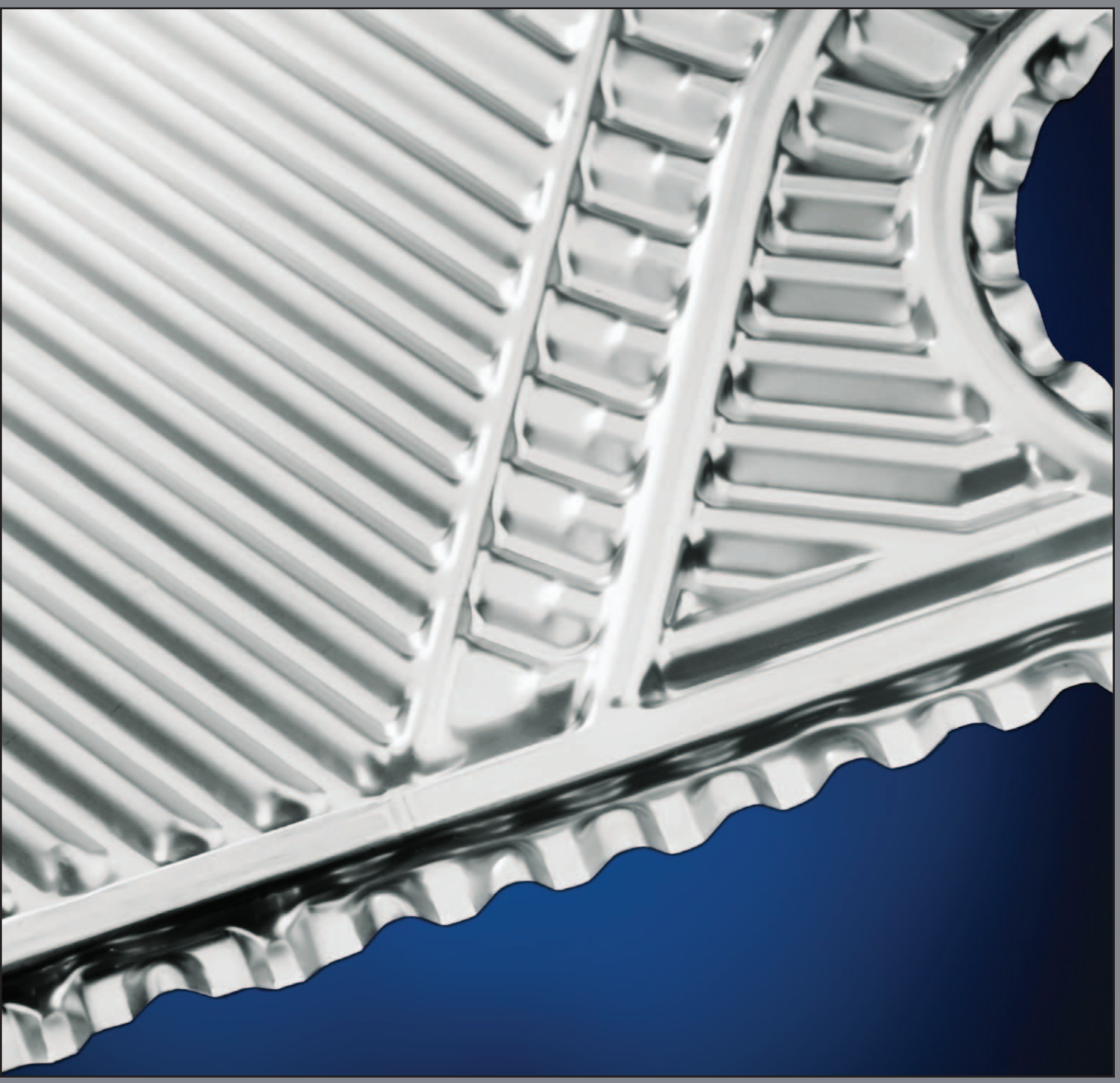
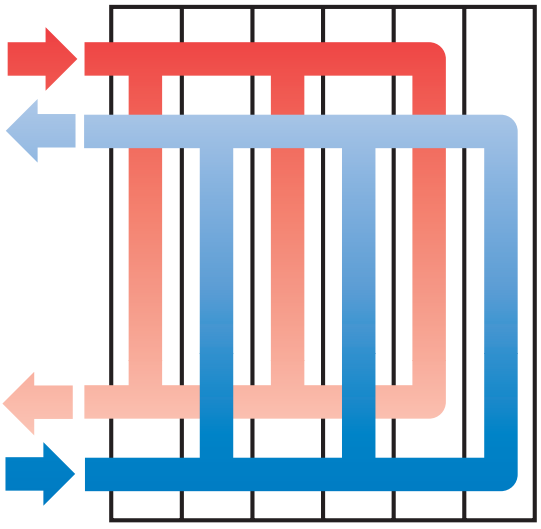
ACCU-THERM® PLATE HEAT EXCHANGER



