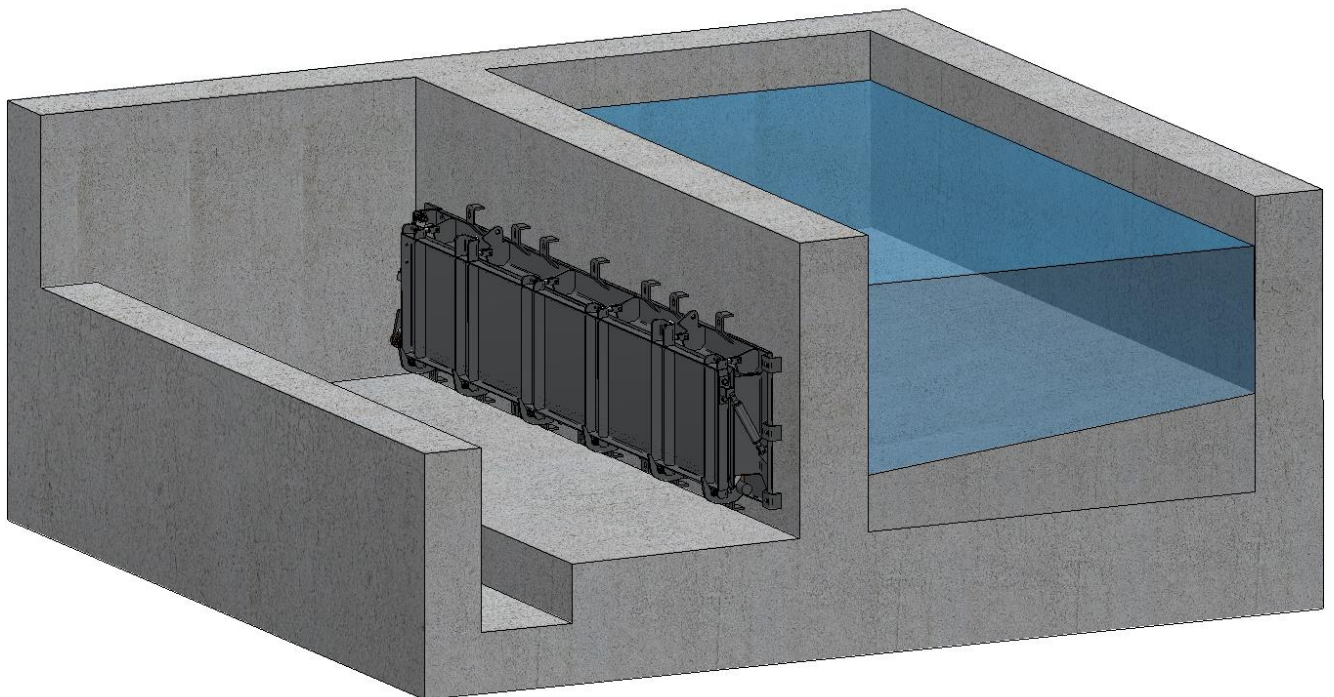


GATES FLUSHING SYSTEM

FOR RECTANGULAR TANKS



GATES FLUSHING SYSTEM.

Storm tanks need to be cleaned after each rainy event, due to sedimentation deposited in the bottom. It is the ideal solution for a long and shallow storm tank.

ADVANTAGES OF THE GATES FLUSHING SYSTEM.

- The cleaning system is designed to support a 3 meter water column. In the factory the flushing gates are tested at a pressure of 4 meters.
- Quick opening of the gates thanks to the long stroke of the hydraulic cylinder.
- Great safety of operation in humid environments.
- Up to 6 meters wide cleaning channel with a simple gate. Possibility of larger channel widths with the installation of double gates.
- Use of storm water for cleaning the storm tank.
- Possibility of cleaning with partial filling of the storm tank.
- Safe closing of the gate by hooks.
- Low investment cost and rapid reinvestment in the equipment.
- Low energy consumption.



Image: Discharging the flushing chamber

DESCRIPTION OF THE EQUIPMENT AND OPERATION.

The equipment consists of one or several flushing gates, made of stainless steel AISI-304 / AISI-316 whose size is adjustable to the needs of work.

