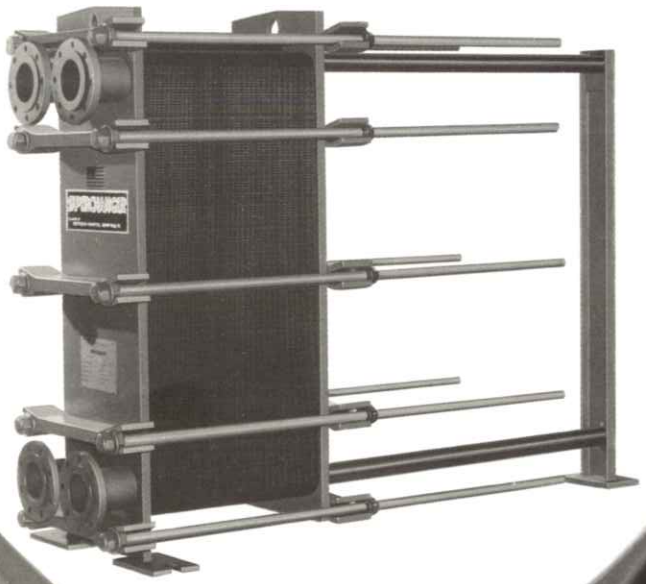
SUPERCHANGER®

PLATE AND FRAME HEAT EXCHANGER



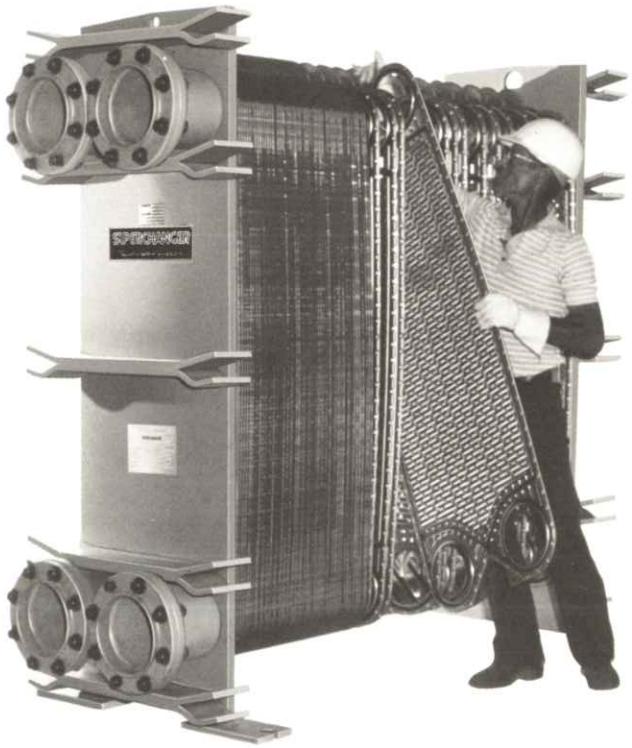
Plates made in U.S.A. for lower cost, faster delivery, better service

MADE IN U.S.A.

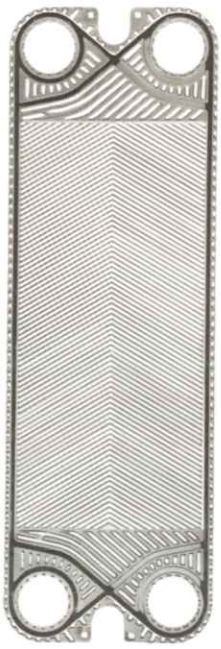
THE heat transfer people tranter®

SUPERCHANGER®

PLATE AND FRAME HEAT EXCHANGER



S-Series — Washboard



UX-Series — Herringbone

WHAT IT IS:

The ultimate in heat transfer efficiency

The SUPERCHANGER plate and frame heat exchanger is a device designed to provide maximum efficiency in transferring heat from steam or from one liquid to another liquid.

It consists of a series of gasketed, embossed metal plates bolted together between end frames to form channels through which the hot and cold mediums flow. The hot medium flows on one side of the plate while the cold medium flows counter-currently on the other; the plate between the two mediums thus provides the means to transfer heat from one to the other.

The SUPERCHANGER unit's unmatched efficiency — with U-values up to five times greater than other exchangers — is due to the turbulence created by the corrugated plates. The corrugations develop a thin film of turbulently flowing liquid eliminating stagnant areas and promoting maximum heat transfer efficiency.

In a SUPERCHANGER plate and frame heat exchanger, fouling is reduced for the same reason efficiency is high. Because of the unit's velocity profile and the turbulence created, deposits from dirty product are continually removed from the heat transfer surface during operation.

Customized to individual requirements

In addition to its high efficiency, the SUPERCHANGER plate and frame heat exchanger provides users with a flexibility of design and operation that customizes the unit to the individual's specific requirements. In fact, each SUPERCHANGER unit is computer-designed to provide the specific number, size, material and configuration of plates necessary to meet the user's exact needs. And, if needs change, the SUPERCHANGER unit can be easily modified, by simply adding or removing plates. This flexibility provides a quick, easy means for tailoring the SUPERCHANGER unit to the user's changing needs — a benefit not found in most other types of heat exchangers.

The variations in plate design and materials also help meet specific requirements. For instance, SUPERCHANGER units are unique because both washboard and herringbone plates are available.

Plates are produced in a wide range of materials — in fact, they can be produced in virtually any metal that can be cold-worked — to help meet precise requirements.

Made in U.S.A. for greater savings

SUPERCHANGER plates are made in the U.S.A. — with U.S.A. metals. The benefits are exclusive with the SUPERCHANGER unit because it is the only major line of plate and frame heat exchangers with American-made plates. And the benefits are many, starting with the initial cost — which is substantially less than any other major industrial plate and frame heat exchanger — and carrying through to such important advantages as easier availability, faster delivery and better service.

The ultimate result of the exclusive, American-made SUPERCHANGER plate is that the user gets greater savings of money and time, and fewer headaches.

