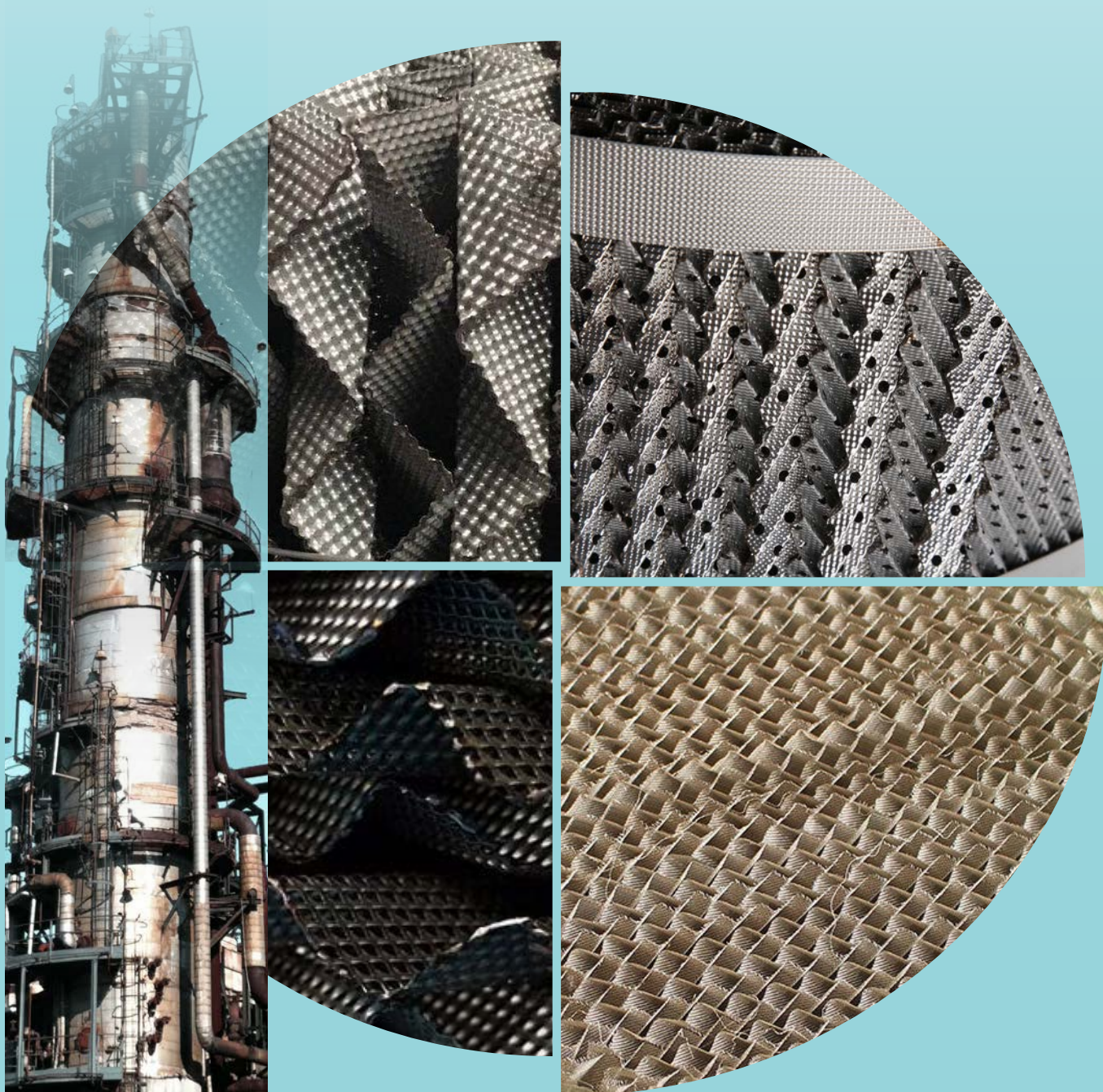




Walcoom Corporation



STRUCTURED PACKING

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"Standard & customized structured packing for your new-built & rebuilt tower columns"

Walcoom Corporation has been offering the structured packing for more than 20 years. All standard structured packings are waiting for your purchase. Special specs or types can be customized according to your requirements. All our products help your high efficient production, low cost, low maintenance and long service life. Just browse and choose them.

