

MTPi

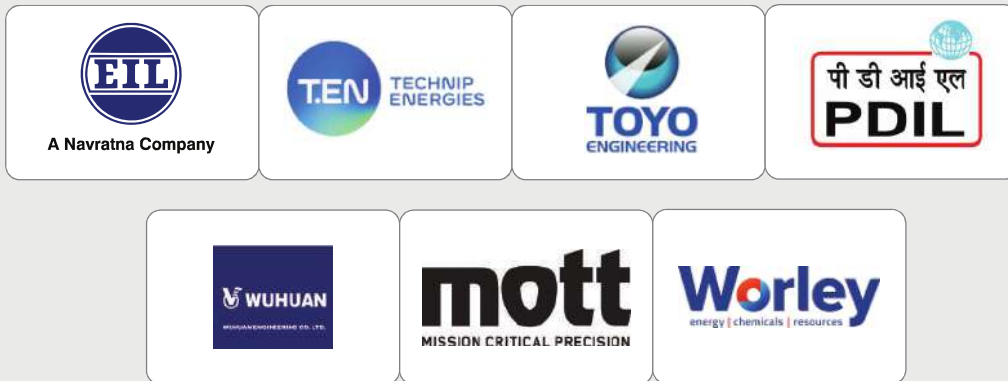


HIGH PERFORMANCE, HIGH EFFICIENCY
...DELIVERED

ABOUT US

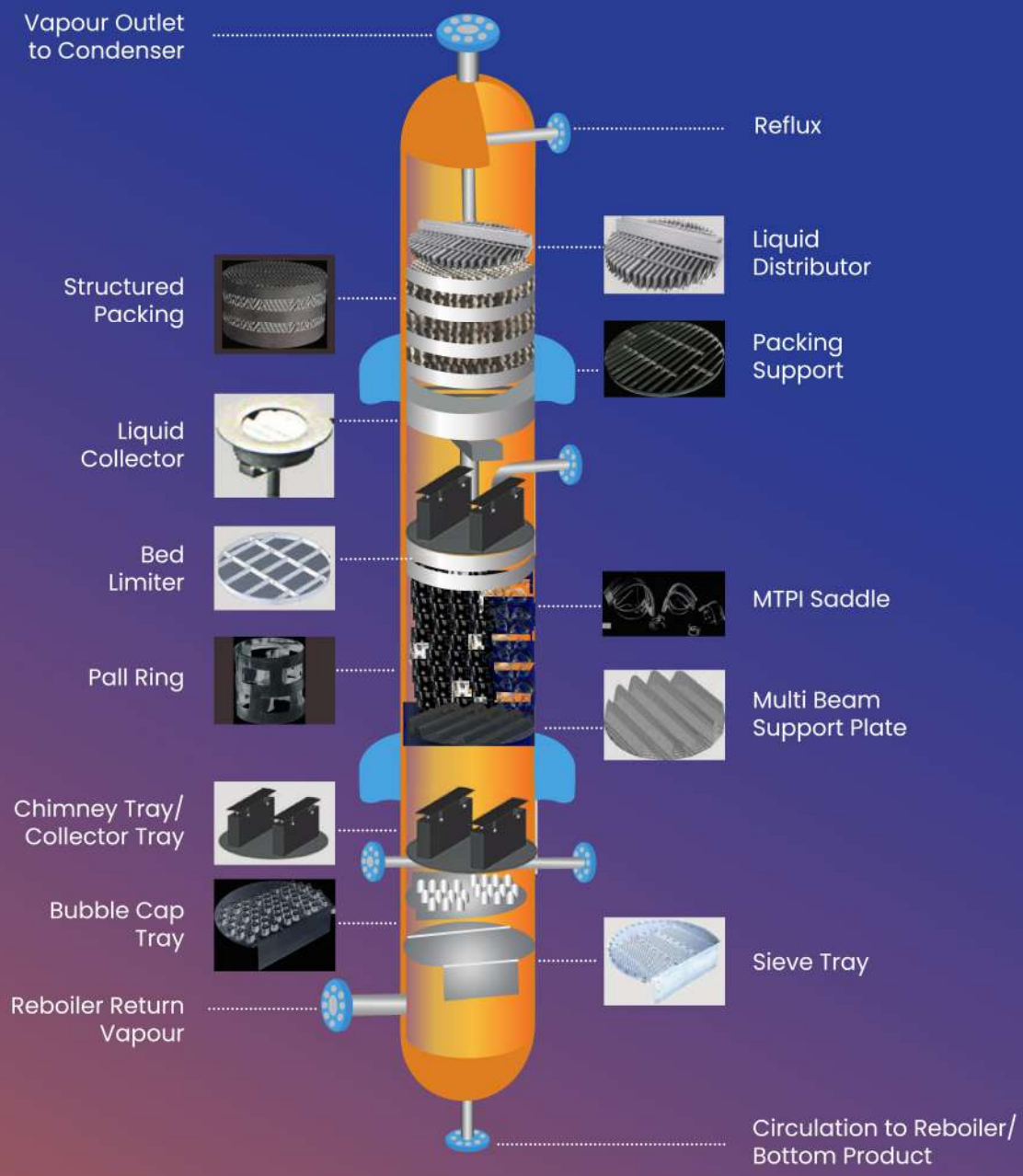
MTPI Products Pvt. Ltd. is an ISO 9001:2015 company with over 40 years of experience in providing mass transfer solutions. We are one of India's largest manufacturers of mass transfer equipment and produce the complete range of Random Packing, Structured Packing, Tower Internals and Trays in both plastic and metal. Our client base extends to several countries including USA, Australia, South Africa, Middle East, Japan, China and others. We have dedicated facilities for manufacturing of metal and plastic mass transfer equipment. An experienced engineering and production team ensures our clients get optimized engineering and mass transfer solutions for enhanced performance.

