Technology Offer

Pressure Stabilizer

KEYWORDS: Filling Line Containers; Hidraulic Shocks; Pressure; Pressure Stabilizer; Pumping System.

Pressurized systems are universally used in several areas, as is the case, among others, with precision industrial dosing systems, such as those found in liquid product filling line in cointainers. These systems are usually fed from a pumping system, or directly from a more or less complex pressurized network. This mean these systems are subject to pressure fluctuations, of lesser magnitude when the supply is made from a pumping system (e.g., due to variations in the supply of electricity), but more pronounced when it is made from an hydraulic network (e.g., due to fluctuations in consumption and injection of liquid at several points of those networks over time, namely throughout the day).

The state of the art solutions allow pressure to stabilize, usually by reducing pressure (e.g., pressure reducing valves or using pressurized tanks). However, although these solutions ensure the reduction of pressure fluctuations over time downstream of an installation, they do not guarantee the absence of instantaneous pressure peaks that occur when opening and closing hydraulic systems, which are very relevant when operating movements are very fast (e.g., solenoid valve operation). This type of movement causes hydraulic shocks, which can potentially damage hydraulic instalations.

The present invention relates to a pressure stabilizer for pressurized systems that allows to maintain constant pressure at atmospheric outlets or pressurize outlets. These pressure stabilizer allows that regardless of the pressure upstream a stabilized pressure can be achieved downstream even in situations of abrupt pressure fluctuactions at several points in the system where it is installed. Is designed to constitute a new device, which will allow stabilizing the outlet pressure of liquids in pressurized hydraulic systems, without require any external energy for its operation, making use only of the energy of the liquid or pressurized liquid in motion. Also the pressure stabilizer does not generate energy. The present pressure stabilizer allows to eliminate the occurrence of pressure Fluctuations / Spikes / Peaks in several types of hydraulic systems.

ADVANTAGES	APPLICATIONS
• Can be used with different liquids. • Can be install in pipes, pipelines, networks, with atmospheric or pressurized outlets. • Allows monitoring of stabilized pressure. • Allows removal / extraction of air in the system. • Allows the removals of particles. • No external source of energy.	• Use with Newtonian fluids. • To be used with any hydraulic system where is needed to avoid/eliminate pressure fluctuations. • Using pressure gauges downstream/upstream of the pressure stabilizer. • Using a relief valve. • Using a particle filter. • The system uses only the fluid motion energy.

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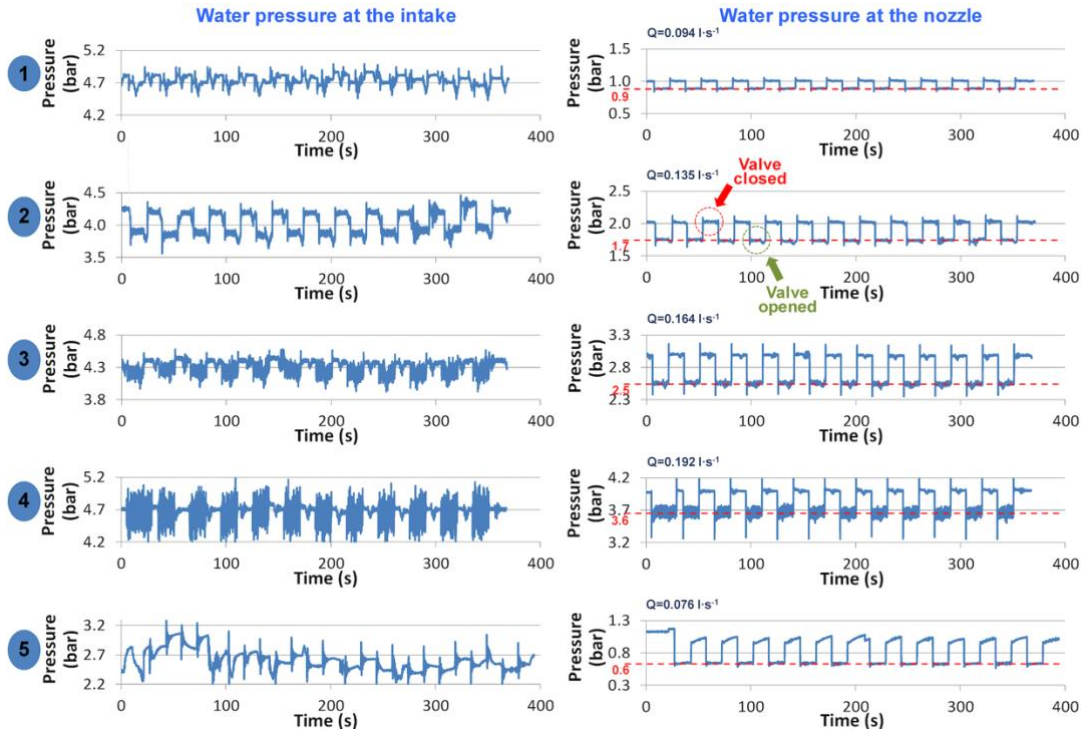

Metrics of the results from the use of Pressure Stabilizer, recording the pressures at the intake, and pressures at the nozzle.

VIDEO (QR Code or YouTube):

STAGE OF DEVELOPMENT: TRL 3

IPR LEGAL STATUS: Patent Cooperation Treaty (PCT) n.° PCT/PT2020/050041 filed at 04/11/2020.

OWNERSHIP: The rights to the technology are held by the University of Coimbra and the University of Algarve.

COLLABORATION SOUGHT: Licensing for further developments or R&D partnership.

CONTACTS:

- **Innovation Manager: Ricardo Dias** ricardo.dias@uc.pt | +351 239 247 741
- **IP Manager: Marta Costa e Silva** marta.c.silva@uc.pt | +351 239 247 815

Cofinanciado por: