

# FLUID POWER

PRODUCT OVERVIEW



An industry leader in the design and manufacturing of highly engineered heat transfer products sold through a global network of distribution partners.

We **COOL**  
what you  
**POWER**

## We are an API Heat Transfer Company.

Sold through a global network of distribution partners, Thermal Transfer Products offers a complete portfolio of standard products available from API Heat Transfer. This includes a broad range of fluid power related heat exchangers (oil-water, oil-air, air-air) utilized in mobile and industrial applications, along with custom engine cooling models.

## We are a global network of distribution partners.

As a recognized industry leader, TTP catalogs a wide offering of standard oil coolers and builds custom designed OEM Engine coolers and modules for Industrial Fluid Power and Mobile markets. We design and build heat exchangers from Aluminum and Copper materials—both components and multi-tiered cooling modules. We have extensive experience engineering to applications in the Mobile, Industrial, Compressor and Process industries.



TTP Headquarters – Racine, WI USA



## We serve these markets.

Industrial Machinery  
Agriculture  
Material Handling  
Fluid Power

Construction  
Oil & Gas  
Specialty Equipment  
Turf Care



## We are a world of heat transfer solutions.

- Racine, Wisconsin
- Buffalo, New York
- Franklin, Wisconsin
- Arcade, New York
- Iron Ridge, Wisconsin
- Birmingham, UK
- Montgomery, Alabama
- Coventry, UK
- Bretten, Germany
- Pune, India
- Suzhou, China



ÖLÖLKÜHLER OLIE KOELER REFRIGERADOR DE ACEITE OLJE-KYLARE RADIATEUR D'HUILE OIL COOLER RADIATORE DELL'OLIO 油冷却器 ÖL  
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# Mobile Cooling



Our Mobile solutions offer oil coolers, radiators, and charge air coolers with or without electric DC fans and Hydraulic fan motor drives. Built from brazed aluminum or copper round tube and fin, and are available in standard catalog product and custom designed OE modules.

## Market Focus

- Agriculture
- Construction
- Forestry
- Material Handling
- Mining
- Off-Highway
- On-Highway
- Specialty
- Turf Care



Turn-key Cooling Module

## Our Product Series

- |    |     |       |     |
|----|-----|-------|-----|
| MA | DH  | DF    | M   |
| MF | AOC | AOVHM | BOL |

## New Technology

**Brushless DC Fan** TTP now offers axial fans equipped with Brushless DC electric motors. These fans are a featured option on many P-Bar Series MA standard catalog oil coolers. Brushless motors offer benefits for extended life including low current draw on start up, custom fan speed control and lower ambient noise.



MA



DH



M



DF



MF



AOC



AOVHM



Turn-key Cooling Module





# Industrial Cooling



Our Industrial solutions offer air cooled oil coolers built with our without electric AC motors and water cooled shell & tube coolers designed for multiple fluid types and built from aluminum, copper and steel for fluid power related applications.

## Market Focus

Hydraulic Presses  
Injection Molding and Extrusion  
Hydraulic Power Units  
Oil & Gas  
Wind Energy  
Paper Industry



## Our Product Series

AOC	EC	K	AOL	CA2000
SSA	A	AOVH	RM	SSC
EK	B	AO	EKT	OCA
BOL	HC	AOF	COL	COLW
BP	PF			

## New Technology

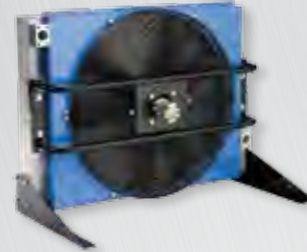
**Cool Loop COLW Series** Water cooled Cool Loop offline fluid conditioning system. Utilizes a high efficiency EK Series shell & tube heat exchanger.

**Bypass Valves** TTP now offers two bypass valve options on standard BOL models—a factory installed integrated relief valve and a temperature controlled bypass valve with integrated pressure relief.

**BP Series** Our BP Series heat exchangers are rugged, compact, cost-effective and reliable over long periods of time with minimal maintenance.

**PF Series** Our PF Series heat exchangers are a compact, serviceable design and flexible cost saving alternative.

**HC Series** TTP introduces the HC-Series shell & tube heat exchangers. “Hybrid” design based on interchangeability between previous TTP C-Series and Basco Type 500 units.



BOL



AOL



COL



EK B



COLW



CA



OCA



BP



PF



PVR





# Compressor



TTP manufactures air to air aftercoolers, water to air aftercoolers, and air to oil lube oil coolers for air compressor applications in both catalog and custom OE models. Our high quality products provide outstanding cooling performance in rotary screw, piston and centrifugal air compressors, as well as vacuum systems and blower lube oil coolers.

