Plate & Frame Heat Exchangers

Your Heat Transfer Solution

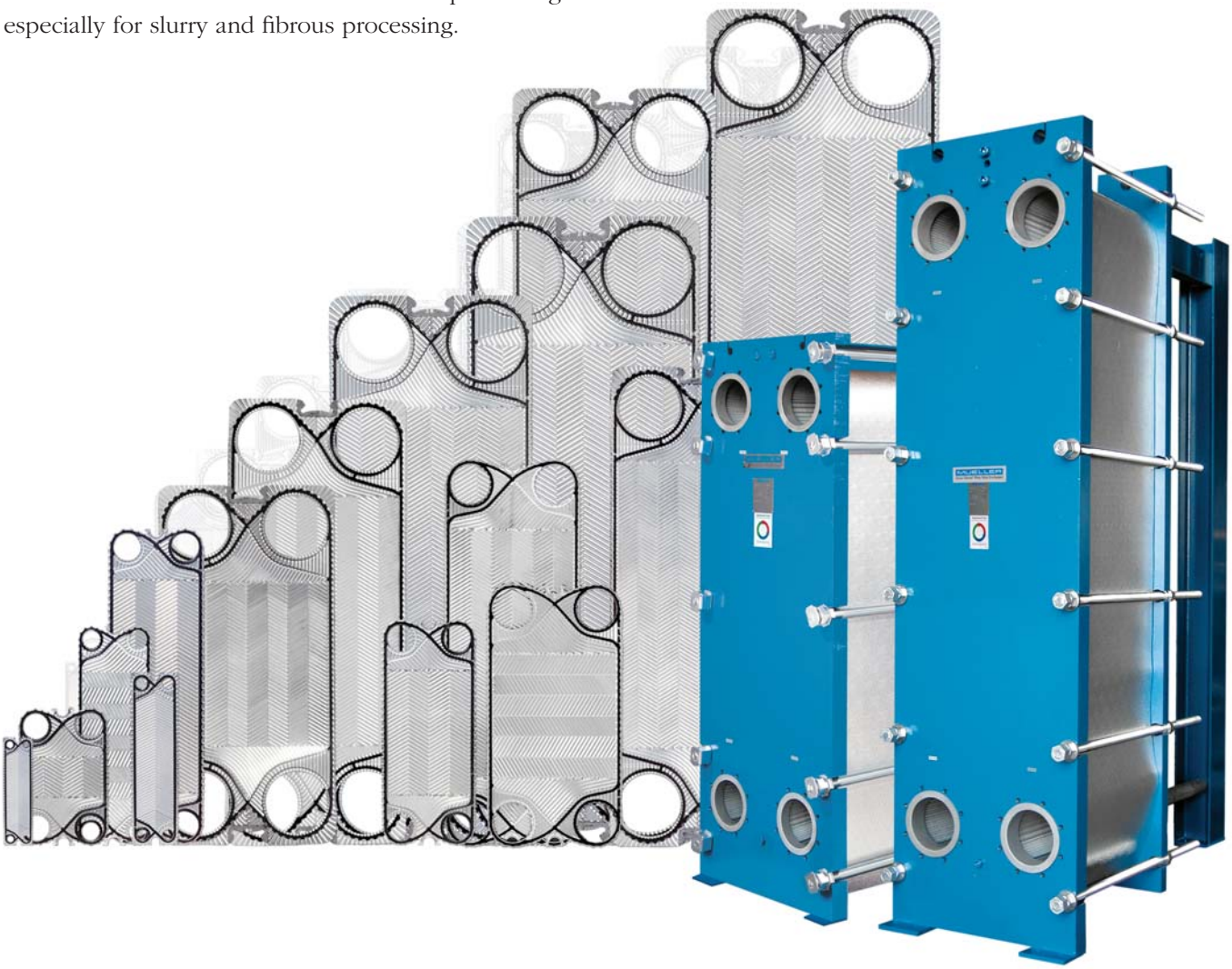
Accu-Therm® Plate Heat Exchanger

Worry-Free, Highly Efficient Heat Transfer Performance

Mueller Accu-Therm® plate heat exchangers are designed to provide you worry-free, highly efficient heat transfer performance — whether you are processing simple fluids, viscous solutions, or particulates.

