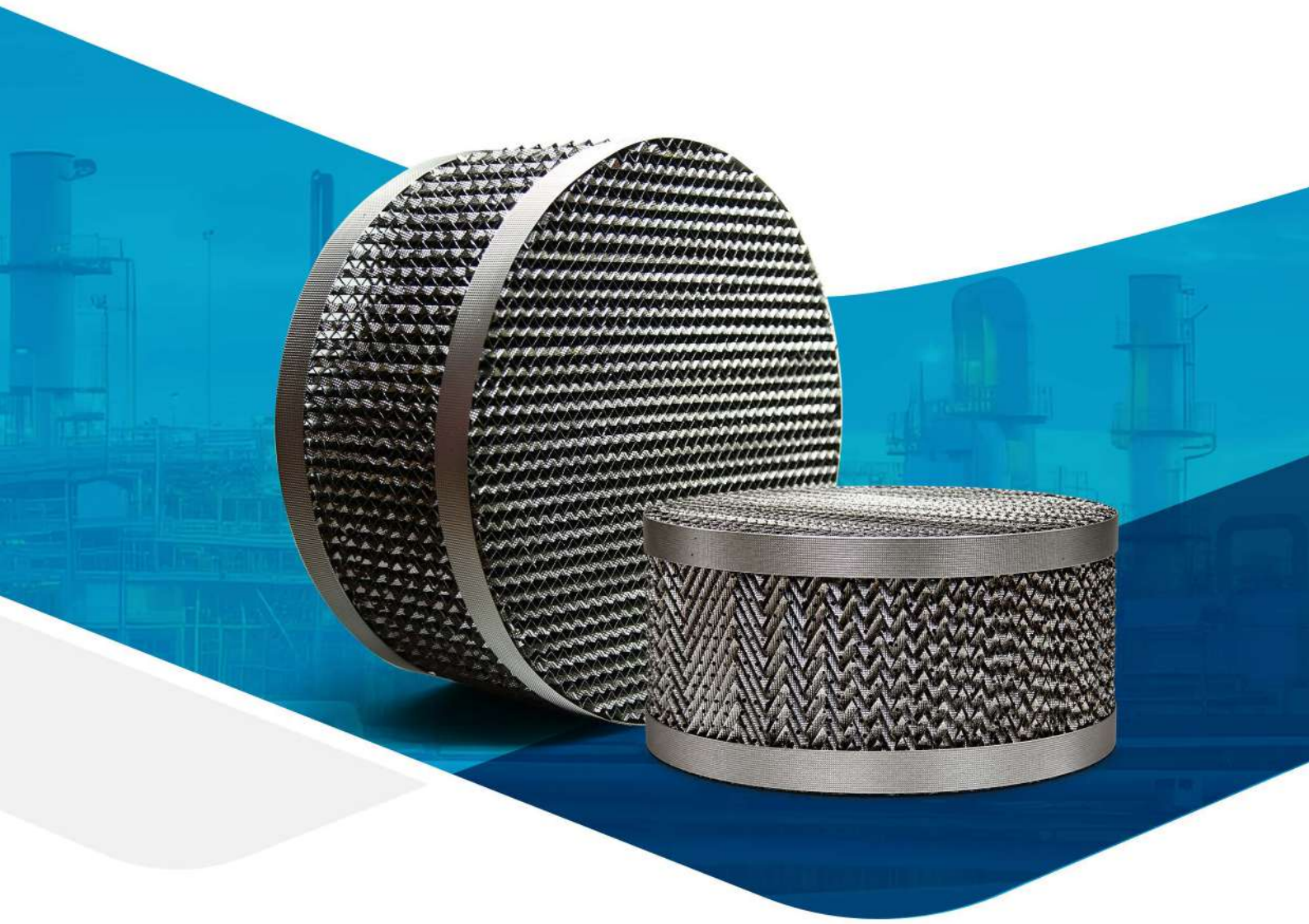
Cleairy



Structured Packing

Efficient Contact · Lower Pressure Drop · Reliable Performance



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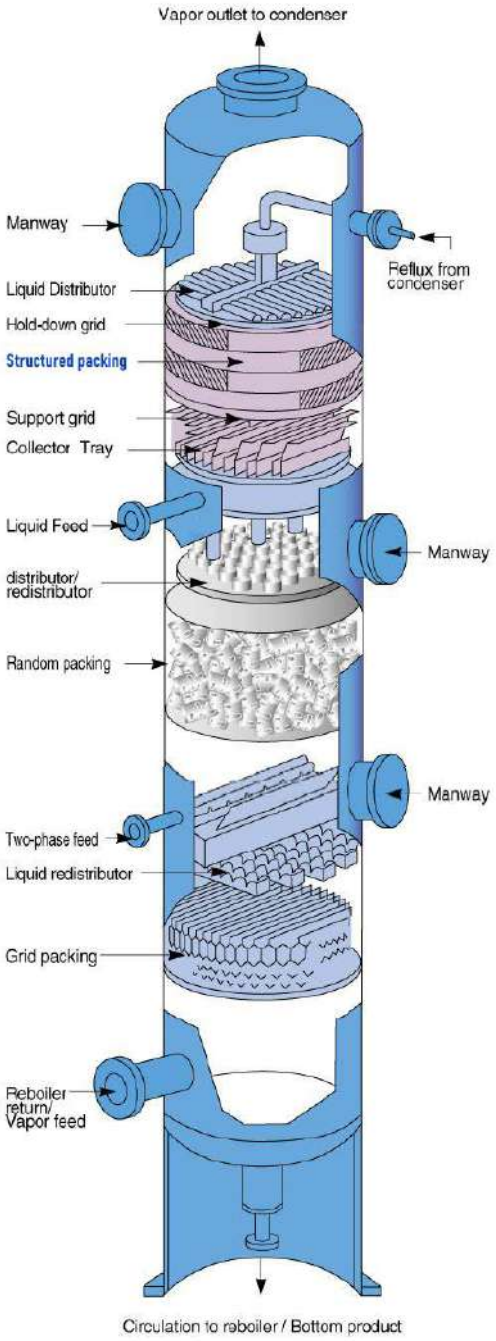
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Structured Packing

Structured packing is a mass transfer component installed inside absorption towers, scrubbers, distillation towers, and other towers. It is typically made from corrugated metal sheets, metal wire mesh, plastic sheets, or grids arranged in fixed orientations and formed into discs or modules, which are then installed in the tower layer by layer. Liquid flows downward from the top of the tower, forming a liquid film on the packing surface; gas flows upward from the bottom of the tower, making thorough contact with the liquid film through the packing channels to carry out absorption, removal, rectification, or desorption.

Compared with random packing, structured packing typically offers low pressure drop and higher separation efficiency, requires better liquid distribution, installation, and process fluid cleanliness, and is particularly suitable for deep-vacuum operation, low liquid loads, and energy-sensitive operating conditions.





Types



Metal Perforated Corrugated Packing



Metal Wire Gauze Structured Packing



Plastic Perforated Corrugated Packing



Ceramic Structured Packing

Model

250 - X / Y / BX / CY

Specific Surface Area
(m^2/m^3)

