Baretti®

EQUIPMENT FOR OIL AND CHEMICAL INDUSTRIES

TECHINICAL BROCHURE

Internals for Fractionator Towers

Precision engineering for mass transfer, separation efficiency, and harsh industrial enviroments.

Baretti®
EQUIPMENT FOR OIL AND CHEMICAL INDUSTRIES

Table of Contents

PAN TYPE DISTRIBUTORS

Model B-106 / B-107

Gravity pan-type liquid distributor specifically designed for small-diameter columns. Due to the compact tower sizing. A pan is strictly required at the column shell to prevent liquid bypassing.

While primarily designed as a redistributor, Model B-107 can also serve as a main distributor when the feed liquid cannot be precisely directed away from the risers; in such cases, the integrated vapor hat prevents any direct liquid ingress.

Technical Specifications

Diameter range	≤ 900 mm
Rates & Turndown	> 5 $m^3/h \cdot m^2$ | Turndown standard: 2:1
Design	Pan type, with holes punched in the pan floor in a square or triangular pattern.
Feed Device	Extractable liquid feed pipe (Bayonette Type).
Drip Points	Recommended for clean services since liquid flows through small floor perforations (60 - 100 drip points/m^2).
Construction Type	One-piece construction. Supported on 3–4 clips welded to the column shell or directly resting on the structured packing bed. Levelling is achieved via calibrated washers at the clip positions.

B-106

B-107

PAN TYPE DISTRIBUTORS

Model B-798

Heavy-duty gravity pan distributor where liquid is metered through V-notches cut directly into the sides of the vertical vapor risers rather than floor perforations. This specialized geometry completely eliminates deck hole plugging, making it a rugged option for heavy fouling chemical environments. The V-notch riser architecture prevents particulates from accumulating and settling over distribution holes. Ideal for refinery wash sections, coking environments, or polymerizing monomer columns wherestandard floor holes would clog instantly.

Technical Specifications

Diameter range	Adaptable to wide column diameter ranges
Rates & Turndown	2 - 30 $m^3/h \cdot m^2$ | Turndown standard: 3:1
Design	Pan type with V-notch vapor risers.
Feed Device	For single-piece executions, an extractable feed pipe configuration is necessary to allow internal mechanical handling.
Drip Points	Delivers up to 50 drip points/m^2.
Construction Type	Provided as a single piece (One-piece) for flanged columns or split into multiple pieces for towers with access manways (diameters > 800 mm). Supported by shell-welded clips or directly by the structured packing bed. Levelling is achieved via calibrated washers at the clip positions.

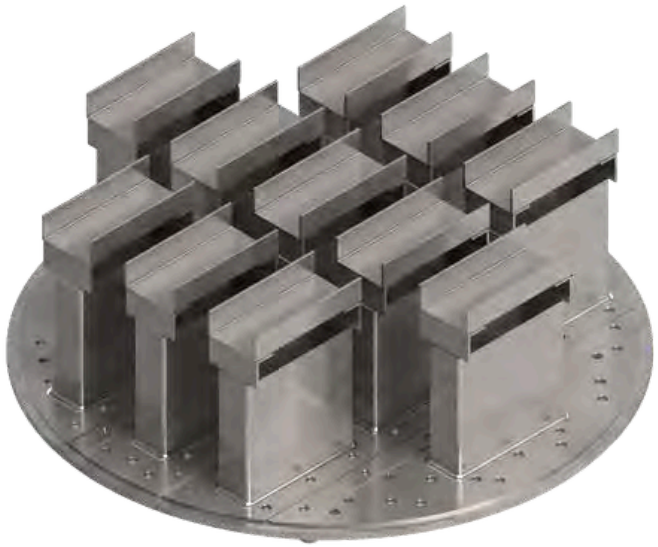
DECK TYPE DISTRIBUTORS

Model B-116 / B-117

Deck-type liquid distributor optimized for medium-to-large columns handling high liquid rates. The liquid handling capability is optimized, but the hydraulic performance heavily relies on the column's horizontal leveling.
Model B-117 includes vapor caps/hats acting as a redistributor from the upper bed.

Technical Specifications

Diameter range	>= 900 mm
Rates & Turndown	> 30 $m^3/h \cdot m^2$ | Turndown standard: 2:1 (Higher ratios achieved with taller vapor risers).
Design	Deck type (square pattern punched in the distributor deck with integrated vapor risers).
Feed Device	Pipe distributor type B-119 for liquid feed; flashing device type B-955 for two-phase/flashing feed.
Drip Points	Provides 70 - 100 drip points/m^2.
Construction Type	Sectional design composed of multiple parts bolted together to fit through column manways. Supported on a continuous support ring welded to the shell; additional gussets and major support beams are mandatory if the tower diameter exceeds 2500 mm.



DECK TYPE DISTRIBUTORS

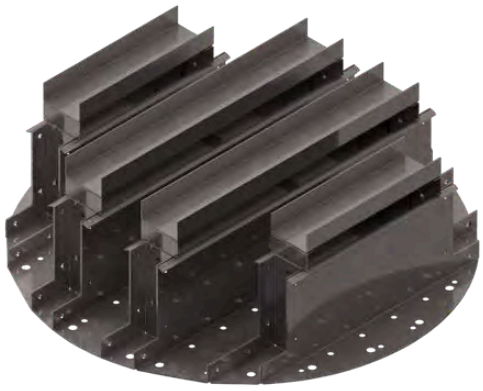
Model B-816 / B-817

Medium-to-high-capacity deck liquid distributor designed for stable uniform distribution over packed sections. Perforations are punched in a uniform square pitch.
Model B-817 includes an auxiliary redistributor system with vapor hats.

