

PUMPS FACT SHEET

Smart domestic hot water circulation pumps

This high-efficiency product uses variable speed motors and integrated controls to reduce the amount of energy used to circulate hot water in a commercial building. They are easy to install and have programmable controls to automatically adjust flow in response to hot water demand. They can be used in new construction or to replace existing circulation pumps.

- DHW circulation systems are required to have controls that turn off circulation pumps when there is no demand for hot water.
- Automatic controls are required to manage the water temperature within the circulation system.
- Controls turn off the pump when the water in the circulation loop reaches the desired temperature and does not turn the pump back on until the water temperature is at least 10 F lower than the desired temperature.
- These controls typically require connection to external temperature sensors, flow sensors, and timers.
- Smart circulation pumps offer a better than code strategy that simplifies installation and operation with integrated sensors, programmable control logic, and electronically commutated motors (ECMs).



Opportunities to save

- Multi-family with central DHW systems
- Hotels and motels
- Health clubs and spas
- Healthcare, nursing, and assisted living
- Restaurants, cafeterias, and food prep
- Laundry facilities

Lifecycle cost calculator

The Hydraulic Institute has a handy tool that can be used to calculate the savings of a smart circulation pump.

[View the Pump Savings Calculator >](#)

Use smart circulation pumps to easily comply with the 2018 Washington State Energy Code (WSEC).

[Learn more about the 2018 WSEC >](#)

Additional benefits of smart circulation pump technology

- **Easy to install** – no balancing valves or external sensors required.
- **Integrated controls** make it easy to program the sequence of operation and adapt to changing conditions.
- **ECMs** offer 20% energy savings over regular A/C induction motors by utilizing permanent magnet (PM) technology.
- **Variable flow control** increases the lifespan of circulation pumps and piping.
- **Product manufacturers use standard pumps sizes** and flange dimensions that simplify existing circulation pump replacement projects.
- **Building owners save energy** and can monitor energy consumption data.
- **Building occupants won't have to wait** for hot water and they'll enjoy lower energy costs if they pay the bill.
- **ECM eliminates the need for a custom trim impeller** and offers an off the shelf solution which is more readily available.

Success story

Bellwether Housing is a large nonprofit affordable housing provider. Their buildings consist of new construction and century-old apartments. Bellwether has used Seattle City Light's Homewise programs for other upgrades. When they were offered a chance to upgrade aging domestic water heating circulation pumps in some of their buildings, their Facilities Manager jumped on it. They installed four new Smart circulation pumps. Since then, the maintenance staff have registered no complaints about reduced service, colder water, or longer wait time for hot water.

FOR MORE INFORMATION:

- [Hydraulic Institute's Circulator Energy Rating Label >](#)
- [Green Proving Ground \(GSA\) High Performance Circulator Pump Demo Findings >](#)
- [National Renewable Energy Laboratory High Performance Circulator Pump Demo >](#)
- [Washington State Commercial Energy Code >](#)

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"We're always excited to save money, both for Bellwether and for our tenants"

— *Marty Gleaves, Bellwether
Sr. Facilities Manager*



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