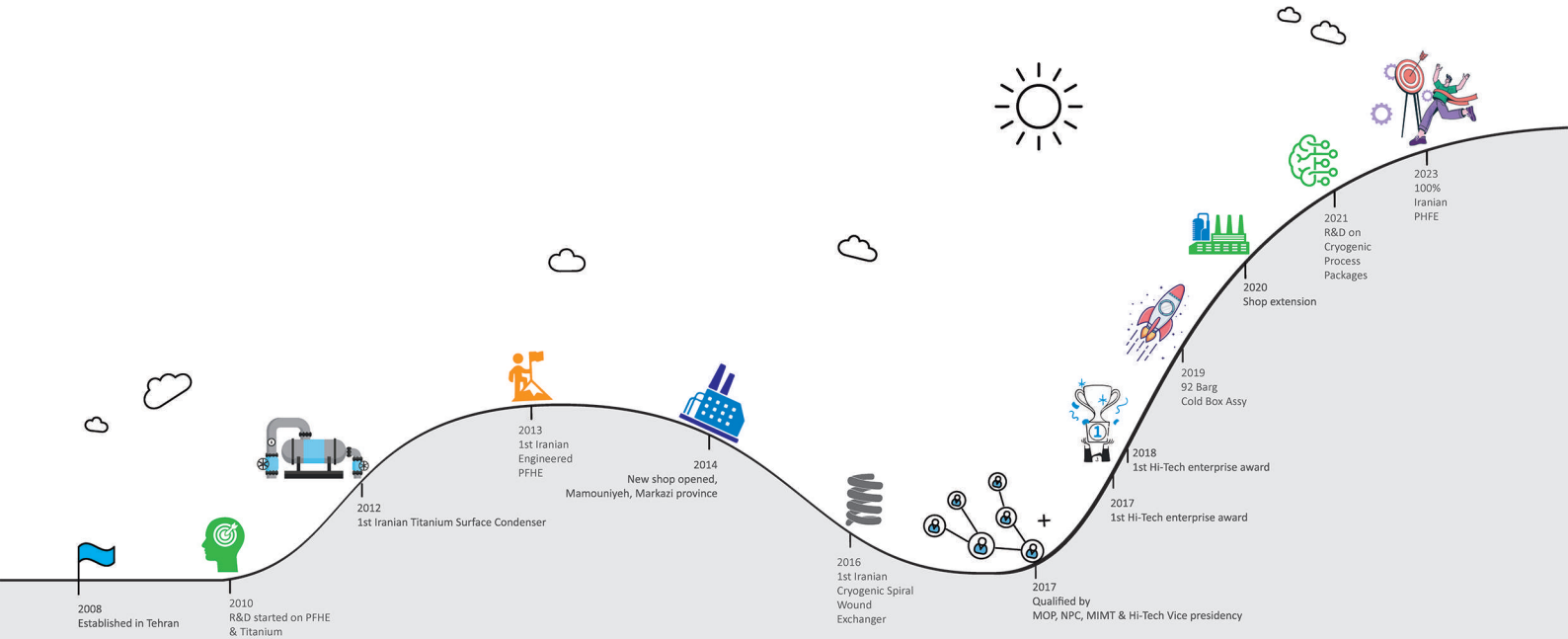


History Milestones



Titanium

Surface Condenser & Heat Exchanger



▲ Titanium Surface Condenser, 1st Iranian made, BIPC Olefin Plant-2012

Titanium is the best response to saline cooling water compared to old copper solutions. Persian Gulf is one of the most saline free waters on the planet and it's worth applying for the right solution.