Empanelments:



Our esteemed clients include:





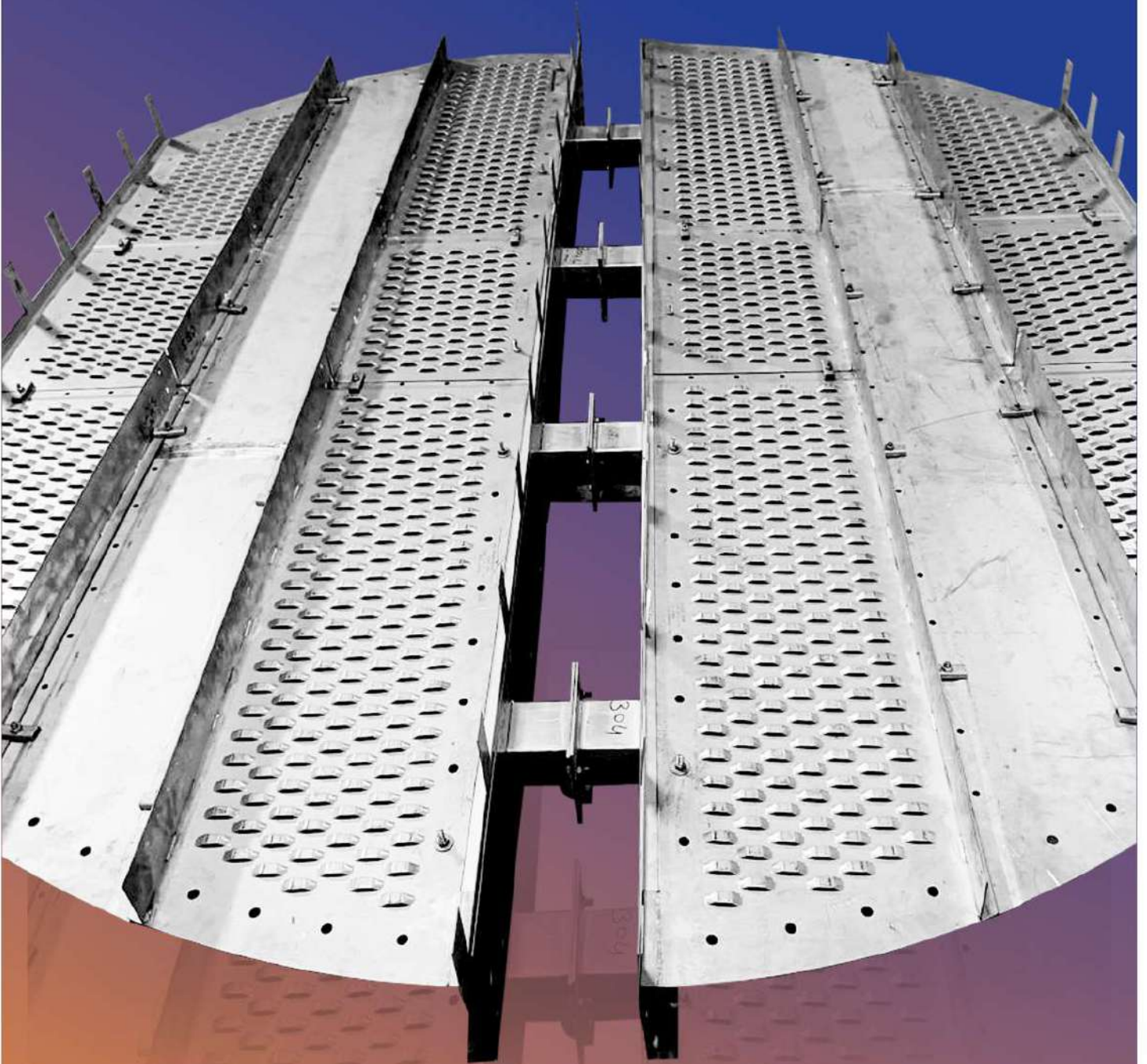
APPLICATIONS

INDUSTRIES

- ✓ Tall Oil Fractionators
- ✓ Co₂ Absorbers H₂s Contactors
- ✓ Liquid-Liquid Extraction Columns
- ✓ Air Pollution Control Scrubbers
- ✓ Water Treatment Facilities
- ✓ Packed Bio-Reactors
- ✓ Demethanizers
- ✓ Coal Gasification
- ✓ CDU, VDU Units

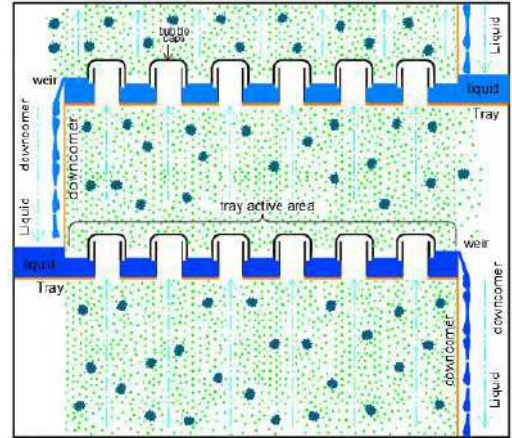
- ✓ Refinery
- ✓ Oil and Gas
- ✓ Petrochemicals
- ✓ Speciality Chemicals
- ✓ Fertilizer
- ✓ Pharmaceutical
- ✓ Water Effluent Treatment

TOWER TRAYS



Tower Trays

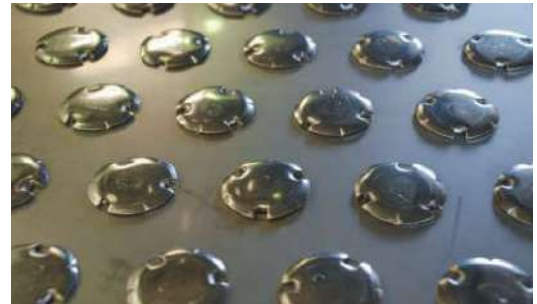
Trays are used in mass transfer operations where pressure drop limitations are not critical. They are mainly used in high pressure distillation operations. However, there are a few atmospheric, moderate pressure and vacuum operations where trayed towers are used. Trays are available in segmental or cartridge type construction to suit customer's requirements. Trays range from sieve and valve trays to bubble cap and cartridge trays. Valve trays are typically with covers provided to the perforations of the sieve trays. Valves are either movable (conventional) or fixed. Valves provide extra resistance to the rising vapour, which are discharged laterally. This helps better interactions with the liquid on the tray and increases efficiency.



