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Ceramic Media Product Brochure

Metal Random packing

Pingxiang Rongjian Environmental Protection Chemical Packing Co., Ltd

DIRECTORY

Metal Pall Ring - Technical Features

The materials of metal pall rings include: 304 stainless steel, 316 stainless steel, 316L stainless steel, carbon steel, 201 stainless steel, and 410 stainless steel.

The design of the metal pall ring adopts an open pore structure, which increases the contact area between the gas-liquid phase and makes the mass transfer process more efficient. Its unique shape helps to form more complex flow paths and promotes material transfer. This feature not only improves operational efficiency, but also reduces energy consumption. Due to the use of metal materials, metal pall rings have high compressive strength and wear resistance, and can work stably in high-pressure and high-speed fluid environments without deformation or damage. Metal materials themselves have good high-temperature resistance and can maintain structural stability under high temperature conditions, making them suitable for processes that require operation in high-temperature environments.

It can effectively resist the erosion of most acids, bases, and other chemical substances, especially suitable for media with weak corrosiveness. Metal Pall Ring has a high porosity, which is not only beneficial for the uniform distribution of fluids, but also reduces the risk of blockage and ensures long-term stable operation.

Metal Pall Ring Filler was developed by BASF in Germany in the 1940s based on Raschig Ring Filler. It is made by punching metal sheets and has two rows of window holes with inward extending tongues on the ring wall. Each row of windows has five tongues bent into the ring, pointing towards the center and almost overlapping at the center. The positions of the upper and lower layers of window holes are offset from each other, and the total area of the openings is generally about 35% of the entire ring area. Due to the opening of many windows on the ring wall, the gas and liquid distribution and mass transfer performance in the packing layer have been greatly improved compared to the Belgian ring. It has the characteristics of low pressure drop, high flux, and high efficiency. Suitable for various separation, absorption, and desorption devices, atmospheric and vacuum distillation units, synthetic ammonia decarbonization and desulfurization systems, ethylbenzene separation, isooctane/ methyl benzene separation, etc.

Product parameters

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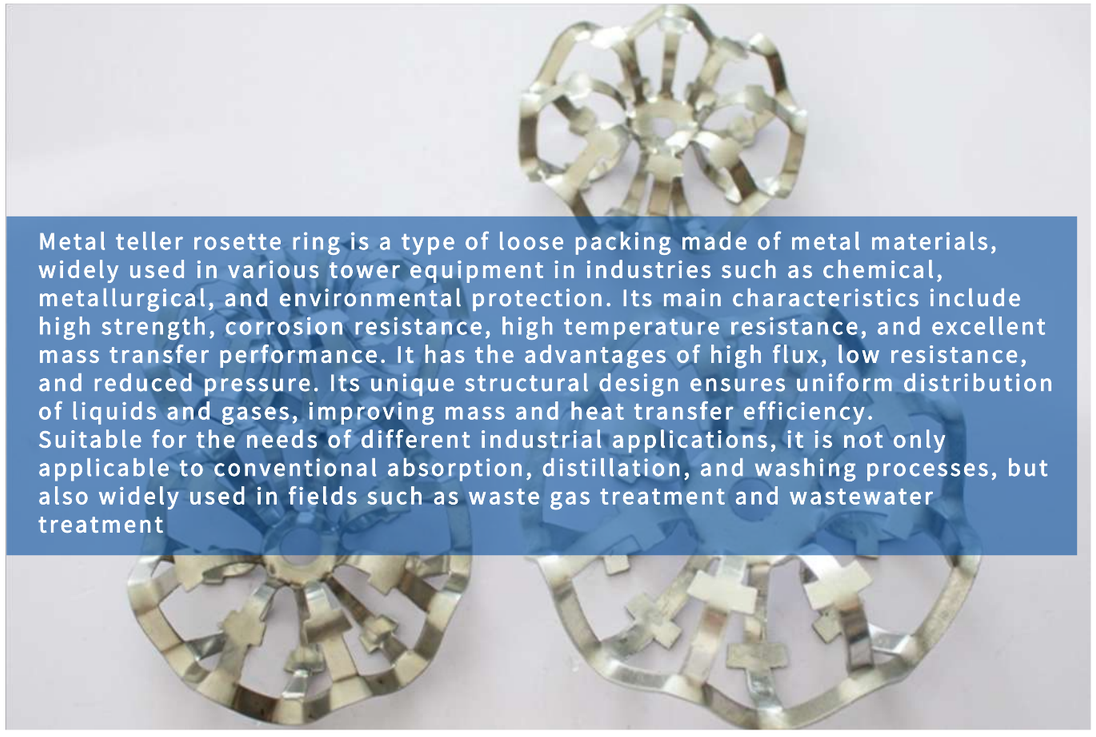
size	specific area	void volume	Accumulation of the number	Accumulate weight
10×10×0.3	482	93.8	800000	560
16×16×0.3	362	94.9	220000	395
25×25×0.4	219	95	52380	309
38×38×0.6	146	95.9	15200	317
50×50×0.8	109	96	6500	315
76×76×1	71	96.1	1980	262

