals

ASME
PED
Canadian Registration



General dimensions
Not for construction purposes

Model Specifications

		ST3	ST12	ST18	ST30	ST40
maximum operating pressure	psi	363	363	363	363	363
	bar	25	25	25	25	25
maximum operating temperature	°F	482	482	482	482	482
	°C	250	250	250	250	250
minimum operating temperature	°F	-184	-184	-184	-184	-184
	°C	-120	-120	-120	-120	-120
maximum liquid flowrate	GPM	37.4	154.1	154.1	1,981	1,981
	m^3/hr	8.5	35	35	450	450
maximum heat exchanger surface	ft^2	29.1	177.6	269.1	645.8	968.8
	m^2	2.7	16.5	25	60	90
standard nozzle type		threaded	flanged	flanged	flanged	flanged
nozzle size	inches	1.0	2.0	2.0	6.0	6.0
	mm	25.4	50.8	50.8	152.4	152.4
maximum dry weight	lbs	73	448	626	3,419	4,138
	kgs	33	203	284	1,551	1,877

Model Dimensions

		ST3	ST12	ST18	ST30	ST40
maximum length A	inches	23.6	19.1	19.1	36.6	36.6
	mm	600	485	485	930	930
length B	inches	2.0	6.5	6.5	10.0	10.0
	mm	50	166	166	255	255
length C	inches	9.8	19.3	28.9	28.0	39.8
	mm	250	490	734	710	1,010
length D	inches	1.1	6.2	6.2	11.3	11.3
	mm	29	156.5	156.5	287.5	287.5
width W	inches	7.7	15.7	15.7	21.7	21.7
	mm	195	400	400	550	550
height H	inches	11.9	30.3	40.0	47.6	59.8
	mm	303	770	1015	1210	1520

API Heat Transfer

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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.

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.

Gasketed Plate Heat Exchangers

The Schmidt-Bretten line of gasketed plate & frame heat exchangers provide excellent heat transfer in a compact space. Plates are pressed from stainless steel, titanium and other alloys. Gaskets of nitrile, EPDM, Viton®, compressed fiber and Teflon® are used. Capacities range from 0.5 to 10,000 GPM.

SigmaStar® Evaporator Systems

Utilizing the SigmaStar® plate, this evaporator system is designed to remove water or other solvents, while concentrating solutions. SigmaStar® Systems can be pre-assembled and pre-tested prior to shipment for quick and easy start up.

OptiDesign®

Straight-tube, removable bundle exchangers made from standard components. Floating tube sheet for seal leak detection and easy maintenance. Diameters from 3" (7.62 cm) to 42" (106.68 cm). ASME, API, TEMA, ABS and other codes available.

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).

TEMA Shell and Tube

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.

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.

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