Corrugation Inclination Angle	
X	30°
Y	45°

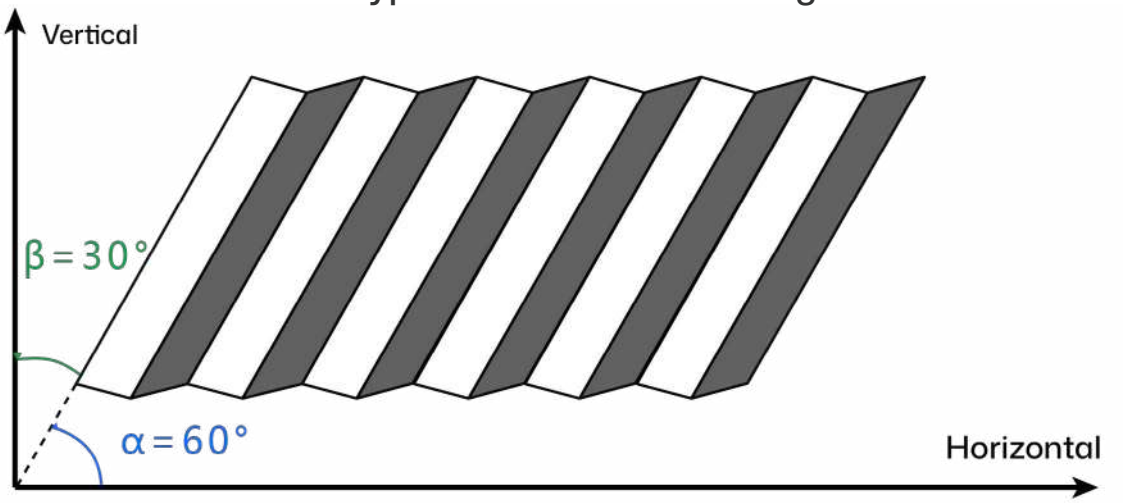
Wire Gauze Structured Packing	
BX	Specific surface area approximately 500 m^2/m^3, corrugation inclination angle 30°
CY	Specific surface area approximately 700 m^2/m^3, corrugation inclination angle 45°

Corrugation Inclination Angle

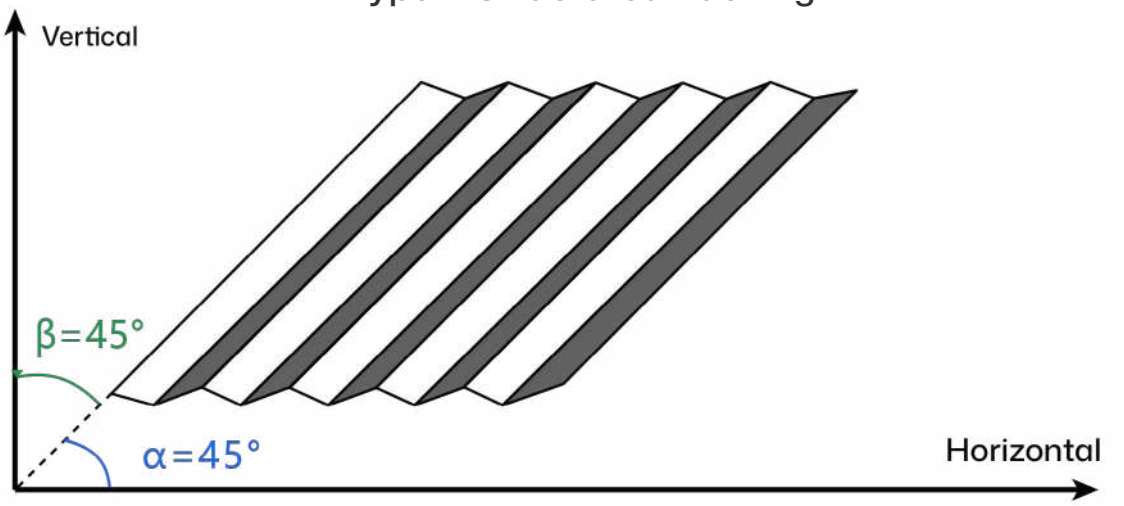
Conventional corrugated structured packing commonly comes in two corrugation inclination configurations: X-type and Y-type. The angle between the X-type corrugation channels and the tower axis is typically 30°; the Y-type forms an angle of 45° with both the tower axis and the horizontal plane and is the more widely used type.