Metal Teller Rosette Ring - Technical Characteristics

The materials of metal teller rosette ring include carbon steel, aluminum alloy, stainless steel (including 304, 316, 316L, etc.), and titanium alloy. The unique structural design of metal teller rosette ring expands the specific surface area and optimizes porosity, enhances gas-liquid contact area, and improves mass transfer efficiency. Due to its unique structural design, metal teller rosette ring can effectively reduce the resistance loss when fluid passes through, lower the pressure drop of the system, and contribute to energy conservation and consumption reduction. The metal material endows the teller rosette ring with high mechanical strength and wear resistance, enabling it to work stably in high-pressure and high-speed fluid environments without deformation or damage. Even under heavy loads, it can maintain good structural integrity and is suitable for long-term use. Metal materials have excellent high-temperature resistance and can maintain structural stability under high temperature conditions without softening or deformation, making them suitable for processes that require operation in high-temperature environments. Whether in large-scale industrial production or small-scale laboratory experiments, metal teller rosette ring can provide reliable performance.



Metal teller rosette ring is a type of loose packing made of metal materials, widely used in various tower equipment in industries such as chemical, metallurgical, and environmental protection. Its main characteristics include high strength, corrosion resistance, high temperature resistance, and excellent mass transfer performance. It has the advantages of high flux, low resistance, and reduced pressure. Its unique structural design ensures uniform distribution of liquids and gases, improving mass and heat transfer efficiency.
Suitable for the needs of different industrial applications, it is not only applicable to conventional absorption, distillation, and washing processes, but also widely used in fields such as waste gas treatment and wastewater treatment

Product parameters

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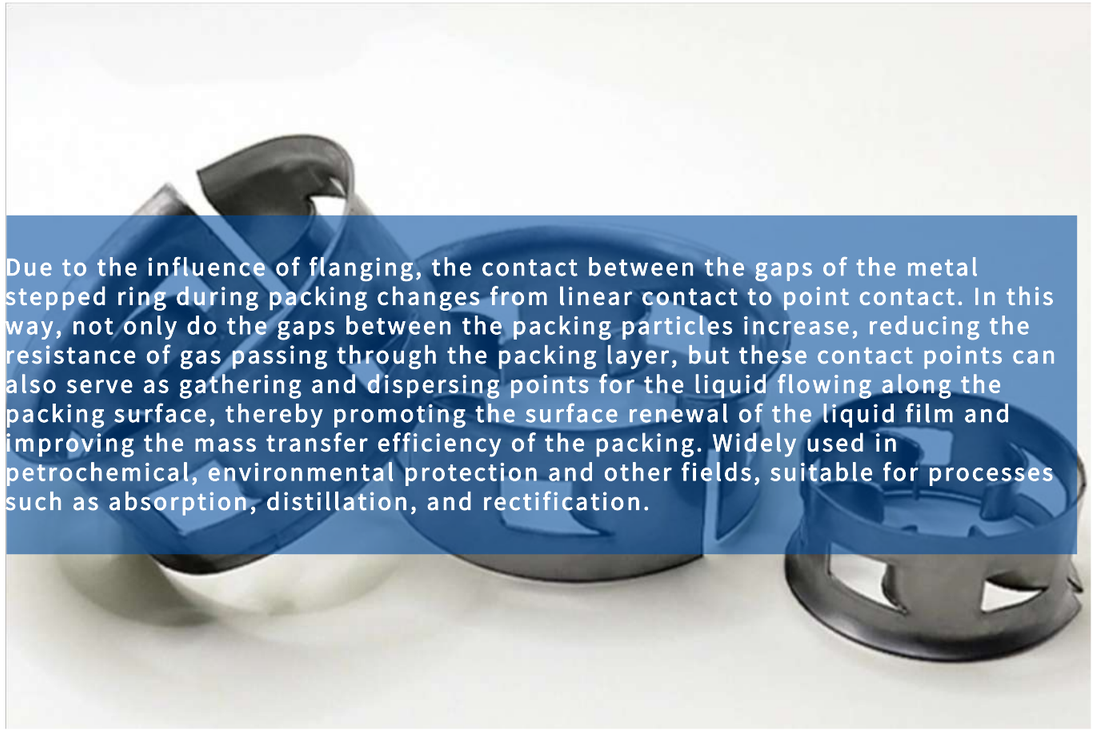
Size		Number (per m^3) Accumulation of the number	Surface area (m^2/m^3) specific area	Free volume (%) void volume
size				
Inch inch	Mm millimetre			
2"	50*25*0.8	19180	112.8	96.2
3"	75*30*1.0	7500	136.1	97.3
4″	100*40*1.2	2520	140.0	96.5
4.3″	108*45*1.2	2200	53.4	95.0

Metal Step Ring - Technical Features

The materials of metal stepped rings include stainless steel, aluminum alloy, and carbon steel.

Metal stepped ring fillers have demonstrated significant advantages in multiple industrial fields due to their unique structure and material properties. Its aspect ratio is half that of traditional Bower rings, and it has a tapered flange, effectively reducing the resistance of gas passing through the bed and increasing the flux. The point contact design between fillers not only increases the porosity and reduces the pressure drop, but also helps to collect and disperse the liquid flowing along the surface of the fillers, promotes the renewal of the liquid film surface, and improves mass transfer efficiency. In terms of material, the metal step ring is made of high-quality metal material, which has undergone heat treatment and processing technology, and has excellent wear resistance, corrosion resistance, and high strength, ensuring stable operation in harsh environments. Its wide applicability, simple installation process, and low maintenance cost.



Due to the influence of flanging, the contact between the gaps of the metal stepped ring during packing changes from linear contact to point contact. In this way, not only do the gaps between the packing particles increase, reducing the resistance of gas passing through the packing layer, but these contact points can also serve as gathering and dispersing points for the liquid flowing along the packing surface, thereby promoting the surface renewal of the liquid film and improving the mass transfer efficiency of the packing. Widely used in petrochemical, environmental protection and other fields, suitable for processes such as absorption, distillation, and rectification.

Product parameters

Size	Surface area	Void Ratio	Bulk number	Packing dryfactor
(mm)	(m2/m3)	(%)	(Pieces/m3)	(m-1)
25	220	96.5	97160	273.54
38	154.3	95.9	31800	185.8
50	109.2	96.1	12300	127.4
76	73.5	97.6	3540	81

Metal IMTP Saddle Ring - Technical Features

The material of the metal IMTP saddle ring packing includes carbon steel, stainless steel 304, stainless steel 304L, stainless steel 316/316L, titanium, and specific alloys.
Metal IMTP saddle rings have become ideal fillers in industries such as chemical and environmental protection due to their unique saddle shaped design and excellent performance. This stainless steel material filler has a large specific surface area and excellent mass transfer efficiency. The inward bending structure not only improves the mass transfer efficiency of the material, but also ensures a large gas flow rate, low resistance, and is not easily blocked.
Metal IMTP saddle rings are heat-resistant, pressure resistant, corrosion-resistant, and easy to disassemble and clean. They are widely used in packed towers in fields such as synthetic ammonia saturation hot water towers, petrochemicals, natural gas, and environmental protection. Its specifications are diverse, and products of different sizes can be customized according to customer needs. The use of metal IMTP saddle ring packing can effectively reduce tower pressure and improve liquid separation efficiency.

A new type of filler developed by Norton Company in the United States, also known as Intalox filler in China. This type of packing cleverly integrates the characteristics of both annular and saddle shaped packing, making it both characterized by high flux of annular packing and good liquid distribution performance of saddle shaped packing. Moreover, the packing has good strength and rigidity, making it currently the most widely used bulk packing. Widely used in packed towers for synthesizing ammonia saturated hot water towers, petrochemicals, natural gas, environmental protection, and other fields.

Product parameters

size mm	Accumulate weight kg/m3	Accumulation of the number per m3	specific area m2/m3	void volume %	Dry filler factor m-1
25*0.3	192	127180	344	95.5	393.2
38*0.4	203	51180	151	97.4	163.2
50*0.4	132	15550	97	98.3	102.5
50*0.5	169	15550	97	97.9	103.9
76*0.4	106	4690	61	98.7	63.5

Metal Raschig Ring - Technical Features

The material of metal Raschig ring packing includes carbon steel, stainless steel 304, 304L, 410, 316, 316L, etc.

Metal Raschig ring is a classic tower packing material widely used in absorption towers, distillation towers, washing towers and other equipment in industries such as chemical, petroleum, pharmaceutical and environmental protection. During the filling process, the Raschig ring can form a relatively uniform distribution, promote the uniform flow of fluid, and thus improve the overall mass transfer effect. Appropriate porosity and reasonable arrangement can help reduce local resistance concentration and further decrease pressure drop. Metal materials have excellent high-temperature resistance and can maintain structural stability under high temperature conditions without softening or deformation, making them suitable for processes that require operation in high-temperature environments. Due to its sturdy and durable characteristics, the maintenance cost of metal Raschig rings is relatively low, reducing the need for frequent replacement.

The metal Raschig ring was introduced by F. in 1914 Developed by Rasching. It is the earliest invented loose packing material with a fixed geometric shape. Its appearance is simple, and its height is equal to its diameter. Large sized Raschig rings (over 100MM) are generally filled in a neat manner, while Raschig rings smaller than 75mm are generally filled in a disorderly manner. Metal Raschig rings are widely used in many fields, but their main application is as catalyst supports. Its characteristics are simple structure, convenient manufacturing, low cost, excellent acid resistance, and high load capacity. Suitable for drying towers, absorption towers, washing towers, regeneration towers, etc. in industries such as chemical, metallurgical, and gas oxygen production.

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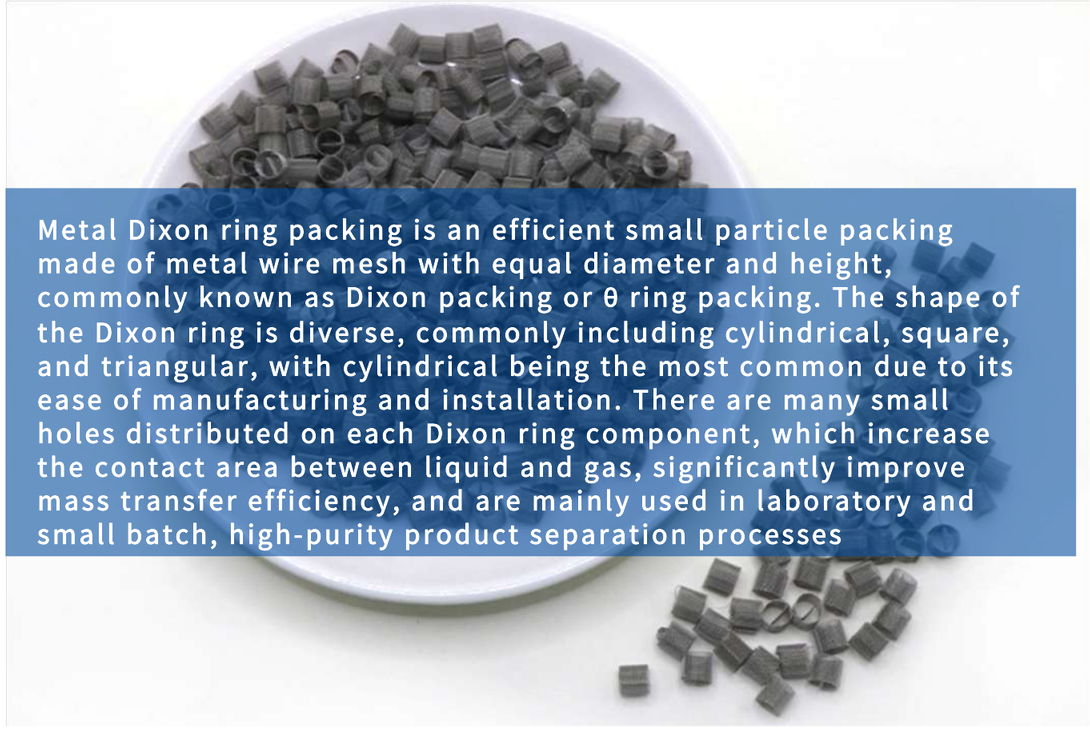
Product parameters

(Inch / mm) dimensions		(304,kg/m3) Accumulate weight	(per m) Accumulation of the number	(m^2/m3) specific area	(%) Empty barrier rate	Factor m^1 Dry filler factor
1/4″	6*6*0.3	900	4000000	904	88.6	1307.4
3/8	10*10*0.3	480	800000	482	93.8	583.8
1/2*	13*13*0.3	420	410000	415	4.8	489.2
5/8	16*16*0.3	348	220000	344	95.5	393.2
1*	25*25*0.4	288	53500	212	96.2	229.8
1″	25*25*0.5	367	53500	216	95	237.2
1*	25*25*0.6	439	53500	219	94.2	244.1
1.5″	38*38*0.4	193	15200	143	97.2	148.4
1.5	38*38*0.5	246	15200	145	96.7	151.7
1.5*	38*38*0.6	328	15200	146	95.9	154.6
2*	50*50*0.5	191	6500	106	97.5	115.2
2*	50*50*0.8	300	6500	108	96.4	120.9
2*	50*50*1.0	380	6500	109	95.4	125
3	76*76*1.0	265	1980	69	97.4	79.6
3.5	89*89*1.0	224	1220	61	97.1	66.2

Metal Dixon Ring - Technical Features

The material of the metal West Tower ring includes 304 stainless steel and 316/316L stainless steel.
The metal Dixon ring is made of high-strength materials such as stainless steel, which can withstand high pressure and load, ensuring the stable operation of the equipment. At the same time, they also have good wear resistance, which can extend the service life of the equipment. Through its unique geometric structure and large specific surface area, it maximizes the utilization of surface area per unit volume, increases the contact opportunities between gas and liquid, and thus improves mass transfer efficiency. This makes metal Sita rings perform well in the separation and purification processes of chemical, petroleum, and other fields. The surface design of the metal Xita ring is conducive to the wetting and film formation of liquids. The rough surface and capillary action of the wire mesh enable the liquid to disperse well on the surface of the filler, forming a uniform thin film, thereby improving the utilization and mass transfer efficiency of the filler. Having a reasonable porosity can ensure smooth flow of gas-liquid in the packing layer, reduce pressure drop, and improve the overall performance of the equipment. Meanwhile, its smaller fluid resistance also helps to reduce the energy consumption of the equipment and improve overall operational efficiency.



Metal Dixon ring packing is an efficient small particle packing made of metal wire mesh with equal diameter and height, commonly known as Dixon packing or θ ring packing. The shape of the Dixon ring is diverse, commonly including cylindrical, square, and triangular, with cylindrical being the most common due to its ease of manufacturing and installation. There are many small holes distributed on each Dixon ring component, which increase the contact area between liquid and gas, significantly improve mass transfer efficiency, and are mainly used in laboratory and small batch, high-purity product separation processes

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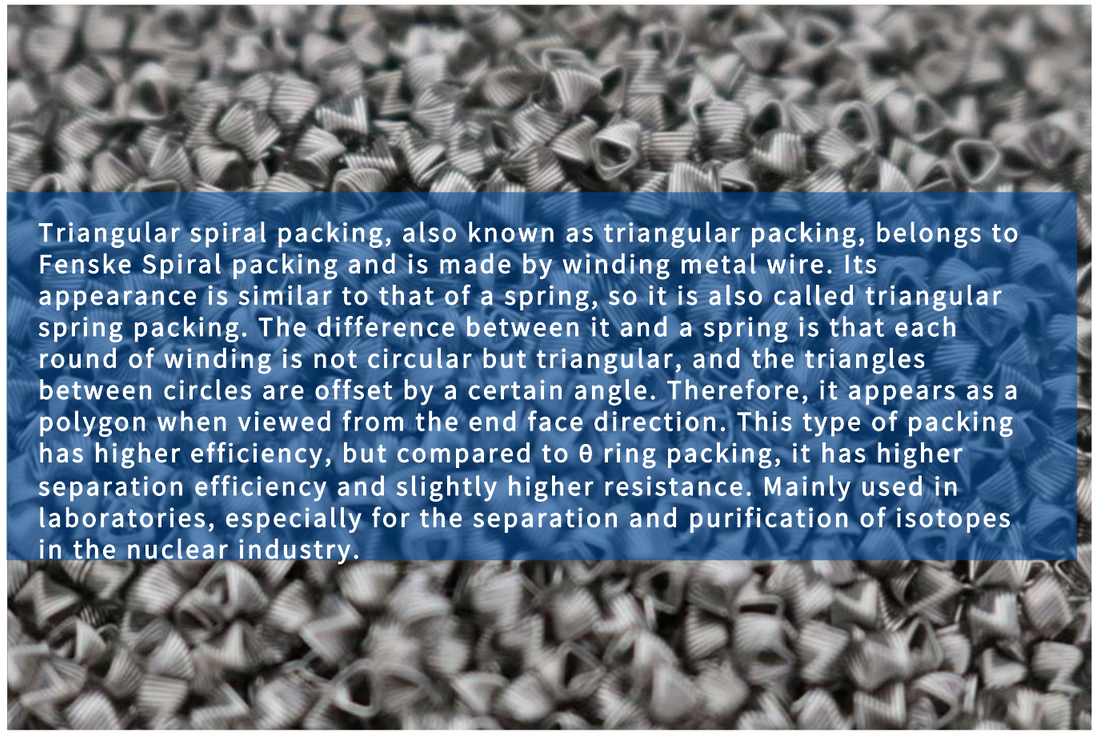
Product parameters
产品参数

