Chemical Process Products

structured packing
Kevin Enterprises is an ISO 9001 certified company established in 1972, engaged in the design, manufacture, supply, and installation of mass transfer equipment.

Our core strength of technical capabilities and expertise has been developed over a period of 15 years as a licensee of Saint Gobain-Norpro Corporation (formerly Norton Chemical Process Products Corporation) and through our own independent experience built over a period of above 35 years. During this time, Kevin Enterprises has grown to become one of Asia’s pre-eminent mass transfer equipment companies. Our record of quality and success in the design, manufacture, and timely delivery of mass transfer products has been consistently demonstrated to our customers throughout our history. The installation of our cost effective products has served to improve the performance of our valued customers’ critical distillation and absorption processes. Our proven record of success is clearly evident given our extensive list of satisfied and repeat customers in the field of fertilizers, petroleum refineries, petrochemicals, and fine chemicals throughout the world.

Our manufacturing facility is equipped with modern equipment and with dedicated engineering and manufacturing professionals to ensure timely delivery of our quality mass transfer products to you, our valued customer.
STRUCTURED PACKING

Structured packings are constructed from corrugated & textured metal sheets. The angle of inclination of the corrugations of adjacent sheets is reversed with respect to the vertical column axis, forming mixing cells at every point where the corrugations intersect. The result is a very open honeycomb structure with inclined flow channels giving a relatively high surface area but with very low resistance to gas flow. This structure ensures an excellent and uniform wetting under low and high liquid loads. Column operations at low liquid loads call for specially designed distributors to ensure adequate surface wetting.

Each subsequent layer of structured packing is rotated 90 degree so that the sheets of one layer are perpendicular to the sheets of the layer above and below. While passing through each layer, gas and liquid are thoroughly mixed in the direction parallel to the plane of the sheets. By rotating subsequent layers, excellent mixing and spreading, both side-to-side and front-to-back, of fluids are obtained over the entire cross-section of the tower. Perforations and surface texturing maximize liquid spreading. These characteristics tend to show significant performance benefits in low pressure and low irrigation rate application.

Structured packings are available in two different inclination angles, i.e. Type “X” and Type “Y”. The “Y” type packings have an inclination angle of about 45° from the horizontal axis, and are the most widely used. They provide higher efficiency over their corresponding “X” type counterpart, but at the cost of a higher pressure drop/lower capacity. The “X” type packings have an inclination angle of 60° from horizontal axis and are used in high capacity and low pressure drop applications.
ME-II Structured packing, is an efficient and economical structured packing that is widely used in the industry today. ME-II Structured packing has all the desirable characteristics like predictable throughput, low pressure drop, good efficiency and flexibility; which plays a vital role in separations.

ME-II Structured packing is available in an array of surface areas (corrugation crimp sizes) & KEVIN can also provide intermediate sizes to suit a particular case.

Specific features:
- Minimal pressure drop per mt length of packed bed
- Minimum wetting rate in the range of 0.2 – 0.5 m³/m². hr and maximum more than 150 m³/m². hr

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<tr>
<th>Packing Type</th>
<th>Specific surface area (m³/m²)</th>
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<td>ME-II 65 X</td>
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<td>ME-II 125 X</td>
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<td>ME-II 750 X</td>
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KEVIN also offers the ME-II Vantage structured packing, a better option, which exceeds the performance of almost all other standard structured packing due to its exceptional liquid-spreading characteristic. ME-II Vantage structured packing sheets have innumerable fine perforations (pierced but not punched holes) throughout the surface. This is a distinct advantage over other structured packings that have punched holes resulting in loss of valuable surface area that in turn reduces the potential efficiency of the product.

It is available in same sizes as regular ME-II structured packing.

KEVIN’s ME-II VANTAGE structured packing has the added advantage of surface treatment, which is expected to enhance performance.

ME-II Vantage structured packings are also available in two inclination angles, “X” and “Y”.

Typical applications:
- **Oil & Gas**: Vacuum, Moderate & Atmospheric Columns. High Pressure Columns In Selected Applications, Amine Sweetening Units
- **Chemical Industry (Pharmaceutical)**: Alcohol-Water, Ethylbenzene/Styrene, Cyclohexanone/ol, Acetic Acid-water Separation, Solvent Separation, Aroma Chemicals, Terpene Chemical Separation
- **Petrochemical Industry**: Quench Columns, C3-C4 Splitters, Xylene Splitters
- **Absorption**: Natural Gas Drying (TEG Contactor), CO₂, & H₂S Absorbers & Strippers, Ethyleneoxide Absorbers & Strippers, Acrilonitrile Absorbers, HCl Absorption, Air Pollution Control.
High Capacity Structured Packing

KEVIN has a technical agreement with Montz GmBH, Germany for design, manufacture & supply of Montz type structured packing for the Indian market.

The Montz Packing is characterized by high separation efficiency, good wettability, high throughput, high flexibility and low pressure drop. The special features of Montz packings include variable geometric dimensions and choice of different surface structures.

The Montz-Pak is also available in high capacity designs. The models available are B1 250 M & B1 350 M. Type M structured packing provides significant increase in capacity over the regular structured packing without sacrificing separation efficiency.

ME-II Wire Mesh

KEVIN’s ME-II Wire Mesh Packing has enhanced self-wetting characteristics; as the fiber is woven from fine diameter wires. The packing element consists of parallel-perforated corrugated sheets of wire mesh. These packings are particularly suited in separations that require a large number of separation stages, which typically operate under high vacuum and therefore low liquid loads. The capillary action of the wire mesh ensures complete surface wetting & hence provides a low HETP. Typically 5 to 10 number of theoretical stages per meter of packed height can be achieved with this packing when complemented with high efficiency internals.

