

METAL

MASS TRANSFER PRODUCT RANGE



SPECIALISING IN THE SUPPLY OF TOWER PACKING IN MASS TRANSFER EQUIPMENT

Pallchem specialises in the manufacture and supply of metal, ceramic and plastic mass transfer media for absorption, stripping, scrubbing and distillation processes used by mechanical, biological and chemical plants. We are a privately owned South African company managed by Stanton Global and associated with PIMMS Group, a leading plastics manufacturer. In addition to our high-quality metal packing, Pallchem also manufactures plastic random packings locally in South Africa, ensuring fast delivery & reliable support for a wide range of mass transfer needs.

TALK TO US ABOUT YOUR PACKING NEEDS

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METAL PALL RINGS

Metal Pall Rings are precision-engineered random packing elements designed for superior performance in mass transfer operations such as distillation, absorption, and stripping. Manufactured from thin metal sheets, they feature a unique open-window structure with inward-bending ligules that enhance liquid-gas contact, minimize resistance, and promote uniform distribution.

Each ring contains two staggered rows of windows, covering approximately 35% of the ring's surface area. This geometry provides significantly better performance than traditional Raschig Rings, with high capacity and low pressure drop—making them suitable for both deep vacuum and high-pressure tower operations.



PHYSICAL AND CHEMICAL PROPERTIES	
PROPERTY	VALUE / DESCRIPTION
Material Options	Carbon and Stainless steel including 304, 304L, 316, 316L, 410
Operating Temperature	≥ 600°C (material-dependent; significantly higher than plastic/ceramic)
Corrosion Resistance	Excellent when made with stainless or specialty alloys
Thermal Stability	Outstanding; suitable for extreme temperature ranges
Weight	Higher than plastic/ceramic; requires structural support in large beds
Design Profile	Dual-window ring with inward-pointing ligules for enhanced contact
Toxicity	Inert when clean; suitable for food, chemical, and pharma use
Mechanical Stregnth	High structural integrity; suitable for both vacuum and pressure towers



PRODUCT FEATURES & PERFORMANCE BENEFITS

- **Advanced Windowed Design:** Enhances gas-liquid mixing and promotes efficient mass transfer.
- **High Free Volume:** Allows excellent liquid distribution with reduced pressure drop.
- **Extreme Operating Range:** Performs in both high-pressure and deep-vacuum environments.
- **Durable and Long-Lasting:** Maintains integrity under thermal, mechanical, and chemical stress.
- **Versatile Applications:** Effective in both small and large diameter towers.
- **Material Flexibility:** Available in stainless steel, carbon steel, and specialty alloys.

APPLICATIONS

- Distillation Columns
- Absorption and Stripping Towers
- Vacuum Fractionators
- High-Pressure Reactors
- Solvent Recovery Units
- Gas Dehydration and Separation Processes

INDUSTRIES INCLUDE

Petrochemical • Refining • Fertilizer • Chemical Manufacturing • Food & Beverage • Power Generation • Pharmaceuticals

AVAILABLE SIZES AND SPECIFICATIONS			
SIZES (mm)	SURFACE AREA (m2/m3)	FREE SPACE (%)	BULK DENSITY (kg/m3)
16 mm / 0.6"	344	95.6%	394
25 mm / 1"	206	96.4%	309
38 mm / 1.5"	138	97.6%	207
50 mm / 2"	107	97.6%	195
76 mm / 3"	72	97.4%	222
89 mm / 3.5"	61	97.2%	223

METAL RASCHIG RINGS

Metal Raschig Rings are simple yet highly effective random packing elements, designed for robust mass transfer performance in a wide range of industrial separation processes. These hollow cylindrical metal rings are among the earliest and most widely used tower packing types, offering a high surface area, uniform shape, and reliable operation under both vacuum and high-pressure conditions.

They provide outstanding thermal and chemical resistance, making them ideal for harsh process environments where reliability and chemical compatibility are critical.



PHYSICAL AND CHEMICAL PROPERTIES	
PROPERTY	VALUE / DESCRIPTION
Material Options	Carbon and Stainless steel including 304, 304L, 316, 316L, 410
Operating Temperature	≥ 600°C (material-dependent; significantly higher than plastic/ceramic)
Corrosion Resistance	High, dependent on alloy selection
Thermal Stability	Excellent; suitable for high temperature operations
Weight	Heavier than plastic/ceramic but highly durable
Design Profile	Hollow cylindrical ring; uniform shape for even distribution
Mechanical Strength	Strong, crush-resistant under industrial loads
Toxicity	Chemically inert when clean; safe for industrial and environmental use



PRODUCT FEATURES & PERFORMANCE BENEFITS

- **Classic Cylindrical Design:** Ensures even distribution and consistent mass transfer performance.
- **High Surface Area:** Enhances gas-liquid interaction to optimize separation.
- **Thermally Robust:** Performs under extreme heat and temperature cycling.
- **Corrosion Resistant:** Handles aggressive chemical media with the right alloy selection.
- **Cost-Effective and Reliable:** Long operational life with minimal maintenance.
- **Versatile and Scalable:** Suitable for both small and large-diameter columns.

APPLICATIONS

- Distillation Towers
- Gas Scrubbing Columns
- Chemical Process Reactors
- Solvent Recovery Systems
- Absorption and Stripping Towers
- Environmental Emission Control Units

INDUSTRIES SERVED

Chemical • Petrochemical • Refining • Environmental Engineering • Fertilizer • Water Treatment • Power Generation

AVAILABLE SIZES AND SPECIFICATIONS			
SIZES (mm)	SURFACE AREA (m2/m3)	FREE SPACE (%)	BULK DENSITY (kg/m3)
10 mm / 0.4"	275	93.8%	309
16 mm / 0.63"	199	95.6%	207
25 mm / 1"	151	96.4%	195
38 mm / 1.5"	97	97.6%	222
50 mm / 2"	84	97.6%	223
76 mm / 2.3"	61	97.4%	223
89 mm / 3.5"	61	97.2%	223

INTALOX METAL SADDLES

Intalox Metal Saddles are high-performance random packing elements designed to enhance mass transfer efficiency in demanding industrial applications. Manufactured from stainless steel, or carbon steel, their unique saddle-shaped and interlocking design minimizes resistance to gas flow, improves liquid distribution, and provides superior capacity with lower pressure drop compared to traditional ring-type packings.

Their shape and structure make them ideal for separation processes in both high-pressure and vacuum conditions, offering robust mechanical strength and long service life even under aggressive operating conditions.

PHYSICAL AND CHEMICAL PROPERTIES	
PROPERTY	VALUE / DESCRIPTION
Material Options	Carbon and Stainless steel including 304, 304L, 316, 316L, 410
Corrosion Resistance	High, dependent on alloy selection
Thermal Stability	Excellent; suitable for extreme temperatures
Mechanical Strength	High impact resistance; suitable for large column loads
Design Profile	Saddle-shaped with interlocking geometry for superior fluid contact
Weight	Heavier than plastic/ceramic; robust under high flow and pressure
Toxicity	Inert when clean; compliant for food and pharmaceutical use



PRODUCT FEATURES & PERFORMANCE BENEFITS

- **Saddle Geometry:** Promotes low pressure drop with high mass transfer performance.
- **Interlocking Design:** Prevents nesting and enhances uniform liquid distribution.
- **High Surface Area:** Increases efficiency of separation and reaction processes.
- **Robust and Durable:** Withstands thermal cycling, corrosive environments, and mechanical loads.
- **Flexible Application Range:** Effective in both deep vacuum and high-pressure environments.
- **Alloy Versatility:** Available in stainless, carbon steel, and exotic metals for compatibility with specific chemical media.

APPLICATIONS

- Distillation Columns
- Absorption and Stripping Towers
- Refining and Fractionation Units
- Chemical Process Reactors
- Gas Scrubbing and Decontamination Systems
- Environmental Emission Control Towers

INDUSTRIES INCLUDE

Petrochemical • Refining • Fertilizer • Chemical Manufacturing • Environmental Engineering • Power Generation • Food & Beverage

AVAILABLE SIZES AND SPECIFICATIONS			
SIZES (mm)	SURFACE AREA (m2/m3)	FREE SPACE (%)	BULK DENSITY (kg/m3)
15 mm / 0.6"	206	96.4%	309
25 mm / 1"	138	97.6%	207
40 mm / 1.5"	107	97.6%	195
50 mm / 2"	72	97.4%	222
60 mm / 2.4"	61	97.2%	223
70 mm / 2.75"	61	98.7%	223

METAL CASCADE MINI RINGS

Metal Cascade Mini Rings are compact, high-efficiency random packing elements crafted from corrosion-resistant metals. Their innovative design offers an optimized balance between surface area and free volume, enhancing mass transfer performance while minimizing pressure drop across a wide range of operating conditions.