Valve Tray

The holes in valve trays are covered with valves that vary in their opening according to the vapour pressure. As the vapour flow rate increases, the valve lifts, and vapour flows onto the tray deck. Liquid flows from the tray deck onto the weir through the downcomer to the lower tray.

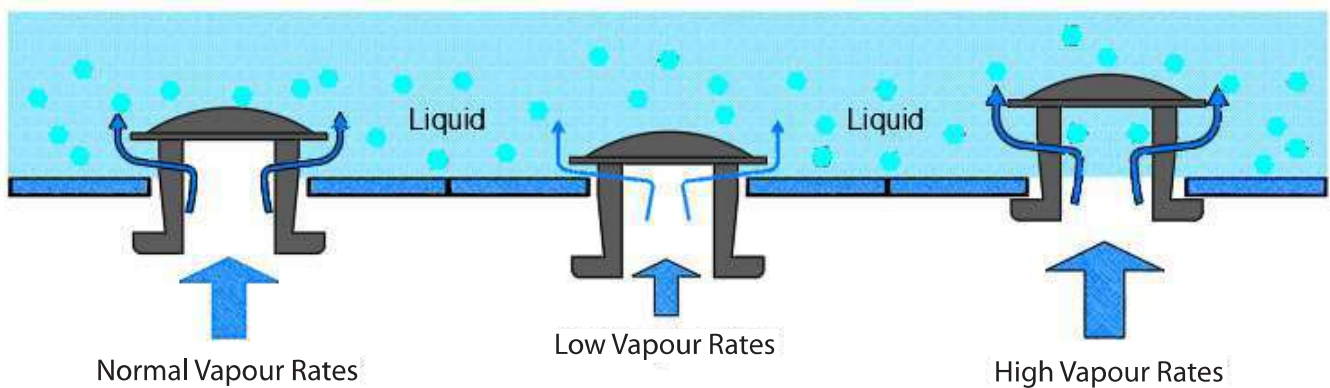
These trays can operate over a wide range of flow rates with high separation efficiency because of the flexibility that variable valve openings provide.



Valve trays are designed to minimize weeping. Since the valve tends to close as the gas flow becomes lower, the total orifice area varies to maintain a dynamic pressure balance across the plate.

There are two types of valve trays - fixed and floating. Fixed valves are permanently open while the floating valves open and close according to the vapour flow rate.

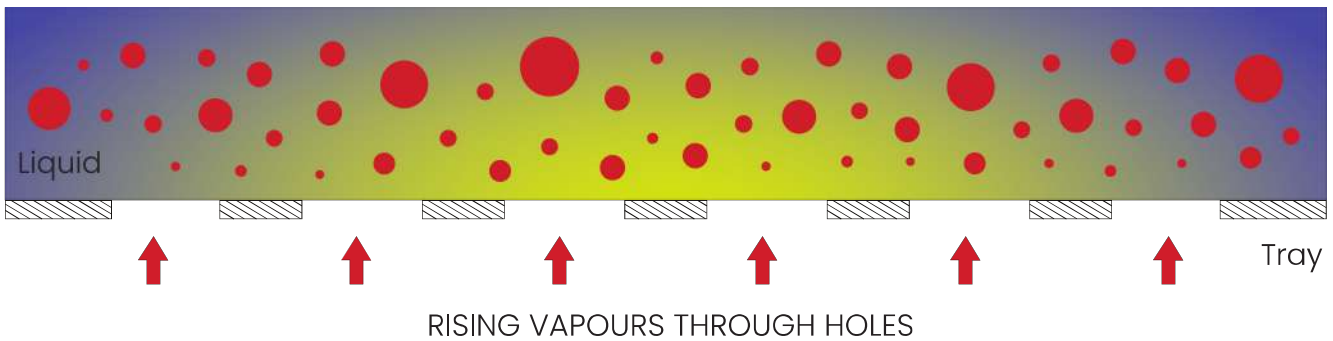
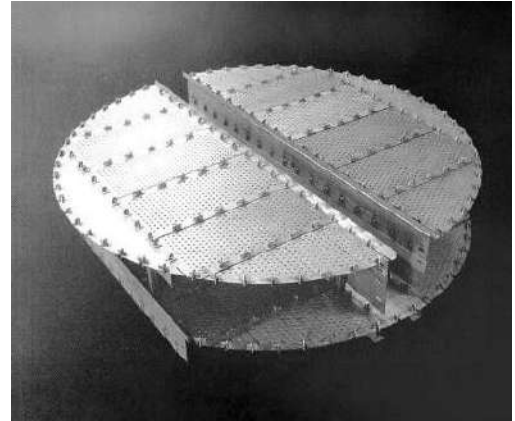
Valve trays have the advantages of low probability of weeping, higher flexibility at varying feed compositions and flow rates and more efficiency at lower flow rates than sieve trays. Valve trays also have lower pressure drop than bubble cap trays. However, the floating valves can sometimes get fouled due to deposits and can reduce their open area and efficiency.



Sieve Tray

The sieve tray contains small round holes on the tray deck through which vapours rise and bubble through the liquid on the tray. The liquid flows across the tray deck over the weir, through the downcomer to the tray below. The liquid is prevented from flowing through perforations by the upward-flowing action of the vapour. Hence, if the gas flow rate is low, weeping of liquid through the perforations may occur.

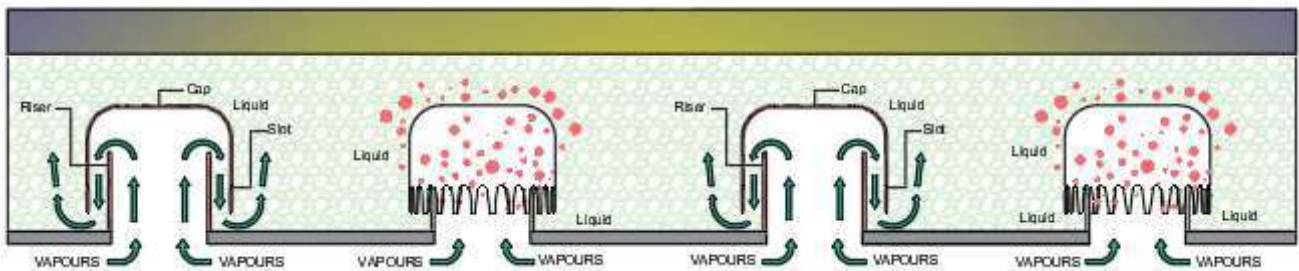
Sieve trays are simple, easy to operate and maintain and have low pressure drop compared to other tray types. However, they may have less optimal performance during turndown and may have weeping during low flow rates. Sieve trays can also have higher frothing and thus higher liquid entrainment.



Bubble Cap Tray

In these trays, vapours rise up through risers into a cap, and escape from slots in the cap and bubble through the surrounding liquid on the tray where mixing and mass transfer occurs. The depth of the liquid is maintained so that bubble caps are fully covered.

Bubble Cap Trays are used during low vapour and liquid flow rates. They have lower probability of weeping. However, they may have a high pressure gradient, are more costly and require more space.



Cartridge Tray

Cartridge trays are typically used in small flanged columns where manholes are not available. In smaller diameter columns (typically below 1 meter), cartridge trays are often used as an alternative to conventional tray systems due to their modular design. It is assembled in bundles for easy and fast installation and can be equipped with all types of tray decks and downcomers. Cartridge trays are designed as pre-fabricated, removable modules that can be installed or removed in one piece.



Tray Valves

MT VI



MT Cage B



MT Cage A



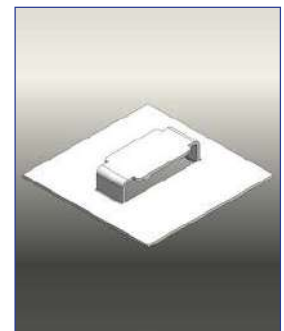
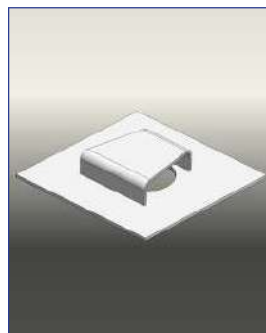
MT MVG

