



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 ship provisioning water headers, terminal HVAC and cooling makeup, restroom and concessions demand, and wash-down 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 ship provisioning quality requirements and terminal operations — provisioning water delivery and quality are unchanged. Complete technical documentation is provided to support your internal change control review.

DIAGNOSTIC CHECKLIST — SIX SIGNS YOUR METER IS OVER-READING

☐ Intake per ship call above provisioning records

Metered intake per ship call runs above what provisioning volume records support.

☐ Sewer high relative to drain discharge

Sewer charges calculated from metered intake outpace actual terminal drain volumes.

☐ Spikes on multi-berth embarkation days

Bills climb disproportionately on heavy days with multiple simultaneous berths provisioning.

☐ Intake doesn't reconcile with manifests

Metered intake resists reconciliation against provisioning manifests and terminal water balance.

☐ Terminal hotel water tracks high

Terminal HVAC and hotel-load water costs run above comparable port facilities.

☐ Port water accepted as overhead

Water is treated as uncontrollable operational overhead rather than a managed input.

WHERE OVER-READING HITS THE OPERATION

Cost per Ship Call & Port Economics

Inflated intake flows directly into per-call costs and port tariff assumptions — billed on both the water and sewer side.

Provisioning Reconciliation

The gap between metered intake and ship manifests is often over-read volume from high-velocity provisioning demand — correction closes it.

Discharge & POTW Charges

Sewer charges calculated from metered intake are inflated by over-reading — terminal drains never saw the over-read volume.

Port Operations & Engineering

Water balance, berth utility planning, and efficiency projects start from a meter reading that includes volume that never arrived.

ENGINEERING Q&A

Q: Will the FCD affect ship provisioning delivery pressure or terminal building systems?

A: No. Pressure loss through the FCD is under 0.8 psi across all flow conditions, and it installs ahead of port distribution. Provisioning header pressure, delivery rates, water quality, and terminal building systems are effectively unchanged.

Q: Why do multi-berth days spike beyond actual provisioning volume?

A: Simultaneous provisioning draws are the highest-velocity demand events a port meter sees — generating air and turbulence billed as volume. Part of the spike is water that never arrived, which is why manifests won't reconcile against it.

Q: How does the FCD affect our sewer charges?

A: Sewer charges are typically calculated from metered intake — but provisioned water leaves on ships, not down terminal drains. Over-reading inflates an already mismatched calculation. After installation, intake reflects actual consumption.

Q: Can documented savings support port sustainability 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 port authority sustainability reports, LEED terminal data, and CDP disclosure.

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 · Port Authority Sustainability Frameworks · LEED

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