Filling specifications mm	Screen number	tower diameter mm	theoretical plate Block / meter	The amount of accumulation Admito / litre	gram / rise	specific area m2/m3
φ2×2	0.1x80	φ10~φ30	60~65	90000	430	3700
φ3×3	0.1x80	φ30~φ50	50~55	27000	370	2800
φ4×4	0.1x80	φ40~φ80	30~32	11500	280	1700
Double layer φ 5 virus 5	0.1x80	φ80~φ150	18~23	5900	340	2250
φ5×5	0.15x60	φ80~φ150	15~20	5900	395	1350
φ6×6	0.15x60	φ80~φ200	12~15	3400	330	1100
φ8×8	0.15x60	φ120~φ250	10~12	1460	220	850
φ10×10	0.15x60	φ150~φ300	7~8	760	190	650

Triangular Spiral Ring - Technical Features

The material of the triangular spiral ring packing includes stainless steel materials such as 304 stainless steel and 316/316L Triangular spiral ring packing is an efficient industrial distillation tower component. Its unique triangular spiral structure design increases the gas-liquid contact area, optimizes the fluid path, and improves mass and heat transfer efficiency. This filler is corrosion-resistant and high-temperature resistant, suitable for extreme working conditions, and reduces maintenance costs. The triangular spiral packing made of stainless steel material has good stability and durability, and is widely used in chemical, pharmaceutical, environmental protection and other fields. The installation and disassembly of triangular spiral ring packing are convenient, reducing maintenance time and costs. Its self-cleaning ability suppresses liquid turbulence inside the tower, reduces energy consumption, and improves process economy.



Triangular spiral packing, also known as triangular packing, belongs to Fenske Spiral packing and is made by winding metal wire. Its appearance is similar to that of a spring, so it is also called triangular spring packing. The difference between it and a spring is that each round of winding is not circular but triangular, and the triangles between circles are offset by a certain angle. Therefore, it appears as a polygon when viewed from the end face direction. This type of packing has higher efficiency, but compared to θ ring packing, it has higher separation efficiency and slightly higher resistance. Mainly used in laboratories, especially for the separation and purification of isotopes in the nuclear industry.

Product parameters

Triangle spiral Filling specifications	Suitable for tower diameter mm	number of the theoretical plate Block / meter	stacking density gram / rise	specific area m2/m3	porosity %	differential pressure Mbar/m
φ1.5*1.5	φ2-10	70-90	1960	4700	90	32
φ2*2	φ10-20	60-70	1710	3900	91	30
φ3*3	φ25-40	50-60	1140	3000	93	15
φ4*4	φ40-70	45-50	830	2200	95	10
φ5*5	φ50-70	30-40	650	1700	95	9
φ6*6	φ60-90	20-30	520	1200	95	7

Engineering case

Case 1: Optimization of Catalytic Cracking Unit in Northern Petrochemical Company

Solution: After detailed technical analysis and comparison, the company has decided to use 780 cubic meter metal pall rings from Pingxiang Rongjian Environmental Protection Chemical Packing Co., Ltd. as the tower packing. Metal pall rings have become an ideal alternative due to their excellent corrosion resistance, wear resistance, and good fluid distribution performance.

Effect: After replacing the metal pall ring, the operating efficiency of the catalytic cracking unit was significantly improved, the catalytic efficiency was greatly enhanced, and the product quality was more stable. Meanwhile, due to the strong durability of metal pall rings, the frequency of filler replacement is reduced, thereby lowering maintenance costs. In addition, the fluid distribution is more uniform, and the energy consumption of the device is effectively controlled, saving the company a lot of operating costs.

Case 2: Optimization of Cooling Tower Efficiency in Green Source Chemical Plant

Solution: In order to improve the efficiency of the cooling tower, Green Source Chemical Plant has decided to use 820 cubic meters of high-efficiency metal flower ring packing from Pingxiang Rongjian Environmental Protection Chemical Packing Co., Ltd. to replace the original aging packing. This metal flower wreath filler has excellent heat dissipation performance and corrosion resistance, which can effectively improve heat exchange efficiency while reducing energy consumption.

