



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 hull wash and hydroblasting supply, dry dock flood and service water, pier service connections, and shop and fabrication demand. 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 classification work, vessel systems, and discharge permit conditions — no operational 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 vessel above targets**

Water and sewer cost per vessel serviced persistently exceeds yard comparables.

☐ **Sewer follows the inflated meter**

Sewer charges are billed from metered intake — over-read yard demand is charged twice.

☐ **Intake exceeds service demand math**

Metered volume won't reconcile against wash cycles, pier services, and shop demand.

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

Yard audits confirmed high usage without finding leaks or an operational cause.

☐ **Pressure swings at hydroblast startup**

Hydroblasting and hull wash startups produce visible pressure swings — entrained air registers as billable volume.

☐ **Water treated as fixed yard overhead**

Water is budgeted as an uncontrollable yard expense rather than a correctable one.

WHERE OVER-READING HITS THE OPERATION

Cost per Vessel & Yard Economics

Inflated intake flows into cost per vessel — with sewer billed from the same meter, every over-read gallon is billed twice.

The Audit That Finds Nothing

Yard audits count water that arrives; over-read volume never arrived and is invisible to them — the source is the flow conditions at the meter.

Hydroblast & Pier Demand Events

Hydroblast pump starts, hull wash cycles, and pier service draw create exactly the events that entrain air at the meter — every shift.

Contract Cost Recovery

Corrected intake gives accurate per-vessel water cost data for contract pricing and government cost recovery — numbers you can defend.

ENGINEERING Q&A

Q: Will the FCD affect hydroblast pressure, pier services, or dry dock operations?

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 yard distribution. Blast pressures, pier services, and every dock operation are unchanged.

Q: How does the FCD affect sewer charges?

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

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. Discharge volumes, permit conditions, and 29 CFR 1915 obligations are unaffected — and corrected intake improves water balance accuracy.

Q: How do we estimate savings for the yard 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, yard-specific projection suitable for a facilities 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 NPDES · OSHA Shipyard Employment (29 CFR Part 1915) · Shipbuilders Council of America