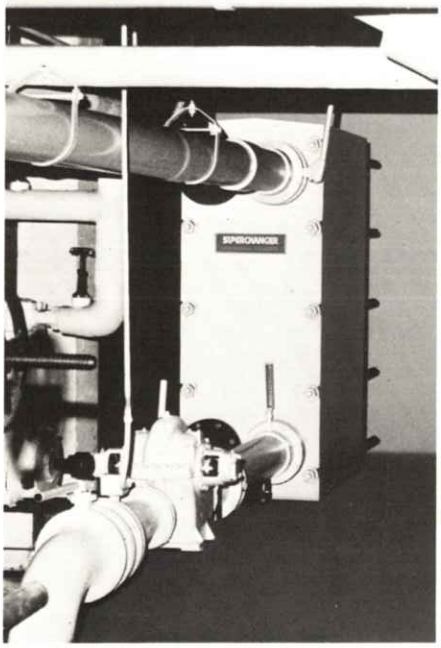
WHAT IT DOES:

It transfers heat efficiently – almost anywhere

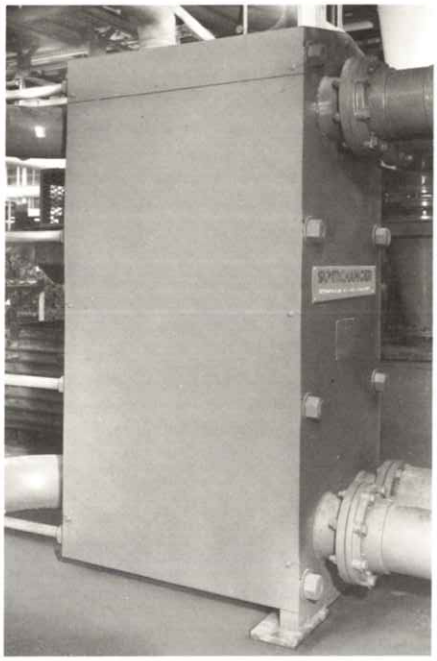
SUPERCHANGER plate and frame heat exchangers are used for heating and cooling solutions in hundreds of industrial, commercial and institutional applications. These range from the textile industry to the metal fabricating, pulp and paper, food processing, rubber and brewing industries. Also included is cooling quench oil in heat treating operations, cooling water in large hotel HVAC units, heating and cooling corrosive solutions in the chemical processing industry and preheating boiler feedwater in photofinishing operations.

Wherever the ultimate in heat transfer efficiency is required — plus the flexibility to tailor the heat exchanger to the customer's specific needs — a SUPERCHANGER plate and frame heat exchanger can be the answer.

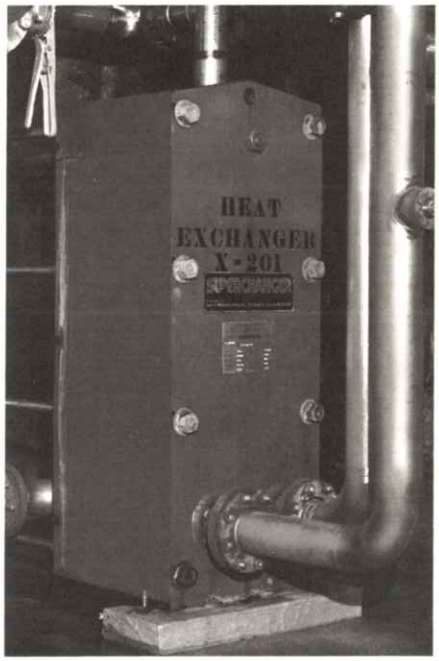
Some examples of typical SUPERCHANGER installations are shown below. And a partial list of solutions that can be handled by SUPERCHANGER units is included on the inside back cover of this brochure.



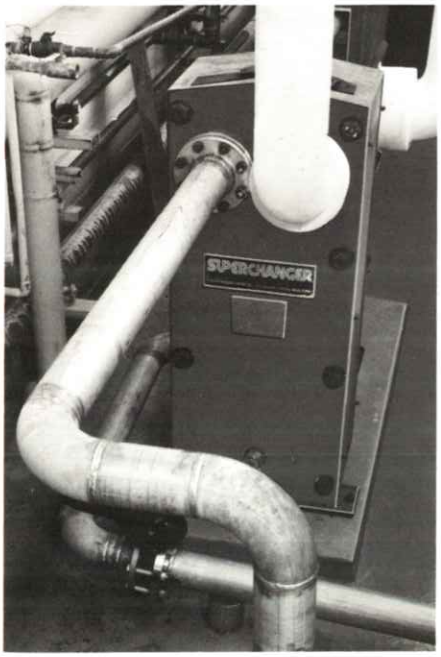
Cooling fresh water with seawater in a HVAC system



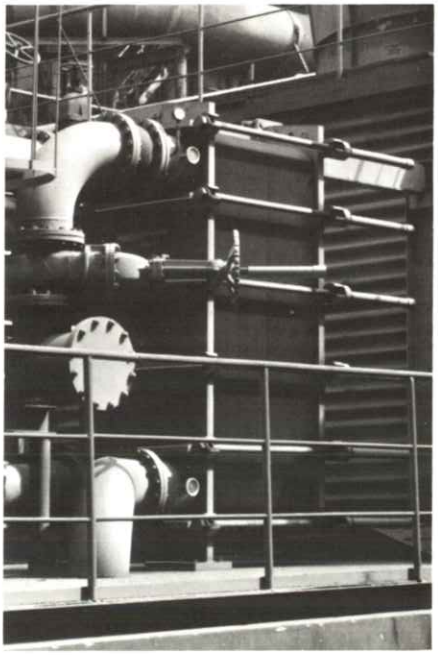
Cooling induction furnace water at automotive plant



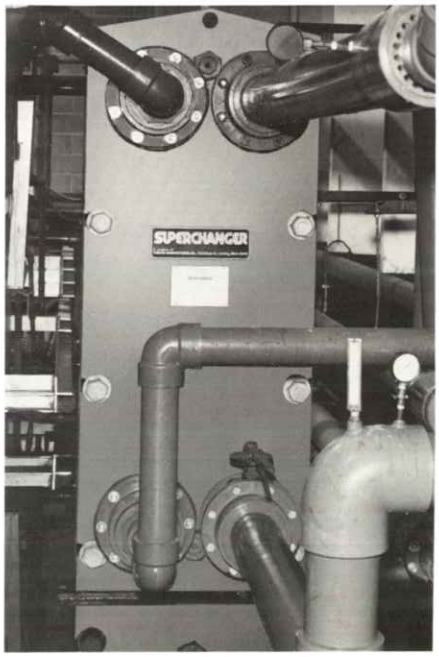
Reducing water temperatures and recovering heat at paper mill



Recovering heat from processing liquids in textile dyeing operation



Cooling process solutions at a chemical plant



Maintaining tank temperatures at aluminum anodizing plant

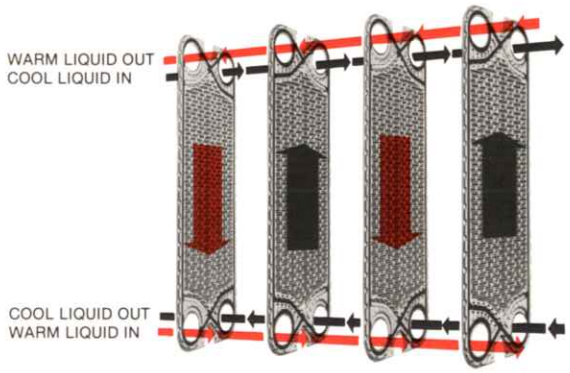
SUPERCHANGER®

PLATE AND FRAME HEAT EXCHANGER

HOW IT WORKS:

Liquids flow counter-currently between plates

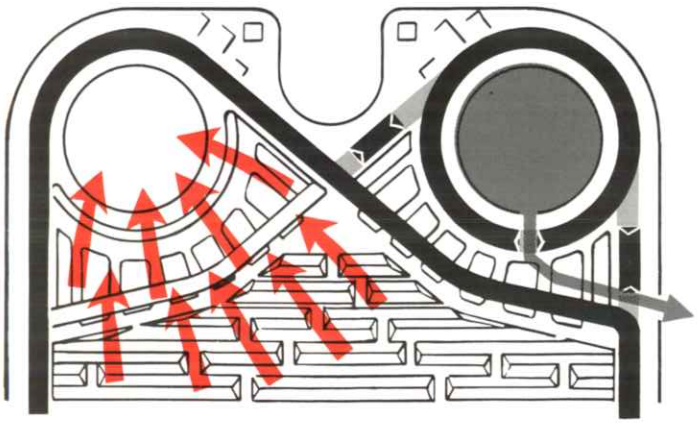
The flow diagram below illustrates how the hot and cold liquids flow between the plates in a SUPERCHANGER plate and frame heat exchanger. Plates supported by an upper guide bar are held in a frame which is bolted together. Nozzles attached to the end frames allow for entrance and exit of fluids. A gasket mounted on each plate seals the channel between it and the next plate. The gaskets and portholes in the plates allow the fluids to flow in alternate channels.



The fluids flow through the channels counter-currently and are evenly distributed in each channel. As the liquids flow through the channels between the plates, the cold liquid becomes warmer and the hot liquid cooler.

No chance of cross-contamination

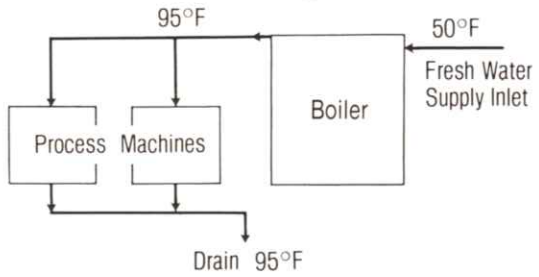
Intermixing or cross-contamination of hot and cold liquids is virtually impossible in the SUPERCHANGER plate and frame heat exchanger. One reason for this is that the liquid flowing on the surface of each plate flows on the inside of the boundary gasket. If one of the liquids should leak beyond a boundary gasket, it will flow to the outside of the unit, thus preventing any possible intermix. Each porthole gasket contains four bleed passages at a lower elevation than the main gasket which allow this to be accomplished.



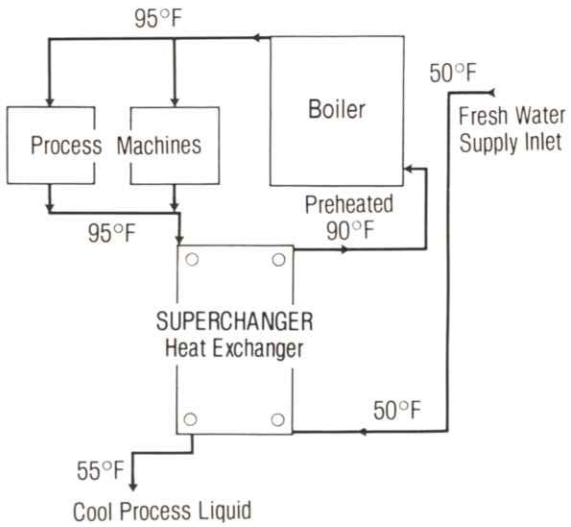
How it recovers waste heat

Heat recovery in a wide range of industrial, commercial and institutional applications is one of the heat transfer jobs a SUPERCHANGER unit handles with remarkable efficiency. A typical heat recovery application in a photo-processing plant is shown in the drawings below. In illustrating the operation both before and after the installation of the SUPERCHANGER unit, the drawings show how the unit recovers heat from the waste hot water used by the process machines and recycles it back to the boilers.

Before SUPERCHANGER Heat Exchanger



With SUPERCHANGER Heat Exchanger



In an installation such as this — typical of heat recovery applications in many different industries which use process hot water — the SUPERCHANGER plate and frame heat exchanger normally recovers enough heat to pay for itself through reduced fuel costs in a matter of just a few months. In addition, considerable savings are also achieved in reduced boiler maintenance which results from the use of preheated boiler feedwater. A further benefit from heat recovery applications is the alleviating or eliminating of thermal pollution which the SUPERCHANGER unit accomplishes by lowering the temperature of the waste liquid going down the drain.

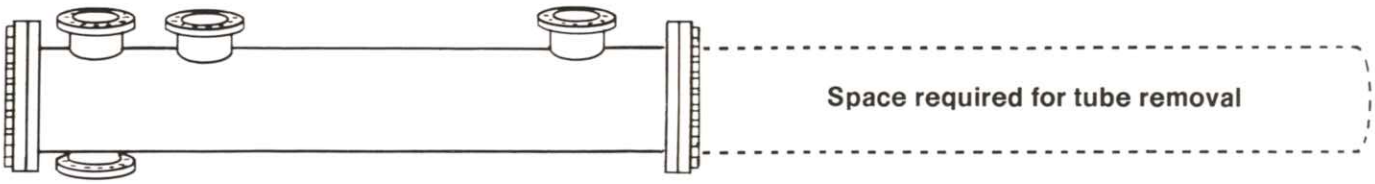
HOW IT COMPARES TO SHELL AND TUBE:

For many years, the most commonly used type of heat exchanger in industrial heat transfer applications has been the shell and tube heat exchanger. With the advent of plate and frame heat exchangers for general industrial use in recent years, however, the swing has been away from shell and tube—simply because of the many superior advantages offered by plate and frame exchangers.

To name a few: plate and frame heat exchangers require much less space, from one-tenth to one-half of the space required by shell and tube. Plate and frame units also provide much greater flexibility, more ease in cleaning, much less fouling, no interleakage, less weight and generally less cost.

Most important, plate and frame heat exchangers do a more efficient job of transferring heat in most applications. One of the reasons for this is the turbulent flow created by the corrugated plate patterns in the plate and frame heat exchanger. As the liquid travels in a channel, it makes multiple turns which create eddy currents and violent mixing. The more turbulent the flow, the faster heat is exchanged. With the turbulence created by a typical SUPERCHANGER plate, for instance, the flow condition for an aqueous fluid changes from laminar to turbulent at a Reynolds number of approximately 200. In a shell and tube exchanger, the same flow condition is attained at a Reynolds number in excess of 2,000.

