



# HIGHER PERFORMANCE IN HEAT EXCHANGE AND HEAT RECOVERY



# YOU ARE IN GOOD HANDS

Established in France in 1997, TECHLINK Associated International Engineers is a leading solutions provider in Flow Control, Heat Exchange, Piping safety, Instrumentation for processes handling corrosive, erosive and toxic chemicals. We are committed to serve industries for which quality and reliability are critical for the safety of people and preservation of the environment. With a presence in France, India, Thailand and China, and representations in Korea, Singapore, Malaysia, Indonesia and Pakistan, TECHLINK designs solutions for process industries to :

- Improve availability and performance
- Reduce operational costs
- Enhance safety
- Save power and recover energy
- Achieve and/or maintain environmental
- Regulatory compliance
- Meet ISO 14000 objectives
- Simplify management

▶ **ION-EXCHANGE COLUMNS** with Ca/Mg free hard rubber lining and titanium internals.

## ▶ **GAS SCRUBBER SYSTEMS**

For removal of chlorine, HCL, sulphur dioxide and other pollutants from stack gas and tank vents.

Ejector type, or packed bed type. With or without blower. Self controlled.

## ▶ **FILTRATION SYSTEMS**

PTFE membrane systems for filtration of brine in one single step and without settler before ion-exchange resin beds in chlor-alkali plants. Removal of micro particles in chlorate and hypochlorite.

## ▶ **NICKEL VESSELS AND COMPONENTS**

▶ **ANALYTICAL SYSTEMS**, for on-line process monitoring

## ▶ **TURN-KEY SYSTEMS**

Storage systems, cooling systems, mixing systems, filtration systems, scrubbers, delivered as skids



## OTHER PRODUCTS OF





# HEAT EXCHANGERS FOR CHLOR-ALKALI PROCESS

## TITANIUM

Tubes & Shell : Chlorine cooler

Plate & Gaskets :

- Depleted brine heat recovery
- Brine heater



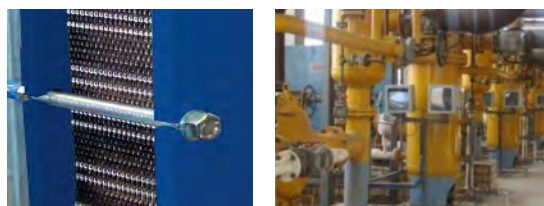
## HASTELLOY

Plate & Gaskets :

- Depleted brine heat recovery
- Brine heater

Semi-welded plates or Full welded :

- Chlorine dryer sulphuric acid cooler
- Chlorine compressor sulphuric acid cooler



## NICKEL

Plate & Gaskets or full welded :

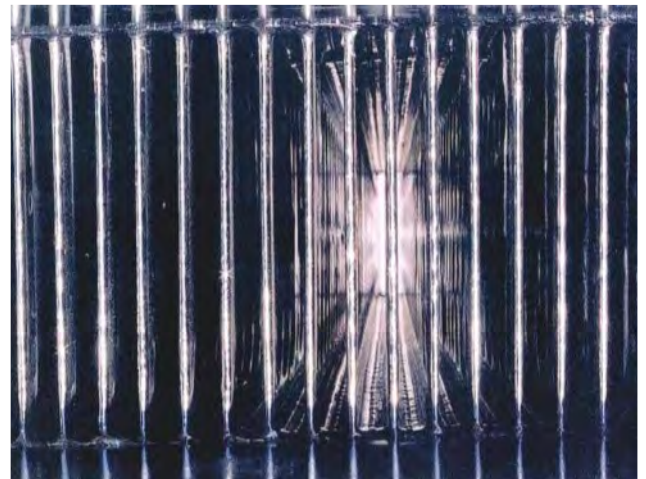
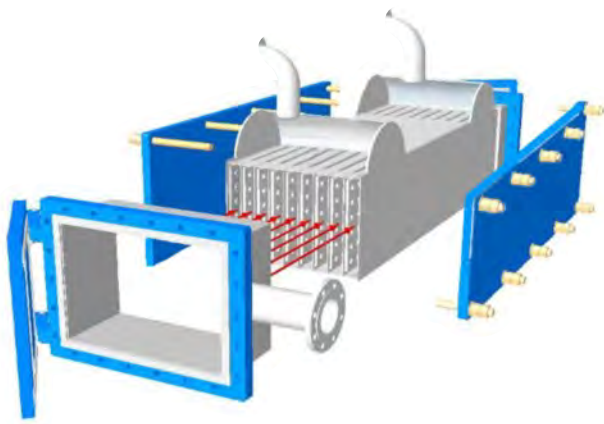
- Caustic soda heater
- Caustic soda evaporator



# HEAT EXCHANGE WITH VISCOUS FLUIDS, FOULING FLUIDS AND SLURRIES

## WITH RECTANGULAR CHANNELS HEAT EXCHANGERS

All welded rectangular channels heat exchangers are the best to solve heat exchange problems related to viscous fluids, slurries and heavily fouling fluids. Their unique structure benefits from the best of the properties of both plate heat exchangers, and tube heat exchangers. The wide and tall rectangular channels offer a low resistance to the flow of viscous products, while maintaining natural turbulences at low velocities. The flow geometry reduces fouling, and the channels are easy to clean.