Technical Specifications

Diameter range	> 800 mm
Rates & Turndown	4 - 150 $m^3/h \cdot m^2$ | Turndown standard: 2:1
Design	Deck type.
Feed Device	Pipe distributor type B-119 or flashing device type B-955.
Drip Points	Maintains 70 drip points/m^2.
Construction Type	Multi-segment bolted construction. Rests on a standard support ring; if the tower diameter exceeds 2500 mm, auxiliary support beams and shell gussets are added. Levelness is structurally bound to the support ring tolerance.

B-816 variant with tubes



B-817

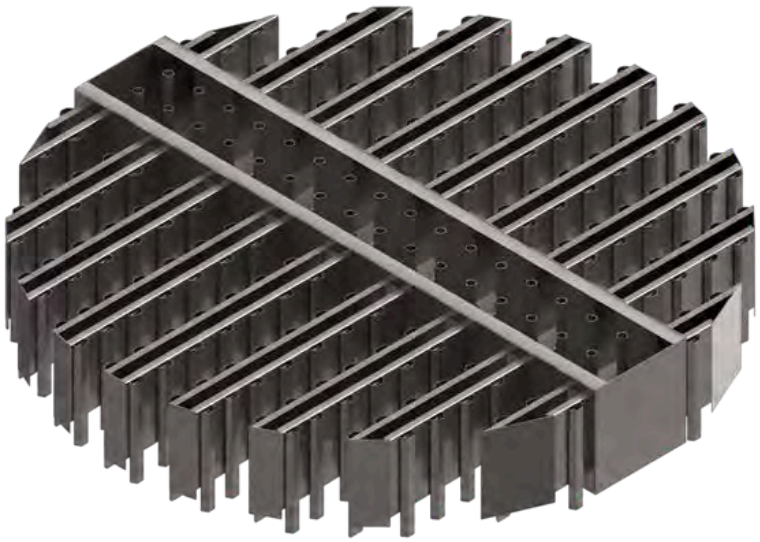
TROUGHT TYPE DISTRIBUTORS

Model B-136 / B-137

High-performance trough-type liquid distributor offering extreme process flexibility and outstanding cross-sectional distribution uniformity. This model need a liquid collector to be installed as redistributor. Features side perforations engineered to be >= 5 mm in diameter and located at a minimum of 50 mm from the trough bottom to create a dedicated solids-settling sump, preventing early clogging
Model B-137 features an integrated redistributor system.

Technical Specifications

Diameter range	>= 1000 mm
Rates & Turndown	0.8 - 30 $m^3/h \cdot m^2$ | Turndown standard 2:1 (Engineered up to 10:1 max, and > 4:1 via multi-level holes).
Design	Trough type (orifices are punched exclusively on the vertical sides of the troughs).
Feed Device	Liquid feed: pipe distributor type B-119; Flashing feed: flashing device type B-955.
Drip Points	Standard design delivers 100 drip points/m^2.
Construction Type	Sectionalized design with multiple parts bolted to the main central trough. An adjustable levelling method is incorporated directly onto the support beams, which rest on gussets welded to the tower shell.



DECK TYPE DISTRIBUTORS

Model B-186 / B-186L

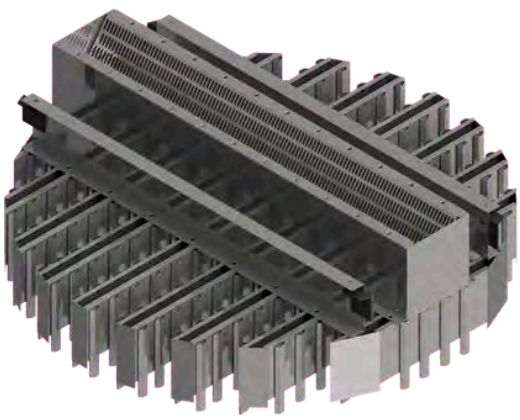
Advanced dual-level trough liquid distributor engineered for large-scale fractionation columns. It features a primary overhead parting box that hydraulically dampens and distributes the incoming liquid feed uniformly into the lower secondary troughs. Model B-186 L is equipped with advanced square spoons that function as drip point multipliers to maximize irrigation density.

If intermediate feed is present alongside liquid from an upper bed, an auxiliary collector tray must be positioned above it.

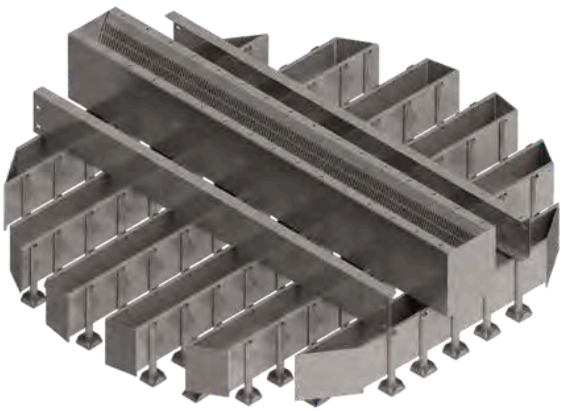
High resistance to fouling. The dual-level design effectively traps particulate matter in the parting box, keeping the lower secondary distribution orifices clean and operational.

