Titanium sintering porous materials

Titanium sintered porous material is a kind of porous material with high quality spherical and high purity titanium powder as raw material and it is made rigid by forming and sintering at high temperature.

Features of titanium sintered porous materials:

Titanium sintered porous materials have the characteristics of low density, high specific strength, good corrosion resistance and good biocompatibility.

Material	Filter Rating	Porosity	Penetrability	Working pressure	Operating temperature	Shape	specific surface area
Pure Titanium powder	0.5um-50um	30-45%	3-800M³/M²hKPa	2.0MPa	300℃	Round disc、sheet、tube、round bar、cap	10-40cm²/cm³

Specification of titanium sintered porous materials

Production	（Diameter）Length	（Diameter）Width	Thickness	Customized
Sintered porous round discs	φ5-φ400mm	φ5-φ400mm	1-20mm	Yes
Sintered porous sheets	1-600mm	5-400mm	1-20mm	Yes
Sintered porous tubes	100-1200mm	φ20-φ200mm	1-10mm	Yes
Sintered porous cartridge	100-1200mm	φ20-φ200mm	1-10mm	Yes

Manufacture Standard：GB/T 6887-2007 Sintered metal filter elements.

Properties of titanium sintered porous materials：

1. Pore diameter uniformity, pore stability, high separation efficiency.

2. High porosity, low filtration resistance and high permeability.

3. Good chemical stability, acid and alkali corrosion resistance, oxidation resistance.

4. Morphological stability, no particle shedding, comply with food hygiene and pharmaceutical GMP requirements.

5. Good mechanical properties, low differential pressure, large flow.

6. Strong anti-microbial ability, does not interact with microorganisms.

7. Online regeneration, easy cleaning, long service life.

8. Excellent biocompatibility, can be widely used in biological, food, pharmaceutical, medical industry.

9. Excellent electromagnetic shielding performance.

10. Good damping and shock resistance.

Application of titanium sintered porous materials:

Titanium sintered porous materials are mostly used for filtering materials、electrodes、heat transfer materials、 catalyst carrier materials、 noise cancelling materials according to their physical and structural properties.

1. Decarburization filtration of pharmaceutical liquids.

2. Electrolytic gas industry precision filtration, gas distribution.

3. The medical industry makes biological implants.

4. Water treatment industry odor sterilization filtration and ozone aeration.

5. Clarification and filtration in food and beverage processing.

6. Prefiltration of reverse osmosis system for electronics industry.

7. Terminal filtration of petroleum products in petrochemical industry and filtration of carbonic alkali liquid in chemical industry.

8. High pressure air filtration in aerospace industry.

9. Filtration and recovery of precious metal catalyst in fine chemical industry.

10. The electrode matrix of a fuel cell.

11. Catalyst carrier in gas and liquid catalytic reactions.

Titanium sintered porous materials are allowed to use in the environment：3% hydrochloric acid, 5% sulfuric acid, various concentrations of nitric acid (smoke nitric acid prohibited), chloroazotic acid, sea water, sodium hydroxide, carbonate and chloride salts of the aqueous solution.

Precautions for the use of titanium sintered porous materials:

During installation, disassembly and clean avoid scratches, collisions and falls on hard objects.

Install correctly to avoid reverse filtering.

Avoid instant pressurization when the filter element works.

When the filtration efficiency is less than 50%, the filter element should be cleaned in time.

When cleaning the filter element, first backblow with pure gas, backblow pressure is 1.5 times of the working pressure, each time for 3-5 seconds, and 4-6 times, then backwash with clean liquid for 3-5 minutes, repeat 2-3 times.

If the filter element is not good after online backblowing and backwashing, it should be removed and cleaned in time.

Method for cleaning titanium sintered porous materials：

The decarbonization filter elements in the pharmaceutical and chemical industries are mainly backblown and backwashed, and the ultrasonic cleaning is the best.

The filter elements of water industry are mainly rinsed with 5% concentration of nitric acid.

According to the chemical properties of the filtered impurities, the filter elements of the original liquid shall be respectively soaked in pickling (5% nitric acid) or alkaline washing (3-5% sodium hydroxide) and then washed with ultrasonic cleaning.