The advantages of the Mueller Accu-Therm plate heat exchanger (PHE) begins with its design. PHEs offer greater efficiency, lower cost, closer approach temperatures, and easier cleaning and maintenance than other heat transfer technologies. In comparison to shell-and-tube heat exchangers, plate heat exchangers of similar capacity require only one-fifth to one-half the floor space and are easy to expand. An Accu-Therm stands apart from the rest with its wide array of plate sizes and corrugation patterns. We can custom build your Mueller Accu-Therm PHE to suit your individual application and heat transfer requirements.

And there's even an innovative "free-flow" plate design made especially for slurry and fibrous processing.



How Does the Mueller Accu-Therm Work?

Mueller Accu-Therm plate heat exchangers provide more efficient heat transfer by design. An Accu-Therm consists of a series of embossed heat transfer plates with gaskets around the perimeter of every plate to contain pressure and control the flow of each medium. They can be designed for multiple fluids or thermal requirements in a single frame.

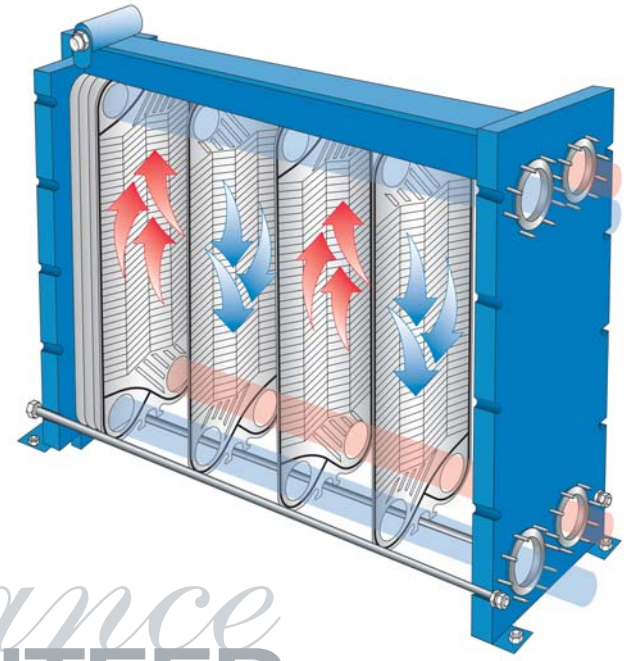
The gasketed plates are assembled in a pack, mounted on upper and lower guide rails, and compressed between two end frames with compression bolts. Fluids enter and exit the Accu-Therm through end-frame connections and are distributed to the plates through portholes in the plates.

The flow to individual passages between plates is controlled by alternate placement of port gaskets. Within the heat exchanger, the fluid to be heated (or cooled) flows down one side of each plate, while the heating (or cooling) medium flows in the opposite direction on the other side of the plate.

The temperature difference created by these opposite flows results in the closest possible approach temperature for maximum heat transfer efficiency.

While hot and cold fluids flow in opposite directions across a single plate, the flow pattern between plates can vary. Plate heat exchanger flow patterns can be single- or multi-pass. A single-pass arrangement means each fluid flows in the same respective direction across all the plates in the unit. A multi-pass arrangement is designed so fluids can change their respective flow directions.

Single-pass units are suitable for most applications, but extremely close approach temperatures or large temperature differences may call for a multi-pass configuration.



Performance GUARANTEED

Every Mueller Accu-Therm unit receives rigorous quality inspections for leaks and pressure capabilities. If your plate heat exchanger does not operate according to your exact order specifications, our factory service technicians will make the necessary adjustments immediately.

Mueller Accu-Therm Plate Heat Exchanger

Accu-Therm® Applications

Applications

Automotive

- Cooling tower isolation, hydraulic oil coolers, induction heater cooling, paint heating, phosphate tank heaters, plating solution cooling, quench oil heat exchangers, seal water coolers, and welder water cooling.

Brewing

- Brine cooling, water heating, and wort cooling.

Caustic Soda

- Acid coolers, brine heaters and coolers, caustic coolers, and hydrogen gas coolers.

