

CATALOG

EDV
Valve
Tray



Random
Column
Packing



Ceramic
Membrane
Filters



ADV[®] HIGH-PERFORMANCE TRAY

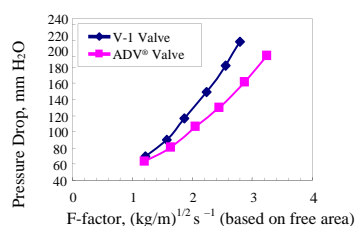
Since its inception in late 1997, ADV[®] high-performance tray has been successfully used in more than 3000 commercial installations in the refining, petrochemical and chemical industries. ADV[®] tray has been used in applications where the tower diameter ranges from 0.5 to 10.2m, tray spacing ranges from 170 to 1100mm, the number of tray ranges from a few to more than 200, and the number of passes ranges from one to six. ADV[®] tray has also been used in vacuum and high-pressure systems. ADV[®] tray offers you a solution with higher capacity, higher separation efficiency, lower pressure drop and greater flexibility. It can also help you lower capital expenditure.

Main Features

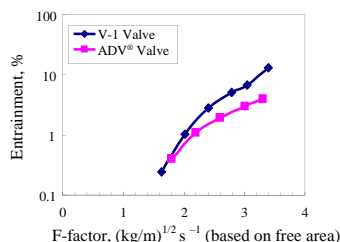
- Non-revolving valve with top canopies
- “Quick-Connect” active tray joints
- Inlet bubble promoter
- New-design downcomer

Advantages Over Conventional Trays

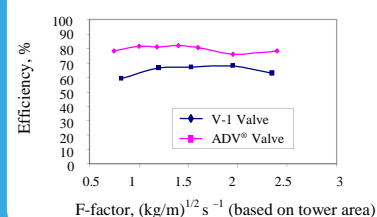
- 40% (or more) higher capacity
- 10-20% more efficiency
- >10% lower pressure drop
- 30-50% greater flexibility
- Minimum modification in reconstruction
- Easy to install and maintain



Entrainment



Pressure Drop



Efficiency

Applications

Refining and Petrochemical

- Crude oil distillation
- FCCU
- Light hydrocarbon recovery and separation
- Hydrotreating
- Delay coking
- Desulfurization
- Sulfur recovery
- Reformation and aromatics
- Ethylene unit
- Styrene unit
- Phthalic anhydride
- MTBE unit
- Butadiene unit
- Isoprene unit
- Dehydrogenation of light hydrocarbon

Coal Chemical and Other Chemicals

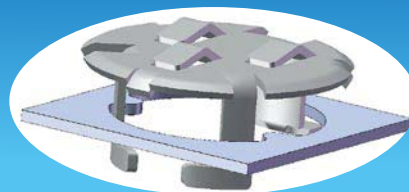
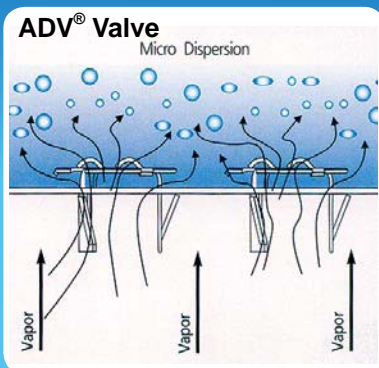
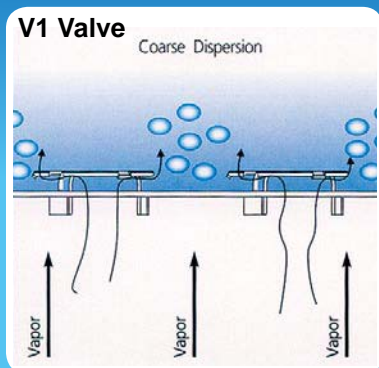
- Coal gasification
- Coal-to-liquids
- Methanol plant
- Rectisol unit
- Methanol-to-Olefin(MTO)
- Acetic acid and ester unit
- PTA plant
- Acrylonitrile plant
- Propylene oxide
- Polysilicon plant
- BDO unit
- MEK unit
- Ethylene glycol unit
- Natural gas De-H₂S and De-CO₂
- Polyester plant
- Fine chemicals

Environmental Protection

- Solvent recovery
- Waste water treatment
- Off gas recovery and treatment

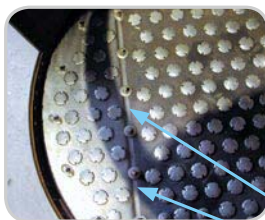
1. Non-revolving Valve with Top Canopies

Top canopies make vapor dispersion more uniform and fine, which improves efficiency. The anti-spin valve hole can prevent the valve rotating like the V1 valve, and can prevent valve falling from the hole, which occurs when the valve legs become overly worn.



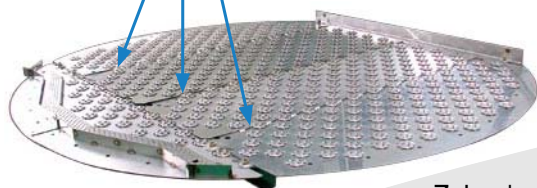
2. "Quick-Connect" Active Tray Joint

The patented "Quick-Connect" active tray joint allows for easy on-site installation and eliminates inactive tray zones found in all other trays. This creates a more "effective active area" and eliminates liquid bypass.



Active Zones in
ADV® Tray

Inactive Zones in
Conventional Tray

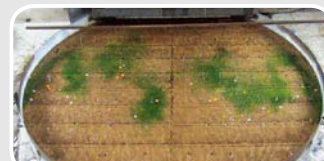


3. Inlet Bubble Promoter

The ADV® Tray has a unique inlet bubble promoter to allow for froth initiation near the inlet area of the active panels. The froth initiation helps minimize or eliminate the liquid gradient on the tray and promotes uniform froth distribution across the entire tray active area. This results in higher tray capacity and operating flexibility.

4. New-design Downcomer

Zehua's new-design downcomer with directional flow promotion helps eliminate stagnant liquid pools on the tray and promotes uniform liquid penetration and froth density across the entire bubbling area. Directional flow promotion prevents fouling material settling on the tray deck and extends the column's run time.



Flow status of traditional downcomer

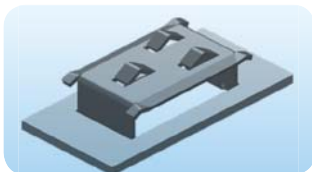
Flow status of new design downcomer

ADV[®] Tray List



1. ADV[®] Valve Tray (ADV[®])

- Floating round valve with top canopies for fine dispersion
- High efficiency, capacity, and operating flexibility
- For wider operating flexibility, Heavy ADV[®] valve (ADV[®]-H) can be used together with ADV[®]



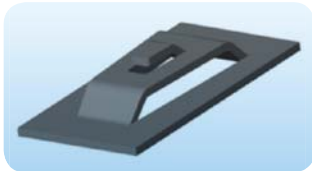
2. ADV[®] Rectangular Valve Tray (ADV[®]-R)

- Floating rectangular valve with top canopies for fine dispersion
- Directional ADV[®]-R valve (ADV[®]-RD) can be used in conjunction with ADV[®]-R for directional flow promotion using a directional valve leg
- For more flexible operation, heavy ADV[®]-R valve (ADV[®]-RH) can be used together with ADV[®]-R



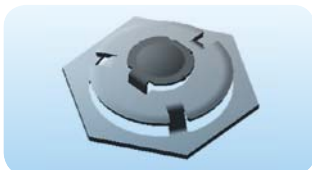
3. ADV[®] Fixed Valve Tray (ADV[®]-F)

- Fixed valve tray with three top canopies for fine dispersion
- More flexible and efficient than a conventional sieve tray
- Adapts to fouling and coking system
- Non-top (ADV[®]-F0) or one-top (ADV[®]-F1) canopy is available for different operational needs



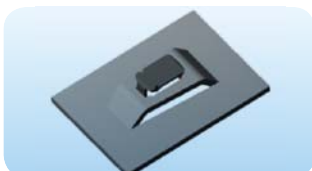
4. ADV[®] Rectangular Fixed Valve Tray (ADV[®]-FR)

- Fixed valve tray with three top canopies for fine dispersion
- More flexible and efficient than a conventional sieve tray
- Adapts to fouling and coking system
- One top canopy (ADV[®]-FR1) is available for different operational needs



5. ADV[®] Combinatorial Valve Tray (ADV[®]-C)

- Combinatorial valve with a fixed round valve as the base valve and a floating round valve as the top valve
- Top valves close in the case of low vapor loading. This allows the tray to operate more flexibly
- Combines the advantages of a fixed valve tray and a floating valve tray. It is flexible and has high mass-transfer efficiency
- Adapts to fouling and coking system



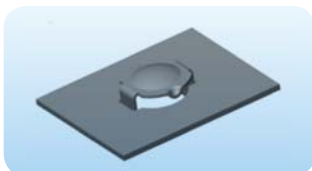
6. ADV[®] Rectangular Combinatorial Valve Tray (ADV[®]-CR)

- Combinatorial valve with a fixed trapezoidal valve as the base valve and a floating rectangular valve as the top valve
- Top valves close in the case of low vapor loading. This allows the tray to operate more flexibly
- Combines the advantages of a fixed valve tray and a floating valve tray. It is flexible and has high mass-transfer efficiency
- Adapts to fouling and coking system



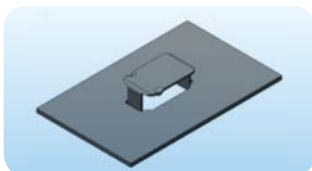
7. Scalloped ADV[®] Valve Tray (ADV[®]-S)

- Floating round valve with scalloped lace and top canopies
- Vapor jets from side scalloped lace and top canopies for fine dispersion and to reduce pressure drop
- The valve hole of ADV[®]-S is smaller than that of a conventional valve. This makes ADV[®]-S especially suitable for low-vapor scenarios where high efficiency is required
- With an ADV[®]-SH round heavy valve, a Scalloped ADV[®] valve tray operates higher capacity and flexibility



8. ADV[®] Mini Valve Tray (ADV[®]-M)

- Floating Mini round valve
- The Valve hole is smaller than that of an ADV[®]-S valve
- Adaptable to scenarios where there is very low vapor and high efficiency is required



9. ADV[®] Mini Rectangular Valve Tray (ADV[®]-MR)

- Floating Mini rectangular valve
- The valve hole is smaller than that of a conventional valve
- Adaptable to scenarios where there is very low vapor and high efficiency is required