



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 dust suppression headers, wet ESP wash-down and scrubber makeup, and boiler feedwater/steam conditioning 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 dryer schedules, production parameters, and permit conditions — no process change is required. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

- ☐ **Water cost per metric ton above targets**
Water and sewer cost per metric ton produced persistently exceeds plant comparables.
- ☐ **Sewer moves in lockstep with water**
Sewer charges follow the inflated meter reading — the over-read is billed twice.
- ☐ **Intake exceeds process math**
Metered volume won't reconcile against dust suppression, wash-down, and boiler demand.
- ☐ **Pressure swings at demand startup**
Dust suppression and boiler feed produce visible pressure swings — entrained air registers as billable volume.
- ☐ **Audits confirmed usage, not the source**
Plant audits confirmed high usage without finding leaks or a process cause.
- ☐ **Water treated as cost of production**
Water is carried as a fixed production cost rather than a correctable line item.

WHERE OVER-READING HITS THE OPERATION

- Cost per Metric Ton & Plant Economics**
Inflated intake flows into cost per metric ton produced — with sewer billed from the same meter, every over-read gallon is billed twice.
- Dust Suppression & Boiler Demand Events**
Dust suppression cycling, wet ESP wash-down, and boiler feedwater draws create exactly the events that entrain air at the meter — every shift.
- The Audit That Finds Nothing**
Plant audits count water that arrives; over-read volume never arrived and is invisible to them — the source is the flow conditions at the meter.
- Certification Reporting Isolation**
Dryers and process systems run downstream of the meter — the FCD corrects billing accuracy with no effect on production schedules or SBP/FSC reporting parameters.

ENGINEERING Q&A

Q: Will the FCD affect dust suppression coverage, emissions control wash-down, or boiler feedwater delivery?

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 plant distribution. Dust suppression pressure, wet ESP wash-down, boiler feedwater supply, and other systems are effectively unchanged.

Q: How does the FCD affect sewer charges?

A: Sewer charges are typically calculated from metered intake. When the meter over-reads dust suppression, emissions control, and boiler demand, both charges are inflated. After installation, intake reflects actual consumption, reducing both line items.

Q: Does this affect our SBP, FSC, SFI, or PEFC certification reporting?

A: Correcting meter over-reading typically improves the accuracy of water withdrawal figures used in sustainability and chain-of-custody reporting, since metered intake will more accurately reflect actual use. It does not change your production process.

Q: How do I estimate savings for the plant before committing?

A: Use the Water & Sewer Bill Savings Calculator at waterflowinnovations.com for an instant projection, then request the free savings analysis — a documented, plant-specific projection suitable for an operations package.

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 facility owner if the plant 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: Sustainable Biomass Program (SBP) · U.S. Industrial Pellet Association · Forest Stewardship Council (FSC)