▶ Titanium Heat Exchanger, Faravareh-2015

PFHE Components

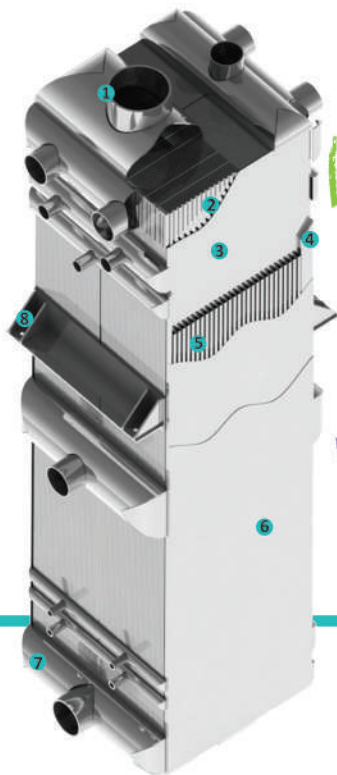
PRESSURE: UP TO 120 Bar

TEMPERATURE: -269 ~ +100 °C

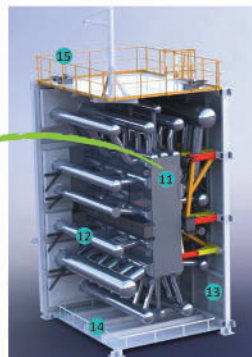
STREAMS: 2 ~ 15

PFHE or BAHX is a compact cryogenic multi-stream heat exchanger, made of layered stack of corrugated planes rigidly bonded by vacuum brazing. Enjoying a very high surface to volume ratio and relatively low pressure drops, it can handle up to 15 streams in a single core.

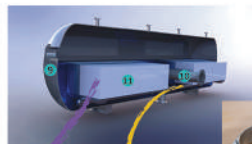
After years of research and continuous work, Hilavis enjoys his matured technics in PFHE design and manufacturing.



- 1 Nozzle
- 2 Distributer Fin
- 3 Parting Sheet
- 4 Side Bar
- 5 Main Fin
- 6 Cap Sheet
- 7 Header
- 8 Support



The assembled unit of PFHE, may include different types of equipment and machineries, depending on the process operation requirements. A continuous purge of 0.5bar Nitrogen inside the box, will provide easy leak detection and protection of the perlite against moisture and ice buildup.



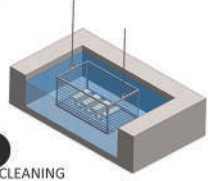
Bi-Clad or Bi-Metallic joints realize durable connection between Aluminum-Stainless pipes under severe thermal loads. The part is manufactured via explosive joining of Aluminum alloy parts to Stainless steel ones, including Nickel buttering.

- 9 Pressure Vessel-Kettle
- 10 PFHE
- 11 Bi-Metallic Joint
- 12 Manifold Piping
- 13 Structural Casing
- 14 N2 Blanket Line
- 15 Safety Devices