Technical Specifications

Diameter range	> 1000 mm
Rates & Turndown	0.8 - 30 $m^3/h \cdot m^2$ | Turndown standard 2:1 (Up to 10:1 max, and > 4:1 via multi-level side orifices).
Design	Trough type (Two-level configuration: Parting Box + Troughs).
Feed Device	Pipe distributor type B-119 or flashing device type B-955.
Drip Points	Standard design is for 100 drip points/m2. B-186 L model has square spoons drip point multiplier.
Construction Type	Sectional construction supplied in lightweight parts engineered to easily pass through the standard column manways. Supported by levelling beams resting on shell-welded clips.



B-186



B-186L

DECK TYPE DISTRIBUTORS

Model B-806 (Weir Notch Trought)

Severe-fouling channel distributor specifically engineered to operate under heavily contaminated process conditions. The liquid leaves the main distribution channels via large, vertically cut V-notches along the weir sides.
This model is purposely targeted for non-fractionation layouts. Exclusively recommended for refinery wash sections, crude column bottoms, and slurry systems where heavy particulates would instantly foul high-efficiency orifice distributors.
Maximum resistance to fouling. Open weir geometry cannot clog.

Technical Specifications

Diameter range	> 1000 mm
Rates & Turndown	4 - 150 $m^3/h \cdot m^2$ | Turndown standard: 3:1
Design	Trough type with vertical weir notches.
Feed Device	Secondary distribution channels are fed via one or two primary parting boxes, served by B-119 pipe headers or B-955 flashing inlets.
Drip Points	Max irrigation density is up to 60 drip points/m^2.
Construction Type	Sectional channels resting on a column support ring and structural beams, with reinforcing shell gussets required for column sizes > 2500 mm.

BARETTI VALUE-ADDED SERVICES

Advanced Hydraulic Testing	Each distributor is individually inspected and hydraulically tested on Baretti's proprietary in-house testing platform, specifically engineered to accommodate equipment up to 12 meters in diameter and flow capacities exceeding 500 m^3/h. This rigorous validation process guarantees complete elimination of flow maldistribution prior to shipment and on-site installation.
Precision Manufacturing (Punching vs. Conventional Drilling)	All gravity perforations on Baretti trays and channels are executed exclusively through high-precision mechanical punching technology. Conventional drill-bit machining is strictly avoided in order to eliminate burrs and surface irregularities that could negatively affect the hydraulic discharge coefficient and compromise distribution performance.

Model B-896 Equilizer-Vapor Distributor Tray

The B-896 tray has the function of vapor distributor and collector tray.
Typical application is below packed beds, to distribute the vapor and collect the liquid to be drawn-off or redistributed to a lower bed.
The operation of B-896 is not affected by a possible out of levelness of the support ring.

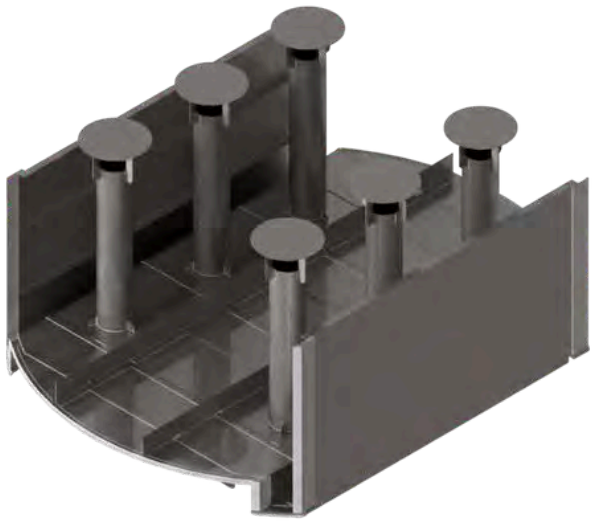
Technical Specifications

Diameter range	> 1000.
Rates & Turndown	20.5 - 100 $m^3/h \cdot m^2$
Design	The distributor is designed to generate a controlled pressure drop through the risers that makes the vapor spread across the entire section of the column.
Construction Type	Like a chimney tray, B-896 is designed to pass the column manway and to be bolted and gasketed together.

Customization & Available Options

Upon customer request, all our chimney trays and liquid collectors can be custom-designed and manufactured with:

- **Round or rectangular risers** (chimneys) to optimize vapor distribution;
- **With or without side sumps** (draw-off boxes) for liquid extraction.

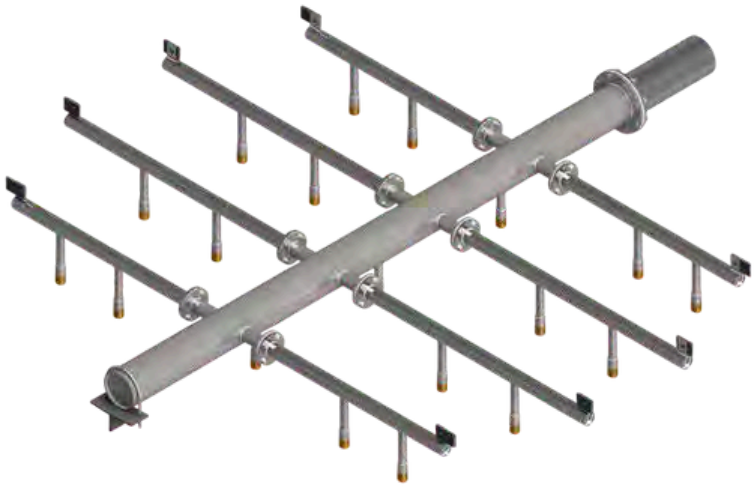


Model B-1044 (Liquid Spray Header for Packings)

Full-pressure liquid spray manifold system composed of a heavy flanged main header pipe and secondary lateral branches carrying precision-engineered pressure spray nozzles. This model bypasses gravity mechanics entirely, using fluid kinetic energy to atomize and spread the liquid over the packing.
Primary applications include heat transfer beds, pumparounds, cooling/quench towers, and gas scrubbing systems. Manifold are designed in order to have a bigger overlap of the liquid distributed by the spray nozzles.

Technical Specifications

Diameter range	> 1000 mm up to > 10000 mm (4 structural sizes: 7, 19, 37, or 61 nozzles).
Rates & Turndown	0.5 - 150 $m^3/h \cdot m^2$ | Turndown standard: 2:1
Design	Spray Nozzle
Feed Device	Integrated directly into the column flanged liquid inlet nozzle.
Drip Points	Performance relies entirely on the spray nozzle orifice diameter. Nozzles operate at a standard delta P of 1.5 bar with wide spray angles (60° - 120°).
Construction Type	Rigid flanged piping grid. The main header and side branches are anchored to the column shell via heavy mechanical gussets to withstand severe fluid momentum and cyclic hydraulic vibration.

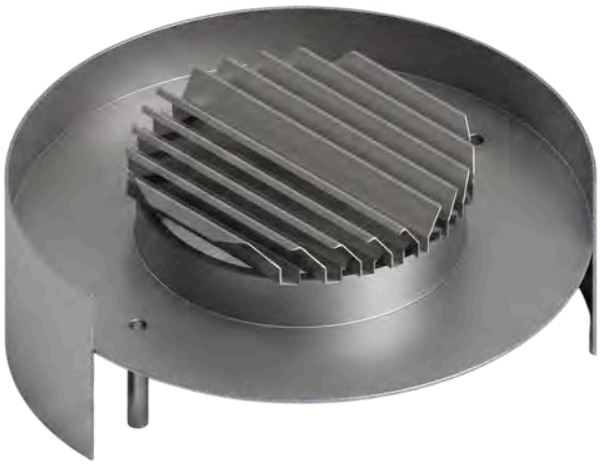


Model B-633 Chevron Liquid Collector

The B-633 Chevron Liquid Collector is an advanced, high-capacity internal designed specifically to collect liquid draining from an upper packed bed. Thanks to its specialized chevron-blade geometry, it offers an the high open area can ensure minimun pressure drop, making it ideal for minimizing column pressure drop (ΔP) is highly critical.

Technical Specifications

Diameter range	> 1000 mm
Rates & Turndown	0.5 - 30 $m^3/h \cdot m^2$
Design	Chevron low-pressure drop liquid collector tray.
Draw off System	Sump and draw-off nozzle arrangement, height and clearance depend on service specifications.
Open Area	Extremely high open area resulting in minimal gas pressure drop.
Construction Type	Sectional design composed of multiple parts to pass through standard column manways, bolted to a circular support trough welded to the column shell. Available in light-gage metal for collection only, or heavy-duty structural execution to act simultaneously as a support grid for the upper structured packing bed.



Model B-733 Trought Liquid Collector

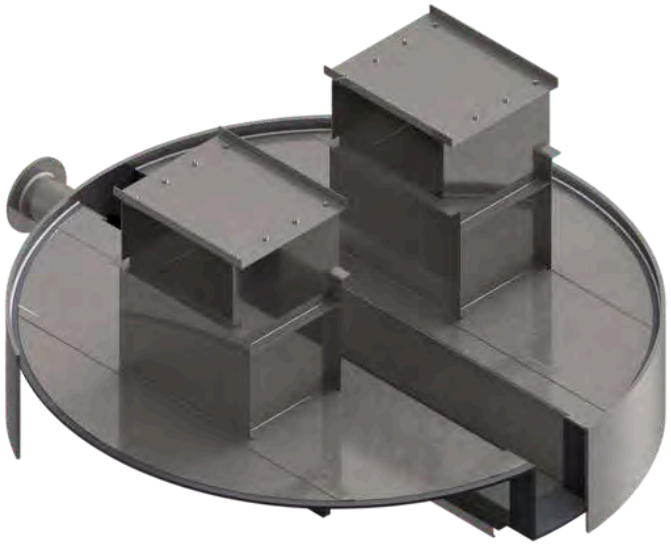
The B-733 Trough Liquid Collector is a low-hold-up system engineered specifically for thermal-sensitive chemical applications where liquid stagnation could cause product degradation, cracking, or rapid polymerization.

The sloped side channels instantly capture the liquid falling from the bed and route it aggressively into the main central trough for partial or total extraction into the draw-off sump.

Offers a **high resistance to fouling** due to its open-channel layout, ensuring reliable, obstruction-free liquid collection even when processing streams contaminated with solid fines or polymer flakes.

Technical Specifications

Diameter range	> 1500 mm
Rates Range	0.5 - 100 $m^3/h \cdot m^2$
Design	Channel/trough type liquid collector tray.
Draw off System	Center or side draw-off main trough paired with a fast-drainage sump.
Open Area	Maximized gas passage area between individual collecting channels. Includes a custom-tailored wall wiper (welded or expandable) to catch liquid falling along the shell.
Construction Type	Sectional side collecting channels bolted directly to one or more primary central troughs and clamped to a standard support ring. This modular layout completely eliminates internal seal-welding inside the column, making it the perfect choice to minimize installation down-time or hot-work.



