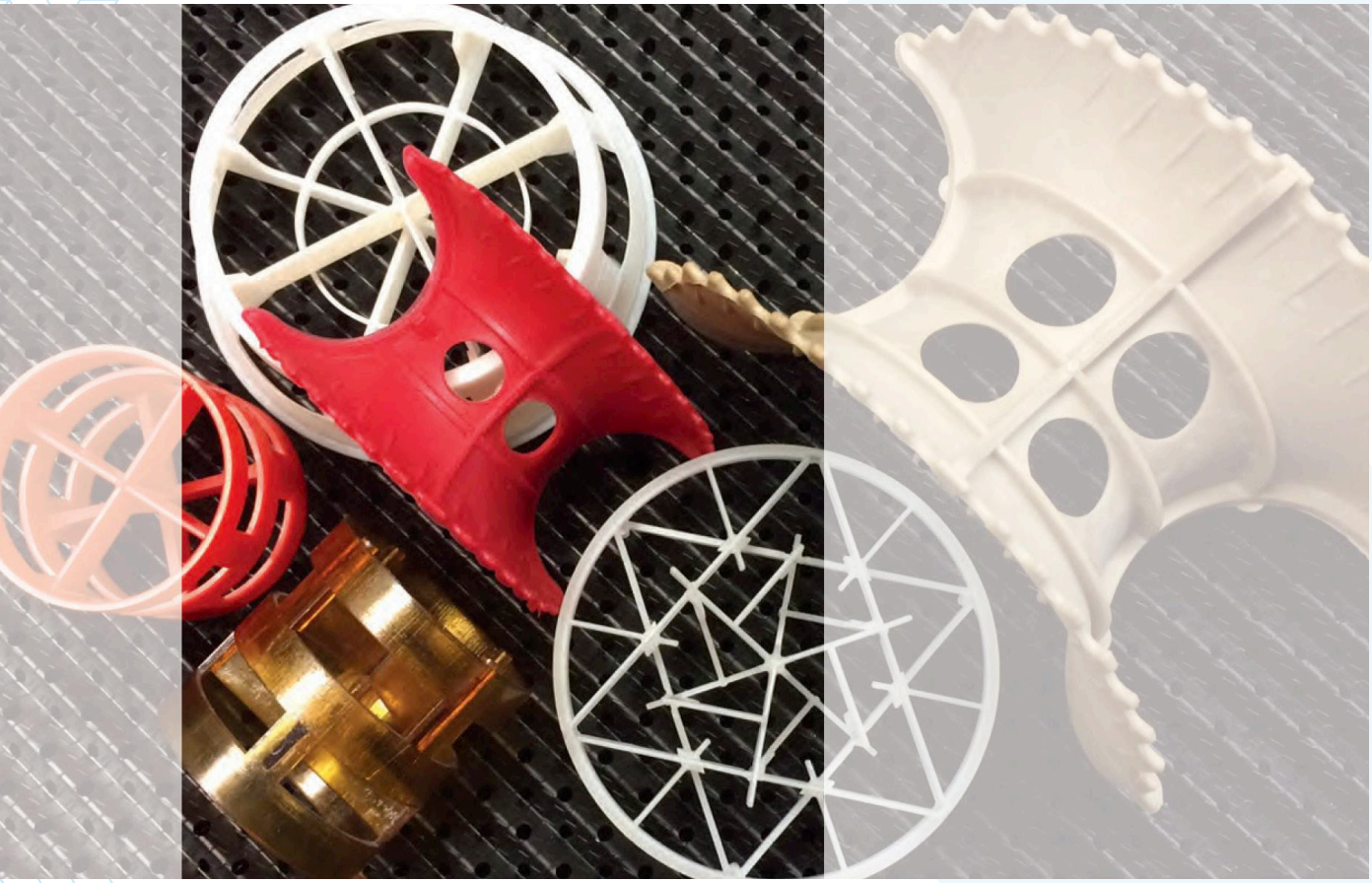
PLASTIC PACKING

AND COLUMN INTERNALS



YOU CAN RELY ON US.

KOCH-GLITSCH™

A KOCH ENGINEERED SOLUTIONS BUSINESS

INTRODUCTION

For more than 70 years, random packings in ceramic, metal, and plastic have been used successfully as an inexpensive but efficient means to increase a tower's capacity and/or efficiency. The original Raschig Rings have been superseded by new generations of improved products. Today, Koch-Glitsch offers the widest spectrum of random packings available worldwide. For more demanding applications, structured packing offers even lower pressure drop and higher efficiency. Structured packing is offered in both standard- and high-capacity versions to meet any performance specification.

There are numerous process advantages that can be realized by using packings in various applications. The predominant reasons for using tower packings are to reduce pressure drop throughout the column, to increase the capacity compared to trays at the same efficiency, and/or to reduce liquid holdup in the column. Plastic random packings are not as bulky as their ceramic equivalents and, therefore, offer higher capacity and lower pressure drop.

From an engineering point of view, plastics are materials that will permanently deform when stress (force) is applied at common temperatures. The rate at which a plastic will deform depends on the amount of stress, temperature, and time. Compression at the bottom of a packed bed reduces the void fraction and can lead to increased pressure drop and premature flooding. Koch-Glitsch has developed a proprietary database of allowable operating loads for plastic packing based on creep modulus data that is used to ensure the structural integrity of your packed beds.

GRP FLUE GAS CONDENSING SCRUBBER

This booklet provides information for quick sizing of packed columns using plastic structured and random packings. The charts provide hydraulic ratings and relative packing efficiencies (in terms of the K_Ga value for the absorption of CO_2 into a standard caustic solution). In addition, Koch-Glitsch offers the hydraulic rating program, KG-TOWER® software, which may be downloaded from its website: www.koch-glitsch.com. Koch-Glitsch is unsurpassed in offering the widest range of sizes and styles of traditional and high performance plastic structured and random packings. To enable the process engineer to optimize the system for cost and performance, several sizes are offered within each packing family. As the packing size increases within the family, the packing offers greater capacity and lower pressure drop at the expense of lower efficiency.

Koch-Glitsch and its sister companies deliver innovative process and pollution control equipment designed to optimize plant operations and manage the constant changes in environmental standards.

- With over 35 years' experience and 400 plants in operation, Eta Process Plant is the world's leading supplier of turnkey deaeration plants.
- Combined with Koch-Glitsch, Koch Specialty Plant Services offers the single supplier/installer benefits of turnkey solutions, which provides faster, safer revamps with minimum downtime.

COLUMN INTERNALS

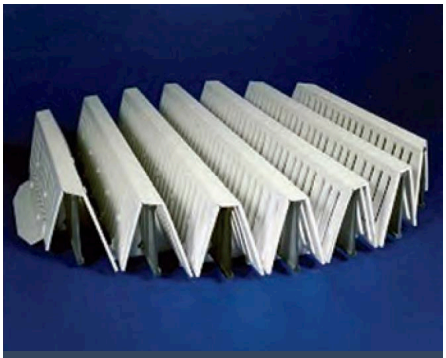
Koch-Glitsch plastic column internals are available in both thermoplastic and thermoset (e.g. Fiberglass-Reinforced Plastic – FRP) materials. Occasionally, thermoplastic internals have different temperature limits than packing of the same material. Koch-Glitsch has an unsurpassed knowledge in recognizing these instances and can provide designs specific to any application.

FRP column internals use different designs than thermoplastic internals. FRP has better structural properties but greater fabrication restrictions. The Koch-Glitsch standard thermoset is one of the DERAKANE® brand resins, although other resins are available to suit a wide range of chemical and thermal requirements.

Koch-Glitsch process engineers will help select the appropriate style of packing and match that packing with the optimum tower internals to create the INTALOX® Packed Tower System that best satisfies your specific requirements. For more information on liquid and vapor distribution technology as well as other column internals in thermoplastic or FRP, consult our brochure, Plastic Packed Tower Internals (KGPTIG-1).

MODEL TP 286 THERMOPLASTIC TROUGH DISTRIBUTOR WITH DRIP TUBES

MODEL TS 236 FRP LIQUID DISTRIBUTOR WITH SIDE ORIFICES



MODEL TP 804 SUPPORT GRID, PTFE/CARBON-CARBON

MATERIALS OF CONSTRUCTION

Plastic packings are often preferred because of their lightweight construction and resistance to breakage. The availability of numerous types of plastic resins provides the designer with a broad range of chemical and thermal resistant materials. Koch-Glitsch plastic packings are made in a wide variety of thermoplastic materials. Most of the Koch-Glitsch packings are available in the materials shown in the Available Materials list. Other plastics are available by special request.