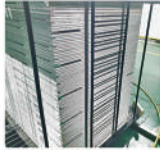
Fabrication Flowchart



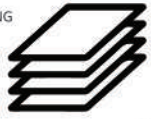
FIN FORMING



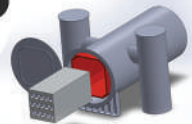
CLEANING



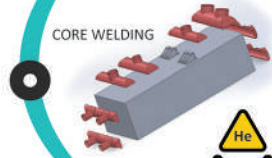
STACKING



BRAZING



HEADER MAKING



CORE WELDING

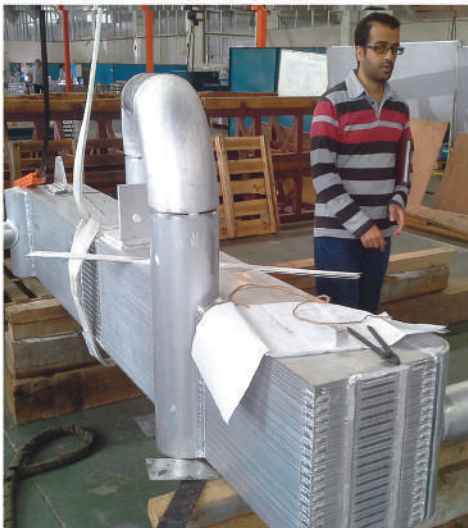


FINAL TESTS

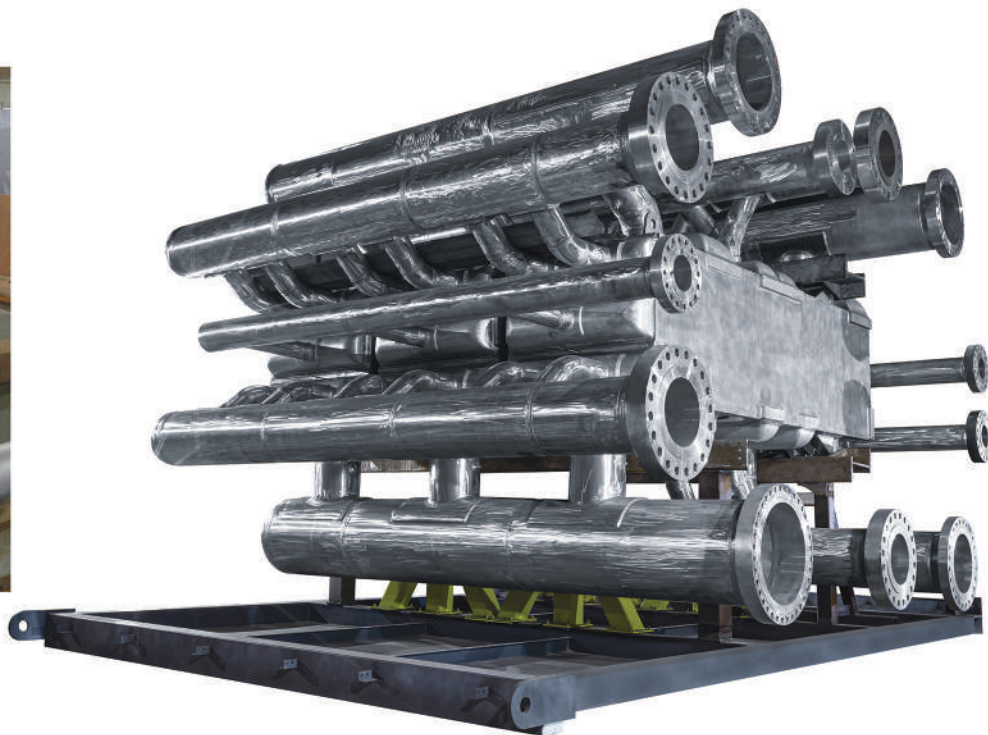


DELIVERY TO NEXT STEPS

Cold Box & PFHE



■ Nasser Karimian (1982-2019), a close friend and co-founder of PFHE team.



