



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 beamhouse soak and liming drums, tanning drum float water, washing and rinsing lines, finishing operations, and effluent pretreatment makeup. 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 tanning process chemistry, drum float ratios, and effluent 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 hide above benchmarks**

Water and sewer cost per hide persistently exceeds industry comparables.

☐ **Sewer and surcharges track the meter**

Sewer volume and pretreatment surcharges are billed from metered intake — the over-read is charged twice or more.

☐ **Intake exceeds documented float ratios**

Metered intake won't reconcile against float ratios, wash cycles, and known demand.

☐ **Audits confirmed usage, not the source**

Water audits confirmed high consumption without finding leaks or a process cause.

☐ **Pressure swings at drum fill**

Pressure variability when soak and float lines draw hard — entrained air registers as billable volume.

☐ **Water budgeted as uncontrollable**

Water is carried as a fixed cost of production rather than a correctable line item.

WHERE OVER-READING HITS THE OPERATION

Cost per Hide & Plant Economics

Inflated intake flows straight into cost per hide — with sewer billed off the same meter, every over-read gallon is billed on both sides.

Pretreatment & Surcharge Exposure

Effluent surcharges calculated from metered intake are inflated with the water bill — correction reduces the billed basis.

Drum Fill & Wash Demand Events

High-velocity drum fills, float changes, and wash-down cycles create exactly the events that entrain air at the meter — every shift.

Water Balance Integrity

Intake-to-discharge reconciliation is distorted when the intake meter over-reads — correction gives engineering true numbers.

ENGINEERING Q&A

Q: Will the FCD affect drum float water, wash pressure, or process chemistry?

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 plant distribution. Float ratios, wash pressures, temperatures, and every downstream parameter are unchanged.

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

A: Sewer charges and most surcharge formulas are calculated from metered intake. When the meter over-reads drum fill and wash demand, each line item is inflated. After installation, intake reflects actual consumption, reducing the billed basis.

Q: Does the FCD change anything in our effluent permit or discharge reporting?

A: No. The FCD installs just after the meter, ahead of all process systems. Effluent quality, discharge volumes, and 40 CFR Part 425 obligations are unaffected — and corrected intake improves water balance accuracy.

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, facility-specific projection suitable for an ownership or plant management 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 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: EPA Effluent Guidelines (40 CFR Part 425 — Leather Tanning) · EPA NPDES · Leather Working Group (LWG)