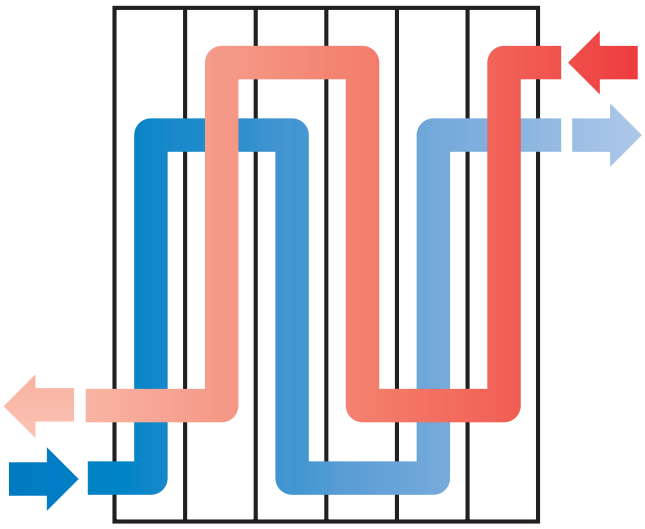
MUELLER®

HEAT TRANSFER PRODUCTS

Mueller® Accu-Therm® Plate Heat Exchangers



Single-pass arrangement suitable for most applications.



Multi-pass arrangement for applications with low flow rates or close-approach temperatures.

Flow Arrangements

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. Single-pass exchangers have all four connections on the front. Multi-pass exchangers have connections on the front and rear. Single-pass units are suitable for most applications, but very low flow rates or extremely close-approach temperatures may call for the multi-pass configuration.

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

Why Use an Accu-Therm?

The advantages of the Accu-Therm begin with its design. Plate heat exchangers deliver greater efficiency, lower cost, easier cleaning and maintenance, and closer approach temperatures than any other heat transfer technology. Compared to shell-and-tube heat exchangers, PHEs of similar capacity require approximately one tenth of the floor space and are easy to expand.

Why Buy an Accu-Therm?

The Accu-Therm plate heat exchanger stands apart from the rest because it is available with a wide array of plate sizes and configurations. This means we can custom build your heat exchanger to suit your application and heat transfer requirements better than any other manufacturer. Our plates are available in sizes from 0.5 to 25 square feet. We have several plate geometries for different heat transfer effects. And there's even an exclusive "free-flow" plate design made especially for slurry processing.

How Does an Accu-Therm Work?

Each Accu-Therm PHE consists of a series of grooved plates that are individually gasketed and pressed tightly together by compression bolts within a frame. Fluids enter and exit the PHE through portholes in one or both ends of the frame. 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 makes the closest possible approach temperature for maximum heat transfer efficiency.

Performance Guaranteed

Each 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.

On-Time Delivery

Mueller 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 3-5 days.

Heat Transfer for Every Part of Your Process

You'll find solutions to every heat transfer need within our specialized product lines. In addition to Accu-Therm plate heat exchangers, we offer our Temp-Plate® line of heat transfer surfaces, including immersion and clamp-on sections and custom products. Call us for free literature on this product or to discuss how we can improve your entire heat transfer process.

Applications

- ***Automotive*** – Phosphate tank heaters, seal water coolers, plating solution cooling, paint heating, welder water cooling, induction heater cooling, hydraulic oil coolers, quench oil heat exchangers, and cooling tower isolation.
- ***Brewing*** – Brine cooling, water heating, and wort cooling.
- ***Caustic Soda*** – Caustic coolers, acid coolers, hydrogen gas coolers, and brine heaters and coolers.
- ***Chemical*** – Process interchangers, brine heating and cooling, process water isolation, condensers, acid heating and cooling, and gas scrubber heaters and coolers.
- ***Food*** – Sugar refining, fructose solution heating and cooling, whiskey recuperators, yeast coolers, starch coolers and heaters, corn syrup cooling, and edible-oil heaters and coolers.
- ***HVAC*** – Cooling tower isolation, free cooling, heat pump systems, thermal storage systems, condenser water heat recovery, district heating and cooling, sea-water isolation, geo-thermal heating, engine cooling, lube oil cooling, fuel oil heating, generator cooling, and heating water with steam.
- ***Marine*** – Seawater isolation/exchanger.
- ***Metal Working*** – Quench oil coolers, plating heaters and coolers, anodizer heaters and coolers, strike solution cooling, and pickling tank heating.
- ***Petroleum*** – Oil refining, natural gas processing, offshore drilling, and petrochemical processing.
- ***Power*** – Auxiliary cooling circuit isolation, condenser water isolation, co-generation applications, geo-thermal applications, refuse burning applications, lubrication oil cooling, and diesel engine cooling and heat recovery.
- ***Pulp and Paper*** – Digester heaters, blow-down liquor coolers, caustic soda coolers, boiler blow-down heat recovery, white water, and black liquor heating.
- ***Steel*** – Scrubber coolers, jacket water coolers, slab induction heating coolers, hydraulic oil cooling, mold water cooling, refractory liner cooling, roll oil cooling, and cooling of continuous casting installations.
- ***Textile*** – Heat recovery, caustic solution heating and cooling, washers, and dye concentrate heating.

Mueller® Accu-Therm® Plate Heat Exchangers

Accu-Therm Plate Heat Exchanger Benefits

Extensive Selection

- Plate heat transfer surface areas from 0.5 to 25 square feet.
- Multiple embossed patterns and exclusive “free-flow” plate design.

High Flow Rates

- Flows up to 12,600 gpm.
- Port diameters up to 16".

Shown with shroud removed.

More Heat Transfer Surface

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

Gaskets

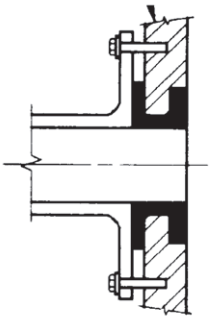
- Designed to positively locate in gasket grooves.
- Snap-in feature available on most models.

Frame Assembly

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

Connections

- Studded ports are standard.
- Provides protection under all pipe loading conditions.
- Studded ports can be fully lined to protect against erosion and corrosion of frame material.
- Lap-joint, weld-neck, and ferrule connections also available.



Shrouds

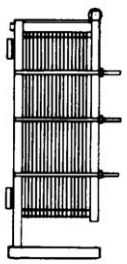
- Durable shrouds, OSHA approved, are available to protect plates and gaskets.

Inspection and Testing

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

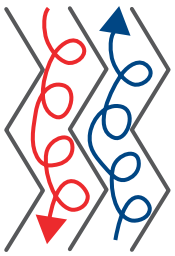
Compact Size

- Requires 1/5 to 1/2 less floor space than other types of heat transfer equipment.



Accu-Therm Plate Heat Exchanger Benefits

High Efficiency Heat Transfer Performance



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

Reduced Fouling

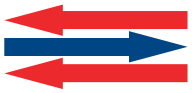
- High turbulence, uniform fluid flow, and smooth plate surface reduce fouling.

Easy to Inspect and Clean

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

Close Approach Temperatures

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



Multiple Duties with a Single Unit

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

Lower Cost

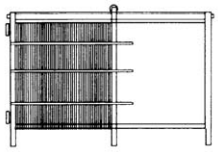
- More economical than other types of heat exchangers due to the higher thermal efficiency and lower manufacturing costs.

Lightweight

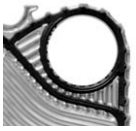
- Lighter in total weight than other heat exchangers because of reduced liquid volume and less surface area for a given application.

