



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 dye and finishing baths, washing and rinsing ranges, boiler feed makeup, and sizing and desizing lines. 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 dye recipes, finishing parameters, and discharge 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 yard above benchmarks**
Water and sewer cost per yard produced persistently exceeds mill comparables.
- ☐ **Sewer and surcharges track the meter**
Sewer and pretreatment surcharges are billed from metered intake — the over-read is charged twice.
- ☐ **Intake exceeds bath and range math**
Metered volume won't reconcile against dye baths, rinse ranges, and boiler demand.
- ☐ **Audits confirmed usage, not the source**
Mill audits confirmed high usage without finding leaks or a process cause.
- ☐ **Pressure swings at range startup**
Rinse range and bath fill startups produce visible pressure swings — entrained air registers as billable volume.
- ☐ **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 Yard & Mill Economics**
Inflated intake flows into cost per yard — with sewer and surcharges billed off the same meter, every over-read gallon is billed twice or more.
- Surcharge Basis Reduction**
BOD and color surcharge formulas keyed to metered volume are inflated with the over-read — correction reduces the billed basis.
- Bath & Rinse Demand Events**
Bath fills, rinse range startups, and boiler feed draw create exactly the events that entrain air at the meter — every shift.
- Dye Process Isolation**
Baths and ranges run downstream of the meter — the FCD corrects billing accuracy with no effect on recipes or shade consistency.

ENGINEERING Q&A

Q: Will the FCD affect bath fill rates, rinse pressure, or shade consistency?

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 mill distribution. Fill rates, rinse pressures, and every dye process parameter are unchanged.

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

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

Q: Does the FCD change anything in our discharge permit obligations?

A: No. The FCD installs just after the meter, ahead of all process systems. Effluent quality, discharge volumes, and 40 CFR Part 410 obligations are unaffected — and corrected intake improves water balance accuracy.

Q: How do I estimate savings for the mill 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, mill-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 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 410 — Textile Mills) · AATCC · EPA NPDES

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