Within the same series, at the same specific surface area and under similar operating conditions, X-type typically offers lower pressure drop, higher gas handling capacity and higher flooding capacity, making it suitable for high-load, low-pressure-drop service and capacity expansion retrofits; Y-type typically offers better gas–liquid contact and mass transfer efficiency, with lower HETP, but relatively higher pressure drop and lower handling capacity, making it more suitable for rectification, absorption and desorption processes requiring high separation efficiency.

Type X Structured Packing



Type Y Structured Packing



PRODUCT INTRODUCTION



4 series

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Metal Perforated Corrugated Packing

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Plastic Perforated Corrugated Packing

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Metal Wire Gauze Structured Packing

04

Ceramic Structured Packing



Metal Perforated Corrugated Packing

Metal perforated corrugated packing is a high-efficiency gas–liquid mass transfer packing composed of multiple layers of regularly arranged metal corrugated sheets. The metal sheet surfaces are typically provided with uniformly distributed perforations, while adjacent corrugated sheets are arranged in alternating orientations to form regular gas–liquid flow channels. This structure can increase the gas–liquid contact area and improve liquid wetting and distribution while maintaining a relatively low pressure drop.



Applications

Suitable for styrene production, oil refining and petrochemical processing, natural gas dehydration and acid gas removal, etc.

Features

The regular corrugated structure provides uniform gas–liquid contact.

The corrugated sheets form continuous gas–liquid flow channels, helping improve gas and liquid distribution within the tower.

Low pressure drop, suitable for operating conditions with high gas flow rates.

Regular flow channels reduce random collisions and gas-flow resistance as gas passes through the packing bed.

Metal construction with high mechanical strength.

Metal structured packing offers good structural stability and can be used in high-temperature applications or operating conditions requiring high mechanical strength.

Modular installation.

It is typically fabricated into packing elements or packing modules according to tower dimensions, facilitating layered installation, positioning, and replacement within the tower.

Specifications

Model	Specific Surface Area (m^2/m^3)	Void Fraction (%)	Theoretical Plate Number (m^{-1})	Pressure Drop (Pa/m)
125X	125	98	0.8-0.9	140
125Y	125	98	1-1.2	200
250X	250	97	1.6-2	180
250Y	250	97	2-2.5	300
350X	350	95	2.3-2.8	230
350Y	350	95	3.5-4	350
500X	500	92	2.8-3.2	280
500Y	500	92	4-4.5	400
700Y	700	90	9	660
1000Y	1000	90	13	850



02
PLASTIC PERFORATED CORRUGATED PACKING

Plastic Perforated Corrugated Packing

Plastic perforated corrugated packing is assembled from plastic sheets through perforation, forming, and corrugation. Multiple corrugated sheets are arranged at fixed spacing, with the corrugation directions of adjacent sheets crossing each other to form regular inclined gas–liquid flow channels.

This structured configuration can reduce disordered gas flow within the packing layer, making the gas flow path more stable while providing a large gas–liquid contact area; it is therefore commonly used in the gas–liquid mass transfer sections of absorption towers, wet scrubbers, and chemical scrubbing equipment.



Applications

Suitable for hydrogen chloride tail-gas absorption, SO_2 and flue-gas purification, chlorine / hydrogen dioxide tail-gas treatment, gas cooling and degassing, etc.

Features

Good corrosion resistance.

The plastic material offers good resistance to various acids, alkalis, and corrosive chemical media, making it suitable for corrosive waste-gas treatment systems.

Good gas–liquid mass transfer performance.

The corrugated structure increases the effective contact area, allowing liquid to form a liquid film along the sheet surface and providing a larger contact interface for mass transfer.

The perforated structure improves liquid distribution.

The perforations in the sheets promote liquid redistribution between different corrugated channels, reducing localized maldistribution.

Low pressure drop.

The orderly gas flow channels reduce random collisions as gas passes through the packing layer, resulting in lower operating resistance.