Chemical

- Acid heating and cooling, brine heating and cooling, condensers, gas scrubber heaters, process interchangers, and process water isolation.

Food

- Corn syrup cooling, edible-oil heaters and coolers, fructose solution heating and cooling, starch heaters and coolers, sugar refining, whiskey recuperators, and yeast coolers.

HVAC

- Condenser water heat recovery, cooling tower isolation, district heating and cooling, engine cooling, free cooling, fuel oil heating, generator cooling, geo-thermal heating, heat pump systems, heating water with steam, lube oil cooling, seawater isolation, and thermal storage systems.

Marine

- Seawater isolation/exchanger.

Metal Working

- Anodizer heaters and coolers, pickling tank heating, plating heaters and coolers, quench oil coolers, and strike solution cooling.

Petroleum

- Natural gas processing, offshore drilling, oil refining, and petrochemical processing.

Power

- Auxiliary cooling circuit isolation, condenser water isolation, cogeneration applications, diesel engine cooling and heat recovery, geothermal applications, lubrication oil cooling, and refuse burning applications.

Pulp and Paper

- Blow-down liquor coolers, boiler blow-down heat recovery, caustic soda coolers, digester heaters, and white water and black liquor heating.

Steel

- Cooling of continuous casting installations, hydraulic oil cooling, jacket water coolers, mold water cooling, refractory liner cooling, roll oil cooling, scrubber coolers, and slab induction heating coolers.

Textile

- Caustic solution heating and cooling, dye concentrate heating, heat recovery, and washers.

A Mueller Accu-Therm skid mounted in an oil drilling rig's brake cooling package for an onshore platform.

A mixing skid, complete with a stainless steel Accu-Therm, used for processing liquor.

An Accu-Therm used in a heating and cooling system.

Mueller Accu-Therm Plate Heat Exchanger

Accu-Therm Features and Benefits

Features and Benefits

Close Approach Temperatures

- Approach temperatures of 2 to 3°F are possible because of the true counterflow and high heat transfer efficiency of the plates.

Compact and Lightweight

- Requires 1/5 to 1/2 less floor space than other types of heat transfer equipment.
- Lighter in total weight than other heat exchangers because of reduced liquid volume and the more efficient surface area for a given application.

Connections

- Studded ports are standard and can be fully lined to protect against erosion and corrosion of the frame.
- Lap-joint, weld-neck, ferrule, and victaulic connections are also available.
- Connections can be mixed and matched to suite individual needs.

Cross Contamination Eliminated

- Each medium is individually gasketed.
- The space between gaskets is vented to atmosphere.

Easy to Inspect and Clean

- Simply remove the compression bolts and slide away the moveable end frame to inspect 100% of the Accu-Therm heat transfer surface.
- Easy and economical to clean-in-place (CIP).

Expandable

- Adjust the unit's thermal performance by adding or removing plates.

Extensive Selection

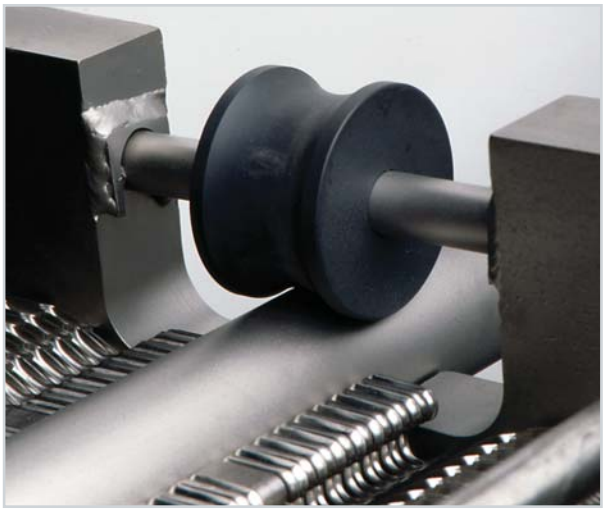
- Heat transfer surface areas from 0.5 to 51 square feet.
- Multiple embossed patterns.
- Exclusive "free-flow" plate design.

Frame Assembly

- Heavy-duty construction.
- Optimum plate pack compression and leak prevention.

Gaskets

- Designed to positively locate in gasket grooves.
- Lock-in feature available on most models.



