

# Grain Microwave Drying Machine



[Microwave drying equipment](#) is often used for drying and dehydrating powdery and granular materials. The traditional drying method has a long time, large electric quantity, uneven heating, high labor intensity, up and down flipping, and the characteristics of microwave drying, the microwave can penetrate inside and outside the object and simultaneously heat, the frequency is 2450MHZ, at 2.45 billion per second. The second oscillation, the water molecules are also tens of thousands of oscillations, the molecules rub each other to generate heat, and self-heating.

## [Grain Microwave drying machiner:](#)

### **First, the product description**

1. With a modular construction, it can be easily assembled at any time.
2. A secondary microwave generator is also installed on the chassis of the installation conveyor belt, which makes the microwave field more concentrated.
3. A special microwave absorbing material is arranged at the exit and entrance portions at both ends of the drying chamber to make the microwave leakage comply with the relevant The security allowed value.
4. According to the size of the opening of the microwave dryer, the closer to the exit and the inlet, the denser the absorbing material is placed, so that the microwave intensity is lowered. In the case of larger size of the drying chamber, the use of additional absorption curtains to reduce microwave leakage

5. The microwave generator is cooled by air, whereby the heated cooling air enters the drying chamber, absorbs moisture and becomes wet air, and then draws the humid air away by the exhaust device.
6. The output power can reach 100 kW at most.
7. Its microwave generator is helically distributed around the axis of its drying chamber to obtain a more uniform microwave.

## Second, the drying system



The drying system consists of a drive roller, a conveyor belt, a moisture exhaust fan, a bracket, a motor, a drying chamber and a magnetron. The material is conveyed by the conveyor belt at a constant speed through the microwave drying chamber connected in series with each other. The speed is 0 ~ 1 600r / min, and the transmission power is provided by the motor. According to the production requirements, the width of the conveyor belt can be 400mm. . The drying heat source is model 2M259 - M11 2. The 0 kW magnetron provides electromagnetic wave energy that is transmitted through the waveguide to the coupling of the drying chamber. The design adopts the microwave source multi-feed inlet mode, and each microwave source transmits the microwave energy to the drying chamber through the respective coupling ports, that is, uniformly sets 20 coupling ports on the top of the drying chamber, which is beneficial to improve the uniform distribution of the microwave field in the drying chamber. Sex [10 - 11]; There are air vents in the first and last sections of the drying bin, and the fan is connected as a moisture venting device to remove a large amount of water vapor from the grain, which improves the drying efficiency.

## Third, the control system



The control system applies microwaves of different strengths in different drying sections according to the drying characteristic curve of the grain. The drying process can be mainly divided into three stages: the first stage is the material warm-up period; the second stage is the constant-speed drying stage; the third stage It is the speed reduction phase, also called the material heating phase. According to the relationship between drying time and drying stage, 5 drying chambers are connected in series with appropriate conveying speed, and 3 microwave magnetrons are installed in each drying chamber; the material conveying belt is driven by variable frequency motor through series connection 5 microwave drying chambers, how much microwave energy can be applied at different stages by opening the magnetron, so that the microwave energy can be obtained in different drying stages, which can fully improve the energy utilization rate and ensure the dry quality of the grain. . Install one infrared temperature sensor and one humidity sensor on each drying chamber, and install one moisture sensor in each of the inlet and outlet. The instrument control cabinet is equipped with a material surface temperature display instrument, an air temperature and humidity display device, a fan control switch, a moisture display device, a frequency conversion speed display device, a power switch, a magnetron power adjustment switch, a magnetron working time adjustment switch, and a conveying device. With motor switch.

Microwave drying machiner is an energy-saving, environmentally-friendly, fast and gentle drying method. It can even increase product strength under certain conditions. Therefore, it is valued by countries all over the world and will play an increasingly important role in industrial

production in the future.