For a side-by-side comparison between plate and frame and shell and tube exchangers, the charts below show the difference in dimensions and comparative performance data for two units in similar applications.



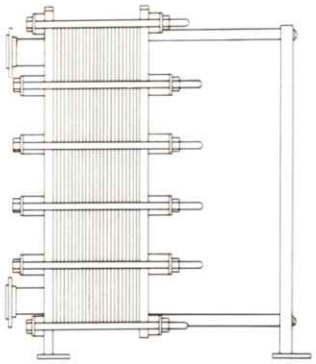


Plate and frame exchangers take as little as one-tenth the space required for shell and tube exchangers, particularly when considering the space required for tube removal.

Typical units designed for the same heat transfer conditions.

ITEM	SUPERCHANGER	SHELL AND TUBE
Surface Area	1000 sq. ft.	3000 sq. ft.
Total Length Required	86"	157"
Width	32"	30" Diameter
Height	84"	42"
Gross Volume	18 ft^3	116 ft^3
Net Weight	1600 lbs.	6000 lbs.

ITEM	SUPERCHANGER	SHELL AND TUBE
Efficiency	High — "U" value three to five times greater	Low
Space Required	10% to 50%	Twice as much to pull tube bundle
Ease of Disassembly	Easy — loosen bolts	Complex — Tube bundle must be pulled
Costs	Less when stainless steel or higher grade of material is required	Higher, except in all carbon steel construction
Fouling	Low due to corrugations and inherent turbulence	High due to circular cross-sectioning and channeling
Heat Transfer Surface	Plates easily added or subtracted	Fixed surface only
Weight and Installation	Low — no concrete pads required	High — concrete pads normally required
Intermix Between Fluids	Impossible due to gasket design	Can mix, both at welds and at tube sheet
Inspection	Disassemble and inspect	Difficult — must normally pull tube bundle
Chemical Cleaning	Excellent due to corrugations/channel	Satisfactory but must be cautious of dead spots
Maximum Viscosity	30,000 cps Nominal	10,000 cps
Pressure Drop	Low to Medium	Low
Heat Loss	Practically none — no insulation required	Great amount — insulation required
Temperature Approach	Can be designed for a 2°F approach with more than 90% heat recovery attainable	5° to 10°F minimum approach required
Design Sizing	Computer custom-designed per application	Must always oversize to be safe
Hold-Up Volume	Low	Very High
Operations	Multiple duties possible with connecting plates	One unit required for each duty

SUPERCHANGER®

PLATE AND FRAME HEAT EXCHANGER

WHY IT'S BETTER:

Plate designs, sizes and materials to fit all needs

SUPERCHANGER plates are made in two basic designs, a complete range of sizes, and a wide variety of materials to meet virtually any feasible requirement.

The two plate designs are the S-series plates with corrugations in a parallel or washboard pattern and the UX-series plates with corrugations in a herringbone or chevron pattern. Generally, with relatively clean solutions, herringbone plates are more efficient than the washboard series because of the increased turbulence they create in the flow stream. The washboard design offers some significant advantages in its ability to handle larger particle sizes and reduce fouling tendency. Because the washboard design has fewer metal-to-metal contact points (approximately 150/sq. ft. vs. 1000/sq. ft. for herringbone) and a wide interspace clearance, washboard plates are less prone to fouling.

Although type of fluid, flow rates and allowable pressure drops must also be considered in selecting a type of plate, the following general rule of thumb is applicable in determining whether an S- or UX-series plate is ideally suited for a given duty:

S-series, UX-42, UX-82, UX-84 — small product temperature change with a large log mean temperature, i.e., the ratio $\Delta T/\Delta Tm$ is less than 1

All other UX-series — large product temperature change with a small log mean temperature, i.e., the ratio $\Delta T/\Delta Tm$ is greater than 1

S-series and UX-series plates are available in sizes ranging from 0.94 sq. ft. to 18.3 sq. ft. of heat transfer surface. Also available, although not illustrated, is the model UX-42 plate and UX-80 series plate models, UX-82, UX-83 and UX-84. These plates are dimensionally the same as their respective counterparts, the UX-41 and the UX-81 — the only difference is in the angle of the herringbone pattern.

SUPERCHANGER plates are fabricated from virtually any type metal that can be cold-worked, including stainless steels; (types 304SS, 316SS, 317SS), titanium, incoloy 825, monel, hastelloys B & C, nickel and palladium-stabilized titanium, plus alloy 20 and several other materials.

The materials for plates are selected on the basis of the requirements of the individual application. Once the type of solution — as well as the temperature, pressure and other pertinent factors — have been determined for a particular application, it is relatively simple to select the material that will do the job best.

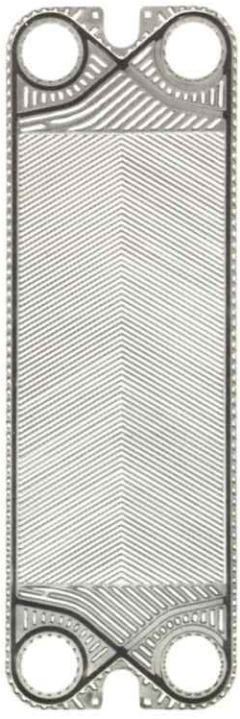
Electropolishing of stainless steel SUPERCHANGER plates is available as an option to provide an extra-smooth, anti-stick surface that helps minimize fouling and assure easy cleaning.

U.S.-manufactured plates offer savings

As mentioned earlier, the U.S.-made plates in SUPERCHANGER units cost less than plates in other exchangers. And since plates are such an important component, the total SUPERCHANGER unit normally costs less than exchangers with foreign-made plates. Also, other U.S.-made benefits such as easier availability, faster delivery and better service enable the user to save time as well as money.

UX-01

S-3



UX-21

S-8

Mixed plate capability for greater savings

In some applications, units with mixed plates (UX-41 and UX-42, UX-81 and UX-82, or UX-83 and UX-84) achieve better heat transfer performance, normally with fewer plates, than units using a single plate style. With the SUPERCHANGER heat exchanger's mixed plate capability, thermal and/or hydraulic process requirements can be almost exactly matched, thereby eliminating the need to purchase an unnecessarily oversized single plate style unit.

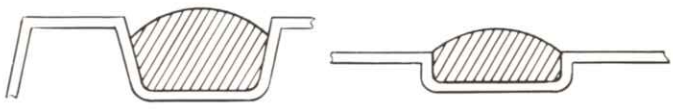
Almost any temperature change requirement may be achieved without modifying original flow rate and pressure drop conditions.

Easily cleaned, manually or in-place

SUPERCHANGER plate and frame heat exchangers are designed to be easily cleaned manually or with cleaning-in-place operations. Where possible, it is recommended to utilize a cleaning-in-place system which allows pumping water or cleaning solutions into the unit without disassembling it. This makes effective use of the turbulence to assist in cleaning the heat transfer surfaces. Manual cleaning of the disassembled unit accomplishes the same results.