KEVIN ME-II Wire Mesh Packing is available in following two types
1. ME-II WIRE MESH BX - 500 m²/m² specific surface area
2. ME-II WIRE MESH CY - 750 m²/m² specific surface area

Characteristics:
- High separation efficiency almost upto capacity limits
  - High throughput
  - Low pressure drop
  - Liquid loads as low as approximately 0.1 m³/m² hr
  - Can be adapted to any fractionating task by variable specific surface
TECHNICAL APPENDIX

Pressure Drop Curves

**ME-II 200 X**

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa

**ME-II 200 Y**

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa

**ME-II 250 X**

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa
Efficiency Curves

**ME-II 200 X**

![Graph of ME-II 200 X with legends A: 100 kPa, B: 40 kPa, C: 10 kPa, D: 5 kPa]

**ME-II 200 Y**

![Graph of ME-II 200 Y with legends A: 100 kPa, B: 40 kPa, C: 10 kPa, D: 5 kPa]

**ME-II 250 X**

![Graph of ME-II 250 X with legends A: 100 kPa, B: 40 kPa, C: 10 kPa, D: 5 kPa]
**Pressure Drop Curves**

**ME-II 250 Y**

![Graph showing pressure drop curves for ME-II 250 Y](image)

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa

**ME-II 350 Y**

![Graph showing pressure drop curves for ME-II 350 Y](image)

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa

**ME-II 500 Y**

![Graph showing pressure drop curves for ME-II 500 Y](image)

- **A**: 100 kPa
- **B**: 40 kPa
- **C**: 10 kPa
- **D**: 5 kPa
Pressure Drop Curves

ME-II WIRE MESH BX

A: 100 kPa
B: 40 kPa
C: 10 kPa
D: 5 kPa

ME-II WIRE MESH CY

A: 100 kPa
B: 40 kPa
C: 10 kPa
D: 5 kPa

ENGINEERING COMPANIES WE HAVE WORKED WITH:

Aker Kvaerner
Black & Veatch
Chemtex
Descon
Engineers India Ltd.
Haldor Topsoe
Halliburton- KBR
ICB Technimont
Jacobs H & G

L&T Chiyoda
Lurgi
Petrofac
Projects & Development India Ltd.
Snamprogetti
SNC Lavalin
Technip- KTI
Toyo Engineering
UHDE
Efficiency Curves

**ME-II WIRE MESH BX**

- **Fs**: [ft/s/(Lb/ft)']
- **NTSM**

- A: 100 kPa
- B: 40 kPa
- C: 10 kPa
- D: 5 kPa

**ME-II WIRE MESH CY**

- **Fs**: [m/s/(Kg/m)']
- **NTSM**

- A: 100 kPa
- B: 40 kPa
- C: 10 kPa
- D: 5 kPa
Packed Tower Systems

TOWER PACKINGS
- Medal-Pak
- Tall-Pak
- Pall Rings
- Raschig Rings
- ME-II Structured Packing
- Omni-Pak
- Saddles

DEMISTERS

CATALYST BED SUPPORTS
- Alumina/Inert Balls

LIQUID DISTRIBUTION
- Importance of Liquid Distribution
- Pan Type Distributor/Redistributor (Model DPC501/RPC502)
- Riser Deck Distributor/Redistributor (Model DRD503/RRD504)
- Trough Type Distributor with Parting Box (Model DTP505)
- Trough Type Distributor/Redistributor with Sump (Model DT506/RT507)
- Trough Type Distributor/Redistributor with End Closure (Model DTE508/RT509)
- Deck Type Distributor/Redistributor with Flow Point Multipliers (Model DDM510/RDM511)
- V-Weir Distributor (Model DVW512)
- Spray Nozzle Distributor (Model DSN513)
- Pipe Arm Distributor (Model DPA514)

FEED DEVICES
- Liquid Feed Pipe (Model LFP541/LFP542)
- Flash Feed Gallery (Model FFG543)
- Flash Feed Chamber (Model FFC544)
- Flashing Feed Pipe (Model FFP545)
- Vapor Feed Distributor (Model VFD546)
- Vapor Distribution Plate (Model VDP547)

COLLECTOR / CHIMNEY TRAYS
- Liquid Collector Tray (Model LCT551)
- Vane Collector Tray (Model VCT552)

VANE TYPE GAS INLET DEVICE
- Vapour Inlet Device (Model VID808)

SUPPORT PLATES
- Support Plate (Model SPL521)
- Support Plate (Model SPM522)
- Support Plate (Model SSP523)
- Support Grid (Model SGG524)

BED LIMITERS
- Bed Limiter for Random Packing (Model BLR531)
- Bed Limiter for Structured Packing (Model BLS532)
- Hold Down Plate (Model HDP533)

INTERNALS FOR LIQUID – LIQUID EXTRACTION
- Light Phase Disperser/Support Plate (Model LLE561-LP)
- Heavy Phase Disperser/Support Plate (Model LLE562-HP)

PLASTIC INTERNALS (PP or GRP)
- Most of the above internals can be offered in PP/GRP construction

Tray Tower Systems

FRACTIONATION TRAYS
- Valve Trays
- Sieve Trays
- Bubble Cap Trays
- Tray Hardware
- Baffle Trays
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