Larger Accu-Therm frames have roller bearing support on the moveable frame for ease of assembly.

Lock-in gaskets speed the assembly process. They can be replaced during shutdown — saving you time and money.

Highly Efficient Heat Transfer Performance

- "U" values of 1,500 and greater are possible!
- Accu-Therm plates promote high turbulence at low fluid velocities.
- High turbulence results in very high heat transfer coefficients.

High Flow Rates

- Flows up to 24,000 gpm.
- Port diameters up to 20".

Inspection and Testing

- Rigorous quality assurance inspections.
- Each circuit independently tested at full design pressure.
- ASME registration available.

Lower Cost

- More economical than other types of heat exchangers due to the higher thermal efficiency and lower manufacturing costs.

Multiple Duties with a Single Unit

- Heat or cool two or more fluids within the same unit by installing intermediate divider sections.

More Heat Transfer Surface

- Up to 25,000 square feet (2,323 square meters) of heat transfer surface in a single exchanger.

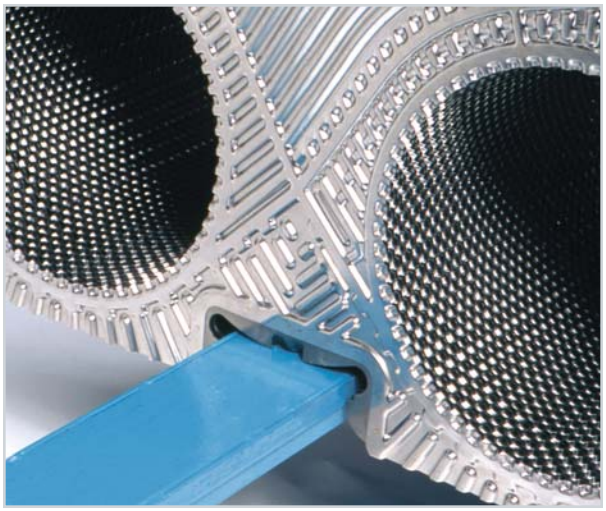
Reduced Fouling

- High turbulence, uniform fluid distribution, smooth plate surface, and high shear stresses reduce fouling.

Shrouds

- Optional OSHA-approved plate pack shrouds are available in attractive and durable embossed aluminum or 2B stainless steel to protect personnel.

Compression bolts are zinc coated for effective corrosion resistance and are mechanically locked into place on medium-to-large units.



Closeup of Accu-Therm plates mounted on a unit's lower guide rail.

Mueller Accu-Therm Plate Heat Exchanger

Varieties of Accu-Therm

Plate Designs

Accu-Therm plates are available in several different corrugation patterns for various heat transfer effects. Your Mueller representative will recommend the best plate or plate combination for your needs.

Horizontal (H)

Horizontal herringbone embossing. Highest heat transfer coefficients and pressure drop.

Combination (H/V)

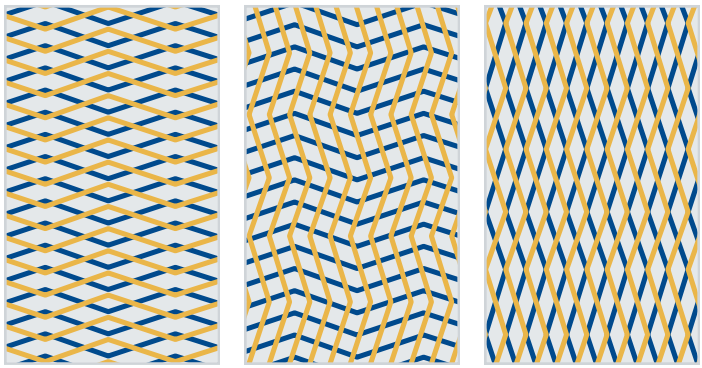
A combination of H and V plates for an intermediate range of heat transfer co-efficients and pressure drop.

Vertical (V)

Vertical herringbone embossing. Slightly lower heat transfer coefficients and pressure drop.

Special Performance (F, G, & P)

Special plate geometries for custom heat transfer needs.