The gates flushing system consists of: gate frame, gate cover, hook closing system, hydraulic cylinder, brake cylinder (optional), hydraulic pump and control panel.

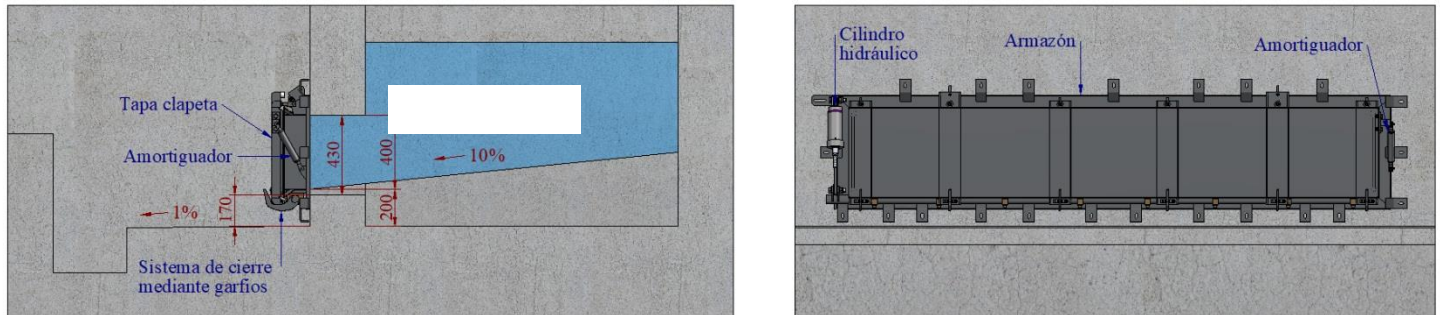


Figure 1: Flushing gate view

The flushing gates are normally open. During the storm, a level switch detects the tank filling. The signal is collected by the PLC which activates the operation of the hydraulic pump for the time necessary for the closing system to block the gate.

The flushing chamber is filled with water at the same time that the level in the tank is increased by means of an anti-return valve installed in the lower part of the tank, or it is filled by overflowing when the water reaches the level of the wall that separates the retention chamber of the flushing chamber.

The emptying of the storm tank is detected by another level switch located at the bottom of the collection channel. The signal is collected by the PLC which reactivates the operation of the hydraulic pump for the time necessary to release the closing hooks. When the hooks are no longer in contact with the gate cover, it opens quickly due to the water pressure existing in the cleaning chamber, releasing a strong wave that drags sedimentation deposited on the floor of the storm tank to the collection channel, leaving a clean surface.

To ensure that the flushing gates do not limit the water outlet, they are closed in a controlled manner by brake cylinders, which delay the closing of the gate. This reduces the risk of solids being trapped between the cover of the gate and the frame.

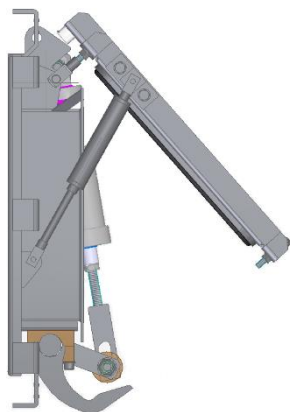


Figure 2: Flushing gate completely open

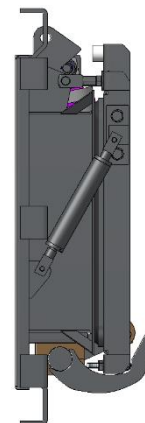


Figure 3: Flushing gate completely closed



FLUSHING GATES DESIGN.

The length of the flushing gates depends on the width of the channel to be cleaned.

Width of the channel in m	Width of the flushing gate in mm
Up to 1,75 m	500 mm
1,75 - 2,00 m	750 mm
2,00 - 2,50 m	1000 mm
2,50 - 3,00 m	1500 mm
3,00 - 3,50 m	2000 mm
3,50 - 4,00 m	2500 mm
4,00 - 5,00 m	2800 mm
5,00-5,50 m	3500 mm
5,50-6,00 m	4000 mm

For channels wider than 6 m, it is necessary to use more than one flushing gate. The cleaning channels must be separated by a low wall with a height of 1.5 meters minimum in its first two meters in length, and between 0.3 and 0.4 meters in height in the rest.