

# Single Screw VS Twin Screw Extruder

In the market, puffed foods are very popular and loved by people, such as the QICHI French fries, Onion rings, potato sticks, cheese sticks, corn curls, LAY'S potato chips, cheetos, Chiduo, Orion . Do you know how are puffed snacks made? In the snack food suppliers, most puffed snacks are made from snack machine of snack food machinery manufacturers. has been widely used in food processing. Extruders is divided into single screw and double screw in structure single screw extruder, it including single screw extruder design and twin screw extruder design.

## single screw vs twin screw extruder

Single screw extruder	Twin screw extruder
mixing capability is very limited	remarkable mixing capability, mixing to be precisely adjusted leading to control the degree of mixing.
Lower process productivity	higher process productivity
Temperature is not easy to control	Controllable constant temperature
Raw materials is potato starch, corn starch, cassava starch and others	Many kinds of grain powder like corn powder, wheat flour, rice powder, cereals powder and others
Easy to pour powder	Not easy to pour powder
Material sticking screw	Self-cleaning function
Snacks pellet, potato sticks, pellet wave chips	Cereals, corn flakes, puffy snacks, doritos chips, doritos chips and others

The working principle of the twin screw and single screw is different. There are big differences in the specific structure, especially the arrangement of the barrel, screw, thrust bearing and gear box. The comparison results of the twin screw and single screw under the same production capacity are as follows

Item	single screw extrusion machine	double screw extruder
Price ratio	1.0	5 N
Extruders		-
System	L0	5
Conveying capacity	Lower	0.9-3
Self-cleaning ability	Lower	High
Maximum wear part	Discharge section and transition section	Good
		Restriction section and pinch section

screw	Installation location (L/D)	Not fixed 4—25	Not fixed 10—25
	Kneading	Not good	Good
	Shear uniformity	Not good	Good
	Residence time ratio	2	1,0
Driver	Screw speed ratio	LO-3,0	1.0
	Thrust bearing performance ratio	More then 5.0	1. (J
	Torque to pressure ratio	More then5.0	1 0
	Gear box	sample	difficult
	Heat exchange	Not good	good
-Operability-	Moisture	12—35	6—high
	Recipt	Starch	Wide range

### Comparison of working principle of twin screw extruder and single screw extruder

The transportation of materials in the single-screw extruder depends on the friction between the materials and the barrel

The twin screw extruder is "forward conveying", which has the effect of forcing the material forward. In addition, the twin screw extruder also produces a shearing effect on the material at the meshing position of the two screws

The extrusion processing technology of single screw extrusion process, single screw extruder manufacturers use single screw extruder machine to make 2D 3D pellet, it have high moisture inside, so this pellet can't use directly, nust go to lower temperature dryer for 2-3 hours dryer, and then the moisture lower then 10%, can freid or baked the pellet to puffy.

The double screw extrusion in food processing is the cereals powder can directly puffing from the extruder machine. And then goto high tempreture dryer for 10mins dryer is ok. Then seaning it foto pack.

The different snacks for single screw extruder and double screw extruder for sal