Research on popcorn machine

Pneumatic popcorn machine is mainly composed of air pump, reversing valve, air filter, pneumatic relief valve, popcorn chamber and so on. Under the driving of the motor, the air pump continuously pressurized the explosion chamber. Air relief valve plays the role of safety valve, and microwave drying machinery and equipment plays the role of safety protection in the system. When the system pressure exceeds the prescribed value, the safety valve opens and part of the gas in the system is discharged into the atmosphere, so that the system pressure does not exceed the allowable value, thus ensuring the safety of the system. When the pressure of the popcorn chamber reaches about 6 atmospheres.

A pneumatic popcorn machine was studied by using a fast exhaust valve. The high pressure air was used to pressurize the corn grains in the popping chamber, and then the quick exhaust valve was opened to release the pressure quickly in the popping chamber. The volume of the corn grains expanded rapidly, and the corn grains were popped into corn. Because no heating is needed, the nutrition is less destroyed, safe and hygienic, and the production efficiency is high. In order to improve the synchronization accuracy of the master-slave hydraulic test-bed double-cylinder synchronization system, the mathematical model of proportional valve and hydraulic cylinder is established, and the PID controller and the fuzzy PID controller are designed. The synchronization error is simulated dynamically by using MATLAB simulation software. Through the analysis and comparison of simulation results and experimental results, it is concluded that the master-slave synchronization system can achieve high synchronization accuracy under the control of fuzzy PID.

The water pressure double cylinder synchronization system has broad prospects for development in medicine, food, wood processing and other industries. The master-slave hydraulic double-cylinder synchronization system controlled by PID is adopted in the pure water hydraulic test-bed. The following effect of the two cylinders is not ideal. In order to improve the high response and high precision of synchronization of the two hydraulic cylinders, the control effect can be obviously improved by using the fuzzy PID controller.

In the popping process, adding sugar, oil, spices and other condiments, you can get all kinds of flavors of cornflower, which has good color, fragrance, taste and shape, rich nutrition, easy digestion, suitable for all ages. Compared with the ordinary popcorn production process, the pneumatic popcorn machine has larger particle size and lower energy consumption. It is suitable for large-scale production to improve production.