Tapered gasket groove

The gasket groove on SUPERCHANGER plates is a tapered design which permits more than 50% of the gasket surface to be bonded to the plate. Besides assuring a better gasket-to-plate bond, the shape of the groove helps hold the gasket in place during disassembly of the unit. The flange on the outside of the gasket groove absolutely prevents the possibility of a gasket blowout.



SUPERCHANGER gasket groove Conventional gasket groove

One-piece molded rubber gaskets

Gaskets used on SUPERCHANGER plates are one-piece molded rubber to assure superior performance over any other type of plate and frame heat exchanger gasket. The gasket, which functions as an "O" ring, does not define the interspace between the plates (the interspace is defined by the metal-to-metal contact points) and remains firmly seated in the gasket groove even after the unit has been disassembled numerous times.

UX-41

UX-81

SUPERCHANGER®
PLATE AND FRAME HEAT EXCHANGER

HOW IT'S MADE:

Computer-designed for optimum performance

SUPERCHANGER plate and frame heat exchangers are designed by modern computer technology to meet the precise requirements of the individual application. In designing a unit, all the pertinent data on the particular installation is fed into the computer where the data is applied to previously programmed input on optimum design. After analyzing the data, the computer provides full design information, both for the optimum and alternate designs. Computer-assisted design assures you that the SUPERCHANGER heat exchanger is engineered for your specific application.

Industry's most modern fabrication techniques

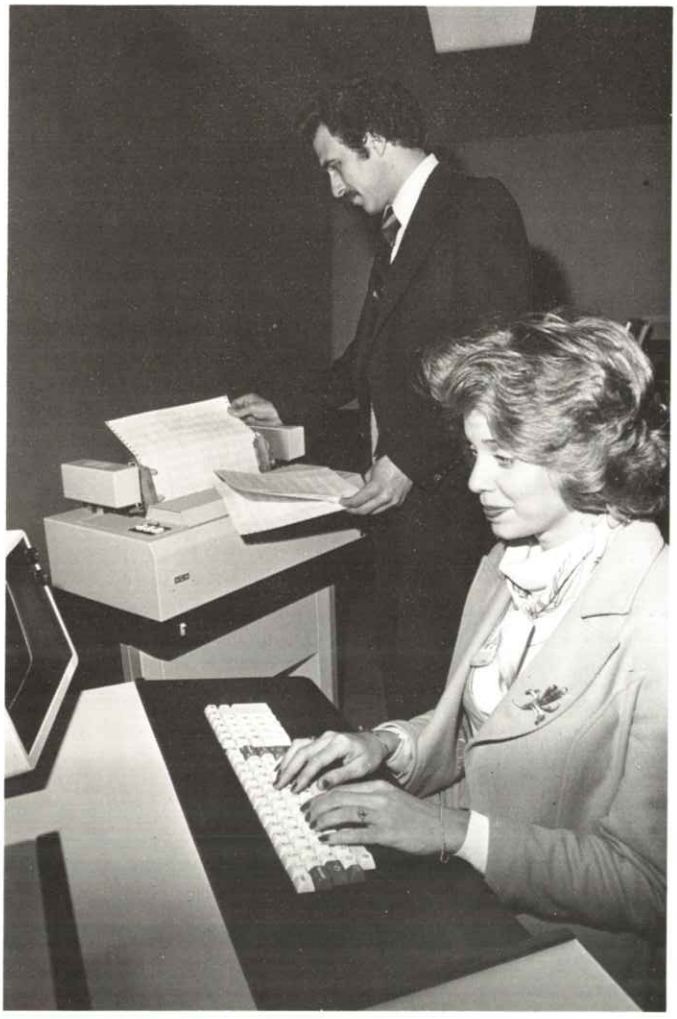
All SUPERCHANGER components are manufactured by the most modern production technology in the industry. SUPERCHANGER plates, for example, are formed by a unique process vastly superior in cost-cutting efficiency to any of the conventional metalforming processes used by other manufacturers.

The design of the SUPERCHANGER MOD-III end frame combines rugged durability and strength with minimum weight. Compared to heavy and bulky end frame designs, handling is easier and shipping costs are less. Also, the compact configuration of MOD-III end frames means fewer installation problems when space is limited.

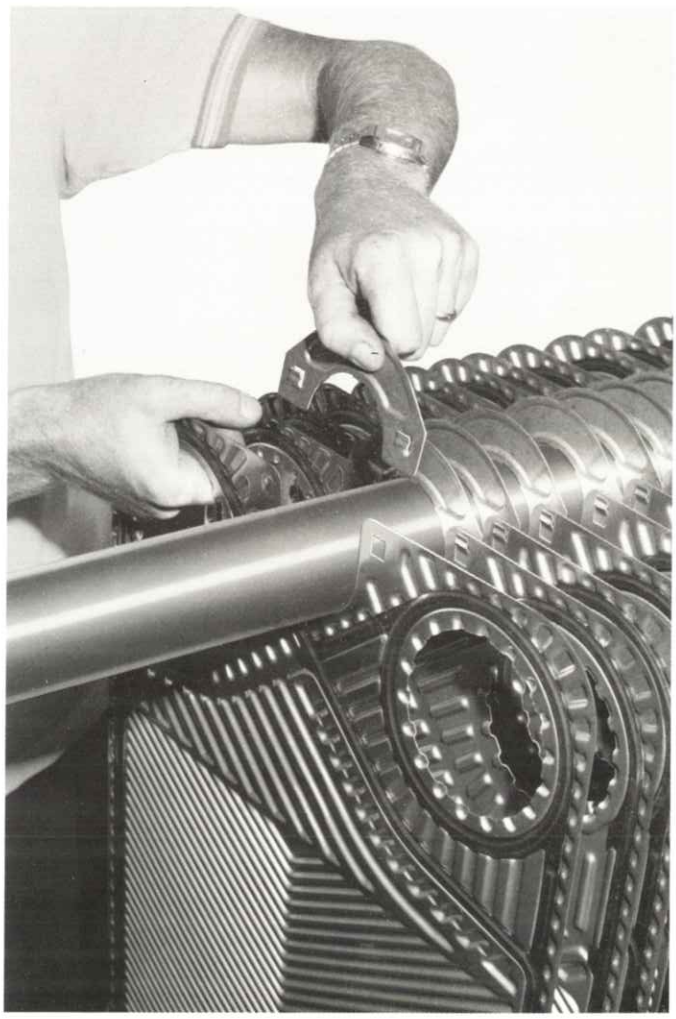
End frames, stainless steel clad guide bars, nozzles and even bolts are all manufactured at our factory with today's most modern techniques and equipment to the highest standards of quality in the industry.

Careful assembly by skilled craftsmen

Assembly of SUPERCHANGER units is a task assigned to only the most knowledgeable, experienced craftsmen. Using the best equipment and fabrication techniques available, they carefully weld end frame components and nozzles, firmly bond gaskets to plates and assemble the complete heat exchanger.



Computer-aided design for meeting individual needs



Worker individually fastens each plate firmly into unit

Multiple sections available for dual operations

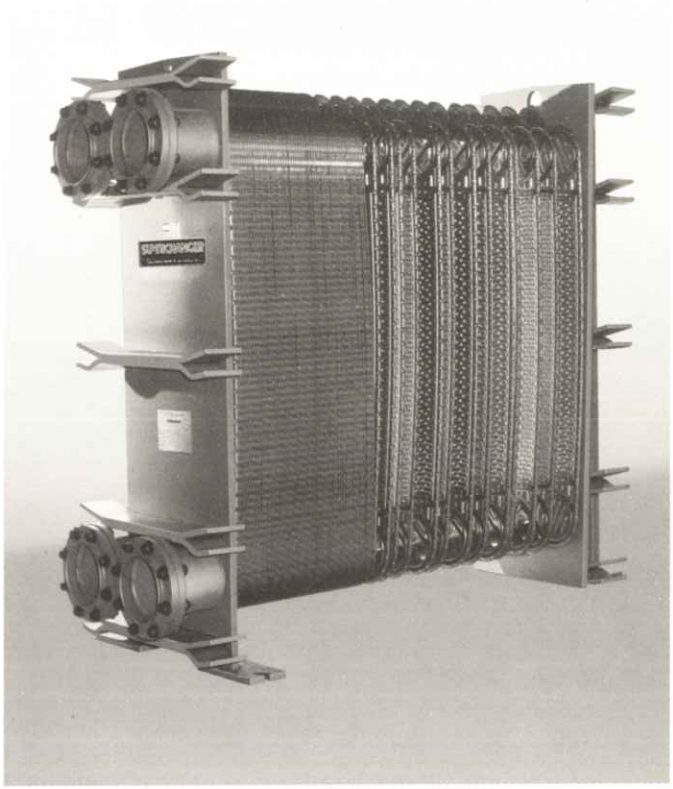
When more than one heat exchange operation is required, SUPERCHANGER units can be partitioned into multiple sections by employing connecting frames or two sections by utilizing blank plates in conjunction with additional nozzles. These arrangements allow several liquids to be processed at the same time or the same liquid to run through multiple stages of heat transfer.

Each unit thoroughly tested

After assembly, each SUPERCHANGER heat exchanger is hydrostatically tested with higher pressures than the unit will be subjected to in the field. After passing the full battery of tests, the unit is shipped fully assembled, complete with a protective shroud.

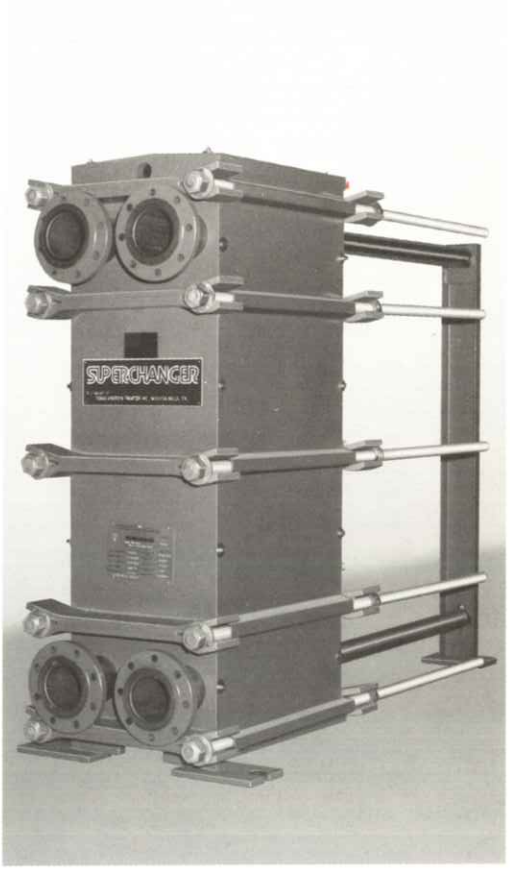
ASME inspected and coded

SUPERCHANGER heat exchangers are manufactured to meet ASME codes. When requested, the individual units are designed, built and inspected in compliance with Section 8, Division 1 and are stamped accordingly.



SUPERCHANGER unit ready for final assembly

Fully assembled SUPERCHANGER unit ready for testing



SUPERCHANGER unit with protective shroud ready for shipping

SUPERCHANGER®

PLATE AND FRAME HEAT EXCHANGER

HOW IT FITS INDIVIDUAL NEEDS:

The specification data shown on this page include all the standard dimensions and materials currently available for SUPERCHANGER plate and frame heat exchangers. With this broad range of specifications, a diverse selection of heat exchangers can be developed for meeting an exceptionally wide variety of individual needs.

SPECIFICATIONS

Pressure Rating: Up to 300 psig Operating Pressure

Maximum Temperature: 350°F

Heat Transfer Coefficients: Greater than 1000 BTU/ft² hr°F

Heat Transfer Surface: Up to 9,100 ft² per Unit

Models	ft²/Plate
S-3	3.4
S-8	7.6
UX-01	0.94
UX-21	4.0
UX-41	8.2
UX-42	8.2
UX-81	18.3
UX-82	18.3
UX-83	18.3
UX-84	18.3

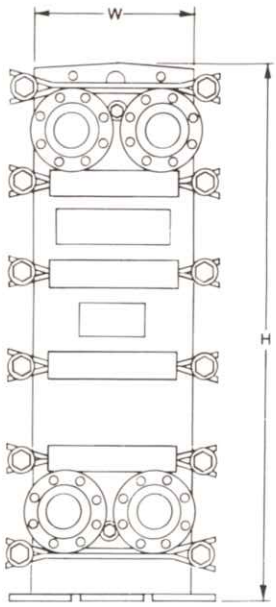
Frames: HP, UP, SP, Carbon Steel with Baked Epoxy Enamel Paint, Side Bolts and Shroud J, HJ, UJ, SJ, Compact Version of P, HP, UP, SP with No Support Column