Horizontal Combination Vertical

Innovative "Free-Flow" Plate Design

Mueller also offers the expandable, lightweight Accu-Therm "Free-Flow" plate heat exchanger, which features a clever heat transfer plate designed with a more open fluid-flow channel, making it ideal for viscous products, slurries, and effluent streams that contain particles and fibers which can block the flow channels and plug up conventional heat exchangers.

Each medium is individually gasketed in the "Free-Flow" plate heat exchanger, making it ideal for applications where product contamination cannot be tolerated.

In addition, these compact units are easy to disassemble and clean, which means less down-time and cost during maintenance.

Frame Types

B Frame

B frames are for larger units or for applications where it is desirable to have heat transfer plates hanging from the upper guide bar.

C Frame

These compact, cantilever-type frames are ideal for use where space is limited.

F Frame

Intermediate-size frame.

B Frame C Frame F Frame

Materials of Construction

Plates

- 304 and 316 stainless steel
- Titanium
- Avesta SMO 254®
- Hastelloy®
- Nickel
- Incoloy®

Gaskets

- Nitrile® (NBR)
- Ethylene propylene rubber (EPDM)
- Silicone
- Viton®
- Butyl (resin cured)

We Offer LARGE Plate Heat Exchangers for HVAC

Mueller Accu-Therm Plate Heat Exchanger

Varieties of Accu-Therm

Double-Wall Plate Heat Exchanger

Mueller's double-wall Accu-Therm plate heat exchanger is constructed with two identical plates nested together. Each of the double-wall pairs are fully welded or uniquely gasketed at the port locations, creating a two-layer heat transfer wall. The double-wall pairs are then assembled into the heat exchanger in the same way single plates are installed.

In the unlikely event that your product might penetrate through one of the plates, the fluid exits between the two plates at the edge of the unit. This allows for immediate visual monitoring of the unit in addition to providing maximum protection against mixing of the products. As with every standard Accu-Therm design, any gasket failure also permits the leaking fluid to be safely diverted to the edge of the plate pair. Again, this allows for immediate detection and security that the fluids are not mixing.

Applications include acid heating and cooling, potable water heat exchangers, lubricating oil coolers, transformer oil coolers, quench oil cooling, and any process that demands the highest security from mixing of the two fluids.

The double-wall Accu-Therm plate heat exchanger has all of the features of the standard design, with only a small impact on thermal efficiency by adding the second wall of the plate pair.

Semi-Welded Plate Heat Exchanger

The plate pack in the semi-welded plate heat exchanger is built utilizing welded cassettes (two plates welded together). The refrigerant side is contained within the welded portion of the cassette to include welding of the fluid port. Gaskets seal the secondary side, which makes the plate pack easy to disassemble and clean. The welded cassettes are designed for optimum gasket sealing. Higher pressure improves the sealing of the gaskets.

The Mueller semi-welded Accu-Therm plate heat exchanger/evaporator is ideal for fluid chilling in refrigeration applications.

Custom Designing Your Accu-Therm PHE

For assistance with custom designing a heat exchanger, you'll be asked to complete the following chart. Our engineers will then figure the exact plate size and channel configuration you'll need. Submit your applications through our web site at: www.MuellerHeatExchangers.com or call us at 1-888-226-8522

	HOT SIDE	COLD SIDE
Fluid Circulated		
Flow Rate, gpm		
Temperature In, °F		
Temperature Out, °F		
Max. Allowable Working Temperature, °F		
Operating Pressure, psig		
Max. Allowable Working Pressure, psig		
Max. Pressure Drop, psi		
Specific Heat		
Specific Gravity		
Density		
Viscosity		
Thermal Conductivity		
Required Gasket Material		
Required Plate Material		
ASME Code Requirements		

Need More Info?

Complete detailed information on the installation, operation, and maintenance of the Accu-Therm plate heat exchanger is available in our instruction manual, Part No. 9804186.

Call 1-888-226-8522 to request a copy or visit our Web site at www.MuellerHeatExchangers.com.

Accu-Therm Plate Heat Exchanger

Quality Delivered Right to Your Door

On-Time Delivery

Paul Mueller Company has one of the best on-time shipping records in the industry! Shipment of equipment with complex specifications often takes less than four weeks.

Our “Quick Ship” program is available on some units with shipment in just 3-5 days.