MT VG0



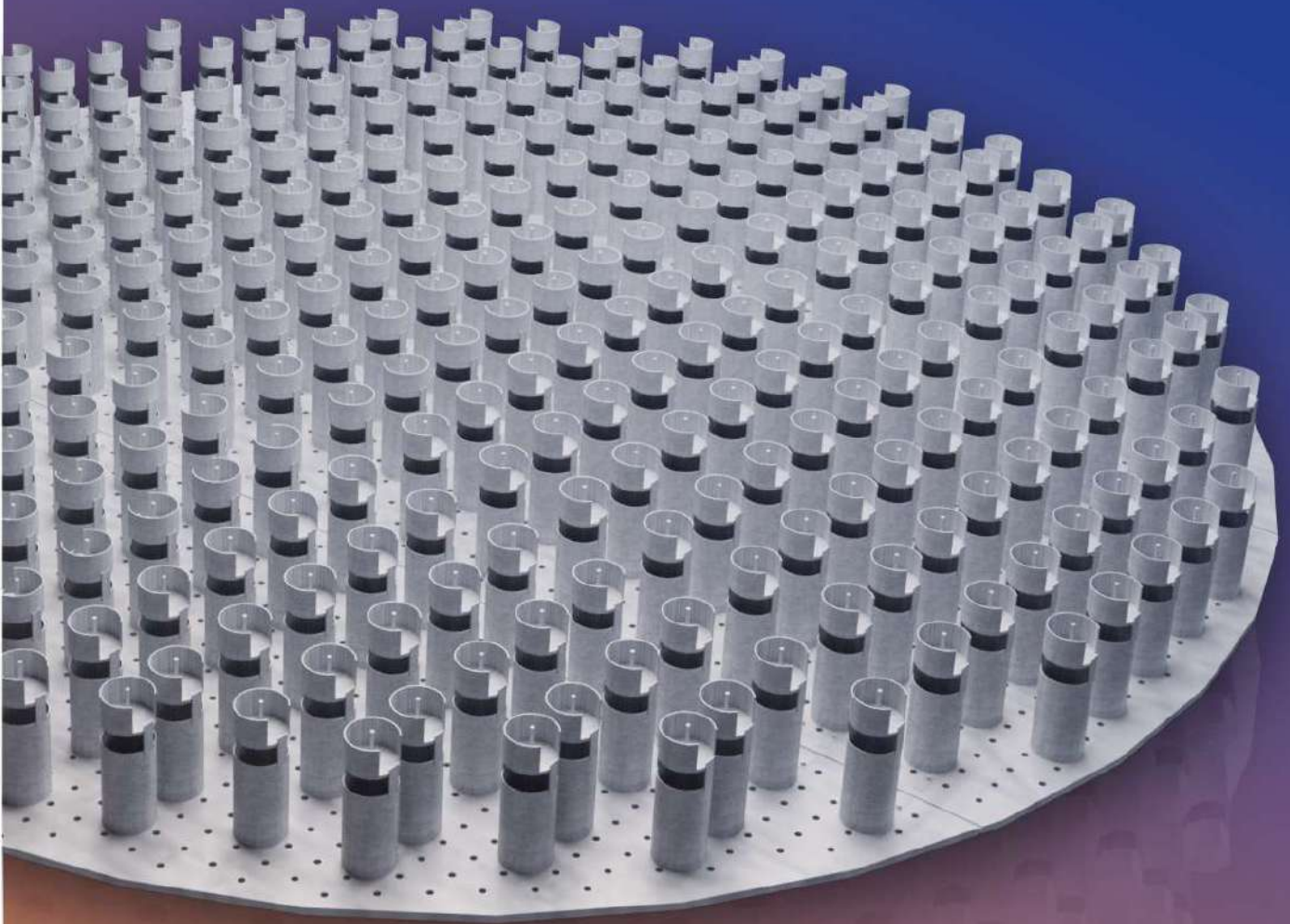
MT VG10

MT Trapezoidal Valve



MT Rectangular Valve

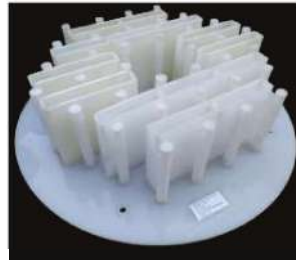
TOWER INTERNALS



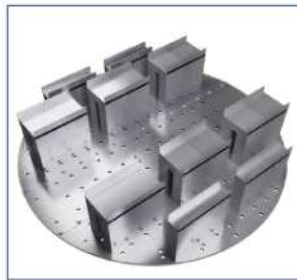
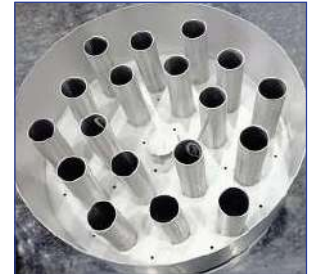
Vapour / Liquid Distribution Devices

Packed tower design is based on the fundamental concept of equal liquid and gas distribution across the column section. The pressure drop across the packing provides an impetus for the upward flowing gas to become uniformly distributed across the column area. A packed bed irrigated by an optimally designed distributor allows the process to realise it's full separation potential (number of stages) of the packed bed. To get the optimum Mass Transfer in the packed bed, distribution of both liquid and gas is important.

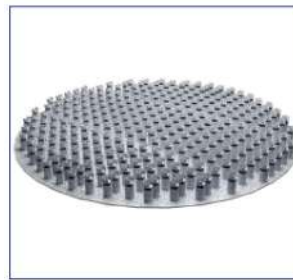
**Deck Type
Distributor**



**Pan Type
Distributor**



**Deck Type
Distributor**



**Deck Type
Distributor**

**Trough Type
Parting Box**



**Trough Sump
Distributor**



**Trough
Distributor**



**Trough Type
Parting Box**

Vapour / Liquid Distribution Devices

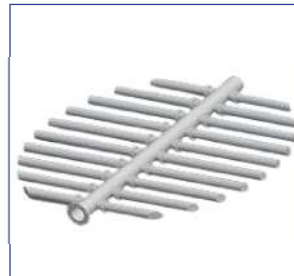
Flow
Multiplier



Spray
Nozzle



V Weir
Notch



Header
Lateral

Collector Trays

A collector tray, also known as a chimney tray collects liquid for drawing off a product, or pump around stream, or combining with a liquid feed or ensuring uniform distribution across the tray area or improving mixing. These can be manufactured in metals, plastics and FRP.

Vane Type
Collector



Vapour
Inlet Device



Chimney