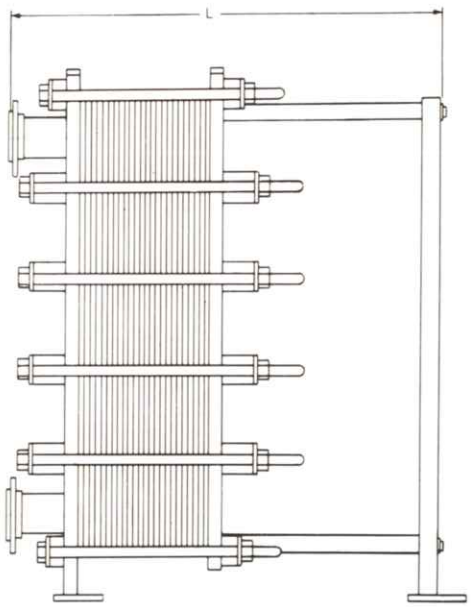
Plates: Type 304SS, 316SS, and Titanium as Standard Incoloy 825, Hastelloy B & C, Alloy 20, and Others Available. Various Thicknesses

Gaskets: Nitrile, Ethylene Propylene Rubber and Viton as Standard. Neoprene, Hypalon, Butyl, Resin-cured Butyl, Teflon-encapsulated and Others Available

Nozzles: 150 lb. ASA Rated Loose Flange Type as Standard. 300 lb. Rated Available

Optional Extras: Connecting Frames
Threaded or Clamp Type Nozzles
Stainless Steel Tightening Bolts
ASME Code Stamp





SUPERCHANGER Frame Dimensions — in inches

PLATE MODEL	H	W max.	L max.
UX-01	36	12	36
S-3/UX-21	62	23	114
S-8/UX-41, 42	85	32	142
UX-81, 82, 83, 84	107	55	200

RENTAL UNITS AVAILABLE—SUPERCHANGER units are available on a rental basis for customer in-plant testing and evaluation. Contact your Tranter representative for information on the SUPERCHANGER rental policy.

WHERE IT'S USED:

Below is a partial list of substances which can be heated or cooled by SUPERCHANGER plate and frame heat exchangers. The list covers many industrial applications which utilize heated or cooled liquids.

ACETALDEHYDE SOLUTIONS
ACETIC ACID SOLUTIONS
ACETIC ACID AND ACETIC ANHYDRIDE MIXTURES
ACETIC ACID AND VINYL ACETATE MIXTURES
ACETONE CYANHYDRINS
ACETONE SOLUTIONS
ACRYLONITRILE
ALCOHOL SOLUTIONS
AMINE SOLUTIONS
AMINO ACIDS
AMMONIA SOLUTIONS
AMMONICAL BRINE
AMMONIUM BROMIDE SOLUTIONS
AMMONIUM CARBONATE SOLUTIONS
AMMONIUM NITRATE
AMMONIUM PHOSPHATE (DIBASIC)
AMMONIUM SULPHATE SOLUTIONS
ANTIBIOTIC LIQUORS
BEAN SOUP
BEER
BEET SUGAR JUICE (RAW)
BITTERN
BLACK LIQUOR
BLEACH LIQUOR
BLEACH SOLUTIONS
BLOOD PLASMA
BORIC ACID LIQUOR
BRANDY
BUTADIENE LATEX EMULSIONS
BUTYL ALCOHOL SOLUTIONS
BUTYRALDEHYDE
CALCIUM BISULPHITE
CALCIUM CHLORIDE BRINE
CALCIUM LACTATE
CAPROLACTAM
CARBON DISULPHIDE
CAUSTIC SODA SOLUTIONS
CELLULOSE ACETATE
CHLORINATED BRINE
CHLORINE SOLUTION
CITRIC ACID SOLUTIONS
COFFEE EXTRACT
COPPER STRIKE
COPPER SULPHATE SOLUTIONS
CORDITE WASH WATER
CORN STEEP LIQUOR
CROTONALDEHYDE
DETERGENTS
DEXTROSE SOLUTIONS
DIMETHYLAMINE
DIMETHYL FORMAMIDE
DIPHTHERIA PLASMA
DYE LIQUOR
EFFLUENTS FROM:
- AMMONIA STILLS
- BOTTLE WASHING
- CELLULOSE BLEACHERIES
- CHEMICAL PLANTS (VARIOUS)

CORN STARCH OPERATIONS
DISTILLERIES
DYE LIQUOR VATS
FISHERIES
GLUE MAKING PLANTS
LAUNDRIES
PULP AND PAPER INDUSTRIES
WHEAT STARCH PLANTS
WOOL MILLS
ENZYME SOLUTIONS
ETHYL ALCOHOL
ETHYLENE GLYCOL
ETHYL-HEXYL ALCOHOL
FATTY ACIDS
FEINTS (WHISKY)
FERMENTATION LIQUORS
FISH PRESS LIQUOR
FISH STICK LIQUOR
FORMALDEHYDE SOLUTIONS
FORMALIN
FRUIT JUICES (VARIOUS)
GELATIN SOLUTIONS
GLUCOSE SOLUTIONS
GLYCERINE SOLUTIONS
GREEN LIQUOR
GUM ARABIC
HAND CREAM
HEXAMINE
HEXANE VAPOR
HONEY
HYDROCHLORIC ACID SOLUTIONS
HYDROGEN AND STEAM
HYDROLYZED PROTEIN LIQUOR
HYDROXYLAMINE SULFATE
ICE CREAM
ISOPROPYL ALCOHOL
KEROSENE
LACQUER
LACTIC ACID
LARD
LATEX (SYNTHETIC OR RUBBER)
LEAD (FLUORBORATE)
LECITHIN
LIGNIN
LIME SLURRY
MAGNESIUM HYDROXIDE
MALEIC ANHYDRIDE
MARGARINE
METAL POLISHES
METHYL ALCOHOL SOLUTIONS
METHYL ACETATE
METHYL METHACRYLATE
MEA SOLUTIONS
MILK AND MILK PRODUCTS
MILK OF LIME
MOLASSES SOLUTIONS
MONOCHLORACETIC ACID
MONOETHANOLAMINE SOLUTIONS
MONOSODIUM GLUTAMATE SOLUTIONS
N-METHYL PYROLLIDONE

MUSHROOM LIQUID
NICKEL SULPHATE
NITRATE ACIDS
OILS:
- COCONUT
- CORN
- COTTONSEED
- CUTTING
- ENGINE
- FISH
- HYDRAULIC
- INSULATING
- LINSEED
- LUBRICATING (TURBINE)
- MINERAL (VARIOUS)
- PEANUT
- QUENCHING
- SESAME
- SILICONE
- SOYBEAN
- VEGETABLE (VARIOUS)

OLEIC ACID
OXALIC ACID
PAINT SOLUTION
PARAFFIN EMULSION
PARAFFIN WAX
PARAQUAT
PECTIN
PENTAERYTHRITOL
PHENOL ADHESIVE
PHOSPHORIC ACID SOLUTIONS
PHOTOGRAPHIC SOLUTIONS
PITCHBLEND WAX
PLASTICISER
PLATING SOLUTIONS:
- ACID COPPER
- ALKALINE COPPER
- ALKALINE ZINC
- CHROMIUM
- NICKEL
- TIN
- ZINC