Effect: After replacing the metal wreath packing, the heat exchange efficiency of the cooling tower has been significantly improved, and energy consumption has been reduced by about 25%. In addition, the corrosion resistance of metal flower garlands significantly extends the service life of the fillers, reduces downtime and maintenance time caused by filler corrosion, and further improves the overall operational efficiency of the factory.

Case Three: Performance Enhancement of Bioreactors by Qingquan Environmental Protection Technology Co., Ltd

Solution: In order to improve the performance of the bioreactor, Qingquan Environmental Protection has decided to introduce 645 cubic meter metal Raschig rings from Pingxiang Rongjian Environmental Protection Chemical Packing Co., Ltd. as a new type of packing material. Due to its excellent gas distribution ability and large specific surface area, the metal Raschix ring can significantly improve the transfer efficiency of oxygen in the reactor, thereby accelerating the biodegradation process.

Effect: After adopting the metal Raschix ring, the oxygen transfer efficiency of the bioreactor increased by nearly 40%, and the treatment efficiency of organic wastewater was significantly improved. At the same time, the corrosion resistance of the metal Raschig ring ensures long-term stable operation, reduces the frequency of maintenance and replacement of fillers, and lowers operating costs.

Case 4: Optimization of Purification Tower Efficiency of Shiling Purification Technology Company

Solution: In order to improve the purification efficiency of the purification tower and reduce energy consumption, it has been decided to use 560 cubic meter metal saddle rings from Rongjian Environmental Protection Chemical Packing Co., Ltd. as the new packing material. The metal saddle ring, with its unique structure and material, not only has excellent corrosion resistance and wear resistance, but also can effectively increase the gas-liquid contact area and improve purification efficiency.

Effect: After replacing with metal saddle ring packing, the purification efficiency of the purification tower has been significantly improved, and the purification effect is more stable. At the same time, due to the corrosion resistance and wear resistance of the metal saddle ring, the downtime and maintenance time caused by aging or damage of the packing are reduced, and the service life of the equipment is extended. More importantly, the high-throughput characteristics of the metal saddle ring reduce pressure loss inside the tower and energy consumption by about 15%.

ABOUT US

Company Profile

The company has a team of young and energetic management and technical personnel with a pioneering spirit. Through continuous digestion and absorption of domestic and foreign environmental protection technologies, it has formed independent innovative core environmental protection products and equipment. The company's main products include ceramic ball packing, ceramic bulk packing, plastic bulk packing, metal bulk packing, microporous ceramic filters, microporous ceramic filtration devices, honeycomb ceramic heat storage bodies, carriers, membrane hanging bio ceramic particles and other equipment and products. Its stability and reliability have reached a good level compared to similar products at home and abroad. The purpose and pursuit of Rongjian people is to drive the future with technology, improve products with innovation, survive with quality, and ensure reputation. We sincerely hope to work together with friends from all walks of life to protect the beautiful environment of humanity!

Production workshop

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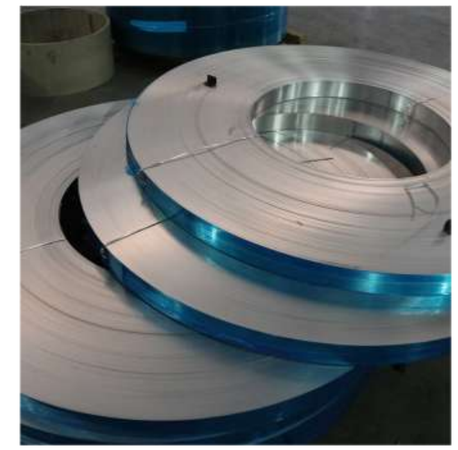

Proof of qualifications


统一社会信用代码

营业执照

(副本)

名称

类型

法定代表人

经营范围

注册资本

成立日期

营业期限

住所

登记机关

2020 年07 月29 日