



**aquatherm**

Provide lasting pipe performance

# FAST-GROWING BREWERY TAPS EMERGING PIPE SYSTEM FOR CHILLED GLYCOL DISTRIBUTION

PROJECT INFORMATION

PROJECT	PRODUCTS USED	LOCATION / DATE
EPIC Brewing Company, Cooling	Climatherm®	Salt Lake City, 2009 and expansions in 2011 and 2012

## AQUATHERM ADVANTAGES

- PP-R easily withstands the 2:1 ratio glycol/water mixture at low temperatures (24-31 °F) required for the brewing process
- The chemical inertness of the PP-R material ensures that it will not corrode or react to glycols or oils from mechanical equipment
- Stable pricing compared to copper
- Performed so well that it will be used in the company's new brewery for glycol, compressed



*Rapidly expanding, award-winning EPIC Brewing has adopted Aquatherm's PP-R as its pipe system of choice.*

Located in the heart of downtown Salt Lake City, EPIC Brewing Company has rapidly established itself as a cutting-edge, award-winning brewery. In fact, EPIC now brews 10 times its original capacity and is among the fastest growing breweries in North America.

David Cole and Peter Erickson founded EPIC in 2009, brought on veteran head brewer Kevin Crompton, and the brewery has expanded production regularly since opening in 2010. EPIC currently brews 10-barrels (a barrel is 31 gallons) and 1,600-2,400 cases of beer (plus many kegs) each month and ships to 13 states.

"Our numbers out of this brewery are phenomenal. We brew five days a week 12 to 24 hours a day," said Crompton. "We will soon be in 24-hour production, and we're charting toward a date when we will run out of beer." A brewery running out of beer is never good, so EPIC has been continually expanding and improving its production facility/retail outlet with an eye to the future.

## THE CHALLENGE

Finding a suitable replacement for copper and CPVC to connect chillers to fermenting vats without using fluxes or glues

## THE SOLUTION

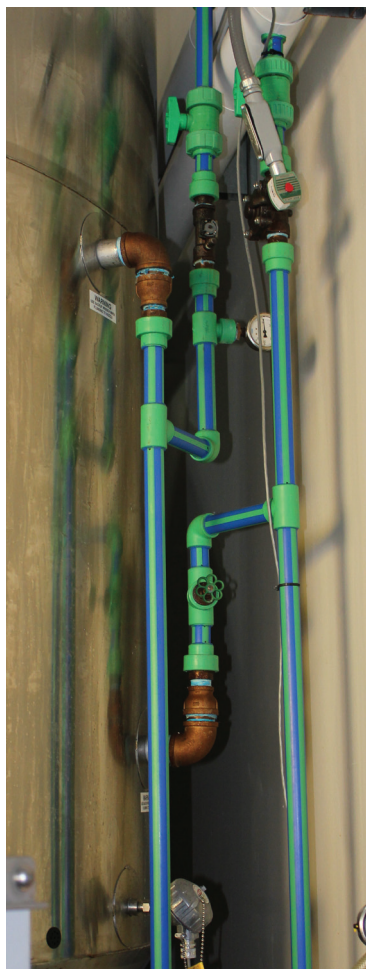
Aquatherm's polypropylene-random (PP-R) material provided a hydrostatic pressure piping system that was installed with no leaks



## GLUE- AND FLUX-FREE OPTION "WORTH A SHOT"

While the brewery has added vats, chillers, valves and other hardware, one constant in its brewing process has been the piping connecting the chillers to the fermenting vats. Crompton explained that while copper or CPVC pipe would typically be used for this purpose, when he was first introduced to Aquatherm's polypropylene-random (PP-R) pipe systems he knew he was onto something.

Crompton was introduced to the German-manufactured pipe by Jason Pace, radiant manager of Pond's Plumbing Heating and Air Conditioning, the brewery's mechanical contractor. "At the time copper was very expensive and from a brewer's perspective, Aquatherm gives you a hydrostatic, pneumatic pipe with a pressure test of 200 psi," Crompton said.



"And it's a clean, glue-less system, which is essential in brewing. I've seen articles in brewing magazines that say the glue from Schedule 80 CPVC reacts with the glycol in the system and affects the glue's ability to recover," he added.

Manufactured in Germany since the early 1970s, Aquatherm polypropylene-random (PP-R) delivers some of the best attributes of both metal and plastic piping in one versatile system. The highly engineered pipe is

connected via heat fusion, which bonds both sides of a joint into a single, homogenous material without the use of toxic chemicals or mechanical connections, eliminating systematic weaknesses and fail-points in the pipe.

Aquatherm Climatherm® is corrosion- and chemical-resistant, has high environmental compatibility and superior impact resistance. It also features heat- and sound-insulating capabilities. It is engineered with thinner walls than the company's potable water pipe (Aquatherm Greenpipe®) for higher flow rates, making it the perfect option for HVAC and industrial applications. It also comes with an optional faser composite layer that delivers thermal expansion capabilities similar to copper.