Main types of structured packings are as follows:

- Wire gauze structured packing
- Perforated corrugated structured packing
- Expanded corrugated structured packing
- Protruded corrugated structured packing
- Ceramic structured packing

Wire Gauze Structured Packing

Wire gauze structured packing is available for plastic and metal materials.

Plastic wire gauze structured packing can be made of PP, PA, PVDF, CPVC and other plastic materials, which has excellent high temperature resistance performance and corrosion resistance performance.

Metal wire gauze structured packing is made of corrugated woven wire mesh panels. The stainless steel wire, copper wires, carbon steel wires and other metallic wires are plain woven into panels. Then the panels are cut into specific sizes. Then the panels are corrugated into two different corrugations Y and X. Neighbor corrugated panels are assembled in opposite side.

Y stands for the wire gauze structured packings have a nominal inclination angle of 45° , which are widely used in the new installations. The X stands for structured packings have a nominal inclination angle of 60° , which are widely used in places where high capacity and low pressure drop are the most important requirements environments.

Wire gauze structured packing supplies lowest pressure drop per theoretical stage in the deep vacuum and low liquid rate applications. Additional, the fine surface supplies extremely wettable surface for excellent mass transfer performance.



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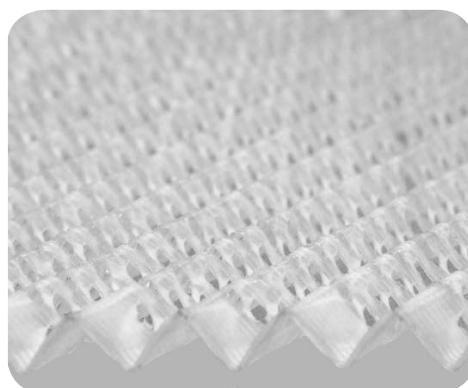
Metal packing side structure details



Metal wire gauze surface details



Plastic packing side structure details



Plastic wire gauze surface details

Feature

- Wettable surface for excellent mass transfer performance.
- Lowest pressure drop per theoretical stage.
- High operating flexibility.
- High theoretical plate and high flux.
- High loading capacity.
- Most widely used and high efficient structured packing.

Application

- Very applicable the distillation for the hard separation system, the thermal sensitive system and the process requiring high purity products.
- It is ideal for deep vacuum and low liquid rate applications.
- It is suitable for the small to medium diameter tower columns.

Table 1: Technical Parameters of Metal Wire Gauze Structured Packing

Item	Specific Surface Area (mm)	Bulk Density (kg/m ³)	Void volume	Pressure Droper plate (Pa/n)	HETP (mm)	Theoretical plate number (m-1)	F-Factor m/s(kg/m ³) ^{0.5}	Stage height (m)
WGM-250X	250	125	95%	10-40	100	2.5-3	2.5-3.5	5
WGM-500X	500	250	90%	40	200	4-5	2.0-2.4	3-4
WGM-700Y	700	350	85%	67	400-333	8-10	1.5-2.0	5

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Table 2: Technical Parameters of Plastic Wire Gauze Structured Packing

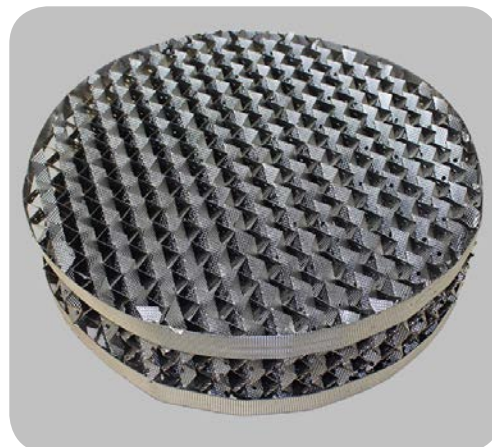
Item	Material	Mesh	Peak Height (mm)	Obliquity	Specific Area (m ² /m ³)	Void Volume
WGP-500X	PP/PA	40	6.3	60°	450	85%
WGP-624Y	PP/PA	40	4.5	45°	624	96%
WGP-450X	PP/PA	40	6.2	60°	450	97%

Perforated Corrugated Packing

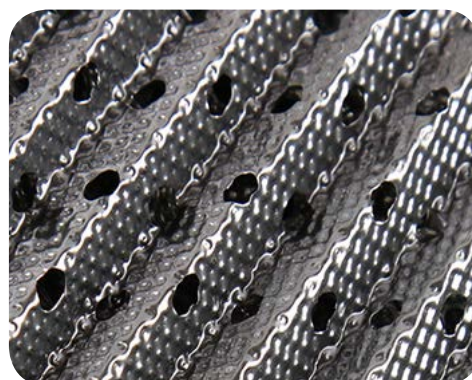
Perforated corrugated packings, available for metal and plastic materials supply increased capacity and reduced pressure drop in new-built or rebuild packed tower columns.

Metal perforated corrugated packing is commonly made of stainless steel or other metallic materials. The metal or other material plates are perforated with round holes. Then roll the perforated plates with microgrooves and corrugations and assemble them at last.

The plastic perforated corrugated structured packing can be made of PP, PVC PVDF, CPVC and other plastic materials, which make the structured packing to be used in high temperature, high corrosive and other extremely harsh environments.



Metal plate side structure details



Metal perforated plate surface details



Plastic plate side structure details



Plastic perforated plate surface details

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Feature

- High flux, low resistance and high efficiency.
- Excellent anti-block ability.
- Strong resistance to fouling.
- High efficiency, large flow rate and unremarkable magnifying effects.
- It's applied to negative pressure, normal pressure and pressurization operation.

Application

Vacuum to high pressure working environments.

- Distillation.
- Absorption.
- Extraction.
- Chemical.
- Chemical fertilizer.
- Petroleum refining.
- Petrochemical industries.
- Natural gas.

Table 3: Specification of Metal Perforated Plate Corrugated Packing

Item	Theoretical Plate Number (m ⁻¹)	Specific Surface Area (m ² /m ³)	Void Volume	Pressure Drop (MPa/m)	Bulk Density (kg/m ³)	Maximal F-Factor m/s (kg/m ³) ^{0.5}	Liquid Loading (m ³ /m ² .hr)
PPCM-125Y	1-1.2	125	98%	2×10^{-4}	85-100	3	0.2-100
PPCM-250Y	2-2.5	250	97%	3×10^{-4}	170-200	2.6	0.2-100
PPCM-350Y	3.5-4	350	94%	2×10^{-4}	240-280	2.0	0.2-100
PPCM-500Y	4-4.5	500	92%	3×10^{-4}	170-200	1.8	0.2-100
PPCM-125X	0.8-0.9	125	98%	1.4×10^{-4}	85-100	3.5	0.2-100
PPCM-250X	1.6-2	250	97%	1.8×10^{-4}	170-200	2.8	0.2-100
PPCM-350X	2.3-2.8	350	94%	1.3×10^{-4}	240-280	2.2	0.2-100
PPCM-500X	2.8-3.2	500	92%	1.8×10^{-4}	170-200	2.0	0.2-100

Table 4: Technical Parameters of Plastic Perforated Plate Corrugated Structured Packing

Item	Specific Surface Area (m ² /m ³)	Void Fraction	Pressure Drop (MPa/m)	Bulk Density (kg/m ³)	Maximal F-Factor m/s (kg/m ³) ^{0.5}
PPCP-125Y	125	98%	200	45	3
PPCP-125X	125	98%	140	40	3.5
PPCP-250Y	250	97%	300	60	2.6
PPCP-250X	250	97%	180	55	2.8
PPCP-350Y	350	94%	200	80	2
PPCP-350X	350	94%	130	75	2.2
PPCP-500Y	500	92%	300	130	1.8
PPCP-500X	50	92%	180	120	2

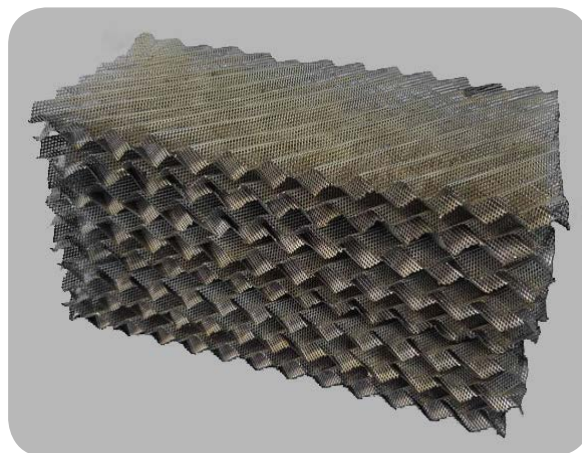
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Expanded Corrugated Structured Packing

Expanded corrugated structured packing, also called intalox structured packing or metal mesh structured packing, is a high capacity and high efficient structured packing in tower packing columns.

