



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 proof box humidification, oven steam injection, pan and rack washers, dough water batching, and CIP systems. 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 FSMA food safety plans, HACCP documentation, and GMP scope — typically no food safety plan change or re-validation 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 unit or per shift above targets

Water cost per unit or per production shift persistently exceeds facility targets.

☐ Spikes on high-volume production days

Bills climb disproportionately on heavy production days beyond proportional water use.

☐ Intake doesn't balance against process use

Metered intake exceeds documented process water use in dough, steam, and washing.

☐ Pressure variation with simultaneous demand

Observable pressure swings when proof boxes and pan washers run simultaneously — the demand events that entrain air at the meter.

☐ Costs rising faster than production

Water costs climb faster than production volume year over year.

☐ Water treated as uncontrollable overhead

Water is accepted as fixed overhead rather than a measured, controllable input.

WHERE OVER-READING HITS THE OPERATION

Cost per Unit & Shift Economics

Inflated intake flows directly into unit cost baselines — billed on both the water and sewer side of every production day.

Sewer & Discharge Charges

Sewer charges calculated from metered intake are inflated by over-reading — high-volume baking days compound the effect.

Food Safety Documentation Unaffected

FSMA plans, HACCP documentation, and GMP records are untouched — the FCD sits just after the meter, ahead of all food contact and process water systems.

Operations & Engineering

Water balance, batching accuracy checks, and efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect proof box humidity, oven steam injection, or pan washing effectiveness?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of your internal distribution. Proof box humidification, steam injection pressure, washer effectiveness, and dough batching are effectively unchanged.

Q: Does installation require FSMA or HACCP documentation changes?

A: No. The FCD installs immediately after the municipal meter, ahead of all process and food contact water systems — outside FSMA food safety plan and HACCP scope. Technical documentation is provided for your change control records.

Q: How does the FCD affect our sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads simultaneous proof box, washer, and steam demand, reported discharge is inflated. After installation, intake reflects actual consumption, reducing both charges.

Q: Can documented savings support sustainability and buyer 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 ISO 14001 data, CDP disclosure, and retail buyer scorecards.

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 FSMA · HACCP · EPA NPDES · USDA

FREE SAVINGS ESTIMATE

Instant estimate — takes 30 seconds, no contact info required.
waterflowinnovations.com/water-bill-savings-calculator

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CERTIFICATIONS

IAPMO

NSF/ANSI/CAN 61

KIWA

GMP

SQF

316L Stainless Steel · Made in USA
Under 0.8 psi pressure loss
Lifetime Transferable Warranty