Expandable

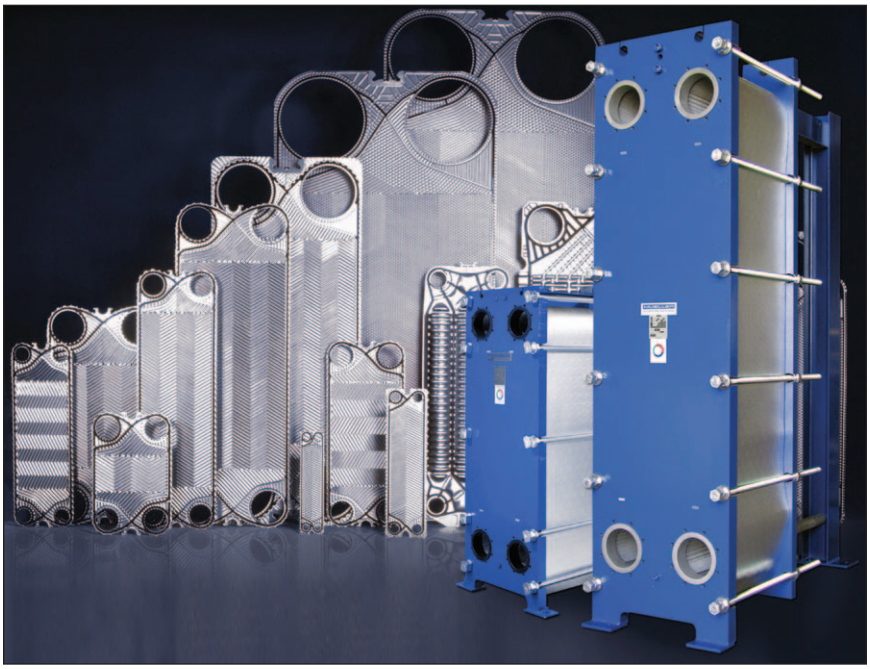
- Adjust the unit's thermal performance by adding or removing heat transfer plates.



Cross Contamination Eliminated



- Each medium is individually gasketed.
- The space between gaskets is vented to atmosphere.
- Eliminates cross contamination of fluids.
- Ideal for applications where product contamination cannot be tolerated.



Mueller® Accu-Therm® Plate Heat Exchangers

Plate Designs

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

Horizontal (H)

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

Combination

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

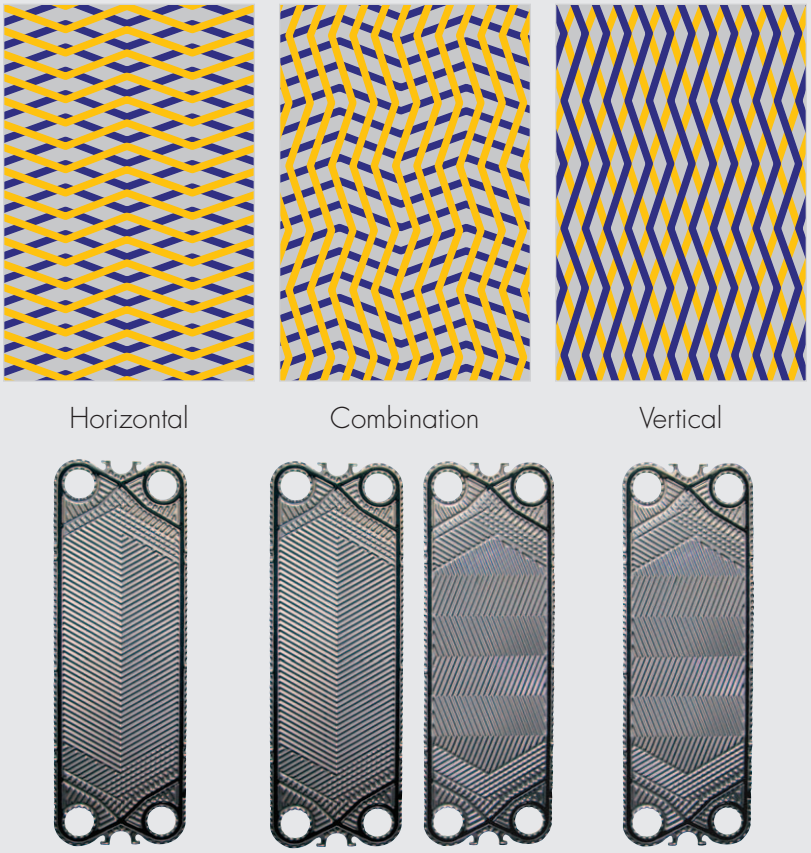
Vertical (V)

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

Special Performance (F, G, & P)

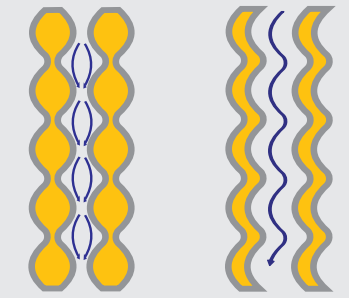
Special plate geometries for custom heat transfer needs.