The mechanical strength of a plastic material decreases over time. Temperature limits for long-term service life depend on the load the packing must bear from its own weight and from liquid holdup. The maximum operating temperature depends on system environment, packing size, and bed height. In general, deep packed beds, weaker packing shapes, and high liquid loads result in lower temperature limits. Packed heights can be increased by using specially formulated filled resins. Typical fillers include glass fibers, carbon fibers, and chalk. Contact Koch-Glitsch to determine a specific load limit for a particular Koch-Glitsch product at a certain temperature.

AVAILABLE MATERIALS

- General grade polypropylene
- LTHA polypropylene
- LTHA polypropylene (10% glass filled)
- High density polyethylene
- Low density polyethylene
- PVC
- CPVC
- PVDF
- E-CTFE
- ETFE
- ETFE (25% glass filled)
- PFA

APPLICATIONS

Plastic packings are used in corrosive applications with low to moderate operating temperature and can offer an economic advantage over metal materials. Where temperatures permit, plastic packings perform better than ceramic packings and are often less expensive than metals, particularly when exotic metals and alloys are required. Consequently, plastic packings are used mainly in absorption, scrubbing, stripping, and heat transfer services.

ABSORBERS

- CO_2 absorption
- SO_2, HCL, and HF absorption or stripping
- Chlorine absorption in water or caustic
- Chlorine dioxide absorption
- Hydrogen sulfide and mercaptan removal
- Air pollution control scrubbers
- Fume scrubbing
- Odor control
- VOC removal

DEGASSING

- Decarbonation
- Deaeration

WATER TREATMENT

- Waste water treatment
- Drinking water preparation
- Fish farming

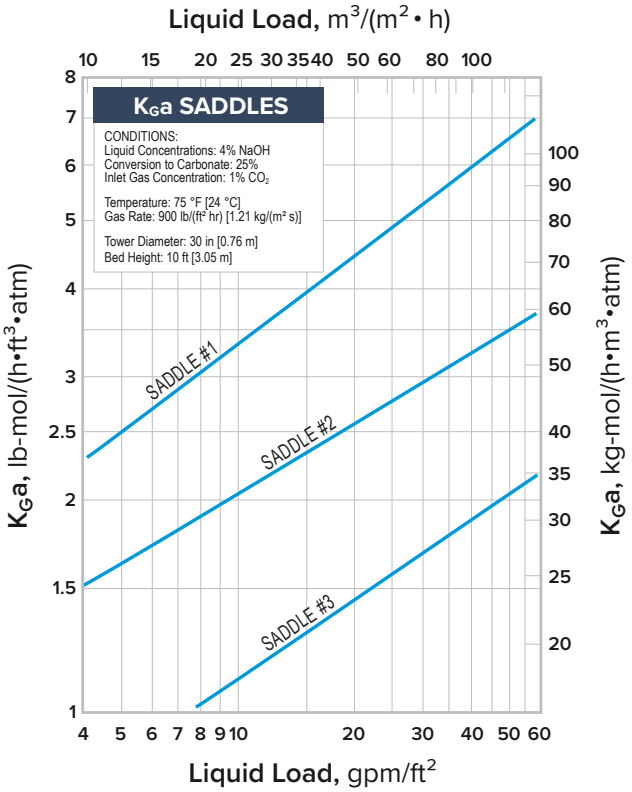
HEAT TRANSFER

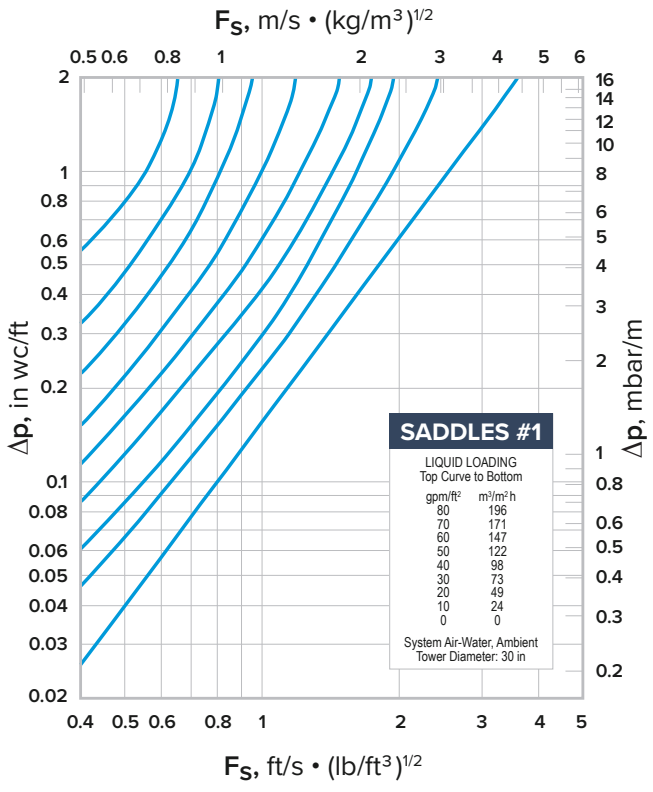
- Humidification
- Dehumidification
- Direct contact cooler
- Water chiller

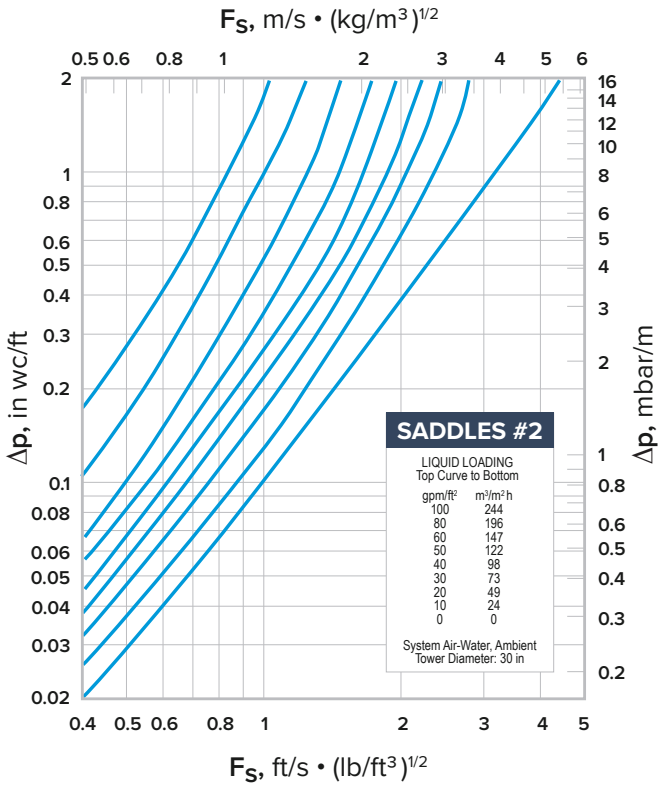
SUPER INTALOX® SADDLES RANDOM PACKING

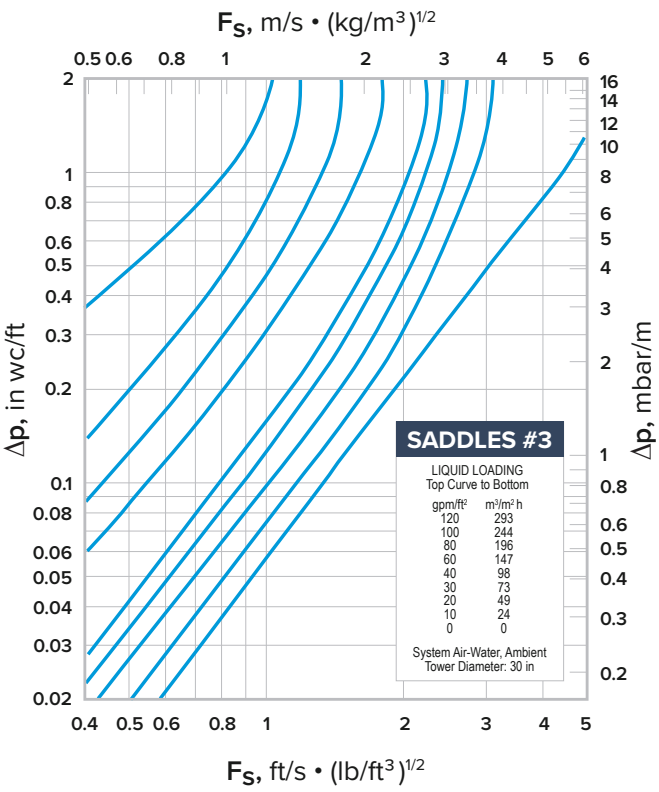
- Enhance internal gas and liquid distribution
- Scalloped edges
  - Provide more interstitial transfer points per unit of volume than standard saddle packings
  - Immobilize the packing within the bed, which reduces settling
- Saddle shape ensures complete randomness of packed bed

Nominal Size		1	2	3
Void Fraction	%	90	93	94
Bulk Weight	lb/ft^3	5.2	3.8	3.1
(Polypropylene)	kg/m^3	83	61	50


Liquid Load, m³/(m² • h)
10 15 20 25 30 35 40 50 60 80 100
KGa SADDLES
CONDITIONS:
Liquid Concentrations: 4% NaOH
Conversion to Carbonate: 25%
Inlet Gas Concentration: 1% CO2
Temperature: 75 °F [24 °C]
Gas Rate: 900 lb/(ft² hr) [1.21 kg/(m² s)]
Tower Diameter: 30 in [0.76 m]
Bed Height: 10 ft [3.05 m]
SADDLE #1
SADDLE #2
SADDLE #3
KGa, lb-mol/(h•ft³•atm)
KGa, kg-mol/(h•m³•atm)
Liquid Load, gpm/ft²


FS, m/s • (kg/m³)^1/2
SADDLES #1
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
80 196
70 171
60 147
50 122
40 98
30 73
20 49
10 24
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
Δp, in wc/ft
Δp, mbar/m
FS, ft/s • (lb/ft³)^1/2


FS, m/s • (kg/m³)^1/2
SADDLES #2
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
100 244
80 196
60 147
50 122
40 98
30 73
20 49
10 24
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
Δp, in wc/ft
Δp, mbar/m
FS, ft/s • (lb/ft³)^1/2

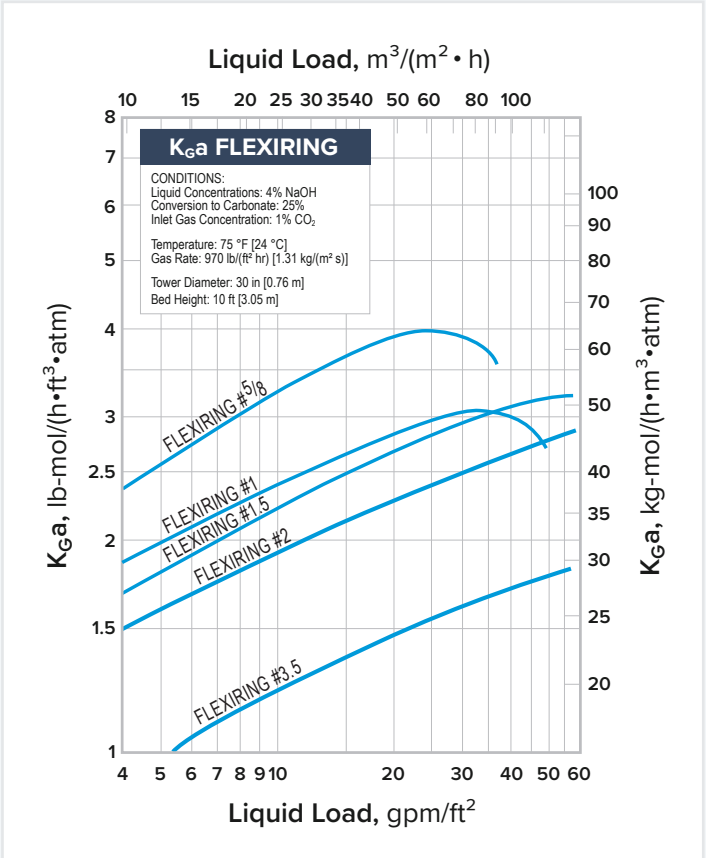

FS, m/s • (kg/m³)^1/2
SADDLES #3
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
120 293
100 244
80 196
60 147
40 98
30 73
20 49
10 24
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
Δp, in wc/ft
Δp, mbar/m
FS, ft/s • (lb/ft³)^1/2

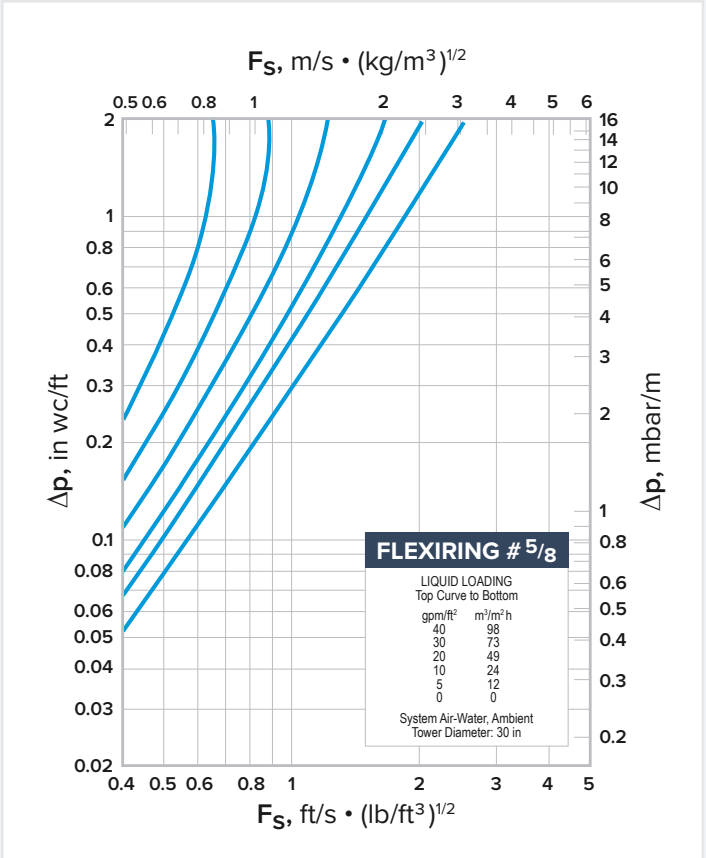
FLEXIRING® RANDOM PACKING

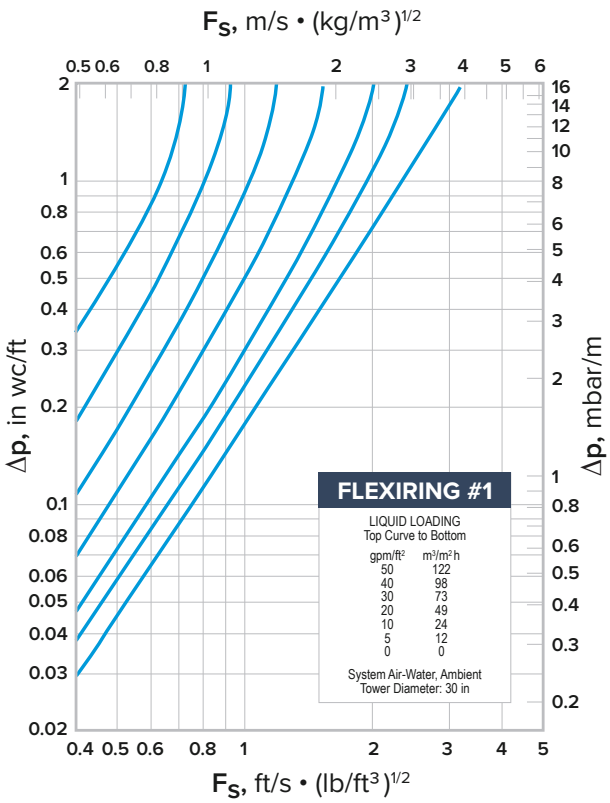
An economical and versatile industry standard with well-known performance characteristics.

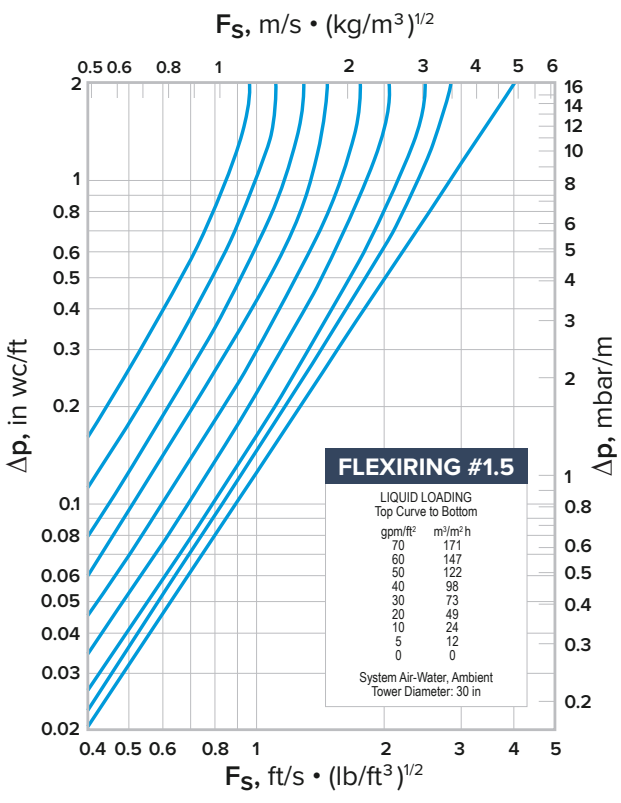
- Openings in cylinder provide more use of internal mass transfer area and lower pressure drop compared to Raschig Rings
- Extensively used; therefore, performance is widely known
- Industry standard for many designers
- 2 in [50 mm] and 4 in [100 mm] versions are available with extra internal vanes to produce higher efficiency compared to the standard versions

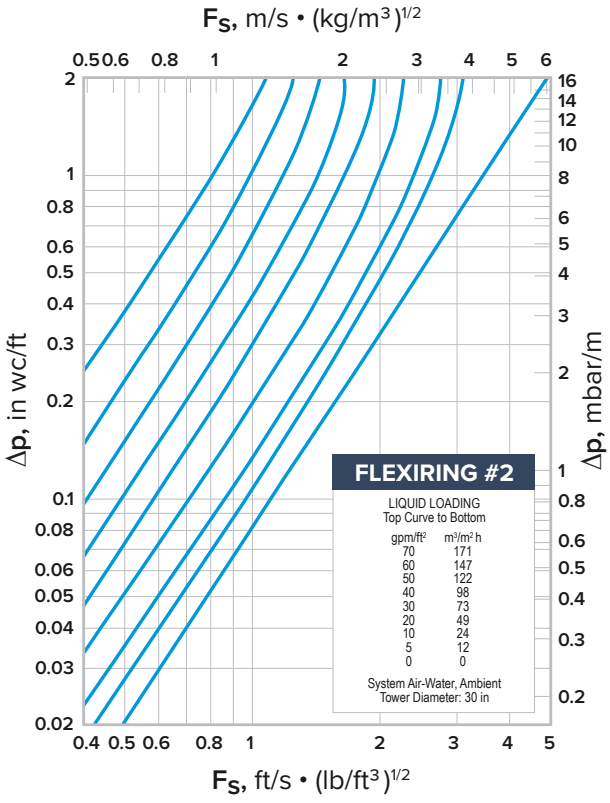
							High Performance	
Nominal Size		5/8	1	1.5	2	3.5	2	4
	mm	16	25	38	50	90	50	100
	inch	5/8	1	1.5	2	3.5	2	4
Void Fraction	%	87	92	91	93	95	93	96
Bulk Weight	lb/ft^3	5.9	4.4	4.3	3.8	2.7	3.8	2.2
(Polypropylene)	kg/m^3	95	71	70	60	43	60	36

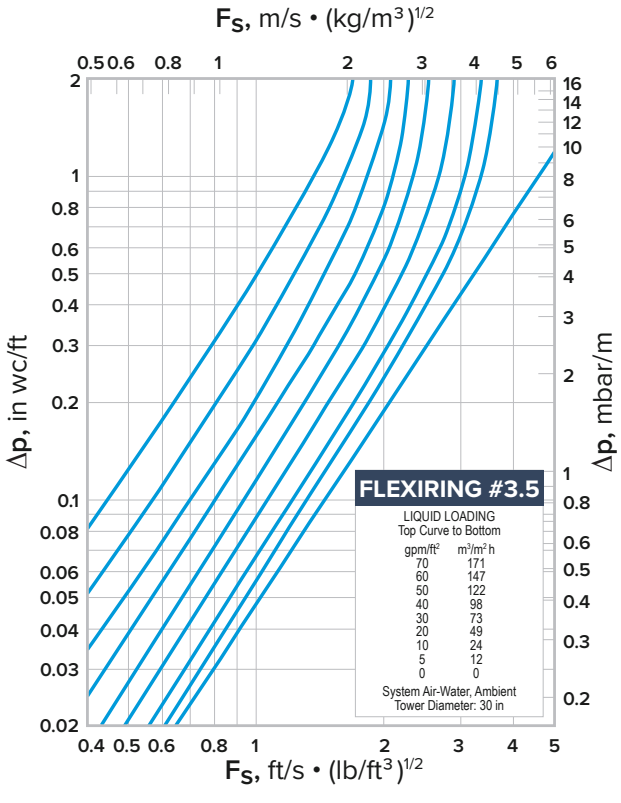





F_S, m/s • (kg/m³)$^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
FLEXIRING #1
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • (lb/ft³)$^{1/2}$


F_S, m/s • (kg/m³)$^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
FLEXIRING #1.5
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • (lb/ft³)$^{1/2}$

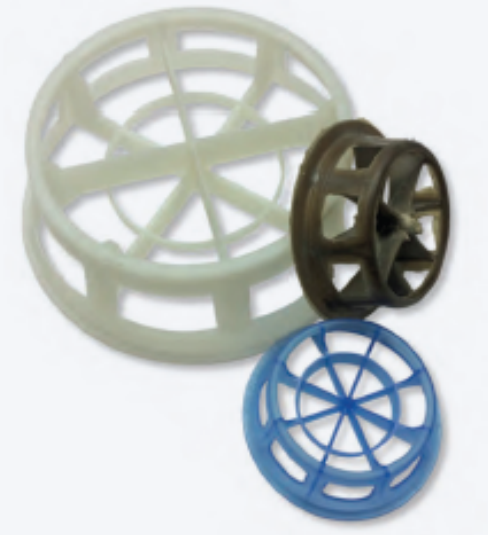

F_S, m/s • (kg/m³)$^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
FLEXIRING #2
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • (lb/ft³)$^{1/2}$


F_S, m/s • (kg/m³)$^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
FLEXIRING #3.5
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 30 in
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • (lb/ft³)$^{1/2}$

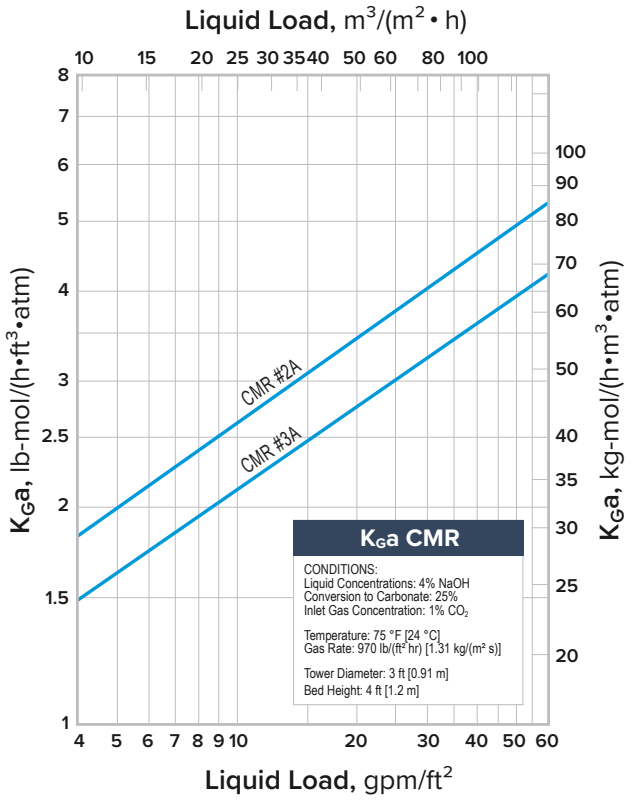
CASCADE MINI-RINGS® RANDOM PACKING

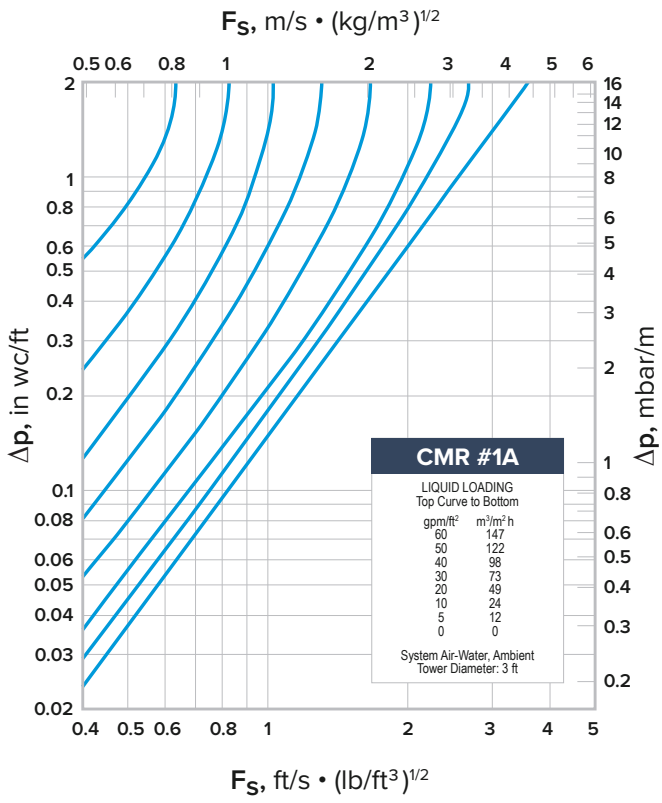
High capacity and low pressure drop with high mechanical strength that allows use in deep beds.

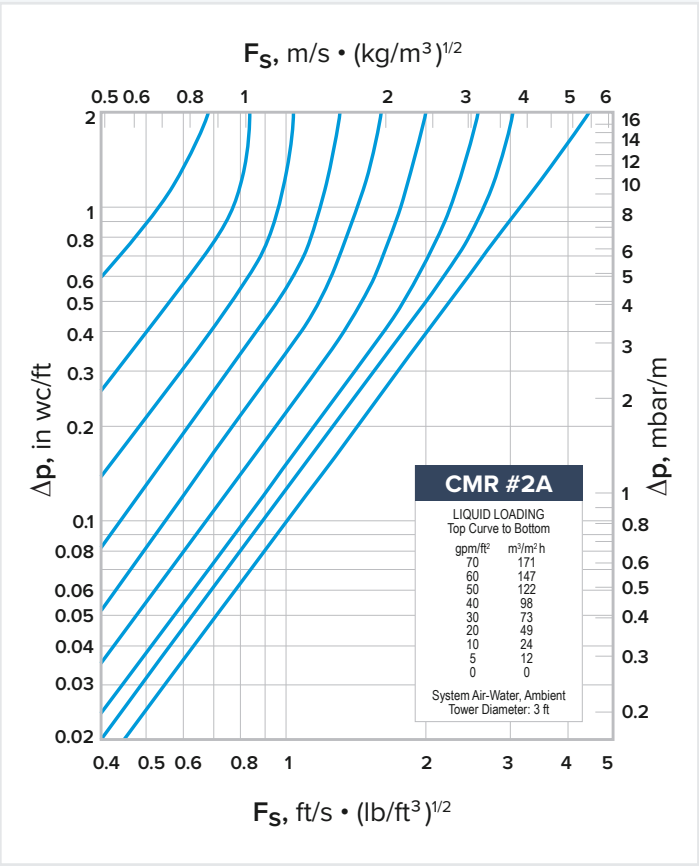
- Achieves better efficiency and capacity than FLEXIRING® random packing as a result of the low aspect ratio
- In a packed bed, a significant portion of the rings lie with their axes nearly vertical
- The preferred orientation exposes both the interior and exterior surfaces to liquid and vapor flow
- Geometry provides more efficient use of the packing surface
- Largest opening is in the direction of vapor flow, resulting in lower pressure drop and higher capacity
- Orientation with cylindrical axis in the vertical position increases the mechanical strength of the packed bed

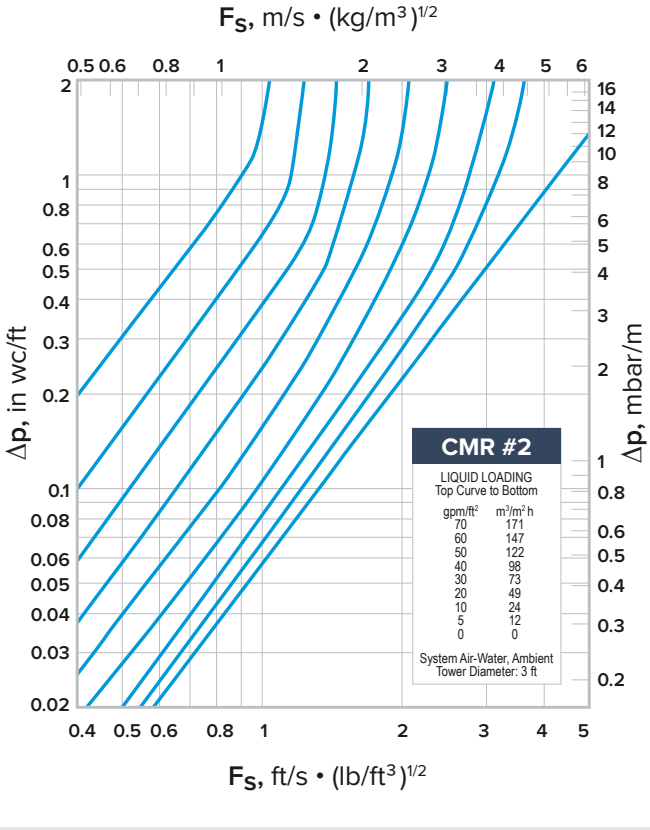


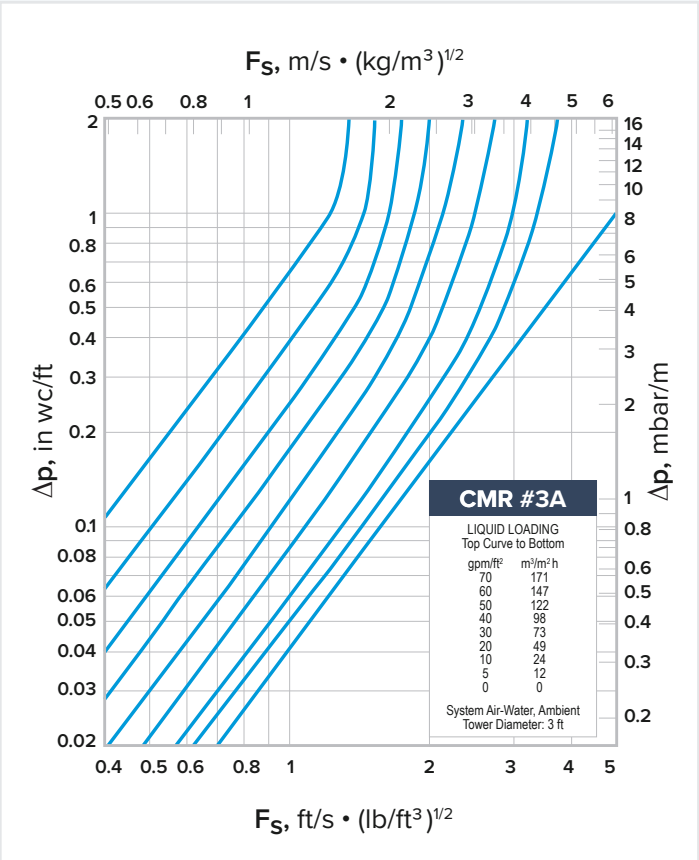
Nominal Size		1A	2	2A	3A
Void Fraction	%	97	97	97	98
Bulk Weight	lb/ft^3	3.3	2.7	2.9	2.5
(Polypropylene)	kg/m^3	53	43	46	40






F_S, m/s • $(kg/m^3)^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
CMR #2A
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 3 ft
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • $(lb/ft^3)^{1/2}$


F_S, m/s • $(kg/m^3)^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
CMR #2
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 3 ft
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • $(lb/ft^3)^{1/2}$


F_S, m/s • $(kg/m^3)^{1/2}$
0.5 0.6 0.8 1 2 3 4 5 6
2 1 0.8 0.6 0.5 0.4 0.3 0.2 0.1 0.08 0.06 0.05 0.04 0.03 0.02
16 14 12 10 8 6 5 4 3 2 1 0.8 0.6 0.5 0.4 0.3 0.2
Δp, in wc/ft
Δp, mbar/m
CMR #3A
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
70 171
60 147
50 122
40 98
30 73
20 49
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 3 ft
0.4 0.5 0.6 0.8 1 2 3 4 5
F_S, ft/s • $(lb/ft^3)^{1/2}$

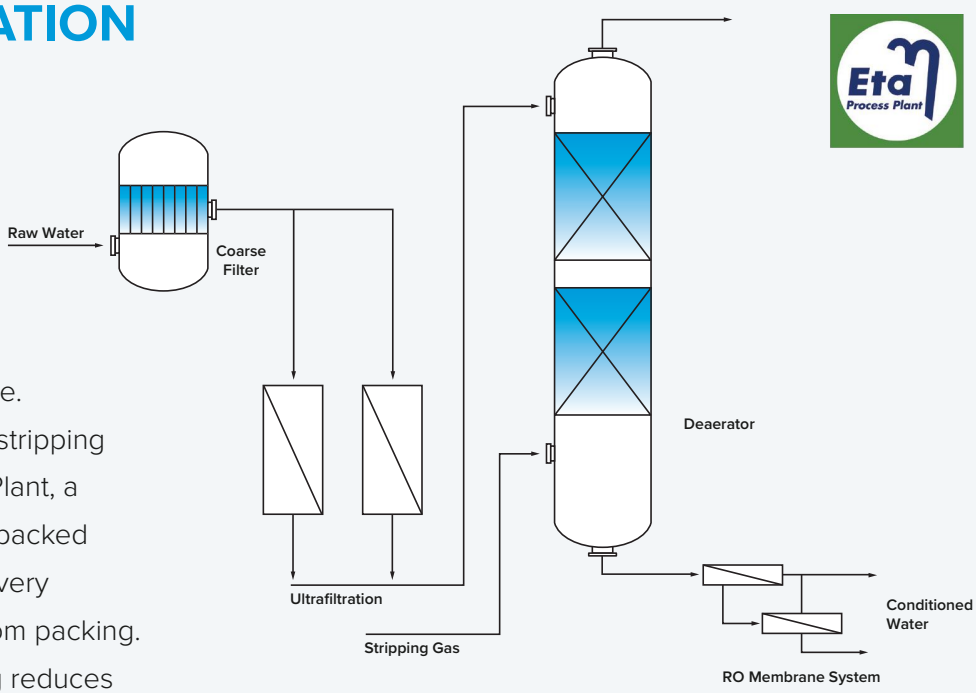
BETA RING® RANDOM PACKING

High vapor capacity and efficiency with high liquid handling capacity.

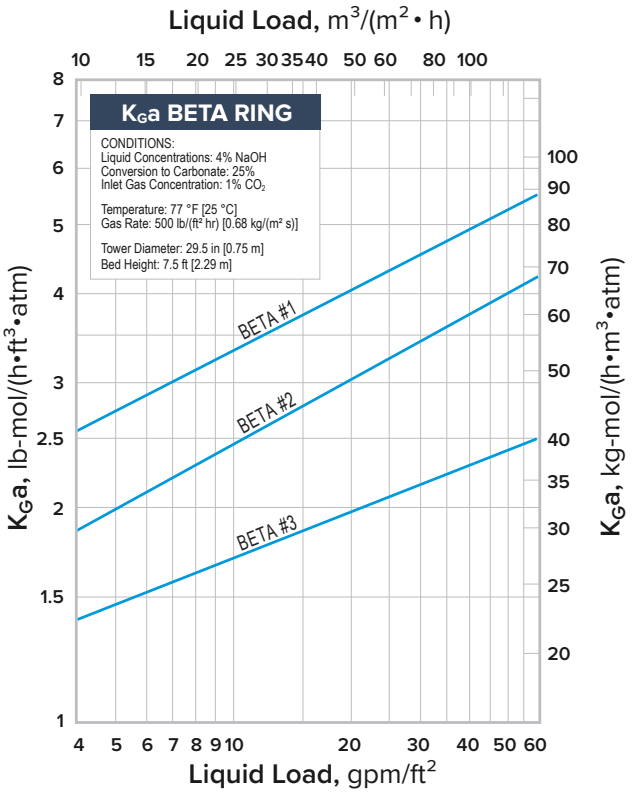
- Strategic placement of slots and tabs provides an extremely effective use of packing surface area
- Variation in the length of the internal tabs ensures high efficiency and optimal distribution
- Uninterrupted flow of gas and liquid
- Provides additional drip points to enhance liquid film surface renewal for improved mass and heat transfer
- Well suited for applications where low pressure drop and high liquid handling capacity are important

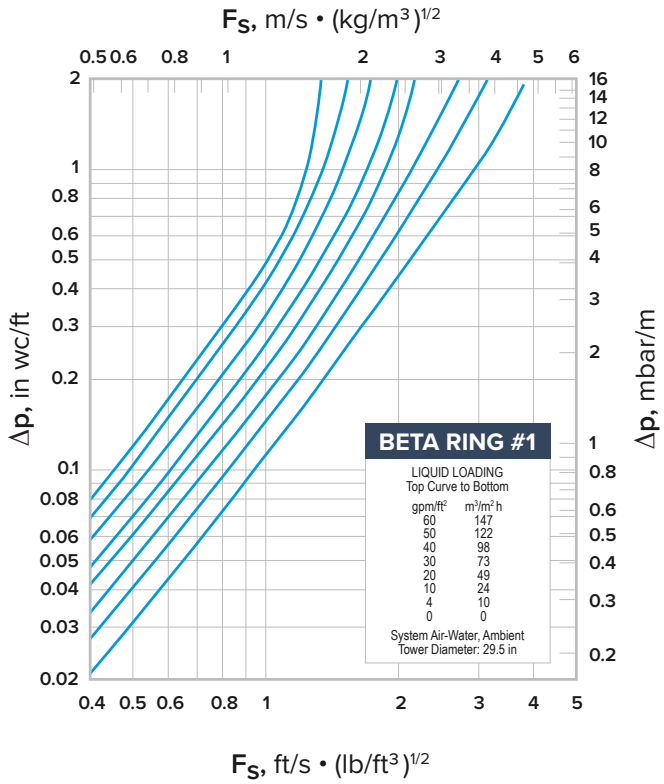
Nominal Size		1	2	3
Void Fraction	%	94	94	96
Bulk Weight	lb/ft^3	3.3	3.4	2.4
(Polypropylene)	kg/m^3	53	54	38

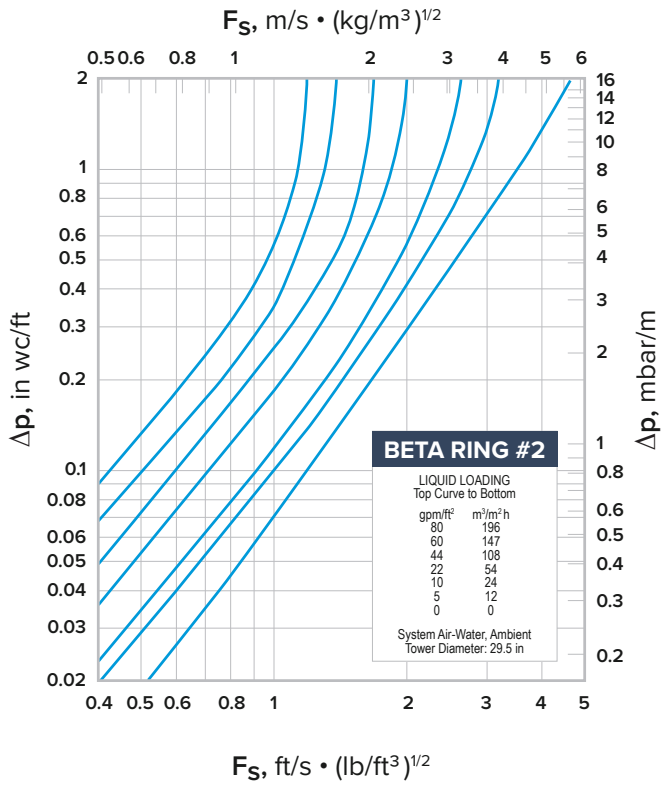
SEAWATER DEAERATION

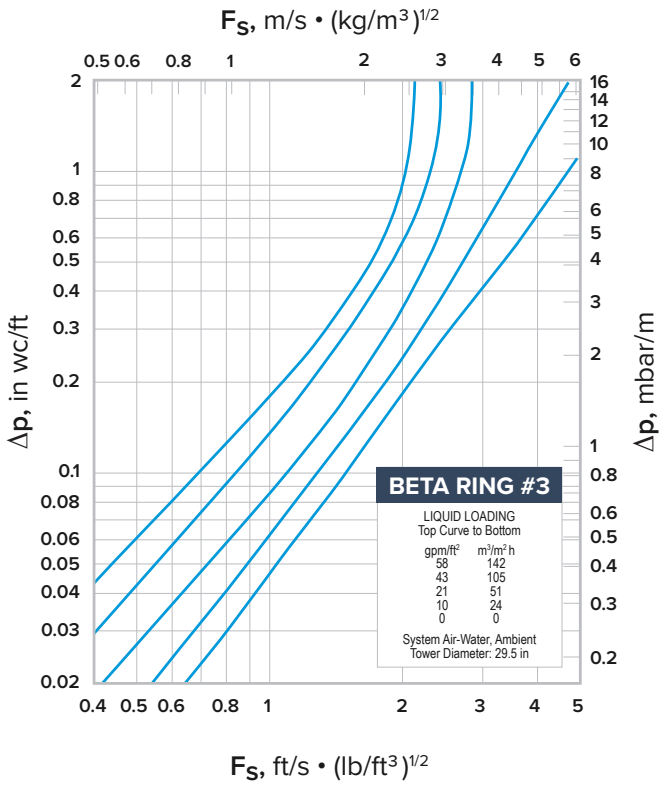


Seawater can be injected into hydrocarbon reservoirs to maintain pressure and production. It is desirable to remove oxygen from the seawater because it promotes corrosion and growth of certain bacteria that produce hydrogen sulfide. The oxygen can be removed using a stripping gas or vacuum system. ETA Process Plant, a division of Koch-Glitsch UK, provides packed tower designs for both options using very economical plastic BETA RING® random packing. The low pressure drop of this packing reduces operating costs while the good liquid phase mass transfer performance reduces capital expenditure. Additional deaeration applications include soft drink production, beer brewing, potable water treatment, boiler feed, and volatile organic compound removal.


Liquid Load, m³/(m² • h)
10 15 20 25 30 35 40 50 60 80 100
K_Ga BETA RING
CONDITIONS:
Liquid Concentrations: 4% NaOH
Conversion to Carbonate: 25%
Inlet Gas Concentration: 1% CO_2
Temperature: 77 °F [25 °C]
Gas Rate: 500 lb/(ft² hr) [0.68 kg/(m² s)]
Tower Diameter: 29.5 in [0.75 m]
Bed Height: 7.5 ft [2.29 m]
BETA #1
BETA #2
BETA #3
K_Ga, lb-mol/(h•ft³•atm)
K_Ga, kg-mol/(h•m³•atm)
Liquid Load, gpm/ft²

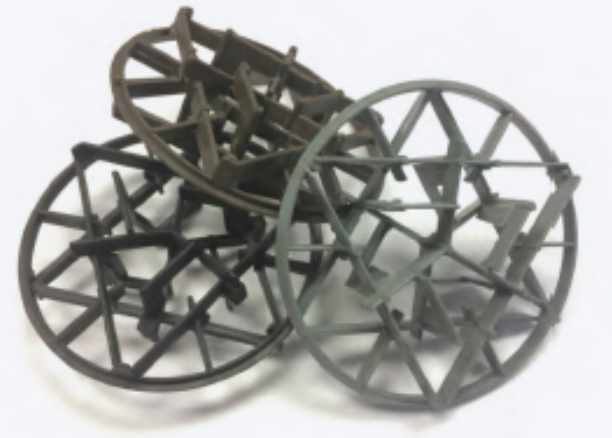

F_S, m/s • (kg/m³)$^{1/2}$
BETA RING #1
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
60 147
50 122
40 98
30 73
20 49
10 24
4 10
0 0
System Air-Water, Ambient
Tower Diameter: 29.5 in
Δp, in wc/ft
Δp, mbar/m
F_S, ft/s • (lb/ft³)$^{1/2}$


F_S, m/s • (kg/m³)$^{1/2}$
BETA RING #2
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
80 196
60 147
44 108
22 54
10 24
5 12
0 0
System Air-Water, Ambient
Tower Diameter: 29.5 in
Δp, in wc/ft
Δp, mbar/m
F_S, ft/s • (lb/ft³)$^{1/2}$


F_S, m/s • (kg/m³)$^{1/2}$
BETA RING #3
LIQUID LOADING
Top Curve to Bottom
gpm/ft² m³/m² h
58 142
43 105
21 51
10 24
0 0
System Air-Water, Ambient
Tower Diameter: 29.5 in
Δp, in wc/ft
Δp, mbar/m
F_S, ft/s • (lb/ft³)$^{1/2}$

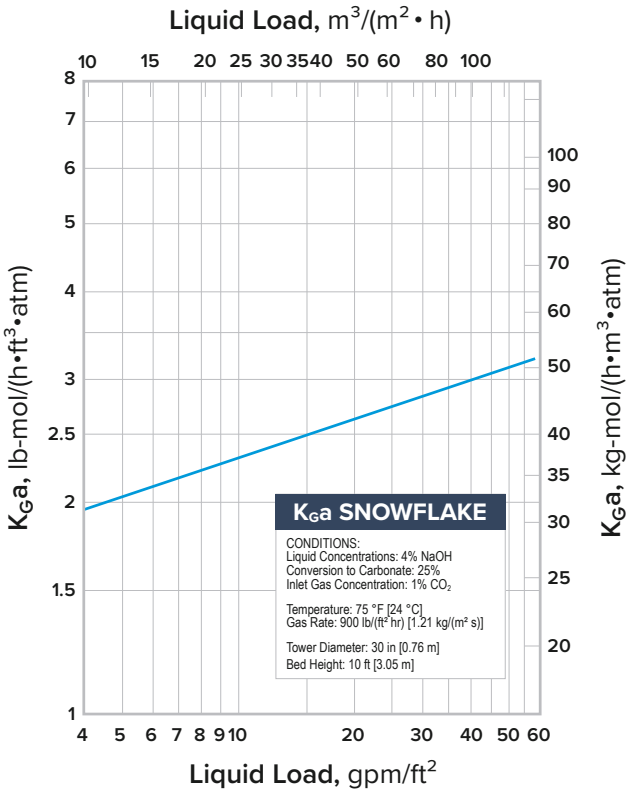
INTALOX® SNOWFLAKE® RANDOM PACKING

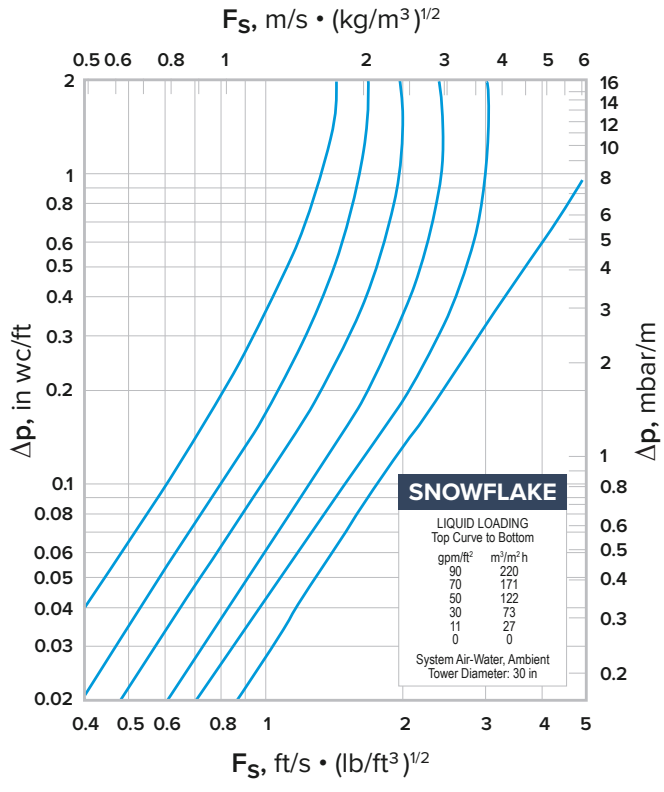
Versatile standard packing with good capacity and low pressure drop combined with higher liquid hold-up and residence time.



- Superior separation efficiency and capacity
- Superior performance over a wide operating range
- Independent testing confirms removal efficiencies greater than 99% for groundwater air stripping
- Low pressure drop reduces energy consumption in applications requiring blowers or compressors
- In typical system designs, INTALOX® SNOWFLAKE® random packing can save more than 50% in energy cost compared to #1 plastic saddle
- Strong shape allows deep beds for multiple transfer unit absorption
- Widely used in chlorine and bromine production; environmental applications

Void Fraction	%	97
Bulk Weight	lb/ft^3	3.2
(Polypropylene)	kg/m^3	51



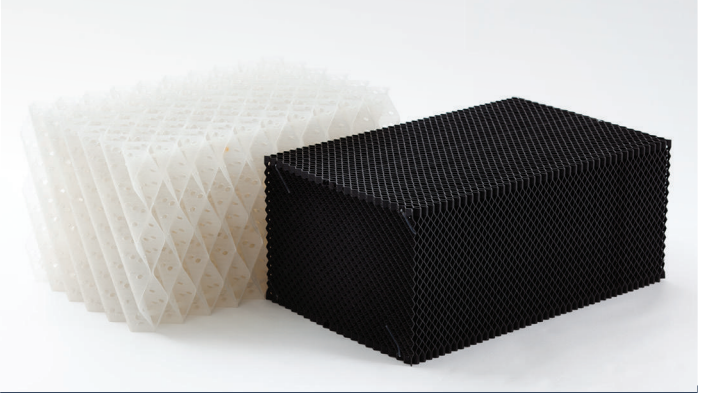


FLEXIPAC® AND FLEXIPAC® HC® STRUCTURED PACKING

Excellent performance in chemically corrosive applications.

Plastic FLEXIPAC® and FLEXIPAC® HC® structured packings provide the same combination of high efficiency, high capacity, and low pressure drop as their metal counterparts. The variety of plastics available makes this product suitable for some of the most demanding corrosive applications.

NOTE: The wetting characteristics of plastic combined with any unique attributes of the specific material of construction may cause the actual HETP to vary significantly.



FLEXIPAC® 2Y structured packing in polypropylene (white) and FLEXIPAC® 500Z HC® structured packing in PFA (black)

Efficiency Plastic Structured Packing	
Size	HETP*
500Z HC®	9.8 in [250 mm]
1Y	11.4 in [290 mm]
2Y	19.2 in [485 mm]
2Y HC®	19.2 in [485 mm]
3Y	43.3 in [1100 mm]
3X	76.8 in [1950 mm]

* HETP values are estimates and are for reference only. Contact Koch-Glitsch for additional information.

MATERIALS OF CONSTRUCTION

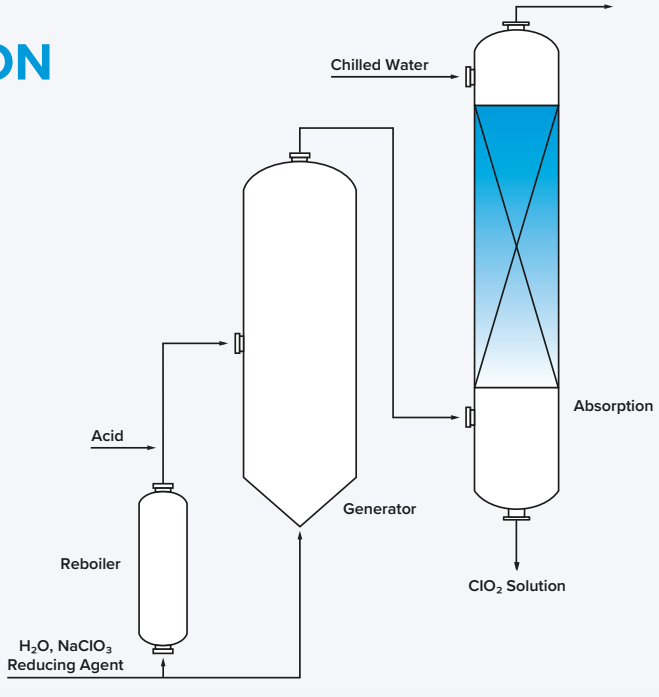
- Polypropylene
- Glass filled polypropylene
- CPVC
- PVDF
- ECTFE
- Glass-filled ECTFE
- PFA
- Glass-filled PFA

APPLICATIONS

- Air separation plant direct contact cooler
- Flue gas cooler
- Seawater scrubber
- HCl absorber
- SO_2 absorber
- Cl_2/ClO_2 scrubber
- HNO_3
- Deaerators

CHLORINE DIOXIDE ABSORPTION

Chlorine dioxide (ClO_2) is a very important chemical compound used as a bleaching agent in the pulp and paper industry. ClO_2 is produced by reducing sodium chlorate in a strong acid solution with a suitable reducing agent. The ClO_2 gas that is discharged from the generator is fed to the bottom of a packed bed absorber where a ClO_2 solution is made using chilled water. The excellent chemical resistance of plastic INTALOX® SNOWFLAKE® random packing, Super INTALOX® Saddles random packing, or FLEXIPAC® structured packing provides a lower-cost alternative to exotic metals, such as titanium. These packings are often applied in processes using ClO_2 for bleaching to avoid escape in the atmosphere.



ETAPAK RANDOM PACKING

Specifically designed for biological waste water treatment.

The size and shape of ETAPAK random packing is designed for superior biological filtration.

- The maximum exposed surface area allows growth of microorganisms and enhances biological activity, liquid distribution, oxygen transfer, and low sludge production.
- The open nature of the packing and high void radius ensures flow patterns that allow continual contact between effluent, biomass, and circulating air.
- The open area enhances sloughing characteristics and minimizes potential blockages.

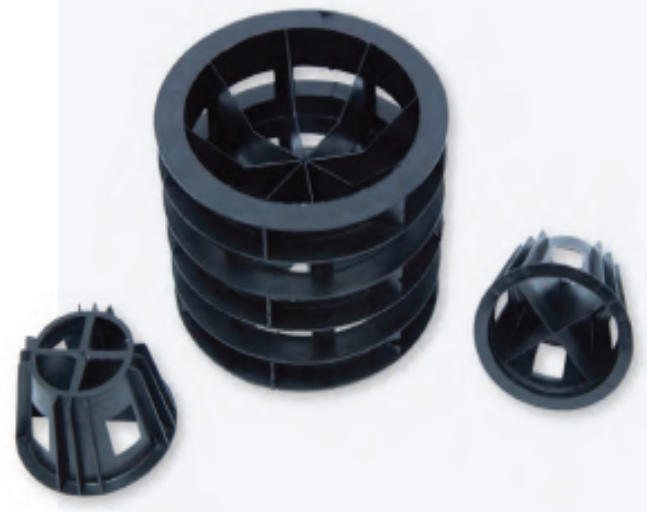
Two sizes provide the ability to optimize capacity and efficiency based on application requirements. Both sizes are well suited for treatment of high strength effluents, either aerobically or anaerobically, in applications including domestic, industrial, and refinery wastes. High mechanical strength provides excellent performance in deep beds.

Constructed of thermoplastic resin, the material is fully stabilized to UV light and is chemically inert. The material is non-toxic to microorganisms and is immune to fungal or bacteriological degradation. The preferred operating temperature is 32 – 194 °F [0 – 90 °C].

With the ability to remove up to 95% biochemical oxygen demand (BOD), ETAPAK 120 random packing is widely used in single- or two-stage high rate filters. It is often used for new, roughing first-stage filters where the existing plant is overloaded or underperforming.

ETAPAK 210 random packing is highly effective in polishing applications and nitrification processes, including fish farming. Achieving over 85% BOD removal plus nitrification, it is frequently used on mixed industrial and domestic waste streams.

Engineers at Eta Process Plant, a division of Koch-Glitsch UK, can calculate the optimum volume of media necessary and recommend the number of stages, vessel diameters, bed heights load, irrigation rates, recycle flows, and clarifier dimensions.



Size		120	210
Void Fraction	%	95	96
Dimensions	in	4.5 x 3.5	1.8 x 1.6
	mm	115 x 90	45 x 40
Surface Area	ft^2/ft^3	30.5	70.0
	m^2/m^3	100	200

WATER TREATMENT FACILITY

PROVALVE® TRAYS

Plastic trays are used in a wide variety of applications, such as acid stripping, gas washing, distillation of corrosive components, and gas drying using sulfuric acid. For corrosive distillations, Koch-Glitsch plastic trays can be a more cost-effective solution than trays constructed of exotic metals or graphite. Combining plastic composites technology with fluoropolymer technology allows trays to be produced for relatively large diameter columns that operate at temperatures up to 392 °F [200 °C]. For columns with diameters less than 42 in [1066 mm], Koch-Glitsch can manufacture trays in cartridge-style construction.

Koch-Glitsch supplies bubble cap, tunnel cap, sieve, and PROVALVE® valve trays in plastic materials.

PROVALVE® TRAY IN PTFE MATERIAL FOR HIGHLY CORROSIVE APPLICATIONS

The PROVALVE unit (pictured) is also available in fluoroplastics and graphite for highly corrosive applications where a suitable metallic material is not available. PROVALVE trays are used in a wide variety of services – from severely fouling refinery applications to petrochemicals to fine chemical separations.

MIST ELIMINATORS

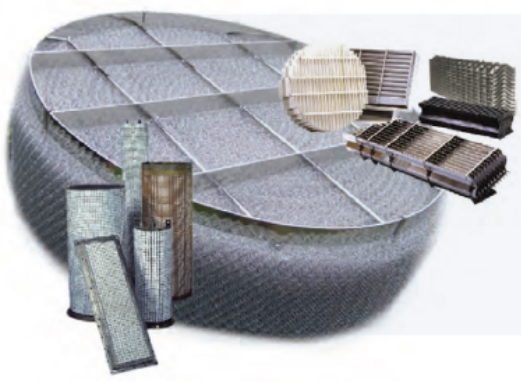
When vessel size is not set by the mist eliminator, the practical starting point is often the knitted wire mesh mist eliminator. DEMISTER® mist eliminators provide high separation efficiency with a low pressure drop at the lowest installed cost. They are custom manufactured to any size and shape from a wide selection of plastics and fluoroplastics to perform in corrosive environments.

FLEXICHEVRON® mist eliminators are characterized by smooth blade profiles and wide blade spacing that provide additional fouling resistance. Koch-Glitsch offers an extensive line of FLEXICHEVRON mist eliminators to meet the demanding requirements of applications where undissolved solids can be present or droplets can be sticky or viscous. Vapor flow paths that are more open provide higher capacity and lower pressure drop than other mist eliminators. They are a good selection for use in scrubbers, cooling towers, and evaporators.

FLEXIFIBER® mist eliminators are applied to achieve high-efficiency removal of sub-micron liquid droplets. Typical applications include sulfuric acid, chlorine, and turbine lube oil tank vents. Plastics, fluoroplastics, and FRP materials are available for element (cage) construction.

In most process industries, it is common for two immiscible liquids to mix with each other to create a dispersion. Products such as KY-FLEX® liquid-liquid settling media and KY-MESH liquid-liquid coalescing media are applied to separate the liquids. Both products are available in plastic and fluoroplastic materials.

Refer to the Koch-Glitsch brochure, Mist Elimination and Phase Separation (MEPS-1), for more information on Koch-Glitsch mist elimination and phase separation technologies.



LEFT
FLEXIFIBER®
MIST ELIMINATORS

CENTER
DEMISTER®
MIST ELIMINATORS

RIGHT
FLEXICHEVRON®
MIST ELIMINATORS

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