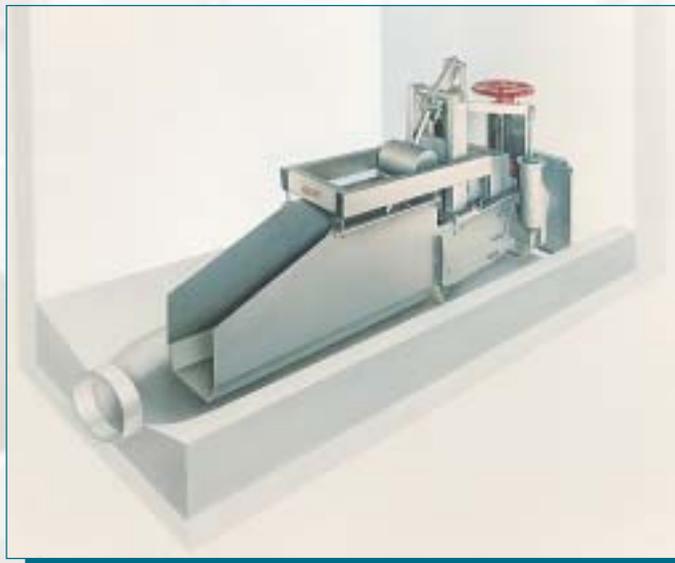# Grande
**Water management systems**

## *ACU-FLO* Balance Regulator
**Flow range 1-250 l/s (16 - 4,000 gpm)**

## The Clear Solution



## Application

The time-proven **ACU-FLO** balance regulator operates on the simple and reliable principle of the balance, effectively utilizing the water's internal energy, and does not require a float. The **ACU-FLO** regulator is a true regulation system.

Independent of the headwater storage height, the **ACU-FLO** maintains the discharge at a given constant value. Based on the automatic self-flushing effect, it ensures high discharge accuracy and reliability. With a discharge range of 16 - 4,000 gpm (1 - 250 L/s) the balance regulator is well suited to accurately regulate very small to medium discharges.

The **ACU-FLO** regulator may also be remotely controlled and therefore its' discharge may be modulated over a broad range.

## Features:

* High discharge accuracy (± 5%) that is independent of up-stream water level insures a vertical Q/H (constant flow).
* Use of a pivoted radial gate in conjunction with permanently sealed stainless steel ball bearings, ensures accurate, low-friction, constant flow regulation.
* Stainless Steel 316 construction.
* Suitable for headwater of up to 12 m (40 feet).
* Automatic self-flushing effect prevents clogging.
* Design discharge can be varied within a broad range including closing function (Qd = 0).
* Can be equipped with a servo-control unit for remote-control operation.
* Can be used to monitor flows.



*ACU-FLO* balance regulator in service

*Operating diagram of ACU-FLO balance regulator*

1. Pivoted Radial Gate
2. Weighing Trough
3. Regulating Weight
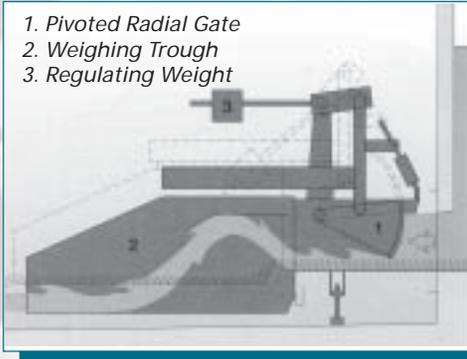
## Operation

The most important functional elements of the **ACU-FLO** regulator are the pivoted radial gate, the weighing trough and the regulating weight. These remain in the rest position during low discharge periods with the pivoted radial gate in the fully open position. As the influent discharge increases, it flows through the regulator housing into the weighing trough. The increasing weight and force of the water pushes the weighing trough down and the regulating weight up. Both movements are transferred to the pivoted radial gate by means of coupled levers which initiate the regulating process. As the force of the water on the weighing trough increases, the pivoted radial gate closes thereby decreasing the discharge opening. The **ACU-FLO** regulator opening is automatically adjusted to match the upstream water level, resulting in a constant regulated discharge.

If a blockage occurs, then the flow through the regulator decreases, resulting in a corresponding decrease of the regulating force on the weighing trough. At this point, the weighing trough rises thereby causing the sectional gate to open automatically and fully. This causes the blockage to be flushed out under the pressure of the upstream water level (flush-out effect) after which the regulating process resumes.

For installations where high downstream water levels are a problem the **ACU-FLO** balance regulator may be equipped with a backflow prevention system.

## ACU-FLO Regulator Discharge Calibration

The **ACU-FLO** regulator has been calibrated on a fully functional, full scale test stand. It has undergone hundreds of calibration tests so that each regulator size is fully defined. Each **ACU-FLO** regulator is shipped to site pre-set to the desired design flow. In addition, set points are clearly indicated for future in-situ flow adjustments (should it be required). The regulator can then be installed and put into operation without requiring time consuming and cost intensive in-situ flow calibration or measurement.

## ACU-FLO Regulator with Servo-Control

The **ACU-FLO** regulator can be remote-controlled by equipping or retro-fitting with an electric servo-control system. An **ACU-FLO** equipped with a servo-control unit can be varied from fully open (ON) to fully closed (OFF), either manually on-site or from a remote, central control location. In case of power outages, the regulator will continue to operate automatically maintaining the constant discharge it was last set at.
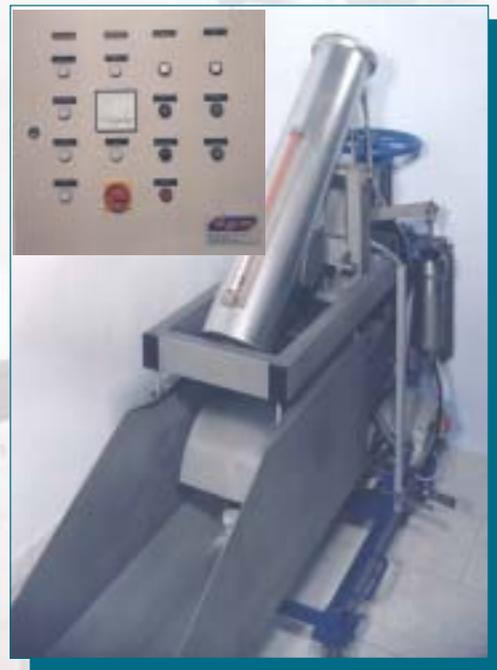


*ACU-FLO regulator with servo-control system*

Represented locally by: