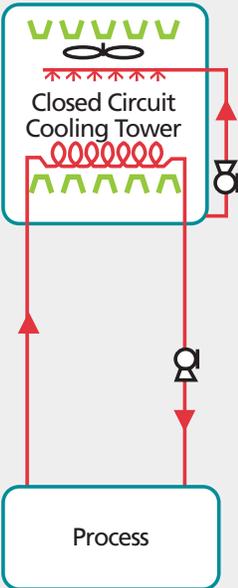
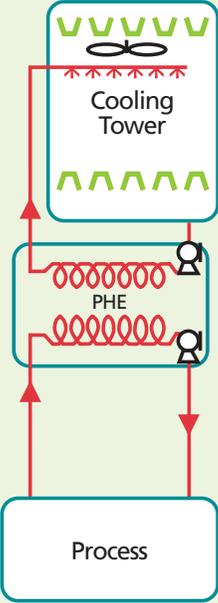


# The Greener Closed-Loop System



## Cooling Tower Heat Exchanger System vs. Closed Circuit Cooling Tower

Cost for typical installation 132 Cooling Tons:  
300 GPM, 95°F, EWV, 85°F LW, 78°F WB

	Closed-Circuit Cooling Tower	Cooling Tower Heat Exchanger System
<b>Total HP</b>	42	27.5
<b>Materials</b>	Galvanized Steel	HDPE Cooling Tower Stainless Steel Exchanger
<b>Equipment</b>	Closed Circuit Fluid Cooler including spray pump  	Cooling tower with skid mounted heat exchanger, cooling tower pump and control panel  
<b>Capital Costs</b>	\$77,600	\$53,820
<b>Annual Operating Costs*</b>	\$17,198	\$11,260

### Cooling tower heat exchanger systems beat closed-circuit cooling towers for economy and efficiency!

Certain processes require a closed-loop, whereby the process water for cooling does not come in contact with the atmospheric air. This prevents the cooling water from picking up particles that may not get filtered or even dissolved gases. Closed-loop cooling requires more energy and has higher initial and life-cycle costs than an open cooling tower, but provides an added protection to expensive processes or chillers being cooled.

For closed-circuit cooling, Delta recommends a cooling tower plus a plate heat exchanger system. The skid-mounted plate heat exchanger provides a closed circuit on the hot side of the heat exchanger. The non-corroding Delta cooling tower feeds the cold side of the plate heat exchanger.

\*Assumes 4,160 annual operating hours.



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The **advantages** of this system over a closed-circuit cooling tower (usually galvanized sheet steel and galvanized steel coil inside a cooling tower box) are:

- **Cost:** Typically costs less to purchase and operate.
  - **HP:** Less total HP required; green solution.
  - **ASHRAE 90.1:** Performance requirements for heat rejection equipment show closed-circuit cooling towers use 2.5 x more HP.
  - **Warranty:** Delta Cooling Tower has a 20-year casing warranty versus 1-year on galvanized steel
  - **Expandability:** Heat exchanger can handle future load increase by adding plates.
  - **Maintenance:** Heat exchanger has stainless steel plates and is much more accessible than coil for easy cleaning.
- **Weight:** Delta Tower is 3-7 times less weight, saving rigging and structure costs.
  - **Install Flexibility:** Heat exchanger skid can be placed indoors without need to maintain glycol solutions necessary with outdoor coil.
  - **Water Treatment:** Easier and much less risk with engineered plastic cooling tower.
  - **Replacement Cost:** Galvanized steel coil replacement cost (labor and material) often exceeds initial unit cost of closed circuit cooling tower.
  - **Downtime:** Delta system prevents costly downtime. Corrosion is only delayed with galvanizing and wet/dry operation, chemicals, pH fluctuations, salts and other atmospheric conditions can lead to premature failure.



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