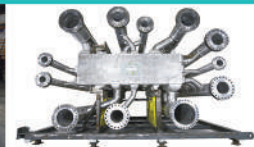
▲ 2015



▲ 2019



▲ 2019



▲ 2020



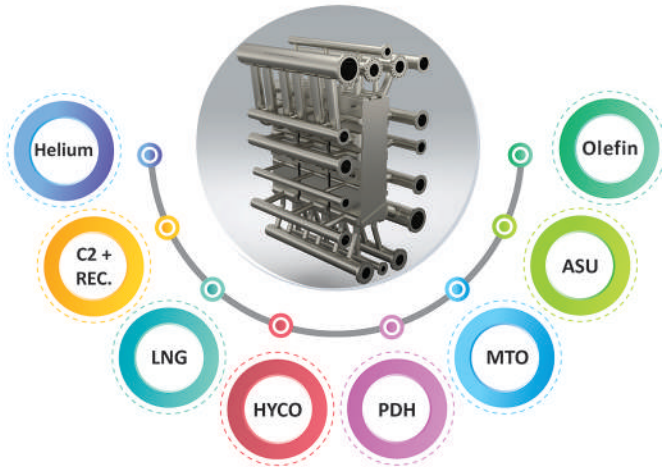
▲ 2021



▲ 2021

Cryogenic Units

Gas Separation and Liquefying

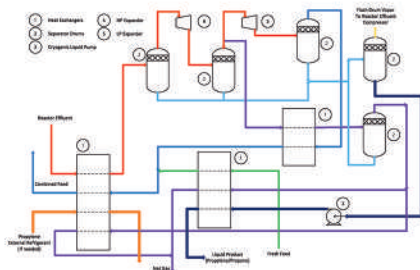


▲ 82 barg PFHE, Argon Recovery Unit, Shiraz Pet. Co., 2021

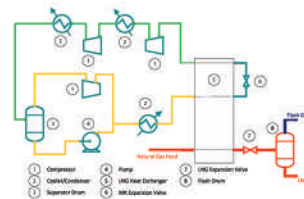
PFHE & SWHE are the key elements of cryogenic separation and gas liquefying units.

PFHE may be applied as single or piped core, in kettle or distillation tower and cold box configurations. The assembly may include different types of equipment and machineries, depending on the process operation requirements.

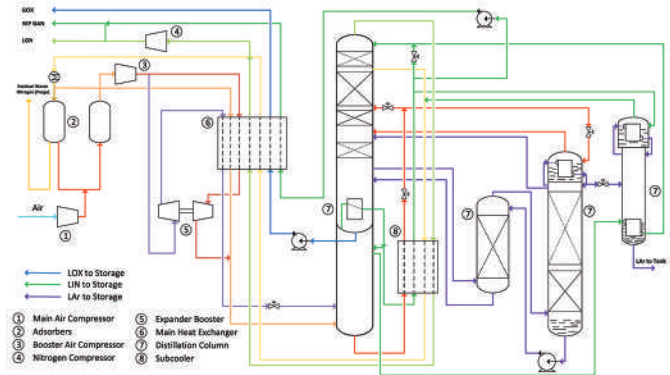
SWHE is a robust alternative to PFHE, with relatively larger footprints though.



PDH cryogenic separation cold box of propane dehydrogenation plant



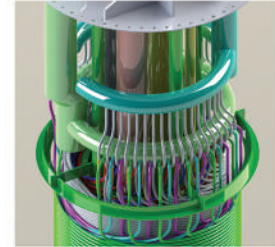
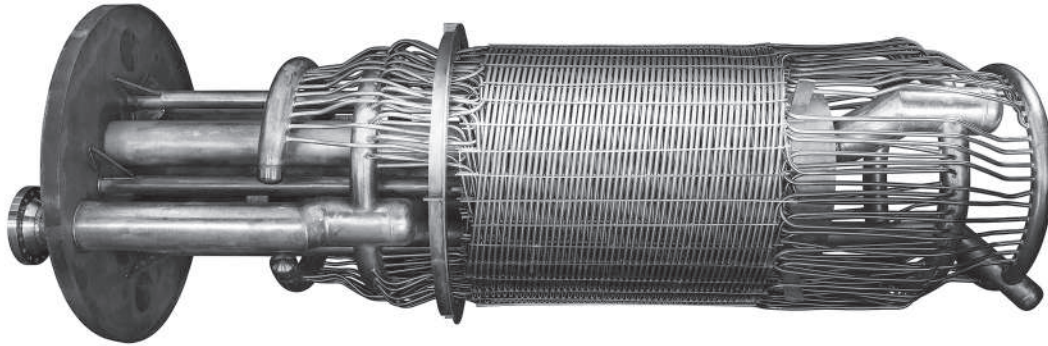
LNG mixed refrigerant liquefied natural gas plant