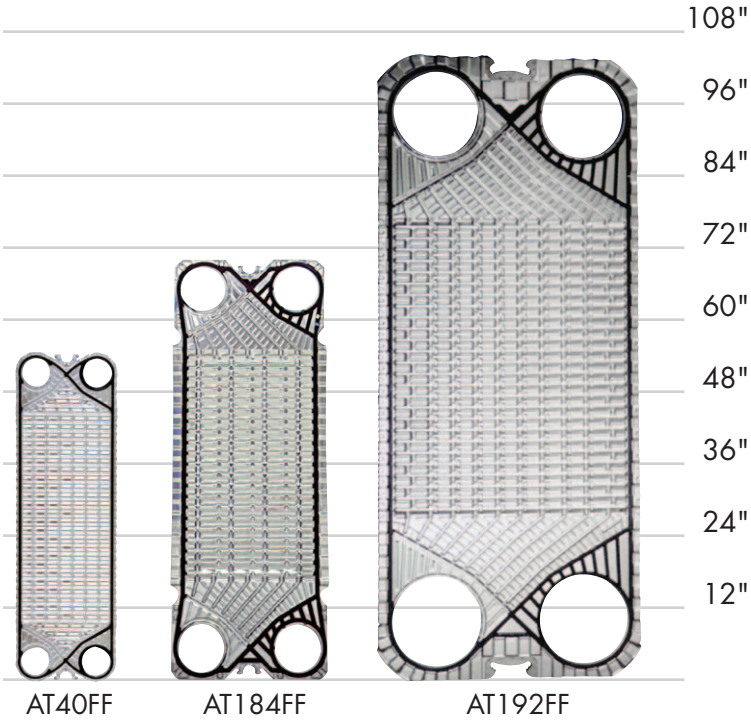
Plate Geometries



Exclusive "Free-Flow" Design

Competitive plate heat exchanger designs claim wide-gap advantages, but pinch points in their design can block flow and create slurry buildup. The free-flow's channels handle bigger particles and require less maintenance because they are a constant width.





Frame Selection

Choose from the following Accu-Therm frame sizes:

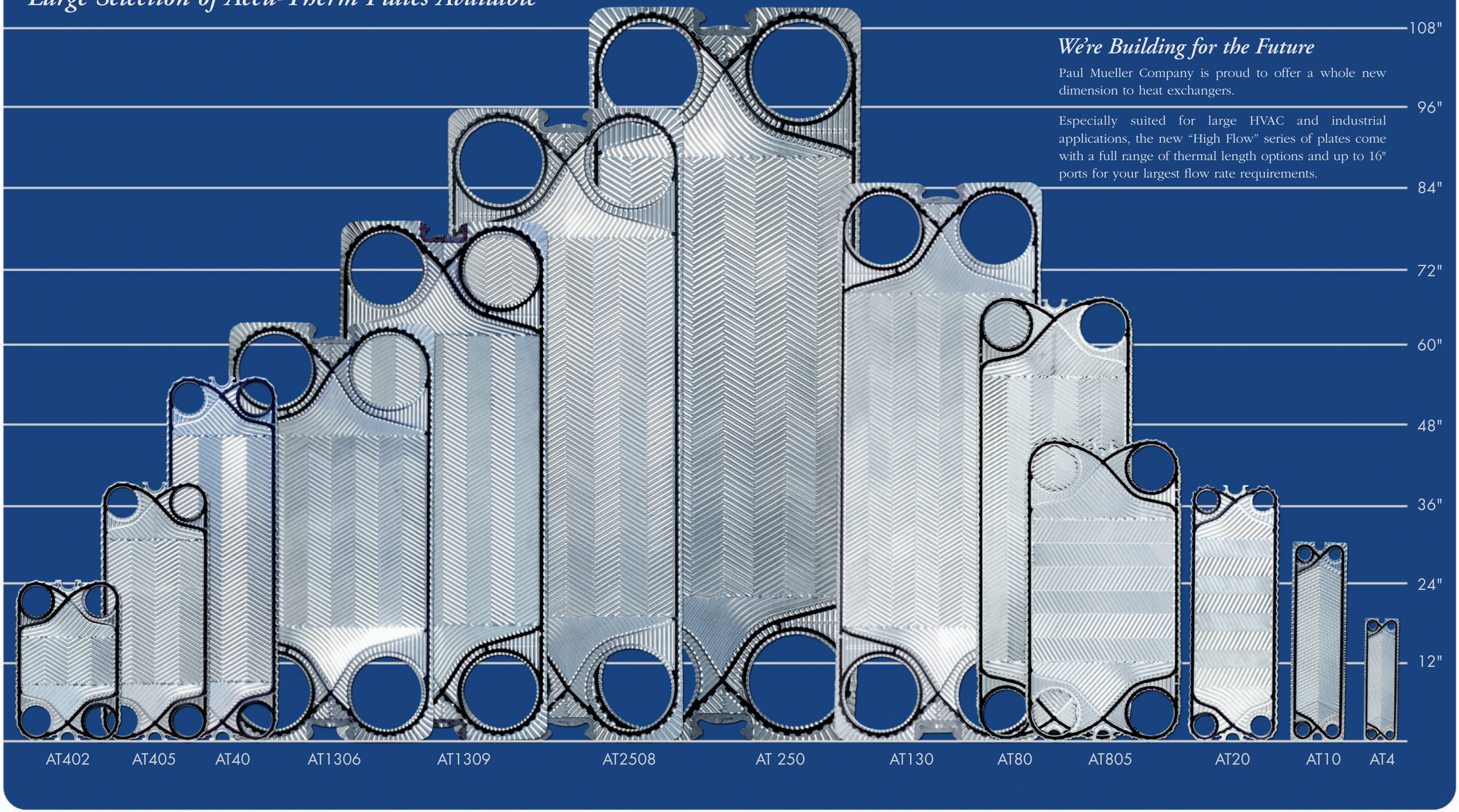
B Frame **–** Available for AT20 and larger units with the capacity to hold up to 900 heat transfer plates.

