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WATER TECHNOLOGIES

PERMUTIT® DUAL VELOCITY STRAINERS

Permutit® Dual Velocity Strainers offer efficiencies directly measurable in process performance, time savings and operating costs when used within new ion exchange equipment or retrofitted into existing systems. For long-term operation, the strainer assembly, including the fittings, is constructed of stainless steel and the float valve is constructed of high density polyethylene. Using a proprietary design, our Dual Velocity Strainer:

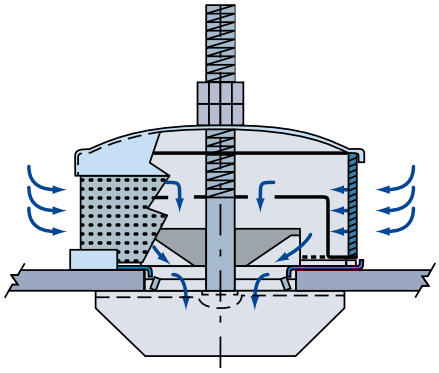
- Reduces regeneration time and extend service runs by up to 25%
- Provides superior retention of the ion exchange media
- Ensures uniform collection of the demineralized water with low head loss during the downflow service cycle
- Provides high velocity flow for positive flushing and separation of the mixed resins
- Offers optimum regenerant distribution and contact during backwash and regeneration (upflow operation)

Dual Velocity Strainers can be used in double dish underdrain systems, mixed bed demineralizers, the regenerators of condensate demineralizing systems and counterflow regenerated ion exchange equipment. During the downflow Service cycle, water flows downward through the ion exchange bed to the Dual Velocity Strainers which are mounted on top of the double dish underdrain system. The demineralized water passes through the full area of all strainer wall slots into the strainer and then flows out the bottom to service. Head loss is minimal.

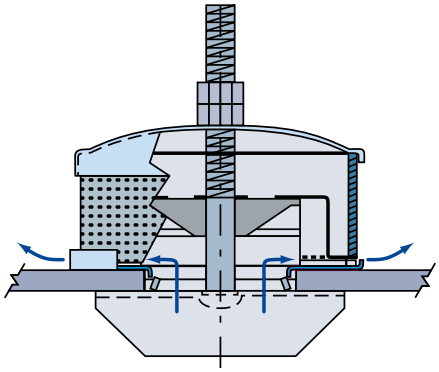
Advantages

- Shortens regeneration times
- Extends service runs
- Provides superior flushing of the resins
- Separates the mixed resins more efficiently
- Offers no dead spots between the strainers
- Optimizes regenerant and resin contact
- Provides low head loss in service

During the upflow Backwash and Regeneration cycle, water enters from the bottom of the strainer. This lifts the float valve which then closes flow to a large area of the screen and directs the water through slots in the high velocity ring at the bottom of the strainer. The water or regenerant then exits from the restricted area as high velocity jets that sweep laterally over the entire bottom of the vessel. This action achieves rapid and very thorough backwash, resin separation and regenerant contact.



Dual Velocity Strainer — Service



Dual Velocity Strainer — Backwash and Regeneration

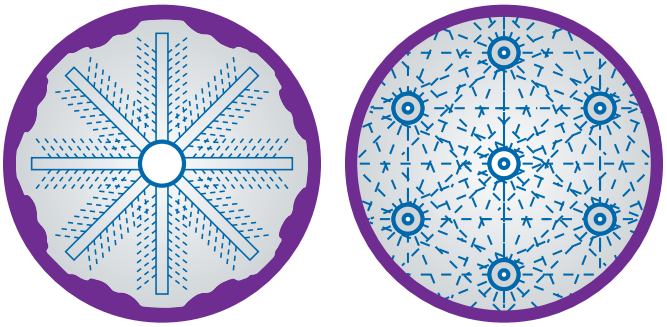
CONVENTIONAL HUB—RADIAL DISTRIBUTION SYSTEMS

During backwash, water coverage of the bottom of the vessel is effective from the center, but decreases as the radials approach the wall of the vessel. Undisturbed resin clumps occur around the wall of the vessel, particularly between the radials, and resin separation is incomplete. Generally, this is characteristic of radial and lateral type distribution systems.

DUAL VELOCITY STRAINER SYSTEMS

The Dual Velocity Strainers are arranged in a consistent pattern on the bottom of the vessel. During backwash, 16 jet streams fan out in a 360° pattern from the base of each of the strainers. The high velocity jets flush all areas of the bottom of the vessel and leave no undisturbed resin. Backwash and separation is complete. Similarly, regenerant distribution and contact is complete during regeneration.

Commonly used in many demineralizers, a standard 3-1/4" screen type strainer was compared to the Permutit® Dual Velocity Strainer.



Undisturbed Resin Clumps — No Undisturbed Resin

After backwashing a mixed bed of cation and anion resins for 10 minutes, resin samples were taken at levels of 1" and 3" above the floor of the vessel and the percent of cation and anion resins was measured to determine the level of resin separation. The standard strainer operated at a backwash flow rate of 5.5 gpm and resins at the 1" level were 77.6% cation and 22.4% anion; while at the 3" level, the resin content was 87.5% cation and 12.5% anion. In comparison, using the high velocity jet flow operation, the Permutit Products Dual Velocity Strainer operated at 3.5 gpm flow rate and resin separation was 99% cation and trace % anion. In the resin peaks commonly found along the walls of demineralizers, separation using the standard strainer was 73% cation and 23% anion; while the Dual Velocity Strainer achieved separations ranging from 94 to 97% cation and 3 to 6% anion.

For additional information or to discuss your specific application, please call us at 866.926.8420.

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