The stainless steel or other metallic perforated plates are rolled with several diamond-shaped tiny holes, then expand the tiny holes into mesh openings, which are known as expanded metal mesh. Then corrugate the plates in 45° angle and assemble them into packing units.

This unique expanded metal mesh structure makes expanded corrugated structured packing an excellent surface wetting, high flux, low plugging possibility and low pressure drop in vacuum and atmospheric pressure.



Side structure details



Expanded metal mesh surface details

Advantage

- Unique expanded metal surface supplies excellent surface wetting performance.
- High flux, low pressure drop and high capacity.
- Anti-plugging for higher efficiency.
- Excellent resistance to acid and alkali corrosion, especially H_2S , naphthenic acid and chloric acids.
- Suitable for small, medium and large packed towers.

Application

- Used as heat exchanger, demisting or as a catalyst carrier.
- Rectifying and absorbing various corrosive mixtures.
- Rectifying organic halide.
- Absorb nitric acid and concentrated sulfuric acid, as well as for purifying the air in chemical plants.

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Table 5: Technical Parameters of Expanded Corrugated Structured Packing

Item	Void Fraction	Plate Thickness (mm)	Bulk Density (kg/m ³)	Wave Height (mm)	Wave Span (mm)	Gear-Shape Angle	Packing Factor (m ⁻¹)	Theoretical HETP (pcs/m)
EC-450Y	76%	1±0.2	600	6	11	80°	1.5-2	4-5
EC-350Y	80%	1.2±0.2	580	9	15	80°	2	3.5-4
EC-250Y	82%	1.4±0.2	530	13	22	80°	2.5	2-3
EC-160Y	84%	2.2±0.2	500	17	30	80°	2.8	1.5-2
EC-125Y	85%	2.5±0.5	480	23	42	80°	3	1-1.5
EC-100Y	87.5%	2.5±0.5	460	30	50	80°	3.5	1

Protruded Corrugated Structured Packing

Protruded corrugated structured packing has similar structure with perforated plate corrugated structured packing. The Metal plates are rolled into several tiny holes in high density, which improves excellent wettable performance of structured packing without reduces any other properties, such as high flux, low pressure drop and high filtering performance. Protruded corrugated structured packing is commonly made of stainless steel materials, carbon steel and other metallic materials are also available.



Feature

- High flux and low pressure drop.
- High separating and distillation performance.
- Corrosion and high temperature resistance.
- Excellent wettable performance.
- High flux and low pressure drop.



Side structure details



Expanded metal mesh surface details

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Application

- Purification.
- Distillation.
- Separation.
- Fertilization.

Table 6: Technical Parameters of Protruded Corrugated Structured Packing

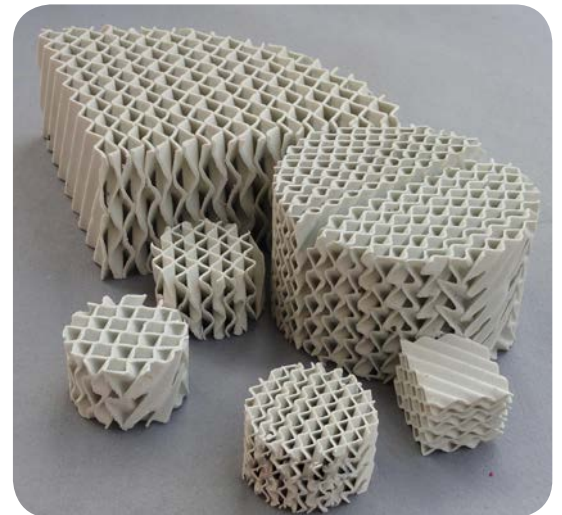
Item	Surface Area (m ² /m ³)	Void Fraction	Bulk Density (kg/m ³)	Wave Height (mm)	Theoretical Plates (m ⁻¹)	Pressure Drop (Pa/m)	Max. F Factor m/s(kg/m ³) ^{0.5}
PTC-700Y	700	85%	240-280	4.5	5.0-7.0	930	1.6
PTC-500Y	500	93%	170-200	6.3	3.0-4.0	200	2.1
PTC-250Y	250	97%	85-100	12.5	2.5-3.0	300	2.6