There are no tubesheets, in rectangular channel heat exchangers. The inlet edges of the channels are thin and smooth, not allowing the accumulation of scaling, and thereby also eliminating one cause of crevice corrosion. products, while maintaining natural turbulences at low velocities. The flow geometry reduces fouling, and the channels are easy to clean.

Flat surfaces foul less than tubes. They also favour turbulent flow at a lower velocity than tubes, and create a lower  $\Delta P$ . Operation power of pumps is therefore reduced.



Because of the relative immunity to fouling, and the ease of cleaning, rectangular channels heat exchangers are the technology of choice for heating or recovering heat from dirty fluids, such as found in sugar industry, aluminum, copper and zinc smelters, food industry, synthtic rubbers, and a host of chemicals.





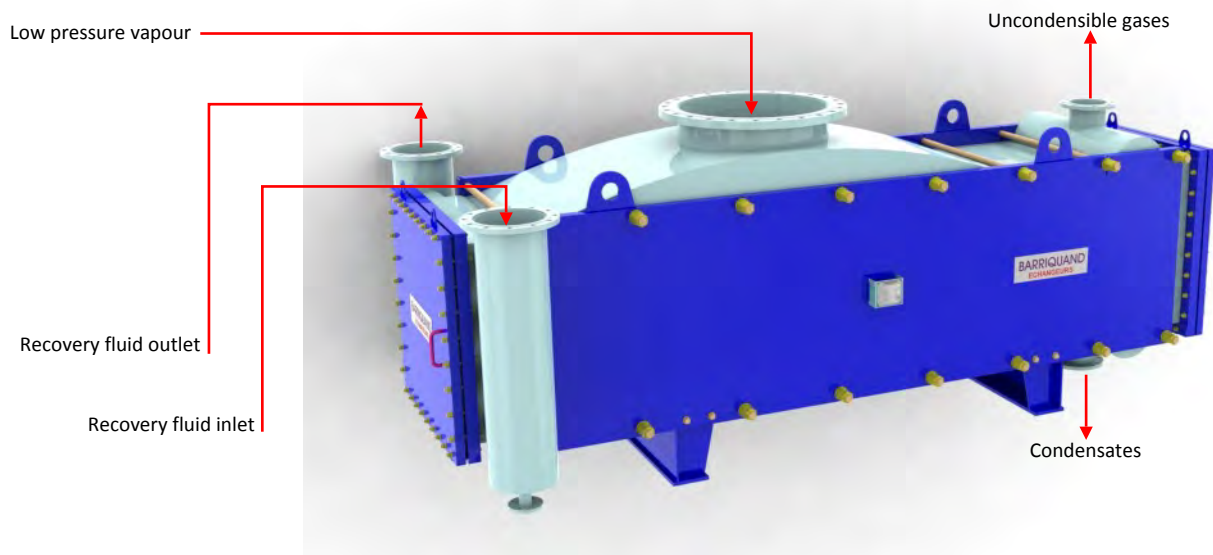
# HEAT RECOVERY

## WITH RECTANGULAR CHANNELS HEAT EXCHANGERS

Besides being maybe the only solution for recovering heat from viscous fluids and slurries, rectangular channels heat exchangers offer a unique performance to recover latent heat from low temperature vapours. Latent heats often represent MW of power, that are usually released to the plant cooling towers through lack of technologies to usefully recover the heat from condensing vapours at very low pressures (down to 0.15 atm Abs).

The rectangular channels technology immediately offers a wide surface area of contact of the vapour with the cooled elements as the vapour enters the heat exchanger (usually through a nozzle of very large diameter). The vapour is therefore not hindered by back-pressure, and condensing is efficient in a rather compact system compared with other technologies. Uncondensable gases, inevitably present in the vapour, are segregated and eliminated through a specific port.

The recovered MW may be used for pre-heating any fluids in situ, including viscous and fouling fluids.



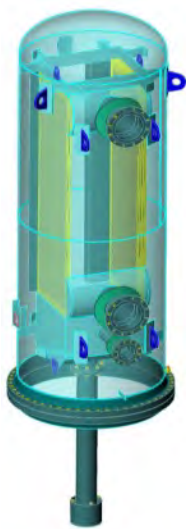
Heat recovery condensers for water vapour at 60°C and 0.2 Atm.abs in a sugar mills. The Megawatts recovered are directly used for pre-heating the raw juice, a sand laden and highly fouling fluid.



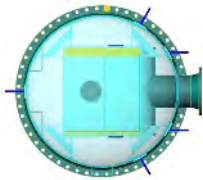
# DISTILLATION AND REFLUX COLUMNS OVERHEAD CONDENSORS

The rectangular channel technology being much more compact than tube and shells condensers, it is possible to fit the condenser of distillation and reflux columns *inside* the column head, thereby enormously simplifying the construction of the plant.

- No external pipe for vapours
- No external structures, such as platform etc...
- No heat losses



Overhead column condenser for HDPE plants designed by INEOS.



Overhead reflux column condenser for petrochemical plants designed by TOTAL/TECHNIP.







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