



INSTALL CONFIDENCE



# YORK® YHAU-CG DIRECT FIRED ABSORPTION CHILLERS/HEATERS

Increasing Efficiency and Reliability through Innovation

# Advancing Efficiency by Design

Compared to conventional designs, the YORK® YHAU-CG Double-Effect Direct Fired absorption chiller/heater uses an innovative two-step evaporator and absorber cycle that splits the absorption process into two steps, similar to how a series-counter-flow arrangement splits the work between two chillers. This, along with the parallel flow cycle, enables lower lithium-bromide solution concentrations, which reduces crystallization risk, reduces the potential for corrosion and improves efficiency, in conjunction with these advanced components:

**Low- and high-temperature solution plate heat exchangers** that optimize efficiency by enabling effective heat transfer between the diluted and the concentrated lithium-bromide solutions.

**Refrigerant drain plate heat exchanger** that utilizes the heat of the warm refrigerant, saving energy.

**Variable-frequency drive (VFD) solution pump** that provides superior part-load performance to reduce fuel consumption versus constant speed pumps.

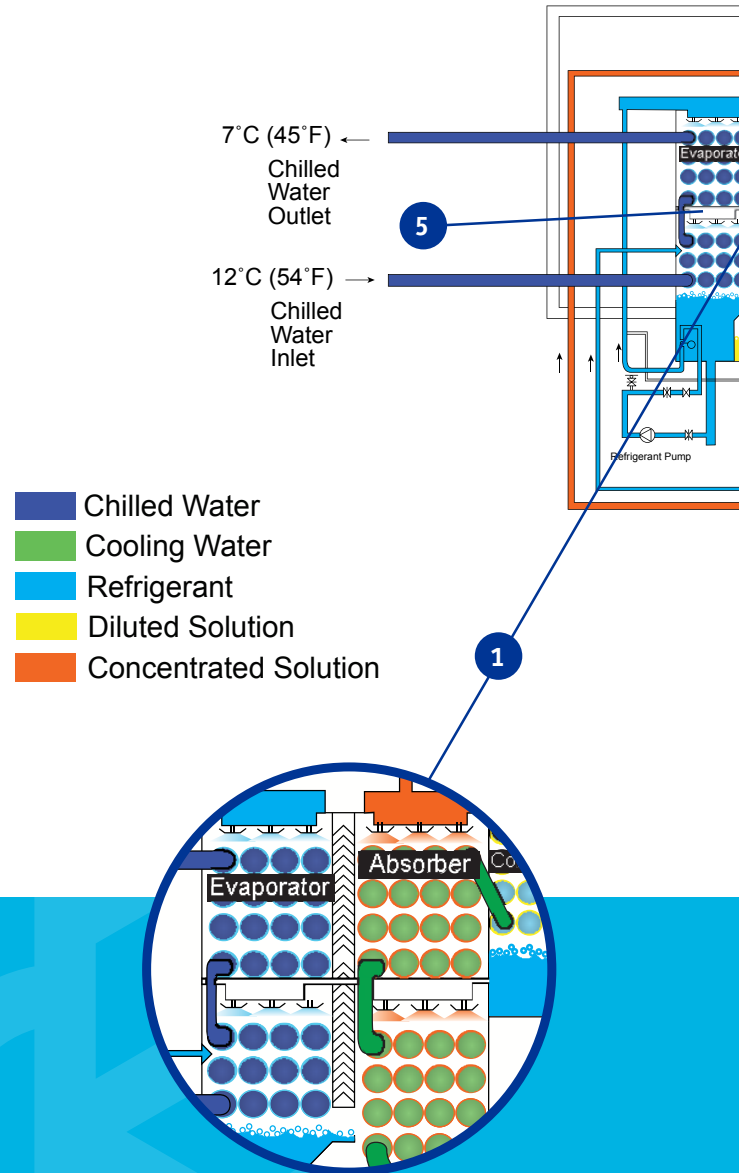
# Flexible Operating Envelope

The YORK® YHAU-CG absorption chiller/heater design combines the flexibility of a wide operating envelope with the efficiency and reliability made possible by innovative technology. The advanced YHAU-CG design is optimally suited for natural gas or light oil energy sources commonly available in commercial cooling and industrial process applications.

## YHAU-CG application flexibility

DESIGN PARAMETERS	TEMPERATURE RANGE
Leaving chilled-water temperature	As low as 4°C (39°F)
Entering cooling-water temperature	As high as 37°C (99°F)

Double-effect direct fired cycle with innovative YORK® two-step evaporator and absorber design



**1. Two-step evaporator and absorber design** has two pressure levels that uniquely divide the absorption process into two steps. The chilled water flows through the tubes in series through the two evaporators while the concentrated lithium-bromide solution is distributed in the absorber shell side in the opposite direction. This enhances absorption of the refrigerant into the concentrated solution, reducing solution concentrations and overall pressure. This makes the unit more efficient and reliable than conventional designs.

YORK® YHAU-CG DIRECT FIRED  
ABSORPTION CHILLERS  
633 TO 5,626 kW (180 TO 1,600 TR)

## Minimizing Total Cost of Ownership

World-class YORK® engineering, support and service reduce the cost of ownership by simplifying startup and chiller operation over the life of the system. Here's how:

**Better optimized for low condenser or cooling water flow** thanks to the two-step design and parallel flow cycle that minimizes cooling water flow rates – series flow designs require higher flow rates.

