















## Installation layout for wastewater applications

CSA air vented anti-surge tanks SPT represent one of the most effective and versatile means of providing protection at pumping stations. This is because they allow the introduction of flow during pump failure thus limiting the rate of acceleration/deceleration that occurs in the pipe in case of pump trip.

The illustration below shows the use of CSA SPT, in a common wastewater pumping station, installed without the need if any check valves, by-pass and restrictions. In addition to that, the picture shows more CSA equipment for the regulation and control of the system such as anti-shock air valves, sized and determined as a result of detailed water hammer analysis part of CSA consulting services.



CSA anti-shock wastewater combination air valves are extremely important at the pumping station located before and after the check valves. The first due to their protection against negative pressure on the riser when the pump is turned off, and consequent control of the air outflow at the pump start up preventing overload and rapid changes in flow and unwanted surges. The air valves downstream of check valves, for each pump and/or on the main line, are needed to avoid vacuum and the propagation of negative pressure waves along the system as a consequence of pump failure, controlling and slowing down the returning water approach velocity by means of the anti-shock system to prevent water hammer events.