Proven Performance in INDUSTRY’S TOUGHEST APPLICATIONS

- Pharmaceuticals
- Supercritical CO₂ Extraction
- Sanitation
- Lyophilization
- Cryogenic
- Nuclear

- LNG Production and Distribution
- CNG Delivery
- Hydrogen
- Biofuel
- Chemical and Petrochemical
- Water Heater

Heliflow ADVANTAGES

- Transfers heat at a rate up to 40% greater than an equivalent straight-tube heat exchanger
- A compact and lightweight unit that fits in locations where other heat exchangers have difficulty
- Heliflow operation pressure up to 15,000 psig on tubeside and up to 5,000 psig on shellside
- Reliable service and easy maintenance
- Heliflow is designed for 100% counter-current flow, and close temperature approach can be maintained
- Has a wide variety of material options to suit most application requirements
- Heliflow design reduces the impact of thermal expansion, with an extended life span
- Available with the following certifications: ASME, PED, CRN, DoSH, KGS, MOM, Others
**APPLICATION Examples**

**Cryogenic Coolers and Vaporizers:** Years of research and proven experience handling large temperature differentials make the Heliflow ideal for cryogenic applications.

**Mechanical Seal Coolers:** The unique design of the Heliflow provides superior cooling of seal fluid compared to traditional mechanical seal coolers.

**Freeze Condensers:** With experience in the field of freeze condenser technology, the Heliflow Heat Exchanger can be designed to match system requirements.

**Feedwater Preheaters:** Heliflow Heat Exchangers can save energy as heat recovery economizers when heat is recovered. They may also be utilized to preheat incoming make-up water that is then used in boilers or for other applications.

**Process Condensers:** Compact enough for small process applications, the through manifold design of the Heliflow also allows for separation of condensables and non-condensables. A top of the tower Heliflow can be installed along with an ejector, providing maximum sub-cooling of non-condensable gas with minimum sub-cooling of condensate.

**Sample Coolers:** For periodic or continuous sampling, Heliflow sample coolers have a standard tubeside design pressure of up to 1800 psig, with higher pressure requirements easily accommodated.

**Water Heaters:** Heliflows can use steam or high temperature hot water as the energy source and be a compact and economical instantaneous water heater or side-arm heater on boilers.

**Vaporizers:** A compact vaporizer on the shellside or tubeside, the coiled tube bundle of the Heliflow promotes nucleate boiling and handles the stress of thermal expansion and cycling.

**Vent Condensers:** The countercurrent design of the Heliflow maximizes vapor removal. Chilled thermal fluids, refrigerants, or gases can be used to provide subzero cooling of process vent gases. The Heliflow is an economical solution for storage tanks because it can be installed into existing equipment with little or no modifications required.

**Clean Steam Generators:** Heliflow Heat Exchangers meet the need for clean, chemical free steam from clean feedwater, using plant steam as the energy source. The coiled tube layout reduces problems caused by thermal expansion and cycling, promotes nucleate boiling and results in superior heat transfer efficiency.

**Lethal Service:** Heliflow Heat Exchangers are built with special features to meet strict manufacturing, welding and quality control specifications in order to provide confidence when handling lethal fluids.

**Hydraulics:** The coiled tube geometry of the Heliflow Heat Exchanger provides increased heat transfer efficiency, making these units ideal for use as oil coolers.

**Blowdown Coolers:** True counterflow design provides almost complete heat recovery in blowdown heat exchange for boilers, evaporators, and other equipment that discharges hot fluids. To enable convenient cleaning, fresh feed is usually circulated through the tubeside while blowdown liquid goes through the shellside.

**Compressor Inter/Aftercoolers:** High pressure services using reciprocating type compressors use Heliflows as inter/aftercoolers. While typical design pressure is 2,500-5,000 psig, Heliflows can be designed for up to 15,000 psig on the tubeside.

**Supercritical Fluids:** In high pressure environments, the unique spiral tube design of the Heliflow enables it to move freely under thermal cycling as the tube bundle expands and contracts. A weld seal design allows the Heliflow to handle high pressure on the shellside.
What’s inside Heliflow MAKES ALL THE DIFFERENCE

Basic Heliflow: For heat transfer from one fluid to another. Standard units come equipped with 1/4” to 3/4” diameter tubes. The tube spacing can be adjusted to minimize pressure drop and optimize heat transfer.

Vented, Double-wall Heliflow: The double-wall, tube-in-tube design provides a vented pathway between hot and cold fluids for detection of cross contamination. This is ideal for protecting process purity, especially when required by state and local regulations.