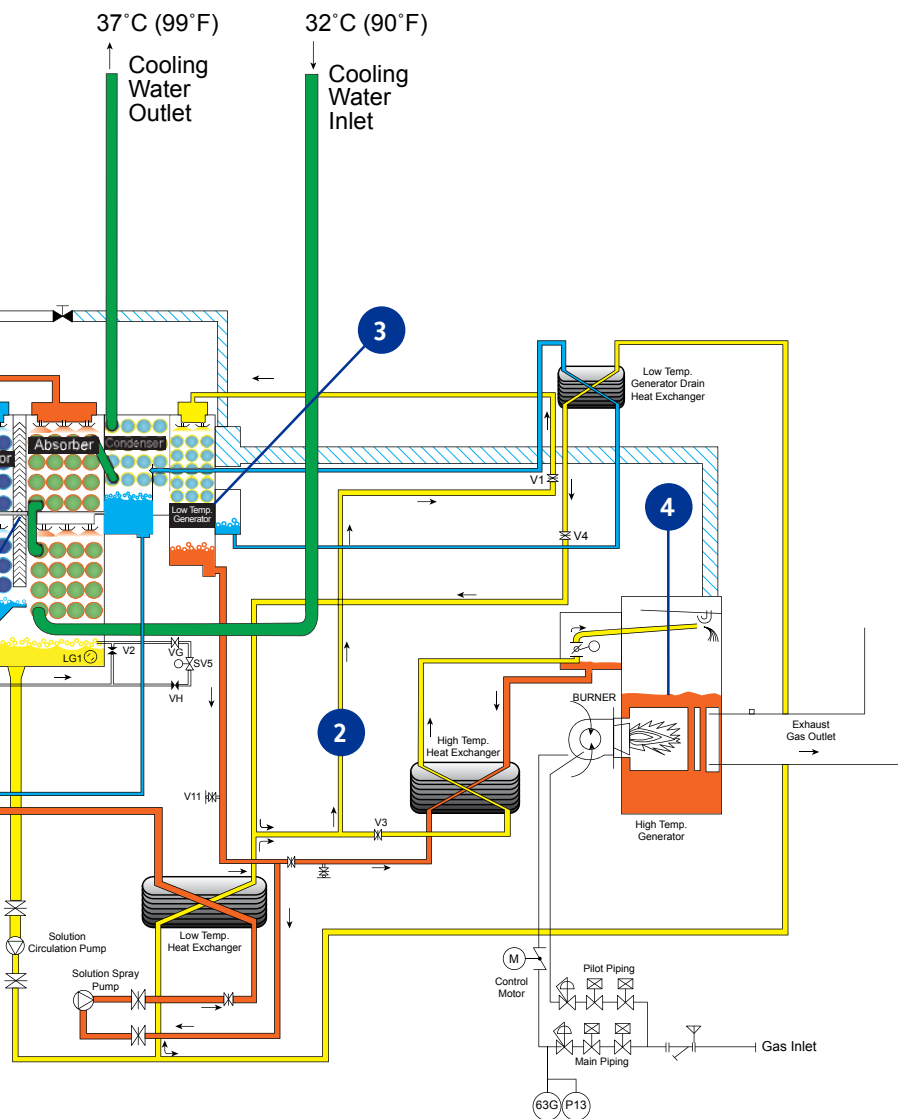
**Fully automatic purging system** provides trouble-free operation by purging and removing non-condensable gases without operator intervention.

**Superior hermetic integrity** is ensured by high quality processes and rigorous helium leak detection technique.

**Control Center with graphical animated LCD display** lets the user see several operating parameters at once. Present and past operational status, data recording and chiller safeties are accessible at a touch.

**Isolation valves on the suction and discharge** of the solution and refrigerant pumps allow quick and easy servicing of pumps, which typically have a 60,000-hour life.

**Factory functional testing** on single-piece shipment assures control-panel and safety-device operation to reduce on-site startup time in the field.



**2. Parallel flow cycle** divides the solution flow between the low-temperature and high-temperature generators into two parallel, balanced paths. The result is safer and more efficient operation at a much lower pressure than conventional series-flow designs.

**3. Gravity-fed low-temperature generator** provides superior heat transfer compared to a flooded generator and reduces the required amount of lithium bromide solution, decreasing startup time from a cold start.

**4. High-temperature generator** uses a water-tube design that contains the lithium-bromide solution inside the tubes and the flue gas (exhaust gas) on the shell side. This efficient, compact design provides a lower exhaust gas pressure drop than conventional smoke-tube designs. It also reduces the required amount of lithium-bromide solution to speed startup time and eliminates a ceramic refractory to enhance reliability.

**5. Gravity-fed distribution system for the evaporator/absorber** employs stainless steel material that prevents corrosion and ensures performance and long unit life.



## Why install anything but YORK®?

**You want high performance. You expect efficiency.**

When your reputation is at stake, it's smart to demand nothing less than YORK® technology and service. That's because we provide local service and parts to keep your equipment operating at peak performance year after year. Enjoy the peace of mind knowing that trained service experts and Original Equipment Manufacturer parts are available from Johnson Controls – the largest HVAC service and preventative maintenance organization in the world.



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