Model B-833 Chimney Tray

The B-833 Liquid Collector Tray is a high-volume chimney deck designed for absolute total liquid draw-off or heavy pumparound loops where significant liquid hold-up is mandatory. The available liquid residence time is proportional to the chosen height of the chimney stacks.
Rising vapor passes through the vertical risers and is redirected by the top hats, while all falling liquid is trapped on the deck floor.

Technical Specifications

Diameter range	> 1000 mm
Rates Range	Custom-engineered for high-volume total draw-off or pumparound loops
Design	Deck-type chimney liquid collector tray equipped with riser hats.
Draw off System	Side or center draw-off trough connected to an external process nozzle.
Open Area	Gas open area ranges from 20% for pressurized column applications up to 40% for specific vacuum process operations.
Construction Type	Multi-segment deck design passing through column manholes, where the riser hats can double as internal manways for maintenance. Standard execution strictly requires full seal-welding inside the column shell to minimize internal liquid leakage, although a gasketed modular design is optionally available.

Customization & Available Options

Upon customer request, all our chimney trays and liquid collectors can be custom-designed and manufactured with:

- **Round or rectangular risers** (chimneys) to optimize vapor distribution and for this specific case, risers can be straight or shaped
- **With or without side sumps** (draw-off boxes) for liquid extraction.

GAS INLET SYSTEM

Model B-196 Vapor, Liquid, or Flashing Feed Streams

The B-196 Vapor Feed Diffuser consists of a robust perforated primary pipe where incoming high-velocity vapor is dynamically deflected and expanded upwards. This specific layout is purposely engineered to dissipate the massive kinetic energy of the vapor stream.

Technical Specifications

Diameter range	> 1000.
Rates & Turndown	Designed for Vapor Feed lines
Design	Main feed pipe with perforations in the upper part.
Feed Device	Integrated directly into the column flanged liquid inlet nozzle.
Construction Type	Sectional construction supplied in lightweight parts engineered to easily pass through the standard column manways. A gusset welded to the column wall is necessary to provide additional resistance against possible vibrations.

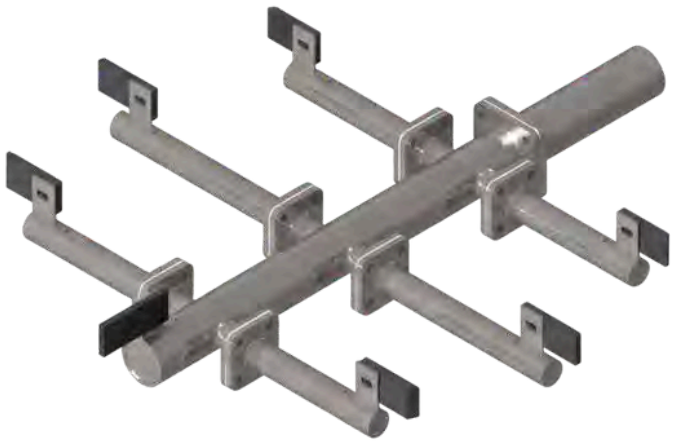
GAS INLET SYSTEM

Model B-198 Vapor, Liquid, or Flashing Feed Streams

The B-198 Pipe Arm Vapor Distributor is a high-efficiency gas manifold network engineered with a central main header feeding multiple perforated lateral branches. The calculated perforation layout is custom-tailored to distribute the rising vapor uniformly throughout the entire cross-sectional column area.
Crucial internal positioned at the very bottom of a packed column. It ensures that the rising gas approaches the packed bed above with a perfectly uniform velocity profile, preventing localized gas channeling and maximizing overall packing performance.

Technical Specifications

Diameter range	> 1000.
Rates & Turndown	High volume vapor distribution layout
Design	Pipe arm vapor distributor (main horizontal header equipped with multiple secondary lateral branches)
Feed Device	Integrated directly into the column flanged liquid inlet nozzle.
Construction Type	Branched manifold framework supplied in bolt-together flanged modules for internal assembly. Supported and braced to the column shell via structural gussets to suppress potential hydraulic whistling or structural vibrations.



GAS INLET SYSTEM

Model-119 Straight Pipe

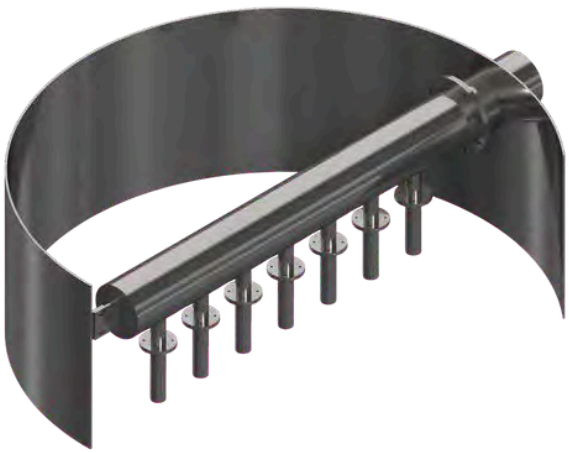
Model-129 T-Pipe

Model-129 H-Pipe

Straight Pipe, T-Pipe, and H-Pipe distributors are employed to introduce liquid uniformly onto the top tray of tray columns.
The pipe type is selected according to the number of tray passes, providing balanced liquid flow, adequate coverage of the tray inlet area, and stable column performance over the operating range.

