Cleaning a Brazed Heat Exchanger

CIP (Cleaning in Place)

SonFlow brazed plate heat exchangers (BPHEs) are designed to be both efficient and easy to maintain. Our BPHEs' Cleaning in Place (CIP) process ensures that your system remains in optimal condition without the need for disassembly or relocation.

Why Cleaning is Important

While SonFlow BPHEs benefit from a high degree of turbulence that naturally minimizes fouling, certain operational conditions - such as hard water, high temperatures, and high pH levels - can still lead to deposits that reduce efficiency. Regularly cleaning your BPHE ensures it operates at peak performance, preventing energy loss and unplanned downtime.

When to Clean Your BPHE

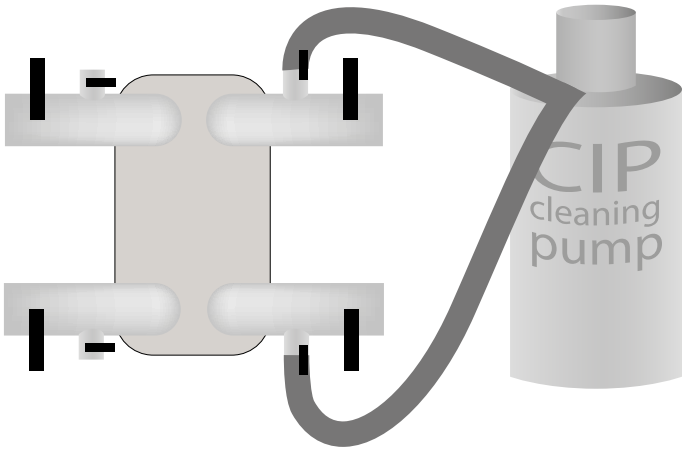
Regular monitoring of your BPHE's performance is crucial. Key indicators that cleaning is required include:

- **Temperature Drops:** A decrease in temperature difference beyond specified limits suggests that fouling is insulating the heat transfer surfaces.
- **Pressure Increase:** A pressure drop exceeding 30% of the normal range indicates fouling within the channels, constricting flow and reducing efficiency.

The CIP Process

Our recommended CIP process allows you to clean your BPHE quickly and efficiently:

1. **Preparation:** Shut off the relevant pumps and close the primary and secondary valves. Drain the BPHE.
2. **Connection:** Attach the CIP machine to the BPHE via the inlet and outlet connections.
3. **Cleaning:** Pump a suitable cleaning solution (such as a weak acid like 5% phosphoric or oxalic acid) through the BPHE, starting from the lower connection. Alternate the flow direction every 30 minutes and maintain a flow rate of 1.5 times the normal flow, if possible.
4. **Monitoring:** Observe the pH and pressure drop. Cleaning is complete when the pH remains stable for 30 minutes, and the pressure drop returns to normal.
5. **Flushing:** Rinse the BPHE thoroughly with water until the pH is neutral (pH 7).
6. **Final Steps:** Drain the BPHE and the CIP machine, close the CIP valves, and reopen the main valves.



Enhancing CIP Efficiency

For seamless CIP cleaning, we recommend adding extra externally threaded connections (up to 2 inches) on the back of the BPHE, depending on the model. For larger systems, additional connections on external piping and the use of differential pressure (dP) sensors will help you monitor and optimize the cleaning process.

By following these steps, you can maintain your SonFlow BPHE's efficiency, ensuring long-lasting and reliable performance. If you have any questions or need assistance, our team is always here to help.

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