ASU O₂/N₂/Ar plant

SWHE

Cryogenic Spiral Wound Heat Exchanger



Pressure Range: Up to 400 bar

Temperature Range: -269 ~ +650 °C

Application: Ethylene, Ammonia, LNG,

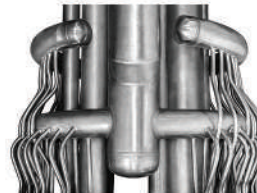
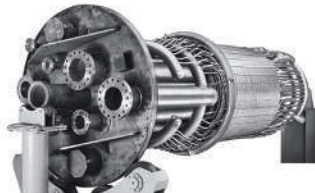
Tube Material: Stainless Steel, Aluminum

▲ SWHE, SS Tp. 321, Ethylene Unit, Marun Pet. Co., 2016

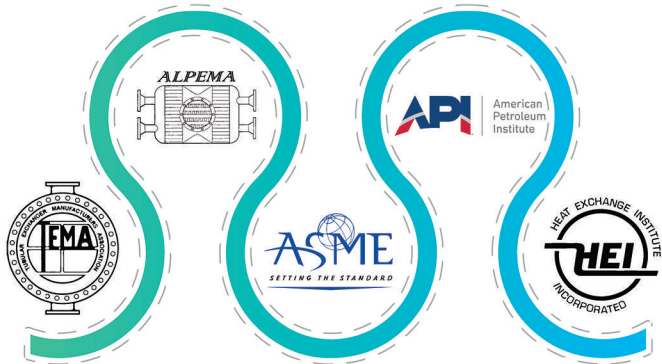
SWHE is among the cryogenic multi-stream exchangers and plays a crucial role in the heat integration of gas processing units.

The multi-layer woven tube arrangement, realizes spotless heat transfer between plenty number of fluids, passing by each another without concerns of thermal shock, cleanliness or phase change complications.

Stainless Steel & Aluminum tubes are mostly applied for winding the exchanger core. The compact and efficient configuration is employed in Isothermal Reactors as well as Cryogenic applications. The unique geometry of this type of exchanger and the ability to use different materials makes it a suitable option for a wide range of process applications.



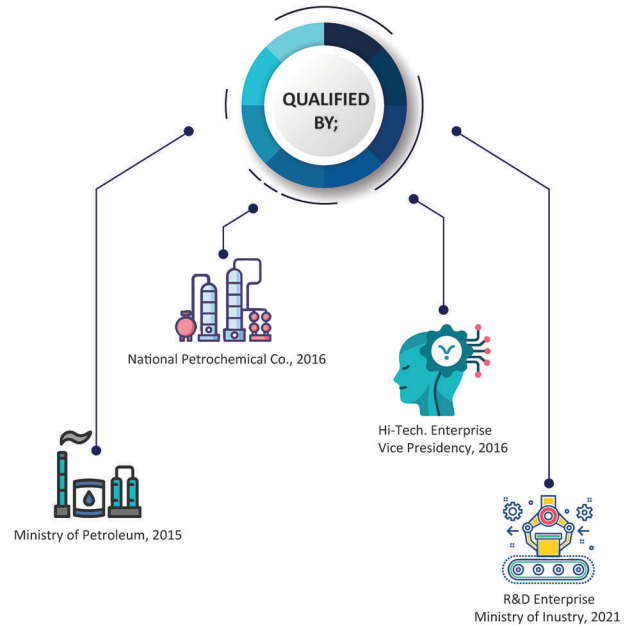
Quality Management



Our QMS is under a non-stop monitoring and improvement process. It covers every stage of the work from design to after sales services. It complies with world-known norms and codes related to our products while admitting the client's special requirements in each single case. Our teammates are well trained and committed to this framework.



Qualifications



Clients

BIPC	SPGC	MPC	KPRC
PARSIAN PPS	BAORCO	LORCO	NISOC
IRANOL	RAZI PC	SHIRAZ PC	BIDBOLAND2
JAM PC	MEHR PK	MOBIN	MAPNA

Teamwork





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