Technical Specifications

Diameter range	Variable-geometry design: custom-engineered to fit any tower dimension with a heavy-duty structural support system
Rates & Turndown	Fully scalable across highly variable hydraulic envelopes | Turndown ratio: Custom-engineered up to or higher.
Design	Adjustable linear, T-shaped, or matrix branched manifold layout with variable pitch or variable-size calibrated orifices.
Feed Device	Integrated directly into the column flanged liquid inlet nozzle.
Drip Point	Tailor-made distribution matrix dynamically adjusted to match the required underlying internal zoning.
Construction Type	For straight pipe model a gusset welded to the column wall is necessary to provide additional resistance against possible vibrations. Suitable gussets and clips are provided for T and H-Pipe models.



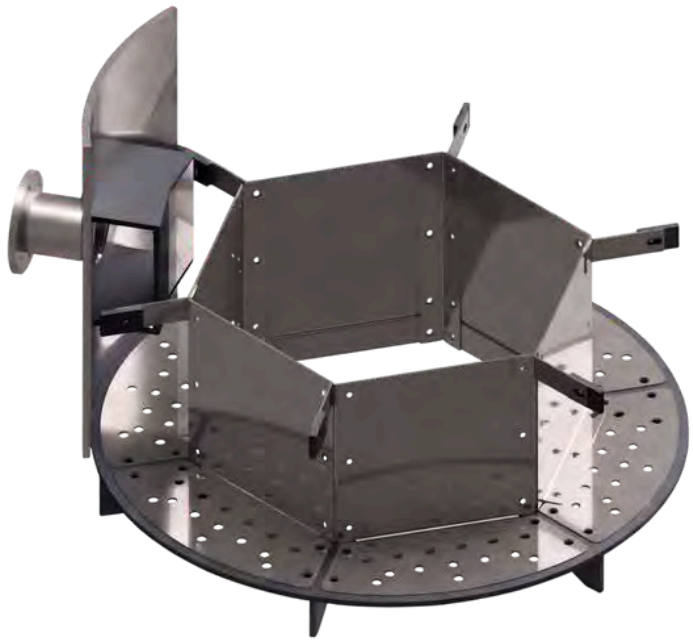
FLASH INLET SYSTEM

Model B-755 Flashing Feed Gallery

Designed for columns with diameters > 1000 mm, the Flashing Feed Gallery provides effective pre-distribution of two-phase feeds and promotes, in adequate residence time, smooth vapor-liquid disengagement before the process sections.

Technical Specifications

Diameter range	Feed Device for two phases inlet which allow fluids to flash in to the column section, **Diameters >1000 mm**.
Rates & Turndown	Liquid enters the column through an inlet nozzle. After gas disengagement, the clear liquid flows through the Gallery deck holes to a distributor below the deck.
Support	Support ring and gussets welded to shell for support beams (if needed).
Construction Type	The Flash gallery is supplied in parts to pass through the column manways, bolted each other and clamped to the support ring.



FLASH INLET SYSTEM

Model B-855 Flashing Feed Chamber

Designed for columns with diameters < 1000 mm, the Double Chamber provides compact and efficient separation of flashing two-phase feeds before their introduction into the column.

Technical Specifications

Diameter range	Feed Device for two phases inlet which allow fluids to flash in to the column section, **Diameters <1000 mm**.
Rates & Turndown	The feed is introduced into the double chamber, where the two phases are separated by centrifugal action.
Support	Flanged to the inlet nozzle.
Construction Type	The unit is supplied in one piece.

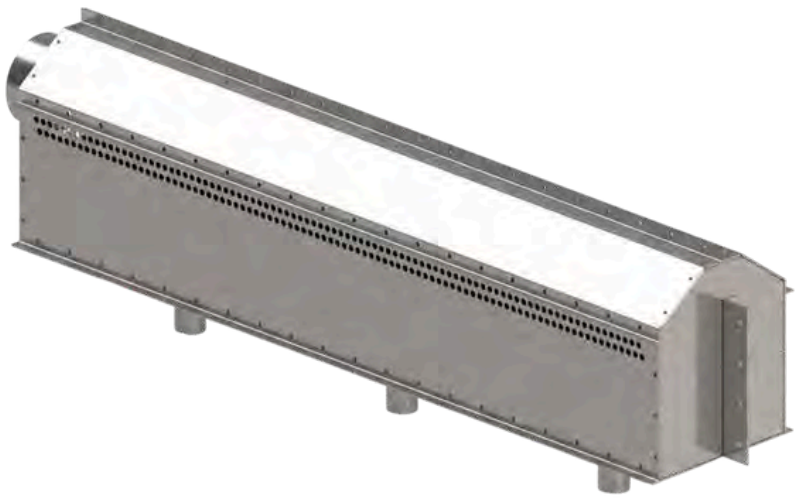
FLASH INLET SYSTEM

Model B-955 Flashing Feed Pipe

Designed for columns with diameters > 1000 mm, the Feed Pipe Device ensures effective pre-separation of flashing two-phase feeds, reducing inlet momentum and improving flow distribution within the column.

Technical Specifications

Diameter range	Feed Pipe Device for two phases inlet which allow fluids to flash into the column section. **Diameters > 1000 mm**.
Rates & Turndown	The mixed phase enters the internal pipe and the vapor is discharged from the upper slots while the liquid flows through the holes in the bottom of the pipe.
Support	A gusset welded to column wall is necessary to provide additional resistance against possible vibrations.
Construction Type	The unit is supplied in one piece.



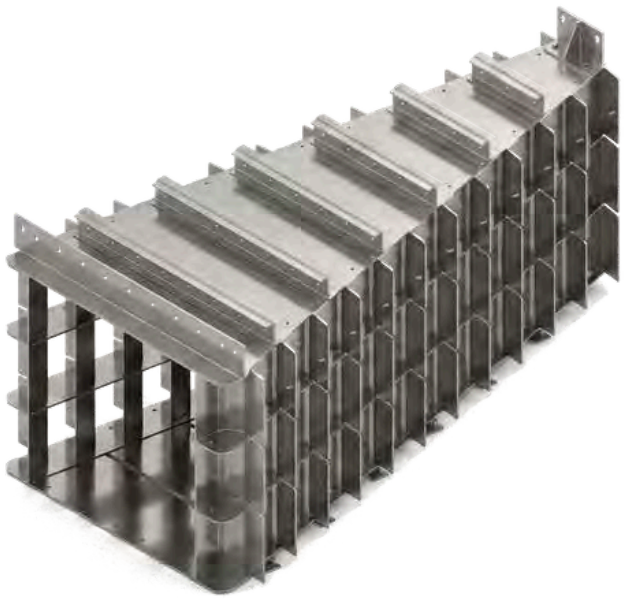
FLASH INLET SYSTEM

Model B-960 Inlet Vane Distributor

The B-960 Distributor is equipped with vane-type blades that redirect and uniformly distribute the incoming flashing feed across the tower area. It is commonly used as a feed inlet device in **crude vacuum and atmospheric towers**, tipically for two-phase inlet where a radial inlet configuration is preferred over a traditional tangential entry.

Technical Specifications

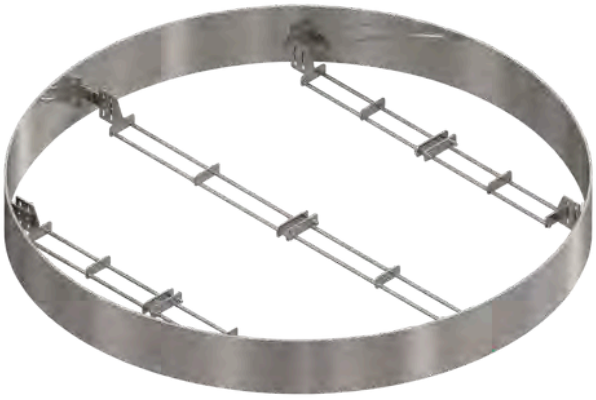
Diameter range	Vane type inlet distributor. **Diameters > 1000 mm**.
Rates & Turndown	Upon entering the flashing device, the two-phase mixture is redirected by the lateral blades. Chamber is tapered to maintain equal velocity in each section.
Support	The device is secured by a support welded to the shell at the nozzle inlet and reinforced by gussets on the opposite side to ensure sufficient resistance to vibration.
Construction Type	The unit can be supplied in one piece if it passes through the manway. Otherwise, the blades can be supplied in pre-welded groups to be bolted to the casing.



Model B-133 Structured Packing Bed Limiter

Technical Specifications

Type	Structured Packing use only.
Support	Slotted support clips to properly rest the grid above the structured packing bed.
Design	This hold down grid can be provided in two different styles: -B-133 present metal bars; -B-133-R present metal rods.
Applications	Mainly used to maintain in position structured packing bed. Option with rods is purposely designed to offer the least disturbance to the irrigation of the bed.



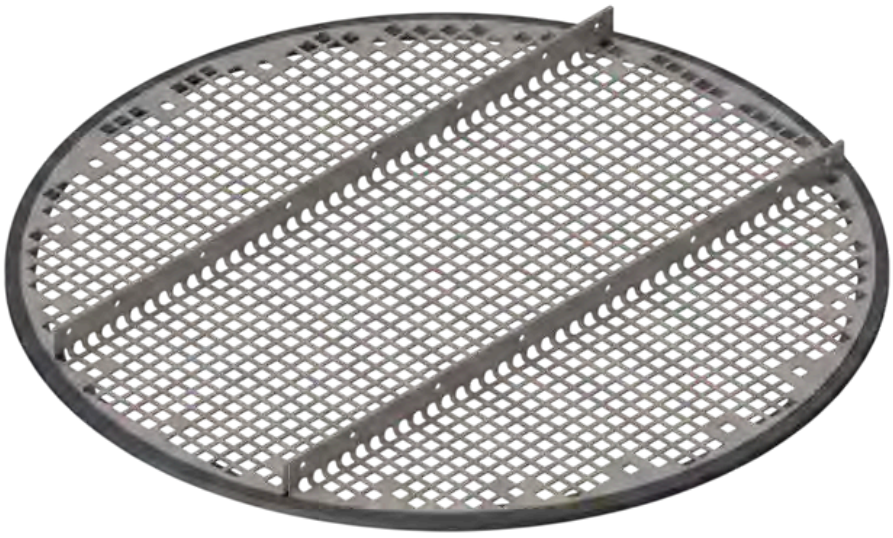
over 2 mt

till 2 mt

Model B-823 Random Packing Bed Limiter

Technical Specifications

Type	Perforated metal sheet proportionally to the packing dimension, to maximize vapor flow.
Support	Support Ring welded to shell. If needed a support beam, with its clips and supports welded to column wall, can be added below the grid.
Design	This hold down grid can be provided in two different styles.
Applications	Mainly used to contain all the packing rings in the bed section.