Specifications

Model	Specific Surface Area (m^2/m^3)	Void Fraction (%)	Theoretical Plate Number (m^{-1})	Pressure Drop (Pa/m)
125X	125	98	0.8-1.9	140
125Y	125	98	1-2	200
250X	250	97	1.5-2	180
250Y	250	97	2-2.5	300
350X	350	94	2.3-2.8	130
350Y	350	94	3.5-4	200
500X	500	92	2.8-3.2	180
500Y	500	92	4-4.5	300



Metal Wire Gauze Structured Packing

Metal wire gauze structured packing is a high-efficiency packing for gas–liquid mass transfer, formed by pressing multiple layers of metal wire mesh into corrugated shapes and arranging them according to a specified directional pattern. It has a high specific surface area, and the unique capillary effect of the wire mesh provides good surface wettability, resulting in high separation efficiency.

The main materials used to manufacture wire-mesh structured packing include stainless steel, copper, aluminum, iron, and nickel. Compared with other packings, it offers lower pressure drop and lower liquid holdup, making it particularly suitable for difficult separations and heat-sensitive systems.



Applications

BX-type packing focuses on maintaining a low pressure drop per theoretical stage while achieving high separation efficiency. Suitable for vacuum distillation and the separation of fatty acids, fatty alcohols, ethylene glycol and related compounds, and fine chemicals.

CY-type packing places greater emphasis on increasing the number of theoretical stages per unit packing height. Suitable for applications requiring more separation stages, where tower height is limited or separation is more difficult, such as isomer separation and the distillation of fragrances and certain pharmaceutical products.

Features

Excellent surface wettability.

The fine metal wire gauze provides strong capillary action, helping form a uniform liquid film.

High-efficiency Gas–Liquid Mass Transfer.

A larger effective wetted area increases the gas–liquid contact interface.

Suitable for low liquid-loading conditions.

Good wettability helps maintain effective surface wetting even at relatively low liquid loads.

Suitable for vacuum and precision separations.

Low pressure drop and high mass-transfer efficiency make it well suited for vacuum distillation, fine chemical separation, and high-purity product separation.

Specifications

Model	Specific Surface Area (m^2/m^3)	Void Fraction (%)	Peak Height (mm)	Inclination Angles
500 (BX)	500	95	6.3	30°
700 (CY)	700	87-90	4.5	45°



Ceramic Structured Packing

Ceramic structured packing is a gas–liquid mass transfer packing composed of multiple layers of ceramic corrugated sheets arranged in a regular pattern in specific orientations. Adjacent corrugated sheets are typically arranged in alternating crosswise orientations, forming continuous, regular inclined flow channels within the packing, enabling thorough contact between gas and liquid on the packing surface.

Ceramic material offers good high-temperature resistance and corrosion resistance, as well as good surface wettability; therefore, it is suitable for absorption, scrubbing, distillation, and mass transfer operations involving acidic media, high-temperature gases, and certain corrosive chemical processes.



Applications

Suitable for gas drying and SO_3 absorption in sulfuric acid production, chlorine and halogen chemical processing, treatment of corrosive organic systems, etc.

Features

Low pressure drop, suitable for operating conditions with high gas flow rates.

Regular flow channels reduce random collisions and gas-flow resistance as gas passes through the packing bed.

Resistant to corrosion by most acidic media.

Offers good resistance to various inorganic acids and corrosive gases.

Good surface wettability.

The ceramic surface promotes liquid spreading and the formation of a more uniform liquid film, thereby improving gas–liquid contact.

Suitable for high-temperature conditions.

Ceramic's high thermal stability enables an operating temperature above 1000 °C.

Specifications

Model	Specific Surface Area (m^2/m^3)	Void Fraction (%)	Theoretical Plate Number (m^{-1})	Pressure Drop (Pa/m)
100X,Y	100	90	1	250-300
125X,Y	125	87	1.5-2.8	280-350
160X,Y	160	87	1.8-2.0	250-300
250X,Y	250	82	2.3-2.5	220-280
350X,Y	350	78	2.5-2.8	200-260
400X,Y	400	76	2.8-3.2	180-260
450X,Y	450	75	3-4	200-250

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