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— KEVIN CROMPTON, HEAD BREWER, EPIC BREWING COMPANY, SALT LAKE CITY

Crompton explained that while there wasn't a track record of using Aquatherm in a brewery in the U.S., the benefits of the pipe made it worth trying – and a 10-year multimillion

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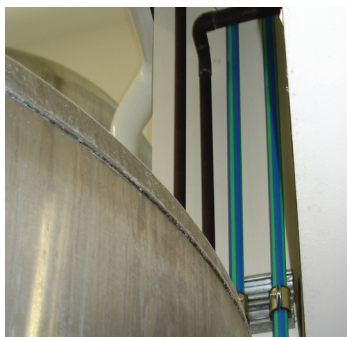
dollar warranty that covers product liability, personal injury and property damage didn't hurt either. "Aquatherm is a high pressure system that's glue-less, which is exactly what a brewer is after. If we hadn't used Aquatherm, it would have been copper or Schedule 80 CPVC, but the flux in the copper can cause impurities in the line and the glue that is used for CPVC destroys the bonding agents and has other impacts on the system," he recalled.



Crompton also explained that he reviewed studies and anecdotal evidence from other brewers that the glue or solder associated with PVC or copper can reduce the efficiency of the glycol. The key to Aquatherm's PP-R for this application was that the material is chemically inert to most common chemicals and a lot of uncommon ones as well. Exposure to glycols and oils from mechanical equipment won't damage the pipe or fittings. And PP-R is non-toxic, and non-leaching, making it safe for both people and the environment.

## CONNECTING THE VATS

Pond's Plumbing, which is located in North Salt Lake, installed roughly 150 ft of 2-in. Climatherm running from the original chillers to the fermentation vats in 2009. Pace explained that the heat fusion welding process was fairly straightforward.



"Aquatherm seemed like a perfect fit for this application, and we had excellent support from Aquatherm and its local manufacturer's representative, EEC Aquatherm," he said. While EPIC was Pond's first Aquatherm installation, the company's installers have decades of experience, and

following the half-day Aquatherm factory training its installers were quite comfortable with the heat fusion welding process.

"We were already skilled in fusion of HDPE piping, so there was a small learning curve but it went relatively smoothly and we didn't have any leaks," Pace explained. He added that it's important to pay attention to measurements when laying out the Aquatherm piping since it can't be dry fit. However, this is also a good thing since some pipe systems can be dry fit and installers occasionally forget to actually make the connection, resulting in leaks.

## COLDER BREWING REQUIRED

In early summer 2011 when EPIC needed to add a 17-ton chiller to the system in order to get the brewing process colder (from 29-31°F) down to 24°, they again specified Aquatherm with Pond's handling the installation. Roughly 500 feet of 2-in. Climatherm was installed to carry a 2:1 ratio glycol/water mixture from the new chillers to the new brew kettles. One-inch Climatherm then enters the vats.

The chiller installation went smoothly, with Pond's plumbing handling the piping of the G&D Chillers (Eugene, OR) roof-mounted unit. Crompton explained that he was grateful he had reserved space on the roof for the extra chiller.

As EPIC's cooling load has increased, the efficiency of the cooling unit has declined and it costs more to run and draws more amps, but it did deliver the desired colder temperature.

However, one wrinkle of taking the temperature down was that they also had to insulate the existing Aquatherm pipes as well as the new ones.


Since Aquatherm's inherent R-value is equivalent to ½-inch of insulation, when EPIC added an inch of fiberglass insulation and wrapped the pipe in PVC cladding, it was able to achieve an insulation value of R-5, Crompton explained. The added cooling plant now maintains proper fermentation temperatures for production of more than 600 barrels of beer.

## MORE BARRELS = MORE COLORFUL PIPE

In March 2012 EPIC installed five new brewing tanks, two large JV Northwest, Inc. (Canby, OR) 80-barrel tanks and three JV Northwest 40-barrel tanks. The tanks were again piped by Pond's Plumbing using Aquatherm. Roughly 300 feet each of 2-in. and 1-in. Aquatherm Climatherm was installed for this application, and according to Pace, was significantly less expensive than copper and a lot easier and quicker to install than black steel pipe.

Using the colorful, clean-looking pipe hasn't gone unnoticed among the brewing crowd. "We've had some members of the Utah Brewing Co-op and other brewers who are touring the facility comment on 'that colorful pipe,' and ask about it. We just tell them we're absolutely thrilled with it," Crompton said.

In fact, as EPIC moves closer to making a new, larger facility a reality, Crompton said Aquatherm will be the pipe of choice for what is expected to be a 35-ton chiller and a new high pressure boiler, and also for the facility's compressed air. "We are going to use Aquatherm at the new facility, probably using 3-inch lines though instead of the smaller ones here."

As EPIC continues to live up to its name in brewing circles, the company is also setting a new standard in process piping by employing a cutting-edge system. 

The German-manufactured pipe has been one of the world's most durable and greenest piping systems for nearly four decades and proven successful in 70-plus countries. Aquatherm piping systems offer many performance and environmental benefits, such as:

- Eliminating toxic materials, glues and resins, and open flames from the piping installation equation
- An R-value of 1 or greater depending on pipe size and SDR
- The fusion welding process, which creates seamless connections that last a lifetime without leaking or failing
- An optional faser-composite layer in the pipe reduces linear expansion of the pipe by up to 75% compared to plastic piping

## CONTACT:



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