C Frame **–** Compact, cantilever-type frame for use where space is limited. Available in sizes up to the AT405.

F Frame **–** Intermediate-size frame. Available in sizes up to the AT40.

Mueller® Accu-Therm® Plate Heat Exchangers

Large Selection of Accu-Therm Plates Available



We're Building for the Future

Paul Mueller Company is proud to offer a whole new dimension to heat exchangers.

Especially suited for large HVAC and industrial applications, the new "High Flow" series of plates come with a full range of thermal length options and up to 16" ports for your largest flow rate requirements.

Mueller® Accu-Therm® Plate Heat Exchangers

ACCU-THERM SPECIFICATIONS					
Model	Height (in)	Width (in)	Typical Length (in)	Standard Connection Size	Max Flow (gpm) @ 20 fps
AT4	23	8	12 to 22 7/8	1	50
AT10	37	14	14 1/2 to 50 1/2	2	200
AT20	56	24	20 to 159 3/8	3	450
AT402	39 1/4	27	20 1/2 to 159 1/2	4	800
AT405	56	27	20 1/2 to 159 7/8	4	800
AT40	70 1/4	27	33 7/8 to 159 7/8	4	800
AT60	82 1/8	27	33 7/8 to 159 7/8	4	800
AT805	63	36	34 5/8 to 160 5/8	6	1,800
AT80	85	36	34 5/8 to 160 5/8	6	1,800
AT120	104 1/2	36	34 5/8 to 160 5/8	8	3,200
AT250	134	57	65 to 245	16	12,600

Based on selection:
Design pressure up to 350 psi (full differential pressure rating). Design temperature up to 410°F. ASME code standard available.

"FREE-FLOW" ACCU-THERM SPECIFICATIONS					
Model	Height (in)	Width (in)	Typical Length (in)	Standard Connection Size	Max Flow (gpm) @ 20 fps
AT40FF	70 1/4	27	33 7/8 to 159 7/8	4	800
AT184FF	91	36	34 5/8 to 160 5/8	8	3,200
AT192FF	111 3/4	51 7/16	50 3/4 to 176 3/4	12	7,100

Based on selection:
Design pressure up to 150 psig on AT40FF and up to 86 psig on AT184FF and AT192FF.

MATERIALS OF CONSTRUCTION	
Plates	Gaskets
304 and 316 stainless steel	Nitrile® (NBR)
Titanium®	Ethylene Propylene Rubber (EPDM)
Avesta SMO 254®	Silicone
Hastelloy®	Viton®
Nickel	Butyl (Resin Cured)
Incoloy®	Hypalon®

Custom Designing Your PHE

For assistance with custom designing a heat exchanger, contact your Mueller representative or call 1-800-MUELLER for the representative nearest you. You'll be asked to complete the following chart and fax a copy to Mueller. Our engineers will then figure the exact plate size and channel configuration you'll need.

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

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Visit our Web site at www.hxrx.com!

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

Call 1-800-MUELLER for immediate mailing or visit our web site at www.hxrx.com.

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