Weld Seal: Weld Seal design allows for a high shellside design pressure and eliminates gasket joints.

Custom Heliflow: Guaranteed to meet specs of unique applications. Special designs can accommodate an operation pressure up to 15,000 psig. Options for reverse and through manifolds, special fittings, pipe connections and other special arrangements are available.

Tube Options: Copper, Stainless Steel, Duplex Stainless Steel, Copper-Nickel, Admiralty and Specialty Alloys.

Connection Options: NPT, Flanges and other specialty fittings.

DESIGN OPTIONS

1. Casing studs and nuts: Receiver nuts – only one flanged joint to keep gasket. Standard flue units usually have four such joints.
2. Manifold hex nuts: Flange grip both manifolds holding the coil assembly to the baseplate.
3. Threaded vent and drain plugs: Designed and located for easy use.
4. Mounting brackets: A convenient type of movable supporting brackets that can be placed in several positions.
5. Lock rings: Tightly secure lower manifolds to the coil assembly to the baseplate.
6. Gasket: Carries the coil and manifold assembly that assembly removable for cleaning or inspection.
7. Manifold gaskets: Gaskets sealing all gaps between the manifolds and baseplate.
9. Coil assembly: Built for high rates of heat transfer and 100% countercurrent flow.
10. Upper and lower manifold:
11. Casing studs and nuts: Receiver nuts – only one flanged joint to keep gasket. Standard flue units usually have four such joints.

BUILD

CONSTRUCTED FOR RELIABLE SERVICE AND EASY MAINTENANCE

1. Casing studs and nuts
2. Manifold hex nuts
3. Threaded vent and drain plugs
4. Mounting bracket
5. Lock rings
6. Baseplate
7. Gasket
8. Manifold gasket
9. Upper and lower manifold
10. Coil assembly
11. Casing

Casing studs and nuts: Receiver nuts – only one flanged joint to keep gasket. Standard flue units usually have four such joints.

Manifold hex nuts: Flange grip both manifolds holding the coil assembly to the baseplate.

Threaded vent and drain plugs: Designed and located for easy use.

Mounting brackets: A convenient type of movable supporting brackets that can be placed in several positions.

Casing studs and nuts: Receiver nuts – only one flanged joint to keep gasket. Standard flue units usually have four such joints.

Manifold hex nuts: Flange grip both manifolds holding the coil assembly to the baseplate.

Upper and lower manifolds: Precisely made for rigid heavy-duty performance.

Coil assembly: Built for high rates of heat transfer and 100% countercurrent flow.

Upper and lower manifold:

Casing studs and nuts: Receiver nuts – only one flanged joint to keep gasket. Standard flue units usually have four such joints.
Service IS A SNAP

The casing is removable without disturbing the piping and fully exposes the coil for inspection and cleaning. If the tubeside fouls and chemical cleaning is not possible, it is fast and easy to replace the coil.

TO REPLACE THE TUBE BUNDLE

• Disconnect all pipes
• Remove all baseplate nuts
• Separate the casing from the baseplate
• Remove the manifold nuts and lock rings to allow the coil assembly to be removed
• When re-assembling, remember to install the manifold gaskets between the manifold shoulder and baseplate, as well as the lock rings between the manifold nuts and the baseplate. The lock rings prevent the manifolds from turning when re-piping.

Simple Design for EASY MAINTENANCE
Graham Corporation’s earliest roots extend back to 1936 when Harold M. Graham first incorporated Graham Manufacturing Company. While the company’s headquarters has remained in Batavia, New York since 1942, its reputation has extended around the globe.

During World War II, Graham supplied steam ejectors, surface condensers and heat exchangers for shipboard applications. After the war, the company shifted to the engineering and manufacturing of customized vacuum systems, surface condensers, and heat transfer products for industry. It developed a broad customer base in the oil refining, petrochemical, chemical, fertilizer, and power generation market.

Today, Graham Corporation has operations in Batavia, New York and two wholly-owned subsidiaries: Graham Vacuum and Heat Transfer Technology (Suzhou) Co., Ltd. in Suzhou, China, and the other Graham India Private Limited (“GIPL”) based in the northwest region of India, in Ahmedabad. These subsidiaries expand market presence and provide sales, engineering and project oversight locally to the customer. In total, Graham Corporation has approximately 350 employees.

Today, Graham Corporation is recognized as a leader in the design and manufacture of vacuum and heat transfer products for industries worldwide.
The compact, efficient heat exchanger that has proven invaluable in a wide variety of applications since 1936.

For nearly a century, Graham Corporation has designed and built vacuum and heat transfer equipment for process industries and energy markets worldwide.