Model B-134 Structured Packing Support Grid

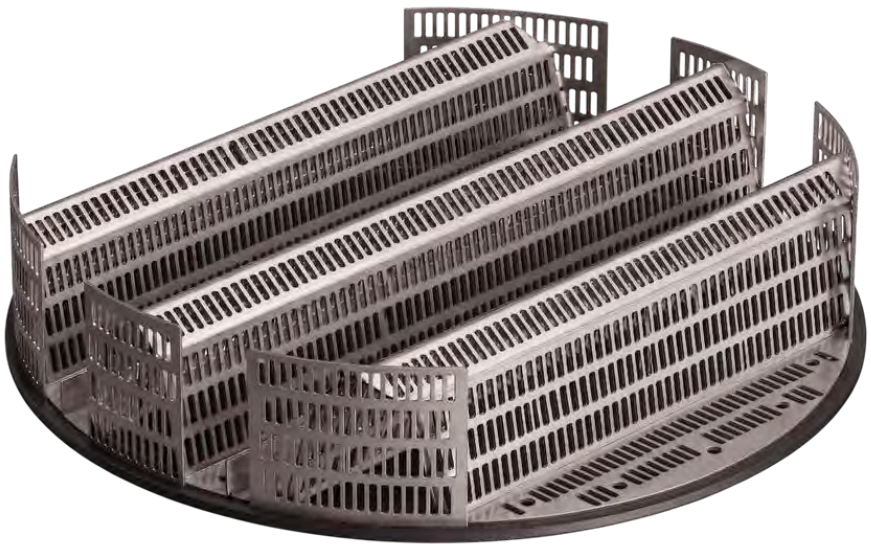
Technical Specifications

Type	Structured Packing use only.
Open Area	98%.
Support	Device clamped to the support ring welded to the shell.
Design	This device is supplied in parts to pass through the column manway. The support grid shall be designed to safely carry the load of the structured packing, with appropriate mechanical design calculations to ensure structural integrity under operating conditions.

Model B-804 Random Packing Support Plate

Technical Specifications

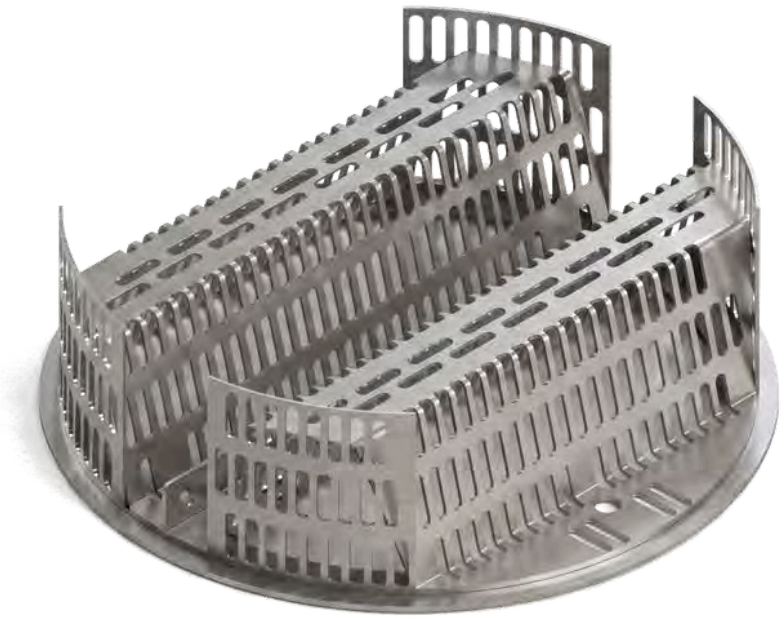
Type	Random Packing use only **Diameters > 1000 mm**.
Open Area	Can exceed 100% offering the least disturbance to vapor flow.
Support	Device clamped to the support ring welded to the shell.
Design	This device is supplied in parts to pass through the column manway. The support grid shall be designed to safely carry the load of the random packing, with appropriate mechanical design calculations to ensure structural integrity under operating conditions.



Model B-818 Random Packing Support Plate

Technical Specifications

Type	Random Packing use only **Diameters > 1000 mm**.
Open Area	Can exceed 100% offering the least disturbance to vapor flow.
Support	Device clamped to the support ring welded to the shell.
Design	This support grid is specific for small diameter columns. Can be provided for any material and size of packing.



Baretti®
EQUIPMENT FOR OIL AND CHEMICAL INDUSTRIES

HEADQUARTERS & MANUFACTURING
Baretti Mefe S.r.l.,
SS 415 Loc. Ponte Adda snc
26016 Spino d'Adda (CR)
Italia

FRENCH SALES OFFICE
Baretti Sarl,
1 Avenue de l'Homme à la Fenetre
ZI La Valampe Lot 6B
13220 Chateauneuf les Martigues
France

EMAIL
info@baretti.it

info@baretti.fr

PHONE
+39 0373 96701

+33 4 42 34 60 97

WEBSITE
www.baretti.it

ISO 9001:2025 | ISO 14001:2015