Engineered for durability and performance in harsh environments, Metal Cascade Mini Rings are ideal for gas treatment, chemical processing, distillation, and absorption applications. Their compact form and robust structure make them particularly effective in small diameter columns, deep vacuum towers, and high-pressure systems.



PHYSICAL AND CHEMICAL PROPERTIES	
PROPERTY	VALUE / DESCRIPTION
Material Options	Carbon and Stainless steel including 304, 304L, 316, 316L, 410
Corrosion Resistance	Excellent resistance to aggressive chemical media
Thermal Stability	Suitable for extremely high temperature operations
Mechanical Strength	High; resists crushing and deformation under high flow or pressure
Design Profile	Compact ring shape with slotted and open wall
Weight	Denser than plastic/ceramic, but offers superior strength and lifespan
Toxicity	Inert and suitable for sensitive processes (e.g. food, pharma)



PRODUCT FEATURES & PERFORMANCE BENEFITS

- **Compact and Efficient Geometry:** High surface-to-volume ratio for enhanced mass transfer.
- **Optimized Gas-Liquid Contact:** Design promotes superior mixing, reducing channeling and flooding.
- **Low Pressure Drop:** Ensures energy efficiency in both vacuum and pressurized systems.
- **Robust Construction:** Built to endure mechanical stress and chemical corrosion.
- **Versatile Performance:** Functions effectively across a range of column diameters and process types.
- **Customizable Alloys:** Available in various metals to suit corrosive, high-temp or high-purity applications.

APPLICATIONS

- Distillation Towers
- Absorption and Stripping Columns
- Chemical Process Reactors
- Gas Scrubbers and Desulfurization Units
- Vacuum Fractionators
- Environmental and Solvent Recovery Systems

INDUSTRIES INCLUDE

Petrochemical • Refining • Environmental Engineering • Fertilizer • Chemical Manufacturing • Mining • Power Generation

AVAILABLE SIZES AND SPECIFICATIONS			
SIZES (mm)	SURFACE AREA (m2/m3)	FREE SPACE (%)	BULK DENSITY (kg/m3)
OP 17 mm / 0.67"	275	96.1%	97
1P 25 mm / 1"	309	97.9%	222
1.5P 34 mm / 1.3"	199	97.9%	207
2P 43 mm / 1.7"	151	97.4%	195
2.5P 51 mm / 2"	84	97.8%	223
3P 66 mm / 2.6"	84	97.8%	223
4P 86 mm / 3.4"	61	98.7%	223
5P 131 mm / 5.2"	61	98.7%	223

METAL NUTTER RINGS

Metal Nutter Rings are precision-engineered structured packing elements designed for high-efficiency gas-liquid separation and mass transfer in aggressive process environments. Constructed from durable metallic materials, these rings feature an innovative open structure that offers low pressure drop, enhanced liquid distribution, and excellent mechanical strength.

Ideal for distillation, absorption, stripping, and chemical reaction columns, Metal Nutter Rings are used where superior capacity, thermal resilience, and corrosion resistance are critical.



PHYSICAL AND CHEMICAL PROPERTIES	
PROPERTY	VALUE / DESCRIPTION
Material Options	Carbon and Stainless steel including 304, 304L, 316, 316L, 410
Corrosion Resistance	Excellent chemical durability; material dependent
Thermal Stability	Superior for high-temperature operations
Mechanical Strength	High crush resistance; suitable for pressurized or vacuum systems
Design Profile	Slotted and flanged structured ring for improved surface wetting
Weight	High density but low volume loss under stress
Toxicity	Inert and safe for industrial and chemical processing



PRODUCT FEATURES & PERFORMANCE BENEFITS

- **Engineered for Performance:** Precision-cut and formed for optimized fluid dynamics.
- **Low Pressure Drop:** Enhances operational energy efficiency and throughput.
- **High Mass Transfer Surface Area:** Promotes effective gas-liquid contact and reaction.
- **Rugged and Resilient:** Maintains structure in thermally and mechanically demanding environments.
- **Corrosion-Resistant Alloys:** Performs in chemically aggressive processes with long service life.
- **Flexible in Application:** Suitable for retrofitting and new column designs alike.

APPLICATIONS

- Distillation Towers
- Absorption and Stripping Columns
- Petrochemical Process Units
- Chemical Reaction Towers
- Gas Treatment Systems
- High-Purity Separation Plants

INDUSTRIES INCLUDE

Petrochemical • Chemical Manufacturing • Refining • Gas Processing • Fertilizer • Environmental Engineering

AVAILABLE SIZES AND SPECIFICATIONS			
SIZES (mm)	SURFACE AREA (m2/m3)	FREE SPACE (%)	BULK DENSITY (kg/m3)
0.7 mm / 0.03"	143	98.1%	149
1.0 mm / 0.04"	230	97.9%	165
1.5 mm / 0.06"	110	98.0%	158
2.0 mm / 0.08"	78	98.6%	114
2.5 mm / 0.1"	89	98.4%	129
3.0 mm / 0.1"	59	98.6%	111

HIGH ALUMINA BALLS

High Alumina Balls are high-performance ceramic spheres composed primarily of high-purity alumina (Al₂O₃). Engineered for exceptional hardness, low wear rate, and thermal stability, they are the go-to material for a wide variety of high-impact, high-temperature applications, particularly in grinding, milling, and catalytic support processes.

With low porosity and a stable chemical profile, High Alumina Balls deliver consistent performance in demanding operating environments, ensuring longer service life, reduced contamination, and greater process efficiency.

Physical and Chemical Properties	
Property	Value / Description
Composition	≥ 92% Al ₂ O ₃ (High-purity alumina)
Hardness	Mohs 9+
Wear Resistance	Excellent; extremely low wear loss
Thermal Stability	Stable up to 1500°C; low thermal expansion
Water Absorption	≤ 0.01%
Density	3.6 g/cm ³ (typical)
Chemical Resistance	Inert to most acids and alkalis
Shape	Precision spheres, highly polished



Product Features & Performance Benefits

- Ultra-Hard Surface:** Withstands high grinding impact and minimizes contamination.
- Superior Wear Resistance:** Extends operational life in ball mills and other dynamic environments.
- Thermally Resilient:** Maintains integrity at high process temperatures.
- Low Expansion & Absorption:** Ensures consistency and dimensional stability in thermal cycling.
- Chemically Inert:** Suitable for chemically reactive systems and catalyst support.
- Versatile Sizing:** Available in a wide range of diameters for tailored performance.

Applications

- Grinding Media for Ball Mills
- Catalyst Bed Support in Petrochemical Reactors
- Polishing and Abrasive Systems
- Ceramic and Tile Industry (e.g. frits, glazes)
- Thermal Insulation and Filtration Systems
- Paint, Ink, and Pigment Milling Operations

Industries Include

Ceramic • Chemical • Petrochemical • Mining • Paint & Coatings • Environmental • Metallurgical

Available Sizes and Specifications			
Sizes (mm)	Surface Area (m ² /m ³)	Free Space (%)	Bulk Density (kg/m ³)
3 mm / 0.1"	145	50%	600
6 mm / 0.2"	120	56%	820
10 mm / 0.4"	110	53%	850
13 mm / 0.5"	75	55%	860
19 mm / 0.7"	60	58%	980
25 mm / 1"	60	58%	980
38 mm / 1.5"	60	58%	980
50 mm / 2"	60	58%	980



As a brand of Stanton Global, Pallchem is South Africa's leader in metal, ceramic and plastic mass transfer media — powering high-efficiency, absorption, stripping, scrubbing, and distillation in demanding industrial applications.

We help petrochemical, mining, and process industries run cleaner, smarter, and more sustainably, backed by ISO 9001:2015 certification for our locally produced plastic products.

Enhancing separation. Reducing emissions. Enabling a greener future.

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Let's optimise your process — sustainably.



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