POLYESTER RESIN
PROPYLENE GLYCOL
POLY-VINYL ACETATE SOLUTIONS (PVA)
POTASSIUM CARBONATE LYE
POTASSIUM CHLORIDE SOLUTIONS
PROPIONIC ACID
PVC SOLUTIONS
RESIN, LIQUID
RUBBER LATEX
RUM
SACCHARIFIED SOLUTIONS
SAKE
SEAWEED EXTRACT
SHOE POLISH, LIQUID
SOAP, LIQUID
SOAP SLURRY
SODA WATER
SODIUM ALKYL GLYCEROL SULPHONATE

SODIUM ALUMINATE SOLUTIONS
SODIUM CARBONATE
SODIUM CHLORIDE SOLUTIONS
SODIUM CRESYLATE
SODIUM CYANIDE LIQUOR
SODIUM HYDROXIDE SOLUTIONS
SODIUM HYPOCHLORITE SOLUTIONS
SODIUM METABORATE SOLUTIONS
SODIUM PERBORATE SOLUTIONS
SODIUM SULPHITE LIQUOR
SODIUM THIOCYANATE
SODIUM THIOSULFATE
SORBITOL SOLUTIONS
SOY SAUCE
SPENT WASH (WHISKY)
STARCH SUSPENSION
STEAM
STEARIC ACID
SUCROSE SOLUTIONS
SUGAR SOLUTIONS (INVERT)
SUGAR SYRUP
SULFONIC ACID
SULPHITE COOKING ACID
SULPHITE WASTE LIQUOR
SULPHURIC ACID
SULPHUROUS ACID
SWEETOSE
TRIETHYLENE GLYCOL
TRICHLORETHYLENE & WATER MIXTURE
UREA FORMALDEHYDE
UREA FORMALDEHYDE RESINS
VARNISH
VINEGAR
VINYL ACETATE SOLUTIONS
VISCOSE
WATER:
- BOILER FEED
- CITY
- DEIONIZED
- DEMINERALIZED
- DISTILLED
- ENGINE COOLING JACKET
- LAKE
- RIVER
- SEA
- SWIMMING POOL
- WELL

WAX EMULSIONS (THICK)
WHISKY (SCOTCH)
WHITE SPIRIT
WINES
WORTS (VARIOUS)
XYLENE
YEAST CREAM
YEAST LIQUOR
YEAST MASH
YOGURT
ZINC CHLORIDE
ZINC SULPHATE

The following lists a few of the many industries which utilize SUPERCHANGER plate and frame heat exchangers and some of the various applications where SUPERCHANGERS are providing outstanding performance.

AUTOMOTIVE INDUSTRY
- Phosphate System Heaters
- Plating Solution Coolers
- Paint Coolers
- Welder and Induction Furnace Water Coolers

PULP & PAPER INDUSTRY
- White Water Heat Recovery
- Hypochlorite Solution Coolers
- Caustic Soda Coolers
- Blowdown Liquor Coolers

CAUSTIC SODA INDUSTRY
- Hydrogen Gas Coolers
- Caustic Coolers
- Brine Heaters and Coolers
- Sulphuric Acid Coolers

METALWORKING INDUSTRY
- Anodizing Solution Coolers
- Copper Plating Coolers
- Zinc Plating Coolers
- Tin Plating Coolers
- Chrome Plating Coolers
- Quench Oil Coolers
- Pickling Solution Coolers
- Oil Coolers

STEEL INDUSTRY
- Furnace Jacket Water Coolers
- Rolling Oil Coolers
- Continuous Slab Caster Coolers
- Scrubber Water Coolers
- Mold Water Coolers

TEXTILE INDUSTRY
- Waste Water Heat Recovery
- Caustic Heaters and Coolers
- Peroxide Solution Heaters

FOOD INDUSTRY
- Honey Coolers and Heaters
- Corn Syrup Coolers
- Starch Coolers and Heaters
- Vegetable Oil Coolers and Heaters
- Yeast Coolers

CHEMICAL INDUSTRY
- MEA Coolers and Interchangers
- Organic Solution Coolers
- Various Acid Coolers and Heaters
- Brine Heaters and Coolers
- Ammonia Solution Coolers
- Wax Coolers

COPPER INDUSTRY
- Electrolyte Solution Heaters and Interchangers
- Sulphuric Acid Coolers
- Leach Solution Heaters and Coolers
- Liquor Coolers
- Ammonia Solution Heaters and Coolers

HVAC INDUSTRY
- Cooling Tower Isolation and Free Cooling
- Load Sharing
- Head Isolation
- Heat Recovery
- Zone Heating and Cooling

OTHER TRANTER HEAT TRANSFER EQUIPMENT

Tranter, inc. has been manufacturing various types of heat transfer equipment for over 50 years. During that time, the company has developed a range of products and a level of expertise that have qualified its personnel to be known as THE Heat Transfer People. Along with the products shown here, this expertise is available to industry to help meet virtually any type of industrial heat transfer requirement.

Besides the products shown here, Tranter also manufactures FLEXOPLATE radiators for the power transmission industry and KOLD-HOLD truck plates for the refrigerated trucking industry.

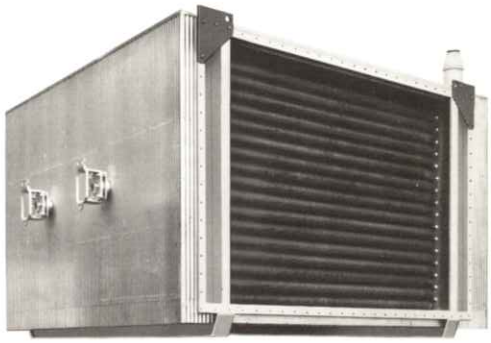
PLATECOIL®

PLATECOIL units are prime surface heat exchangers fabricated from embossed plates welded together to form channels through which the heating or cooling medium flows. The versatile PLATECOIL heat exchanger finds application in a great variety of industries. It is widely used as an immersion type heat exchanger in metal finishing operations, for example, and serves in many different applications in the chemical, food, petroleum, textile and rubber processing industries.

Kentube

KENTUBE finned tubing is fabricated into such assemblies as fuel economizers for industrial boilers and convection sections for process furnaces. Because the extended surface created by the fin provides more heat transfer efficiency than bare tubing, the finned tube is recognized as one of the most effective means of gas-to-liquid heat transfer.

For information on any of the Tranter product lines, contact your nearest Tranter representative.



For SUPERCHANGER information, contact Texas Division, Tranter, inc., Old Burke Road, P.O. Box 2289, Wichita Falls, Texas 76307 • 817/723-7125.

THE heat transfer people

Tranter®

PLATECOIL • SUPERCHANGER • KENTUBE • FLEXOPLATE • KOLD-HOLD

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