## Market Focus

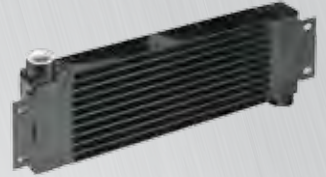
- Oil & Gas
- Power
- Pharmaceutical
- Waste Water
- Printing
- Auto
- Plastics
- Paper
- Metals
- Transit

## Our Product Series

BGA	UPA	AA	AHP(H)
ACOC(H)	AB	HC	AOL



UPA



BGA



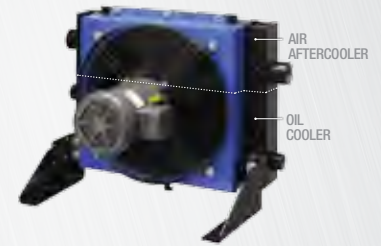
AHP



AHP(H)



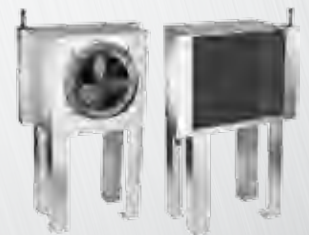
ACOC



ACOC(H)



AOL



AA



HC



AB





# Process Cooling

TTP process coolers cover a wide variety of industrial process applications, across many industries. These coolers are used in the daily plant operations to provide a means of highly reliable, compact and efficient cooling. Our process coolers cover a variety of industrial applications beyond Hydraulics Oil Cooling—chillers, fuel heaters, biogas, natural gas, de-ionized water, refrigerant air cooling, condenser and more.

## Market Focus

Chemical Processes	Hydraulic Power Units
Mining	Food Industry
Pulp & Paper	Oil & Gas
Marine	Plastic Injection Molding
Power Generation	Extrusion Machinery

## Our Product Series

BPW	BPSW	AOL	UC/UCV
PF	PVR	HC	EK
USSC/USSCV (stainless steel)			

## New Technology

### Brazed Plate Heat Exchangers

**BP Series** heat exchangers are rugged, compact, cost-effective and reliable over long periods of time with minimal maintenance. The compact design and multiple mounting options lead to optimization of heat transfer for compact industrial applications. 316 stainless steel construction and standard SAE connections are features of this highly efficient technology.

### Plate & Frame Heat Exchangers

**PF Series** heat exchangers are a compact, serviceable design and flexible cost saving alternative. The unique designs produce high heat transfer coefficients for a given application. Large heat exchanging surfaces in a very compact, space-saving frame. Double sealing design prevents the possibility of mixing the two process fluids. Readily expanded for greater capacities. Low temperature approaches/differences. Capable of handling large volumetric flows with low pressure drops.



## Available Contraction Materials

- Carbon Steel
- Stainless Steel
- Duplex & Super Duplex Stainless
- Copper & Copper Alloys
- Nickel & Nickel Alloys
- Hastelloy
- Chrome-Moly Alloys
- Titanium
- Alloy-Lined, Clad, Explosion-Clad & Weld Overlay

## Available Certifications & Registrations

- TEMA
- ASME
- C-TPAT
- ISO 9001
- API
- ABS
- GOST-R
- NR-13
- PED
- HTRI



# NEW Products



## MAGHEX Fan Controller On Board Electronic Oil Cooling

This combined sensor and controller is designed to mount directly to the heat exchanger. It provides accurate temperature control by cycling the electric cooling fan to maintain desired oil temperature. A single housing reduces wiring and mechanical installation. The MAGHEX magnetic wand is used to set up and program the sensor.



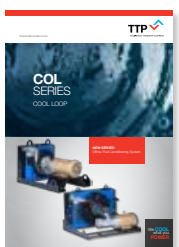
## BP Series

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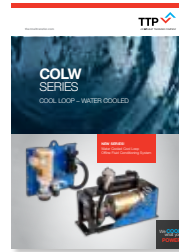
## Plate & Frame Heat Exchangers

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## Cool Loop COL Series

Ideal for independent cooling and filtering of system oils. Low to medium pressure applications utilizing low noise screw pump technology. Bar and Plate brazed aluminum P-BAR core with optional T-BAR core.



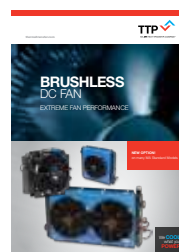
## Cool Loop COLW Series

Water cooled Cool Loop offline fluid conditioning system. Utilizes a high efficiency EK Series shell & tube heat exchanger. Pump flows ranging 9.5 to 45 GPM (50 Hz) (30 to 140 LPM). Standard SAE connections on customer-integrated ports (BSPP adapters available).



