

ABSTRACT

The ultra-high pressure booster or intensifier is a device consisting of two cylinders with two pistons, connected such that they operate simultaneously, which can be mounted in a multi-chamber containing simple pressure boosters nested (not mounted in series or in parallel) that can be used to increase the ultra-high pressure depending on the simple boosters being used. According to the invention, a flow of gas or liquid enters at pressure P_1 and once filled at pressure P_1 , the flow enters into a simple pressure booster which is located inside chamber 1 and divides the flow into two parts: one part that is increased to pressure P_2 and housed in another chamber 2 located inside chamber 1, using the energy released by the other part which is reduced to pressure P_0 and released from the chamber 1. After several displacements when chamber 2 is at pressure P_2 , another simple pressure booster begins to operate, which is located inside the chamber 2 and divides the flow into a part that is increased to pressure P_3 using energy from the other part which is reduced to pressure P_1 . After several displacements, chamber 3 is at pressure P_3 and a new simple pressure booster and another chamber 4 are ready to continue increasing the pressure. In this way, with new boosters an ultra-high pressure P_n , as high as required, can be reached in chamber n . Each chamber can be formed by multiple walls or a series of sub-chambers, allowing greater resistance to be achieved. The invention can be used for ultra-high pressure sintering, preparing sterilized foodstuffs using ultra-high pressure or cutting materials, among others.