

Protecting Property and Environment – The Need for Flow Regulation

Heavy, prolonged rains can easily overwhelm the many sewage systems that lack the capacity to transport sudden, extreme amounts of water. When the water level in the pipes rises above a certain point, basements and other low-lying locations can flood. The result is costly damage, an expensive mess, and potentially hazardous pollution. (Fig. 1 and 2)



Fig. 1: Destructive Flooding



Fig. 2: Sewerage system without flow control.

Basement flooding!

Often in storms wastewater treatment plants become overloaded and the clarifiers do not have sufficient capacity to cope. As a result, many overflow structures end up discharging large amounts of diluted waste water into streams and lakes.

The Key: Control the Problem

Intense showers are often short and localized, causing full-flowing pipes in some places for only short periods of time. The question is where to retain the excess water in other parts of the system during the times when the system threatens to overload?

The best answer works across multiple situations and does not require any investments in larger pipes or in basins: it is flow control with suitable **flow regulators**.

A flow regulator is a device that protects the low-lying parts of the sewage system (downstream) against overloading and flooding. The flow regulator allows liquid to pass further down in the sewage system at a predetermined maximum amount per time unit, regardless of the variation in feed flow and regardless of the water level immediately before the regulator. (Fig. 3)



Fig. 3: Sewerage system with flow control.

Well-designed flow regulators (such as those sold by Mosbaek A/S) are created without moving parts, which reduces the risk of blockage and minimizes the need for service and maintenance. The regulator's openings should also be large enough to minimize resistance in normal, daily runoff situations, and to avoid blockages.

An effective flow regulator proves its true value when discharge reaches its maximum flow capacity. It keeps the discharge at or below this maximum point, thus allowing the rest of the system beyond the flow regulator to easily handle the stream being received.

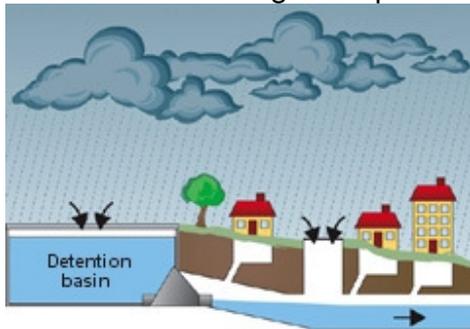


Fig. 4: Sewerage system and basin with flow control.

In some situations it may be necessary to build a storage facility if there is insufficient water storage capacity located ahead of the flow regulator. This can be done by either expanding the pipe dimension over a short length or by building a detention basin. (Fig. 4)

When properly installed, a flow regulator is guaranteed to move only the amount of water that the sewage system downstream is able to handle without flooding. The regulator also can shunt any excess into a lake or stream in compliance with local environmental regulation.

Flow regulators are good for business:

- Property owners stay compliant with environmental laws
- Excessive runoff from roofs and parking lots is carefully controlled
- Damage to structures from water flow is minimized
- Infrastructure (treatment plants, oil/grease traps, pumping stations, etc.) are protected from overloading and damage