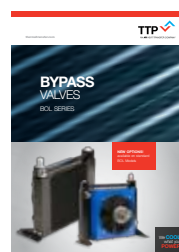
## HC Series

TTP introduces the HC-Series shell & tube heat exchangers. "Hybrid" design based on interchangeability between previous TTP C-Series and Basco Type 500 units. The HC Series remains the industry standard in ultimate value and long-term reliability. This proven fixed tubesheet design shell and tube heat exchanger offers the cost effectiveness that comes with having a highly standard design, while easily providing for various options to meet specific application requirements.



## Brushless DC Fan

TTP now offers axial fans equipped with Brushless DC electric motors. These fans are a featured option on many P-Bar Series MA standard catalog oil coolers. Brushless motors offer benefits for extended life including low current draw on start up, custom fan speed control and lower ambient noise.



## Bypass Valves for BOL Series

TTP now offers two bypass valve options on standard BOL models—a factory installed integrated relief valve and a temperature controlled bypass valve with integrated pressure relief.



# Engine Cooling

## Flexible Cooling Solutions for Diesel, Gas, Alternative Fuels & E-Fan Integration

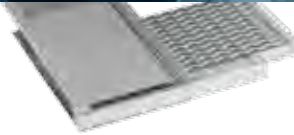
TTP can supply complete cooling packages, including in-house designed framing, fan shroud, finger guard, expansion tank, and more. Modules are pressure and leak tested, assembled and packaged.



### TUBULAR MICRO CHANNEL EXTRUSION

### CUSTOM PLATE & BAR DESIGN

### SEAM WELDED TUBE



**T-BAR** is a proprietary extrusion design and one of the most clever cooling technologies available on the market today. Highly engineered on the front end, equals simplicity on the application end. T-BAR has unrivaled strength and rigidity, which ensures reliable field performance. T-BAR is factory zinc coated for cathodic protection, seam/leak free extruded and ultimately reliable.

#### Superior Performance

Aluminum has up to 25% higher heat transfer capacity in comparison to a traditional copper/brass cooling package.

Look to T-BAR for demanding applications where performance is an absolute.

**P-BAR** is the most efficient design solution in heat transfer today, utilizing an aggressive hot side turbulator. Perfect for all fluid medias in diesel engine cooling applications demands, while offering remarkable heat rejection levels for new Tier systems. P-BAR is a cost effective solution and excels in core combination packaging.

#### Superior Performance

Aluminum has up to 30% higher heat transfer capacity in comparison to a traditional copper/brass cooling package.

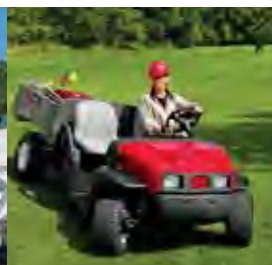
Look to P-BAR as an industry standard solution & available globally.

**S-BAR** is a high strength automotive design, utilizing a seam welded, free flowing tube design. Constructed in a tube to header plate fashion, with options for multiple rows, fin types and tank material (plastic or metal). S-Bar is the choice for engine water jacket cooling in lower HP ranges and OEM production volumes. Engineered for challenging heat loads and demanding ambient conditions.

#### Superior Performance

S-BAR high flow tubes offer higher heat transfer capacity in comparison to traditional radiator cooling package designs.

Look to S-BAR for high volume OE applications in small HP ranges.





# NEW Oil Cooler Store

# XSELECTOR

## Introducing TTP's new ecommerce online sales tool!

New ecommerce store to shop, size for performance or interchange a competitive brand for TTP oil coolers.

### [ttpoilcoolerstore.com](http://ttpoilcoolerstore.com)

#### 4 methods to select an oil cooler

- Shopping catalog
- Known TTP part number
- Cross over a competitor
- Size a cooler using XSELECTOR
- Known TTP part number



#### Shop the catalog

- Broken down by media, application
- Link to model catalog page for more information
- Link to each model's page
- Link to ModelSmith for help by options



#### Cross over a competitor

- Enter full or partial TTP part number
- Review images of models and starting prices



#### Size a cooler using XSELECTOR

- Shop by sizing for performance

## The XSELECTOR Software program from TTP allows you to:

- Perform cooler heat transfer sizing and analysis on coolers for Air Cooled and Water Cooled applications.
- Now perform cooler heat transfer sizing and analysis on Air Cooled (Air Blast) coolers found in our P-Bar Series and Braze Plate in our BP Series
- Size our Proprietary T-Bar core (OCA only)

\*The Aftercoolers and COL units are not included in the software

#### Available fluids that can be selected include:

- ISO grade oils from ISO 32 to ISO 220
- Water
- Various water/glycol mixes

Projected results allow the user to select the cooling solution from a list of performing heat exchangers.

Final model selection choice can be decided from the following sizing results:

- Performance
- Material
- Weight
- Size
- Price factor



## Find TTP on a world of applications:

Agricultural Harvesting Machines  
Air Compressor Lube Oil Cooling  
Systems  
Aviation Fuels  
Bearing Lubricating Systems  
Blow Molding Machines  
Brake Retarders  
Broaching Machines  
Brush Cutters  
Chemical Process Heaters & Coolers  
Chillers Compressed Air Aftercoolers  
Compressed Air Cooling  
Compression Molders  
Cutting Oil Cooling  
Die Casting Machines  
Hydrostatic Drives  
Induction Brazing Machines  
Industrial Lasers  
Injection Molding Machines  
Machine Tools  
Mining Equipment

Paint Heating  
Paper Making Machines  
Pavement Compactors  
Plastic Film Making Machines  
Plastic Injection Molding Machines  
Quenching Oil Coolers  
Redi-Mix Concrete Trucks  
Reduction Gears  
Rough Terrain Fork Lifts  
Diesel Engine Lube Oil Systems  
Dynamometers  
Engine Jacket Water/Glycol  
Engine Oil Cooling Extruders  
Fluid Drive Centrifugals  
Fluid Power Systems  
Gasoline Engine Lube Oil Systems  
Gear Shapers  
Gearbox Lube Oil Cooling  
Golf Course Turf Mowers  
Hydrostatic Drives  
Heat Transfer Fluids

Hydraulic Couplings  
Hydraulic Winches  
Hydraulically Operated Robots  
Solvent Coolers  
Specialty Vehicles  
Spraying Equipment  
Stoker Drives  
Street Sweepers  
Test Stands  
Timber Harvesting Machines  
Torque Converter Oil Cooling  
Torque Converters  
Tractors  
Transformers  
Transmission Cooling  
Trucks-Off Road  
Tube Formers & Testers  
Turbine Oil Cooling  
Vacuum Pump Seal Oil Cooling  
Water & Process Heating  
Welding Machines



# Tech Center



## Our Tech Center capabilities include:

### Performance Validation and Enhancement

- Performance testing of new or existing designs with service fluids including Water and Glycol
- Bench test comparison testing between API Heat Transfer designs and designs by other manufacturers
- Test facilities for Pasteurization, Evaporation and Dealcoholization running with original customer's products

### Montgomery Materials Lab

- Measurement validation of fin, tube and component profiles
- Mechanical tensile testing
- Hardness testing
- Failure Analysis
- Burst testing
- X-ray analysis of chemical composition
- Scanning electron microscopy (SEM)
- Optical microscopy
- Metallography/microstructural analysis
- Fourier transform infrared spectroscopy
- Differential scanning calorimetry
- Corrosion exposure testing

### Buffalo Lab

- Calorimetric Performance Testing
- Pressure and Thermal Cycle Testing
- Computational Fluid Dynamics (CFD)
- Thermal Contact Resistances Measurement

### Bretten Lab

- Single phase flow stands for thermal performance and pressure drop testing
- Pilot plants
- Utilities

**Our fully equipped multiple-disciplinary Technical Centers in Montgomery, AL, Buffalo, NY and Bretten, Germany are available for expert application engineering, metallurgical and analytical support. Working with our customers and OEMs, we provide heat exchanger performance modeling, performance analysis and mechanical testing.**

- Integrated heat transfer performance test platform.
- Sophisticated laboratory analytical services providing metallurgical, chemical and polymer analysis using EDS x-ray, FTIR and DSC, as well as a wide array of mechanical and material properties analysis.
- Durability, life cycle and corrosion testing platforms to validate designs and optimize materials and performance.
- Providing the technology and expertise to support the development of new products to meet the current and future needs of our customers.



## **See how our performance can improve yours.**

With manufacturing facilities, R&D locations and sales support all over the world, we're where you need us to be. **Contact your TTP sales rep or visit [thermaltransfer.com](https://thermaltransfer.com).**

### **TTP HEADQUARTERS**

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### **API HEAT TRANSFER GLOBAL HEADQUARTERS**

2777 Walden Avenue | Buffalo, NY 14225, USA | +1.716.684.6700 | [apiheattransfer.com](https://apiheattransfer.com)