Ceramic Structured Packing

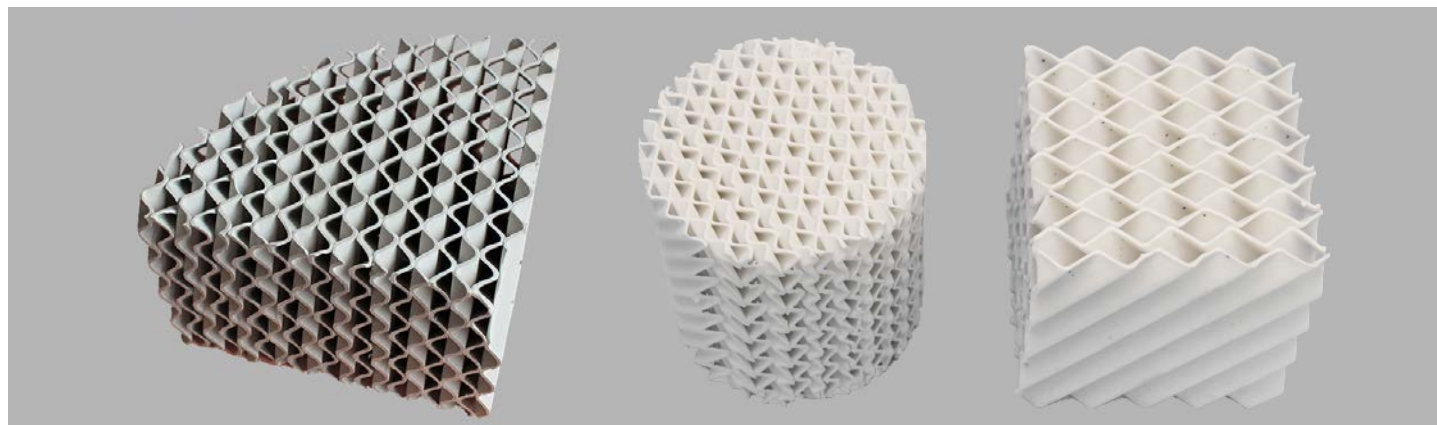
Ceramic structured packing, also called ceramic corrugated structured packing, is made of high quality chemical porcelain clay packing units in same different corrugated surface. It is an economical but high efficient structured packing.

Feature

- Due to the individual ceramic structure, it has excellent hydrophilic performance.
- The extremely thin liquid film on the surface and zig-zag channels can promotes airflow without blocking it.
- It has similar airflow performance but higher corrosion and temperature resistance performance than metal structured packing.
- Excellent humidity performance to speed up liquid flowing, lower packing liquid volume and reduce the possibility of overheating, polymerization and coking further.



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Application

It is suitable for distillation and absorption of high corrosive materials with strict requirements in pressure drop and theoretical plate in extremely high temperature environments.

Chemical property

- $\text{SiO}_2 \geq 72\%$.
- $\text{Al}_2\text{O}_3 \geq 19\%$.
- $\text{CaO} \leq 1.0\%$.
- $\text{Fe}_2\text{O}_3 \leq 0.5\%$.
- $\text{MgO} \leq 1.0\%$.
- Others 2%.

