

Column Internals

Fabco Plastics offers a wide variety of internals for a given function. The selection among different types of internals (i.e., liquid distributors) is made based on the characteristics of the application. Some internals operate better at high loads, some at low. Some exhibit better turndown than others. The following list summarizes the points to be considered in the selection of the proper internals.

Liquid Distributors

- Tower diameter
- Pourpoint density
- Geometric coverage
- Turndown
- Presence of solids
- Pressure drop
- Liquid pressure
- Liquid condition
- Entrainment
- Type and size of packing
- Feed inlets
- Space to top of packing
- Material selection

Packing Supports

- Tower diameter
- Pressure drop & capacity
- Packing type and size
- Combinations with collector/redistributors
- Load limitations
- Material selection

Liquid Collector/Redistributors

- Same as for liquid distributors
- Total and effective mixing
- Gas redistribution

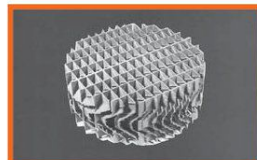
Gas Distributors

- Column size

- Inlet nozzle design
- Available pressure drop
- Turndown
- Space availability
- Material selection

Mist Eliminators

- Efficiency/capacity
- Presence of solids
- Gas velocity and properties
- Pressure drop
- Liquid load
- Mist size and properties



LIQUID DISTRIBUTORS

Trough type distributors are generally used in towers with high liquid rates and/or fouling service. Liquid is introduced into the parting box which properly distributes the liquid into the troughs. Generally, one parting box is used for smaller towers while multiple parting boxes are used for larger diameters or high liquid rates. Trough distributors can be made in plastics, FRP or metals and ceramics. Orifice type distributors are made in various sizes and designs. Typically all sizes have round or rectangular chimneys with a flat floor sealed to the vessel support ring. These distributors can act as bed limiters by having antimigration bars/rods in the open areas. Orifice type distributors can be made in plastics, metals or ceramics.

SUPPORT PLATES/GRIDS

Multibeam support plates are composed of corrugated sheets perforated with slots/holes to separate gas and liquid flow paths maximizing total throughput. The slots/holes are laid out in a uniform pattern where the open area approaches or exceeds the cross-sectional area of the tower. The slots/holes sizes are such that the packing do not fall through them. The angle of corrugation, height and width of each beam varies with design and material used. Multibeam support plates are available in various metals, plastics and ceramics.

MIST ELIMINATORS

Knitted wire filament mist eliminators are available in various densities, filament sizes and surface areas to suit specific process conditions for maximum removal of mist and micron-size droplets. Mist eliminators can be made in various metals and plastics. Additionally, our random and structured packing can be used as mist eliminators. Chevron and plate type mist eliminators are suitable for high liquid load, dirty services and high capacities. They can be applied in horizontal flow or used in vertical upflow and they can be made in sections to be installed through a manway. Chevron mist eliminators can be made in plastics or metals.

CUSTOM INTERNALS

Special internals for liquid and gas distribution can also be provided. Fabco has experience in flashing feed, collector tray, and sparger designs.

BED LIMITERS/HOLD DOWN

Bed limiters, or holddowns as they are also called, are used to limit the packing bed from moving and getting packing pieces entrained away from the bed. They are secured to the wall or loosely placed on the packing; they are made of rods and bars or in combination with screens or expanded metal, depending on the application. Bed limiters can be made in various metals and plastics.

COLLECTOR/REDISTRIBUTORS

Collector redistributors are similar to the orifice liquid distributors with risers. Our model CR01 collector is composed of a flat perforated plate with round or rectangular chimneys. The risers or chimneys have caps to prevent liquid from bypassing. Redistributors are normally used when a long packed bed section has to be split up into smaller sections or when an intermediate feed is inserted in the column. Collector/redistributors can be made in various metals and plastics.

JP-7 - A CHEMICAL LIQUID FOR PREVENTING FOULING OF SCRUBBER PACKING

One of the most common problems with air stripping and absorption towers is that over time they become fouled with solids, resulting in the loss of efficiency, capacity and increased pressure drop. Fabco has accumulated a wealth of knowledge in dealing with packing fouling problems while optimizing stripping and absorption efficiencies. The addition of JP-7 as a pretreatment will keep free iron, calcium, manganese and other minerals in suspension, preventing oxidation within the air stripping column, thus preventing a fouling problem. Typical dosages of JP-7 range from 1 to 3 gallons per million gallons of water. JP-7 is furnished in a stable, liquid form and is fed on a continual basis with a low maintenance chemical feed pump.