



The Flow Conditioning Device: Installation Point, Mechanism, and Meter Accuracy

Water Flow Innovations LLC
Flow Conditioning Device (FCD)
waterflowinnovations.com

INSTALLATION POINT & MECHANISM

Installed Just After the Meter — Ahead of Every Validated Process System

The Flow Conditioning Device (FCD) installs between two pipe joints on the main water line immediately after your water meter — ahead of your facility's internal distribution to CIP circuit supply, pasteurizer and HTST utility water, boiler feed, refrigeration condenser makeup, and wash-down headers. Each FCD is custom-built to the facility's exact specifications — pipe size, operating water pressure, and existing PRV configuration — and may include an integral check valve depending on the installation requirements. It requires no power and is installed by a licensed plumber or mechanical contractor with water off for approximately one hour.

Mechanically, the FCD creates a slight static back-pressure that extends back through the meter, reducing the air, gas, and turbulence that form during demand events and delivering a laminar-like flow profile through the measurement chamber. Municipal meters register volumetric displacement — entrained air and turbulent flow register as billable volume. Pressure loss through the device is under 0.8 psi across all flow conditions; downstream pressures, temperatures, and flow rates are effectively unchanged. Because the FCD sits just after the meter, it is outside PMO scope, pasteurization parameters, and 3-A sanitary standards — typically no process change or regulatory notification is required; confirm with your compliance team. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

- ☐ **Cost per hundredweight above benchmarks**
Water cost per hundredweight of milk processed persistently exceeds industry benchmarks.
- ☐ **CIP use above circuit design specs**
CIP water consumption runs above cleaning circuit design specifications.
- ☐ **Sewer tracking water, both rising**
Sewer bills track water bills closely and both climb — the over-read is billed twice.
- ☐ **Seasonal variation production can't explain**
Water consumption varies seasonally in ways production volume doesn't explain.
- ☐ **Air or pressure variation at connections**
Observable air or pressure variation at process water connections — the same entrained air registers as billable volume.
- ☐ **Water treated as uncontrollable**
Water costs are budgeted as uncontrollable rather than managed inputs.

WHERE OVER-READING HITS THE OPERATION

- Cost per Hundredweight & Margin**
Inflated intake flows directly into processing cost per hundredweight — billed on both the water and sewer side in a thin-margin industry.
- CIP Accounting Clarity**
CIP volumes benchmarked against inflated intake look worse than they are — correction reveals true circuit performance.
- PMO & Food Safety Unaffected**
PMO compliance, pasteurization parameters, and 3-A standards are untouched — the FCD sits just after the meter, ahead of all process water.
- Operations & Engineering**
Water balance, CIP optimization, and efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect pasteurization performance or PMO compliance?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs immediately after the meter, ahead of all process systems. Pasteurizer utility water, HTST operation, and every PMO-regulated parameter are effectively unchanged — typically no regulatory notification is required; confirm with your compliance team.

Q: Why is our CIP water use above circuit design specs?

A: It may not be. CIP pump starts create repeated high-velocity demand events at the supply meter — generating air and turbulence billed as volume. Circuits benchmarked against inflated intake appear to overconsume when the excess never actually arrived.

Q: How does the FCD affect our sewer charges and surcharges?

A: Sewer charges — and the volume basis of any strength surcharge — are typically calculated from metered intake. After installation, intake reflects actual consumption, reducing the volume side of both. Discharge strength concentrations are unaffected.

Q: Can documented savings support buyer and sustainability reporting?

A: Yes, as cost documentation. Before-and-after utility bills verify the corrected billing. Because the FCD corrects the meter reading rather than reducing water use, confirm with your sustainability team how to report it for co-op and buyer scorecards, SQF documentation, and CDP disclosure.

Q: How quickly do savings appear?

A: The meter reads accurately immediately after installation. Savings appear on the next full water and sewer billing cycle — no ramp-up period. 90% of installed customers reach full return on investment in under 12 months.

ENGAGEMENT PROCESS — FOUR STEPS

From Analysis to Verified Bill Reduction

1

Free Savings Analysis

We review your water and sewer bills and facility demand profile — no cost, no obligation.

2

Documented Projection

You receive a written savings projection specific to your facility before any commitment.

3

FCD Installation

Licensed plumber or mechanical contractor installs immediately after the meter — water off approximately one hour.

4

Verified Bill Reduction

Before-and-after bill comparison verifies the reduction on your next billing cycles.

GUARANTEE & WARRANTY TERMS

6-Month Money-Back Guarantee

If you're not satisfied within 6 months of installation, the FCD purchase is fully refunded — no questions asked. Installation labor is non-refundable.

Lifetime Transferable Warranty

The FCD carries a lifetime warranty, transferable to the new building owner if the facility changes hands (a transfer fee applies).

DEVICE SPECIFICATIONS

Construction, Certification & Installation

Custom-built to each facility's specifications — pipe size, operating pressure, PRV configuration · 316L stainless steel construction; titanium and specialty alloys available by special order for medical and other specialized applications · Configuration may include an integral check valve per installation requirements · No power required · Under 0.8 psi pressure loss · Certifications: IAPMO, NSF/ANSI/CAN 61, KIWA, GMP, SQF · Installed by licensed plumber or mechanical contractor

Regulatory & Standards References: FDA PMO · 3-A Sanitary Standards · HACCP · EPA NPDES · SQF