

## ultrasonic vibrating screen for agglomerated materials

Ultrasonic vibrating screen is a kind of precision screening equipment combining ultrasonic high-frequency vibration technology and traditional screening principle, specially designed for the separation and filtration of high-precision and ultra-fine particles.

### Ultrasonic Vibrating Screen

Ultrasonic vibrating screen transforms the screen cleaning problem of ordinary mechanical screening into a physical fluctuation solution, suitable for screening micro-fine powders with particle size between  $10\mu\text{m}$  and  $200\mu\text{m}$ , and it has significant advantages in preventing screen clogging and improving screening precision and efficiency.

Ultrasonic vibrating screen is widely used in the field of new materials with high requirements for powder purity, and has gradually become an indispensable core equipment in cutting-edge industries such as nanotechnology, 3D printing materials, biomedicine and so on.



### Main Features

1. **High-precision sieving ability:** can realize the classification of submicron level particles, can be up to 5 microns.

2. **Effective anti-clogging design:** ultrasonic system continuous oscillation, to avoid powder clogging screen, improve the rate of screen.
3. **No need for auxiliary screen cleaning device:** Compared with the traditional screen cleaning methods such as bouncing ball or brush, the structure is more simple and clean.
4. **Stable operating temperature:** low-temperature working mode to avoid denaturation or damage to heat-sensitive materials.
5. **Intelligent frequency self-adaptation:** according to the characteristics of the material to automatically adjust the frequency of excitation, improve screening efficiency.
6. **Wide adaptability:** whether light, heavy, electrostatic or easy to agglomerate materials can be effectively screened.
7. **Screen life extension:** reduce the physical impact of particles on the mesh, suitable for expensive high-density screen.
8. **Simple maintenance:** modular design, screen and transducer replacement is convenient, suitable for multi-species small batch operation.
9. **Continuous and stable work:** suitable for automated production lines, can be seamlessly connected with airflow conveying systems, etc.

## **Working Principle**

Ultrasonic vibrating screen integrates a set of ultrasonic screening system on the basis of traditional vibrating screen. The system consists of ultrasonic generator, transducer and resonance ring. The ultrasonic generator converts the 50/60Hz power supply frequency into a high-frequency electrical signal of about 38kHz, which is converted into high-frequency mechanical vibration through the transducer and superimposed on the screen mesh.

This high-frequency vibration will produce a micro-amplitude bouncing and friction on the sieve mesh, so that the attached, adsorbed, electrostatic materials quickly out of the sieve holes, and effectively solve the following problems:

1. Electrostatic powder is difficult to flow problem.
2. Lightweight agglomerated powder is difficult to disperse the problem.
3. Sticky particles on the mesh embedded problem.
4. The diameter of the particles close to the problem of difficult to separate.
5. Due to the high excitation frequency but small amplitude, the material will not be destroyed, and will not affect the structure or functionality of the particles themselves.

## **Application Areas**

1. **New materials:**  
Graphene, nano-silicon, metal powder, magnetic materials, ceramic powder, lithium battery materials and other high-end materials grading, suitable for high-purity materials, debris removal and particle size control.

2. **Chemical industry:**

PVC resin powder, PE/PP particles, catalysts, dyes, pigments, additives, etc. Accurate screening to prevent mesh clogging caused by static electricity or adsorption.

3. **Food and medicine:**

milk powder, medicine powder, fine powder of traditional Chinese medicine, spices and other lightweight powder decontamination and grading, can meet the needs of GMP and HACCP certification, suitable for dust-free sanitary environment.

4. **Metal metallurgy:**

copper powder, tungsten powder, aluminum powder, stainless steel powder and other metal materials sorting, suitable for 3D printing raw materials, powder metallurgy pretreatment.

5. **Environmental protection and resource recycling:**

screening of waste battery materials, recovery and purification of micro-fine powder in the process of electronic waste recycling, classification of regenerated resin, rubber powder, EPS particles and so on.