Collector
Tray



Gallery
Tray

Bed Limiters

Bed limiters and hold down plates are retaining devices used above packed beds to prevent fluidization and restrict packing movement, which can occur during upset conditions. Bed limiters are used for metal and plastic random packings as well as structured packing. Hold down plates are used for ceramic and carbon packing. They rest directly on the packing and prevent packing from breaking up due to fluidization when operated at high pressure drops or during temporary surges. These can be manufactured in metals, plastics and FRP.

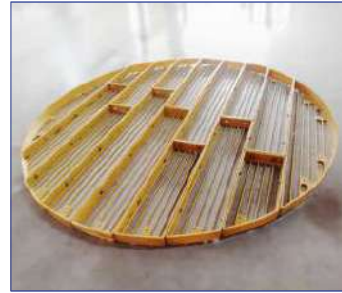
Bed Limiter



Hold Down Grid



Bed Limiter FRP



Support Plates

Support plates are provided to physically support the cumulative weight of the random/structured packing and the operating "liquid hold-up" in the packed bed. Support plates are shaped and designed to provide maximum open area and minimal pressure drop. These can be manufactured in metals, plastics and FRP.

Support Plate Metal



Support Plate Plastic



Support Plate FRP



Mist Eliminators

Mist elimination, or the removal of entrained liquid droplets from a vapour stream, is one of the most commonly encountered processes of unit operation. Droplets are removed from a vapour stream through a series of three stages: collision & adherence to a target, coalescence into larger droplets, and drainage from the impingement element. These can be manufactured in metals and plastics.

Mist Eliminator Metal



Mist Eliminator Plastic



Vane Type Plastic



STRUCTURED PACKING