Physical Property

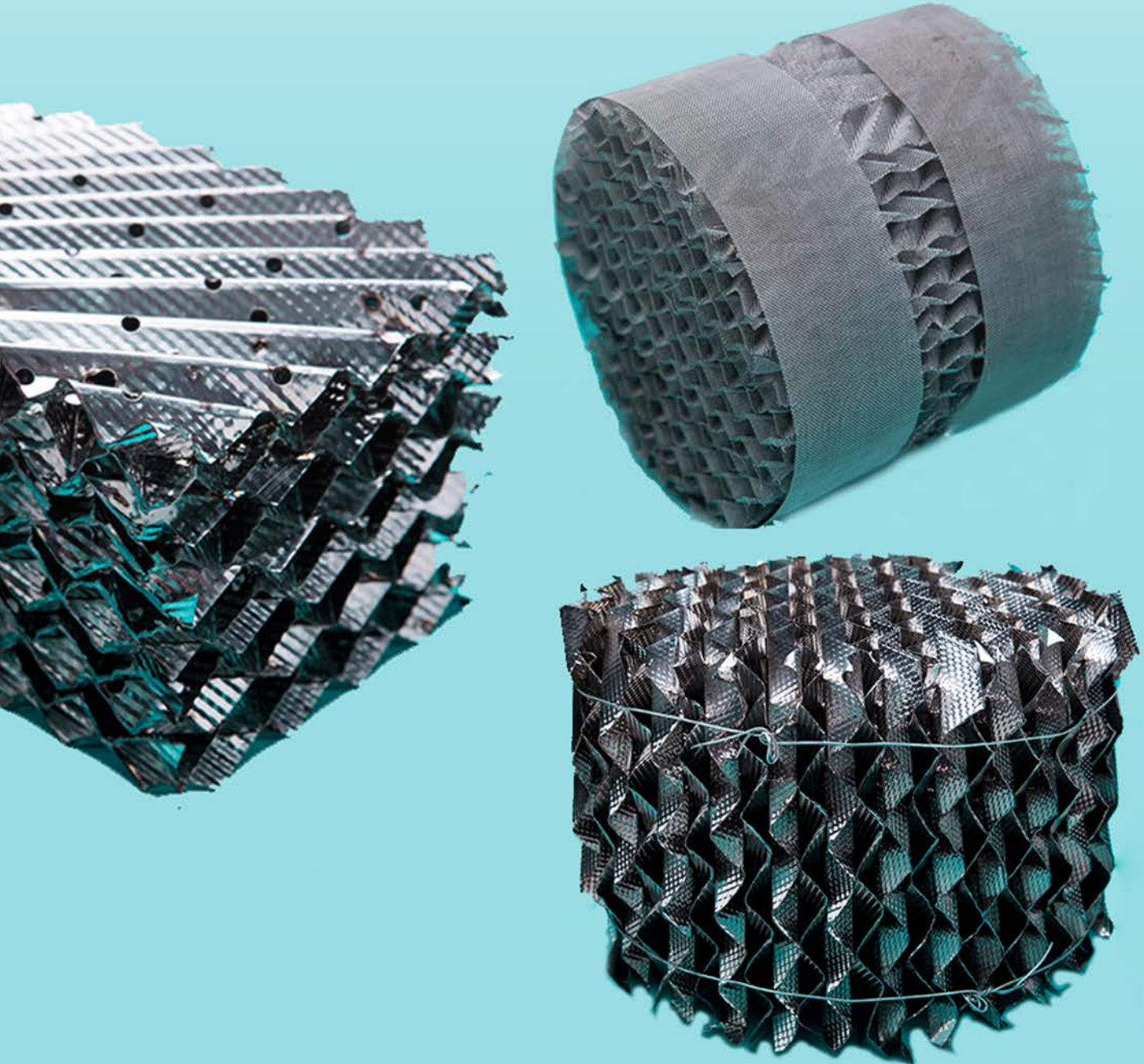
- Volume density: 2.5 g/m^3 .
- Acid resistance $\geq 99.8\%$.
- Max. working temperature: 1000°C .
- Crushing Strength $\geq 130 \text{ MPa}$.
- Mosh's hardness scal ≥ 7 .

Table 7: Technical Parameters of Ceramic Structured Packing

Item	Surface Area (m^2/m^3)	Void Fraction	Bulk Density (kg/m^3)	Wave Height (mm)	Wave Span (mm)	Thickness (mm)	Number of Theoretical Plate (m^{-1})	Max. F-factor $\text{m/s} \cdot (\text{kg}/\text{m}^3)^{0.5}$	Pressure Drop (Pa/m)
CS-450X	450	75%	550-550	6.0 ± 0.5	12 ± 0.5	1.0-1.3	3-4	1.8-2.0	200-250
CS-400Y	400	76%	500-520	7.0 ± 0.5	14 ± 0.5	1.0-1.3	2.8-3.2	2.0-2.2	180-250
CS-350X	350	78%	480-520	8.0 ± 0.5	16 ± 0.5	1.2-1.5	2.5-2.8	2.2-2.6	200-260
CS-250Y	250	85%	420-450	11.0 ± 0.5	22 ± 0.5	1.2-1.5	2.3-2.5	2.6-2.8	220-280
CS-160X	160	86%	350-380	17.0 ± 0.5	34 ± 0.5	1.5-2.0	1.8-2.0	2.8-3.0	250-300
CS-125Y	125	87%	300-350	23.0 ± 0.5	42 ± 0.5	2.0-2.5	1.5-1.8	3.0-3.2	280-350
CS-100X	100	90%	220-250	30.0 ± 0.5	50 ± 0.5	2.0-2.5	1	3.5	250-300

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